

This is Gemini Launch Control. We are coming up on T-280 minutes and counting. Mark, 280 minutes and counting on the Gemini 7 mission. Our countdown has been proceeding excellently throughout last evening and this morning. As far as the terminal phase of the count is concerned we picked up with the launch vehicle at T-360 minutes and counting at 8:30 a.m. EST. The launch vehicle is due to join us in the terminal count at the T-240 minute mark which is four hours before launch and here at the Cape will be 10:38 a.m. EST. As far as our checkouts late last evening and this morning have gone, everything has been going well. We loaded the propellants aboard the Titan II launch vehicle starting about 10 p.m. last evening. This operation took a little less than four hours. Following the successful completion of the propellant loading, we then began to top off the liquid hydrogen bottle that services the fuel cell. This is the liquid hydrogen that is fed into the fuel cell during the flight. This all went well and an hour and 15 minutes after we started feeding in the liquid hydrogen we were ready to go. All systems still looking good at the present time. Astronauts Edward White and Michael Collins came aboard the Gemini 7 spacecraft about 8 o'clock this morning. An half an hour prior to that time they had a nice big breakfast of steak and eggs. These are the backup pilots, Astronauts Edward White and Mike Collins. The prime pilots of the mission, Frank Borman and Jim Lovell had a late breakfast this morning at about 7:30. This consisted of some toast, orange juice and some coffee. They expect to have their big breakfast about 35 or 40 minutes from now. All systems still looking good at the launch pad and we understand everything is going well in the crew quarters. As far as our weather situation is concerned, which is the final point of this first report. We do have cloudy weather in the Cape area. We expect it will be with us most of the day. However, at the present time, although there are some scattered showers we expect we are just about getting the worst of the situation at the present time and the rain should leave us later in the morning. We presently have cloudy conditions but we do have a ceiling of about 10,000 feet which would be very acceptable for launch. Clouds are expected to remain with us but it is not considered to be a problem. As far as the remainder of the Gemini Tracking Network is concerned weather is

acceptable for launch in all areas. If Frank Borman and Jim Lovell are launched on time today, they may get a good look at a cyclone condition that is in the Indian Ocean just south of the equator. We are at T-277 minutes and counting. This is Gemini Launch Control.

MISSION COMMENTARY, 12/4/65, 9:19 a.m.

Tape 2, Page 1

This is Gemini 7 Launch Control. We are just under T-250, 51 minutes and counting, T-251 minutes and 23 seconds and counting at the present time. Our countdown on the Gemini 7 mission is proceeding satisfactorily. Everything looks good. There are no known problems at the present time. At the launch pad they are looking forward in some 10 to 12 minutes to having the launch vehicle join the spacecraft in the so-called "terminal phase" of the Gemini 7 count. In the white room at Launch Complex 19 Astronauts Edward White and Mike Collins, the backup pilots of the Gemini 7 mission are in the spacecraft checking out various systems. Early this afternoon they will be ready to report to the prime pilots, Frank Borman and Jim Lovell on the status of the Gemini 7 spacecraft. Everything looking good at the present time. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. We are now at T-239 minutes, 15 seconds, and counting. At this stage in the Gemini 7 countdown, the launch countdown has just joined the spacecraft count which, of course, has been proceeding for about an hour at this time. We are now in a so-called terminal count with the launch vehicle and the spacecraft counting simultaneously and we are making various verifications between the spacecraft and the launch vehicle to be sure that the interface is all going well. Our countdown continues to proceed excellently. Everything looking good at the present time. This is Gemini Launch Control.

END OF TAPE

This is Gemini 7 Launch Control, with a T-211 minutes and counting. It's coming up on 1 minute before the hour. Our countdown on the Gemini 7 mission is proceeding normally. Astronauts Frank Borman and Jim Lovell completed their physical exam and were reported in good shape. The astros were reported in high spirits as they came back from the examination room to their quarters to have their breakfast. They are having breakfast now with some 12 to 13 guests. We hope, in a short while, to give you a complete list of the guests who did have breakfast with astronauts Borman and Lovell. Jim Lovell, as he came back to the crew quarters, did comment to a few people in the hall that he was looking forward to a good long flight. Everything proceeding normally at the present time on Gemini 7. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. Now T-195 minutes and counting. All proceeding normally in the Gemini 7 countdown at the present time. We have been informed that Astronauts Frank Borman and Jim Lovell, the prime pilots of the 7 mission have departed from the crew quarters and are now on their way to the Launch Complex 16 trailer where they will put on their lightweight space suits and be ready for the call to go to the pad a little later in the countdown. Borman and Lovell took their physical at about 40 minutes ago, they were in good shape, then they went down to have breakfast with 10 of their Astronaut colleagues. The breakfast menu consisted of the following: Tenderloin steak, eggs, toast, assorted jelly, orange juice and coffee.. Borman and Lovell had had a light breakfast shortly after they got up, a little bit after 7 a.m. e.s.t. this morning. That light snack consisted of orange juice, coffee, and toast. To repeat the menu at the breakfast that just ended some 15 or 20 minutes ago, it consisted of tenderloin steak, eggs, toast, assorted jelly, orange juice and coffee. Attending the breakfast with Astronauts Borman and Lovell were the following NASA Astronauts: John Young, Pete Conrad, Richard Gordon, Donald K. Slayton, David Scott, Neil Armstrong, Gus Grissom, Alan Shephard, Wally Schirra, and Tom Stafford. The latter two, Schirra and Stafford of course, are the pilots for the Gemini 6 mission which will be scheduled some 9 days after the Gemini 7 lift-off. Neil Armstrong and Dave Scott are the pilots who are assigned to the Gemini 8 mission which will follow the 7 and 6 flights. That was the list of the Astronauts who attended breakfast. As far as assignments go, the Gemini 6 pilots, Wally Schirra and Tom Stafford, and the Gemini 8 pilots, Neil Armstrong and Dave Scott, will be observing the launch from locations at the Cape. They are not designated at the present time. They do not have any specific duty assignments concerned

MISSION COMMENTARY, 12/4/65, 10:15 a.m.

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with the Gemini 7 mission. Our countdown continues to proceed satisfactorily. Everything looking good at the present time. We are in the process of clearing the Launch Complex at Pad 19 in preparation for the launch vehicle pressurization which will occur some 30 minutes from this time. The blockhouse doors will be sealed, and the pressurization of the nitrogen aboard the launch vehicle to pressurize the fuel system will begin. Everything still looking good at the present time. Coming up on 192 minutes and counting. This is Gemini Launch Control.

END OF TAPE.

This is Gemini Launch Control now coming up on T-173 minutes and counting. We are just a little less than 3 hours from the launch of Gemini 7 at the present time. The prime pilots, Frank Borman and Jim Lovell, have now arrived at the suit trailer at Launch Complex 16 where they will don their lightweight suits in preparation for the flight. At Launch Complex 19, the blockhouse door is still sealed. All personnel are still off the pad as we complete our pressurization of the II Stage Titan 2 Launch Vehicle. This is pressurizing the Launch Vehicle propellants in both stages with nitrogen in order to get the propellant system at the proper stage for launch. All systems still going well at the present time. We have no known problems on the count at the present time. Now T-172 minutes, 10 seconds, and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. We are coming up on T-160 minutes and counting. Mark! T-160 minutes and counting on the Gemini 7 mission. Everything is still proceeding excellently at the present time both at Launch Complex 19 and in the suit trailer where the prime pilots, Frank Borman and Jim Lovell are now checking out their lightweight suits, donning them in preparation for coming to the Launch Pad later on this morning. Everything is going very well at the present time. The backup pilots for Gemini 7, Astronauts Ed White and Mike Collins, have returned to the Gemini 7 spacecraft. They were out for some 50 minutes while the Titan II launch vehicle below them was being pressurized. The pad has to be cleared during this period as we feed the nitrogen pressure into the launch vehicle tanks. Everything looking very well at the present time. Both White and Collins are checking with the blockhouse. They are checking out their communications systems in preparation for a series of switching tests within the spacecraft. This is actually putting the spacecraft switches at the proper marks. This will be coming up some 10 or 15 minutes from now. Frank Borman and Jim Lovell, who are described as in good spirits came down to the trailer at Launch Complex 16 in their blue flight suits and they are now inside making their final preparations for the flight. We are now at T-158 minutes and 35 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control now coming up on T-119 minutes and counting. MARK, T-119 and counting, just a little bit shy of 2 hours away from the Gemini 7 launch. All conditions still going well. We have had an excellent countdown thus far this morning both with the spacecraft and the launch vehicle. The backup pilots for the Gemini 7 mission, astronauts Ed White and Mike Collins, are still aboard the Gemini 7 spacecraft making some final checks of the switches and reading out information from the spacecraft dials to the capsule communicator in the blockhouse, Astronaut Alan Bean, also reporting back to the Mission Control Center in Houston. We have received word that the activities in the suit-up trailer at Launch Complex D, Launch Complex 16 are going along fine. Astronauts Borman and Lovell have been alerted to get ready to be called to the pad very shortly. Our weather conditions seem to be improving as the time goes by this morning. We still do have overcast skies in the Cape area and they are expected to remain. But we expect a ceiling above 13,000 feet by launch time. Visibility in the Cape area at launch time should be about 10 miles. We will have winds that are light and variable. A 2-foot sea off the Cape and a temperature of about 75 degrees. Pass word around the Gemini track around the world is that the weather is acceptable in all places for launch. The Tiros weather satellite picked up a tropical disturbance in the middle of the Indian Ocean, and this has been reported, but it will not affect the flight. In fact, Astronauts Borman and Lovell may get a good look at it during some of the early phases of the Gemini 7 mission. Now coming up on T-117 minutes and counting. Everything looking well in the count proceeding at this time. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. We are coming up on T-109 minutes and counting. Mark! T-109 and counting and at this particular point in the countdown Astronauts Frank Borman and Jim Lovell, the prime pilots, are due to depart from the trailer and we have a report now that they have left the trailer and are aboard the transfer vehicle that will take them to Launch Complex 19. Everything is going well on the countdown for Gemini 7 this morning. We have had no holds and no known problems at the present time. The checkout has been very good, both with the spacecraft and with the launch vehicle. Just about 5 to 10 minutes ago, the backup pilots, Ed White and Mike Collins got out of the Gemini 7 spacecraft and they will be waiting at the pad to report to Borman and Lovell that everything is in good shape for the Gemini 7 flight at the present time. The fuel cell has gone on internal power in the spacecraft. The crew is now in the truck and they are proceeding toward Launch Complex 19. The fuel cell, as I reported a moment ago, had been on the automatic ground equipment power supply and is now on internal power within the spacecraft itself. It is completely checked out and it is giving us good readings at the present time. Now T-170 - correction T-107 minutes and 35 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. Now coming up on T-106 minutes and 2 seconds and counting. The prime pilots for the Gemini 7 mission, Frank Borman and Jim Lovell, have arrived at Launch Complex 19, are now in the elevator and going up to the white room at the Complex. As they step out they will be briefed quickly by the backup pilots, Ed White and Mike Collins, on the status. It is expected they will be told that the status is very, very good. We have had an excellent countdown as reported earlier. There are no known problems and we have not encountered any holds during the period. The elevator is now stopped at the white room level and Frank Borman and Jim Lovell have stepped into the white room. They are in their lightweight suits, they have their helmets attached. They will get a quick report at this time and board the spacecraft. Shortly after the ingress, shortly after they go over the shelf in the spacecraft, they will start making some preliminary communications checks and also some checks of the various medical systems that will be used on the flight. One of the early checks is some blood pressure checks conducted between the astronauts in the spacecraft and the medical monitors in the blockhouse. Throughout the remainder of the countdown they will be reporting both to their capsule communicator, Alan Bean in the blockhouse, and back to the Mission Control Center in Houston on the final status of the spacecraft as we proceed toward the last moments prior to lift-off on Gemini 7. The pilots will be boarding the spacecraft shortly. We are now T-104 minutes 19 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. Now coming up at T-99 minutes and counting on what has been an excellent countdown for the Gemini 7 mission this morning. The prime pilots, Frank Borman and Jim Lovell were over the hatch and into the spacecraft some 3 minutes ago. The first conversation that occurred between Borman who is designated crewman 1 in the countdown, was with the spacecraft test conductor, Mr. Fritz Widek, he spells his last name Wi - d for Donald - ek. Fritz said to Frank, "welcome aboard," Frank said "thank you, how does it look?" Widek reported back that it looks very good and on schedule. The astronauts are now starting some communications checks with both the blockhouse and with the Mission Control Center in Houston. All looking good as we approach the 98 minute mark in the Gemini 7 countdown. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control coming up on T-89 minutes and counting. T-89 minutes and counting. Everything still looking good on the Gemini 7 countdown at the present time. The countdown itself is primarily focused on the two gentlemen in the spacecraft. At the present time, crewman 1 and crewman 2, of course, is Frank Borman and Jim Lovell, prime pilots for the flight. Our checkout has shown that we have got a good blood pressure reading from both of them as we start to proceed with some of the preliminary checks after the prime pilots have come aboard. The countdown continues to go smoothly. Everything looking well at the present time. We are now at T-88 minutes 20 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control now T-79 minutes and counting. All systems still looking good on the countdown for Gemini 7 mission at the present time. As far as the particular count is concerned at this time, both the spacecraft test conductor and Astronaut Alan Bean, the spacecraft communicator in the blockhouse, are checking the environmental control system of the spacecraft with the prime pilots, Astronauts Frank Borman and Jim Lovell. In the meantime, outside the spacecraft, the technicians and crews are getting ready to depart the white room in preparation for clearing the room so we will be able to lower the erector some 40 minutes from now. All systems still looking good. The doors on the spacecraft were closed some 4 to 5 minutes ago and they were tightened and the torque was checked to insure that all was proper with closing the hatches. Everything still looking good coming up on T-78 minutes and counting. This is Gemini Launch Control

END OF TAPE

This is Gemini Launch Control. Coming up on T-69 minutes and counting. Mark! T-69 minutes and counting. All systems still looking good on our countdown. We are still making our major checks at this point in the count with the two prime astronauts in the Gemini 7 spacecraft. At the present time we are making checks of the environmental control system within the spacecraft. We are making sure that the spacecraft has been properly purged and we had a report just a few minutes ago that both Borman and Lovell now are on 100 percent oxygen within the spacecraft itself. Our countdown continues, no known problems at the present time, we have not had any holds up to this time. All systems looking good. T-68 minutes 15 seconds and counting. This is Gemini Launch Control.

END OF TAPE

Good afternoon, this is Gemini Control, Houston. The red flight team under the direction of Chris Kraft have been on their consoles now for the last 90 minutes while during the progress of this countdown. The crew at this time is going methodically through their preflight check list, looking at every gage, pulling every switch, some 300 in all in the spacecraft. Around the world, our situation could not be greater. All of the 22 sites report they are ready to support the mission. They say their equipment is ready and functioning completely satisfactorily. We have talked with the prime recovery ship parked out on Bermuda. They report their winds about 12 knots, ceiling of 2500 feet, scattered clouds, visibility 10 miles and soft swells about 7 feet high. In the past 30 minutes we have completed a communications check with all our stations around the world. The stations came through loud and clear with one exception the range tracker parked out off the coast of South America. Their transmissions were a little broken but readable. All in all, a very green status at this time. This is Gemini Control, Houston.

END OF TAPE

This is Gemini 7 Launch Control. T-49 minutes and counting.. Everything satisfactory at this point. All systems looking good, both in the spacecraft and the launch vehicle. We have just completed a very important test with the guidance command system in the Titan II launch vehicle. This was monitored by astronauts Frank Borman and Frank Lovell, and Jim Lovell, correction, in the spacecraft. During this test we actually send steering signals to the engines in the launch vehicle and the engines respond by moving briefly right, left in response to the signals being given. This guidance control test has been completed and completed satisfactorily. All systems still looking very good. Coming up on T-48 minutes and counting at 42 minutes past the hour. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control T-39 minutes and counting. MARK T-39. All systems still going well at this time. Just several minutes ago, we have gone through our final status check of all elements in the Gemini 7 countdown to determine if we are ready to lower the erector on Launch Complex 19. As they have done all morning long in this countdown, they came back and gave themselves in a Go condition in each case. We are still go on the mission, and we are go for lowering the erector on Launch Complex 19 some 3 minutes from now. All systems still looking good. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. Now at T-35 minutes 33 seconds and counting. The erector is being lowered on Launch Complex 19. The lowering of the 138-foot erector started about 1 minute ago. The prime pilots, Frank Borman and Jim Lovell were informed shortly before and they confirmed, during the early movement, that the erector was coming down. The prevalues on the Titan II launch vehicle oxidizer system within the first stage also have been opened. This permits the oxidizer, the nitrogen tetroxide, to condition the lower part of the engine system prior to launch. The other prevalues for the fuel system are open a matter of seconds prior to launch. Our erector is coming down, all systems going very well on the Gemini 7 countdown at the present time. T-34 minutes 38 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control, T-29 minutes and counting on the Gemini 7 mission. All systems still looking good. We have confirmation now that the erector on Launch Complex 19 is down and we are ready to proceed during the final phases of the countdown. At the present time in the spacecraft, atop the 109 foot vehicle, Astronauts Frank Borman and Jim Lovell are testing out their UHF communication system with the test conductor in the blockhouse. All systems looking good. The pad has been cleared. T-28 minutes 22 seconds and counting.

This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. T-24 minutes and counting. T-24. We continue to go smoothly both at the blockhouse and the spacecraft at Launch Complex 19 and the Mission Control Center in Houston. All systems still looking good. At the present time astronaut Jim Lovell, the pilot for the Gemini 7 mission, is completing some power checks in the spacecraft with the blockhouse. Some final guidance tests are being conducted with the launch vehicle. Both of these activities going well. All systems still looking good. We have confirmation that our weather will remain good for launch time here and around the track for the Gemini 7 mission. Now T-23 minutes 17 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control coming up on T-19 minutes, mark, T-19 minutes and counting on the Gemini 7 flight. Our countdown continues to go along smoothly as both in the spacecraft and in the blockhouse we prepare for an important test coming up in several minutes. This is the static, a brief test firing the 25-pound thrusters in the spacecraft orbit attitude and maneuvering system. A series of these thrusters will be fired in bursts of one and a half seconds to insure that the orbit attitude and maneuvering system is functioning properly. This is a test also to bleed the lines, the fuel lines within the so-called OAMS system to be sure that they will be ready for use after shortly after liftoff, actually when the spacecraft separates from the launch vehicle. We are going through some changes of gauges and dials concerned with the system in the spacecraft with Astronauts Frank Borman and Jim Lovell and we are also gearing up to monitor the test from the blockhouse. This is Gemini Launch Control, T-17 minutes, 55 seconds, and counting.

END OF TAPE

MISSION COMMENTARY, 12/4/65, 1:20 p.m.

Tape 22, Page 1

This is Gemini Launch Control, T-14 minutes and counting. All systems still looking good. Just a few minutes ago we completed tests of the spacecraft orbit attitude and maneuvering system. We fired one and a half second bursts from the thrusters around the base of the spacecraft. We went round in a clock-wise fashion two or three times. From all those observing they all agreed that it was a satisfactory test and we are now proceeding. As far as the launch vehicle are concerned, since the T-35 minute mark in the countdown most of the various sequences and events are occurring automatically through the sequence of systems. They have several manual functions but the great majority are in automatic sequence down from 35. Our static firing is complete. We are in the process of making some final telemetry checks with the Air Force Eastern Test Range Tracking System at the present. T-13 minutes and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control coming up on T-8 minutes and counting. Mark, T-8 minutes and counting on the Gemini 7 mission. We have just gone past one of our major milestones during the final phases of the countdown, that is at the 7 or 8 minute mark when we make a final check of all elements in the countdown to insure that we are in a go condition. In the countdown manual itself we ask for a green light and we did receive a green light from all elements that reported go. All systems still going very well. Our wind in the launch area picked up a little bit - about 10 knots, however, that is not expected to have any effect on the mission or any effect on the condition of the pad following launch. We are now at T-7 minutes and 14 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini launch control. T-5 minutes and counting. T-5. We have just completed another status check at the full  $5\frac{1}{2}$  minute mark in the count. This is a communications check of all elements. This also came out in a go condition. Everything still looking good as we primarily in the blockhouse .....this time while the automatic sequencer for the launch vehicle does most of the work..... primarily monitoring at this point. Astronauts Frank Borman and Jim Lovell reporting from the spacecraft that all is going well in the Gemini 7 spacecraft. Now T-4 minutes 20 seconds and counting. This is Gemini launch control.

END OF TAPE

This is Gemini launch control. T-3 minutes and counting. T-3. Everything is still looking good from the blockhouse and at the Mission Control Center in Houston at the present time, as we continue our final checks of both the launch vehicle and spacecraft. Some final guidance checks with the launch vehicle are going on at the present time and we are still getting good reports and we have the green lights on in the consoles. Everything is looking good T-2 minutes and 33 seconds and counting.

END OF TAPE

GEMINI 7/6 MISSION COMMENTARY, 12/4/65, 1:29 p.m.

Tape 70, Part 1

This is Gemini Launch Control. T-1 minute 41 seconds and counting. The last several minutes of the countdown all conditions still looking good. Now T-90 seconds and counting. T-90 seconds and counting. As we proceed down to the final moments of the countdown the launch vehicle first stage engines will ignite and build up some 430 000 pounds of thrust. When 77 percent of this thrust is reached, the launch vehicle is released from the pad. All this takes a matter of seconds, some  $2\frac{1}{2}$  to 3 seconds. T-1 minute and counting, T-1 minute and counting. T-50, T-40 seconds and counting. The astronauts have been alerted that the prevalves on stage II that permit the oxidizer to come down into the engine compartment will be open. T-30 seconds and counting. T-25, T-20, 15, T-10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0 - Ignition!

Engines start. We have a lift-off at 30 minutes and about 5 seconds after the hour, plus 10 seconds. Range safety says they're go! Looking good at 20 seconds. Roll program is in. Pitch program is in. Guidance says we have proper roll and pitch. Both systems are go. 40 seconds into the flight and the vehicle has now crossed the beach. Coming up on 60 seconds. Mark! Velocity of the vehicle is 1300 miles an hour and it's pulling 1.9 g's. Guidance affirms we look good. Dr. Berry is go. One minute 30 seconds. One minute 40 seconds thrust very slightly low as much as about 2 percent low, quite acceptable. Coming up on 2 minutes. Mark 2 minutes. Our velocity is 3600 miles per hour, the chief horses 3.3. The crew reports they're go for staging which should occur in a very few seconds. Guidance says looks good for staging. Two minutes 30 seconds. We've got staging, stage II thrust looks good. Two minutes 50 seconds. Borman reports the radio guidance system has locked on at 3 minutes into the flight. Velocity 7100 miles per hour. Three minutes 30 seconds. All of the flight controllers here passing

along good flight reports. The words don't vary much at all. They all say looks good, looks good, looks good. Coming up on 4 minutes. Four minutes into the flight. Velocity now built up to 9200 miles per hour. Kraft's alerting the controllers to stand by for a status check here. He has covered some 10 flight control positions in about 10 seconds, each reported go. Capsule Communicator Elliot See is passing the go to the crew at 4 minutes 25 seconds into the flight. Communications are a little noisy coming from the spacecraft. That's not unusual during the launch phase. G force is building again up to 3.7. Our velocity 12 800 miles per hour. We are standing by for .8 which is the achievement of 80 percent of the desired velocity to put this 8000 spacecraft into orbit. Five minutes 20 seconds, Elliott See says you're right down the slot, Gemini 7. We're standing by for second stage cut-off. We've got it. SECO! At 5 minutes 40 seconds. At the moment of second stage cut-off, the g forces reach a max of 7.2, flight director says we are go in the mission at 6 minutes into the flight. The flight controllers here see the spacecraft telemetry showing thrusting, getting off the booster. Borman reports he has the booster in sight and it looks good. Seven minutes into the flight. The crew reports that the booster is venting. They can see gas escaping from it. They're probably a very few feet away from it. The plan was to thrust very slightly off the booster, turn around, and then retard their thrust and go back toward the booster to stay within a 100 or so feet of it during this early part of the flight. And now Elliott See has just passed up to the crew the size of the first cut on this orbit of Gemini 7. It is as follows: 87 miles perigee, 178 miles apogee. Those are nautical mile values. 87 miles perigee, 178 miles apogee. Eight minutes 10 seconds into the flight. The communications still somewhat broken, more broken than most of the Gemini flights in the past, but readable. Elliott See has just

advised the Gemini 7 spacecraft that they're already cleaning off the pad down at the Cape, getting ready to put Wally Schirra and Tom Stafford's booster and vehicle out there.

At 9 minutes into the flight our controller here advises that they've used about 15 pounds total fuel so far in adjusting so they can fly a formation with their launch vehicle for this early part of the flight. We have the tape for you of the conversation during the launch phase. We, as I say, it's quite rocky and a little spotty, but if you listen closely, I think you can pick up the voices of Jim Lovell and Frank Borman. We'll play that tape for you now.

CAP COM	6,5,4,3,2,1,0 - Ignition! Lift-off!
Spacecraft	.....
CAP COM	Real good
Spacecraft	.....
CAP COM	Roger, off
Spacecraft	.....
CAP COM	Roger, pitch. 15 seconds
Spacecraft	.....
CAP COM	Roger
Spacecraft	.....
CAP COM	Roger, 5.6 on the cabin.
	1 plus 40
CAP COM	Roger, mode 2
Spacecraft	.....
CAP COM	Roger, update.
Spacecraft	.....
CAP COM	This is looking real good here Gemini 7.

Spacecraft Roger, Stage II engines ....

CAP COM Roger, stage II go.

Spacecraft ..... temperature 6

CAP COM Roger, update

Spacecraft Staging

CAP COM Roger, staging

Spacecraft Guidance initiate, has 6.2 ..... don't be late.

CAP COM Roger, guidance initiate and fuel cell delta p lights.

Spacecraft Delta P light out

CAP COM Roger, Delta P light out.

Guidance is looking still very good here Gemini 7.

Spacecraft .....

HOUSTON Houston to Pilot.

CAP COM Gemini 7 Houston you're go from the ground

Spacecraft .....

CAP COM Roger

Spacecraft .....

CAP COM Guidance is right on, Gemini 7.

Spacecraft .....

CAP COM Stand by for point 8

Spacecraft .....

CAP COM Point 8, V over VR. Right down the slot, Gemini 7.

Spacecraft SECO!

CAP COM Roger, SECO

Cap COM Gemini 7, Houston you are go

Spacecraft Roger, a good sim.

CAP COM That's the best sim we've had.

END OF TAPE

This is Gemini Control at Houston 14 minutes 9 seconds into the flight. The crew has reported they have completed their postinsertion checklist. All the equipment is stowed or unstowed as it should be. We lost signal with the Bermuda station 41 minutes after the hour, which was the expected time. The fuel cell is operating quite satisfactorily the crew reports. All in all, Jim Lovell summed it up by saying, "It's the best sim we've had." His reference was, of course, to a simulation. We have been running them now for several months. The experiments load on these two starts right off at 20 minutes after the hour. They are 20 minutes into the flight, excuse me. They are to start the first of their 20 odd experiments. They will be making measurements infrared measurements on the booster, which they are flying in formation with. They will continue these measurements some 30 minutes until they reach the Carnarvon station, where they will have a major check of their spacecraft and all its systems and their operation. This is Gemini Control Houston.

END OF TAPE

This is Gemini Launch Control at the Cape. We have not been able to get a team out to the launch pad yet to particularly assess the damage created by the Gemini 7 lift-off. However, we have a report from the blockhouse that from the pad cameras (several of the pad cameras that have been chained on the base of the pad) we see nothing abnormal as far as the pad damage is concerned. There doesn't seem to be any particular problem that we can see with the cameras that would give us any difficulty. We should know within an hour or a little less than that when the damage assessment crew makes its report on our final status. Astronauts Wally Schirra and Tom Stafford, who will be making the Gemini 6 flight some 9 days from now if all goes well, observed the launching from the roof of blockhouse 37, which is located north of the launch pad on 19. As soon as we do get further reports on the pad damage, they will be brought to you. This is Gemini Launch Control.

END OF TAPE

This Gemini Control Houston, 29 minutes 15 seconds into the flight. Within the last 10 minutes, as the spacecraft passed just south of the Canary station, the crew noticed a drop and so did the ground station in our oxygen source pressure to the fuel cell. The drop continued rather sharply, and when it got down to about the 100 pounds per square inch pressure level, the crew used the cross feed valve. This is a valve which was installed since the flight of Gemini 5 when we had trouble in the same circuit. It permits the oxygen which is in the primary oxygen breathing tank to be cut in as a source pressure for the fuel cell. This worked very effectively. It brought the pressure up to the acceptable level of about 250 pounds. The crew also reported that they had separated from the booster and performed a 20-second burn, and they were checking infrared measurements from the booster as the flight plan instructed them to do. We have the tape conversation first from the Canary Station and then remoting through the Kano, Nigeria station, and we are prepared to play that tape for you now.

FLT Canary, Houston Flight

CYI Go ahead flight

We want to change the radiator to flow and the adapter C-band beacon time to 37 minutes instead of 35.

CYI That's 37 minutes

FLT That's affirmative

FLT Canary, Houston flight

CYI Go ahead, flight.

FLT . You recognize no communications check your site this time

CYI That's affirmative.

S/C garbled

CYI Go ahead Houston Flight

FLT The one thing I wanted to make sure was the C-band adapter.  
That is the reason we changed the time is because of interference  
at Victoria

CYI Go ahead flight

FLT The C-band adapter beacon to switch at 37 was the information  
we wanted to get to the spacecraft.

CYI That's the C-band adapter?

FLT That's affirmative

CYI garbled

S/C garbled

CYI 1 7 0 on both?

S/C It looks like it here

CYI Delta P-light on both cells?

S/C garbled

CYI Houston Flight

FLT Have him bring on the auto heater on the fuel cell O2 and  
raise the pressure to about 250 on your gage, I don't know  
what that reads on his gage.

CYI All right, stand by

FLT Give him his gage reading.

CYI Okay

S/C

CYI That reading has about 200 on board

S/C garbled

CYI How do you want that . . . .

FLT 250 on the ground and 200 on his gage

CYI 250 on the ground, roger.

S/C garbled

FLT Canary, Houston Flight

CYI Go ahead, flight

FLT Your data coming in is tagged Agena. That's wrong, it should be tagged Gemini.

CYI Roger

FLT This is Houston Flight. We would like for you to refly that data if you can tag it right.

CYI Roger

CC Gemini 7, Houston, we are coming through to you now, how do you read?

S/C garbled

CC Roger, loud and clear, we are standing by for your burn.

S/C We have completed the burn . . . garbled

CC Roger, Gemini 7

S/C Garbled

CC Roger, still another fuel cell delta P light.

CC Do you see the . . . pressure coming up at all yet?

S/C garbled

CC Gemini 7, Houston, would you give us the time of your burn.

S/C We had our burn at 23:07

CC 23:07?

S/C 23:17

CC Roger, 23 + 17

S/C 2 zero seconds

CC Roger, 20 second burn.

CC Gemini 7 Houston. We would like you to use the cross feed valve to bring the O<sub>2</sub> pressure up.

S/C garbled

CC Roger

S/C . . . . reading 125 now

CC Roger, 125 pounds

CC Gemini 7, Houston. Would you bring the O<sub>2</sub> fuel cell O<sub>2</sub> pressure up to 250 pounds. Then you can turn the cross feed off

CC Gemini 7, Houston. Did you copy?

S/C I tested

CC Did you copy the 250 pound-pressure.

S/C . . . . go to 250 pounds

CC Roger

S/C all the way up there and turn the cross feed off.

CC Roger, I understand that you have 250 pounds and the cross feed is off.

S/C Roger

CC Is the adapter feed lights still off or still on, or has it gone off?

S/C garbled still off

CC Roger

S/C Garbled

CC . . . 37 minutes

S/C Thank you, 37, thank you.

CC Gemini 7, Houston

S/C Go ahead, Houston

CC Would you say again the time of your burn.

S/C garbled

CC Roger, I understand 22 + 17

S/C 20 seconds

CC A 20 second burn.

CC Gemini 7, Houston, Is the D4/D7 going satisfactorily?

S/C garbled

This is Gemini Control Houston again. During the past few minutes, our capsule communicator, Elliot See, has been trying to raise the spacecraft through to Tananarive, but apparently that communication circuit is not working. He broadcasted in the blind and got no message back, but that's not unusual. The communication seemed to be a little rough today. No additional problems. Apparently, that cross feed valve did solve the oxygen pressure difficulty. The pressure climbed back very quickly, responded well. We don't know exactly what the problem was, although we do know

we are very pleased that we have a cross feed valve in this system. Gordon Cooper, Command pilot on Gemini 5, is on the floor here working at the capsule communicator position also and is consulting on this fuel cell problem which he certainly became an expert on during his first six revolutions. This is Gemini Control Houston at 40 minutes into the flight.

END OF TAPE

This is Gemini launch control at the Cape. We are now receiving some reports on our status at Launch Complex 19. The report is the damage is minimal. There is nothing abnormal with the pad damage whatsoever. We hope shortly to have a more specific report on this to cover the various segments of the pad that were damaged. In the meantime the launch vehicle for Gemini 6 has just been moved out of its storage hangar, that hangar AA, the so-called satellite hangar at Cape Kennedy and will be proceeding on its way to Launch Complex 19. As we get more specific reports on the status of the pad we will give them to you. Our understanding now from the blockhouse is that the status is good. We have the normal expected minimal damage on the launch pad. This is Gemini Launch Control.

END OF TAPE

MISSION COMMENTARY 12/4/65, 2:24 p.m.

Tape #31, Page 1

This is Gemini launch control at the Cape. We are now receiving confirmation of the fact we announced earlier that our pad damage on Launch Complex 19 is very, very normal. We don't see where we will have any particular problems. We are still checking out the various systems on the pad. We don't see where, at the present time, there will be any situation which would cause an abnormal delay in the preparations for Gemini 6. Talking about the delay which would be as far as pad damage is concerned. We don't have any more problems than we expected out there but we are still continuing our survey. We expect the post-launch/<sup>conference</sup> will begin some 30 or 35 minutes from this time. This is Gemini launch control.

END OF TAPE

This is Gemini Control Houston, 16 minutes into the flight, with the spacecraft over Australia. In a recent conversation with the Australian station, Gemini 7 was given a go for a 17 revolution flight. They were told that their next planned landing area is 17-1. One problem still remains in the fuel cell area. The pilots report that the Delta P light, you'll hear several references to it in the taped conversation, is still on. We have no answer for that problem at this point. It could be just a faulty light. The light is designed to come on when a differential pressure or a pressure out of spec out of tolerance greater than about a half a pound occurs across the membrane of the fuel cell itself. This is the membrane that separates the hydrogen from the oxygen. At present time our best guess is that it is either a faulty light or we're getting a false regulator pressure from one side or the other. The pressure on the oxygen side, as we reported earlier, did recover very nicely when we switched the crossover valve and they drew oxygen pressure from their primary breathing source. The spacecraft has completed its planned power down exercise and they should be approximately 10 miles from their launch vehicle. They will continue in this mode for several revolutions, running as close as a few hundred feet and as far away as 10 miles from that launch vehicle. We have a taped conversation of the Carnarvon pass and we're prepared to play it for you now.

CVN Blast off team.

SPACECRAFT Roger, Carnarvon.

CVN What's your tank pressure? 390 on the ground.

CVN . . . . Carnarvon Cap Com.

SPACECRAFT . . . . are we go?

CVN Roger, ECS O<sub>2</sub> tank pressure reads 200 psi. Would you turn your heater off.

SPACECRAFT Roger. . . . the heater is off. It is reading 700.

CVN What did you say again, please?

SPACECRAFT Heater off. Everything normal.

CVN The fuel cell O<sub>2</sub>?

SPACECRAFT . . . . . fuel cell O<sub>2</sub> tank pressure, once it reached 200.

CVN Turn your heater to the off position.

SPACECRAFT Roger, it's off.

CVN Roger, thank you.

SPACECRAFT And we still have the Delta P light. Do you have any status on that?

CVN Negative, not at this time.

SPACECRAFT OK. We're having dew on the radiator.

CVN Would you turn your evaporator to off.

SPACECRAFT Roger. . . . . everything normal.

CVN Roger. Gemini 7 we have you go for 17-1. The run-out tape should be on at this time.

SPACECRAFT OK. Again please.

CVN Roger, you are go for 17-1.

SPACECRAFT My . . . . . are open for 17-1.

CVN Roger, we are going to update T<sub>R</sub>.

SPACECRAFT Roger.

HOUSTON FLIGHT Carnarvon, Houston Flight.

CVN Go ahead, Flight.

HOUSTON FLIGHT You might tell him we don't have a solution for the Delta P. We either think it's that the rate pressure is not correct and we'll wait and see if the purge corrects that or else it's a false Delta P light.

CVN Houston advises that they do not have a solution for this Delta P light at the present time. They think it might possibly be a rate pressure or a faulty Delta P light.

SPACECRAFT Roger.

CVN We have your  $T_R$  updated. It is in sync with the ground.

SPACECRAFT Thank you. ....D-4, D-7 powering down.

CVN OK. Powering down D-4, D-7.

HOUSTON FLIGHT You might give him his time of liftoff, GMT.

CVN Gemini 7, your time of liftoff was 193003.  
19:30:03.

SPACECRAFT Roger.

CVN .....would you tell.....that you C-Band adapter is on and continuous.

SPACECRAFT .....continuous.....

CVN Roger, understand. ....we're standing by for

you main ..... read-outs.

SPACECRAFT Thank you.

....garbled.

SPACECRAFT Go ahead Carnarvon.

CVN ....C-Bands right now.

SPACECRAFT Rog.

CVN Gemini 7, Carnarvon.

SPACECRAFT .....Gemini 7.

CVN Roger, do you have a DDP of a D<sup>4</sup>D7 separation

.....

SPACECRAFT ..... plus 17.

CVN Roger. Tell me 22 plus 17.

HOUSTON FLIGHT We have that Carnarvon.

CVN .....I guess I missed it. ....Houston, Gemini 7,  
stand by for fuel cell purge test.

SPACECRAFT Roger.

1A7S, 27 volts, 1B7S, 27 volts, 1C8S, 27 volts,  
7A6S, 27 volts, 2B6S, 26.9 volts, 2C6S, 26.9  
volts, 2C8S, 26.5 volts.

CVN Roger. We're standing by for a readout on the  
main batteries.

SPACECRAFT Roger. No. 7 will read 26 volts. Stand by  
Carnarvon.

CVN Roger. ...., Gemini 7.

SPACECRAFT Roger, four batteries are reading between 22

and 22 and a half.

CVN

Roger, ...between 22 and 22 and a half. You can stretch your power down at one hour per normal flight time.

SPACECRAFT

Roger.

CVN

.....

HOUSTON FLIGHT

Roger, Carnarvon.

CVN

The spacecraft is going out of range.

END OF TAPE

This is Gemini Control Houston. One hour 52 minutes into the mission. During the recent pass across Hawaii and the States the crew reported their Delta P light is still on. The heads are still together here on the ground. We are not overly concerned about it but it's a problem that will bear close watching during this early portion of the flight. The crew also reported sighting at the eastern edge of the States, in fact as they crossed the Antigua area, Lovell described sighting the booster as a brilliant body out in the sun, pretty close to them, a little bit ahead of them and slowly tumbling. Frank Borman also said he could see some fine particles passing in, either above or below him, it was not an intersection type pass, but he could see particles 3 to 4 miles away which appeared to be in a polar orbit.

We have some figures on the cut-off velocities and various angles 30 seconds after second stage separation for you. These figures are based on sustainer engine cut-off plus 30 seconds. At that point the slant-range from the Cape, was 575.7 miles. That's in nautical miles. Our planned value there was 579 miles so we were 3.3 miles off. The inertial velocity at that time was 17586.1 miles per hour, that against a planned value of 17593.6 miles per hour so we were about 7.5 miles low. Our perigee is 87.2 miles, this against a planned perigee of 87 nautical miles, a difference of 2 tenths of a mile. Our apogee 177.1 nautical miles versus a planned perigee of 183. A difference of 5.9 miles. Our orbital period in reference to an inertially fixed period is 89.23 minutes against a planned value of 89.30. Our periods in turns of Cape-to-Cape passes is approximately 95 minutes. Our inclination is 28.89 degrees versus a planned inclination of 28.87 degrees.

Our lift-off time was 30 minutes and 3 seconds after the hour. It would be in Central Standard Time 130:03. We have ready for you, we have delayed because of the Press Conference at the Cape, we are prepared to play for you now a tape conversation between Gemini 7 and the Hawaii Station. Here's that tape.

CAP COM Gemini 7, Gemini 7, Houston CAP COM. Do you read?

CAP COM Gemini 7, Houston CAP COM. Do you read?

CAP COM Gemini 7, Gemini 7, Houston CAP COM. How do you read?

S/C Gemini 7 Houston read you weak but clear.

CAP COM Roger, understand you are reading weak but clear.

We are continuing to analyze the fuel-cell light. We expect to have some procedures to analyze it further. We will pass this to you as soon as we are ready, probably over the States.

S/C Roger, understand.

CAP COM Gemini 7 you are very weak here. Would you confirm that the Delta P light is still on?

S/C This is Gemini 7. The Delta P light..... is still on.

CAP COM Roger, understand. The light is still on.

KANO .... KANO

CAP COM Roger, Hawaii

CAP COM Roger, Hawaii

HAWAII We're on TM solid. We just had to drop out .....

Gemini 7, Hawaii CAP COM.

S/C Go ahead, Hawaii, Gemini 7

HAWAII How're you doing up there?

S/C Very good except for the Delta P light everything is all right!

HAWAII Ok. You're looking real good here on the ground.

HAWAII I'd like a readout of your ohms propellant quantity.

S/C Roger. Ohms propellant quantity reads 82 percent.

HAWAII Roger. You have increased your station-keeping?

S/C Roger. That's right.

HAWAII Ok.

S/C We separated from the booster here so we're no longer out of sight.

HAWAII Roger. Understand. We'll be standing by if you need anything, podnuh.

S/C Roger, Hawaii

HAWAII A G.e.t. time hack

S/C Roger

HAWAII Ok. Set up 80 minutes for count up and I'll give you a time hack in about 30 seconds.

S/C Roger.

HAWAII Second - 8,2,1 Mark!

S/C Roger. Understand. 80 minutes and we're right on time.

HAWAII Very good.

S/C .....recorded roger 26 minutes

HAWAII Understand

HAWAII All right FT go ahead.

HAWAII Ok Are you getting our C-band data?

CAP COM Stand by one, I'll check. It's .....Hawaii.

HAWAII Ok

HAWAII Drop out 31 we have LOS.

CAP COM Roger, Hawaii.

END OF TAPE

This is Gemini Control Houston, 2 hours 5 minutes into the flight. No additional contacts since the spacecraft left the Antigua area, southeast of the United States. However, we do have the earlier portion of the pass as it started across Guaymas in contact with the Guaymas, Mexico, station and we are prepared to play that tape for you now.

FLT Flight OK.

SPACECRAFT Hawaii AFT go ahead.

HAWAII OK, the fuel cell O<sub>2</sub> tank pressure 521218 is reading 337 psi. Now we haven't got the P light on have we?

SPACECRAFT Roger. Everything else looked pretty good except I was getting pretty low on DCS signals checkout on quadraplexer. Quadraplexer was holding up real well. No problems.

FLT Hey Ed I want to check that Delta P bravo bravo 04?

HAWAII Bravo, bravo 04, afirm.

FLT OK, I think when we talk Delta P we ought to be more specific.

HAWAII Alrighty. Flight?

FLT Go ahead, Ed.

HAWAII The only thing we've got to say about the Delta P light is you may when you get ready for a purge, when you put your crossover switch to on the light goes out -- the chances are you've got a dead regulator.

FLT Yeah, I think that's occurred. They've listed

them here the alternatives that could be causing it. There's six of them, all of which have different.

AFT This is Cap Com AFT.

FLT AFT.

AFT OK, making a voice check, I read you loud and clear.

FLT Read you loud and clear.

AFT OK, are you with us on the fuel cell problem we're having right now? That would be would be Delta P light BBO4?

FLT Roger. OK, they're discussing a number of possible possibilities that could cause this situation here in the Control Center and will probably go to the crew with some procedures a little bit later when they get something definite ironed out.

AFT Roger.

FLT OK, we don't have anything special for you this pass.

SPACECRAFT Roger. That's AFT?

AFT Ground here.

FLT OK, you might remind the crew that they have a critical tape dump over Texas this time, that's heads up type pass.

AFT Roger.

END OF TAPE

This is Gemini Control Houston, 2 hours 20 minutes into the flight. During the past 30 minutes, the Gemini 7 crew has been making measurements on various stars, using that very cool infrared sensor which has about 12 to 15 hours to run on it into the mission before it will become inoperative. They have two other sensors which they will use later in the flight for making similar measurements on a wide variety of subjects. We have a brief conversation from the Tananarive station as they passed over it some 5 minutes ago, and we are prepared to play it for you now.

Tananarive, go remote

Tananarive has acquisition

FLT CARNARVON Cap Com, Houston Flight

CARNARVON Go ahead

FLT Are you up with us?

CARNARVON Perfectly.

FLT Okay, we are still cogitating on this fuel cell problem. There are a lot of things that could be wrong with it that would have resulted in flight, and I guess you are thinking of them too, but let me go down the list for you. It could be O<sub>2</sub> regulating low, could be O<sub>2</sub> regulating high, could be O<sub>2</sub> regulator fail to open, and we could be dumping the O<sub>2</sub> as a result of that. We could have a crack in the water separator, and we could have the water valve out of that cell closed, and it could be flooding the cell. Now, there are a number of tests which you probably have been thinking about also, and we are thinking about doing them. Now the first

test we want to run is to see what happens as the result of this purge. It could tell us something about the oxygen regulation just through the purge in the next pass here.

CARNARVON Roger, I understand about the purge.

FLT We are going to do that purge all over the States on this next pass.

CARNARVON Rog

FLT If you guys out there on the range want to give us any other ideas, have at it.

CARNARVON Roger, we're thinking, flight. I would like to offer a confirm that we did go to the power down and come in configuration. We have not received any word that he did.

FLT We assume that he did over your site. You might ask him that. Let us stand by .

FLT That's affirmative, Carnarvon, we were reading with 19 amps here.

CARNARVON Roger

FLT Gemini 7, Houston Cap Com, how do you read?

S/C Garbled

FLT Roger, just checking communications through Tananarive. We weren't able to get you last time. We have no additional information. Stand by.

S/C Garbled

FLT Roger. Is that with the D4 experiment?

S/C Roger

FLT Okay

FLT Space 7, Houston, are you getting a reading on your OAMS gage  
for the experiment position.

S/C garbled

FLT Understand your fuel cell oxygen pressure decreased below 200 pounds  
so you have turned the heater back up.

S/C garbled

FLT Is that correct?

S/C Turned it back up

FLT Roger

CARNARVON Carnarvon Cap Com

FLT Go ahead

CARNARVON I would like to confirm you would also like a C-band track .

FLT Stand by. I think what we want you to do on this pass is skin  
track the launch vehicle, stand by 1. That's affirmative. Skin  
track the launch vehicle.

CARNARVON GARBLED

END OF TAPE

This is Gemini Control Houston, 2 hours, 36 minutes into the flight. At the start of the Carnarvon pass, about 10 minutes ago that Delta P light that we've been watching very carefully since the start of the mission, flickered out for a few seconds, but then it came back on. So the problem is still with us. We're watching it. It will be watched very carefully during this next pass across the states when we perform the first purge cycle on the fuel cell. That is, we'll flush considerable amounts of oxygen and hydrogen through the cell purging out any build up of chemistry or what ever has gone on within the cell. This is a normal four hour cycle. Three to four hour cycle. It will occur toward the end of the state side pass between, roughly Texas and the Cape. Also, at the end of the state side, roughly at Bermuda and a sweep on south to Tananarive, the pilots on this next pass, will turn on MSC-2 and MSC-3 experiments. These are respectively flexgate magnetometer that measures the field strength, the earth's magnetic field. And an electron proton spectrometer which looks at the size and the intensity of any electrons, protons encountered in that portion of the Van Allen belt which comes closes to earth roughly at 100 to 150 miles altitude over the South Atlantic. Backing up just a little bit now, we have the tape conversation between the Gemini 7 crew and the Carnarvon station which the spacecraft just passed over and we're prepared to play that tape for you now.

Houston Flight

Go ahead Flight Carnarvon

You may advise the crew that there was very little damage to pad 19 and they're on schedule with the erection of GLV 6.

CNV

Roger

CNV Carnarvon, Houston Flight

Houston Flight Go ahead Flight Carnarvon

CNV Did you understand that he still has all these switches in a continuous mode?

Houston Flight Negative, I did not understand that.

CNV O. K. We just thought that was what you were asking. We think they're still on a continuous mode.

Houston Flight Roger

CNV The platform and all good stuff is powered down.

Houston Flight Roger, what time will be go to command.

CNV According to the flight plan about four hours.

Houston Flight Roger. Carnarvon, I think we're mixing one up date on a flight plan here somewhere.

CNV It could be. I don't think so it's on page 17  
7  
of the Gemini/flight plan. Powered on spacecraft see adapter command tm to command, and all the way down the line. The first power down was he brought the platform off AC powered .....secondary pumps off and B pumps on.

Houston Flight O. K. We have that one. We had acquisition a while ago, he was in the command position.

CNV Yes, but that was because he had misunderstood what we had wanted and he had just inadvertently put it to command when we were trying to tell him to go there for the pass over Patoria.

Houston Flight Roger, understand.

CNV We'll let you know -- well, you'll probably get it but we'll let you anyway. We're going to see what Tanarieve had on the TN frequency last pass.

Houston Flight Rog

CNV Tanarieve track 230.4.

Houston Flight Rog, understand

CNV Roger TN5.

Spacecraft This is Gemini 7.

CNV Roger we have you and you're looking good here. Also, we'd like to tell you we had very little damage to Pad 19 and they're on schedule with 6 vehicle.

Spacecraft Roger Carnarvon, thank you. For your information our Delta P light blinked out at 2 minutes and 22 seconds but then it came right back on again.

CNV Roger, understand

Houston Flight Did you copy that flight?

CNV Roger 2 22.

CNV This Carnarvon, Gemini 7

Spacecraft Go ahead Carnarvon, Gemini 7

CNV Will you turn your quantity read switch to the 02 position?

Spacecraft Roger. 02 RF 99.9 percent and 250 pounds.

CNV Roger Copy, 99.9 250 pounds.

Spacecraft Roger, how does it look to you?

(garbled for quite a few lines)

CNV

Please return to the off position 7.

Spacecraft

(garbled.....) but it's off now.

CNV

Roger, understand.

Spacecraft

Carnarvon, will you check with Houston to see if there's any special/<sup>purge</sup> instructions on the purge coming up?

Houston Flight

No special instructions, just a normal purge.

CNV

Roger, there's no special instructions, just a normal purge.

Spacecraft

Very well, thank you.

Houston Flight

Copy flight on the 99.9 250 psi, Carnarvon.

CNV

Go ahead

Houston Flight

Did you receive that summary?

CNV

Stand by one. It's affirmative and it looks good.

Houston Flight

Roger.

CNV

...skin track on the booster.....

Houston Flight

Roger.

CNV

.....looks good on the ground flight.

Houston Flight

Roger

CNV

.....That's still Baker Baker 04.

Houston Flight

That's Affirm, Baker, Baker 04.

CNV

Roger

Houston Flight

.....less one second.

CNV

O. K.

Spacecraft

.....on the booster.

CNV

Right

Houston Flight           ...contact with the spacecraft Carnarvon?  
CNV                       That's affirmative.   It's getting broken now.  
Houston Flight           Roger.   .....los.  
CNV                       Also, we lost the command transmitter during  
                          this pass.  
Houston Flight           Rog.

END OF TAPE

This is Gemini Control Houston. Two hours 58 minutes into the mission. During the recent Hawaii pass the crew was alerted to the fuel-cell purge to be performed during this upcoming pass across the United States. It will be performed over the Texas site. They will also receive an update during the stateside pass on precisely where and when and in what amount they are to adjust their perigee. This is a maneuver which will raise the perigee approximately 20 miles. We'll get a more exact value on that during the pass across the States. Jim Lovell also reported that he had activated the M-1 experiment. These are some cuffs circling his legs. They are cycled 2 minutes on and 4 minutes off and will continue throughout the flight as long as he likes to leave them on, it's a cardiovascular conditioning experiment, similar to the experiment that Pete Conrad performed during Gemini V. We have the Hawaii conversation on tape and we are prepared to play it for you now.

HAWAII CAP COM

CAP COM Go ahead.

HAWAII Roger. On that first pass I sent a real-time TM command on which was off of that C-band beacon on since we weren't receiving C-band track and therefore both of those relays are originally set in the ON condition, so he could possibly<sup>be</sup>/in the command position and we're still getting TM ON as a result of those two commands I sent.

CAP COM Yeah, but his switch position says that he should be in continuous at the present time and then at T+4 hours he'll go to those command positions.

HAWAII Ok. We told him to start his power down at plus 1 hour in accordance with the flight plan and we have no information on what this power-down configuration consists of.

CAP COM Didn't you get, I think there was a DCI against the flight plan, that the change at one hour, it said purge fuel-cells, platform off, AC power ACME, primary and secondary A pumps off and B pumps on.

HAWAII We get ... the only thing we were wondering about, when he goes to the command position, if those relays aren't set he'll still have C-band and real-time TM.

CAP COM Roger, I concur Stu. I think he probably has set those relays, however, I don't think that's a problem Stu, because as soon as the first site acquires after he has powered down at 4 hours we'll get him set back properly.

HAWAII Ok. All it might do is on your power usage you might have a little more power usage than what you figured on. Let's see, where does 4 hours occur?

CAP COM Stand by and I'll give you a hack here.  
Just about over Carnarvon

HAWAII Carnarvon. Oh yeah.

CAP COM Does that make you happy?

HAWAII Ok. At that hour we'll send a TX for this next one.

CAP COM Okay. It's affirmative. Four hours would be 1 minute after your acquisition, so you can tell.

HAWAII All righty.

CAP COM Roger, Bud.

CAP COM ... CAP COM, AFT

AFT AFT .....

CAP COM Okay you're coming through loud and clear. We don't have anything special for your pass, uh I'd like to tell you that we're going ahead with the normal type fuel-cell purge over the States this time.

AFT Roger.

CAP COM You got any questions?

AFT Nope.

CAP COM Okay. We're standing by.

AFT Roger.

CAP COM Hi ya Houston flight.

HAWAII Houston flight Hawaii CAP COM

CAP COM What we want to tell him is - we want to start the fuel-cell purge over Texas and that we'll give him the go on it when we want him to start purging, if he's set up to do it and as soon as we get good Texas acquisition of data we'll tell him to go ahead.

HAWAII Roger.

.....Track

CAP COM Roger Hawaii

HAWAII Gemini 7, Hawaii CAP COM

S/C Go ahead Hawaii, Gemini 7.

HAWAII How're you doing?

S/C Very good

HAWAII Okay. We're showing you go down here. We're going to do a fuell-cell purge over Texas and we want you to be ready for it

and they will advise you when they want you to start. They're going to wait until they get good telemetry at that time.

S/C Okay

HAWAII All righty.

S/C Tell them we'd like to have a good star reference so the perigee adjust ..... for number 2.

HAWAII All righty.

HAWAII We'll be standing by if you need anything.

S/C Thanks Hawaii ..... have activated the M-1 experiment.

Hawaii Roger.

..... Affirmative

CAP COM The time that they activated the experiment, please.

HAWAII Okay. Will you give me a time that you activated the M-1?

S/C Roger..... This is 7. We activated M-1 at 2 plus 29 .....

HAWAII At 2 plus what?

S/C 2 plus 39 plus 30

HAWAII Okay, I got that

S/C Hawaii this is 7

HAWAII Go ahead

S/C Our calculations leave us approximately 20 minutes and 10 seconds left on the D4 - D7 recorder.

HAWAII Roger, understand.

CAP COM Hey, what are you reading on that fuel cell and oxygen?

S/C Flight fuel cell oxygen is reading 270.

CAP COM Rog.

HAWAII .....

CAPCOM Roger, Hawaii

HAWAII  
END OF TAPE .....

This is Gemini Control Houston. Three hours 20 minutes into the flight of Gemini 7 and during this just completed pass across the United States, we seemed to have put to bed the problem with the Delta P light and the fuel cell. During the pass, a purge of the cell, both sections, was completed. The light remained on except for one period when it blinked briefly off. After analyzing the telemetry from all sides of the cell the people here on the ground are satisfied that the light is inoperative and is just stuck in the ON position. The crew is advised that if they like they could put a piece of tape over the light and Jim Lovell came back with "aw, that's all right, the light makes us feel more at home." The crew is updated on their perigee adjustment burn which will be performed during this revolution. It will be performed out between Tananarive and Carnarvon and it reads as follows. It's to be performed at 3 hours and 47 minutes into the mission. It is to be a 59 ft/sec burn for a duration of 1 minute and 17 seconds. The spacecraft aft firing thrusters will be used - they will thrust in a post-grade direction. During the pass, Elliot See, our Capsule Communicator, asked the crew, among other things, how they like it up there. Borman's reply was "it's great", James Lovell came back with a one word answer. He said "outstanding". The crew also reported seeing the lights still blinking on the booster which is following them around sometimes in front and sometimes behind, maintaining within a 10 mile distance of the spacecraft. Of course, they will leave the booster when they adjust their perigee. We have the tape of the conversation across the states for you and we will play it for you now.

S/C Gemini VII, Roger, and be informed that we have just spotted the booster . . . below- quite a ways off.

Cap Com We copy. Guaymas drop your monitor and Texas go remote. Texas is remote.

Gemini VII, Houston Cap Com, how do you read me?

S/C Got a pcm solid.

Cap Com Gemini VII, Houston Cap Com, how do you read me?

S/C Loud and clear . . .

Cap Com Roger. We are ready for you to start your fuel cell purge now and you might even have time to - stand by a minute, stand by Gemini VII. . . . now we are ready for you to start your fuel cell purge and you might observe the fuel cell light when you turn the cross-over valve on - we think it may go off at that time.

S/C Roger, understand. . . . purged.

Cap Com Roger.

S/C The cross,over valve . . . on but the light did not go out.

Cap Com Roger

S/C Houston, this is Gemini VII. The booster is just to the right in the outer airglow.

Cap Com Gemini VII, we observe that you have completed your . . . negative, we understand that you are still purging.

S/C That's roger. How do you read now Houston?

Cap Com Loud and clear.

S/C Did you get my information about the booster crossing the horizon?

Cap Com Roger, we did. I was ... but someone else heard it. Still got that delta V light?

S/C Rog.

Cap Com Did you get lights during the hydrogen purging?

S/C . . . can't tell, it's been on all the time.

Cap Com Did you get the section 1 light on during the hydrogen purging?

S/C . . . Fuel cell purging complete.

Cap Com Roger, fuel cell purging complete. Any change in the light?

S/C Roger, we reported that it did blink off once - did you get that information?

Cap Com Yes, that was back at 2 plus 22. Roger, no change during the purge then?

S/C Roger - no change at all. Roger.

Cap Com O.K. Gemini VII, I have some other information here for you if you are ready to copy.

S/C Stand by a minute. Go ahead. This is Gemini VII going for information.

Cap Com O.K. VII, are you ready to copy?

S/C Roger.

Cap Com O.K., we have observed that your fuel usage is running a little high. Running about 10 to 15 times high on that fuel usage so minimize the fuel consumption as best as you can. It looks like . . . is a good pointing star for your perigee adjustment and we are double checking that

now. I have an MSC 2 and 3 update. Are you ready to copy?

S/C Roger - go ahead.

Cap Com Time - 3 plus 30 plus 00. Sequence 02, boom extend 6 plus 30 plus 00. Off at 13000. Did you copy?

S/C Roger, we copied.

Cap Com I have your perigee update - perigee adjust maneuver update if you are ready to copy it.

S/C Roger, go ahead.

Cap Com G.e.t. at the burn - 3 plus 47 plus 59. Delta V, 59, burn time 1 plus 17. Pitch 0, yaw 0, thrusters aft, maneuver posigrade. Do you copy?

S/C Roger, we copied.

Cap Com Gemini 7 would you read that back.

S/C Roger, understand. 3 plus 49 - correction, plus 47, plus 59, delta V 59, delta V 1 plus 17, 0, 0 - 0 pitch, 0 yaw, aft thrust, posigrade, and a good aim star is spica.

Cap Com That's right and that's with aft thrusters.

S/C . . roger.

Cap Com Gemini 7, we would also like to know how you like it up there.

S/C It's great.

Cap Com You can cover up the delta V light if it would help.

S/C That's okay, it's making us feel at home now.

Cap Com Keeping you warm, huh?

S/C Just like those . . . . lights . . . warning lights off now.

Cap Com That's a low blow.

Cap Com Gemini 7, Houston, would you place your ECS quantity - your quantity read switch to the ECS O<sub>2</sub> position for approximately 15 seconds.

S/C ECS O<sub>2</sub> position.

Cap Com Gemini 7, Houston Cap Com

S/C Houston, Gemini 7

Cap Com The pointing commands for Spica would be 12 degrees pitch up 8 degrees yaw right, so that shows you how close it is for pointing.

Gemini 7, Houston Cap Com, do you read?

Gemini 7, Houston Cap Com, broadcasting in the blind. We have very rough signal with you at the present time. Confirming that Spica is a good pointing reference for you on your burn.

S/C Roger, understand Spica

Cap Com Roger, Spica is very close.

S/C . . . message about the booster lights still blinking?

Cap Com Negative.

S/C . . . (noisy)

Cap Com Say again, Gemini 7, we read you pretty good now.

S/C I said the booster is in front of us and the lights are still blinking.

Cap Com Roger, booster in front of you and lights still blinking.

END OF TAPE

This is Gemini Control, Houston 3 hours and 35 minutes into the mission. We have had a brief conversation with the Gemini 7 and our Ascension station - the tape of which we will play for you in just a minute. We have an estimate now on the height adjustment - the perigee height adjustment maneuver which will be performed at 3:47 or in about 12 - 11 minutes from now. Effectively, this should be to raise the perigee to 120 nautical miles, the apogee will remain at 177.1 as we reported earlier. This perigee adjustment is somewhat more than was initially planned, however, it is explained - the mathematics of the orbit and based on a close look at the trajectory indicate that we can save fuel and optimize our situation for the Gemini 6 rendezvous flight some days from now. All in all, quite satisfied with the performance of all the systems up to this point. That delta P light is now accepted as just an error and it probably remain on throughout the flight. We are not concerned about it, we don't think it's causing a problem in the fuel cell. We have the tape of the Ascension pass and we will play it for you now.

Cap Com Gemini 7, Houston Cap Com, how do you read me?

Gemini 7, Gemini 7, Houston Cap Com, how do you read?

Gemini 7, Gemini 7, Houston Cap Com, how do you read through Ascension?

S/C Houston, Gemini 7, how do you read?

Cap Com Roger, read you loud and clear. Based on the results during the purge, we feel that the delta V light may very possibly be erroneous. At any rate, we do not see a problem of a short

time nature. We will continue to observe it. We are not very concerned about it at this point and we would like you to feel the same way.

S/C

Thank you for your information and . . .

Cap Com

Roger.

END OF TAPE

This is Gemini Control Houston, 3 hours 55 minutes into the flight. The pilots have confirmed that they've completed their perigee adjusting burn. This started at 3 hours and 48 minutes into the flight. It lasted a little more than a minute. Within the last two or three minutes, we've been talking to them through the Tananarive Station. In reporting the progress of the burn, they said that the burn was interrupted. And then they threw one of the bigger puzzlers at us. They said that at some point midway through the burn a piece of tape or paper or perhaps a strap, I think it was variously described as any one of those things, was observed hitting Lovell's side of the window. They said it appeared to come from the aft end of the spacecraft, around, and bounce off the window at least once, perhaps twice. It apparently did no damage, but it was observed and certainly was unusual and unexpected. We have the tape of that conversation and we'll play it for you now.

TANANARIVE Tanarive Remote.

Better let me have evaporation.

SPACECRAFT Roger.

CAP COM Gemini 7, Houston Cap Com.

SPACECRAFT Hello Houston, this is Gemini 7.

CAP COM Roger, we're standing by for fuel burn. No special information.

TANANARIVE Gemini 7, Houston Cap Com, we're coming up on one one minute to your burn.

SPACECRAFT Roger.

TANANARIVE Mark one minute to burn.

SPACECRAFT Roger.

TANANARIVE Houston how do you read Gemini 7?

CAF COM Loud and clear, Gemini 7.

TANANARIVE Roger. The burn is completed .....for about 2 seconds.....1717.

SPACECRAFT Roger, 1717.

TANANARIVE Understand you burned for 1 plus 17, the burn was interrupted for a couple of seconds, but you did burn a total of 1 plus 17.

SPACECRAFT Roger, roger, and we hit something out there during the burn.

TANANARIVE Understand you hit something during the burn?

SPACECRAFT Yes, Gemini 7 hit something during the burn. Something came fluttering by the right window. It looked like a strap or a piece of tape or paper.

TANANARIVE Understand that something came by the right window like a piece tape.

SPACECRAFT Roger. We had to stop a couple of seconds there and.....the spacecraft. Like a piece of strap from the spacecraft

TANANARIVE Gemini 7, did this look like it came from the nose section?

SPACECRAFT No, it looked like it came from behind and it came up and hit the right side on the window. ....again and I haven't seen it since.

TANANARIVE Roger, and this was during the burn?

SPACECRAFT            That's affirmative.

TANANARIVE            Roger.    Tananarive has LOS.

END OF TAPE

This is Gemini Control, Houston, 4 hours 13 minutes into the flight.

The new orbital elements of this Gemini 7 spacecraft are as follows:

120 miles perigee, apogee 174 miles. Both values are nautical miles.

We have a tape conversation of the Carnarvon pass which occurred about 5 minutes ago and we are prepared to play it for you now.

CAPCOM Copy that Carnarvon

Carnarvon Yea that's affirmative flight, that sound kinda wild.

CAPCOM Who said that?

Carnarvon This is. . . .

CAPCOM Houston Flight

Carnarvon Go ahead flight.

CAPCOM We'd like to check to make sure that he was SEF during that burn.

Carnarvon Just to make sure that he was SEF.

CAPCOM SEF, sef.

Carnarvon Right

This is Gemini Control Houston. Apparently we have some mechanical difficulties with the tape. We will come back to you when it is repaired. Gemini control out.

CAPCOM You can forget that SEF. We will take a look at the data.

Carnarvon Okay.

Carnarvon We are showing biomed recorder number 2 on here at the ground.

We have solid TM on Gemini 7.

CAPCOM Okay we want it off.

Carnarvon Rog, will do.

Carnarvon He's already gone into power-down configuration because we had him turned real time TM and adapter C-band on with RTC.

CAPCOM Rog

Carnarvon Hello Carnarvon CAPCOM

S/C Go ahead.

Carnarvon All roger. We would like to have you turn biomed tape recorder number 2 off, please.

S/C Roger, I just completed.

Carnarvon Roger.

S/C Biomed tape recorder went off at 23 hours 30 minutes and about 30 seconds. Something like that.

Carnarvon Gemini 7, Carnarvon, CAPCOM. Will you give me a readout on your propellant quantity please.

S/C Roger. It reads 67 percent.

Carnarvon Roger. Copy 67 percent.

S/C How about giving us a reading on how we stand on that now, will you please?

Carnarvon Roger, we'll do that.

Carnarvon Standby one here and we will come up with something.

CAPCOM Tell him we will give him an answer over Hawaii and also that we are going to do the critical tape dump over Hawaii and we would like to have him in the proper attitude, rather than Texas.

Carnarvon Okay. What do you have for ACK over Hawaii. Acquisition time.

Stand by

CAPCOM Position is, stand by. In GMT its 235454. That 's GMT.

Carnarvon The nominals we are carrying is 42518.

CAPCOM That's close enough.

Carnarvon Gemini 7

We are going to have the critical tape dump over Hawaii instead of Texas and also Gemini 7 you will be updated with your own usage information over Hawaii.

S/C All set roger.

Carnarvon That's all we have for you at this time. We'll stand by.

S/C Roger. Thank you.

CAPCOM How do his systems look Carnarvon?

Carnarvon They look real good on the ground here.

Carnarvon Gemini 7, Carnarvon. We have an indication here on the ground for an oral temperature from the pilot, does he have have his bulb inserted at the present?

S/C This is 7. Negative. No oral temp.

Carnarvon All roger. Thank you.

S/C Hey on that oral temp, it started our relatively low and it rose to 101 degrees.

CAPCOM That's interesting.

Carnarvon Yea it sure is. I don't know whether he's got sunshine in it or something like that.

CAPCOM I think that happened once in the Gemini V mission.

Carnarvon Same thing happened. We are seeing a reading our there and we wondered what. Thats precisely what they determined it was.

CAPCOM Yea. That could possibly be.

Carnarvon Okay we got all that here flight.

CAPCOM Roger

Gemini Control here again. Earlier in the flight you recall that at the start of the second revolution . . . spotted. This was in the area of Antigua. Due to a mechanical breakdown we did not have that portion of the tape available for you. This was a line breakdown between building 30 and our news center, building 6. Since then we have dubbed the tape off the master tape here in the control center and we are now prepared to play it for you. It contains references to sighting not only some particles but as well an unidentified object plus the booster. Here is that tape. We will play it for you now.

S/C Gemini 7 here, Houston how do you read?

CAPCOM Loud and clear. 7 go ahead.

S/C Boggy at 10 o'clock high.

CAPCOM This is Houston. Say again 7.

S/C Said we have a boggy at 10 o'clock high.

CAPCOM Roger. Gemini 7 is that the booster or is that an actual sighting?

S/C ...

CAPCOM Say again 7.

S/C We have several, looks like debris up here. Actual sighting.

CAPCOM You have any more information? Estimate distance or size?

C/S We also have the booster in sight.

CAPCOM Understand you also have the booster in sight, Roger.

S/C Yea we have a very very many - looks like hundreds of little particles banked on the left out about 3 to 4 miles.

CAPCOM Understand you have many small particles going by on the left. At what distance?

S/C Oh about - it looks like ah path of the vehicle at 90 degrees.

CAPCOM Roger, understand that they are about 3 to 4 miles away.

S/C They are passed now they are in polar orbit.

CAPCOM Roger, understand they were about 3 or 4 miles away.

S/C That's what it appeared like. That's roger.

CAPCOM Roger.

CAPCOM Gemini 7, Houston. Were these particles in addition to the booster and the bogey at 10 o'clock high.

S/C Roger

CAPCOM Roger

S/C 7 ah Houston this is 7.

CAPCOM Go ahead.

S/C I have the booster on my side its a brilliant body in the sun, against a black background will trillions of particles on it.

CAPCOM Roger. What direction is it from you?

S/C It about at my 2 o'clock position.

CAPCOM Does that mean that it's ahead of you?

S/C It's ahead of us at 2 o'clock, slowly tumbling.

CAPCOM Roger

Gemini Control here again. The reference in that conversation to the third unidentified object, of course, was, or the third object was a bo ey. There were several references to the bogey. This is the unidentified object in addition to particles which appeared to be headed in a polar orbit Heard Frank Borman say plus Jim Lovell discussing the booster. It was Borman who reported sighting the bogey. This is Gemini Control Houston at 4 hours 24 minutes into the flight.

END OF TAPE

This is Gemini Control at 4 hours 35 minutes into the mission. Our spacecraft at the present time is over the Pacific ocean and heading for another stateside pass coming up soon over Gauymas, Mexico. Here in the mission control center we are in the midst of a shift change. Our new flight director is Eugene Kranz. Number 1 flight director, Christopher Kraft and his crew will shortly be leaving this center to attend a press conference. At this time we have a playback of a taped conversation between spacecraft Gemini 7 and our Hawaiian tracking station which took place just a few minutes ago.

Hawaii Ground track in Hawaii.

S/C Roger, Hawaii.

Hawaii TM solid in Hawaii.

Gemini 7 Hawaii CAPCOM

S/C Go ahead Hawaii

Hawaii How are you doing up there?

S/C Fine. Trying to get into a . . . . . Configuration . . . . .

Hawaii Okay, we are showing you good here on the ground. I am going to start a tape dump on you and then I'm going to give you an OAMS engine status. So get ready to copy that.

S/C Roger.

Hawaii Are you ready to copy your OAMS data?

S/C Is it much copying involved Hawaii.

Hawaii Roger, . . . .

Up to perigee adjust we show 71 percent actual OAMS remaining  
That's 71 percent.

S/C Roger, understand. 71 percent. My gage is off by 1 percent.

Hawaii Okay. This is 20 pounds. Two zero pounds of propellant more  
than nominal predicted for this time. . . . over, perigee  
adjust two three, 23 ft/sec greater than nominal. We are right  
right on the profile for actual mission activity.

S/C I understand we are right on the profile.

Hawaii Roger. And your new orbit is one two zero by one seven four.

S/C I understand 120 by 174 and I almost right on the money.

Hawaii There you go.

Hawaii Hawaii

Flight Go ahead

Hawaii Okay, the tape dump is looking real fine.

Flight Ah rogs.

Flight C-band?

Hawaii Good C-band, good telemetry.

Flight Roger

S/C This is Gemini 7.

Hawaii Go ahead Gemini 7.

S/C We had requested a change in the crew status report to delay  
the one at four 40 are you sure that Houston knows  
about that.

Hawaii Okay. I will check on that.

CAPCOM Roger. We were expecting the one at four 40. Stand by.

Hawaii Okay

Flight Hawaii CAPCOM, Houston flight.

Hawaii Hawaii capcom.

Flight Tell them that we are still looking for his crew status report over Texas on the copilot here. The command pilot, excuse me.

Hawaii thats the four fourty.

Flight Yea. We were not aware of any change in the flight plan to change that status report.

Hawaii I think he wanted to get it delayed.

Flight Okay, if he wants to get it delayed he will have to give us an idea of about how long and we will reschedule it.

Hawaii Gemini 7 Hawaii.

S/C Go ahead Hawaii, Gemini 7.

Hawaii Are you saying you want to get this crew status delayed until a later time?

S/C Thats roger.

Hawaii About how long do you want to have it delayed?

S/C Actually we don't have all of our exerciser unpacked yet.

Hawaii Okay, we'll pick it up next time around.

S/C We have . . . .

Hawaii Roger, we'll take care of that for you.

S/C Roger.

Hawaii We have completed the tape dump.

S/C I understand . . . .

Hawaii Roger.

This is Gemini Control at 4 hours and 50 minutes into the mission of Spacecraft Gemini 7. At the present time, Spacecraft Gemini 7 is passing over the northern tip of South America on it's fourth revolution around the earth. We have a report from Cape Kennedy and this contains a schedule for the preparations that are going on for the launching of Gemini 6. They will lower the erector at the Cape at between 8:30 and 9:30 p.m. tonight, eastern standard time. The first stage will be inserted into the erector at 11 p.m. eastern standard time. The first stage will be raised in the erector at 2:00 a.m. eastern standard time. The erector will be lowered again at 5:00 a.m. The second stage will be inserted at 6:30 a.m. and will be raised at 9:30 a.m. and at 12 noon, Spacecraft Gemini 6 will be raised atop its booster. At this time, we have some tape conversations that were made between Spacecraft Gemini 7 and the ground tracking stations at Guaymas and in Texas and we will play them back for you now.

Cap Com        Guaymas and you are go on the ground .

Gemini 7, Guaymas Cap Com.

S/C            Go ahead Guaymas, Gemini 7.

Cap Com        Ah, roger. Everything looks good here on the ground.

S/C            Ah, roger, thank you, we are in the process of getting  
ship-shape for 14 days.

Cap Com        Roger, we understand and we have nothing for you this time.  
We'll be standing by.

S/C Thank you.

Flight Cap Com, this is Houston Flight.

Cap Com Go ahead Flight.

Flight Roger, as soon as you get the commands in the C-band and your TX, will you give me a call and then we will pick up the air to ground because we have got some questions to ask regarding this drop.

Cap Com O.K. they are both in

Flight They are both in.

Cap Com Affirm

Flight O.K. and you've got confirmation maps on both of them?

Cap Com I have . . . That's affirm.

Flight O.K. Thank you . . . C-band track at your site, Texas?

Cap Com Flight, we have no C-band here.

Flight Roger, I just got clued in

Cap Com O.K. Texas

Roger, we were not in contact with the spacecraft when we transmitted the TX . . .

Guaymas, Guaymas

What type of TM data are you getting from Texas. Are you getting any help?

Stand by.

. . Texas data, Guaymas

Ah, roger, we are having a lot of drop out - just wondered

whether it was local or in spacecraft TM.

That's . . . pretty good down there.

Roger, thank you.

How's your TM look, Florida?

Solid - it's solid all the way through Texas.

Roger.

Texas, go remote.

Texas remote.

Cap Com Gemini 7, Gemini 7, Houston Cap Com, how do you read, over.

S/C Gemini 7 reads you loud and clear, Houston.

Cap Com Roger, Jim, reading you loud and clear and I've got a few questions on this strap that I'd like to ask you and then we will forget about it. Was it a strap or was it that tape such as a reflective tape?

S/C . . .

Cap Com Roger, Gemini 7, I've got a few questions on this strap you saw at your window during your burn and I'll ask them and then we can forget about it. Was it a strap or was it possibly some tape such as reflective tape?

S/C This is 7 . . . the strap - looked like a strap - it might have been tape came forward about in front of the spacecraft. Just now, we saw the shadow of the tape on the mirrors but earlier in the sunlight the shadow went on by but I can't tell from the shadow what it was.

This is Gemini Control at five hours, 34 minutes into the flight of spacecraft Gemini 7, which at the present time is in its 4th revolution over the earth and is coming up now over the Philippine Islands. We had some voice conversation with the Gemini 7 crew, a remote conversation between the Houston Spacecraft Communicator, Eugene Cernan, here in Mission Control and the flight crew. The voice was being remoted through the Tananarive station and at that time, our Spacecraft Communicator advised the crew that we will make a medical pass on this revolution as the spacecraft comes near the States, and the response from Pilot Jim Lovell said, "OK for the medical pass, but we're still in the process of housekeeping and settling down for a long winter's flight." Now we will play back the voice communication between spacecraft Gemini 7 and Houston Control through the Tananarive station.

TANANARIVE: Go remote.

S/C: Okay Tananarive, remote.

TANANARIVE: Have acquisition.

CAPCOM: Gemini 7, Gemini 7, Houston Capcom, how do you read? Over.

S/C: ...read you loud and clear.

CAPCOM: Roger, we'd like your adapter C-band to Command.

S/C: Unreadable.

CAPCOM: Roger. And how does a medical data pass on the Command Pilot next pass over Stateside? Will that be too soon? Gemini 7, Gemini 7, we'd like medical data pass on the Command Pilot on the next pass over Texas. How does this sound? Over.

S/C: It's fine by us.

CAPCOM: Roger. I'd like your adapter C-band back to continuous until an elapsed time of 05:25. Over.

S/C: Roger. Adapter C-band is on continuous until 05:25.

CAPCOM: Roger. And then you can go back to Command.

S/C: Roger.

CAPCOM: I didn't understand your reply. We'd like to schedule a medical data pass on Frank next pass over the States. Over.

S/C: Unreadable.

CAPCOM: Roger. I understand. We'll nominally schedule it for Texas on the next pass and if you can't hack it, we'll reschedule it.

S/C: Roger. We're still in the process of getting settled down for a long winter's flight.

CAPCOM: Roger. We know.

That was voice communication between Spacecraft Communicator Eugene Cernan here in Mission Control and the flight crew of Spacecraft Gemini 7 which is now over the Philippine Islands at 5 hours and 39 minutes into the mission. This is Gemini Control.

END OF TAPE.

This is Gemini Control. Spacecraft Gemini 7 is now passing over the Pacific Ocean and very shortly will come up on the Hawaiian station. A few minutes ago, as Spacecraft Gemini 7 was within voice range of the Coastal Sentry Tracking Ship, we had conversation with the crew. This was a data pass and we will now play back that tape for you.

S/C This is Gemini 7 - go ahead.

Cap Com Ah, roger, what's your status as far as being ready for your medical data pass?

S/C . . . just a second - I think we will be ready.

Cap Com O.K. we have a medical data pass scheduled for the pilot at Hawaii this trip - Hawaii's acquisition is 6 hours 0027

S/C . . . Houston . . . want us to do a . . . stand by with status over Texas. Over.

Cap Com I'll check. That's affirmative.

. . . want us to do it on the pilot over Hawaii also?

Cap Com That is right. Pilot over Hawaii as you read them. The Command Pilot over Texas at an elapsed time of 6 hours and 15 minutes.

Roger, Flight. Gemini 7, roger, you have one on the pilot for Hawaii and the command pilot at Texas at Texas acquisition time is 6 hours and 15 minutes.

Roger, understand

CSQ            Ah Roger. I would like to also know if you have made plans  
                 for your sleep periods.

S/C            Ah, Roger, we're giving it consideration . . .

CSQ            Roger. I have a map update when you are ready to copy.

S/C            Gemini 7 ready to copy.

CSQ            Roger. Title is "Node time 05 41 24, remarks rev 4, 115.0  
                 east 13 hours 45 minutes 35 seconds right Ascension. Do  
                 you copy?

S/C            . . . roger, copied.

CSQ            Now, would you verify your cryo gaging switched off. Quantity  
                 read off.

S/C            This is 7, we're planning a tape dump at this time but will  
                 turn it off early.

CSQ            Roger. Flight, did you copy off.

Flight        Affirmative.

CSQ            . . . LOS, Flight.

Flight        Roger, roger, CSQ.

That was taped voice communication between the Coastal Sentry tracking  
ship and spacecraft Gemini 7.

This is Gemini Control 5 hours and 58 minutes into the flight of Gemini 7.

END OF TAPE

This is Gemini Control at six hours, and 19 minutes into the flight of Spacecraft Gemini 7. At this time our spacecraft is approaching the northwest coast of South America on its fourth revolution over the earth. A few minutes ago as the spacecraft passed within voice range of the Hawaiian tracking station, we had conversation between that tracking station and Gemini 7 crew, and at that time, our flight surgeon at Hawaii had a medical data pass on the pilot, Jim Lovell. He got a good blood pressure. Lovell did an exercise period, and this was followed by another blood pressure check. Jim Lovell also gave us a food and water report. He reported there was no food intake on the part of either of the crew of Gemini 7. He said that the command pilot had taken four ounces of water, and that he himself had two ounces of water since the flight started. At this time, we will play back the taped voice communication between the Hawaiian tracking station and Spacecraft Gemini 7.

JAP COM Gemini 7, this is Hawaii Cap Com.

S/C Roger, Hawaii.

CAP COM Gemini 7, Hawaii Cap Com.

S/C Go ahead, Hawaii.

CAP COM OK. We've got that valid oral temp. Standing by for your blood pressure.

S/C Roger.

CAP COM I'll be transmitting you a TX here shortly, so you're going to get a DCS light.

S/C Thank you.

CAP COM ..... intermittent TM. Haven't locked up yet.

FLIGHT Roger. How did you know you had a valid oral temp yet?

CAP COM Say again.

FLIGHT If you had intermittent TM, how did you know you had a valid oral temp?

CAP COM We could get it good enough that way, Flight.

FLIGHT I'm sorry, Hawaii.

S/C Hawaii, Gemini 7. Our fuel cell Delta P light went off and stayed off for approximately ten minutes or five minutes and then came back on.

CAP COM OK. .... scale. Tell me what time it went off.

S/C Off at 5:57 and back on at 6:01.

CAP COM Roger. Got it. We copied that. Stand by for surgeon. We have a good blood pressure. We're standing by for your exercise on your mark.

S/C Roger. I will commence the exercise at this time. Mark. Stand by for blood pressure.

CAP COM Up at full scale. We have a good blood pressure. Standing by for your food and water report.

S/C Roger. Stand by. This is 7. No food. The command pilot -- four ounces and the pilot -- two ounces so far.

CAP COM Roger. OK. We can approve all that. You said that the light was off from 57 to 014 minutes?

S/C That's the approximate time. Roger.

CAP COM OK. Thank you. You did get the DCS light, didn't you?

~/C                   Affirm.  
CAP COM               OK. C-Band loss. .... Hawaii.  
FLIGHT                Roger, Hawaii.

That was taped voice communication between Spacecraft Gemini 7 and the Hawaiian tracking station. At this time Spacecraft Gemini 7 is about to start its fifth revolution over the earth, and as it passes through the South Atlantic region where the Van Allen radiation belt dips close to the earth's surface, the spacecraft will initiate experiments MSC2 and MSC3. These are MSC2 -- an external measurement of the radiation in this region; and MSC3 is measuring the radiation inside the spacecraft. Both of these experiments are for gathering data which may be helpful on future spacecraft flights. This is Gemini Control.

END OF TAPE

This is Gemini Control at 6 hours and 34 minutes into the flight of spacecraft Gemini 7 which at the present time is approaching the east coast of South America on it's fifth revolution around the earth. A few minutes ago, as the spacecraft passed within the range of the Texas tracking station at Corpus Christi, our flight surgeon attempted to get a medical data pass on the command pilot, Frank Borman. Due to an equipment difficulty at the Corpus tracking station, the data was not fed into MSC here at the Control Center and we did not receive the medical data pass. This will be attempted again very shortly as the spacecraft Gemini 7 passes over the Rose Knot tracking ship which is located off the east coast of South America. We will now play back for you the voice tape - remote voice - from Mission Control in conversation with spacecraft Gemini 7.

Cap Com Gemini 7, Gemini 7, Houston Cap Com. We have a . . . give us a blood pressure and stand by for surgeon.

S/C . . . give a blood pressure, Houston.

Cap Com Negative - no blood pressure yet.

S/C Houston, Gemini 7, are you receiving the blood pressure?

Cap Com Gemini 7, this is Houston surgeon. We are not receiving your blood pressure.

S/C . . . . not pumped up at all?

Cap Com That's negative.

S/C It's pumped up - now pumped up full scale.

Cap Com Roger. We are not receiving it.

Cap Com, this is Houston flight. Do you still see TM data down at your site?

Cap Com Roger and also we have that blood pressure at full scale - we had it at full scale.

S/C Houston - Gemini 7 - we are going on with the exercise. Maybe you can . . . blood pressure somewhere else.

Cap Com Okay, Texas, if you receive the blood pressure full scale, why don't you take it down there. Do you have a surgeon?

Negative - no surgeon. Did have it full scale, it's down again now, I think.

Okay.

S/C Houston, Gemini 7 here, are you ready for the exercise?

Cap Com Gemini 7, Gemini 7, we had a TM drop out problem. We'd like to try this again over the RKV if you will.

S/C Roger. You don't want the exercise . . . right . . .

Cap Com Negative on the exercise. We'd like to start the crew status report again over RKV.

S/C Okay, give me a mark will you?

Cap Com Roger, will do.

Gemini 7, Houston, RKV acquisition 6 plus 35.

S/C Roger, thank you.

Cap Com Roger and the crew status report from the . . . remains at  
three.

S/C Thank you.

Cap Com Gemini 7, Gemini 7, time at the RKV is more like about 6 plus  
32 - 6 plus 32.  
RKV Cap Com . . .  
Go ahead RKV  
A few items - a medical data pass on the command pilot, have  
got the crew to give us some C-band track over Pretoria. That's  
0646 to 0700.  
. . . you're on?  
. . . excuse me. The times are 6 hours and 46 minutes to  
7 hours 00 minutes ground elapsed.  
Ah, roger.  
Cap Com surgeon.

That was voice taped of the voice conversation between the spacecraft  
Gemini 7 and Mission Control Center here in Houston remoting the voice  
through the Corpus Christi tracking station. This is Gemini Control at  
6 hours and 38 minutes into the mission of Gemini 7.

END OF TAPE

This is Gemini Control at 6 hours and 43 minutes into the mission of spacecraft Gemini 7. Our spacecraft has just passed out of voice communication range with the Rose Knott tracking ship of the east coast of South America and we will playback for you now the taped communication, voice communication between the spacecraft and that tracking ship.

RKV CAPCOM

S/C            Alright RKV CAPCOM

RKV            Roger. Our signals are green. We would like you to turn on the C-band beacon for track at Pictoria and a lapse plan of zero six four six and turn it off at zero seven **two zeros**.

S/C            Stand by. Turn the C-band on at zero six four six and off at zero seven zero zero.

RKV            Roger, Roger.

S/C            How about a blood pressure .

RKV            Roger. You can start pumping the cuff up.

RKV            RKV, Houston Flight.

Flight        Okay

RKV            Any instructions to pass up to the crew.

Flight        Okay. Towards the end of your talk you can find out what their intentions are in beginning a sleep period.

RKV            Roger will do.

Flight        We have your pressure and it is fine.

RKV Okay this is surgeon. Let's have your exercise.

Garbled

CAPCOM I believe someone has their mike open out there.

RKV Okay flight I will get all that squared away.

S/C Exercise complete.

RKV Can I have your blood pressure again?

Okay Gemini 7 your cuff is full.

Garbled - We have your bloodpressure and do you have a water and food report for us?

S/C Command pilot 3 ounces of water since Hawaii - garbled -

Pilot 2 ounces - garbled.

RKV RKV Gemini 7 Keep your C-band on at 36.

S/C That's adapter C-band. Okay, thank you.

RKV Turn it back to command position. Turn it back to command and at zero six four six put it back to continuous.

S/C Roger, will do.

RKV Do you have any idea what you plan on doing about your sleep period?

S/C We are going to eat a meal and then we are going to sleep.

RKV Okay

S/C garbled

RKV Acquisition RKV

S/C Okay flight about 45 seconds.

RKV Okay still looking good.

S/c Roger

RKV Okay. Blood pressure up there?

S/C . .

RKV Okay

S/C . .

RKV Why

S/C A lot of care went in.

RKV Yes somebody out there was keyed to your sight. We heard them back here.

S/C . .

RKV Okay, I was going to say something but I thought I would let you sweat a little.

S/C I appreciate that flight.

RKV . .

S/C Roger RKV

That was taped voice communication between spacecraft Gemini 7 and the Rose Knott tracking ship. The Rose Knott located off the east coast of South America. We are now 6 hours and 47 minutes into the mission of spacecraft Gemini 7. This is Gemini control.

END OF TAPE

This is Gemini Control at 7 hours and 4 minutes into the mission of spacecraft Gemini 7 which at the present time is passing over the Indian Ocean on it's fifth revolution around the earth. A few minutes ago as the spacecraft Gemini 7 was within remote voice range of the Mission Control Center in Houston through the Tananarive station, the spacecraft was updated for the D-4 and D-7 experiments. These are celestial radiometry measurements. They measure the radiation intensity of both ground objects and celestial bodies in space such as the moon and the stars. The sensing units that do these measurements are housed in the adapter section of the spacecraft and they are directed toward the object to be measured by orienting the spacecraft. And we will now play back that voice tape.

Cap Com Gemini 7, Gemini 7, Houston Cap Com. I have your D-4, D-7 updates if you are ready to copy. Over.

S/C . . . stand by . . Hello Houston, this is Gemini 7 . . for updates.

Cap Com Okay, D-4, D-7 updates. The time 08 29 06, sequence number 111 mode 02. Time 09 10 20, sequence 411 mode 02. Time 10 44 10, sequence 411 mode 04. Recorder on for 30 seconds. Time 11 26 45, sequence 411, mode 02. That's it.

S/C This is 7. Roger on the D-4 and D-7.

Cap Com This is Houston, Roger.

S/C Tananarive has . . .

Cap Com Roger, I would also like to know if you have made plans for your sleep periods.

S/C . . Gemini 7, roger, we are giving it consideration - we're getting ready.

Cap Com Roger. I have a map update when you are ready to copy.

S/C Gemini 7 ready to copy.

Cap Com Roger. Title is "Note time 05 41 24 remarks rev 4 115.0 east 13 hours 45 minutes 35 seconds . . . Ascension.

S/C We copy.

Cap Com Would you verify your cryo gage is switched off? Cryo switch off.

Roger.

Flight, you copied off?

Affirmative.

. . . Flight.

Roger, CSQ.

That was taped voice communications between the Coastal Sentry Tracking Ship and Spacecraft Gemini 7. This is Gemini Control 5 hours and 58 minutes into the flight of Gemini 7.

END OF TAPE

This is Gemini Control at 7 hours and 19 minutes - now 20 minutes into the mission, 7 hours and 20 minutes. Our spacecraft has just passed over Vietnam on it's fifth revolution around the earth. In our flight plan, according to our program, flight plan program, our pilot is in an eat period and our command pilot, Frank Borman, command pilot is in a sleep period and the last word we heard during voice communications with the spacecraft - they told us that they did intend to eat and to sleep so we assume that they must be following this flight plan. We have had no voice communication with the spacecraft for the past 30 minutes and we expect that we will not have voice communications for at least another 10 minutes. And at this time we are 7 hours and 21 minutes into the mission. All systems aboard the spacecraft are in a go condition and the crew is in excellent physical condition.

This is Gemini Control.

END OF TAPE

This is Gemini Control at 8 hours and 19 - now 20 minutes - 8 hours and 20 minutes into the mission of spacecraft Gemini 7 which at the present time is over the South Atlantic and coming up on the west coast of Africa. We have not had a voice communication with the spacecraft for quite some time now - almost an hour - except for a very brief conversation with pilot Jim Lovell over Hawaii and at that time the tracking station consisted of telling Jim Lovell to merely turn his C-band transmitter to the ON position. As the spacecraft passed over Hawaii according to the telemetry data that was received on the ground, neither command pilot Frank Borman nor pilot Jim Lovell appeared to be sleeping but both were quiet. We have a report from Cape Kennedy on the amount of damage sustained on pad 19 due to the launch of spacecraft Gemini 7. There was no structural damage. One servicing line to the spacecraft which passed cryogenic hydrogen to the spacecraft needed to be replaced and this is expected to be replaced and completed around noon tomorrow when the booster and the spacecraft are scheduled to be mated on the pad. There was a routine burnout of electrical cabling such as happens on every launch. There was no damage to the boom to the umbilical line and to those who are working on the pad, getting it repaired for the launch of Gemini 6, they say now that they feel that they are approximately 30 minutes ahead of their work schedule. So everything is proceeding well at the Cape and in our flight of Gemini 7, the crew is in excellent physical condition and all systems aboard this spacecraft are go.

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Our Flight Director, Gene Kranz, about an hour ago instructed the Com stations, the ground tracking stations to keep voice communications with the spacecraft to an absolute minimum so that the pilots - command pilot and pilot can get some rest.

This is Gemini Control at 8 hours and 22 minutes into the flight of spacecraft Gemini 7.

END OF TAPE

This is Gemini Control at 9 hours and 3 minutes into the flight of spacecraft Gemini 7, which at the present time is passing over the Pacific Ocean on it's way toward the Hawaiian tracking station. This pass should bring it well within the range of that station. The spacecraft shortly, a few minutes ago, passed over the Coastal Sentry tracking ship located in the Pacific and at that time the crew was instructed to conduct a purge of the fuel cells. This is a routine purge that takes place every 6 hours when the spacecraft is powered up and approximately every 12 hours when it is powered down. The crew reported that the fuel cell light that has been on and had caused some concern in the early moments of the flight has gone out. It had turned out - it went out at 8 hours and 26 minutes of elapsed time and is still out at this time. And it should be out under normal operating conditions and we will play back for you now the taped voice communication between the spacecraft Gemini 7 and the Coastal Sentry tracking ship. Go.

CSQ Gemini 7, CSQ

S/C Go ahead, CSQ.

CSQ Okay, your next purge will be 13 hours 45 seconds. That's over the CSQ.

S/C 13 hours 45 seconds.

CSQ That's on 8 and at that time we will advise you . . . your new purge cycle.

S/C Roger. Be advised our fuel light has been out now about . . . that's 8 26.

CSQ Say again time.

S/C 8 26

CSQ 8 26, Roger. We confirm on the ground also, Flight.

Flight Roger, CSQ.

CSQ Everything looks real good on the schedule.

Flight Roger. Are you monitoring or observing his purge cycle there?

CSQ Affirmative.

Flight Okay.

CSQ Flight Charlie Dog 03 is now reading 37.4.

Flight Roger. Okay, you can do away with any further reporting in that ... check.

CSQ Roger, Flight, cycled through his quantity read switch, but it was too fast to get a reading.

CSQ Gemini 7, CSQ, we copy the end of the purge - looks real good here. We'll stand by.

S/C Seven, roger.

CSQ LOS on PCM.

Flight Roger, CSQ. Everything looked good during that purge.

CSQ Looked real good Flight.

That was the taped voice communication between spacecraft Gemini 7 and the Coastal Sentry tracking ship in the Pacific. This is Gemini Control.

END OF TAPE

This is Gemini Control at 9 hours and 20 minutes into the flight of spacecraft Gemini 7 which at the present time is passing over the Pacific ocean and has just gone out of voice range with the Hawaiian tracking station. As the spacecraft passed over Hawaii the ground station reported that neither flight crew member appeared to be sleeping. That is from the readout of the ground data. But both appeared to be quiet. We have a report from Cape Kennedy - we had a report - I think we passed that on some time ago on the damage sustained on pad 19 due to the launch of spacecraft Gemini 7 and I believe we did pass that on a short while ago but we will go over it now. First there was no structural damage to the pad. However, one servicing line to the spacecraft needed replacement and this will be done around noon tomorrow when the booster and the spacecraft are mated on the pad. There was a routine burnout of some electrical cabling but there was no damage to the boom or the umbilical line. And it appears to those people who are working on the pad repairing it, they say that they are approximately 30 minutes ahead of the schedule. Here in the Mission Control Center at Houston everything has settled down to what appears to be a routine flight. Our flight director, Eugene Krantz, describes the mission thusfar as a beautiful flight. Everything going perfectly. Our flight surgeon, Dr. Fred Kelley says that from his data the crew is in excellent shape. And our reports from the ground tracking stations as the spacecraft passes over the readouts from the ground data look very good. And we did report, also, that the fuel cell light which had been on indicating a malfunction, but it was determined that the light was faulty and not the system. The fuel cell light has gone out. It went out at 8 hours and 26 minutes of flight.

GEMINI 7/6 MISSION COMMENTARY, 12/4/65, 10:50 p.m. . . . . Tape 53, Page 2

And so at this time everything on the flight of spacecraft Gemini 7 is proceeding normal and we look good. This is Gemini Control.

END OF TAPE

This is Gemini Control at 10 hours and 20 minutes into the flight of spacecraft Gemini 7 which at the present time is in its 7th revolution over the earth and is coming up - just passed over the Indian Ocean. Our last voice communication with spacecraft Gemini 7 was approximately 1 hour and a half ago. Our flight director, Eugene Kranz had ordered the ground stations to not have voice communications with the spacecraft so that the pilots could get some rest. However, at ground elapsed time of 9 hours and 45 minutes as the spacecraft passed over the Rose Knott tracking ship off the east coast of South America, that tracking station reported that both pilots appeared to be awake. There was no voice communication with the spacecraft and at that time our flight director, Eugene Kranz, talked to Charles Mathews, the Gemini program manager, who is at Cape Kennedy. And during part of that conversation, Kranz took the occasion to tell Charles Mathews that spacecraft Gemini 7 is a real good spacecraft. Here in mission control center the blue team of flight controllers are arriving to take over direction of the Gemini 7 flight. The shift changes in 10 minutes. Flight director, Eugene Kranz, who will be going off duty will attend a press briefing along with astronaut Gene Cernan, our spacecraft communicator, and John Aaron, our electrical and electronics controller. And visiting the control center here a few minutes ago was Dr. Robert Gilruth, director of the Manned Spacecraft Center, and James Alms, deputy associate administrator for the office of Manned Space Flight, Washington, D.C. They have been shuffling in and out of the Control Center all day and had returned to make a last late check on the procedures here. We have a report from Cape Kennedy that the

Titan 2 first stage booster for spacecraft Gemini 6 has been erected on pad 19 and the crew there is now approximately 1 and  $\frac{1}{2}$  hours ahead of their schedule. This is Gemini Control at 10 hours and 22 minutes into the mission.

END OF TAPE

This is Gemini Control 11 hours and 50 minutes after lift-off. Gemini 7 spacecraft is now crossing the northern portion of the Indian Ocean. The next tracking station to acquire the spacecraft will be the Coastal Sentry tracking ship off the coast of Japan in approximately 13 minutes. Here in Mission Control the Blue Team of Flight Controllers is settling down for a long night. Fairly quiet activity in the mission. During the seventh revolution just completed, the Coastal Sentry reported that the spacecraft looked good on telemetry and the Aeromedics reported that both pilots were awake at that time. The present measurements or ephemeris of Gemini 7's orbit - is 119.8 by 173.9 nautical miles. That is perigee and apogee, respectively. Midnight visitors here in Mission Control during the shift change was space walker Ed White who was Gemini 4 pilot and also backup command pilot for this mission. And also, Mike Collins, backup pilot for Gemini 7. During the seventh revolution pass over Hawaii, they received an update for their on-board navigation chart. That is a point at which a certain or given orbit crosses the equator on an ascending node during the pass over the tracking ship Rose Knot, all systems were green as reported by the Rose Knot Cap Com. The crew, both of whom were awake, received flight plan updates, however, the command pilot had been scheduled to be asleep at that time. And there was also a telemetry dump of data from the spacecraft to the Rose Knot. At 11 hours and 52 minutes after lift-off, this is Gemini Control.

END OF TAPE

This is Gemini Control 12 hours 20 minutes after lift-off. Gemini 7 should now just be entering the acquisition area of the Canton Island voice remoting station. However, it is quite unlikely there will be any conversation during this pass for during the recent pass just a few moments ago over the Coastal Sentry tracking ship off Japan the crew made it quite plain that they want to sleep until 8:00 in the morning, Houston time. At that time they had both been taking cat naps. During the pass over the Coastal Sentry they received some planned landing area updates. Just routine updates of possible landing areas in case the occasion should arise. This is Gemini Control at 12 hours and 20 minutes after lift-off

END OF TAPE.

This is Gemini Control 13 hours and 19 minutes after lift-off. Gemini 7 has now just entered the ninth revolution. It is now over the Red Sea. A short time ago, the spacecraft passed over the tracking ship Rose Knot. The spacecraft communicator out there, Bill Garvin, has commented that both the pilot and the command pilot appeared to be asleep. Blue Team Flight Director John Hodge told Garvin "don't bother them, let them sleep". Somebody has to be awake though for this next pass over the Coastal Sentry tracking ship off Japan because a purge of the fuel cell system is due during this pass. A telemetry tape dump was also accomplished during the pass over the tracking ship Rose Knot and spacecraft communicator Garvin said that everything looks good from where he was. This is Gemini Control.

END OF TAPE

This is Gemini Control 14 hours 20 minutes after lift-off.

Gemini 7 spacecraft is now nearing the end of the 9th revolution in this 14 day mission. During the pass earlier in this revolution and over the tracking ship, Coastal Sentry the spacecraft communicator Charles Lewis, aboard that ship said that both of the crew were asleep. At acquisition however he did raise them on the radio to get them to accomplish a scheduled fuel cell purge. This purge has been completed. Flight director, John Hodge, told Lewis aboard the ship to advise the crew that radio silence would be maintained until 20 hours elapsed time. The next station to acquire the spacecraft will be the tracking ship Rose Knott off the east coast of South America in approximately 9 minutes. Meanwhile down at Kennedy Space Center pad 19 the erector was lowered at 2:38 central standard time in preparation for placing the second stage of the Gemini launch vehicle in the erector. That will be raised tomorrow morning. Or I should say this morning. We have a tape of the pass over the tracking ship Coastal Sentry which we will hear now.

CSQ CSQ flight

S/c All right CSQ go ahead.

CSQ Does it look as though everybody was sleeping when you came over the hill.

S/c Standby. CSQ we are purging . . .

CSQ Roger Gemini 7 CSQ. Your next purge will be at Carnarvon at approximately 20 hours. Approximately 20 hours.

S/c Approximately 20 hours.

S/C Next purge at 20 hours at Carnarvon.

CSQ Affirmative. Also we would like to have you bring your fuel cell O<sub>2</sub> tank pressure up to 400 psi on your gauge.

S/C Roger

CSQ That should be sufficient for the sleep period.

S/C Roger

CSQ Houston would like to know if you have placed your film pack in the plastic bags?

S/C Roger.

Houston Don't worry about the status report.

CSQ Say again flight.

S/C We have placed all but . . garbled - in the plastic bags.

CSQ I copy. Say again flight.

Houston I say don't bother them about the flight plan report. We can fix that up in the morning.

CSQ Roger, flight.

We are prone to believe they were asleep when we acquired.

Houston Okay. CSQ Houston Flight.

CSQ Go ahead

Houston You tell them that we are going to maintain radio silence now until 20 hours elapsed time.

CSQ Roger flight.

S/C CSQ Gemini 7. Purge complete.

CSQ Roger we copy your purge. Would you give us your quantity read switch in the ECS O<sub>2</sub> position. Until my mark.

S/C ECS O<sub>2</sub>.

CSQ Okay would you go to fuel cell O<sub>2</sub> please?

S/C Fuel Cell O<sub>2</sub>.

CSQ Roger, okay fuel cell H<sub>2</sub> please.

S/C There's my H<sub>2</sub>.

CSQ We will try to maintain radio silence until about 20 hours elapsed time. We are through with your quantity read switch we got good readouts.

That was probably the last radio communication that we will have with the Gemini 7 spacecraft for about the next 6 hours. At 14 hours and 24 minutes after lift-off this is Gemini control.

End of tape

This is Gemini Control 15 hours 20 minutes after lift-off. Gemini 7 is now just east of the Philippines Islands nearing the end of the 10th revolution. Towards the beginning of this 10th revolution the spacecraft passed over the tracking ship Rose Knott, off the coast of South America and a comparison of times in the retrofire clocks on the ground and aboard the spacecraft showed that they are both in sync. This was done by radio command inasmuch as the two astronauts are asleep. Also the fuel cell oxygen cryogenic oxygen pressure is now standing at 450 pounds. The Rose Knott tracking ship was released for the night by the flight director, John Hodge, with a thank you to spacecraft communicator, Bill Garland. Just a few moments ago the spacecraft made the last pass of the night over the tracking ship Coastal Sentry. Spacecraft communicator Charles Lewis reported that all systems were go from the Coastal Sentry. The next station to acquire the spacecraft will be the Canary Islands station in approximately 56 minutes. At 15 hours and 21 minutes after lift-off this is Gemini Control.

End of tape

This is Gemini Control 16 hours and 20 minutes after lift-off. Gemini 7 spacecraft has just crossed the African Coast and is just south of the Canary Islands tracking station. Jim Fucci, the spacecraft communicator with the Canary Island station, reports that the crew is resting at the present time and that all systems are go on the ground. Radio silence is still being maintained at this time. This is Gemini Control at 16 hours 20 minutes after lift-off.

END OF TAPE

This is Gemini Control. Seventeen hours and 20 minutes after lift-off. Gemini 7 is presently over the south central Pacific and will be crossing the west coast of South America within a few minutes. The next station to acquire the spacecraft will be the Antigua station in the Eastern Test Range in approximately 23 minutes. About a half hour ago, Flight Director John Hodge, went around the horn as they say, and checked all the Flight Controller positions to see if they had any problems and none of the Flight Controllers reported any problems. The Red Team of Flight Controllers under Chris Kraft are beginning to come in to relieve the Blue Team. A late report from Kennedy Space Center, the spacecraft no. 6 is now at the Launch Complex 19. It arrived there at approximately 6:30 c.s.t. The second stage was erected at 5:00 a.m. c.s.t. and they are approximately 2 to 3 hours ahead of schedule. When Chris Kraft was told of these happenings, his comment was "that's what I like to hear." At 17 hours and 21 minutes after lift-off, this is Gemini Control.

END OF TAPE

Good morning, Gemini Control here on the 12th revolution, the first quarter of the 12th revolution, 18 hours 1 minute into the mission. An advising from the Cape that the spacecraft is being hoisted at this time, being hoisted to the top of pad 19, some 3 hours ahead of schedule. It looks like more than that, about 4-1/2 hours ahead of schedule, quoted last night. The spacecraft just passed the Canary Islands. Station radio silence was maintained; however, the surgeon at the Canaries and Dr. Berry here at the Control Center confirm that the crew did appear to be awake. They could tell this from the biomed readings here on the ground. However, radio silence was maintained. The flight plan calls for them to continue the sleep period until 4000 hours, but we would expect perhaps some conversation will occur over the Carnarvon station about 30 minutes from now. That acquisition is at 57 minutes after the hour. The Weather Bureau gives us the following advisory this morning - says the weather conditions are unseasonably good in the areas critical to the Gemini 7 space flight. Favorable weather is expected to continue through the next few days to the flight in most areas. In the mid-Pacific zone centered about 800 miles east northeast of Honolulu, broken cloudiness with scattered showers. Winds will be northerly, 15 to 20 knots, seas 5 to 8 feet. In the western Pacific, about 700 miles south by southeast of Tokyo, skies will be partly cloudy, winds northeast 15 knots and seas 5 feet. In the eastern Atlantic, centered about 500 miles north of the Cape Verde Islands, partly cloudy skies with winds 15 knots, seas 4 feet. In the primary landing zone, the western Atlantic, about 500 miles east of Miami,

GEMINI 7/6 MISSION COMMENTARY, 12/5/65, 7:31 a.m.      Tape 62, Page 2

acceptable weather conditions will prevail with broken clouds and widely scattered showers, winds southeasterly by 15 knots, seas running 4 feet. Interesting meteorological features which will be overflowed during the next 2 days include tropical cyclone Alice in the Indian Ocean south of the equator. This is Gemini Control Houston

END OF TAPE

Gemini Control here, 18 hours 49 minutes into the mission, and in the last 5 minutes we had a brief conversation between the crew and the Carnarvon Station. As we suspected, they were awake, Borman said they were having breakfast. It was suggested they might go on back to sleep - but they - Borman reported they both felt well enough, they felt rested, and they thought they'd stay up. Borman reported that the delta P light, a source of some concern the early part of the mission, had blinked back on at 17 hours 47 minutes elapsed time, which would be about 1 hour ago or 7:20 - 7:15 c.s.t. It had been out for a period of about 2 hours and he was reporting over Carnarvon that it had come back on. Borman also reported some slight drop in the hydrogen pressure. Fuel fell down to about 130. This will be brought up to 175 - 180 pounds. The other elements systems readings this morning go like this: the environmental control system oxygen remaining we show here on the ground 100 percent. This compared to a lift-off value of 107.2 percent. Fuel-cell oxygen remaining 97.9 percent in contrast to 101.1 percent, at launch. Fuel-cell hydrogen 100 percent compared with 106 percent at launch. And OAMS fuel - 73 percent. We have the taped conversation on the Carnarvon Pass and we'll play it for you now.

CARNARVON Gemini - Carnarvon

S/C Go ahead

CARNARVON Roger. We just said you can go back to sleep.

S/C Roger. We had a pretty good night's rest, now we're having a little breakfast.

CARNARVON Roger, understand

We show you go here on the ground and we'll be standing by.

S/C Okay. We'd like to hear someplace how much the spacecraft delta P lights are on .....

CARNARVON Roger.

Houston Tell him we don't think it's any problem at all.

CARNARVON We don't think it's any problem - on your delta P light at all.

Did you copy?

S/C Roger. I realize there's no problem but what's causing it?

CARNARVON Well, ..... we're still working on that one.

S/C Okay, thank you

CARNARVON LOS, Flight

Houston Rog.

END OF TAPE

Gemini Control here at 19 hours 20 minutes into the mission. About 4 minutes ago, the Antigua station acquired the spacecraft. It is a silent pass, and some 5 to 10 minutes from now at 55 minutes after the hour, the Canary Island station should acquire and hold the spacecraft for a 7 minute and 47 second pass which will also be silent. However, readings will be taken of the telemetry aboard from that C-band adapter - that C-band antenna in the adapter. All quiet and we expect to wake up the crew and start the normal daily routine at an elapsed time of 20 hours, some 40 minutes from now. This is Gemini Control Houston.

END OF TAPE

This is Houston. We just got a report from the Cape that spacecraft 6 and its launch vehicle were mechanically mated at 9:05 a.m. c.s.t. Earlier it had been reported that some more than 50 technicians were working in the white room area to accomplish this mate and it was reported to us at 9:05 a.m. our time. This is Gemini Control Houston.

END OF TAPE

Gemini Control Houston here, 20 hours 20 minutes into the flight on the 13th revolution. The flight director has just advised that the crew will be awakened during this next pass which will carry us across the southern extremity of our stateside tracking network, should be in conversation with them on the order of 5 to 6 minutes. The pass then will carry out across the Canaries and swing over the northern edge of the Kano acquisition area, and all in all should be a fairly talkative period. They will get a flight plan update. They will be advised that they are to carry out the D5 experiment, starting at approximately 21 hours elapsed time. This will be performed in the Canary-Kano area. They will also use their vision testing device in the same area, and their report on the crew status, how much food, water they have had, and how they feel. The D5, or star, tracking device is one by which they can find their position by taking sightings on some six known stars. The stars that are tracked to the horizon, the times are carefully recorded. Also, the intensity of the stars is measured by a photomultiplier device which can be attached to their helmets or held to their eye. This is Gemini Control Houston.

END OF TAPE

Gemini Control Houston here. Twenty hours 57 minutes into the flight and we've just been talking with the crew. Jim Lovell answered Elliott See's call this morning about 10 minutes ago and Jim is certainly sounding bright-eyed and bushy-tailed, at least he was from his opening comment which went like this - "good morning, it's about time you guys got to work down there." Then he made some reference to 2-weeks vacation with pay - it wasn't very clear whether he was referring to the ground or the crew. Then followed a most interesting discussion of the fuel cell, what we suspect are the leading contenders for this strange action of the light, which goes on and off and with no set pattern. Lovell also advised us of the water intake of the two men. He said as of this hour Frank Borman had drunk 61 ounces of water and he, Lovell, had consumed 52 ounces of water. We have the tape, of course during this pass we did perform successfully a fuel-cell purge of both hydrogen and oxygen. We have the tape of that conversation and we'll play it for you now.

HOUSTON Gemini 7, Gemini 7, Houston CAP COM. How do you read?

S/C This is 7 ..... Good morning, it's about time you'll got to work.

HOUSTON We were just thinking the same thing. We're ready to put you to work.

S/C Two-weeks vacation with pay.

HOUSTON Ok. Are you wide awake and ready to go?

S/C Righto. The pilot is now taking himself a temperature measurement from the Dr.

HOUSTON Roger. We'd like to give you'll now a source on the fuel-cell situation and we're also ready to take a fuel-cell purge from you.

S/C Roger, we're standing by listening.

HOUSTON Okay, why don't we go ahead and get the purge started?

S/C Roger, we'll purge now. Go on purge.

HOUSTON Roger.  
Gemini 7, we don't see anything. Have you started the purge?

S/C Roger, we've started the purge.

HOUSTON Roger, we've got it now.  
Frank, I'd like to suggest you get the update book out, we'll be giving you some updates as soon as possible here.

S/C It's already out.

HOUSTON Okay. Will I interrupt anything if I give you an update during the purge?

S/C Negative.

HOUSTON Okay. I have a mode update for you. Time 20 plus 38 plus 33. That's Rev 13, 114.7 West, 13 plus 26 plus 43 right ascension. Copy?

S/C Roger. Understand 13 plus 26 plus 43. Was that correct for the right ascension?

HOUSTON That is correct.

S/C Okay. Go ahead.

HOUSTON Flight plan update. We have a crew status report on the next pass that will be at 22 plus 17 plus 00.

S/C Okay.

HOUSTON Okay. And we'd like you to be prepared to give you as much - for you to give us as much data as you can on both of you since we're running a little behind, at that time.

S/C Roger

HOUSTON We have a radar transponder test at 22 plus 20 plus 00, Sequence 01. Remarks OFF at 22 plus 28 plus 00.

S/C Roger.

HOUSTON Have a D-4/D-7 at 22 plus 56 plus 00. Sequence 409 - and 40 correction - 409 and 410. Mode 02. Do you copy?

S/C Roger. Go ahead.

HOUSTON Got a crew status report at Carnarvon on the pilot at 23 plus 11 plus 00. We have exercise at 23 plus 21 plus 00. Do you copy okay?

S/C Loud and clear.

HOUSTON You can begin your eating preparation at 23 plus 31 plus 00. We'll have a fuel-cell purge at 23 plus 49 plus 00. A D-5 at 24 plus 15 plus 20. Sequence 01, Mode 01. You have S-8/D-13 25 plus 28 plus 52. Sequence 02. Pitch 30, down - yaw 13 degrees left. Closest approach 25 plus 29 plus 47. Do you copy?

S/C Do I understand you want us to purge again in 4 hours. Is that correct?

HOUSTON That's what we're planning at the present time, Gemini 7.

S/C Okay. Be all quiet?

HOUSTON I'll discuss the fuel cell with you here as soon as the purge is complete.

S/C Purge is complete, Elliott.

HOUSTON Okay. Here's a little run-down on what we think the situation is on that light. Can you give us a quantity read-out on the fuel-cell hydrogen and oxygen? Just give us the switch position for each one, we'll read them out here on the ground

S/C Roger. They're on fuel-cell oxygen now.

HOUSTON Roger. Okay. Give us the other one.

S/C Fuel-cell hydrogen.

HOUSTON Roger. Okay. A brief discussion here on fuel-cell light as we can see it, we think the most likely reason is an accumulation of tolerances of the delta P light transducer and the regulator cause a pressure difference between the water reference to the regulator and the delta P switch. In other words, just an accumulation of tolerances here which is giving us a light that is really not indicative of the true condition.

S/C Roger, thank you.

HOUSTON It's not much help I guess, but that's what we think is the most likely thing. A run-down on the other possibilities, the next most likely thing we think is a defective delta P switch. The third possibility is a water valve closed or some restriction in the water line, and that would pose a problem, but we feel that we can handle that even, even if it means shutting down that fuel cell, and we feel this will be indicated by a deterioration in the performance of that fuel cell over many hours. We'll be able to watch that build up, it won't pose any hazardous condition at all. And the last possibility is a regulator which is slightly out of tolerance. We think the latter two things here now are not very hot probability but they are possibilities. Do you have any other items or suggestions?

S/C Negative.

HOUSTON Okay. Do you have a water reading handy for us at this time Gemini 7?

S/C Stand by.

HOUSTON And do you have a propellant quantity read-out?

S/C This is 7. Propellant quantity is 68.

HOUSTON 68?

S/C Roger, 68 percent.

HOUSTON Roger.

Would you place your quantity read switch to the fuel-cell  
O<sub>2</sub> position again?

S/C Houston, CP drank 61 ounces of water.

HOUSTON 61 ounces for CP, Roger.

S/C Rog.

And P drank 52 - 52 ounces of water.

HOUSTON That's roger. 52 ounces for the pilot.

And what were the times of those final readings?  
The time marked down, or the last water entries?

S/C Roger. CP was 18 plus 50.

HOUSTON Roger. 18 plus 50 and yours Jim?

S/C 18 plus 30 for mine.

HOUSTON 18 plus 30 - Roger.

S/C Ask Chris why do we have with the crew . . . . .(garbled)

HOUSTON Roger.

HOUSTON Next time over we'll get this crew status report from you  
and give you an update on the news.

END OF TAPE

This is Houston at 21 hours 9 minutes into the flight. We are on the 14th revolution. During a brief interchange at the Canary station just passed, the only new information gleaned was the fact that both pilots slept with their helmets on last night. There was additional peripheral discussions, but we have about a 50-second conversation I believe ready to play for you. The command carrier is still out. We can remote through the Kano station, although Elliot See advises he has nothing additional for the crew at this time. We expect no more conversation. Here's the tape of that brief Canary pass. We will play it now.

AFT            Canary Cap Com, AFT

S/C            Go ahead, AFT, Canary

Canary        Okay, I guess you copied our pass, we updated the flight plan and got a fuel cell purge. Do you read so forth. We want you to get a tape dump this pass, also C-band track.

S/C            Okay . Then the real-time TM will be on at acquisition.

Canary        Is it still on?

S/C            . . . .

Canary        Also the C-band

S/C            Also the C-band is still on, okay.

Canary        Space, AFT

S/C            . . . .

Canary        Okay, we would like you to look at the quality of that C-band beacon. They reported a poor quality over the ETR this pass.

S/C Roger, will do.

Houston FLT Canary Cap Com, Houston Flight

Canary Go ahead, Flight

FLT You might ask them if they both have their helmets and gloves off.

Canary Okay

Cap Com AFD

S/C Go ahead, AFD

Canary AFD O K/cap com didn't pass up two items on the flight plan, he was trying to save time and cut corners, and the two items are the 22, 35, 000, which is a PIF update at the Canaries, and 23 52 00, it is a go-no go for 31-1 at Texas, and you can pass those up.

Canary Okay.

Canary zero zero PLA update over Canaries, that is on the next pass over.

S/C Roger

Canary At 23 52 00, it is a go-no go for 31-1 over Texas.

S/C Roger, thank you

Canary Okay. What is the status of your helmet and gloves, are they on or off.

S/C garbled

Canary Okay

Hou FLT Would you give me a read back on what he said about the helmet and gloves status.

Canary           Okay, at . . . helmet and gloves, both helmet and gloves were off in regards to 17-1. Jim Lovell says that he had his helmet and gloves off and Frank Borman was taking his helmet off . . .

Hou FLT          . . . Ask them if they had their helmets on while sleeping.

Canary           Roger.

Canary           Cap Com, Canary

S/C              Go ahead, Canary

Canary           The guys have been asking who had his helmet on while he was sleeping.

S/C              We both did.

Canary           Okay, understand

Canary           A report on the C-band track, at TCA we lost quality in the C-band

S/C              Rog

Canary           garbled

S/C              Rog

Canary           They are taped up

Houston FLT     A change in the light when we purged over the Cape

Canary           garbled

Houston FLT     Information to the crew when we passed it up on the fuel cell

Canary           Roger, we copied the whole thing.

Houston FLT     Roger

Canary           Tried to get this on a daylight cycle basis. So we find out  
if it comes on in the daytime and goes off in the daytime.

Houston FLT     Yeah, it doesn't seem to be anything we can correlate this  
thing with. The water that they have drunk also indicates  
that the pressures we're seeing in the water tank would be  
about what you would expect so far anyway. So it looks like  
the thing is producing water, and it is being accepted in  
tank.

Canary           Roger

END OF TAPE

Houston here - 21 hours 46 minutes into the mission. We have a conversation taped by the Carnarvon station which we'll play for you now.

CARNARVON I have TM solid.

CAP COM Roger, Carnarvon

CARNARVON Hello, Carnarvon CAP COM.

S/C Go ahead Carnarvon, Gemini 7.

CARNARVON Roger. Looks real good here on the ground. Latest tracking data shows that your orbit is 120.2 by 173.4.

S/C Thank you.

CARNARVON Roger. We have nothing else for you this pass, we'll be standing by.

S/C ... to Carnarvon. We do have this stuff here - just a minute ago. We've got something dragging from the rear end of the spacecraft. It plops in front of the window sometimes. It looks like some of the calking or cover that goes round the primacord where the adapter connects to the booster.

CARNARVON Uh, Roger, understand.

HOUSTON Flight, tell him that's what we guessed it probably was.

CARNARVON Jim, this is what flight guessed that it probably was that you had seen before.

S/C Roger.

CARNARVON Everything looks real good from here.

S/C Roger. Carnarvon?

CARNARVON Go ahead.

HOUSTON Roger. RF here on site reported that we had a sharp cut-off on TM signal strength and then it came back on again fairly fast. We're going to take a closer look at it. It almost looked like he switched something over in the spacecraft

or the transmitter dropped out momentarily.

HOUSTON FD Asked him if he made any switching in the TM?

CARNARVON Gemini 7, Carnarvon CAP COM.

S/C Go ahead Carnarvon, 7.

CARNARVON Roger. We noticed a little sharp decrease in TM signal strength here. Did you do any switching on telemetry?

S/C We're dumping here on it.

CARNARVON Roger. Understand.

S/C Is that better now? We just turned this dump switch off.

CARNARVON Yeah, it was just a momentary dropout, it wasn't very long.

S/C Rog.

CARNARVON ..... LOS everything is going LOS

HOUSTON Roger, Carnarvon.

END OF TAPE

Houston here, 22 hours 14 minutes into the flight. The spacecraft shortly upcoming on a stateside pass which Texas will control primarily, as soon as we make acquisition through the Guaymas site. We will remote immediately through Texas.

During the course of the pass, we expect to get a major medical summary of the crew status of the flight. There will also be some flight plan updates that Elliot See will be passing on. Experiments through the next orbit call for such things as D4/D7 experiment in the next night-side roughly Tananarive, also some crew exercises along about Carnarvon. That would carry us through, I believe, the next revolution.

One of the interesting shift developments that has come about during this flight occurs in the Flight Dynamics area. They are in what we call the front trench of Control Center, where about four controllers work. They have decided to work 24-hour shifts straight through. They actually aren't on the floor for 24 straight hours. It amounts to about 16 to 17 hours, and while the spacecraft is off the range, that is, going over stations that cannot supply flight dynamics with the kind of data they normally need, the C-band data and the like, they do take time out and catch a nap here in our bunk room in the Control Center. They are scheduled for 24 hours of work and they are scheduled for 48 hours off for a team of three, and they will follow that alternation pattern throughout the flight. We should have contact momentarily, and we want to tune in and follow the progress of this pass as it develops. The Goddard Space Flight Center which handles the voice loops on our world range. The Texas station

has just been advised to go remote through Guaymas, and momentarily we should have a contact. We expect a fairly long pass on the order of 12 to 15 minutes. The orbit swings directly across the Gulf, just north of the tip of Yucatan peninsula. The spacecraft will be passing almost directly over Miami in a northeasterly direction, swinging up just south of Bermuda and make its turn and start south. There is Elliot See putting the first call through and here's the answer.

Cap Com        I would like to advise you we would like to have the UHF 6 pass this time, is that okay with you?

S/C            Roger, stand by.

Cap Com        We are receiving your oral temperature, give us a blood pressure and stand by for the surgeon.

Surgeon        Gemini 7, this is surgeon, your cuff is full scale.

S/C            Roger

Houston here, that is Dr. Berry's voice you heard come on the line talking about the cuff. He's reading out the blood pressure data here on the ground. Let's go back and listen in. There will probably be some long pauses here during the blood pressure readings.

Dr. Berry       Gemini 7, we have a good blood pressure, standing by for your exercise.

S/C            . . . another blood pressure

Dr. Berry       Roger

Dr. Berry Gemini 7, cuff's full scale.

Dr. Berry Gemini 7, we have a good blood pressure. Could we start with your sleep report, Frank?

S/C Roger, we - Jim and I slept . . . last night, I imagine we each got about 4 to 6 hours sleep last night.

Dr. Berry Okay, Frank. I would like to get some idea about the depth of that sleep. It appeared to us from the ground and all our records here that you were sorta in and out most all the time that was programed.

S/C Experiment. It was rather light sleep.

Dr. Berry Okay, could we get the food report?

S/C Roger. We have had two meals, . . . we are now preparing our third meal.

Dr. Berry Okay, you have had meal A and meal B, both of you and you are preparing the third meal. Were the bulk of meal A and B both eaten?

S/C I ate everything but some bites of beef sandwiches. Jim ate it all meal A and B. We both are saving our gingerbread for dessert at noon meal.

Dr. Berry Very good.

Dr. Berry Can you add anything to the water report yet, Frank, from the last time that we got the water?

S/C Say again, Houston, Gemini 7

Dr. Berry Gemini 7, this is Houston surgeon. We had 61 and 52 ounces reported for water, and have you added anything to that?

S/C I added 81 ounces for the pilot that is a total of 81 for the pilot and a total of 88 for me.

Dr. Berry 81 pilot, 88 command pilot?

Dr. Berry Gemini 7, this is Houston surgeon. Can you tell me about this exercise, Frank, have you been able to do it before each of the meals so far. Have we done it 10 minutes as programmed?

S/C Negative. We are going to start with this meal.

Dr. Berry Start this meal. Okay.

S/C Roger

Dr. Berry Gemini 7, Frank, can you tell me about the suits? Are you fairly comfortable in the suits as they are presently configured?

S/C Yes, I think we are both fairly comfortable. It is a little warmer than we thought it would be based on Pete and Gordo's experience. We are running full cold and we are just comfortable.

Dr. Berry Full cold and just comfortable. Okay. How about the M-1 noise. Do we understand that you had the helmets on during sleep last night. Can you hear any noise from the M-1 and is it functioning all right at the present time?

S/C We had our helmets on but not our hoods, of course, and you can hear the M-1 and it makes noise when it is functioning.

Dr. Berry I read that you can hear the M-1 and it does make noise. Is that affirm?

S/C That is one of the reasons we were told to sleep as light as possible. We are getting used to it now, Chuck.

Dr. Berry Okay, we better check that again tonight, and we may want to turn that off then so we can be sure we get enough rest here tonight. Your rates and things here look very fine, Frank. You are both levelling out very well. There have not been any abnormalities that we have been able to see at all, and we have a report from both your families. They asked us to get the word to you that they are all okay. Sue is on her way back from the Cape and arrives here sometime about 2:30 this afternoon, and said to tell you that everybody is okay. Marilyn said the same, Jim.

S/C How did the oilers make out?

Dr. Berry They haven't yet, playing today.

S/C Let us know this afternoon how they make out

Dr. Berry Roger.

Dr. Berry Gemini 7, this is Houston surgeon. Do you read?

S/C Okay, Chuck

Dr. Berry Frank, you were going to try to do some estimates of voided volume. We will wait for that to a later time. Do you think this is helpful, are you going to be able to do that? If so, just say yes or no, and we can try to get it on a later pass.

S/C Negative. I don't think we will be able to give you an accurate volume.

Dr. Berry Okay, fine. We will dispense with it and not even try it then.

S/C Affirmative

S/C Chuck, for your information, this water unit is working very well and the (IV) unit is also functioning very well.

Dr. Berry Gemini 7, This is Houston surgeon. I read that the water gun was working very well. I didn't get the last unit that was functioning.

S/C garbled

Dr. Berry Roger

S/C Houston, this is Gemini 7, can you give us a time hack on elapsed time, please.

Cap Com Roger. I'll give you a hack at 22 26 45. Mark! 22 26 45.

S/C Roger. The elapsed timer is working perfectly, we haven't lost or gained a second on you.

Cap Com Roger.

Cap Com Got some news reports here, Frank, if it is a convenient time.

S/C Roger. Incidentally, Jim has turned on the radar transponder hope you are reading it.

Cap Com Roger.

Cap Com The first item is everyone on the Wasp is very happy about your launch. Their theme song is "I'll be home for Christmas"

Cap Com           Next news item. We had two airliners had a collision up near New York yesterday. Fortunately, most of the people did survive. There were six lost, but 106 survived. One airplane landed with about a 30-foot section of wing off. The headlines in the Post today say GT-7 and spent rocket flight/<sup>play</sup>tag. They 've got very nice pictures of both Susan and Marilyn on the cover. Down at the Cape, things are going real good. Setting up Gemini 6, running about 4 hours ahead of schedule. Tennessee beat UCLA 37 to 34. The Buffaloes plays the Oilers here today and Minnesota is at Green Bay today. That is all we have right now.

S/C               . . . . look down there.

Cap Com           Roger.

Cap Com           Incidentally, back to the strap hanging on the back of the spacecraft. We sorta surmised yesterday that the report that you gave on the skidding tne front end was caused - perhaps fell over in front of one of the aft thrusters during your perigee adjust maneuver, and that caused it to flop up in the front. You probably deduced the same thing by now.

S/C               The strap came forward . . . .

Cap Com           What we are saying is the reason it flopped up forward is probably drifted over in front of the thruster at the time you were firing and that threw it up there.

Cap Com           Gemini 7, Houston. Have you turned the transponder off at this time?

S/C Roger. Transponder is off.

Cap Com Roger.

Cap Com Gemini 7, Houston, we are about to lose contact. We will get your flight plan report on the next pass.

S/C This is 7. Roger. . . .

Cap Com Roger

This is Houston here again, 22 hours 31 minutes into the flight. In the course of that 16-minute pass across the United States, we got the most complete medical update we have had so far during the mission. You heard Frank Borman say that both had slept last night on the order of 4 to 6 hours. Neither very soundly. Certainly, Frank says the sleep he had was not deep. So they are running a little bit light on sleep. They are eating what the flight plan calls for, and the water intake appears to be about right. They said they are a little bit warmer than expected, a little bit warmer than the Gemini 5 crew experienced, but fairly comfortable. The one reference to the Bill Huffstetler device which was repeated is a reference to a urine collection device in the spacecraft which apparently is working quite well. This is Gemini Control Houston.

END OF TAPE

This is Houston - 22 hours 47 minutes into the flight, and during the Canary Pass the crew received a number of planned updates for the next 4 revs. They were also queried as to whether they had gotten into the right-aft food box which concern here was to insure the ground here that they were eating the proper food in the proper sequence. The report came back that they were, in fact, in the right-aft food box and everything progresses very satisfactorily. Here's the tape from the Canary Pass.

CAP COM AFD      Cap Com AFD

Canary            Go ahead, AFD - Canary

FD                Okay. You have your mission instructions, you have your PLIA updates?

CANARY           Roger.

FD                Okay. And EECOM left the C-band and telemetry on for you.

CANARY           All right. Flight and thank you.

FD                Okay. Any questions?

CANARY           No questions.

FD                Okay. We're standing by for your pass.

CANARY           Okay. You're in solid.

FD                Roger, Canaries.

CANARY           Gemini 7, Canary Cap Com, Com Tech .....

S/C                You're coming in loud and clear.

CANARY           Roger. We have you go on the ground, in good status.

S/C                ..... loud and clear waiting for an update,

CANARY           Okay. Ready to copy?

S/C                All set.

CANARY           17-1, 25, 17, 08. 14 plus 20. 18-4, 28, 07, 21. 15 plus 19.  
19-4, 2-, 42, 38. 14 plus 34. 20-3, 30, 57, 47. 17 plus 02.  
21-3, 32, 34, 02. 15 plus 45. You look for a rolling reentry

and the weather in all areas is good.

S/C Gemini 7 roger and thank you for the transmission, just the right spacing.

CANARY Roger, you're welcome. We'll be standing by.

..... CAP COM HOUSTON FLIGHT.

CANARY Go ahead, Flight

HOUSTON Would you ask the crew if they saw any evidence of venting when they purged the fuel cells, in particular, the hydrogen?

CANARY Roger.

CANARY 7 - Canary

S/C This is 7 go ahead Canary.

CANARY Did you notice any venting while you were purging the fuel cells, especially in the hydrogen?

S/C We didn't notice any, and also we didn't notice any delta P light on the first section.

CANARY No delta P on the first section while purging and you didn't get any sort of venting at all?

S/C Not to our knowledge.

CANARY Okay. Copy.

HOUSTON We copied. We'd sort of like to know if they got the right-aft food box unstowed?

CANARY Go ahead, flight.

HOUSTON Again, we'd like to know if they got ---

CANARY CAP COM I can barely read you.

HOUSTON I said I'd like to know if they got the right aft-food box unstowed?

CANARY I cannot read you flight. Say again.

HOUSTON Was that their voice control?

CANARY Flight, Canary, I cannot read you.

HOUSTON Can you read me now?

CANARY Very, very weak. Go ahead, say again.

HOUSTON We would like to know if the crew has gotten the right aft-food box unstowed?

CANARY I can't read you Flight - cannot read you.  
Hello, this Canary. Can you give us a conference on 2 as well as 1 this time, we're fading bad on 1.

HOUSTON Roger, Roger.

CANARY Canary voice check.

HOUSTON I read you loud and clear, how me?

CANARY Very, very weak. You might say again. I might catch it.

HOUSTON Okay. We want to know if the crew got the right aft-food box unstowed?

S/C I copy Flight, Gemini copy.

HOUSTON Can you copy?

CANARY Say again, Flight, I read you better.

..... if copies, we'll get it.

HOUSTON We want to know if the crew got the right aft-food box unstowed?? Do you copy that?

CANARY .....

S/C Our right aft-food box unstowed?

HOUSTON That's affirmative.

S/C Okay.

CANARY We'd like to know if you got the right aft-food box unstowed?

S/C Roger. Since purge we're in mission configuration everything's in good shape.

CANARY Roger. Understand.

S/C The only hitch in our stowage plan was caused by our putting those magazines in our plastic containers.

CANARY Roger. Copy.

HOUSTON We copied that.

CANARY We have TM LOS.

HOUSTON Roger.

CANARY You copy me, Flight?

HOUSTON Affirmative.

CANARY Okay. I had to cut you off there while I talked because there was so much noise on the line, but they did say that they did unstow the right aft-food box and they are right now in mission configuration, and the only thing that happened to them in any way was getting those magazines in those plastic containers. Do you copy?

HOUSTON Affirmative. We copy.

CANARY Ok.

END OF TAPE

This is Houston, 23 hours, 23 minutes into the flight. We're on the fifteenth revolution. We've just completed a medical data pass on Jim Lovell by the Carnarvon station. Not too much of a talk interchange there. Of more significance upcoming during the next pass across the United States, the Gemini 7 crew will be given a go for a 31 revolution flight. That is they will be given go ahead for a 31-1 flight. We have the Carnarvon tape and will play it for you now.

CRO Gemini 7, Carnarvon.

Spacecraft Go ahead Carnarvon

CRO Roger. We have you go on the ground, we also are receiving a valid temperature from the pilot. Stand by and I'll hand you over to the surgeon.

CNV Surgeon Hello, Carnarvon, surgeon standing by for your blood pressure.

Spacecraft Rog. Pressure is full scale.

CRO Carnarvon

FD Carnarvon, FD, go ahead.

CRO Roger, we show everything go on the ground.

FD Roger, we copy.

CRO Rog. Negative..... at this time.

CRO Surgeon Gemini 7 Carnarvon Surgeon, we have a valid blood pressure, standing by for mark when you start your exercise.

Spacecraft Begin exercise now.

CNV Call it sea land track at Carnarvon.

CRO Surgeon Copy valid .....

Spacecraft .....completed .....blood pressures.

CRO Your cuff is full scale. You still have a valid blood pressure. Do you have any change in your food or water intake to report?

Spacecraft This is 7, negative. We're going to start our exercise program about this time.

CRO Gemini 7, this is Carnarvon, check.

Spacecraft No changes in food or water to report at this time but we'll be starting our exercise program.

CRO Surgeon Understand, no change. Carnarvon Surgeon out.

CRO Seven, you don't have to acknowledge this, we still have you go on the ground, we'll be standing by.

Carnarvon

FD Go ahead Carnarvon

CRO Fuel cell O2 BAO2 reads 413 psi.

CNV FD 413?

CRO 413. O H2VA O4 reads 193, ECS O2 CA O2 reads 608. That's getting down pretty low. Close to the limits but....

FD All Right

CRO Roger, we're still go here on the ground. Everything looks good.

Houston That's all those limits so let's let him worry about it.

CRO Rog, flight.

CRO Carnarvon.

Houston Go ahead

CRO I don't think I got the real time PM off but

I did get.....for LOS.

Houston Rog

CRO I got a reject on my real time PM off.

Houston Rog

END OF TAPE

This is Houston, 23 hours 43 minutes into the flight on the 15th rev. Momentarily the Guaymas station should acquire in what will probably amount to a 16 to 18 minute pass across the United States. In the course of this pass the Flight Plan calls for the crew to perform another fuel cell purge. This will be done over the Texas station. They are also to advise us on their quantity readings - on their breathing oxygen, on their fuel cell oxygen, fuel cell hydrogen quantities. This is all the Flight Plan shows for during the pass. Guaymas has just advised they have acquisition aid contact, the first beacon, which does acquire, and we are standing by for the first voice interchange. Still no talk from Guaymas. They would acquire at 18 minutes and 37 seconds, that would have been nearly a minute ago. Beyond the stateside pass occur for them another D-5 Experiment, the Star Occultation Experiment wherein they take sightings of at least 6 stars.

This is a new experiment to Gemini and it is aimed toward perfecting simple onboard navigation system to back up the rather elaborate electronic navigation systems which are available to them in the spacecraft as well as on the ground. A little later over Carnarvon they are to start their exercise program. This is in addition to the normal bungee cord exercises which precede each blood pressure measurement. We're standing by for Guaymas contact. They may be having a little bit of difficulty down there with their transmitter. Now Guaymas advises they do have telemetry contact. Guaymas says that all systems look good on the ground. Now the Texas station is remoting and let's follow that discussion.

HOUSTON Gemini 7, Gemini 7, Houston CAP COM. How do you read?

HOUSTON Gemini 7 Houston. How do you read?

S/C Houston - 7 - read you loud and clear.

HOUSTON Roger. You have a go for 31-1. Stand by to receive a TR update.

S/C Roger. Have a go for 31-1.

HOUSTON Gemini 7 did you get an update indication?

S/C This is 7 roger. Dp's line up and up.

HOUSTON Roger. Checks out good here too.  
Standing by for a fuel-cell purge.

S/C Roger.

HOUSTON Is Frank available to talk to while you're doing that Jim?

S/C If that'll ease you. Go ahead.

HOUSTON Frank, we have an opportunity to take a picture of the Houston area on this pass, it's not real close, but if you're able to you might take one. And on the next pass we have an S-8/D-13. Laredo, the weather is very good and very clear, we have smoke-pots set up along the north edge of the pattern, the wind is from the south, and you should have a real good opportunity there, and there will be an even better opportunity to take a picture of Houston on that pass if you can manage to do it after the Laredo pass. Of course the S-8/D-13 has top priority.

S/C Roger. When did they move that to Laredo? I thought that was in California?

HOUSTON You mean Yuma. Maybe it's still in Yuma.

S/C Gemini is purging now.

HOUSTON Roger, observing the purge.  
You have a TX on the way, Gemini 7.

S/C Thank you.  
Are you observing the purge?

HOUSTON Roger. We're observing the purge.

S/C Okay.

HOUSTON The reason we're asking for this picture of Houston is we have unusually clear weather here at the present time we thought it would be a good opportunity to take a picture.

S/C We will try.

HOUSTON Roger.

S/C Elliott, this is Gemini 7, we missed you.

HOUSTON Okay. Well, you were about 120 miles away on this pass so I'm not too surprised. But the next pass should be real good.

S/C Roger. Jim took a picture of Mobile, he recognized Cookie, you know he always stops there for gas.

HOUSTON Roger.  
Even Jim couldn't make it without stopping in Berkley today.

S/C .....

HOUSTON Observed you've completed your fuel-cell purge. We would like fuel-cell quantity cryo readouts for approximately 20 to 30 seconds on each position.

S/C Roger. Going to oxygen.

HOUSTON Roger.  
And Gemini 7 could you give us what you have in the way of a flight plan report at this time?

S/C Roger. We have completed everything on the flight plan detailed in general up to this point plus one humidity sensor reading.

HOU Roger.

Gemini 7 would you also give us a readout on ECS O<sub>2</sub> quantity?

S/C Roger. I am now going to CO<sub>2</sub>.

HOU Roger.

We're asking for an ECS O<sub>2</sub>.

S/C Roger. I'll get you both.

ECS O<sub>2</sub>.

HOU Roger.

AOS 91

HOU Gemini 7. Do you have any S-8/D-13 vision tests or scores that you could give us?

S/C Not right now, Elliott. We didn't understand that would be on real time and we have 'em on cards and they're put away. Check with one of the other sights.

HOU Okay. We did want those out real-time and that will be good on a future site. We hope you'll have good luck on S-8/D-13 on that next pass. It's very clear weather and as I said, the smoke-pots are all set up along the north edge. They're trying to get a smoke generator set up on the northwest corner, they're not sure they'll have that. But there are a lot of smoke-pots along the north edge there so it should be well marked.

S/C Roger. We'll be looking, ..... here we have our GO--NO-GO quantities on the fuel-cell for you.

HOU Go ahead.

S/C 1-A reads 3.5. 1-B 4.0. 1-C 4.0. 2-A 3.5. 2-B 3.5.  
2-C 4.5.

HOU Roger.

S/C RCS A - 3000, temperature 75. B - 3000, temperature 75.  
Left-hand secondary O<sub>2</sub> - 5400. Right-hand secondary O<sub>2</sub> - 5200.  
All main batteries are 22 volts or above.

HOU Roger.

S/C Voltage in the main bus is 27.3.

HOU 27.3 main bus voltage roger.

Gemini 7, have you noted any improvement in the fuel-cell performance following the purges?

S/C We have noticed no change.

HOU Roger.

This is Gemini Control again. Apparently we are out of range from the Bermuda Station so we will conclude this pass at 24 hours 5 minutes into the mission.

END OF TAPE

This is Houston, 24 hours, 20 minutes into the flight. We are on the 16th revolution. The spacecraft just south of the Kano station. Gemini 7 was just advised that we on the ground were standing by if they had anything that they could advise us and they said they were performing the B5 star measurement experiment. They had nothing new. This is Gemini Control.

END OF TAPE

This is Houston, 24 hours, 36 minutes into the flight. We're on the 16th rev. In the last few minutes, we've had a conversation between Elliot See and Frank Borman remoting through the Tanarieve Station. Borman reported that he was having some difficulty with his D-5 experiment equipment. He said the filter through which the stars are sighted, in the eye piece, the reticle, is remaining green all the time when it should be switching to a secondary color, red. Elliot See advised that we do not know exactly what's wrong with the equipment, immediately. We're working on it. And will come back to him later. Earlier there was reference to some film, a picture of Houston was asked because it is a clear sunny day here. It was suggested to catch one on the next pass. The Gemini 7 crew is carrying the film packs giving the capability of taking more than 500 still pictures. They also have some 16mm motion picture film, something over 700 feet available of that. The general plan was to reserve much of the motion film for the rendezvous exercise with the Gemini 6 spacecraft. We have the tape of the Tanarieve pass, we'll play it for you now.

TAN Tanarieve has acquisition.

SPACECRAFT This is Gemini 7

HOUSTON This is Houston, go ahead Gemini 7.

SPACECRAFT (garbled).....

HOUSTON This is Houston, Gemini 7. We're not reading you very clearly, will you say again slowly?

SPACECRAFT Roger. The spectrometer will not change from red to green. The verticle is green all the time. Is there any position you want us to use.....

HOUSTON Roger, stand by. Gemini 7, Houston. We are working on it. We'll probably not have an answer very quickly. Gemini 7, do you read? Gemini 7, Houston, do you read? Gemini 7, Houston, do you read?

SPACECRAFT Fine, Houston, Gemini 7.

HOUSTON Rog. We understand your D-5 reticle is green all the time. We are working on the problem. We do not expect to have an answer quickly. Do you copy, 7?

Gemini 7, Gemini 7, do you read Houston?

SPACECRAFT Rog, read you loud and clear go on.

HOUSTON Did you copy my transmission?

SPACECRAFT Roger, say again, please.

HOUSTON We understand your D-5 reticle is green all the time. We are working on the problem. We do not have an answer.

SPACECRAFT Thank you.

HOUSTON Roger

END OF TAPE

This is Houston, 24 hours 54 minutes into the flight, spacecraft over the heart of Australia. In the Carnarvon discussion just ended, we had a little better explanation of the problem with the photometer. Carnarvon also reported they had an excellent visual sighting of the spacecraft. This is the second or third perhaps we have had today around the world. It is just breaking dawn in Australia, so they would have had an excellent sighting opportunity. We have the Carnarvon tape and will play it for you now.

Carnarvon Cap Com Carnarvon

S/C Flight, Carnarvon, Gemini 7

Carnarvon We have your TM solenoid ground, you look good. We would like to get more information on your T-5 reticle as you can give it to us, a detailed description.

S/C Roger. The reticle, when you push the calibrate button, it should turn red and then as you advance the gate wheel it turns from red to green. This one stays green at all times so we are running the experiment with the gate wheel pulled down.

Carnarvon Roger, copy.

. . . . . Flight

FLT Affirmative

Carnarvon I have a flight plan update for you, if you are ready to copy, if not, we can give it to you over Hawaii.

S/C Roger, I would like to hold off on that, we don't have any lights on, we're trying to stay dark adapted for the stars. Then I want to get set up for SAD-13 over Texas.

Carnarvon Roger. We will hold off til then over Hawaii

S/C Thank you.

Carnarvon Goddard C-band track flight

Flight Rog. Would you give us another main, your first was garbled.

Carnarvon Roger, coming your way. Can I give you our A-Summary, flight?

Flight Affirmative.

Carnarvon Rog. Carnarvon, we're showing him in pulse mode with a little thruster activity.

Flight Rog

Carnarvon Carnarvon, We've got a visual on the spacecraft.

Flight A visual on the spacecraft. Rog. What time of day is it there?

Carnarvon Just before daylight.

END OF TAPE

This is Mission Control. Twenty five hours 19 minutes into the flight. The Hawaii Capsule Communicator, Ed Bendel, has just run through a major flight plan update with the crew carrying them through the next 7 to 8 hours. On this next upcoming pass across the States they will, for the first time, try the S-8/D-13 Experiment. This involves the large 2000-ft squares near Laredo, Texas laid out in such a way with the slants bearing directions in the squares and the pilots are to spot them and call out the - what they see - the direction of the slants. The site down there at Laredo, some 40 miles north of Laredo, is well-marked we're told with smoke-pots, there is additional smoke west of Laredo to aid them. The weather is clear and we're hopeful they will acquire today. The Gemini 5 crew had some trouble spotting it largely due to clouds and also they had a fuel problem later in their flight. During the Laredo pass the crew will pitch the spacecraft down 50 degrees and they will yaw left 15 degrees. Meanwhile we've got the Hawaii tape, we'll play it for you now.

HAW Gemini 7 Hawaii CAP COM

S/C This is 7 - go ahead

HAW How're you doing up there this morning?

S/C Looking great, looking great.

HAW Okay. We're showing you go here on the ground. Do you want to copy this flight plan update at this time?

S/C This is Gemini 7. We're ready to copy and also we should confirm the yaw instructions for the S-8/D-13 Experiment.

HAW Okay. The yaw instructions for S-8/D-13. Yaw - 13 left.

S/C Roger. Understand 13 - 13 degrees left. Thank you.

HAW Okay. Here we go.

... That's 13.

HAW MSC 12: Time 27 00 3 minus. Sequence 01. Pitch 30 degrees, down. Yaw - 0 degrees. D-4/D-7: 27 00 3 minus. Sequence 41 minus, Mode - 02. Concurrent with MSC-12: Mode - correction - Sequence 421. Mode 02. Same remarks. Sequence 422, mode 02, same remarks. D-4/D-7: 27 14 00. Equipment - OFF. MSC-2 and 3: 27 15 00. Sequence 02. OFF at 42 00 00. D-5: 27 15 00. Sequence 01. At 28 37 00 - Crew Status Report - Command Pilot. 28 44 00 - Purge fuel-cells over Canaveral. MSC-2 and 3: 2 minus 00 00. Sequence 03. Stop at 29 20 00. The rest of these are S-8 - correction the next one is S-8/D-13: 29 42 00. Sequence 04. 29 57 00 - Crew Status Report from the Pilot at Hawaii. At 31 33 00. You have a planned landing area update. At 31 55 00 - Radar Transponder ON. At 32 05 00 Purge fuel-cells at the RKV. At 32 05 00 - Radar transponder OFF - it'll be end of test and I have a correction when you're ready.

HOU That transponder off is - -

S/C This is Gemini 7. I have copied. Say again.

HAW Okay. The Crew Status Report on the Command Pilot at that time will be over Texas.

HOU And the transponder should be off at 3212.

S/C Roger, Hawaii, I have it all written down and the Crew Status officially is (interrupted by

HOUSTON ..... Flight

HAW                   Okay. They want to change that transponder OFF to 32 12 00.

S/C                   Roger. Changing the last transponder OFF to 32 12 00.

HAW                   Affirmative.

                      Anything else, Flight?

HOU                   Negative. Well done.

HAW                   Okay. We'll be standing by here if you need anything else.

                      Do not acknowledge.

That was taped voice communication between spacecraft Gemini 7 and the Hawaii Tracking Station. At this time, we are - the spacecraft is passing over the United States and will shortly be coming up on the Texas Tracking Station and at this time we are 25 hours 26 minutes into the flight. This is Gemini Control.

END OF TAPE

This is Gemini Control at 25 hours 30 minutes into the flight. Our spacecraft, at this time, is over the Texas tracking station, and we will now give you live voice communication between the spacecraft and that tracking station.

S/C Roger. I couldn't read the . . .

CAP COM Roger. I understand you read a 3 and a 4. Do you know what squares those were on?

S/C They are on the biggest one 3 2 and 4, that 's all I could read.

CAP COM A 3, a 2, a 4 on the first three squares, is that correct?

S/C . . . helped a lot because I was on my way past the data at the time.

CAP COM Okay, dead eye.

CAP COM How about the picture of Houston. Were you able to do anything with that?

S/C We missed that the last time. By the time we got to Houston, we were . . .

CAP COM How about this pass?

S/C We're just about pointing straight up now, Elliot, we would have to use . . . scans to get back.

CAP COM Roger, we will give it another try tomorrow then if we get a chance.

S/C Righto

CAP COM I sent modifications in the flight plan update, when you are ready to copy.

S/C Stand by a second. Ready to copy.

CAP COM Roger. We are deleting several items on that flight plan we just gave you, and we are adding a new item. Okay, the ones we are deleting are MSC-12 and 27 00 39; B47 at 27 00 39 all three sequences on that; the D-4, D7 at 27 plus 14 plus 00, and the D5 at 27 plus 15 00. Did you copy all the 01 sequence on that? Did you copy all of that?

S/C Roger. I have all of the ones you have deleted.

CAP COM Roger, and the reason for deletion is the instrument malfunction which you reported. The thing we are adding is SAD-13 and 27 03 54, sequence 02, pitch 30 down, yaw 18 left, closest approach 27 04 49. Did you copy?

S/C. This is Gemini 7. You were cut out for part of the transmission. Say again the time and the pitch angle.

CAP COM Roger. The time was 27 03 54. The pitch was 30 down, 3 zero down. Do you copy?

S/C Roger. Adding SAD 13 and deleting D4/D7 and MSC-12.

CAP COM Roger. Deleting D5

S/C Rog.

CAP COM Gemini 7, we have a question on the status of cabin lights at the time you were doing the D5 experiment.

S/C The cabin lights were out except for the fuel cell delta P light which was loud and clear.

CAP COM Roger

That was live voice conversation between Spacecraft Gemini 7 and the Mission Control Center remoting the voice through the Texas tracking station at Corpus Christi. We did miss the early part of that conversation. We have a tape on that, and we would like to play that tape back for you. In the meantime, the spacecraft is on its 16th revolution, just started its 17th revolution over the earth at 25 hours and 36 minutes into the flight. Our medical officer tells us that the spacecraft crew is in excellent condition, and all the ground data that we have show that the spacecraft systems are in good condition. Here in the Mission Control Center, the red team of flight controllers headed by Christopher Kraft, our flight director, of the red team is preparing to move out, and their places are taken now by the blue team of flight controllers headed by flight director, Gene Kranz. Now, at this time, we will play back that voice conversation between the spacecraft and the Corpus Christi tracking station to pick up the part that we missed. We will play it back in its entirety. This is Gemini Control at 25 hours 37 minutes into the flight.

FLIGHT            Houston Flight

TEXAS            Go ahead

FLIGHT            You might tell them that there is some heavy smoke west  
                  of Laredo.

TEXAS            Say again

FLIGHT            There is some heavy smoke west of Laredo.

TEXAS            Roger.

TEXAS            There is heavy smoke west of Laredo, Gemini 7. . . . LOS  
                  at that time, I don't know whether he heard me or not.

S/C Say again

TEXAS Just when I was saying that I had LOS, I don't know whether he got it or not.

S/C Rog. Heavy smoke.

FLIGHT Houston Flight

Guaymas Flight, Guaymas

FLIGHT You might tell him the following, I'm not sure he got that message from Hawaii. Extremely heavy smoke 100 miles due west of Laredo site, 30 miles or more plue of very dense smoke.

Guaymas Do you understand 100 miles west of Laredo, 30 mile -

S/C Rog.

Guaymas Guaymas AFT

S/C AFT Guaymas

Guaymas Okay, the telemetry will be on at your acquisition. Hawaii turned it on and left it on for you.

S/C Roger, understand.

Guaymas Gemini 7, you are go on the ground.

S/C Rog.

Guaymas Guaymas Cap Com

S/C Gemini 7, go ahead

Guaymas Roger. All systems look good here on the ground.

S/C Thank you, Guaymas.

Guaymas We would like to tell you that there is some very dense smoke about 100 miles due west of Laredo with about a 30-mile plue.

S/C Roger, I understand dense smoke 100 miles west of Laredo  
and 30 mile . . .

Guaymas Roger, we have nothing else for you, we will be standing by.  
. . . garbled

CAP COM Texas go remote

TEXAS Texas remote

CAP COM This is Houston, go ahead Gemini 7.

S/C Roger, Got a sight reading - a 3, a 4, and now it is going  
away, Elliot, I picked up a - garbled  
We are going over the Gulf now.

CAP COM Roger

S/C garbled.

CAP COM Roger

S/C I couldn't find the smoke.

CAP COM I beg your pardon. Say again.

S/C Roger. I couldn't see the smoke at first.

CAP COM Roger. Understand you read a 3 and a 4. Do you know what  
squares those were on?

S/C Yeah, I think it was 3, 2, and 4, that is the only ones I could  
read.

CAP COM A 3, 2, and a 4 on the first three squares. Is that correct?

S/C . . . helped a lot because I was on my way past the data  
at the time.

CAP COM Okay, dead eye.

CAP COM You got the picture of Houston, were you able to do anything  
with that?

S/C We missed that the last time. By the time we got to Houston, we were on . . . fuel.

CAP COM How about this pass?

S/C We are just about pointing straight up now, Elliot, we would have to use too much gas to get back.

CAP COM All right, we will give it another try tomorrow, if we get a chance.

S/C Righto

CAP COM I sent modifications in flight plan update, when you are ready to copy.

S/C Stand by a second. We copy.

CAP COM Roger. We are deleting several items on the flight plan we just gave you, and we are adding a new item. The ones we are deleting are MSC-12 at 27 00 39; D47 at 27 00 39, all three sequences on that; the D4/D7 at 27 plus 14 plus 00; and the D5 at 27 plus 15 00. Did you copy all that - the 01 sequence on that. Did you copy all this?

S/C Roger, I have all the ones you have deleted.

CAP COM Roger, and the reason for deletion is the instrument malfunction which you reported. The thing we are adding is SAD-13 at 27 03 54 sequence 02, pitch 30 down yaw 18 left. Closest approach 27 04 49. Did you copy?

S/C This is Gemini 7, you were cut out for part of the transmission. Clearing through the time and the pitch angle, please.

CAP COM Roger. The time was 27 03 54. The pitch was 30 down, 3 zero down. Do you copy?

S/C Roger. Adding SAD 13 and deleting D47 and MSC-12.

CAP COM Roger, and the D5, deleting D5.

S/C Rog.

CAP COM Gemini 7. On the question of the status of cabin lights at the time you were doing the D5 experiment.

S/C The cabin lights were on except for the fuel cell delta P light which was loud and clear.

CAP COM Roger

END OF TAPE

This is Gemini Control. We are now 26 hours and 50 minutes into the flight. Spacecraft Gemini 7, which at the present time is passing over the Hawaiian Tracking Station. We had a schedule - tentative schedule MSC-4 Experiment over Hawaii. This is a Laser Communications Test. The test was scrubbed because the station could not get ready for the test in time. We have scheduled an S-8/D-13 Experiment, which is coming up, this is the astronaut visibility experiment using the ground patterns near Laredo, Texas. And this will take place as the spacecraft passes over the States on this revolution. And the time estimated will be in approximately 12 minutes. Our Flight Director, Gene Kranz, says - tells us that the spacecraft is in excellent condition and our Flight Surgeon tells us the crew is in good condition. A few minutes ago as the spacecraft passed over Tananarive and Carnarvon we had some voice communication between those ground stations and the spacecraft and we will play the taped conversation now.

CRO Carnarvon Cap Com, AFD

HOU Good morning from the White Team.

S/C Ah Roger. Good morning, Gene.

HOU This is Manfred. Not Gene.

S/C All right, Dutch. Hey, be advised that the sun is going to come over Houston tomorrow because it has arisen over Carnarvon.

HOU Ah, Roger, since you acquired first, all we have for you is a nice passive pass with a little old adapter C-band track.

S/C All righty. We'll try to do all those things.

..... Ok mighty fine.

HOU This Cap Com Houston Flight. Give me a spacecraft g.e.t. time sync, please.

S/C Okay. I'm sitting at 26 hours 11 minutes 49, 50, 51, 52, 53

HOU Okay. You're in good shape.

S/C Roger.

HOU What TR time you got set in your clock out there?

S/C I got 31-1. It was right on during the last pass.

HOU Okay, give me a time hack.

S/C All righty. We're sitting at 21 hours 27 minutes, 3, 2, 1, 0.

HOU Okay, you got it.

S/C Roger.

CRO Carnarvon, Cap Com.

HOU Go Carnarvon.

CRO We got valid skin-track on the booster.

HOU Roger.

CRO We have pilot TM and it looks good here on the ground.

HOU Roger, Carnarvon.

CRO Gemini 7 Carnarvon Cap Com. We have nothing for you this pass, we are standing by. You look good on the ground.

S/C This 7 roger on standby. We have a question for you.

CRO Roger.

S/C Carnarvon - 7.

CRO Roger 7.

S/C We have an MSC-2 and 3 update and when we copied it down it was - time was 29 plus 00 plus 00. Sequence number 03. And remarks were stop at 29 plus 00 plus 00. We feel like one of the times are wrong. Could you check that out for us?

HOU The stop time Carnarvon was - - -

CRO The stop time was at 29er 20.

S/C Uh, Roger. 29er 20 plus 00 and stand by now for the S-8/D-13 daily report.

CRO Roger, we're standing by.

S/C We're level at 06 plus 53 with minus 4, nominal minus 10 and a level at 19 plus 10 and minus 7 and nominal minus 10.

CRO Okay Gemini 7. Carnarvon. I caught the level at 06 plus 53 with a minus 4. One at a minus 10 plus a low at 19 plus 10 with a minus 7. Normal with a minus 10.

S/C That's roger.

CRO Flight.

.....

CRO Flight. We have no indication of a multiplexer problem here. Everything is setting in real-time.

HOU Roger.

CRO The astronauts turned the quantity read switch to the fuel-cell O<sub>2</sub> position and we're reading that 95.2 percent on the ground.

HOU Send us a summary.

CRO It's already off the flight wheel. I'll play the tape back and give it to you.

HOU Okay.

CRO Gemini 7 Carnarvon. We copied a fuel-cell O<sub>2</sub> quantity read. We're reading at 95.2 percent here on the ground.

S/C ..... Roger.

CRO 15 seconds to LOS.

HOU Roger, Carnarvon.

HOU He's got 46 per our acquisition chart, Sir. 34 right now.

HOU Okay.

HOU Give me a hack when you get LOS and we'll check it out.

HOU Rog, we had LOS.

Stand by 1

.....

HOU We got about 10 more seconds to go. We have LOS.

END OF TAPE

This is Gemini Control at 27 hours and 2 minutes into the flight of spacecraft Gemini 5 - Gemini 7, which at the present time is coming up over the States and is within voice range of the Texas Tracking Station at Corpus Christi. We will remote through Mission Control - our mission control voice through Corpus Christi and we will give you the live conversation that takes place now.

S/C            This is 7. We have the site in sight, and let's see. 1, 3, I'll tell you - 1 3 blank 3. 1 3 blank 3 - that's Borman. I couldn't see it this time.

HOU            This Houston Roger. Got 1 3 .3 Borman. Is that correct?

S/C            Rog. Frank called that out. We got it - Frank got it on his side and I picked it up - I couldn't read it. Frank got those readings.

HOU            Roger. We understand. We got some football scores for you if you'd like them.

S/C            Roger. How's the Army Navy game?

HOU            The Army Navy Game? You haven't been up there that long. Green Bay beat Minnesota 24 to 19. The Bears beat Baltimore 13 to 0 and Buffalo slipped by the Oilers 29 - 18.

S/C            Roger.

HOU            Gemini 7. Those football scores were courtesy of your ever-vigilant white team.

S/C            Thank you.....

CP             ..... you can tell . .... looky there, looky there. The investigators on those stripes are plain as day but those old numbers aren't quite so plain.

HOU Rog. Understand that the stripes are plain as day but the numbers aren't quite as clearn.

S/C Roger. The markers that they have out there for identifying are plain as day.

HOU Roger, understand the markers are plain as day.

HOU Gemini 7, Houston Cap Com. Did you ever get a chance to snap a picture of Houston this time?

S/C Uh no. We're too far north.

HOU Roger.

S/C Gene, we did get to see this strap or stuff we got hanging again, uh, just briefly, looks like white rubber material.

HOU Understand you've seen it recently and it looks like a white rubbery type of strap.

S/C Right. It's very jagged, looks like it's calking material. It just drifted by the window here as we went over the site.

HOU Roger. Could it be any of the striping that they possibly put on the radiator?

S/C No. Definitely not. It's pretty thick stuff and it's jagged. Looks like it's at some separation plane.

HOU Roger.

We'll have to send up 6 here in a few days and take a look at it.

S/C Uh, there's an idea.

HOU AOS 91.

This is Gemini Control. We have just concluded our live voice transmission between spacecraft Gemini 7 and the Mission Control Center as the spacecraft

passed over the United States and was picked up by the Texas Tracking Station at Corpus Christi. We are now 27 hours and 11 minutes into the mission of spacecraft Gemini 7. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 27 hours and 20 minutes into our mission. Spacecraft Gemini 7 at the present time is moving over the South Atlantic on its 18th revolution which started a few minutes ago. During the live voice pass of the spacecraft over the states, Command pilot, Frank Borman reported that the square ground patterns placed near Laredo for the crew to test visibility were plainly visible to the crew, but that the numbers inside the squares were not clear. He also reported they saw again the strap that obviously is attached to the spacecraft. The crew reported it appeared to be some kind of a light thick rubbery material, and our Flight Director, Gene Kranz, commented that we will probably wait until the launch of Gemini 6 and then we may be able to identify that strap. This is Gemini Control at 27 hours and 21 minutes into the mission.

END OF TAPE

This is Gemini Control at 28 hours and 8 minutes into the flight.

At the present time our spacecraft is passing over the Pacific Ocean.

A few minutes ago we had voice contact through the Carnarvon Australian tracking station and we will now play back that tape conversation between spacecraft Gemini 7 and the Carnarvon tracking station.

S/C Gemini 7

Carnarvon Carnarvon CAPCOM

S/C What do you have?

Carnarvon Roger, we have nothing for you at this time. Everything looks good from the ground.

S/C Thank you.

Flight How does everything look out there Carnarvon? Still go?

Carnarvon Roger flight, everything still looks real good.

Flight Do you think you have a multiplexer problem out there?

Carnarvon Negative

Flight Okay, we have talked to the Texas sight and they have seen some of these reset on the high level boilerplexer and it doesn't seem to be too bothersome at this time but we are going to write out a short briefing message to the network.

Carnarvon Okay, we are night time on that pass but we had TM real solid on them. We looked at the whole thing and during that time they sat in there real close.

Flight Okay

Carnarvon We've got about a minute to go.

Flight I've got a minute and 28 seconds for you to go.

Carnarvon Yea.

Carnarvon Gemini 7 Carnarvon CAPCOM, this will be our last pass for this series. We'll be back up with you again on rev 27. LOS in about a minute or so.

S/C Okay we will see you then.

Carnarvon Right O.

S/C . .

Carnarvon Yea I imagine.

Carnarvon Will you find out flight if you still have AKC.

Flight Roger, that was a pretty corny accent you had there. I think we will have to send you back there again to see if you can correct it.

Carnarvon Back where flight?

Flight To Carnarvon.

Carnarvon Okay. Count on thirty.

Flight Yea that is a hardship tour out there.

Carnarvon Granted . .

Flight Okay.

END OF TAPE.

This is Gemini Control. We are now 28 hours and 20 minutes into the mission of spacecraft Gemini 7. At this time our spacecraft is passing over the Pacific on its way into the tracking range of the Hawaiian tracking station. We are now on the 18th revolution over the earth and we are in a quiet period of the flight. There's not much activity listed on our flight plan. As the spacecraft comes over the States on this pass we will have a medical pass on the Command Pilot, and the fuel cells will be purged as we also, while we are coming over the States. And that is about all the activity that we have on our flight plan at this time. This is Gemini Control, 28 hours and 20 minutes into the mission.

END OF TAPE

This is Gemini Control. We are now at 28 hours and 59 minutes into the mission of spacecraft Gemini 7. At the present time the spacecraft is passing over the South Atlantic on its 19th revolution around the earth. A short while ago, as the spacecraft passed over the United States, we had voice communication through the Corpus Christi Tracking Station. Conversation between the Mission Control Center and the spacecraft crew. At that time we also had a medical pass on the Command Pilot and they purged the fuel cells aboard the spacecraft on command from the ground. And at this time we will play back that taped voice communication between the spacecraft and the Mission Control Center.

Texas - go remote

TEX It's remote. .

HOU Gemini 7, Gemini 7, we have a good oral temp, give us a blood pressure and stand by for Surgeon.

Surgeon Gemini 7 Houston Surgeon - your cuff is full-scale.

Gemini 7 we have a good blood pressure, standing by for exercise on your mark.

S/C Mark. ... Frank wants to know if Sue and all the boys got back from the Cape ok.

HOU That's affirm. They all got back ok and she said everything here is fine.

S/C Roger.

Surgeon Cuff is full-scale.

Gemini 7 we have a good blood pressure. Standing by for your food, water, and sleep report.

S/C Houston this is 7. We had a third meal at 2140, day 2, meal B. The Command Pilot's total water consumption to date, 97 ounces.

S/C Pilot's total water consumption to date - 87 ounces.

Surgeon Gemini 7 - Houston Surgeon. Good copy your report. The boys are both doing fine, preparing ..... Houston surgeon out.

S/C Roger, thank you.

HOU Gemini 7. Houston CAP COM. We'd like to try those readouts please, go to your ECS O<sub>2</sub>.

S/C Going to ECS O<sub>2</sub>. Power on F CO<sub>2</sub>.

HOU Roger, F CO<sub>2</sub>.

S/C Going into F CH<sub>2</sub>.

HOU Roger.

S/C Gemini 7 you can put your cryo quantity switch off and we'll take your fuel purge at this time. Fuel-cell purge.

S/C Roger. Cryo quantity switch is off. Stand by for a fuel purge.

HOU Okey, doke.

HOU Gemini 7, Gemini 7, Houston CAP COM. For information, I have just talked to Sue and Marilyn and everything is very fine and very happy on the home front. Gemini crew's status report remains at 3.

END OF TAPE.

This is Gemini Control. We are now 29 hours and 21 minutes into our mission. At this time our spacecraft is passing over the Tananarive tracking station. However, we have no voice contact with the spacecraft at this time and we have had no voice contact for - over the past few stations. The activity aboard the spacecraft and in mission control is at a very low key. There are some experiments that were to take place at this time within the spacecraft. MSC-2 and 3, these are radiation measurements. Measure of radiation both inside and outside the spacecraft using sensor devices. The spacecraft is now on its 19th revolution around the earth. This is Gemini Control at 29 hours 22 minutes into the mission.

END OF TAPE

This is Gemini Control. We are now 30 hours and 8 minutes into our mission. Spacecraft Gemini 7 is now passing over the Pacific Ocean and is reaching for the eastern coast of the United States. It is on its nineteenth revolution over the earth. A few minutes ago as they passed the Hawaiian tracking station, we had a medical data pass on the pilot - pilot Jim Lovell - and at this time we will play back the taped voice communication between the spacecraft and the Hawaiian tracking station.

HAW Gemini 7, Hawaii Cap Com.

S/C Go ahead, Hawaii.

HAW Would the pilot please put the oral temperature thermister in his mouth, please.

S/C Roger, it's in his mouth.

HAW Roger.

S/C Are you receiving the temperature.

HAW Roger Gemini . . . it's coming now, could we go ahead with your blood pressure? Cuff is full scale . . .  
cuff is full scale.

S/C Roger, cuff bleeding off very slowly.

HAW It's been a good blood pressure, standing by for exercise on your mark. Seven, when your cuff was bleeding off, it did not reach full scale . . . full scale. It was a good blood pressure, standing by for your food, water and sleep reports.

S/C            They are the same that we gave to Texas, haven't had anything  
                 to drink, or sleep, or eat since then.

HAW            Roger, Gemini 7. Okay, can you give me some data on your  
                 S-6, please.

S/C            Roger, we are not sure we found . . . we took a picture of a  
                 storm out there but it didn't look too big.

HAW            Okay, what was your PCA? . . . approach at this time.

S/C            Used the time that was given to us and took a picture on  
                 the . . . we think we saw, we did not see anything that looked  
                 like a big tropical storm.

HAW            Okay, thank you . . . Hawaii just standing by.

S/C            Thank you.

HAW            Flight, Hawaii

Flight        . . . Go ahead

HAW            Okay, did you copy that about S-6?

Flight        That's affirmative

HAW            Okay, we got your dump.

Flight        Very good. How's your TR clock at this time, Hawaii.

HAW            TR clock is good - don't think we have a problem with that  
                 clock.

Flight        Okay, thank you.

This is Gemini Control. We are now 30 hours and 20 minutes into our Gemini 7 mission. At the present time our spacecraft is on its 19th revolution over the earth and is approaching - just approaching the west coast of South America. While over the Guaymas tracking station recently - a few moments ago - the crew was advised of a plan and given step by step directions to test the photometer which is used in the D-5 celestial navigation experiments. These experiments have been delayed because the photometer has a malfunction indication. And at this time we will play back the voice tape communication between the spacecraft Gemini 7 and the Guaymas tracking station.

GYM I have solid TM.

Flight Roger Guaymas

GYM Looks good on the ground flight.

Flight Roger

GYM Gemini 7, Guaymas Cap com.

S/C Go ahead Guaymas.

GYM Roger. All systems look good here on the ground. I have a malfunction check for you to run on your D-5 photometer if you are ready to copy.

S/C Standing by Guaymas.

GYM Roger. This should be done during the night time before you begin your sleep period. There are nine sequences to this. Sequence no. 1 - place day-night switch to night. Sequence no. 2 - place your hand over the front lens.

GYM Sequence no. 3 - Turn cam wheel full down.

S/C Full down Guaymas?

GYM Roger

S/C Sequence 2 - place hand over front lens.

Sequence 3 - turn cam wheel full down

Go ahead.

GYM Roger

Sequence 4 - Verify motor running by sound. We would like an answer to this later, either yes or no.

Sequence 5 - Press calibration button down.

Sequence 6 - Report color of reticle. We want an answer on this either red or green.

Sequence 7 - Switch day-night switch to day.

Sequence 8 - Press calibration button.

Sequence 9 - Report color of reticle either red or green.

We will want an answer on this sequence.

I don't have anything else for you here. Everything looks real good here on the ground.

S/C I don't know whether I will be able to - the ah - oh I'm sorry.

GYM Roger

That was taped voice communication between spacecraft Gemini 7 and the Guaymas tracking station. At this time we are now 30 hours 23 minutes into our flight mission and according to our flight plan the crew aboard Gemini 7 will now engage shortly in some exercises, onboard exercises.

These will consist of using the bungee cord exerciser and a series isometric exercises. The isometric, of course, is merely exerting pressure from one muscle against another and they have a series of these exercises worked out. Following the exercise period the flight plan calls for a period of housekeeping and at this time, during the housekeeping period the crew will be busy stowing away the articles that they have been using throughout this long day in space to take care of the various experiments that were attempted and getting them set - stowed away in place so that they can ready for their sleep period which should come up in approximately 45 minutes. Both crewmen plan to sleep at the same time tonight. The spacecraft now has just started its 20th revolution. We are now 30 hours and 24 minutes into the mission. This is Gemini Control

END OF TAPE

This is Gemini Control. We are 31 hours and 20 minutes into our Gemini 7 mission. At the present time spacecraft Gemini 7 is passing over the Coastal Sentry, the tracking ship located in the Pacific. It is on the 20th revolution around the earth. We have had a voice communication with spacecraft Gemini 7 and we will play back for you now the tape of that voice communication between our spacecraft and the ground tracking station, or tracking ship in this case. One of the objects of this communication was the test that was run on the photometer which is the instrument the astronauts were to use to run some celestial navigation experiments. And we hope that we will be getting some results of this test during this pass. We give you now the taped voice communication between the spacecraft and that tracking ship.

CSQ Gemini 7 CSQ

S/C Go ahead CSQ, Gemini 7.

CSQ Roger. You may turn off your M-1 cuff for your sleep period scheduled to begin after RKV's next pass.

S/C Okay . . . think we will.

CSQ Roger. Gemini 7 did you originally report your reticle as green and then report it as red during the test that you ran?

S/C Just a minute I will let Jim talk to you. He did it.

Flight CSQ CAPCOM, Houston flight.

CSQ Go ahead flight.

Flight Roger. In the initial report he gave us of the value we believe he reported it as green.

CSQ Roger flight.

CSQ CSQ Gemini 7. On your initial report on your reticle did you report it as green, and then report it as red when you ran the test?

S/C Roger. In the day side the reticle is red when you go to the night it is green.

CSQ Roger, understand

Flight We copied but I don't really understand it yet. We may be back to you later.

CSQ Roger

CSQ CSQ Gemini 7 we are standing by for your flight plan report.

S/C CSQ we are right in the middle of eating. We don't have anything to report other than we have done everything that's called out and everything that's listed in the flight plan.

CSQ Roger, understand.

S/C We are eating right now.

CSQ Roger.

CSQ Did you get that pickup on that reticle report flight?

Flight Say the exact words he gave you.

CSQ He said it was red in the day time and green at night.

Flight I still don't understand that I guess we will have to go back to the crew. The guys here in the flight crew SSR don't know what it means either.

CSQ Roger

Flight I think what we want to do is go back to his initial report. In other words the first time he told us he had a problem with the reticle.

CSQ Okay

CSQ Gemini 7, CSQ

S/C Go ahead please

CSQ We still want you to elaborate a little on your reticle problem. Would you go back to your first indication of a problem with the reticle.

S/C Roger. The first indication of a problem with the reticle was the fact that the reticle - that the photometer would never be red. We always had it green. We had the scale full down, all the lights out but the . . . would stay green. We couldn't calibrate the the photometer.

CSQ Understand you could not calibrate. Standby Gemini 7

Flight Now have him reiterate what he got on the test. That test we asked him to run and he gave the report to the RKV. We got his initial failure report and we understand that now. Now we would like -

CSQ You want a repeat on the report he gave to the RKV on the test?

Flight Yes and get us the data he gave over there. What we are trying to do is correlate the data now.

CSQ Roger.

END OF TAPE

This is Gemini Control. We are now 32 hours and 5 minutes into the mission of spacecraft Gemini 7. At the present time our spacecraft has just started it's 21st revolution just a few minutes ago and it is approaching the Rose Knot tracking ship which is located off the east coast of South America. We now have communication with the spacecraft Gemini 7 and we will bring you this communication live at this time.

RKV Houston Flight, RKV Cap Com.

Flight Go, RKV.

RKV Roger, all systems are go, we are transmitter TX.

Flight Okay, do you see his radar transponder on?

RKV Say again, Flight.

Flight Do you see the voltages from the radar transponder?

RKV Stand by (garbled) Flight, RKV

Flight Go, RKV

RKV We'll get your back room readout in just a moment.

Flight Okay, I'm not interested in the readout. I just want to make sure it's on.

RKV Ah, roger. Gemini 7, RKV Cap Com.

S/C RKV, Gemini 7 here.

RKV Roger, all systems are go. We're standing by for the purge.

S/C Ah, roger, here is the note on the fuel cells. A little while ago the section 1 delta P light came on momentarily.

S/C . . . switched between 2B and 2C. Each time we switched, the section 2 light would momentarily flicker off and then come back on again.

RKV Ah, roger.

S/C Only on the last switch the light went out and stayed out.

RKV That the section 2 delta P light.

S/C Right, so that . . . now we have another one off.

RKV Roger.

S/C Now, we'll . . . purge.

RKV Ah, roger. Did you copy, Flight?

Flight Roger, you're going to have to break it down for us. I didn't copy all of it but I don't want to bug the crew. Give it to us from your voice recorder.

RKV Ah, roger. Would you place the quantity read switch to ECS O2. Would you go to fuel cell O2. Okay, would you go to fuel cell H2. You can turn the quantity read switch off. Your next purge will be over Carnarvon on rev 27 at an elapsed time of 42 plus 23. Gemini 7, do you copy?

S/C Roger, understand 42 plus 23 for the next purge.

RKV That's the time. Now we would like you to stow the photometer and we will give you a complete briefing at the end of the sleep period regarding what we think the problem is.

S/C Roger, thank you. I'm coming off with the transponder if you have your readings.

RKV Roger. During the previous purge, did you notice any venting of H<sub>2</sub>?

S/C We didn't notice it, but it is difficult to tell because we have all the screens up at the windows and we don't know how we're coming.

RKV Roger, did you copy, Flight? Ah, Houston Flight, RKV Cap Com.

Flight Stand by RKV. Go ahead RKV. Go ahead RKV.

RKV Roger, Flight, the purge has been completed. The crew advised that they did not notice any venting of H<sub>2</sub> during the previous purge. They've got the curtains drawn. Did you copy all that air-ground.

Flight Roger, we copied it Bill, we would like to find out their intentions for pumping up their RSS and the ECS pressures to begin their sleep period.

RKV Roger. Could you give us the levels that you are going to leave your RSS pressures at prior to your sleep period.

S/C Roger. 600 ECS O<sub>2</sub>, 450 RSS O<sub>2</sub>, and 450 hydrogen O<sub>2</sub>.

RKV Roger. Did you copy, Flight?

Flight Affirmative.

S/C           RKV, do you want the RSS heaters on at this time?

RKV           Stand by. Do you want the heaters on, Flight?

Flight       Affirmative.

RKV           That's affirm.

S/C           Roger, it's on now.

Flight       What were those pressures that he's going to hold on RSS.

RKV           O2 at 600 -

S/C           Purging complete.

RKV           Roger. O2 at 600, H2 is 450 and 450.

Flight       That's ECS O2.

RKV           That's affirm.

Flight       Okay, that sounds good.

RKV           Now you both go for your sleep period after our LOS. Gemini 7,  
RKV

S/C           Gemini 7, go ahead.

RKV           Roger, you'll both go for your sleep period after LOS.

S/C           Roger, will do.

RKV           Flight, RKV.

Flight       Go ahead, RKV.

RKV           TR lags by 125 milliseconds.

Flight       Roger. Okay, everything looks pretty good. Looks like we're  
in for a long sleep. I'd be interested in getting that dumped  
tape over Hawaii here because I'd like to find out what he had

to say and what really the indications were on that fuel cell purge there.

RKV Roger. He's going now with both delta P lights out.

Flight Roger. I don't mean the fuel cell purge there - I mean the indications he had when switching.

RKV We've had LOS. All systems go at LOS, Flight.

That was live conversation between spacecraft Gemini 7 and the Rose Knot tracking ship off the east coast of South America. Our spacecraft is now in it's 21st revolution around the earth. It is 32 hours and 14 minutes into the mission of the Gemini 7 spacecraft and our crew consisting of command pilot Frank Borman and pilot James Lovell are going to settle down now for a 10-hour sleep period. Activity will be kept at a minimum, we will have no communication with the spacecraft, voice communication, that is. Everything will be handled by telemetry and the boys are looking forward to a good long sleep period. This is Gemini Control 32 hours and 15 minutes into the mission.

END OF TAPE

GE

GEMINI 7/6 MISSION COMMENTARY, 12/5/65, 9:50 p.m.

Tape 90, Page 1

This is Gemini Control. We are 32 hours and 20 minutes into our mission. Spacecraft Gemini 7 at the present time is on its 21 st revolution over the earth and is now coming up on the southern coast of Africa - the southwestern coast of Africa. We had a conversation which we did carry live with the Rose Knott tracking ship just a few minutes ago as the spacecraft passed over that tracking ship. And after a fuel cell purge the crew is settling down now for a 10 hour sleep period. Our flight director has requested the ground tracking stations to keep voice communication to an absolute minimum throughout this 10 hours. And we do not expect to have voice communication unless it is absolute necessary. This is Gemini Control, 32 hours 21 minutes into the mission.

END OF TAPE

This is Gemini Control. We are now 32 hours and 46 minutes into our mission. And at the present time our spacecraft is about to pass over the Pacific Ocean on its 21st revolution over the earth. Our flight crew is in a 10 hour sleep period and voice communication will be held to an absolute minimum throughout the next 10 hours. We have a report now from Cape Kennedy where preparations have been going on for the launch of spacecraft Gemini 6. The report says that preparations for this launch have progressed smoothly. The pad crews estimate that they are about 6 hours ahead of schedule in their preparation for final systems test which will begin at midnight Monday. The Gemini 6 spacecraft was mated with the launch vehicle at 12:40 p.m. e.s.t. today. Some 3 and  $\frac{1}{2}$  hours earlier than originally planned. Throughout the day checks of the electrical, coolant, and oxygen systems, the ground support equipment and umbilicals, the test of cryogenics servicing lines and a cabin leak check were completed successfully. During the rest of tonight and tomorrow work will go forward for the final systems checks and the launch vehicle crews are preparing for electrical mating of the spacecraft with the booster. This is scheduled for early Tuesday morning. This is Gemini Control at 32 hours and 48 minutes into the mission.

END OF TAPE

This is Gemini control. We are now 33 hours and 20 minutes into the mission of spacecraft Gemini 7. At this time spacecraft Gemini 7 is on its 21st revolution over the earth. On the tail end of that revolution and will shortly be in its 22nd revolution in about 15 minutes. Here at the Mission Control Center the blue team of flight controllers are arriving on scene and will take over direction of this flight beginning at 11:00 p.m. central standard time, and carry on through the night until 7:00 a.m. eastern standard time. Aboard spacecraft Gemini 7 our flight crew is in a 10 hour sleep period which began a little over 1 hour ago. As yet we do not have any indication or any ground telemetry that indicates to us whether the pilots - the crew is asleep or awake. We expect to get some data on that momentarily but it has not yet arrived at the control center. This is Gemini control at 33 hours and 21 minutes into the mission.

END OF TAPE

This is Gemini Control, 35 hours 20 minutes after liftoff. Gemini 7 spacecraft is presently in acquisition range of the tracking ship Rose Knot, however, there is no voice communications going on. The spacecraft communicator aboard the Rose Knot, Bill Garvin, has been in conversation with Flight Director John Hodge here in Mission Control. He said everything looks good. They had a good telemetry dump which was commanded from the ground. The spacecraft just passed into daylight side of its orbit while I was looking at the large map on the front of Mission Control Room here. It suddenly went yellow, which indicates that it's gone to the daylight side of the orbital track. The next station to acquire them will be the Ascension Island voice remoting station in approximately three minutes. At 35 hours and 21 minutes after liftoff, this is Gemini Control

END OF TAPE

GEMINI 7/6 MISSION COMMENTARY, 12/6/65, 1:50 a.m.

Tape 94, Page 1

This is Gemini Control. 36 hours and 20 minutes after lift-off. Gemini 7 spacecraft at the present time is directly over the Canton Island voice remoting station in the Central Pacific, toward the end of the 23rd revolution. During a recent pass over the tracking ship Coastal Sentry, just south of Japan spacecraft communicator, Charles Lewis, told flight director, John Hodge, that everything looks good. Here in mission control there's a large television screen on the front of the control room that shows the flight plan activities. At the present time the thing is almost completely blank down the center where normally the crew activities are listed it shows a sleep period for both men down the right hand side. Things are fairly quite here in Mission Control and are settled down for a long night until the crew wakes up. At 36 hours and 21 minutes after lift-off this is Gemini Control.

END OF TAPE

This is Gemini Control 37 hours and 20 minutes after liftoff. Gemini 7 spacecraft is now crossing the Arabian Peninsula at the beginning of it's 24th revolution. Here in Mission Control it has been decided to ignore the delta P light that has been lit since liftoff practically. They've decided that it is a spurious signal and of no consequence. During a recent pass over the tracking ship Rose Knot the spacecraft communicator aboard the Rose Knot reported that the ground readouts of the fuel cell cryogenic reactants showed 188 pounds for the hydrogen, 356 pounds for oxygen and the telemetry dump accomplished over the Rose Knot - all data looked good. The display being generated here by the Flight Dynamics people for the orbital ephemeris or the shape of the orbit now shows that the Gemini 7's orbit has a perigee of 119.8 nautical miles and an apogee of 172.9 nautical miles for an estimated lifetime of 30 days. The next station which will acquire the spacecraft Gemini 7 will be the tracking ship Coastal Sentry approximately 15 minutes from now. At 37 hours and 21 minutes after lift-off, this is Gemini Control.

END OF TAPE

This is Gemini Control 38 hours and 20 minutes after liftoff. Gemini 7 will be acquired in approximately 7 minutes for the last pass tonight of the tracking ship Rose Knot off the coast of South America, at which time the Gemini 7 will begin it's 25th revolution. Both crewmen are still asleep and during the last pass over the tracking ship Coastal Sentry all systems are reported go. At 38 hours and 20 minutes after liftoff, this is Gemini Control.

END OF TAPE

This is Gemini Control, 39 hours and 20 minutes after lift-off.

Gemini 7 at the present time is just north of New Guinea in the Southwest Pacific nearing the end of the 25th revolution. Reports from the tracking station sounded like a broken record. It says all systems are go in each pass. Of course that disappoints no one here in the Mission Control. That's what we like to hear. Both the tracking ships Coastal Sentry and Rose Knott have been released by the flight director, John Hodge, since the orbit tracks have proceeded westward this morning and it will be late tonight before they begin to cross these ships' acquisition areas again. The next station to acquire the spacecraft will be the Canary Island station 52 minutes from now. At 39 hours and 21 minutes after lift-off this is Gemini Control.

END OF TAPE

This is Gemini Control 40 hours and 20 minutes after lift-off. Gemini 7 spacecraft is presently over north central Africa and is just about to leave the acquisition range of the Canary Island station where the spacecraft communicator has reported that both crewmen are still asleep and that all systems are go. The spacecraft has just begun the 26th revolution. The next station to acquire the spacecraft will be the Carnarvon station, apparently. Actually, Woomera, Australia station which is remoted into Carnarvon which will be 27 minutes past the hour. The crew still has something like 2 hours of sleep remaining which they expressed desire for a total of 10 hours sleep. The Red Team of flight controllers should be coming into the Control Center within the next 10 or 15 minutes for the hours hand-over period before relieving the Blue Team. At 40 hours and 21 minutes after lift-off, this is Gemini Control.

END OF TAPE

This is Gemini Control 41 hours and 20 minutes after lift-off.

Gemini 7 at the present time is over the South Central Pacific nearing the end of the 26th revolution. The next station which will acquire the spacecraft with it's sleeping crew will be the Antigua station in the Eastern Test Range in 16 minutes. Members of the Red Team of flight controllers are beginning to come into the Control Room here getting briefed by their predecessors the Blue Team and shortly before they began to come in, Blue Team flight director John Hodge went round the horn, as they say, and checked all the flight controller positions to see if there were any problems or items that needed to be discussed before passing them on to the Red Team of flight controllers. At 41 hours and 20 minutes after lift-off, this is Gemini Control.

END OF TAPE

This is Houston. We're 42 hours, 11 minutes into the mission, and the Red Team Flight Director has decided to wake the crew up or at least end their sleep period in about ten minutes as the spacecraft comes over Canarvon. The first thing that the crew will do is to perform a fuel cell purge. We have not had a purge now in about ten hours. The weather today says that weather conditions will continue to be good in the areas of primary concern to the Gemini 7 mission for at least the next two days. This is Gemini Control.

END OF TAPE

This is Houston, 42 hours 53 minutes into the flight. It took several calls to wake the crew up this morning, but we finally succeeded over Carnarvon. Jim Lovell came back fairly - in a fairly cheery voice. We have got the conversation of that pass. We will play it for you now.

Carnarvon Cap Com: Gemini 7, Carnarvon Cap Com.

Carnarvon Cap Com: Gemini 7, Carnarvon Cap Com.

Lovell: Go ahead Carnarvon, Gemini 7 here.

Carnarvon Cap Com: Roger Gemini 7. Good morning from Carnarvon. Everything looks good here on the ground. We have a fuel cell purge coming up this pass and we also have a flight plan update for you.

Lovell: Roger, let me do the fuel cell purge now, my chef here is getting breakfast ready.

Carnarvon Cap Com: Roger.

Lovell: The purge is starting now. I am ready to copy the update.

Carnarvon Cap Com: Roger, Okay, the first one I have for you on the flight plan update is 09 43 04 07, remarks, rev 10-7, longitude, 99.0, degrees West, 12 58 24 late Ascension. The next update at 9 43 10 00, sequence 01, transponder test at Antigua, time off at 43 18 00. The last item, time 43 58 00, flight plan update at Carnarvon, left 28. D-5 check procedure to be given over State pass. Do you copy?

Lovell: On that last update you just want us to check the D-5, or check with you on D-5 and they are going to give us the word over the States. Is that what you mean?

Carnarvon Cap Com: That is affirmative. The procedure will be given to you over the States.

Carnarvon Cap Com: They have a rather long flight plan update standing by for you. You will be hearing that over Antigua.

Lovell: When we went to bed the Delta P light was out, and when we got up this morning, it was back on.

Carnarvon Cap Com: Roger. All indications we have is that there is no problem. It is just a low setting, that's all, slightly touchy.

Houston Flight: Carnarvon, Houston Flight.

Carnarvon Cap Com: Go ahead, Houston Flight.

Houston Flight: Tell him Chris Kraft suggests that he put a piece of tape over it.

Carnarvon Cap Com: Chris Kraft just suggested that you put a piece of tape over that light.

Lovell: I probably would, but I am afraid that it would burn if it gets hot.

Carnarvon Cap Com: Roger.

Lovell: Is Mr. Kraft up so early?

Carnarvon Cap Com: Righto, he just came on about 10 minutes ago.

Houston Flight: I've been on for an hour and a half young man.

Carnarvon Cap Com: Houston Flight just advised me that he has been on for an hour and a half now.

Carnarvon Cap Com: Flight, everything is looking good here during the purge.

Lovell: The darn control valve is cycling again.

Houston Flight: How are the temperatures?

Carnarvon Cap Com: I'll have them for you shortly.

Lovell: The out temp is minus 10 degrees.

Lovell: It looks like that cycling rate is approximately 35 to 40 degrees.

Houston Flight: Carnarvon, we think you probably - he misunderstood your flight plan update, that is actually a PLA block update, is it not?

Carnarvon Cap Com: We are passing up .....

Houston Flight: That will be passed up to him.

Carnarvon Cap Com: Oh, I was under the impression there was going to be this long flight plan update. The one on 12 54?

Houston Flight: No, the Antigua is going to be a flight plan update, but this 43 58 is a PLA update at Carnarvon on rev 28.

Carnarvon Cap Com: I told him that but what he was questioning was this information on the D-5 procedure to be given on the State pass.

Houston Flight: Rog, but you called it a flight plan update. Don't worry about it.

Carnarvon Cap Com: Oh, okay, sorry about that.

Carnarvon Cap Com: We had LOS before we had a chance to get the cryo readouts on this thing.

This is Gemini Control again here. We have information from the Cape indicating that they are running fully 14 to 16 hours ahead on their scheduled work on the spacecraft. The booster is maintaining at least as good a schedule, approximately 2 shifts ahead. We are very encouraged by the work, they are going through the checkouts today, they are back using the test loop here which comes into our Control Center in which we can monitor here and Charles Mathews here, our Program Manager, along with several other of his assistance are in conference now with the Flight Director, Chris Kraft, looking at some of the early launch possibilities as discussed yesterday in the afternoon news conference. There is no definitive word at this point, but we are still looking at that 8th day possibility. This is Gemini Control Houston.

END OF TAPE

Houston here. 43 hours and 21 minutes into the flight. We have gone through a rather long update conversation between Elliot See and both crewmen. Toward the tag end of this conversation, which probably runs 8 to 10 minutes in length, Elliot asked the question, "How do you feel about taking your suit off?" - the question directed at Lovell who is programmed to be the first to take his suit off. We didn't get an answer to the question as we moved out of range, but we expect to shortly. The Flight Director has advised, after consultation with the surgeon, that it is an appropriate time for Lovell to go ahead with the suit off experiment. And if they concur, he probably will be taking it off fairly shortly. We have the tape of the Antigua pass. We'll play it for you now.

HOUSTON Gemini 7, Gemini 7, Houston Cap Com. How do you read?

HOUSTON Gemini 7, Gemini 7, Houston Cap Com. How do you read?

s/c Read you, Houston.

HOUSTON Roger, 7. Would you cycle through your quantity read switch. Go to the first position and I'll tell you when to switch to the next one.

s/c Roger. We're on ECS O<sub>2</sub>.

HOUSTON Roger. And good morning.

s/c Good morning to you.

HOUSTON I've a fairly lengthy flight plan update for you here. Are you ready to copy.

s/c Stand by a second.

s/c Houston, go ahead. I'll copy.

HOUSTON Roger. At time 44 43 00, crew status report on the command pilot. At the Cape. D5 - this will be a check on the D5 instrument. Time 45 24 00. Let me first give you a little briefing here, Frank. It appears that the photo tube was saturated during the previous D5 run - the ones where you've had

trouble. We want to advise you not to turn the photometer on until you're in total darkness, when in the night mode, or without a filter when in the day mode. If you happen to turn it on, you may saturate it for 15 to 20 minutes and it would not work properly through that period of time. Now, some instructions here. Delete the first star in the D5 sequences 01 and 02. Are you with me so far?

s/c I'm with you but I don't agree that - we've never had that on when there was any light around. But we'll go ahead and try it.

HOUSTON Roger. Would you switch quantity read to fuel cell O<sub>2</sub>.

s/c O<sub>2</sub>.

HOUSTON OK. Here is the test procedure we would like you to run on it. Turn photometer to on at sunset plus ten minutes. Align on any bright star and calibrate. Release button and track star for 30 seconds. This is just to check on the instrument. It does not have to be a star going over the horizon. Do you copy?

s/c Roger. We've already tried this but we'll try it again.

HOUSTON Roger. The only thing that seems to make any sense to us, Frank, is that you may have gotten it saturated some times and caused it to not work properly. You have to be careful not to let it see any light. We think even the fuel cell Delta P light might be enough to saturate it.

s/c OK.

HOUSTON Would you switch quantity read to fuel cell H<sub>2</sub>.

s/c Roger.

HOUSTON OK. Next update. At 45 32 00, crew status report on the pilot. That's at Carnarvon. 46 14 00, Go or No Go at Texas. 46 20 19, sequence 02, transponder test. Pitch 30 degrees down, yaw 17 degrees left, transponder on at 46 10 00. Copy so far?

s/c Roger. Go ahead.

HOUSTON D4, D7. 46 51 40, sequence 413 plus 414, mode 02. Time 40 08 00, purge fuel cells. You can turn the quantity read switch off now.

s/c Elliot, I missed you on the D4, D7. When you started out " D4, D7 - 46" then you faded out.

HOUSTON Roger. Time was 46 51 40, sequence 413 plus 414, mode 02. Do you copy?

s/c Roger. I got you.

HOUSTON Time 47 08 00, purge fuel cells. D4, D7, 47 55 31, sequence 430, mode 04, pitch 35 degrees down, yaw 10 degrees right, 30 miles east of Cape lighthouse. Do you copy?

s/c Roger.

HOUSTON Time 48 00 00, eat period. S5, 48 51 00, sequence 07, mode 01. S8, D13, 49 25 46, sequence 02, pitch 30 degrees down, yaw 11 degrees right, closest approach 49 26 41. Do you copy?

s/c Loud and clear.

HOUSTON Right after that S8, D13, you'll have another chance to catch a picture of Houston. The closest approach time is 49 27 42. And we figure you would have to yaw 28 degrees left from where you end up on S8 and then pitch up to acquire Houston. Do you copy.

s/c Well give it a try.

HOUSTON Roger. Time 49 28 00, critical tape dump at the Cape. We're probably going to lose contact here pretty shortly. I'll just keep going. Do you read?

s/c Fine.

HOUSTON MSC 2 and 3, 49 50 00, sequence 02, off at 66 00 00. D4, D7, 49 46 00, have we lost you?

s/c Negative.

HOUSTON Roger. How do you feel about taking your suit off now, Jim? Turn your transponder off - now we've lost him.

Houston again here, 43 hours, 31 minutes into the flight. The Canary pass is completed now. The crew was advised that the ground had no objection to their proceeding with the first suit doffing. This would be for Lovell. The pilots agreed that they're ready to go ahead although they said that they wanted to find a proper period of time. They did not indicate exactly when they would start. They said it requires some 8 to 10 minutes and they are ready to - they'll advise us when they're ready. We have the Canary tape and we'll play it for you now.

CYI Ok. Would you give us the signal strength with the C-band transponder.

s/c Rog.

CYI . . . C-band transponder. Do you copy?

s/c Loud and clear, Jack.

CYI Roger. Did you copy the flight plan completely from the States?

s/c I believe so. We're transposing it onto our flight plan now.

CYI Ok. The last two items were the MSC 2 and 3 and the D4, D7.

s/c I did not get the last D4, D7.

CYI OK. Are you ready to copy?

s/c Roger. Ready to copy.

CYI OK. D4, D7, 49 46 00, sequence 406, mode 02, mode IR off. I've got one more item. 50 00 00, exercise period.

s/c . . .

CYI No.

s/c We have copied that and Houston asked us about taking off the suit. Tell them that we will be glad to take off the suit at their command during a slack period, but it requires some time to do it.

CYI OK. In the event that you do this we'd like you to keep us informed on your status and how you feel. That's - as much as you can, keep us informed.

FLIGHT Canary, tell them that we're ready to have them go ahead at his choice.

CYI At your discretion you can take the suit off. It's your choice.

s/c Roger, understand.

CYI Canary.

HOUSTON Go ahead.

CYI Roger. On our position, we have ECS control valve at about 39 degrees and radiator outlet temp at about 12 degrees. Right now it's 37 and 7, respectively, it seems that as the control valve outlet temperature drops so, too, does the radiator.

HOUSTON Yes. As the outlet temperature drops it appears to then start oscillating.

CYI Rog. Canary has LOS. At LOS all systems were go.

HOUSTON Roger.

END OF TAPE

This is Houston, 44 hours, 8 minutes into the flight. The spacecraft just passed over Carnarvon station. Apparently the crew has not elected to remove one of the suits yet. They have made no mention of it. We feel certain had they taken the suit off they would have advised us. One other item - during the night we had a fire down at the Ascension Island station in a small building which housed the power supply for our laser experiment there. Apparently it did damage all of the power supply equipment, however, we - it did not harm the laser equipment itself. It was in a separate building. We are rigging up an auxiliary generator which will be used to power the laser equipment during the laser experiment over Ascension. In the Carnarvon pass the crew reported that they again attempted to calibrate their photometer, which is used on the star occultation sightings - the D5 experiment - and apparently it's still acting up. This is a unit supplied by the Avionics Laboratory, Wright Patterson Air Force Base, a piece of equipment built by the Control Data Corporation, Minneapolis. It weighs only 2 and a half pounds, and I guess that's about all the detail they have here on it. Here is the tape conversation of the Carnarvon pass. We'll play it for you now.

s/c            Carnarvon, this is Gemini 7.

CRO            Roger. Are you ready for this block update?

s/c            In just a minute.

CRO            Roger.

s/c            Block update.

CRO            Roger. 30 dash 1, 46 04 12, 15 plus 28; area 31 dash 1, 47 39 40, 14 plus 38; area 32 dash 4, 50 27 35, 16 plus 40; area 33 dash 4, 52 03 30, 15 plus 29; area 34 dash 4, 53 39 02, 14 plus 37; area 35 dash 3, 54 55 18, 17 plus 03; area 36 Delta, 55 46 25, 23 plus 24. The weather in all areas is good. These

are for a rolling reentry. Do you copy?

s/c Roger, I do.

CRO Roger.

s/c Carnarvon, this is 7.

CRO Come in, 7.

s/c We ran another D5 photometer check as requested by Houston, and noted that when we aligned on a star that it refused to calibrate, and with the day-night switch at night, filter off, and the reticle would not go out of the red from a full low-gain to a full high-gain.

CRO Roger. We copy that. It would not go out of the red. Houston, we're relaying to you.

FLIGHT Roger. We caught that.

CRO Houston did you copy?

FLIGHT Roger. We copy that - doing the opposite as the last time he used it.

CRO Houston copies it as being opposite as during the last time that you used.

s/c Roger. The first time we attempted to do the experiment with the same setting, it appeared that the reticle stayed green.

CRO Roger.

s/c The reticle does turn green with the calibrate switch up, but not with it down.

CRO Have you done anything else on it?

FLIGHT If he'll send it down, we'll fix it and send it back up again.

CRO All right. Flight says it would be a good idea if you will send it on down so we can fix<sup>it</sup> and then we'll send it back up for you

when it's fixed.

s/c Sounds like a good idea.

CRO Right-o.

s/c When you fix it you can send it up with 8.

CRO Ok.

s/c If we could figure a way to get it down to you, we would, believe me.

CRO Right-o. We have LOS.

END OF TAPE

This is Houston at 44 hours, 38 minutes into the flight. The spacecraft is approaching the west coast of Mexico and we should be in contact with them very shortly. The main piece of action during this pass will be a medical crew status report on the command pilot, Frank Borman; among others things Chuck Berry wants to know why their rates jumped up from a fairly steady 60 to about 80 last night at approximately midnight - or no, it was a little after midnight, I'm sorry - about 5 hours into their sleep period. He noticed the rates, looking at their records this morning, he noticed the rates went up slightly for a short period of time over the CSQ. It could be that the station called them, or the crew noticed something, and he just plans to query them on it as well as get a general status on Frank Borman. There have been several references to the transponder tests here during the air-to-ground tapes this morning. This is a transponder being carried in the spacecraft 7. It's just the reverse of the situation we had in Gemini 5, where they had a radar transmitter in the nose of their spacecraft and bounced a signal off a transponder on the ground at the Cape. In this test the Cape will be - has been and will continue in various calibration exercises to bounce a signal off their transponder, which will rebroadcast it back down to the ground. . The cabin temperature in Gemini 7 has been running very closely to the rates observed in Gemini 5. The cabin temp itself is running between 70 and 75 degrees. The suit inlet temperatures holding fairly steadily at 55 to 60 degrees, which corresponds very closely to that observed during the Gemini 5 flight. Texas has been contacted and we're calling the craft now. Let's cut in live.

HOUSTON Gemini 7, reading you slightly garbled. How do you read?

s/c This is 7 reading Houston loud and clear.

HOUSTON Roger. Read you much better now. Like to advise this will

be a UHF 6 pass.

s/c Roger. UHF 6. . . . . read. Frank has the thermometer in his mouth now.

HOUSTON Roger. Tell him to keep it there; we do not have it yet.

s/c Roger.

HOUSTON Jim, just for a minute now. Do you know what the star was that you were checking the D5 experiment on?

s/c On this last pass we used several stars. One was Acrux and we used both Alpha and Beta Centauri.

HOUSTON Big bright ones, then, huh?

s/c Roger. We ran through the original check again, the one you gave us yesterday.

HOUSTON Right. Ok. They were good bright stars. That's what we were trying to pin down.

s/c Roger. They were bright.

HOUSTON Have you got -- has Frank got the oral probe - temp probe - in real good. We're not getting a good reading.

s/c Roger, it's in and also be advised that we were mistaken yesterday. The motor on the D5 is working. Our ears got better today.

HOUSTON Roger. It's very dim. We were doubtful if you could hear it. What's your suit status at the present time?

s/c We're still suited. We found out that we had to open up the zipper between the legs to get comfort. It was too hot down there and we're now fairly well unzipped but our suits are on. We're waiting for a very quiet moment so I can take my suit off.

HOUSTON OK. We want you to understand, completely, that we are clearing you to take it off if and when you desire.

s/c Roger. Understand.

HOUSTON OK. We're going ahead without the oral temp indication there now. I'll stand by for a blood pressure.

s/c Roger. Blood pressure coming through.

HOUSTON Roger. And stand by for the flight surgeon.

SURGEON OK, Gemini 7, blood pressure full scale.

s/c Surgeon be advised that Frank had switched to light weight headset and that the thermometer might not be working.

HOUSTON Roger, we copy.

SURGEON Roger, Jim, I copied that. We only got - it did not go up to, I'm sure, what his body temp is, so it may be a faulty thermometer. That's a good thing to know.

SURGEON Gemini 7, we have a valid blood pressure. You're cleared to do your exercise.

s/c Understand, exercise.

s/c Blood pressure coming down.

SURGEON Cuff is full scale.

s/c Roger.

SURGEON Gemini 7, this is surgeon. You might tell me while we're waiting for this blood pressure to finish up. Did you have the M-1 on all night.

s/c Roger, we had the M-1 on all night. No trouble.

SURGEON The noise isn't as bothersome now as it was yesterday. Is that affirm.

s/c That's right. We're getting used to the noise.

s/c Chuck, do you want a food and water report?

SURGEON Roger, Gemini 7, we have a valid blood pressure. Yes, we'd like

the sleep, food and water report now.

s/c Roger. Had breakfast this morning. We each had about 7 hours of sleep, some of the best sleep we've had in weeks. Total water to date 146 ounces for the command pilot.

SURGEON Roger, copy.

s/c 126 for the pilot.

SURGEON Say again, 126?

s/c 26. Morning food was day 2, meal C. Both of us.

SURGEON Roger, Gemini 7. I copy day 2, meal C.

s/c Roger. That is our fifth meal - our fifth meal.

SURGEON Jim, could you read from your log and give me the meals in sequence. Could you read the meal numbers? Do you have those?

s/c Roger, stand by. First meal, day 2, meal A.

SURGEON Roger.

s/c Second meals, day 3, meal 4.

SURGEON Roger.

s/c Third meal, day 2, meal Baker.

SURGEON Roger.

s/c Fourth meal, day 1, meal Baker.

SURGEON Roger, I copy. Jim, we've been watching your - the sleep patterns here, and we noticed that there were several times when you were awake last night and particularly it appears, from both your records that there was an awake period at about 37 and a half hours over CSQ last night. Was there some particular activity that had you both awake at that time.

s/c We don't recall any - I think both of us got a good night's rest last night. It really felt great.

SURGEON OK, fine. We'll be looking forward to see what happens with the suit story during the day and be sure and record a time when you finally get it off, Jim, and watch for your - we'll be watching for the barmed data after you get hooked up again.

s/c Will do.

s/c Chuck, this is Frank. I lost the top left-hand lead on the EEG.

SURGEON Gemini 7, say again. Did you say you lost the one - the top left-hand lead on the EEG? Is that affirm, Frank?

s/c Affirmative. It came off some place.

SURGEON OK. You just noticed that now?

s/c It came off during the night while I was sleeping.

SURGEON During the night? OK.

s/c The reason we're eating the food this way is that's the way it comes out on the lanyard, and it's too much trouble - it's almost impossible to try to sort it out in error - I mean, in sequence now.

SURGEON That's perfectly all right, Frank. It doesn't matter except to try and keep track of the meals here. If you can just report it by day and number each time, and now we're up to date, if you'll keep doing that we'll have no trouble. If you'll do that and report the things that you are not eating from each meal, if any, that will keep us up to date.

s/c For Chris' information, our number one Delta P light came on and then both of them went off.

HOUSTON Say again, Frank.

s/c The number one Delta P light blinked on about 15 minutes ago

and then both of them went off and now our friend is off'.

HOUSTON Roger,

SURGEON You're aware that you can cut both of the left EEG leads now if you want to, now that you've lost that one.

s/c Didn't know that. I thought they'd want the other three also.

SURGEON The two on the right can continue. But the two on the left now are inoperative.

s/c Let's wait till the four days are up so we don't take any chances on hurting him.

SURGEON Yeah. Frank, I think it'd be best to just leave it for the moment unless it's bothering you. Let's leave it as is and - until we tell you differently, OK?

s/c I couldn't put it back on again, could I, Chuck?

SURGEON I don't think you've got the right paste.

HOUSTON Gemini 7, I'd like to advise you that we have studied the cryo behaviors and we think we've got a good enough handle on them now that we'd be happy for you to use the auto-heater positions on all three during your sleep period. We feel this will regulate the temperature and the pressure just fine for you and you won't need to worry about waking up or controlling it during the sleep period, then we'll go back to manual during the day.

s/c Can you give us a report on what the projected mission completion cryo quantities will be?

HOUSTON Roger, we'll get that for you, Frank.

s/c Hello, Elliot.

HOUSTON Go ahead.

s/c Change that second meal to day 3, meal A. Not 4, meal A.

HOUSTON Roger. And you might turn up your HF. We're going to put some music on here. Did you copy, Gemini 7?

s/c Which one of you?

HOUSTON You can turn up your HF. We're going to put some music out for you,

s/c Thank you.

HOUSTON We'll probably lose contact here pretty soon, but I'll take advantage of the time as long as I can. We would like you to tape record, with your onboard recorder, your thoughts on these station keeping tasks which you did.

s/c Will do.

HOUSTON On your next pass, I'll give you a report on the news.

s/c Thank you.

HOUSTON OK. You should be receiving some music pretty quickly.

HOUSTON Are you receiving the music yet?

HOUSTON Gemini 7, the music should be coming up pretty quickly.

MUSIC

END OF TAPE

Earlier during the Canary pass, Lovell advised that he was going to go ahead with removing his suit. He has not advised yet as to whether he has taken it off, but he said that he was starting to take it off at that time. Elliott is back talking with the crew. Let's go back and see what is happening.

Gemini Control here again. Apparently we were over the hill from Kano and this will conclude this portion of the air to ground conversation at 45 hours 11 minutes into the flight.

END OF TAPE

This is Houston, 45 hours 37 minutes into the flight. The spacecraft is over Carnarvon. The Command Pilot, Frank Borman has just advised that Jim Lovell has taken off his suit and he reports that he is feeling very comfortable. He has not yet plugged in his biomedical tape recorder but he expects to do that momentarily. This is Gemini Control Houston.

END OF TAPE

Gemini Control Houston here, 45 hours 43 minutes into the flight. Frank Borman has confirmed that Jim Lovell has completed his spacial strip tease act. He has the suit all the way off and he has his biomed recorder plugged in. The surgeons here at Houston and Carnarvon had a few anxious moments there which were the subject of some joking back and forth during the period when they got no data. It was explained that it was a time consuming process to get plugged into the biomed recorder circuit. We have the tape of the Carnarvon pass and we are ready to play it for you now.

Carnarvon Cap Com: Gemini 7, this is Carnarvon Cap Com.

Borman: Go ahead Carnarvon, Gemini 7.

Carnarvon Cap Com: Rog. We want to run a test on the L-band transponder. Would you turn it to the on position for us.

Borman: Roger, it is on now.

Carnarvon Cap Com: Roger, and leave it on for approximately one rev.

Borman: Leave it on for one rev.

Carnarvon Cap Com: That's affirmative. We will be turning it off over Carnarvon on the next pass.

Borman: Let's see, we have a test over the Cape with it one of these days. Just a minute.

Houston Flight: Same rev.

Carnarvon Cap Com: Thank you Flight. Gemini 7, that will be on the same rev.

Borman: Okay.

Borman: We are showing negative clocks from the spacecraft at the present time. I've transmitted TX to land quite a few times. Had

rejects the whole time. We are showing no clocks. All the other command doing okay.

Carnarvon Cap Com: GT-7, Carnarvon.

Borman: Go ahead.

Carnarvon Cap Com: Roger. They will update the computer for you during the GO--NO-GO over the States and that is the one that occurs at 46 hours 14 minutes and they will also tell you when they want you to turn the computer to the on position.

Borman: Okay, thank you.

Carnarvon Cap Com: Roger.

Borman: Jim is all out of his suit and comfortable.

Carnarvon Cap Com: Very good.

Houston Flight: Are you seeing pilot data?

Carnarvon Cap Com: Negative.

Houston Flight: Check the bio-plug.

Carnarvon Cap Com: Gemini 7, Carnarvon. We are not getting any data on the Pilot, medical data. Would you check the plug for us?

Borman: He hasn't got it plugged in yet. We'll have that fixed in a minute.

Carnarvon Cap Com: Okay. We are also getting no indication of the of the clocks counting here on the ground. Would you check to make sure that the prime reference system is on.

Borman: Roger, it's off.

Carnarvon Cap Com: Roger, what is the reason for that?

Borman: Inadvertent circuit breaker actuation during removing the suit.

Carnarvon Cap Com: All righty. Fine, we are showing clocks counting now.

Borman: I'll need an update please.

Carnarvon Cap Com: Oh, let's see. You should be within about 2 hours 11 minutes 55 seconds Jim, you're pretty good, so they can update you over the States.

Borman: No, I mean, can you give me a time hack so I can set my initial elapsed timer.

Carnarvon Cap Com: Oh, alrighty. 45 hours 38 minutes and at 40 minutes - 40 seconds, I'll give you a hack. That is 45 hours 38 minutes.

Borman: Could you make it at 45 40?

Carnarvon Cap Com: Let's see, that is pretty close to our LOS, how about 39?

Borman: Rog, can do.

Carnarvon Cap Com: TR is lined about 9 minutes different from the Command but there is no problem on that.

Houston Flight: Roger, we are going to update it this pass anyway.

Carnarvon Cap Com: Roger. HACK.

Borman: They will give her another try here. Thank's for the reminder. It went in that time.

Houston Flight: Give us a JFO3 also please.

Carnarvon Cap Com: It is reading 200. Standing by for an update.

Carnarvon Cap Com: 3 seconds, 2 1, MARK. 45 hours, 39 minutes.

Borman: Thank you very much Carnarvon.

Carnarvon Cap Com: Roger.

Houston Flight: Set, get John on the TWX please.

Carnarvon Cap Com: Gemini 7, has the pilot gotten the plug - biomed plug in yet?

Borman: Negative.

Carnarvon Cap Com: Roger.

Borman: It takes a little while.

Carnarvon Cap Com: Okay.

Borman: You should be getting a TM now.

Carnarvon Cap Com: Roger, we've got it.

Carnarvon Cap Com: LOS Flight.

This is Gemini Control here at 45 hours 47 minutes. That concludes the Carnarvon pass. During the upcoming State side pass the crew will be given a go for a 46-1 position, that is a 46 revolution flight. A little later this afternoon from the NASA launch facility at the Western Test Range, NASA in cooperation with the French government will launch a Scout Rocket carrying a French payload. This payload was designed and assembled by the French National Center for Space Studies. It is a 135 pound package designed to measure electron density and radio wave propagation characteristics. It will also carry experiment - an electron density probe experiment which was built by the University of Birmingham in England. The vehicle will be launched into a near Polar orbit, hopefully a 76 degree inclination. The launch time is presently scheduled for 12:30 local California time. The Gemini 7 spacecraft will not be in proximity of the launch area at the planned time of launch. They will probably not see the launch. This is Gemini Control Houston.

END OF TAPE

This is Houston, 46 hours 10 minutes into the flight and we are coming up on the Guaymas station. For the record, our music interlude started at Antigua on this revolution and continued through Australia for a total of about 60 minutes. We have had no contact with the spacecraft since Carnarvon. Earlier we discussed the launching of the French satellite out on the West coast this afternoon. That is still counting down. It looks pretty good for a launch several hours from now. They will be trying for a near circular 490 mile high orbit..

We are standing by for contact through Guaymas and we will come to you when we have that. The flight plan on this pass, in addition to that go for 46-1 flight will also include a transponder test. The transponder was turned on at Carnarvon, it is to be left on until they get back around to Carnarvon on the next rev. Also during this upcoming pass, they are to do some D-4/D-7 measurements between Kano and Carnarvon and the flight plan calls for another fuel cell purge while over Carnarvon on the next pass. The music was going out to the via HF transmission and simultaneously they were talking to the ground stations as they passed over the various stations by UHF. This is a form of communications that will be used during the Gemini 7/6 the dual flight. It is planned for the two spacecrafts to talk to each other by HF and use UHF to talk to the ground. We are now seeing data through the Texas station on Gemini 7, still no voice contact. We have voice contact now. Let's cut in.

Houston Cap Com: Gemini 7, Gemini 7. Houston Cap Com: How do you read?

Borman: Loud and clear, go ahead.

Houston Cap Com: Roger. We would like to have you bring your computer up at this time in preparation for this 46-1 load. That would be AC power to IGS and then computer on in prelaunch.

Borman: Roger. Computer is on.

Houston Cap Com: Roger, stand by for a DCS update and you have a go for 46-1 at this time.

Borman: Roger, 46-1 go. We inadvertently had our TRS circuit breakers off while Jim was taking the suit off. Will you check our TR's for us.

Houston Cap Com: Roger. We have a proper readout here. You should be updated now. Did you get the light Gemini 7.

Borman: Roger.

Houston Cap Com: Are you ready to check out the TR at this time?

Borman: Negative, not now.

Houston Cap Com: Understand. You could not read it at this time now anyway. It is too big. We'll have to wait until a later pass I guess.

Borman: I just wanted to make sure it was working all right to you, that is all I was worried about.

Houston Cap Com: It is looking real good here.

Borman: Fine.

Houston Cap Com: Okay, I'd like to give you a 46-1 update.

Borman: Roger. Can you stand by just a minute.

Houston Cap Com: Roger.

Lovell: Houston, this is 7. Standing by for the 46-1 update.

Houston Cap Com: Okay, Jim. GETRC 71+34+29, retro to 400K 15+01.

RETRB 20+36, bank left 50, bank right 60. Do you copy?

Lovell: This is 7, roger, copy for 46-1.

Houston Cap Com: Do you want to read it back?

Lovell: Roger, 46-1, GETRC 71+34+29, RET 400K 15+01, RETRB 20+36, bank left 50, bank right 60.

Houston Cap Com: Roger. And do you have to 46-1 GO--NO-GO information for me.

Lovell: Not yet. We will get that for you as soon as we can.

Houston Cap Com: Roger. Instruction on your D-5 instrument, we are happy with your results and your check. We do not understand why it is doing that but we feel that you made a good check. I would like you to put that instrument aside for the time being and we are getting another one in here to do some analysis on - we are going to try and figure out just what is happening in it. We will not give you any more assignments on it for the time being.

Lovell: Roger. We'll get this functional chart for the 46-1 when we can work it in. We don't want to miss the Cape though this time.

Houston Cap Com: Roger. Just for your information we contacted both Sue and Marlyn this morning and last night. All families are doing fine. All the kids are back in school. Sue said that the boys promised they would try and buckle down on their schoolwork and Marlyn's particular message was that your mother is doing real fine Jim. She has talked to her on the phone.

Lovell: Fine, great. I feel kind of naked without my suit on.

Houston Cap Com: Temporarily embarrassed, huh? Understand it is comfortable.

Borman: Elliott, this is 7 here. We are checking now on the Cape for that radar test.

Houston Cap Com: Roger. HF should be available again to you anytime you want to tune it back in.

Borman: Roger. Do you care if we turn the computer off?

Houston Cap Com: Stand by. We want to leave the computer on a few more minutes 7.

Borman: Okay.

Borman: Okay, we passed over the Cape. We had a good track, it was real easy to acquire and very easy to stay on.

Houston Cap Com: Okay, 7. Have a report for you. Your D-4/D-7 data is coming in very good. We have been very pleased with the results on it so far.

Borman: Thank you.

Houston Cap Com: We are standing by for your GO--NO-GO information.

Borman: We are going to get it right now.

Houston Cap Com: Okay.

Borman: It took a little longer to get the suit off than we anticipated.

Houston Cap Com: Roger.

Borman: Would you remind Mr. Kraft that the computers take electrical power and electrical power uses cryogenics and we are not going to be able to borrow any.

Houston Flight: We will let you turn it off in a few minutes.

Borman: Okay.

Houston Flight: Mr. Kraft knows all that good stuff. Stand by, we want to check your computer.

Borman: Good.

Houston Flight: Last look at the cryogenics say that you can stay up there about 20 days.

Lovell: Okay Chris, we are ready.

Borman: I may have to take my suit off though to defend myself up here now.

Houston Flight: No comment.

Houston Cap Com: There should be a clothes pin stored on the left side.

Borman: Roger, that's exactly what I need.

Houston Cap Com: Go ahead 7. Gemini 7, did you call Houston?

Lovell: Roger. Main batteries are okay, all batteries are 23 volts. Do you want individual status readouts.

Houston Cap Com: Roger.

Lovell: 1A, 4 amps, 1B, 4 amps, 1C 4.5 amps, 2A 4.0, 2B 4.2, 2C 5.0. Main bus voltage 27.0.

Houston Cap Com: Roger.

Lovell: RCS A pressure 3000, temperature 80.

Houston Cap Com: Roger.

Lovell: RCS B 2900, temperature 75.

Houston Cap Com: Roger.

Lovell: Left secondary O<sub>2</sub> 5400.

Houston Cap Com: Roger 5400.

Lovell: The right one is 5300.

Houston Cap Com: Roger 5300. Gemini you are cleared to turn your computer off at any time now.

Lovell: 7, Roger.

Houston Cap Com: Gemini 7, Houston Cap Com.

Lovell: Go ahead.

Houston Cap Com: We have got a good check on your computer. You are in good shape now.

Lovell: Thank you.

Houston Cap Com: 7, at some time in the future we plan to contact you about possible reinstalling the EEG lead. Are you going to be able to get at that kit which has that special glue in it?

Borman: .....

Houston Cap Com: Say again.

Borman: We were only kidding about that.

Lovell: We can try it.

Houston Cap Com: Okay.

This is Gemini Control here. The spacecraft is out over the mid-Atlantic now, probably out of range of the Bermuda station. Our latest quantity readouts look like this. Throughout the night, or since our last reading yesterday afternoon the crew has used only, actually less than 2 pounds of fuel for attitude control, hardly a measurable quantity, onboard a measurable change. The last reading we gave was 68 percent. In breathing oxygen we show 96.6 percent remaining, fuel cell oxygen 91 percent, fuel cell hydrogen 97.3 percent. I think the officials here are much impressed with the way the crew is conserving all of their consumables. This is Gemini Control at 46 hours 29 minutes into the flight.

END OF TAPE

Houston here, 46 hours, 40 minutes into the flight. Just concluded a conversation by the Canaries. During this pass over Carnarvon, Jim Lovell is to give us a crew status report, a major medical-type report. We have the tape for you. We'll play it now.

FLIGHT 6-1 and updated his computer for 31-1. All that looks OK, as far as we can tell at this time.

CYI Roger, copy.

FLIGHT And his Delta P light is still out.

CYI That's nice.

FLIGHT And the pilot seems to be comfortable with his suit off.

CYI Roger.

FLIGHT Canary Cap Com, Houston Flight.

CYI Go ahead, Flight.

FLIGHT Would you remind the pilot that he has a medical data pass over Carnarvon - acquisition time 47 08.

CYI Say again the time, Flight.

FLIGHT 47 08.

CYI Roger.

FLIGHT Elapsed time.

CYI Roger.

CYI Gemini 7, Canary Cap Com. Over.

s/c Reading you loud and clear, Jerry.

CYI Roger. There is a status report on the pilot over Carnarvon. I'll give you elapsed time. 47 08 00.

s/c Roger. Crew status over Carnarvon at 47 08.

CYI Roger.

CYI Spacecraft TR lies about 375 milliseconds.

FLIGHT Say again.

CYI Spacecraft TR 90 minutes from the ground lies 375 milliseconds.

FLIGHT We'd like to update his D4, D7 sequence 430, to 47 55 37, vice 47 55 31 is what he presently has.

CYI Roger.

CYI Gemini, Canary.

s/c Go ahead.

CYI Roger, we'd like to change the time on your D4, D7 experiment, the one you have listed at 47 55 31. We'd like you to change that to 47 55 37.

s/c Roger. D4, D7 sequence 430 is now 47 55 37.

CYI That's affirmative.

s/c Canary, we were wondering if you could give us some info on how the transponder worked out over the Cape.

CYI Flight.

FLIGHT We don't have an answer. We'll check.

CYI Roger.

CYI We'll have an answer for you momentarily. You can cut off your quantity read switch and good night.

s/c Roger. And we can turn off the transponder, too.

CYI Roger, standby. Flight.

FLIGHT Turn that off at Carnarvon.

CYI Roger.

CYI Flight says Carnarvon.

s/c Roger.

CYI We're about to lose you pretty soon now. We'll probably give you a report over Carnarvon on that transponder pass over the Cape.

s/c Roger. Let us know about it.

CYI Canary has LOS.

FLIGHT Roger.

While the Kano station was available there was no further business to be conducted, so there was no further conversation by Kano. The spacecraft is now over central Africa, around the equator as a matter of fact, slipping down over Madagascar. This is Gemini Control at 46 hours, 48 minutes into the flight.

END OF TAPE

Gemini Control Houston here, 47 hours 18 minutes into the flight. We have a tape of the Carnarvon pass during which Jim Lovell describes how he is feeling and how it is to ride without a suit. Here is the tape.

Carnarvon Cap Com: Gemini 7, Carnarvon Cap Com.

Borman: Go ahead Carnarvon, Gemini 7.

Carnarvon Cap Com: Roger, I have a fuel cell purge here in addition to the medical data pass.

Borman: Okay, which one do you want first.

Carnarvon Cap Com: The medical data pass first.

Borman: Roger.

Carnarvon Cap Com: Can you possibly get them both at the same time.

Borman: Negative, because Jim Lovell is going to be doing them both.

Carnarvon Surgeon: All righty. We get no indication of oral temp at the present.

Borman: It is in his mouth.

Carnarvon Surgeon: Okay, we'll forget that part of it.

Borman: Roger. Sending you a blood pressure.

Carnarvon Cap Com: I doubt if we will have time to get all of the purge in.

Houston Flight: Okay.

Carnarvon Surgeon: Your cuff is full scale.

Lovell: Roger, letting it bleed off.

Houston Flight: Let them know that their input from the Cape they are fairly certain that they had an error in their plane data.

Carnarvon Surgeon: We have a good blood pressure. Would you give me a mark when you begin your exercise.

Lovell: Will do. Did you get the oral temperature yet?

Carnarvon Surgeon: Negative.

Lovell: Beginning exercise.

Borman: Okay, the oral temp, our oral temperatures on both .. (garbled)  
are not working and mine didn't work either last time.

Carnarvon Surgeon: Roger.

Carnarvon Cap Com: You can turn your transponder off at this time.

Lovell: It's off.

Carnarvon Cap Com: Roger.

Lovell: Exercise is completed. Here comes the blood pressure.

Carnarvon Cap Com: C-band track at Carnarvon.

Houston Flight: Okay.

Carnarvon Surgeon: Your cuff is full scale.

Lovell: It is bleeding off.

Carnarvon Surgeon: We had a good blood pressure. Do you have any  
additions to your food and water report.

Lovell: Now yet, not since last time.

Carnarvon Surgeon: Roger. We did get an indication of oral temperature.

Lovell: Very good.

Carnarvon Surgeon: Surgeon out.

Lovell: Thank you.

Carnarvon Cap Com: Flight, we are not going to be able to complete the  
fuel cell purge.

Houston Flight: Okay.

Carnarvon Cap Com: We can get almost all of it in.

Houston Flight: Okay.

Carnarvon Cap Com: Okay, while you are purging, we have the results of

the transponder test. They were negative but they feel that it is a ground problem. I'm quite sure that your transponder is okay. Apparently there is an error in the pointing data.

Lovell: No, it couldn't have been. I was tracking exactly on the pad and it was very easy to spot and we were right on it.

Carnarvon Cap Com: What we feel is that it was an error in the ground pointing data. What the ground had themselves.

Lovell: I see. Thank you.

Carnarvon Cap Com: Roger, ditto on all times.

Lovell: From up here it looks like they're pretty busy on Pad 19.

CRO CAP COM: Roger, everything's gone real good on it.

Borman: Carnarvon, Gemini 7.

CRO CAP COM: Roger, Gemini 7.

Borman: Roger. Jim's purging here. He's been out of the suit for about a rev now. He's very, very comfortable. I'm able to stay as comfortable as I was. Our suit temperature has dropped and so has our cabin temperature.

CRO CAP COM: Roger.

Borman: Gee, boy, this is the only way to fly.

CRO CAP COM: Ok.

Flight, do you copy? Carnarvon has had LOS.

END OF TAPE

GEMINI 7/6 MISSION COMMENTARY, 12/6/65, 1:17 p.m.

Tape 111, Page 1

Gemini Control, Houston, here, 47 hours, 46 minutes into the flight. The Guaymas station has contact with the spacecraft and he is taking the data readings at this time. Since approximately Canton Island we have started playing the music again on HF. We don't expect too much conversation, at least in the early part of this pass. There are no major flight plan items shown, so let's cut in now on the music being broadcast up to Gemini 7.

MUSIC

. . . and then he said he could see Houston very clearly, and he called down and he said tell Conrad - Pete Conrad, that would be - to get his kids off his roof - his, Frank Borman's, roof.

MUSIC

This is Gemini Control, Houston. We've had a liftoff of a Polaris missile from the submarine Benjamin Franklin. The liftoff was at 55 minutes - 47 hours 55 minutes into the mission. The submarine Ben Franklin is parked about 30 miles east of the Cape, and Jim Lovell says, "We've got her and she's beautiful!" It's a Polaris A-3-type missile, made by the Lockheed Company, 31 feet long and 54 inches in diameter. It's a two-stage missile. The spacecraft was pointed nose down 35 degrees. Frank Borman says, "It's easy to track - we're right on it." They just called staging. From the Cape we're advised the IP or the flight plan of the missile looks real good. still good, is the report from the Cape. Flight path looks good. It's programed for a 2500 nautical mile flight down the Eastern Test Range. Still good, on time, on the line. We have heard from the crew now that they had it clearly in view as it lifted out of the water. The distance, again, that it was launched about 30 miles east of the Cape; the Ben Franklin was submerged when it was launched. Jim Lovell says they have lost contact; it went into a cloud bank of some sort. Just a rough estimate would be they were tracking, or had it in sight, for fully three minutes. Elliot See has confirmed that tracking is

complete. Frank Borman says the time was right on the mark and the planned launch time was on an elapsed time. 47 hours, 55 minutes, 37 seconds. Cape says it looks like a good flight. They'll need a little bit more time to see if it did exactly what it was supposed to do, but from all the T/M indications, all the impact predictor look angles, it looked like it was doing just exactly right. Frank Borman advises that he was busy using the reticle to keep the spacecraft on good track while Jim Lovell was photographing the missile as it rose from a point about 30 miles east of the Cape. While we're waiting for additional reports we'll go back to the music on HF, which is still being piped up to the crew and undoubtedly they had it turned off during the - during this time. They can turn it up and down as they wish. Let's see if we still have some music.

MUSIC

This is Gemini Control, Houston.

END OF TAPE

This is Gemini Control, Houston. We have the tapes now leading up to the Stateside pass which we are prepared to play for you. The first one was remoted through Canton Island. The capsule communicator voice is that of Donald K. Slayton, who is assisting Elliot See at the time and just joined in for a chat with the crew. So let's have the Canton tape first.

HOUSTON Gemini 7, Houston.

s/c This is Gemini 7, go ahead.

HOUSTON Rog, 7, this is Houston. Are you go for D4?

s/c Roger. Go.

HOUSTON Fuel cell purge complete?

s/c I din't read you.

HOUSTON Is your fuel cell purge complete?

s/c Yes, complete.

HOUSTON Roger. How did you like the music? Are you still getting it?

s/c We turned it off. We got a little busy there and turned it off for a while.

HOUSTON OK. They've got some good Hawaiian stuff coming up to you.

s/c Roger. We'll try it.

HOUSTON Cloud cover at the Cape is .3 to .5 for D4.

s/c Say again, please.

HOUSTON Cape cloud cover .3 to .5.

s/c Where is that?

HOUSTON That's at the Cape, for D4.

s/c It was all clear when we went by there the last time.

HOUSTON Yeah, you know the weather guessers, sport.

s/c Roger. Houston, this is 7. I wouldn't worry about the correction of anything. There is evidently no problem. We wre very, very

comfortable.

HOUSTON Very good, very good. Fred says that's worth a dollar to him. This is Houston again. That concluded the Canton portion. We will be ready in a very few seconds with the Hawaii tape. Meanwhile our Cape sources have advised the Polaris flight was a completely successful mission. Completely successful. Let's hear now the Hawaii conversation.

HOUSTON Gemini 7, Houston.

s/c Gemini 7, Houston. You're fine.

HOUSTON Roger. Turned off your HF music for the Cape pass. That aerial's getting too hot.

s/c Roger. . . . .

HAW Be advised that they turned off the HF music.

s/c Roger. Thank you. And also our pressure fuel cell light . . . . .

HOUSTON Gemini 7, Houston. The music is available again.

HAW Gemini 7, Houston advises music is available again.

s/c Ok. Thank you very much.

HAW Roger.

HAW Gemini 7, Hawaii Cap Com.

s/c This is 7, Hawaii Cap.

HAW Ok. How are you doing up there this morning?

s/c Pretty good. . . . .

HAW Roger. Ok. We show you go here on the ground. Now would you put your quantity read switch to the ECS O<sub>2</sub> position please.

s/c Roger. We're in ECS O<sub>2</sub>.

HAW Roger. We got that. Just stay there one. Ok. Would you put your quantity read switch on fuel cell O<sub>2</sub> position, please.

OK. Hold it there. The quantity read to the fuel cell H<sub>2</sub>

position. OK. Hold it there.

s/c The fuel cell Delta P light is back on now, Hawaii.

HAW OK. Can you get me the time it came on?

s/c I have that. 7 22.

HAW OK. Thank you.

HAW We're having a very bad T/M, Flight, because of the elevation.

FLIGHT Rog.

HAW OK. Quantity read switch off. Thank you.

s/c It's off.

HAW OK. We'll be standing by if you need anything else.

s/c Roger.

HAW We have LOS.

Now, through the courtesy of our instant replay equipment, the Stateside pass.

s/c Go ahead.

HOUSTON Roger. We have you go on the ground. Everything looks real good. We have nothing for you. We'll be standing by.

FLIGHT D4, D7 still on schedule.

HOUSTON Texas coming remote.

HOUSTON Gemini 7, Houston.

s/c Gemini 7, go ahead.

HOUSTON Roger, we're standing by for your D4. We have nothing special this pass. The D4 is still on schedule.

s/c Roger. D4 on schedule. We're all set to go.

HOUSTON For your information, the possible activity on the 38th rev will not take place. I say, you'll have uninterrupted sleep period tonight.

s/c Roger. Say, Houston, we're right over you.

HOUSTON Hello, there.

s/c Hello, Elliot.

HOUSTON Go ahead.

s/c Tell Conrad to get his kids off my roof.

HOUSTON I can see he's out of town now.

s/c We got some very good pictures. Houston was clear as a bell.

We could see the astrodome, the whole works.

HOUSTON You say you got some pictures on this pass?

s/c Right over you.

HOUSTON You were able to get some pictures this pass?

s/c Very good ones, I hope.

HOUSTON Excellent. We weren't sure you'd have enough time there with the further D4 so we didn't tell you about that.

s/c Houston, this is Borman. There has been some clouds move in here just in the time since we've been around.

HOUSTON Roger. We've got one plus 30 to go.

HOUSTON One minute.

s/c Roger.

s/c We've got her and she's beautiful.

HOUSTON Very good.

s/c I hope they know where they're shooting that thing.

HOUSTON Something I forgot to tell you, Frank. Another aerospace first. Sorry about that, chief.

s/c It's easy to track - we're right on it.

HOUSTON Roger.

s/c Staging.

HOUSTON Roger, staging.

HOUSTON Hey, 7, do you have guidance initiate?

s/c Roger, manual control

HOUSTON Hey, 7, did you see a nose fairing separation?

s/c Negative.

HOUSTON 7, did you observe a separation?

s/c Negative. It went through the clouds as we kept on tracking it, it was just a white cloud backdrop.

HOUSTON Roger.

FLIGHT 7, understand you had completed tracking it. Is that correct?

s/c That is affirmative.

FLIGHT Roger.

s/c Time was right on the given time.

HOUSTON Roger.

s/c 47 55 37, how about that?

HOUSTON Roger.

s/c We tried to get - I hope we got some good data.

HOUSTON Roger.

HOUSTON Space 7, Houston. Did you make any meter readings during your tracking?

s/c Negative

HOUSTON Roger.

s/c I kept trying to observe and track it and Jim was photographing it while I was using the reticle.

HOUSTON Roger.

HOUSTON Space 7, you have a TX coming up in about 20 seconds.

s/c Roger.

CAPE Dump it, 7.

HOUSTON Space 7, do you still read Houston?

s/c Read you loud and clear.

HOUSTON Did I hear that you made an S5 pass earlier today? I think it was across Mexico.

s/c Gemini 5, say again.

HOUSTON Did I hear that you made an S5 pass over Mexico earlier this morning?

s/c Roger. We made one S5 pass over southern Mexico earlier this morning. We were going to do another one but we didn't have time prior to this pass.

HOUSTON Roger.

This is Gemini Control, Houston. I want to correct something said earlier.

It was Jim Lovell who made the crack about the Conrad kids on his roof, not Frank Borman. Lovell and Conrad live about a block from each other.

This is Gemini Control Houston, out at 48 hours, 12 minutes into the flight.

END OF TAPE

This is Houston, 48 hours 45 minutes into the flight. In a brief conversation over the Tananarive Tracking Station some minutes ago - right now the spacecraft is over Carnarvon. First, let's bring you the conversation from Tananarive.

HOU CAP COM Gemini 7, Houston Cap Com.

S/C Go ahead, this is Gemini 7.

HOU We have an update on the S-8/D-13 time. Can you copy?

S/C Go ahead with your time, please.

HOU S-8/D-13 time should be revised to 49 25 53. Closest approach 49 26 48. Do you copy?

S/C Roger, we have that.

HOU Roger, and Benjamin Franklin says the pleasure was all theirs.

It's always a pleasure helping other Navy men out.

Tell ..... he did a wonderful job.

HOU Roger. Said you reported staging even quicker than they did.

S/C ..... a pleasure.

HOU They said when your music is off we're changing reels.

S/C Roger. ....LOS.

END OF TAPE

Houston here, 48 hours 55 minutes into the mission. We have just passed the Carnarvon Station and here is that conversation.

CRO Gemini 7, Carnarvon

S/C .... Carnarvon go ahead.

CRO Roger. We'd like for you to boost up your ECS O<sub>2</sub> pressure between 500 and 583, somewhere in there on your gage.

S/C Roger, ECS O<sub>2</sub> coming up somewhere between 500 and 583.

CRO Roger.

HOU You can also tell him that - -

S/C I'm reading 500 now, Carnarvon.

CRO Roger. We're showing you a little low on the ground.

S/C Okay. I'll go ahead and boost it above 500.

CRO Roger.

Go ahead, Flight.

HOU You can tell him he's right on the flight plan with the OAMS usage.

CRO Roger. Also, you're right on the flight plan on your OAMS usage, Gemini 7.

S/C Okay, thank you.

HOU What do those radiator temperatures look like?

CRO CD O<sub>3</sub> is regulating about 38. CH O<sub>2</sub> radiator outlet temperature is reading minus 8. Did you copy, Flight?

HOU Affirmative. Is CD O<sub>3</sub> steady?

CRO It is steady at this time.

HOU That's interesting.

U Carnarvon, could you send us another main, please?

CRO Roger. It's on its way, Flight.

HOU Rog.

CRO We're short a good bit of thruster activity, flight.

HOU Rog.

CRO We're showing him in PULSE MODE.

HOU Rog.

CRO Flight, we have approximately 30 seconds to LOS. Do you have anything you want to relay to us?

HOU Negative, I don't have anything.

CRO Rog. Carnarvon has had LOS.

This is Gemini Control Houston, again. Time 49 hours 1 minute into the flight. After an earlier pass you heard a reference by Elliott See to the fact that some activity that had been planned on the 38th rev later today was being postponed. This reference had to do with the possibility of another missile launching. The launching has been postponed due to lighting conditions, there were no mechanical problems involved, it was simply a lighting factor. That is, spacecraft lighting and look angles that have caused us to postpone this launch. This is Gemini Control Houston.

END OF TAPE

Gemini Control Houston here. Forty-nine hours 17 minutes into the mission.

Over the Hawaii station just passed, the conversation went like this.

HAW Gemini 7, Gemini 7, Hawaii Cap Com.

They have C-band track.

S/C Gemini 7.

HAW Gemini 7, Hawaii Cap Com.

S/C Roger, go ahead Hawaii, Gemini 7.

HAW Roger, we're showing you GO on the ground and I have a flight plan update for you when you're ready.

S/C Is it a very long one?

HAW Roger.

S/C We're right in the middle of trying to eat. I wonder if they could hold off for a while?

HAW Roger. We'll stand by.

S/C Thank you.

HOU Good over here, Hawaii.

HAW Roger, flight.

HAW Gemini 7, Hawaii. They'll take care of it over the States.

S/C Thank you.

HAW Standing by. I have C-band LOS.

END OF TAPE

See is going to remote to the spacecraft through the California station. On this pass the time is 49 hours 20 minutes into the mission. He has just put in his first call. Let's listen in.

HOU ..... Com.

S/C This is 7. I read you loud and clear.

HOU Roger, you finished eating lunch yet?

S/C We haven't quite - - - (lost trans)

HOU Understand you have not quite finished?

S/C That's right. We haven't quite finished. We're going to do an S-5 issued to us a few minutes ago. We're coming up on it now.

HOU You aren't forgetting your S-8/D-13, are you?

S/C Oh, we won't - we won't forget that one.

HOU Okay

S/C Uh Elliott, we were not able to get the S-5 over Australia. It was still too dark and also cloudy.

HOU Uh, roger.

As soon as you're able here we've got a flight plan update to pass on to you, but S-8/D-13 has top priority here, we don't want to foul you up on that.

S/C Well go ahead and pass the flight plan up it looks like it's going to be too cloudy for trying to take pictures of Mexico anyway.

HOU Okay. Get your attitude on S-8 and whenever you need me to stop talking just say so we'll break into the flight plan update and then we'll catch it after you finish.

S/C Roger. I think you can go ahead and start now.

HOU Roger, you ready to copy?

S/C Roger.

HOU Mode:49 plus 02 plus 56. Rev 31,169.1 degrees east, right ascension  
12 50 31. D-4/D-7: 50 56 00. 418 - that was sequence 418. Mode 02.  
Pitch 90 degrees down. Yaw 0 degrees. Do you copy?

S/C I have copied.

HOU D-4/D-7: 50 56 00. Sequence 421. Mode 02. Pitch 9er 0 degrees  
down. Yaw 0. D-4/D-7: 50 56 00. 4 - Sequence no. 422. Mode 02.  
Pitch 9er 0 degrees down. Yaw 0. Do you copy?

S/C I copy, Elliott. We'd better stop now, Houston to get ready for  
S-8/D-13.

HOU Okay. Give me a call when you're able to copy some more.

TEXAS go Remote. California Local.

TEX Texas remote.

CAL California local.

HOU Gemini 7, Houston.

S/C This is 7. Go.

HOU Roger. The wind is from the north so there is smoke along the  
south border and your pass will be 40 miles north of the site.  
The weather is very clear.

S/C Roger.

S/C Houston, this Gemini 7. We got it.

HOU Go ahead.

Roger. Copy you're looking at it now.

S/C A three. The second one is a one. The first one is a three and I can't read the rest of them.

HOU Roger.

Did Jim make any readings?

S/C No, Jim didn't acquire at that time.

HOU Roger, understand, you were the only one that acquired and you called the first one as a three, the next one as a one, and you couldn't make any more readings.

S/C The first one was a three also and I couldn't read any after that.

HOU The first one was a three, the second one a one, and the third one a three.

S/C Negative.

HOU Is that correct?

S/C Say again.

HOU He read a 3 1 3. Is that correct?

S/C It's correct.

HOU Roger.

And were you just not able to make out anything further than that, or were you just not able to see the square well enough?

S/C Well, we couldn't see the squares very well, there's not much contrast down there now.

HOU Roger.

S/C The big markers stick out very well.

HOU Roger.

Okay. Are you all through with that pass then, Gemini 7?

S/C Roger.

HOU Okay. Ready to copy some more?

S/C Roger. . . . let me get some books out here.

HOU Roger.

S/C We want to get some passes down the aisle at this time, too, to check for damage from the last hurricane.

HOU Roger.

S/C Go ahead.

HOU D-9: 51 13 00. Incidentally, do you know you have a critical dump on this pass over the Cape?

S/C Roger.

HOU Okay.

The time on the D-9 is 51 13 00. Sequence 01. Mode 01. At time 52 20 00. Fuel-cell purge at Hawaii. At time 52 36 00 - Crew Status Report on the Command Pilot at Texas. Do you copy?

S/C 7 Roger.

HOU Okay. At time 52 42 00. Sequence 01. Transponder ON. Time 53 00 00. Sequence 01. Transponder OFF. Time 53 55 00. Crew Status Report on the Pilot at Hawaii. Time 55 10 00. POA update at the CSQ. Do you copy?

S/C I have copied.

HOU Roger. That's the end of the message.

S/C Roger.

HOU Gemini 7. On the update we gave you this morning, you notice that the D-4, the next thing you have, the D-4, it had a note - Cold IR off. Do you understand that? It just means you're to do that without using the cold IR.

S/C Roger, roger. We left the cold IR off.

HOU Roger.

We got a report on your OAMS usage. I think it's essentially been reported correctly to you. You're right on your flight plan profile as far as OAMS usage. You're doing real well.

S/C Okay. I was concerned. We've been using it quite drastically here lately. .

HOU Well, we've given you a lot to do today, that's the reason. I have another question, Gemini 7. Could you give us an estimate for flight planning purposes on the time required for eating?

S/C Roger. It takes at least an hour.

HOU One hour for eating, roger, and about 10 minutes extra for exercising

S/C That's roger, and then we have some other functions that take time, too.

HOU Roger, we've noticed that.

S/C We haven't done 'em yet!

We've got some pictures coming up here of the Islands.

HOU Roger.

Gemini 7, Houston. Flight Surgeon would like to have a brief discussion with you at this time regarding the EEG leads.

S/C Roger.

HOU Gemini 7. This is Surgeon. We've checked with the experimenter and we'd like to give - you answer one question. Frank, did the electrodes come off with your helmets on all the time, would you have it on so that it came off during sleep with your helmet on or after you were taking your helmet off?

S/C The lead came off, I had my helmet on. It was loose when I had my helmet on. It caught on the back of my neck - the one - the lead between my helmet and the eyes caught on something and pulled very badly and one of 'em came off. --- while I had my helmet on.

HOU Roger, I copied. Okay, that's fine.  
We'd like to have Jim try and reapply this if he can. And here's some instructions that you can use for trying it with the kit that you have there for applying the electrocardiograph electrodes. If he can clean the area with a wet wipe and then dry it. Clean the electrode flange, being careful not to put any tension on the other electrodes. Then slightly underfill the electrode with paste, take one of the stromoseal tapes, cut it to size to that electrode, and then apply the electrode. Then cut a small square of germacel tape and cover the electrode with that square of tape and Jim will have to hold his hand for a little while over that to just heat-seal the tape as we did when applying the electrocardiogram electrodes. Did you copy all that?

S/C Roger. I don't think this is in my job description, but I'll do it.

HOU We'll have to re-do your job description.

We'll give you a job when you come back, Jim.

S/C .....sleep any sleep, anyway, do you?

HOU Didn't hear that last, Gemini 7.

Gemini 7, if all else fails, try the scissors.

S/C Roger.

HOU Gemini 7, Houston. You have a TX on the way.

S/C Thank you.

HOU Gemini 7 Houston. Would you say that your readings on the S-8/D-13 were made at point of closest approach?

HOU Gemini 7 Houston, did you copy?

TX - CODE TX

HOU Gemini 7, did you copy?

S/C Roger. Do you read me now?

HOU Go ahead.

S/C Copied. Do we have a TX?

HOU Roger. Would you say that your S-8/D-13 readings were made at point of closest approach?

HOU Gemini 7 - Houston, do you read?

S/C Roger. We're reading.

HOU Were your S-8/D-13 readings made at point of closest approach?

S/C Your're cutting out Houston. Cutting in and out. We could not .....

HOU Were your S-8 readings made at point of closest approach?

S/C Roger. They were.

HOU Roger.

LOS at 7

This is Gemini Control again. We've had LOS from the Antigua Station. As the spacecraft moves down across the Atlantic they are to perform a star sighting, their D-4 Experiment where they will train their infrared sensors on a star and make a measurement, a radiometric measurement. Shortly after that, while over Ascension Island, they will turn on the MSC-2 and the MSC-3 Experiments. MSC-2 is a proton-electron spectrometer, looking at electrons, free electrons in space, and protons, at given levels. This will remain on as well as MSC-3 through the

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South Atlantic anomaly, that point where the magnetic field dips closest to the earth. The proton-electron spectrometer for this experiment is made by the Lockheed Corporation. The equipment cost \$200,000 dollars. The MSC-3 Experiment is a tri-axis flux-gate magnetometer. It measures the directions of particles, the electron particles, encountered in space. This particular piece of equipment is made by the Marshall Laboratory in Torrence, California. Each of the units valued at \$10,000 each. This is Gemini Control at 49 hours 39 minutes into the flight.

END OF TAPE

This is Gemini Control, we are 51 hours and 12 minutes into our mission. At this time spacecraft Gemini 7 is passing over the northern tip of South American and has just begun it's 33rd revolution over the earth. We have had very little voice communication with spacecraft Gemini 7 over the past hour. The crew has been busy with onboard experiments. As they passed over Hawaii and then over the states on this last pass they were engaged in the D-4/D-7 experiments. These are celestial radiometry readings of space objects, measuring the radiation intensity. The sensing or measuring units are housed in the Gemini adapter section. We had a go on the ground at the Guaymas station and the comment at the systems onboard looked real good from ground data. At Houston we had a comment that there is a solid go from Houston. Lovell acknowledged this said, "o.k. we are performing D-4/D-7." And as the spacecraft moves on now on its 33rd revolution and comes within the tracking range of the Rose Knot tracking ship off the east coast of South America they have another experiment which will be taken up the D-9 experiment. This is a space navigation experiment using a space sextant for taking star to horizon angular measurements, is to be used in determining space navigation procedures. At this time, we will play back the short voice communication that we have picked up over the past hour. This is Gemini Control.

CRO	Gemini 7
SPACECRAFT	Roger Carnarvon
CRO	Systems looks good, flight.
SPACECRAFT	Roger, Carnarvon
CRO	Systems looks good, flight.
SPACECRAFT	Roger, Carnarvon.

CRO Gemini 7, Carnarvon

SPACECRAFT This is 7, go ahead, Carnarvon

CRO Roger, we have your.....

I would like your OAMS propellant quantity  
readout please.

SPACECRAFT We read about 62%.

CRO Roger, copy.....

That's about all we have for you today.....  
so we'll be standing by.

SPACECRAFT Roger.

HOUSTON FLIGHT Seven, Cap Com Houston Flight

CRO Roger Flight

HOUSTON FLIGHT Understand you have commanded the C band  
on and your're going to leave it on for  
the range tracker in Hawaii passes and  
your real time here, standby pm on.

CRO That's affirm flight.

Did you copy reads 62% on onboard propellant  
quantity?

HOUSTON FLIGHT Affirmative

CRO They're looking good here Flight.

HOUSTON FLIGHT Roger, Carnarvon

CARNARVON We'll be tentatively pm off. A little  
early but I want to make sure I get the  
command in ...

HOU FLIGHT

O. K. I've still got you -- you got about three minutes more on acquisition time.

CRO

That's affirm

HOU FLIGHT

Good C track out there? FIDO is nodding his head yes.

CRO

Roger, we're getting solid track.

Right we've got FET's lagging by 9 minutes and 38 seconds.

HOU FLIGHT

O. K. that's correct.

CRO

Rog.

CRO

Flight Carnarvon

HOU

Go ahead

CRO

He does have his ACQ AID beacon turned off.

HOU

Say Again, Stu.

CRO

He's got his ACQ AID beacon turned off, I assume for the experiment coming up.

HOU

Roger.

CRO

LOS, flight, our command is OFF.

HOU

Again Carnarvon.

CRO

Our command is the standby TM off.

HOU

Roger

CRO

Left the C-band adapter ON.

HOU

Okay.

CRO

Everything looks good, flight. We took - I have some readings here. I'll include them in the first pass to one of our off sources on the general list.

HOU Okay. Why don't you give 'em to me now.

CRO Roger. OAMS source helium pressure reached 20 60. Next DC 01.

HOU Okay.

CRO DC 02 OAMS source helium temperature 54.8. I also have the fuel-cell O<sub>2</sub> pressure if you like.

HOU Uh, negative. Not at this time. I've got another call, Stu.

CRO Rog.  
Flight Control, we have conference?

HOU Affirmative. Go ahead.

HAWAII Houston, AFT Hawaii Cap com.

HOU Go ahead, Hawaii

HAW Roger. What are my mission instructions?

HOU It's down the tube. I would suggest that it should be there to see if it's printing out in mine.  
No. It's in the tube.  
We've got a C-band track for you and that's it. Leave it on for White Sands. We'll TX at our command off.

HAW Okay. And I want to confirm that his ACQ AID circuit breaker is full.

HOU Okay. Stand by a minute.

This is Carnarvon

HOU Go ahead, Carnarvon.

CRO Roger, we didn't have any ACQ AID beacon  
on at this station for our last pass.

HOU Yeah, Okay. Hawaii, we don't want to  
confirm anything on that.

CRO What about telemetry?

HOU Leave it on please.

HAW AFD, this Hawaii.

HOU Just to check our speed of line on teletype  
have you got anything printing out in your  
console right now?

HAW I got it right now.

HOU Okay, I'm on the second line.

HAW All printing.

HOU You beat me.

HAW I have C-band track.

HOU Roger, Hawaii.

HAW Getting TM solid.

HOU Roger.

HAW Gemini 7 Hawaii. Stand by.  
by we have you go.

S/C Gemini 7 Hawaii. Hear you loud and clear.

HAW Roger, Gemini 7. Standing by.

AFD HAS LEFT

HAW AFD, this Hawaii Cap Com.

HOU How's it going?

HAW Looks good right here on the ground.  
We're showing the going off.

HOU Okay. Going off.

HAW Have C-band LOS and TM LOS.

HOU Roger, Hawii

HOU This CAP COM AFD  
This is CAP COM AFD

TEX Texas, Go ahead.

HOU Texas, we've decided that we'd better  
not interrupt him on the D-4/D-7 so dis-  
regard the flight plan update.

TEX Roger, we're going to remote - remote again.  
Thank you.

HOU Sorry about that. Sorry. We tried to set  
it up for you but it's pretty tight in there  
with the sequences and he'd have to drop  
what he's doing and pick up something and  
write it down and come back plus it really  
isn't valid for about another 2 hours before  
it's really time-critical.

TEX Roger, understand.

HOU Sorry.

GYM Guaymas has solid TM and he's go on the  
ground.

HOU Roger, Guaymas.

GYM Looks real good, Bud.

TEXAS GO REMOTE

TEXAS GO REMOTE

TEX TEXAS remote.

HOU Gemini 7, Gemini 7, Houston Cap Com.  
We don't have anything for you here. You're  
a solid GO.

S/C This is Gemini 7 performing a D-4/D-7.

HOU Roger, Houston.

That was voice communication between the ground tracking stations and  
Gemini 7 spacecraft accumulated over the past hour. At this time spacecraft  
Gemini 7 is on its 33rd revolution passing now over the South Atlantic. We  
are 51 hours and 20 minutes into our mission. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are 52 hours and 20 minutes into the mission of spacecraft Gemini 7. At the present time spacecraft Gemini 7 is passing over the Pacific Ocean and is approaching the Hawaiian Tracking Station. We have had no voice contact with spacecraft Gemini 7 for over 1 hour and the crew, during this interim, has been busy with experiments - onboard experiments. We expect, as the spacecraft reaches Hawaii, that there will be voice communication and the crew will be advised of a fuel-cell purge and the flight plan will be updated at that time. We are now on the 33rd revolution and mission time now has accumulated to 52 hours and 20 minutes. This is Gemini Control.

END OF TAPE.

This is Gemini Control. We are now 52 hours and 58 minutes into our mission. Our spacecraft Gemini 7 has just started a few minutes ago it's 34th revolution over the earth and at the present time is moving over the South Atlantic. During the past hour we have had some limited voice communication with spacecraft Gemini 7 through our Hawaiian tracking station and then again over the States and over the Rose Knot Tracking Ship. And at this time we will play back those tapes for you.

HAW Gemini 7, Hawaii Cap Com.

HAW Gemini 7, Hawaii Cap Com.

S/C Hawaii, Gemini 7, go ahead.

HAW Roger. We have you go on the ground. Standing by for your fuel-cell purge.

S/C Stand by.

Roger and out.

HAW Gemini 7 Hawaii Cap Com. Would you turn your quantity read switch off, please.

S/C Roger, it's off now.

HAW Roger.

HOU Flight, Houston.

HAW Roger, this Hawaii.

HOU We'd like an LOS main, please.

HAW Roger. Command Pilot, I have a flight plan update if you're ready to copy.

S/C Go ahead.

HAW Roger. At 53:36:00 flight plan report CSQ. At 56:00:00 purge fuel-cell RKV. We have a crew status report due over Texas Rev 33 on the Command Pilot.

S/C Roger. That's at 52:30.

HAW Affirm. Standing by.

S/C Thank you, Hawaii.

Hawaii, purge complete.

HAW Roger, understand.

HAW We have a TM LOS at Hawaii.

HOU Roger, Hawaii.

HOU This is Cap Com Houston Flight.

HAW Flight - go ahead.

HOU Standing by for your pass. I assume you're silent here.

HAW Roger. We have acquisition at this time and all systems are go on the ground.

HOU Roger.

FLIGHT Texas go remote.

TEXAS Texas remote.

HOUSTON Gemini 7, Gemini 7, Houston Cap Com. We have a good oral temp, give us a blood pressure and stand by for surgeon.

HOUSTON Gemini 7 Houston Surgeon. Your cuff is full-scale.

Gemini 7 we have a good blood pressure standing by for exercise on your mark.

S/C ..... blood pressure.

HOU Gemini 7 your cuff is full-scale.

Gemini 7 Houston surgeon. We have a good blood pressure.

Standing by for your food, water, and sleep report.

S/C Roger, Houston. Water report on the Command pilot - 211 ounces to date. One more meal. It's Day 3 Meal C, and one, uh, blue bag, friend. The pilot - 166 ounces of water to date. The

same meal D 3. D C M C. Neither of us have had any more sleep than we previously reported.

HOU Roger, Gemini 7, we copied your report. Surgeon out.

HOU Gemini 7 Houston Cap Com. I've got some information on Lunik 8 if you'd like it.

S/C Roger, what's Lunik 8?

HOU Lunik 8 is the Russian soft-landing on the moon which was launched on Friday. The signal ceased at 4:51 p.m. e.s.t. and Sir Bernard Lovell, Observatory Director, said the rocket was undoubtedly on the lunar surface, but whether it made a soft landing or smashed itself we do not know. The comment from Radio Moscow is - no comment.

S/C Thank you.

HOU We'd like you to elaborate on your flight plan smudge-pot report and give us the scores of the vision test, your approximate film usage and give us an account whether M-7 has been going okay.

S/C Roger, Gene, you want that stuff now?

HOU No, you can give it to us with the flight plan report, Jim, and that will be a UHF<sup>6</sup> pass.

S/C Roger.

RKV AFD, RKV Cap Com voice check.

HOU Go ahead, RKV.

RKV Roger. I didn't get a mission instruction. Got anything going at this time?

RKV AFD, RKV Cap Com.  
HOU RKV, AFD.  
RKV Roger. Do you have any instructions? I'm about 3 minutes  
20 seconds from acquisition.  
HOU Right. Your pass. We want some ground readouts on JC 02  
3. AOS mid-pass and LOS.  
RKV Right. Three readings.  
HOU Right. Three readings.  
RKV Ground readouts on Jerry Charlie 02.  
HOU And 3.  
RKV What's it now?  
HOU Stand by.  
HOU JV AFD  
RKV (Garbled line) you want ..... JF or .....  
HOU Yeah. J - Juliette Fox 02 and 3.  
RKV 02 and 03 I got ya.  
HOU Transponder.  
RKV Roger, roger.  
RKV AFD Cap Com this .....  
HOU Roger, RKV  
RKV Gemini 7, RKV Cap Com. We have nothing for you. We're  
standing by. All systems are go.  
S/C Gemini 7, roger.

That was taped voice communication between the spacecraft Gemini 7 and the tracking stations at Hawaii, Texas, and the Rose Knot Tracking Ship. At this time our spacecraft is still passing over the South Atlantic on its 34th revolution around the earth. We will be expecting to get another voice communication with the spacecraft as it comes over the Coastal Sentry Tracking Ship in the Pacific on this revolution and we are hoping that at that time we can bring you some live communication. This is Gemini Control. We are now 53 hours and 4 minutes into the mission of spacecraft Gemini 7. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 53 hours and 36 minutes into our mission with spacecraft Gemini 7. At this time spacecraft Gemini 7 is on its 34th revolution over the earth and is coming up over the Pacific Ocean and very shortly will be passing within voice range of the Coastal Sentry, our tracking ship located in the Pacific and at that time we will bring you the live conversation between spacecraft Gemini 7 and the Coastal Sentry. On our flight plan coming up during this pass we will have a flight plan report from the crew. As the craft moves over Hawaii we have a crew status report from the pilot. This is a medical pass. This will be followed as the hours go by, by an exercise period where the pilots engage in isometric exercises and using the bungee cord exerciser. And that will be followed by a housekeeping period, getting the gear stowed away that they have been using during this busy day of flight. They do this each evening or each day evening in Houston, of course, they do this just before a sleep period which will be coming up at about 9:30 p.m. central standard time. At this time we give you the live conversation between Coastal Sentry tracking ship and spacecraft Gemini 7.

CAPCOM Just want to pass on to you that the Luna 8 did not make a soft landing.

S/C Roger.

CAPCOM We are standing by for your flight plan report.

S/C . . . the Hasselblad film we had used 23 frames . . garbled . . magazine A . We . . garbled . . are on the third one now. We have used 2 magazines of the 16-mm movie. On the D-9 experiment we did not use the green filter we found it was much better with it off.

CAPCOM Roger.

S/C On S-8/D-13 Lovell missed 8 and Borman missed 7 .

CAPCOM You say Lovell missed 8 and Borman missed 7.

S/C Roger

CAPCOM Got it.

S/C . It was also requested that you cancel the cabin temperature survey.

CAPCOM Say again.

S/C Roger, we would like to have/<sup>you</sup>schedule a cabin temperature survey.

CAPCOM Roger.

S/C CSQ this is 7.

CAPCOM Go ahead.

S/C I would like you to confirm if you want me to leave the cryo heaters on automatic procedure while we are sleeping.

CAPCOM Standby. Flight CSQ do you copy?

Flight Roger that is our feeling now. We will advise them just prior to the beginning of their sleep period. That is our feeling at this time however.

CSQ Roger. Gemini 7 CSQ that is affirmative at this time. You will be advised further over the states.

S/c Roger. How is sea duty?

CSQ Say again

S/C How is the sea duty?

CSQ It's pretty rough down here.

Flight Chuck you could advise them that we would like a couple of read-outs on cabin humidity

Flight Prior to starting their sleep period/<sup>if</sup>they already have some .

CSQ Roger 7 standby. Flight what was that again?

Flight Roger, if they have taken any recent cabin humidity readings I would like to know it and if not we'd like to get one prior to the sleep period.

CSQ Roger. 7 CSQ have you taken any cabin humidity reading lately?

S/C Not recently the latest readings were around 58 for the dew point.

CSQ Roger, Houston will probably want one before you start your sleep period.

S/C Roger we will make a temperature survey before the sleep period.

Flight Chuck you can ask them if the HF music is coming through?

CSQ 7, CSQ have you been copying the HF music?

S/C We have been having it off and on. When we are busy we usually turn it off. But we have been picking it up otherwise.

CSQ Roger. Flight CSQ we have noticed here that when he keys his UHF transmitter we get fluctuations on . . a definite drop on the control buss volts and squib 1 and 2. Do you want to try the UHF number 2 to see if we have the same effect?

Flight That's normal conditions there Chuck.

CSQ Roger, flight.

CSQ Gemini 7 CSQ you report on your hassel plan 43 frames, I did not copy that next item. Would you repeat it?

S/C Roger. That was from magazine A, magazine A.

CSQ Roger I thought I copied SO 217 but I wasn't sure.

S/C Roger thats the film, thats the film.

CSQ Flight CSQ

Flight Go ahead

CSQ The systems on these voltages, I'd like you to confirm those systems here . . .

Flight Hey Chuck break,break. We'd like to have some information whether the M-7 experiment is going all right

CSQ Roger. M-7? Mike 7?

Flight Correct.

CSQ 7 CSQ Can you tell us how your Mike 7, experiment 7 is going?

S/C This is 7. We have been off of all calcium, we are recording everything, everything seems to be okay.

Flight Roger.

CSQ Did you copy flight.

Flight Affirmative.

S/C We are eating some of our meals out of sequence . . . garbled.

CSQ Gemini 7 CSQ we are at LOS I did not copy your last transmission.

That was live voice communication between spacecraft Gemini 7 and the Coastal Sentry tracking station in the Pacific Ocean. We have had loss of signal at the Coastal Sentry. Spacecraft Gemini 7 on its 34th revolution over the earth is proceeding now over the Pacific Ocean. This is Gemini Control at 53 hours and 44 minutes into the mission of Spacecraft Gemini 7.

END OF TAPE

This is Gemini Control. We are now 54 hours and 20 minutes into our mission of spacecraft Gemini 7. At this time, our spacecraft is passing over South America. It is beginning its thirty-fifth revolution around the earth. We have had a voice communication with spacecraft Gemini 7 and pilot Jim Lovell, as we passed over the Hawaiian tracking station, and at this time we will play back the tape of voice communication between spacecraft Gemini 7 and the Hawaiian tracking station.

S/C Hawaii, this is Gemini 7.

HAWAII We have a valid temperature; we're standing by for a blood pressure.

S/C Roger. He's sending it now. This is full scale.

HAWAII We have a good blood pressure. Standing by for your exercise on your mark.

S/C Roger. Stand by. Mark.

LIGHT Hawaii Cap Com. Houston Flight. OK. We've got a slight problem here, and what I really mean is we didn't get as complete a report of the flight plan over CSQ as we would like. I don't think we want to go into any great detail, so I would like you to ask him very simply if he has completed all of the scheduled flight plan items in the last 24 hours. In other words, has he completed all the items that have been scheduled in the flight plan during the last 24 hours.

HAWAII Roger. Have a good blood pressure. Standing by for your food and water and sleep report.

S/C Roger. There's been no change since we gave the food, water and sleep over Texas except for the fact that we're now eating the

evening meal. Do you want the results of that also?

HAWAII Roger. Which meal is that?

S/C OK. That's evening meal that we're eating. Meal A-15, Meal B.

HAWAII Meal B. Roger. Surge out.

S/C OK. We've got the water here, too, up to date if you want that.

HAWAII Please.

S/C Command pilot water up to date is 2.37 ounces.

FLIGHT How is your tape dump going, Hawaii?

HAWAII It's still going on right now.

FLIGHT Roger.

S/C And pilot is 1.78 ounces.

HAWAII Roger, Gemini 7. Surgeon now. 7, like to give the complete -- just a short report on your flight plan. Just want to know if you have completed all scheduled flight plan items for the last 24 hours.

S/C Roger. We gave a flight plan update to CSQ. We have completed them all except one pass for best five over Mexico, and there were clouds. D4-D7 over Mexico -- the IR returns from the water and the land was degraded because of cloud cover, but we completed it.

HAWAII Roger.

S/C Other than that, we're all up to date.

FLIGHT OK. You can tell them we're happy with that report.

HAWAII Roger. Flight's real happy with the report.

S/C Roger. Our tape dump is completed, Hawaii.

FLIGHT OK. Thank you. Good pass, Bill.

HAWAII Phil, we're standing by for you.

FLIGHT Roger. Thank you, How does everything look up there, Bill?

HAWAII It's still looking good.

FLIGHT OK. Did you notice any large variations in squib or control bus power when he was keying his transmitter then?

HAWAII He did just when he keyed the normal amount.

FLIGHT OK. That seems to be our feeling. We have taken a look at the data. If you remember, the CSQ flagged it for us. And we've gone over the data for the past several days and compared it to the GT-5 data, and it's pretty closely following the same curve -- about the same excursions at about the same slope.

This is Gemini Control. That was live voice communication -- rather taped voice communication between Spacecraft Gemini 7 and the Hawaiian tracking station. We have here a report that we got from pilot Jim Lovell on the food and water and sleep for both the command pilot and the pilot to date. These are accumulated totals. The command pilot has had a food intake of 4,867 calories. The pilot has consumed food with a caloric count totaling 4,747 calories. For water, the command pilot water intake total to date has been 14.2 ounces -- 14.2. The pilot 10.7 ounces -- 10.7. Both the command pilot and the pilot have slept twelve hours each. At this time, Spacecraft Gemini 7 is passing over South America on its thirty-fifth revolution. We are 54 hours and 25 minutes into the flight mission. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are 54 hours and 38 minutes into our mission. At the present time Spacecraft Gemini 7 is passing over the South Atlantic on its 35th revolution over the earth. A few minutes ago as the spacecraft passed over the Rose Knott Tracking Ship which is located off the east coast of South America we had a very short voice communication with the spacecraft and at this time we will play back that taped communication.

RKV Flight RKV CAPCOM

Flight Go ahead RKV.

RKV All systems are go. We are prepared for the TX.

Flight Roger.

RKV Gemini 7 RKV CAPCOM we have nothing for you this time. We are standing by. All systems are go.

Flight On these transmissions you should advise. You need not acknowledge.

RKV Okay.

Flight You can pick it up next time.

RKV Roger.

S/C RKV RKV, Gemini 7.

RKV I read you loud and clear Gemini 7.

S/C Garbled

RKV Roger.

RKV Did you get that flight?

Flight Roger RKV

RKV RKV

Flight Say again RKV

RKV All systems look good.

Flight Okay.

RKV You have got Kelly down here on 3 bearing again.

Flight Whats the parameter?

RKV . . . garbled . . . air outlet temp primary.

Flight Can you break down the data and give us a quick indication as to what the frequency actually existing in the main is.

RKV We just did it. It was 118 and . . . from 35.5 to 40.7 at a frequency of 22 seconds per cycle.

Flight Okay 22 second per cycle. Okay, got you.

R KV Okay.

Flight ..... primary cooling loop .....

RKV Roger .

Flight It doesn't particularly bother me, it seems to me that we have got a sticky modulating valve out there that going from full open to full closed. Actually both extremes of the temperature span there, which I believe, what is it 36 to 42 isn't it.

RKV Roger. Good thing we had it on that last night. I would like to pursue it further before I reported it.

Flight Yea Bill it doesn't particularly bother me because I saw that the first day of the mission and I believe test data from previous missions again indicated that this occasionally did occur. I watched it on trend blots back here. Gee, the first night and also last night Th-- wasn't particularly concerned about it and neither were our econ guys but I think Blue got all up.

RKV Okay I'll put it . . . down.

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Flight        Okay, thank you.

That was taped voice communication between spacecraft Gemini 7 and the Rose Knott tracking ship. Our spacecraft is now in its 35th revolution and is approaching the southern most tip of Africa. The speed of the spacecraft at this time is 25,289 ft per second. This is Gemini Control at 54 hours and 42 minutes into the mission of spacecraft 7.

END OF TAPE

This is Gemini Control. We are 55 hours and 26 minutes into the flight of spacecraft Gemini 7, which at the present time is coming up over the Pacific toward the Hawaiian Tracking Station. A few minutes ago we had voice communication between the Coastal Sentry Tracking Ship and the spacecraft and at this time we will play back the taped voice communication.

CSQ Gemini 7, CSQ Cap Com.

S/C Go ahead CSQ, this Gemini 7.

CSQ Roger. You're on the UHF no. 6 test at Hawaii on this rev.

S/C Roger, understand.

CSQ Have you taken a humidity measurement on the last rev or so?

S/C No but we will by the time we get there unless you want it now.

CSQ Say again last.

S/C I say we have not yet but we will shortly.

CSQ Roger. I have a PIA update when you're ready to copy.

S/C Go ahead, CSQ, we're ready.

CSQ Roger. Area 37-3: 58 07 06 14 plus 53. Area 38-3: 59 41 58 14 plus 20. Area 39-Delta: 60 32 59 22 plus 00. Area 40-Delta: 62 08 05 20 plus 53. Do you copy?

S/C Roger. We copied them all loud and clear.

CSQ Okay. A couple more. 41-Delta: 63 46 15 18 plus 58.

Area 44-2: 65 32 31 17 plus 30. Area 43-2: 66 58 45 16 plus 08.

Area 44-1: 68 23 04 17 plus 18. Do you copy?

S/C Roger. Got 'em all.

CSQ We have nothing else for you at this time. Everything looks good here.

S/C Roger, thank you very much, CSQ.

CSQ Roger, standing by.

S/C One thing we've done - we were getting a lot of heat/<sup>in</sup>through the window so we took a food container bag and put 'em up . . . . . our food container bag, trying to cut the heat down that keeps coming in through the window.

CSQ Roger, copy.

S/C We also had another catastrophe. While I was reaching back to get a food bag I banged my head on a - the overhead and tore off all my EEG leads and we're in the process of pasting those back on now.

CSQ Ok.

This is Gemini Control. We are 55 hours and 30 minutes into our mission. The spacecraft is now within voice range of Hawaii and we will bring you that live communication now.

HAW Put your gloves on.

S/C We haven't had gloves or headgear on since insertion.

HAW Okay. Just keep 'em off while you sleep.

S/C Rog.

HAW Okay. I'd like to put you into - the spacecraft into a sleeping configuration. I'd like you to do it as I say it so we can monitor it here on the ground.

S/C Ok.

HAW Ok. Will you put your RCS heaters on now.

S/C They've been on all day.

HAW Ok. Your fuel-cell heat - correction - your fuel-cell H<sub>2</sub> auto heaters to AUTO position.

S/C Roger.

S/C Auto

HAW Ok. Your fuel-cell O<sub>2</sub> heater switch to the AUTO position.

S/C They're on AUTO.

HAW Okay. I'd like you to take your ECS O<sub>2</sub> heater switch, go to the ON position and raise it to 580 psi.

S/C Ok. How about putting it in the AUTO position?

HOU That's the preferred procedure there, Ed.

HAW Ok. Let's go to AUTO.

S/C It's in AUTO.

HAW Roger.

HOU Ok. And we want to let him raise it to 580 on his reading. Cockpit reading.

HAW Got that.

HOU Ok. And we'd like to know if Jim is going to sleep in his underwear or the orbital flight suit.

HAW Okay. We'd like to know whether the pilot will be sleeping in his underwear or his orbital flight suit.

S/C Sleeping in his underwear. We're a little warm. We have been since we have been up here.

HAW Okay.

S/C For your information I've got my suit completely unzipped and I'm trying to be as cool as I can that way.

HAW Roger, I got that.

S/C Hawaii, this Gemini 7. We just took in a complete survey of the temperatures around the cabin. Venting ambient about 78 with a dew-point of 57.

HAW Roger.

HAW Flight, Hawaii

HOU Go Hawaii.

HAW Ok. When we get to 580 you want him to turn the ECS O<sub>2</sub> heater switch back to OFF. Is that affirm?

HOU Yeah. That's 580 in his reading, that's 700 in yours.

HAW I got that.

HOU What's he reading now on the TM end?

HAW 652 psi

HOU Roger.

S/C Hawaii, Gemini 7. You have any other instructions?

HAW Okay. When that ECS O<sub>2</sub> reaches 580 we'd like you to go back to the OFF position on the ECS O<sub>2</sub> heater switch.

S/C Okay. I'd just as soon leave the others off too unless you really want them in AUTO.

HAW I think they want them in AUTO.

HOU That's really his preference, and we'll give him some values. We'd like to pump them up then for the beginning of the sleep period.

HAW Roger. Got the values?

HOU Stand by.

HAW Roger. If you'll wait on a second, I'll give you the values they want them to be left at, and then you can set them up the way you'd like.

HOU Thank you. We've got to convert these, Ed. You've got about three minutes left, so we've got plenty of time to get them to you.

HAW Yes. I've got plenty. Flight, Hawaii. We've completed the tape dump.

HOU OK. Very good. OK. We want them to go to 500 psi -- his reading on RSS each, too, Ed.

HAW OK. What about O<sub>2</sub>?

HOU I'll give it to you. Give it to them now.

HAW OK. We'd like you to go to your fuel cell H<sub>2</sub> to 500 psi.

S/C H<sub>2</sub> to 500. Roger. How about the O<sub>2</sub> ?

HAW They're working on that one.

S/C OK, Ed. Tell them that I'll turn it off when I get there, and then if they want me to turn it back on, wake us up. I'll sleep better if I know it's on Automatic.

HAW Very good. Copy all that, Flight?

HOU Affirmative.

HAW OK. We have LOSS CSO<sub>2</sub>. When we went to the heater switch, the AUTO position jumped about 2 amps.

This is Gemini Control, 55 hours, 37 minutes into our flight mission. We have just completed our voice communication. Hawaii tracking station has lost the signal with the Spacecraft Gemini 7. The command pilot, Frank Borman, was the voice talking to the Hawaiian tracking station. At this time, our spacecraft is on its thirty-fifth revolution around the earth. It is on the tag end of that revolution, and very shortly will begin its thirty-sixth revolution. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 56 hours 20 minutes into the mission of spacecraft Gemini 7. At this time our spacecraft is passing over the southern tip of Africa on its 36th revolution around the earth. Our flight director, Gene Kranz, had a communication with the spacecraft communicator aboard the Coastal Sentry Quebec a few minutes ago and at that time Chuck Lewis, who is the spacecraft communicator, described the weather at the site of the tracking ship. The weather there is: Winds of 25 to 30 miles per hour with 10 to 15 foot swells. And our spacecraft also just a short time ago passing over the Rose Knott tracking ship had voice communication with the ground; and at this time, we will play back that voice tape.

RKF Rog

S/C Garbled

RKV RKV We have transmitted TX and all systems are go.

RKV CAPCOM

S/C garbled

RKV Roger, we are standing by for your purge. All of your systems are go.

S/C Garbled.

RKV Roger, we would like for you to . . . fuel cell O<sub>2</sub>, 750, fuel cell H<sub>2</sub>, 500. Propellant for fuel cell O<sub>2</sub> are 170, the minimum for fuel cell H<sub>2</sub> . . . Do you copy?

S/C Garbled 750 to 170. . . garbled. . . hydrogen transfer.

RKV Roger. The hydrogen . . . is 500 and the minimum is 330.

S/ Roger. 500 and 330, how about ECS O<sub>2</sub>?

RKV Our ECS O<sub>2</sub>, 580 to 230 - 233. 580 233.

S/C Roger will you all read that . . . garbled

RKV We got your information for you on tomorrow's exercise. The current mission plan calls for a small peri grade maneuver of about 10 to 12 feet per second. Will be done at apogee . . . garbled . . .

Flight Okay we have it. Its 172.1 by 119.9.

RKV Roger. 172.1 by 119.9

S/C Garbled

RKV 119.9

S/C garbled

RKV Roger

Flight You can read them the rest of the TWX is you want Bill.

RKV Okay. G.e.t. In approximately 5 days the decision to launch Gemini 6 on the 8th or 9th day will have to be made. If the decision is to launch Gemini on the 8th day the circularization maneuver will be made at that time. Approximate g.e.t. equal 5 days. This will give us two launch windows on the 8th day and one window on the 9th and 10th day. If the decision to launch Gemini 6 on the 9th day the circularization maneuver will be delayed to approximately 7 and one half elapsed days. This will allow the launch windows for the preflight nominal flight plan. You got that.

S/C Thank you, thank you very much.

RKV Okay.

RKV We got your information for you on tomorrow's exercise. The current mission plan calls for a small peri grade maneuver of about 10 to 12 feet per second. Will be done at apogee . . . garbled . . .

Flight Okay we have it. Its 172.1 by 119.9.

RKV Roger. 172.1 by 119.9

S/C Garbled

RKV 119.9

S/C garbled

RKV Roger

Flight You can read them the rest of the TWX is you want Bill.

RKV Okay. G.e.t. In approximately 5 days the decision to launch Gemini 6 on the 8th or 9th day will have to be made. If the decision is to launch Gemini on the 8th day the circularization maneuver will be made at that time. Approximate g.e.t. equal 5 days. This will give us two launch windows on the 8th day and one window on the 9th and 10th day. If the decision to launch Gemini 6 on the 9th day the circularization maneuver will be delayed to approximately 7 and one half elapsed days. This will allow the launch windows for the preflight nominal flight plan. You got that.

S/C Thank you, thank you very much.

RKV Okay.

S/C           What's going on in the world?

RKV           Not much. It's dark down here.

S/C           Dark up here too. We have got . . . garbled . . .

RKV           Sounds like you are getting ready for Christmas. Garbled...

That was taped voice communication between the spacecraft Gemini 7 and the Rose Knott tracking ship. Our spacecraft voice at that pass was command pilot, Frank Borman. We are now 56 hours and 26 minutes into the mission. The spacecraft is on its 35th revolution. Is now leaving the east coast of Africa and our crew is in a sleep period. It's the 36th revolution, correction. The crew is settling down for a 10 hour sleep period. This is Gemini Control. 56 hours and 26 minutes into the mission.

END OF TAPE

This is Gemini Control at 57 hours and 20 minutes into our mission of Spacecraft Gemini 7. At the present time, the spacecraft is on its thirty-sixth revolution. It is just approximately ending this thirty-sixth revolution, and is passing over the Pacific Ocean on its way toward the west coast of South America. Here in Mission Control, we are in the midst of a shift change. The Blue Team of Flight Controllers will take over in approximately ten minutes for the long night hours and will run from 11:00 to 7:00 a.m. Aboard our spacecraft, the flight crew according to the ground data that we got at the Hawaiian tracking station about twenty minutes ago -- this data indicates the crew is asleep. We have a report now from Cape Kennedy on the status of the launch pad. The word is that final systems tests of the Gemini 6 spacecraft are now better than 80% complete. This word comes from the launch crews at Complex 19. If these tests are completed before noon tomorrow, it will be possible to move the simulated flight test of Gemini 6 up one full day. Spacecraft launch vehicle guidance tests will begin at 1:00 a.m. EST Tuesday if all goes well. Astronauts Gus Grissom and John Young, who are the backup crew for Gemini 6, will be aboard the spacecraft for an abbreviated ascent mode test. This is expected to last approximately one hour. The Gemini 6 launch vehicle systems tests are also running smoothly in preparation for the simulated flight according to U.S. Air Force officials. These tests are about 20 hours ahead of schedule. If all tests continue satisfactorily, it may be possible to launch Gemini-Titan 6 on Sunday rather than Monday as planned. The earliest launch time on Sunday would be 10:10 a.m. EST. This is all predicated upon completing all these tests successfully.

GEMINI 7/6 MISSION COMMENTARY, 12/6/65, 10:50 p.m.

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At this time, we are now 57 hours, 22 minutes into the mission, ending revolution thirty-six. The spacecraft crew is asleep, and the Blue Team of Flight Controllers are taking over from the White Team here in Mission Control. In about thirty-five or forty minutes, our Flight Director, Gene Kranz; our Spacecraft Communicator, Eugene Cernan; Flight Surgeon, Duane Callerson; and one other of our flight controller team will be over at the Press Center here in Houston for the nightly press conference. This is Gemini Control.

END OF TAPE

This is Gemini Control, 59 hours 20 minutes after liftoff. Gemini 7 is presently over the voice remoting station in Ascension Island in the South Atlantic. However, it is doubtful that there will be any conversations since both crewmen are asleep. We have just begun the thirty-eighth revolution. The present measurements of the orbit according to the Flight Dynamics Officer's orbital digitals, as they're called on the display system here in Mission Control, show perigee at 119.9 nautical miles; apogee at 171.9 nautical miles. The Blue Team of flight controllers have settled down for the night watch here in Mission Control. We're expecting another quiet night as both crewmen will sleep to about -- until about 8:00 CST. At 59 hours and 20 minutes after lift-off, this is Gemini Control.

END OF TAPE

This is Gemini Control, 60 hours and 20 minutes after liftoff. Gemini 7 at the present time is over the Canton Island voice remoting station. However, as in the previous pass, since they have gone to sleep, there will be no voice communications. The next station which will acquire the spacecraft will be the tracking ship Rose Knot at the beginning of the fortieth revolution. At 60 hours and 20 minutes, this is Gemini Control.

END OF TAPE

This is Gemini Control, 61 hours and 20 minutes after lift-off. Gemini 7 at the present time is over northern portion of India in the 39th revolution. At the beginning of the 39th revolution when the spacecraft passed over the tracking ship, Rose Knot, where spacecraft communicator, Bill Garvin, reported that all systems were go on the ground. There was also a telemetry dump during this pass over the Rose Knot. Bill Garvin also reported it appeared the command pilot was awake at the time. That he was cycling the switches aboard the spacecraft to make checks of his onboard consumable read outs. However, there were no voice communications during this pass. Flight director, John Hodges' wife, Audrey, sent a very delicious nut cake which has been distributed among the flight controllers here on the blue team. At 61 hours and 21 minutes after lift-off this is Gemini Control.

END OF TAPE

This is Gemini Control. 62 hours and 20 minutes after lift-off.

Gemini 7 is nearing the end, or has actually finished the 39th revolution and has begun the 40th revolution. They will be acquired by the tracking ship, Rose Knot, off the coast of South America within 5 minutes. This is a fairly low elevation pass. Only 1.8 degrees for a total time of 4 minutes and 1 second. Earlier in the 39th revolution, midway through that revolution, the spacecraft passed over the tracking ship, the Coastal Sentry, and of course, all systems as usual were looking good on the ground. Spacecraft communicator aboard the Coastal Sentry, Charles Lewis, said that the swells of the ocean were rolling the ship fairly severely. This pass coming up over the Rose Knot will be the last one for this morning and then flight director, John Hodge, will release the ship until the orbits precess again over that ship. At 62 hours and 21 minutes after lift-off this is Gemini Control.

END OF TAPE

This is Gemini Control. 63 hours and 20 minutes after lift-off.

Gemini 7 spacecraft is now over the Coral Sea just east of Australia and is nearing the end of its 40th revolution. During the recent pass over the tracking ship, Coastal Sentry, which is a very low angle elevation pass of 1.3 degrees everything looked good on the telemetry readouts. The spacecraft communicator commented that the swells, the heavy ocean swells were rolling the flight controllers away from their consoles. This was the last pass of the day for the tracking ship, Coastal Sentry, and it was released by flight director, John Hodge. Meanwhile down at Cape Kennedy on launch complex 19, preparation for the Gemini 6 launch were preceeding. They have completed the intergration test with the Geminilaunch vehicle and the spacecraft simulated flight is now scheduled for midnight Tuesday. They hope also to complete the final systems test in the spacecraft by 9 p.m. eastern standard time Tuesday. At 63 hours and 21 minutes after lift-off. This is Gemini Control.

END OF TAPE

This is Gemini Control, 64 hours and 20 minutes after lift-off. Gemini 7 at the present time is over the north portion of Africa and is at the beginning of the 41st revolution. The spacecraft just passed over the Canary Island Tracking Station where a tape dump of stored onboard data was made. Spacecraft Communicator at Canary is Jim Fuji. He said that all systems are go on the ground and that the environmental control system and fuel cell reactant pressures are all normal. Meanwhile at Kennedy Space Center, additional preparations for the Gemini 6 launch continue. At 10:00 a.m. today, central standard time, backup Gemini 6 pilots, Virgil I. Gus Grissom and John Young will participate in a spacecraft and launch vehicle interface guidance test which will last about 1 hour for the total test. At 64 hours and 21 minutes after lift-off this is Gemini Control.

END OF TAPE

This is Gemini Control, 65 hours and 20 minutes after lift-off. Gemini 7 spacecraft is now in the - nearing the end of its 41st revolution. There have been no passes over tracking stations for more than an hour since the last pass over the Canary Island station, however, in 12 minutes the spacecraft will be within range of the Eastern Test Range Stations at Grand Turk Island and Antigua. In 23 minutes from now it will again cross right down the middle of the Canary Islands tracking station acquisition area. The Red Team of Flight Controllers under Chris Kraft are now beginning to come into the Control Center to relieve the Blue Team. At 65 hours and 20 minutes this is Gemini Control.

END OF TAPE

This is Gemini Control Houston. Good morning. 66 hours and 6 minutes into the flight. The weather today looks like this. In general the weatherman says all the critical areas will have satisfactory weather for at least the next 2 days. In the mid-Pacific landing zone centered about 800 miles east northeast of Honolulu mostly cloudy skies with scattered rain, northeasterly winds at 20 to 25 knots raising seas to 7 feet. In the western Pacific landing zone centered 700 miles south southwest of Tokyo will be only partly cloudy with northeast winds of 10 to 15 knots and seas 2 to 4 feet. In the east Atlantic zone, 500 miles north of the Cape Verde Islands the skies will be mostly overcast with a cold front moving through the area will drive northeasterly winds of about 25 knots in the northwestern portion from light variable in the southeastern section. Waves will build at 8 feet behind the front. While ahead of the system waves will be about 3 feet. In the primary landing zone in the western Atlantic centered about 500 miles east of Miami partly cloudy skies continuing to prevail with widely scattered shower activity. Winds will be 10 knots or less with waves to 2 feet.

Interesting meteorological features which will be over flown during this day included extensive frontal cloudiness area in the western Pacific Ocean. The spacecraft just passed over the Canary Island Station. The ground observes some switch flicking activity going on onboard. There was no conversation so we are not exactly sure if they are both awake but we strongly suspect they are and we will probably hear from them as they go over Carnarvon this first time this morning about 20 minutes from now. This is Gemini Control Houston.

END OF TAPE

Gemini Control Houston here, 67 hours into the flight. Frank Borman took the wake up call this morning which went up from the Carnarvon station and he reported very briefly that everything was fine. The conversation went like this:

SPACECRAFT

Well that's about all we have for a recon like this, we are standing by.

CARNARVON

F.T.M. Flight, I command your real time T.M. off. Everything was looking good. We got a good fuel cell purge. All of our times will be on their post dispatch.

HOU FLIGHT

Then, ah, your summaries came in garbled. Would you play your tape back and give us some more summaries, please.

CARNARVON

Roger. Will do.

HOU FLIGHT

Did you get the C Band track? From Houston Flight.

CARNARVON

Go ahead, Flight.

HOU FLIGHT

Did you have the C Band beacon on?

CARNARVON

That's affirmative

HOU FLIGHT

Did you get track?

CARNARVON

Ah. We have one minute and 29 seconds of track.

HOU FLIGHT

Ok. I think we want you to play that back also. Stand by.

END OF TAPE



excellent.

HOU FLIGHT

Roger. Just 'cause you're eating day five, don't think you've only got nine days to go.

SPACECRAFT

It keeps us happy that way.

HOU FLIGHT

Are you so busy eating that you can't talk to me for a few minutes?

SPACECRAFT

Roger, Frank's doing the S-8/D-13, I'm available.

HOU FLIGHT

O. K. Is it handy for you to give us a water report at this time? We're trying to calculate your weight distribution pretty accurately.

SPACECRAFT

Roger, standby. The command pilot, as of this morning, 271 ounces.

HOU FLIGHT

Roger.

SPACECRAFT

The command pilot ate five meal A this morning, he did not eat the sausage patties.

HOU FLIGHT

I don't need that part, Jim. Just the water.

SPACECRAFT

It was 216 ounces. 216 ounces.

HOU FLIGHT

Roger. Also, I'd like to ask you about the 16mm camera film magazine stowage. Specifically, did you stow them in individual

bags? Or, several in one bag? And, specifically, when you stowed them, as best as you can remember, that is how soon after launch?

SPACECRAFT

We stowed them in two bags. Split them up evenly. No, it was three bags. Stowed them in three different bags. We did it about 5 or 6 hours after launch.

HOU FLIGHT

to  
Roger, five/ six hours after launch.

We're still chasing that one around.

O. K. Jim, Like to brief you on possible -- definite maneuver plan that we are working on. Did they brief you on this at all last night?

SPACECRAFT

No, they just mentioned that we are going to do a small posigrade maneuver sometime today.

HOU FLIGHT

That is correct, that will be done on the 44th rev, which is two from now. And the purpose of it is to allow us an option of optimizing for an eighth/<sup>day</sup>or ninth day launch on Gemini 6. We will not have to decide which of those days we are optimizing

for until the fifth day, by making this burn today. Do you copy?

SPACECRAFT

Rog, understand.

HOU FLIGHT

Gemini 6 is going along extremely well. They're about a day ahead at this time. So, we want to preserve this option and this maneuver today will enable us to do that. We're planning for you to do it without the platform. If that sounds all right to you, we'll brief you on the stars here in a minute.

SPACECRAFT

Rog, no platform, understand.

HOU FLIGHT

O. K. we'll be giving you more information on that burn in the flight plan update on your next pass over the U.S. And we'll be giving you specific update for the maneuver at some later time also. How is the suit configuration working out? We heard the comments over Carnarvon. Do you have any additional comments to make to that? Any closed in problems or anything like that?

SPACECRAFT

The suit configuration is working out very well. I am out of the suit. I got

slightly cool last night while I was sleeping. However, I'm fine right now.

HOU FLIGHT

Roger, have you thought about using the orbital flight suit at all?

SPACECRAFT

No, I don't want to break it out because it would make more of a housekeeping problem but I'm not that cold.

HOU FLIGHT

Roger. The headlines over the Gemini 7 story today says, "Lovell orbits in underwear."

SPACECRAFT

I feel sort of out of place up here.

HOU FLIGHT

Are you taking humidity readings occasionally and recording them?

SPACECRAFT R

Roger, we took a full set last night including some skin temperatures on myself.

HOU FLIGHT

Roger, and did you make a tape recording of your station keeping exercise.

SPACECRAFT

Roger, we've done that too.

HOU FLIGHT

Very good. I've got one more think I'd like to ask of you and that is to make an accurate sunset and sunrise time check. What we're interested in is to have you pinpoint what you would consider exact

sunrise and sunset times to check us on our flight planning activities. To see how close our computer program is giving us to what you consider sunset and sunrise.

SPACECRAFT

Roger, we'll make accurate sunrise and sunset time check as soon as possible that we can do it.

HOU FLIGHT

O. K. just any time is good and when ever you get just phone them down to us and we'll compare it with what the computer would say. That's all I have on this pass, Jim, we'll see you on next time around.

SPACECRAFT

Roger out.

HOU FLIGHT

Seven, Houston. We're going to crank up the tape again and you can tune in HF later on again if you want.

SPACECRAFT

Roger, over, flight.

HOU FLIGHT

It will be a few minutes before we get it going. Seven, we show you running down a little low on the hydrogen pressure you might prop that one up.

SPACECRAFT

Roger, will do. We're reading 340 right now.

HOU FLIGHT

Roger, we want your minimum to be 333.

You can hold it up around 445 if  
you want to.

SPACECRAFT

Roger, will do.

END OF TAPE

Gemini Control here 68 hours 4 minutes into the flight. We are advised that shortly after 7 a.m. central standard time this morning the second stage of the Gemini 7 launch vehicle impacted somewhere west of Australis in the Indian Ocean. The estimated time of impact was 7:04 central standard time. During this next pass across the States, the Gemini 7 crew will be given a go for a 61-1 flight. The 61 would be the start of the 61st revolution, the 1 refers to the Western Atlantic landing area which is the prime landing area. We have the tape conversation of the Carnarvon pass just completed and here it is now.

Carnarvon Cap Com: Gemini 7, go ahead.

Borman: Roger, C-band solid track

Carnarvon Cap Com: Roger, Gemini 7. We have you go on the ground. I've got a map update and a PLA update whenever you are ready to copy.

Borman: We're ready for the map update.

Carnarvon Cap Com: Okay, we have node at 69 58 23, rev 44, longitude 152.3 West, at Ascension, 12 hours 25 minutes 00 seconds. ... 68 10 00 cabin temperature survey. 68 36 00, go--no-go at Texas. Did you copy?

Borman: Roger, I copied.

Carnarvon Cap Com: Okay, that concludes the flight plan update. When you are ready I have your PLA's.

Lovell: Go ahead.

Carnarvon Cap Com: 45-1, 69 58 08, 17+01; 46-1, 71 33 54, 16+08; 47-4, 74 23 33, 17+50; 48-4, 75 59 34, 16+45; 49-4, 76 25, 15+54; 50-3, 78 50 06, 18+28; 51-3, 80 26 19, 17+17; weather in all areas are good. These are for rolling reentries. Did you copy?

Borman: We have them all. Thank you.

Carnarvon Cap Com: Rog. We are standing by, Gemini 7.

Borman: Rog.

Houston Flight: The propellant quantity readout from him, please.

Carnarvon Cap Com: Rog. Gemini 7, Carnarvon. We would like a propellant readout, please, on board.

Borman: Roger. Getting 62 percent onboard.

Carnarvon Cap Com: Rog. Copied. 62 percent. Okay Flight, 62 percent.

Houston Flight: Rog, copied.

Carnarvon Cap Com: Systems look good on the ground, Flight.

Houston Flight: They sure do.

Carnarvon Cap Com: Carnarvon.

Houston Flight: Go ahead Carnarvon.

Carnarvon Cap Com: Roger, on our radar we are showing a 50 db above pressure for signal strength.

Houston Flight: Rog, what does it mean to you?

Carnarvon Cap Com: Stand by, we are figuring it out in DDM, Flight.

Houston Flight: I'm just kidding you.

Carnarvon Cap Com: Our network asked us to check it.

Houston Flight: Rog. All the engineers are trying to take over the world.

Carnarvon Cap Com: Okay, I'm going to turn real time TM off at LOS minus 30.

Gemini Control here, again. In addition to the other activities across the States this time a transponder check will be performed with the Cape. The Cape will bounce the signal up to the L-Band transponder in the nose of the Gemini 7 spacecraft. The transponder will then rebroadcast the signal back to the ground. This is a repeat of the test that was performed yesterday

and was not successful apparently because the Cape did not have exactly the correct pointing data. Since we left the Canaries last time, we have been beaming HF music up to the Gemini 7 spacecraft and it's continued now around the world. Let's tune into that now.

Now in the voice Control Center here in MCC. Music will be back in just a few minutes and when it does return we will punch it back up.

END OF TAPE

Gemini Control here. Sixteen hours 36 minutes into the mission. Our present orbit shows an apogee of 171.4 miles. Our perogee 120.2 miles. After maneuver this morning, which is presently planned about an hour from now at precisely 69 hours 43 minutes into the mission, the adjustment will be to the perogee. We plan to elevate it to 126 miles. Elliot Sea has just contacted the spacecraft. He is in contact now through the Texas station. Let's cut in on that conversation live.

SPACECRAFT

... ECS O2 position.

HOUSTON FLIGHT

Roger. You have a "go" for 61-1.

SPACECRAFT

Roger. We have a "go" for 61-1.

HOUSTON FLIGHT

Roger. And I have a POA when you're ready to copy and a flight plan update when you're ready to copy.

SPACECRAFT

Roger. Would you like to have our system check now at this time?

HOUSTON FLIGHT

Go-ahead.

SPACECRAFT

All main batteries are okay, about 23 volts each. Fuel cells (garble).....  
.are: 1-A 2.5 amphs, 1-D 3.0 amphs, 1-C 3.0 amphs, 2-A 2.5 amphs, 2-B 2.5 amphs, 2-C 3.5 amphs. Main bus is reading 27.8 volts. RCS A pressure is 2900. RCS B 2900. Left secondary O2 5400. Right secondary O2 5300. Temperatures of both the RCS pressures are 75 each.

HOUSTON FLIGHT

Roger. Copy.

SPACECRAFT He has the thermometer in his mouth, and standing by for post status check.

HOUSTON FLIGHT That won't be until the next pass, Gemini 7. We're going ahead with flight plan update on this pass.

SPACECRAFT Roger. Understand.

HOUSTON FLIGHT Let me know when you're ready to copy your flight plan update.

SPACECRAFT Seven's ready to copy.

HOUSTON FLIGHT Roger. Okay. Time 684300. Sequence 01. Transponder check at Bermuda. That is on this pass if you want to be setting up for that.

SPACECRAFT Roger.

HOUSTON FLIGHT Time 685400. Crew status report at Canary. This is on the pilot.

SPACECRAFT Roger.

HOUSTON FLIGHT At time 694319 will be the forward burn translation for the perigee adjust. We'll have a direct update on that for you here in a minute.

SPACECRAFT Roger. Understand.

HOUSTON FLIGHT Would you like to take that now or get the rest of the flight plan update?

SPACECRAFT

Let's get the rest of the flight plan update, and then we'll get that presently.

HOUSTON FLIGHT

Roger. Apollo landmark 701032. Sequence 311. Mode 01. Pitch 30 degrees down. Yaw 5 degrees left. Time 701500. Crew status report on the command pilot over the U.S. Do you copy?

SPACECRAFT

Have copy.

HOUSTON FLIGHT

D-9 704130. Sequence 01. Mode 01. Time 713200. Purge fuel cells. S8D13 714726. Sequence 02. Pitch 30 degrees down. Yaw 8 degrees right. Closest approach 714822. Do you copy?

SPACECRAFT

Roger. Have copy.

HOUSTON FLIGHT

D-4 D-7, 714726. Sequence 419. Mode 02. Time 720000, Exercise period. Stand by for a TR update coming up.

SPACECRAFT

Roger. Received .

HOUSTON FLIGHT

Roger. Time 721000, Eating period. Apollo landmark 730840. Sequence 234. Mode 01. Pitch 30 degrees down. Yaw 2 degrees right. D-4 D-7, 730840. Sequence 420. Mode 02. Do you copy.

SPACECRAFT

Roger.

HOUSTON FLIGHT

S8 D-13, 732220. Sequence 02. Pitch 30 degrees down. Yaw 1 degree right. Closest approach 732220. MSC 2 and 3 734000. Sequence 02. Off at 890000. Do you copy?

SPACECRAFT

Roger. I've got it.

HOUSTON FLIGHT

Jim, I want to interrupt here and give you the pad update on the maneuver load just in case we run out of time here.

SPACECRAFT

Roger.

HOUSTON FLIGHT

Let me know when you're ready to copy.

SPACECRAFT

Ready.

HOUSTON FLIGHT

You say you're ready, Gemini 7?

SPACECRAFT

Gemini 7 is ready.

HOUSTON FLIGHT

GET of the burn 694319. Delta V 12.4. Burn time 16.5 seconds. Yaw 0, pitch 0. Add thrusters. Maneuver posigrade. And we will update this over Carnarvon, if required. Do you copy?

SPACECRAFT

Roger. GET at 694319. Delta V 12.4. Delta T 16.5 seconds. Yaw and pitch are zero. Add thrusters, posigrade. Requiring star. Over.

HOUSTON FLIGHT

Roger. Here is the information on the star. You'll be SEF and you'll be just

HOUSTON FLIGHT

.. coming out of the dark at this time, as a matter of fact. You're track, or your pointing should pass just about half way between Denebola and Spica and Arcturus will rise at 6934, correction... 693941. You should align 4.9 degrees right of Arcturus. Do you copy?

SPACECRAFT

Roger. Our lateral will be 4.9 degrees right of Arcturus which should be rising at 693941 and our general position between Denebola and Spica will be SEF.

HOUSTON FLIGHT

That's correct. Okay, we'll continue with the flight plan update now if you're ready. Gemini 7 do you still copy?

SPACECRAFT

Roger. Transponder on. Houston, this is 7. Go ahead.

HOUSTON FLIGHT

Okay. MSC 4 734535. Sequence 09. Mode 01. Pitch 30 degrees down. Yaw 10 degrees right... correction ... 10 degrees left. This may be scrubbed due to equipment problems. We'll let you know later. D-4 D-7, 740000. Sequence 415 at 416. Mode 02. Pitch 90 degrees down. Do you copy?

SPACECRAFT

Roger.

HOUSTON FLIGHT

Okay, that's the end of the flight plan update. We'll be giving you a systems review status of all your systems and quantities and so forth if you want to have your systems book out, either on the next pass or the following one, depending on how long the crew status report takes on the next pass.

SPACECRAFT

Roger. Understand that.

HOUSTON FLIGHT

You can turn your ECS quantity read off.

SPACECRAFT

Read switch is off at this time.

HOUSTON FLIGHT

There are some questions on the D-9 experiment. We probably won't have time to finish them here. Let me comment one thing. After you leave our station here you might tune in your HF; we've got some special music for you. Okay, on the D-9 we're wondering about the green filter comments that you made on the air glow measurements. Does the filter dim the air glow substantially?

SPACECRAFT

Using the green filter on the first attempt, it eliminated the air glow completely.

HOUSTON FLIGHT

Roger. Okay, I think that covers all the rest of the questions, Jim.

SPACECRAFT

Roger.

HOUSTON FLIGHT

Okay, you can tune for the special music  
now. We'll see you next time around.

SPACECRAFT

See you around.

Gemini Control here. We'll take Elliott Sea's suggestion and tune in too,  
and see what the special music is. Let's listen.

END OF TAPE

This is Gemini Control Houston here, 69 hours 3 minutes into the flight. We have the medical data pass that was just completed over the Canary's. The conversation on the status of Jim Lovell talking to the Canary Surgeon. Here is the tape.

CYI Surgeon: Gemini 7, Canary, read you loud and clear.

Lovell: Sending oral temp now.

CYI Surgeon: Okay. Haven't got it yet. Here it comes. We have a valid temperature. Standing by for blood pressure.

Lovell: Coming now.

CYI Surgeon: Cuff is full scale.

CYI Cap Com: Spacecraft systems are go on the ground.

Houston Flight: Roger, Canaries.

CYI Surgeon: Gemini 7, Canary Surgeon. We have a valid blood pressure. We will stand by for exercise on your mark.

Lovell: MARK.

CYI Surgeon: Cuff is full scale. Gemini 7, we have a valid blood pressure. Standby for your food and water and sleep report.

Lovell: Roger. Command Pilot water to date 274 ounces, ate meal day 5, meal A at 66 hours. Pilot's water to date, 218 ounces, standby for information on food.

CYI Surgeon: Roger, understand. What about sleep?

Lovell: Both the Command Pilot and Pilot had about 7 hours sleep at about 3 or 4 periods last night, a piece.

CYI Surgeon: Could you give us an estimate on the quality of the sleep?

Lovell: I would say it was very sound.

CYI Surgeon: Roger.

CYI Surgeon: Gemini 7, this is Canary Surgeon out. Thank you very much.

Lovell: Roger.

CYI Cap Com: Canary.

Houston Flight: Go ahead.

CYI Cap Com: Roger, do you have a time for them to turn the transponder off? We show it on here on the ground.

Houston Flight: We want it on, and I am pretty sure we want it on for something like 8 revs, stand by a minute.

CYI Cap Com: Okay.

Houston Flight: Have him turn the transponder off.

CYI Cap Com: Oh, roger, fine. Gemini 7, Canary. Gemini 7, Canary.

Lovell: Gemini 7, Go ahead.

CYI Cap Com: Roger. You can turn off your transponder if you wish.

Lovell: Roger, transponder going off.

CYI Cap Com: We show it off on the ground.

Houston Flight: Rog.

CYI Cap Com: We are showing a transponder case temperature of 54 degrees.

Houston Flight: Rog.

CYI Cap Com: Canary has LOS.

END OF TAPE

Gemini Control Houston here, 69 hours 38 minutes into the flight. During the next pass across the States, we expect a rather full medical status report from the Command Pilot, Frank Borman. We should also at that time get additional information on what happened to the EEG leads to his head last night. According to the best information we have now, they did become loose from the four spots where they are attached to the rear of his head and he had no way of affixing the leads to his head so he simply elected to take them off. Dr. Berry theorizes he probably took out his scissors and cut the wires at about his neck where the wire leads went down into the suit. This was the plan after four full sleep periods, however, the experiment probably only got data for one full sleep period. We have a brief conversation that we just finished over the Carnarvon station. We will play it for you now.

CRO Cap Com: Gemini 7, Carnarvon.

Lovell: Carnarvon, go ahead.

CRO Cap Com: Roger, you are go for your burn. We would also like to tell you that your onboard propellant quantity reading should be 59 percent after your burn. Also, at 77 hours and 30 minutes your propellant quantity should be 55 percent. We have a deletion for your flight plan when ever you are ready to copy it.

Lovell: Roger, stand by. At 77 hours it should read 55 percent.

CRO Cap Com: That is affirmative, 77 hours and 30 minutes it should read 55 percent.

Houston Flight: After the Flight Plan completion.

CRO Cap Com: That is after the Flight Plan completion.

Lovell: Go ahead now with the deletion.

CRO Cap Com: Roger, at 70 10 32, delete Apollo landmark, due to weather.

Lovell: We copied.

CRO Cap Com: Roger. We are standing by.

Lovell: Give me a time hack please.

CRO Cap Com: Roger. Next g.e.t. time hack it will be 69 hours 32 minutes and 35 seconds on my MARK. MARK.

Lovell: Right on.

CRO Cap Com: Rog.

CRO Cap Com: Systems look good, Flight.

Houston Flight: Thank you.

This is Gemini Control. That concludes the Carnarvon conversation. Meanwhile we are still sending music up to Gemini 7. We do not know how much of it they are monitoring or how the reception is, but it sounds like this.

(MUSIC PLAYS).

Cape Kennedy: This is Cape Kennedy, Florida, transmitting on 15016 spacecraft frequency to the astronauts of Gemini 7.

END OF TAPE

By remoting through Canton Island, Elliot See has just raised the Gemini 7 spacecraft and inquired about the effectiveness of their burn. Frank Borman advised the burn went off right on schedule at 69 hours, 43 minutes into the flight. He said he burned the appointed time, 16 and a half seconds, and his statement was, "It should have been a good one." We have that brief conversation and will play it for you now.

CAP COM Gemini 7, Gemini 7, Houston Cap Com.

Gemini 7, Houston Cap Com. Gemini 7, Gemini 7,  
Houston Cap Com.

S/C Read you loud and clear.

CAP COM Will you give us a report on your burn, Frank?

S/C Gemini 7 burned 16½ seconds. It should have been a good one.

CAP COM! Roger, understand you burned for 16½ seconds, it should have been a good one.

S/C We also have the sunrise and sunset now for you.

CAP COM All right, go ahead.

S/C Sunrise was at 69:43:17.

CAP COM Gemini 7, go ahead we got the sunrise, we did

not get the sunset.

S/C Sunset was at 69:11:19.

CAP COM Roger, understand sunrise 69:43:17, sunset  
69:11:19.

S/C That is roger.

CAP COM Roger, how is this connection? Are you reading  
us good?

S/C Reading you fine now.

CAP COM Roger. Stand by.

END OF TAPE

GEMINI 7/6 MISSION COMMENTARY, 12/7/65, 11:37 a.m.

Tape 141, Page 1

This is Gemini Control Houston. Seventy hours, seven minutes into the mission. Guymas station has just advised that they have acquired contact and we'll probably be in voice contact momentarily. Meanwhile, during this pass, we plan to vary their musical diet somewhat. We plan to play the following four numbers for them. We'll lead off with Beethoven's 6th Symphony, to be followed by Chopin's "Les Sylphides", then "Hungarian Rhapsody #2" by Listz, and finally Puccini's "Madame Butterfly". This is what they are listening to if they are tuned in to HF.

END OF TAPE

This is Gemini Control Houston, 70 hours 23 minutes into the flight. We have just completed a medical pass with the Command Pilot and in the course of the pass, Dr. Berry noted some huskiness in the voice of Jim Lovell. He chatted with him about this and Jim said that he noted it too, apparently, no great difficulty but he does appear to have a little huskiness or gravelly quality in his voice. It is generally attributed to the oxygen environment. Immediately after that it is Frank Borman who comes back in a very high voice and asked Dr. Berry how he sounds. We have the tape and we will play it for you now.

Houston Cap Com: Gemini 7, Gemini 7. Houston Cap Com.

Lovell: This is 7 reading you loud and clear.

Houston Cap Com: Roger, would you put the probe in your mouth.

Lovell: Roger. Temperature is in Frank's mouth.

Houston Cap Com: Roger. Could you tell me how the OAMS quantity gauge looks?

Lovell: Roger, looks OAMS quantity gauge reads 59 percent.

Houston Cap Com: Very good. Has he had the thermometer in for quite a while?

Lovell: No, he's still doing it.

Houston Cap Com: Roger. Stand by for Houston Surgeon.

Houston Surgeon: Frank, this is Surgeon. Let's go ahead with the blood pressure with the probe in while it is coming up, Frank. Let's get your first blood pressure. Your cuff is full scale. A valid blood pressure.

Lovell: Beginning exercise.

Houston Surgeon: Roger. Gemini 7, this is Surgeon. Jim, what probe

does he have in. Is it the one with the lightweight headset?

Lovell: Roger, he has the one with the lightweight headset.

Pressure coming through.

Houston Surgeon: Your cuff is full scale. Valid blood pressure. Gemini 7 you can also remove that temperature probe, Frank.

Borman: Goody.

Houston Surgeon: Gemini 7, this is Surgeon. Frank, we have no more to add I think to your food, water and sleep report. We have all of that data from Jim on the last pass. I would like to ask a few questions here. One, what about the exercise before meals. Have you been doing those as programmed now?

Borman: Check. We missed some yesterday due to the heavy work load, but we did make a pack that we are going to do them religiously today.

Houston Surgeon: Very good. Are you feeling stiff at all today, Jim?

Lovell: Not too stiff, just around the waist it is a little stiff, you have to keep hunching your back a little back a little bit due to our sitting position.

Houston Surgeon: Gemini 7, right now you sound as if your voice is getting a little bit gravelly, we heard this on a couple of occasions yesterday. Have you had any hoarsness or dryness in the cabin at all, any other - any symptoms at all?

Lovell: My voice sounds a little voice rough in the cabin too, it might be due to the oxygen, but no other problems.

Borman: How do I sound, Chuck?

Houston Surgeon: You must be breathing helium!

Borman: We are feeling fine. I'm sorry about the EEG experiment. The harness caught as I was trying to put something away and ripped them off - I ripped 3 of them off, so we tried last night but we just couldn't put them back on satisfactorily.

Houston Surgeon: That is perfectly understandable, Frank. You didn't have the proper equipment for trying to replace those and it was just an attempt - it would be a real amazing thing if it did work out. It was worth a try and we are sorry it didn't do.

Borman: It didn't (garbled) anyway.

Houston Surgeon: Rog. We have one other thing. I wonder if in the reporting on the meals, you are doing very well in reporting meal number and reporting the time you had that meal which is real helpful to us in our log here. Is it possible from your log of the water to at the time that you had a certain meal at a given hour, could you also give us with that your water intake at that time so that we can get some additional points on our curve here, it would make it easier to split in to 24-hour periods. Is that easy to do?

Lovell: We can give you the water that we had for the meal which is perfect at the same time with the meal plus the water we drink after meal time. How is that?

Houston Surgeon: That would be very fine, Jim, if you could do that. I have nothing else here.

Houston Cap Com: Gemini 7, Houston. We have the news for you if you are ready.

Lovell: That is a good diversion, go ahead.

Houston Cap Com: John Mecom has just bought half of Houston, it seems like. He has bought 5 major properties of the Jones Family including the

Chronicle, the Rice Hotel, and a third interest in the Texas National Bank of Commerce.

Lovell: That's nice.

Houston Cap Com: The Russian moonshot Luna 8 did not work. Apparently they hit the moon pretty hard. I guess you heard about that last night.

Lovell: Roger.

Houston Cap Com: And I might mention the Gemini 7 story talks about your well-dressed pilot. There is also a comment that the press is calling the MCC the Kraft Music Hall. We had another big power blackout last night. Electrical power was out for about 25 minutes in 10 counties in East Texas. And finally, there are only 18 shopping days till Christmas.

Lovell: (garbled)

Houston Cap Com: That is all we have on this pass Gemini 7.

Lovell: Thank you for the news, Elliott.

This is Gemini Control here again. The - for the period just before this pass started, we here in the Control Center turned over the use of the command system to the Cape. There - the spacecraft tests are going on down there and they wanted to run through a series which required the use of the command system. We did not need it, so we turned it over to them for a period of roughly from 30 minutes after the hour to about a quarter of. This is Gemini Control Houston, out at 70 hours 30 minutes into the mission.

END OF TAPE

This is Gemini Control Houston here at 70 hours, 37 minutes into the flight. We have this brief conversation over the Canary Station. The tag line of which is Chris Kraft congratulating the station on another good work day. The spacecraft will now drop away from the Canary Station and they'll have a 10 to 12 hour rest period. Here's the tape.

SPACECRAFT Canary, this is Gemini 7

CYI Roger, we have you going again. All systems look good.

SPACECRAFT Roger, thank you Canary.

CYI Rog, from Bermuda vector your ephemeris right now is 127.2 by 171.4. Exactly what we asked for.

SPACECRAFT Roger, thank you.

HOU FLIGHT Ask him if he is still receiving HF.

CYI Say again flight.

HOU FLIGHT Ask him if he is still receiving HF.

CYI Roger. Seven, Canary.

SPACECRAFT ROG.

CYI Roger, are you still receiving HF.

SPACECRAFT We aren't, we've been so busy we haven't been playing it but I can try though.

CYI O. K.

SPACECRAFT

Roger, coming in a little garbled.

CYI

Roger.

Canary LOS

HOUSTON FLIGHT

Roger Canary, good show there today young  
man.

END OF TAPE

Gemini Control Houston here. Seventy hours 57 minutes into the flight. In the next thirty minutes our flight plan calls for a fuel-cell purge over Hawaii and very little activity over the states next time it appears. While passing over Tananarive about five minutes ago, we had this brief conversation. We'll play it for you now.

HOUSTON FLIGHT

Space 7, Houston. Were you calling?

SPACECRAFT

Roger....

HOUSTON FLIGHT

Gemini 7, you are very weak. Will you say again.

SPACECRAFT

The green filter on this sextant blocks out the horizon completely.

HOUSTON FLIGHT

Roger, you say you're not using it at all.

SPACECRAFT

We're using the yellow filter.

HOUSTON FLIGHT

Roger, I read you.

HOUSTON FLIGHT

O.K. Did you get our AT 22Z mission instruction?

SPACECRAFT

We sure have.

HOUSTON FLIGHT

O.K. We have no special instructions for you this time. We want you to get C-band track and leave the transponder off for Womera. Our LOS is 184806.

END OF TAPE

Gemini Control Houston. 71 hours and 14 minutes into the mission. Spacecraft directly over the Australian mainland. We have tape from the Carnarvon station. We will play it for you now.

CARNARVON Gemini 7, Carnarvon, we have your TM spotted. Everything looks good on the ground. Carnarvon, standing by.

SPACECRAFT Thank you. We're under D9 now.

CARNARVON OK

SPACECRAFT C-Band track.

CARNARVON Roger. C-Band track. Were you receiving our HF in Australia?

SPACECRAFT I could hear it in the background slightly. It's real weak.

CARNARVON What are we playing?

SPACECRAFT Stand by and I'll see if I can recognize it. Sounds like I'll be home for Christmas, right?

CARNARVON You got it right. It's the 64 dollar question. You can buy your ticket.

SPACECRAFT Roger. Roger.

CARNARVON In fact you get a free transport to the US

SPACECRAFT Thank you, sir.

CARNARVON Would you like to try for 128?

SPACECRAFT Go ahead.

CARNARVON This one you lose your ticket and you stay in Australia.

SPACECRAFT Is it that bad?

Hey, that one is Going Back to Houston.

CARNARVON You can try for 256

SPACECRAFT How's that one

CARNARVON I'd quit while you're ahead.

SPACECRAFT I'll quit.

CARNARVON We are going to play some classical music next and really  
fix you.

SPACECRAFT OK my scientific approval on that. LOS flight signing  
off.

CARNARVON Roger. Everything looks real good here on the ground.

SPACECRAFT Roger.

END OF TAPE.

This is Gemini Control Houston at 71 hours 39 minutes into the flight. Over Hawaii the crew carried out the fuel cell purge and the conversation went like this.

HAW Cap Com: Gemini 7, Hawaii Cap Com.

Lovell: Go ahead Hawaii, Gemini 7.

HAW Cap Com: How are you doing this morning? How are you doing up there this morning?

Borman: Stand by for a fuel cell purge.

HAW Cap Com: Okay, we are showing you go here on the ground. We are ready for your purge. Go ahead and start it.

HAW Cap Com: Command Pilot, if you can copy I've got a short flight plan update for you.

Lovell: Stand by a minute.

HAW Cap Com: All right.

Lovell: Go ahead.

HAW Cap Com: S-8/D-13, 71 47 26, sequence 02, delete weather.

Lovell: You want us to delete that because of weather?

HAW Cap Com: Roger. D-4/D-7, 71 47 26, sequence 419, mode 02, start at Mississippi River and continue to Atlantic coast.

Lovell: Roger, we have that.

HAW Cap Com: Roger, that is the flight plan update. Would you put your quantity read switch to ECS O<sub>2</sub> please.

Lovell: Roger.

Borman: Hawaii, this is Gemini 7. Do you have any word on the weather over Houston.

HAW Cap Com: Hold on a second, let me check. What is the weather over Houston, Flight?

Houston Flight: It was clear when I can in this morning. Standby 1.

HAW Cap Com: They have to get somebody to look outside. They have no windows in that building.

Borman: All right.

Houston Flight: High scattered clouds.

HAW Cap Com: They say they have high scattered clouds.

Borman: Okay, fine.

HAW Cap Com: Quantity read switch to fuel cell O<sub>2</sub> position.

Borman: Rog.

HAW Cap Com: Flight the fuel cell quantity O<sub>2</sub> tank pressure on the 12 18 is reading 304 psi.

Houston Flight: Rog.

HAW Cap Com: Quantity read switch to fuel cell H<sub>2</sub> position.

We have LOS Flight.

Gemini Control here. That was capsule communicator, Ed Fendell operating from Hawaii. We have not yet acquired a signal in California. It is expected momentarily. You heard the crew updated on their activities across the States this time. They are to start at the Mississippi River and take an infrared signature of the land mass between the Mississippi River and the East Coast. Still no calls going out. After the State side pass, the flight plan calls for the crew to go through a period of isometric exercise and they will have a rest period following that. The rest period coming through the dark portion of this next pass, roughly between Ascension Island and Carnarvon. We are on revolution 45, our orbit number is 48. The present

apogee is 171.4 miles and our perigee is 127.2, 127.2 nautical miles. While the Gemini 7 and 6 activities are keeping us quite busy here on the third floor of the Control Center, activities are going on in other parts of this building. Down on the second floor, Missions Operations Control room, which is a duplicate of this room that we are talking to you from, simulations and confidence testing leading up to the first Apollo 201 flight, presently scheduled for the first quarter of next year are underway. The Apollo Flight Control Team under the direction of Glenn Lunny carried out a number of launch abort simulations last night. Today they are - there is only confidence testing going on on the various consoles. Tomorrow they plan to do a full scale network simulation. They will be working on a profile of the 201 flight which is - which calls for the Command Module and Service Module to fly approximately 4000 miles down-range, impacting near Ascension Island. It will be a test of the heating characteristics of the command module and it will be a first in space test of the service module engine.

Apparently they are going to wait for - there goes Elliott See's first call. Let's tune in on that.

Houston Cap Com: Gemini 7, Gemini 7, Houston Cap Com.

Borman: Go ahead Houston, Gemini 7.

Houston Cap Com: Roger. We would like to have you take a look at the weather in the Houston - in the Laredo area this time in preparation for a possible pass next time. Can you see it at all?

Borman: Roger, Houston.

Houston Cap Com: Gemini 7, Houston. Could you place your quantity read switch in the fuel cell hydrogen position. We are not sure we got a

good readout at Hawaii.

Borman: I read about 380.

Houston Cap Com: Roger. Can you see Laredo at all?

Borman: We are not there yet.

Houston Cap Com: Okay. When it is convenient I would like to run over the systems real quick with you.

Borman: Okay, standby a minute, please.

Houston Cap Com: Gemini 7, you have a TX coming up in about 30 seconds.

Borman: Thank you.

Borman: We are over Laredo now. It may be good next pass, it is just very high Cirrus at the bottom.

Houston Cap Com: Roger 7, we will give it a try next time if we can get it set up.

Borman: All right.

Houston Cap Com: You got your book out yet.

Borman: Say again.

Houston Cap Com: You got your book out yet.

Borman: Standby just a minute please.

Borman: Smile, Elliott.

Houston Cap Com: Are you ready.

Borman: We are taking your picture.

Houston Cap Com: Oh, okay.

Houston Flight: That's all we have down here, smiles, Frank.

Borman: Roger, Chris. Boy it is really a clear day. We are coming right over Houston now. The Astrodome stands out like a sore thumb. We can see the whole works.

Houston Flight: Roger.

Houston Flight: Can you associate the music, the HF reception with the day-night cycles at all, or has it been generally good all the way around.

Borman: It's been good.

Borman: Okay on the systems.

Houston Cap Com: Okay, and you can turn off your H<sub>2</sub> switch now.

Houston Cap Com: Okay, first curve I have in your book here is the estimated propellant usage. If you adjust the curve down for the maneuvers we have made ahead of time down here, raising the perigee, we feel that you are running about 12 pounds ahead on that curve. That is approximately 70 hours.

Borman: Okay.

Houston Cap Com: Next one is primary O<sub>2</sub>. As you know you show ending up with about 38 percent at completion of the mission, we show you running about 4 percent ahead of that at the present time.

Borman: Rog.

Houston Cap Com: Next one is fuel cell cyro's. We show you expecting about 15 percent at completion of mission. We show you running about 2 percent ahead of that on oxygen and 4 percent ahead on hydrogen.

Borman: Roger.

Houston Cap Com: On the water, we show you running at just about on the line for water usage, based on equipment adapter water only, of course, in addition to that you have your retro water, so it looks like you are in real good shape on that.

Borman: Roger.

Houston Cap Com: In regard to the cryo pressure behavior last night, you are probably as familiar with that as we are. I understand you did not have to pump any of them up during the night. They all held very well. The ECS O<sub>2</sub> usage appears to drop substantially during the sleep period, and so it is holding very constant at about 700 pounds, we show here. The fuel cell oxygen pressure dropped the most of all of them. Apparently we have a real good bottle there. It is pretty well insulated and the pressure came down. You had bumped it up to about 870 or so on our pressure here and that came down during the night, back down to about 500 on our gauges, so it looks like we have a real good bottle there. Hydrogen came down a little bit, I think it dropped about 50 pounds or so during the night. It looks like we are in real good shape on everything.

Borman: Very good.

Houston Cap Com: Did you get these onboard gauge readings to be used for your cryo temperature control, or pressure controls. We have a set of readings here which are good until about 80 hours if you would like to use them.

Borman: Okay, standby. I'll copy them.

Houston Cap Com: Roger.

Borman: Go ahead.

Houston Cap Com: Okay. ECS O<sub>2</sub>, we have a minimum of 417, a nominal range of 500 to 582, these are your onboard gauge readings. Fuel cell O<sub>2</sub> minimum 208, nominal 333 to 500. Fuel cell H<sub>2</sub> minimum 333, nominal 445 to 500. Did you copy?

Borman: Roger. Thank you.

Borman: That Hi-fi is really coming in great now, Elliott.

Houston Cap Com: Roger, we are getting it pretty good here too. Is it seeming to hold all the way around, or do you get fade-outs in certain areas?

Borman: We get fadeouts in areas, but it sure is good over here.

Houston Cap Com: Does it seem to be related to the day-night cycle at all?

Borman: We haven't noticed at all. Actually when we get real busy we turn it off and it would be difficult to relate it to anything we were working.

Houston Cap Com: Roger.

Houston Cap Com: Frank, that burn worked out real well. I'm real pleased to see that you were able to do that well with the platform down.

Borman: Roger. If you get the right stars you can't miss.

Houston Cap Com: How about the pitch reference. Do you feel you need - any - do you feel that it is any problem at all?

Borman: Say again.

Houston Cap Com: I say do you feel that the pitch reference is any problem?

Borman: Pitch is no problem.

Houston Cap Com: Okay.

Borman: As a matter of fact, the moon is so bright we can even pick up our yaw at night off the clouds below.

Houston Cap Com: Roger. Gemini 7, Houston. Do you know roughly what the time left on your D-4 recorder is?

Borman: Standby and I'll give it to you exactly. 17 minutes and 20 seconds are left, but if you want us to, we can play it back.

Houston Cap Com: Roger. Have you seen any Aurora on your night passes.

Borman: Negative.

Houston Cap Com: Roger.

Borman: Meteors either. Just quite a bit of fires over Africa and a lot of thunderstorms over the Amazon.

Houston Cap Com: Roger.

Grand Turk: LOS, Grand Turk.

This is Gemini Control here. That apparently concludes the conversation on this State side pass. You heard Frank Borman advise to Elliott see that the HF reception today has been remarkably good around the globe. When he was talking to Elliott about that, the tune being piped up on UHF was one entitled "High Hopes". This is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston. Seventy-two hours, forty-one minutes into the flight. All has been quiet since we left the Antigua area in the last pass. Ascension Isle and Tananarive were up, however, there was no conversation. The crew, according to the flight plan, has been having lunch. We are now in contact with them by Carnarvon. The Carnarvon Cap-Com, Ambers S. Davis, is doing the talking with the crew. Let's cut in there.

SPACECRAFT

We have C-Band track.

CRO

Roger. C-Band.

We're Gemini Control, here. Apparently, the action was cleaned up fairly quickly there at the start of the pass. It amounted to flight plan updating, advising them to drop certain picture experiments. We really don't know if there will be any additional conversation or not. We'll just stand by, and keep the line open.

HOUSTON FLIGHT

Carnarvon, Houston Flight.

CRO

Flight, Carnarvon.

HOUSTON FLIGHT

Ask him to check his fuel cell hydrogen pressure for us. We read 170 from your site. Is that what you read?

CRO

That's affirmative. That's my reading.

HOUSTON FLIGHT

Will you ask him to keep it between 445 and 500, on his gauge.

CRO

Gemini-7, Carnarvon Cap-Com.

SPACECRAFT

Go ahead CRO.

CRO

Roger. Would you check your fuel cell hydrogen pressure, please.

SPACECRAFT

Roger. I'm reading 360 about. You want to run it up?

CRO

Flight, do you want him to run it up?

HOUSTON FLIGHT

Yea. We told him to keep it between 445 and 500.

CRO

Okay. Gemini-7, what we would like to do is have you keep it between 445 and 500.

SPACECRAFT

Okay. I was working on a minimum. They gave me a minimum of 333.

CRO

Okay, Flight just said he would like to have you keep it between 445 and 500.

Would you run it up, please.

SPACECRAFT

The heat is on.

CRO

Roger. Thank you.

Gemini Control here. That apparently concludes the conversation over at CRO. During the next pass across the States, well backing up a bit. There is no activity scheduled for the Hawaii station. Then, over the States, the crew will make a pass across that big eye chart 40 miles north of Loredo and try to identify the slants and lines within those 2000 yard square boxes. After leaving the States, they will activate MSC 2 and 3, the electron-proton spectrometer and the flux-gate magnetometer. Once over Africa over in East Africa, from roughly Kano, and southeast of Kano, they will take an IR signature of the vegetation, just the open land. After leaving the African continent, the flight calls for them to do a cabin temperature survey; take a number of readings from many points around the cabin. This is Gemini Control, Houston at seventy-two hours, forty-eight minutes into the flight.

END OF TAPE

Gemini Control Houston here, 73 hours 4 minutes into the flight. We had planned this pass, up until roughly 20 to 25 minutes ago while we were over Carnarvon to attempt the Laser experiment from Hawaii and a similar experiment from Ascension. The weather defeated us at Ascension, and over Hawaii they are having a little trouble tuning up the equipment. They weren't satisfied that it was completely tuned up on the ground, so they waived off for this pass. They said at Ascension the cloud cover is such that we could not attempt it down there. This is Gemini Control Houston..

END OF TAPE

This is Gemini Control Houston, 73 hours 15 minutes into the flight. The spacecraft is just off the west coast of the United States. We have not heard Elliott See put out his first call yet, but we will stand by and pick it up when he does. Over Hawaii Borman did confirm that he did want to try S-8/D-13 pass over Laredo this time. He said he thought that the weather would support it. And they are all geared up to do that one. The second shift of flight controllers are moving into the Control Center here now. And the normal change of shift briefings are taking place at each console. I think it may be a couple of minutes before Gemini 7 is raised. Why don't we break out here and we will come back when that happens.

This is Gemini Control here. Elliott See is remoting through California and he has put in a call. We will stand by.

Houston Cap Com Roger, are you all set up Frank for the S-8.

Spacecraft Roger.

Houston Cap Com Can I give you some items here and you just tell me when to stop. We have a - several items on the flight plan update.

Spacecraft Roger, standby a minute. Go ahead.

Houston Cap Com Okay, you just tell me when to stop here for your S-8.

Spacecraft Fine.

Houston Cap Com We have a slight change in the closest approach time for this S-8, the time is now 73 23 41.

Spacecraft Roger.

Houston Cap Com Are you just crossing the Coast of California now?

Spacecraft We are coming up on it now.

Houston Cap Com Okay. The next item is D-4/D-7, 74 00 00. Sequence 415 and 416, mode 02, cancel, weather. Did you copy?

Spacecraft Roger, cancel. Weather.

Houston Cap Com I'll just keep going here. I'll stop every item and you can tell me if I need to stop talking.

Spacecraft Elliott, you had better stop it now. We are coming up over the coast and we will be there very shortly.

Houston Cap Com Okay, give me a call when you are free to talk afterward.

Spacecraft Roger.

Guaymas Cap Com Houston, Guaymas.

Houston Flight Guaymas, go ahead.

Guaymas Cap Com Did you get our summary.

Houston Flight Standby one. Affirmative Guaymas.

Guaymas Cap Com Thank you very much.

Houston Flight Your data looks good Guaymas.

Guaymas Cap Com We are experiencing intermittent problems, we weren't sure if it was any good or not.

Houston Flight Okay.

Gemini Control here. The spacecraft should be directly over Laredo now. We usually have this period of quiet before the experiment, then when the objects are sighted, the crew sounds off pretty quickly, so let's keep listening.

Spacecraft No, we didn't pick it up. We had high cloud cover and we missed it.

Houston Cap Com Okay, Frank.

Houston Cap Com            That was a real good pass, right almost directly over the sight. We thought you might be able to have some luck on that pass.

Spacecraft                 Roger, well there is clouds, it's clear west but not right over there.

Houston Cap Com            Okay. What control mode did you use during the burn.

Spacecraft                 Rate Command.

Houston Cap Com            Rate command, roger. And do you have any non-nominal stowage that you could mention. We are looking into the weight distribution.

Spacecraft                 Say again please.

Houston Cap Com            Do you have any non-nominal stowage that you care to report. We have a question in regard to weight distribution.

Spacecraft                 No, we are doing everything according to planned so far.

Houston Cap Com            Roger. Are you ready to finish copying the flight plan update?

Spacecraft                 Standby one. Boy that Jetero stands out like a sore thumb up there.

Houston Cap Com            I didn't copy that last sentence.

Spacecraft                 You can really see that new airport.

Houston Cap Com            Oh, Jetero, roger.

Spacecraft                 All ready.

Houston Cap Com            Okay, Jim. It's 74 10 00, cabin temperature survey. S-6, 74 36 00, sequence numbers 4, 10 and 11. Jet stream Cirrus south of track. Did you copy?

Spacecraft Roger.

Houston Cap Com Time, 74 41 00, purge fuel cells. That will be at Hawaii. D-9, time 75 11 00, sequence 01, mode 02, time 76 16 00, Crew Status report on the Command Pilot at Hawaii, time 76 28 00, Crew Status report on the Pilot at Guaymas. MSC-2 and 3, time 76 40 00, sequence 04, stop at 77 00 00. Do you copy.

Spacecraft Roger.

Houston Cap Com D-4/D-7, 77 09 00, sequence 412, mode 02, use air-glow, measure for 2 minutes, 77 33 00, flight plan report at CSQ. 78 24 00 PIA update at the RKV, 79 08 00 purge fuel cells at the CSQ. Did you copy.

Spacecraft Roger.

Houston Cap Com Okay, that is the end of the message.

Spacecraft Elliott, I think that the flight plan is going real well, it is keeping us busy but not too busy, it is just about right.

Houston Cap Com Very good. I'm glad to hear that. I'm sorry we had to cancel so many of them today due to the weather.

Spacecraft Roger, did Mike and Ed get back all right.

Houston Cap Com Oh yeah, they have been in and out, kibitizing and one thing and another.

Spacecraft Did they have to stop at Brockley?

Houston Cap Com I didn't ask them, I'll check with them when I see them.

Spacecraft They hardly ever make it nonstop.

Houston Cap Com Roger.

Houston Flight Elliott, let's talk to him a little bit about this fuel cell RSS system.

Houston Flight Frank, I really think that we have a real good handle on what these hydrogen and oxygen quantities are doing and how you are going to use the rest of them during the flight and I think you should pay attention to using these auto-heaters. Now, we are going to try and give you our best advice this afternoon, and when they give it to you, I think you ought to follow it.

Spacecraft I have been Chris.

Houston Flight I'm talking about the use of the Auto-heaters. Auto-positioning.

Spacecraft I've been following any advice you gave.

Houston Flight We are talking about leaving them in the position during the sleep period, Frank.

Spacecraft Okay, fine. If that is what you want to do.

Houston Flight Very good. Frank, we are real pleased how everything is going, usage of fuel and the productiveness of the flight and we just wanted to tell you to keep up the good work. Everything is looking real good for both of you.

Spacecraft Thank you.

Houston Flight How is the suit configuration doing now. Are you both fairly comfortable?

Spacecraft Roger.

Houston Cap Com            You have TX on the way in about half a minute.

Spacecraft                 Thank you.

Houston Flight             Frank, are you squared away with what we are doing with the orbits now?

Spacecraft                 I think you are getting us in shape so you can put us up for a good window launch on either 8 or 9.

Houston Flight             That is correct.

Spacecraft                 Okay.

Houston Flight             And it looks like we are going to be well within the fuel budgets to get almost a perfect 161.

Spacecraft                 Good.

Houston Cap Com            Jim, could you comment on the comparison of the suit configuration versus the non-suit, that is to comfort and ease of getting around the cockpit and so forth.

Spacecraft                 Well, there is really no comparison as far as ease in getting around in the cockpit. I can get back to my foodbox and waste management with no strain. I have a lot easier ways of getting around and I have stowed the suit as we had planned, or as Mike suggested. I'm dry and comfortable. During the night I got a little cold. The circulation is not as great with the suit off, in other words, there might be a damp spot someplace, and my hose in a position whereby I can get better circulation around my body.

Houston Cap Com            Roger, understand Jim.

Spacecraft                 Elliott, all that would be required for perfect suit off operations in the spacecraft is the proper placement

of ventilators.

Houston Cap Com Roger, I copied. How about this business of getting a little cooler at night. Did you feel it tended to be too cool, or could you adjust the temperature up slightly to take care of that.

Spacecraft I could adjust it, however, I didn't want to do it because of Frank and I think it was just because (garbled)

Spacecraft I was cool too.

Spacecraft Frank said he was cool last night too.

Houston Cap Com So possibly turning the temperature up a little bit it might just take care of that part.

Spacecraft It is because we are slowed down and sleepy that we are not producing as much heat and that is why we cooled off.

Houston Cap Com Roger.

This is Gemini Control Houston with the spacecraft heading over the hill at Antigua after flying right down the island chain, that more than likely wraps up the conversation for this pass. They should be activating MSC-2 and MSC-3 at this time leaving them on beyond Tananarive, and between Tananarive and Carnarvon they will do a cabin temperature survey, and that also wraps up the activities for the Red Team today. This is Gemini Control Houston at 73 hours 34 minutes into the flight.

END OF TAPE

This is Gemini Control. We are now 75 hours, 20 minutes into our mission with spacecraft Gemini 7. At this time the spacecraft is moving over the south Atlantic and is within voice range of the Rose Knot tracking ship. During the last hour and a half when we had no announcements from this Center, we had voice communication with the spacecraft over Hawaii, Texas and now the Rose Knot. And at this time to bring you up to date, we will play back the taped voice communication between the spacecraft and those ground stations.

HAWAII           Spacecraft, Hawaii

S/C               Roger, Hawaii

HAWAII           Gemini 7, Hawaii Cap Com. Gemini 7, Hawaii Cap  
Com.

S/C               Go ahead Hawaii, Gemini 7.

HAWAII           OK, we're down here on the ground and we're  
ready for the fuel cell purge.

S/C               Roger, stand by. Just want to take an S-6  
picture now.

HAWAII           Alrighty. We've had a loss out on C-Band  
beacon here.

S/C               Roger, Hawaii. Check back on C-Band.

S/C Got it back now, Hawaii?

HAWAII That's right. Good solid check.

S/C You can attribute that to attitudes for  
picture taking.

HAWAII It pretty well could be. Let me talk to you  
about it after this pulse test.

S/C Can you feed up my pulse test from the last  
mission, I mean the last pass.

HAWAII OK. It's good and solid now. It was probably  
attitude.

S/C Again, Hawaii.

HAWAII The beacon's good and solid. It was probably  
attitude due to S-6 picture taking.

S/C OK. Hawaii, Gemini 7 purge complete.

HAWAII OK. We got all that. You need anything else?

S/C Not a thing.

HAWAII OK. This is your final controller standing  
by. Receive and acknowledge.

S/C Thank you.

HAWAII ....fueling.

S/C Roger, final purge. Go ahead.

HAWAII Hey, did you get my old post pass from last

time?

CAP COM Yeah, I just read it. EECOM doesn't think there's big stress. Do you want to talk to him about it?

HAWAII No.

CAP COM OK. It was just a comment. He said he would rather talk it with you if you like.

HAWAII OK. Wait one minute till this pass is finished.

CAP COM OK.

HAWAII LOS to Hawaii.

CAP COM Roger, Hawaii.

HAWAII PCM, LOS. And that LOS .... right up to the purge. The fuel cell O<sub>2</sub> 461. Fuel cell H<sub>2</sub> 213. ECS O<sub>2</sub> 666. Those are all 1218.

CAP COM Rog, I copy, 461, 213, 666.

HAWAII Roger.

CAP COM Anything else?

HAWAII OK, I'd like to talk to EECOM.

CAP COM OK, stand by. He's talking with Flight right now, stand by. AFT.

HAWAII AFT, Hawaii.

CAP COM He'll come to you right after the ... pass.

HAWAII OK. Thank you.

CAP COM Rog.

CAP COM Everything looks real good on the ground.

S/C Check 745458, taking a picture of what looks to be a low forming over Mexico, a very well developed flow pattern.

CAP COM Texas go remote.

TEXAS Texas remote.

CAP COM Gemini 7, Gemini 7, Houston Cap Com. Over.

S/C Thanks Houston.

CAP COM Roger, how are things going up there, Frank?

BORMAN Good.

CAP COM Good, I got a briefing on your cryos. What we would like to suggest for you to do if you'd like to listen in.

BORMAN Go ahead.

CAP COM First of all, the ECS O<sub>2</sub>. The pressure decrease has pretty well stabilized out to be about zero between now and the expected time that the sleep begins. It's probably going to start increasing in pressure up to about a point of 3 psi per hour and then continue a slow increase during your sleep cycle,

so what we're going to be recommending is that you keep your ECS O<sub>2</sub> heaters off and they're probably going to remain off through the rest of the mission.

S/C Right.

CAP COM OK, the RSS H<sub>2</sub>.

All right. Through the sleep period, we'd like you to build it up to about 445 psi. This is an onboard reading.

S/C Read.

CAP COM This gives you about 5 hours after your sleep period before you actually hit the dome or before you actually would need heat with the present deteriorate.

S/C All right.

CAP COM So what we're going to suggest there is that you keep the RSS H<sub>2</sub> heater off during the sleep period.

S/C H<sub>2</sub> off also.

CAP COM Right. Now your RSS O<sub>2</sub> -- we'll give you an exact time account on this, but what we're going

to like you to do or want you to do is to go to the AUTO position on your heater probably about one rev prior to your sleep period. This will give us a chance to monitor the heater and the temperatures and watch them stabilize out.

S/C Roger.

CAP COM And we'll give you a hack exactly when we want you to go to the AUTO position on the O<sub>2</sub>.

S/C Fine and dandy. (Garbled)

CAP COM Correct that, Frank.

S/C I'm sorry. I was trying to record that .....

CAP COM OK. .... Houston, the rest of our pass is pretty empty. If there's anything I can pass on home for you, I'd be glad to. If not, your White Team will be watching while you're sleeping tonight.

S/C Roger. Say "Hello" to everybody for us.

CAP COM Say again, Gemini 7.

S/C I said, "Say 'Hello' to everyone at home for us."

CAP COM I sure will do right after we lose you here. I might add that everyone's fine, and everyone's very happy down here.

S/C Thank you.

RKV I guess that Jim knows that he's been called the man in  
the flying underwear now.

S/C Right.

Flight Texas, go local.

Corpus Texas local.

Guaymas Guaymas

Grand Turk Grand Turk

S/C 7

Flight Go ahead, Antigua.

Antigua: Say, we are getting an intermittent lock on this.

Corpus Roger. We dropped off. We're back up now.

Flight . . . TM AOS.

RKV RKV Our telemetry is solid.

Flight All right RKV.

RKV . . . garbled.

Flight Roger RKV.

RKV Gemini 7, RKV CAPCOM. You need not acknowledge. All your  
systems are go. We are standing by.

S/C Thank you RKV. . . . garbled . . .

RKV Roger.

S/C We are doing . . . . garbled . . .

RKV Roger.

S/C Looks good down on the ground.

RKV Real nice today. RKV TO CAPCOM

Flight Go ahead.

RKV They look real good.

Flight Roger.

RKV Did you copy that experiment.

Flight Yea. I copied Borman missed 7, Lovell missed 11 and they are doing D-9 now. And they got our sequence 1, mode 1, test 5 over Mexico.

RKV Roger. I got to go on to retro . . garbled . . 250.

Flight Okay. 250. Flight, RKV.

RKV Go ahead, RKV.

Flight Did you ever get your luggage?

RKV . . garbled. I understand it is over in Rio someplace.

Flight What clothes are you wearing?

RKV I bought some . . . garbled . . . Look rather dashing.

Flight You will have to bring us some pictures so we can update our collection.

RKV I've got quite a sombrero.

That was taped voice communication between spacecraft Gemini 7 and the tracking stations at Hawaii, over the Texas state side pass and the Rose Knot tracking ship. Spacecraft Gemini 7 is now on it's 48th revolution over the earth and is now approaching the southern tip of Africa. We are 75 hours and 28 minutes into the mission. This is Gemini Control.

END OF TAPE.

This is Gemini Control. We are 76 hours and 20 minutes into the flight of spacecraft Gemini 7. At this time the spacecraft is on its 48th revolution over the earth and is passing over the Hawaiian Tracking Station. During this pass the flight surgeon aboard our station at Hawaii is getting a medical pass from the command pilot. This will be a full medical status report. As we pass over the Guaymas Station area we will have a similar medical status report on the pilot. We are now 76 hours 20 minutes into the flight and the medical status report is continuing. This is Gemini Control.

END OF TAPE

This is Gemini Control. Seventy-six hours and 24 minutes into the flight of spacecraft Gemini 7, which has just passed out of voice range of the Hawaiian Tracking Station and we will bring you now the taped communication of voice - the voice of James Lovell the pilot aboard spacecraft Gemini 7 and the Hawaiian Tracking Station.

HAW Have TM solid.

HOU Roger, Hawaii.

HAW Gemini 7, Hawaii Cap Com.

S/C This is 7 Hawaii loud and clear.

HAW Roger. Hold the temperature a little bit we're - it's still raising. We show you go on the ground.

S/C Roger. Understand go on the ground.

HAW Gemini 7 we have a good oral temperature standing by for your blood pressure.

S/C Coming down.

HAW Cuff is full-scale. Have a good blood pressure standing by for your exercise.

S/C Mark on the exercise. Blood pressure coming down.

HAW Your cuff is full-scale. Have a good blood pressure. Standing by for your food, water, and sleep report.

S/C Roger. For the Command Pilot - the total water for today 298 ounces. He had one meal, Day 7, Meal C, at which time he had with it about 15 ounces of water. For the pilot - total water to date - 234 ounces. One meal, Day 7, Meal C, 12 ounces of water with the meal.

HAW Roger, Gemini 7. Do you have a total water consumption at the time of your Meal 7C?

S/C For the pilot a net total water consumption around 15 ounces during that time.

HAW 15 ounces at that time?

Roger Gemini 7. Would you turn off your biomed tape recorder no. 1.

S/C Roger. Number 1 coming off.

HAW Thank you Gemini 7, Hawaii Surgeon out.

S/C ..... the Command Pilot had 19 ounces during his mealtine.

HAW I have a C-band LOS.

HOU Roger, Hawaii.

HAW Gemini 7, Hawaii Cap Com. You have a UHF6 test over the RKV this pass.

S/C Roger.

This is Gemini Control, 76 hours and 39 minutes into our mission, with spacecraft Gemini 7 now just beginning its 49th revolution over the earth and it is approaching the northwest tip of South America.

We had a few minutes ago, voice communication between spacecraft Gemini 7 and the Guaymas Mexico station. And at that time we had a medical status report on the pilot, Jim Lovell. We will now give you the taped communication over that pass.

S/C Do you read?

GYM Loud and clear Gemini 7.

S/C Are you getting the oral temperature?

GYM Roger. Coming up real good. They want you to dump the crew status report over Texas. Your temperature is up real well.

S/C Okay, thank you.

S/C . . . Garbled . . .

GYM Roger and you should be getting to Texas in about 2 minutes.

Flight This is CAPCOM Houston flight.

GYM Roger, go ahead.

Flight You are planned for the crew status report this time. So get going.

GYM Okay. Gemini 7 Guaymas CAPCOM.

S/C Go ahead.

GYM Roger they have decided to conduct it over Guaymas after all. We have a valid oral temperature. Standby. You can go ahead with your blood pressure.

S/C Blood pressure coming up.

GYM Valid blood pressure. Back to your exercise MARK.

S/C MARK

GYM Full scale. Oh oh, Jim pick it up again. Okay let it off. Valid blood pressure. Give me what you can of your suit status and your water status.

S/C . . garbled . . . Okay that's all right Marv. .

GYM Roger.

S/C We haven't got it CAPCOM. Everything looks real good on the ground.

GYM Roger, thank you. LOS.

END OF TAPE

This is Gemini Control. We are 76 hours and 48 minutes into the flight of spacecraft Gemini 7. At this time, Gemini 7 has started its 49th revolution and is now passing over South America. Shortly we expect to get voice acquisition at the Rose Knot Tracking Ship which is located off the East Coast of South America. Our medical surgeon here in Mission Control tells us that according to the ground data readouts, both Command Pilot Frank Borman and Pilot James Lovell are in excellent physical condition. Let's listen in now, we have acquisition, to the voice communication with the Rose Knot.

RKV Gemini 7, RKV Cap Com.

S/C This is 7 RKV, go ahead.

RKV Roger. All systems are go. We'd like to give you a status report on the G&C systems. Your OAMS heaters seem to be working well. Your thruster temperature range is from 60 to 80 degrees when the ACQ meter is powered down. Your thruster temperature ranges are from 80 to 105 degrees during use in the PULSE mode. Your source temp and other system temperatures as stabilized in a range from 55 degrees to 65 degrees. In some ways the system looks beautiful.

S/C I'm glad if it does.

RKV Your RCS source pressures have stabilized at 3K psi and the temperatures have stabilized at 65 to 76 degrees.

S/C Looks like we have a pretty good form now.

RKV Roger. As far as the computer goes, everytime we see the computer on it looks completely normal; all updates have been verified on the ground by reading out the memory.

S/C Roger.

RKV Your fuel-cell water pressures indicates your consumption of water is equal to the amount produced. Over your coolant loops temperatures are nominal, your radiator outlet temps are running 0 to plus 10 degrees, and your suit heat exchanger inlet temp is constant at 47 to 48 degrees.

S/C Sounds like we're serious about that 2 weeks.

RKV That's affirm.

By the way; the next hour and a half of uninterrupted mood music on HF will be brought to you by the compliments of station WRKV. Among the selections are the excerpts from La Boheme by Puccini, Symphony No. 3, the Reinich by Schumann,..... by the Fantastics, Symphony No. 2 by Rachmaninoff, the Lawrence of Arabia Overture, and Water Music by Handel.

S/C That's dandy!

RKV We're sorry, but there'll be no inflight movies tonight.

S/C And no ...

RKV All systems look good, flight.

HOU Roger, RKV.

This is Gemini Control. We are listening to live communication - voice communication between the spacecraft Gemini 7 and the Rose Knot Tracking Ship. Jim Lovell is the astronaut who is responding from the spacecraft at this time.

HOU RKV Cap Com Houston Flight.

RKV Houston Flight RKV.

HOU Roger. Are you getting any of that HF music down there, Bill?

RKV I can hear it in the background.

HOU           Okay. I was wondering whether any of the other sights in the network were getting it. How's the weather down there?

RKV           It's real nice. In fact, it's too bad the crew couldn't have let down last night. We could see Jupiter and about 5 of her Bullets.

HOU           You got much of a swell out there?

RKV           No. It's real, real smooth.

HOU           How about the temperature?

RKV           It's real comfortable. In fact, I had a suntan started until we started .....

HOU           Okay, how about your return reservations. Where're you coming back through, Rio?

RKV           If I don't get home for Christmas, I'd better not even go home! We're checked out on the 22nd at Rio. Should be home the morning of the 23rd.

HOU           Okay. I understand they have your luggage down there in Customs. Is that your impression also?

RKV           Yeah, that's what they tell me but I don't believe it.

HOU           You know, it was shipped to LA from Miami, it went in the wrong direction.

RKV           I find that hard to believe.

HOU           It's supposed to be there, Bill, and all you need to do is - - -

RKV           Let me tell you what happened. I bought a Banlon shirt - a red one - and I bought some scivvies and some socks and I put the Banlon shirt in the washer with all my clothes that I bought and now I - everything I'm wearing is pink!

HOU           Sounds like you might be able to dub in for Santa Claus out there on that ship.

RKV Yeah, I look like it.

HOU Well, better luck next time.

RKV I got that on a recording flight, next time, ok?

HOU Okay. We'll see what we can do.

RKV All righty..

HOU Well, it looks like it's going to be a quite night. It looks like we're going to be ready to settle down here in about another hour and a half or two. How do you like that silent running?

RKV I like it..

HOU Just wait. We'll get 6 up there pretty shortly and that'll give you plenty to do.

RKV I think we ought to fly three commentators, keep one of 'em awake all the time to talk to us.

HOU I'll talk to you.

RKV Ok. That's what I'm afraid of.

HOU By the way, I haven't read your summary you sent us in last night and that hypothetical problem I gave you.

RKV What was your - have you given us a grade on that report we gave you?

HOU No. I'll tell you what though. I'll go over it and write up why I thought we should have gone a different way.

RKV That'll be interesting.

HOU I didn't concur with the CSQ's evaluation. You know, I think as these missions get longer here, particularly in this one here as it goes toward the end of it, I think it would probably be pretty good to go through some missions rules review, flight plan, and that type of stuff.

RKV Well you remember, for one thing we didn't have the data readily at hand that we have at the Control Center and that has a lot to do with the decisions you make.

HOU Yeah, I think that's true. I think we could probably give you a lot better update, in fact, I think we've got a pretty good one now on the status of our cryos RSS and ECS and I'll make sure this dope gets out and let you do some plotting out there on these dome curves.

RKV Rog. We've had LOS. Now we've got it back in now.

HOU Ok.

That was voice communication three ways between at first, spacecraft Gemini 7, talking to Bill Garvin, the spacecraft communicator aboard the Rose Knot, and it wound up with a conversation between our Flight Director here in Mission Control, Gene Kranz, and Bill Garvin, aboard the Rose Knot. The crew during the communication between MCC and Rose Knot, were engaged in preparations for Experiments D-4/D-7, the Celestial Radiometry Experiment, D-4, and D-7, Radiometric Observations of Objects in Space and therefore they cut out of the conversation. We are now 76 hours 57 minutes into the flight. Spacecraft Gemini 7 is passing over the South Atlantic on its 49th revolution over the Earth. We have coming up aboard the spacecraft, following the D-4/D-7 Experiments, an exercise period for the crew to be followed by the housekeeping procedures that they go through, putting away all the gear, stowing things that they've used throughout the long day in space and getting ready for their meal, which is then followed with a sleep period. This is Gemini Control 76 hours 58 minutes into the mission.

END OF TAPE

This is Gemini Control. We are now 77 hours and 20 minutes into the flight of spacecraft Gemini 7. At this time our spacecraft of the Indian Ocean on its 49th revolution around the earth. We have had no voice communication with spacecraft Gemini 7 since it passed over the Rose Knot quite some time ago. At that time we did have live voice communications with the Rose Knot and we did broadcast that pass live. Aboard the spacecraft our pilots are engaged now, according to the flight plan, with a housekeeping period and an exercise period that are coming up. And then they will eat and retire for a sleep period. Aboard the spacecraft according to our ground data, all systems are go and the astronauts are in excellent physical condition. This is Gemini Control at 77 hours and 21 minutes into the flight.

END OF TAPE

This is Gemini Control. We are now 77 hours and 43 minutes into our mission. Spacecraft Gemini 7 is now passing over the Pacific Ocean and very shortly, in approximately 10 - 15 minutes, will come up over the Hawaiian Tracking Station. Just a few minutes ago, the spacecraft passed over the Coastal Sentry Tracking Ship, and at that time we had communication between the tracking ship and pilot Jim Lovell aboard spacecraft Gemini 7. And at this time we will play the taped voice communication.

CSQ Gemini 7, CSQ

S/C Go ahead CSQ, Gemini 7.

CSQ Roger, we have you go on the ground. We're standing by for your flight plan report.

S/C Roger. Today we've used one magazine of S0217 Standard Hasselblad; 14 frames from the second magazine; we've shot six frames of color .....; 5 frames of Hasselblad high-speed black and white. One frame of Hasselblad high-contrast low-speed black and white. We've used two magazines of 16-mm movie film; two tape recorder cartridges, and I gave off .... S-8/D-13 ..... (garbled) ...before 11 this morning.

SCQ

S/C Roger. Borman minus 7, Lovell minus 11 for S-8/D-13 mission tests this morning.

CSQ Roger, copy.

S/C Our ..... fuel now reads 57 percent.

CSQ Roger.

S/C ..... CSQ

CSQ ..... Gemini 7 I got it.

S/C Thank you.

CSQ Flight, this CSQ

HOU I got it, CSQ.

CSQ Roger, all the facilities have gone out here, they're go on the ground, and we'll try to get on this flight plan report into a postponed.

HOU Okay. Very good.

Have you got a tape recorder handy out there?

CSQ Haven't heard it.

HOU They're pretty handy. We use them back here quite a bit.

CSQ Yeah, we could probably do without it . . .

HOU It sure saves a lot of repeats that would really tie it up getting a report like that across.

CSQ Yeah. Our little hand-carriage recorder has gone out but the COMTEX has got one.

HOU That right? Fortunately mine is still working, this is the longest I've ever had one work.

CSQ You have that thing fixed pretty regularly.

HOU About three a mission.

S/C CSQ Gemini 7.

CSQ Go ahead, Gemini 7.

S/C (garbled) knocked out the electronic circuit breaker, our time recorder circuit breaker, would you give me a time hack, please.

CSQ Roger. G.e.t. time hack. 77:37 on my mark. 40 seconds to mark. 4,3,2,1, Mark. 77 hours 37 minutes 00 seconds.

S/C Thank you very much .....

HOU CSQ, Houston Cap Com.

CSQ Go ahead, Flight.

HOU Roger. We'd like confirmation from the crew that they have completed all of the flight plan activities we had scheduled for them today.

CSQ Roger.

Gemini 7, CSQ

S/C Go ahead, please.

CSQ Have you completed all flight plan scheduled items for today?

S/C Roger. All except that were deleted by weather.

CSQ Roger, understand. Thank you.

You copy, Flight?

HOU Roger.

What's the lag in SET now?

CSQ Flight, we're completing that but the TR shows minus 3 seconds.

HOU Okay.

CSQ It's probably up to 3 seconds because (garbled)

HOU Roger.

CSQ Flight, CSQ.

HOU Go CSQ.

CSQ SET lags 9 minutes 41 seconds.

HOU Roger.

CSQ Flight, CSQ

HOU Go ahead, CSQ.

CSQ Both of our ..... recorders are now off.

HOU Okay, I'll stand by and see if they're supposed to be.

That's affirmative, CSQ. They're both supposed to be off.

CSQ Roger.

CSQ CSQ has LOS. All systems go to AUTO.

That was taped voice communication three ways between spacecraft Gemini 7, the Coastal Sentry Tracking Ship, and our Flight Director at Mission Control, Gene Kranz. The voice from Coastal Sentry was Harold Draughn, the spacecraft communicator. In the spacecraft talking for the flight crew was Jim Lovell. This is Gemini Control, 77 hours 49 minutes into the flight of spacecraft Gemini 7, which at the present time is on the last leg of its 49th revolution.

END OF TAPE

This is Gemini Control, 78 hours and 2 minutes into our mission. Spacecraft Gemini 7 has just passed over the Hawaiian tracking station. Is on the tag end of its 49th revolution over the earth. While passing over the Hawaiian tracking station, that station made a routine check with the spacecraft and we will now play back the voice communication released on tape.

Hawaii Gemini 7, Hawaii CAPCOM.

S/C Go ahead Hawaii.

Hawaii Okay, we would like you to put your fuel cell O<sub>2</sub> interswitch to the auto position.

S/C Roger. Fuel cell O<sub>2</sub> auto.

Hawaii Okay, we have nothing further for you. Hawaii standing by. Flight, Hawaii.

Flight Go ahead.

Hawaii Okay. TR is lagging by 3 minutes. Do you want me to update it?

Flight Negative.

Hawaii Roger. All from Hawaii

Flight Roger Hawaii

That was voice tape communication, tape voice communication between spacecraft Gemini 7 and the Hawaiian tracking station. This is Gemini Control, 78 hours and 3 minutes into the mission.

END OF TAPE

This is Gemini Control. We are 78 hours and 22 minutes into our mission with spacecraft Gemini 7 now passing over South America and just a few minutes ago it started its 50 revolution. We have had no voice communication with the crew since the Hawaii tracking pass about 15 minutes ago. According to our flight plan, the crew at this time is doing their housekeeping chores preparatory to their 8 to 10 hour sleep period which is coming up in approximately 1 hour. We will have an eat period prior to the time they retire. There is very little activity beyond the housekeeping chores and here at mission control the activity has slowed down. We are awaiting voice communication passes again with the Coastal Sentry Quebec during this revolution and at that time we hope to bid the crew goodnight and we will play this tracking pass live and this will be the last communication we will have with them prior to their sleep period. This is Gemini Control, 78 hours 24 minutes into the flight.

END OF TAPE

This is Gemini Control, 78 hours and 34 minutes into the mission of Spacecraft Gemini 7. At the present time, our spacecraft is passing over the South Atlantic on its fiftieth revolution around the earth. A few minutes ago as Spacecraft Gemini 7 passed over the Rose Knot tracking ship located off the coast of South America -- the east coast -- we had voice communication with Pilot Jim Lovell doing the talking for the spacecraft crew, and at this time we will play you the taped voice communication of that pass.

CAP COM Gemini 7, RKV Cap Com.

S/C RKV, Gemini 7.

CAP COM Roger. All systems look good. I've got block update for you when you're ready to copy.

S/C Roger. Stand by. (Garbled)

CAP COM Roger. Area 52-3 -- 82 02 18, 16+23. Area 53 Bravo -- 83+38+57, 15+37. Area 54 Delta -- 84 29 31, 22+21. Area 55 Delta -- 86 06 02, 21+14. Area 56-2 Charley -- 87 42 05, 20+03. Area 57-2 -- 89 18 18, 18+49. Area 58-1 -- 90 43 50, 19+41. The weather in all areas is good.

S/C Roger. I copied it all.

CAP COM OK. I've got a map update for you.

S/C Roger. Stand by. (Garbled)

CAP COM Titled Node. 81 56 41. Make that 81 56 51. Rev 52 --  
24.0° east right of Ascension. Time 12:10:02.

S/C Roger. I have the update,

CAP COM Roger. Your present orbit is 127.1 by 171.1.

S/C Garbled.

CAP COM OK. You've got a UHF fix over the CSQ on rev 50.

S/C ..... the UHF fix.

CAP COM Could you give us the pilot's sleep configuration as  
far as ..... underwear, etc. go through the night.

S/C Roger. .... underwear, ....., it's pretty comfortable.

CAP, COM OK. How about the command pilot.

S/C He's still in his suit.

CAP COM Zipper open?

S/C Garbled.

CAP COM OK. How about gloves.

S/C No gloves.

CAP COM Are you going to wear a hat?

S/C No hat.

CAP COM OK. Your fuel cell H<sub>2</sub> pressure is adequate for the  
sleep period.

S/C Roger.

CAP COM Flight, RKV.

FLIGHT Go, RKV.

CAP COM OK. Fuel cell O<sub>2</sub> is about 632. Why don't we let that thing crank in there and give them the go over CSQ.

FLIGHT Roger. Just don't mention it there. We'll check it over the CSQ. It's coming up. Looks like it's come up about 200 psi.

CAP COM Roger.

FLIGHT Pass, Bill.

CAP COM This is ..... Everything looked real good, Flight.

FLIGHT Roger.

CAP COM ..... LOS.

That was voice communication taped transmitted between Gemini 7 and the Rose Knot tracking ship. We are 78 hours and 39 minutes into our mission. This is Gemini Control.

END OF TAPE

This is Gemini Control. At 79 hours and 07 minutes of flight by spacecraft Gemini 7. At the present time, our spacecraft is on its 50th revolution over the earth and is coming up shortly on the Coastal Sentry Tracking Ship in the Pacific Ocean. According to our flight plan, as the spacecraft gets within range of the Coastal Sentry, we will have a purge of the fuel cells. Our flight plan from that time on shows a sleep period for approximately 10 hours. Our flight surgeon tells us that aboard the spacecraft, according to all the ground data we have, the crew is in very excellent physical condition and the ground readouts from the spacecraft show the same for the spacecraft systems. Now we will give you the live communication. We have established communication with the spacecraft and we will go live over Coastal Sentry.

HOU Affirmative.

CSQ Has he been advised to keep his O<sub>2</sub> heater switch in auto?

HOU That's affirmative.

CSQ Roger.

CSQ Gemini 7, CSQ.

S/C This is 7, go ahead.

CSQ Roger, Gemini 7. We have you go on the ground. We also have a go on your tank pressure. The fuel-cell O<sub>2</sub> tank pressure.

S/C Roger, understand.

CSQ We have a fuel-cell purge scheduled for this pass. Your next fuel-cell purge is at Canary Islands with a g.e.t. of 57 hours 89 minutes 41 seconds.

HOU That's negative, CSQ. That's Canaries on the 57th with - - -

S/C ..... say again, we'll purge the fuel cells two times in one .....

CSQ Say again, Flight.

HOU That's Canaries on the 57th Rev with an elapsed time of 89 hours.

CSQ Roger. Gemini 7, CSQ.

S/C This is 7. Come on in, CSQ.

CSQ Your next fuel-cell purge will be in the Canary Islands on the 57th Rev at an elapsed time of 89 hours 41 minutes.

S/C Roger. Understand you want a purge now. Stand by it's coming down.

CSQ Roger.

S/C CSQ this 7 here.

CSQ Go ahead.

S/C I understand they want me to leave the fuel-cell O<sub>2</sub> cryo heater on automatic all night.

CSQ Roger, that's affirmative.

S/C The other two bottles are okay with the heaters off.

CSQ That's affirmative Gemini 7.

S/C Thank you.

HOU CSQ Cap Com Houston Flight.

CSQ Go ahead, Flight.

HOU Roger. We'd like to know whether they're going to leave the M-1 Experiment on for this coming sleep period.

CSQ Roger.

Gemini 7, CSQ.

S/C Go ahead.

CSQ Do you plan to leave your M-1 Experiment on for the sleep period?

S/C Roger.

CSQ Will you place your cryo monitor switch to ECS O<sub>2</sub> and hold it?

S/C Roger.

HOU How's the purge look, CSQ?

CSQ All systems ..... flight.

HOU Ok.

CSQ Gemini 7, CSQ. Give us fuel-cell O<sub>2</sub> on your quantity switch.

S/C Fuel-cell O<sub>2</sub>.

CSQ Roger.

Gemini 7, CSQ. Give me fuel cell HM.

S/C Fuel cell HM.

CSQ Do you need anything else, flight?

HOU Negative. Everything else looks pretty good.

CSQ Roger.

Gemini 7, CSQ. Place your quantity read switch to OFF.

S/C It's off.

CSQ Roger. We have nothing else for you on this pass. We have you go on the ground.

S/C Thank you. Be sure you wake us up when we purge again, I don't want to go into dawn again with those bottles.

CSQ Roger, will do.

HOU CSQ, Cap Com Houston Flight.

CSQ Go ahead, Flight.

HOU Roger. You could advise him the lower limit on his H<sub>2</sub> onboard reading is 300 psi.

CSQ Got you. 300.

Gemini 7, CSQ.

S/C Go ahead.

CSQ Your lower limit on your fuel-cell H<sub>2</sub> onboard reading is 300 psi.

S/C Roger. I'm not sure that the bottle will stabilize there. I think it might go below there even though people in Houston don't feel it will, so all I can say is that if it starts to get that low, please wake us up.

CSQ Roger, we will.

HOU Roger, you can advise him the decay rate's around 6 psi per hour and

- - - -

CSQ Read you weak, CSQ. Say again, Flight.

6 psi per hour?

HOU That's right, and that's over about a 24-hour period we've been watching it, we feel that we've got a pretty good handle on it.

CSQ ...Roger.

Gemini 7, CSQ. The present decay rate on the H<sub>2</sub> is 6 psi per hour and that's a trend established over a 24-hour period.

S/C Thank you.

CSQ CSQ has LOS.

HOU Roger, CSQ.

CSQ All systems, go flight.

HOU Ok. I guess that's about it. Looks like we're solid running for the remainder of the evening.

CSQ Roger.

This is Gemini Control. That was live voice communication between spacecraft Gemini 7 and the Coastal Sentry Tracking Ship in the Pacific. The pilot, Jim Lovell, was the crew member with the communication with the ground station. We are 79 hours and 17 minutes into our flight and at this time the crew is beginning a 10-hour sleep period and we will have no further voice communication with the spacecraft for approximately 10 hours. This is Gemini Control.

END OF TAPE

GEMINI 7/6 MISSION COMMENTARY, 12/7/65, 8:49 p.m. Tape 161, Page 1

This is Gemini Control, 79 hours and 19 minutes into the flight of spacecraft Gemini 7. Aboard Spacecraft Gemini 7, our flight crew -- or Command Pilot Frank Borman and Pilot James Lovell have just begun the sleep period which will extend for approximately 10 hours. Our last voice communication was over the Coastal Sentry tracking ship, and we did play that conversation live between Jim Lovell and the tracking ship. They conducted a purge of the fuel cells, and that was the last activity that is slated throughout the sleep period. This is Gemini Control, 79 hours, 20 minutes into the flight. The Spacecraft is on its fiftieth revolution over the earth, and very shortly will be passing over the Hawaiian tracking station. This will be a silent pass. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 80 hours and 20 minutes into our mission with spacecraft Gemini 7. At the present time Gemini 7 is passing over the Southern tip of Africa on the 51st revolution around the earth. Aboard the spacecraft our pilots are in the sleep period. We do not yet have data, ground data, that verifies whether they actually are asleep. We expect that we may get some indication along that line on this revolution. Here in the Mission Control Center things are relatively in low key again as the spacecraft crew is asleep, or in a sleep period and we have no voice communication with the spacecraft. We are merely getting the ground data reading as they come in from the various tracking sites. This is Gemini control, 80 hours and 20 minutes into the mission.

END OF TAPE

This is Gemini Control, 81 hours and 20 minutes into the flight of spacecraft Gemini 7, which at the present time is in its 51st revolution around the earth and is now passing over the Pacific Ocean. We have had no voice communication with the spacecraft for approximately 2 hours, during which time the flight crew had started a sleep period. The latest ground data received from the spacecraft does not yet indicate that the crew is asleep. However, they have quieted down and very shortly should be sleeping. Here in Mission Control we are in the midst of a shift change. The blue team of flight controllers started to arrive approximately half an hour ago to get their nightly briefings. And we have a report on the pad activity at Cape Kennedy. They have inserted the space computer in the spacecraft. This was inserted at 8:00 p.m. eastern standard time. Testing was resumed with the computer at 8:45 p.m. eastern standard time. This testing is expected to be complete at 10:00 a.m. e.s.t. tomorrow. The target time for the simulated flight is 5:00 p.m. eastern standard time tomorrow. This is Gemini Control at 81 hours and 21 minutes into the mission.

END OF TAPE

This is Gemini Control, 83 hours and 20 minutes after liftoff. Gemini 7 spacecraft at the present time is over the South Atlantic, and has just left the acquisition area at LOS -- that is the tracking ship Rose Knot, and is now entering the area of the Ascension Island voice remoting station. It's just begun its fifty-third revolution. During the pass over the tracking ship Rose Knot, the spacecraft communicator, Bill Garvin, said that all systems looked OK from his console aboard ship, and he said that both crewmen appear to be asleep at the present time. He also mentioned that they had a visual sighting of the spacecraft from the Rose Knot. He said they have a real good star field tonight, which made it easy to see the moving spacecraft across the star pattern. There was also a dump of telemetry data from the spacecraft to the Rose Knot during this pass. At 83 hours and 21 minutes after liftoff, this is Gemini Control.

END OF TAPE

This is Gemini Control, 84 hours and 20 minutes after lift-off. Gemini 7 is now over the South Pacific approximately in the area of American Samoa nearing the end of the 53rd revolution. Earlier in this revolution the spacecraft passed over the Coastal-Sentry tracking ship just north of the Philippine Islands. The spacecraft communicator, aboard the Coastal Sentry, commented that the sea state at the ship's location was not near as bad as it was yesterday. Yesterday they were having waves of 12 to 15 feet high. They are considerably lower than that today. He also reported that both crewmen appeared to be resting quietly and that the spacecraft was "go" on the ground. The next station to acquire Gemini 7 will be the tracking ship Rose Knot which will be approximately 25 minutes from now at 15 minutes after the hour. From the looks of the map here at Mission Control this will be the last pass for the night over the Rose Knot. There will be another pass over the Coastal Sentry later on, or that the next revolution will pass near the edge of the Coastal Sentry acquisition area. At 84 hours and 21 minutes after lift-off, this is Gemini Control.

END OF TAPE

This is Gemini Control, 88 hours and 20 minutes after lift-off. Gemini 7 at the present time is over the continent of Africa, approximately the Nile Delta region at the beginning of the 56th revolution. In the pass just completed over the Canary Island tracking station, the spacecraft communicator there reported to Flight Director, John Hodge, here at Mission Control that all systems are "go" and it looked like the Command Pilot was awake while the Pilot was still asleep. The next station which will acquire the Gemini spacecraft will be the Carnarvon, Australia tracking station. This will be their first pass of the day and they should acquire at 15 minutes past the hour. Meanwhile at pad 19 at Kennedy Space Center, preparations for the Gemini 6 launch are continuing. The computer was installed in the spacecraft and completed at 7:00 p.m. central standard time yesterday. They started testing the computer at 7:45 and it is estimated that the test of the computer will be completed at 8:00 a.m. this morning central standard time. There have been no problems thus far in the testing. After the computer has been checked out, there will be a series of interface checks between the launch vehicle and the spacecraft. These tests will last about 5 hours. All these tests are in preparation for the final simulated flight which should start at between 5 and 7 p.m. tonight. The launch vehicle people are standing by for the spacecraft to catch up. At 88 hours and 21 minutes after lift-off, this is Gemini Control.

END OF TAPE

This is Gemini Control, 89 hours 20 minutes after lift-off. Gemini 7 is now nearing the end of the 56th revolution and will be crossing the Isthmus of Panama within the next 10 minutes and will then be acquired by the tracking stations of the Eastern Test Range at Grand Turk Island and Antigua. Earlier in this revolution the spacecraft passed fairly close to the Carnarvon tracking station where they had a brief pass of about  $3\frac{1}{2}$  minutes. The Spacecraft Communicator at Carnarvon Australia tracking station, Keith K. Kundel, reported that all systems were go on the ground. At 89 hours and 20 minutes after lift-off, this is Gemini Control.

END OF TAPE

Good morning. This is Gemini Control Houston, 89 hours 52 minutes into the mission and the Red Team is now at work. Over the Canary's a few minutes ago, we performed the first fuel cell purge of the wakeful part of the day. There was very minimal conversation. The Weather Bureau says the weather will continue to be satisfactory to support this mission for the next 48 hours. Individual areas in the mid-Pacific, 800 miles east northeast of Honolulu, mostly cloudy skies and scattered showers will be the rule, winds from the northeast between 15 to 20 knots, waves 5 feet. That is the area we call number 4. In the western Pacific, 700 miles south southwest of Tokyo, skies cloudy with occasional rain showers, a frontal system through the area will divide north winds from southerly, with speeds on both sides in the neighborhood of 15 knots wave heights 3 to 6 feet. In the east Atlantic, 500 miles north of the Cape Verde Islands, mostly cloudy skies, east by northeast winds of 25 knots and wave heights from 5 to 8 feet. In the primary landing zone, the Western Atlantic, they have a cold front moving through the area which should create considerable cloudiness and perhaps a few showers, winds behind the system will rise from 20 to 25 knots, and seas should get up to about 7 feet, so the Wasp should do a little pitching and rolling maybe today. The interesting meteorological features which will be overflown during the day include a tropical depression northeast of Ceylon. Earlier in the night, about midway through the last shift, we did have a maintenance period on this console which explains the lack of announcements for some 2 to 3 hours. The pool and other technical elements in the mission were advised, but apparently there was no public address system announcement. However, now we are told that our equipment is, it was just

a normal maintenance kind of treatment. We are now assured that our equipment was never better and even if some of the operators might not fall into that category. At 89 hours 55 minutes into the mission, this is Gemini Control.

END OF TAPE

This is Gemini Control Houston, 191 hours and 1 minute into the flight. A few minutes ago, Gemini 7 went over Carnarvon and the Carnarvon conversation went like this.

Carnarvon Gemini 7, Carnarvon Cap Com.

S/C Go ahead Carnarvon, Gemini 7.

Carnarvon Roger. Good morning from Australia. I have a flight plan update, a brief one, and also your PLA update for you when you are ready to copy.

S/C Roger, go ahead with the flight plan.

S/C Lost C-band track.

Carnarvon Roger, it is 5 items. The first one is nodal crossing, time 92 25 19, remarks, rev 58, 137 degrees West, right Ascension, 11 56 08. Second item, time 90 50 00, that will be a cabin temperature survey, third item, time 91 93 90, that is a crew status report over the Cape. Time 19 17 08, that will be a crew status report on the Pilot at Canaries.

Flight That is 91 17 08.

Carnarvon What did I say?

Flight 19.

Carnarvon Is that right, it is supposed to be 91 Gemini 7.

S/C All right, got it.

Carnarvon Okay, then a flight change to the flight plan, you will be updated with a complete flight plan at 90 hours and 10 minutes.

S/C We are already passed that.

Flight What that says Carnarvon, is that their time line changes 10 minutes at 90 hours. It should ..

Carnarvon Okay. Gemini 7, here is what they mean here is that the time line has changed by 10 minutes as of 90 hours.

S/C Roger, got you.

Carnarvon All righty. Are you ready for your PLA's?

S/C Ready.

Carnarvon Roger. Area 59-1, 92 20 31, 16+23. Area 60-1, 93 56 40, 17+15. Area 61-1, 95 32 44, 17+16. Area 62-4, 98 22 44, 17+56. Area 63-4, 99 58 51, 16+53. Area 64-3, 101 11 54, 20+01. Area 65-3, 102 48 40, 18+45. That's it.

S/C Thanks a lot Carnarvon.

Carnarvon Roger. We have some general information for you.

S/C Go ahead.

Carnarvon Okay. They say the weather over Southwestern U.S. is not too good today, however, from the Mississippi river to Florida is clear. It will be cloudy in southern Florida. There is a frontal system in the -1 areas, so it is not very good, the -2 areas have high waves. Areas 3 and 4 are good.

S/C Thank you.

Carnarvon Okay, and they say that the sim flight is scheduled for this morning, have replaced the computer in GT-6 and it now has the same mouth-full as GT-7. There is still a chance that they will attempt to launch GT-6 on day 8.

S/C Roger. Thank you.

Carnarvon Righto, that's all we have for you this time.

S/C Roger.  
Carnarvon Just had LOS.  
Flight Roger Carnarvon.

Gemini Control here. The spacecraft is over the Carribean and Lovell is talking to Dr. Berry. Let's cut in there.

S/C Day 4, meal A.

Surgeon Okay, could we have your sleep report?

S/C Roger, both of us slept possibly 6 to 7 hours last night, probably awoke two or three times during the night.

Surgeon Roger, 6 to 7 hours and awake 2 or 3 times. We can see those wake times very easily on your records down here Jim and it appears that about, over CSQ at about 83 hours almost 84 hours, 83 53 or so that biomed tape recorder was turned on for a few minutes. Why was that done?

S/C I don't believe it was done up here, Chuck. We turned off biomed 1 some time ago. Both of them have been off since that time.

Surgeon Okay, it may have been a spurious signal of some sort. It looks like it was on for about 10 minutes over CSQ according to the report. We couldn't understand how it came about. Do you think that you are sleeping better now from last night than you were the last couple of nights?

S/C I believe I sleep pretty consistent since the first night. The first night was pretty poor as you can probably guess, but we both needed a good sleep the second night and we have been sleeping that way since that time.

Surgeon Very good. Okay, how about the exercise?

Surgeon Are you getting it in before the meal times. We saw one scheduled this morning and it appeared you were exercising.

S/C Roger. Both of us did our exercise before mealtime and one more meal that we had, which we can't find the title of at 78 hours we had shrimp, potato soup, and an orange drink but the number was not on it.

Surgeon Okay, we can get that off the list Jim. That is fine. One other thing we might ask you real quickly about the sensors. We are having a little bit of erratic reading in Frank's respiration sensors which we are not going to do anything about unless he gets his suit off later and his ECG leads are just fine and so it can't be in the sensor itself, it is probably at the connection of the signal conditioner which he can't get back there. Are you having any itching or problem with the sensors themselves?

S/C No, neither of us are having any trouble with the sensors. There is one big advantage to the suit off operation. I can feel all mine, feel all mine and scratch around them as a matter of fact.

Surgeon Very good. Okay, we have nothing else here. I'll turn you back to Cap Com.

Cap Com Gemini 7, I would like to start on your flight plan update if you are ready to copy.

S/C Stand by one. Okay, go ahead.

Cap Com S-5, 92 40 00, sequence 15, mode 01, pitch 90 degrees down, yaw, 0 degrees. S-6, 92 40 00, sequence 12, we may lose contact here, Jim. I'll just keep reading and we will get as much as we can. Then I'll finish up on the next time around. Have you copied okay so far?

S/C Okay. Go ahead.

Cap Com D-4/D-7, 93 13 00, sequence 428, mode 04, combine radio-meter and IR spectrometer measurement. That is for a total of 4 minutes measurement, in other words, instead of doing each one 2 minutes, do them both for a total of 4 minutes. Do you copy?

S/C Roger.

Cap Com D-4/D-7, 93 28 00, sequence 415 and 416, mode 02, pitch 90 degrees down, yaw 0 degrees, time 94 08 00, go--no-go at Texas. Do you copy?

S/C Roger.

Cap Com S-5, 94 13 18, sequence 12, mode 02, pitch 30 degrees down, yaw 14 degrees left, 94 16 00 purge fuel cells at Bermuda. 94 20 00 exercise. 94 30 00 eating period, do you copy?

S/C Roger.

Cap Com MSC-4, 95 44 39, sequence 01, mode 01, pitch 25 degrees down, yaw 44 degrees left. D-9, 96 11 35, sequence 01, mode 01. Correction on that, that was sequence 02. Time 96 45 00 cabin temp survey. Did you copy?

S/C Roger.

Cap Com Okay, that's the end of the message.

S/C Roger, we have it.

Cap Com On the MSC-4 we are going to try White Sands because the weather is clobbered at Hawaii and Ascension.

S/C So we will give it a try.

Cap Com Roger. The HF is on in your primary system.

S/C Thank you.

This is Gemini Control here. I think that concludes that part of the pass. If we hurry we can get in about the first 3 minutes of the pass which you heard and then we will go back to 7 when she gets over the Canary Islands. Let's have the early part of the Central American pass.

Cap Com Gemini 7, Gemini 7, Houston Cap Com.

S/C This is 7 Houston, read you loud and clear.

Cap Com Roger, good morning. Are you set up for the crew status report.

S/C Good morning Houston, we are set up for the crew status report.

Cap Com Roger, Stand by. We have a good temperature, start on the the blood pressure and stand by for the surgeon.

S/C Blood pressure coming down.

Surgeon Cuff is full scale. We have a valid blood pressure. You can start your exercise.

S/C Starting now.

Surgeon Jim, while Frank is exercising, I'd like to talk with you one second about this food and water report before we get to it. Apparently I gave you the wrong idea yesterday when we talked about it, and you were giving us details of how much water you had with the meal, and that is not what we had in mind. What I would like to have you do is to just

take your M-7 log, the way you have it in your log book and just start and read the time and the water in ounces that would appear across from the time that you ate a particular meal package. We have a valid blood pressure Gemini 7. Your cuff is full scale here.

S/C

I understand Chuck. Actually the way we normally eat a meal, we mix the water with the meal then we have one drink either before or after the meal, that will be all for that meal period.

Surgeon

Roger, and what we really want is your total that you had up until that meal time, so in essence, each time you would report that if you reported two meals, we would get two different totals, a total at each meal time, and then we would get a total at the time that you are reporting if you are reporting at some time other than just right after meal time. Do you follow that?

S/C

We follow, but I think we get a little complicated on procedures.

Surgeon

Okay, if you can't read that directly right off of your log, we won't do it, Jim, if it is a lot of calculation we won't do it.

Gemini Control Houston here again, that concludes the State side pass.

Down at the Cape they are busy this morning. We can hear them coming in on our blockhouse loop, blockhouse spacecraft test conductor loop, the familiar voice of Wendt who is the white room - or at least called the pad leader. He is the boss of the white room during any test period, an employ of

McDonnell Aircraft Corporation. They are presently estimating that they will be in a position to start the sim flight of 6 in a little more than 2 hours from now. Right now, Chris Kraft, of the Red Team, Flight Director, is conferring with Al Shepherd who is the crew leader on 6. He is at his position in the Mission Control Center at the Cape. About 6 conversations are going at once. I think we do hear the spacecraft now over the Canary's. Let's go back and see what is going on there.

Jim Lovell has just started a blood pressure reading which accounts for the silence on the line, he should be back on momentarily.

Canary We have a valid blood pressure. Give me a mark when you begin exercise.

S/C MARK, exercise. Blood pressure coming.

Canary Roger, exercise completed (garbled). The cuff is completely inflated. We have a valid blood pressure. Thank you.  
Canary Surgeon out.

Canary Gemini 7, Canary Cap Com.

S/C This is 7, go ahead.

Canary You might look at your fuel cell hydrogen pressure. You can bring it up around 450 if you want to.

S/C Roger, we have just (garbled). Thank you.

Canary Roger. We have a short flight plan update for you if you are ready to copy.

S/C Roger. We are ready to copy.

Canary Okay, this is a sunset-sunrise test and we would like you to note the following times during the next night and report on the next US pass.

Canary            That is when the sun's lower limb touches the horizon and the time that the sun's upper limb rises and the time the sun's lower limb clears the horizon.

S/C                Roger. We will get on our strong sun glass to look at that.

Canary            Say again.

S/C                We will get out our strong sun glasses to look at that.

Canary            Okay.

Gemini Control Houston Here. That apparently winds up the conversation via the Canary Station. While passing within range of Florida at that time, we did advise the people down on Pad 19 to put their switches in the safe position because we sent some commands up to 7. This is going to be an increasingly - an item that will have to be watched increasingly over the coming days because tests are going down there, the interface between this Control Center and Pad 19 has to be extremely close. At 91 hours 25 minutes into the mission, this is Gemini Control.

END OF TAPE

Gemini Control, Houston, here. 91 hours and 32 minutes into the flight. As the spacecraft moved north of the Kano station, Elliot See called them up. He wanted to check a point on the position of a certain switch, a squib, related to that fuel cell hydrogen heater. As he points out, we're so well satisfied with it, I wondered if perhaps the squib had been activated inadvertently. The crew came back that it had not, which sure makes us feel even better about that reactant supply system. The .... We have the conversation for you. We also want to advise that our musical interlude began again this morning as the spacecraft swung across the Atlantic Ocean. The first tune that went up to them was "High Hopes". Here's the Kano conversation.

HOUSTON Roger. We feel that your fuel cell hydrogen tank is performing better than expected. We wonder about the possibility that the hydrogen tank squib could have been blown at the time we used the oxygen cross-feed on the first day. Can you confirm that either way?

S/C Stand by. Negative. We have not had the bus arm switch on. It's been in place the whole time.

HOUSTON Roger, Gemini 7. Gemini 7, Houston, Gemini 7, Houston.

S/C Go ahead, Houston.

HOUSTON We'd like to try that one one more time, Frank. We feel that the bus arm switch would have been in the experiment position, at times for some of your D-4 work, and we wonder if you are certain that it was not on at the time the cross-feed was used.

S/C Houston, this is Gemini 7.

HOUSTON

Go ahead.

S/C

Elliot, we had the bus arm switch in the experiment position only twice: One was to erect the D-4, D-7 equipment; the second time was about several seconds or minute later when we jettisoned the IR and pulled IR equipment. Since that time, we put it right back into station. It's been that way ever since.

HOUSTON

Roger, Gemini 7.

S/C

That was a modification in flight plan, to leave that squib off unless it's being used, Elliot. It should have been inked in the flight plan, our's is.

HOUSTON

Roger. We understand that.

Gemini Control here again. Our orbit this morning is 170.5 miles apogee. Our perigee 127.4 miles. The musical interlude continues, and it sounds like this.

END OF TAPE

Gemini Control Houston here, 92 hours, 2 minutes into the flight with 7 high over the Australian continent. They had conversation between 7 and Carnarvon and here's that tape for you now.

CRO Gemini 7, Carnarvon Cap Com.

S/C This is Gemini 7, go ahead Carnarvon.

CRO Roger, you're looking good here on the ground. There might be Go No-Go this pass over the States because they want to reconsider the pass to support the sim flight for GT-6.

S/C Roger, understand. Go No-Go over the States.

CRO That's correct. We have nothing further for you this pass, standing by.

S/C Roger.

HOUSTON ...do you read me at this time?

CRO Rog, read you.

HOUSTON How about relaying a message for me?

CRO Rog, will do.

HOUSTON To Mr. Roy Botcham, The Australian Trade Commission, in Beiruth, Lebanon. Tell him that we said hello, will you?

CRO Roger, will do.

HOUSTON He came through MSC some time ago and he's a very fine gentleman.

CRO Roger.

Hello, Gemini 7, Carnarvon, would you give us a short test count, please? We want to monitor your script ....

S/C Roger. 1, 2, 3, 4, 5, 4, 3, 2, 1. Gemini 7.  
Get that, Carnarvon?

CRO Roger, we're going to want another count pretty soon here, stand by one.

S/C Roger.

CRO Gemini 7, Carnarvon Cap Com, would you give us a long count, please?

S/C Roger. Gemini 7, 1, 2, 3, 4, 5, 4, 3, 2, 1,  
Gemini 7.

CRO Roger, thank you, Gemini 7. We're noticing a decrease in the bus voltage on that, but it doesn't look too serious. This is during the time you transmit. No problem.

S/C .....

CRO Just started.

Houston, Carnarvon.

HOUSTON Go ahead.

CRO Roger, did you copy all that?

HOUSTON Roger.

CRO OK, we've sent in a summary message on it.  
I guess it doesn't drop too far and it comes  
right back on up.

HOUSTON Yeah, it appears to be completely normal.

CRO OK. Notice the slight changes on the VHO1  
but it sure doesn't look like much.

HOUSTON Rog.

END OF TAPE

Gemini Control Houston, here, 92 hours 34 minutes into the flight. The Guaymas station has telemetry contact with the spacecraft. We've had no voice interchange as yet. During the pass Elliot See, our capsule communicator here, will give seven a go for 75-1, a 75 revolution flight. Also the crew, out on the eastern edge of the pass will conduct an S-6 and S-5 experiment. These are synoptic terrain photography and weather photography. I think Elliot is about ready to give them a call now, so let's go to that live.

HOU FLIGHT Texas go remote.

TEXAS Texas remote.

HOU CAP COM Gemini 7, Gemini 7, Houston Cap Com.

S/C Go ahead Houston, Gemini 7.

HOU CAP COM Roger. You are go for 75-1. Standing by for your date.

S/c Roger, understand go for 75-1, thank you. Reads are all 10 28 .....0 cell 183 amps. 1A....

HOU CAP COM Gemini 7, you've cut out after 1A.

S/C 1 A -3 amps, 1 B-3 amps, 1 D-3 amps, 2 A-2 amps  
2 B - 2.5 amps, 2 C - 4 amps, How are you reading Houston?

HOU CAP COM Loud and clear.

S/C                   RCSA 2975 degrees, B 2975 degrees. Left hand secondary 02 5400 pounds, right hand secondary 02, 5300 pounds.

HOU CAP COM       Roger, and you have buss voltage?

S/c                   Roger, it's 27.5.

HOU CAP COM       Roger. I have a flight plan item here for you here. We'd like you to run a D-4/D-7 sequence 417. We're not going to schedule a specific time because we feel you can pick that the best. This is one of clouds eliminated by lightening. So, we'd like you to just pick that one up whenever you think you have a good opportunity. Do you copy?

S/C                   Roger. /

HOU CAP COM       Are you ready for the day's version of the Haney/See managed news?

S/C                   Roger, we're just starting on this S-5 run.

HOU CAP COM       That's at the Atlantic coast isn't it?

S/C                   That's coming up 92 40 here in about three minutes. Go ahead.

HOU CAP COM       Roger. Interrupt me if you need to.

S/c                   That's okay.

HOU CAP COM       The report is an important capture in Viet Nam.

HOU CAP COM           The first infantry division troops found a major Viet Nam training camp on the outskirts of the Michelan rubber plantation, including underground command bunker and complete classrooms.

S/C                    Sounds good.

HOU CAP COM           Jim, the surgeon has requested that you keep a check on your sternal ECG leads. He's getting some superior signals.

S/C                    I'll press down on it Elliot, to see if he gets any better signals.

HOU CAP COM           Okay. The Gemini 7 story today says Borman hitches GT-7 to a star. They talked about your burn yesterday primarily. In the sports area, the Oilers' Willie Frazier is out for the season with a shoulder separation and it looks like the Oilers may sign Tommy Nobis.

S/C                    Oh, dear I thought he was going to Atlanta.

HOU CAP COM           Apparently not definite yet.

S/C                    I hope he comes to the Oilers.

HOU CAP COM           Are you still holding that lead Jim? It looks okay now.

S/C                    Looks okay.

HOU CAP COM           And, the last thing is 15 shopping days until

HOU CAP COM Christmas. We gave you a wrong number yesterday.

S/C Thank you.

HOU CAP COM You don't get credit for three days in one there.

S/C Rog. Let us know how the sim flight comes out  
will you?

HOU CAP COM Sure will. We'll be reconfiguring the center right  
after this pass to work with the sim flight.

Let me know when you're finished that S-5 pass.

We've got another item.

Gemini 7, stand by for a TR update.

S/C Rog.

Gemini Control Houston, while the boys are conducting their  
photography experiments that requires both of them. Frank has to  
point the spacecraft at a proper heading and Jim is the photographer.  
Throughout several of these passes you've heard references to a map.  
This is an abbreviation which stands for message acceptance pulse.  
We send a command or any other activity up to the spacecraft in a  
split second, we get a discrete pulse back here on the ground. In  
that way we know the message has gotten there. We invariably  
verify this, by voice communications to them. Let's go back and  
listen in now and find out what's happening.

This is Gemini Control here again, still no conversation.

There goes Elliot.

HOU CAP COM A picture.

S/C Roger....

HOUSTON CAP COM Roger, have you reported the sunset and sunrise times from that special test we asked for?

S/C No, we couldn't get them it's so bright, we have to get the Polaroid and sunglasses in order to get it. We'll take a look into it.

HOU CAP COM Well, just keep it in mind and whenever it's convenient, any sunrise or sunset would be all right.

S/C Roger, .....now as a matter of fact.

HOU CAP COM Roger. How was the temperature in the cabin last night. We noticed you adjusted it up a little better. Did it seem comfortable to both of you?

S/C Rog. We're comfortable but we didn't touch the temperatures.

HOU CAP COM You did not touch it for the sleep period last night?

S/C Negative.

HOU CAP COM And you were both comfortable last night.

S/C Roger. It seems like late in the afternoon just before we go to bed it gets real hot and after we settle down in here it cools off. You get cool in the morning. Hot at night when you go to bed and cold when you wake up.

HOU CAP COM Roger. I was just wondering if Jim wouldn't like to try out that orbital flight suit just to get another data point working toward the ultimate flight suit.

S/C We will.

HOU CAP Com Roger.

S/C I'll try out Radnofsky's special suit for him.

HOU CAP COM Say again Jim.

S/C I'll try out Radnofsky's special suit for him.

HOU Cap Com Roger. We'll be very interested in your comments on it.

S/C Incidentally, Lee and I bet somebody at MCC that we'd have to turn the hydrogen heater on last night and I had to.

HOU CAP COM Roger. Looks like we're picking up all kind of goodies around here.

S/C I think it was Mr. Kraft I bet.

HOU CAP COM You say that was Mr. Kraft you bet.

HOU FLIGHT No, that wasn't you me you bet.

S/C Okay.

HOU FLIGHT I'd like to make you all kind of bets down here that we could turn on the auto heater on the hydrogen and forget it.

S/C Roger. I had it on this morning just a while and they told me to turn over Australia or somewhere.

HOU FLIGHT Roger. The people in the back room are not quite ready to do the hydrogen one but I'm pretty certain you could. How are you making out after four days?

S/C We're pretty good Chris. It's amazing the spacecraft seems to get bigger and bigger. Either we're loosing weight or we're getting used to it I don't know which.

HOU FLIGHT Very good.

HOU CAP COM Gemini 7 the surgeon would like to make a comment to you about this sternal lead again.

BERRY Jim, would you check that sternal lead pretty carefully. If you're going to put on that other garment it looks like it probably was loose. It has been going somewhat iratic still. It looks pretty good most of the time now but it looked like it was

BERRY completely loose there for a while. So you had better check that pretty thoroughly, as you're putting on that other garment. Would you do that?

S/C Roger. Checking them all right now. (Garbled.)

HOU CAP COM We didn't copy that.

S/C (Garbled)

HOU Canary's AFD

This is Gemini control. The spacecraft 7 is now gone over the hill from Bermuda and we don't expect any additional conversation. Canary should pick them up in about three to four minutes. We have some additional classical music for the crew today we plan to play during the course of the day that will include such selections as "The Last Two Movements from Symphony Five" entitled "From the New World". We'll also play "Perpetual Motion Opus Number 257" by Johann Strauss and a selection by Bach titled "Air on the G String," performed by the Philadelphia orchestra. This is Gemini Control Houston at 92 hours 50 minutes into the mission.

END OF TAPE

s/c

Roge. I'd like 76-1 again...

HOUSTON

Roger. Seventy.....

This is Gemini Control, Houston. 92 hours, 57 minutes into the mission. At 10:22 Central Standard Time, Flight Director Chris Kraft has directed the network to complete their re-configuration of equipment to support the simulated flight of Spacecraft 6 down on the Pad. This means for the next 4 to 6 hours, at least, or perhaps at most 6 hours at the outside of a guess, we will retake data from the various sites around the World on a manual basis; that is the data will be summarized on a teletype, in a teletype message format and will come into the various sites in that form. This is very similar to the way we handled data during the Project Mercury series. AT 92 hours, 58 minutes into the flight with the spacecraft over the Canary Islands; there is no voice activity in this pass. We are standing by to pick up the first abort runs and ascent runs with Spacecraft 6 now on Pad 19.

END OF TAPE

This is Gemini Control here at 93 hours 37 minutes into the mission. The spacecraft 7 is over Australia. During the Carnarvon pass we had this conversation.

Carnarvon Gemini 7, Carnarvon.

S/C Roger, Carnarvon.

Carnarvon Okay, we have you go here on the ground. We have one message for you. We would like to move your purge back from Bermuda to Texas. The Texas Cap Com will advise when to start the purge. Did you copy?

S/C Roger. They have moved the purge from Bermuda to Texas. Texas Cap Com will tell us when to start the purge.

Carnarvon That's affirmed.

S/C Roger. We will be standing by for the Texas call.

Carnarvon Roger. Carnarvon.

Flight Go ahead Carnarvon, HFD.

Carnarvon Okay, everything looks good on the ground. He is in pulse mode and we are getting a lot of yaw left bearings.

Flight Roger, pulse mode.

Carnarvon Gemini 7, Carnarvon.

Flight Go ahead Carnarvon.

Carnarvon Roger, we are getting a lot of drops on the C-band this track.

Flight Okay. Copy. Still in the pulse mode?

Carnarvon That is affirmative. Still thruster firings.

Flight Okay, what does your attitude show on the ground?

Carnarvon Well, I don't really know that.

Flight What about your meters?

Carnarvon We don't have a platform.

Flight That's right

Carnarvon Carnarvon has had TM LOS.

Flight Roger Carnarvon.

Carnarvon That was real terrible on the C-band track there and we had a lot of thruster firings all the way through our pass, even in the pulse mode, that is the most thruster firing we have seen.

Flight Oh.

END OF TAPE

This is Gemini Launch Control at the Cape. We have a status report for you on our progress at Launch Complex 19. Some 16 minutes ago, the simulated flight test, one of the final milestone tests for the Gemini 6 rendezvous mission started. The first run was concluded just a matter of minutes ago. This was a Mode 2 abort run where, after lift-off at zero, a Mode 2 abort occurred in simulation. 1 minute 40 seconds after lift-off. The backup pilots for the Gemini 6 flight, Astronauts Gus Grissom and John Young were in the spacecraft observing the various spacecraft dials and confirming that the abort had occurred in the various functions that follow in the abort sequence. We actually ran two abort runs early this afternoon. On our first attempt a procedures problem, no problem with any mechanical no technical problem whatsoever, but a procedures problem occurred which required us to make the run over again. On our second attempt which occurred with a lift-off at 12:07 p.m. eastern standard time, we ran through the complete sequence and all our checks have shown that this run was very satisfactory. We will now recycle for the second run of the day in the simulated flight which will be a guidance switchover test. It will pick up at the T-45 minute mark in the countdown some 45 minutes from now as we go in a recycling process in the blockhouse at launch complex 19. We finished up our check on the spacecraft computer earlier this morning at about 10:30 a.m. eastern standard time. We had completed them and all checks with the new computer, in the spacecraft were satisfactory. We have started our sim flight and all is looking good at Launch Complex 19 at the present time. We will give further reports from the Cape as the progress of the sim flight continues. One final point, Astronaut Wally Schirra and Tom Stafford, prime pilots for the Gemini 6 mission are expected to come aboard the spacecraft some 10 or

15 minutes from now. They will be fully suited and will participate in the first 4 hours or so of the sim flight. The sim flight in all could last as short as some 8 hours and it could be as lengthy as some 12 or 14 hours, as we go through all the various functions and checks in this important test. This is Gemini Launch Control at the Cape.

END OF TAPE

This is Gemini Launch Control at the Cape. Our status at Complex 19 continues to go smoothly. We've started out simulated flight test some 31 minutes ago; and at 31 minutes past the hour, the pilots for the Gemini 6 mission, astronauts Wally Schirra and Tom Stafford, boarded the Gemini 6 spacecraft and they will participate in this simulated flight test for some 3 to 4 hours inside the spacecraft. They just came aboard, and they will make some brief checkouts before starting their participation. They will be relieved later in the day by their back-ups again, astronauts Gus Grissom and John Young. We are still some thirth minutes away from picking up the countdown for our second run in the simulated flight. That will be a 45 minute count down leading up to a switch=over guidance test during powered flight. We're still some 30 minutes away from picking up the count, but we have the prime pilots aboard, fully suited. This is Gemini Launch Control at the Cape.

Here is Gemini Control in Houston, again. Meanwhile, the 7 spacecraft, swinging across the Pacific Ocean over Canton Island. Elliot See called them up, and here was the conversation.

HOUSTON Gemini 7. Gemini 7. Houston Cap-Com.

S/C I can't read.

HOUSTON Roger. Would you notify me when you do?

S/C Roger. This is Gemini 7. Go ahead.

HOUSTON Roger, Seven. Would you turn your DCS circuit breaker off and leave it off until further notice.

S/C ... (Garble) ...

HOUSTON Roger. Did you copy?

S/C Roger. DCS circuit breaker is off.

HOUSTON Roger. And we'll be doing a manual tape dump when you come to the U.S.

S/C Can you read Gemini 7?

HOUSTON Weak, but clear, go ahead. Gemini 7, did you copy?  
Gemini 7, Houston Cap-Com. Did you copy?

S/C The DCS power circuit breaker is off, Houston.

HOUSTON Roger.

CTN This is Canton.

HOUSTON Go ahead.

CTN This is Canton. Houston are you copying Canton?

HOUSTON Roger.

CTN Okay. We can't report LOS because we never had an AOS. WE had no beacon, no TM, and no pointing data.

HOUSTON You're in bad shape.

CTN Roger.

HOUSTON We're in good shape now. I just had that one little message I wanted to get to them, and they received it okay.

CTN Okay. Roger

HOUSTON Thank You. Thank you Canton. Go local.

END OF TAPE

This is Houston here at 94 hours 9 minutes into the flight. The spacecraft has just touched the West coast of Baja, California. Texas is talking to them now and they are about to start a fuel cell purge. Let's listen as they move across the States.

Guaymas Flight, Guaymas.

Flight Go ahead, Guaymas.

Guaymas We are showing activation of DCS abort light on the ground.

Flight Yes, that is because your circuit breaker is off on the .  
DCS.

Guaymas Very good, thank you.

Flight Roger.

This is apparently going to be an extremely quiet pass. If something occurs, we will come back to you. This is Gemini Control Houston out.

END OF TAPE

GEMINI CONTROL That was Chris. He is talking to Seven at this time. They have completed the purging of the fuel cells. I believe Elliot See is going to have a few things to say. We'll bring the circuit back up live.

HOUSTON Would you move your selector switch to fuel cell O2 now, please. Gemini 7 will you move your selector switch to fuel cell H2 now.

S/C Roger:

HOUSTON Gemini 7, we've got good readings. Would you turn your switch to the off position. We are standing by.

S/C Thank you, Texas.

HOUSTON Gemini 7, Houston.

S/C This is Seven. Roger.

HOUSTON Are you doing your photograph now, Jim, on the S-5?

S/C This is....We couldn't take the picture, Elliot. It was cloudy over the Mississippi Delta.

HOUSTON Roger. Okay. Would you get your.....We want to do a manual tape dump here. Would you place your stand-by TM switch to "Delay Time".

S/C Roger. Stand-by is on "Delay Time".

HOUSTON Place your tape play back switch to "Continuous".

S/C Tape play back is on "Continuous".

HOUSTON And you can get out your flight plan update book. I've got two items for you.

S/C Roger.

HOUSTON For your information, the Spacecraft 6 sim flight is underway.

S/C Roger. We just passed over the Cape and with our telescopic, we see them working on 19.

HOUSTON Very feverish activity, isn't it?

S/C Right.

ANTIGUA Acquisition, Antigua.

S/C Okay. Go ahead with the update.

HOUSTON Roger. That first item is a deletion. D-9 at 961135 is deleted.

S/C Roger. I understand that D-9 is deleted.

HOUSTON We'll get that later today. A new one in that same area there, is D-5 961300, Test #2, and I have the instructions for that test when you're ready to copy.

S/C Go ahead.

HOUSTON Okay. Number 1, Calibrate on Vensus. Number 2, If calibration successful, release the cal button. Track to occultation, and report number of gain wheel turns to maximum from the calibration setting. Do you copy?

S/C Roger. We have it.

HOUSTON Step 3, If normal calibration not successful, repeat calibration without depressing cal button. Track Vensus for 15 seconds. Move and count gain wheel turns to maximum. Continue tracking to occultation, and report results. Do you copy?

S/C Roger. Got it.

HOUSTON Caution. Ground equipment tests show that sunlight on the photo tube can have an adverse affect even with the power off. So, we'd like to advise you to keep the unit out of the sunlight at all times, or any bright light.

S/C Roger. Understand.

HOUSTON Like to advise you that the weather is marginal for your MSC 4 pass on White Sands, on the next revolution. We hope to try to get you a weather update on this at Carnarvon. So, we might be able to tell you just not to unstow the gear.

S/C Rog. It's a shame. We're looking forward to that.

HOUSTON Roger. So are we. That's all I have right now. We're standing by for completion of the manual tape dump. We'll call you on that in just a minute. You haven't had a chance to try out that flight suit, have you?

S/C Not yet, Elliot. I'll probably stick it on this evening. How's that?

HOUSTON I beg your pardon.

S/C I'll try it this evening. How's that?

HOUSTON Roger. Whatever's convenient to you, Jim. Would you place your tape play back switch to "Command".

S/C Tape play back, "Command".

HOUSTON Stand by TM switch to "Off".

S/C Stand by's at "Off".

HOUSTON Roger.

HOUSTON FLIGHT Frank, this is Houston Flight. How are you this morning?

S/C Very good, Chris. Very good.

HOUSTON FLIGHT I talked with Sue a little while ago. She thinks you're doing great.

S/C Thank you. No, we're all in good shape. We're waiting until Six comes out.

HOUSTON FLIGHT Yea. That's what she's looking forward to, also. Jim, I'd like to advise you that Marilyn apparently came by the Control Center here last night and watched from the VIP room and nobody knew she was here.

S/C Kind of sneaky.

HOUSTON FLIGHT Roger. They're all over having coffee this morning.

S/C Having withdrawal symptoms on coffee.

HOUSTON FLIGHT They've been monitoring all the squawk boxes that we've got over there, and they're both very happy about that.

S/C Nice set up, then.

HOUSTON FLIGHT So, we'll see you after lunch on the next revolution.

S/C Roger.

This is Gemini Control again. That apparently wraps up the conversation for this Stateside pass. The flight plan shows the crew program to start an exercise period in the next few minutes. This would continue for 10 or 15 minutes; then roughly over the Canaries, a little south of the Canaries, they're to start eating lunch. They'll finish lunch over Hawaii. There are no additional flight plan activities programmed for them as they swing through this next night side which will begin between Kano and

Tananarive, and extend through and well beyond Carnarvon. Here's Elliot with another advisory.

SEE                   And the reason is because of the Spacecraft 6 tests that are going on.

ANTIGUA               LOS Antigua.

                      At 94 hours, 24 minutes into the flight of Seven, this is Gemini Control, Houston.

END OF TAPE

This is Gemini Launch at the Cape. Our simulated flight test is running smoothly at this time. At two minutes past the hour, we picked up the countdown for our second run in the sim flight. This will be a 45 minute count. We are at the 42 52 mark in the countdown and all is proceeding normally. On this second run it will be a guidance test of both the spacecraft and the launch vehicle. When we reach 0 in the 45 minute countdown, we will receive a liftoff. Fourteen seconds after liftoff guidance failure will be simulated and the space vehicle that is, both the spacecraft and the launch vehicle will make a switch over to the secondary guidance system. At the 34 minute mark in the pilot flight on this second run, we will switch back to primary guidance and then again get a switch over at the three minute and 28 second mark of powered flight when the pilots in the spacecraft, Wally Schirra and Tom Stafford will once again switch to the secondary guidance mode. In this test we are able to check the switch over from primary to second guidance and see it occur in both stages of the launch vehicle. Our count is going normally at the present time. Our next report will occur at successful completion of the second run. This is Gemini Launch control at the Cape.

END OF TAPE

Gemini Control Houston here, 94 hours 51 minutes into the flight of Gemini 7. The spacecraft is over Tananarive and we do not expect any communication during this period. In the course of the last 15 minutes in conjunction with the various tests we have been pulling with Pad 19, Elliott See, our Capsule Communicator here, called the Gemini 6 spacecraft on one of the circuits available. The conversation went like this and CML is Wally Schirra, crew member 1, and CM2, or crew member 2, is Tom Stafford. Let's hear the conversation now.

Houston Cap Com Gemini 6, Houston Cap Com. How do you read?

Schirra Cap Com, Gemini 6, how do you read?

Houston Cap Com Roger, read you loud and clear. Gemini 7 just came over a few minutes ago and said they saw you working down there.

Schirra Very good. Nice clear day here.

Houston Cap Com Houston would like to check on CM2 also.

Stafford Houston, this is CM2. Read you loud and clear.

Houston Cap Com Roger, read you the same. We are looking forward.

Stafford Roger.

END OF TAPE

This is Gemini Control Houston here, 95 hours 13 minutes into the flight. We just had conversation through the Carnarvon Station. The burden of it was that officially we are scrubbing the MSC-4 experiment, the Lacer experiment, this time, but it is on an if can basis, it will be left up. The status is that the weather is marginal out in New Mexico and more than that the spacecraft at point of closest approach would be some 250 nautical miles from the ground station so the reading is White Sands will go ahead, power up their equipment and they will send the beam up there if, by chance, the spacecraft sees it, they will vector in on it and track. However, the likelihood of a contact is quite rare, it is really not expected. Lovell was advised of this and earlier he has indicated that he is anxious to try this experiment for the first time which has been defeated largely by weather now for three attempts that have been scheduled. That is the only activity set up this time across the States. After they leave the States over Ascension, they will perform a D-5 experiment, a star occultation experiment, using the eye device that has given us a little trouble in the past. We understand it's operation somewhat better now and they will take another wack at betting readings on about 6 stars and tracking them very precisely as they go over the horizon. If the White Sands experiment is successful, it could start at approximately 11 minutes after the hour, or about 30 to 45 minutes from now - 25 minutes from now. I'm sorry. We have the Carnarvon conversation and we will play it for you now.

S/C This is Gemini 7, go ahead.

Carnarvon Roger. We would like to have you turn your TM switch to the real time at acq 8 position please.

S/C TM to real time at acq 8.

Carnarvon Okay, we've got it. Would you turn your adapter C-band to continuous please.

S/C Adapter C-band on continuous.

Carnarvon Okay. At elapsed time 95 hours 16 minutes 00 seconds, we would like for you to turn your adapter C-band switch to command. This will allow Woomera to track you.

S/C Understand. At 95 16 00 turn adapter C-band to command, is that correct.

Carnarvon Affirmative.

S/C Roger.

Carnarvon Also I have some information for you about your MSC-4.

S/C Roger, go ahead.

Carnarvon Okay. The MSC-4 has been scrubbed. White Sands will bring up their equipment and track you. If you see it, go ahead. But don't use a lot of fuel because it is a good long way away from you on this pass.

S/C Roger, I understand. MSC-4 officially has been scrubbed, but we will look for the beam.

Carnarvon Rog.

Flight Tell them that the weather is pretty bad.

Carnarvon The weather is pretty bad also, 7.

S/C Understand.

Carnarvon We have you solid on the ground. Before we have LOS we

will call up and tell you when to turn your TM switch  
back to command.

S/C

Roger.

Carnarvon

Everything looks real good here Flight.

Flight

Roger.

Carnarvon

Gemini 7, Carnarvon.

S/C

Go ahead.

Carnarvon

Okay. You are still looking real good here on the ground.

You can turn your TM switch to command position.

Okay, we have you anything, we will be standing by. We

have a couple of more minutes in acquisition.

S/C

Roger.

Carnarvon

Carnarvon.

Flight

Go ahead.

Carnarvon

Okay, everything looked real good here.

S/C

Carnarvon, Gemini 7.

Carnarvon

Go ahead Gemini 7.

S/C

Would you relay to the Flight in Houston please the following

times. Sunset, the lower limb across the horizon, 93 10 57.5.

The upper limb, 93 11 15.5. Did you get that.

Carnarvon

Roger. Copy.

S/C

Sunrise, the upper limb across the horizon, 93 42 34.5,

the lower limb at 93 43 22.0.

Carnarvon

Roger, copied.

S/C

Thank you.

Carnarvon

Roger Gemini.

Flight

What was that first number. 93 10 what?

Carnarvon 93 10 57.5.

Flight Roger. I copied.

Carnarvon Did you copy all of those Flight?

Flight Affirmative.

Carnarvon Okay.

This is Gemini Launch Control at the Cape. This is our present status on the simulated flight test at Launch Complex 19. All is proceeding satisfactorily at the present time. On our second run in the simulated flight this afternoon, we had a lift-off at 1:37 p.m. eastern standard time after a 45 minute countdown. Our guidance run was conducted and a 20 minute debriefing and a check of all systems gave us a go for this second run. The second run looks good from the preliminary data we have, of course, all of this is subject to complete data review that is conducted simultaneously. During this second run, after the 45 minute count, we had a lift-off, a switchover to our secondary guidance system at 14 second, we switched back to primary guidance at 2 minutes and 34 seconds, and the pilots in the spacecraft, Wally Schirra and Tom Stafford, once again switched to secondary guidance at the 3 minute and 20 second mark of powered flight on this second simulation. A check of all our data in real time gives us the belief that we had a good run. We are considering that it is satisfactory, once again, subject to a complete data review and we are in the process of recycling now for the third and final run of the simulated flight. This third run will pick up after a recycle period of about 45 minutes. It will pick up at the 3 minute mark in the countdown. We will have a normal powered flight and insertion into orbit and from that point a series of orbital and reentry exercises will take place. This final run is the longest of the simulated flight operations. It lasts from 5 to 6 hours. It is the prime pilots, Wally Schirra and Tom Stafford are still in the spacecraft suited up. Later in the day they will be relieved by their backups, Gus Grissom and John Young. All looking good on the simulations. This is Gemini Launch Control at the Cape.

And this is Gemini Control Houston, 95 hours 41 minutes into the flight. Elliott See has just called the Gemini 7 spacecraft through California and while he is not saying anything right now, we are going to stand by and see how that MSC-4, if anything develops there on our Laser experiment. We will cut in there live now and then we will have a long flight plan update, perhaps during the end of this pass. Spacecraft 6, Wally Schirra and Tom Stafford, on the pad may talk with the 7 crew as they go over the Cape. Let's tune in and listen.

Cap Com Can you tell anything about the weather, Gemini 7.

S/C Yeah, it looks like it might break up right before that.

Cap Com Very good.

Cap Com Gemini 7, Houston. Any joy?

S/C No joy.

Cap Com Roger. Place your standby TM switch to delayed time.

S/C Delayed time.

Cap Com We have a flight plan update for you when you are ready to copy.

S/C Okay, stand by. Too many clouds, Elliott.

Cap Com Roger, understand.

S/C Go ahead, Elliott.

Cap Com Roger. Incidentally, toward the end of this pass, spacecraft 6 wants to try to talk to you. We will try to work that in. Node, 96 54 45, rev 61, 154.2 degrees east, right Ascension 11 50 56. Do you copy?

S/C Roger.

Cap Com S-6, 97 16 46, sequence 10, pitch 30 degrees down, yaw 0 degrees. MSC-2 and 3, 97 40 00, sequence 02, off at

112 00 00, D-9, 97 41 34, sequence 01, mode 02, time  
98 14 00, purge fuel cells at Carnarvon. Do you copy?  
S/C Roger.  
Cap Com HF, 98 20 00, sequence 01, test stop at 99 50 00, time  
98 54 00, crew status report on the Command Pilot at  
Texas. Place your tape playback switch to continuous.  
Did you get that 7.  
S/C That is tape playback to continuous, and on the HF test  
that was stop at 99 50 00?  
Cap Com Roger. Did you get the next item?  
S/C Roger, I have the crew status.  
Cap Com Roger: Time, 100 05 00, cabin temperature survey, time  
100 15 00, crew status report on the Pilot at Hawaii.  
Time 101 32 00, PLA update at CSQ. Time 101 50 00,  
fuel cell purge at Hawaii. Time 102 00 00, bio-med  
recorder number 2 continuous, off at 112 00 00. Do  
you copy.  
S/C Roger.  
Cap Com We are still working on the dump now, Gemini 7. Gemini 6  
can call you in here if they make it brief.  
S/C Standing by for 6.  
Cap Com Gemini 7, one more message for you. Place your - and this  
is at a time 96 27, place your adapter C-band to command.  
S/C At 96 27 adapt to C-band command.  
Cap Com Roger.

Gemini 6 Gemini 7, Gemini 7, this is Gemini 6 on the ground. Do you read, over.

S/C Roger, read you loud and clear Gemini 6. Go ahead.  
Gemini 6 this is Gemini 7, go ahead.

Gemini 6 Gemini 7, this is Gemini 6, we do not read you. We will switch over and see if we hear you there.

S/C (Borman) Gemini 6, this is Gemini 7. How do you read?

Cap Com Apparently they are not reading you, 7.

S/C (Borman) Okay. We read them.

Cap Com Roger.

S/C (Borman) Not too loud or clear, but we read them.

S/C (Lovell) Roger, this is Gemini 7, we do not read them, we read you Flight and Cap Com.

S/C (Lovell) Very good. We will get a little closer range next time.

Cap Com Gemini 7, Houston.

S/C Go ahead, Houston.

Cap Com CM3 says you are just now passing his retro time.

S/C Roger, that figures.

Cap Com CM3 also reports that they did not have to stop at Brookley on the way back.

S/C Roger. We might have to.

Cap Com Place your tape playback switch to command.

S/C Command on the tape playback.

Cap Com Gemini 7, Houston. Your orbit today is 127.5 by 170.7.

S/C Roger, thank you. Elliott, what time do you want us to turn the C-band adapter back to command please?

Cap Com Is that the one I gave you a minute ago. Right, that's

96+27.

S/C Thank you.

Cap Com Gemini 7, place your standby TM switch to off.

S/C Off.

Cap Com Gemini 7, would you turn your Acq aid beacon on.

S/C Beacon circuit breaker on.

Cap Com Understand, acq aid circuit breaker on.

S/C Roger.

Cap Com Gemini 7, Houston. Is the music coming in okay today?

S/C Loud and clear. Thank you Kraft Music Hall.

Cap Com Roger. The Director just took a bow.

This is Gemini Control Houston. Grand Turk advised they have had LOS or loss of signal. Clear up one or two references. During the communication, apparently the hearing wasn't too good from the 6 spacecraft atop it's booster on pad 19. The 7 crew said that they could hear their transmissions. They were weak but readable. Their references to CM3 were to Ed White who was backup Command Pilot for the 7 mission. Among other things Ed White wanted to point out as they passed across the Cape that the 7 crew was moving through approximately the retrofire time that Ed White and Jim McDivitt had on their Gemini 4 flight at that precise moment. A few propellant readings and quantities here that we picked up from our E-con panel, the onboard fuel now shows this approach from our guidance and navigation control officer who monitors the fuel usage. We are showing 62 percent remaining. That would be about 240 pounds of usable fuel. Breathing oxygen shows 88.5 percent remaining, fuel cell oxygen 80.3 percent, fuel cell hydrogen, 86 percent. Cabin temperature has been

running steady at 70 degrees F. It was also about this time in the Gemini 5 mission, roughly 100 hours where we began to notice some sticky thruster action. We suspected after that flight that the coldness of the thrusters might have had something to do with it. The thrusters during the 5 mission were running down around 20 degrees. In this mission, we have seen no stickiness at all, no sluggishness in the thruster action and the thruster temperatures, that is the thruster temperature immediately behind the thruster inside the adapter sections have consistently run between 60 and 80 degrees while not being used. When they are being used, or during a period of attitude control, the temperature sometimes gets up into the 80 to 100 region. All in all, we are very well satisfied with the thruster action as well as with every other system aboard that 7 spacecraft. At 96 hours and 1 minute into the flight, this is Gemini Control Houston.

END OF TAPE

This is Gemini Launch Control at the Cape. Our simulation is continuing at Launch Complex 19 and all looks good on this flight test. We have just completed the powered phase of our third and final run. We picked up our count at 2:48 p.m. EST and three minutes later we had our launch at 2:51 p.m. EST. Astronauts Wally Schirra and Tom Stafford, in simulation, have now been inserted into orbit and they will proceed to go through a lengthy series of orbital exercises and reentry checks. This final operation in this sim-flight is the most lengthy one, the astronauts will go from five to seven hours before it is completed. When the prime pilots, Schirra and Stafford, decide that they have spent enough time in the spacecraft, they will be relieved probably a little later this afternoon by their backups, Gus Grissom and John Young. Grissom and Young will not be suited when they board the spacecraft. All is looking good on the simulation at Launch Complex 19 at the present time. We will have further reports as they develop. This is Gemini Launch Control.

END OF TAPE

Gemini Launch Control at the Cape. Our simulated flight continues to run excellently on Launch Complex 19 at the present time. We have completed the simulated powered phase of our third run as reported earlier. Following insertion into orbit during the simulation on this third run, astronauts Wally Schirra and Tom Stafford ran through a series of communication checks and all their communication modes, both with the Blockhouse at Launch Complex 19 and Mission Control in Houston. Following completion of that successful test which is the first phase of the lengthy third run, astronauts Schirra and Stafford have just got out of the spacecraft. They came out at 26 minutes past the hour and in a few moments, their back-ups, Gus Grissom and John Young will board the spacecraft to continue the tests. All is looking well at the present time as we continue. If the third run continues along this manner, as the whole sim flight has this afternoon, we would expect to end about 10:00 p.m., or so, 10:00 p.m. Eastern Standard Time, tonight. All is looking good on the sim flight at the present time. The prime pilots are out after being in the spacecraft for some three hours; and their back-ups are now about to board the spacecraft to continue the tests. This is Gemini Launch Control.

END OF TAPE

This is Gemini Control at Houston at 97 hours 15 minutes into the flight. Both the Carnarvon station and the Hawaii pass were relatively quiet. During the past 20 minutes barely more than an acknowledgement from the ground to spacecraft and the fact that everything looked good both places. In the last 15 minutes, the wife of the command pilot, Susan Borman, and the wife of the pilot, Marilyn, have come into the Control Center. They are seated in the first row of the, what we call the, viewing area, immediately behind the Missions Control Room. Susan's out in the edge of her seat, getting ready for this first Stateside pass that they have witnessed live. Also with them is Dave Scott and his wife, Lurton Scott. Dave will be the pilot on the Gemini 8 mission which is scheduled for a rather major EVA exercise. Our contact with the spacecraft has been established through Guymas. We expect a relatively quiet pass again, but we'll tune in there and see what develops. Gemini Control here. All quiet to this point. The flight team is coming on the floor, going through the normal change of shift briefings.

HOUSTON           ... have them turn off the acq aid beacon circuit breaker, please.

GUYMAS           Roger. Gemini 7, Guymas Cap Com.

S/C               Go ahead Guymas.

GUYMAS           We'd like for you to open the acq aid beacon circuit breaker.

S/C               Roger. She's open.

GUYMAS           We've opened beacon, Flight.

HOUSTON           Roger.

The flight plan calls for the crew to conduct an S-6 photographic experiment during this early portion of the pass, that's a weather photography experiment. Here's some conversation

S/C Roger, Houston. This is Seven.

HOUSTON We have some flight plan update information for you. And, also, Flight suggests you say something pleasant. WE have a couple of girl friends of yours here.

S/C ....(garble)... food box.

HOUSTON California to local. Texas remote.

TEXAS Texas remote. ... (Garble)...

CALIFORNIA California local.

HOUSTON It turned out that was bum dope we had. She was not here last night. This is her first visit.

S/C Roger.

HOUSTON Let me know when you're ready to copy.

S/C Roger. We're right over Southern New Mexico right now and everything looks beautiful.

HOUSTON Roger. Are you ready to copy?

S/C Right, Elliot. Shoot away.

HOUSTON D-5, 995000. Test #3...this is another test to try to trouble shoot that instrument. An MSC 12 ground observation .... run on the water. Spacecraft pointing away from the sun. See if instrument will calibrate. Record number of turns of gain wheel from calibration point to maximum. Do you copy?

S/C Roger. And, you had the results of our previous test, didn't you?

HOUSTON That's right. We did. That's what led to this one.

At time 14800 flight plan report at the RKV.

S/C Roger. Elliot, this is Frank.

HOUSTON Go ahead.

S/C I think we ought to try this test, but I'm pretty well convinced that we've got a defective instrument. I hate to keep wasting fuel on it.

HOUSTON Okay. I'll feed that comment in, Frank. They still are working on analyzing it here; and apparently do not understand it completely, because they're still asking for these tests, but I'll pass that comment on.

S/C Okay. We'll make this one, but we haven't had any luck with any of the tests so far and we don't have a lot of fuel to waste.

HOUSTON Roger. Gemini 7, Houston. Would you give us a propellant quantity reading.

S/C Glad to. We're reading 54%.

HOUSTON Roger, 54%. I've been talking to Spacecraft 6 during the sim flight making the Com checks. Everything's looking real good.

S/C Can they read us at all?

HOUSTON They apparently did not read you at all. I read them, and I read you, both, very well. And, I understand you read that.

S/C Roger.

HOUSTON Okay. Here are some more instructions to go with this Test #3.

S/C Elliot, do you have any idea when you plan to have us circularize?

HOUSTON Roger.

KRAFT Let me talk to him a little about that.

HOUSTON Chris will talk to you....wants to talk to you on that, Jim.

S/C Roger.

HOUSTON They're still trying to make Sunday at the Cape, Jim; and we're going to talk this thing over tomorrow around noon regarding the results of the sim flight, both on the spacecraft and the launch vehicle, and try to make a decision at that time. You have to make a burn approximately 3:41 Central Standard Time, so that'll give us plenty of time to get you ginned up. We're also thinking about having you bring up the platform at that time, because we want to take a look at a higher amperage reading on the fuel cells to get a little better look at the EI curve.

S/C Roger. Understand.

HOUSTON Also, it turned out that if we go....If we decide not to go for the 8th day and go for the 9th, that the maneuver came out in the middle of your sleep period; and we're probably going to reshape that thing so that we do two sets of maneuvers: one before you go to sleep, and one after you wake up.

S/C Well, that's very considerate.

HOUSTON And the way we're going to do this thing is do two maneuvers. We'll bring up perigee and then bring down apogee within the fuel budget we have.

S/C Roger.

HOUSTON Gemini 7, you have a TX coming up in about a half a minute.

S/C Roger. And, is that the finish of the flight plan update?

HOUSTON Negative. I've got a little bit more here.

S/C Have received the TX.

HOUSTON Roger, Seven. And, for your information, if we don't circularize tomorrow, if we go for a Monday launch, we'll be circularizing you on Sunday.

S/C Roger.

HOUSTON Are you ready to copy these additional instructions here for the Test #3?

S/C Roger. Stand by. Go ahead.

HOUSTON When you try to calibrate on this test, if you get no calibration, here are the instructions. If the reticle stays green, put a hand over the objective lens, and see if the color changes. If the reticle stays red, remove the day filter leaving the photometer in the day position, and try to calibrate on the water. Do you copy?

S/C Roger. We copy.

HOUSTON Okay. I think we're about to run this down, and I think this test should certainly wind it up.

S/C We have it. We'll try it.

HOUSTON Roger.

This is Gemini Control here at 97 hours, 31 minutes into the flight. When Elliot See suggested the crew say something nice for two distin-

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guished visitors here, the two visitors, the wives of course, were convulsed by Jim Lovell's remark, "Bah, Humbug". They sat very tentatively through the rest of the pass. They are remaining in the Control Center. The tune going up to the spacecraft as it swung down across the States on that pass was "Near You". This is Gemini Control, Houston.

END OF TAPE

This is Gemini Control. We are now 99 hours and 20 minutes into our flight of spacecraft Gemini 7. At the present time the spacecraft is passing over the South Atlantic on its 63rd revolution around the earth. During the past hour and one half while our red team of flight controllers was holding a press conference we monitored voice conversation from Carnarvon, Hawaiian, Guaymas, Texas, and Rose Knot tracking stations. And at this time we will play back the taped voice communication from those stations.

FLIGHT                    Carnarvon CAP COM, Houston flight standing by for your pass.

CARNARVON                Okay, Carnarvon.

FLIGHT                    Go Carnarvon.

CARNARVON                Roger, we haven't received message from network saying we're sending real time data from their 20 49 Zulu.

Are we clear to send in data?

FLIGHT                    Affirmative.

CARNARVON                Roger. We have a TM for you.

FLIGHT                    Roger, Carnarvon.

CARNARVON                Gemini 7 Carnarvon.

S/C                        Roger Carnarvon. We were expecting you.

CARNARVON                Roger. We are ready for your fuel cell purge.

S/C                        Coming down

CARNARVON                Looks good flight.

FLIGHT                    Roger. We have your sum.

FLIGHT                    How is the Purge looking Carnarvon.

CARNARVON: Purge looking good, Flight.

FLIGHT: Roger. This is the last pass of the day for you.

CARNARVON: That's affirmative. Everything seems to be going pretty good, hu?

FLIGHT: Roger. You still got Baker Baker zero four?

CARNARVON: That's affirmative. It's bright red looking right at us.

FLIGHT: Okay, I think we ought to turn that one green.

CARNARVON: Yea, I'd like to.

FLIGHT: Is there any change in you heat exchanger outlet temperatures when you are purging BCO3 and BB05?

CARNARVON: Ci.. said he hadn't noticed the fact, Flight. About 70 or 75 degrees, Flight.

FLIGHT: Okay.

CARNARVON: About 70 or 75 degrees, Flight.

FLIGHT: Okay, that's about what they have been reading all day.

S/C: Come in please, Carnarvon.

CARNARVON: Roger. Can we give a quality readout to you for position to ECS O<sub>2</sub>?

S/C: Garbled . . .

CARNARVON: Okay, fuel cell O<sub>2</sub> please.

S/C: Roger.

CARNARVON: Fuel cell H<sub>2</sub> please . . . garbled . . . to off position.

S/C: . . . garbled . . .

CARNARVON: You are still looking good here on the ground. We're on our last pass of the evening, we we will be seeing you tomorrow.

S/C Well okay. Thanks very much.

CARNARVON Roger. Flight, everything looks good. We got the complete cryo readout.

FLIGHT Okay.

CARNARVON Purge looked real good, Carnarvon.

FLIGHT Roger, Carnarvon .

CARNARVON If you want the ECS O<sub>2</sub> we have them for you.

FLIGHT Okay, give them to me.

CARNARVON Okay, ECS 87.3. Theses are 12 18 readings.

FLIGHT Okay.

CARNARVON Fuel cell O<sub>2</sub> 79.8, Fuel cell H<sub>2</sub> 84.4.

FLIGHT Got them, thank you.

CARNARVON Roger.

FLIGHT We are going to be sending another on your way shortly.

CARNARVON Do they look pretty good, Flight.

FLIGHT Yea, they are going through some flight without any problems, looks like.

CARNARVON Well, real good.

FLIGHT Let's see if you guys are over trained.

CARNARVON I don't know. Do you have a relief on the Hawaiian voice tape?

FLIGHT Standby one, I'll check. No release yet Stu.

CARNARVON Rog.

FLIGHT Have a good night.

CARNARVON You mean a good day, don't you Gene?

FLIGHT That's right. That's what I mean.

CARNARVON Okay, we'll see you tomorrow Gene.

FLIGHT Okay. I'm going to miss you guys. Won't even have a pass with you tomorrow.

CARNARVON I doubt it. We're getting later and later ones.

FLIGHT Maybe we will see you tomorrow.

CARNARVON Might catch a little bit - overlap a little bit.

FLIGHT Roger.

FLIGHT Hey, the White Team says, "Good night and good day to Australia".

CARNARVON Roger.

FLIGHT Hawaii CAP COM, Houston Flight.

HAW Hawaii CAP COM.

FLIGHT Have that come back on. Have him give me the first reference he quoted in the flight plan.

HAW Okay. I got it in my book it will take just a second. Section 3. First one is . . .

FLIGHT Okay, I've got the power down check list here now and . . .

HAW Let me make sure I've got the right page.

FLIGHT Page 8.

HAW Page 8, that's right. You want the other one?

FLIGHT Go ahead.

HAW 32, normal power down.

FLIGHT What section, Ed?

HAW C Section.

FLIGHT Okay

HAW It's not mentioned . . (garbled).

FLIGHT Think this has to do with your sight problems, Ed.

HAW What did you say?

FLIGHT Do you think this has to do with problems you had on sight, Ed.

HAW I'm sure trying to find the whole thing out. We got into a little discussion that it might have been the position of the spacecraft at the time when we had the drop out.

FLIGHT All right, you know that a bad map can carry certain angles off the water.

HAW I want to make sure that we do not have a ground problem. We are trying to figure out maybe the antenna failed and then we got to thinking into it and I really couldn't tell which antenna we were on.

FLIGHT Okay. During your pass, why don't you ask them what position his antenna select switch is in?

HAW Okay. Very good. Thank you Gene.

FLIGHT Roger. You'll be on HF this pass won't you?

HAW Say again.

FLIGHT You know you will be transmitting and receiving on HF this pass.

HAW We are going to work HF, yes.

FLIGHT That's affirmative.

HAW Okay.

HAW Hawaii here, C-band. Hawaii here, C-band track.

FLIGHT Roger, Hawaii.

HAW This is 3,4,5, 5, 4, 3, 2, 1  
TM solid.

FLIGHT Roger, HAW.

HAW Gemini 7, Gemini 7, Hawaii CAP COM. Gemini 7, Hawaii  
CAP COM on HF.

HAW Flight, Hawaii.

FLIGHT Go Hawaii.

HAW Okay, he's . . . (garbled)

FLIGHT Okay, let's see what you've got for this pass. I assume  
you've got your dump going. You've got you're DM and  
beacons command on?

HAW That's affirm.

FLIGHT Are you getting C track?

HAW That's affirm. Roger . . . (garbled) . . . just pulled up and  
would you ask him what position his antenna select is in  
when he . . .

FLIGHT. Is that tone coming for the spacecraft?

HAW That's affirm.

FLIGHT We'll pick it up over here, Ed, and your dump is through.

FLIGHT Haw CAP COM, Houston Flight.

HAW Go ahead Flight, this is Hawaii CAP COM.

FLIGHT Roger. You can remove your air to ground transfer there.  
  
I don't care to listen to the tone.

HAW Roger.

The horizon scanner is on primary ON.

FLIGHT Ju... that is correct.

HAW I'll play to Hawaii.

FLIGHT Roger, Hawaii.

FLIGHT Houston

HAW Go ahead Houston.

Flight Would you transmit the main summary please.

HAW Poor telemetry, Flight

FLIGHT Very poor telemetry?

HAW Very poor.

FLIGHT Do you . . garbled . . the real time frequency?

HAW Standby. We are getting bad dropouts after the last  
dump . . garbled . .

FLIGHT What's the quality of your dump look?

HAW Quality of the dump is real good. We got that during  
the good time.

FLIGHT Okay.

HAW TM LOS.

FLIGHT Rog, Hawaii.

HAW C-band LOS. Flight, Hawaii

FLIGHT Go Hawaii.

HAW Okay. We'd appreciate it if you could find out what  
position that selector switch is in and just a little  
data. We had a big discussion here about getting commands

in over the hill. At H minus 1 minute of the ACH message we transmitted standby TM on real time for 5 seconds and turned it off. And at H minus 30 seconds, as it came up over the hill, the TM was on. You get a command on and then go into acquisition.

FLIGHT

Okay. Did you see the telemetry though?

HAW

We had good TM, once we locked up where we usually lock up for about 45 or 50 seconds after the ACH message. That's because of the masking with the multipass. But in about - oh, a little bit better than half way through the pass, after the data dump was complete, we got bad dropouts for awhile, like we did on the last pass. And then it came back in again. I don't know whether this is because of the drifting of the antenna away from us or what it is. And that is why we want to know the selector switch position. Trying to run this down.

FLIGHT

Came in good after awhile?

HAW

In about 30 seconds or so.

FLIGHT

Okay. I'll be back with you. We are getting setup here for a pass.

FLIGHT

Ready to go on this medical data pass, right? Go remote. Is remote. HF. Remote HF.

GUAYMAS

Solid TM

Flight

Roger, Guaymas.

GUAYMAS Good on the ground.

FLIGHT Roger. We are just going to be monitoring the HF  
on this pass.

GUAYMAS Monitor transfer.

FLIGHT Negative. We are going through California this time.  
We are monitoring at Cal and will switch right to Texas.

GUAYMAS Roger. Guaymas.

FLIGHT Guaymas.

GUAYMAS Everything is still looking good here. Just for your  
information, just before Hawaii's AOS we copied some short  
counts on HF from the spacecraft.

FLIGHT Yea. We copied one just about their acquisition time.  
Did you hear the - are you getting HF DF tone now?

GUAYMAS Right.

FLIGHT You are getting it?

GUAYMAS Right.

FLIGHT Were you . . . okay, very good.

GUAYMAS I'm sure the reason he couldn't hear him calling was  
because he has the volume down to the minimum before  
he could test description.

FLIGHT Yea, I was reading that too.

GUAYMAS We did the HF DF, I'm not sure whether he could . . .

FLIGHT California go local. Texas, Cocomo go HF.

CAL California local.

Texas Texas remote.

FLIGHT Gemini 7, Gemini 7 this is Houston on HF. We have a good oral temp. Give us a blood pressure and standby for surgeon. Gemini 7, Gemini 7 Houston CAP COM on HF. We have a good oral temp. Give us blood pressure and standby for surgeon.

TEXAS Texas.

FLIGHT You are remote at UHF.

TEXAS This is remote UHF.

FLIGHT Gemini 7, Gemini 7, Houston CAP COM on UHF. We have a good oral temp. Give us blood pressure and standby for surgeon. How do you read?

S/C Good on UHF.

FLIGHT Roger, understand loud and clear. We will stay UHF throughout the crew status report pass.

S/C Roger

FLIGHT Gemini 7, this is Houston surgeon. Your cuff is full scale. Gemini 7, we have a good blood pressure. Standing by for your exercise.

S/C . . . garbled . .

FLIGHT Houston; roger. Understand you are starting your exercise.

S/C . . garbled . .

FLIGHT Gemini 7, your cuff is full scale.

S/C . . garbled . . I'll start pumping again.

FLIGHT 7, this is Houston. Can you turn you HF off at this time. It is very difficult to read you. We will go back HF after the pass.

S/C Roger.

FLIGHT Gemini 7, we have a good blood pressure. Standing by for your food, water, and sleep report.

S/C This is Gemini 7, are you calling?

FLIGHT Roger, this is Houston Surgeon. Gemini 7 we have a good blood pressure and are standing by for your food, water, and sleep report.

S/C Roger. The pilot has had a total of 387 ounces of water.  
. . garbled . . day 4 meal B, minus some brownies and one . . . garbled . . .

FLIGHT Roger, understand.

S/C I've had 317 ounces of water. Meal 4, excuse me.  
Day 4, meal B minus the brownies.

FLIGHT Roger. Gemini 7, Houston Surgeon copies. Houston surgeon out.

S/C Roger.

FLIGHT Gemini 7, this is Houston. We would like to try transmitting on FH. I'd like you to go number 2 audio to HF. Not the HFD, just HF. We are getting a tone and can't seem to get through. Gemini 7, Gemini 7, Houston CAP COM UHF  
how do you read, over? Gemini 7, Gemini 7, Houston CAP COM

how do you read, over? Gemini 7, Gemini 7, now broadcasting UHF, how do you read? Gemini 7, Houston CAP COM on UHF how do you read, over? Gemini 7, Gemini 7, this is Houston CAP COM now broadcasting UHF in the blind. We understand that your antenna select position is reentry and has been since lift-off, roger.

S/C

Gene how do you read me now.

FLIGHT

Frank, I hear your broadcast and I hear you talking but it is very very garbled in the background.

S/C

Roger. That's probably because the HF is still on. Now I have changed it.

FLIGHT

Roger, read you loud and clear. UHF now?

S/C

Roger, we are UHF. When we turn the HF radio off then you can read us. When the radio is on you can't read us.

FLIGHT

Yea, okay. We are apparently UHF. You say you can read us loud and clear and I can read you but it's clear and weak and an awfully lot of noise in the background. Sorta like you are in a big barrel.

S/C

Okay, we'll go on back to our HF if you don't have anything else for us.

FLIGHT

Roger, we don't have anything. You can go back to your HF test and it appears that you are going to talk over the station HF, Frank. You are going to have to

go from the HF DF position to the HF position.

S/C

Will do.

FLIGHT

Roger, we understand and we will be standing by all night. See you tomorrow.

TEXAS

Gene

FLIGHT

Flight. He is busy right now, can I help you Bill?

TEXAS

Yea, Flight. I reported on this last pass that the crew had the tone on here. We played the voice tapes and they were pretty noisy but from what I get from the tape recorder, what the crew reported was they also had noise. . . garbled . . tone. I'm not sure if they had the tone or not.

FLIGHT

Okay.

TEXAS

Awfully noisy circuit.

FLIGHT

Okay. Let me read your postpass here again. Standby.

TEXAS

That might be one thing to check if you are going to run a test.

FLIGHT

Okay. You ran the tape back and it did not say the crew had the tone, it had buzz.

TEXAS

What I told him was that we got a tone but what he said was noise also. I thought he said tone also.

FLIGHT

Okay

TEXAS

Thought it might be worth checking.

FLIGHT

Okay, Bill. Thank you.

TEXAS

Okay.

This is Gemini Control. We have just completed playing back some of the voice tapes that have been taken for the past hour and one half of flight and as you probably noticed we were transmitting on high frequency. HF instead of UHF and this was a test. The purpose of this HF test was to find or explore the possibility of using HF frequencies as our backup for the UHF transmission channels that are normally used. And during this test we did accumulate quite a bit of noise and tone and the transmission, voice communications were not exactly satisfactory. At this time we are 99 hours and 42 minutes into the flight of spacecraft Gemini 7. At the present time the spacecraft is over the Indian Ocean on its 63rd revolution around the earth. This is Gemini Control.

END OF TAPE

This is Gemini Control. Spacecraft Gemini 7 at the present time is passing over the Pacific Ocean on its 63rd revolution over the earth. And our flight crew has now rolled up more than 100 hours in space. To be exact, 100 hours and 11 minutes. At this time, we will play the taped voice communication between spacecraft Gemini 7 and the Coastal Sentry Tracking Ship, which happened just a few minutes ago.

CSQ Gemini 7, CSQ CAP COM.

S/C Go ahead, CSQ, Gemini 7.

CSQ We'd like your evaluation of the HF test, please.

S/C Well, we (garbled) all we did was make sure of the stations, we didn't get any reception.

SCQ Roger.

S/C Our evaluation of it is that it is completely .....

CSQ Roger.

When you pass over HAWAII this Rev will be a UHF No. 6.

Gemini 7. Do you have any preference in the selection of your HF music for the next series of HF music?

S/C Something quiet and restful.

CSQ Say again.

S/C Something quiet and restful.

CSQ Roger, copy.

S/C Uh, uh, something loud and noisy!

CSQ What're we going to do now?

FLIGHT We'll give 'em KILT!!

CSQ Roger.

S/C Is Chris on flight in Houston, CSQ?

CSQ Say again, last.

S/C Is Mr. Kraft still on flight in Houston?

CSQ I think Eugene Kranz is flight this time.

S/C You might advise him I'm thinking about jumping him with a request to take my suit off also.

CSQ Roger.

FLIGHT We heard that.

CSQ Flight, did you copy that part about the music?

It was just (garbled)

FLIGHT Roger.

CSQ What was your comment about the HF music?

FLIGHT We'll give 'em a mixture, I guess. No, we'll just send it out and surprise 'em.

CSQ All right.

Gemini 7. Stand by.

CSQ Uh, negative. Nothing here, Chuck.

7 - all systems are showing you go on the ground. Flight said they would make some selections for you on the HF and surprise you. We're standing by.

S/C We're a little concerned about the FM antenna. Our stations (garbled) ..... unload .....

FLIGHT Chuck, we'll take a look at 'em and brief 'em.

CSQ Flight advises they'll brief you later.

S/C Right.

S/C Chuck, did you receive our transmission about the fuel cell?

CSQ Roger. Copy. You have an unbalance in section 2. Stuck 2C.  
That affirm?

S/C I just wondered if you thought it was disturbing. They went  
all off.

CSQ We don't copy that - we don't copy 2C or 1C on the ground.  
We only have the 2A and 2B.

FLIGHT Okay, Chuck, you can tell him - - -

S/C What's your reading for 2A?

CSQ Stand by while I give you a reading for 2A and B.  
7. - 2 Alpha is reading 2.36 amps and 2 Bravo is reading  
2.1 amps here on the ground.

S/C Roger. 2C is reading about 4.2.

CSQ Roger, copy. 4.2.  
Flight, CSQ.

FLIGHT Go, CSQ.

CSQ Did you copy our ground readouts to them on 2 Alpha and  
2 Bravo?

FLIGHT That's affirmative. Chuck, we're not worried about this.  
It's been that way throughout the entire duration of the  
mission and that particular stuck 2C was a hot one as  
known from the pad and pre-launch testing.

CSQ Got you, flight. I just wanted to say that our ground  
computations are showing a ground reading of about 3.34  
on that stack.

FLIGHT That's right. We're reading 3.4 here as derived by - you  
gotta correct for his onboard reading.

CSQ Right, flight. No problems here. Everything is nominal.

Did you get he thought the HF tests were a waste of fuel?

FLIGHT Yeah, we got that. Think many other people got it.

That was taped communication - voice communication between spacecraft 7 and the Coastal Sentry Tracking Ship. At this time spacecraft Gemini 7 is coming up over the Hawaiian Station and we will bring you live communication now.

S/C Go ahead.

HAW TM solid.

FLIGHT Roger, Hawaii.

HAW Okay. We've got a valid oral temp. We're standing by for your blood pressure.

S/C Blood pressure is on the way.

HAW Your cuff is full-scale.

S/C Rog.

HAW Got a good dump, flight.

FLIGHT Roger, Hawaii.

HAW We have a good blood pressure, standing by for your exercise.

On your mark.

S/C Roger. Mark.

Blood pressure coming.

HAW Your cuff is full-scale.

S/C Roger.

HAW We have a good blood pressure. Standing by for your food, water, and sleep report.

S/C Roger. We've had nothing since we reported last pass.

HAW Roger. Understand. Okay, I've got your flight plan updated.  
You ready to copy?

S/C Go ahead.

HAW Okay. We're gonna run a radar transponder test at 10 -  
correction - at 100 plus 40, transponder ON. At 100 plus 55,  
transponder OFF.

S/C Roger, we have that.

HAW Okay.

FLIGHT Hawaii, CAP COM Houston Flight.

HAW Houston Flight, Hawaii Cap Com.

FLIGHT Roger. Do his stack currents 1AB and 2A and 2B look good  
on ground telemetry and are they steady?

HAW Okay. Main Bus current 1 - 8.48. Stack 1 - 2.44. Stack 2 -  
2.27.

FLIGHT Okay.

HAW Real steady, Flight.

FLIGHT Okay. Give me main bus 2 and 2A and 2B.

HAW Flight. That was main bus 2 and 2A and 2B.

FLIGHT Okay. I thought you called them off as 1, Ed.

HAW I did, that was our mistake.

FLIGHT Okay. Will you give me one, then?

HAW Flight. Main bus current 1 is 9er amps 1 alpha 2.7.  
1 Bravo 3.2.

FLIGHT Okay.

HAW Hawaii has LOS.

This is Gemini Control. We are now 100 hours and 22 minutes into the flight of spacecraft Gemini 7. At the present time the spacecraft is ending its 63rd revolution within the next 15 minutes and is now passing over the Pacific Ocean on its way toward South America. The longest manned flight, of course, was rolled up by Astronauts Conrad and Cooper in the Gemini 5 spacecraft. Their total number of hours was 190 hours and 56 minutes. Nearly 8 days in space. And our Gemini 7 crew has now passed the century mark in hours. This is Gemini Control, 100 hours, 23 minutes into the flight of Gemini 7.

END OF TAPE

This is Gemini Control. We are now 101 hours into our mission. Spacecraft Gemini 7 at the present time is passing over the South Atlantic toward the southern tip of Africa. It is on its 64th revolution over the earth. A few minutes ago we had voice communication between Command Pilot Frank Borman aboard spacecraft Gemini 7 and the Rose Knot Tracking Ship. And at this time we will play the taped voice communication.

RKV                   RKV. Our telemetry solid.

FLIGHT                Go RKV.

RKV                   This is a GO flight. We are transmitting .....

FLIGHT                Roger.

RKV                   Gemini 7, RKV CAP COM.

S/C                   Go ahead, RKV CAP COM. Gemini 7.

RKV                   Roger. We're standing by for your flight plan report when you're ready.

S/C                   Gemini 7. Today we accomplished all the flight plan activities with the exception of 5. Number 1: D-4/D-7 at 93:28 30. We tried, but there was a great deal of cloud cover over both the land and water.

RKV                   Roger.

S/C                   Number 2: F-5, sequence 12, 94:13 18- cancelled-weather.

RKV                   Roger.

S/C                   MSC-4: 93 44 39 - cancelled-weather.

RKV                   Say again.

S/C                   MSC-4: 93 44 39 - cancelled-weather.

RKV                   Roger.

S/C                   D-9: 97 41 34 - the moon was too bright to get Aldebaran or more than one measurement of the other two stars we

selected Mirfak and Almach in place of Mirfak and Aldebaran. Aldebaran and Mirfak are both very close to the Moon and it's almost impossible to measure them with the sextant.

RKV Roger.

S/C Okay. Our S-8/D-13 score club. It was minus 8, level minus 7.

RKV Roger.

S/C Okay. We used 39 exposures today of magazine M with the Hasselblad. Ten feet of 16-mm film, and two tape recorder cartridges.

RKV Roger.

S/C I guess that about covers it.

FLIGHT You can translate that out to English for us and send it back.

RKV I guess I'll have to get a recorder, flight.  
Systems look good.

FLIGHT RKV CAP COM, Houston Flight.

RKV This is RKV.

FLIGHT Roger. You need not transcribe all that. Our CAP COM advises us that he got it all.

RKV Say again.

FLIGHT Houston CAP COM says he got it all. You need not transcribe your tape.

RKV Who have you got on the console?

FLIGHT Say again, Bill.

RKV Who's manning the console on this ship?

CAP COM That's a good question!

FLIGHT            We have a Red Team CAP COM with us today.

RKV                Which one?

FLIGHT            Can't you tell by the voice?

RKV                I was only joking!

FLIGHT            We got Elliott See.

RKV                Can you hear ..... don't you hear .....

HOUSTON           I copied it all, Bill, and I just checked him and he's right.

CAP COM           I'll back you up on that.

RKV                Out. RKV.

                  Gemini 7. RKV CAP COM.

S/C                Roger, go ahead.

RKV                Roger, you can go ahead and turn the transponder off.

S/C                Uh, roger and thank you.

END OF TAPE

This is Gemini Control. We are now 101 hours and 20 minutes into our mission. The spacecraft Gemini 7 is on its 64th revolution over the earth. At the present time it is passing over the Indian Ocean. Aboard the spacecraft, our flight crew, Command Pilot Frank Borman, and Pilot Jim Lovell, are in a housekeeping period, stowing away the gear they have used in experiments throughout this busy day and they will follow that stowing period by stowing away some food. They will have an eat period and this will be followed by a 10-hour sleep period. The sleep period should start in approximately-within this next hour sometime. According to all the ground data that has been received by the ground tracking stations, all of our spacecraft systems are in a GO condition and our Flight Surgeon tells us that the crew is in excellent physical condition and in good spirits. We are now 101 hours and 21 minutes into the mission. This is Gemini Control.

END OF TAPE

This is Gemini Control. One hundred one hours and 45 minutes into the flight of spacecraft Gemini 7. At this time the spacecraft is coming up over the Hawaiian Tracking Station. A few minutes ago it passed over the Coastal Sentry Quebec and at that time during the voice communication Frank Borman sneezed. Dr. Charles Berry, our head surgeon, who was here in the Mission Control Center, heard it. He will ask Hawaii, the Hawaiian Surgeon, to take a good look at the ground medical data read-outs at this next pass. At this time we will play back for you the voice taped over the Coastal Sentry.

CSQ .....CSQ CAP COM.

S/C This is Gemini 7, CSQ CAP COM.

S/C CSQ, this is 7.

CSQ Roger. You'll have a UHF No. 6 over Hawaii this rev, and I have your PLA update when you're ready to copy.

S/C Roger. Understand.

CSQ Also, on your cryogenics tonight, like to read the fuel-cell O<sub>2</sub> heater in AUTO. On the fuel-cell H<sub>2</sub>, we'd like to have you pump it up to 525 psi, and your roll interval, or your minimum tonight on that one will be 310. And no read on the ECS O<sub>2</sub>.

S/C Understand that you want us to put on the fuel-cell O<sub>2</sub> for the evening and want us to pull up oxygen to 525 with a minimum of 310. Is that correct?

CSQ That's affirmative. And no read on the ECS O<sub>2</sub>.

S/C Roger. Understand there is no read on the ECS O<sub>2</sub>. I'm ready to copy the PLA updates.

CSQ Roger. Area 66-3: 104 24 57. 17 plus 32. Area 67-3:  
106 01 08. 16 plus 32. Area 68-Bravo: 107 37 46. 16 plus  
01. Area 69-Delta: 108 27 23. 22 plus 27. Area 70-Delta:  
110 04 31. 21 plus 21. Area 71-2: 111 40 05. 20 plus 21.  
Area 72-2: 113 16 52. 19 plus 03. Area 73-1: 114 42 38.  
19 plus 51. Weather is good in all areas. Do you copy?

S/C Roger. Copied, thank you.

CSQ And we'd like to know if the pilot is going to sleep with  
his orbital flight suit tonight?

S/C Roger. The pilot will fly in his orbital flight pajamas  
tonight.

CSQ Uh, roger.

FLIGHT We got that, Chuck.

CSQ Roger, flight.

S/C CSQ, Gemini 7.

CSQ Go ahead, 7.

S/C Roger. We're playing with the photometer now. There's so  
much cloud cover around here that we haven't been able to  
get a good stretch of water, will you tell them that we're  
working at it. So far we haven't been able to get it to  
change from red to green. - Ah choo! Excuse me - red to  
green. Unless we're running over a cloud, then it changes.

CSQ Okay. I'll pass that back.

S/C Thank you.

FLIGHT We got that, Chuck.

CSQ Gemini 7, CSQ. You look good on the telemetry. We have  
nothing else. We're standing by.

S/C Roger. Thank you.

CSQ CSQ. All systems are GO.

FLIGHT Roger, CSQ. I think you have a space "first" - the first sneeze in space!

CSQ I think we got about 3 or 4 there.

FLIGHT Yeah.

CSQ The surgeon asked "which one is that"? as soon as he heard the sneeze.

FLIGHT He couldn't tell?

Pass, Chuck.

CSQ Roger, flight.

Garbled Garbled (two stations)

This is Gemini Control. The spacecraft is now passing over Hawaii and we have established voice contact. Let's listen in.

FLIGHT Roger.

HAW Hawaii, flight.

S/C ..... water, uh, left with you. We haven't had supper yet. But the total to date as of right now, 387 ounces for the Command Pilot.

HAW Check. I've got that. Go ahead.

S/C 322 ounces for the pilot.

HAW Roger.

S/C And I'll probably have about 30 more ounces tonight and I think that's close enough.

HAW Roger. Okay. Will you put your - correction - will you give me a OAMS propellant quantity readout?

S/C Roger. 52 percent.

HAW Roger. Put your quantity read switch in ECS O<sub>2</sub> position.

S/C ECS O<sub>2</sub>.

HAW Roger.

Will you give me a readout of your OAMS source pressure?

S/C 18 - no about 1900 to a pound.

HAW Roger.

Quantity read switch to the fuel-cell O<sub>2</sub> position.

S/C Fuel-cell O<sub>2</sub>.

HAW Roger.

I've got some data for the Command Pilot, if he'd like to listen.

S/C Go ahead.

HAW Okay. The fuel-cell status. Stack currents have been balanced within .5 to .75 amps for the mission with the exception of 2 Charlie. 2 Charlie has been a hot stack both pre-launch and flight. A plot of percent total load sharing versus time shows the following figures: Pre-launch - 18.6 percent. 2 zero hours, 20.0 percent. Quantity read to the fuel-cell H<sub>2</sub> position, please. 4 zero hours, 20.0 percent. 6 zero hours, 20.0 percent. 8 zero hours, 21.0 percent. 1 zero zero hours, 20.5 percent. Data indicates load sharing has not changed appreciably since lift-off. Looks like we have a good, stable, fuel-cell system. The C stacks normally share a larger percent of load since the coolant fluid is higher in these stacks. Over.

S/C Roger. Thank you very much.

HAW Roger.

Quantity read switch to OFF, please.

S/C Quantity read to OFF. Understand you want me to monitor the  $H_2$  and keep it above 310 tonight.

FLIGHT He probably won't have to monitor it. The decay should not allow it to drop anywhere near that, Ed.

HAW Okay.

What we'd like you to do - you don't have to monitor it, it shouldn't drop any lower than that point.

FLIGHT We'll watch it for him.

S/C Okay, if it does, you'll give us a call, will you?

HAW That's affirmative. The people on the ground will watch it for you.

S/C Thank you. We appreciate all the help, really. Feel a lot better sleeping if you know somebody's down there keeping check on all these things.

HAW Okay. Very good.

We've completed the tape dump, flight.

FLIGHT Okay, Ed.

Let's see, I think you've got the ephemeris if you want to give it to him.

HAW Roger, I'll give him that.

FLIGHT And you've got his onboard prop quantity, the actual percent. Tell him that the numbers he gave us agree very well with telemetry.

HAW                    Okay. Okay, a little bit more data here. Your OAMS propellant remaining - we're ahead of the flight plan. And your numbers agree real well with ours, and your orbit at this time is 127.4 by 170.5.

S/C                    Roger, thank you.

HAW                    Flight, Hawaii.

FLIGHT                Go, Hawaii.

HAW                    He sounds like he's real clear and not plugged up at all.

FLIGHT                Roger.

HAW                    Have you got any data from your M-7 log for me?

S/C                    No, what I gave you - just then - did you want the columns 6 and 7 added up today?

HAW                    If you don't mind I'll take that from you.

S/C                    Stand by.

                         Okay. Column 1,2,3,4 - column 6 on the Command Pilot is 2.

HAW                    Roger. I've got that.

S/C                    Column 5 on the Command Pilot is 9.

HAW                    Say again the number.

S/C                    Niner.

HAW                    Roger.

S/C                    On the Pilot column 6 is 0.

HAW                    Roger.

S/C                    And column 5 is 11.

HAW                    I copy that. Thank you.

S/C                    You might mention that I wish they'd added a little more charcoal and a little less lithium hydroxide to this canister,

HAW Okay. Very good.

FLIGHT We got that, Ed.

HAW Okay, that's about it then. I think we got everything.

FLIGHT Okay. Hey, how's your tape dump going?

HAW Tape dump is complete.

FLIGHT Okay.

HAW Got any other info?

FLIGHT Negative. Forget it.

HAW Roger.

HAW Hawaii has LOS.

This is Gemini Control. We are now 101 hours 57 minutes into our flight. We have just had loss of signal at Hawaii. The spacecraft is now moving over the Pacific toward the South American Continent. It is on its 64th revolution, will be ending that shortly, and on our flight plan for the remaining few hours of this shift, and well into the next we are (garbled) for the crew. This is Gemini Control. One hundred one hours and 58 minutes into the flight.

END OF TAPE

This is Gemini Control. We are now 102 hours plus 20 minutes into the mission of Spacecraft Gemini 7. Our spacecraft is now passing over South America, and we are in the beginning of the sixty-fifth revolution. Aboard our spacecraft, our pilots are in a sleep period. This is Gemini Control, 102 hours, 20 minutes into the flight.

END OF TAPE

This is Gemini Control. We are now 103 hours and 20 minutes into the mission of spacecraft Gemini 7. Gemini 7 is now passing over the Pacific. In a very short time it should be over the Hawaiian Tracking Station. We are in a negative reporting period. The crew aboard spacecraft 7 is in a sleep period that has been going on for approximately 1 hour. At this time we do not have ground telemetry data that indicates whether the crew is asleep, but we may get some readouts over the Hawaiian Station, which may tell us whether either or both of the crew members are asleep. Pilot James Lovell retired again tonight in his long john underwear and his orbital flight suit and of course, Command Pilot Frank Borman is wearing his flight suit. The spacecraft is on its 65th revolution over the earth. We are now 103 hours and 21 minutes into the flight. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 104 hours and 20 minutes into the flight of spacecraft Gemini 7. At this time Gemini 7 is passing over Africa on its 66th revolution around the earth. Here in Mission Control Center, our flight controllers - since our flight crew has been in a sleep period for approximately the past hour and a half, - our flight controllers have been going over their logs, getting their reports in order so that they can brief the Blue Team of flight controllers that is due on to take over control of this flight in approximately 1 hour from now. We have had no voice communication with the spacecraft since the sleep period started, and all telemetry that is being fed to the ground stations, is on automatic feed. This is Gemini Control 104 hours 21 minutes into the flight.

END OF TAPE

This is Gemini Control. We are now 105 hours and 20 minutes into our mission with Spacecraft Gemini 7. At the present time the spacecraft is passing over the Pacific Ocean coming up on the west coast of South America on its sixty-sixth revolution around the earth. Here in the Mission Control Center at Houston, we are in the midst of a shift change. The Blue Team of flight controllers have checked in and are being briefed by the White Team which will soon be going off duty. Aboard the spacecraft, our pilots are in a sleep period. We do not as yet have a clear indication from the ground data as to whether they are in a deep sleep. From Cape Kennedy, we have a report on the status of Pad 19. The Gemini 6 simulation flight was concluded at 9:00 p.m. EST today. The backup crew for Gemini 6, Astronauts Gus Grissom and John Young, were aboard the spacecraft for a reentry run, which was also concluded at 9:00 p.m. At the present time, a review is being conducted of the data from this simulated flight. Propulsion tests and end-to-end tests of systems are now going on at Pad 19, and these are expected to continue throughout the night. The pad crews are working to prepare for servicing of the ECS systems -- environmental control systems. This is scheduled to begin at 6:00 a.m. EST. Plans to start the Gemini 6 pre-count at 4:00 p.m. EST

GEMINI 7/6 MISSION COMMENTARY, 12/8/65, 10:50 p.m. Tape 194, Page 2

Thursday are going ahead, in the event a decision is made for a Sunday launch. At the present time, the Gemini 6 activities at the Cape are running approximately 24 hours ahead of schedule. We expect a decision to be made by noon Thursday on the launch of Spacecraft Gemini 6. We are now 105 hours, 22 minutes into the flight. Our spacecraft very shortly within the next few minutes will begin revolution sixty-seven. This is Gemini Control.

END OF TAPE

This is Gemini Control. We're 107 hours and 20 minutes into the mission of Gemini 7. Gemini 7 spacecraft is in the sixty-eighth rev. We have just passed over the Rose Knot tracking ship where we had a telemetry dump. The 7 crew are reported sleeping according to the telemetry received by the Flight Surgeon. The pilot, James Lovell, has his pressure garment off and planned to have his orbital flight suit on for the sleep period. The command pilot, Frank Borman, is in his pressure suit with gloves and helmet off and the suit unzipped. The present orbital parameters for Gemini 7 are: Apogee of 107.6 nautical miles. Perigee of 127.5 nautical miles. And an inclination of 28.92°. At 107 hours and 21 minutes into the Gemini mission, -- Gemini 7 mission -- this is Gemini Control.

END OF TAPE

This is Gemini Control, 108 hours and 20 minutes into the flight of Gemini 7. We're in the sixty-eighth rev over the South Pacific. We have just passed -- the spacecraft just passed over the Canton tracking station, and it's headed toward the west coast of South America. The crew is still sleeping, and all is quiet here in the Control Center in Houston. At 108 hours and 20 minutes into the mission, this is Gemini Control.

END OF TAPE

GEMINI 7/6 MISSION COMMENTARY, 12/9/65, 2:50 a.m. Tape 197, Page 1

This is Gemini Control, 109 hours and 20 minutes into the Gemini 7 flight. The spacecraft is in the sixty-ninth rev, and it's just now passing over Northern India. At the beginning of this rev, the tracking ship Rose Knot reported all systems go. And at this time, both crewmen were reported sleeping. The next contact will be the Coastal Sentry in about ten minutes. The Coastal Sentry is located just north of the Philippine Islands in the Pacific. It's been quiet here in the Control Center -- not much activity going on with the crew sleeping. An occasional tape dump from the spacecraft takes place. The next one is scheduled for the Canary Islands. At 109 hours and 21 minutes into the mission of Gemini 7, this is Mission Control.

END OF TAPE

This is Gemini Control, 110 hours and 20 minutes into the flight of Gemini 7. Gemini 7 spacecraft is just now beginning its seventieth rev as it passes over South America. On the last pass over the tracking ship Coastal Sentry, both crewmen were reported sleeping. This pass took place a few minutes back. Command communicator, Charles Lewis, on the Coastal Sentry gave a report on the readouts from the Gemini 7 spacecraft, which indicated amperage use up to            three amps higher than usual. It was determined that the fuel cell automatic heater was on            before loss of signal, the amperage use dropped about three amps -- an indication that the fuel cell heater had cut off. During the six and a half minute pass over the Coastal Sentry, the fuel cell oxygen pressure had a buildup from 905 pounds at acquisition to 910 pounds about midway in the pass, and then dropped back to 905 pounds at loss of signal. The seas were reported calm by the Coastal Sentry after they had experienced some rather rough sea earlier in the week. Flight Director John Hodge released the Coastal Sentry Flight Controller Crew for the night. Succeeding passes will be to the south of them and out of their range. The next station contact will be with the Canary tracking station where a tape dump of spacecraft telemetry will be performed. This contact will take place in about ten minutes. At 110 hours, 21 minutes into the mission of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control. One hundred and eleven hours and 20 minutes into the Gemini 7 mission. Gemini Spacecraft now is just off the east coast of Australia in its 70th rev. On the last pass over the Canary tracking station a few minutes back, James Pucci, command communicator, reported all systems go. The crew is now nearing the end of the sleep period and should be awake when the next pass over the Canary tracking station takes place in about 45 minutes. We have a report here from Cape Kennedy on the status of the Gemini 6 spacecraft. At 5:25 e.s.t. eastern standard time, this is about 25 minutes ago, the crews at Pad 19 began the flow of cryogenic oxygen for the environmental control system of Gemini spacecraft 6. This operation is scheduled to take about 45 minutes. Earlier this servicing of the environmental system was set to begin around 6:00 a.m. eastern standard time, but another 40 minutes were picked up by the crews and now Gemini 6 activities at the Cape are about, a little over, 24 hours ahead of schedule. The Cape crews is still making preparations for beginning the Gemini 6 precount at 4.00 p.m. eastern standard time today in the event a decision is made for a Sunday launch. At 111 hours and 21 minutes into the Gemini 7 mission, this is Gemini Control.

END OF TAPE

This is Gemini Control. 112 hours and 20 minutes into the flight of Gemini Spacecraft 7. The Gemini Spacecraft is now approaching Arabia on its 71 revolution around the earth. The crew was waked for a fuel cell purge over the Canary Islands, and we will now hear a tape of that conversation.

S/C Say again Flight Com. (Garble)

CYI This is Canary Island. Contact how do you read?

S/C Canary, this is Gemini 7.

CYI Top of the morning to you from Canary. We have a couple of things for you. Have you done a fuel cell purge recently?

S/C Well, we should by what the flight plan read, but we decided we'd wait until we were over something.

CYI Okay. Very good. We're ready for you now. Whenever you want.

S/C Okay. We'll purge. Coming now.

HOUSTON Hello Canaries.

CYI All things look great here on the ground, Flight.

HOUSTON Roger. Is cryo read out gauge on, Canaries.

CYI Negative.

HOUSTON Then ask him to turn it to "H2" so you can keep an eye on that pressure.

CYI Okay. Will do. Gemini 7, this is Canary. Would you put your quantity read switch to fuel cell H2.

S/C Roger. We will move to H2.

CYI Roger.

HOUSTON That's nice.

CYI Got 180.

HOUSTON Again Canaries.

CYI Got 180 on fuel cell H2.

HOUSTON Roger. May I have an Alpha and Bravo summary, please?

CYI Roger. On the way.

HOUSTON (Garble)...

CYI Very good, Flight. He's purging O2 in the second section.  
right now.

HOUSTON May I have that H2 pressure?

CYI Roger. We're doing that, Flight.

S/C It's complete, Canary.

CYI Roger. Okay, we need some read ups here on that. You can  
keep it there on fuel cell H2.

S/C Roger.

CYI What are you reading up there on quantity and pressure?

S/C Reading about 32% and 400 ... (Garble)...

CYI Roger. Okay. You want go back one to fuel cell O2 on the  
quantity read switch.

S/C Right. We're at fuel cell O2.

CYI Roger. Reading quantity and pressure, please.

S/C About 77% and 720.

CYI Roger. I Copy. Now quantity read switch to ECS O2. Quantity  
and pressure.

S/C 86% and 500.

CYI Okay. We have a flight plan update for you.

S/C Roger. Go ahead.

HOUSTON All your summaries look good.

CYI Bravo, Flight.

S/C Go ahead.

CYI ...time 1115235. Rev 71. 75.6 degrees West. 11 hours, 32 minutes, 51 seconds right ascension. Flight plan time line update. Change 11200 to 11217. We may have a little ..... and if we do, we'll continue this a little later on.

S/C Roger.

That was the taped voice of James Lovell, Gemini Spacecraft 7 pilot in communication with the Canary Island tracking station, at 5:35 a.m. this morning as the spacecraft passed over the Canary Islands. Both crewmen were awake at this time. At 112 hours and 24 minutes into the Gemini 7 Mission, this is Gemini Control.

END OF TAPE

This is Gemini Control, 113 hours and 20 minutes into the flight of Gemini 7. The Gemini 7 spacecraft is now in its 71st rev approaching the west coast of South America. Soon we will go into the 72nd rev. Both crew members were awake this morning just a few minutes before the sleep period ended at 112 hours elapsed time. The Gemini 7 spacecraft was in voice contact with the Carnarvon tracking station on the pass over that station at 6:15 this morning at an elapsed time of 112 hours and 45 minutes. The voice is Pilot James Lovell. Here is that taped conversation now.

Carnarvon

Gemini 7, Carnarvon.

S/C

Roger, Gemini 7.

Carnarvon

We would like to have you turn your cryo gauging switch to the off position please.

S/C

Roger.

Carnarvon

We would also like a OAMS propellant quantity readout please.

S/C

..

Carnarvon

Gemini 7, I did not copy.

S/C

About 52 to 53 percent.

Carnarvon

Rog, copy.

Flight

We have that.

Carnarvon

Also I would like to complete the flight plan update that we were giving you over the Canarys whenever you are ready to copy please.

S/C

Roger, go ahead.

Carnarvon

Okay, did you get the 111 0 113 40.000time?

S/C

I got the time up on 34 00 but that is all. He faded out then.

Carnarvon Okay, PLA update at Canarys, 114 16 00, crew status report on the Command Pilot at Carnarvon.

S/C Roger.

Carnarvon 115 01 00 crew status report, Pilot at Canaveral.

S/C ] Roger.

Carnarvon S-6, time 115 18 28, sequence number 10, remarks, pitch 30 degrees down, yaw 12 degrees left.

S/C Rog.

Carnarvon Okay, that completes the flight plan update. You are looking good here on the ground. We will be standing by if you need us.

S/C Roger. (garbled)

Carnarvon Very good.

Flight Have your main summary Carnarvon, looks good.

Carnarvon Rog, Flight. Did you copy the propellant quantities.

Flight 52 to 53 percent.

Carnarvon That's affirmative.

Flight Did you get the cryo switch off?

Carnarvon That's affirmative.

Flight Roger.

That voice was the taped voice of Jim Lovell talking to the Carnarvon tracking station at 6:15 this morning Houston time. The spacecraft is now approaching the West Coast of South America and just about ready to go into the 72nd revolution. The Red Team members are now coming in to relieve the Blue Team for the 7:00 a.m. shift changeover. The Red Team members are now being briefed by the night-shift Blue Team. At 113 hours and 23 minutes into the Gemini 7 mission, this is Gemini

Good morning, Gemini Control, Houston. We are 113 hours, 55 minutes into the flight. As the spacecraft swung over the Antigua and Grand Turk Island tracking stations, we found the crew very chatty this morning. The conversation went like this.

CAP COM Gemini 7, Houston Cap Com.

S/C Go ahead, Houston. Gemini 7.

CAP COM Gemini 7, Houston Cap Com. This is the World's most un-talkative Cap Com coming to with the D-4, D-7.

S/C Roger. Stand by a minute. How are you doing?

CAP COM I'm doing fine, Frank. How are you today?

S/C Fine. I'm just a little warm.

CAP COM You're just a little warm. Well, we're mighty proud of you guys down here.

S/C Thank you, Charles.

CAP COM Okay. It's a D-4, D-7. Time 1135737. Sequence 427. Mode 03. Pitch 4 degrees down. Yaw 155 degrees left. Passing from right to left. Closest approach at 1135800.

S/C ... (Garble)... Say again.

CAP COM Say again. Your closest approach at 1135800. Record 30 seconds maximum.

S/C Houston, This is Gemini 7. Do you read me?

CAP COM Gemini 7, Houston. Did you read that update?

S/C Negative, Charlie. You faded completely. I hear you now, though.

CAP COM Okay. It's a D-4, D-7, at 1135737. Sequence #427. Mode 03. Pitch 4 degrees down. Yaw 155 degrees left. Passing

from right to left. Closest approach at 1135800. Record  
30 seconds maximum.

S/C Houston, Gemini 7. I read you.

CAP COM Roger, Gemini 7. Did you get that update?

S/C That's affirmative. Roger.

CAP COM Can I get a read back? Negative. You don't have to do that.

S/C We got it.

CAP COM Did you sleep well last night?

S/C Yes, except for a little while.

CAP COM CM-4 says to get to work.

S/C I hear him. Tell him to get his bloody eyes back on own  
work.

CAP COM Gemini 7, Houston Cap Com.

S/C This is Gemini 7. Go ahead, Houston.

CAP COM Can I start giving you your big flight plan update for this  
morning? The next pass over the States will also be a crew  
status pass, and it's a rather large....

S/C Roger. We can take the flight plan update.

CAP COM Okay. Your first item is at 1154000, a cabin temperature  
survey.

S/C Hey, Charlie.

CAP COM Right. Go ahead, Frank.

S/C The cabin temperatures haven't varied much. Can we cut down  
the frequency of those to maybe once a day? Chuck, this time  
could you ask them to cut the frequency of them? It hasn't  
varied 2 degrees over the whole flight.

CAP COM Sure. That'll be fine, Frank. Why don't we go ahead with this one, and we'll cut out on any of the rest of them for today, huh? How's that?

S/C That's what I'm suggesting.

CAP COM Okay. The next time is 1162900. Fuel cell purge at Guymas. D-4, D-7 at 1165800. Sequence 424. Mode 02. 1180700 you have a "Go", "No go" for 90-1 at Texas.

Pitch 30 degrees down. Yaw zero degrees. Due over West Coast of Florida. 118:20:00 is an exercise period. 118:30:00 starts your eat period. 118:55:00, use horizon scanner to control spacecraft SEF for UHF test over Carnarvon. Use the adapter antenna.

S/C Charlie. You faded on that one. I got "...horizon scanner to control spacecraft..."

CAP COM "...to control spacecraft SEF for UHF test over Carnarvon. Use the adapter antenna." 119:00:00, continue UHF continuously until 119:10:00. Force modulate the UHF until 119:06:00. Note, that's the first 6 minutes of the 10 minute key. We realize this is in the middle of an eat period, but it's a particularly good pass for this testing over Carnarvon. Gemini 7, Houston. Are you with me?

S/C I lost contact.

Gemini Control, Houston here. That wound up the Antigua. During this pass, about 25 minutes from now, we'll have a crew status report on Frank Borman, via the Carnarvon station. And, over the States, we'll have a crew status report on the pilot, Jim Lovell.

During the Stateside pass, most likely, we're going to advise Frank Borman; we're going to suggest that he get out of his suit and Jim Lovell put his spacesuit back on. The plan is to find out how Lovell evaluates the two. He's been out of his suit now for about three days. Borman has remained in his. The sequence will be that Lovell will put his suit back on first, then Borman will remove his and remain out for at least 24 hours to see what his evaluation of a suitless posture is in that Gemini 7 Spacecraft. We're not sure at this point whether Jim Lovell put on his orbital spacesuit last night, which is an additional garment that was available to him. It was agreed that he would put it on around bed time last night, but we have not had any confirmation whether he put it on or not. We have some tape, additional tape conversation, of a brief pass over the Canaries which followed the Antigua station. We'll play that for you now.

S/C Hello Canary. I'm clear.

CYI Okay. We have a PLA update for you whenever you're ready to copy.

S/C Stand by a minute. ...(Garble)... Canary?

CYI Okay. I wasn't going to answer you.

S/C Sorry.

CYI Area 74-1, 116:19:10, 18 plus 34. Area 75-1, 117:55:26, 17 plus 23. Area 76-1, 119:30:56, 16 plus 27. Area 77-4, 122:21:12, 18 plus 09. Area 78-4, 123:56:17, 17 plus 12. Area 79-3, 125:10:37, 20 plus 08. Area 80-3, 126:47:12, 18 plus 53. It'll be a rolling re-entry, and the weather is good in all areas.

S/C Roger. Thank you, Canary. Canary, could you give us the D-4, D-7 that we got from Houston again?

CYI Alright. That was D-4, D-7 at 113:57:37. Sequence 427. Mode 03. Pitch 4 degrees down. Yaw 155 degrees left. Passing right to left. Closest approach at 113:58:00. Record 30 seconds maximum.

S/C That was record 30 seconds maximum?

YI Roge. Record. Record.

S/C Roger. Thank you.

CYI Systems are "Go" at Canary. We're noticing some activity.  
Probably getting ready for D-4, D-7.

HOUSTON Roger Canaries.

CYI They shifted from pulse to horizon scan mode. They got LOS on  
C-Band and Telemetry.

HOUSTON Roger. LOS, Canaries.

CYI All systems "Go" at LOS.

HOUSTON Roger.

Gemini Control here. The weather bureau supporting this Gemini mission continues to forecast favorable weather for another 48 hour period around the World. Their estimate of the Mid-Pacific, or Landing Zone 4 is considerable cloudiness today with scattered rain showers. Winds north by northeast at about 15 knots. Wave heights 4 to 5 feet. In the Western Pacific Zone, Zone 3, which is 700 miles south by southwest of Tokyo, mostly cloudy conditions, a few rain showers, northeast winds between 10 to 15 knots.. Wave heights around 4 feet. In the Eastern Atlantic, 500 miles north of the Cape Verde Islands, broken cloudiness, east by northeast winds 20 to 25 knots, and wave heights 6 to 8 feet. In the primary landing zone, the Western Atlantic, 500 miles east of Miami. Partly cloudy. Northerly winds of 15 knots. Wave heights of 3 to 5 feet. The interesting meteorological features which are to be overflown during the day, include a Jet Stream high cloudiness over North Africa, and a storm system in the Bay of Bengal, east of India. At 114 hours and 9 minutes into the flight, this is Gemini Control, Houston.

END OF TAPE

Gemini Control Houston here, 114 hours 48 minutes into the flight. During the last swing across Australia, here is the conversation.

Carnarvon Gemini 7, Carnarvon.

S/C This is 7, go ahead Carnarvon.

Carnarvon Roger. We have a solid temperature. All your systems are go on the ground. I'll be handing you over to the surgeon shortly and after crew status report I have a message and a flight plan update for you.

S/C Roger, blood pressure coming down.

Carnarvon Gemini 7, this is Carnarvon Surgeon. Your cuff is full scale.

S/C Rog.

Carnarvon Gemini 7, we have a valid blood pressure. Give us a mark before you start exercising.

S/C Mark, beginning exercise.

Carnarvon Gemini 7. Your cuff is full scale.

S/C Roger, full scale.

Carnarvon Gemini 7, we have a valid post-exercise blood pressure. Do you have any change in your food, water, or sleep reports since your last report?

S/C Roger, stand by.

S/C Carnarvon Surgeon, Gemini 7 here. The total water now for the Command Pilot is now 435 ounces. We both had meal A, day 15, except the Pilot did not eat any of the gingerbread squares and the Command Pilot ate only two of them.

Carnarvon Gemini 7, this is Carnarvon surgeon. We copy.

S/C Roger, the Pilot had a total of 350 ounces of water and we both have had one urination since the last report.

Carnarvon This is Carnarvon Surgeon. We copy. This is Surgeon out.

Carnarvon Gemini 7, Carnarvon Cap Com.

S/C Go ahead, Cap.

Carnarvon Okay, we would like for you to know that the suit situation will be discussed over MCC on the next rev. They want to discuss Lovell getting back into the suit and Borman getting out. Did you copy?

S/C We copied.

Carnarvon Roger. Also, we have a flight plan update for you. On your last flight plan update at 118 55 00, use horizon scanner to control spacecraft small end forward for UHF test over Carnarvon.

Copy.

S/C Roger, we copy.

Carnarvon Use adapter antenna.

S/C Roger.

Carnarvon Time, 119 00 00, key UHF continuously until 119 10 00. Voice modulate UHF until 119 06 00. Next item, MSC-12, time 119 48 26, pitch 30 degrees down, yaw 0 degrees, do over west coast of Florida.

S/C Thank you.

Carnarvon MSC-2 and 3, time 120 00 00, sequence number 02, off at 136 00 00, did you copy?

S/C Roger, we copied.

Carnarvon           Next item D-4/D-7, time 120 08 00, sequence number 423,  
mode 02, do even if cloudy. We have had LOS, Flight.

S/C                   We copy.

Carnarvon           Roger. Okay one other item. Have you had any success with  
doing D-4/D-7 417 lightning and 425 Cumulus as per measure-  
ment of opportunity. We had LOS Flight. I don't believe  
he got the last item.

Flight               Roger, understand.

Carnarvon           All the systems look good on the ground, Flight.

Flight               Rog.

END OF TAPE

Gemini Control at Houston here, 115 hours 18 minutes into the flight. Over Antigua a few minutes ago, a most interesting discussion ensued regarding the general heat pattern of the cabin. Apparently things are running a few degrees warmer than they were yesterday. Jim Lovell said that the cabin temp read 78 degrees, he guessed an actual of about 72 degrees where the men are seated. They also discussed putting Lovell's suit back on and Borman taking his suit off. Frank Borman's input was that if things were all the same to everybody else, he would like to leave things the way they are. That is still under discussion, no firm decision has been made on change-over of suits. We are looking at that as well as some of the various pump configurations that are available which might bring down the temperature a few degrees in the interests of comfort. The conversation over Antigua went something like this.

Cap Com Gemini 7, Gemini 7, Houston Cap Com.

S/C Go ahead Houston, Gemini 7.

Cap Com Roger, we observe your oral temp, it isn't - have you got your temp probe in.

S/C Not yet.

Cap Com Okay. Frank, have you eaten yet this morning.

S/C Roger.

Cap Com Roger.

S/C We are a little bit warmer up here than we would like to see it, Elliot, and it seems to be getting hotter.

Cap Com Roger. Okay we'll observe temp coming up now on the temperature.

S/C Fine.

Cap Com           Okay, stand by for the Surgeon for his discussion.

Surgeon           Frank, while this temperature probe is coming up on Jim, could I go ahead and ask you, or let's check on this meal. You had meal 15A, you had 15A apparently last night, I assume. Could you give me the time on that and then for breakfast this morning, could we get your food report.

S/C               15A.

Surgeon           Roger, 15A.

S/C               Jim didn't eat the gingerbread and I only ate two of the gingerbread. I gave that to the Canary Surgeon, I believe it was.

Surgeon           Rog. That was breakfast. That was not dinner last night? Gemini 7, Gemini 7, this is Surgeon. Do you read?

S/C               Go ahead Houston.

Surgeon           Frank, what meal did you have for dinner last night. We are missing this one meal. You didn't report a dinner meal.

S/C               That was day 7 meal C.

Surgeon           Roger, 7C.

S/C               14C, 14C.

Surgeon           14C, read 14C. We have a valid temperature. You can go ahead and get your blood pressure. Cuff didn't go full scale, Jim.

S/C               Full scale.

Surgeon           Gemini 7, we do not have a valid blood pressure here. Can you repeat that blood pressure please?

S/C               Roger, stand by. I'll pump up again.

Cap Com           Roger, Jim. Frank, while that is going on, I'd like to ask you, are you sure of the cabin temperature settings being

down full cool, both of them? We concurred about these slightly warmer cockpit, some of our data is showing that it is running a little warmer.

Surgeon

Cuff is full scale.

S/C

Our cabin temperature is full hot, our suit temperature is full cold.

Cap Com

Roger. Frank, would you check the suit temperature valve for full cold position. Our data shows that it is not at that position.

S/C

Say again, please?

Cap Com

Check the suit temperature valve position. Our data does not show full cold.

S/C

It takes 3 men and a boy to move it and I got it as tight as we can get it.

Cap Com

Roger. Frank, how about trying the cabin temperature valve full cold.

S/C

That will cut off some of the coolant fluids flow through the suit loop and should make us hotter.

Cap Com

Why don't you give it a try.

S/C

All right.

Surgeon

Gemini 7, this is Surgeon. Jim, we are still not getting a valid blood pressure here. We are not seeing any traces on it. Let's don't try and repeat it here, but I wish you would check on your microphone and the cuff here before you do any changing with the suit configuration, and also, did you have to do anything to those sensors other than just

press on that external sensor yesterday?

S/C Negative, I did not. We pressed them way up. I can check it very easily here.

Surgeon All right, fine. Frank, can you tell me what you had for sleep last night. We don't have that report yet. Could I get your sleep and the quality of it also.

S/C We slept about 6 to 7 hours last night. I think Jim slept sounder than I did. I was warm most of the evening.

Surgeon Roger, copied, 6 to 7 hours.

S/C It would be nice to have some sort of petroleum jelly or Vicks to put in your nose up here.

Surgeon Is it getting pretty dry, Frank?

S' Can you read?

Surgeon Roger, Gemini 7, I read. Frank, you could use some of the ointment that you have there, that cream. You could use some of that for your nose. I suggest that you do that if you are getting dry. Gemini 7, did you copy, Gemini 7, do you read.

S/C Houston, Gemini 7.

Surgeon Did you read your transmission about going ahead and using the ointment that is available there, Jim. I would suggest that you use that for your nose.

S/C Roger, understand that. Also, it looked like the cuff did slip down. I could see the microphone just half way out of the cuff. Want us to try.

Surgeon Jim, I think we ought to get this suit discussion here, let's hold it and we will get a recheck on your pressure and exercise later. Let's let them go on to the suit discussion now and make sure that your cuff is all right and we will check you later, all right.

S/C Roger.

Cap Com Gemini 7, we are working on the suit situation. We would like to ask for a report on the orbital flight suit at this time.

S/C Roger, I put on the orbital flight suit last night to wear to go to bed, but it is just too hot, so I removed it about 15 minutes later and stowed it. I am very comfortable just the way I am.

Cap Com Roger, I copied, Gemini 7, Jim. Jim, we would like to ask if the cabin temperature is comfortable for you in your present configuration or do you also feel somewhat warm?

S/C I am at times fairly warm. It is 78 in the cabin and the most comfortable temperature would be more like 72. However, I am presently dry, much more freedom of movement and just certainly just as cool as I would ever be in a suit.

Cap Com Roger.

S/C I opened the cabin heat control valve to full cool and the suit temperature has gone up about another half degree since I did that.

Cap Com Roger, we concur. You can turn it back down.

Frank, we are, as I said, we are working on the suit situation to accumulate further data. We would like to ask for Jim to put his suit back on and you to take yours off, over.

S/C Rog. I would prefer to leave it this way if you don't mind. It would just be a big mess we would have to get back in .. he's a lot bigger .. why do you want the change?

Cap Com Roger, Gemini 7. The purpose was to accumulate more information on the suit situation. We have your input. If you are able to change suits, we can delete the cabin temperature survey at 115 40.

S/C Okay, I would prefer, if we have to keep one suit on, I prefer to have me leave my suit on and leave Jim the way he is.

Cap Com Roger, we copy Gemini 7. We will discuss it more with you at a later pass.

S/C Roger, I also would like to go two suit compressors here if this keeps going up.

Cap Com Roger. We are looking into that and we will concur with you on that at a later point.

S/C Thank you.

Cap Com Gemini 7, I would like to complete the flight plan update. We almost finished it at Carnarvon. Could you tell me how far you got?

S/C Stand by Houston. On the flight plan update D-4/D-7 at 120 08 00, sequence 423.

Cap Com Roger. Did you get the note? Do even if cloudy?

S/C Roger, affirmed.

Cap Com Okay, then we have a question. Have you had any success with doing the D-4/D-7 sequence 417, which was lightning and 425, Cumulus clouds as measurements of opportunity.

S/C We have not had any successful on either one.

Cap Com You have not gotten either one of them.

S/C That's affirmed. We are standing by for a good opportunity.

Cap Com Roger 7.

After making an adjustment, the temperature did drop somewhat. Here is the conversation between Cap Com James Fuji at the Canary Islands and Gemini 7.

Canary Gemini 7, Canary.

S/C Roger, Gemini 7. Go ahead.

Canary Okay, what we want you to do is turn off pump B in the primary loop and turn on pump A in the primary loop. After you get done with the survey, that is the cabin temperature survey at 115 40 00.

S/C Roger, understand. Turn off pump B, turn on pump A, primary loop after cabin survey.

Canary Roger, that is affirmative. And you might take a look at your H<sub>2</sub> pressure, pump it up a little bit.

S/C Canary, this is Gemini 7. Our suit temperature has gone down a little bit since we turned the cabin heat control back to warm. I prefer not to go to pump A on that big loop. I don't

want to close the fuel cells. I would prefer though to go to pressure 1 and 2 if you don't mind for awhile, just to get us cool, then we will go back to 1.

Canary Wait one.

Flight Okay,.

S/C Meanwhile I'll run it the way I am until we get too hot.

Flight That is okay, but tell him that Houston Flight says don't worry about the fuel cell, actually running up the amperage up on the fuel cell is going to help, not hurt.

Canary Flight says we can cope with you a little bit, but turning on the primary pump A is going to bring the amperage up and it will help the fuel cell, not hurt it.

S/C Okay, when we get too warm we will turn on pump A and turn off pump<sup>B</sup>.

S/C I'm not worried about that, I'm worried about the coolant gauge or the coolant flow through the fuel cell.

Flight That is no problem either.

Canary That is no problem either.

S/C Okay.

Canary 7, Canary.

S/C Go ahead.

Canary Okay, we only read you a little bit, did you pump up the fuel cell hydrogen pressure?

S/C Roger, sure did.

Canary Okay, very good.

S/C The heaters on, thank you very much.

Canary                   Okay.

S/C                        Pretty good bottle, isn't it.

Canary                   Yeah.

Flight                    They also have the HF on again.

Canary                    Roger, we have lost contact I think.

                          Gemini 7, Canary. We have HF on again for you.

                          We've lost them Flight.

                          Gemini Control here. Minutes after leaving the Canary area,  
Elliot See remoted through Kano and this is how that discussion went.

Cap Com                  Gemini 7, Gemini 7, Houston Cap Com. Do you read.

S/C                        This is 7, loud and clear.

Cap Com                  Roger. We have been looking over the cooling situation and  
we would recommend that you go to pump A on the primary  
loop in place of pump B and go back to the one suit fan.

S/C                        Roger, when we get too warm we will do that.

Cap Com                  It looks to us like that would do more good for you.

S/C                        It might.

Cap Com                  And for less amps.

S/C                        Could we give a crew status report over Carnarvon this time?

Cap Com                  Okay, that would be fine.

S/C                        .....

Cap Com                  We've got a lot of static and I'm not reading you now.

END OF TAPE

Gemini Control, Houston here. 116 hours even into the mission. Over Australia, a most interesting discussion. Again more on the suit temperature matter. Jim Lovell's water intake, which apparently is running well behind Frank Borman's; but Lovell says that's natural; that was proved during a pre-flight ten-day test. Here's the conversation with Carnarvon.

CRO Gemini 7, Carnarvon.

S/C Go ahead Carnarvon. We're standing by for the pilot crew status report.

CRO Roger. Understand. Also, after the crew status report, we'd like to get your status on your heating problem. I'll turn you over to surgeon at this time.

S/C Roger. Pressure cuff coming up. Go ahead surgeon.

CRO My cuff is full scale.

S/C Okay. Good. We're awaiting Flight reply.

HOUSTON Tell them we have a valid blood pressure. Give us a moment before you start your exercise, please.

CRO Moment.

HOUSTON Carnarvon?

CRO Okay. We got the....

HOUSTON Gemini 7 you got the.....

CRO We got the suit inlet temperature, if you'd like the temperatures we're showing here on the ground.

HOUSTON Okay.

CRO Okay. We're showing PCM is 124 which is 49 degrees at CC 06 CC 03 left suit inlet air temperature 61 degrees, there are 12 18's. CC 04 and right suit air let temperature, 60 degrees. CD 02 which is the cabin heat exchanger and out temperature is 76.9 degrees.

A pump is on....

HOUSTON What was that last temperature?

CRO 76.9 degrees.

HOUSTON Okay.

CRO And, we still have the B pump on. Surgeon. In the water intake, we'd like to discuss this very briefly. Are you copying, Gemini 7?

S/C Go ahead.

CRO We would like to ask first of all why it is that Jim is not taking in quite as much fluid as we think he ought to, and wonder why.

Does he have a thirst at all? Is he thirsty?

S/C This is Lovell. Number one is I'm out of the suit, and Frank isn't. I'm not sweating as much as he is.

CRO Well, that's one of the problems. First of all, are you thirsty? Is the reason you're not drinking because you're just not thirsty?

S/C Just not thirsty. I think that ... (Garble) ...

CRO Very well. Is Frank sweating, frankly, just overtly sweating?

S/C He says not much.

CRO Do you notice, in looking at him, whether his skin is white.

S/C I'll let him answer that. During the 10 days before when we ran this M-7 experiment, I drank almost twice as much water as Jim did; and I think it's probably natural for me to drink a little more. I'm pretty comfortable now. Our cabin temperature's gone down. My suit temperature's going down, and we both feel we're in pretty good shape.

CRO Understand. Have you been sweating at all, Frank? Gemini 7, this is Carnarvon. Did you copy?

S/C About sweating? Yes, I'm perspiring a little.

CRO Very well. Thank you.

S/C Roger.

CRO Then, I think that your only problem then is, Jim can I get you to take in a little more water.

S/C Very well. We will. I'll start drinking.

CRO Very well. This is Carnarvon checking out.

S/C I'm drinking it now.

CRO Carnarvon.

S/C Carnarvon, Gemini 7.

CRO Go ahead, Gemini 7.

S/C As you've probably noticed our suit temperature's going down now, and our cabin temperature's also going down. We turned the cabin heat exchanger in the "High" position, and we feel that...plan on doing nothing...we've done nothing, and it seems to be clearing up.

CRO Roger, Gemini 7.

S/C And, if we get hot, we'll take White's advise and turn Pump A and turn off Pump B primary ...

CRO Roger. Did you copy all of that, Flight.

HOUSTON You can tell him I've copied, yes.

S/C If we're going to stay one suit on and one suit off, we'd like to stay just the way we are until Tom and Wally come up, and then Jim'll get back in his suit. I'd prefer not to switch out and then get back in. Let's go the way we are if we have to stay with one suit off.

CRO Roger. We'll relay this on to Flight.

S/C Thank you.

HOUSTON Tell him we're going to talk to him some more on the next pass.

CRO Roge.

S/C Wonder if we're ever going to see you all in the daylight?

CRO Repeat Gemini 7.

S/C I wonder if we'll ever see you in the daylight?

CRO We should here in a couple more days. Flight reports that they wanted to talk to you some more on the suit problem, on the next pass.

S/C Okay,

HOUSTON Let's have a LOS main when you get a chance, please.

CRO Roger, Flight. Your way, Flight.

HOUSTON Roge.

CRO By the way, Fred, I guess you copied this; but they seem to be getting more comfortable after turning the cabin heat exchanger up to maximum hot.

HOUSTON They've been in that position.

CRO Right. But I don't understand why he..... But we do, they are showing going down.

HOUSTON He's got both compressors on; hasn't he?

CRO I didn't copy that, Flight?

HOUSTON Ask him what he's done about the compressors. If he's got both of them on.

CRO Right. Gemini 7, Carnarvon.

S/C Go ahead

CRO Do you have both suit compressors on at this time?

S/C Negative. We will not do that. We were told not to do that.

CRO Roger. Understand.

S/C We've done nothing. That's Yardley's philosophy. "When in doubt, do nothing."

CRO Roge.

HOUSTON Tell him that's Kraft's philosophy.

CRO Flight Director said that's Kraft's philosophy.

S/C Okay. It's also Borman's

CRO Roger. Take it away, Flight.

END OF TAPE

MISSION COMMENTARY, 12/9/65, 10:10 a.m.

Tape 206, Page 1

This is Gemini Control Houston at 116 hours, 38 minutes into the flight. We have a bulletin for you, it's been decided to ahead and circularize this seven orbit and optimize for an eighth day launch for Gemini 6. We plan to circularize somewhat earlier than we had indicated yesterday. This will give us additional tracking time around the range. The present calls for the circularization maneuver to occur about noon central standard time. We'll have the precise values and the time a little later. The seven reaction with this, Lovell came back with a comment "excellent". Frank Borman said "We'll try to see if we can fit it into our schedule." The seven crew has also been advised that they have a go for a 90-1 flight, a 90 revolution flight. This is Gemini Control Houston.

END OF TAPE

Gemini Control Houston here, at 116 hours and 48 minutes into the flight. We have the tape conversation on the last stateside pass which contains the statement from Elliot See advising the crew that we do plan to go ahead and optimize the 7 orbit for a Gemini 6 launch Sunday, the eighth day. The optimization giving us a chance for two passes on Sunday morning. Here is that tape conversation now.

(Due to momentary mechanical failure in the PAO tape equipment, some Air to Ground was missed. The transcript has been prepared to reflect the full replay on the pass.)

CAP COM Gemini 7, Houston. Gemini 7, Houston. Gemini 7,  
do you read Houston?

S/C Loud and clear.

CAP COM You are Go for 90-1.

S/C Understand Go for 90-1.

CAP COM Roger. And you can be getting the Go No Go information  
up ready for me. I'll take it whenever you get it.

S/C Okay, Elliot, thank you.

CAP COM The GT-6 sim flight has been completed. I should  
say GG-6, or GTG-6 has been completed and we are hoping  
to launch it on the eighth day, so we want to be  
maneuvering you today. We plan to do that in about  
two hours or so.

Lovell Sounds excellent.

Borman We'll see if we can fit it into the schedule.

CAP COM Very good of you.

S/C How did the bucket of bolts come out on the sim flight?

CAP COM They made it through somehow or other.

S/C We have a Cadillac here.

CAP COM

Roger. Frank, we are moving right along on this suit situation. I believe we are making progress. I would like to get specific comments from you at this time summarizing your feelings on the suit, the comfort situation, and other pertinent factors.

S/C

Roger. Jim is very comfortable. Of course he has much better mobility outside of the suit. There's no question in our minds now that the only way to fly these things is without pressure suits. This get-me-down suit is a great idea, they should be stored on board somewhere and used in an emergency. If we have to keep one suit on I would prefer to keep one on so that we do not have to change and change<sup>out</sup> again, because we both want them on for the rendezvous. If it's agreeable with people I'd like to take mine off. We have the cabin suit temperature has gone down now, so I'm not as uncomfortable as I was and I found a place to sit in the spacecraft where I take advantage of some circulation from Jim's hose and it cools me off also.

CAP COM.

Roger, do you have any additional comments regarding the feasibility, or the advisability of doing the full duration...why don't you discuss the configuration regarding the full duration?

S/C

The full duration, I'm convinced we could run the

whole works without suits. As a matter of fact, that would be the most desirable way, however I think for the rendezvous we'd probably want to have the suits on. If it would be convenient with people, we would like to have suits on the rendezvous and take them off again til, say, one day before reentry.

CAP COM

Roger, we copy.

S/C

Along that line, Elliott, I think we'll need about six hours the day before to get the spacecraft in reentry configurations so we can repack and get everything we want in the way of reentry.

CAP COM

Roger. You can stand by for a TR update.

S/C

Roger

CAP COM

We didn't get a map that time, we'll be transmitting it again in a minute.

S/C

Update received, Elliott.

CAP COM

Roger. We got a good map here too, we are in good shape. Would you place your TM switch back to command if you haven't done so already.

S/C

Roger, we're in command.

CAP COM

Stand by for Flight.

HOU FLIGHT

Gemini 7, Houston Flight.

S/C

Go ahead, Flight.

HOU FLIGHT

We talked this heat situation over with the experts here and if your problem is perspiration

they agree with you with regards to turning on an additional compressor to get more air flow. If, however, the problem is really suit inlet temperature, we feel that the best way to do it is to use the primary pump A rather than B because this does triple the flow to the suit heat exchanger. The problem is probably due to the water boiler temperature being somewhat warm as a result of the high cabin temperature. So you can use the system as you see fit on that basis.

S/C

Roger, Chris, thank you. As I said, things seem to be under control. If we do get warm again I'll go to Primary pump A and B off.

HOU FLIGHT

Roger.

S/C

....we have a Go No Go for you.

CAP COM

Okay, go ahead.

S/C

Roger. All main batteries are okay. Fuel cell stack 1A and 3.5, 1B 4.0, 1C 4.0, 2A 3.0, 2B 3.0, 2C 5.0, RCSA 3,000 80 degrees, RCSB 2900 75 degrees, left hand secondary O2 (garbled) right hand secondary O2 5300.

BDA CLP COM

Bermuda remote.

CAP COM

Roger. We missed the left secondary O2 pressure and we do not have the bus voltage yet.

S/C

The bus voltage is 27. Left secondary O2 is 5400.

CAP COM

Roger, copied.

S/C

Thank you.

CAP COM

Roger. I hope to have some more work for you

regarding the suits before too long.

S/C

Okay, Elliot, no problem, thank you very much.

Didn't want to cause anybody any trouble.

CAP COM

I believe we've got a little time here, Gemini 7,

I'll give you some of the news of the day.

S/C

Sounds great.

CAP COM

Incidentally, are you aware that the HF is up?

S/C

Roger. We're turning it off with these passes

so we're reading a lot better with it off.

CAP COM

Roger. There was a big demonstration in Moscow yesterday against U. S. policy in Viet Nam. McGeorge Bundy has resigned his White House position to become President of the Ford Foundation. U. S. Steel indicates it might build a new steel mill in Baytown. Tommy Nobis still hasn't made up his mind whether he wants to play for Houston or Atlanta, and finally, John Unitas is out for the season. He suffered torn ligaments in their game with Chicago Sunday.

S/C

Hey Elliot.

CAP COM

Go ahead.

S/C

Will you please tell Nobis to sign with Houston?

CAP COM

Roger. We'll tell him a voice from outer space sent that message. We'll keep you posted on the maneuver plans.

S/C

Roger.

CAP COM

Gemini 7 Houston. Surgeon has a question. Can you comment on the charcoal situation?

Borman

I think I'll refer that one to Jim.

Lovell

We need more charcoal and less lithium hydroxide.

CAP COM

Roger, we copy.

END OF TAPE

Gemini Control Houston at 117 hours and 14 minutes into the mission. Over the Kano station and then just in the past 60 seconds over the Tananarive Station, we've had conversation. We'll play the Kano conversation first.

KANO STATION Just a few seconds to talk to you here. We'd like to suggest you might start lunch a little bit early. We may have you a little bit busy here. We plan to power up at Carnarvon for your burn and will be giving you the burn in about two hours from now.

S/C Roger, understand. We'll start lunch early. Right now we're.....

KANO STATION Roger.

Gemini Control Houston again, that concludes the Kano conversation. There was a little bit of additional conversation while passing over Tananarive and in a few seconds we'll have that racked up and ready. We're advised it's ready, we'll play it now.

HOU Tananarive go remote.

TAN Tananarive remote. Tananarive has acquisition.

HOU Gemini 7, Houston do you read?

S/C Loud and clear Houston, Gemini 7.

HOU Roger, Didn't get to talk to you very long at Kano. Are you clear on our situation here? We plan to do the maneuver in just about two hours from now and we plan to start powering you up at Carnarvon on this pass.

HOU Do you read?

S/C Understand, power at Carnarvon this pass.

HOU Roger. We suggest you might consider starting your lunch early just to kind of relieve the situation here. We might have you a little busy.

S/C Roger, we will do that.

HOU Roger.

S/C What about the D-12, will we still do that?

HOU Stand by let me see where that is. Yes, you should be able to do that. That will be well ahead of time.

S/C Okay. Houston, 7.

HOU Go ahead.

S/C We have according to our calculations, **10 minutes** and 15 seconds on the D-4,D-7 tape.

HOU Ten and 15 seconds is that correct?

S/C That is correct

HOU Roger.

S/C Gemini 7

HOU Go ahead

S/C S-8/D-13 Lovell missed 7 and Borman missed 11 this morning.

HOU Roger, Lovell 7 and Borman 11.

END OF TAPE

Gemini Control Houston here at 117 hours 37 minutes into the flight of 7. We still do not have the precise numbers on our maneuver table. The computers are grinding away and as soon as flight dynamics has them, they will pass them on to us, but in general, our plan is this. About 95 minutes from now, during the next rev in the Australia area, we will do a perigee adjustment, an adjustment which will bring the perigee up from its present 127 miles up to approximately 162 miles. A half a rev later in the area of Antigua just off Antigua just off Antigua, we will do an apogee adjustment, adjusting the apogee down from its present 169 miles down to about 162 giving us a circular 162 mile orbit for Gemini 7. We will have precise times and burns for you in the next 30 minutes. Meanwhile we have had this conversation over Carnarvon in the last 3 minutes.

Carnarvon Gemini 7, Carnarvon Cap Com.

S/C Go ahead Carnarvon, Gemini 7.

Carnarvon Roger, I have a flight plan update for you.

S/C Just a minute. Ready.

Carnarvon Roger, you can start your normal power up to align with procedure at the present time. There is one exception to that, they want the A pumps on in both loops prior to switching the platform on.

S/C Want your A pumps on in both loops prior to putting platform on.

Carnarvon Rog. You can start that now.

S/C Thank you.

Carnarvon Okay, Gemini 7. We would like MSC-2 and 3 on at the present time.

S/C Plan update too?

Carnarvon That's affirmative.

S/C Okay, thank you. We'll do the powerup check list now,  
Carnarvon.

Carnarvon Roger, we'll stand by.

S/C Okay, go ahead Carnarvon.

Carnarvon All righty. On that MSC-2 and 3, it will be off at 136 00 00.

S/C Say again.

Carnarvon Roger, MSC-2 and 3 will be off 136 00 00.

S/C Roger.

Carnarvon Okay, at 118 07 00, power up the computer.

S/C Roger.

Carnarvon 118 55 00, UHF test, delete.

S/C Say again the time.

Carnarvon 118 55 00, delete the UHF test.

S/C Roger.

Carnarvon Okay. 119 00 00, bio-med recorder number 1 on.

S/C Roger.

Carnarvon MSC-12 at 119 48 28, delete.

S/C Roger.

Carnarvon MSC-2 and 3, 120 00 00, delete.

S/C Roger.

Carnarvon Okay, that is all the flight plan updates for the present.  
You are looking good on the ground. We are standing by.

S/C Thank you very much. Everything looks good up here now too.

Carnarvon Roger. My flight plan update is turning out.

Flight Very good.

Carnarvon Did I miss anything on that?

Flight Negative.

Carnarvon We have shown a 4 degree drop in the suit heat exchanger temperature since Canary Islands sent a message.

Flight Roger. 4 degree drop.

Carnarvon That's affirmative.

Flight What is the radiator outlet temperature, Carnarvon.

Carnarvon Meter is showing a -6, we are getting an attempt for another right now. We are showing him with both A pumps on and we are showing that he has the IU on and we are showing that the platform is caged at the present time.

Temp probe 18 gives us -6.8 degrees.

Flight Good.

Carnarvon Roger.

S/C Carnarvon, Gemini 7.

Carnarvon Roger, Gemini 7.

S/C Do you have anything on the MSC experiment coming up at 118 12 52?

Carnarvon Negative Gemini 7 on that.

S/C They did not delete that one, is that right.

Flight That's correct.

Carnarvon That's affirmative Gemini 7.

S/C Okay, thank you.

Carnarvon We have had LOS. Boy that just came in as he was going over the hill too.

This is Gemini Control Houston again . Since the last State side pass I think you heard in the tape that Borman's interest in Tommy Novis's future, Novis is the talented linebacker who played for the University of Texas.

He is debating whether to play for Atlanta or for Houston. We contacted Nobis at Austin and Nobis was much impressed with the fact that Borman was taking such an interest in his future. He said, and I quote, "It means a lot to me to have a man of his stature taking an interest in this decision." Unfortunately he said he still was undecided as to which way he was going to go, Houston or Atlanta, but he emphasized several times in the conversation that - how much he appreciated Col. Borman's interest. This information will probably be passed along to Frank during the next State side pass 25 minutes from now. At 117 hours 44 minutes into the flight, this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston at 117 hours, 56 minutes into the flight. The spacecraft is just north and east of Canton Island. While in the Canton area, Elliot See called 7. He brought Frank Borman up to date on the Tommy Novis situation and Frank Borman had some trouble with the urine bag. The conversation went like this.

CAP COM ...7, Houston Cap Com, how do you read?

S/C Fine, Houston.

CAP COM Roger, do you have pretty good contact at this point.

S/C Roger.

CAP COM Roger, Mr. Haney passed along your message to Tommy Novis at Austin and he was genuinely impressed over your interest. He said quote, "It means a lot to have a man his stature taking an interest in the decision." Unfortunately he was still undecided and at this point he couldn't tell which way he would go, but he ask us to thank you for your interest.

S/C Thank you, Elliot. If you happen to see Dr. LaChance, would you tell him I'd like to see him when I get back?

CAP COM                    Roger, you have a subject?

S/C                        Yes, one of my urine sample bags just came  
apart in my hand.

CAP COM                    Just came to pieces?

S/C                        After filling it.

CAP COM                    Before or after?

S/C                        After.

CAP COM                    Very good, you just struck a blow.

Gemini 7, Houston, the Flight Surgeon's message  
is, "Sorry about that, Chief."

S/C                        This is Gemini 7. That platform is up, we're  
going to go right now.

CAP COM                    Roger 7.

HAWAII                    Hawaii has TM solid.

HOUSTON                   Roger, Hawaii. Canton go local.

HAWAII                    Gemini 7, Hawaii Cap Com.

END OF TAPE

The is Gemini Control Houston at 118 hours, 3 minutes into the flight. Elliot See has just put in a call to the spacecraft which is some 4 to 5 hundred miles off the coast and let's cut into that conversation live as they swing across the States.

CAP COM We will be giving you a fairly lengthy flight plan update here, Jim. You can get your book out and also toward the end of the pass we expect to have the maneuver updates for you.

S/C I'm about set to take the update to it.

CAP COM Roger. Before we start that, the Flight Surgeon has a question. "Did you get another sample for the one that was lost?"

S/C We're still trying to get it.

CAP COM Very good. OK, first item, node time 119 21 28, rev 75, 169.5 degrees east, right ascension 11 22 29, time 120 36 00, purge fuel cells at Carnarvon, time 121 00 00, bio-med recorder No. 1 off, do you copy?

S/C Roger, copy.

CAP COM S6, 121 15 15, sequence 10, pitch 30 degrees down, yaw 8 degrees right, S6, 122 32 21, sequence 10, pitch 30 degrees down, yaw 37 degrees right, time 122 52 00, crew status report on the Command Pilot at Texas, MSC 2 and 3, 123 13 00, sequence 04, stop at 123 23 00, D4/D7, 123 31 30, sequence 415 and 416, mode 02, do you copy?

S/C I copy. Now do you want us to turn the computer on now?

CAP COM Roger, go ahead.

HOUSTON Texas remote, California local.

TEXAS Texas remote.

CALIFORNIA California local.

S/C Computers on prelaunch, .... light is green.

CAP COM Understand computer on prelaunch, please say again the rest.

S/C The running light is green.

CAP COM Roger, ready to copy the rest of the update?

S/C Roger.

CAP COM Time 124 13 00, crew status report on the Pilot at Hawaii, 124 45 00, POA update at the RKV, 125 30 00, purge fuel cells at the CSQ, 125 30 00, flight plan report, 126 00 00, bio-med recorder No. 2 continuous, off at 136 00 00, do you copy?

S/C Roger, copy.

CAP COM OK, I'm ready to give you the maneuver updates for the two burns. We'll be doing this in two burns. Let me know when you're ready to copy.

S/C Let you know when.

CAP COM OK, the first burn, GET of the burn 119:11:55. Delta V 61.2. Burn time 1 plus 18. Yaw zero. Pitch zero. Thrusters aft. Maneuver posigrade. Did you copy?

S/C We've copied.

CAP COM Would you read that maneuver update back, please.

S/C Roger. GET 119:11:55. Delta V 61.2. Delta T 1 plus 18. Yaw zero. Pitch zero. Aft thrusters. Maneuver posigrade.

CAP COM Roger. Second maneuver; GET of the burn 119:55:01. Delta V 12.1. Burn time 15 seconds. Yaw 180. Pitch zero. Thrusters aft. Maneuver retrograde. Repeat that, please.

S/C Roger, Elliot. GET 119:55:01. Delta 12.1. Delta T 15 seconds.  
Yaw 180. Pitch zero. Thrusters aft. Retrograde.

CAP COM That's correct, Gemini 7. That is correct, Gemini 7.

S/C Would you give me an update for our digital clock?

CAP COM Roger. I'll give you a mark at 118 hours and 12 minutes about  
5 seconds from now; 3, 2, 1, mark. 118:12:00.

S/C Roger. We're exactly the same.

CAP COM Roger. I have a star reference for your perigee adjust; that is  
your first maneuver.

S/C Go ahead, Elliot.

CAP COM This is for an SEF alignment. You will pass between Denebola and  
Spica. Arcturus will rise at 119:06:04. You should align 12.4  
degrees below and 1.3 degrees left of Arcturus. And, you have the  
burn time of 1 plus 18.

S/C Roger. Houston, Gemini 7.

CAP COM Go ahead.

S/C We'd like to delete this MSC 12 at 118:12:52, please.

CAP COM Roger. We have that.

S/C Thank you. Houston, Gemini 7. Do you have anything further for  
us?

CAP COM That's all we have at this time. Were you able to get your lunch  
taken care of there? We kept you pretty busy in this area.

S/C No we have not eaten yet.

CAP COM Roger.

S/C We'll go ahead and put these updates in and then eat and then make  
the burns.

CAP COM Roger. Did you understand that the UHF check and all the procedures  
with it will be deleted on this pass?

S/C Yes. Thank you.

CAP COM Roger. You have a TX coming up.

S/C Roger. We noticed the tape dump over Houston also.

CAP COM Roger. Gemini 7, Houston. Did you receive the TX?

S/C Negative.

CAP COM Seven, we're sending the TX again.

S/C Roger. Standing by. Still no TX, Elliot.

CAP COM Roger.

S/C We received the TX, Elliot.

CAP COM Roger, Seven. Understand you received the TX. Gemini 7, Houston. We note that the suit inlet temperature has gone down about 10 degrees now. Has it cooled off satisfactorily?

S/C It's very comfortable here now, Houston. Very comfortable.

CAP COM Roger.

Gemini Control here. The Seven Spacecraft is moving out of the Bermuda Circle, across the Atlantic. You heard Elliot See update the crew on their maneuvers which will be performed during this orbit. Approximately 50 minutes from now, in the area of Australia, the crew will perform a posigrade burn, lifting their perigee from 127 up to about 162. Forty-five minutes later over the Antigua area, they will perform a retrograde, a short burn, burn of only 15 seconds duration. And this will have the effect of dropping the apogee some 7 miles down to 162 giving us a circular. Here's Elliot trying to call again. Let's go back to live action.

CAP COM We show a change in the temperature drop from the control valve outlet to the heat exchanger inlet from a previous value of 15 degrees to the present value of 5 degrees. We feel that that's the difference that this higher flow is making.

S/C Believe you're right.

GRAND TURK           LOS Grand Turk.

Gemini Control again. You heard Grand Turk report an LOS, and that will probably conclude the conversation for this pass. Based on the expected values from these two burns we just discussed, it presently looks like the following times would apply to our launch windows for 6. I want to emphasize that these are tentative figures as yet. They will certainly change, or could change, by the precise values we get from the burns; and they may also change on subsequent reruns, computer reruns during the early part of the afternoon. But, our best estimate right now for a Sunday launch of 6 is 9:53 Eastern Standard Time. That's for the first window. It will extend to 10:40 a.m. Eastern Standard Time. We have a second window available on Sunday beginning at 11:29 a.m. Eastern Standard Time, and lasting until 11:59. On Monday, we would have one window available. It looks like it would start at 9:55 a.m. Eastern Standard Time and run to 10:42. Tuesday again we have a very short window available early in the morning. We would pass that up, it looks like presently; and just go for a single window on Tuesday beginning at 10:00 a.m. and lasting until 10:47 a.m. Eastern Standard Time. At 118 hours, 24 minutes into the mission, this is Gemini Control in Houston.

END OF TAPE

Gemini Control Houston here, 119 hours 2 minutes into the flight. The spacecraft has just come in contact with our Carnarvon station and there is a fairly animated discussion going on between Frank Borman and the Cap Com down in Australia. Borman opened the conversation by kidding the Cap Com about being a little hoarse. Let's cut in there now and find out what is going on. They are standing by to make their burn, by the way which should occur about 8 minutes from now.

Houston here again. The computer is up for the burn, so is the guidance platform. We will stand by for additional conversation.

Houston here, the time of the burn is to be 119 hours 11 minutes 55 seconds, it is now 119 hours and 5 minutes. The burn is to last 1 minute and 18 seconds. It calls for a delta velocity increment of 61.2 feet per second. It will be a posigrade burn.

One additional item, from the Cape we learned that the Gemini 6 crew has completed their preflight physical. Dr. Duane Catterson, an MSC Surgeon is there. He advises that the Gemini 6 crew, Wally Schirra and Tom Stafford are fit in every respect and looking forward to their mission.

S/C TM is real solid on this pass, boy it has been sitting in there nice nice.

Carnarvon That is those good attitudes.

S/C Yeah. He is really holding his attitudes in there tight.

Carnarvon We are showing him about 5 minutes and 8 seconds to burn.

Flight Tell him not to acknowledge your transmission, but that we want him to raise the hydrogen pressure up when he gets through with the burn.

Carnarvon Gemini 7, Carnarvon Cap Com. Do not acknowledge, but we would like to have you raise the hydrogen pressure up after you complete the burn.

S/C We've got the heater on now.

Carnarvon Rog.

S/C Carnarvon, Gemini 7.

Carnarvon Roger 7.

S/C We've got Arcturus. We are right on the money.

Carnarvon Roger. We are monitoring you on the ground and you look real good.

Flight What ACME mode is he in?

Carnarvon He is in platform, Flight.

Houston here. Our clock now reads 9 minutes 32 seconds after an elapsed time of 119 hours. We are about 2 minutes from burn. It is questionable that we will still be in voice range of Carnarvon when the burn takes place.

Carnarvon We are sending an OBC right now.

Flight Rog.

S/C Carnarvon, Arcturus is just right in yaw but it look like the measurements might have been off a little bit as far as pitch goes, I don't think we are going to be that far below it.

Carnarvon Roger. Carnarvon has had LOS.

Flight Roger LOS Carnarvon.

Carnarvon Okay, we are still looking good here. Did you copy that transmission about being on in yaw but ..

Flight Roger, we copied.

Carnarvon Boy, his attitudes were sure 0, 0, 0 when we had LOS.

Gemini Control Houston here. I believe you heard Carnarvon say that they had lost acquisition, so it will be some 5 or 10 minutes up in

the area of Canton Island before we know how their burn turned out. As soon as we get word on that we will come back to you. At 119 hours 11 minutes and 20 seconds into the flight, this is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston at 119 hours, 24 minutes into the flight. In the 60 seconds, Elliot See has raised the 7 spacecraft north of Canton Island and the crew has confirmed they completed their burn successfully. Apparently very close to the tolerance given them, in both time and velocity. See also congratulated them on passing the Soviet single spacecraft record time in flight of 119 hours and 6 minutes. Jim Lovell's comment on that was it sounds interesting but frankly they're more interested in Pete and Gordo, Pete Conrad and Gordon Cooper's record of total time in space at this point and the crew, the 7 crew was reminded they're bearing down on that mark right now. Conrad and Cooper flew something over a hundred ninety hours in August. We'll come back to you with the conversation as quickly as we can.

Gemini Control Houston here 119 hours, 27 minutes. We have now the Canton Island conversation between Elliot See and 7 regarding that perigee adjusting burn. Here it is.

CAP COM ...7, Gemini 7, Houston Cap Com.

S/C This is 7, go ahead.

CAP COM Roger, how did the burn go?

S/C Very well. We broke our Delta V. Our time

was 4½ seconds posigrade. ...Delta V.

CAP COM Roger. How was the star reference? It was calculated for the time of the middle of your burn.

S/C Roger. It went all right.

CAP COM Roger. We will be updating your computer on the next pass over the US with a 90-1 load.

S/C Roger. We'll have a computer update over the U.S. with a 90-1 load. Thank you.

CAP COM Roger, and we'd like to pass up our congratulations on your passing the Soviet duration record.

S/C That's interesting but we're more interested in Pete and Gordo's record.

CAP COM Roger, you burned out on that one. Gemini 7, could you tell how soon before the burn you pushed the start comp?

S/C .....we pushed the start comp on about four or five minutes before the burn.

CAP COM That's about four or five minutes before the burn, roger. We want you to power down after the next burn but leave the A pumps on for about one hour after that.

S/C Roger, leave the computers on and leave it  
up, Elliot.

CAP COM You can bring it down after the burn when  
you power down.

S/C Understand leave the computers down also.

CAP COM That is correct. I would like to advise  
that all retros from now on are based on  
a 20 degree nose down attitude.

S/C Roger, thank you. ....

CAP COM Roger.

END OF TAPE

Gemini Control again. There are no flight plan items scheduled over Hawaii nor are there over the States. The next burn is programmed for 119 hours, 55 minutes and 1 second. That will be 25 minutes from now and it'll take place just after they lose touch with the Bermuda station out over the Central Atlantic. Then the flight plan calls for them power down their various pieces of electronic gear to perform a D7/D4 experiment over Ascension Island, do a fuel cell purge over Carnarvon. Still no conversation from Hawaii. We'll stand by.

This is Gemini Control here. Apparently this will be a quiet pass. No any indication of any comments going either way. Gemini Control out at 119 hours, 32 minutes.

END OF TAPE

Gemini Control here at 119 hours 54 minutes into the flight and we are about 15 seconds from our burn. The crew is onboard waiting. Let's tune in and try to catch this as it happens.

S/C Burn complete.

Cap Com Roger Gemini 7.

S/C Proceeding with powerdown.

Cap Com Roger, 7.

S/C I understand that you don't want us to purge until 2 hours from now?

Cap Com That is correct, we will get you an update on that and if you copy we want you to leave the A pumps on for one hour.

S/C Affirmative, we will.

Cap Com Roger.

S/C Leaving the computer in prelaunch for 48 seconds for you Elliot.

Cap Com Roger 7, and we would like an OAMS quantity readout.

S/C Roger, now reading 33 percent.

Cap Com Roger, 33 percent.

S/C When can you give us an update on how we came out?

Cap Com Soon as we get some tracking.

S/C Okay.

Cap Com That is as soon as we can run a trajectory on it.

S/C I don't think we were in catchup 5 minutes before the big burn, it was more like about 3 minutes. We had (garbled) but then we switched back on just to check it.

Cap Com Roger, 7.

Grand Turk LOS, Grand Turk

Gemini Control here. The range has advised that we have lost signal at Grand Turk. Here is Elliot up again.

S/C After that we will have to.

Cap Com Roger.

Gemini Control here. That should wrap up conversation. During this State side pass we were piping up some Trini Lopez music. Lopez's band is a favorite of Jim Lovell's and it was a record called, "What did I say." Then he listed a comment from Jim Lovell to the effect that we showed excellent judgment in selecting the music today. Here is the tape of the conversation as 7 swung across the States.

Flight Houston Flight.

Hawaii Houston Flight, Hawaii Cap Com

Flight We would like another main at LOS.

Hawaii Roger. Flight, Hawaii Cap Com.

Flight Go ahead.

Hawaii Okay, he just switched over to catchup. Are you going to update him over the States?

Flight We are going to give him a DCS load.

Hawaii Do you want him to go back to Prelaunch for the load?

Flight I think so, stand by one.

Hawaii Okay, I'm coming up on LOS. I guess you can (garbled). I just had C-band LOS.

Flight Yes, that is affirmative. We want him in prelaunch. We will pick him up here.

Hawaii We had TM LOS.

Flight Rog.

Flight This is Houston Flight.

Guaymas Flight, Guaymas.

Flight You might tell him to put it to prelaunch for us.

Guaymas Roger, will do.

AFD This is Cap Com AFD

Guaymas AFD, Guaymas.

AFD Okay, got your mission instruction.

Guaymas Rog.

AFD Okay, the telemetry will be on for you.

Guaymas Rog.

AFD And we don't have anything for you.

Guaymas Roger.

Guaymas Guaymas.

Flight Go ahead.

Guaymas He is in the Prelaunch Mode.

Flight Rog.

Guaymas All systems look good.

Flight Rog. Tell him that the Hawaii data confirms his burn.

Guaymas Roger. Gemini 7, Guaymas Cap Com.

S/C This is 7, go ahead.

Guaymas Roger, everything looks real good here on the ground. The Hawaii radar data shows that your burn was real good.

S/C Very good. This is Gemini 7.

Guaymas Rog.

S/C Our flight plan calls for a purge at 120 37, probably after we power down but we understand that we should purge before powering down or wait at least 2 hours after power down to

purge. Could you check it out with Flight please.

Guaymas Roger, will do. Flight, did you copy.

Flight Yes. Stand by. We want to wait until 2 hours after powering down.

Guaymas Rog. Gemini 7, Guaymas.

S/C Go ahead.

Guaymas They would like to wait until 2 hours after you power down.

S/C That is fine with us.

Guaymas Guaymas.

Flight Go ahead.

Guaymas He looks real good here, BEF.

Flight Roger.

AFD AFD.

Guaymas AFD Guaymas

AFD Are you listening to our HF.

Guaymas Sounds real good.

Cap Com Gemini 7, Houston.

S/C This is 7, go ahead.

Cap Com Roger. Are you ready for your update, computer in prelaunch.

S/C Roger.

Cap Com Roger, stand by.

S/C Did receive.

Cap Com Roger and we got good maps here. Hey 7, I would like to discuss briefly with you the IVI's before your burn. Did you set your first start comp 5 minutes before the burn, did you notice any change in the IVI's. I'm sure you didn't.

S/C Negative, Elliot, you are right. We did not receive any change.

Cap Com Roger. We would like to suggest that you wait until 1 minute before the burn to push start comp to minimize the possibility of accelerometer bias building up. If you want to you could set them up ahead of time and check them out in once, but we would like you to wait until about 1 minute before the final one.

S/C Roger, will do.

Cap Com Gemini 7, we observe you are BEF and we have verified that your 90-1 load is correct.

S/C Roger.

Cap Com Gemini 7, you have a TX coming up in about one-half a minute. Gemini 7, would you give us a propellant quantity readout.

S/C We read 35 percent onboard.

Cap Com 35 percent, roger.

S/C This is 7.

Cap Com Go ahead.

S/C You have an excellent selection of music.

Cap Com Roger, we will pass along your compliments to the Chef.

Flight I know what I'm going to have to talk about at the Press Conference today after you said that.

S/C Please don't.

Cap Com CM3 asks if you like that classical music.

S/C I'll save it just for you.

Cap Com Gemini 7, we have you coming up on 4 minutes to the burn. Mark, 4 minutes to burn.

S/C 7 concurs.

S/C Gemini 7.

Cap Com Go ahead.

S/C We picked up that lightning for you.

Cap Com Very good. Gemini 7, coming up on one minute to burn.  
Mark.

S/C 7 concurs.

Cap Com Roger.

S/C Complete.

Cap Com Roger Gemini 7.

S/C We will power down.

Cap Com Roger 7.

S/C I understand you don't want us to do a purge until 2 hours  
from now.

Cap Com That is correct. We will get you an update on that. Did  
you copy we want you to leave the A pumps on for one hour.

S/C That is affirmative. We will

Cap Com Roger.

END OF TAPE

Gemini Control, Houston, here at 120 hours, 19 minutes into the flight. We have a brief tag in to our Stateside pass that started after we thought all conversation was impossible. We'll play that first for you, come back with some Ascension conversation, and see what happens after that. First, this is a brief last leg portion of the Stateside pass out of Antigua.

S/C Computer is in pre-launch for 48 seconds, Elliot.

CAP COM Roger, Seven. And, we'd like an ohms quantity read up.

S/C Roger. Now reading 33 %.

CAP COM Roger. 33%.

S/C When could you give us an update on how we came out?

CAP COM Soon as we get come tracking. That is as soon as we run a trajectory on it.

S/C I don't think we were in pre-launch, or in catch up, five minutes before the big burn. It was more like three minutes. We had (Garble)... there, but then we switched back on just to check it.

CAP COM Roger, Seven.

GRAND TURK LOS Grand Turk.

CAP COM You can go back to being stingy with your fuel again.

S/C After that, we'll have to.

CAP COM Roger. Gemini 7, Houston. Looks like the lift off time for 6 will be about 9:54 Cape time.

S/C ...(Garble)...

CAP COM That's on Sunday.

ANTIGUA Hello. This is Antigua.

That concludes the Antigua portion. When we get the additional tape racked up, we'll come back to you and play it then. Gemini Control out.

This is Gemini Control again. We are ready now with some tape over Ascension Island, and let's have it now.

S/C Flight. This is Gemini 7.

ASCENSION Ascension LOS.

HOUSTON Gemini 7, Houston.

S/C Hello, Houston.

HOUSTON I'd like to report that it appears from all indications that your burn was exactly what we wanted. We....You were in excellent shape for the launch.

S/C Houston .....(Garble).....

HOUSTON Understand your OAMS Quantity Gauge has gone to 31%. Is that correct?

S/C ...(Garble)... I said about 33%.

HOUSTON 33%. Roger. We are working on a very accurate quantity remaining figure, and we will give that to you at Carnarvon. Gemini 7, Houston. I'd like to advise that the 33% OAMS quantity indication is exactly what we expected you to end up with.

S/C Roger, Houston.

HOUSTON Ready to update you on the fuel cell purge times when you can copy.

S/C Go ahead, Houston.

HOUSTON Roger. You can delete the purge at 120:36:00. The new time for that one is 122:14:00. And, that will be at Carnarvon. You can delete the purge at 125:30:00. The new time for that one will be 126:21:00 at RKV. Do you copy?

S/C This is as follows: Delete purge at 120:36:00; and new time at 122:14:00. Delete purge at 125:30:00; and new time at 126:21:00 purge. Is that correct?

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HOUSTON            That's correct.

CRO                Gemini 7. LOS. I'm at Carnarvon.

END OF TAPE

This is Gemini Control Houston, 120 hours, 48 minutes into the flight. Over Carnarvon a few minutes ago, there was this conversation.

S/C Go ahead.

CRO We have some revised PLA information for you when you're ready to copy.

S/C Go ahead, Carnarvon.

CRO Roger. Area 77-4 122 17 29, 21 plus 59. Area 78-4 123 52 22, 22 plus 00. Area 79-3 125 10 12, 21 plus 49. Area 80-3 126 45 53, 21 plus 56. The weather is green all the way. That is based on the 20 degree pitch down in attitude.

S/C Roger. If I don't have these, what do I do? .....

CRO It's pretty close to circular, stand by here, and we'll see what they have. We'll need a little more tracking data to get an exact fix on it.

FLIGHT Carnarvon, stand by, and I'll give you some information. Based on your data and putting that together with all the other that we have we say he has 60 pounds of MMH, 128

pounds of usable propellant, his actual  
guage reading at 34 percent and his onboard  
--stand by now. Actual 34, guage 31.

CRO

Say again.

FLIGHT

I was going to give you his orbit based  
on Pretoria data 163.2 by 161.7 and that  
compares to what we were going for of 161.7  
163.1, and we're predicting that'll be just  
about 161 circular, maybe 161 by 161.5.

CRO

All righty. I'll give him what we have  
right now.

FLIGHT

Right.

CRO

Tell him it will be updated some more maybe.

FLIGHT

No, that last figure I gave you is what  
they figure it will be decayed to by the  
time of spacecraft 6 launch.

CRO

Give me that last six figure again then,  
please.

FLIGHT

161 by 161.5 is about what we're predicting  
for the spacecraft 6 launch day.

CRO

Roger, Flight. Gemini 7, Carnarvon Cap Com.

S/C

Sounds up.

CRO

Rog. Present tracking indicates that you're

163.2 by 161.7. We're estimating that by  
GT-6 launch date you'll be in a 161 by 161.5.

S/C Roger. Thank you.

CRO All right. Rest of the available information  
at the present is that there are 80 pounds  
of MMH left, 128 pounds of usable propellant.

S/C Thank you.

CRO Right-O. Okay, and guage reading is 34 per-  
cent next to 31.

S/C Thank you.

FLIGHT ...on 31 guage.

CRO OK. I guess I gave that to you backwards.  
It's 31 guage which is actual 34 percent.

S/C Rog. Stand by and let me check my guage.

CRO Right-O.

S/C ...it reads 33, 34 percent.

CRO Roger.

FLIGHT Tell them that Flight thinks they do good  
work.

CRO Flight says he thinks you do very good  
work up there.

S/C Say again, please.

CRO Flight just said he thinks you do very

good work.

S/C Thank you. We get a lot of good help for  
the right Delta V's obviously.

CRO Right-O.

HOUSTON Gemini 7, Carnarvon, Flight Surgeon would  
like to know if you've been doing your  
exercises.

S/C We're doing our exercises.....and we missed  
just one.

HOUSTON Roger.That's good because we can't read it  
out on the TM.

S/C Everything fine.....cockpit up here.

FLIGHT Say they were doing in the cockpit?

CRO Said they were really vibrating around  
up there. OK, we've had LOS, Flight.

END OF TAPE

Gemini Control Houston here, 121 hours, 12 minutes into the flight with the spacecraft mid way between Hawaii and the states. Over Hawaii they had this conversation.

HAW Gemini 7, Hawaii Cap Com, we show you go on the ground, you need not answer.

S/C All Right, Hawaii, thank you.

HOU FLIGHT Hawaii Cap Com, Houston Flight

HAW This is Hawaii Cap Com, Houston Flight

HOU FLIGHT We'd like an appraisal of the weather over Hawaii. for the possibility of scheduling a Laser test in a couple of revs. We'd like to know what they think about it.

HAW Roger, will do.

Gemini 7, Hawaii Cap Com. We'd like your appraisal of the weather over Hawaii at this time.

S/C We're just beside Hawaii and we can't see you.

HAW Roger. We'll pass back.

S/C Thank you.

HOU FLIGHT Flight did you copy?

Haw Affirmative, we copy.

HOU FLIGHT You might tell them, we're interested from the stand point of a Laser test there and that if they can arrange

HOU FLIGHT           to be looking in the right direction their next pass, we'd appreciate their appraisal.

HAW                   Roger, will do. Although, they'll be pretty far. We'd like to have your appraisal on the next pass of the weather if you can arrange it to be in proper position, so we can possibly schedule the Laser for later on.

S/C                   Very good, we'd like to do that. We'll give you the report.

HAW                   Roger.

Gemini Control Houston back here. Guaymas has just advised they have TM solid. We should have voice communication momentarily.

This is Houston again. The crew is performing the S-6 experiment in this early portion of the pass--a weather photography situation. They probably won't get me conversation until well into the Texas portion. So we'll come back when we have conversation.

END OF TAPE

(First part of commentary not recorded on tape) 22 minutes into the flight and we anticipate Elliot See will be calling the spacecraft momentarily. We will stand by.

Cap Com           ...equipment at White Sands and Hawaii are both up, Ascension is expected up at 6 o'clock eastern standard time tomorrow. At present the weather is pretty good in both Hawaii and Ascension but bad at White Sands, so we are still hoping to get one of those experiments just as soon as we can.

S/C                Roger, we would like to see some .... on that experiment.

Cap Com           We would like to report to you that the tracking confirms your orbit at all stations it looks real good. We contacted Wally at the Cape and he is very happy about the orbit. Looking forward to his launch. We would like to change your fuel cell purge. We had given it to you for Carnarvon. We want to change that to Hawaii.

S/C                Roger, you a fuel cell purge to Hawaii, do you have a time for us.

Cap Com           Roger, that time should be about 122 40.

S/C                Roger, will do.

Cap Com           And we would like to advise you we are still working on the suit situation.

S/C                Roger, expect an answer by December 18th.

Cap Com           Roger 7.

Antigua           LOS at Antigua

This is Gemini Control here. We don't expect any further conversation with the spacecraft as it moves down the northeast coast of South America on its 77th revolution around the earth. This is Gemini Control Houston at 121 hours 30 minutes.

END OF TAPE

This is Gemini Control, 123 hours and 4 minutes into our mission. At the present time Gemini 7 spacecraft is just reaching the Northwestern portion of South America and is beginning its 20th revolution around the earth. For the past hour and a half, we have picked up voice communication between the spacecraft and our tracking stations at Hawaii, Guaymas, Texas, Grand Turk. And at this time we will play back the taped voice communication from those stations.

FLIGHT AFD

HAWAII AFD, Hawaii

FLIGHT The Laser 79 Rev.

HAW Yeah, but they've requested permission to radiate and the Experimenters said they would look into it.

FLIGHT Okay, we're checking down on this end. Got CAP COM working on it with Flight Process. I expect you'll get an affirmative on that.

HAW Okay, thank you. Thank you voice control.

FLIGHT Okay, understand the Experimenters are on it in Hawaii and also want to make sure they get C track and you're scheduled for C track in the next 3 revs, Ed.

HAW We'll get that.

FLIGHT Hawaii CAP COM, Houston Flight.

HAW Houston Flight, Hawaii CAP COM.

FLIGHT You can track with the Laser this time if you want to.

HAW Thank you.

FLIGHT Cap Com, Houston Flight.

HAW Houston Flight, Hawaii Cap Com.

FLIGHT Roger. What's your evaluation of the weather out there in support of this experiment, Ed, does it look pretty good?

HAW It's about as good as it's been, Gene. We've taken a couple of looks outside. I'm a little bit like you. I'm caught inside.

but, they may stand a chance at it today. I'll tell you this, if they at any time during the mission start it, this would be it.

FLIGHT Okay.

HAW It doesn't look like they're going to get up for this pass to radiate, they're having a little trouble.

FLIGHT Okay. Very good. Don't push it.

HAW No. ~~Well~~ ~~on~~ ~~it~~.

FLIGHT Because I'd rather go about it calm and cool.

HAW Roger. The crew says they're going to come around and take a look at the weather over their systems.

FLIGHT That's right.

HAW ~~F~~light, this Hawaii.

FLIGHT Roger, Hawaii.

HAW Flight, this Hawaii.

FLIGHT This is roger, Hawaii.

HAW ~~G~~emini 7, ~~H~~awaii ~~C~~ap ~~C~~om ~~C~~om.

S/C Hawaii, 7 here.

HAW Okay, how're you doing?

S/C We're enjoying the scenery. The Pacific is beautiful today.

HAW Okay, we're ready for your purge. We're showing you GO down here on the ground.

S/C Roger, coming up with the purge.

HAW Roger. Command pilot, they want to do a crew status report on you over Guaymas and the g.e.t. of that is 122:50. 122 plus 50.

S/C Roger.

Hawaii, 7. You haven't had any signs that any of our tanks are venting. have you?

HAW Say again.

S/C You haven't any signs that our cryo tanks are venting, have they, ground?

HAW We'll give you a readout on that here on the ground. Will you put your ECS - correction - your primary ECS read to the ECS O<sub>2</sub> position?

S/C Thank you.

FLIGHT How does he look, Hawaii?

HAW He looks real good, Flight. We're getting the purge and as soon as we finish getting all these printouts ..... I'm going to get you some readouts on his quantity readoffs.

FLIGHT Roger.

HAW Flight. I'm wondering about when he's going to vent, or if he is.

FLIGHT Okay. Tell him we'll give him a complete briefing later on tonight on the systems status again.

HAW Say again, flight.

FLIGHT You can tell him we'll give him a complete briefing on systems status again tonight.

HAW Okay. We have just completed the tape dump.  
Command Pilot, Hawaii.

S/C Go ahead.

HAW Have you had a chance to take a look at the weather over our area?

S/C I can't even find the Island!

HAW That figures!

S/C Up above clouds.

HAW Roger.

Okay. Quantity Read to the fuel-cell O<sub>2</sub> position, please.

S/C Okay.

HAW Okay. The quantity read to the fuel-cell H<sub>2</sub> position.

S/C Have it.

HAW Okay. Put your quantity read switch to OFF.

I have the update to you on the percents remaining here. I'll give you a complete summary on your fuel-cells prior to your going to sleep.

S/C Thank you.  
HAW Transmitting.  
HAW C-band LOS at Hawaii.

FLIGHT Roger, Hawaii.

HAW Flight plan update telemetry on the way. And .....  
I have some readouts for you if you want 'em.

FLIGHT Go ahead.

HAW Okay. Fuel cell O<sub>2</sub> 74.5 percent remaining. ECS O<sub>2</sub> 74.5, And fuel-cell H<sub>2</sub> 79.3.

FLIGHT 7 niner decimal 3?

HAW Affirm.

We got the tape dump. Got the C-band off and everything else you wanted.

And it looks like the weather is real bad, flight.

FLIGHT Okay. We'll get that report over the States here.

I think you forgot to advise them - did you get that the crew status report would be over Guaymas?

HAW That's affirm. He got that.

FLIGHT Okay. I was off then on another test then -

HAW I gave it to him, and then right after he started the purge, I went to the Command Pilot.

FLIGHT Okay.

FLIGHT This AFD

GYM AFD, Guaymas.

FLIGHT You can have a CSO on the CP if you'd like.

GYM Roger, thank you, we'll take it.

Guaymas has telemetry solid.

FLIGHT Roger, Guaymas.

GYM Everything looks good on the ground.

FLIGHT Okay.

GYM Gemini 7, Guaymas Cap Com.

S/C This 7.

GYM Roger. We have a valid oral temperature. Stand by for Surgeon.

S/C Roger.

SURGEON Standing by for your blood pressure.

Gemini 7, your blood pressure cuff is full-scale.

Have a valid blood pressure. Give us a mark on your exercise.

S/C Mark. Cuff is full-scale.

SURGEON We have a valid blood pressure. Standing by for your food and water report.

S/C Roger. Command Pilot has had a total of 578 ounces of water.

SURGEON Roger.

S/C Last meal was D5, Meal B.

SURGEON Roger.

S/C Total column 5 for the Command Pilot is 12. Column 6 is 2.

The Pilot has had 388 ounces of water. The total for column 5 is 13 and for column 6 is a great big, fat zero.

SURGEON Roger. And you've both had the same meal, right?

S/C Roger. We, uh, I gave it to Chuck this noon but he didn't eat any of his ginger bread and I only ate two of the pieces of it.

GYM Roger.

Okay. Stand by for CAP COM.

S/C ..... berry cubes ...

GYM Again?

S/C The pilot did not eat the strawberry cubes this noon either.

GYM Roger.

Gemini 7, Guaymas Cap Com. We have nothing else for you this pass. We'll be standing by.

S/C Thank you, Guaymas.

FLIGHT ..... Cap Com

GYM Guaymas go local.

FLIGHT Texas go remote.

TEXAS Texas remote.

FLIGHT ..... Cap Com Houston Flight.

TEX Cap Com.

FLIGHT Roger. We're ..... the ground now.

TEX Roger.

CAP COM Gemini 7, Gemini 7, Houston CAP COM. Over.

S/C Go ahead, Houston. Gemini 7.

CAP COM Roger, good to talk to you again, Frank. I got a cancellation on your flight plan. B-4, D-7.

S/C Roger.

CAP COM At time 123 31 30. Sequence 415 and 416. Mode 02 is deleted because of weather.

S/C Very good.

CAP COM Okay. And can you give us your interpretation of the Hawaii weather. Do you think we can attempt our Laser Experiment at that time?

S/C We'd like to try. I don't think we came close enough to the Island to make a good evaluation at this time.

CAP COM Okay. Well, we'll go ahead and look at it further and still keep it in the flight plan.

S/C Our problem Gene is that we're really skosh on fuel now.

CAP COM Understand you feel you're really skosh on fuel.

S/C Yeah. We got - it's really 32 percent now. 31 to 32 percent.

CAP COM Okay. 32 percent on the fuel.

We're watching it pretty close down here, Frank, and we've got a pretty good handle on it and ..... in Experiments to cope with it.

S/C Roger.

CAP COM I'd like to pass on to Jim that that request from his 12-year old daughter, that we mentioned last night, will be played - re-moted over Tananarive on UHF on Rev 79. That's not this time up Tananarive but next time. We'll give you a call and then get it for him.

S/C Thank you.

CAP COM And also, Jim, after looking into the Annals we figured out that column 6, that big fat zero, is another space first.

S/C Oh, that's the way it goes! ..... a 15-day first!

CAP COM I just won't comment further on that one!

Gemini 7, Gemini 7, Houston. We don't have anything else at this time. Probably won't be talking to you again until Tananarive in a couple hours.

S/C Thank you, Gene.

CAP COM Okay and thank you and you made Charlie very, very happy. It's the first time he's ever talked to a spacecraft in flight.

S/C                    Yeah, I know. I heard him this morning, with his cheery, little voice at breakfast time.

CAP COM              Yeah, his shift is getting better. He'll see you more and more.

S/C                    Gene, we have one question.

CAP COM              Shoot.

S/C                    How long did you say this flight was?

CAP COM              How long did we say this flight was?

S/C                    ..... only 3 days and..... (voice lost)

CAP COM              Say that one again, Frank.

S/C                    We're just up ..... (voice lost)

CAP COM              You're doing so well up there that we're just going to keep you going for a while.

S/C                    Yeah. We're in real good shape. Everybody - - it feels fine, the spacecraft's neat and clean and it's performing perfectly.

CAP COM              Rog. It looks real clean and real fine down here. By the way, after talking last night to Sue and Marilyn, they both said if I do have a chance, to say that they're fine and they just want to say hello.

S/C                    Very good. Thanks a lot, Gene.

Night, Sue.

CAP COM              Gemini 7 Houston. I'll let you know if we're really thinking about that down here. We'll have a total lifetime for you in about a rev or two, give you an idea how long you could really be up there, if you wanted to.

S/C                    No thank you, don't do that.

This is Gemini Control. We have been listening to tape voice communication for the past - that has accumulated during the past 1 and  $\frac{1}{2}$  hour

between the spacecraft and our ground tracking network. And Frank Borman was doing most of the talking for the spacecraft crew and he did say that all the systems on the spacecraft are in very good shape, and so far as the crew is concerned, they are also in excellent condition. This is Gemini Control. One hundred twenty-three hours and 16 minutes into the flight of spacecraft Gemini 7 which now is on its 78th revolution around the earth.

END OF TAPE

This is Gemini Control, 123 hours and 20 minutes into our mission. Spacecraft Gemini 7, at the present time, is moving out over the South Atlantic, it is on it's 78th revolution over the earth. According to our flight plan, the flight crew has just completed -- turned and then turned off -- the MSC-2 and 3 experiments. MSC-2 is a measure of the external radiation where the Van Allen Belt dips closest to the earth and MSC-3 is to monitor the direction and aptitude of the earth's magnetic field with respect to the orbiting spacecraft. Both these measurements are external measurements and are activated by a switch inside the spacecraft. The equipment is housed in the adapter section. We have heard from the flight crew during the past hour in their contacts with the ground and our command pilot Frank Borman states that everything aboard the spacecraft is in a very good condition and the crew is in excellent condition. This is Gemini Control 123 hours and 21 minutes into the flight.

END OF TAPE

This is Gemini Control. We are not 12<sup>4</sup> hours and 20 minutes into the flight of spacecraft Gemini 7. Gemini 7 is now on it's 78th revolution over the earth. Within the next 15 to 20 minutes it should have completed that revolution. And at the present time it is passing over the Hawaiian tracking station. We have had, over a Hawaii, a crew status report on the pilot, James Lovell. And on our flight plan for the next couple of hours, we have an exercise period for the crew. This consists of isometric exercises that they engage in each night plus a housekeeping period coming up and then the evening meal. We also plan to update the spacecraft for the landing areas from the 81st to the 88th revolution. In addition, on the beginning of this next revolution, when the spacecraft passes Tananarive we will be playing for pilot, James Lovell, a special request from his daughter, Barbara, age 12. At this time we will play back the taped voice communication between spacecraft Gemini 7 and the Hawaiian tracking station.

Flight Flight Hawaii.  
HAW C-band track.  
Flight Roger, Hawaii.  
HAW TM solid.  
Flight Roger, Hawaii.  
HAW Gemini 7, Hawaii CAP COM.  
C/C Go ahead, Hawaii. Gemini 7.  
HAW Roger. We have a valid temperature. We are standing by for your blood pressure.  
S/C Roger.  
Flight Hawaii surgeon  
HAW Come in.  
Flight We have had a PCM dropout would you stand by on the blood

pressure, please.

HAW

Roger.

Flight

Hawaii surgeon. We have TM solid now.

HAW

Okay. Cuff is full scale. A good blood pressure. Standing by for your exercise.

S/C

. . garbled . .

HAW

Full scale. A good blood pressure. Standing by for your food, water, and sleep report.

S/C

Nothing further to report since our last status report.

HAW

Roger, Gemini 7.

S/C

The blood pressure was sent down by courtesy of inflight maintenance.

HAW

Thank you, sir. Nothing further for you at this time. We are standing by.

END OF TAPE

This is Gemini Control. We are 125 hours and 8 minutes into the mission of spacecraft Gemini 7. Our spacecraft is now on it's 79th revolution around the earth. And at the present time is passing over the southern most tip of Africa. Very shortly now we expect to get acquisition with the spacecraft with voice communications over the Tananarive tracking station. And that should be coming up very shortly. Our experts here in Mission Control advise us that the present orbit of spacecraft Gemini 7 is good for 100 days. Hawaii also advises that the weather is clear. Let's listen now to the live voice communication with the spacecraft and Tananarive station.

S/C Roger, go ahead.

TAN Roger, Jim, here is that request from your 12 year-old daughter. Request was made in hopes it would, it might stimulate her daddy: "To have him come home," in a hurry and -- here it comes in about 10 or 12 seconds.

Flight Tananarive go manual key.

(Music - I saw Mommie Kissing Santa Clause)

TAN Gemini 7, Gemini 7, that concludes the serenade. Any comment?

S/C Roger, just love these girls. . . garbled . . tell Barbara I saw Santa Clause as I came down there.

TAN Okay, I'm not so sure that wasn't stimulated from that ba humbug that Marilyn heard the other day.

S/C garbled . . .

TAN Roger. I said I am not so sure that Marilyn might not have originated that from that ba humbug she heard the other day.

S/C Roger, that's it. Tell her they have got a Santa Clause up here too.

TAN Roger, I think she is listening in at home right now and she wanted me to pass on that household crew still remains at about 3.9.

S/C Am I to understand no luck yet, huh?

TAN No. Nothing yet.

S/C Well tell her to do her best.

TAN Okay. There is a point of interest. There is a tropical storm west of Berma in the Bay of Bengal. We don't advocate any fuel but we just want to let you know that it is there and if you do have a chance to take a look at it, fine, and if not, okay.

S/C Roger, I have it . . garbled . .

Flight Gemini 7, this is Houston.

S/C Gemini 7, go ahead.

Flight We have found out that you can probably stay up there for 3 and 1/2 or 4 months if you really want to.

S/C Ah you didn't have to say that, now did you?

TAN . . garbled . .

Flight Say again.

TAN Tananarive, will you cut that out?

This is Gemini Control. 125 hours and 25 minutes into the flight of spacecraft Gemini 7. You have just heard the live voice and music which was relayed up from, remoted through the Tananarive station to pilot James Lovell. A request from his daughter, Barbara, age 12 who hopes the song will bring her daddy home for Christmas, a little early. This is Gemini Control.

GEMINI 7/6 MISSION COMMENTARY, 12/9/65, 6:39 p.m.

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Our spacecraft is now on its 79th revolution over the earth. We have a report from Hawaii. The weather there had been cloudy and overcast, however, it is now clear and we will attempt the Laser experiment. Voice communication via the Laser beam over the Hawaii site. This is Gemini Control. 125 hours and 15 minutes into the mission.

END OF TAPE

This is Gemini Control, 125 hours and 20 minutes into the flight of Spacecraft Gemini 7. At this time, the spacecraft is passing over the Indian Ocean on its seventy-ninth revolution around the earth. We had a voice communication with the spacecraft just a few minutes ago when it was over the Tananrive tracking station, and at that time, the crew was advised from the ground that their orbit was good for three to four months at the present time. And Frank Borman, our command pilot, came back with, "Don't say that." And Lovell said, "We're coming home December 18." We have the word from the Hawaiian tracking station that the weather in Hawaii is clear, and we have scheduled the laser experiment -- voice communication data -- a light beam, and that will be coming up as the spacecraft moves over the Hawaiian tracking site. This is Gemini Control, 125 hours and 21 minutes into our mission.

END OF TAPE

This is Gemini Control, 125 hours and 25 minutes into our mission. Spacecraft Gemini 7 at this time is passing over the Indian Ocean, and within the next 15 or 20 minutes will be coming up towards the Coastal Sentry tracking ship in the Pacific. We have another weather report at this time. Our weather over Hawaii was overcast, then it changed to clear, and at this time it is termed marginal. Therefore, our Flight Director, Gene Kranz, has directed the Coastal Sentry tracking ship to give the spacecraft crew -- command pilot Frank Borman and pilot Jim Lovell -- a go-no go decision when they are over that station. This will depend upon the Hawaiian weather, and the decision will be made and passed on to the crew as it comes over the Coastal Sentry tracking ship. This is Gemini Control, 125 hours and 26 minutes into the mission.

END OF TAPE

This is Gemini Control. We are now 125 hours 31 minutes into our mission with spacecraft Gemini 7. At this time our spacecraft is just moving over the Pacific and very shortly will be over the Coastal Sentry Tracking Ship. We have established voice communication, or at least contact with the spacecraft. Let's listen in now live.

CSQ All systems are GO, flight.

FLIGHT Roger, CSQ.

CSQ Gemini 7, CSQ.

S/C This is 7. Go ahead.

CSQ Roger. We're standing by for your flight plan report.

S/C Roger.

This is Gemini 7. We're not giving you a report today ..... control in .....

CSQ Roger, copy.

S/C Two magazines of Hasselblad S0217; two magazines 16-mm color film; 4 exposures of dim-white night film; 7 films of color-shifted IR terrain film; high-contrast black and white film - two frames. We have also used 6 tape recordings. And today we completed everything in the flight plan except for those.... which of course we deleted.

CSQ Roger, Gemini 7, we copied.

Gemini 7. CSQ. We have your fuel-cell ..... configuration for the ..... .. CS O<sub>2</sub> is ok. No heat required. Fuel-cell O<sub>2</sub>. AUTO. Fuel-cell H<sub>2</sub>. Want you to pump the ONBOARD up to 49 00 5. That should be good for 16 hours.

S/C Roger. ..ECS O<sub>2</sub> is okay. .... O<sub>2</sub> is on AUTO. And we'll pump up the S ...H<sub>2</sub> to 490 and things will be good.

CSQ The onboard minimum for fuel-cell H<sub>2</sub> is 365 psi. .... range 4 psi per hour.

S/C Roger. Minimum is 365. Thank you.

CSQ Roger.

FLIGHT CSQ Cap Com, Houston Flight.

CSQ Go ahead, flight.

FLIGHT Roger. We're GO on MSC-4 over Hawaii this rev.

CSQ Roger.

Gemini 7, CSQ. We can give you a GO on MSC-4 Experiment over Hawaii.

S/C Roger, understand we're GO. Thank you.

CSQ Gemini 7, we have your systems status update when you're ready to copy.

S/C Ready to copy.

CSQ Ground equation data ..... equations indicate that remaining fuel is 59 pounds. This represents 33 percent actual remaining propellant use which is - - stand by one - -this represents 33 percent actual remaining propellant which is 29 percent indicated onboard. That's the number you were asking for.

S/C That's affirmative. 29 percent. Correct.

CSQ Roger. This puts us about 6 pounds of fuel above the pre-flight .....

S/C Very good, thank you. I was a little worried about that.

CSQ Roger. We're very satisfied with our platform performance. Accelerometer bias is ..... the same as 33 point.

S/C Thank you, thank you.

CSQ Computer status is 99. Pre-retro verb is right out of memory, adverb would have to be correct.

S/C Got 'em.

CSQ After powering up today, the fuel-cells indicated that degradation is very negligible. .... (garbled) ..... from the beginning of the mission.

S/C Roger.

CSQ Cell status. Fuel-cell H<sub>2</sub> tank is not expected to vent until after 300 hours elapsed time, if any. Fuel cell O<sub>2</sub> is not expected to vent at any time during the mission.

ECS O<sub>2</sub> tank is predicted to vent some ..... (lost transmission)

FLIGHT Lost your air-to ground, CSQ.

S/C ....., huh?

CSQ Say again, this CSQ.

S/C We have all good news tonight.

CSQ Roger.

Depends on your fuel-cell H<sub>2</sub> and O<sub>2</sub> consumption. ....keeping this below nominal on O<sub>2</sub> by 3.5 percent and below nominal on H<sub>2</sub> by 6.5 percent. Fuel-cell ..... is more efficient than I expected.

S/C Very good.

FLIGHT CSQ Cap Com. Houston flight.

CSQ Go ahead, flight.

FLIGHT Roger. Correction there you said he was -----

S/C CSQ. We really appreciate all this information. Thank ..... it was pretty important.

CSQ Houston flight, CSQ.

FLIGHT Roger. His fuel usage is 6 pounds below the pre-flight curves. I believe you said above.

CSQ Gemini 7, this CSQ.

S/C Go. Gemini 7.

CSQ Okay. I may have made a mistake there. The fuel usage is 6 pounds below the expected usage.

S/C We're six pounds better off than I thought we'd be.

CSQ That's affirmative.

S/C Uh, roger, thank you.

That was very good.

CSQ Good.

Gemini 7. Your orbit is now 162.8 by 161.6. We expect to be 161 by 162 by the GT-6 launch. Launch will appear on Rev 118 at 182 60 (lost). 187:24 g.e.t.

S/C That sounds great. There's a lot of confidence here that .....

CSQ Roger. .... 95 seconds after the first. We estimate 50 seconds planned pass at .... at time of 6 lift-off. .... will supply the exact date on that later.

Gemini 7. The pre-count on 6 has been completed and it's GO at the Cape.

S/C Roger.

CSQ On your PLA update over the RKV, Area 83-Bravo: The time g.e.t. .... should be 131 44 37 with an REP of ... 21 plus 35. Do you copy?

S/C Would you read that area again, please.

CSQ Roger. Area 83-Bravo. 131 44 37. 21 plus 35.

S/C Thank you.

CSQ Your Area 84-Delta: Should be 84-Bravo. Do you copy?

CSQ Flight, CSQ.

FLIGHT Roger, CSQ.

CSQ Thank you. We've had LOS. All systems are GO.

FLIGHT Roger.

That was live voice communication between spacecraft Gemini 4 - Gemini 7 and our Tracking Ship, the Coastal Sentry. At this time our spacecraft is moving over the Pacific on its way toward Hawaii. And you heard Flight Director Gene Kranz pass on through the Coastal Sentry spacecraft communicator a GO for the Gemini 7 flight crew on the Laser Experiment which will take place over Hawaii. The Laser Experiment - in this experiment they will attempt to establish an optical communications link and demonstrate the use of optical frequencies, or light beams for communications between an orbiting spacecraft and the pre-determined ground station. In this case, Hawaii. The pilot, rather the Command Pilot Frank Borman, will maintain the spacecraft attitude while co-pilot, Jim Lovell, aims a hand-held Laser transmitter at a visible light beam which will be directed to the spacecraft from the ground. Scientific data on sky radiance and atmospheric transmission effects on optical frequencies will also be recorded. In short, they will attempt to establish communications via a light beam. This is Gemini Control at 125 hours and 42 minutes into the flight. Our spacecraft is on revolution 79.

END OF TAPE

This is Gemini Control, 125 hours and 46 minutes -- 47 minutes now -- into our mission. In approximately three minutes, our spacecraft will be coming within tracking and voice range of the Hawaiian tracking center, and at that time, we will have the spacecraft crew attempt to establish optical communications with the ground using a light beam. That will be coming up in approximately three minutes. This is Gemini Control, 125 hours, 47 seconds -- 47 minutes -- into the mission and at this time the spacecraft is over the Pacific approaching the Hawaiian tracking station. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are 125 hours and 49 minutes into the flight of spacecraft Gemini 7. At this time Gemini 7 is approaching the Hawaiian tracking station, on its 79th revolution over the earth. We expect momentarily to establish ground track with Gemini 7 and also, the spacecraft should be within voice range of that tracking station. At that time we will have the attempt at the Laser experiment. And it is our plan here to have this transmitted live so that you may hear the communication between the spacecraft and the ground tracking station. From all reports that we have had from our pilots, they are in excellent physical condition. The spacecraft systems are all go. And we have a very good flight on our hands. At this time we will try to pick up the conversation.

HAW TM solid at Hawaii.

Flight Roger, Hawaii.

HAW Gemini 7, Hawaii. Let me know if you see anything.

S/C 7, roger.

HAW Houston Flight, Hawaii.

Flight Flight, Hawaii.

HAW Our Laser people advise they are tracking. The beacon signal is good.

Flight Roger.

HAW Do you see the island at all, Gemini 7?

S/C Not yet. We are almost there according to our time.

HAW Roger. I'll you you a MARK when you are at my PCA.

S/C Roger. We got one island down here.

HAW Roger.

HAW You are going by PCA. MARK.

S/C Roger. You are on Kauai, right?

HAW Say again.

S/C What island are you on, Hawaii?

HAW Kauai, Kauai.

S/C Rog. We picked them up but we couldn't see the lights.

HAW Say again.

S/C We picked up the island but we could not see the light.

HAW Roger. You may still be able to see a little bit behind you.

S/C We knew what island the Laser was on. There was some question as to where your radar was.

HAW You saw nothing in the light at all. Is that affirm?

S/C That's affirm..

HAW Flight, Hawaii.

Flight Go, Hawaii.

HAW He is beyond PCA. I think we ought to break it off to save fuel.

Flight Roger, go ahead.

HAW Gemini 7, Hawaii CAP COM. Let's break it off.

S/C Roger, Hawaii.

This is Gemini Control. 125 hours and 56 minutes into our mission. As you heard, the live voice communication between spacecraft Gemini 7, Jim Lovell, talking to the Hawaiian site, he did see -- the crew of spacecraft Gemini 7 did see the island. They did not pick up the Laser beam that was

GEMINI 7/8 MISSION COMMENTARY, 11/1/68, 7:21 p.m.

Tape 248, Page 3

being transmitted in hopes it could be picked up and used by the spacecraft crew as a means of voice communications to the ground. However, I repeat, they did report they saw the Island of Hawaii. They did not pick up the beam. This is Gemini Control. 125 hours 56 minutes into the flight, our spacecraft is now ending, very shortly in the next 20 minutes or so, its 79th revolution over the earth.

END OF TAPE

This is Gemini Control. We are 126 hours and 20 minutes into the flight of Spacecraft Gemini 7. Gemini 7 has just started its eightieth revolution around the earth, and at the present time, it is passing over South America. Aboard our spacecraft, our pilot and our copilot -- rather command pilot and pilot -- are in excellent physical condition. The spacecraft systems are in a go condition. Very shortly, our crew will be entering the sleep period. Before they go to sleep, however, we have a fuel cell purge, which is coming up over the Rose Knot tracking ship prior to their retiring for the night. The sleep period should last approximately ten hours. This is Gemini Control, 126 hours and 20 minutes into the flight.

END OF TAPE

This is Gemini Control. Spacecraft Gemini 7 is now passing over the southern tip of Africa on its 80th revolution around the earth. It has been in flight 126 hours and 44 minutes. Aboard the spacecraft at this time the crew has entered a sleep period, and we will have no further voice communication with the spacecraft for at least this 10 hour period. A few minutes ago, the spacecraft passed over the Rose Knot tracking ship located in the South Atlantic off the east coast of South America. We had a voice conversation with the crew and at this time we will play back the tape of that voice communication.

RKV Telemetry solid.

Flight RKV

RKV . . garbled . . We transmitted TX and we've turned the adapter C-band on.

Flight Okay.

RKV Gemini 7, RKV CAP COM.

S/C Gemini 7.

RKV Roger we are standing by for your purge. Place your quantity read switch to ECS O<sub>2</sub>.

S/C . . garbled . .

RKV TM is very broken . . garbled . . this time flight.

Flight Roger, RKV

RKV Fuel cell O<sub>2</sub>. Fuel cell H<sub>2</sub>. . . garbled . . for tonights purge 490, 490.

S/C garbled . .

RKV Your bearing is 265.

S/C Thank you.

RKV Turn your quantity read switch to OFF. . . garbled . .  
propellent quantity and pressure.

S/C Say again.

RKV Propellent quantity and pressure.

S/C . . garbled . . 26 percent . . garbled . .

RKV Roger. We've got a map update for you when you are ready  
to copy.

S/C . . garbled . .

RKV . . . garbled . . . load 1325403. . . garbled . . 8438.5  
degrees west, right Ascension. Time 11:45:31.

S/C Roger

RKV I've got a correction for the last block update you got.  
Area 84 Bravo should be area 84 Delta. The times are good.

S/C 84 Bravo to 84 Delta

RKV Roger. Also on your propellent quantity usage. You are  
actually 6 pounds below nominal. That means 6 pound too  
much we've used.

S/C Okay. . . garbled . . . other way up here.

RKV Roger. Our last water report showed that you - - the command  
pilot had consumed 6.6 pounds in the last 9 hours. We don't  
think that is quite right. Would you give us a correction  
on that?

S/C 55 ounces.

RKV That's 55 ounces.

S/C Right

RKV We'd also like to take a count on the water gun.

S/C . . . garbled . . .

RKV Roger. They would like you to use the ointment in your noses tonight.

S/C Garbled . .

RKV . . garbled . . if you become too warm, use pump A.

S/C If it gets too warm use pump A . . garbled . . primary loop.

RKV Okay. Pump A, either pump or primary loop.

S/C Roger.

RKV We also have an addition to that block update. When you are ready to copy.

S/C Go ahead.

RKV All right. Area 86-2 - 1354122 21 plus 44.

S/C Say again.

RKV 1354122. Turn TM off Flight.

Flight Roger, RKV.

This is Gemini Control. We are now 126 hours and 50 minutes into our flight. We have just played taped voice communications between spacecraft Gemini 7 and the Rose Knot, which was the last voice communication that we will have with the crew this evening. The voice from the spacecraft was that of command pilot, Frank Borman. Spacecraft 7 is now on its 80th revolution around the earth and is now passing over the Indian Ocean. This is Gemini Control at 126 hours and 51 minutes into the flight.

END OF TAPE

This is Gemini Control, 127 hours and 20 minutes into the flight of spacecraft Gemini 7. Our spacecraft at this time is passing over the Pacific midway between the Coastal Sentry tracking ship and Hawaii. It is on its eightieth revolution which will take it down towards the end of the revolution to the lower southern portion of South America. Aboard our spacecraft, the pilots according to our last medical report are in excellent condition, and all systems are go. The crew is now in a sleep period that will last for approximately nine and a half more hours. This is Gemini Control at 127 hours, 20 minutes into the mission.

END OF TAPE

This is is Gemini Control. Spacecraft Gemini 7 now on its 81st revolution over the earth is coming up on the West Coast of Africa. It is now 128 minutes - hours - 128 hours and 20 minutes into its mission. Aboard spacecraft Gemini 7, the crew is in a sleep period. Here in Mission Control Center, the flight controllers on the White Team are preparing their reports, and are preparing then, to brief the Blue Team which should be coming on here in about another hour. This is Gemini Control 128 hours 20 minutes into the mission.

END OF TAPE

This is Gemini Control. We are now 129 hours and 20 minutes into the flight of spacecraft Gemini 7. At this time our spacecraft is on its 81st revolution over the earth and is passing over the Pacific Ocean, ending the 81st revolution. Aboard the spacecraft our pilots have been in a sleep period for the past 2 hours. Up until the last report they both appeared to be awake; however, we have ground telemetry that indicates now that they are in a resting state, it does not tell us whether they are fully asleep. Here in Mission Control Center we are in the midst of a shift change with the Blue Team of flight controllers coming on and being briefed now by their counterparts, the White Team controllers, who will shortly be going off duty. This is Gemini Control, 129 hours 20 minutes into the mission. All systems on the spacecraft are GO and the crew is in excellent physical shape.

END OF TAPE

This is Gemini Control. One hundred thirty-one hours and 20 minutes into the flight of Gemini spacecraft 7. The Gemini spacecraft is now in the beginning of the 83rd revolution just off the east coast of South America in the South Atlantic. The crew appears to be asleep now and indications are that they went to sleep about 11:00 p.m. last night. The sleep period is scheduled to continue until 5:30 this morning. A couple of the flight controllers here in Mission Control here a little while ago made a few quick calculations and came up with a number of statute miles traveled at the end of the 82nd rev by Gemini spacecraft 7. This was about 20 minutes ago when they completed the 82nd rev. Since lift-off, the Gemini 7 spacecraft and crew have traveled a little over 2,130,000 miles through space. At 131 hours 21 minutes this is Gemini Control.

END OF TAPE

This is Gemini Control. One hundred thirty two hours and 20 minutes into the flight of Gemini spacecraft 7. We're in the 83rd rev over the ocean - just south of - in the South Pacific just south of Canton. The - all systems were reported GO at the last station contact, which was the Coastal Sentry off the coast of the Phillippine Islands. The crew, Frank Borman and James Lovell, are now asleep. Members of the Blue Team here a few minutes ago in the Mission Control were treated once again to some delicious nut cake baked by Mrs. Hodge, wife of our Flight Director. We are coming up on the west coast of South America in the 83rd revolution. At 132 hours and 21 minutes into the Gemini 7 mission this is Gemini Control.

END OF TAPE

This is Gemini Control, 133 hours and 20 minutes into the flight of spacecraft 7. The Gemini 7 spacecraft is now in its 84th revolution. The last station contact was with the Canary Island tracking station where a tape dump of onboard spacecraft telemetry was performed. James Fucci, command communicator at the site, reported all systems were go. The crew is still sleeping and not due to awaken for about 2 1/2 hours. The spacecraft is now passing over southern Asia on its 84th revolution. Gemini 7 spacecraft is nearly in a circular orbit around the earth with a apogee of 162.7 nautical miles and a perigee of 161.6 nautical miles. The next station to acquire the Gemini 7 spacecraft will be the tracking ship Coastal Sentry. Acquisition will be in about 12 minutes from now. At 133 hours and 21 minutes into the Gemini 7 mission this is Gemini Control.

END OF TAPE

This is Gemini Control. One hundred thirty, four hours and 20 minutes into the flight of Gemini 7. The spacecraft is now over South America just beginning its 85th revolution around the earth. The last station contact was about 45 minutes back with the tracking ship Coastal Sentry. Command communicator Harold Draughn reported all spacecraft systems were GO. He was asked by Flight Director John Hodge how the seas were and Draughn replied that they were much calmer tonight. The ship had been rolling in heavy seas earlier in the week. The next station to acquire the Gemini 7 spacecraft will be the Antigua and Canary Islands tracking stations in the Atlantic. The Antigua acquisition will be coming up in a few minutes. Gemini 7 crew members, Borman and Lovell, are still sleeping at this time. At 134 hours and 21 minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control, 135 hours and 20 minutes into the flight of Gemini spacecraft 7. We are in the 85th revolution and some 35 or 40 minutes ago acquisition was made of spacecraft Gemini 7 by the flight controllers at the Canary tracking station. James Fucci, the command communicator at the Canary site, reported that all systems were go at that time. Gemini 7 is now over northern Australia on its way across the Pacific Ocean going toward the west coast of South America. The crew's sleep period is scheduled to end in about 40 minutes and astronauts Frank Borman and James Lovell should be awake soon. A fuel cell purge is scheduled in about 45 minutes when Gemini 7 spacecraft makes its pass over the Canary tracking station. At 135 hours and 21 minutes into the flight of Gemini spacecraft 7 this is Gemini Control.

END OF TAPE

This is Gemini Control at 136 hours 20 minutes into the flight of spacecraft 7. The Gemini spacecraft 7 is now in the 86th rev over North Africa. We have a report here now on the preparations at the Cape for the launch of Gemini 6 on Sunday. The pad 19 activities at the Cape at the present time include the installation and checkout of spacecraft pyrotechnics. The precount, which started at 4:15 p.m. eastern standard time yesterday, was completed last night at 8:30. A booster review meeting is scheduled to start this morning with both the prime and the backup crews for Gemini spacecraft 6 in attendance. That will be Walter M. Schirra, Jr., and Thomas P. Stafford, the prime crew and Virgil I Grissom and John W. Young, the backup crew. Scheduled runs by the Gemini 6 prime crew in the Gemini mission simulator at the Cape are scheduled also sometime this morning. The mid-count for the launch of the Gemini 6 spacecraft is scheduled to get underway at 12 noon eastern standard time tomorrow and continue through 4:00 p.m. eastern standard time. Booster refueling is scheduled to start at 6:00 p.m. eastern standard time Saturday for the Sunday morning launch of Gemini 6. We have a weather forecast for launch day at the Cape and it is good. Visibility of 7 miles is predicted with winds of 5 miles per hour, temperature of 65 degrees, and 2 foot waves off shore. Low Stratus clouds now over the area should be broken by launch day. The Gemini 7 spacecraft over North Africa just passed over the Canary Tracking Station a few minutes ago and Gemini 7 pilot James Lovell had voice contact with the Canary Flight Controller. We will play that taped conversation now.

Canary Gemini 7, Canary Cap Com, com check, how do you read, over.  
S/C 7, Good morning. Loud and clear.

Canary And good morning to you also. Have you done a fuel cell purge yet?

S/C Negative.

Canary Okay, we have a fuel cell purge for you and also we have a little bit of a flight plan update for you and also some onboard readouts.

Canary Roger, starting fuel cell purge now.

Canary Okay. Can you copy this flight plan update while you are purging?

S/C Roger. You can start.

Canary Okay. Node 138 55 11, rev 87, 130.8 degrees left, 11 hours 4 minutes 63 seconds, right Ascension. We have a flight plan time line up date for you, change 136 00 00 to 136 17 00. 37 45 00, PLA update at Canary. 138 20 35, crew status report, command pilot, Carnarvon. 139 02 16, crew status report, pilot over Texas. That is the flight plan update, Did you copy?

S/C Roger, thank you.

Canary Okay. Like to get an OAMS propellant quantity readout please.

S/C Roger, it has increased during the night and now reads 30 - about 30 percent.

Canary Okay, copy.

S/C There is a little bounce in our pressures this morning, number 1 reads 10 and number 2 reads about 7.5. 10 and 7.5

Canary Place your quantity read switch to ECS O<sub>2</sub>, please.

S/C ECS O<sub>2</sub>.

Canary Roger. We want a quantity and pressure from you please.

S/C Roger. Quantity is about 82 percent, pressure 640.

Canary I copy. Now could you place quantity read switch to fuel cell O<sub>2</sub>.

Flight What is that, Canaries?

S/C Roger, I read (garbled) quantity, and pressure 750.

Canary Copy. Fuel cell H<sub>2</sub> please.

S/C 77 percent and 410.

Canary Okay, quantity read switch to off.

S/C It's off.

Canary Okay, we'd like an OAMS source helium pressure and temperature.

S/C 1300, ... 1.

Canary Okay. OAMS fuel temp.

S/C ...

Canary OAMS oxidizer temp.

S/C I'm sorry, that is 51 for both OAMS and fuel and oxidizer is 50 percent.

Canary 51 on OAMS fuel temp and 50 on OAMS ox temp.

S/C Right.

Canary Okay, temperature on the OAMS source helium was 81?

S/C That was wrong. It is about 52.

Canary Okay, copy. About 52.

Flight Canary Cap Com, Houston Flight.

Canary Go ahead.

Flight Will you ask them if they can give us an idea of what rates they are drifting at.

Canary Okay. 7, Canary. Can you give us an idea of what kind of a rate you are building up at your drifting - that you are drifting at at the present time?

S/C Wait till we look outside.

Canary                    Okay. Can you see Canary?

S/C                        It is about the same as it has been. I guess we haven't  
                              vented much during the night. We are very slowly tumbling.

                              That conversation was with the Gemini 7 spacecraft over  
the Canary tracking station. We got a report just a few minutes ago from  
the Aircraft Carrier Wasp in the Atlantic Recovery Zone. The weather there  
has a visibility - with the weather there we have a visibility of 10 miles,  
4 tenths scattered cloud cover, they have 4 foot swells with 3 foot waves.  
The temperature was 70 degrees. They reported they were just about on station  
for splashdown point for the 88th rev. At 136 hours and 27 minutes into the  
flight of Gemini spacecraft 7 with the spacecraft now going over the Arabian  
Peninsula toward the Indian Ocean. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 136 hours and 44 minutes into the flight of Gemini Spacecraft 6...7. The Gemini 7 Spacecraft just crossed the Indian Ocean in the 86 th revolution around the Earth. Shortly, the spacecraft will be coming up on the Carnarvon tracking station. It should up in about a minute. And, we will bring you a live pass on that passing over the Australian tracking station at Carnarvon. The 7 Spacecraft is now coming up on the Carnarvon tracking station, and we'll bring you that live acquisition now.

DYI                    Canary has had TM contact.

CRO                    Carnarvon. Yea.

HOUSTON                Roger, Carnarvon.

CRO                    Gemini 7, Carnarvon Cap Com.

S/C                    Go ahead, Carnarvon. Gemini 7.

CRO                    Well, Roger. Good morning from Australia.

S/C                    Morning.

CRO                    I've got the correction to the nodal update at 138:55:11 if you're ready to copy.

S/C                    One minute, please.

CRO                    Roger.

HOUSTON                Your summaries look good Carnarvon.

CRO                    Beg your pardon.

S/C                    Go ahead.

CRO                    Roger. On the other remarks that they gave you on Rev. 87, they gave you 11 hours, 04 minutes, 63 seconds; 04 minutes, 63 seconds comes out to be 05, 03.

S/C                    Roger. That's right.

CRO                    You're okay. Big correction.

S/C                    Thank you.

CRO                    Righto. We also have some information on your OAM status.

S/C Go ahead, please.

CRO Okay. Telemetry after OAM system stabilization shows you have 63 pounds of fuel, 122 pounds of oxidizer remaining. This is 36% actual, 31% on your gauge. OAMS usage is right on the flight plan.

S/C Well, we gained 6% over the night. When we go back to sleep, maybe we'll get more tonight.

CRO Roger. This was waiting for a temperature stabilization; it did not stabilize as fast as we had originally anticipated.

S/C I noticed that also up here. Remember, it went down without any usage at all, and then it came back up; so, I guess we're in pretty good shape.

CRO Righto. Real good shape on that. And, also on your fuel cell cryogenics; it indicates a path of approximately 2000 ampere-hours above the normal 14 day flight plan. Feel free to use A pumps in one or both groups for your comfort.

S/C Is that 2 and three zeros?

CRO That's two thousand.

S/C Wowie!

CRO That's looking real fine.

S/C Thank you.

CRO That's about all we have for you this pass, Gemini 7. You're looking real good from the ground, and we're standing by if you have anything.

S/C Thank you very much.

CRO Righto.

That last conversation was with the Gemini 7 Spacecraft and the Carnarvon, Australian tracking station. The spacecraft will now pass on over Australia and head out over the Pacific Ocean on its pass toward Central America.

GEMINI 7/6 MISSION COMENTARY, 12/10/65, 6:14 a.m.

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t'll get there at the end of the 86th revolution. At 136 hours and 49 minutes into the mission of Gemini Spacecraft 7, this is Gemini Control.

END OF TAPE

This is Gemini Control, 137 hours and 20 minutes into the flight of Spacecraft Gemini 7. The Gemini crew have been up and awake since about 5:30 CST this morning. They had their first voice contact of the morning with the Canary tracking station in the eighty-fifth rev. The spacecraft is now over the South Pacific on its way toward a pass over Central America. At 137 hours and 20 minutes into the flight of Gemini Spacecraft 7, this is Gemini Control.

END OF TAPE

This is Gemini Control Houston here, 137 hours 59 minutes into the mission. As you might have noticed, the Red Team is at work. We have some tape from the Canary pass, we will play that now.

Canary Gemini 7, Canary Cap Com, com check, how do you read?

S/C Loud and clear Canary.

Canary Okay, we have a PLA update for you when you are ready to copy.

S/C Ready to copy.

Canary Okay, for this the area will be 400K, BEF is constant at 21+50.

S/C Okay.

Canary 90-1, 140 20 06; 90-1, 141 55 58; 91-4, 144 48 01;  
92-4, 146 23 41; 93-4, 147 59 16; 94-3, 149 17 18;  
Area is good in all these areas, the weather.

S/C Roger, thank you.

Canary Okay, I have a flight plan update for you also, two items.

S/C Okay

Canary S-5, 139 31 50, sequence 21, mode 02, pitch 30 degrees down,  
yaw 1 degree left. D-4/D-7, 139 31 50, sequence 418, mode 02,

S/C This is Gemini 7, I don't read you, over.

Canary How do you copy now?

S/C Loud and clear now, I missed - the last thing I got was mode 02 on  
D-4/D-7.

Canary Okay, that was it, due to weather.

Flight Canary Cap Com, Houston Flight.

Canary Go ahead, Flight.

Flight We would like an open circuit voltage reading on stack 2C.

Canary            Okay. Gemini 7, Canary.  
We would like an open circuit voltage on stack 2C, please.

S/C                Okay, open circuit on stack 2C. This is Gemini 7, 2C is  
off scale high on our meter, it is over 31 volts.

Canary            Roger, copy.

Flight             We copy.

Canary            Do you want circuit voltages on the rest of them?

Flight             Affirmative.

Canary            Okay, 7, we would like all the stack voltages right now.

S/C                Roger. 1A pump, 27.9; 1B, 27.9; 1C, 27.8; 2A, 27.8; 2B, 27.8;  
2C, 27.8.

Canary            Roger. Copy.

Flight             Houston Flight.

Canary            Go ahead Flight.

Flight             I think you ought to tell him all that sounds very good. We  
would like an LOS main from your site.

Canary            Okay. Gemini 7, we have nothing else for you. We will be  
standing by. All those voltages look real good.

S/C                Very good.

END OF TAPE

Gemini Control here, 138 hours 44 minutes into the flight.

At Carnarvon a few minutes ago we had a medical data pass on the Command Pilot and it went like this.

Carnarvon Gemini 7, Carnarvon Cap Com. We have a valid pressure. We are standing by.

Carnarvon Gemini 7, this is Carnarvon surgeon. We are standing by for your blood pressure.

S/C This is 7, roger, it's coming down in a second.

Carnarvon Your cuff is full scale. Surgeon, Gemini 7. We have a valid blood pressure, would you give us a mark when you begin your exercise.

S/C Mark.

Carnarvon Gemini 7, your cuff is full scale. Gemini 7. We have a valid blood pressure. Would you give us your food and water report now, please?

S/C Roger. Total to date, the Command Pilot has had 624 ounces of water and we have just finished day 8 meal A.

Carnarvon Roger. That was for breakfast.

S/C Roger, that was breakfast.

Carnarvon All right.

S/C And the Pilot also had breakfast, same meal, and he has had 422 ounces of water.

Carnarvon Roger, thank you Gemini 7. Carnarvon Surgeon out.

S/C Roger Carnarvon.

Carnarvon Gemini 7, Carnarvon Cap Com. We have roughly 5 minutes left to go. We will be standing by. Everything looks good from the ground.

S/C Very good. Everything looks good up here also.

Carnarvon Roger.

Flight Houston Flight.

Carnarvon Flight, Carnarvon.

Flight Are you picking up the HF?

Carnarvon Stand by and I'll check on it. Affirmative Flight, it is coming in very weak here.

Flight Roger, ask the crew if they are receiving it?

Carnarvon Roger, will do. Gemini 7, this is Carnarvon Cap Com. We are picking up the HF here on the ground, are you getting it up there?

S/C Stand by, we'll try.

Carnarvon Roger.

S/C Carnarvon, this is Gemini 7. Negative, we are not receiving it up here.

Carnarvon Okay Gemini 7, thank you. We are real weak here on the ground Flight, and they report they are not getting it.

Flight Rog, we copy.

S/C Carnarvon, one other thing you can pass on. On the vision test this morning Borman was -6 and Lovell -12.

Carnarvon Roger, copy, minus 6 and minus 12.

S/C That is affirmed.

Carnarvon Carnarvon LOS.

Gemini Control again. The weather for 7 this morning continues to look good for the next 48 hours. No major disturbances predicted in any of our four primary landing areas. Among the interesting features to be overflown during the course of this day include a frontal cloudiness area off Baja, California and Jetstream associated Cirrus clouds over North Africa.

Beginning this morning, the Weather Bureau Group here in our Mission Control Center is now preparing weather forecasts for the 6 launch. This is the first that we have received from them. They normally try to run about 48 hours ahead on any given activity, so for Gemini 6 they are predicting the weather in the Cape Area will look like this. The prediction calls for fair weather with scattered clouds. Surface winds will be light and variable, probably south east, seas in the off shore area will be 1 to 2 feet. Temperature about 65 degrees on Sunday morning. Their prediction for the four primary landing areas around the world is also good for Sunday. This is Gemini Control Houston.

END OF TAPE

Gemini Control here, 139 hours 18 minutes into the mission. We have just completed a medical data pass on the swing across the Carribbean Gulf of Mexico and it was a very jaunty conversation. Frank Borman turned the table this morning on Surgeon Chuck Berry here in our Control Center. He started off by observing that Dr. Berry sounded a little sleepy and then he asked Dr. Berry for a water intake report. There were several other comments that Dr. Berry also sounded a little hoarse and generally had some fun with our Flight Surgeon. The taped conversation went like this.

Cap Com Gemini 7, Houston.

S/C Go ahead Houston, Gemini 7.

Cap Com Roger. Good morning. We have a valid temp on you. Give us a blood pressure and stand by for the Surgeon.

S/C Roger.

Surgeon Cuff is full scale.

S/C Roger. You sound sleepy.

Surgeon You are right.

Cap Com Don't you think his voice sounds kind of hoarse up there, Gemini 7?

S/C Roger. How much sleep did you get. Could we have a water report on you please, Flight Surgeon?

Surgeon Water only. Roger.

Flight Houston Flight, how long have you been up there now?

S/C Let's see, it is 139 hours 5 minutes 14½ seconds.

Flight Roger, good check.

Surgeon Frank, while we are waiting for this --

Flight Is that days or hours???

S/C Those are hours. I feel like I was born up here. Go ahead Chuck.

Surgeon Frank, could you do a check on the total counts in your water gun and read them to me while we are getting these blood pressures on Jim. I'll tell you why in just a minute.

S/C 2258.

Surgeon We have a valid pressure, give me a mark at exercise.

S/C Mark.

Surgeon That was 2258. I think we have apparently got an error in the counts. When we compute the water from your counts and compare them to the ounces that we have been reading, they don't add up. There looks to be about a 10 pound error and sometime during the day I wish you could go through and recalculate your log and see if we can find that error.

S/C We will, Chuck.

Surgeon Cuff is full scale. There is one other item we missed on that report that you gave a while ago. We didn't get the dinner meal, we need the meal eaten last night.

S/C Okay.

Flight Gemini 7, Houston. We would like you to place the stack 2C on open circuit voltage for about 5 minutes and give us a reading on it every minute.

S/C You are starting to play games with us now. Are you serious?

Flight We are serious. We are serious. The current on Stack 2C has been coming down for about the last hour and one-half or 2 hours and we want to take a look at what the voltage is doing.

Surgeon We have a valid blood pressure.

S/C 2258.

S/C Let's see, day 4, meal C last night Chuck, and we will open circuit this for 5 minutes now.

Surgeon Okay Frank. We also need your report on your sleep. We need some hours from each of you and something about the type. We noticed that your sleep didn't appear to be very good last night.

S/C It was better last night than the night before. Jim slept very soundly for about 7 hours and I slept pretty good for about 6 hours.

S/C Surgeon, is the blood pressure okay?

Surgeon Yes sir. Could you give us a reading from column 5 and 6 on the log.

S/C Lovell finally made the count 6.

Surgeon Very good.

S/C HALLELUJAH.

Surgeon Excellent.

S/C Opening Stack 2C at this time.

Flight Roger, Jim.

S/C The Pilot has 13 in column 5.

Surgeon Roger, 13 column 5.

Flight Jim, would you keep me posted on how that open circuit voltage looks, that is whether it is fairly steady?

S/C Roger, right now it has just stabilized and it is just a bit above 31 volts, way at the top of the scale.

Flight Roger, keep us posted.

Surgeon Do you have the Pilot's reading in column 5.

S/C Roger, 14.

Surgeon And your reading in column 6.

S/C One in column 6.

Surgeon Okay. Give me a statement about your general condition this morning, each of you. Jim sounds pretty hoarse this morning. How do you both feel?

S/C We both feel all right.

S/C I feel fine, I'm a little sleepy but Lovell is bouncing all over the place here.

S/C I think Chuck my nose is all stuffed up, that is why I feel worse, I sound hoarse too.

Flight What is your excuse, Surgeon.

Surgeon I'm all plugged up too.

Surgeon Can you tell me a little bit about that urine bag, where it broke yesterday. Did it break around the neck seal?

S/C Neck, right.

Surgeon Right at the neck seal, okay. Did it go all out into the cabin, or were you able to get it contained pretty well?

S/C I caught most of it in my face and hands.

S/C Come on.

S/C Say, after all, we are being conservation minded on the water too here.

Surgeon That is going too far.

S/C It went all over but I caught it with some tissues and we just threw it in back, there may be some wet left in it as a matter of fact.

Surgeon Okay, fine.

Surgeon Frank, we had an oral temperature reading that came up to 97.7 on your oral temperature probe over CSQ and RKV on revs 81 and 82. Was there any reason for this do you know?

Did you have the oral temperature proble in some position that it would pick up temperature.

Flight Can I have those open circuit voltage readings.

S/C They just came to 32.

S/C Yeah, we stabilized at about 32 now, it is just right at the top of the indicator, it is just at the top now. 32 volts.

Flight Roger.

S/C We are not going to use any fuel at all except to pursue the experiment.

Cap Com Very good, Frank. I was going to comment on that. We are actually running okay per day on fuel usage, but we are slightly behind on our experiments because of weather conditions, so we want you to keep being very stingy on the fuel.

S/C Rog. We are not going to try to pick up anything or do anything at the targets of opportunity unless you call them up because you have to maneuver even then.

Cap Com Roger.

Flight How about another voltage reading.

Surgeon Jim, do you think it would help if we used one of those shrinking agents that we have aboard there for your nose. Have you been able to clear it, or would you like to try that?

S/C My nose is too dry already, Chuck, so I don't need any of those other things.

Surgeon It is just dry, it is not swollen, it is just dry, right?

S/C All we need is Vicks.

Cap Com Gemini 7, could you give me another voltage reading and standby to start your flight plan update.

S/C Roger, the voltage is still up there at the 32 or above.

Cap Com Roger. Ready to start copying?

S/C Stand by a second. Okay, go ahead Houston.

Cap Com Roger. The first item is D-5, time 140 10 00. This will be a test number 4. For your information ground tests showed that radio frequency interference can saturate this photometer, so we are interested in a test where we turn off all our RF sources. Are you ready to copy the test?

S/C Roger, go ahead.

Cap Com All transmitters and beacons off. You can give me another voltage reading and get the Stack 2C back on the line.

S/C Roger, she still runs above 32 and I'll put Stack 2C back on the line.

Cap Com Roger.

Flight Jim, that thing looks very good to us. We will keep an eye on what the current does.

S/C Roger, thank you. Another thing we noticed was the drop in AMPS of the indicator.

Flight That is the same thing we are seeing.

S/C Looks like it is just joining 2A and 2B, Chris.

Flight Yeah, I guess that is the thing that they don't understand, it has been up so high and now it is coming down.

S/C Roger.

Cap Com You would normally expect it to run a little higher because it does run hotter.

S/C All right.

Cap Com            Okay, next step in the test is make normal calibration on Jupiter. I may lose you somewhere in here, but I'll keep going as long as I can.

S/C                Elliot, Jupiter is right next to the moon and that is going to be tough to do.

Cap Com            All right. Just pick out another bright star, or planet, just so it is a good bright one.

S/C                All right, will do.

Cap Com            Make second calibration without the pressing cal button and count turns from cal setting to max. Turn gain wheel to mend setting. Turn each transmitter and beacon on one at a time and look for reticle color change. Port turns to maximum and color change versus equipment activated, that is as you turn the items on. Do you copy?

S/C                .....

Cap Com            Gemini 7, it sounds like we are about ready to lose you here, we will continue passing this up at Canary.

S/C                Roger we will see you over Canaries. We are going to do an S-5 now.

                    This is Gemini Control at 139 hours 29 minutes into the flight. Our orbit this morning is on our official orbit digital display and shows 162.2 by 162.0. Flight Dynamics Officer here advises that he considers the orbit to be exactly circular. The crew update continued as we crossed the Atlantic. Elliot See contacted them again by UHF over the Central Atlantic and he dropped off for a few minutes, then the briefing continued via the Canary Station. Here is that conversation.

Canary Gemini 7, Canary Cap Com. Com check. How do you read?  
S/C This is 7, loud and clear.  
Canary Okay, we can continue with this flight plan update. First of all we would like your evaluation of the weather over Africa. We have an Apollo landmark scheduled on the next rev and we would like your evaluation on that, okay?  
Flight That is South along the Coast.  
S/C Roger, we will give it to you. On our last pass, the weather looked pretty good, but we will give it to you on this pass.  
Canary Okay, that is around the coast.  
S/C Around the coast, roger.  
Canary What part did you miss on this test 4?  
S/C Canary, we are trying to get an S-5 now, I wonder if we can hold off on that, please.  
Canary Okay, give me a call when you are ready.  
S/C Roger. Canary 7.  
Canary Go ahead.  
S/C ... (garbled) D-5.  
Canary Okay. Where do you want me to start. How far have you gotten?  
S/C Why don't you start at the beginning?  
Canary Okay. This is the equipment test 4. Number one, all transmitters and beacons off. Make a normal calibration on a bright star of some sort. Three, make a second calibration without depressing cal button and count turns on cal setting to match.

Houston Systems, Houston.

S/C Roger, I should have taken shorthand. Go ahead.

Canary Okay. Turn gain wheel to minimum setting.

Flight Canary systems, Houston Flight.

Canary Systems Houston, go ahead. Canary systems.

Canary Each transmitter on and beacon on one at a time and ...

Canary System Houston, go ahead. This is Canary Systems.

Flight Tell him to use any star - bright star as long as it is not a red star.

Canary Systems Roger, will do.

Canary Report turns to maximum and color change matches equipment activated. Use any bright star as long as it is not red. Do you copy. This is for the calibration.

S/C Roger, turn each transmitter and beacon on one at a time look for color change, and then report what equipment makes the color change and the gain wheel setting, is that correct?

Canary Rog. Turn to the maximum, any color change versus equipment activated.

S/C Roger. Understand. Any bright star as long as it is not a red one.

Canary That is affirmative.

S/C We are coming up on the Coast of Africa right now and the coastline, I would say is mostly clear with some Cirrus, a few Cumulus hanging on the inside. The desert area is clear.

Canary We copy. We have more of the flight plan update if you are ready to copy.

S/C Go.

Canary 140 34 00, fuel cell purge at Guaymas. 140 37 00, go--no-go at Texas. Transponder check 140 44 08, sequence 02, pitch 30 degrees down, yaw 4 degrees right. 141 00 00, bio-med recorder one continues off at 143 00 00. Apollo, 141 00 10, sequence 85, mode 01, pitch 30 degrees down, yaw 24 degrees left. D-4/D-7, 141 20 00, sequence 413, mode 02, use Venus. 142 00 00, exercise period. 142 10 00, eat period. UHF test, 143 02 56, use horizon scanner to control spacecraft BEF for UHF test over Carnarvon. Use the adapter antenna. Do you copy so far.

S/C We copy quick.

S/C D-4/D-7, we will pick it up later.

Canary Okay.

Flight Give it to them later Canarys.

Canary Roger Flight. Systems are go at Canary.

END OF TAPE

Gemini Control Houston here. Today should be one of our busier days in the experiment department. Quite a few layed on, many operational checks within the cabin. Over Tananarive, Elliot See called 7 and gave them an update and it went like this.

CAP COM Gemini 7, Gemini 7, Houston Cap Com. How do you read?

S/C Read you.

CAP COM Like to continue the flight plan update if your communications are OK through Tananarive.

S/C Roger, we're working a little hard here now trying to get ready for GT-6.

CAP COM Roger, let me know if you have time to copy.

S/C Roger. We need some information sequence ....

CAP COM Sequence what? Again, Gemini 7. Gemini 7, Houston. Understand you need some more information on some sequence. We did not copy.

S/C Roger. Our sequence which occurs is 1404408. We don't have the, we don't know what the title is.

CAP COM Roger. That's a transponder test.

S/C Roger. Elliot, I copy now.

CAP COM Roger. Understand you left off on a UHF test and  
you did get the time on it, is that correct?

S/C On the UHF test....

CAP COM You seem to be cutting in and out, Gemini 7.  
Understand you copy. The UHF test and the  
time and instructions follow. Control  
spacecraft BEF for the test over Carnarvon.  
Use adapter antenna. How do you copy?

S/C Fine, but we don't have the time on that  
one.

CAP COM Roger. Time is 143 02 56. Do you copy?

S/C Roger.

CAP COM Next item. Time 143 07 56. Begin UHF test.  
Key UHF continuously until 143 17 01. Voice  
modulate UHF until 143 12 28. How do you copy?  
Gemini 7, Houston, I did not read any answer.  
How do you copy the last update?

S/C We copy. Go ahead, please.

CAP COM Roger, understand you copy. I'm going ahead.  
MSC-41433644, sequence 05, mode 01, pitch  
30 degrees down, yaw 13 degrees left, MSC-41441458,  
sequence 10, mode 01, pitch 30 degrees down,  
yaw 20 degrees left, do you copy?

S/C We copy, Houston.

CAP COM Roger, that's the complete flight plan  
update.

S/C Roger, Houston.

FLIGHT Carnarvon, Houston Voice Control. Carnarvon  
Cap Com, Houston Flight.

CRO Carnarvon, Houston Flight.

FLIGHT We want to make sure they got all that  
good stuff on the flight plan update. You  
might check with them to see if they got all  
the times and the words.

CRO Roger.

FLIGHT Also, tell you what---

END OF TAPE

Gemini Control, Houston. We're on the 88th revolution around the Earth. The 93rd inertial orbit. Over Carnarvon, the conversation went like this.

CRO Gemini 7, Carnarvon Cap Com.

S/C Okay, Carnarvon. Gemini 7.

CRO Roger. Would you check your circuit breakers, please. We do not have an acq aid beacon and we had to go to a stand by TM frequency to pick you up.

S/C Roger. They're all off. We turn them back on anytime we're running a D-5 test.

CRO Oh! Roger. Understand. Okay, Flight, he's running tests at this time with turning the equipment off.

HOUSTON Understand.

CRO We haven't made any C-Band track. We do have TM on the stand by frequency at the present time. As soon as he finishes that, we'll try to reconfigure properly.

HOUSTON Roger.

S/C We have them on right now Carnarvon.

CRO Roger, Gemini 7.

S/C Carnarvon, can you transmit this to Houston for us?

CRO Roger. Sure can.

S/C Can the D-5 instrument be aligned and calibrated. I'm serious. We've pushed the calibration button. It stays full red regardless of the position of any of the transmitters, and regardless of the position of the gain wheel. When we did not use the calibration button, it stayed full green regardless of anything we did, including the gain wheel.

CRO Roger. I think we've got all that. We've got it on tape, if not.

S/C I think they'd like to know it right away.

CRO Roger. I'm sure Flight's copying  
HOUSTON We've copies, thank you.  
S/C Carnarvon, there is one addition; when I push the calibration  
button, the green had a tendency to slightly go red at the low  
gain stage, but has always stayed positive green all the way up,  
but the gain's the same.  
CRO Get it, Flight?  
HOUSTON Affirmative.  
CRO Okay. Thank you much. Gemini 7, Carnarvon. Did you get all the  
information on the flight plan update. Are you happy with all  
the plan?  
S/C One thing we need to know if ...  
CRO Gemini 7, Carnarvon. Say again.  
S/C We need to know after D-4, D-7 at 141:20:00...  
CRO Roger.  
S/C Between then and the UHF test at 143:02:56.  
CRO Roger.  
S/C I can't find 142:00:00.  
CRO That's exercise period.  
S/C 142:10:00.  
CRO Eating period. Do you copy?  
S/C Thank you.  
CRO Roger.  
S/C And, Carnarvon. One more item on the D-5 photometer. We had a  
We had a light burn out in the cockpit just recently, and now it  
appears it has saturated both calibrates now, but not down.  
Reticule is full green.

HOUSTON           After they'd completed the other tests?

CRO                Gemini 7, was that after you'd completed the other tests?

S/C                Roger. That's after we'd completed the other tests and turned the light off the cockpit to take the updates, and I was still using the D-5 and noticed that the reticle stays green now, whether the calibrate is down or not.

CRO                Roger. Thank you.

HOUSTON           We copy.

S/C                Carnarvon, it's a very dim light actually. It must be very simple fixing it.

CRO                Roger. Okay, I have some general information for you on the fuel cells. I believe, as you're probably well aware, Stack 2C has been carrying most of the load, and the experts feel that during the hydrogen purging, since all three sections are purged together, that 2C hasn't been getting all of the water given out of it. So, they're considering, at the present time, doing a special hydrogen purge on 2C some time today over the States and they're still looking into that. They'll give you more information out over the States..

S/C                Roger.

CRO                We find that Woomera is trying to steal our C-Band beacon again.

HOUSTON           Roger.

CTN                Canton LOS.

Gemini Control Houston here with 7 halfway between Canton Island and the Carnarvon station. Flight plan calls for the crew to be performing a D-5 experiment. They'll be using that bulky photometer that nobody seems to fully understand. We're running additional tests here on the ground. There is some

feeling that perhaps the very sensitive instrument on board is being saturated by radio interference within the spacecraft. It seems a good possibility at this point. Going across the States this time, the crew will turn on their L-Band transponder as they approach the west coast of Mexico. Then they will conduct a normal fuel cell purge. They will be given a "go" for 10<sup>4</sup> revolutions. Over the Cape, they will conduct an L-Band transponder test. The Cape will bounce the signal up to them. Their transponder will rebroadcast it back down if the planning information is correct. After the Stateside pass, they're to do some Apollo landmark experiment photography east of the Canary Islands, and a D-4, D-7 experiment in the area of Tananarive. At 140 hours, 13 minutes into the flight, this is Gemini Control, Houston.

END OF TAPE

This is Gemini Control Houston, 140 hours 34 minutes into the flight of 7. We are only seconds away from our Guaymas acquisition. There goes Guaymas's first call out to the spacecraft. A little later today, about 4:30 this afternoon, we are going to start a simulation with 6 spacecraft and run through an entire 4 revolution rendezvous type flight. Hopefully what we will be doing on Sunday. Let's cut over now to the action. The Guaymas station has called them and has asked them to start their fuel cell purge.

S/C                    This is 7. Open circuit voltage now reading 30 volts. It is probably still going up very slowly.

Guaymas                Roger, understand. Just as a precaution during this purge we would like for you to monitor 2C on the voltmeter and the amp meter. If there are any large deviations during the purge, they would like for you to stop the purge.

S/C                    Roger, I'll keep it 2C on the volt meter. It has gone up now to 30.5. 2C amps are reading zero of course.

Guaymas                Rog. We are ready for your purge. Everything looks good on the ground.

S/C                    You want me to make a normal purge, over?

Guaymas                Rog. Normal purge.

S/C                    Roger. Coming through now. One more question. Do you want me to keep 2C off the line for this second section oxygen purge?

Flight                 Negative.

Guaymas                Negative.

S/C Roger. Thank you.

HOUSTON Roger. Look okay?

Guaymas Roger, Flight. It looked good during the hydrogen purge on both frequencies. Purging O2 on section one at this time.

HOUSTON Roge.

They're purging oxygen on section one now. Section two looked alright.

Guaymas They're purging section two O2 at this time.

HOUSTON Roge.

Guaymas Everything's holding steady.

S/C Purged the 2, Guaymas. There's still no change on the 2-C AMPHS.

Guaymas Roger. Houston?

HOUSTON Roger.

S/C Guaymas. This is 7. Did notice a change in the main AMPHS Difference here between section 1 and 2 about 6 now. Difference between section 1 and section 2 amp. meter readings about 6 amps now. Section 1 is about 6 higher than 2.

HOUSTON Gemini 7, Houston. How do you read?

S/C Loud and clear, Houston.

HOUSTON Roger. This will be a UHF 6 pass.

S/C Roger

HOUSTON We observe you have the A pump on in the primary coolant load. Could you tell us about when you put that on?

S/C Stand by a second. We put it on at 140:10.

Houston Roger. Is that just to get a little more cooling?

S/C Roger. Frank was hot in the suit, so we put the A pump on for him.

Houston Roger. We know you're coming up on a tracking test at the Cape here; just let me know when we need to stop talking to you for that part.

S/C Roger. Appears, from my position now, that there may be cloud cover over the Cape.

Houston Roger. Gemini 7, you're go for 104-1. We'll get your "no go" information after the Cape pass.

S/C Roger. Will pass up the photo. You were cut out at the Cape. Did you say we were "go" for another pass?

Houston Roger. You are go for 104-1.

S/C Roger. 104-1. We have the Cape in sight now.

Houston Roger. Would you give us fuel cell H2 and the quantity read switch?

S/C H2 on.

Houston Did the Pump A help on the cooling problem?

S/C Roger. It helped somewhat, Houston.

Houston Roger. Got the message.

S/C We're tracking the Cape now.

Houston Roger. Tracking the Cape now.

S/C I see they're working hard down there at Pad 19 again.

Houston Roger. Can you actually see people on the Pad with your telescope?

S/C No, we can't Houston.

Houston Roger. Place your TM switch to command.

S/C TM is on command.

Houston And C-band adapter switch to command.

S/C C-band to command.

Houston Roger. Let me know when you finished the task and we will continue.

S/C Roger.

Houston Stand by for your TR, Gemini 7. Gemini 7, standby for your TR update.

S/C Roger. No update yet, Houston.

Houston Roger, we have a little TM problem we are working on. We are transmitting again, Gemini 7. Gemini 7, you can place your quantity read switch to off.

S/C Tracking task complete. No TR yet received.

Houston Roger. We have a problem with our ground equipment. We will update you as soon as we can, either here or possibly at Canarvys or Carnarvon.

S/C Roger, understand.

Houston We are going to try one more time here, Gemini 7. Looks like we can't put it in here, Gemini 7, we'll catch you at another station.

S/C Roger.

Houston I'm ready to copy your go--no-go information.

S/C Roger. The main batteries are all 23 volts, 1A, 5 amps, 1B 5 amps, 1C 5 amps, 2A 3 amps, 2B 3 amps, 2C 2 amps. Main

bus 26.2 volts, RCS A 3000, 80 degrees, RCS B 2900, 75 degrees.

Left secondary O<sub>2</sub> 5400, right secondary O<sub>2</sub> 5300.

Flight Roger. Gemini 7. We tried the TR again and our indication is that it went in correctly. Did you get an update.

S/C That is affirmative. We got an update.

Flight Roger. Gemini 7, would you stand by for the Surgeon. He would like to get a couple of question in relation to your last pass.

Surgeon Gemini 7, this is Surgeon. We didn't get an answer. I'm not sure you heard about this oral temperature at 128 hours just at the beginning of the sleep period on the Command Pilot. Do you have any explanation for that?

S/C The sun might have shined on it or something, Chuck. I don't know what could have happened.

Surgeon Okay, and how are you doing with the water story, Frank. Have you got that yet, or --

S/C We are working on it now. We have been very busy this last pass.

Surgeon Roger, that's fine. Anytime you get it.

S/C Roger, we have to go back. We may have sometimes counted each half ounce as an ounce or something, but we will check.

Surgeon Roger.

Flight How did your tracking across the Cape go, Frank. Was the weather okay there.

S/C Yes, it was perfect. There was absolutely no problem.

Flight Roger. We will let you know on that as soon as we get the

word.

S/C Rog. We would be interested to know if they got any good data off our tracking on the booster.

Flight Gemini 7, I'm not sure we know what you mean by that.

S/C Did Fred receive any of the information he wanted.

Flight Roger, they are very happy about their results.

S/C Okay, thank you.

S/C Flight, what do you want us to do about this section 2C if Stack 2C if it keeps going down and we are not in contact with anyone?

Flight We are working on that Frank. We are considering a longer purge or possibly a purge on just that one stack. They are running a special test on the Sim flight fuel cell at St. Louis. We should have some work on that very shortly.

S/C Remember a purge is never a cure.

Flight Roger. Roger doctor.

Gemini Control here with the spacecraft now over the Central Atlantic that probably wraps up the communications for this pass. At 140 hours 53 minutes into the flight, this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston, here, over the Canary the brief conversation which went like this.

CYI Gemini 7, Canary

S/C Go ahead Canary

CYI You can turn off the transponder now.

S/C Thank you.

HOU FLIGHT Canary Islands, Houston Flight

CYI Go ahead Flight.

HOU FLIGHT Let's have him do another normal section two purge.

CYI ~~Now~~ Affirmative.

HOU FLIGHT Rog

CYI Affirmative. Seven, Canary.

S/C Go ahead.

HOU FLIGHT They want another section two purge.

S/C Roger, whate time?

CYI Now.

S/C Can you wait until after we get one Apollo landmark after dark?

HOU FLIGHT THat's fine.

CYI                    That's okay.

S/C                    This is seven coming through with a section 2  
purge.

CYI                    Affirmative. Do you want us to monitor if we  
can get them?

HOU FLIGHT            I don't think that's necessary.

CYI                    Okay.

HOU FLIGHT            This is Houston Flight. You might tell the crew  
that the Cape thinks they tracked the transponder  
for 2 minutes during that time.

CYI                    Roger. Seven, Cape said they probably got the trans-  
ponder for about two minutes.

S/C                    Rog. Thank you.

HOU FLIGHT            Canary LOS

END OF TAPE

A few minutes ago over Kano, Elliot See checked with Jim Lovell on the success of another fuel cell purge. Here's how it goes.

HOUSTON Kano go remote.

KANO Kano remote.

FLIGHT Would you send us an LOS main?

KANO It's on the way.

CAP COM Gemini 7, Gemini 7, Houston Cap Com.

S/C G-7, go ahead.

CAP COM Roger. We'd be interested if you notice any significant change in section 2.

S/C The only change is in the amperage, pulling about two amps. ....during the second purge. It is now reading about 27.2. It looks like it's a little higher than it was before.

CAP COM Roger. We'll continue to watch it.

S/C Rog. We've got a, about a 6 amp difference between section 1 and section 2 according to amperage reading.

CAP COM Roger. We can count.

END OF TAPE

Gemini Control Houston here. The spacecraft is over Northeast Australia. Just a few minutes ago we had this conversation with the Carnarvon station and 7.

CRO Gemini 7, Carnarvon.

S/C This is 7. Go ahead, Carnarvon.

CRO Roger. We have you good on the ground. We also have some information for you, then the process of running an H<sub>2</sub> purge on a single stack at St. Louis. They'll have more information on this test over the States. The one in St. Louis is showing similar characteristics to the one onboard.

S/C Roger.

CRO That's about all we have for you this pass, so we'll be standing by.

S/C Thank you.

CRO Gemini 7, Carnarvon. Is D-7 go?

S/C Roger.

CRO Do you think you can do D-4/D-7?

S/C That's affirmative. We've finished D-4/D-7.

CRO OK, we still don't have anything .....your secondary off.

S/C Did you get one now? We just turned it off.

CRO I will check. Roger, 7, we got it.

S/C Mother is watching.

CRO Roger.

FLIGHT Do they still have primary A on?

CRO That's a primary bus.

FLIGHT Rog.

CRO TM LOS, Flight. Everything looked real good  
here on the ground.

FLIGHT How about sending us an LOS lean?

CRO Rog.

END OF TAPE

Gemini Control Houston here, 142 hours 6 minutes into the flight. Around the network this morning you have heard a lot of discussion about fuel cell purges. Perhaps some general remarks should be made. Since the beginning of the flight section 2 of the fuel cell has run slightly lower in output than section 1. All in all we are completely satisfied with the output of both sections. But this has been noticed, it is not a problem and we don't think we have a problem in the fuel cells. In section 2, stack C has put out less than the other two stacks, so as a general statement over a period of time it is perfectly normal for fuel cells to decline slightly in output. This takes place slowly at various rates and can eventually make it desirable to cut off an individual stack or two, or perhaps the whole section. Built in redundancy in the system fully takes this into account. Other parts of the system are not affected. The Gemini spacecraft can operate safely on far less than this total power to kilowatts. that the fuel cell system is designed to produce when operating at full capacity. So, we have a very tight spacecraft and we -- it is something like a dog and a bone. Someone sees a little bit of decline here and I think tension may be overly centered on the declining output of that one stack or the performance of stack C in section two. There was additional discussion of the fuel cells over Hawaii and it went like this.

Hawaii Gemini 7, Hawaii Cap Com. We have nothing for you, you need not acknowledge, we show you a go on the ground.

Flight Hawaii, Houston Flight.

Hawaii Houston Flight, this is Hawaii.

Flight Have him place the stack 2C to the open circuit and we want to leave it there for about 15 minutes and we want him to --

S/C Hawaii, this is 7.

Flight Go ahead.

Hawaii Gemini 7, this is Hawaii.

S/C Did you receive our last transmission, over.

Hawaii Negative.

S/C Okay, thank you. Just checking.

Hawaii Flight, you can continue now.

Flight Okay, we want to --

S/C Hawaii, Gemini 7 with a correction for our water report.

Hawaii Roger, Gemini 7. Go ahead.

S/C Roger. Our recomputed figures show that the command pilot to date has had 452 ounces of water.

Hawaii Okay, that was command pilot, 2 days, 452 ounces of water.

Flight To date.

S/C No, that is total to date, total water.

Hawaii Roger.

S/C The pilot 396.

Hawaii Roger, Copy all of that?

Flight Tell him to place the stack 2C to the open circuit and leave it there for about 15 minutes and we will pick it up over the States and we want to know if the voltage stays at 30 volts or better and stable, and if that is the case, then we are going to do a single stack hydrogen purge over the States.

Hawaii Roger. Gemini 7, Hawaii Cap Com. I have some information for you.

S/C Go ahead.

Hawaii Place your stack 2C switch to the open circuit position for 15 minutes, 15 minutes. Houston will pick it up over the States and if the voltage stays at around 30 volts or better, they will do a single stack hydrogen purge over the States.

S/C Roger. At this time I am going to go to open circuit on stack 2C, we will keep it open circuit. Understand that if the voltage stays at 30 volts or better they will do a single stack hydrogen purge, is that correct?

Hawaii That is affirmative.

S/C Roger, going to open circuit 2C.

Hawaii Roger. Houston, Hawaii Cap Com.

Flight Go ahead.

Hawaii Would you give me a TR hack please.

Flight Roger.

Retro Hawaii, this is retro.

Hawaii Roger.

Retro I'll give you a hack at 22 21 40, 5 seconds.

Hawaii Roger.

Retro 3, 2, 1 MARK, 22 21 40.

Hawaii Roger. FD, this is Hawaii, do you want an LOS main?

Flight Roger.

Hawaii C-band LOS.

This is Gemini Control Houston again. Elliot See is in touch with the spacecraft over Guaymas. That stack C section 2 fuel cell,

since Jim Lovell moved it to the open position is reading 32 volts or more, considerably higher than the cutoff level expected. Let's cut in on that conversation now.

Cap Com ..... line before we start this thing and we want you to monitor it closely during the purge and then after the purge, just turn stacks 2A and B back on.

S/C Right, and Elliot, I want to tell you another thing. We fooled around with this D-5 again and tried to calibrate on Venus and everything else and we couldn't do it.

S/C I tried it too. The conclusion is that the calibration button is down it is always reading red, when it is not down it is always green.

Cap Com Roger.

Cap Com Let's go over this procedure one more time. We will have the crossover open and 2A and 2B will be open circuited, and then we will put 2C back on the line and we would purge hydrogen for 13 seconds.

Flight That is correct Jim, but I think we should put stack 2A back on the line first before you take 2A and 2B off.

S/C Roger, I'll put 2C back on before I take 2A and 2B off, and we are not going to bother with the oxygen at all, right?

Flight That is correct.

S/C And you want to do this purge over the States, is that correct.

Flight We will tell you when we are ready, Jim. What does the voltage look like from Hawaii into here when you were - all this time that you have had it off, has it been steady or

what.

S/C Every time we have open circuited it, it goes up fairly rapidly to 30 volts and then very slowly continues to rise. The last time we talked it was up around 31 and since we have had it open longer now it's 32 and it might be above that. That is as high as the scale goes.

Flight Roger, I copy.

Flight I have some questions about your attempt at MSC-4 yesterday. Did you definitely acquire Kauai?

S/C On that attempt, no. When we first picked up the Islands we could see Hawaii, Molokai and Lanai, but I could never pick up Kauai, I think it was at an oblique angle covered by clouds and we gave the remark, we're almost over Oahu, that's when I thought perhaps that in this position was Oahu even though we knew that the Laser was on Hawaii.

Flight Roger. So you never actually saw Kauai so you could not scan it with the telescope or your eyes or anything.

S/C That's right. We never did pick up Kauai but Oahu, Molokai, and Lanai stood out very nicely.

Flight Roger.

S/C Houston, 7.

Flight Go ahead.

S/C As a matter of interest, affirm that my delta P light finally went out. It has been on for the last several days.

Flight Roger. When did it go out?

S/C Just now.

Flight Roger.

Flight Okay, why don't you put Stack 2C back on at this time and give us a stabilized reading there before you proceed.

S/C Roger, stack 2C coming back on the line. Okay, we are back on the line and 2C is reading 27.8 volts now and the amps are back up to 5 amps, the highest we have seen them in some time.

Flight Roger. Let's let it stabilize there for a minute.

S/C Roger.

Flight What are the other amp readings?

S/C 2A and 2B are both about  $2\frac{1}{2}$ . This is the situation we had originally for the first 4 or 5 days.

Flight Roger. Let's watch it here for a minute, Jim, and then we will decide about this purge.

S/C Roger.

Flight What do your currents look like now, 7?

S/C Very stablized. 2C voltage at 27.8 and amps, 5 amps on the 2C amp meter.

Flight How about 2A and B.

S/C 2A and 2B read each about 3 amps now.

Flight All right. You have 2A and 2B 3 amps, 2C 5 amps. Is that correct?

S/C That is correct and both sections are balanced.

Flight Roger. How about reading off the A section then.

S/C Roger.

Flight I mean section 1.

S/C 4, 1B about 4 and 1C about 4.

Flight 1A, B. and C are all 4.0?

S/C That is affirmed.

Flight Roger. We want to keep watching here for a minute, 7.

S/C Roger. Houston, Gemini 7.

Flight Go ahead.

S/C We made a couple of quantitative checks on the UHF adapter -  
or the UHF antennas and it seems that the reentry antenna  
is just a little bit better than the adapter antenna.

Flight Roger.

S/C Neither one of them are bad though. We have been using  
primarily the adapter antenna since the platform was  
powered up yesterday.

Flight Roger. Okay Jim. How about giving me another readout on  
1 and 2 amperages.

S/C Roger, section one is reading about  $3\frac{1}{2}$  to 4, that is 1A,  
1B is about 4, 1C is 4, 2A is 3, 2B is 3, and 2C is 5.

Flight Roger.

S/C The delta P light is still off.

Cap Com Is that delta P light still out Jim.

S/C Roger, still out. You always hear about letting sleeping  
dogs lie.

Cap Com Yes, we are just about to evoke the Kraft-Hartley act here.  
You have a TX coming up at you 7.

S/C Received.

S/C If you want us to purge, how about promising us that it  
won't hurt it.

Flight About promising you say?

S/C Natch.

Flight We haven't purged yet, stand by. If we ask you, we will promise.

Flight Maybe we got something wrong with the amp meter?

S/C It might be the operator. I never can tell.

Flight Gemini 7, we are not going to purge. We are going to leave it like it is.

S/C Roger.

Cap Com Are you ready for today's news with your lunch?

S/C Exciting, go ahead.

Cap Com Mr. Mikoyan resigned yesterday as President of the Soviet Union on grounds of health and age. He was replaced by Nikolai Podgorny. Branch Rickey died yesterday at 83. A big fireball was observed over Lake Erie yesterday. It apparently was a meteorite. Several grass fires were reported in the northern Ohio and Western Pennsylvania area, and we should have more on that later, we will let you know if we do. The Gemini news today is about the preparations for Gemini 6 launch on Sunday. We have talked to them recently and they are in real good shape there. They are through the precourt and they are in very good shape. We have a sim set up with Wally tonight. Everyone got a kick out of your message to Tommy Nobis encouraging him to come with the Oilers. A Post sports writer said he knew that Bud Adams had friends in high places, but this is too much.

S/C Outstanding.

Cap Com Before we lose you 7, we would like to get another set of readings on the fuel cell. I'll call you when we need that.

S/C Did Dr. Berry get all the water information from Hawaii, Elliot?

Cap Com Yeah, we got it and they are now happy, Frank.

S/C Good.

Flight If you can conceive of that.

S/C Roger.

Surgeon Frank, we got the totals and we are perfectly happy with them and we won't have to go back and jiggle your things. We will jiggle them on the ground.

S/C Roger.

Flight I don't know about you, Frank, but I wonder what he is going to jiggle.

Cap Com Were you able to see Hawaii at all on that last pass to get some idea of what the weather is going to be like this time?

S/C Elliot, we are drifting with the shutters up to keep cool.

Cap Com Roger, so you didn't see Hawaii then last pass.

S/C Negative.

Cap Com Roger.

Flight Gemini 7, Houston. Would you comment on your cooling situation. We were wondering about your last comment there. Are you able to maintain adequate cooling with the present pump configuration?

S/C This is Gemini 7. Roger, we are both fine. Of course, I'm without the suit and Frank is with it. We have the primary A pump on now.

Flight Roger 7.

S/C You aren't going to have to work a double shift today, are you Elliot?

Cap Com We'll manage.

S/C How are you holding up after these 14 or 7 days.

Cap Com I appreciate your asking. I haven't even thought about it.

S/C How about CM3 and 4.

Cap Com They are doing fine. They are having a ball.

Cap Com           How about C1 and 2.

S/C                We are fine, I guess the person we are really worried about is the old man Flight Director.

Cap Com           We are keeping an eye on him.

S/C                He is missing all those golf games.

Flight             That doesn't even deserve comment.

Flight             Okay, why don't you give me another readout on those stack currents, Jim.

S/C                Roger, coming up. 1A is 4 amps, 1B is  $4\frac{1}{2}$  amps, 1C 4 amps, 2A  $3\frac{1}{2}$  amps, 2B  $3\frac{1}{2}$  amps, 2C is slightly over 5 amps, about  $5\frac{1}{2}$  I guess.

Flight             Roger, we will watch it for awhile, thank you.

Flight             Rog. Go ahead.

Surgeon           Say I'm going to check with them on this nose on the next pass. They are still sounding pretty nasal and I think what I would really like to do is try to get their noses moist with some of this lotion and then to use the Actifed on one of them and see what happens. It is at least worth a whirl and Jim sounds the worst and I think we might try him on an Actifed and see what he does, see if it clears it up.

END OF TAPE

This is Gemini Control. 142 hours, 47 minutes. A few minutes ago we called Seven through Ascension. Here's that conversation.

ASCENSION Ascension LOS. U. S. has a message.

HOUSTON Gemini 7, Gemini 7, Houston.

S/C This is 7. Go ahead.

HOUSTON Sorry to bother your lunch, Jim. Could you give me another set of read outs on the stack amperages?

S/C Roger. We're now reading 3.5 on 1A, 4. on 1B, 3.5 on 1C, ...(Garble). on 2A, 3 on 2B, and ....(Garble)... on 2C.

HOUSTON I did not copy 2A and 2C.

S/C 3 - 2A, and 4.9 on 2C.

HOUSTON Understand about 4.9 on 2C. Also, I'd like to tell you that the MSC 4 for Hawaii next pass is deleted due to weather at Hawaii.

S/C This is Seven. Understand MSC 4 is deleted.

HOUSTON Also, MSC 4 for Ascension on the following rev is deleted because they have not received all the equipment they require there to make their repairs; so, it looks like we won't make that one there again today. I'm sorry.

S/C Roger. Understand

ASCENSION LOS, Ascension.

END OF TAPE

On rev 90 over Australia. Here's the  
conversation with 7, Carnarvon.

CRO Gemini 7, UHF test. 1, 2, 3, 4, 5, 4, 3, 2,  
1.

S/C There's an aurora. I saw an aurora for the  
first time. It's very beautiful.

CRO Jim, you read yours now.

S/C 1, 2, 3, 4, 5, 4, 3, 2, 1.

CRO .....right.

S/C Affirmative.

CRO Hawaii..

HAWAII Go ahead.

CRO According to our flight plan, recorder No. 1  
should be off. We show it still on.

HAWAII Right, Carnarvon.

CRO Should be off. Is that affirmative?

HAWAII That's affirmative.

CRO OK, as soon as they get through with the  
test, I'll go to it.

HAWAII Roger. Carnarvon?

CRO Go ahead.

HAWAII He's got me blocked out on the UHF. The only  
way I can get to him is on the HF. If you

want to go to him on HF, tell him to turn  
the recorder off and we'll go to him over  
Hawaii.

CRO Go ahead and catch it over Hawaii.

HAWAII We'll catch it over Hawaii.

CRO Rog. Hawaii.

HAWAII Hawaii.

CRO Do you read we want to turn that recorder off  
when he gets over your site.

HAWAII That's affirmative. We copy that.

CRO Rog. TM LOS.

END OF TAPE

This is Gemini Control, Houston, at 143 hours, 43 minutes into the flight. Over Hawaii a few minutes ago, some additional theory and a good explanation, perhaps, of what's been going on in that Section 2, Stack C of the fuel cell was passed up to Gemini 7. It goes like this:

HAWAII Gemini 7, Hawaii Cap Com.

S/C Alright Hawaii, Gemini 7.

HAWAII Okay, you're looking real good down here. How are you doing?

S/C Very good.

HAWAII Okay. You too busy to copy a flight plan update?

S/C Well, we're a little busy right now. Could we wait off a minute?

HAWAII Surely. Do you want to copy it later here, or over the States?

Just let me know.

S/C I'll give you a call when we're through here.

HAWAII Very good. I've got a long pass.

S/C Roger. Be glad to now, Hawaii.

HAWAII Okay. Very good. MSC 2 and 3 144:20:00. Sequence 02. Off at 159:00:00. At 144:55:00, you'll make a cabin temperature survey. 6 - 145:27:00. Sequence 02, 03, and 04. Take several pictures. 9 - 145:51:00. Sequence 04. Perform note procedure described after mode listing. 146:46:00, crew status report, command pilot, at Hawaii. 147:19:00, crew status report on the pilot at the RKV. 148:03:00, a PLA update at the CSQ. 148:22:00, flight plan report at Hawaii. 149:00:00, biomed recorder number 2 to "continuance". Off at 159:00:00. Did you copy all that?

S/C Got it all.

HAWAII Okay. Very good. We've got nothing further for you. Ge standing by if you need us.

S/C Thank you.

HOUSTON Oh, you might tell him what Weber has to say about the fuel cell.

HAWAII Okay. Let's make sure I've got it right. They took Stack 2C up into open circuit. Move the load from the cell, right?

HOUSTON Affirmative.

HAWAII And, this relieved the pressure from the water that was in the cell, is that right?

HOUSTON Well, it just stopped producing water and allowed the pressure that was in there to drive the water that was in there, or at least some of it, out.

HAWAII Okay. Gemini 7, Hawaii.

S/C Go ahead.

HAWAII McDonald...(Garble)...that's Mr. Weber, has got a theory on what's going on up there. They claim when you put Stack 2C to the open circuit, you remove the load from the cell. The water pressure was relieved from the cell and it kind of cleared it out of there, and that's what's solving your problem.

S/C What you're suggesting is that if it happens again probably a simple procedure will solve it again.

HAWAII Yea. But, I think that you'd better hold up on doing that until we give you the word.

S/C We don't need you now. It's running perfect.

HAWAII I mean if it happens again.

S/C Don't worry, we will.

HAWAII Okay.

S/C When are you going to get some clear weather down there so we can see your Laser?

HAWAII I don't know. It's been raining for a couple of weeks. Right up on top of the mountain here, it rains all the time.

HOUSTON Flight to Hawaii.

HAWAII Go ahead.

HOUSTON Okay. We're showing that stack as reading 3.87 amps on the ground. And the other two are reading 2.67 and 2.75.

HAWAII Roge.

HOUSTON It's just the opposite way. It should be 2.75 and 2.67.

HAWAII Roge.

HOUSTON Send us an LOS main.

HAWAII Will do.

S/C Hawaii, we're getting bad drop outs under C-Band beacon. It's probably this attitude.

HAWAII Roge. LOS out, Hawaii.

HOUSTON Roger, Hawaii.

Gemini Control here again. The spacecraft is just south of the Arizona, Mexico line at this time. We've not had a call yet from Elliot See here, but we expect one momentarily. We'll stand by for it. The flight plan is completely clear this pass across the States. And, as it starts it's swing down across the Atlantic, the magnetometer and the spectrometer, MSC 2 and MSC 3 experiments will be activated. Over east of Carnarvon on this rev, the crew will conduct another cabin temperature survey. We'll stand by and try to pick up the first words as they occur. The Cap Com at the Texas station down at Corpus Christi has just signaled the craft that they need not acknowledge. He's advised we have them "go" on the ground, and it's really doubtful we will have any conversation during this pass. This is Gemini Control, Houston at 143 hours, 50 minutes into the flight.

END OF TAPE

Gemini Control Houston here, 144 hours 5 minutes into the flight. Toward the tag end of that State side pass, Elliot See finally did call 7 and Chuck Berry joined in the conversation. Dr. Berry, a little bit concerned about the dryness, apparently, in Jim Lovell's nasal passages, suggested that he take one of the pills onboard in the medical kit and Lovell talked him out of it. Here is that conversation.

Cap Com Gemini 7, Houston.

S/C Go ahead Houston.

Cap Com We have a couple of flight plan update items if you can get your book out.

S/C Ready.

Cap Com Node, time 144 56 20, rev 91, 136.7 degrees east, right Ascension 10 50 45, time 144 44 14, purge fuel cells at Carnarvon. We have a TX coming up now, Gemini 7.  
7, did you copy, a TX coming up.

S/C Roger.

Cap Com Next item is 148 55 00, purge fuel cells at the RKV.

S/C Roger.

Cap Com Stand by for the Surgeon, Gemini 7.

Surgeon Gemini 7, this is Surgeon. Have you had any dandruff problem up there, Frank?

S/C ....

Surgeon Say again.

S/C No, No, negative.

Surgeon OK, show.

Cap Com He is having trouble with his hearing 7, you might help him out.

S/C Roger.

Surgeon Jim, I'd like to talk to you, both of you, a little about this nasal stuffiness and we would like to have you try something here. Did you use the skin cream from those little bottles, did you try some of that last night before you went to sleep?

S/C Yes we did and it works pretty good.

Surgeon Okay, I'll tell you what I would like to have you do to see if we can clear this up some during the day is I would like to have you keep using that you don't dry out. Just keep your noses moist with that all the time and we can just use it for that purpose. We will probably have plenty to go the route. Another thing I'd like to have Jim try because he sounds like he is more plugged, I'd like to have him try one of the Actifeeds, item E and it will last about 4 hours and we can get a trial to see if it will clear up that nasal stuffiness for you. The main thing keeping your nose moist with the lotion too. Do you read?

S/C I'll do it if it is in the field of medical research, otherwise, I'd prefer not to.

Surgeon Okay, you feel that the stuffiness isn't enough to bother you, is that right, Jim?

S/C Chuck, that cream you gave me is working very nicely. I put some more in my nose this morning and I expect a certain amount of stuffiness because of the oxygen content, but other than that we are fine.

Surgeon           Okay, if you don't feel that the stuffiness is bothering you as far as breathing is concerned, there is no real reason to have to do this, and I think it would clear up the stuffiness for you and so we know it is there and I'm not directing you to take it, I think it is one of these choice things that we can do if you want to do it. If you feel that the stuffiness isn't bothering you, we won't do it.

S/C               Roger, thank you. If I get more stuffy, I'll try and take one.

Surgeon           Rog.

S/C               Chuck, have you got a minute.

Surgeon           Yes sir. Surgeon standing by, Frank.

S/C               I don't have any problems, but my brother-in-law hurt his back moving a piano. Can you prescribe something for him.

Surgeon           Where is he.

S/C               I'm just kidding you. We are in good shape, Chuck.

Surgeon           Very good. The gals are in good shape down here too.

S/C               Is everything all right at home.

Surgeon           Everything is very fine, Frank. I talked to both Sue and Marilyn this morning and Sue is fine and Marilyn is out having coffee again, having lunch. They are fine.

S/C               I told her I am doing my part, now she has to do hers.

Surgeon           Not yet, not for another week or so anyway.

S/C               Hey Chuck, I want to tell you one thing. There is just no comparison between suits on and suits off. Boy, I bet you half the problems you had with people getting dehydrated so is because of these darn suits.

Surgeon           Yeah, well, we are in firm agreement with that statement, Frank,

and it is pretty obvious, I think that's -- do you think that is part of your problem with sleep too, Frank, the suit on.

S/C I'm certain that that is part of my problem. I even buttoned it up last night trying to see if that would keep me cool, you know, with the hood down and everything, and there is just no comparison between Jim's comfort and mine.

Surgeon Okay, well, you keep us posted and --

Flight Roger, we copy Gemini 7.

S/C Houston, this is Gemini 7. On that last pass over Australia we saw a brilliant display of the Aurora and we would like to take some pictures this time if we could afford a couple of squirts of attitude fuel.

Cap Com Director says have at it.

S/C Thank you.

END OF TAPE

This is Gemini Control on the 91st rev, with the spacecraft due north of Australia. The last pass with Carnarvon was a very brief encounter, conversational encounter, but an interesting one. Here in Houston, 10,000 miles away from the spacecraft, our Guidance and Navigation Control Engineer, Arnie Alldredge noticed that one of the circuit breakers was in the wrong position. He was reading Carnarvon data. Carnarvon Cap Com was advised. He talked to Lovell, and sure enough, Lovell confirmed it was in the wrong position. He switched it to the right position. We've missed two attempts at Laser experiments in the last rev around the Earth. Weather clobbered us in Hawaii again; and at Ascension, minor equipment troubles knocked us out there for the first good attempt on this MSC 4 Laser experiment. Here's the conversation that went on between Carnarvon and 7.

CRO Gemini 7, Carnarvon.

S/C Go ahead Carnarvon. This is Gemini 7.

CRO Roger. We're waiting for your fuel cell purge.

S/C Roger. Will do now. Do you read?

CRO Roge. Flight, Carnarvon.

HOUSTON Go ahead. This is AFD.

CRO Okay. Parameter HFO3, bit 3, HFO4, bit 4. Ring B. Yaw right. We have a solid indication on the ground. Confirmed in the bit stream.

HOUSTON Okay. HFO3 and 4.

CRO That's affirmed.

HOUSTON Okay. Send LOS main, Carnarvon.

CRO Roger. Looking good on the purge, Flight.

HOUSTON Roger. What are you doing back there? Yea, I'm fighting a ... battle up here, so stay at it. Carnarvon, AFD.

CRO Go ahead, FD.

HOUSTON Have him check his RCS B-3 circuit breaker.

CRO RCS B-3 circuit breaker?

HOUSTON Roger.

CRO Gemini 7, Carnarvon.

HOUSTON That's yaw right, Carnarvon.

S/C Go ahead Carnarvon.

CRO Roger. I'd like for you to check your RCS B-3 circuit breaker.

S/C Roger. We lost it.

CRO Roger. That was all. Thank you very much.

S/C Roger, Gemini 7.

CRO We lost it. The circuit breaker was up.

S/C Purge complete.

CRO Roger, Gemini 7. Did you position your quantity read switch ...  
O2, please?

S/C Roger.

CRO Okay, to fuel cell O2. To fuel cell H2, please.

S/C Roger.

CRO Okay. To the "off" position. Hey, you're looking good here on  
the ground, Gemini 7.

S/C Thank you.

CRO AFD, Carnarvon LOS.

HOUSTON Roger Carnarvon.

END OF TAPE

This is Gemini Control Houston. We're on the 91st rev between Hawaii and the West Coast. Over Hawaii the last time, the Cap Com advised 7 that they would stand by, they need not acknowledge, they did acknowledge but there was no further conversation. We do not expect any conversation as the spacecraft swings down across Mexico then down over Yucatan and then across the Northeast Coast of South America. No flight plan items planned, and the crew is taking a post-luncheon break and just generally resting. They do have an S-6 to perform in the next few minutes in the area of Baha, California, in the Gulf of California. The only activities scheduled until they get down in the area of the Rose Knot parked off the east coast of South America at which time the flight plan calls for a D-9 experiment. D-9 is the simple navigation experiment where they take sightings off stars. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control, Houston here. We're 145 hours, 47 minutes into the flight. The spacecraft over northeast South America. A very few minutes ago, Elliot See called Seven, and gave them the word on the outcome of a major suit meeting. Suit Configuration Meeting has been going on for most of the day here in another part of this building. The upshot of that meeting was the belief that the crew should go ahead and switch suits. We should...The feeling is that Lovell should get back into his suit, and Borman should take his suit off. This proposal was passed up to the crew, and it was suggested that they go ahead and do this shortly after their D-9 experiment which they are to perform in a very few minutes, off the Rose Knot Victor in the South Atlantic. We have the tape conversation between Elliot and the crew. We'll play it for you now.

HOUSTON Gemini 7, Gemini 7, Houston Cap Com. Over.

S/C This is 7. Go ahead, Houston.

HOUSTON Roger, 7. We're just checking out a new communications circuit. We just want to make sure you can read me, and we'll be standing by here. And, for your information, we're always standing by, and any of the remote sites, too, Tananarive, and so forth throughout the flight, in case you want us.

S/C Roger. You're coming in loud and clear, with no background noise.

HOUSTON Okedoke.

ANTIGUA ...(Garble)..., Antigua.

HOUSTON Gemini 7, Houston Cap Com.

S/C This is 7. Go ahead.

HOUSTON Jim, we would like to have Frank, ...correction..., have you get back in your suit at this time and have Frank get out of his. And our plan is to leave you in this mode through the rendezvous and docking. After that, the rendezvous and the station keeping, and after that, the thought would be to consider the matter further as far as the suit configurations are concerned. We feel that

this is an important step in carrying the suit situation further.

Do you copy?

S/C

Roger. This is 7.

HOUSTON

Go ahead 7.

S/C

Do you wish to program out a suit plan at this time?

HOUSTON

Whenever you think is the best time. Whenever you can work it in the flight plan here. We just got this word, so we have not programmed it in the flight plan yet.

S/C

Roge. I'd like to get some instructions.....It's going to take a little while to get squared away here..So I'd like to have it worked into the program for the Hawaii pass.

HOUSTON

Roger, 7. It's like after the D-9 at the RKV you might have some period in there, about 45 minutes or so before the crew status on the command pilot at Hawaii. It looks like that might be a good spot.

S/C

Roger.

END OF TAPE

This is Gemini Control Houston here, Over the Rose Knot Victor, we called the crew again got into the suit discussion. Borman apparently feels that he would like to continue as is and we will have that taped conversation for you. There has been additional consideration given to the point, the crew will be contacted at a later station, Tananarive, or perhaps the CSQ on later in the pass and will be advised to proceed with the suit change. Here is the conversation as it transpired over the Rose Knot Victor.

RKV Gemini 7, RKV Cap Com. You need not acknowledge. All systems are go and we are standing by.

S/C Roger.

RKV RKV Cap Com.

Flight Go ahead RKV.

RKV Did you want PCM counts on cryo tank pressures?

Flight Roger, give us PCM counts.

RKV Okay.

S/C RKV Cap Com, this is Gemini 7.

RKV Go ahead Gemini 7.

S/C Would you ask Houston please if it would be acceptable if we remained in our present suit configuration until tomorrow when Jim will suit up for the rendezvous and I'll remove the suit after rendezvous. I prefer not to have us make so many suit changes in the spacecraft with danger of hitting the switches (garbled) .... if it would be acceptable to them, we will delay the switching of suits until after rendezvous.

RKV Okay.

S/C                   After rendezvous tomorrow.

RKV                   I'll check with Houston. Stand by. Houston Flight, RKV Cap  
Ccm.

Flight                Go ahead, RKV.

RKV                   Did you copy that Flight?

Flight                Negative, will you give it back to me.

RKV                   Okay. Frank would like to hold off on making the suit change  
until after the rendezvous tomorrow. Is that acceptable to  
you?

Flight                Rendezvous isn't tomorrow. It is the day after tomorrow.

RKV                   Well, that's what he told me. He wanted to hold off until  
tomorrow on that.

Flight                He said until after rendezvous.

RKV                   Yes, that is what he said. The first thing he said was that  
he want to hold off until tomorrow. I'll go back to him on  
this. Gemini 7, RKV.

S/C                   Go ahead.

RKV                   Did you say that you want to stay in the present suit con-  
figuration until tomorrow, is that affirmed?

S/C                   That is affirmative. At which time Jim Lovell will suit up.

RKV                   Okay. Did you copy that Flight?

S/C                   We are afraid of damaging bio-med communications and the chance  
of getting misadjusted and so on.

RKV                   Roger. Flight, RKV.

Flight                Go, RKV.

RKV Did you copy that from them.

Flight Roger. You can advise them that Chris Kraft wants them to get back in the suit.

RKV Roger. Gemini 7, RKV.

S/C Go ahead.

RKV Chris would like you to get back into your suit.

S/C I'm not out of it, I'm still in it.

RKV I think he would like you to change.

S/C Well, we would have to change again then tomorrow, RKV.

Flight Negative, that isn't until --

S/C I'm comfortable, I'm all right. I'm not comfortable, but I'm all right. It is a big job for Jim to get in and out of the suit. Once he gets in he probably won't want to get out again and I'll get out after tomorrow.

RKV Roger. Did you copy that, Flight.

Flight Affirmative.

RKV Flight, RKV.

Flight Roger, RKV.

RKV Okay, do you want to give them an update on this suit situation over the next site which would be CSQ?

Flight We might talk to him over Tananarive..

RKV Okay. Gemini 7, RKV.

S/C Go, RKV.

RKV Roger, we'll discuss the suit situation with you over Tananarive.

S/C How is everything on the RKV tonight?

RKV Real nice.

S/C How far out to sea are you all?

RKV                    You won't believe this, but we are anchored 35 miles  
                         off the Coast, 180 feet anchor.

S/C                    That's nice.

RKV                    RKV has LOS.

                         That wraps up the RKV conversation. Here in the Center we  
are reconfiguring for simulation with spacecraft 6 down at the Cape. They  
will fly a rendezvous simulation, we expect to pick that up at about 30 minutes.  
For the period during the simulation, the data from 7 will be handled manually,  
that is, it will be relayed in here from the stations by teletype rather than  
over the high-speed bit-circuit data circuit lines that exist. At the 92nd  
rev in the flight coming up on South Africa, this is Gemini Control Houston.  
END OF TAPE

This is Gemini Control Houston at 146 hours, 15 minutes into the flight. Now we did contact 7 over Tananarive. Elliot See called them. Chris Kraft joined in the discussion. There was some additional discussion of the suit situation and it has been resolved that the crew will change. Lovell put his back on. Borman will take his off. Here's the tape of that conversation.

CAP COM Houston Cap Com, how do you read?

S/C Read.....

CAP COM Gemini 7, Gemini 7, Houston Cap Com,  
how do you read?

S/C Gemini 7, read you loud and clear.

CAP COM Roger, Gemini 7. We copied your comments over RKV. We would like to reiterate that we feel it is important for you to change suit configurations at this time.

S/C Let me explain my position on this. I've had three changes in 24 hours. <sup>me</sup> ~~Three~~ out, and then back in, and now <sup>Jim</sup> ~~I'm~~ in. I would rather wait 24 hours and then get out. It's not an easy job to change your suit in a spacecraft.

CAP COM Jim, Frank, I think you may be confused on your days here. The rendezvous is not tomorrow.

It is the following day.

S/C

Roger, but we thought we'd get suited tomorrow night to get ready for the rendezvous so we didn't have to fool around Sunday morning.

CAP COM

What we have in mind is for Jim to put on his suit now and you to get out of yours at this time and then in preparation for the rendezvous you would get back in.

FLIGHT

And not until Sunday morning, Frank.

S/C

OK, if that's what you want, we'll do it. But I sure would just rather stay the way we are. Since we put this whole thing on, I feel uncomfortable and I'm not kidding you, it's tough to get in and out of this suit -- especially for Jim.

FLIGHT

Frank, I think you understand what's going on down here and the only way I feel that we're going to get both of you out of the suit is to have you get out, Frank, and Jim get back in again.

S/C

Aye, aye, sir, we'll do it. If you want us to, that's it. We'll do it. I just wanted

to explain our position. We'll change  
tonight.

**FLIGHT**

We understand completely, Frank.

**END OF TAPE**

This is Gemini Control. We are now 147 hours 32 minutes into the flight of spacecraft Gemini 7. At this time the spacecraft is on its 93rd revolution around the earth, and is just approaching the southernmost tip of Africa. Here in the Mission Control Center the White Team of Flight Controllers is on duty, having relieved the Red Team something like an hour or so ago. However, due to setting up the Mission Control Center here for a simulation of the Gemini 6 flight which is due to come up sometime this evening, we have delayed our flight cast to you. We have had a checkout flight with Gemini 6, a checkout flight which precedes the simulation, and on that checkout flight Alan Shepard and John Young manned the Gemini 6 spacecraft. We did take it to orbit. Again, the prime crew is expected to be aboard the Gemini 6 when the simulation does start. We now will play back for you some of the voice tapes that were made with Gemini 7 crew and the tracking stations at Hawaii and the Rose Knot Tracking Ship. This is Gemini Control.

HAW Gemini 7, Hawaii Cap Com.

S/C Go ahead Hawaii, this is 7.

HAW Okay. We're showing you GO here on the ground. How're you doing?

S/C Oh, we're doing great, we're doing great.

HAW Okay. We've got a valid oral temp ..... waiting for your blood pressure.

S/C Roger. Blood pressure coming down now.  
Cuff is full-scale.

HAW We have a good blood pressure. Standing by for your exercise.

S/C Exercise starting now.

Exercise finished. Blood pressure coming down.  
Cuff is full-scale.

HAW A good blood pressure. Standing by for your food, water, and sleep report.

S/C Hey, this Gemini 7.

SURGEON Seven, this is Hawaii Surgeon, standing by for your food, water, and sleep report.

S/C Roger. The Command Pilot has had today the total of 486 ounces of water. Uh, we had an additional meal since the last time, Day 6. Meal B, but he did not eat three egg bites. Had a total of column 5 of 15, total of column 6 of 3. Pilot had a total of 417 ounces of water. He had meal 6, or Day 6, Meal B, he did not eat two egg bites and he's had 15 in column 5 and 2 in column 6.

HAW Roger. Gemini 7.

HAW Cap Com. We have completed the tape dump.

FLIGHT Roger.

HAW Gemini 7, Hawaii, if nothing further, we'll be standing by.

S/C Thank you.

HAW C-band LOS at Hawaii.

FLIGHT Roger, Hawaii.

SURGEON Gemini 7, RKV. We copy your oral temp. You can start your blood pressure.

Gemini 7, RKV Surgeon, we did not get full-scale.

We have full-scale.

RKV Systems are GO, flight.

FLIGHT Roger, RKV.

SURGEON Gemini 7, we have your blood pressure. Standing by for your exercise.

S/C ..... pressure coming down.

SURGEON Rog. Cuff is full-scale. Seven, we have a valid blood pressure. Has there been any change in your food and water status, since Hawaii?

S/C Gemini 7. Negative, flight.

SURGEON Rom.

FLIGHT ... Flight.

RKV Go ahead, flight.

FLIGHT Roger, RKV..

RKV Flight, RKV.

FLIGHT Go ahead, RKV

RKV We've lost all L-band data from Command Pilot. Roger, Command Pilot.

FLIGHT You've lost Command Pilot data?

RKV L-band data, yeah, about a minute ago.

FLIGHT Okay. Maybe they're changing.

RKV Could be. RKV has LOS.

FLIGHT Roger, RKV.

Systems GO flight, I transmit in TX.

FLIGHT Got an OAMS manual sum for us, Bill?

RKV Roger.

END OF TAPE

This is Gemini Control. We are now 148 hours and 10 minutes into the Mission of Spacecraft Gemini 7. At this time our spacecraft is passing over the Pacific on it's way toward the Hawaiian tracking station. It is on its 93rd revolution around the earth. A few minutes ago we had voice communication between the crew and the Coastal Sentry tracking ship. And at this time we will play back the taped voice communication.

CSQ . . garbled . . EKG on the pilot . . .garbled . . is out.

Flight Roger. Probably changing suits Chuck.

CSQ Roger, Flight.

CSQ Gemini 7, CSQ Cap Com.

S/C . . garbled . .

CSQ Roger. I have your PLA update when you are ready to copy.

S/C ... garbled. .

CSQ Say again.

S/C Standby a minute please.

CSQ Roger. Also like to get a propellant quantity reading and an OAMS source pressure reading.

S/C . . garbled . .

CSQ I copy. 26 percent . . garbled . .

S/C . . garbled . .

CSQ Okay, the REC . . garbled . . is just the same . . garbled.

Okay, area 95-3 1505255. Area 96-3 1522820. Area 97-Bravo

1540453. Area 98-Delta 1550228. Area 99-Delta 1563803.

Area 100-2 1581132. That's broke into the hundreds.

S/C Roger.

CSQ Area 101-2 1594733. Area 102-1 1611554. Area 103-1 1625124.

The weather is good in all areas except 96-3. Weather is marginal. Do you copy?

S/C Roger. We copy.

CSQ All systems are go here on the ground and that is all we have. We are standing by.

S/C Thank you very much.

CSQ Roger.

S/C . . garbled . .

CSQ Roger, will do. Flight, CSQ Cap Com.

Flight Flight CSQ.

CSQ Did you copy down the TAC?

Flight That's affirmative.

CSQ Do you have anything at this time you want to pass up?

Flight Say again Chuck.

CSQ I say do you<sup>have</sup>/anything that you want to pass up?

Flight No we are going to try to get it up to them over Hawaii and if we can't get it up to them there we will get it over the RKV.

CSQ Roger. Flight advises that they will talk with you about the stack 2 Charlie over Hawaii or the RKV.

S/C Thank you.

END OF TAPE

This is Gemini Control. Gemini 7 is 148 hours and 20 minutes into its flight on its 93rd revolution. Gemini 7 is approaching Hawaii from the northwest and the crew is reported in excellent condition. All the spacecraft systems are reported as GO and the crew is preparing to make contact with Hawaii and begin a period to eat their supper. Let's tune in on that conversation when it's picked up by the Hawaiian Tracking Station, live.

This is Gemini Control. We are waiting for voice contact between the Gemini 7 spacecraft and Hawaii. The time of acquisition is any moment now.

HAW Hawaii is TM solid.

FLIGHT Roger, Hawaii.

HAW Gemini 7, Hawaii Cap Com.

S/C Go ahead, Hawaii, Gemini 7.

HAW Roger, we show you GO on the ground. What is your status in the spacecraft?

S/C We're going on. Jim is in the suit and I'm out of it.

HAW Roger.

S/C Hawaii, Gemini 7. I have a flight plan report if you're ready.

HAW Roger, standing by.

S/C Roger. We made one more frame of dim-light photography today. We've used 20 frames from the third magazine, that's magazine C, of S0217, and one additional tape cartridge. On D-9, Sequence 4, we used - we completed 'em but we used two different stars, Rigel and Sirius and we did the third part of that Sirius to Sirius.

HAW Roger.

S/C And we also sighted a brilliant Aurora on top of Australia but we were unable to photograph it. We were unable to get the Nadir picture of Apollo Landmark 85 because of cloud coverage.

That's about it for today.

S/C Everything that's been scheduled has been accomplished and I won't report on that because you'll already have that anyway.

HAW Roger. I have some information for you if you're ready to copy.

S/C Go ahead.

HAW Roger. Your status on the electrical and fuel-cell will be passed to you over the RKV, prior to your sleep period.

S/C Thank you.

HAW The values for you to hold on your fuel-cell hydrogen will be passed to you over RKV.

S/C Thank you.

HAW You will also have the UHF 6 over the RKV.

S/C Roger.

HAW And if you've got a little more time I can give you your OAMS status.

S/C Go ahead. We've got plenty of time.

HAW Okay. You have a - 56 pounds of fuel remaining. You have more oxidizers than you could possibly use. This means that you have an actual 31 percent remaining and your onboard indications should be 27 percent. That's 27 percent. We're evaluating what we want you to try to accomplish between now and the end of the mission, and we'll brief you on that tomorrow.

S/C Roger. Will you tell them that we prefer to save 2 pounds a day for attitude so we don't have to drift the last few days of the mission. Two pounds a day for attitude, please.

FLIGHT Roger. You can advise them Hawaii, that that is already included in their budget.

HAW Roger. That is already included in your budget.

S/C Thank you.

Are you still cloudy down there, Hawaii?

HAW That's affirmative.

S/C When does it clear up down there?

HAW Seldom. It's been raining and cloudy for almost two weeks now.

S/C That's too bad. We sure want to get that laser in.

HAW Well, maybe we can make it tomorrow or so.

S/C We'd really like to.

FLIGHT Hawaii Cap Com, Houston Flight.

HAW Houston Flight, this Hawaii Cap Com.

FLIGHT Roger. Could you give me a readout, TM readout, on Main Bus No. 2 current, and Stack 2A and Stack 2 Bravo.

HAW Roger, stand by.

HAW Tape dump complete at Hawaii.

FLIGHT Roger, Hawaii.

Good pass, Bill.

This is Gemini Control. You heard the Command Pilot of Gemini 7, Frank Borman, talking to the Hawaiian Tracking Station on his 93rd revolution. The time is now 148 hours and 28 minutes into the flight of Gemini 7. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are 148 hours and 54 minutes into the flight of spacecraft Gemini 7. At this time Gemini 7 is passing over South America and will shortly start its 94th revolution. I believe the 94th has started. Let's listen in now and we will hear some live communication between the spacecraft and the Rose Knot tracking ship.

RKV Gemini 7, RKV.

S/C Go ahead RKV.

RKV Roger. We are standing by for your purge.

S/C . . garbled . .

RKV Roger. Place your quantity read switch to ECS O<sub>2</sub>.

S/C Roger.

RKV Fuel cell O<sub>2</sub>. Now fuel cell H<sub>2</sub>. Now your quantity read switch to OFF. I have a map update for you if you are ready to copy.

S/C Stand by please. Go ahead RKV.

RKV Load 1505726, rev 95, 44.3 degrees east, right Ascension, time 10:43:13. .

S/C I have it, thank you.

RKV Your next fuel cell purge after you wake up will be at carnarvon on rev 100 at a g.e.t. of 159:18

S/C Got that.

RKV We'd like to pass along at that time rules for the cryogenic pressures. We'd like your ECS heater to be OFF. Fuel cell O<sub>2</sub> heater to AUTO, and your fuel cell H<sub>2</sub> heater OFF. We'd

like you to pump up your fuel cell H<sub>2</sub> to 510 psi. And your minimal for the night will be 380.

S/C Roger, 380.

RKV Would you give us a count on the water gun?

S/C Stand by. Water gun reads 2402.

RKV Roger, could you look in your log and see what your figures are for total water consumption for both the pilot and command pilot?

S/C Stand by please.

RKV The reason we want these figures is it gives us a real good handle on the efficiency of the fuel cells.

S/C Okay. The pilot has used 417 ounces of water.

RKV Rog.

S/C Command pilot 486.

RKV Roger.

S/C . . garbled . . count off the gun is what that means.

RKV Roger. Would you place the biomed recorder no. 2 to continuous?

S/C Say again.

RKV Biomed recorder number 2 to continuous.

S/C Roger. Do you have an initial reading on the water gun?

RKV Negative, go ahead and give it to us.

S/C 628.

RKV 628.

S/C Negative 528.

RKV All right 528.

RKV We'd like to give you a report on your fuel cell status.

S/C We'd be happy to hear it.

RKV Okay. After the open circuit check of stack 2-C it is again picking up more than its share of the load. The present theory is that it will probably become saturated with water again sometime during the mission. The telemetry will indicate this approximately 10 hours before it is necessary to go open circuit on that cell. Now this should prevent ground controller from having to wake you up during the normal sleep period.

S/C Will you please pass the message to Houston that we would be happy to wake up at any time in order to take care of that cell.

RKV We figured you would. Okay, your cryo status - telemetry indicates your cryo usage rate is still less than nominal. Good shape there.

S/C Very good.

RKV The ECS O<sub>2</sub> is predicted to vent at 400 hours and the fuel cell hydrogen tank is still expected to vent at 300 hours.

S/C . . garbled . .

RKV Your cryo quantity expected at the end of 14 days will be ECS O<sub>2</sub>, 40 percent, fuel cell O<sub>2</sub> will be 33 percent and fuel cell H<sub>2</sub>, 39 percent.

S/C Roger . . garbled . .

RKV Say again. I didn't copy.

Flight                   RKV Cap Com, Houston Flight

RKV                       Houston Flight, RKV.

Flight                   Roger. We'd like to ask the crew how the suit exchange went.

RKV                       Roger. How did your suit exchange go?

S/C                       . . . garbled . . .

RKV                       I can't read it for you. He is awfully noisy now.

Flight                   Roger.

S/C                       . . garbled . .

RKV                       You are coming awfully garbled now, Gemini 7.

Flight                   I believe he said the suit exchange took approximately 20 minutes.

RKV                       I couldn't read him flight. Okay, I think we've got all the items completed.

Flight                   Roger. How did the purge go?

RKV                       Purge went well.

Flight                   Roger.

                          This is Gemini Control. We are now 149 hours and 2 minutes into the flight. We have just heard live voice communication between spacecraft Gemini 7 command pilot, Frank Borman, and the Rose Knot tracking ship. Our spacecraft is now on its 94th revolution over the earth and at this time in the spacecraft our crew should be finishing their eat period and very shortly will be settling down for a 10-hour sleep period. Here in the Mission Control Center, as our pilot, our flight crew prepares for the nights rest. Our flight controllers prepare their charts and their log books so that they can brief the blue team of flight controller when they come on some hours hence. Also in the Mission Control Center, at this time, is our flight

This is Gemini Control. We are 149 min - hours and 20 minutes into the flight of Gemini 7. Gemini 7 is over the Tananarive Tracking Station about to enter a new day over the Indian Ocean, where the tracking station is now performing network simulations with the Gemini 6 spacecraft, so the data from the tracking station will be sent back by teletype to the Mission Control Center here. The crew is in its 94th revolution and sleeping, and the Gemini 6 spacecraft in its simulated flight, is on its 2nd revolution, 2 hours and 8 minutes into its flight. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are 150 hours and 20 minutes into the flight of Gemini 7 which is just now beginning its 95th revolution around the earth and getting ready to go into darkness. The crew is 1 hour into its sleep period. Meanwhile, in Mission Control Center, the simulated flight of Gemini 6 is going on and we are 3 hours and 8 minutes into that flight, that simulated flight. The Command Pilot and Pilot, Schirra and Stafford, are in the simulator at Cape Kennedy and the network around the world is working on the simulated rendezvous of Gemini 6 with Gemini 7, scheduled no earlier than Sunday. We have a sample of the conversation we hope to hear over Hawaii Sunday, and we'll play that tape for you now.

HAW Roger, 6, standing by.

S/C 6 Address 80, 81, 82, all zero.

HAW Roger. Residual 0. You can set up SEF from now on.

S/C 6 Propellant remaining at this point indicates 71 percent.

HAW Roger, 71 percent remaining.

HAW Gemini 6, Hawaii. I have your height adjust maneuver.

S/C 6 Ready to copy.

HAW GET at the burn - 3 03 13. Delta V - 1.3. Duration - 2 seconds.

Yaw - 0, Pitch - 0. 25 niner 00 13. 426 and 27 all zeros.

Forward thrusters retrograde maneuver.

S/C 6 Roger. Copy. Height adjust at g.e.t. of 3 plus 03 plus 13.

Delta V - 1.3. Duration - 2 seconds. Yaw - 0. Pitch - 0.

Core 25 niner 00 13. 26, 27 all zeros. Forward firing thrusters is retrograde maneuver.

HAW Roger, 6.

S/C 6 Hawaii, could you explain why we're using forward firing for that burn? It'll cost us almost that much to turn around.

HAW ..... so much. You stay SEF from now on Gemini 6.

S/C 6 Very good, understand.

This is Gemini Control. You have been listening to a taped conversation between the astronauts S. Shirra and Stafford in the simulator at Cape Kennedy and the Hawaiian Tracking Station simulating their rendezvous mission scheduled for Sunday. That has been a simulation between Gemini 6 and the Hawaiian Tracking Station. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 151 hours and 20 minutes into our flight. At this time spacecraft Gemini 7 is passing over the Coastal Sentry tracking ship which is located in the Philippians, off the Philippine Islands in the Pacific. It is on its 95th revolution around the earth. Our flight crew is in a sleep period. We do not yet have confirmation from the ground data that the crew is asleep but we must assume that they are preparing for their sleep. Here in Mission Control we have just concluded the simulated flight of spacecraft Gemini 6. This was a simulated flight. It concluded in the 3rd revolution after an elapsed time of 3 hours and 20 minutes. The spacecraft was simulated through the circularization update. According to Chris Kraft, who simulated the flight director on this flight - on this simulated flight, the programs worked very well. And Chris expressed himself as being very pleased with the way the simulation was carried on. Wally Schirra and Tom Stafford took part in the simulation. They were in the spacecraft simulator at Cape Kennedy throughout this run. This is Gemini Control. We are now 151 hours and 21 minutes into the flight of spacecraft Gemini 7.

END OF TAPE

This is Gemini Control. We are now 152 hours and 20 minutes into our mission. Spacecraft Gemini 7 at the present time, is on its 96th revolution over the earth. And is coming up now on the west coast of Africa. According to the ground data that we have received, our crew is asleep. Here in the Mission Control Center, our White Team of flight controllers are waiting for the arrival in approximately 1 hour of the Blue Team, and they are now going over their reports and they will bring the Blue Team up to date on our flight as it progressed today. Just a minute ago we had a surprise visitor here in the Control Center. It was Santa Claus! He came in, visitors badge and all. Came in to complain. He complained about our spacecraft up there and said he has almost hit them a couple of times, and that we've gotta get them down by Christmas Eve because they are a traffic hazard to him. And, he added that two more Santa Clauses in underwear is too much progress, and he wished the controllers a Merry Christmas and said "I'll wave to your boys as I go by." That was a surprise visit here from Santa Claus and it nonplussed our flight controllers. This is Gemini Control. We are 152 hours 21 minutes into our flight. Spacecraft Gemini 7 approaching the west coast of Africa on its 96th revolution. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 153 hours and 20 minutes into the flight of our spacecraft Gemini 7. At the present time, Gemini 7 is on its 96th revolution around the earth. It is passing over the Pacific on its way toward the west coast of South America. At the present time it's just passed over the Canton Island Tracking Station. Our flight surgeon tonight, Dr. Owen Coons, has just reported to us that the physical condition of the crew is A no. 1. Our flight director tells us that all systems on the spacecraft are in a GO condition and here in Mission Control we are in the midst of a shift change. The Blue Team of flight controllers, headed by John Hodge, the Blue Team Flight Director, has appeared on the floor and are currently being briefed on the activities of the spacecraft over the past 9 hours. While the spacecraft was passing over the Rose Knot Tracking Ship, at the beginning of this revolution, we had a voice tape between the Mission Control Center and that Tracking Ship. And that was the moment when Santa Claus walked into the Control Room. And so we will play that tape back which picks up some of Santa's voice.

KRANZ                    Good thing Fendell is in here. I didn't believe it.

FENDELL                You'd better check that . . . . .

KRANZ                    You ought to see this. I wish we had a camera here. You wouldn't believe it though.

FENDELL                Has he got a badge on?

KRANZ                    Yeah, he's got a badge.        . . . . . visitor is he?

SANTA CLAUS            . . . . your broadcasts are messing up my roofs up there.  
By golly, they have got to come down before Christmas Eve.  
I nearly ran into them. on the way down here.  
I don't mind progress - like these guys go around real fast  
I know, in 90 minutes they go around what takes me a whole night.  
I'm all for progress and these . . . . . are ok. I know they're coming, but two Santa Clauses in their underwear is too much progress!!

SANTA CLAUS            Now, let's be a little more careful from now on men, remember,  
                              it's pretty close to Christmas.

KRANZ                    Hey, Bill, what do you want .....

FENDELL                Is that guy for real?

KRANZ                    That is for real, Bill.

                              That was a voice tape of some conversation that was ensuing here in the Mission Control Center and we were in contact with Rose Knot, the tracking ship located off the east coast of South America and the voices, of course, one of them was that of our Flight Director, Gene Kranz. He was non-plussed, I guess you could tell it from his voice as he was telling the Rose Knot <sup>what</sup> ~~was~~ transpiring here. The other voice, of course, was Santa Claus, and we find out now that Santa Claus was Captain Gene Vallerie, Air Force Captain Gene Vallerie, and he is a valid part of this mission for the Air Force and he is an experimenter, he works on the Air Force experiments, and he is off duty and so he put on his Santa Claus suit and brought a little Christmas cheer into this Mission Control Center. At this time we are 153 hours 23 minutes into our mission. Our spacecraft is on its 96th revolution. From the ground data that we received from the spacecraft, the telemetry, it appears that the crew is asleep. This is Gemini Control.

END OF TAPE

This is Mission Control, 155 hours and 20 minutes into the flight of the Gemini 7 mission, now in its 6th day of flight. Just now beginning the 98th revolution around the earth. Since the last report on Gemini 7, we have had reports from the tracking ship, Rose Knot off the east coast of South America, early in the 97th rev where a tape dump of onboard telemetry was performed. Biomed data indicated the crew was asleep at this time. At a ground elapsed time of 154 hours and 36 minutes, Gemini 7 started its pass over the tracking ship, Coastal Sentry off the Philippine Islands. At that time the biomed data indicated that command pilot, Frank Borman, was active momentarily and the pilot James Lovell was quiet, probably asleep. The command communicator on the Coastal Sentry confirmed that the command pilot had been active because he had flipped a couple of switches on the center panel. Gemini 7 is now making another pass over the tracking ship, Rose Knot, as it begins its 98th revolution around the earth. At 155 hours and 21 minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control, 156 hours and 20 minutes into the flight of Gemini 7. We are now about half-way through the 7th day of this Gemini 7 mission. We're nearing the end of the 98th revolution around the earth. Just a few minutes ago, Gemini 7 passed over the Tracking Ship Coastal Sentry off the Phillippines and Command Communicator Charles Lewis reported that all systems were GO. Flight Director John Hodge released the flight controller team onboard the Coastal Sentry for the night. Gemini 7 is now over the South Pacific and heading for the west coast of South America, in the beginning of the 99th revolution. The next tracking station to acquire Gemini 7 will be the Canary Tracking Station in about 45 minutes. All is quiet here in the Control Center as the Blue Team nears the beginning of the 4th hour in what has been a relatively quiet shift with the seven crew asleep. At 156 hours and 21 minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control. One hundred fifty seven hours and 20 minutes into the mission of Gemini 7. The flight is now on the 99th revolution passing over the Suez Canal in North Africa. Gemini 7 is now in daylight, but will start back into darkness in about 25 minutes. The darkness will last about 45 minutes and then the sun will begin to rise on Gemini 7 again. This cycle is repeated twice each time 7 makes a revolution around the earth. The Canary Tracking Station was the last to acquire Gemini 7. At that station a tape dump of the onboard telemetry was performed. All systems were GO, and the crew was still sleeping. At 157 hours and 20 minutes into the flight of Gemini 7 this is Gemini Control.

END OF TAPE

This is Gemini Control, 158 hours and 20 minutes into the flight of Gemini 7. Gemini 7 is now nearing the end of the 99th revolution and will soon be coming up on the 100th time around the world for astronauts Frank Borman and James Lovell. Gemini 7 will soon be starting its pass over the northern part of South America and will be acquired by the Antigua tracking station in about 9 minutes. The Canary tracking station will have acquisition of Gemini 7 some 20 minutes from now. The crew's sleep period is scheduled to end at 158:15 minutes into the flight, or about 1 hour from now. Excuse me, 159:15 minutes into the flight. The spacecraft is now in the South Pacific right off of the west coast of South America. At 158 hours and 21 minutes into the flight, this is Gemini Control.

END OF TAPE

This is Gemini Control, 159 hours and 20 minutes into the flight of Gemini 7. The Gemini 7 spacecraft is now on its 100th revolution. On the pass over the Canary tracking station about 40 minutes ago, Command Pilot, Frank Borman was up and operating switches. And pilot, James Lovell, was exercising according to biomedical data received by flight surgeon, Dr. Owen Coons. The crew apparently wakened just before acquiring the Canary tracking station. A tape dump was performed by the Canary station and all systems were "go." At the present time Gemini 7 is over the Carnarvon tracking station. The apogee of Gemini 7 is now 162.5 nautical miles and perigee is 161.9 nautical miles. Almost a circular, perfect circular orbit. The flight is now passing across the southern half of the world in the 100th revolution. We have a late report on activities at Cape Kennedy, Pad 19 for the Gemini 6 launch. At the present time crews are installing doors and shingles on the Gemini 6 and the fairing over the horizon scanner on the upper neck of the spacecraft. Prior to the start of the midcount, which is scheduled to get underway at about 8:00 a.m. eastern standard time this morning, the suit circuit leakage test will begin. Everything at Pad 19 is on or ahead of schedule for the Sunday morning launch of Gemini 6. Weather at the cape now is scattered clouds at 5 to 10 thousand feet. With a temperature of 59 degrees and calm seas. The weather forecast is favorable for launch Sunday morning. The ceiling is above 5,000 feet. The elapsed time now is 159 hours and 22 minutes as the Gemini spacecraft 7 makes its pass across northern Australia in its 100th revolution. This is Gemini Control.

END OF TAPE

This is Gemini Control, 159 hours and 35 minutes into the flight of Gemini 7. The Gemini 7 spacecraft now in its 100th revolution and starting its swing across the South Pacific on its way toward a pass across Central America. We have a tape of the conversation between Gemini 7 and the Carnarvon tracking station a few minutes ago. We will play that tape for you now.

S/C                   Carnarvon, good morning.

CRO                   Good morning to you. We are going to call a fuel cell purge for you, whenever you are ready.

S/C                   Roger, stand by please. Send it down.

CRO                   All right. Looks good flight.

Flight               Roger. C-band on?

CRO                   . . garbled. 1052 Zulu.

Flight               Roger. Hot TX.

CRO                   Garbled . .

Flight               Roger.

S/C                   Hello down there Carnarvon. Looks like a little lightning down there.

CRO                   Yes, we've got a little storm north of us here.

S/C                   We went to B pump on the primary loop last night at 154:32:25.

CRO                   . . garbled . .

S/C                   When we woke this morning we were tumbling much faster than we ever had before. Cabin wall temperatures, . . garbled . . temperatures were about 20 degrees colder than they have been before. We were chilly.

CRO Roger, copy. Hear that Flight?

Flight Roger. We noticed them using the ACME during the night, just about an hour ago.

CRO Rog. Are we having any venting?

Flight Didn't see any venting at all. How low did he say the cabin wall temp was?

CRO 20 degrees. Okay. I didn't get that. We have had TM LOS.

That was the taped conversation between Gemini 7 and the Carnarvon tracking station. Gemini 7 is now in its 100th revolution and about half way across the South Pacific on its way to a pass across Central America. At 159 hours and 37 minutes into the flight of Gemini 7 this is Gemini Control.

End of tape

This is Gemini Control 160 hours and 20 minutes into the flight of Gemini 7. Gemini 7 is now in the 101st revolution around the earth and it is passing over the Canary Tracking Station about this time and it is on its way toward the pass across North Africa. We have a tape here that was recorded a few minutes back between the Spacecraft Communicator, Charlie Bassett, here in the Mission Control Center and the Gemini 7 spacecraft over the Bermuda Station. We will play that tape for you now.

Cap Com Gemini 7, Houston.

S/C Go ahead, Houston.

Cap Com Good morning. How are you this morning?

S/C Fine, the beef bites are delicious.

Cap Com Very good. How was your night? Gemini 7, how did you rest?

S/C Not too good last night, not as good as the night before.

Cap Com Systems look good down here. How are they up there?

S/C .....

We had a loss of signal there from the Bermuda Station.

Gemini 7 is now going right over-across Africa at 160 hours and 21 minutes into the flight. We have a report that we received a few minutes ago from the prime recovery ship, Wasp. The Wasp is on station for revolution 104 of Gemini 7. They are located about 325 statute miles southeast of Bermuda. The weather there is very fine. They expect to have a lovely day they said with a cloud cover of about 2000 feet, visibility of 10 miles, winds northeast at 12 knots and 3 foot swells and 2 foot waves. The outside temperature was a very pleasant 69 degrees F. At 160 hours and 22 minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control. 160 hours and 35 minutes into the flight of Gemini 7. Gemini 7 is now over the Arabian Peninsula on its way for a pass over the Indian Ocean. A few minutes ago, the 7 spacecraft passed over the Canary Islands. We have a tape of that conversation, which we'll play for you now.

CYI Gemini 7, Canary Cap Com. How do you read?  
S/C Read you loud and clear, Canary.  
CYI Okay. Would you place your quantity read switch to ECS 02, please. Flight would like a read out on ohms propellant quantity.  
S/C Roger. 37% on the OAMS.  
CYI Roger. Check quantity and pressure on the ECS 02.  
S/C Roger. Quantity is about 78%, pressure is 690.  
CYI Roger. I copy 78.  
S/C Roger.  
CYI Okay. Quantity read switch to fuel cell 02.  
S/C We read 50%, 660.  
CYI Copy.  
S/C Pardon me, that's 760.  
CYI 760.  
S/C Fuel cell H2 is 32% and 450.  
CYI Hold it just a minute. Change quantity read switch to off, please.  
S/C Roger.  
CYI Okay. We'd like the fuel cell 02 heater switched to off, please.  
S/C It's off.  
CYI Okay.  
HOUSTON Tell him...  
S/C Canary, we've got something for the systems people to work on.  
CYI Say again.  
S/C I say we've got something for the systems people to work on.

CYI                   Okay. Go ahead. Ready to copy.

S/C                   We woke up.....We were cold most of the night. When we woke up this morning, we were tumbling much more rapidly than we ever have been before. And the cabin temperatures were 20 degrees lower than they've been running. The windows were steamed up, and the....it was very cold in here. The suit inlet temperature showed it was about the same. Right now, we're running the highest suit inlet temperature we've ever seen, 68%. It's a little warm, and we're just comfortable.

CYI                   Roger.

S/C                   All I want to know is why.

HOUSTON             Canary Cap Com....

CYI                   ...(Garble)...

HOUSTON             Canary Cap Com..

CYI                   Stand by Houston. Go ahead Houston.

HOUSTON             We've been thinking about this.

CYI                   Say again, Flight.

HOUSTON             We've been thinking about this. We believe that what's happened is that the condensate has filled up the water tank and is now boiling out.

S/C                   ...the people on the Blue Team ought to be able to figure that one out.

CYI                   Okay. Stand by. I'm trying to get an answer.

HOUSTON             Canary. This is Houston Flight.

CYI                   Say that again, Flight.

HOUSTON             We believe that the water boiler is reaching a filled point from the suit condensate and is now boiling out, giving you a tumble rate.

CYI Water boil.....being effect....

HOUSTON Water boil is reaching a filled point as a result of the suit condensate and is now boiling off.

CYI Alright. I copy. Then, the Blue Team says...

HOUSTON You didn't have to put it that way.

CYI ...water boiling has reached a filled point and is boiling out now. Probably the trouble.

S/C I see.

HOUSTON Canary Cap Com, Houston Flight.

CYI Go ahead flight.

HOUSTON I wonder if you can get an estimate of tumbling rate from them.

CYI Okay. Gemini, Canary.

S/C Go ahead, Canary.

CYI Can you give me an estimate on your tumble rate, or was it terminated this morning when you woke up?

S/C Yea. We stopped it right away. We were tumbling about 10 degrees per second.

CYI Roger.

HOUSTON We copy.

S/C .....fuel cells... We are very very much greater than anything received to date.

CYI Roger. Copy. Okay. We have something else for you. The reason we had you turn that O2 heater switch to off is we want to get a few data points on that pressure decay while the heater is off.

S/C Okay.

CYI Roge. We'll be standing by.

S/C                    See you later on today.

CYI                    Roger.

                  That conversation was with the Gemini 7 crew over the Canary Island tracking station. Gemini 7 now is beginning to make its pass over the Indian Ocean on its way down towards Carnarvon Australia. It's now in its 101 revolution around the earth at 160 hours and 39 minutes into the mission of Gemini 7. This is Gemini Control.

END OF TAPE

This is Gemini Control 161 hours and 20 minutes into the flight of Gemini 7. Gemini 7 is now over the South Pacific on its 101st revolution around the earth. The Red Team Members are now coming into the Control Room here and being briefed by the Blue Team of Flight Controllers before they take over for the day shift. Flight Director, John Hodge, has a large gold key about 18 inches long on his console which he plans to hand over to Flight Director Chris Kraft at the shift change. Apparently this symbol of authority is going to be a part of the shift change from one Flight Director to the next at the end of each shift. On the last pass over the Carnarvon Australia tracking station, the flight plan update was given the crew by the Command Communicator Keith Kundel at the Carnarvon Station. We have that tape and we will play it for you now.

Carnarvon Gemini 7, Carnarvon.

S/C Gemini 7, go ahead.

Carnarvon Okay Gemini 7. You are looking good here on the ground. I have a flight plan update whenever you are ready to copy.

S/C Roger, standby one. Go whenever you are ready, Carnarvon.

Carnarvon All right, the tital is a node; time 161 29 23, rev 101, latitude 117.3 degrees left, right Ascension 10 hours 32 minutes 55 seconds. Second item is flight plan time line update, change 160 00 00 to 160 17 00. Next item, time 161 37 11, crew status report Command Pilot at Canaveral. The next item has been deleted. It is an MSC-12 at time 161 55 13, that has been deleted due to clouds.

S/C Roger.

Flight You didn't have to give him that, Stu.

Carnarvon Next item is Apollo, time 162 09 21, sequence number 137, mode 01, pitch 30 degrees down, yaw 7 degrees left. Do you copy.

S/C I copy Carnarvon.

Carnarvon Time 162 27 19, crew status report Pilot and FLA update at Carnarvon. MSC-12, 162 49 02, sequence 14, time 163 08 25, go--no-go at Texas. Time 163 16 00, purge fuel cells at Bermuda. MSC-12, 163 30 18, sequence 06, pitch 30 degrees down, yaw 0 degrees. D-4/D-7, 164 03 14, sequence numbers 415 and 416, mode 02. Apollo 165 05 30, sequence number 94, mode number 03, pitch 30 degrees down, yaw 19 degrees right. Time 165 20 00, exercise period. Time 165 30 00 eat period. Time 166 50 00, cabin temperature survey.

Time 167 14 43 purge fuel cells at Carnarvon. That completes the flight plan update if you copy, any questions?

S/C Roger, I copy.

Carnarvon Roger. You are still go here. You look real good.

S/C Roger, thank you.

Flight Transmit in the main, Carnarvon.

Carnarvon Confirm, Flight.

Carnarvon Gemini 7, Carnarvon.

S/C Go ahead Carnarvon.

Carnarvon Did the Command Pilot -- did he disconnect the -- there was no bio-med TM for the first 30 seconds.

S/C Right, we were removing the orbital flight suit here and he was disconnected.

Carnarvon Roger, I understand. Did you receive your main yet, Flight.

Flight Negative. You better send another.

Carnarvon Roger, it's on the way.

That conversation was with Gemini 7 over the Carnarvon tracking station. Borman was taking off his orbital flight suit, that is the light-weight suit worn by the 7 crew over their long underwear when not in the pressure suit. At 161 hours and 27 minutes into the flight of Gemini 7 with the Gemini spacecraft in the 101st orbit coming up on Central America, this is Gemini Control.

END OF TAPE

Gemini Control Houston here at 161 hours, 49 minutes into the flight. It must have been a fairly different night for the crew. One of the things, they noticed about a 20 degree temperature drop at some point during the night, they just advised us. Frank Borman had taken off his spacesuit last night, put on and was wearing, his underwear. He put on, not one but two, of the orbital flight suits. Lovell reports this morning, the crew also noticed some random drift which is not completely explained yet. Perhaps it's the water boiler venting some water. The tape from the swing across Antigua and Grand Turk Island goes like this.

HOUSTON Gemini 7, Houston.

S/C This is 7. Go ahead, Houston.

HOUSTON Hello, Houston, Gemini 7. We note your oral temperature, and please await for mark to start your blood pressure.

S/C Roger. Understand you have oral temperature.

HOUSTON That's affirm, but please await the blood pressure. Listen on this next pass over the Dakar area, would you check the weather?

S/C Roger. Will do. I have a question for you, Sir.

HOUSTON Roger.

S/C You gave us D-12, with a sequence 14?

HOUSTON Roger. We have a flight plan update with regard to that. We'd like to make it after the medical data pass. ....is full scale.

S/C Roger. We'll stand by.

HOUSTON Okay. Roger, Gemini 7. You can start your blood pressure. I'll turn you over to the flight surgeons.

CAPE Cape has acquisition.

HOUSTON Gemini 7, we have a good blood pressure. Standing by for your exercise.

S/C Starting with the exercise. Pressure 79.

HOUSTON Roger. We copy. Cuff is full scale. Right. Gemini 7. We have a good blood pressure. Standing by for your food report.

S/C Roger. Stand by. Last night we had Day 5, Meal C. This morning, Day 6, Meal 8. Lovell didn't eat the peanut tubes. Borman didn't eat the peanut tubes or the beef bites. The pilot had 461 ounces of water; the command pilot's had 436 ounces of water.

HOUSTON Roger. Copy. We want a report also on...Standing by for your sleep report.

ANTIGUA LOS, Antigua.

S/C I'll estimate we had about 5 or 6 hours sleep last night. Not too good.

HOUSTON That the same for both crewmen?

S/C Roger.

HOUSTON Roger. Would you give us the total count on your water gun now?

S/C Total count on the water gun right now is 2591.

HOUSTON Roger. Thank you. Now that the suit is off, we'd like to try to repair the respiratory trace on the command pilot. We believe that the connector on the output, or lower portion, of the signal conditioner has come loose. And, it's the second signal conditioner from the left. We'd like the command pilot to have a look, see if it's loose, and attempt to tighten it some.

S/C Roger. Your friendly inside maintenance. We'll get to work right away.

HOUSTON Roger. In the meantime, would you say that the tumbling had anything to do with your lack of sleep?

S/C No. We didn't even know we were tumbling until we woke up.

HOUSTON Roger. Understand.

S/C We had a ... quite a drop in temperature in the cabin last night - about 20 degrees.

HOUSTON Roger. We copied your rising suit inlet temperatures. I gather from a transmission over Carnarvon that the command pilot donned his orbital flight suit. Did he do that before the sleep period started, or during?

S/C He did that during. He did not only don one, he donned both orbital flight suits.

HOUSTON At what elapsed time. Gemini 7, Houston. At what time did the command pilot don the orbital flight suits?

S/C About 1:55 elapsed.

HOUSTON Roger. Copy 155. We request that you have the pilot report over Carnarvon whether he took Actifed yesterday or not, and if so, the results. We would also like to ask whether the pilot can get at the sternal lead sensors easily or not. Over.

S/C He did not take the Actifed, and his nose is better. He's been using some skin cream in his nose. What do you want him to do to the lead?

HOUSTON Ask him if he can get at the sternal sensors easily. We've seen a decrement in the sternal EKG since doning the G5C suit. We'd like to know how hard it's going to be for him to get at those two sensors.

S/C He can reach down there and push on them. Is that what you want him to do?

HOUSTON Roger. Let's have a go at that.

S/C                   Okay. I can't find anything wrong with the rates of this amplifier.

HOUSTON             Roger. Understand. We're still receiving a poor trace. Leave it with us for a little while.

S/C                   Roger. By the way, what is this amplifier to?

HOUSTON             The respiratory trace or the impedance pneumogram. It's the second one from the left in the garment, and we think that it's the lower connector.

S/C                   It's on tight.

HOUSTON             Roger. Would you advise what position your suit control valves were in during the night.

S/C                   Roger. They were almost all the way closed.

HOUSTON             Roger. Copy closed. Surgeon over to the Cap Com. Gemini 7, Cap Com. I have a flight plan update for you.

S/C                   Go ahead Com.

HOUSTON             MSC 12, time 162:45:00. Sequence 14, delete. MSC 12, time 164:14:00. Sequence 14, substitution for the above deletion. And, again, we'd like to check the weather in the Dakar area on this pass. The specific area just north of the beach. We'd also like to know the major component of this drift you experienced during the night.

S/C                   We can't tell you that, Charlie. It was a random drift.

HOUSTON             It was random.

S/C                   We tightened up completely. We play like it's our night time. And, when we opened up, we found out we were going round and round.

HOUSTON             I see. What control inputs did you use to stop the drift?

S/C                   Pulse.

HOUSTON             You used pulse? Note that this drift rate is still building on you?

S/C                   No. It's fine now. Just like it was before.

HOUSTON             Okay. You're not inducing any drifts now at all?

S/C                   No. Oh, we're drifting, but not that rapidly.

HOUSTON             I see. Thank you very much.

BERMUDA             Bermuda remote.

END OF TAPE

Gemini Control Houston here at 162 hours and 7 minutes into the flight. An additional discussion over Canarys regarding that tumbling that was noted when the boys woke up this morning. Our suspicion, and it is still only a suspicion, is that it is being caused by the condensate water which comes out of our suit circuits onboard. The condensate a drop at a time collects in the water boiler and when sufficient pressure and water buildup in the water boiler area it vents. We first noted this on the Grissom-Young GT-3 flight and at that time were puzzled as to what was causing the drift. It is completely explainable if this water-boiler venting mode, however, as I say, we are not exactly sure that this is the case. We started playing some music for the crew this morning. The first tune going up was Louis Armstrong's very throaty rendition of "Hey, Look Me Over" and we want to play for you now the conversation that ensued between 7 and Elliot See remoting through Canarys and then Kano.

S/C Canarys, Gemini 7.

Canary Gemini 7, Canary Cap Com.

S/C Roger, we are starting to pick up a slight drop in 2C again but with a slight imbalance of the two .... (garbled)

Canary Roger, copy.

Cap Com We noticed that down here. We may have to go open on that 2C but not right now.

S/C Okay, we just wanted to let you all on the ground know we see it.

Cap Com Roger.

S/C I think the Blue Team is getting sleepy.

Cap Com            We are about ready to go home.

S/C                Yeah. Canary, 7.

Canary             Go ahead.

S/C                Most of the coast of Africa from our present point - up and  
down the coast the sky is clear, there are some Stratus  
right above us, or right below us I should say.

Canary             Roger 7, We copy.

S/C                .... (Garbled) report.

Canary             Very good job.

Flight             Yeah.

S/C                It looks like it might rain if the sun doesn't shine.

Canary             You guys are in good jolly spirits this morning.

S/C                I don't know why.

AFD                Canary, AFD.

Canary             Go ahead AFD.

AFD                Okay, can you hear us now.

Canary             Rog, we can hear you. We are noticing about a 1.2 amp  
difference in the main bus, it dropped from about 3.37 to  
3.18 in about 14 minutes. That is on 2C.

AFD                Canary Cap Com, AFD.

Canary             Go ahead.

AFD                Do you hear the Flight Director.

Canary             Say again.

AFD                Have you been reading the Flight Director.

Canary             No I haven't, not at all.

AFD                Okay.

Canary             I tried to get a hold of him one time, got no response.

AFD                Do you hear the Flight Director then, Canaries.

Canary             Right now.

AFD Yes.

Canary Negative.

Goddard Voice That is negative at Goddard voice also.

AFD How about it now.

Canary You are loud and clear, Flight.

Flight Rog. Can you give me those amperage readings again, please.

Canary Roger, 3.37 down to 3.18 in 14 minutes and that is on 2C and a 1.2 amp differential between the two main currents.

Flight 3.18 on 2C? Is that what you said?

Canary Roger. It dropped from 3.37 down to 3.18 in 14 minutes. Stack 2B remains constant and we are getting a 1.2 amp differential between the two main currents. We have had LOS.

Flight Roger. I copy. That was a problem at my console here Canaries, that you couldn't read me.

Canary Roger.

HOU contact Kano, Houston.

Kano contact, Houston contact.

Kano contact Kano, go ahead.

HOU contact Go remote, UHF please.

Kano contact Roger, Kano remote.

Cap Com Gemini 7, Gemini 7. Houston Cap Com, over. Do you read.

S/C Loud and clear.

Cap Com Roger. Have you got a minute to talk to me or are you tied up for this Apollo landmark.

S/C Go ahead, we can try. Jim can talk.

Cap Com Roger, we have got a whistle on the line here, I'm not sure I can hear you too well. We would like to get an assessment from you regarding this tumbling to try to establish definitely whether or not it might have been due to the water boiler venting. Are you able to tell at all, or were you able to tell at all what axis the tumbling initiated from.

S/C We are not sure but we feel that it was sort of a left yaw from our present roll motion.

Cap Com Roger. As I understand it you just found this upon waking up and you took it out at that time and it has not started again. Is that correct?

S/C We haven't noticed it. This might build up for a long time. Remember that we closed up for the night and had our rates build up but since we took it out we haven't noticed any appreciable buildup on it, so right now we are go.

Cap Com Roger. We have a very bad background noise here. I understand your comments. We would be interested in your thoughts about it further and let us know if you have any additional thoughts on it.

S/C Roger, Elliot.

Cap Com Gemini 7 Houston. Your HF is up if you are interested.

S/C Thank you.

This is Gemini Control Houston again. That conversation, of course, shedding considerable additional light on the venting matter. We expect additional discussion on that point over Carnarvon. The temperature drop which was experienced last night also has evoked some theories. We think it is very likely that it was due to the sun angle that was hitting certain

areas of the spacecraft, for instance, the adapter area or perhaps the nose instead of the angles which the sun has been looking at the spacecraft through the last 6 to 7 days that might have changed the overall temperature balance onboard. This would have been produced, of course, by the tumbling effect and could at least in theory account for a drop in temperature. In any case, the attitudes have been showing up and we are flying level and true this morning. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control, Houston. 162 hours, 54 minutes into the flight. Over Carnarvon a few minutes ago, more discussion regarding the water boiler or the yaw effect noticed overnight which set up some tumbling rates. In the conversation, Jim Lovell speculates that he thinks it was a yaw left component which would agree with our theory about the water boiler collecting suit condensate moisture, building up pressure, and venting slightly. The venting was so insignificant that it didn't wake the crew up. When they awoke this morning, they did notice some tumbling. Here's the tape from over Carnarvon.

CRO Gemini 7, Carnarvon.

S/C This is 7. Over.

CRO Roger. We're ready for the crew status report on the pilot. We haven't received a temperature on the pilot yet. We'll tell you that when we have it.

S/C Righto.

CRO Have C-Band track, Flight.

HOUSTON Roger.

CRO Gemini 7, Carnarvon.

S/C Go ahead.

CRO While we're waiting on the temperature request, can you copy a flight update?

S/C Roger.

CRO Okay. This is area 104-1, 164:27:03.

HOUSTON Carnarvon. Systems, Houston Flight.

CRO Houston Flight. This is Carnarvon systems.

HOUSTON When you get a chance in this task, we'd like to know what the wearing apparel condition is of the command pilot.

CRO Roger. Wearing apparel condition of the pilot.

HOUSTON Command pilot.

CRO Right. Area 107-4, 170:30:56. Area 108-3, 171:47:37. Area 109-3, 173:23:17. Area 110-3, 174:58:54. RAP of 400 feet, 21 plus 50 for all areas. Did you copy?

S/C Roger. Thank you.

CRO Roger.

S/C You got the temperature yet, Carnarvon?

CRO Right. We have your temperature. I'll turn you over to our Surgeon. Gemini 7, this is Carnarvon Surgeon. We're ready for your blood pressure.

S/C Blood pressure coming up.

CRO Your cuff is full scale. Gemini 7, pilot, your cuff is not .... down.

S/C There we go.

CRO Roger. Gemini 7, we have a valid blood pressure. Give us a mark before you start your exercise.

S/C Mark.

CRO Blood pressure's going down. Pressure up. Back down. Flight, Carnarvon.

HOUSTON Go ahead.

CRO Are you getting our mains?

HOUSTON That's affirmative.

CRO We have the readings on the main bus path, if you're interested.

HOUSTON Go ahead.

CRO Okay. PHO 1, 8.70. PHO 2, main bus, 7.49. We have stack current. DEO 1, that's stack 2A, 2.44. DEO 2, stack 2B, 2.12. Stack 2C, 2.93.

HOUSTON Roger.

CRO Gemini 7, Carnarvon. You're still looking good here on the ground. We'll be standing by in case you need us.

S/C Roger. We're noticing that 2C is slowly, slowly decaying. Do you agree with this.

HOUSTON Yea, but he turned off that Primary A.

CRO Repeat that.

HOUSTON He turned off Primary A pump and both cells have been going down. Tell him we're keeping an eye on it.

CRO Roger. We're keeping an eye on it, Gemini 7. We have been seeing it going down; but you have turned off your Primary A pump.

S/C Roger. That's affirmed.

HOUSTON Ask the command pilot what his present status is. Does he have the flight suit on or off.

CRO Got that Flight. While I was talking to you. The Surgeon has that.

HOUSTON If he does, I didn't hear it.

CRO Roger. He's in his underwear, Flight.

HOUSTON Roge.

CRO His words were he was reposing majestically.

HOUSTON And, with those kind of words, the Flight Director thinks he's becoming philosophical since he's been up there.

CRO Gemini 7, Carnarvon.

S/C Go ahead, Carnarvon.

CRO The Flight Director says that you're becoming philosophical with those kind of words.

S/C Carnarvon, tell the Flight Director, thank you.

CTN Canton's had LOS.

HOUSTON Roger LOS.

END OF TAPE

This is Gemini Control Houston. 163 hours, 6 minutes into the flight of Gemini 7. Over the States, this pass, 7 crew will be given a "go" for a 119 revolution flight. They're also to perform a fuel cell purge at the eastern end of the pass; and out over Canaries, as they come up on the Canary Islands, on this next rev, they're to perform some Apollo landmark contrasts photography. The weather story this morning goes like this: the weather group here promises satisfactory weather for another 48 hours regarding 7; in the mid-Pacific, our landing area there centered 800 miles east, northeast of Honolulu, the weatherman predicts cloudy skies today with scattered showers, winds east 15 to 20 knots, seas running about 6 feet; in the Western Pacific, 700 miles south, to southwest of Tokyo, skies partly cloudy, winds east 10 knots, sea is about 3 feet; in the Eastern Atlantic, 500 miles of Cape Verde Islands, skies partly cloudy, winds easterly at about 10 knots seas running 4 to 5 feet; in the primary landing zone, in the Western Atlantic area, 800 miles east of Miami, winds northeast at 15 knots, seas 3 to 4 feet. Weather conditions for the planned launch of Gemini 6 are expected to be satisfactory for launch and orbital operations during the entire flight. The forecast for the Cape Kennedy area calls for partly cloudy skies with ceilings above 5000 feet. Surface winds will be southeast at 10 knot Seas in the offshore area will be 2 to 3 feet. Launch time temperatures will be about 67 degrees. And, out across the Atlantic, in the key abort landing areas, set up for any launch, let's see. The Atlantic, no unusual weather at all in the Atlantic. It looks fairly calm all the way across. Seas again in the immediate launch area are running about 2 to 3 feet. Guaymas, while we've been talking in the last minute, has established contact and they're looking at the TM on the ground there. Let's stand by and try to pick up some conversation. Flight Director and the E-Com man, Electrical, Environmental, and Communications, taking a close look at the performance of that section 2 fuel cell, which today is acting a little bit like it did yesterday morning. Voltage falling a bit in stack 2, stack C - Charlie, in section 2, I believe. We're at 102

revolutions of flight, we're only five minutes away from the 103. A little more than an hour and a half from now, we should hit the exact mid-point of this flight. Our elapsed time clock over in the far right of the room now reads 166 hours, 13 minutes remaining; and our ground elapsed clock shows 163 hours. I think Elliot See is just about ready to put in a call to 7, and I think if we do cut in now, we can pick it up.

S/C This is Gemini 7.

HOUSTON Roger. Be advised you're "go" for 119-1.

S/C Thank you, Elliot.

HOUSTON Roger. You know you're all down hill from this one on.

S/C Yea. That's what we just figured out.

HOUSTON Roger. How about a read back on all your quantities?

S/C Roger. Fuel ...The only thing we have in the abnormalities in the fuel cell 2C. The main batteries are all okay. 23 volts. Fuel cell stack read outs: 1A, 3.0; 1B, 3.5; 1C, 3.0; 2A, 2.5; 2B, 2.5; 2C, 3.5. That has now decreased to 3 on 2C. Main bus voltage 27. RCS A, 2900. Temperature 75 degrees. RCS b, 3000. Temperature's up to 90 degrees on that one. Left hand, secondary O2, 5400. Right hand, secondary O2, 5300.

HOUSTON Roger. Sounds real good. Be advised, the OAMS cutoff for today is 23%. You'll not get to that under normal usage, but it's just one to save the proper amount. You're really being an old miser there with that fuel.

S/C Roger. For the people who are concerned about the water boiler, or wonder about it, we are definitely venting out the left side here. We can see it now; quite a good amount.

HOUSTON Good. That confirms what we were thinking down here; and we've got some further thoughts for you on that later on.

S/C Roger. We've had a little difficulty determining which way we're rolling. We stayed buttoned up in here and then we awakened and had a very random observation. I guess we yaw left, though.

HOUSTON Understand. You were yawing left. We looked at your control inputs, and they appeared to be mostly yaw right to take it out with some pitch.

S/C Righto.

HOUSTON Do you want to go ahead with the fuel cell purge?

S/C Stand by. Here it comes. Here's Jim with it. Got the fuel cell purge coming now.

HOUSTON Roger. Stand by for a TR, Gemini 7.

S/C Standing by. TR received. For your information, we were not able to accomplish Apollo landmark 137. Clouds over the lake.

HOUSTON Roge. Understand.

S/C And, another thing I was wondering about. We're wondering why the RCS heater's on all the time. Is that what they wanted?

HOUSTON That's affirmative.

S/C Okay. Fine and dandy.

HOUSTON That's a spot in the flight plan; starting down hill from there, isn't it?

S/C It is in this one.

HOUSTON You betchya! You'll are really doing a great job.

S/C I'll tell you. The best decision made was when Mr. Kraft ordered me to get out of that suit.

HOUSTON We thought it would be. You just made his whole day.

S/C Well, listen. He made my whole night and day. Lovell's without comments.

HOUSTON We had some interesting exchanges of bets in here when you put both flight suits on. Gemini 7, Houston Flight. Jim how about telling us how it is back in the suit.

S/C ...UHF 6 pass....?

\*\*NOTE: At this time, they switched channels and the spacecraft's transmission was not recorded.

HOUSTON Negative. Give me a little more verbal description.

The communicator during this pass is not Elliot See as we advised; it is Ed White, who is the command pilot in the backup crew. Ed has been at the console frequently during this Red Team Shift; and unexpectedly came up and did... is doing the talking during this pass. We're ready to go back to the spacecraft now; we'll pick up some additional conversation.

S/C Can I open Circuit 2C again?

HOUSTON I think we want to wait a while there on that, Frank, until we establish this trend again.

S/C Roger.

HOUSTON Understand your report at this point was 3.5 amps. Is that correct?

S/C We prepared that report about 10 minutes ago, and it is now down to about 3 amps in the cockpit; but it's difficult to tell because you're always doing tape dumps and so on. It's right around between 3 and 3.5.

HOUSTON Roger. Frank, what we're considering there is open circuiting the whole cell.

S/C Roger.

ANTIGUA Acquisition, Antigua.

S/C Is everything still good at the Cape?

HOUSTON Roger. Looking real good. Yea, they're still ahead of schedule, there; and we're going to support their pad test here in about 2 hours.

S/C Roger. Purge complete, Houston.

HOUSTON Roger. Stand by for Surgeon. Gemini 7. This is Surgeon. Could you give me a little bit of a description about what you think your general condition is this morning, in particular as to how you think you as far as the rest status and fatigue. We're interested in this particularly because we're trying to plan something for tonight so that we've got you in shape for this rendezvous which is going to go into your sleep period tomorrow night.

S/C Houston, I think we're in pretty good shape. We are a little sleepy at times, but it's difficult to sleep that full 10 hours. We do cat-nap frequently during the day, though.

HOUSTON You are getting some good cat-naps in then?

S/C Right.

HOUSTON Very good. Was there any moisture in the spacecraft, that you could tell, last night when you got this temp down so low?

S/C Both windows were not frosted, but fogged over.

HOUSTON Do you think that had anything to do with helping to clear this nasal business? You certainly seem to sound better this morning.

S/C I think that little water did help a lot. As a matter of fact, I've been moistening towels in here and putting them over my nose and rubbing my face with them. So has Jim.

HOUSTON Very good. Jim, we've pretty well lost that sternal lead on you. Have you tried pressing the sensors, both the top and the bottom, of the sternum there?

S/C Roger. I'll try it again.

HOUSTON Okay.

S/C Any luck, Surgeon?

HOUSTON Negative, Jim. That doesn't seem to help it very much. I think we're not going to be able to do very much with it until we can get you out of that business to look at it. So, we'll just ride it along here. We've got one good lead on you, though, and we've got good respiratory trace. Frank, we've got two good leads. His respiration trace still is not very good, and that fix that we tried didn't seem to work. So, you might just check yours, Frank and make sure that everything is good there. It can't be the sensors on you, because your Axillary lead is very good.

S/C Roger. Both sensors are tight. And the amplifier is tight also.

HOUSTON Very good. Well, I'd just leave it alone then.

S/C Roge.

HOUSTON Gemini 7. This is Surgeon. We're thinking of just slipping this sleep period an hour tonight. Have you start an hour later and have it go a couple of hours longer tomorrow morning. And, have you try and fit into the program that way so that you'd be ready to go a little bit later tomorrow night. Does that sound agreeable to you?

S/C Roger. That's fine with us.

HOUSTON Very good. Gemini 7, Houston.

S/C Go ahead.

HOUSTON How have you come on the dim light work?

S/C We've taken a couple of pictures of the air glow. We had a good shot of the Arora yesterday, but by the time we got around again, it was gone.

HOUSTON Yes, I think you'll find the only target of opportunity is when they're up.

S/C Roger. ...(Garble)...but we didn't have the fuel to use it.

HOUSTON Right. If we see anything down here that is particularly... we feel would be particularly worthwhile for you, we'll give you an update on it.

S/C Thank you. Hey, listen. Jim and I are ... We really appreciate all the effort of everybody there. It's really been great. Everybody on the ground's been really helping out; and I wish you'd tell them that.

HOUSTON Well, listen. Our efforts are all up there. You're making it as smooth as silk for us.

GRAND TURK LOS Grand Turk.

Gemini Control here. That probably wraps up the communications for this pass. The spacecraft is now out over the mid-Atlantic. You heard Jim Lovell ask regarding the UHF mode. The reference was to one of several antenna orientation patterns available, during any given pass. Bermuda has been advised to go remote; but the Cap Coms here, Ed White and Elliot See, look like they've exhausted the conversational traffic for this pass, so we'll cut off at this time.

END OF TAPE

Gemini Control Houston here, 163 hours 40 minutes into the flight. Over the Canary Station we had conversation, a brief one, and it went like this.

Canary Gemini 7, Canary Cap Com com check, how do you read?

S/C Loud and clear Canary.

Canary Okay, we have nothing else for you except we would like a humidity readout within the next pass and you can relay it over the next State side contact.

S/C Thank you.

Canary Okay, we will be standing by.

S/C Canary, Gemini 7.

Canary Go ahead 7.

S/C We have attempted MSC-12, the land-water interface looked good, a few clouds, however, there was no color change on the reticle again.

Canary Okay, we copy.

S/C .... (garbled)

Canary Say again, you are --

S/C The color with the filter on I guess a sort of tan-pinkish area such as the desert part of Africa here. Would you relay that to Houston, please.

Canary Okay, will do.

S/C Would you also tell them please that we believe this photometer is defective.

Canary Okay.

Flight Tell him Flight rogers that.

Canary Flight rogers that. Canary has telemetry LOS.

Flight Roger Canary.

Canary All system were go at LOS.

Gemini Control here. That concludes the Kano situation -- that concludes the Canary situation. We had additional conversation a very few minutes later while over Kano and toward the tag end of that pass 7 called us to tell us the situation in the Stack C, cell 2. That it was dropping somewhat and we have just about concluded -- do the same test we did yesterday, in other words, open that circuit and see if that won't build the voltage and build the electricity producing conditions within that stack. A little later in the pass, just before the spacecraft reaches Carnarvon we have plans for another D-4/D-7 experiment taking radio-metric measurements and we now have the conversation remoted through Kano for you.

Kano Kano remote.

Cap Com Gemini 7, Gemini 7. Houston. Do you read.

S/C Loud and clear Houston. Go ahead, please.

Cap Com We want you to delete the next MSC-12 activity for the time being. We want to look at the data on the next tape dump from this one that you just did. We would like you to put the instrument up without changing the calibration setting.

S/C Roger. The calibration setting was set at the full up position since it never changed colors. Jim just left it full up so we have a very ready source of it right away.

Cap Com Roger.

S/C This is Gemini 7.

Cap Com Roger 7, go ahead. Gemini 7, go ahead.

S/C                    Our fuel cell 2C stack is now down to 2 amps and we are  
                         getting a 2 amp split in the main bus amps.

Cap Com               Roger. We will probably give it an open circuit at Carnarvon  
                         this time, 7.

S/C                    Roger, thank you.

Cap Com               We will be in touch with you at Tananarive also if necessary.

S/C                    Roger.

END OF TAPE

Gemini Control here. We talked to 7 over Tananarive and the conversation went like this.

TAN Tananarive remote. Tananarive has acquisition.

HOUSTON Gemini 7, Houston. Do you read?

S/C Loud and clear, Houston. Go ahead.

HOUSTON Roger. You're also loud and clear. Could you give us a reading on Stack 2C again, please.

S/C Elliot, we have about 2 amps on 2C.

HOUSTON Roger. Understand you're still maintaining 2 amps.

S/C Roger. And the voltage is 28 volts.

HOUSTON That's less voltage 28 volts?

S/C That's stack voltage. 2C stack voltage is 28 volts.

HOUSTON Roger. Is that the bus voltage or did you open circuit?

S/C No. That's the bus voltage. No open circuit.

HOUSTON Roger. Gemini 7, Houston. Gemini 7, Houston. Do you read?

S/C Gemini 7. Roger.

HOUSTON Our present plans are to turn off that section at Canton with the power switch, and let it reopen circuit from there to the U.S. And, then we'll turn it back on and observe how it reacts with that.

S/C Understand you plan on turning off the second section to open circuit it with the power switch at Canton and leaving it on until we get to the States. Is that correct?

HOUSTON Roger.

S/C ...(Garble)...

END OF TAPE

This is Gemini Control Houston. We're on the 103rd revolution and very close to the 2½ million mile mark in the flight. The time to end of flight and the elapsed time are now roughly 40 minutes apart. The clocks are almost balanced. Over Carnarvon we had this conversation.

CRO Carnarvon here, TM solid, everything looks good.

HOU FLIGHT Roger Carnarvon.

CRO They're not showing any modulation on the experimental transmitter. Looks like he still has the beacon on and he has not started the D-4/D-7 experiment, he's probably concerned about that fuel cell. Should I ask him to start that thing or not?

HOU FLIGHT You might query him about it. You say he still has the acq aid on?

CRO Rog, that's what it looks like from here.

HOU FLIGHT Okay, you might remind him about the acq aid on.

CRO Gemini 7, Carnarvon Cap Com.

S/C Go ahead Carnarvon.

CRO Roger, we're receiving acq aid beacon and we're expecting D-4/D-7, is there any trouble?

S/C No, we don't have the schedule yet Carnarvon. Stand by we're checking our log now.

CRO Roger.

S/C We thought it was later. We thought it was 30 to 03.

CRO All righty. Gemini 7, Carnarvon, we have a readout for you this pass and you look good here on the ground. We're standing by.

S/C Roger, did you schedule that for the next pass, that's our fault.

CRO That's all right. That's no sweat, Texas will take care of it.

S/C Thank you.

HOU FLIGHT Would you have him give us a readout on 2C?

CRO Gemini 7, Carnarvon, would you give us another readout on 2C?

S/C Roger stand by. That will be about  $2\frac{1}{2}$  amps as close as we can read it.

CRO Roger, thank you.

HOU FLIGHT That makes us feel better. Tell him that agrees with what we see on the ground. His last reading did not.

CRO Flight tells us that makes us feel better. It agrees with the groundrange quite closely.

S/C Roger

CRO On 2.39 here at Carnarvon.

HOU FLIGHT Rog, that agrees fairly close to his.

RO All righty

HOU FLIGHT           Trans factor there right?

CRO                   That's affirm.

S/C                   There we go again with the RCS range indication of  
thhuster firing but we also saw a brief indication of  
a retrorocket firing while we had solid lock. Apparently  
there's a little bit of noise riding on that TM.

CRO                   Roger.

HOU FLIGHT           .....event type noise here at MCC without getting a  
TM droupout.

CRO                   Roger

                      We still have C band type but we're about 10 seconds  
past our nominal LOS, there we lost it. It went out  
about +12 seconds.

END OF TAPE

This is Gemini Control Houston. Over Canton Island only minutes ago we had this conversation.

Cap Com Gemini 7, Houston.

S/C This is 7, go ahead.

Cap Com I would like for you to get ready for turning off section 2 power switch Jim. Could you give us a complete readout on your stack currents at the present time.

S/C Say again..

Cap Com We would like a complete readout on your stack currents.

S/C This is Gemini 7, you are unreadable. Say again please.

Cap Com Would you give us a complete readout on your stack currents?

S/C Understand Houston. You want a complete readout on our stack currents. Standby and I'll give them to you.

Cap Com Roger.

S/C 1A, 3.5; 1B, 4; 1C, 3.5; 2A, 3; 2B,  $2\frac{1}{2}$ ; 2C  $2\frac{1}{2}$ .

Cap Com Roger Gemini 7. What is your bus current? Bus voltage?

S/C I read you very weak but I'll give you bus voltages for the stacks. 1A, 27.8; 1B, 27.8; 1C, 27.8; 2A, 27.8; 2B, 27.8; 2C, 27.8.

Cap Com Roger. Gemini 7, Gemini 7, this is Houston.

S/C Gemini 7 here. You are very very weak. Say again.

Cap Com Do not turn off section, repeat, do not turn off section 2.

S/C Roger, we will not.

Canton Canton has LOS at 16 02 34.

END OF TAPE

Gemini Control Houston here, 164 hours 42 minutes into this flight. In the last 10 minutes we have started a meeting by telephone with the officials at the Cape, including the Gemini 6 crew who are gathered in the crew quarters in the Manned Spaceflight Operations Building on the Merritt Island NASA area. They are discussing the ground rules, the last minute considerations and the like for our planned 6 launch tomorrow morning. During this period, Chris Kraft, the Red Team Flight Director has turned over control of this mission to the Assistant Flight Director, Charles Harmon. The Guaymas station is presently reading out the systems on the 7 spacecraft right now. He has been looking at them for about the last minute. Also we have got several onlookers in the viewing area with us right now. We can see Mrs. Lovell and her 3 children and we understand Mrs. Borman is on her way over with her children and not yet reached the Control Center. They will be listening in on this State side pass as will you. The flight plan calls for no experimental activity during the pass, again Apollo landmark photography is to be taken in the area of the Canary Islands, that will be followed by an exercise period and they will have lunch starting at -- over Tananarive at an elapsed time of 165 hours and 40 minutes, about an hour from now. The eating period will consume about 1 hour, we show another fuel cell purge in the Hawaii area on this rev, also some D-4/D-7 radiometric measurements in the Carnarvon area. Guaymas has gotten summaries to us on their systems readings. Elliot See momentarily will put in a call to the 7 spacecraft. The Guidance Navigation Control Engineer, Arnie Aldrich, advises we are showing about 30 percent fuel remaining, 30 percent out of a load that started off at roughly 350 pounds. Elliot has put in a call, let's cut in there and see what is going on.

Cap Com . . . this morning, observing this pass. We would like to tell you Congratulations on your half-way mark. You are now heading downhill.

S/C Elliot, would you say Hello to them for me, please. Also, thank you very much.

Cap Com You just did it yourself. Also I see the Borman boys are here.

S/C Hi boys.

Cap Com I have a flight plan update for you.

S/C Stand by just a minute, Elliot. Go ahead, Elliot.

Cap Com D-4/D-7, 165 43 35, sequence 415 and 416, mode 02, rescheduled from previous pass. MSC-4, 166 20 41, sequence 01, mode 01, pitch 30 degrees down, yaw 25 degrees left. Do you copy?

S/C We copy.

Cap Com Roger. Do you have the humidity reading that we ask for in the cockpit?

S/C Roger, stand by. The average temperature dew point reads in our survey this morning have been dew point around 58, temperature around 82.

Cap Com Roger, copy. 58 and 82.

S/C That is 16 degrees higher than they were this morning when we got up, Elliot.

Cap Com 16 degrees higher, roger. On the fuel cell, we looked at your amp readings and decided we would hold off a little bit on this open circuit technique and just observe it a little longer.

S/C Roger, understand that.

Cap Com Those are the only items we have on this pass and we will be standing by for the rest of your pass.

S/C Houston, we were trying out some of this high contrast film over the States pass, but I see you are quite cloudy today.

Cap Com That is affirmative. We are hoping for a break in this weather so we can try an MSC-4 at Hawaii, but it looks pretty bad for today. For your information the Ascension MSC-4 equipment is still down.

S/C That is just what I was going to ask you.

Cap Com We had a simulation with the GT-6 crew last night, final run through on the rendezvous sim and everything went real well.

S/C Good. Looks like the East Coast is pretty clear up toward the North.

Cap Com Roger.

S/C Anyways it looks that way.

Cap Com Gemini 7. Are you still having any of the water boiler venting?

S/C This is 7. Not to our knowledge, Houston.

Cap Com Roger.

Antigua Acquisition, Antigua.

S/C When the boiler vents, it also gives us a left roll, Elliot, which is very pronounce...you know it's there.

Cap Com Roger.

S/C Elliot, you can.....(Garble)....

Cap Com I didn't copy that 7. Say again

S/C Would tell the Lovell family that it looks like our grass needs mowing.

Cap Com I'll tell her. Gemini 7, Houston.

S/C This is 7. Go ahead.

Cap Com            Could you give us another read out on those stack currents?

S/C                Roger. Stand by. 1A is 3.5 amps, 1B is 4 amps, 1C is just slightly under 4 amps, 2A is 3 amps, 2B is about 2.5 amps, and 2C is slightly under 3 amps.

Cap Com            Roger.

Grand Turk        LOS Grand Turk.

Gemini Control here. It sounds like that wraps up the communications. When Frank Borman bid good morning to his two sons, who are here behind the glass, there were two very brilliant smiles evoked by that comment. The boys remain here in the Control Center along with Mrs. Lovell and her three children. The meeting in which Mr. Kraft was taking part has concluded. Talking with Dr. Mueller, Mr. Preston, Capt. Shirra, Maj. Stafford, and other officials associated with the launch of Gemini 6 tomorrow morning. At 165 hours even, and we have now passed the elapsed time versus the end of mission clock, it now reads 164 hours, 23 minutes versus 165 elapsed time, this is Gemini Control, Houston.

END OF TAPE

Gemini Control Houston here. Jay Lovell, Jim Lovell's son, I believe he is 11 years old, is visiting us here. He is down at Chris Kraft's console seated in a chair beside Chris looking over his console and during breaks Chris is trying to explain to him what the many colored lights mean and where they are linked to. The Borman boys have left the Control Center. They got away before we could invite them in for a little visit here. Over the Canary station we had conversation with the boys fathers and it went like this.

Canary Gemini 7, Canary.

S/C Go ahead Canary.

Canary Roger. We are noticing your fuel cell hydrogen has dropped, it is almost down to minimum. You might take a look at it and boost it up a little bit.

S/C Roger, thank you.

Canary And it looks like your fuel cell 2 has just about leveled out and everything looks pretty good. We'll keep a close look at it on the ground, however.

S/C Roger.

Canary That is about all we have for today. See you tomorrow.

S/C Righto. In regards to the Apollo landmark shot which we are coming up on right now, there are so many clouds over the areas we don't think we can get a shot.

Canary Ah, roger. What about the Apollo, Flight?

Flight Stand by. Not to worry about it if they can't hack it.

Canary            Okay, if you can't do it, than just don't worry about it, forget it.

S/C                Roger, thank you.

Canary            Rog. Are you still with us?

S/C                Roger, we are still with you.

Canary            A further command on your rev time at Acq Aid 6.

S/C                Roger.

Flight            Canarys, we are going to reconfigure the Control Center here to support the mid- count test, so while you are going --- Gemini Control here again. That concludes the Canary discussion. At 10:45 central standard time this morning we reconfigured the range so that we are receiving manual summaries from the sites, the reason for this switch, and we expect that it will go on now for several hours, is to allow this Control Center here in Houston to support the mid-count on the Gemini 6 preparations for launch down at the Cape. We had more discussion via the Kano station and here it is.

Cap Com           Gemini 7, Houston. How do you read?

S/C                This is 7, read you loud and clear.

Cap Com           Roger. We would like to ask you to keep track of this water boiler venting, keep a log on it so we can get a handle on how often it is happening.

S/C                Roger, the only time we can tell it is venting is at twilight or when the sun shines at a certain way and it forms a -- when it sparkles on the ice crystals against the night sky.

Cap Com           Roger, in other words, it is so minor that you can only tell it when you see it. You do not get any motions out of it

that are particularly noticeable?

S/c Roger, although right now we are in a slow left roll after we had lined up our Apollo landmark and then shut down, we did go into a slow left roll.

Cap Com Roger. 7, we would like you to just do the best you can on that as far as keeping track of it to see if we can establish any pattern here as to how often it does vent.

S/c Roger, will do.

Kano Kano has LOS.

This is Gemini Control Houston. That concludes the Kano discussion. We may have additional conversation via Tananarive some 5 to 8 minutes from now. If we have it, we will bring it to you. This is Gemini Control Houston, 165 hours 20 minutes into the flight of 7.

END OF TAPE

Gemini Control Houston here. We are on the 104th rev around the earth. Over Carnarvon a few minutes ago, the station read out the values in the spacecraft advised 7 that they need not acknowledge, they would stand by on the ground. Jim Lovell acknowledged anyway with a mere Roger and that was that. Hawaii probably will be equally quiet on this rev. They are due to acquire at Hawaii at 35 minutes after the hour, some 6 minutes from now. We have an MSC-12 experiment planned for the West Coast of California, that is an Apollo landmark contrast photographic experiment planned on the California coast during this rev, also a cabin temperature survey to be done between Bermuda and Ascension Island. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston, 166 hours, 16 minutes into the mission. Elliot See has contacted 7 which is still off the coast of California. The cloud coverage has lifted out at White Sands and we are going to try a Laser experiment on this pass. We've also added two features, two smoke pods to the west to help the pilots sight that beam of light. The procedure is that Jim Lovell will get out a box which is roughly the size of a shoe box, about three by five by eight and if they acquire the light beam from the ground he locks on to it and then we'll modulate certain signal pulses that will be sent back and forth. And perhaps talk. We're going to monitor this experiment live. We don't know how much conversation will go on, but let's cut in now and see what's going on.

HOU CAP COM Gemini 7, Houston, let me know when you're complete with your Laser tracking so we can work on the tape dump.

S/C Roger

HOU Guaymas AFD, give us reading on 2C please

GYM We're trying to lock up long enough to get it.  
It still reads 1.62.

HAW Houston Flight, Hawaii Cap Com.

HOU Go ahead

HAW Still reads 1.62.

HOU 1.62?

GYM AFD, Guaymas

Hou Go ahead

GYM We're reading 1.68

HOU Gemini 7, Houston, when you get a break will you give us the amp reading on the fuel cells.

S/C Rog.

S/C Roger, I understand.

Cap Com Gemini 7, we want to do a manual tape dump. Place your standby TM switch to delayed time.

S/C Standby TM on delayed time.

Cap Com Roger 7. Jim, we would like you to press on your top sternal lead again, just the top one and hold it until I tell you.

S/C Rog.

Cap Com Gemini 7, place your tape playback switch to **CONTINUOUS**.

S/C Roger, tape playback to continuous.

Cap Com Okay Jim. You can release the top sternal lead and press on the bottom one until I tell you.

S/C Roger, will do.

Cap Com Sounds like you got about 3 hands going there.

S/C Roger. Elliot, we had a beautiful view of White Sands and I don't think we were that far away, we could have picked that beam up if it was boresighted correctly.

Cap Com Roger. Jim, I would like you to release that bottom sternal lead and then press on it again, just alternately, just on and off for a few times here.

S/C Roger.

Cap Com Okay, that's fine Jim. You can release the sternal lead. Captain Brentnall is here telling me again what a good job you guys are doing on the D-4/D-7's. You did real well and you got the Polaris very well.

S/C Very good. Elliot, we just did a cabin temperature survey a short time ago. Do you mind if we scrub this one coming

up on 166?

Cap Com Roger, that will be okay. Could you tell me what the open circuit 2C is looking like now on the amperage, on the voltage.

S/C Roger, it is 31.2.

Cap Com 31.2, roger.

Antigua Acquisition, Antigua.

Cap Com Gemini 7, place your tape playback switch to command.

S/C In command.

Cap Com And standby TM switch to off.

S/C Standby TM is off.

Cap Com Gemini 7, we will take a look at the fuel cell open circuit voltage and the time and so forth again at Ascension and we will probably put it back on at that point.

S/C Roger, understand. We will probably put it back on at Ascension.

S/C Elliot, if we lose communications with you, we shouldn't leave it off for much more than 13 or 14 minutes, should we.

Flight That's right, Frank. I think maybe we ought to turn it off here before we have LOS at Antigua, so stand by a minute.

S/C Roger.

Cap Com 7, standby for a minute. Surgeon has a brief note and I have a -- we'll get back with you on the fuel cell.

Surgeon Gemini 7, this is Surgeon. Jim, in checking that lead, it is very definitely the lower sensor, the sensor on the bottom

of the sternal there, so we obviously can't do anything about that as long as you are in the suited condition and we will have to await some further developments in that area before we are able to have you do anything further with that sensor. We are going along with the single lead.

S/C Roger, understand.

Cap Com Gemini 7, Houston. Do you still have the delta P light on.

S/C Affirmative. Delta P light has been on.

Cap Com Roger and has the stack 2C voltage gone up to the top of the scale, 32 volts.

S/C It has risen a little bit, but not much. I would say about a tenth to two tenths.

Cap Com Roger.

Grand Turk LOS at Turk.

Flight Gemini 7, this is Houston. We would like to have you put stack 2C back on the line at this time and then give us a complete stack amperage readout.

S/C Roger, 2C back on the line. 1A, 4 amps; 1B,  $4\frac{1}{2}$ ; 1C is 4; 2A, 3; 2B about  $2\frac{1}{2}$ ; and that 2C is still around 2 amps.

Cap Com Roger 7. We will be contacting you further on it at Ascension.

S/C Roger.

Cap Com Sure you will be keeping track of it between here and Ascension. We will be interesting in whether it increases or what it does.

S/C Roger, I'll watch it.

Cap Com See any difference in 2C yet, the last reading was 2.0.

S/C No, actually Elliot, it looks like it is down now to almost  $1\frac{1}{2}$  amps now.

Cap Com Roger.

Antigua LOS Antigua.

This is Gemini Control here. You heard the conversation first about that Laser experiment, didn't work out, out at White Sands. Jim Lovell said it way unusually clear out there, they could see the smoke but they did not acquire the light beam. The chances for acquisition are unlikely in a case like that because they were a little more than 250 miles from the source. They will be in a much better position over Ascension and Hawaii later today. That stack 2C amperage is still the biggest puzzler this morning. Since Carnarvon our readings show on stack 2C for amperage 2.4 and at Hawaii it read 1.9, Guaymas 1.6, Texas 1.5. It was approximately over the Texas station that we switched to the open position on the stack and we heard Lovell report a rise. It got up to about 2 and then out over the Island Chain as they started the swing down over the Atlantic, it started declining again. The last reading he gave us was 1.5. The voltage on that particular stack is well up to an acceptable value, over 30, up in the area of  $31\frac{1}{2}$ . We will be taking a close look at that at Ascension, Tananarive, and on around the range. We have ready for you now some Hawaii conversation before we started this long State side pass. We will play that for you now.

Hawaii Gemini 7, Hawaii Cap Com.

S/C Roger, 7 here.

Hawaii Roger Gemini 7. Will you place you DCS circuit breaker to open.

S/C Open.

Hawaii Your TM control switch to real time and Acq aid.

S/C .....

Hawaii Say again.

S/C Roger.

Hawaii Adapter C-band to continuous.

S/C Adapter C-band to continuous, roger.

Hawaii Roger, standing by. Hawaii has TM solid.

Flight Roger.

Hawaii Gemini, Hawaii has C-band track. Gemini 7, Hawaii Cap Com.

S/C Go ahead, please.

Hawaii Roger, we are going to let you in this configuration until Flight advises us to change. The reason for this is we are supporting the pad test on 6, so we will just let you in this configuration.

S/C Fine. Thank you.

Hawaii We show you go on the ground and I have some information for you to copy when you are free.

S/C Standby a minute.

Flight You can start reading him that Hawaii, it is correct.

Hawaii Roger.

S/C Go ahead, Hawaii.

Hawaii Roger, they will be having a manual tape dump over the States and I have a flight plan update when you are ready to copy.

S/C We are ready.

Hawaii Title, node at 166 00 12, rev 104, 173.3 degrees east, right Ascension 10 hours 24 minutes 18 seconds.

S/C Roger, we have it.

Hawaii Transponder test at 167 35 00, sequence 01 at Hawaii. Off at 167 59 00. Apollo at 168 08 29, sequence 58, pitch 30 degrees down, yaw 13 degrees right. MSC-2 and 3, at 168 15 00, sequence 02, same time replace tracer storage accumulator if not previously done. At 168 52 00 crew status

report, Command Pilot Carnarvon. At 169 00 00 bio-med recorder number 1 continuous. Are you with me.

S/C Yes sir.

Hawaii At 169 17 00 crew status report, Pilot, Hawaii. S-5, 169 34 00, pitch 90 degrees down, yaw 0 degrees single. Photograph of the Southern Mexican Yucatan area. MSC-2 and 3, 169 49 00, sequence 03, stop at 170 04 00. At 171 00 00, bio-med recorder number 1 off. Still with me Gemini 7.

S/C Roger.

Hawaii At 171 26 00 PLA update, fuel cell purge over RKV. At 171 35 00 exercise. At 171 45 00 housekeeping period, At 172 10 00 flight plan report, CSQ, at 172 15 00 eat period, At 173 15 00 bio-med recorder to continuous and start sleep period. At 184 15 00 end of sleep period. MSC-2 and 3, 184 15 00 off. At 184 15 00 bio-med recorder number 2 off. At 184 23 00 purge fuel cells, PLA update over Canaries. Copy Gemini 7.

S/C Everything except the last time.

Hawaii The last time was 184 23 00.

S/C I got it now.

Hawaii Roger. He just powered up his platform -- DISREGARD Flight, he powered up his ACME system.

Flight Okay, that's what we thought.

Haw Hawaii had TM and C-band LOS.

Flight Roger Hawaii.

END OF TAPE

This is Gemini Control, Houston at 167 hours, 52 minutes into the flight. A very few minutes ago, exactly 8 minutes ago, we were successful with a Laser experiment over Hawaii. The ground...The spacecraft transmitted successfully a beam...Let me reverse that. The spacecraft saw the ground beacon locked onto the light and did transmit. We are checking...still checking... at Hawaii to see what the effect read out in the ground was. The time of acquisition was 1:15 Central Standard Time. They remained locked on the light beam for approximately 2 minutes. We have the tape of that pass for you, and we'll play it for you now.

HAW C-Band track at Hawaii. They're back to continuance, Flight.

HOUSTON Roger.

HAW Put your Delta C-Band back into continuance position.

S/C In the continuance position.

HAW Roger.

HOUSTON Prepare to receive the automatic summaries now.

HAW Are you reading it?

S/C We're seeing your beacon intermittently. It should.....shortly.

HAW Air track at Hawaii.

HOUSTON Roge.

HAW Gemini 7, look to 080.

S/C Read 080.

HAW If you look at an..at the islands at 020, look generally to the east, and you may be able to pick out the island.

S/C That's the planning commands we got.

HAW Okay. I'm just giving you a general look as you come up over, from what my radar's looking at you. I'm turning you around, so maybe you'll have the general look towardw the island. Okay. Stay

with your mode. Pitch 30 down and yaw 20 right. Then try and look in that general vicinity from the window.

S/C I've got it now, thank's.

HAW Roger.

HOUSTON Our commands are based....

S/C You... yaw 2 right; it's yaw 20 right. Is that correct?

HAW Is that yaw 20 right, Flight?

HOUSTON That's correct.

HAW Roger. Yaw 20 right. 2 zero.

S/C Okay. I thought it was two, but we've got the island.

HAW Okay. Could you give ma a read out of 2 Alpha, 2 Bravo, and 2 Charlie?

HOUSTON You needn't....

S/C I'll get right on it. We already see the beacon.

HAW Roger. Is that good, Flight?

HOUSTON Let him track for a while.

HAW Okay.

HOUSTON Read out here of 2 Charlie is 1.8.

HAW 1.8, Flight, right. Are you picking up the beacon at all?

S/C Nothing at all, but we see the island loud and clear.

HAW Okay. Your transmitting down?

S/C Roger.

HAW Okay. Flight.

HOUSTON Go ahead.

HAW You want an A and a B to update your computers?

HOUSTON Affirmative.

HAW Okay.

S/C Are you that group of buildings on top of the hill?

HAW That's affirmative. Right up on top of the mountain on the north-west portion of the mountains on the island.

S/C And, I got you loud and clear.

HAW Okay. You don't see the beacon at all?

S/C Not a thing.

HAW Can you pick out any of the antennas to the north of the buildings.

S/C There's clouds over the ...to the east of you now.

HAW Okay.

S/C I see a lot of buildings and what looks like antennas scattered around them. I've....the northwest side of the mountain.

HAW Okay.

S/C There's also some smoke, it looks like over the south side of the hill.

HAW That could be true. They're probably burning sugar cane.

S/C That's what it looks like. We're transmitting.

HAW Roger.

S/C .....I got it.

HAW You got the beacon in sight?

S/C The beacon, I think.

HAW Roger.

S/C Is it pretty close to the .....out by the ridge there?

HAW That's affirmative.

S/C Okay, I saw it. I can see it again. I see it again.

HAW Very good.

S/C You're hitting us. You're ..... There it is again.

AW Very good. Try aiming at it.

S/C Okay. Now I got the Laser.

HAW Okay.

S/C It's still with us.

HAW Okay.

S/C Should have got you on that one.

HAW Very good. Stand by. Seven, Hawaii.

S/C Go ahead, Hawaii.

HAW Okay. Have you seen anymore of it?

S/C I don't believe so.

HAW Okay. You're getting pretty far down in the pass; I'd knock it off at this time. Can you give me a read out of section 2?

S/C Roger. Stand by. 2A, 3 amps; 2B, 2.5 amps; and 2C, 2 amps.

AW Okay. Thanks very much.

HOUSTON What's 2A?

HAW 3; 2B, 2.5; 2C, 2.

HOUSTON Roger.

HAW Hawaii Cap Com. If there's nothing further, we'll be standing by.

S/C Thank you.

HAW Seven, Hawaii.

S/C Go ahead.

HAW You can put your adapter back to command.

S/C Roge. How about asking MCC if they picked us up.

HAW Okay. They're copying all that. You in "Command"?

S/C Roger.

AW Flight, Hawaii. Hawaii Cap Com.

HOUSTON Go ahead.

HAW We're having a little trouble with that C-Band beacon when we go to "Command". It drops in and out. It's back on now; I've got them back in the original configuration circuit breaker, as far as the DCS, that is. TM control switch is in command. The adapter C-Band is in command. And, we do have solid lock at this time.

HOUSTON Roge. Do you see the beacon?

HAW I'm unable to raise the Laser people. I'll get a hold of them. As soon as we get them back in the Band, I'll try and give you some more info.

HOUSTON Roge.

HAW Hawaii Cap Com.

HOUSTON Go ahead.

HAW They think they might have gotten something.

HOUSTON An LOS main?

HAW Roger. LOS at Hawaii.

HOUSTON Roge.

Gemini Control, Houston back here. I think it's fair to say that's as excited as we've heard Frank Borman sound on the last 168 hours. No additional information from the ground station in Hawaii as to how things worked out in the Laser Van. That van is manned by communicators from the Ames Research Center, a NASA Center near San Francisco. The third voice you heard in the conversation was that of Ed Findell, a Manned Spacecraft Center Capsule Communicator working at Hawaii. This is Gemini Control, Houston.

END OF TAPE

Houston, here, 168 hours and 11 minutes into the flight. The word from Hawaii is it looks tentatively like they did get a few hits with that Laser transmission of Jim Lovell's. They're busy working on their data reduction right now. We'll probably hear more from them in the next half hour or so. Meanwhile, on the pass across the states there was much additional discussion on the Laser attempt. Jim Lovell suggested that we look seriously into a night pass on one of the stations. Here on the ground the experts concur with that. We have no tentative time for a reschedule of the experiment. Unfortunately, equipment problems have knocked us out from any attempts today with the Ascension Station. Ascension, we hope each day, will be up. Now, it looks like at least tomorrow before it will be ready to support any experiments. Borman confirmed again that he saw it loud and clear. It must have remarkably clear. He could pick out the buildings and even some antenna set ups on top of the mountain in Hawaii. The pattern for the experiment was the pilots were to acquire first, a flashing light and when they locked on that flash would become a steady light. Then, Lovell over that steady light wave was to transmit a 100 pulse per second beam of light from his little shoe box transmitter in the window. There was no conversational attempt in this first series of experiments. When and if that is done with complete success, we'll then go to an eight kilocycle pulse from the spacecraft and finally attempt some voice communication over the light beam. Here now is a rather lengthy pass across the southern United States.

HOU Cap COM Gemini 7, Gemini 7, Houston, do you read?

S/C Roger, Houston.

HOU CAP COM Will you give me a read out on your stack two, section two stacks.

S/C Roger, 2A is reading 2.3 amps, 2B - 2 ½, 2C - 2.

HOU CAP COM Roger. We're planning to do this single stack purge. In preparation for that, we'd like you to put 2C on open circuit and we'll check the voltage at that point.

S/C 2C on open circuit at this time.

HOU Solid TM and all systems look good, we're getting some read out on those stacks.

HOU CAP COM Roger.

GUAYMAS Flight, Guaymas.

HOU FLIGHT Go ahead.

GYM We calculate 1.09.

HOU FLIGHT Your data shows 1.6.

GYM I hope the data is right. We may have got a bad PCM drop out about that time.

HOU FLIGHT You should see it down to.....

S/C Houston this is 7, reading 30.8 on the open circuit voltage D. C.

HOU CAP COM Roger, Gemini 7, let's watch it for a minute and see if it goes up a little bit.

HOU FLIGHT You should be reading zero now he's got an open circuit Guaymas.

GYM We got it before he opened it.

HOU FLIGHT Your summary shows 1.6.

GYM Roger, it's probably dropping down when we punched it up.

HOU CAP COM Gemini 7, did you acquire the Hawaii beacon, Jim?

S/C Roger, Frank got it while I was looking through the Laser. Frank got the beacon. We did have it for some time but Frank had the beacon for some time.

HOU CAP COM Did you actually have the beacon also?

S/C .....garbled...

HOU CAP COM I say, did you actually have the beacon also?

S/C Rog, Frank saw the beacon.

HOU CAP COM I say did you see it also?

S/C I saw it for a moment, <sup>but</sup> then I went from visual into the telescope and began to loose it, green telescope shades everything out.

HOU CAP COM Roger, so you feel your pointing was very good though?

S/C Pretty even, yeah, for the spacecraft it's great.

HOU CAP COM Roger

GYM We show practically zero difference now on the thing.

HOU FLIGHT Rog.

HOU CAP COM What does your voltage look like now, Jim?

S/C About 31 volts Elliot.

HOU CAP COM Roger, we'd like to have you put it back on the line now and after it's stabilized for a few seconds, 30 seconds or so give us a section 2 stack read outs.

HOU Texas remote, California local.

S/C Roger stack read outs coming up. 2A - 3 amps, 2B - 2½, and 2C about 2.

TEX Texas remote.

HOU CAP COM Roger, you want me to read out the procedure for this purge, or do you just want to do it step by step?

S/C Would you do it step by step to make sure we've got the correct procedure?

HOU CAP COM Roger

HOU Go ahead Guaymas. Do you see any difference in the

CAH 2C at this point.

GYM We're showing 1.41 at this time.

S/C Negative 1.5. It's/pretty low. ....2 volts or 2 amps  
still

HOU CAP COM Okay, the procedure is as follows. Cross over open

S/C Cross over is open at this time, it's open.

HOUSTON CAP COM And stack 2A and 2B off.

S/C 2A and 2B going off.

HOU CAP COM Roger. Would you give us a reading on stack 2C average?

S/C Stack 2C now reads 3 amps.

HOU CAP COM Roger. Now, we want a normal hydrogen purge on the section 2.

S/C That's roger. Read flight?

HOU CAP COM Roger, Gemini 7. Let's pause a minute and then we'll be putting 2A and 2B back on. And you can close the cross over any time you want.

S/C Cross over is off.

HOU CAP COM Roger. Do you see any difference in the current yet? Is it still about 3?

S/C Roger, it's 3 amps.

HOU CAP COM Okay, you can put 2A and 2B back on at this time.

S/C Right, 2B is back in a line.

HOU CAP COM And when they settle down a little bit, you can give us stack readouts again.

S/C 2A is 3 amps, 2B - 2½ amps and 2C - 2 amps.

HOU CAP COM Roger, 7, we'll watch it for a while now.

S/C Roger, there's one question that still is my mind, the cross over valve for that purge is in the "off" position. Is that the way you want it?

HOU CAP COM Negative, it should have been in the open position.

S/C You mean "on" position.

HOU CAP COM Roger.

S/C It wasn't that way. ....garbled....off position.

HOU CAP COM Roger. Gemini 7, we'd like to repeat it and do at this time with the cross over valve in the "on" position that is open.

S/C Roger towards the on position.

HOU CAP COM And then 2A and 2B off in the normal purge.

S/C 2A and 2B are off and we go on with the normal purge. Cross over going off.

HOU CAP COM Roger.

S/C 2A and 2B back on the line.

HOU CAP COM Okay. Roger, 2A and 2B back on.

S/C Okay Elliot, let's see, 2A is reading 3, 2B is reading 2½ and 2C is still out there at 2.

HOU CAP COM Okay, we'll watch it for a while here, now. Gemini 7 are you ready for the day's news?

S/C Roger standing by.

HOU CAP COM Defense Secretary McNamara announced plans for a new bomber development yesterday to be a mock II type airplane based on the variable sweep wing concept. It's to go into operation in 1968 and is to replace the B-52's. Everything is "go" for GT-6 tomorrow and we've been in touch with them several times today. And things are going along real fine. Congressman

HOU CAP COM "Tiger" Teague says he plans to introduce a bill making anti-Viet Nam war demonstrations an act of treason. The Pirates' pitcher Bob Friend has been traded to the Yankees and the Chargers play the Oilers here tomorrow.

S/C Thank you.

HOU CAP COM Gemini 7, did you have the transponder switch on over Hawaii for that temperature survey?

S/C No, I goofed on it Elliot, I have to turn -- I was going to ask you when should I turn it on now?

HOU CAP COM Okay, we'll reschedule that for you.

S/C We were so busy with the Laser that we forgot about it completely.

HOU CAP COM Roger, I thought that happened.

S/C The Laser is no great big bathtub of light, it looks more like a speck in a big vast island.

HOU CAP COM Rog. We'll make it work yet.

S/C I saw it loud and clear but it just wasn't what I expected.

HOU CAP COM Do I understand that Jim is unable to keep it acquired real well while he's looking through his sighting device? That the color of the filter there tends to blank it out so that he can't keep in contact with it?

S/C Well, I don't think he really had it long enough to try it, did you Jim?

LOVELL The best idea I think is to pick it up with your eye ball and then go to the digiting on the telescope but what I was trying to do was to eye ball it with the telescope first and I had the..(garbled) on the ... (garbled) scope turned up on the light and the green filter makes it impossible to spot.

HOU CAP COM Roger Jim. To try and do that at night is going to be the only way to really be sure of it.

S/C Roger, I think you ought to look seriously into a night pass some place and make that a high priority.

HOU CAP COM Roger, right now, we're trying to get any kind of pass as you know, we've had the weather problem so much and equipment problems.

S/C Roger. Elliot?

HOU CAP COM Go ahead.

S/C If you get a chance, how about checking with Susan and see how everything is on the home front will ya? I'll talk to you on the next time around, if we get time.

HOU CAP COM            Everything is real fine. The boys are doing particularly good in school Frank.

S/C                      How good?

HOU CAP COM            We'll call anyway and try to get some more specific word, but I did get that word definitely today.

S/C                      Thank you. We're looking for Trinidad now but it's very cloudy down here.

HOU CAP COM            Roger. How would you like a weather forecast for the Cape tomorrow morning.

S/C                      I'll give you one tomorrow. I tell you I think it'll be cloudy unless the sun is shining.

U CAP COM              Roger, we copied that. You probably noticed from that big long flight update we gave you that we're juggling your time somewhat to plan farther on the launch for tomorrow, the GT-6 launch. That's why we changed all your times there. What we're planning in regard to your suit -- or getting you suited is to wait until after the launch because only then will we know for certain ~~just~~ how long the rendezvous is going to take. We'll have plenty of time after that.

S/C                      Roger.

HOU CAP COM As you know, it might even be as much as a day to complete the rendezvous so we didn't want to get you back in the suit early if it were not necessary.

S/C I realize that. Jim's volunteered to spend the next week in the suit.

HOU CAP COM You hear Jim's comment on that.

S/C I might also comment that whoever is computing these pointing commands is doing/a fantastic job, they're right on the money every time.

HOU CAP COM Unfortunately, he heard that. It will give him the big head.

S/C They are really good, we just saw Trinidad, took a picture but through some clouds.

HOU CAP COM Roger. How about giving me one more read out on your stack before we loose you, Jim?

S/C Roger, Elliot, 2A is reading 3, 2B - 2½ and 2C is still barely hanging on to 2, slightly below.

HOU CAP COM Roger.

S/C Elliot, I'd like to reiterate the flight plan 'cause it's going to take a lot more fuel/just to maintain attitude, the vents or the water boiling will build up the rates pretty swiftly.

HOU CAP COM Roger, 7, we're going to work on that.

S/C Thank you

Gemini Control here, Elliot See took Frank Borman's suggestion and checked in at the Borman household and got an "all's well" report there. Here is what he had to say to him going over Ascension Island just a few minutes ago.

HOU CAP COM Gemini 7, Houston, how do you read?

S/C Go ahead, Houston.

HOU CAP COM I just talked to Sue, Frank and she said everything is fine on the home front and she's glad to see you on the downhill side.

S/C Thank you, Elliot.

HOU CAP COM She reiterated that the boys are doing well in school and also she said they thoroughly enjoyed their visit to the Center here on your last pass and your message to them.

S/C Thank you.

HOU CAP COM I have a flight plan update for you on this transponder test, we've rescheduled it when you're ready to copy.

S/C Ready.

HOU CAP COM Okay, time 169 20 00, transponder on, off at 169 35 00.  
Do you copy?

S/C .....(garbled)

HOU CAP COM Gemini 7, did you copy?

S/C ..... (garbled)

HOU CAP COM Gemini 7, did you copy? We have some interference here.

S/C Say again, please.

HOU CAP COM Did you copy the flight plan update?

S/C Negative say again please.

HOU CAP COM Roger, 169 20 00, transponder on, off at 169 35 00.

Do you copy?

S/C Roger, we copy.

HOU CAP COM And how does stack 2C look?

S/C C is 1½ amps.

HOU CAP COM Roger copy, 1.5.

S/C Roger.....(garble).

HOU CAP COM Say again, 7, did not copy.

S/C Carnarvon will probably fix it for us.

HOU CAP COM Still didn't understand you. Gemini 7, we'll contact you again at Tananarive..

S/C ...(garble)

END OF TAPE

Gemini Control Houston here at 168 hours 51 minutes into the flight. We had conversation at Tananarive about 10 or 15 minutes ago and again it was regarding that balky stack 2C. They have elected to turn that switch to the on position again and leave it on there for a specified length of time, 20 minutes, I believe to see what the reaction is. Earlier during our prelaunch press briefing down at the Cape we had some 13 minutes of accumulated tape over various stations. The spacecraft during that period was on a swing between Africa and Hawaii. We have elected to turn those tapes over to the Audio pool and they will appear in your transcriptions that is just for the press benefit. Our Gemini 6 spacecraft clock up on our big board here is presently showing -360 minutes and it will remain at that point till about 1:30 tomorrow morning our time when it will start moving again and then it will meet the launch vehicle at -240 minutes. As I said we have the Tananarive tape, we will play it for you now.

Cap Com Gemini 7, Gemini 7. Houston. How do you read?

S/C Gemini 7, go ahead.

Cap Com Roger, would you give us a stack 2C reading.

S/C  $2\frac{1}{2}$  amps Elliot.

Cap Com We would like to place stack 2C off and we will leave it off through Carnarvon. That will be 20 minutes. We have confirmed this with a test at McDonnell St. Louis for 30 minutes. Do you copy.

S/C Roger, stack 2C (cut-out)

Cap Com You cut out on that transmission Jim, say again.

S/C Roger, it is open circuited now and we will clock it for 20 minutes and we will talk to you at Carnarvon.

Cap Com Roger Gemini 7. This is to inform you that the GT-6 midcount is completed with no problems.

S/C Roger, tell Wally and Tom we will be looking for them and

we will have tea for them.

Cap Com

Roger.

END OF TAPE

Gemini Control here. The spacecraft whipping up across an area we are hopeful a rendezvous will take place tomorrow afternoon, oh, an hour or two later than we have right now. Carnarvon acquired and held a very good voice signal, much higher than normal passes, here's that conversation!

CRO Gemini 7, we have a valid blood pressure, give us a mark before you start exercising.

S/C Mark. Pressure coming down. Pressure full scale

CRD TM's a little noisy this pass.

CAP COM That's Carnarvon

CRO Gemini 7, we have a valid blood pressure. We are standing by for your food, water and sleep report.

S/C Roger. Coming up. The Command Pilot has 563 ounces today and for noon meal we had Day 6 Meal B.

CRD I understand both Pilot, Command Pilot had Day 6 Meal B and Command Pilot had 663 ounces today, I do have have any data on the pilot.

S/C Roger, the pilot had 434 ounce

CRO Understand 434

S/C And that was 563, not 663

CRO Ah copy, Command Pilot 563 and pilot 434

S/C Ah 474 for pilot

CRO 474, thank you.

HOU FLT Tell him <sup>to</sup> open circuit voltage on 2C

S/C Garbled ...any sleep report on that?

CRO Let's break on that - can you a reading on the open circuit voltage on 2C?

S/C The circuit voltage on 2C is all scale live.

CRO Roger

HOU FLT Sounds good, to quote ECCON

CRO Sounds good

S/C Roger, looks like it takes a little longer

CRO Cape Flight, we are showing bus voltage as being way down

HOU FLIGHT Bus voltage is way down?

CRO That affirm, or he's talking to us..I don't know if we've got a problem or what, we've had LOS

HOU FLT We show 25.3 on your summary

CRO On our summary message, uh?

HOU FLT That's affirmative

CRO Okay, we'll get some more check here. It was up at the start of the pass.

HOU FLT ROG

CRO Carnarvon Cap Com, would you turn your TM to command position

S/C The TM is on the command position, Carnarvon

CRO Would you pushe your tape playback switch to the reset position

HOU FLIGHT Why?

CRO I didn't get a TX here

S/C Carnarvon, this is 7 requesting to put 2C back on the line.

HOU FLT Go ahead. Go ahead.

CRO 7?

S/C 7.

CRO Roger, Gemini 7, place 2C back on the line at this time. Okay, we did not get a TX command in and he went over the hill with real time TM off.

CAP COM That's okay. We wanted to keep that beacon up for the RTK.

CRO Oh, okay.

CAP COM Did you get our 2011 Zulu

S/C Well, he's got the thing in the continuous position.

CAP COM It says on there its on the command position, that's what we said on our mission instructions

S/C That's affirmative. My mistake. A total of 7 minutes and 15 seconds worth of TM on that pass, instead of the expected four minutes

HOU FLT Rog. Kauai, Houston Flight.

KAUAI Houston Flight, Kauai Cap Com

HOU FLT If this BGO4, that is the control busses low off scale there we ought to have him check the sequence lights control circuit breaker..

Gemini Control here. That was a crew status report on Frank Borman, of course, over Carnarvon. Over Hawaii they are to turn their transponder on - their L-band transponder. They are also to have a crew status report on Jim Lovell on Hawaii. We will do a transponder test in that area. In the area around California and Guaymas off the southwest coast of the United States we'll do an S5 which is the synoptic terrain weather photography, and over the Cape during this stateside pass we'll turn the L-band transponder off. We have tentatively rescheduled another Laser test for the 108th revolution around the earth over Hawaii. That's a pass that will take the spacecraft directly over the island chain, and they should have an excellent opportunity, just as they did, on the rev earlier to see that beam of light

coming up from the ground. This is Gemini Control, Houston.

END OF TAPE

Houston here. When 7 went over Hawaii a few minutes ago it sounded like this.

Hawaii Gemini 7, this is Hawaii Cap Com.

S/C Go ahead Hawaii, Gemini 7.

Hawaii We have a valid temperature. Standing by for your blood pressure.

S/C Roger, we are turning on the radar transponder now.

Hawaii Roger, understand.

Flight That was already on.

Hawaii Negative Flight, that was the C-band.

Flight Rog, turn it on the L-Band.

Hawaii Cuff is full scale.

S/C This is Gemini 7. Will you inform MCC that our water boiler is venting.

Hawaii Roger, understand. Water boiler venting. Flight, did you copy.

Flight Affirmative.

Hawaii We have a good blood pressure, standing by for your exercise. On your mark.

Flight We would like an A summary after your transponder is on there.

Hawaii Roger.

Hawaii Cuff is full scale.

Hawaii Houston Flight, Hawaii Cap Com.

Flight Go ahead.

Hawaii That B (bravo) chart 04 was reading 25.3 volts. That's bus voltage.

Flight Rog, we see your summary, read on 2 Charlie. We read 1.7 off your summary.

Hawaii Stand by one.

Flight Ask him what he reads too.

Hawaii Roger, will do.

Hawaii Gemini 7, your cuff is full scale but it is not bleeding down.

S/C Okay let's try it.

S/C We are reading 1.76 here.

Hawaii Flight, this is Hawaii Cap Com here. Did you copy.

Flight Affirmative. TCM counts on Juliet Fox 03.

Hawaii Roger, 232. It was at the EOS, it was 232.

Flight Rog.

Hawaii Gemini 7, we have a good blood pressure. Could we have a total reading on your water gun.

S/C 26 83

Hawaii Thank you Gemini 7. We would like to get the pilot to take in more water if possible.

S/C Righto, will do.

Hawaii Thank you, surgeon out.

Hawaii Houston Flight, Hawaii Cap Com.

Flight Go ahead.

Hawaii JF 03 is reading 240 PCM counts.

Flight Roger.

Hawaii Gemini 7, Hawaii Cap Com. Would you give me a stack reading on 2 Charlie, please.

S/C Roger 2C is reading around  $1\frac{1}{2}$  volts, oh, that's right.

Hawaii Say again.

S/C That is affirmative.

Flight LOS main Hawaii.

Hawaii Roger.

Houston here. Since we have played that tape Guaymas has acquired, they say they have TM solid and everything looks good on the ground. We expect that Elliot See will be talking to them any minute. They will probably wait until they clear the area for this S-5 experiment, weather terrain, pardon me, it is an optic terrain photography. Guaymas has been localized, the contact this pass comes straight down the back of Central America across the Isthmus of Panama and then down across Central America. The Rose Knot Victor parked 30 miles off the coast of Brazil will be talking to them in perhaps 10 minutes from now, 10 to 15 minutes. Some conversation on the line, it is mostly Guaymas Cap Com and our Flight Director here. Let's get a listen.

Flight ...a prayer for that 2C tonight.

Guaymas Roger, a good one.

AFD Texas Cap Com, AFD.

Texas Go ahead, AFD.

AFD Okay, are you set up on your command.

Texas Roger..

AFD Okay..

.... AFD, the MDCS will not be on to Texas.

Texas MDCS is on at Texas. We are commanding.

Still no conversation. In general it looks like the weather has started cooperating a little more today, certainly Hawaii was cloud free for the first time in several days. Earlier we were told the crew had a good look at the Texas area, White Sands they saw very clearly today.

Still no conversation. The White Team is in the Room. We are in that period of about 30 minutes when we have at least 2 people at each console going through the change of shift briefing. Taking a very close look at the TM in all the systems right now, particularly in that 2C, section 2 of

the fuel cell.

Texas                    You need not acknowledge this transmission. We have you go  
on the ground. We are standing by.

                         Houston again here. You heard the Texas Cap Com advise that  
we are standing by and they need not acknowledge, so we expect no further  
conversation. Let's take the line down at this time.

END OF TAPE

Houston here on the 107th revolution around the earth, Elliot See finally did raise 7 a little late that pass, and then there followed quite a lengthy discussion covering a number of subjects, among them the Laser experiment which as we advised earlier will be repeated on the 108th rev over Hawaii. Again our test procedure on that particular experiment called for the spacecraft to transmit a 100 pulse per second beam of light to the ground and once satisfied this was working all right the next step in the experiment is to transmit an 8 kilocycle beam from the spacecraft. Having done that then the third mode is to attempt voice communications. We want to make it very clear that no voice communications was attempted during the rendezvous at first encounter some 2 hours ago. We are advised from Hawaii however that they believe they did record some transmissions of that 100 pulse per second cycle and Elliot advises 7 of this in this transmission.

Cap Com Gemini 7, Houston.

S/C 7, go.

Cap Com Roger. I have a flight plan update for you. Are you ready to copy.

S/C Okay, you can give them to us.

Cap Com Node 172 01 19, rev 108, 81.0 degrees east, right Asension, 10 17 13. MSC-4 172 31 11, sequence 05, mode 02, pitch 30 degrees down, yaw 19 right. Use 16-mm camera, nominal settings, 01 frames per second. You have a good Laser track. Use mode 03 also. Do you copy?

S/C Roger.

Cap Com How does that stack 2C look to you now, Jim?

S/C 2 amps now, Elliot.

Cap Com 2 amps, roger. In all this changing around we have done with the fuel cell, have you had the delta P light off at any time.

S/C Negative, it's been on all this time.

Cap Com Roger. 7, we have a report from Hawaii that they believe they received your Laser beam. They will know better when they develop some film. They have to actually develop that film to check their data, but they do have a scope and they believe they received some pulses.

S/C Good, very good. Are we scheduling it again.

Cap Com We are scheduling it again for 108 and we will give it another try then. They are checking the fuel situation. It is possible we may have to terminate the experiments a little early today in order to save enough fuel to cope with this venting. We are definitely keeping an eye on that.

S/C Let's try that Laser though, even if we have to cut something else out, Elliot.

Cap Com Roger, we will do that on a high priority then.  
We believe at the present time that we will have enough fuel for all the presently scheduled activities today, but we will keep up on that.

S/C Thank you. We are not even going to touch the hand controller unless you schedule it, Elliot.

Cap Com Roger.

S/C Except when it starts to tumble pretty swiftly.

Cap Com I get the impression that it goes at it at discrete times, that is, it is not such a continuing thing as it is an occasional pulse, maybe 4 or 5 times a rev, does that sound right to you.

S/C Roger, it is not really a pulse but the thing starts venting and then it just slowly builds up. I just reported one to

Hawaii.

Cap Com Does that happen about 4 times a rev.

S/C No, I don't believe it is quite that frequent.

Cap Com Roger.

Flight Frank.

S/C .....

Cap Com Say again.

S/C You can tell it very easily because the cockpit cools off.

Cap Com The cockpit cools off -- as soon as this venting happens.

S/C When the water boiler boils, it seems like the cockpit cools down.

Cap Com We believe that it is simply venting and not actually boiling.

S/C I don't know, but we are getting a change in temperature with it.

Cap Com Roger. We will take that into consideration here and see if we can add it to analysis.

S/C Thank you.

Cap Com How do you feel about how much tumble you can stand while you are sleeping?

S/C I don't think it bothers us. We didn't even know it until we wake up.

Flight That is what concerns me, you see if you can stand the tumbling then we don't have to worry too much about getting rid of some of that water.

Cap Com Do you feel that the tumbling actually waked you up last night, Frank. You said you noticed it after you waked up and we were wondering if the tumbling caused you to wake up.

S/C I don't think the tumbling did, the coolness more than the tumbling. But we did have a sort of a sensation, at least I did, like we were standing on our head part of the night and this might be attributed with the tumbling.

Cap Com Roger.

Surgeon Jim, could you comment upon the ease or lack of sleeping in the suit as compared as to your having been out of it before.

S/C The suit makes you more immobile for sleeping. You are sort of rigid in the cockpit space. There are hot spots in the suit where your legs are bent back and forth and in the crotch area which are local hot spots and of course damp. No suits, of course, you are sort of vented all over.

Surgeon Roger. Are you operating with all the zippers open the same way Frank was.

S/C No, I have the zipper open in the crotch area, that's all.

Surgeon Roger.

S/C Also with the suit on the helmet, of course, is right at the back of the neck.

Surgeon Roger.

END OF TAPE

\*\*(Includes Tananarive and Carnarvon passes not aired during T-1 GT-6 Briefing)

HOUSTON Gemini 7, how do you read?

S/C Go ahead.

HOUSTON Roger, 7. Could you give us a read out on the stack amperages again, please?

S/C 1A is 3.5; 1B is 4, 1C is 4, 2A is 3, 2B is 2.5, 2C is 1.5 to 2. 2C is slightly under 2.

HOUSTON Slightly under 2, roger. And, 2A was 3.0. Is that correct?

S/C That's correct.

HOUSTON And, 2B was 3.5. Is that correct?

S/C Negative. I said 2.5.

HOUSTON Roger. 2.5. Seven, we'd like for you to do a normal fuel cell purge at this time.

S/C .....normal fuel cell purge. Gemini 7, our water boiler is venting again.

HOUSTON Roger, 7. Water boiler is venting again. Gemini 7, our point here is to observe the results of this purge and if it does not help the situation, you'll probably be doing the high flow purge again as we started to do yesterday.

S/C Roger. Please...the flight plan to allow us fuel for attitude control. However, due to this experiment...venting.

HOUSTON Understand you want us to allow some fuel for the venting control. Is that what you're saying, Frank? Gemini 7, Houston. We understood you to say that we should take into account the water boiler venting in regard to the scheduling of the experiments from a fuel standpoint. Is that correct?

S/C Roger. ....(Garble)...it's venting great.

\*\*(Includes Tananarive and Carnarvon passes not aired during T-1 GT-6 Briefing)

HOUSTON Roger. Gemini 7. Would you verify that the adapter C-Band beacon is on.

S/C Roge. It is.

HOUSTON And place your TM switch to command.

S/C TM switch is on command.

HOUSTON Roger.

S/C Purge complete.

HOUSTON Roger. Understand purge complete. What does the stack 2C amperages read now, Jim?

S/C 1.5 amps.

HOUSTON Roger. Gemini 7. I think we're about to loose contact. Do you notice any change in stack 2C at this point?

ASCENSION This is the Cap Com, Ascension. We didn't read you. Would you say again, please?

HOUSTON I was talking to the spacecraft. I guess they're out of contact now.

TAN Tananarive has acquisition.

HOUSTON Gemini 7, Gemini 7, Houston. How do you read?

S/C I can hear you. Go ahead.

HOUSTON Roger. Can you tell us anything new on stack 2C?

S/C 2C registering the same; about 1.5 amps.

HOUSTON Roger, 7. We'll be standing by.

TAN Tananarive has LOS.

CRO Gemini 7, Carnarvon Cap Com. Would you turn your TM switch to "Real Time Acq Aid" position.

S/C Roger. TM at "Real Time Acq Aid" and the fuel cell 2C stack is on the low side of 1.5, it appears to be.

\*\* (Includes Tananarive and Carnarvon passes not aired during T-1 GT-6 Briefing)

CRO Roger. Thank you.

HOUSTON What do you read?

CRO Stand by. We just got TM. We'll have to do a little calculating here. Gemini 7. Would you turn your C-Band beacon to a continuous position, please?

S/C C-Band is on continuous.

CRO Roger.

HOUSTON Carnarvon Systems, Houston Flight.

CRO Go ahead, Flight.

HOUSTON We've got an update for them on MSC-4. Please copy. 167:43:24, Sequence 05. Mode 01. Pitch 30 degrees down. Yaw 20 degrees right. This is over Hawaii on the next pass. On this coming up pass.

CRO Check, copy. Gemini 7, Carnarvon Cap Com.

S/C This is 7. Go ahead.

CRO We have an update on MSC 4 experiment for you, when you're ready to copy.

S/C Roger. Stand by.

CRO Flight, 2C is reading 1.84 on the ground.

S/C Go ahead, Carnarvon.

CRO Alright, Roger. MSC 4. Time 167:43:24. Sequence 05. Mode 01. Pitch 30 degrees down. Yaw 20 degrees right. That'll be over Hawaii this pass.

S/C We copy.

HOUSTON Roger.

HOUSTON Also like to have them transmit from their beacon regardless of whether they see it from the ground or not.

\*\* (Includes Tananarive and Carnarvon passes not aired during T-1 GT-6 Briefing)

CRO            Would like to have you transmit on your beacon regardless of whether you see it on the ground or not.

S/C            Will do.

CRO            We'd also like to know whether you are using the special Laser telescope on your last pass over the States?

S/C            That's affirmative. I was using both. I was using the telescope and also just eyeballing it.

CRO            Okay. And, did you do any transmitting?

S/C            Roger. I did a few seconds transmitting at our closest point on approach.

CRO            Roger. Would like to have you leave the adapter C-Band beacon on for tracking over the RTK and up to Hawaii.

S/C            Roger.

CRO            Apparently he still has that DCS circuit breaker up when we had him turn TM and C-Band on manually.

HOUSTON        Yea. Let's leave it that way. As long as we're up with the Pad here.

CRO            Roger. That's what we figured on doing.

HOUSTON        Tell him that it looks like that amperage is up slightly, on the ground computation.

CRO            Gemini 7, Carnarvon. The ground computations show that your amperage is up slightly.

S/C            That's right. It went up over Carnarvon.

CRO            Roger.

S/C            You guys do good work.

CRO            I don't see how we could help on that.

\*\* (Includes Tananarive and Carnarvon passes not aired during T-1 GT-6 Briefing)

HOUSTON            Tell them that there is a possibility that White Sands was not boresighted on that last pass.

CRO                There's a possibility that White Sands was not boresighted on that last pass.

S/C                That's our conclusion.. Boy, we had it dead to rights.

CRO                Roger. Our calculations show that its up to 246 right now.

HOUSTON           Roger. 246.

CRO                2.46. Gemini 7, Carnarvon.

S/C                Go ahead, Carnarvon.

CRO                Roger. Our ground calculations at the present time are showing 2.46 amps.

S/C                Let me scratch it down here and see what I can read. I'm reading close to 3 amps now.

CRO                Roger. Very good.

HOUSTON           Tell him to scratch down more and get it up to 5, will you.

CRO                Flight says scratch down just a little more and get it up to 5, would you.

S/C                I'm doing my best.

CRO                Roger. I'm up to 283 on the ground now. Apparently that purge did the right thing, Jim.

HOUSTON           Something's doing the right thing. I think just talking about it helps it go up.

CRO                I'm sure it did. Gemini 7, Carnarvon. We're on LOS shortly. Would you turn your TM back to the command position.

S/C                Roger.

\*\* (Includes Tananarive and Carnarvon passes not aired during T-1 GT-6 Briefing)

CRO                    You ought to see the big smiles on these systems engineers' faces.  
That's the most excitement they've had in a long time.

HOUSTON               Roger. Ask if they'd like to join our experts here.

CRO                    We might get a negative on them. Our LOS showed the calculation  
down to 2.46.

HOUSTON               Say again.

CRO                    Our calculations at LOS showed it down to 2.46.

HOUSTON               How about holding your pumper there; and we'll give you the word  
to send us an auto summary as soon as we get our computers back  
up in about 15 minutes.

CRO                    Roger. Will do.

HOUSTON               Thank you.

END OF TAPE

This is Gemini Control. Gemini 7 is sweeping down toward the west coast of South America ready to begin its 108 revolution. On its 108 revolution, over Hawaii, it will attempt once more to perform the MSC 4 Laser communication experiment. This experiment will be performed with an 8000ths pulse signal and possibly voice communications between the Gemini 7 crew and the Hawaiian tracking station. The situation in Hawaii is daylight. This is not necessarily what we had hoped to get. We had hoped to get a bank pass over Hawaii, but we will attempt once more to get a fix on the ground beacon, the Laser ground beacon, at Hawaii, and for the spacecraft crew to find that beam and acquire it with their onboard transmitter. This is Gemini Control at 171 hours and 11 minutes into the flight of Gemini 7.

HAW Seven, Hawaii Cap Com.

S/C Go ahead, Hawaii. This is Gemini 7.

HAW Roger. We show you go on the ground. I'll get back to you in a second.

S/C Roger.

HAW A couple of questions to ask you here. First of all, how much time do you have left on your D-4, D-7 tape recorder?

S/C Just a moment; I'll look it up. About 8 minutes and 10 seconds left.

HAW Roger. Copy. 8 minutes, 10 seconds. Okay. I'd also like to have your evaluation of the weather over Hawaii. If you're in a position that you don't have to use maneuvering.

S/C Roger. Could you give us CPA reading?

CRO CPA, right.

HOUSTON That's closest point of approach.

S/C We're just tumbling now, and if we have a good idea just exactly what time we go over the islands, we could see if we're looking we could check it.

HAW Roger. We'll give it to you. It's a TCA on my mark. Mark.

S/C Roger. ...(Garble)...before we can give you a good evaluation.

HAW Roger.

S/C Has it cleared any since the last time we made the Laser?

HAW Say again.

S/C We wonder if it's cleared any since the last time we tried the Laser?

HAW Roger. It has, quite a bit.

S/C I see the islands now. I'd sure like to try it again, if it's not bad. I'd like to give it a whirl anyway.

HAW Roger. We'll keep Houston advised of the weather situation here.

S/C Cloudy, cast, or broken?

HAW Broken.

S/C Okay.

HOUSTON Hawaii Cap Com, AFD. Hey, Cap Com, AFD.

HAW AFD, Hawaii Cap Com.

HOUSTON Roger. I would like you to advise the crew that the fuel cell purge over RKV at time 171:26 minutes is deleted and it's been changed to RKV the next rev at time 173 plus 01.

HAW What was that first time? 171:26.

HOUSTON Roger.

HAW Gemini 7. We have a slight flight plan change here for you. Are you ready to copy?

S/C Ready.

HAW The fuel cell purge due over the RKV at 171 plus 26 has been deleted. Have a fuel cell purge over the RKV at 173 plus 10.

HOUSTON Zero 1.

S/C Understand the fuel cell purge for 171 plus 26 has been deleted. We're now going to purge at 173 plus 10. Is that right?

HAW Negative. That's 173 plus 01.

S/C The new purge time is 173 plus 01?

HAW Roger. Still have ... of that tape recorder on?

S/C Affirmative.

HAW Roger. You can turn Number 1 off.

S/C Roger. One is off.

HOUSTON How did the dump go, Hawaii?

HAW We haven't completed the dump.

HOUSTON Roger.

S/C Say, will you ask Houston how long we should leave 2C on. When we should shut it down if the figures get below one figure?

HAW Roger. Will do. Houston Flight, did you copy?

HOUSTON Roger. We heard that. We'll advise them over the RKV.

HAW Roger. We...You will be advised of that over the RKV.

S/C Thank you.

END OF TAPE

This is Gemini Control at 171 hours and 20 minutes into the flight of Gemini 7. The 7 crew has just begun its 108 revolution around the Earth and is headed across South America on a southeasterly sweep. We've just had a status check; Mission Control and the World Network reported everything is go. The spacecraft is go. There has been very little voice communication between the ground and the crew; but they are preparing, as we know, at another attempt at a Laser communication experiment over Hawaii in about one hour from now. Meanwhile, we'll be standing by at Mission Control. This is Gemini Control at 171 hours and 20 minutes into the flight of Gemini 7.

END OF TAPE

This is Gemini Control. Gemini 7 is crossing the South Atlantic after having crossed the Rose Knot Victor Tracking Ship off the east coast of South America, and it is now in its 171st hour and 38 minutes of flight. We have a tape of the conversation between the Rose Knot Tracking Ship and the Gemini 7 crew and we'll play that tape for you now.

RKV AFD, RKV. . .

S/C Go ahead.

RKV Section 2 Charlie - 1.decimal 32.

S/C Roger.

RKV Gemini 7, RKV.

S/C This is 7, go ahead.

RKV Roger. I've got a blackout period for you if you're ready.

S/C Roger. Stand by.

Ready to copy.

RKV Roger. (garbled)..... for all areas is 21 plus 40. Area 111-3: 176 34 57. Area 112-Bravo: 178 09 57. Area 113-Delta: 179 08 38. Area 114-2: 180 44 24. Area 115-2: 182 17 29. Area 116-2: 183 50 35. Area 117-1: 185 23 05. The weather is good in all areas.

S/C Roger. Flight, was that area 111-Delta?

RKV Negative. It was Area 111-3.

S/C Roger. And what was the Delta area .....?

RKV That was Area 113-Delta.

S/C I understand. 113-Delta. Thank you.

FLIGHT RKV Cap Com, AFD.

RKV Go ahead, AFD.

FLIGHT Roger. In Area 117-1, the time should be 185 23 07.

I believe you passed up the 05.

RKV Gemini 7, RKV.

S/C                    Go ahead, RKV.

RKV                    Would you read me your Delta Area 117-1?

S/C                    Roger. 117-1 - 185 330. You gave me - you gave me 7 digits  
                         there.

RKV                    Roger. I'll do it again. 185:23:07.

S/C                    Roger. 185 23 07.

RKV                    Flight, this RKV.

FLIGHT                Go ahead, RKV.

RKV                    .....This got a lot of printouts on the stack currents.  
                         2C is still reading 1.33.

FLIGHT                Roger.

RKV                    RKV has LOS.

                         You have been listening to a taped playback of the communication between the Rose Knot Tracking Ship off the east coast of South America and the Gemini 7 crew now approaching the west coast of the southern tip of Africa. The crew should now be entering a housekeeping period, where they'll be straightening up some of their stowage in preparation for a laser experiment over the Hawaiian Islands in about 45 minutes. This is Gemini Control.

This is Gemini Control. At 172 hours and 06 minutes into the flight of Gemini 7. The 7 is now approaching on its 108th revolution, southeast Asia. It has just recently passed the Tananarive Tracking Station off the east coast of Africa, where unfortunately, the crew was informed that the MSC-4, the Laser Experiment, would not be attempted on this revolution. The reasons given were that there are broken overcast clouds over there, a bad sun angle, and they would rather attempt the experiment later at night. Let's get into a tape of that pass over the Tananarive Tracking Station now.

CAP COM Gemini 7, Gemini 7, this is Houston Cap Com, over.

S/C Go ahead, Houston.

CAP COM Roger, Gemini 7. I got an update on your flight plan if you're ready to copy.

S/C Be ready in a minute.

CAP COM Okay, Gemini 7. We're being forced to scrub the MSC-4 at Hawaii. We've looked at it pretty closely from all directions. This is the MSC-4 at 172:31:11. The weather is broken overcast, you've got a bad sun angle, and the experimenters would rather wait for a Hawaii night, or very early morning pass, rather than go ahead and try it now. It doesn't look too good at all.

S/C All right. Thank you.

CAP COM Okay. And I've got a D-4/D-7 update.

S/C Right.

CAP COM Okay. D-4/D-7 at 172:38:57. Sequence 427. Mode 02. Pitch - 12 degrees down, Yaw - Niner 5 degrees left. .... low, right to left for a total of 5 minutes. Is 30 seconds recorder maximum and use cameras.

S/C Gene, we have it.

CAP COM Roger. Understand you've got it. We'd like a prop quantity readout, please.

S/C Our propellant quantity reads 93- - - 94 percent.

CAP COM Roger, understand. 74 percent.

S/C ..... correction, I'm sorry - 24 percent.

CAP COM Roger. 24 percent. We got it.

S/C 24 percent.

CAP COM Understand. 24 percent.

S/C Right.

CAP COM Okay. And I'd like to advise your pass over the CSQ will be UHF 6.

S/C Thank you.

CAP COM Okay. And Frank, we're taking a good look at your fuel cell at this time and we'll advise you as soon as we come up with some reasonable conclusions on it.

S/C Thank you.

CAP COM Gemini 7, Gemini 7, Houston CAP COM.

S/C Go ahead, 7.

CAP COM Roger, Frank. We'd like you to turn your Section 2 power switch OFF at this time. We'd like to monitor it for about a rev. We'll probably bring it back on at the RKV this next pass and w'll advise you further at that time. Over.

S/C Section 2 power?

CAP COM That's affirmative. Your Section 2 power switch to the OFF position.

S/C 2 off.

CAP COM Okay.

S/C 7 LOS.

This is Gemini Control. Gemini 7 is now approaching the Coastal Sentry Tracking Ship in the Pacific Ocean. I believe the crew has been talking, or has been acquired, by the tracking station. Let's tune in live on that conversation now.

FLIGHT CSQ Cap Com, Houston Flight.

CSQ Go ahead, Flight.

FLIGHT Roger. We'd like some open-circuit voltages on the entire Section 2. 2 Alpha, 2 Bravo, and 2 Charlie.

CSQ That's roger, CSQ.

Gemini 7, CSQ.

S/C Gemini 7 CSQ. Go ahead.

CSQ Roger, Gemini 7. Can you verify that the crossover switch is in the ON position?

S/C I can verify that the crossover switch is in the OFF position.

CSQ We want it in the ON position.

S/C Roger. (garbled) is in the ..... position.

CSQ Roger.

Gemini 7. We would like open-circuit voltages on 2 Alpha, 2 Bravo, and 2 Charlie.

S/C Roger, CSQ coming up.

2 Alpha is off-scale high above 32 volts. 2 Bravo is off-scale high above 32 volts, and so is 2 Charlie off-scale above 32 volts.

CSQ Roger, Gemini 7.

Gemini 7, we're standing by for your flight plan report.

S/C Roger, Gemini 7. As to the film situation - we've used 2 magazines plus 40 exposures of S0217. Of the ASA64. (garbled) plus 3 feet of 16-mm film. Five exposures of dim-light black and white. 70 exposures of color-shifted IR. We have not used

any of the ASA 500 S0217. The Command Pilot's total in column 5 is 18. Column 6 is 4. The Pilot - column 5 is 17 and column 6 is 2. Pilot this morning on the S-8/D-13 vision test missed three. The Command Pilot missed seven.

CSQ Roger, copied.

S/C That's right in. We've accomplished everything else in the flight plan except the things that Flight has been informed of already.

CSQ Roger, Gemini 7.

Gemini 7. We'll have a complete briefing over the RKV on the next pass on your fuel-cell status.

S/C Roger. Thank you.

CAP COM CSQ, Cap Com, AFD.

CSQ Go ahead, D.

CAP COM Roger. We need another main summary.

CSQ Roger.

Flight, CSQ

FLIGHT Flight, CSQ.

CSQ Roger. The crossover switch was in the OFF position at acquisition. We had them put it ON.

FLIGHT Roger, thank you.

CSQ Flight, CSQ.

FLIGHT Go ahead, CSQ.

CSQ We have a 1 Alpha count of 6 decimal 06. 1 Bravo 6 decimal 86. 1 Charlie computed 5 decimal 3.

FLIGHT Roger. We have your summaries.

CSQ Flight, CSQ. He has just powered up and .....

FLIGHT Roger.

FLIGHT Roger, CSQ. Let's have another LOS Main and an A summary, please.

CSQ Roger, will do.

We're getting nose full thrust right ..... Flight.

FLIGHT Roger.

FLIGHT CSQ Cap Com. Houston Flight.

CSQ Go ahead, Flight.

FLIGHT Do you have indications on Baker Baker 04?

CSQ That's affirmative.

FLIGHT Okay.

This is Gemini Control. You have been listening to a live transmission between the Gemini 7 crew and the Coastal Sentry Tracking Ship. Gemini 7 is now on its way toward Hawaii on its 108th revolution, 172 hours and 18 minutes into its flight. Right now the crew aboard Gemini 7 is preparing to eat, and in the middle of its eat period - eating period - somewhere over Hawaii, or just after Hawaii, they will begin a D-4/D-7 Experiment. That experiment is taking radiometric measurements of objects in space, maybe - usually the stars, or the moon. However, they are in the middle of a day, an orbital day, the sun is shining very brightly over there right now and after that experiment and they have finished their meal, the crew aboard Gemini 7 will get ready to go into a sleep period, which begins somewhere in the very beginning of its 109th revolution later. At 172 hours and 19 minutes and 14 seconds into the flight of Gemini 7, this is Gemini Control.

END OF TA PE

This is Gemini Control, at 172 hours and 44 minutes into the flight of Gemini 7. Gemini 7 is now on its 108th revolution getting ready to begin its 109th, having just crossed the Hawaiian Islands a few minutes ago. Originally we had planned to conduct a MSC-4 Laser experiment over the Hawaiian Islands, but the experiment was scrubbed because a broken overcast - this means there was more than 50 percent cloud cover and the results would have been hard to predict. Also there was a bad sun angle there and they decided they would rather attempt this at night when the crew thinks it might be able to spot the Laser beacon on the ground more readily. We have a taped conversation between the Gemini 7 spacecraft and the Hawaiian tracking station and we will play that tape for you now.

HAW Gemini 7, Hawaii Cap Com.

S/C . . garbled . .

HAW Okay. We show you go here on the ground. How are you doing?

S/C We are still . . garbled . .

HAW Okay. We would like a little evaluation of what that Laser looked like to you as far as light intensity.

S/C Wasn't too bright. And the thing that impressed me, I thought that up here the ah - it would be bigger than just a small flash like that. It looked rather small.

HAW We've got a very narrow beam width .008.

S/C I'd run into couple hundred miles out side of . . garbled . . wider than that.

HAW I think they are going to widen it up a little bit for you.

S/C                    Yea. If we get good weather there is absolutely no problem acquiring. I had that colder than a mackerel.

HAW                    Very good.

S/C                    Looks like a nice little bed you all have up there on that mountain top.

HAW                    Say again.

S/C                    Looks like a nice little camp you all have up there on that mountain top.

Flight                Can they compare to a star of known intensity?

HAW                    Say again Flight.

Flight                Have them compare it to a star of known intensity. One of the ones he uses.

HAW                    Okay. Compare as far as the intensity goes to some star that you are aware of.

S/C                    Off hand I would say it was on the order of Rigel, maybe.

HAW                    Okay, thank you.

S/C                    Hawaii, this is 7.

HAW                    Go ahead.

S/C                    We've got the island again. Looks like sort of broken overcase, is that correct?

HAW                    Yea. Last time outside it looked like, oh about 5000 broken, 6 tenths covered - about 7 tenths covered.

S/C                    The . . garbled . . part of the island looks pretty good. But your end has some cloud coverage over it.

HAW That figures. Got to run my hotel.

S/C Looks pretty good. Looks like most of the island is uncovered.

HAW I think I'm going to spend the night up here tonight.

S/C Hey, you ought to go to Honolulu. Looks pretty clear down there too.

HAW You mean Hondolurie.

S/C Yea. All looks pretty cloudy though.

HAW Alright Hawaii, Flight, I've got some pressures here if you would like them.

Flight Okay, go ahead.

HAW Okay. ECS O<sub>2</sub> pressure is 865 psi. Fuel cell O<sub>2</sub> pressure 915 psi.

Flight Stand by. Cell O<sub>2</sub>?

HAW Fuel cell O<sub>2</sub> pressure 915 psi.

Flight Okay.

HAW Fuel cell H<sub>2</sub> pressure 231 psi. Okay, stand by on that fuel cell O<sub>2</sub>. That doesn't look right. Let me take a look at it flight. 915 psi.

Flight Roger.

HAW Supper.

S/C Pilot had a little tuna salad, a little orange drink. And he forgot what he ate for dinner last night too. Give my regards to the chef, will you? Wish we had one.

HAW Up, Flight.

Flight Okay Hawaii

HAW LOS

Flight Roger, Hawaii

MISSION COMMENTARY TRANSCRIPTS, 12/11/65, 6:15 p.m.

Tape 302, Page 4

This is Gemini Control. We are just a few minutes now from the beginning of the 109th revolution at 172 hours and 48 minutes into the flight of Gemini 7. This is Gemini Control.

END OF TAPE

This is Gemini Control. Gemini 7 has just passed the Rose Knot tracking ship off the east coast of Africa and has begun its 109th revolution. It is now 173 hours 11 minutes into its flight which began last Saturday. All systems are reported go and Dr. Fred Kelley, our flight surgeon reports the pilots are go. This activity you will hear on the taped conversation between the crew of Gemini 7 and the Rose Knot mostly concerns itself with the purging of the fuel cells. That tape transcription now.

RKV Gemini 7, RKV Cap Com.

S/C RKV go ahead.

RKV Roger. We'd like to know whether you've been monitoring your open circuit voltage on section 2?

S/C We sure have. Section 2 failed to go on scale high by 12:30 today.

RKV Aren't you on scale height?

S/C Roger. We're on scale height.

RKV Have you noticed any deviations or fluctuations at all?

S/C It's a little low. . . garbled . .

RKV Roger.

S/C We still have a Delta P though, RKV

RKV Roger. Would you like to go . . garbled . .

Flight Affirmative.

RKV Would you bring the section 2 power switch to high and also leave the cross over switch on.

S/C Roger. Leave the cross over on; 2 power switch to high.

RKV Roger

S/C Looks like I carry about . . garbled . .

RKV Roger.

Flight How do they look on the ground?

S/C . . garbled . . 5 amps.

Flight How do they look RKV? How does he look on the ground?

RKV They look all right Flight. I think we ought to go ahead with the purge.

Flight Okay, go ahead.

RKV We are standing by. We'd like you to purge both sections.

S/C Roger. Purge both sections.

Flight Give us your main summary, RKV.

RKV Coming at you, Flight. Place your quantity read switch to ECS O<sub>2</sub> - fuel cell O<sub>2</sub> - fuel cell H<sub>2</sub>. Place your quantity read switch to off. Purge is on the right track.

Flight Roger.

RKV Figures show C about 1.95.

Flight Roger. Let's have your summary. Summary.

RKV Okay.

Flight I know they are . . at LOS, Bill

RKV Roger. Purge count, it looks like 2.10 here now.

Flight Roger

RKV According to our figures on the A or B.

Flight Roger. We got the same conditions here.

S/C . . garbled . . powered up again tonight?

RKV Roger, we'd like you to leave the power switch on for CSQ. We'll give you some more data when you get to CSQ.

S/C . . garbled . .

Flight Bill, if you've got time, and it looks like it, you can give him OAMS summary you've got out there.

RKV Okay. We got your information here on the OAMS status.

S/C Go ahead.

RKV Okay. Your quantity pressure shows you have 47 pounds of OAMS fuel remaining. And this is actual 26.5 percent. Your onboard rates should read . . garbled . . this time. This puts you about 3 pounds above the minimum and we want to keep you here until lift-off.

S/C . . garbled.

RKV Incidentally, we have budgeted a total of 9 pounds of fuel for <sup>an</sup>extingency, such as venting which is included . . . garbled.

S/C Thank you.

RKV Flight, RKV

Flight All right, RKV.

RKV . . garbled . . doing better. We've got 221 . .

Flight Yea. We're watching it here.

S/C RKV, tell Houston, we have no . . garbled.

RKV Roger, will do.

Flight We got it.

S/C RKV

RKV                    Yea, we copied that.    RKV, LOS.

Flight                Roger, RKV, good pass Bill.

At 173 hours and 16 minutes into our flight and into the middle of our orbital flight, Gemini 7 is crossing the South Atlantic toward the southern tip of Africa. This is Gemini Control

END OF TAPE

This is Gemini Control. Gemini 7 is about to cross Africa for the 109th time. And its 173rd hour and 20 minutes of flight since lift-off a week ago; halfway through its 14-day mission. The Gemini 7 crew, and the world tracking network, and the Mission Control Center are all in a green and "go" condition, halfway through this long duration flight and preparing for Gemini 7 and Gemini 6 to rendezvous tomorrow. In a few minutes the crew will begin a long sleep period; not necessarily sleeping, but resting. After breaking into the daylight over the Pacific Ocean the sleep period will begin. This is Gemini Control.

END OF TAPE

This is Gemini Control, 173 hours and 56 minutes into the flight of Gemini 7. The spacecraft has just passed over the Coastal Sentry tracking station, and even though its sleep period had begun, the Coastal Sentry tracking ship did pass up some information to the spacecraft and we have the information on tape. We will play that tape for you now.

CSQ Gemini 7, CSQ Cap Com.

S/C Gemini 7, Go ahead CSQ.

CSQ Flight CSQ.

Flight Go ahead CSQ.

CSQ Roger. Main bus current on at 11.5 <sup>main</sup> and/bus current 2 -  
at 6.11 amps.

Flight Roger. We want to go open circuit.

CSQ Roger. We are going power switch off on section 2.

Flight That's affirmative. And we will stay that way through the  
sleep period.

CSQ Roger, understand.

S/C Pulse . . garbled . .

CSQ Roger I got it. We want you to put your section 2 switch  
to OFF and you will remain that way through the sleep period.

S/C . . garbled . .

CSQ Say again, I did not copy.

S/C Say you want section 2 OFF with the power switch ON

CSQ That's affirmative.

S/C Say you want the cross-over valves left ON.

CSQ                   That's affirm.

S/C                    Okay

Flight                Negative. The cross-over valves should be left closed.

CSQ                    I understand, closed, Flight.

Flight                Roger. It's at the bottom of your TWX.

CSQ                    Flight, you want the valve closed, which way do you want the switch?

Flight                Stand by. Switch should be off.

CSQ                    Roger, copy OFF. Gemini 7, CSQ. We would like that switch to be in the OFF position. Cross over switch to the OFF position.

S/C                    Roger, cross over switch to OFF position.

CSQ                    Roger. . . . garbled . . in continuous.

S/C                    Roger . . garbled . .

CSQ                    . . garbled . . for the sleep period is as follows: ECS O<sub>2</sub> OFF, fuel cell O<sub>2</sub> in AUTO, fuel cell H<sub>2</sub>, prior to going to sleep want you to bring that one to a nice one of 510.

S/C                    How about 390?

CSQ                    We'll monitor that from the ground

CSQ                    . . . garbled . .

Flight                Negative. That's unnecessary.

CSQ                    It's not necessary. Could you give me your sleep configuration as far as headset gear, et cetera.

S/C                    Command pilot has orbital flight suit on and the pilot will have the regular flight suit on . . garbled . .

CSQ                    Neither will have on gloves and negative headgear.

S/C No gloves no headgear.

CSQ Roger, copy. Flight CSQ, section 2 powered down.

Flight Roger, give us . . garbled main.

CSQ Roger.

Flight You want to get the water intake on the pilot and copilot . . garbled . .

CSQ Roger . . garbled . . the pilot is 498 ounces and the command pilot 585. . . garbled . .

Flight Okay.

CSQ . . . garbled . .

Flight Yea, you might as well.

CSQ Roger. Gemini 7, the section 2 power switch was turned OFF . . garbled . . to produce water.

S/C Roger

Flight That's all you need.

CSQ . . garbled, flight

Flight Roger Delta P lights or anything out there on the ground? BBO4 is it still with us?

CSQ . . garbled . .

Flight Say again.

CSQ We didn't have an ACK pickup.

Flight Okay, why don't you have them check the ACK beacon circuit breaker?

CSQ Gemini 7, CSQ. Would you check your ACK beacon circuit breaker?

S/C Closed.

CSQ We got it now Flight.

Flight                    Roger

                          This is Gemini Control. The sleep period for Gemini 7 has begun and the crew is scheduled to end the sleep period at 6:35 a.m. Central Standard Time. At 174 hours and 1 minute into this flight, this is Gemini Control.

END OF TAPE

MISSION COMMENTARY, 12/11/65, 7:50 p.m.

Tape 306, Page 1

This is Gemini Control. We are 174 hours and 20 minutes into the flight of Gemini 7 which is fast approaching the west coast of South America and the beginning of its 110th revolution. The crew is in its rest period and Gene Kranz, and the Flight Directors here at Mission Control are about to begin their eat period. This is Gemini Control.

END OF TAPE

This is Gemini Control at 175 hours and 20 minutes into the flight of Gemini 7. The crew is in a sleep period scheduled to last until 6:35 a.m. Sunday, Central Standard Time. At this very moment Gemini 7 is passing over China on it's 110th revolution and appropriately enough, here in Mission Control Center, we are eating a Chinese dinner. Which opened up with Ramoki, egg rolls, barbecued ribs won-ton, almond gidin, sweet and sour pork, mandarin duck, fried rice, and steak cubed. This was provided by a Houston restaurant and the Mission Control Center personnel have gorged themselves, and are ready to go into a briefing on tomorrow's rendezvous exercise. At 175 hours and 21 minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control, at 176 hours and 20 minutes into the flight of Gemini 7, which is now on a northeasterly pass across the South Atlantic, having just left the east coast of South America. The Gemini 7 crew is in a sleep period in the middle of another orbital night. There has been no communication with them since their sleep period began an hour or so ago. Meanwhile at Cape Kennedy we have a report on the preparation for the Gemini 6 launch scheduled for 9:54 a.m. Eastern Standard Time, Sunday. And here is that report: They have fueled the Gemini launch vehicle. The fueling began at 6:00 p.m. Eastern Standard Time and was completed at 9:15 p.m. Eastern Standard Time. Men are cleaning up Complex 19 in preparation to pickup countdown at 3:29 a.m. for the spacecraft and 5:29 a.m. for the launch vehicle. The crew for Gemini 6, astronauts Schirra and Stafford, went to sleep at about 9:00 p.m. Eastern Standard Time. The forecast around the Cape for launch time tomorrow is a 5,000 foot broken ceiling; winds from 8 to 10 knots from the south southeast; mild temperatures between 68 and 70 degrees Fahrenheit; and two to three feet waves off shore. The word from the Cape is "we are GO." We are also GO in Mission Control and they are GO aboard Gemini 7 as they make their silent sweeps around the world on their 111th revolution at 176 hours and 21 minutes into the flight. This is Gemini Control.

END OF TAPE

This is Gemini Control. Gemini 7 is 177 hours and 20 minutes into its flight, or as Flight Director Gene Kranz prefers to say, has 152 hours and 37 minutes to go. The spacecraft at this time is over the Canton Islands, the Canton Island tracking station, but it is making a silent pass with the crew in its sleep period. It is in its 111th revolution passing over the Pacific Ocean. At this time - at this same elapsed time in August - August 28, astronauts Cooper and Conrad were in their 112th revolution over the same general area. Their revolutions - their being 1 revolution ahead because of the wider inclination of their orbit and the lower altitude of their orbit. Sometime tomorrow, during the noon hour, Gemini 7 will eclipse the record of 190 hours and 56 minutes of space flight set by astronauts Cooper and Conrad last August. Right this minute, the Blue Team, with Flight Director John Hodge, is moving into the Mission Control Center to relieve the White Team, which will be shortly leaving for its press conference. So at 177 hours and 21 minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control, 179 hours and 20 minutes into the flight of Gemini 7. We are just now beginning the one-hundred and thirteenth revolution of Gemini 7. Our next station to acquire the 7 will be the Rose Knot off the east coast of South America. The crew of Gemini 7 is asleep and have been for some time. Pilot James Lovell went to sleep about five hours ago, and Command Pilot Frank Borman about three and a half hours ago. When Gemini 7 is over the ship -- tracking ship Rose Knot in a few minutes, a tape dump of onboard telemetry is scheduled. The Control Center here began to reconfigure about an hour ago to support Gemini 6 for the Sunday morning launch. Gemini 7 is now shown on our world map here in the Control Center as an Agena vehicle, which it will continue to be shown as throughout the rest of the mission involving Gemini 6. The Control Center will begin supporting the Gemini 6 countdown at the Cape at 2:29 a.m. CST. With the Gemini 7 spacecraft now starting its pass across South America at 179 hours and 21 minutes into its mission, our clocks show 457 minutes and 0 seconds until the liftoff of Gemini 6. This is Gemini Control.

END OF TAPE

This is Gemini Control, 180 hours and 20 minutes into the flight of Gemini 7. We are now in the one-hundred and thirteenth rev of 7, and the Gemini 7 is over New Guinea on its pass down across the South Pacific. A few minutes earlier, the Rose Knot tracking ship reported all systems "go" and that the crew was asleep. This was the Rose Knot's last contact for the night, and Flight Director John Hodge released the flight controllers for the night. The Canary tracking station pass a few minutes later also reported the crew asleep based on biomedical data. In about 40 minutes, the Control Center here in Houston will begin supporting Gemini 6 on Launch Pad 19 at Cape Kennedy. The count on 6 is now standing at 397 minutes and 49 seconds and counting. With Gemini 7 now making its pass down across the Pacific, we are 180 hours and 21 minutes into the mission. This is Gemini Control.

END OF TAPE

This is Gemini Control, 181 hours and 20 minutes into the flight of Gemini 7. Gemini 7 is now in its 114th rev over North Africa. The last stations to acquire Gemini 7 were Antigua and the Canary Islands tracking stations. The crew, Frank Borman and James Lovell, are still in a sleep period. Gemini 7 now over North Africa, will pass over India as it makes its swing across the southern part of Asia. On our last check on Gemini 7, it had an apogee of 162.6 nautical miles and a perigee of 161.1 nautical miles. Here in Mission Control at Houston, the flight controllers began supporting Gemini 6 on Launch Pad 19 at Cape Kennedy. The 6 countdown is now at 337 minutes and 47 seconds and counting. The countdown includes a built-in 25 minute hold at T-3. The spacecraft now is in the process of being powered up and the backup crew, Virgil I. Grissom and John W. Young, are in Gemini 6 on Pad 19. They will remain in 6 until the prime crew, Walter Schirra and Tom Stafford, replace them at T-115 minutes in the count. With Gemini 7 now making its pass across North Africa, we are 181 hours and 21 minutes into the mission of Gemini 7. This is Gemini Control.

END OF TAPE

This is Gemini Control. One hundred eighty two hours and 20 minutes into the flight of Gemini 7. Gemini 7 is now sweeping across the South Pacific nearing the end of its 114th revolution around the earth. On the last pass over the Canary Islands tracking station about an hour ago, bio-medical data indicated that both crewmen were awake and active. However, the crew sleep period still has about an hour to go. The Gemini launch vehicle 6 booster count is scheduled to be picked up at Cape Kennedy at T-240, which will be about 5:30 a.m. e.s.t. The Control Center here in Houston <sup>is</sup> still supporting the countdown for the Gemini 6 spacecraft on Pad 19 at Cape Kennedy. At the present time the count is standing at 277 minutes and 40 seconds and counting. With Gemini 7 now shown on our map as an Agena and making its pass across the South Pacific coming up on the west coast of South America. We are 182 minutes - 182 hours and 21 minutes into the mission of Gemini 7. This is Gemini Control.

END OF TAPE

This is Gemini Control, 183 hours and 20 minutes into the flight of Gemini 7. Spacecraft 7 is now over the Indian Ocean coming up on the Carnarvon, Australia tracking station. Just had a communication come in a few minutes ago from the Carnarvon station where the flight controller reported a temperature outside of 114 degrees. So the weather is a bit warmer there than in Houston. At the Canary Island tracking station about 35 minutes ago, the biomed data indicated the 7 crew members, Frank Borman and James Lovell were asleep or resting comfortably. All systems reported GO at LOS, loss of signal, with Canary. The Gemini 7, rather the Gemini 6 count for the launch vehicle began right on schedule at Cape Kennedy at T minus 240 minutes. That was at 5:29 a.m. Eastern Standard Time. The count on Gemini 6 with the backup crew, Virgil I. Grissom and John W. Young, in the 6 vehicle is counting and is now at 217 minutes and 30 seconds to launch time. This includes a 25 minute built-in hold at T minus 3. At T minus 115 minutes in the count the prime crew, Walter M. Schirra and Thomas P. Stafford will enter the vehicle to replace the backup crew. The launch of Gemini 6 is scheduled at the beginning of the 118th revolution of Gemini 7. With the Gemini 7 now passing over the west coast of Australia we are 183 hours and 22 minutes into the flight of Gemini 7. This is Gemini Control.

END OF TAPE

This is Gemini Control. 184 hours and 20 minutes into the flight of Gemini 7. We're now in the 116th rev and the Gemini 7 is now making a pass across the mid-Atlantic toward the west coast of Africa. The next station to have acquisition of Gemini 7 will be the Canary Islands tracking station. The crew, Frank Borman and James Lovell, are now up and ready for the day's activities. The situation at the Cape - the count is now standing at T-158 minutes and 14 seconds and counting. The weather at the Cape is partly cloudy with broken clouds at 3000 feet at times. The wind is blowing from the southeast at 10 knots, with a visibility of 10 miles. Temperature is 67 degrees and 2 to 3 feet waves off the shore. At 184 hours and 21 minutes into the flight of Gemini 7, this is Mission Control.

END OF TAPE

This is Gemini Control, 184 hours 35 minutes and 2 seconds into the flight of Gemini 7. The Gemini 7 is now over the east coast of Africa heading for the Indian Ocean and Australia. We are in the 116th revolution. We have a transmission that was taped a few minutes ago between the spacecraft 7 and the Control Center here and we will play that tape for you now.

Cap Com Gemini 7, Houston.

S/C Go ahead. You are loud and clear.

Cap Com Good morning. I have some PLA updates and a flight plan update for you.

S/C Roger. (garble)

S/C Houston, this is Gemini 7. Go ahead and read the PLA's and I will get the flight plan later.

Cap Com Okay, I'll read your new flight plan first. Node:185:33 43 rev 116, 126.9 degrees west, right ascension is 10 hours 00 minutes and 6 seconds. Flight Plan time-line update change 184:00:00 to 184 12 00. Time 185:40:14, crew status report on the Pilot at Texas. Time 185:58:02 crew status --

S/C Houston, Gemini 7.

Cap Com Go ahead Gemini 7, Houston.

S/C Is that time 185:40:14 was that a crew status report on Pilot at Texas.

Cap Com That is affirmative, Jim.

S/C Okay.

Cap Com Next item 185:58:02 crew status report on the Command Pilot at CYI, Canarys. Start on D-4/D-7 at 184 21 47, sequence 430, mode 02, pitch 30 degrees down, yaw 4 degrees left. This is a D-4/D-7 on the Gemini 6 launch, and take

S-64's on the Cape weather. The nominal time of Gemini 6 is 187 24 about. We will update that later when we get a better hack on it.

S/C Roger, could we have the time on the D-4/D-7, we didn't get that, we missed that.

Cap Com Roger, it is 187 21 47.

S/C Roger, I have it.

Cap Com Are you ready for your PLA updates?

S/C Roger, go ahead.

Cap Com Area 118-1, 186 58 39.

S/C We are not reading you, say again please.

Cap Com 118-1, 186 58 39; 19-1 at 188 34 27; 20-4, 191 25 52; 21-4, 193 01 27; 22-4, 194 37 24; 123-3, 195 24 13 -- correction there, 195 54 13; 124-3, 197 29 47. RET 400K is 21 40 for all areas and the weather in all areas are good.

S/C Roger.

Cap Com Be advised to keep your continuous adapter C-band on until TPI. We will have a test on your fuel cells coming up for you at CYI so we request no fuel cell activity until acquisition of Canary Islands. In general we intend to warm up stack 2 before purging, that's section 2. You will receive a go--no-go at Carnarvon on the next rev. That is this pass over Carnarvon, Gemini 7. How do you feel this morning. Gemini 7, Houston.

S/C Roger.

Cap Com Roger, how do you feel this morning.

Cap Com How do you feel this morning Gemini 7.

S/C Just fine. How do you read us.

Cap Com I'm reading you now. We just switched to Bermuda. Do all your systems appear good.

S/C Say again.

Cap Com Do all your systems look pretty good.

S/C Our systems are good, right.

Cap Com Good. Did you have the same tumbling rate this morning when you awakened?

S/C Negative, we haven't awakened yet.

Cap Com Oh ho ho, sorry about that.

S/C We had a very slow tumble this morning.

Cap Com Were you comfortable last night. Was the temperature a little better? Gemini 7, be advised the countdown is going very well at the Cape.

S/C How do you read now, Houston.

Cap Com I'm reading you all right. How do you read me.

S/C Sounds like you're not reading me all the time, but be advised that our tumble rates are very slow and we did not get the -- the wall temperatures are normal this morning, they are not cold.

Cap Com Very good. Be advised that the count is going very well at the Cape on Gemini 6.

S/C Good.

Cap Com The crew is up and is healthy and they are all ready to go.

That was Charlie Bassett, Spacecraft Communicator here in the Houston Mission Control Center talking to the Gemini 7 crew. The Gemini 6 countdown is now standing at T-136 minutes and 10 seconds and counting. In about 20 minutes the Gemini 6 Prime Crew should be about ready to get in the spacecraft. They are scheduled to get in and take over at T-115 minutes. We have a weather advisory here in the area of the prime recovery ship, Wasp. They have a 1500 foot cloud cover, visibility is 10 miles, wind is northeast at 6 knots, swells 5 feet with 2 feet waves. The outside temperature in the area is 71° F, and the sea water temperature is 77° F. The Wasp is now on station for the Gemini 6 launch. After lift-off of Gemini 6, the Wasp will proceed southwest to be on station for revolution 119 of Gemini 7. The present position of the Wasp is approximately 490 statute miles southeast of Bermuda. At 184 hours and 44 minutes into the flight of Gemini 7, and at T-134 minutes and 44 seconds on -- in the launch of Gemini 6, this is Gemini Control.

END OF TAPE

This is Gemini Control, 185 hours and 5 minutes into the flight of Gemini 7. Gemini 7 is now over the west coast of Australia on its 116 revolution around the Earth. The Gemini 6 spacecraft at Cape Kennedy is now at T minus 113 minutes and 35 seconds and counting. We have a tape here that was taped on the last pass over the Canary Islands; and we will play that tape for you now.

S/C This is 7, Canary. Good morning to you.

CYI And, good morning to you also. We've got some information for you on this fuel cell.

S/C Righto. Proceed.

CYI Okay. Right now, we'd like for you to open the primary cooling down circuit breaker.

S/C Roge. Open the primary cooling down circuit breaker.

CYI Roger.

S/C It is now open.

CYI Okay. We want your radiator switched to "By-Pass".

S/C Radiator switched to "By-Pass".

HOUSTON Tell him why, Canary.

CYI Okay. This is going to put you to "By-Pass" on the radiator on account of warm up at that second section. Okay? And, now what we'd like from you is a normal purge on Section One.

S/C Okay. A normal purge on Section One. Section Two boiler circuit breaker still on.

CYI Affirmative.

S/C Stand by. We want to check to see whether that circuit breaker should be on.

CYI It should be on, right, Flight?

HOUSTON Yea. Because of it's being off all night, you can leave it up for this purge.

CYI Leave it on for this purge.

HOUSTON Stand by. That's affirmative. We want the cross-over open.

CYI Okay. We want the cross-over switch on.

S/C Roger. Here's our procedure. We'll leave the cross-over switch on, and make a normal Section One purge. Hydrogen 13 seconds, oxygen 2 minutes. Is that correct?

CYI Roge. Correct.

S/C Canary. This is Gemini 7.

CYI Go ahead, 7.

S/C Would you check with Houston and find out when they want us to start getting suited and back in shape.

CYI Okay. Copy, Flight? Flight, Canary. Do you copy?

HOUSTON Negative. Say again.

CYI They'd like to know when they should begin putting on their suits to get ready for this launch.

HOUSTON Tell them we should wait until we're sure we're going to get lift off here.

CYI Say again.

HOUSTON We want to wait until we're sure we're going to get lift off. Probably after lift off.

CYI After lift off, okay. Gemini 7, this is Canary. Flight says wait a little while; and they want to make sure they get lift off first, then you can start putting them on.

S/C Roge. Thank you, a whole lot. Be advised that the first time we'd had poor communications with Houston on the last pass. I guess they were remoting us.

CYI Yea. That's right. They were. Okay. I'll give you a little preliminary briefing of what's going to happen over Carnarvon.

Upon Carnarvon instruction, you'll go back to "Quo" on the radiator, and further probe the primary "Quo" valve circuit breaker again. Then you'll perform an open circuit double length purge on the Second Section. Do you copy.

S/C An open circuit double length purge on the Second Section.

CYI Roger. That's upon Carnarvon instruction, okay?

S/C Roger.

CYI We want to let that secondary group warm up a little bit.

S/C Second purge is complete.....(Garble).....is going off.

CYI Okay. Could you place your quantity read switch to ECS O2, please.

S/C Roger. It's on.

CYI And, we'd like a reading.

S/C 32% at 828 pounds. ....(Garble)...750 pounds.

CYI Okay. Hold it there for a minute. LH2?

S/C 28% at 460 pounds.

CYI Okay. You can go back to off on the quantity read switch.

That's about all we have from here. Can we help you in any way?

S/C No. I think we're in pretty good shape.

CYI Okay. Very good. We'll be standing by.

S/C Roger.

HOUSTON Did you tape dump, Canaries?

CYI We're all through tape dumping.

HOUSTON Very good.

CYI Flight, Canaries.

HOUSTON Go ahead.

CYI Roger. We're showing an ECS control valve outlet on the secondary at about 62 degrees right about now.

HOUSTON            That's about right.

CYI                Okay. We have LOS. All frequencies "Go" at LOS.

END OF TAPE

.... and proceeding excellently on the Gemini 6 countdown at the present time. Astronauts Walter Schirra and Tom Stafford are about to depart from the suit trailer at Launch Complex 16 to proceed to Launch Complex 19 and board their Gemini 6 spacecraft. The count has been going excellently all morning. We have no known problems. At times, we've been as much as 20 minutes ahead on certain types of work at the launch pad itself and proceeding very well, and we are awaiting the arrival of Astronauts Schirra and Stafford at the launch pad at the present time. This is Gemini Launch Control at the Cape.

END OF TAPE

This is Gemini Launch Control at the Cape. We're now still counting at T-103 minutes and 2 seconds. Just about one minute ago the prime pilots for the Gemini 6 flight, Wally Schirra and Tom Stafford departed the suit trailer at Launch Complex 16 and are now on their way to Launch Complex 19 to board their spacecraft. They're a little bit ahead of time on their departure as the whole countdown has been this morning. We have had an excellent countdown with no known problems. Wally Schirra and Tom Stafford were awakened this morning about 5:20 a.m. EST. This gave them just about a solid eight hours sleep. They took their physical and some 15 or 20 minutes later had breakfast. Their guest at breakfast was the command pilot for the Gemini 5 mission, Astronaut Gordon Cooper. Just the three of them had breakfast with the following menu: filet mignon, scrambled eggs, toast and coffee. Astronaut Gordon Cooper, of course, is the man who holds the -- along with Pete Conrad -- holds the long duration record at the present time. This is expected to be broken by Astronauts Frank Borman and Jim Lovell in the Gemini 7 spacecraft some five to six hours from this time. The physical for Schirra and Stafford took place shortly after they were awakened and they were pronounced in excellent condition and "go" for the flight by Dr. Duane Catterson, who performed the physical examination. Wally Schirra and Tom Stafford now have arrived at 19, they're coming out of their transfer vehicle and shortly they will be in the elevator heading toward the White Room at Launch Complex 19. We are now T-101 minutes and 16 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at the Cape, T-98 minutes and counting, T-98. All's still looking good on preparations for the Gemini 6 flight at the present time. The prime pilots Wally Schirra and Tom Stafford are in the White Room making final checks with the technicians and getting a complete report on the status of the spacecraft from their backup pilots, astronauts Gus Grissom and John Young, who have been checking out their spacecraft for the last four hours. In a matter of minutes or so, the astronauts, Schirra and Stafford, will be ready to go over the hatch and board the Gemini 6 spacecraft. Our countdown has been going excellently with no problems. We now take you to Mission Control Center in Houston.

This is Gemini Control in Houston at 185 hours and 21 minutes into the flight of Gemini 7. The Gemini 7 spacecraft is over the south Pacific heading for the west coast of Mexico. The next station to acquire Gemini 7 will be the Guaymas, Mexico tracking station in just a few minutes. The Red Team members have come into the Control Center here and are being briefed by the Blue Team members, and also a few of the White Team members are here. We saw flight director Gene Kranz come in who went off last night around midnight, and Christopher Kraft is here along with John Hodge. We have a tape here that was taped the last pass over Carnarvon and we'll play that tape for you now.

CRO Gemini 7, Carnarvon Cap Com.

S/C Roger, Com. This is 7. Go ahead, Carnarvon.

CRO Good morning from Australia. I would like you to push your radiator switch to flow position and your primary coolant valve circuit breaker to on.

S/C Roger. Primary coolant valve is on and radiator is in flow position.

CRO OK, we'd like a read out on 2A, 2B, 2C voltages.

S/C 2A is a little high about 32 volts, 2B is also high about 32.3 volts, and 2C is also high about 32 volts.

CRO Roger. Sounds real good. OK, we're standing by now for a double length purge on section 2. An open circuit double length purge.

S/C Roger. You want an open circuit. Right?

CRO That's affirmative.

S/C I'll increase the prime and...(garble)..by two and put the cross over on, is that correct?

CRO That's roger.

S/C Okey doke. Cross over on, I'm going to ..(garble) them for 26 seconds.

CRO Roger.

S/C ...(garble)...them for four minutes.

C: Okay, while you're purging can you give us some of the readouts for your go-no-go.

S/C Roger, stand by a second please. Carnarvon, I'll give you some of these now. The RCSA reads 3,000, the temperature is 80, D is 2900, temperature 80, left secondary 02 is 5400, right secondary 02, 350 300, batteries are all okay at 23 volts, actually 22.7 volts on the main battery. Section 1A reads 7, section 1B reads 8, section 1C reads 7.5. Of course, 2A, 2B, and 2C are zero, and the main buss voltage is 25.2.

CRO Roger. 1, 2, 3, 4, 5, 6, 7, 8, 9, 0. 0, 9, 8, 7, 6, 5, 4, 3, 2, 1. 1, 2, 3, 4, 5, 5, 4, 3, 2, 1. Fisher testing. 1, 2, 3, 4, 5, 5, 4, 3, 2, 1. Fisher testing. 1, 2, 3, 2, 1

HOU FLIGHT Carnarvon, this is flight. What does that radiator outlet temperature look like?

CRO I think about 5 degrees.

HOU FLIGHT That's five?

CRO Yeah, test five. 12 18 shows us 5.09.

HOU FLIGHT ROGER, In the purge right now.

CRO 18 seconds to go.

HOU FLIGHT Roger.

CRO Would you give me a reading on open circuit voltages on section 2?

S/C They are still high, at least 32 something. 2B  
about 32.2, 2C is still high, at least 32.

CRO Turn it off.

S/C Roger, would you place section 2 back on the line?

S/C Roger, section 2 going back on the line.

CRO Okay, would you give me prime readouts on this as soon  
as you get them.

S/C Okay, prime 2A - 2 amps, 2B - 2 amps, 2C - 4 amps.

CRO Hey, very good. Okay, we have you go on the ground  
for area 134-1. Update your TR clock at this time.

S/C Roger, understand go 134-1.

OU FLIGHT Did you give them.....

CRO ... (garble)... updating the TR time for area 148-1,  
however the go is for 134-1.

S/C Roger, understand.

CRO Okay, we've got about a minute to go here.

S/C Will you give us the time hack, please, the elapsed time  
hack?

CRO Roger. Reading 185 06 37, 38, 39, 40.

S/C Right on.

CRO Roger. ... (garble)... onboard readout OAMS  
quantity.

S/C Looks like about 25%.

CRO Roger

S/C Source pressure 1300 pounds.

HOU FLIGHT Good Carnarvon.

CRO Thank you flight. Still have C Band. 0.00000

END OF TAPE

Mr. King: This is Gemini Launch Control at the Cape. We are at T-87 minutes, 39 seconds and counting in what has been an excellent countdown for the Gemini 6 mission today. We picked up our countdown with the spacecraft at 3:29 a.m. EST, and two hours later with the launch vehicle. Our weather situation looks good at the present time both at the Cape and around the tracking net. All conditions looking good; Astronauts Wally Schirra and Tom Stafford, the prime pilots, are getting settled in their spacecraft; they have now joined the countdown with the designations of crewman 1 and crewman 2. Shortly, they will be taking some blood pressure checks and making some communications checks with the Capsule Communicator in the blockhouse, Astronaut Alan Bean. We are aiming for a launch time this morning in order to have a rendezvous with the Gemini 7 pilots in orbit on the fourth revolution. We are aiming at a lift-off time of 9:54 and 6 seconds a.m., EST. Of course, we still have a 25 minute built-in hold that if all goes well/<sup>will</sup>be declared at the T-3 minute mark in the countdown. All conditions looking good at the present time, T-86 minutes, 15 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at the Cape, mark, T-78 minutes and counting, T-78. All still going excellently with the Gemini 6 mission at the present time. About  $1\frac{1}{2}$  minutes ago the hatches were sealed on the Gemini 6 spacecraft and Astronauts Wally Schirra and Tom Stafford continue their initial checkouts with the Capsule Communicator in the blockhouse, Astronaut Alan Bean and with the Mission Control Center in Houston. All going well with the countdown as it has been going all morning long. To recap the activities we picked up our countdown with the spacecraft at about 3:29 a.m. eastern standard time this morning and the launch vehicle met the countdown 2 hours later. Astronauts Wally Schirra and Tom Stafford were awakened at 5:20 a.m. eastern standard time after a good 8 hours of sleep. They proceeded to take their physical and were pronounced physically fit, in excellent condition, and go for the mission by Dr. Duane Catterson. Breakfast followed at the crew quarters with one guest, Astronaut Gordon Cooper, the command pilot for the Gemini 5 mission. An interesting point here is that Cooper and Pete Conrad who set a duration record of 7 days 22 hours and 59 minutes will probably have that record broken some 5 to 6 hours from now as Jim Lovell and Frank Borman continue in their orbit on Gemini 7. The Astronauts Schirra and Stafford left the crew quarters at the T-180 minute mark in the countdown and proceeded to the suit trailer at launch complex 16. They arrived at the launch pad 19 on time and boarded their spacecraft at about the 90 minute mark in the countdown some 15 minutes ago. All is going well. As far as weather conditions are concerned, we have partly cloudy conditions in the Cape Area, it is broken at about 3000 feet, winds southeast at 10 knots, temperature of about 67 degrees and a sea state of 2 to 3 feet. Weather around the tracking net also is acceptable in all areas. We have one interesting situation in the

Indian Ocean. The weathermen call it a unique situation where we have two tropical storms, one 12 degrees north and the other 12 degrees south of the Equator in the Indian Ocean. Astronauts Frank Borman and Jim Lovell have not been able to take a look at the -- this oddity in the weather in the Indian Ocean because it has been in darkness during their passes and also, of course, they were asleep during most of the night. All going well at the present time. We are aiming for a lift-off time here at 9 54 06 a.m. eastern standard time. We still have a complete 25 minute hold time remaining. If all continues to go well in the count this hold will be declared at the T-3 minute mark. It is now T-74 minutes 46 seconds and counting. This is Gemini Launch Control.

END OF TAPE

Mr. King: This is Gemini Launch Control at the Cape, T-58 minutes and counting. T-58, all going excellently on preparations for Gemini 6 launch. Astronauts Frank Borman and Jim Lovell have just made a pass over the United States and are now going over Africa at the present time. During this period, the prime pilots for the Gemini 6 mission, Astronauts Wally Schirra and Tom Stafford, have been going through some of the final switch checks in their Gemini 6 spacecraft. The Gemini 6 spacecraft has probably been the most tested spacecraft that we have attempted to fly today. All situations still going excellently at the present time. We are looking forward to a 25 minute hold coming later in the countdown. If all goes well, this hold will be at the T-3 minute mark in the count. Currently, T-57 minutes, 7 seconds and counting. This is Gemini Launch Control.

END OF TAPE

Houston here, we are 186 hours into our Gemini 7 mission and during that swing across the States just a few minutes ago, Frank Borman sounded exuberant. He said I feel like a million dollars this morning, I got the best sleep I've had in the whole flight. He said he got 6 hours of very solid sleep and he said Jim Lovell rested well too. They signed off toward the end of the pass, Frank Borman said Well, we are going to have a little breakfast now and we will see you later. Right now the Canary Station is talking with 7, they are getting a crew status -- I'm sorry, they are talking with 7, but the crew status report on Jim Lovell will come from Carnarvon about 30 or 35 minutes from now. This is Gemini Control Houston.

END OF TAPE

This is Gemini Launch Control at the Cape, at T minus 48 minutes and counting. T minus 48 and all is still going well with our Gemini 6 countdown here at Launch Complex 19. Astronauts Wally Shirra and Tom Stafford, the prime pilots for the mission, have just completed a series of checks of the spacecraft dials to insure that the various pressures, the Environmental Control System, and their fuel readings are all on the indexes as planned. All is going well. We have just made a status check of all elements concerned with the mission in preparation for taking down the launch vehicle erector. This will occur at about the T minus 35 minute mark in the countdown. The flight room personnel, the technicians who aided the prime pilot and pilot, Tom Stafford, up to hatch closure a while ago now have departed from the White Room. They were cautioned by Wally Shirra to be careful going down that elevator now. They departed from the White Room just a short while ago. The astronauts continue making a check of the spacecraft. All is looking well. We still have that 25 minute hold. We have not had to use any hold time in our countdown thus far. If all continues to go well, that hold will be declared at the T minus 3 minute mark in the count. Now T minus 46 minutes, 39 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at the Cape, T-41 minutes 53 seconds and counting. Approximately one minute ago we started lowering the 138-foot erector at Launch Complex 19. Wally Schirra's comment at that time was, "It looks kind of blue out there," as the erector started to come down. We are about 5 minutes ahead on the erector lowering, at least as far as the countdown is concerned and this has been the story of the countdown all morning long. Everything has been going excellently and we have been ahead on many of the work programs at various times. Wally Schirra was talking with the Flight Director Chris Kraft as the erector began to come down, Chris Kraft advised the Command Pilot of Gemini 6 that the Gemini 7 Pilots were now over Africa. Wally's comment was, "Roger, we will expect them around next time, I guess." All still going well on the Gemini 6 preparations here at Cape Kennedy, T-40 minutes 56 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Houston. 186 hours into our Seven flight, with the crew sailing over the east coast of Africa. They're having breakfast now. We've had no conversation with them since the Canary Islands. Now, let's go down to the Cape and see how Six is doing.

This is Gemini Launch Control at the Cape. We're at T minus 37 minutes, 40 seconds and counting. All is still going excellently at Launch Complex 19. The erector is now down. The command pilot, Wally Shirra, and the pilot, Tom Stafford, are chatting with Mission Control, Houston and with the Capsule Communicator in the block house designated "Stoney". That's astronaut, Alan Bean. All's still looking good at the present time. We've had an excellent countdown. We still have that 25 minutes worth of hold time. We have not had to use it yet; and the plan is, if all continues to go well, that we will declare a hold of 25 minutes at the T minus 3 minute mark in the countdown. We'll be aiming for a lift off, if all continues to go well, at 9:54 and 16 seconds a.m., Eastern Standard Time. Now T minus 36 minutes, 50 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at the Cape, T-27 minutes 57 seconds and counting. All still going well with our launch preparations for Gemini 6. At the present time in the Gemini 6 spacecraft, Astronauts Wally Schirra and Tom Stafford are going through some power checks with the Spacecraft Test Conductor, Don Kromer in preparation for a static test of the spacecraft propulsion system due some 5 to 10 minutes from now. This is the Orbit Attitude and Maneuvering System which will actuate the test fired on the pad with brief bursts from the 25-pound thrusters at about the 15 minute mark in the countdown. All is going well at the present time and we have had no problems whatsoever during this countdown. We still have the 25-minute hold which will be declared at the T-3 minute mark if all goes well to tie in the launch time of Gemini 6 for the rendezvous with Gemini 7 coming up four revolutions after insertion into orbit. All going well, T-26 minutes 53 seconds and counting. This is Gemini Launch Control.

END OF TAPE

Gemini Control, Houston, here. We're 186 hours, 41 minutes into the flight of Gemini 7. The spacecraft is over Carnarvon; and they're talking intermittently with Borman and Lovell. Let's cut down there and see what's going on.

CRO PCM count was 169 on that

HOUSTON Roger. I copy.

CRO We've completed the tape dump.

HOUSTON Roge. Completed tape dump.

Well, they've apparently wrapped up the conversation for this pass. It was brief discussion on the Section Two fuel cell, which was turned off overnight. It came up this morning, bright and strong; even Stack C, which has behaved somewhat indifferently over the past week. The amperage was well up this morning; up around 4 amps. Yesterday, it was lagging down to about 1.5. It was turned off overnight so the crew could get a good rest and not have to go through the necessity of purging it, individually or pampering it throughout the night. Section One continues to hold up very well; as we say, this morning both fuel cells up and sharing their load very nicely. It's been back on the line now for about 90 minutes. Our present orbit for Gemini 7 is 161.5 exactly circular, as best flight dynamics officers here can estimate it. Now, we'll go to the Cape and check on the progress of Gemini 6.

This is Gemini Launch Control at the Cape with T minus 15 minutes, 45 seconds, and counting. Our countdown continues, but we still have a 25 minute that will come at the T-3 minute mark in the count. That puts us some 40 and a half minutes away from the Gemini 6 lift off. We have just completed a check of the spacecraft propulsion system by firing 1.5 second bursts of the 25 pound thrusters aboard the Gemini spacecraft. We have some 665 pounds of propellants aboard Gemini 6. This large amount of propellant, of course, are necessary for the very difficult rendezvous maneuvers that will take place. We have completed our checks of the

Propulsion System. This is our final check on the ground. It also helps to bleed the system, that is to get the propellants into the proper position for use. All is still going well here. We're at T minus 14 minutes and 54 seconds; but still have that 25 minute hold to use after the T-3 minutes mark. This is Gemini Launch Control.

END OF TAPE

\*Included rev 117 Stateside pass with no commentary air/ground

only. NOT AIRED.

Canary . . . ., ~~Canaries~~.

Cap Com Go ahead ~~Canaries~~.

Canary Roger, are you going to hold the cryo quantities until Carnarvon.

Cap Com Say again.

Canary You want to hold the cryo quantity readouts until Carnarvon.

Cap Com Negative. We want you to get some cryo readouts after you purge that section 1.

Canary Okay, will do. Canary has telemetry solid.

Cap Com Roger ~~Canaries~~.

Canary Gemini 7, Canary. Com check. How do you read.

S/C This is 7 Canary. Good morning to you sir.

Canary And good morning to you also. We've got some information for you on this fuel cell.

S/C Go ahead.

Canary Okay, right now we would like for you to open the primary coolant valve circuit breaker.

S/C We will now open the primary coolant valve circuit breaker.

Canary Roger.

S/C It is now open.

Canary Okay we want the radiator switch to bypass.

S/C Radiator switch going on bypass.

Flight Tell him why ~~Canaries~~.

Canary Okay, this is going to put you to bypass on the Radiator and kind of warm up that second section. Okay?

All that we would like from you is a normal purge on section 1.

S/C Okay, a normal purge on section 1 and section 2 primary switch, of course, is still off.

Canary Affirmative.

S/C Stand by, we want to check to see if the crossover should be off or on.

Canary It should be on, shouldn't it Flight.

Flight No, the crossover has been off all night, you can leave it off for this purge.

Canary Leave it off for this purge, okay.

Flight Stand by. That is affirmative. We want the crossover open.

Canary Okay, we want the crossover switch on.

S/C Roger, here is our procedure. We are going to turn the crossover switch on make a normal section 1 purge, hydrogen 13 seconds and oxygen 2 minutes. Is that correct?

Canary Yes, that is correct.

S/C Canary, this is Gemini 7.

Canary Go ahead 7.

S/C Would you check with Houston and find out when they want us to start getting suited and want me to start ... back at the Cape.

Canary Okay. Flight. Flight Canary, did you copy.

Flight Negative, say again.

Canary            They would like to know when they should start donning their suits to get ready for this launch.

Flight            Stand by. Tell them we should wait until we are sure that we are going to get lift-off here.

Canary            Say again

Flight            We want to wait until we are sure about lift-off. Tell them probably after lift-off.

Canary            After lift-off, okay. Gemini 7, this is Canary. Flight says that you can wait a while and they want to make sure they get lift-off first before you put the suit on.

S/C                Roger, thank you, we will hold off. Tell them that the first time we had poor communications when we were talking to Houston on that last pass. I guess they were remoting a switch.

Canary            Yes that's right. They were. Okay, I'll give you a little preliminary briefing about what is going to happen over Carnarvon. Upon Carnarvon instructions we will go back to "quo" on the radiator and further probe the primary quo valve circuit breaker again. And then you will perform an open circuit double length purge on the second section. Do you copy.

S/C                An open circuit double length purge on the second section.

Canary            That's right, that is upon Carnarvon instruction, okay?

S/C                Roger.

Canary            We want to let that secondary on to let it warm up a little bit.

S/C Section purge is complete, the quo valve is going off.

Canary Okay, could you place the quantity read switch to ECS O<sub>2</sub> please.

S/C Roger, it's on.

Canary And we would like some readings.

S/C 32 percent and 820 pounds, we have 450 pounds.

Canary Okay, hold it there for a minute, LH2.

S/C 28 percent and 460 pounds.

Canary Okay, you can go back to off on the quantity read switch. That's all we have from here. Can we help you on the ground.

S/C No, I think we are in pretty good shape.

Canary Okay, very good. We will be standing by.

S/C Roger.

Flight Did you tape dump Canaries.

Canary We are all through tape dumping, commanded it off.

Flight Very good.

Canary Flight, Canaries.

Flight Go.

Canary Roger, we are showing the ECS control valve outlet temp on the secondary about 62 degrees right now.

Flight That is about right.

Canary Okay. We have telemetry LOS. All systems go at LOS.

Flight ... Houston Flight.

Carnarvon Go ahead, Carnarvon.

Flight What was the -- what were the main currents after you brought the two cells up?

Carnarvon Main currents, oh let's see, I never did get a readout from the other (garbled).

Flight Total current on both cells.

Carnarvon BHO1 is 8.7, BHO2 is 10.1, Did you copy Flight.

Flight I copies, but which one is cell 1 and which one is cell 2, please.

Carnarvon Do you want us to read out the sections?

Flight Negative. Just tell me which fuel cell is which.

Carnarvon Okay, 8.7 is fuel cell 1.

That doesn't sound right, main bus number 1.

Flight You said 8.7 and fuel cell number 2 is 10?

Carnarvon That can't be right because the readings he gave me were 2 amps, 2 amps, and 4 amps on the three sections. That comes out to be pretty close to 8.

Flight That is the reason I'm going through all this dity here.

Carnarvon Flight, standby. We will try to get this all squared away and give you an accurate reading.

Flight That is what you get for talking to me in those HO1 bits.

Carnarvon Righto. Okay Flight. Section 1 is carrying 8.7 amps of a load at LOS and section 2 has now picked up 10.1 amps of a load.

Flight Roger.

Carnarvon Anything else you want on that.

Flight That's all.

Guaymas Guaymas has acq aid contact.

Flight Transmitting loud and clear Guaymas.

Guaymas Roger, thank you. AFD, Guaymas Cap Com.

Flight All right, go ahead Guaymas.

Guaymas Roger, we have acq aid contact. We are following him across waiting for Texas.

Flight Roger.

Guaymas AFD, Guaymas

Flight Go ahead Guaymas.

Guaymas Well, since we haven't got a TM I would like to ask you a question here while we are waiting on Texas.

Flight Go ahead.

Guaymas Isn't this minimum pressure on the fuel cell --

Texas Gemini 7, Texas Cap Com.

Guaymas I'll call you back later.

S/C Go ahead Texas. This is Gemini 7.

Texas Roger, we would like to place your TM standby switch to the real time position, and it will be left there for the duration of the rendezvous phase, over.

S/C Roger, standby TM to real time. You are very very weak Texas.

Texas Texas has solid TM and systems are go on the ground. This is Texas Surgeon. A valid temp on the Pilot of 98.4.

Flight Roger Texas. We copy 98.4.

Texas Gemini 7, Texas has you go on the ground.

S/C Roger, thank you. We read you now loud and clear.

Texas Houston Flight, we have initiated a tape dump and --

S/C ..... (garbled)

Texas Gemini 7, Texas. Say again please.

S/C I say was your last instruction to place the standby TM switch to the real time position?

Texas That is affirmative and it will be left there for the duration of the rendezvous phase, over.

S/C Roger, what about our DCS circuit breaker. Do you want that opened up?

Texas Negative. We are getting a tape dump at this time.

S/C We would like to confirm the last nodal update also. Was it west or east?

Flight We will give him that in a minute, Texas.

Texas It was west and Houston will confirm in a minute.

S/C Thank you.

Surgeon Again Texas Surgeon.

Texas Is the Houston Surgeon taking the aeromed. I see no indications of any aeromed paths on our Sanborn.

Surgeon I understand. We are waiting for Texas to go prime -- the MCC to go prime.

Texas Roger.

Flight This is Houston Flight, we are going to go prime. Stand by.

Texas .... (garbled)

Cap Com Gemini 7, Gemini 7. Do you read.

S/C Loud and clear.

Cap Com Roger. Good morning.

S/C Good morning.

Cap Com Could you give us a quick readout on section 2 stacks, amperages only.

S/C He just got the thermometer in his mouth. You want a crew status report.

Cap Com We are going to get that in just a second.

S/C Okay. Section 2 is now reading 4 amps, or correction, 2A is about 1.5 amps, 2B is about 2 amps, and 2C is about 4.5 amps.

Cap Com Roger. We have a valid temperature. Give us a blood pressure

and stand by for the Surgeon.

S/C Rog.

Surgeon Cuff is full scale.

Cap Com Cap Com, do you have a delta P light, on section 2.

Texas That is affirmative and also we have completed the tape dump.

Cap Com Did you have telemetry before you had him go to standby at a real time position.

Texas Negative Flight, we did not.

Surgeon Gemini 7, we have a valid blood pressure. You can start your exercise.

S/C Roger, Chuck, while he is exercising, do you have time to take the report.

Surgeon Rog. We are ready. I'd like to get the sleep report first, Frank, and I think it is pretty important that we get a good hack on the sleep this time because we are trying to build some data down here, so could we get a pretty good rundown on how you did last night.

S/C I had 6 hours of the best sleep I've had since I've been up here. It was excellent. I feel like a million dollars this morning.

Surgeon Very good. Much better without the suit, huh?

S/C Right. Jim had 6 hours of suited sleep and he -- sort of off and on, but he feels pretty good.

Surgeon Okay, very good. Blood pressure is full scale. Frank, you want to go ahead with the food report then.

S/C Roger. Last night we had meal C, there wasn't any date on it, it was meal C and it consisted of tuna salad, fruit cake and apricot pudding but we lost the date on it.

Surgeon It did not have a day number, meal C is that all.

S/C We lost the day number.

Surgeon Roger, copy. You lost the day number. On that blood pressure the telemetry dropped out. Could we get another blood pressure.

S/C Stand by.

Surgeon Water report.

S/C Command Pilot has had 498 ounces of water, total for column 5 is 19, column 6 is 2. Pilot's had 607 ounces of water column 5 is 18, column 6 is 4.

Surgeon Roger, copy. Frank, can you conveniently get a reading off the water gun right now. Just a total off the gun.

S/C Stand by. ....(garbled)

Surgeon 7, say again. Gemini 7, turn off your DCS circuit breaker.

S/C Roger, it's off now.

Surgeon Did Jim send another blood pressure.

S/C Roger, coming up.

Surgeon Did he send one a minute ago.

S/C No, stand by.

Surgeon Okay, well listen. Don't stop it, delete it because it is not coming through from the Cape. There is something wrong with the TM setup right now so delete the blood pressure. We are going to need this data on this exercise and the response after the exercise, it is two of the things that we are plotting on suit versus the non-suit configuration here. We are going to need it on both you and Jim, so we may have to repeat this exercise period on Jim somewhere over one of the next sites here. We will get to you as soon as we can figure out where is the best place to do it.

S/C That's all right with us.

Surgeon Roger.

S/C We are going to eat a little breakfast now.

Surgeon Frank, what about the exercise before meals. Have you been doing that the last few days.

S/C Haven't missed one, Chuck.

Surgeon Haven't missed what?

S/C Haven't missed one.

Surgeon Good. Was it any harder to do -- as far as the actual movement of the -- with the exerciser -- is it any different when you are in the suited or unsuited condition?

S/C I'll let Jim answer that.

Definitely Chuck, It is very difficult to exercise with the suit on as compared to the suit off, relatively speaking.

Surgeon We have noticed this in your times to complete the exercise. There is a lot of difference between whether you are suited or unsuited. You can do it much faster, about half the time when you are unsuited, it appears.

S/C Right you got much more mobility. I can do a lot of different exercises with the suit off than I can with it on. I can arch my back and everything like this. I can turn around and everything.

Surgeon Roger. Fine. I'll turn you over to Cap Com.

S/C Okay.

Cap Com Gemini 7, place your acq beacon circuit breaker off.

S/C It's off now Cap Com.

Cap Com And place your real-time transmitter circuit breaker off.

S/C Real time circuit breakers off.

Cap Com Roger, and I have your node update if you are ready to copy.

S/C Roger.

Cap Com You can copy.

S/C Go ahead.

Cap Com Time 185 33 43, rev 116, 226.9 degrees west, right Ascension 10 00 06. Do you copy.

S/C Roger, we copy.

Cap Com And did you have your flight plan time line update change okay.

S/C That was 12 minutes, isn't that correct. 12 minutes.

Cap Com That is correct 12 minutes.

S/C Rog. For your information, GT-6 is inserted. Both pilots are in and we have closed the hatches and everything is looking real good.

S/C Very good.

Cap Com And we observe that your delta P light is on, is that correct?

S/C Roger, it was off for a half-hour last night and then came back on, and it has been on since.

Cap Com Okay Frank. We will see you next time around.

S/C What is the lift-off time on 6:

Cap Com Roger. Your time it would be 187 24 06.

S/C Roger 187 24 06.

Cap Com That is affirmative.

S/C Thank you.

END OF TAPE

This is Gemini Launch Control at the Cape, T-8 minutes and counting, T-8 minutes and counting. In five minutes we will encounter a hold however, a planned hold at the T-3 minute mark and this hold will last some 25 minutes. We have just gone through one of the final milestones in the latter parts of the countdown and that is the final status check. Just been completed, all elements reported in that they were go for the launch of Gemini 6. During the brief periods that Wally Schirra and Tom Stafford have not been reporting back to the blockhouse and Mission Control at Houston, they have had a chance to look around a little bit through the top of their spacecraft, through their spacecraft windows, and Wally reported a jet going by some 10 minutes ago, and also mentioned that there were quite a large number of what he described as flying ants on the spacecraft. He agreed with test conductor, Don Kroner, that the flying ants would get a surprise and a short ride. We're at T-7 minutes and counting with a hold coming up at T-3 minutes for 25 minutes. This is Gemini Launch Control.

END OF TAPE

Mr. King: This is Gemini Launch Control at the Cape. We are at T-3 minutes and holding. This is the plan hold, and the duration is expected to be some 25 minutes. We have had a perfect countdown thus far today, and the planned hold time must now all be used up during this period in order to get us off with Gemini 6 at the correct time for the rendezvous maneuver. The Flight Director, Mr. Cris Kraft, has just notified the launch pad the lift-off time will be the same as he reported earlier, and that is 9:54 and 6 seconds a.m., EST. We are now holding at Launch Complex 19 and everything is still going excellently at the present time. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at the Cape. We're still holding at T minus 3 minutes. We're several minutes into the hold. Astronauts Wally Shirra and Tom Stafford sitting easy in the spacecraft, checking occasionally with the Spacecraft Test Conductor and the Flight Director in Houston. Now, let's take you to Houston Mission Control where we'll be updated on the status of the Gemini 7 mission.

Houston here. Gemini 7 is now between Canton Island and Guaymas. We expect contact at Guaymas in about 10 minutes. We've had no further contact since we left Carnarvon some 20 minutes ago. We're all set for lift off here. We've had a lot of conversation between the two shifts this morning. Everybody filled in on the progress overnight. And, at 187 hours, 1 minute into the 7 mission, we're all set for another. This is Houston.

END OF TAPE

This is Gemini Launch Control at the Cape.

We are still at T-3 minutes and holding. We are now 15 minutes into the planned 25 minute hold. We plan to pickup in about 10 minutes leading to a liftoff at 9:54:06 a.m. EST. During this hold period both in the blockhouse and the spacecraft, we are monitoring various systems to insure that we'll be set for the pickup of the count some nine minutes from now. All is still going well. After we pickup the count at T-3, one of major efforts during this final phase of the countdown will be to make our final guidance fixes with the launch vehicle and spacecraft. That is feeding in the proper launch azimuths to insure that we'll be inserted into the proper orbit for the rendezvous mission. We will get the ignition of the Titan II launch vehicle at zero in the countdown. Three point 4 seconds after when the first stage thrust reaches 77 percent of its total, the launch vehicle will liftoff. So that gives us zero at 9:54 and 3 seconds and a liftoff at 9:54 and 6 seconds EST. All is still going well in our hold. We expect to pickup some 8 minutes from now. This is Gemini Launch Control.

END OF TAPE

Gemini Control, Houston, here at 187 hours, 16 minutes into the flight of 7. The Guaymas...The Texas Cap Com now at Corpus Christi has just advised 7 that he is "go" on the ground and need not acknowledge; and, we just don't know if they will or not. Let's tune in there, as they swing over Houston; and see if there is any conversation.

TEXAS               ....on is ready for it to go.

S/C                 Ready to go.

TEXAS               Go ahead, Flight. Gemini 6 is fueled up and ready to try.

HOUSTON             Roger. It's go for launch.

TEXAS               Roger. Gemini 7, Texas. Houston reports weather at the Cape is "go" for launch.

S/C                 I know that. I just wondered how it's going to be for our purposes; but they're probably busy down there.

HOUSTON             Stand by, Texas. I'll give them a reading.

Gemini Control, Houston, here again. Two fairly quiet astronauts here this morning who are expecting two visitors very shortly. Let's go down to the Cape right now and find out what's doing with Spacecraft 6.

This is Gemini Launch Control at the Cape. We're still holding at T minus 3 minutes. We have just seven minutes left of the hold before picking up and aiming for our launch time of 9:54 and 6 seconds for the lift off of Gemini 6. We've just had a final status check prior to resuming the count. All elements checked in as "go". Wally Shirra, the command pilot of Gemini 6, checked in as fueled up and ready to try. We're now just a few minutes away from resuming the count and still at T minus 3 minutes and holding. All looking well at Launch Complex 19.

This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at the Cape. We're now some 10 seconds away from resuming the count at T minus 3 minutes on the Gemini 6 mission. Coming up shortly. Mark. We're at T minus 3 minutes and counting. T minus 3 on the Gemini 6 mission. All looking good at the present time. We've gone through a complete check list once again; and we are counting; leading up to a launch just a short while from now. This is Gemini Launch Control at the Cape.

END OF TAPE

Now at T-90 seconds, T-90. The launch vehicle has gone on internal power. T-1 minute and 20 seconds. As we lead up to the final moments of launch, to repeat an earlier announcement, we will have ignition at 0, and some 3 seconds after ignition, the launch vehicle will lift off on the start of the Gemini 6 flight. T-60 seconds and counting, T-60. T-50, Astronaut Schirra is making some final com. checks. T-40 seconds and counting. During the final 10 seconds of the count, Astronaut Alan Bean will give the count to the Astronauts in the spacecraft. T-30. T-25 seconds and counting. The pre-valves on the launch vehicle have been opened. This permits the propellants to come down just above the thrust chamber. T-15 seconds and counting. 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0.

Haney: We've got a shut-down. No lift-off. The engines have shut down. Fuel pressure is lowering, Wally Schirra says. Apparently a safe condition. The fuel pressure is down to about 32. We are watching the fuel pressure lower very carefully. Oxidizer pressure lowering nicely. Blockhouse is asking for a read-out on all tank pressures. Elliot Sea is putting in a call to 7 to advise them that we will not have a lift-off. Frank Borman says, "Roger, we saw it. We saw it light up; we saw it shut down." He assures Frank Borman that everything is still OK on the ground here, and we will keep him advised. Tom Stafford and Wally Schirra talking now about what they saw at the moment of ignition, and then how they saw the various pressure gages and dials start dropping. Just as we did here in Houston, and as I'm sure they did in the blockhouse. That shut-down would have come before 1.6 seconds. It's approximately at that point where we reach 77 percent of our full thrust, and beyond that point, an on-the-pad shut-down is not possible. Very quickly, there are two theories here on what caused the shut-down: (1) it was an automatic switch-over, which is a condition which automatically shuts down the engine.- that is a guidance switch-over from primary to secondary guidance. This can occur in the first second and a half and cut the engines down. (2) another theory is there was some erratic behavior in the hydraulic lines in

the primary or the secondary, which could have also caused an immediate shut-down. We are conferring now with the Flight Director. When we have additional information, we will come back to you. 7 has been advised. They apparently saw the light-up from the air as it swung over the Cape, and they saw it shut down. This is Gemini Control, Houston at 187 hours, 28 minutes into the flight of 7.

END OF TAPE

Gemini Control Houston here. Our situation is this. The lock out, the shut down came from the programmer in the launch vehicle. Something in the sequence of events that was out of spec or perhaps the programmer itself was, in any case, it shut the bird down. We did get a liftoff signal which would be an indication that one of the plugs in the base of the bird did disconnect. An unusual turn of events. The Mission Director has advised that we will tentatively attempt to recycle this mission four days from now. We believe we can go in and work on the bird in that time, repair whatever is necessary, and perhaps launch 6 four days from now. This is Gemini Control Houston.

END OF TAPE

This is Gemini Launch Control at the Cape. We now have our launch vehicle back in safe condition as far as its stand on Launch Pad 19 is concerned. That is, all the range safety destruct systems have been put back in a safe condition. They were on just at the time of ignition. They are now back in safe condition on the Pad. Our normal recycling procedures are going on at the Pad at this time, insuring that we are in a safe condition all the way. When Wally Shirra, just at ignition, received information as he said, of course, on his own consoles, that we had a shut down; when he was told that the tail plug apparently had fallen out from the base of the launch vehicle, the following was his quote: "Those things happen. It could happen to anyone. No one was hurt." He then followed up a short while later, coming over the intercom, and telling the people in the block house, quote: "You did your best." When he was informed that the recycling plan...of the recycling plans and that we will make an attempt again on Gemini 6..or intend to make an attempt some 4 days from now, Wally's quote was: "Very good. We still want to go up and see them." That is our situation now here at Cape Kennedy. We will now switch you to the Manned Spacecraft Center in Houston.

This is Houston. Over the Canaries, the 7 crew got a pretty thorough briefing on the status of 6 and what happened there. And, we now have available the tape from the pilot conversations. There is some 7 talk in here. You can also hear Wally Shirra talking. This tape starts at T minus 90 seconds, on the intended 6 lift off. And, we'll play that conversation for you now. It lasts all the way through the Canary Islands. Here's the tape.

HOUSTON           They're cleared for take off.

S/C 7             Roger. Scramble one.

CAPE             The pre-valves are open.

S/C 6             That's about the best news we've had.

CAPE Roger. Adios. Minus 30 seconds.

SHIRRA So, there you are.

CAPE Mark 20 seconds.

SHIRRA Right.

CAPE Mark.

SHIRRA Very Good.

CAPE 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, ignition, ... Shut down, Gemini 6.

SHIRRA My clock has started.

CAPE Verify flight programmer reset.

SHIRRA That's right. Fuel pressure is lowering, slowly.

CAPE Roger, Gemini 6. Monitor tank pressures.

SHIRRA Oxidizer pressure's down to about 32.

CAPE Roger... Wally, I'm watching it.

SHIRRA Okay, keep an eye on it. Well, we've switched over to guidance.  
Oxidizer's down to 28.

CAPE Roger, Gemini 6. All tanks are venting.

SHIRRA Okay. No problem on these tanks?

CAPE Negative.

HOUSTON Give me a read out on all tanks.

CAPE How about a reading? Our pressures are venting, Flight. No problem.

HOUSTON ...on these tanks. Is that correct?

CAPE That is affirmative. All tanks are venting. Fuel tanks are venting. Chris, do you see any problems?

HOUSTON Roger.  
Tanks are venting. Bird looks good.

CAPE Roger.

..... ...report.

CAPE ...looks good.

S/C 6 We understand.

CAPE We have no fires.

HOUSTON Observer, give me a read out.

.... Copy 20.

.... Control.

CAPE CONTROL 6TC, be advised it'll be approximately 20 minutes before we can get out there.

S/C 6 That's okay. We're just sitting here breathing.

CAPE CONTROL Roger.

S/C 6 Hi, Frank. I know you guys did your best.

CAPE CONTROL OPC. ...on the northeast side of the pad. We just want to know which sprays are on.

S/C 6 OPC, this is CM-1.

CAPE CONTROL We'll keep the net clear.

S/C 6 OPC, CM-1.

CAPE CONTROL Alright, CM-1.

S/C 6 Okay. Can we.... Are we perfectly safe? We don't need to stand by for the suits?

CAPE CONTROL Just stand by, One.

..... Give me a read out.

... 100 PC.

Lines in...did you get a lift-off?

\*\*\*Note: There was some badly garbled conversation here between various ground personnel .

CM-1 CM-1, CM-2, initial evaluation is the possibility a tail plug may have fallen out giving us this indication.

CM--2 Lift-off?

CM-1 Roger.

TC 1, TC

CM-1            Go ahead TC.

TC              Things look okay here, you can go ahead and stow your "D" rings.

CM-1            Okay, we'll shut you off and try and take care of this....

CM-1            TC, CM-1 & 2, we'll be listening in, we're off the continuous intercom lead. We can discuss our situation

TC              Roger..uh..We're still monitoring tank pressures. We see no problems right now, but I guess we ought to stay in a position to abort should we have to.

CM-1            You want us to get the B-Rings in there?

.....           That.....19.

CM-1            Go ahead, TC.

TC              Understand your squib buses are safe. You can go ahead and stow your B-Rings.

CM-1            ...(Garble)...

TC              Say again.

CM-1            I'm going to turn off my squibs here.

TC              We have your squibs disarmed, CM-1.

CM-1            Roger. So am I.

TC              CM-1, TC. Be advised we have a small propellant leak down at the base. We see no problem.

CM-1            Very good. What sort of egress system do you plan on using, Frank?

TC              We'll bring the erector up and bring you down normally. This is just a minor leak. It's just one of our drain lines that fell off.

CM-1            Right. Got any...yet?

TC              Say again.

CM-1            Do you have any diagnosis of our problem yet?

.C Roger. It looks like one of the tail plugs fell out.

CM-1 Roger.

TC Did you get a clock start?

CM-1 That's affirmative, we did.

TC Roger. That's what happened.

CM-1 Okay.

CAPE CONTROL Mighty cool head there, Wally. We appreciate it.

CM-1 Part of that good training we had in the trainer. We'll stand by for a moment.

\*\*Several portions of conversation are badly garbled.

TC Be advised all tanks except Stage One Fuel are blanked pressure. We'll try to maintain 2 PSI on Stage One Fuel.

CM-1 Roger.

.C One, this is TC.

CM-1 Go ahead.

TC Did you get the DCS power circuit breaker off?

CM-1 Okay. It's off.

TC Did he get.....Did...Never mind. Flight, this is TC.

HOUSTON We're talking to 7. ...(Garble)...

TC Roger. We'll stand by.

HOUSTON Gemini 6. Did you call Houston?

CM-1 We did. Tell Frank and Jim we still want to come up and see them. We're pretty well positioned here; but I'm still sitting on a tight edge. You're darned tooting. You're right. I've seen that one before. Right, that's for sure, Chris. Okay, we'll give it a good crack here, Chris. Thanks for your help.

(Shirra's conversation was with Flight Director Kraft, whose replies were on another circuit not recordable.)

KRAFT            On that basis, we would be looking at an 8:43 a.m. Eastern Standard Time lift off. That's 11:18:13 on the 12th day.

S/C 7            What was that 11:18:13 you gave me?

KRAFT            That doesn't make sense with what we've got here. Stand by. That's 8:43 Eastern Standard Time.

S/C 7            Roger.

CYI                Canary.

S/C 7            Go ahead, Canary. This is Gemini 7.

CYI                Okay, we have a little bit of information for you. It seems like they.....

Houston here. Now we pick up the conversation between Seven and the Canary Islands. By this time, Seven had reached the Canaries.

CYI                ....it stands right now, it looks like the four day recycle time, which would make that about 8:43 a.m., that's Eastern Standard Time, the 12th day.

S/C                Roger. Did they actually get a light off?

CYI                I don't believe so. Stand by. They didn't get a light off, did they, Flight?

HOUSTON          That's affirmative. They got a light off, Canary.

CYI                They did, huh?

HOUSTON          They got ignition and a hold kill right afterwards.

CYI                They say they got ignition and a hold kill right afterwards.

S/C 7            Roger. This is 7, standing by.

CYI                Roger. ...(Garble)...

HOUSTON          Say again.

CYI                Did you get that last remark they made?

HOUSTON          Yes, they said Gemini 7 target was standing by.

CYI                ...(Garble)...

HOUSTON Roger, and friendly target vehicle standing by; tell them we're still tracking them and back on Spacecraft 7.

CYI He says to tell you we're still tracking you and we're right back on Spacecraft 7.

S/C 7 Okay. First things first.

CYI That's right.

S/C 7 Have they got Tom and Wally out of there yet?

CYI Say again.

S/C 7 Have they got Tom and Wally out of the spacecraft yet?

KRAFT Negative. They're still in but everything is safe.

S/C 7 Okay. Thank you.

CYI Roge.

S/C 7 You probably will catch, Canary. We're venting an ECS O2 now.

CYI Roger. Flight, what is that hydrogen pressure on the ground?

HOUSTON 500. Oh, on the ground? Stand by a moment. 225, Canaries; what do you have?

CYI We're reading 240, so stand by. Seven, Canary.

S/C 7 Go ahead.

CYI Do you still have your heaters on the fuel cell hydrogen?

S/C 7 Negative. They've been off for some time.

CYI Okay. What are you reading up there?

S/C 7 530.

CYI 5-3-0. Okay. Thank you. Turn your quantity read switch off again.

S/C 7 Roger.

This is Houston again. That wrapped up the conversation between Seven and pretty well told the whole story, starting with T minus 90 seconds, on through that very interesting conversation between Alan Bean, who is referred to as Stoney - Alan Bean is an astronaut, and Frank Carey, the Martin Test Conductor in

the block house also was on the loop from time to time. In the spacecraft, primarily Wally Shirra, some from Tom Stafford, also. The flight planners are busy in the back room coming up with new activities for today for the 7 crew, who in just three hours will bypass the Gemini 5 endurance rate in Space, up around 191 hours in orbit. And, we're right now at 187 hours, 54 minutes into the flight of 7. This is Gemini Control, Houston.

END OF TAPE

A recovery helicopter, part of the recovery forces that were airborne at the time at the Cape, a CH3C helicopter with five persons aboard had a small engine fire and made an emergency landing in the Banana River. No one was injured, two of the recovery Larks, those are the large mobile vehicles that are used as part of the recovery forces, have gone to the scene. It is in the vicinity of Launch Pad 37 at Cape Kennedy and are in the process of recovering the pilots and the personnel aboard at the present time. Once again, no one injured, it was a CH3C helicopter, it encountered a small fire in one of its engines and made an emergency landing in the river.

Back at Complex 19 we understand that an inspection crew is on its way to the launch pad to make a quick inspection and an attempt to confirm what data from the blockhouse and the Mission Control Center showed concerning our problem at the pad. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at the Cape. At this particular point out on Launch Complex 19, some members of the launch crew in specially protective suits are at the base of the launch vehicle making their inspection. They will report back on the status. In the meantime as far as our turnaround is concerned after this engine shutdown this morning, our next attempt, the earliest attempt will be on Thursday which is L+12 days as far as the Gemini 7 mission, or the combined Gemini 7/6 missions are concerned. On that date we will have one launch window. That launch window will begin at 8:43 a.m. EST and last 47 minutes. On the 13th day, L+13 days, from the Gemini 7 launch, that would be next Friday, two windows are available. One starting at 7:14 a.m. EST and the second at 8:49 a.m. EST. The duration of both these windows on that 13th day will be 47 minutes. We will have a press conference at press site No. 2 following egress of the astronauts at Launch Complex 19. The project people will be over to see the press after they are sure that Astronauts Wally Schirra and Tom Stafford are safely egressed from the spacecraft. We're expecting that the erector will be coming up shortly. It may be a matter of 5 or 10 minutes from this time. This is Gemini Launch Control.

END OF TAPE

Haney: Gemini Control, Houston, here. We are 188 hours, 24 minutes into the flight of Gemini 7. Meanwhile, down at the Cape, we are estimating another 20 to 30 minutes before Wally Schirra and Tom Stafford leave 6. Meanwhile, a few minutes ago, as 7 sailed over the Carnarvon station, conversation went like this:

CRO Gemini 7 Carnarvon  
S/C Go ahead.  
CRO We would like for you to reconfigure to the following positions:  
S/C OK.  
CRO C-band adapter switch to command  
S/C Roger.  
CRO C-band reentry switch to command  
S/C It is at command.  
CRO Standby TM switch off  
S/C Off  
CRO TM switch to command  
S/C It's in command now  
CRO Roger. **DCS** power circuit breaker switch closed.  
S/C Stand by. Closed  
CRO Real-time transmitter circuit breaker closed.  
S/C Say it again, please  
CRO Real-time transmitter circuit breaker closed.  
S/C It's already closed  
CRO Delayed time transmitter circuit breaker closed  
S/C It's also closed.  
CRO Stand-by power circuit breaker closed.

S/C It's closed.

CRO Command line control circuit breaker closed.

S/C It's closed.

CRO AC AID beacon circuit breaker.

S/C It's closed

CRO C-band beacon circuit breaker closed.

S/C And it's closed

CRO Roger. We have your TM. It's looking good from the ground.  
Carnarvon has solid TM. Everything looks good.

HOU FLT Roger

CRO He is reconfigured as per your message.

HOU FLT Roger

S/C Carnarvon, this is Gemini 7. We had to go to A pump on the  
primary loop at 18756 because the pilot was getting warm in  
his suit.

CRO Roger, copy

HOU FLT Read that

CRO Roger, Flight

HOU FLT Ask him how the temperatures were last night.

CRO Gemini 7, Carnarvon, how were your temperatures last night?

S/C . . . last night.

HOU FLT What did he say?

CRO Repeat, Gemini 7, I did not copy.

S/C They were very good last night, very good.

CRO Roger, copy. C-band track flight. I have some buss readings for  
you, if you would like them.

S/C Have you heard whether they are definitely going to recycle 6 or  
not?

CRO We don't have the word yet definitely. The only thing that I heard was the transmission to you over the Canaries.

S/C Roger

HOU FLT We don't know yet, Carnarvon. We are not sure yet what they are going to do. Tell him we'll keep them informed as soon as we know.

CRO OK, we've just been advised that they don't know what they are going to do and they will keep you advised when they determine.

S/C Roger.

CRO Flight, Carnarvon

HOU FLT Go ahead

CRO OK, I've got the main buss currents. Main buss current No. one, 11.3; Main buss two current, 7.89; stack 2-A, 1.26; 2-B, 2.43; 2-C, 4.20

HOU FLT Jack, copy

\*Includes air/ground over Kano on Rev 118, no commentary.

Cap Com Roger Frank. We would like to give you a Flight Plan update.

S/C Roger, stand by. Go.

Cap Com S-5, 188 55 22, sequence 12, mode 02, pitch 30 degrees down yaw 3 degrees right. Did you copy, Frank.

S/C Roger.

Cap Com Gemini 7, Houston.

S/C Go ahead Houston.

Cap Com We would like you to close the DCS circuit breaker, the acq aid circuit breaker and the real time TM circuit breaker.

S/C Roger. That's done.

Cap Com Let me give you another flight plan update item here. Time 188 00 00, bio-med recorder number 1 on. Off at 190 00 00 do you copy.

S/C Roger.

Cap Com That is all the flight plan update we will give you at this time. There is a possibility of an MSC-4 or an S-8/D-13 on the next U. S. pass.

S/C Roger, Elliot, thank you. Keep us posted.

Cap Com We will keep you posted.

S/C Tell Tom and Wally we will still be waiting the 12th day if they can make it.

Cap Com Okay, Frank. It is -- it is two U.S. passes from now that we have a possible activity for you. We will be letting you know.

S/C Very well.

Cap Com Can we have the section 2 stack readouts while we are at it.

S/C Roger, will do. Stack 2A is reading about  $2\frac{1}{2}$  amps, 2B is reading 2, and 2C is reading 4.

Cap Com Roger, Jim.

END OF TAPE

CAPE

Launch Complex 19 is now being raised back to its position enclosing the launch vehicle. As soon as the erector is fixed in place the Gemini 6 pilots, Wally Schirra and Tom Stafford, will leave the spacecraft. We are still on minimum conditions at Launch Complex 19, that is, we have a small crew near the Pad making an assessment of our situation. A minimum crew will also be permitted to go up in the White Room once the erector is in place to assist the astronauts on departing from the spacecraft. We expect that Schirra and Stafford should be out some 10 to 15 minutes from now. We will now switch to the Mission Control Center in Houston.

MCC

This is Houston. The spacecraft is directly over Houston right now and the crew has just performed another fuel cell purge. Everything looks fine aboard Gemini 7, and let's stand by to see if we can get some conversation from 7.

CAP COM

They're in the process of raising the erector at the Cape at this time.

S/C

Thank you.

S/C We noticed that the purge really raised the  
QA up.

FLIGHT Very good.

S/C Purge complete.

TEXAS Gemini 7, Texas Cap Com.

S/C Go ahead.

TEXAS I'd like to get a purge and quantity readout  
at this time. Would you place your readout  
switch to the ECS O<sub>2</sub> position?

S/C Roger. ECS O<sub>2</sub>.  
.....

TEXAS Roger. Ready to go, test fuel cell O<sub>2</sub>.

S/C Fuel cell O<sub>2</sub>.

TEXAS Fuel cell H<sub>2</sub>.

S/C Rog.

TEXAS Roger. You can place the quantity switch to  
the off position, and we're standing by.

S/C Roger.

HOUSTON Texas, we're going five for voice.  
Gemini 7, Houston.

S/C Go ahead, Houston.

HOUSTON We have a flight plan update when you're ready  
to copy.

S/C Go ahead, Houston.

HOUSTON MSC-4 190 27 00, sequence 01, mode 01, pitch 26 degrees down, yaw 34 degrees left. On this one we want you to minimize your fuel, if you don't acquire it, then give it up. We're trying to minimize fuel and this is a White Sands pass; however, it is a very good White Sands pass. It'll be about the closest one we've had and the weather there is clear.

S/C Roger, understand. Have they fixed the boresight? Over.

HOUSTON Supposedly they have and they're ready to go.

S/C Thank you.

HOUSTON OK, next item. 190 40 00, exercise, 190 50 00 you have a TX coming up. Did you copy, 7?

S/C Roger. ....

HOUSTON OK. Heat period, MSC-2 and 3, 190 50 00, sequence 02, same time as the start of heat period. Apollo 192 12 06, sequence 70, mode 01, time 193 23 00. Crew status report from the Command Pilot at Hawaii. Do you copy?

S/C Roger.

HOUSTON Did you ever get the TX?

S/C Negative.

HOUSTON About 30 seconds more. Continuing with the flight

GEMINI 7/6 MISSION COMMENTARY, 12/12/65, 10:24 a.m. Tape 344, Page 4

plan update. 193 35 00 purge fuel cells at Guaymas.

193 56 00 crew status report on the pilot at RKV.

TX transmitted, do you receive?

S/C

Roger, got it.

HOUSTON

OK. 194 41 00 flight plan report at CSQ. 194

59 00 PLA update at Hawaii. 196 17 00 fuel cell

purge CSQ and bio-med recorder No. 2 continuous.

Do you copy?

S/C

Roger, I copy.

Elliot, I'd like to ask a question.

CAP COM

Go ahead.

S/C

Do you read, Houston?

CAP COM

Go ahead.

S/C

Since we're going to be drifting a lot, we'd like

to go ahead and take more target opportunity

photographs because it's almost impossible to

program anything else. We've got a lot of film

we haven't used yet.

CAP COM

Roger. We intend to give you a lot of different

kinds of assignments that you might be able to

pick up in drifting flight and feel free to

pick any of them up in drifting flight that you

can.

S/C

OK, what I'm saying is that if we see anything

interesting down there I'd like to go ahead and take some pictures of it. We've been briefed by the weather and terrain people because if we're drifting you just can't program anything else.

CAP COM

Roger. I'm observing the White Room. They have the erector up. They have the White Room up. They're presently taking Wally and Tom out of the spacecraft.

S/C

Very good.

MCC

This is Gemini Control Houston. You have heard complete report and updates by Elliot See to the 7 spacecraft. The reference to MSC-4, of course, is a laser experiment that will be attempted on the next revolution over White Sands. This is Gemini Control Houston.

END OF TAPE

CAP COM Hawaii, give us a main, an A and a B, please.

HAWAII Roger, main, A and B.

CAP COM Roger. Space 7, Houston, how do you read?

S/C OK.

CAP COM Still don't have any definite word from the Cape yet, 7. We're going to be extremely careful with our fuel. Continue to be so. And we're going to give you some experiments today but we want you to be extremely stingy on the fuel. We will try to minimize the fuel using type experiments but we will give you some which you can try to pick up in drifting flight with very minimum fuel usage. We're presently planning an MSC-4 on the next rev at White Sands. We'll be giving you an update on that later.

S/C Roger. Understand.

CAP COM We were wondering if you saw the ignition at the Cape.

S/C Roger. The gantry was open when we were over it and we were in fine position for photography, but we never saw the ignition. We were waiting for the rise.

CAP COM Roger. Apparently it was on and off very quickly.

CAP COM We'll be keeping you informed on that as soon as we get some more. Got anymore water boiling venting.

S/C Not to my knowledge any.

CAP COM Roger.

HAWAII Making a C-Band check. Hawaii is TM solid.

CAP COM Roger, Hawaii.

FLIGHT Hawaii Cap Com, Houston Flight.

HAWAII Houston Flight, Hawaii Cap Com.

FLIGHT We'd be interested in knowing if you got any moments on the spacecraft when the ECS O<sub>2</sub> vented and we also would like to know if he marked the time on the ECS O<sub>2</sub> venting.

HAWAII Roger. Gemini 7, Hawaii Cap Com.

S/C Roger, Hawaii, Gemini 7.

HAWAII Roger, we show you go on the ground and we have a question for you when you're ready.

S/C Go ahead.

HAWAII Roger, we'd like to know if you had any moments when the ECS O<sub>2</sub> vented, and if you noticed the time?

S/C Negative. We did not notice any particular moments or gyration of the spacecraft and we do not know the time.

HAWAII Roger. Understand. Standing by.

Flight, this is Hawaii Cap Com, did you copy?

FLIGHT Affirmative. You might tell him that -- no, don't tell him that, forget it.

HAWAII Roger. Hawaii.

AFD AFD, Hawaii, go ahead.

HAWAII Give me a  $T_R$  time hack.

AFD OK. Stand by one.

HAWAII I'll give you one. 463045 on my mark.

AFD Roger. You're right on.

HAWAII Is that 46 or 22?

AFD That's 4630.

HAWAII Thanks, Carnarvon. Flight, Hawaii Cap Com.

FLIGHT Go ahead, Hawaii.

HAWAII Our C-Band beacon looks real bad. We're having intermittance on it.

FLIGHT Well, you've got a real low elevation current there.

HAWAII Again?

FLIGHT You've got a low elevation pass there, don't you?

HAWAII It should check better than that, Flight. It's either from the attitudes or the beacon is breaking up. We check real good on the C-Band. Telemetry is real solid. The C-Band should be solid at this time.

LIGHT                    We've got a max elevation of 5.7 degrees.

HAWAII                   We've been checking real good at that elevation.  
I'm talking as far as holding locks.

FLIGHT                   Rog.

HAWAII                   Hawaii has lost C-Band track.

FLIGHT                   Say again.

HAWAII                   Hawaii has lost C-Band track.

FLIGHT                   Rog.

HAWAII                   Back in again.

FLIGHT                   Say again.

HAWAII                   C-Band track again at Hawaii.

FLIGHT                   Rog.

HAWAII                   Hawaii has C-Band TM LOS.

FLIGHT                   Roger.

END OF TAPE

MISSION COMMENTARY, 12/12/65, 10:35 a.m.

Tape 346, Page 1

This is Gemini Launch Control at the Cape. Wally Schirra and Tom Stafford are now out of the Gemini 6 spacecraft. They were helped over the hatch at 33 minutes past the hour. It is expected that shortly after they go down the elevator, they will get back to the crew quarters as soon as possible. We are still looking over our condition at Launch Complex 19. We expect that we will be able to start a news conference some 30 to 40 minutes from this time. This is Gemini Launch Control.

END OF TAPE

Gemini Control Houston, here. 189 hours and 18 minutes into the flight of 7. Chris Kraft, in the last few minutes, suggested somewhat, more than somewhat facetiously that perhaps Wally Schirra and Tom Stafford didn't like the seven orbit for a rendezvous attempt indicating maybe the 161 circular would be more to their liking than 161.5 in which seven is right now. This message was conveyed up to seven over Ascension. And Frank Borman and Jim Lovell joined right in the fun. The conversation went like this.

HOU Gemini 7, Houston, how do you read?

S/C Roger, Houston, loud and clear.

HOU Roger, we presume that Wally and Tom were unhappy with your orbit. They're waiting on a 161 circular.

S/C .....(garble).....

HOU I beg your pardon.

S/C We will program our venting so we can push the orbit up to .....

HOU Roger, would you like your present orbit.

S/C What is that?

HOU Would you like to know what your present orbit is?

Gemini 7, have we given you your present orbit?

S/C .....our present orbit?

HOU Roger. It is 161-5 circular.

S/C Roger that is a little high for Wally and Tom I agree. In three or four days we should be on our target.

HOU Very good, 7, we'll give them your message.

END OF TAPE

Haney: This is Gemini Control, Houston at 189 hours, 39 minutes into the flight of 7. For your reference, the flight of Gemini 5, the record that shortly will be surpassed, was 190 hours, 56 minutes; and Cris Kraft says we plan to give 7 a special salute when they pass that point. Also, for your information, the Project officials here at Houston, and also at the Cape, are still huddling, and we expect that news conference at the Cape to start perhaps 15 or 20 minutes from now. Meanwhile, some information on city passes. The 7 spacecraft should be viewable from these cities at these local times, all times local: We have a date for Los Angeles on December 13, 6:52 a.m. Pacific Standard; on the 15th of December, 5:29 a.m.; on the 16th, 5:34; on the 17th, 5:40 a.m.; on the 18th, 5:46 a.m. El Paso should be able to see the spacecraft on the 13th at 6:19 a.m.; on the 14th at 6:35, and on the 15th at 6:31 a.m., local El Paso time; on the 16th 6:37; on the 17th, two chances, 5:08 a.m. and 6:43 a.m., and on the 18th two chances, 5:13 a.m. and 6:49 a.m. Houston should be able to see it on the 13th at 7:15 a.m.; on the 14th at 5:52 a.m.; on the 15th, 5:58; on the 16th, 6:04; on the 17th, 6:10 a.m.; and on the 18th, 6:15 a.m. The Cape area should be able to see the spacecraft on the 13th of December at 6:48 a.m., EST; on the 14th at 5:30 a.m.; also on the 14th, 6:54 a.m.; on the 15th, two chances, 5:26 a.m. and 7 a.m.; on the 16th, 5:32 a.m. and 7:07 a.m.; on the 17th, 5:37 a.m.; and on the 18th, 5:43 a.m. This is Gemini Control Houston. We are coming up on Carnarvon in perhaps 5 minutes on the 119 round.

END OF TAPE

This is Gemini Control Houston, 190 hours 42 minutes into the flight. Over White Sands on this last pass across the States the crew tried to acquire that Laser beam without very much luck. Frank Borman said he saw two very brief pulses from the ground. Jim Lovell apparently did not see the ground beam at all, however, Jim did, at point of closest approach go ahead and transmit his 100 pulse-per-second beam to the ground. We do not know yet whether the ground received it. Apparently no luck which was Borman's wrapup commentary on that experiment. Later in the pass Elliot See passed up to them today's news and on hearing it, Jim Lovell made a special request that we try to read them Little Orphan Annie. He said Borman missed it a lot and Chris Kraft, apparently who is a Little Orphan Annie fan, passed along a briefing on that item. Here is the tape now as 7 crossed the United States.

Cap Com Gemini 7, Houston.

S/C Go ahead Houston.

Cap Com The Laser site is marked the same it was the last time you tried it. We have two grey smoke pots which are 10 miles north of the Laser site. The smoke pots are 30 miles apart east and west of each other. The weather report there is clear and wind calm. Do you copy.

S/C Roger. We have White Sands in site now Elliot, coming up on it, it is a.....

Cap Com Say again 7.

S/C I said we have White Sands in site. It is a long way off. The Rio Grande stands out very clear today.

Cap Com Roger.

S/C I can even see my old home town of Tucson Arizona down there.

Cap Com Roger, very good. Tucson.

S/C Got the periscope on it now. We got a very good picture of the site, but we still don't have the Laser.

Cap Com Roger.

S/C I got two blinks on the Laser, Elliot, but it is not coming in loud and clear.

Cap Com Roger, understand. You saw two pulses from the ground station and that was all.

S/C Right. We are still going by, as a matter of fact, we are at closest approach now.

Cap Com Roger.

S/C I guess I'll have to report no luck, Elliot.

Cap Com Roger, we copy. Are you complete at your attempt.

S/C Please keep tracking to get a (garbled) the gear down there isn't transmitting.

Cap Cap You say he is trying to transmit, or he is just using the 100 pulse beam.

S/C No, he used the 100 pulse beam all right at the closest approach, but I'm afraid we didn't -- unfortunately he didn't acquire the Laser. I saw it twice.

Cap Com Roger. You saw the two pulses and that is all.

S/C That is affirmative.

Cap Com And you say he never actually saw the beam for sure.

S/C That's Right.

Cap Com Roger. We have a flight plan update for you when you are

ready to copy and finished with the tracking.

S/C Bring it in , Elliot.

Cap Com Okay, you got a TX coming up here pretty soon.

S/C Thank you.

Cap Com Okay, flight plan update. Apollo 192 12 06, sequence 70, mode 01, pitch 30 degrees down, yaw 13 degrees left. MSC-2 and 3, time 206 42 00, off at that time, MSC-2 and 3 off, time 206 42 00, fuel cell purge at Antigua and the same time bio-med recorder off. Do you copy.

S/C Roger.

S/C Gemini 7.

Cap Com Go ahead Gemini 7.

S/C You might inform the experimenters on MSC-4 that the green filter for daylight acquisition is completely useless because it is impossible to recognize any of the terrain around the light.

Cap Com Roger. Understand. The green filter blocks out or filters so much that it causes you to lose terrain definition around the light, trying to locate the Laser light.

S/C Affirmative. It might be good at night but not in the daytime.

Cap Com Roger 7. We will work on that. We may be able to operate without it.

S/C Got any news Elliot.

Cap Com Roger, I've got that for you now. You ready.

S/C Ah.

Cap Com News is eminent. Would you like the local news meanwhile.

S/C How did things come out on 6, any word on that?

Cap Com No, really nothing further. We were watching the press conference here a minute ago and they have not set a definite

time on the recycling that I could hear. They are estimating on an announcement about 4 or 5 o'clock this afternoon as to the recycle time.

S/C

Roger.

Cap Com

It appears that it was strictly a faulty indication, an electrical plug dropped out or fell out, came out at the bottom starting a lift-off sequence but we had actually not lifted off yet and it caused the whole kill, so it is just a question now of a recycle time.

S/C

Roger.

Cap Com

I've got some regular news for you here if you are ready.

S/C

We are ready.

Cap Com

Mr Haney's news service says that mostly sports and Gemini news in the papers this morning. Texas A and M has been put on probation for some of its athletic practices and he adds that is not just another Aggie joke. Oklahoma University has offered Darrell Royal the head coaching job there and he says he is willing to talk about it. I think you are pretty well up on the Gemini news.

S/C

Roger thank you.

Would you read Little Orphan Annie for Frank. He misses it.

Flight

Roger, that -- she is in the bottom of that falls in a ball, and nobody has ever gone over the falls in a ball and lived before.

S/C

It has me worried.

Flight

Tell him the Flight Director is worried about it too. We will keep him informed.

Cap Com

Gemini 7, Houston. You can turn on HF now if you are interested.

S/C Thank you.

S/C Elliot, how are our fuel cells looking?

Cap Com Looking very good at the present time. We are learning something every day on them. I'm sure you are too.

S/C Okay. Gemini 7.

Cap Com Go ahead.

S/C For your information, our window problem hasn't been solved yet. We still have deposits on our windows and we are not too sure whether it was caused during the SECO, or staging, or caused by the urine dump on my side or whether it is on the inside of the outer pane.

Cap Com Roger. I understand. This is on both windows or primarily on your window.

S/C I believe I have the heavier coating although Frank has some, but it looks like little grease spots, with greasy little spots.

Cap Com Roger, understand. Looks like grease spots.

S/C Rog.

Cap Com Or you hit a few bugs.

S/C Roger.

Cap Com Flight says they must be fireflies.

S/C Probably a boilers effect.

Cap Com Roger that.

S/C We can pick up White Sands over the lower coast of California.

Cap Com Roger Frank. We understood Dr. Seamans issued a special statment this morning commenting on the Gemini 7/6 mission reflecting favorably on the planning of it and the

contingency operations and specifically citing out Wally and Tom for their correct analysis and cool planning under the circumstances there by not ejecting at the hold-kill.

S/C

Right, that was good work. I hope they can recycle it.

Cap Com

7, we are waiting on that.

END OF TAPE

190 hours, 58 minutes into the flight of 7, and we have a bulletin for you. About 2 minutes ago, 7 exceeded the Gemini 5 endurance record in space. That record exactly was 190 hours, 55 minutes and 14 seconds. Precisely at that time, Elliot See was talking with 7 via Ascension Island and he advised them that they had indeed exceeded the record of 5 and as a little bonus he advised that they were free to adopt any suit configuration they chose. Obviously, suggesting that both could take off their suits at this time if they liked. The answer came back, a very boisterous one from Jim Lovell. It was one word, "Hallelujah!" About 30 seconds later Elliot asked Jim if he was out of his suit yet and he said he only had one leg to go. Obviously, in jest. The general plan is to leave the two running without the suits up to the rendezvous maneuver with 6 or at least until well after 6 liftoff some four days from now. We have this tape of the Ascension pass in which they exceeded the Gemini 5 record and here is that conversation.

CAP COM Gemini 7, Houston, how do you read?

S/C Read you, Houston.

CAP COM We have a brief flight plan update for you when you're ready to copy.

S/C .....

CAP COM Node 191.34 45, rev 120, 14.6 degrees east, right Ascension 95221, do you copy?

S/C Understand node 191 30 45, rev 120, 14.6 degrees east, what is the rest again, please?

CAP COM Roger. Right Ascension 95221, and your time was incorrect, it is 191 34 45. Do you copy?

S/C Roger. 191 34 45. And I have right Ascension.

CAP COM Roger, 7. Gemini 7, Gemini 7, Houston, do you still read us?

S/C Roger, Houston.

CAP COM Roger. Sorry to disturb your lunch but we have a message here we think you'd be interested in.

S/C Roger, go ahead.

? COM We're coming up on a special time here, about 5 seconds. Mark, here. Just exceeded the world's manned space flight endurance record and by sheer coincidence we are pleased to inform you that you are cleared to choose whatever suit configuration you would like. Keep us informed.

S/C Hallelujah. Mine's coming off....

CAP COM We copy. You out of that suit yet, Jim?

S/C Roger. One leg to go.

END OF TAPE

This is Houston at 191 hours, 55 minutes into the flight. At Carnarvon last time, we had no discussion with the ground. Everything was going along fine, so they just passed over without a word. At Hawaii, there was brief conversation. For one thing, Jim Lovell was admonished to drink more water. Dr. Berry says that his water intake is down from what it should be. Here's the conversation as 7 went over Hawaii.

HAW We have TM solid.

HOUSTON Roger, Hawaii.

HAW Okay. The spacecraft told negative pilot data. He must still be getting out of the suit.

HOUSTON Roger.

HAW Gemini 7, Hawaii Cap Com. We have nothing further for you. We'll be standing by.

S/C How's the weather down there, Hawaii?

HAW Real fine today. Beautiful.

S/C I wonder if we can get an MSC pass on later today.

HAW Well, we went through that a little earlier, but...Stand by. Hang loose here.

S/C Okay. We'd sure like to.

HAW Did you copy all that?

HOUSTON Yea. We copy that. Stand by.

S/C Hawaii, for your information, Jim is now out of the suit, being that the suit's off configuration.

HAW Roger.

HOUSTON It doesn't look like it's possible today there, Hawaii. Tell him we'll take another look at it, but it doesn't look like it is.

HAW                   Okay, Flight. They say it doesn't look like it's going to be possible to get one here today. Probably tomorrow, but they'll take a further look at it.

S/C                   Thank you.

HAW                   Okay. We're now getting good bio-med data from Jim. It looks like he's pretty well hooked back up again.

S/C                   Roger.

HOUSTON             Hawaii, Cap Com, Houston Flight.

HAW                   Houston Flight, Hawaii Cap Com.

HOUSTON             Seven to three Green Bay over Baltimore in the first quarter; they'll want to know that.

HAW                   Say again. Say again, Flight.

HOUSTON             Seven to three, Green Bay over Baltimore. Were they listening?

HAW                   I got that. I was cut out by somebody else. Receiving HF up there?

S/C                   There's been a lot of static today for some time. I just turned it on.

HAW                   Okay. It's 7 to 3, Green Bay at the end of the first quarter.

S/C                   Very good.

HOUSTON             In the first quarter.

HAW                   That is in the first quarter.

HOUSTON             They can copy if they listen hard enough.

HAW                   They say they're getting a lot of static.

S/C                   Maybe it'll get better as we get closer to the States.

HAW                   Roger. How are your Oilers doing, Flight?

HOUSTON             They haven't started yet.

HAW                   That means they haven't lost yet.

HOUSTON Adams is not going to like you.

HAW Say again.

HOUSTON Bud Adams is not going to like you.

S/C Negative .....(garble)...not transmitting.

HAW Okay.

HOUSTON Hawaii, Houston Flight.

HAW Houston Flight, Hawaii.

HOUSTON You can tell him that the Flight Surgeon in the Control Center is going to get on to the pilot about not drinking water so maybe he'd better drink some between Hawaii and here.

HAW Okay. Seven, does your pilot there like water?

S/C Roger. He's drinking it.

HAW Well, he'd better keep drinking, because if he doesn't get some into him by the time he gets to the States, he's going to have the Flight Surgeon on his back.

S/C Okay. We'll put some more in him right now.

HAW Roger. Flight, we're showing 2C as 4.08 amps.

HOUSTON Roger. Hawaii, go to volt UHF. What do you show on 2B?

HAW Hawaii contact's remote. Hawaii remote.

HOUSTON Gemini 7, Houston Cap Com.

HAW Say again Houston.

HOUSTON Gemini 7, Houston.

S/C Loud and clear, Houston.

HOUSTON Right. Did you acquire the Laser sight on that pass?

S/C No. We're just drifting.

HOUSTON Okay. It doesn't look like you'll have a pass that'll take you much closer than that until in your safe cycle, except for perhaps the 122nd; and we'll look into rescheduling one for you

just to look at and see if you can acquire the beam and perhaps not use any fuel.

S/C Fine. Thank you.

HOUSTON Okay.

HAW Houston, Hawaii. Correction - that's 3.61 amps on that 2C.

Houston here. As you might have concluded from that broadcast, we are beaming by HF up to 7 the Green Bay, Baltimore football game through the courtesy of CBS. This is Gemini Control at 192 hours into the mission.

END OF TAPE

Gemini Control Houston here. We've just started the 121st revolution around the earth on 7. Over the States this last time the conversation went like this.

S/C All right, ground.

CAP COM 13 to 3 and they're ready to kick another extra point.

S/C Roger.

GYM Guaymas has solid TM and all systems are go.

CAP COM Roger, Guaymas.

GYM Gemini 7, Guaymas Cap Com. Everything looks good here on the ground.

S/C Roger.

GYM And, by the way, it's now Green Bay 14 to 3.

S/C Excellent.

TEXAS Texas has TM solid and all systems go.

FLIGHT Roger, Texas.

TEXAS Gemini 7, this is Texas Cap Com.

S/C Go ahead, Texas.

TEXAS We're sending you a TX.

S/C I got it.

TEXAS You're going....., standing by.

S/C Thank you.

AFD This is AFD.

TEXAS This is Texas, go ahead.

AFD We're going five for voice.

TEXAS Roger.

CAP COM Gemini 7, Houston.

S/C Go ahead, Houston.

CAP COM You receiving the HF OK?

S/C A little garbled but OK.

CAP COM You want to keep it going or you want to go back to the other.

S/C We'll keep it.

CAP COM OK. Stand by for the Surgeon.

SURGEON Jim, we're interested in checking on this lead and it looks like you've got a very good sternal. Did you replace the sensor already?

S/C No, I think that probably happened when I was taking off the suit.

SURGEON Well, gee, it looks very, very good now so let's leave it alone for awhile and see what happens. If it deteriorates again, what we'd like for you to do is just remove the tape and clean the sensor out and start all over with new paste and the new Stromaseal tape and then new tape over it, so we'll start off fresh. It should be that lower sensor, Jim.

S/C Roger. The lower sensor. Will do.

SURGEON The lead looks fine now. And your water intake is way down, Jim. We'd like for you to keep at it and are you having any thirst at all. Do you feel that you ought to be taking more water?

S/C No, I'm perfectly happy with the water intake. Of course, I've just taken about 13 to 14 ounces of water here in the last hour.

SURGEON Rog. OK. Let's keep at it and we'll keep an eye on it and keep you posted.

S/C Still about 550 .....

SURGEON Very good. Are you a little more comfortable now?

S/C Much better. This is really great. If you happen to see ....., you might tell him that this is the only way to fly.

CAP COM Roger. We copy that, Gemini 7.

SURGEON Think we've got 14 days made this way, huh?

S/C Just about. ....going to get too tired.

SURGEON We'll try and hold up. You just do the same.

S/C We are the Red and White Team up here.

SURGEON Well, we're all blue down here.

FLIGHT Many days like this one, we're going to get tired.

S/C Let us know about the recycle as soon as you know, will you, please, Chris?

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FLIGHT Rog. They're talking Wednesday at the moment but  
nothing final yet.

S/C Very good.

ANTIGUA .....Antigua.

END OF TAPE

This is Houston at 192 hours, 34 minutes into the flight. Jim Lovell said the viewing was excellent today as they came down the northeast coast of South America on that last pass over that continent. The spacecraft now in the South Atlantic, nearing the tip of Africa. Here's the tape discussion he had with the Rose Knot Victor.

RKV Gemini 7, RKV Cap Com. We have nothing for you this pass. We're standing by.

S/C This is Seven, roger. We've had one of the best pictures of all. We saw the ...uh...(Garble).

RKV Get a good view?

S/C We got a fine view.

RKV All systems look good, Flight.

HOUSTON Roge. The cell is really hanging in there now for us, RKV.

RKV Yes. What's the explanation for 2C's performance?

HOUSTON No explanation. We've just been waving wands down here on the Earth. And we purged it over Texas to quote the White Flight.

S/C RKV, Seven.

RKV Alright. Go ahead 7.

S/C What's the closest point you're anchored to?

RKV That would be Rio. We're 35 miles off the coast, and I guess we're about 150 miles north of Rio.

S/C Roger. Thank you.

RKV That's 350 miles north of Rio. You'll be able to see a river south of us.

S/C We'll look at you the next pass.

RKV Roge.

HOUSTON RKV, would you send us another main, please?

RKV Roger. We powered down the Acq-Aid, Flight

HOUSTON Roger.

RKV RKV has LOS.

HOUSTON Roger, RKV.

END OF TAPE

This is Gemini Control Houston at 192 hours, 47 minutes into the flight of 7. After lengthy discussions with officials at the Cape, it has been determined that we will try for a Wednesday launch, a Wednesday launch of Gemini 6. This would be on the 11th day. We're not absolutely certain we can make that but we think it is possible. The workers estimate that they can turn the booster around and the spacecraft around in that amount of time, and we are currently working toward that goal. Our two windows on Wednesday are as follows: 8:37 a.m. EST, that's a full 47 minute window; also, 10:13 a.m. EST, it's a fairly short window only about 7½ minutes. On the 12th day, Thursday, there will be only one window available. It starts at 8:43 a.m. EST. And on the 13th day, Friday, we have two windows available. The first starting at 7:14 a.m. EST, the second at 8:49 a.m. EST. Both are 47 minute windows. I'll say once again that it has been determined that a Wednesday launch is possible. That is our present goal to work toward it, launching on the 11th day. This is Gemini Control Houston.

END OF TAPE

Houston here at 192 hours 54 minutes into the flight of 7.

A minute or two ago over Tananarive, Elliot See advises the crew that we are going to try for a Wednesday launch of 6. Here is how that sounded.

Cap Com Gemini 7, Houston. How do you read.

S/C Loud and clear.

Cap Com Tremendous communications. We have the word that they are going to attempt to launch 6 in 3 days and if they don't make it then, of course, they will just go to the next day. The launch time on the third day, which will be Wednesday, is 8:37 eastern standard time.

S/C Roger, we are wishing for all the luck in the world on the Gemini 7, the friendly target vehicle will be standing by.

Cap Com Roger, and from now till then we are planning a level of experiments for about 3.4 pounds propellant per day versus an average of about 6 pounds per day that we have been scheduling for you.

S/C Okay.

Cap Com And we will make every attempt to schedule as many of the minimal fuel user type passes as we can.

S/C Roger, we are conservative as usual.

Cap Com Roger, and we have a progress report on the football game. It's San Diego 7, Houston 0.

S/C Roger.

Cap Com Roger. Are you receiving the HF all right down there.

S/C We were, could you hold on a second, we turned it off, we are going to give it a try right now.

Cap Com Roger. We are going to try sending it out of California on your Pacific pass so you may get it a little better from now on.

S/C Houston, can you still read us?

Cap Com Roger.

S/C Our HF is green here.

Cap Com The HF? Say again Gemini 7.

Tananarive Tananarive has LOS.

END OF TAPE

\*Occurred during Rev. 121 over Coastal Sentry Quebec, air to ground (no commentary)

HOU FLT CSQ Cap Com on a com check, how do you read?  
CSQ Cap Com, loud and clear  
HOU FLT Roger, you also  
CSQ CSQ has TM solid  
HOU FLT Roger that, CSQ  
CSQ All systems are go  
HOU FLT Roger  
CSQ Gemini 7, CSQ Cap Com. We have you GO on all systems. We have nothing to pass to you. Standing by.  
S/C Thank you, CSQ. See you later on tonight.  
CSQ Roger  
HOU FLT CSQ Cap Com, ask him how the HF is. They're over California at the moment. We're wondering.  
CSQ Roger. Gemini 7, CSQ. We're reading you HF over California at this time. Do you copy HF?  
S/C Roger  
CSQ ... have LOS, Flight  
HOU FLT Roger  
CSQ We got a "Roger" from him on that HF reception.  
HOU FLT Roger. How are you feeling out there, Chuck?  
CSQ Oh, a little tired. Kinda rough last night, didn't get much sleep.  
HOU FLT That's what I understand. Any better now?  
CSQ It seems to be smoothing out a little bit. If it will just hold off until tonight, we'll be in good shape tomorrow.  
HOU FLT Hope so. Get some rest.  
CSQ All systems are GO at LOS, Flight  
HOU FLT Roger

This is Gemini Control. We are now 193 hours and 33 minutes into the flight of spacecraft Gemini 7. At the present time our spacecraft is passing over the Pacific, and very shortly we will come upon the Guaymas, Mexico tracking station. In here in the Control Center we are in the midst of a shift change. The Red Team will be leaving here momentarily. The White Team has already taken over the consoles. At this time we will play back the taped voice conversation between the spacecraft and the Hawaiian tracking station.

HAWAII Hawaii is TM solid.

HOUSTON Roger, Hawaii.

HAWAII Gemini 7, Hawaii Cap Com.

S/C Gemini 7, go ahead.

HAWAII Roger, we have a good temperature, standing by for your blood pressure.

S/C Roger, coming down shortly. Testing full scale.

HAWAII Have a good blood pressure, standing by for your exercise.

S/C Roger. Pressure?

HAWAII Pressure's full scale. Have a good blood pressure, standing by for your food and water report.

S/C Roger. Coming down. Pilot to date has had 560 ounces of water. Column 5 is 20, column 6 is 3. The last meal was day 11th, meal B. Did not eat

the apricot cubes. The pilot had 651 ounces of  
of water. B meal, ate every bite. Column 5, 21,  
column 6, 5.

HAWAII Roger, Gemini 7. Have nothing further for you at  
this time, standing by.

S/C Roger.

HAWAII Tape dump completed at Hawaii.

FLIGHT Rog. We copy.

HAWAII Affirm. Be happy to note that the pilot has  
had three, 3.72 pounds since this mornings  
report.

FLIGHT Say again, please.

HAWAII ...this is Hawaii Cap Com.

FLIGHT Go ahead, Hawaii.

HAWAII Were you calling us?

FLIGHT Roger. The Surgeon has an open mike.

HAWAII TM LOS.

That was the taped voice communication between  
Jim Lovell, our pilot in spacecraft Gemini 7, and the Hawaiian  
tracking station. We are now 193 hours, 36 minutes into our  
mission and our spacecraft very shortly will be within the tracking  
station near Guaymas, Mexico and the State-side pass. This is  
Gemini Control.

END OF TAPE

This is Gemini Control, we are now 195 hours and 6 minutes into our mission with the spacecraft over the Pacific Ocean on the 122nd revolution and heading toward the West Coast of South America. At this time we will play back the taped voice communication that has been compiled during the last 80 minutes as the spacecraft passed over the Guaymas tracking station, the Rose Knot, and the Hawaiian tracking stations.

Cap Com Gemini 7, Gemini 7, this is Houston Cap Com, over.

Gemini 7, Gemini 7, Houston Cap Com, over.

S/C Houston, this is Gemini 7.

Cap Com Frank, the ball game may have been interrupted slightly.

We went from our California transmitter to Canaveral transmitter.

S/C What's new Houston. Anything? Gemini 7.

Cap Com Roger Gemini 7, reading you loud and clear. We have nothing new right now. We are still looking forward to Wednesday.

S/C Okay, so are we.

Cap Com I think there are two other guys who are too.

S/C As a matter of fact, we are almost beginning to look forward to Saturday.

Cap Com You getting itchy? Gemini 7, Houston. Are you receiving your HF now from the Cape.

S/C Roger, very good.

Cap Com Okay.

Flight RKV Cap Com, Houston Flight.

RKV Go Flight, RKV.

Flight Roger, we are standing by for your acquisition.

RKV Roger, did you send me another one?

Flight Roger, it is a CSR on the Pilot, Bill. We sent it to you.

RKV ... (garbled)

light Daytime group is 21 15.

RKV That is his CSR, right?

Flight Yes.

RKV Okay. We got a readout on 1 Charlie.

Flight Roger RKV.

RKV Transmitter to TX, all systems are go.

Flight Roger RKV.

S/C Gemini 7.

RKV All right Gemini 7, RKV Cap Com. We copy your oral temp,  
standing by for blood pressure.

S/C ... (garble) blood pressure.

RKV We didn't get full scale, Gemini.

S/C Okay.

KV Pump it just a little bit higher, Jim.

Real fine we have it.

S/C Gemini 7, RKV Surgeon, we have a good blood pressure.  
Give me a mark when you begin exercise.

S/C MARK.

RKV Full scale. We have a good blood pressure Gemini. Has there  
been any change in your food and water report since Hawaii.

S/C Negative.

RKV Roger. Surgeon out.

RKV RKV, Flight.

Flight Go ahead.

RKV The 2 Charlie is really carrying a load now.

Flight What are you reading.

RKV We figure 2.6 amps.

Flight Stand by and we will give you a little comparison.  
Roger, we confirm about 3.5.

RKV Roger, looks real good Flight.

Flight Roger. How is it looking RKV.

RKV Looking real good Flight.

Flight Good.

RKV RKV.

Flight Go ahead.

RKV What do you attribute 2C performance to.

Flight Say again.

RKV What do you attribute 2C's performance to.

Flight Science and Technology.

RKV ... (garbled) ...

Flight I really don't know, Bill.

RKV RKV has LOS, All systems go.

Flight Roger RKV.

Flight I can appreciate the humor on that section 2, Bill. Considering the flop and all the diverse opinions we got, particularly the ones that recommended do nothing.

RKV Evidently there's a lot of activity back there.

Flight ... LOS.

RKV There you go.

Flight Okay, we'll crank up a good systems briefing, Bill and we will also go through this large window plot we've got here and give you the lift-off times for probably the 11th, 12th, 13th days. We will send you up the times so you can more or less sketch in where the (garbled) ... We'll give them to you in G.m.t., or g.e.t's.

RKV We've only got one launch window on Wednesday, huh?

Flight No, you've actually got two. You have a real short one. You have two windows Wednesday, 1 Thursday, 2 Friday and 1 Saturday.

RKV I hope we make one of them.

Flight Wilco.

Hawaii Gemini 7, Hawaii Cap Com.

S/C Go ahead, Hawaii.

Hawaii How are you doing. We are showing you go down here.

S/C Say again please Hawaii.

Hawaii How are you doing up there?

S/C Very good.

Hawaii Okay, we are showing you go down here. I've got a landing area update. Let me know when you are ready to copy.

S/C Ready, go ahead please.

Hawaii Okay, area 125-3, 199 05 27, 26-B, 200 42 01, 27-B, 202 30 19, 28-2, 203 14 37, 29-2, 204 48 31, 30-2, 206 24 34, 31-1, 207 53 25, 32-1, 209 28 41, RET of 400K for all these landing areas is 21+40.

S/C Roger Hawaii, thank you.

Hawaii Okay, the weather is good in all areas except 131-1, there it is marginal.

S/C Okay.

Hawaii And there will be a UHF 6 pass at the RKV and also at the CSQ on rev 123.

S/C Thank you.

Hawaii If you have anything else, we will be standing by.

S/C Very good.

That was the taped voice communication between our spacecraft Gemini 7 and the various tracking stations that have accumulated during the past 80 minutes. According to our Flight Plan, the activity for the remainder of the evening will be not much. We have a housekeeping period during which the crew will stow away the equipment they have used during this day. They have an eat period coming up and they will purge the fuel cells and then retire for the night, or at least for our night. We will have, as the spacecraft passes over the Rose Knot on this revolution, which is now 122 but gets over the Rose Know it becomes revolution 123, we will have live communication between the spacecraft and that tracking station and then we'll pick it up again live over the Coastal Sentry on the next revolution. This is Gemini Control, 195 hours and 16 minutes into the flight.

END OF TAPE

This is Gemini Control. We are now 195 hours and 31 minutes into the flight of Spacecraft Gemini 7. At this time, our spacecraft is over South America and is rapidly approaching the east coast. Very shortly it will be over the Rose Knot Victor Tracking Ship. Aboard our spacecraft, our flight crew is in excellent condition; and at this time we have established ground communication.

RKV Flight, RKV Cap Com.

HOUSTON Go ahead, RKV.

RKV All systems are go. We've transmitted TX.

HOUSTON Roger.

RKV Gemini 7, RKV Cap Com.

S/C We read, RKV.

RKV Roger. All systems are go. I have an OAMS status for you whenever you're ready.

/C Roger. We're ready.

RKV Okay. Okay. You have 47 pounds of fuel remaining. This is essentially 26.5% actual. Your gauge should read 24%. We've seen essentially no usage of fuel the last 24 hours. We're planning to use a total of approximately 3 pounds of fuel per day between now and GT-6 lift off. This will leave you the necessary amount for continuances. On E-Com status, as a result of the open circuiting of Station 2 last night, the section came back strong. We believe it was because the water in the cell had time to defuse out. The ECS O2 vented last night, as predicted; and will probably begin tonight again when metabolic consumption decreases. We'd like to leave the quantity read switch at ECS O2 tonight in order to calculate vent rate and to

evaluate the heat leak on the bottle.

S/C Roger. You'll probably notice the fuel cell, now that the water's out of it; is it picking some of the load up again?

RKV It's hard to tell right now, but it looks real good. At least on the curves at any rate.

S/C I'm still wondering why we still have the Delta D on. I guess nobody really knows.

RKV That's a hundred dollar question.

S/C Right.

RKV All your cryo quantities look good for a 15 day plus mission.

S/C Thank you.

RKV Your bed time cryogenic rules for tonight will be ECS O2 heater switch off, your fuel cell O2 heater switch to auto, and your fuel cell H2 - we'd like you to pump it up to five ten PSI, and your minimum for tonight will be four four five. We'd like for you to leave the fuel cell H2 heater off.

S/C Roger.

RKV Okay. We'll update you on the status of the GT-6 launch over CST of this rev.

S/C Thank you.

RKV I've got some ball scores for you.

S/C Hey, you sound different.

RKV In the third quarter LA 28, the Browns 7; Green Bay 42, Baltimore 27 - that's a final score:

S/C ...(Garble)...

RKV We didn't tell you last, but the two previous nights, we had a visual on you over RKV. Had a real good look at you.

S/C With the naked eye or with a telescope?

KV Naked eye. We had about 10 or 15 troops up there.

S/C What do we look like?

RKV You're the fastest guy we've ever seen.

S/C Roger.

RKV Okay. Before we loose you, I'd also like to congratulate you, both of you. for all the flight controls around the world and the way you guys are flying this mission. You're making our job real easy.

S/C Our pleasure, believe us. Thank you.

RKV Flight, RKV.

HOUSTON Go ahead, RKV.

RKV Do you have anything else you want to pass up?

HOUSTON Negative.

RKV All systems look good.

JUSTON Roger. Yea. You could tell them we'll be talking to them over Tananarive, Bill.

RKV Okay. Houston will be giving you a call over Tananarive.

S/C Okay, RKV. We'll see you tonight.

RKV Did you get a look at us on your last pass?

S/C I couldn't find you.

I've got that ..... to look forward to .....

RKV We don't have a wake, that's the problem probably.

S/C Thank you.

RKV Flight, RKV.

HOUSTON Go, RKV

RKV What do you calculate for 2 Charlie this time?

HOUSTON 3.6.

That was based on your first summary, Bill.

RKV Rog.

HOUSTON I'll read 'em down to you, what we've got. We've got 1 Charlie at 24, 2 Charlie at 36.

RKV Flight, RKV.

HOUSTON Go, RKV.

RKV We've got a couple of technicians up on the deck and they've got a spotlight, they're trying - you know - to point it up there and hope they can see it.

HOUSTON You mean - - -

RKV That's what is known as optimism.

HOUSTON The crew can see it or - - - -

RKV No - - - a couple of fellows from the ship have got a light up there, they're trying to point it at the spacecraft.

HOUSTON Roger.

Why don't you dump a couple of thousand gallons of oil out on the water there, and torch it off?

RKV I'd contemplate a lot about that!

HOUSTON Don't get any on you. Stand by on that last, RKV.

RKV Rog.

TEST

RKV Flight, RKV.

HOUSTON Go, RKV.

RKV My spacecraft TR is now 80 by 1.125 seconds which indicates I may have a clock problem here on the site.

HOUSTON Okay.

I'll give you another hack as soon as we finish the pass, Bill.

RKV Okay.

RKV

RKV has LOS.

This is Gemini Control. You have just heard live voice communication between spacecraft Gemini 7 and the Rose Knot Tracking Ship. We will again contact the spacecraft through Tananarive. At that time we will pass up to the crew some additional football scores that have been received here. Our next live pass will be very shortly thereafter as the spacecraft comes up over the Coastal Sentry on this 123rd revolution. We are 195 hours and 41 minutes into the flight. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are 196 hours and 3 minutes into the mission of Spacecraft Gemini 7. Our spacecraft at this time is passing over the Indian Ocean on its 123rd revolution around the earth. A few minutes ago we had some voice communication between the Mission Control Center remoting through the Tananarive station and Frank Borman aboard spacecraft Gemini 7. And at this time we will play back the taped voice communication.

Flight Tananarive go remote.

TAN Tananarive remote. Tananarive has acquisition.

Flight Gemini 7, Gemini 7, Houston Cap Com, Over.

S/C Gemini 7, go ahead.

Flight Roger, Frank. We'd like to clarify a couple of items on the flight plan report. Did you accomplish all the items? Are we updated today? All the experiments?

S/C . . garbled . . you already know about, like the Laser.

Flight Roger, but you did attempt everything that was up there, is that correct? Gemini 7, Houston. Understand you did attempt everything that was up there today.

S/C Roger.

Flight Okay. Can you give us an estimate on your D-4/D-7 tape remaining?

S/C . . garbled . .

Flight Say again, Gemini 7.

S/C We have 7 minutes and 40 seconds left.

Flight Roger. Got 7 plus 40. I've got a node update if you are ready to copy.

S/C We used 30 seconds for GT-6.

Flight Roger, understand you used 30 seconds for GT-6. Gemini 7  
I've got a node update when you are ready to copy.

S/C Roger . . garbled . .

Flight Roger, understand.

S/C I'm ready.

Flight Okay. Node at 1990606 ; rev 125;25.3 degrees east; right  
Ascension 094339.

S/C Gemini 7, Flight. We didn't get all of that could you give  
us the longitude, latitude . .

Flight Okay. The longitude is 25.3 degrees east.

S/C Roger, right Ascension.

Flight Roger, right Ascension is 094339.

S/C Roger, We copy.

Flight Okay, and we've got somebody here that wants to say a few  
words to you. Say Big Shorty and Frisby, this is short  
Biggie. I want to offer you my sincerest congratulations.  
I can't think of two guys I'd rather see the record go to.  
And tell Frisby everything okay at home. The prime driver  
is standing by.

S/C . .garbled . .

Flight Everything is fine on the home front.

S/C We'll see you Pete.

Flight Roger. Have a good flight for the rest of the trip.

S/C Roger.

Flight Hey 7 this is Houston Cap Com. Can you give us an account of what you actually saw during the attempt of GT-6 launch?

S/C . . garbled . .

Flight Roger. Can you again give us a short account of what you saw during GT-6 attempted launch?

S/C Roger. We were right over the Cape area. We saw everything go, ignition and everything. We were just photographing with the 16 mm and the 70 mm . . garbled.

Flight Roger, Jim.

S/C We were also performing D-4/D-7 at that time.

Flight Gemini 7 this is Houston.

S/C Go ahead Houston.

Flight Roger. The surgeon advises that your star lead Jim, is still a little bit noisy and if you get a change you might take a look at it.

S/C Roger. I'll look at it.

Flight And have you been receiving the LA Cleveland game on HF.

S/C Roger.

Flight Okay. Tananarive go local.

That was taped voice communication between Mission Control and the Tananarive tracking station, remoting - MCC remoting through Tananarive to command pilot Frank Borman. The reference - we had a visitor here in the Mission Control Center and the reference Short Biggie was Charles Conrad . This is Gemini Control at 196 hours and 9 minutes into the mission.

END OF TAPE

This is Gemini Control. We are 196 hours and 15 minutes into our mission, with spacecraft Gemini 7 now passing over - are moving out into the Pacific now and very shortly will come up on the Coastal Sentry tracking ship. We have a correction on our last broadcast. We reported that Donald Slayton was conversing with the crew over Tananarive, from the Mission Control Center here. However, the reference to the person talking as "short biggee" turned out to be little Pete Conrad who was not visible from this console and he really lived up to the name of "short biggee." We are expecting momentarily now to acquire the spacecraft Gemini 7 from the Coastal Sentry tracking ship and we are going to give you live conversation between the spacecraft crew and that tracking ship. Meantime, our Surgeon - our Flight Surgeon, advises us that the spacecraft crew is in very excellent condition, physically, and they do sound good, and our Flight Director tells us all systems are in good shape on the spacecraft. We have just picked up the spacecraft and let's listen in now to the live conversation.

FLIGHT CSQ Cap Com, Houston Flight.

CSQ Go ahead.

FLIGHT Chuck, did you say his fuel cell - his quantity read is in the fuel-cell H<sub>2</sub> position?

CSQ His quantity read switch is in the fuel-cell H<sub>2</sub> position. Before LOS I'll request that he go to ECS O<sub>2</sub>.

FLIGHT Roger, got you.

CSQ I'm reading you with very high background noise, flight. Can barely copy.

FLIGHT Okay.

CSQ Uh, Gemini 7. I'd like to get an onboard readout of your propulsion quantity - propellant quantity - and OAMS source pressure.

S/C Uh, roger. Coming up.  
Propellant quantity reads about 23 percent. ....(garbled)  
... psi.

CSQ Say again pressure.

S/C 13 00 psi.

CSQ Roger, I copy.  
We don't have any further information on the spacecraft 6 launch  
and we'll advise you tomorrow after your sleep period.

S/C Okay. How far out in the water is CSQ?

CSQ We're about halfway between Okinawa and Manila.

S/C Oh boy! You got any rough seas out there?

CSQ Oh, you bet. Must be a storm over us, I suppose, we're in  
rain squalls now.

S/C No. It's very cloudy. You got a good supply of dramamine?

CSQ Uh, yeah, we've had some.

S/C When you get to Hong Kong - good liberty!

CSQ Yeah, we'd like to. Maybe you could talk to flight about that.  
Believe I'll try to rush back for Christmas.

S/C Right. Were you able to get reservations finally?

CSQ Yeah, we've got confirmed reservations all the way back in.

S/C Good show.

FLIGHT What do you compute for 2 Charlie, CSQ? We have 3.7.

CSQ Stand by, flight.  
Systems is watching the purge.

FLIGHT I'll get it after the pass.

CSQ Roger.

FLIGHT CSQ Cap Com. Houston Flight.

CSQ Go ahead.

FLIGHT Apparently the crew requested the "Rambling Rose" on HF. You can tell 'em it's on there now.

CSQ Uh, roger. Flight advises that you requested the "Rambling Rose" earlier. It's on UHF now. You copy it?

S/C We're trying it now.

CSQ Flight. 2 Charlie 3.1.

FLIGHT Roger.

CSQ Purge is complete flight. All systems are GO.

FLIGHT Roger, CSQ.

CSQ Gemini 7. We'd like to remind you to leave your quantity read switch in the ECS O<sub>2</sub> position for the sleep period.

S/C Roger. I'll get the hydrogen up to 510 then I'll switch over. "Rambling Rose" is no go.

CSQ ..... I copy.

FLIGHT Tell 'em that it'll get better.

CSQ I'll request that flight give you a re-play.

S/C Thank you.

CSQ Why don't you give 'em a re-play when they come over that area?

FLIGHT Wilco.

CSQ His ECS O<sub>2</sub> quantity is 71.8.

FLIGHT Okay. We - - -

CSQ H<sub>2</sub> quantity is 66.1.

FLIGHT Roger. Chuck, you can advise the crew that San Diego beat the Oilers 37 to 26.

CSQ Roger. Gemini 7. San Diego beat the Oilers 37 to 26.

S/C                   There's no joy ..... tonight.

CSQ                   That's affirmative. A bad note for your sleep period.

S/C                   Wait until next year!

CSQ                   Roger that.

                      We're approaching LOS. We'll say goodnight and I'll be talking  
                      to you tomorrow.

S/C                   Okay. Fine and dandy.

                      That was live voice communication between spacecraft Gemini 7  
and the Coastal Sentry tracking ship. Our spacecraft now on its 123rd revolution,  
is moving beyond the Coastal Sentry out over the Pacific and towards Hawaii. The  
flight plan now calls for a sleep period, and for the next 9 to 10 hours our pilots  
will at least be in a rest period, prior to falling asleep for the night, and our  
contact with the spacecraft will be only should an emergency arise. However, at  
this time all the spacecraft systems are in a GO condition, the crew is in ex-  
cellent physical shape, and will settle down now for a long night. This is  
Gemini Control, 196 hours and 24 minutes into the flight.

END OF TAPE

This is Gemini Control. We are now 197 hours and 21 minutes into the flight of spacecraft Gemini 7. At this time our spacecraft is passing over South America and will shortly becoming up on the Tananarive tracking station. Our spacecraft crew is in a sleep period. We do not yet have a confirmation from the spacecraft telemetry that indicates they are asleep. And all we are getting from the spacecraft, of course, is spacecraft air-to-ground telemetry. We have not had any voice communication with the spacecraft entered their sleep period, approximately 1 hour ago. This is Gemini Control at 197 hours and 22 minutes into the mission.

END OF TAPE

This is Gemini Control. We are now 198 hours and 20 minutes into the flight of spacecraft Gemini 7. At this time the spacecraft is on its 124th revolution around the earth and is passing over the Pacific and the Hawaiian tracking station. We have had no voice communication with the spacecraft since the start of the flight crew sleep period. As yet we have no indication from the ground data readouts that the crew is asleep. Here in the Mission Control Center some of our flight controllers are taking advantage of this quiet period to get their evening meals, and work, then proceed on their report of the activities that took place today in this Mission Control Center. This is Gemini Control, 198 hours 20 minutes into the flight.

END OF TAPE

This is Gemini Control. We are now 199 hours and 20 minutes into the mission of spacecraft Gemini 7. At this time the spacecraft is on its 125 revolution over the earth and at the present time it is coming up towards the Coastal Sentry tracking ship. It is presently over Vietnam. A message by telemetry from the Rose Knot - a message by wire from the Rose Knot reading out the telemetry from the spacecraft. That message said, "The crew appears to be asleep." This is Gemini Control, at 199 hours and 20 minutes into the flight.

END OF TAPE

This is Gemini Control. We are now 200 hours and 20 minutes into the flight of spacecraft Gemini 7. At this time spacecraft Gemini 7 is passing over South America and will very shortly move on over the South Atlantic within the tracking range of the Rose Knot tracking ship. We have had no voice communications with the crew since the sleep period started this evening. According to our medical data the crew is asleep at this time. Here in the Control Center our white team of Flight controllers are working on their reports. Writing up the events of the day so that they can brief the blue team which is due to come on here and take over in approximately 1 hour. This is Gemini Control at 200 hours and 20 minutes into the flight.

END OF TAPE

This is Gemini Control Control. We are now 201 hours and 20 minutes into our mission. At this time our spacecraft Gemini 7 is passing over the Pacific and will be very shortly within the tracking range of the Canton Island tracking station. According to the latest ground data that we have, the crew is still asleep. Here in Mission Control Center, our Blue Team of flight controllers has appeared on the floor. Flight director, John Hodges, has been here for the past 40 minutes and is being briefed by outgoing flight director, Gene Kranz. The Blue Team will take over direction of this flight promptly in approximately 10 minutes. This is Gemini Control. We are 201 hours and 20 minutes into our mission. The crew is asleep.

END OF TAPE

This is Gemini Control, 203 hours and 20 minutes into the flight of Gemini 7. Seven is now in its 127th revolution around the earth and coming up on the west coast of South America. Over biomed data from Gemini 7 on the last pass over the Rose Knot and Coastal Sentry tracking ships, indicated that both crew members are asleep. Flight Surgeon Dr. Owen Coons reported that the crew has been asleep now for about 6 hours. All systems are reported as GO. The next station to acquire Gemini 7 will be the Canary Islands tracking station in about 25 minutes. With Gemini 7 now sweeping across the South Pacific, and just about to go into the 128th revolution at 203 hours and 21 minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control, 20<sup>4</sup> hours and 20 minutes into the flight of Gemini 7. Gemini 7 has just now come across the southern part of Asia and is heading down toward a pass across the South Pacific in its 128th revolution around the earth. The last station to acquire the 7 spacecraft was the Canary Islands. The data indicates that the Command Pilot was resting intermittently and the Pilot was apparently sleeping. Out next station to acquire the spacecraft will be Antigua in about 45 to 50 minutes. At 20<sup>4</sup> hours and 21 minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control, 205 hours and 20 minutes into the flight of Gemini 7. Gemini 7 is now just off the east coast of Africa in its 129th revolution around the earth. Over the Antigua station a few minutes back, all systems were reported as GO. The flight surgeon, here in mission control Dr. Owen Coons, reported that the pilot and the command pilot were both asleep. Gemini 7 is now over the Canary tracking station as it starts its pass - or will start its pass in about a minute or two across North Africa. We have some information on one of the experiments that's scheduled to be performed in the morning. The MSC-4 experiment in optical communication between Gemini 7 and the White Sands Missile Range, using the Laser beam is a very low probability of being performed tomorrow because of cloud cover. Tomorrow the flight plan now calls for the S-8/D-13 visual acuity test over Laredo, Texas to be the main experiment attempted on the state side pass. It will be in the 133 rd revolution tomorrow morning around 10:30 a.m. Central Standard Time, at a ground elapsed time of 112 hours. However, the whole pass is contingent on weather and weather is not too good in the area for either experiment tomorrow. Gemini 7 is now starting across North Africa in its 129th revolution. At 205 hours and 22 minutes this is Gemini Control.

END OF TAPE

This is Gemini Control, 206 hours and 20 minutes into the flight of Gemini 7. Gemini 7 is now making a pass across the South Pacific just south of Hawaii and the Canton tracking stations on its way up to the west coast of South America, in the 129th revolution around the earth. On the previous pass before the Carnarvon station which the spacecraft just went over, the Canary station indicated that the Command Pilot was intermittently rousing and the Pilot was resting. However, over the Carnarvon station, the - both crewmen appeared to be resting at the beginning of the pass, and then the Pilot began exercising after the pass had started. So, apparently both crewmen are awake now. The sleep period ended at 206 hours and 15 minutes into the flight, or about 5 minutes ago. The exercise and eat periods are now in progress and should be over in about an hour, according to the flight plan. Gemini 7 now starting across the South Pacific, 206 hours and 21 minutes into the flight. This is Gemini Control.

END OF TAPE

This is Gemini Control, 207 hours and 20 minutes into the flight of Gemini 7. 7 is now making a pass across the Indian Ocean on its way toward the Carnarvon tracking station, where we are scheduled to have a S-8, Visual Acuity and a D-13, Astronaut Visibility experiment, along with the M-9 Vision Test experiment. These will be conducted during the pass over the Carnarvon station in Australia which is coming up in just a few minutes. The last report we had on the length of time it takes to make a revolution around the earth by Gemini 7 is 96.5 minutes. A little earlier this morning a problem developed with the onboard tape recorder. We had a state side pass with our first voice communication with the astronauts, the Gemini 7 crew this morning. We had that just a little while back and we will play that tape for you now.

Cap Com Gemini 7, Houston.

S/C Go ahead, Houston.

Cap Com Good morning Gemini 7.

S/C Hi there Houston.

Cap Com Would you start your purge on section 1, please? Gemini 7 Houston, could you tell me how difficult it is to get to your tape recorder?

S/C Get to the tape recorder?

Cap Com That's affirm.

S/C Which one do you mean?

Cap Com The TM tape. I'll tell you the problem. We've got a little problem in getting the tape rewound on it. Seems to have gone forward to the end of the tape and we can't rewind it.

We were wondering if you are in a position where you can knock it or anything like that. We have just about exhausted our means to try to get it to working.

S/C We have a bag over the top of it but we can kick it.

CapCom: Can you kick it alright?

S/C Yea, we can kick it.

CapCom Why don't we wait perhaps until Canary and we'll give you some procedure over Canary. Gemini 7, Houston. Would you start purge on section 1 please?

S/C Roger, purge. Both sections don't you?

CapCom Let's just do section 1 right now. How was your night?

S/C Very good.

CapCom Were you tumbling at all when you awakened?

S/C Tumbling very slowly.

CapCom Very slowly, I see. Was the temperature all right in the cabin?

S/C Off in the morning but not too bad.

CapCom Okay. Gemini 7, Houston.

S/C Go

CapCom I request you open circuit stack 2C and not purge section 2 until the Canaries.

S/C Roger. Open circuit 2C and do not purge till the Canaries.

Rog, will do as soon as . . garbled.

CapCom Okay, fine.

S/C . . garbled . .

CapCom I beg your pardon.

S/C Why do you want to open circuit 2C?

Cap Com It's dropping slightly in load sharing.

S/C Okay.

Cap Com I've got a flight plan update if you'd like to take it but if not we can wait until a little later.

S/C Why don't we wait. We are just in the middle of breakfast.

Cap Com Right O, be happy to.

S/C Seems like our mornings are getting earlier every day.

Cap Com We are finding that down here too. It's around 4:00 o'clock our time. It wasn't long ago that I couldn't talk to you at all. I'd like to give you the morning news but I really haven't heard any.

S/C Nothing new up here either. Complete purge on section 1 and 2C open circuited.

Cap Com Okay, thank you Gemini 7. Anything I can do for you all down here?

S/C How long do you want to leave this open circuited, Charlie?

Cap Com When we get to the Canaries we'll give you further instructions Frank.

S/C I've taken this bag off Charlie and I'll see what I can do for this TM tape recorder.

Cap Com We'd appreciate that Jim. If you can - if all else fails over the Canaries we'd like you to just kick at it a couple of times and see if we get any motion indicated down here.

S/C                    Okay.

CapCom                Incidentally I wouldn't be too concerned about the stack -  
stack 2C. Things don't look any different - any worse  
than they have before. No one is really unduly concerned  
about it down here. Gemini 7, Houston. Can you give us  
an open circuit voltage on 2C?

S/C                    Roger. 32 volts.

~~CapCom~~             32 volts. Thank you. I'll leave you alone now. Enjoy  
your breakfast.

S/C                    Right O.

END OF TAPE

This is Gemini Control, 207 hours and 45 minutes into the flight of Gemini 7. Gemini 7 is now in the 130th revolution around the earth, just leaving the east coast of Australia on its way across the Pacific toward Central America. The pass over the Canary Islands a while back had so much background noise in it that we were unable to read it here. However, we did find out that the crew completed their fuel-cell purge at Canary and performed some inflight maintenance on the tape recorder by banging on it a couple of times. This apparently didn't help. So the onboard power circuit breaker for the tape recorder was turned off and the plans are now to leave the tape recorder off for one full rev. The recorder is located under the pilot's seat and James Lovell can reach it by reaching between his legs. We have a tape here of the pass over the Carnarvon tracking station and we'll play that tape for you now.

CRO Gemini 7, Carnarvon.

S/C Roger, Carnarvon.

CRO Roger. Welcome to Australia in the daylight.

We're standing by if you need us down here.

You're looking real good.

S/C Roger. We were just discussing that. We said we think we might be able to see Australia before it gets dark.

CRO Yeah, how much can you see?

S/C I'm picking it up right now, as a matter of fact. I think I see Shark's Bay, maybe.

CRO Roger, copy.

S/C Carnarvon. There's the last .....

..... (garbled)

CRO Flight, Carnarvon.

FLIGHT Go.

CRO            We show no change whatsoever, we just got a readout on the  
stack currency. They're identical to what I gave you a few  
minutes ago.

FLIGHT        Okay.

CRO            ..... Flight.  
Seven, Carnarvon.

S/C            Go ahead, Carnarvon.

CRO            Roger. We noticed your EKG tape is starting to get some static  
on it. We were wondering what kind of movement you had in the  
last couple seconds here.

S/C            I leaned way over one time and started banging on the tape  
equipment down there in the footwell.

CRO            Roger, copy.

END OF TAPE

This is Gemini Control, 208 hours and 20 minutes into the flight of Gemini 7. The Gemini 7 is now in its 131st revolution around the earth. A - they are now passing over the Caribbean Area on their stateside pass. The crew is being given a flight plan and a PLA update by spacecraft communicator Charlie Bennett. Later on in this revolution the crew is scheduled to perform an S-5 Experiment, they're to take some Synoptic Terrain photographs over Africa. This will be followed by a crew status report over Carnarvon. At 208 minutes - 208 hours rather and 21 minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control, 1208 hours and 57 minutes into the flight of Gemini 7. We are now in the 131st revolution around the earth. The Gemini 7 spacecraft is now passing over the Indian Ocean on its way toward the Carnarvon Tracking Station. We have a tape that was taped over the Canary Station a few minutes back and we will play that tape for you now.

Canary Gemini 7, Canaries.

S/C Roger Canaries.

Canary Okay one little favor, would you close your tape recorder control circuit breaker.

S/C Roger, it is closed.

Flight Hey Jim, tell him why.

Canary Okay, the reason for this being in the event that you may have to start your DCS circuit breaker, or your relays in your DCS system.

S/C Roger. Gemini 7.

Canary Go ahead.

S/C Does this mean that you are getting only real time data and no delayed time.

Canary Roger, affirmative. You didn't kick it hard enough.

S/C Man, I tried. The Surgeon in Australia thought I had a heart failure.

Canary We understand.

HOU Cap Com Houston procedures.

Canary Go ahead.

HOU Could we have another main class 1. We got a bad timing on that last one.

Canary Rog.

S/C Gemini 7.

Canary Go ahead 7.

S/C Could you give the time on the last nodal update they gave us. I think that something is wrong.

Canary Okay the time 208 07 39.

S/C Okay, how about the time for the S-5 sequence at 208 then.

Canary Okay, 208 52 00.

S/C Okay.

Canary You got a pleasant job up there or something?

S/C I didn't realize that Africa was almost as big as Texas I guess.

Canary Roger.

HOU Cap Com Houston procedures.

Canary Go ahead.

HOU We got another bad main. Could you send it again. We are getting a g.e.t. of 238 hours. It should be 208.

Canary Rog. We seem to be having computer problems right now.

HOU Roger.

Canary Rog.

HOU Will you get it.

Canary Rog.

AFD Canary Cap Com, AFD. You can tell him we checked that nodal update and the S-5 time and it looks correct.

Canary Okay. Gemini 7, Canary.

S/C Go ahead.

Canary                    Roger. We have rechecked that nodal update now for the  
S-5 and it sounds correct.

S/C                        Roger. My buddy didn't realize that Africa is so big.

Canary                    Rog, we copy.

S/C

END OF TAPE

This is Gemini Control. 209 hours and 20 minutes into the flight of Gemini 7. Gemini 7 is now in its 131 revolution around the Earth and is now leaving the east coast of Australia on its path across the Pacific Ocean toward the United States. We have a tape of a conversation between the Carnarvon Tracking Station and Spacecraft 7; and we'll play that tape for you now.

CRO Gemini 7, Carnarvon.

S/C Go ahead.

CRO Roger. We'd like for you to cycle your tape recorder to circuit breaker to the on position, please. This is the power circuit breaker.

S/C It's on.

CRO It's on, okay. Let's turn it on about..the tape run light..for about 3 seconds. Flight?

HOUSTON Go ahead.

CRO We had the tape run light on for approximately 3 seconds.

S/C ....crew status report?

CRO Roger. That's affirmative. We'd like a crew status report on the command pilot, please.

S/C Roger. You got my temperatures?

CRO We have a valid temperature. I'll hand you over to the Surgeon. Gemini 7, Carnarvon Surgeon. We have a valid temperature. We're standing by for your blood pressure.

S/C Here it comes.

CRO There's a fishtail.

HOUSTON Flight.

CRO Go ahead, Flight.

HOUSTON That was the same glitch we saw here. We think it's just a transient, and not really an indication of motion.

CRO Roger. I'm going to have him turn it off.

HOUSTON Okay.

CRO Gemini 7, Cap Com. Will you turn your tape recorder power circuit breaker to the off position now, please.

S/C Roger.

CRO Okay. We have a valid blood pressure.....

The telemetry tape recorder being off in no way affects the medical data being received on this flight by the Flight Surgeons here at Mission Control. There is, however, a loss of telemetry on spacecraft systems between stations. The Red Flight Controller Team is now coming on and being briefed by the night time Blue Team, and getting ready to take over for the day. Gemini 7 is now well on its way into the Pacific on its 131 revolution around the Earth at 209 hours and 22 minutes into its mission. This is Gemini Control.

END OF TAPE

Gemini Control here. Good morning. As we swung across the States last time, there was a lot of discussion. We have a taped conversation lasting some 9 minutes. Here it is.

GYM Gemini 7, this is Guaymas Cap Com.

S/C Go ahead Guaymas.

GYM Roger. Everything's go here on the ground. We'd like for you to place your crossover switch to the on position.

S/C It's on.

GYM Roger.

HOUSTON Tell him we'll give him an explanation over this site.

GYM Houston will give you an explanation of this after you get over the States.

S/C Okay. Fine.

HOUSTON Texas, go remote.

TEXAS Texas is remote.

HOUSTON Guaymas, we're primed for voice now.

GYM Roge.

HOUSTON Gemini 7, Houston.

S/C Hi there, Houston.

HOUSTON Well, hi there to you also. We have a valid oral temp. Give us a blood pressure and stand by for the circuit.

S/C Roge.

HOUSTON You guys sound awful chiper this....You guys sound awful chiper this morning.

S/C We've been sleeping all the way around this pass.

HOUSTON Cuff is full scale. While we're getting that blood pressure, could you check your meal for dinner last night. We got day 14, meal A for breakfast this morning. We don't have a recording for dinner last night.

S/C Roger. Checking. Stand by. Day 13, meal C.

HOUSTON Roger. Copy, 13 C. Did you eat all of it?

S/C Roger. We both ate all of it.

HOUSTON Very good.

S/C We're good boys, Chuck.

HOUSTON I believe it. Okay. We've got a valid blood pressure down here. We're ready for exercise any time.

S/C Rogè.

HOUSTON Cuff's full scale. Frank, while we're waiting for this pressure to bleed down, could we get a check on the total count on the water gun.

S/C 3207.

HOUSTON 3207, roger.

S/C Column 5 for me is 22, column 6 is 5. For Jim, it's column 5 is 22 and column 6 is 3.

HOUSTON 22 and 5 and 22 and 3

S/C Frank tells me..... I believe we have lost a little weight, Chuck.

HOUSTON You do...Can you tell it from looking at yourselves?

S/C Yes.

HOUSTON Valid blood pressure. How long's that beard right now, Frank?

S/C You'll have to talk to Jim. He's the bearded one.

HOUSTON Cap Com concurs that you've lost considerable weight. I think you down about 170 pounds.

S/C Rogè. You'll are playing with our fuel cells again.

HOUSTON We're going to tell you about that. Frank, I've got two other quick questions here. On this sleep last night, we got that you both got about 5 to 6 hours of what you call medium sleep. Was that better than the night before?

S/C No. Not as good for me. And, not as good for Jim, either.

HOUSTON Not as good for you. Were you having thermal problems at all?

S/C Comfortable, but I just couldn't go to sleep.

HOUSTON What was the position of your suit flow control valve during the sleep periods?

S/C They're all just full flow and the temperature in here is just ideal. It's just like you were in an air conditioned home. Beautiful.

HOUSTON Frank, you said full warm, and that's the position now also?

S/C Roge. It's full flow, both valves. Chuck, did you get the blood pressure okay?

HOUSTON Roger. We got a valid blood pressure. We said that. I guess you didn't hear that when we were talking there. I'm sorry.

S/C You're just pulling my arm up here.

HOUSTON Gemini 7, Houston Flight.

S/C Yes, Sir.

HOUSTON I'll tell you a little bit about George Weber's newest theory. You ready?

S/C All set.

HOUSTON They think maybe the oxygen pressure coming out of the regulator into the fuel cell #2 is being blocked off possibly by the check valve. And, that as a result, they're not getting enough oxygen into fuel cell #2 which, besides the fact that it's not getting rid of the water, it's also not giving it enough oxygen to develop the power. So, we're going to run for a while with the crossover valve on and see if the increased oxygen flow to fuel cell 2 improves the performance.

S/C Very good. Number 2C is pretty far down, as you know.

HOUSTON Yea, we've been...uh...It was pretty steady until you woke up and it started dropping again. That's been its characteristic for about three days, so we thought we'd try something different.

S/C Fine.

HOUSTON How much water did you drink when you first woke up?

S/C Not too much. But, we filled up all the breakfast meal. I'll tell you exactly.

HOUSTON Yea. We think that may have some effect on the pressure in the fuel cell.

S/C Chris, we noticed that when we open circuited the fuel cell that 2C dropped about an amp. It never recovered.

HOUSTON Roger. Jim, are the M-1 cuffs still operating as they...and, are you wearing them?

S/C They're still operating. I've gotten quite used to them by this time. Chris, we took about 40 ounces right about breakfast time.

HOUSTON Roger. Gemini 7, we'd like to have you observe a couple of the Apollo landmarks on this rev, in preparation for your photography on the next rev. Specifically, 85 and 130. And, also check the 108 site for possible use later today.

S/C I don't want to use fuel for that Elliot. You mean just drift and look at them, right?

HOUSTON As best you can, right. You'll be....You're set up for a pass on them on the next rev after this one. We thought it would be a good idea to get a weather check this time so that we can scrub them if necessary so you don't even do it next time.

S/C Okay. Fine. Our fuel's down pretty low. Elliot, could you give us sort of a status report on how you plan to handle 6 and 7 now

if they go up Wednesday or Thursday and when and where we're going to re-enter and all that sort of stuff.

HOUSTON We don't have...I don't see what you mean on that 7. It wouldn't be any change in our plans. No change in that, Frank. We're still planning the same kind of flight, hoping to get off on Wednesday. And, that's what they're working towards. They do have some things that they don't fully understand about the launch vehicle that they want to check into; but they are pressing forward with a Wednesday launch, picking up an abbreviated mid-count tomorrow morning. Did you copy that, 7?

S/C Negative.

HOUSTON We do not have any change in our plans as far as the rendezvous and re-entry and so forth is concerned. Did you have a specific question there? I'm not sure I understand what you mean by that?

S/C Well, it appeared to me that we might both be coming in on the same day.

HOUSTON Negative. If they launch on Wednesday, they'll be back Thursday or Friday; and your day is Saturday.

S/C How much is our TR time?

HOUSTON You have 120 hours to go. Right mark.

S/C Okay. Thank you.

HOUSTON But, you are right. We are taking a look at the..what would happen if we had to launch and get you both down on the same day. And, right now, it looks like 205 and 207, with you coming down on 205.

S/C What time normal one, Chris. What time are you planning on bringing us down out of here if everything goes normal?

HOUSTON 207, and that was the GETRC that I gave you.

S/C Thank you.

HOUSTON Gemini 7, Houston. Your present GETRC would be 329:57:53.

S/C Roger. Thank you.

HOUSTON That's at 207-1.

S/C Righto. About 5 days left, 120 hours.

HOUSTON Essentially, I think the best way to look at it, Gemini 7, is that our plans have not changed from pre-flight planning in regard to the re-entry.

S/C Roger. That's fine. I just .....(Garbled).....

HOUSTON Roger.

S/C Elliot, this is Frank. Houston, this is Gemini 7.

HOUSTON Go ahead.

S/C This morning we picked up an Apollo landmark that was secured by weather yesterday while we were doing an S-5. It's Apollo 137. Would you check that off....(Garbled)...

HOUSTON Apollo 137, roger.

END OF TAPE

This is Gemini Control, Houston. 210 hours, 47 minutes into the flight. We've got three tapes backed up here. First, we'll hear the Canary conversation.

CAN Gemini 7, Canary.

S/C Go ahead Canary, Gemini 7.

CAN Roge. Looks like you've lost your Delta P light, huh?

S/C You're right.

CAN Okay. Tell you what we're going to do. We'd like you to leave that crossover switch on for a rev. And, we'd like you to monitor current and rollage, and try to give us a read out on what you observe, okay? If there's any variation at all?

S/C We were just discussing this. It's already jumped about an amp and a half since we put the crossover valve on.

CAN How about that.

S/C That's what we suggested doing about 8 days ago.

CAN I have no comment on that.

S/C I'll bet Flight does.

CAN I didn't hear anything.

HOUSTON Tell him we've had all kinds of suggestions.

CAN Flight says he's had all kind of suggestions.

S/C Ask him how his golf game went this weekend, will you?

CAN You just asked him. How'd it go, Flight?

HOUSTON The last time I played golf, I can't remember.

CAN Flight can't remember when he played golf last. How about that.

S/C Canary. Can you give me an update on the elapsed time, please?

AN Sure will. It's 210:06:55:67.

S/C Okay, Canary. Thank you. That last sequence time for S-5, you

know we were concerned about being a little late.

CAN Yep.

S/C It was late. That's the first time they've missed on that. We started early, though, and got the pictures.

CAN Okay. Very good. Flight, he's referring to the S-5 at 208:52:00.

HOUSTON Say again.

CAN He's referring to the S-5 at 208:52:00.

HOUSTON What about it.

CAN He said the time was late.

HOUSTON Roge. Send us an LOS main, Canary.

CAN Roger. Will do.

S/C Canary, the weather looks real good for Apollo 85 on the next pass.

CAN Okay. We copy it.

S/C Thank you.

HOUSTON Also, ask him to check weather in Apollo 108 if he can.

CAN Seven, Canary.

S/C Go ahead, please.

CAN Roge. Check Apollo 108 too, if you can, please.

S/C We will.

CAN Flight, Canary.

HOUSTON Go ahead.

CAN Right. On the flight, both our sections have just about balanced out in current. We're getting 7.91 on Section One and Section Two is 7.89.

HOUSTON Roge.

CAN Looks like both sections are just about carrying equal loads right now.

HOUSTON Roge.

CAN Now, we've got to get that tape recorder running. Canary has LOS.

This is Gemini Control, Houston. That wrapped up the Canary conversation. As we're preparing to play the Kano conversation, let's take a look at some of clocks in the flight plan today. We're, right now, two-thirds of the way through Plan 7 Mission. We show 210, almost 211, hours elapsed time. Time to retro is about 119 hours. During this pass and the start of the next pass, we'll have a "go", "no go" over Texas for another 15 revs. And, that will be followed by a fuel cell purge between the Cape and Bermuda to be followed by a number of Apollo landmark photography exercises on down through Kano and well into Africa. We have now the Kano tape. We'll play it now.

S/C Roger. The weather here looks pretty good, Elliot. ..(Garble)..

HOUSTON Are you looking down to the southwest there, where you'll be next rev?

S/C Well, we can't really look anywhere. We just have to look the way the spacecraft's pointing; and every place it's pointing, it's good weather.

HOUSTON Roger. We're considering adding in a 108 on the next pass, which would be between Dakar and the 130 site, like Nyassa, or whatever it is there; but maybe if you get your attitude set up, you could hit all three of them fairly easy.

S/C Hello, Elliot. We ought to take more advantage of this; because once we get our attitude set up, it's no trouble taking more than one picture along our path.

HOUSTON Okay. We'll get you an update on that one.

S/C Elliot, did you copy that our update for S-5 was too late?

HOUSTON Roger. We're looking into that, Frank.

S/C Roger.

HOUSTON Gemini 7, Houston. Surgeon says that your sternal lead is deteriorating on Jim there; and would like for you to replace it as discussed yesterday, if you can manage that at this time.

S/C Okay.

HOUSTON Thank you, Dr. Borman.

S/C I may want to get out my razor so I can shave him again. Operation beginning.

HOUSTON Should we send up a nurse?

S/C Tell Mr. Kraft as of right now, we can still go 15 days, if they need it.

HOUSTON Roger, 7.

KNO Kano loca. Kano LOS.

The last thing Frank Borman said in that transmission was, "Tell Mr. Kraft we can still go 15 days if he needs it." You recall before the mission, the Flight Director indicated the mission might be stretched; there seemed to be enough consumables aboard to go 15 days. We've heard no additional discussion of that point since the start of the mission; but if something would arrive at the Cape where we needed another 24 hours, it's conceivably possibly we'd go back and take another long look at it. The Tananarive tape is only Flight Controller discussions through that station. The 7 spacecraft was not raised it develops. However, we did have conversation over Carnarvon. And, here is that tape.

CRO Gemini 7, Carnarvon Cap Com. We have nothing for you this pass. We are standing by. Everything looks good from the ground.

S/C How is the pilot's sternal lead now?

HOUSTON We get a good here, Carnarvon.

CRO Roger. It's looking good. It's coming in real good.

S/C Thank you.

CRO Flight, that Delta P light is still off.

HOUSTON Roger. That's on Section Two. E-Com tells me that, if you notice, the Section One Delta P light, we want to close the crossover.

CRO Okay.

HOUSTON Would you pass that to the crew, also, Carnarvon.

CRO Roger. Gemini 7, Carnarvon. If the Section One Delta P light comes on, turn the crossover switch to the off position.

S/C Roger. Will do.

CRO Do we have any information on whether the spacecraft is tumbling or the approximate period of tumble if it is?

HOUSTON They said they haven't had any more trouble with tumbling.

CRO Roger. Thank you.

HOUSTON Why? Do you see some tumbling?

CRO Oh, we're noticing the slight change in signal strength which is indicative of a slow tumble rate.

HOUSTON Yea. Well, I'm sure they have some drifting rate.

CRO Roge.

HOUSTON And, they are drifting.

CRO Okay. Thank you.

END OF TAPE

This is Gemini Control Houston at 211 hours 21 minutes into the flight. Elliot See has just put in his first call to Gemini 7 which is now down over the West Coast of Mexico and we are going to have among other things a decision to go for a 148 rev flight during this pass. Let's cut in now on the conversation.

Cap Com            You have a TX coming up 7.    Gemini 7, did you copy. We have a TX coming up.

S/C                Roger, copy. Haven't received it.

Cap Com            Roger, and you are go for 148-1.

S/C                Roger, go for 148-1. Do you want our systems check?

Cap Com            Roger, standing by.

S/C                The main batteries are all 22.8 except number 4 which is 22.5. Fuel cell stack readouts, 1A, 3.0; 1B, 3.0; 1C, 2.5; 2A, 2.0; 2B, 2.0; 2C, 4.0. Main bus voltage 27.2, RCS A 3000 psi, 80 degrees, RCS B 2900 psi, 79 degrees. Left hand secondary O<sub>2</sub> 5400, right hand secondary O<sub>2</sub> 5300.

Cap Com            Roger, copy. 7, can you confirm that the delta P lights have continued to stay out all this pass?

S/C                Roger, the delta P light has stayed out both in sections 1 and 2.

Cap Com            Roger. I have a flight plan update item for you when you are ready to copy.

S/C                Roger, stand by. We are ready to copy. Go ahead Houston.

Cap Com            First Jim, let me ask, do you recall approximately how long after you opened the crossover valve that the delta P light went out?

S/C                Stand by. We have a time on that. We think it was around 209 50.

Cap Com            209 50, roger.

S/C About 210, correct us on that.

ap Com 210 00.

S/C Roger.

Cap Com Roger. Okay, first I would like to mention that the S-5 time that we had given you was incorrect. You were right on that. Flight Plan update item, Apollo 211 54 03, sequence 108, pitch 30 degrees down, yaw 5 degrees right. Also in the nature of flight plan update, but not exactly that type, we have some areas of weather interest that we would like you to observe and take pictures of if you can in drifting flight. We do not want you to use fuel for these. You can jot down the area. Frontal clouds northwest Florida, frontal clouds in New Mexico and Northern Mexico. Frontal clouds north and west of Hawaiian Islands. Do you copy.

/C Roger, and our number two delta P light just came back on.

Cap Com Roger, I copy. No. 2 delta P light back on.

S/C It was on at 22 11 25.

Cap Com Okay, we copied the delta P light, 7, and we got your time here on the ground. We are standing by for your fuel cell purge at this time.

S/C Starting purge.

Cap Com Roger.

S/C Houston, Gemini 7.

Cap Com Go.

S/C How do things look at the Cape on the recycle.

Cap Com Coming along real good.

S/C Very good.

Cap Com Still no report, Frank, on exactly what or how it happened, this plug coming out. They are still looking into it.

S/C Roger.

Cap Com Gemini 7. The movies indicate that plug coming out, but there is no evidence of why. It is clearly shown coming out, but that is about as far as we can get.

S/C Roger.

Cap Com 7, we are standing by for your O<sub>2</sub> section 2 purge.

S/C We are purging the section 2 O<sub>2</sub>.

Cap Com Roger.

S/C Aren't you receiving it down there?

Cap Com Not at the moment.

S/C O<sub>2</sub> has been on for about a minute and a half now. Coming up on the second minute.

Cap Com Roger.

S/C Purge is complete but the crossover is still on.

Cap Com Roger 7.

S/C Houston, do you want us to keep the crossover on?

Cap Com Gemini 7, do you still have the delta P light?

S/C Roger.

Cap Com We would like to turn the crossover off for the time being.

S/C Crossover's off.

Cap Com Roger. We will continue to observe it and we will go back to that if we feel it is necessary. Jim, would you check fuel cell control number 2 circuit breaker, just verify that it is closed.

S/C You were right, fuel cell control was open.

Cap Com Jim, that means we will need to complete your section 2 purge, both hydrogen and oxygen.

S/C Roger, going through it again.

Cap Com Did that take care of the delta P light, also. Did the light go off when you put the crossover valve back on, Jim.

S/C Crossover is turned on and the delta P light is still on and we are purging oxygen at this time.

Cap Com Roger. Gemini 7, Houston. I presume you do not know any reason that that circuit breaker came out.

S/C Houston, 7.

Cap Com Go ahead.

S/C Purge complete, crossover off. I have no reason why it went out. I might have hit it inadvertently.

Cap Com You say you think you might have hit that circuit breaker open? Gemini 7, we suggest you just keep an eye on that circuit breaker there in case it did pop for some reason we would like to be aware of that.

S/C Roger, will do. And our crossover is now off and the light is still on.

Cap Com Roger 7.

AFD Canary Cap Com, AFD.

Canary AFD, Canary.

AFD Okay, we didn't leave the TM on you for this time.

Canary Okay.

AFD Okay, we are standing by. Any questions.

Canary No questions. How do you read.

AFD You are coming through loud and clear.

Canary Okay, very good.

Flight Canary Cap Com, Houston Flight.

Canary Go ahead.

Flight Would you check during your purge, the last purge that was

made over your site on fuel cell 2 to let us know that  
you did see it purge on the ground --

END OF TAPE

This is Gemini Control Houston and we're on the 133rd rev.

Over the Canaries we had a brief conversation and it went like this.

CYI Gemini 7, Canary, how do you read?

S/C Rog, we're fine how are you?

CYI Roger, read you loud and clear. We'd like to check to see if you have your fuel cell heater on.

S/C Negative, do you want it on?

CYI No, negative.

S/C I had it on early this morning, Canary, but because it was giving me a minimum they gave me last night 445 but I haven't had it on for a while when it got up to 510.

CYI Okay, would you go to amperage and I'll give you a pressure purge?

S/C Pressure now is about 525.

CYI Roger, copy, 525.

S/C .....(garble)

CYI Go ahead.

S/C Apollo number 85 was obscured by clouds.

CYI Copy. Gemini 7, that's all we have for you here.

Everything looks good on the ground. We'll see you tomorrow on rev 143.

S/C Roger, Canary, see you tomorrow.

CYI .....telemetry LOS.

HOU FLIGHT Roger, Canary, go take a swim.

CYI Thank you flight, will do.

Gemini Control Here. We have an item of interest I believe to newsmen, both in Houston and the Cape. Bob Siegenthaler of ABC, the Gemini 7 TV pool producer, suffered a fractured right wrist and a fractured left knee cap yesterday while playing tennis late yesterday afternoon. Bob is in Methodist Hospital in Baytown. The weather today looks like this.-- the Weather Bureau Group here predicts satisfactory weather for the next two days for the flight of Gemini 7. In the Mid-Pacific landing area, they're predicting partly cloudy skies with widely scattered showers; easterly winds about 25 knots; seas ranging from up to eight feet; winds and seas are expected to diminish tomorrow.

In the western Pacific, skies will be partly cloudy; winds 10 to 15 knots; seas three to five feet;

In the Eastern Atlantic, skies will be partly cloudy, winds easterly 12 to 15 knots, seas three to five feet.

Landing points in the northern portion of the primary landing zone -- in the western Atlantic, skies will be partly cloudy; winds easterly 10 to 15 knots; seas three to four feet.

In the southern portion of the zone -- broken cloudiness, scattered showers; easterly winds up to 20 to 25 knots; and seas six to eight feet.

For a Gemini 6 launch on Wednesday, the weather bureau people at the Cape are predicting partly cloudy skies and a ceiling of about 10,000 feet. The surface winds will be easterly and up to 10 knots.

MISSION COMMENTARY, 12/13/65, 9:21 a.m.

Tape 379, Page 3

Seas in the off shore area will be two to three feet and launch temperature will be about 62 degrees. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston. Over Carnarvon a few minutes ago we had this conversation.

Carnarvon ... and the delta P light is on on section 2.

Flight Roger, delta P.

Carnarvon He just cycled series quantity read position.

Carnarvon Gemini 7, Carnarvon Cap Com. We have nothing further this psss, we are standing by.

S/C Roger Carnarvon. Will you inform Flight that the fuel cell control number 2 circuit breaker popped again after we re-set it over Houston.

Carnarvon Roger.

Flight Roger, we copied that. Can he give us a time.

S/C Standby, I'll give you a time.

Carnarvon Roger.

S/C 212 03.

Flight We copy.

Carnarvon Roger, Flight copies. Gemini 7, Carnarvon. Would you confirm that you have been exercising in the past few minutes, the Pilot.

S/C Roger, we've been asleep. Seriously, we were exercising.

Carnarvon Affirmative. Flight, everything looks good at Carnarvon.

Flight Say again.

Carnarvon Everything looks real good down here on the TM.

Flight Carnarvon, Houston Flight.

Carnarvon Go, Flight.

Flight Tell him we would like to leave that circuit breaker alone. If it is open, leave it open.

Carnarvon            Okay, if it pops again, leave it open.

Flight                Affirmative.

Carnarvon            Gemini 7, Carnarvon Cap Com. Next time that that circuit breaker pops or if it pops again, you can leave it open.

S/C                    You want to reset it, we've left it open now.

Carnarvon            Oh, you still have it open, okay, leave it where it is.

S/C                    Roger, we'll leave it open.

Flight                Carnarvon, Houston Flight.

Carnarvon            Roger, Flight.

Flight                Tell them that we have found some interesting information out from the Cape with regard to the launch vehicle and that we will brief them on it later today on GLV-6.

Carnarvon            They have found out some interesting information on the GLV-6 launch vehicle at the Cape, they will brief you on that a little later on today.

S/C                    Thank you.

Carnarvon            Roger.

S/C                    Does it affect the launch on **Wednesday**?

Flight                It means that the launch on Wednesday will probably come off as scheduled.

Carnarvon            It means that the launch on Wednesday will probably come off on schedule.

S/C                    Thank you.

Carnarvon            Roger.

Flight                Also, at first look at this circuit breaker just means that they have to hold that circuit breaker on during a purge. We are looking at other aspects of the circuit breaker, but

it looks like it wouldn't hurt us too much except that they  
would have to hold it on to purge.

Carnarvon            Okay. Carnarvon has had LOS.

END OF TAPE

This is Gemini Control, Houston. In the swing across the Pacific, there was a very brief conversation with Canton Island. The pilots were advised to scrub the S-8/D-13 try at Larado this pass because of weather; and that was in a very distorted communication with heavy atmospheric apparently down there today. Then, at Hawaii, we had this conversation.

HAW Hawaii is TM solid.

HOUSTON Roger, Hawaii.

HAW Hawaii has C-Band track.

HOUSTON Roger, Hawaii.

HAW Gemini 7, Hawaii Cap Com.

S/C Right, Hawaii. Gemini 7.

HAW Roger. We show you go on the ground. How are things going this morning?

S/C Very good, thank you.

HAW We have nothing further for you. We are standing by.

S/C Okay, Hawaii. Thanks very much.

HAW Hawaii has C-Band LOS.

That wraps up the Hawaii tape. We've not yet established contact through Guaymas. When we get it, we'll come back to you.

END OF TAPE

This is Gemini Control in Houston. Elliot See has just raised Seven, now over the northwest area of Mexico. And, he's just started to talk to Frank Borman and Jim Lovell. Let's tune in there live.

HOUSTON ...factors. One is that the circuit breaker took approximately 30 minutes to re-open, which gives us a very good idea as to what the current drain might be there. And another is that there is not a continuous flow through that circuit breaker. If you've had your systems out, you've probably already seen this. It is used only for operating the purge valves and also for operating the section and stack power switches. So, we feel that we can operate under this condition without a limit. We will have to put the circuit breaker on for purging; and then we'll turn it off after that, and normally that would be the only need we would have for it. But, even if we would need to use it for section or stack power switches, we could also turn it on and then turn it off afterward. Any comments from you on that?

S/C No. As you say, we've been through the systems; but, we came to the same conclusion.

HOUSTON Roger. We're continuing to analyze it, and we'll keep you posted on that.

S/C Thank you.

HOUSTON I have some flight plan updates when you're ready to copy. Incidentally, in the systems book, if you haven't done so already, be sure and look at both drawings, 121 as well as 122; because there are some circuits shown on 121 that are not shown on 122.

S/C Roger. We're ready to copy.

HOUSTON Mode 214:08:42, rev. 134 154.3 degrees east. Right ascension 092443. Transponder test. 214:31:00, sequence 01. Transponder on. Time 215:29:00, purge fuel cells at Carnarvon. HF test. 215:53:00,

sequence 02, begin test. Horizon scan mode. Time 215:00:00.

Bio-med recorder #1 to continuous. MSC 2 and 3, 216:27:00.

Sequence 03, stop at 216:37:00. Real time TM. Do you copy?

S/C Roger. I copied all but the one right after the radar test.

HOUSTON Right after the transponder test?

S/C Right.

HOUSTON What part did you miss? There was a time and a purge fuel cells.

S/C Okay. I missed the time.

HOUSTON 215:29:00. Purge fuel cells at Carnarvon.

S/C Okay. We have them all, Elliot.

HOUSTON HF test 217:23:00. Sequence 02. That's an off time. That's the off time for the test that was started at 215:53.

S/C Right.

HOUSTON Time 217:29:00, crew status report on the pilot at Hawaii. Time 218:00:00, Bio-med recorder #1 off. 218:03:00, crew status report, command pilot, at RKV. 218:47:00, flight plan report at the CSQ. 219:39:00, fuel cell purge and PLA update at RKV. Do you copy so far?

S/C Roger.

HOUSTON 220:10:00, Bio-med recorder #2 continuous. 230:10:00, Bio-med recorder #2 off. Do you copy?

S/C We have it.

HOUSTON Roger. Have the days news report from the Haney News Service. Are you ready?

S/C Ready.

HOUSTON There was a big management change announcement for the Houston Astros today. Paul Richards has been relieved as General Manager,

and Grady Hatton will be the new Field Manager. I understand he's coming from a Pacific Coast team that's had a very good record out there. Other people involved: Eddie Robinson and Luman Harris are going to be offered other positions in the Astro Organization. The Soviet News Agency, Sunday, finally got around to confirming the fact that 2 cosmonauts became ill during the Vostok 1 flight in October 1964. These were the two non-pilots, and they had a reaction of the seasickness type. And, among other things, they suffered from illusions. There's heavy coverage in the newspapers and on T.V. of the Gemini 6 attempt yesterday; and, also, it's being noted widely that you two now hold the space endurance record and are increasing it daily. Have a good lunch, 7. We'll see you the next time around.

S/C

Roger.

HOUSTON

Incidentally, we looked into trying to substitute an MSC 4 on this pass; but the weather there is also bad.

S/C

Roger. Houston, Carnarvon said you'd have some word on the cause of 6's...

HOUSTON

We don't have that ready for you yet, 7. We'll let you know as soon as we do.

S/C

Roger.

HOUSTON

Seven, Dr. Berry would like to pass along his thanks for your work on the sternal lead.

S/C

Roger. Anything for in-flight maintenance.

HOUSTON

Still coming through real good, Jim. Gemini 7, we had the HF cut out there for a while making some circuit checks. It's back up now, if you're interested.

S/C

That's outstanding, Elliot.

This is Gemini Control. Apparently, Elliot See is going to let the crew go ahead with their lunch, and have no additional conversation. The comment or two on some of the records that are being established, you heard Elliot make reference to that on one of the news accounts, the individual manned space record time of endurance is held, of course by Gordon Cooper. That total for Cooper is 225 hours, 15 minutes. Both Borman and Lovell will pass that record in approximately 12 hours, a little later today. The total U.S. manned spacecraft time prior to Gemini 7 was 347 hours, 39 minutes. Now, by adding the total time accumulated thus far in this mission, 213 hours, plus we have a total U.S. spacecraft time of 560 hours. The total Soviet manned spacecraft time is 432 hours, 40 minutes. The total U.S. individual man hours, accumulative total of all the pilots who have flown in space for the U.S., prior to Gemini 7, was 641 hours, 26 minutes. The total Russian man hours in space is 507 hours, 16 minutes. Now, by adding the total accumulated in 7 to that 641 U.S. total, we come up with 1066 hours, which is slightly more than double the total Russian time, man time in space. At 213 hours, 12 minutes into the mission, this is Gemini Control in Houston.

END OF TAPE

\*Not aired air/ground on Hawaii pass.

AFD Hawaii Cap Com, AFD.

Hawaii AFD, Hawaii Cap Com.

AFD Okay, you got our mission instruction.

Hawaii Affirmative.

AFD Okay, do you have any questions.

Hawaii Negative.

AFD Okay, we are standing by here. E-Com is working on that tape recorder problem right now. They are looking into it. Trying to see what they can come up with.

Hawaii C-band track at Hawaii.

AFD Roger Hawaii.

Hawaii TM solid, Hawaii. Gemini 7, Hawaii Cap Com.

S/C Hawaii, 7 here.

Hawaii Okay, how are you doing?

S/C Pretty good. We are just watching the sunrise.

Hawaii Roger, we are showing you go here on the ground. We will be standing by. We have nothing for you.

S/C Roger, thank you.

Hawaii Flight, Hawaii.

Flight Hawaii, AFD, go ahead.

Hawaii Okay, he's looking good. I got a few readouts here you might want.

AFD Go ahead.

Hawaii Main bus current 2, 7.89, stack 2 also, 2.02, 2 bravo, 2.04, 2 Charlie, 3.69.

AFD Roger. We are reading all that good stuff on your summary message, young man.

Hawaii Roger. Looking real good.

AFD Roger.

Hawaii Telemetry and radar IOS at Hawaii.

AFD Roger, Hawaii.

END OF TAPE

This is Gemini Control Houston 214 hours 52 minutes into the flight of 7. We have just completed certainly the quietest revolution of the earth in this Gemini 7 flight. We had zero conversation around the loop last time except for individual stations calling up to acknowledge and 7 simply rogering and advising that -- being advised that the ground stations were standing by if they needed them. Then over the States we had a fairly active conversation going and it went like this.

Guaymas Solid TM at Guaymas and all systems are go.

Flight Rog.

Guaymas Gemini 7, Guaymas Cap Com.

S/C Go ahead Guaymas, Gemini 7.

Guaymas Roger. Everything is looking good here on the ground. We would like to remind you of your transponder test coming up.

S/C Thank you. Transponder is on.

Guaymas Roger, we have it.

Flight Guaymas, would you send us an A summary.

Guaymas Roger, will do.

Texas Gemini 7, this is Texas Cap Com.

S/C Roger Texas.

Texas We have you go on the ground. We would like to get a cryogenic quantity readout at this time. Will you place the cryo quantity read switch to the ECS O<sub>2</sub> position.

S/C Roger, it's there.

Texas To the fuel cell O<sub>2</sub> position.

AFD Guaymas, this is AFD. Send us an LOS A summary.

Guaymas Roger, we will.

Texas To the Fuel Cell H<sub>2</sub> position. Turn the switch to the off position. Roger Gemini 7, we have nothing further and standing by.

S/C Texas, I'd like a clarification on the flight plan update.  
What time are we supposed to turn this transponder off  
please.

Texas Stand by. AFD, --

Flight We are checking, stand by. 2 14 50.

Texas 2 14 50, is that correct Flight.

Flight That's affirmative.

Texas Gemini 7, Texas Cap Com.

S/C Go ahead.

Texas The off time is 2 14 50.

S/C Thank you. Roger. Standing by.

Cap Com Gemini 7, Houston.

S/C Go ahead Houston. Gemini 7.

Cap Com Roger, I would like to inform you of our latest thinking on  
the reentry situation in case we do bring both of you down  
on the 14th day. The present planning would be to use revs  
205 and 206 and we are able to target for the same touchdown  
point from both of those revs, so that is the way we would  
do it, and at the moment we feel we would want to bring 7  
down first, and 6 after that on rev 206, although that could  
be changed if necessary for some reason.

S/C Roger, thank you.

Cap Com Also we would like to at this time change the Carnarvon purge  
to the next U.S. pass, ~~what's the one you are coming up on.~~

S/C Roger we will stand by and we will not purge until we are  
back over the States.

Cap Com Roger. 7 were you using any attitude control across the U.S.  
this time for any reason.

S/C Negative.

Cap Com Roger.

S/C Why?

Cap Com We were just noticing some beacon performance here and wondered if it was due to that.

S/C Well as a matter of fact, the spacecraft is hardly drifting at all. We were almost straight nose down all the way across.

Cap Com Straight nose down all the way across the U.S.

S/C Rog. Most of the way.

Cap Com Roger. This looks like another one of those good South America Coast passes.

S/C It sure is. We are looking right now all along the coast, and it is just beautiful.

Cap Com Gemini 7, Houston.

S/C Houston, you are just barely readable, say again.

Cap Com Roger, G and C tells me he hasn't seen any noticeable fuel usage since before the rendezvous. You guys are really cutting it off.

S/C That's what you told us to do.

Cap Com Roger doger.

S/C We always ..... if they are good ones.

Cap Com Say again. You cut out on that last statement, 7.

S/C I say we always follow instructions if they are good ones.

Cap Com That's the only kind.

S/C You're right, like take the suits off, don't use fuel.

Cap Com Drink water.

S/C Roger, drink water. We are doing everything.

Cap Com Very good. What do you shows on OAMS quantity.

S/C We now show 22 percent.

Cap Com Roger, 22 percent. It turns out 7, that we really aren't

limited very much at all on scheduling experiments by fuel.

We are having so much weather plus we have completed so much that there isn't a lot left that isn't covered by weather, so the fuel really isn't hurting us.

S/C

Very good.

Antigua

LOS Antigua.

This is Houston here. You heard that OAMS fuel reading that Frank Borman gave, that actually corrects here on the ground, taking into account certain factors of his gauge reading onboard. It corrects out to 26 percent remaining, or on the order of 49 pounds of usable propellant onboard. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston at 215 hours, 28 minutes into the flight. We have a statement provided for us by the Air Force, coordinated with NASA this morning on the miss fire of the Gemini 6A booster yesterday. It is significant in that it introduces new information into the situation that occurred yesterday morning on Pad 19. The statement is as follows: Early release of the pad disconnect plug caused a command to shut down the engines of Gemini 6A booster Sunday. The early release of the pad disconnect plug is under investigation and will be corrected. A subsequent data analysis of all systems also revealed that one of the first stage engines was malfunctioning at the time of shutdown.

Further concentrated review isolated the problem in the gas generators system which provide power to drive the propellant pumps. Late this morning the gas generators system was disassembled and a foreign object was found which confirms the analysis. This object was a plastic dust cover inadvertently left in the oxidizer inlet port to the gas generator. The system is being cleaned and will be reinstalled on the engine late tonight. All work schedules indicate that a Wednesday morning launch attempt is possible. Even if the problem with the pad disconnect plug had not occurred the engine malfunction would have caused shutdown to be commanded 1.03 seconds later. These and other safety features are incorporated in the Gemini launch vehicle to prevent the vehicle from lifting off with any malfunctioning system. That's the end of the statement.

I also want to correct an OAMS figure given in the previous announcement. We gave you a figure of 49 pounds remaining of usable onboard propellant. That was an incorrect figure. The correct figure is 94 pounds of usable propellant remaining in 7 which is 26 percent of its original takeoff supply. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control, Houston. A few minutes ago as Gemini 7 swung north of the Carnarvon Station, the 7 crew said good night or good day to the Carnarvon personnel; and here's how that conversation went.

CRO Gemini 7, Carnarvon Cap Com. We have nothing further at this time. We are standing by. This will be our last pass for this series; so, good night from Australia.

S/C Good night, Australia. We'll see you tomorrow.

CRO Roger. Carnarvon has had LOS.

HOUSTON Roger, Carnarvon. And, thank you for your support; and we'll be talking to you tomorrow.

CRO Roger. Enjoyed working with you tonight.

HOUSTON Roger. We have enjoyed it too.

END OF TAPE

Gemini Control Houston here, 216 hours into the flight. Our latest quantity readings show these values, ECS, that is, the breathing system oxygen, 67.7 percent remaining, fuel cell oxygen, 56.7 percent, fuel cell hydrogen 63.2 percent. Over Hawaii a few minutes ago, Ed Fendell, the Capsule Communicator out there and 7 had an interesting discussion of all the system operations and here is how the conversation went.

Hawaii TM solid Hawaii.

Flight Roger, Hawaii.

Hawaii Gemini 7, Hawaii Cap Com.

S/C This is 7, go.

Hawaii Okay we want to run a little test here. We are showing you go here on the ground. We want to run a little test to see about this tape recorder.

S/C Roger.

Hawaii Okay, I'd like you to take your tape recorder control circuit breaker to the open position.

S/C Tape recorder control in the open position.

Hawaii Okay, I want you to close your tape recorder power circuit breaker.

S/C Tape recorder power is closed.

Hawaii We have tape run at Hawaii.

Flight Roger Hawaii, we copy that.

Hawaii It just went off.

Flight What happened?

Hawaii I don't know. Stand by, we want to talk a second.

Flight (laughter)

Hawaii Okay, I'm going to try a dump, Flight.

Flight Go ahead.

Hawaii Gemini 7, I would like you to close your tape recorder control circuit breaker.

S/C Tape recorder control closed.

Flight Well don't leave us in the lurch there.

Hawaii Okay, I'll tell you what happened. We tried -- we turned it to delayed time -- correction, we closed that circuit breaker, we turned the delayed time carrier on, and -- I mean we turned the delayed time carrier on then we closed the circuit breaker. When we closed the circuit breaker naturally we got the delayed time carrier nice and clean. We transmitted tape dump on and we got a little spike but nothing much else and that's where we are now, I transmitted tape dump off and delayed time carrier off and we are now conferring a little bit here and then we are going to see where we want to go.

Flight Say those last two things you did.

Hawaii We turned tape dump off and delayed time carrier off and at the present time we have the tape recorder power CB closed and the tape recorder control CB closed.

Flight How about Charlie Charlie 06, according to E-Com, what does that show?

Hawaii Jumps to 80, drops to 60 and then bleeds off, over a minute. Takes about a minute to bleed down.

Flight Roger. According to E-Com here, that means the tape recorder is running but you are not getting any tape movement.

Hawaii Okay. Hold on here a second Flight. Can I try another quick tape dump?

Flight Try anything you like.

Hawaii Okay. Flight, Hawaii, we tried another tape dump and we just got a glitch, that was it.

Flight Okay, well make sure you have the tape recorder power circuit breaker open before you have LOS.

Hawaii Okay, I'm going to go back to tape recorder power CB open and tape recorder control CB open.

Flight Control should be closed. Tape recorder control circuit breaker closed, tape recorder power circuit breaker open.

Hawaii Okay, we'll end up in that configuration.  
Gemini 7, Hawaii.

S/C 7, roger.

Hawaii Okay, will you take your tape recorder control circuit breaker and close it please.

S/C The tape recorder control is in the closed position, you want it open?

Hawaii No, I just want to make sure it is closed and your tape recorder power circuit breaker to the open position.

S/C Roger, tape recorder closed and tape recorder power is now open.

Hawaii Okay, very good.

Flight How about telling him you had no joy in the test.

Hawaii You really hit me. Okay, it doesn't look like we solved it.

S/C Roger.

Flight Didn't mean to hit you, we just wanted you to let him know what the situation was up there.

Hawaii Yeah, well that's okay Flight. We did get that light though

for a second.as we went into that change circuit breaker position right in the beginning:

Flight

Right.

Hawaii

And the second time we tried to dump we got the same thing but Charlie Charlie 06.

Flight

Rog.

Hawaii

We also noticed one other thing. That when we changed the circuit breaker configuration we would get a glitch in our real-time telemetry.

Flight

Rog.

Hawaii

And the transponder is out.

Flight

Roger.

Hawaii

Hawaii has LOS.

END OF TAPE

Gemini Control, Houston, here. 216 hours, 23 minutes into the flight of 7. And, we have a conversation taped with 7 as it swung down the Central American area, across the Isthmus, in its first pass today across South America. Here's how the conversation went.

GYM Guaymas has solid TM and all systems are go. AFD, Guaymas

HOUSTON Go ahead.

GYM Roger. He doesn't have his tape recorder #1 turned on. Should I remind him to turn it on?

HOUSTON That's affirmative. It should be on.

GYM Roger. When is this transponder test supposed to be over?

HOUSTON It's supposed to have been over a long time ago.

GYM He still has it on.

HOUSTON Tell him to turn it off.

GYM Gemini 7, Guaymas Cap Com.

S/C Go ahead Guaymas. Seven here.

GYM Roger. You should have your bio-med tape recorder #1 to continuance at this time.

S/C Roger.

GYM And, your transponder test should be over by this time, also.

S/C Righto.

GYM Roger. We have it. Everything looking good here on the ground. We don't have anything else for you. We'll be standing by.

S/C Thank you.

HOUSTON Texas go remote. Guaymas go local.

TEXAS Texas remote.

HOUSTON Gemini 7, Houston.

S/C Go ahead, Houston. Seven here.

HOUSTON Roger. I'd like to clarify a point on the flight plan update I gave you. The MSC 2 and 3 experiment at 216:27; we gave you a note on the end of it that said real time TM. Just like to make sure you understand what that means. It means ...Just indicating to you that we'll be taking real time TM data on that since the tape recorder's inoperative.

S/C Roger.

HOUSTON Gemini 7, we're standing by for your fuel cell purge. You've got to remember to put the fuel cell control circuit breaker on, Jim, before you purge Section Two.

S/C Roger. Will do. I'll leave it off until we get....I'll put it on now.

HOUSTON And, then we want to turn it off as soon as your finished.

S/C Roger. Purge complet, Houston, and fuel cell control #2 is on the line.

HOUSTON Roger, Gemini 7. Okay, we showed that the circuit breaker stayed in all the way. You had a good purge.

S/C Roger. Good purge.

HOUSTON Gemini 7, Surgeon has a brief word for you; and then I have a comment for you, or statement, on the Gemini launch vehicle for 6. Jim, I'd like for you to tell me if those cuffs are still firm enough around...if they're tight enough on your legs there to the same extent that they were when you launched; and if not, can you tighten them up with the laces?

S/C Roger. I can. They have been tightened several times. I can get it real easily. They're still working, too.

HOUSTON Very good. You've already had to tighten them 2 or 3 times, huh?  
S/C That's right. The original tie was rather loose.  
HOUSTON Very good. We're going to give you a maintenance certificate.  
S/C I'm working for one, Flight.  
HOUSTON Jim, the...is Frank listening, also? He'd be interested in  
this.  
S/C Roger.  
HOUSTON We have a statement released today on Gemini 6. And, I'll read  
through it fairly quickly. It's probably the best way to give  
it to you. Are you ready, 7?  
S/C Roger. We're listening.  
HOUSTON Early release of the Pad disconnect plug caused a command to shut  
down the engines on Gemini 6 A booster Sunday. The early release  
of the Pad disconnect plug is under investigation and will be  
corrected. Subsequent data analysis of all systems also revealed  
that one of the first stage engine systems was malfunctioning at  
the time of shutdown. Further concentrated review isolated the  
problem in the gas generator system, which provides power to drive  
the propellant pumps. Late this morning, the gas generator system  
was disassembled; and a foreign object was found which confirms  
the analysis. This object was a plastic dust cover inadvertently  
left in the oxidizer inlet port to the gas generator. The system  
is being cleaned and will be re-installed on the engine late tonight.  
All work schedules indicate that a Wednesday morning launch attempt  
is possible. Even if the problem with the Pad disconnect plug had  
not occurred, the engine malfunction would have caused shutdown to

be commanded 1.03 seconds later. These and other safety features are incorporated into the Gemini launch vehicle to prevent the vehicle from lifting off with any malfunctioning system. How about that!

S/C We'll buy that. Gemini 7, the Sunday target vehicle, will be standing by for Wednesday's lift off.

HOUSTON Roger. We're going to send them after you.

ANTIGUA Acquisition, Antigua.

HOUSTON Seven. Both of the MSC 4 sites, that is Hawaii and Ascension, are down at the present time for equipment. We do not have an estimated time of operation. White Sands, as you know, is scrubbed today as an alternate because of weather. It is operational, however, and we will try it as soon as we get it. As a matter of fact, we're planning a pass for tomorrow on it in conjunction with a D-4. We feel that Frank can boresight the spacecraft on the D-4 site, and Jim can try to sight the Laser independently on the same pass. I'd just like to confirm that that sounds okay with you guys.

S/C Roger. We'll give that a try.

HOUSTON Roger. Seven, Flight is interested in how are things on the Amazon.

S/C It's a fine journey. Better than Disneyland.

GRAND TURK LOS, Grand Turk.

END OF TAPE

Gemini Control Houston here, 216 hours, 36 minutes into the flight. Elliot See got fantastic range on communications just a few minutes ago. He sent a UHF voice signal through the Antigua site and it reached 7 when 7 was almost down to the Rose Knot Victor area off the east coast of South America. Then the next conversation is from the Rose Knot Victor Cap Com with 7. Here's how it goes.

CAP COM Gemini 7, Houston, do you still read?

S/C Roger, go ahead.

CAP COM We've had a question of whether you can see the Andes Mountains from your present position.

S/C We're flying a horizon scan position for this UHF test, Elliot. Yesterday, last night we saw the Andes just perfectly but we only got a couple of pictures of them.

CAP COM Roger. Is this hurting your miser's sole, Frank, to use a little fuel here?

S/C For a UHF test, yes.

CAP COM Roger, copy that.

FLIGHT Standing by, any questions?

RKV No questions.

FLIGHT Roger. How you feel there today, Bill?

RKV Real good, Flight.

FLIGHT Very good.

RKV How do you feel?

FLIGHT I feel great. Did you hear that statement we just read?

RKV That's affirmative.

FLIGHT Thought you'd like that.

RKV There should be a job in Quality Control for somebody.

FLIGHT Rog. RKV Cap COM, Houston Flight.

RKV Go ahead, Flight.

FLIGHT Send us an A summary, please.

RKV Roger. RKV has telemetry solid.

FLIGHT Roger, RKV.

RKV All systems are go, Flight. We transmitted TX.

FLIGHT Roger.

RKV Gemini 7, RKV. All systems are go. We are standing by.

S/C .....

RKV Roger, we have that, Flight.

FLIGHT Roger, RKV. RKV would you send us another main summary, please.

RKV Roger. We're getting just a little.....

FLIGHT Rog.

RKV RKV has LOS.

END OF TAPE

\*Not aired air/ground on CSQ pass.

HOUSTON CSQ Cap Com, AFD.

CSQ AFD, CSQ. Go ahead.

HOUSTON Okay. You got our mission instructions. We have no special instructions for you.

CSQ Roger.

HOUSTON Okay. Any questions?

CSQ Negative questions.

HOUSTON Okay. We're standing by for your pass.

CSQ Houston, this is CSQ.

HOUSTON Go ahead.

CSQ One question. Do you want an A and B also?

HOUSTON Stand by, one. Yea. Go ahead and send us one this pass. A and the B.

CSQ Roger. Will do. CSQ had TM solid.

HOUSTON Roger, CSQ.

CSQ All systems are go, Flight.

HOUSTON Roger that.

CSQ Gemini 7, CSQ. We have you go on the ground. We have nothing for you this pass. You need not acknowledge.

S/C .....(Garble)....., CSQ. Thank you.

CSQ Roger.

HOUSTON How are things on the CSQ there today, by the way?

CSQ They're pretty good, Flight. It's a little bit; not much.

HOUSTON Did you get any sleep last night?

CSQ Not a great deal.

JSTON That's too bad.

CSQ Say again, Flight.

\*Not aired air/ground on CSQ pass.

HOUSTON I say that's too bad. Have you done anything about taking sleeping pills, or anything like that?

CSQ Negative.

HOUSTON You've got a doctor there.

CSQ All systems are go, Flight.

HOUSTON Roge.

CSQ Space powered up on primary run sensors and horizon scan mode.

HOUSTON Roger.

CSQ CSQ has TM LOS. All systems go.

HOUSTON Roger, CSQ. We copy. Hawaii Cap Com, AFD.

HAW AFD, this is Hawaii Cap Com.

HOUSTON Okay. I just want to remind you you have a crew status report on the pilot this pass.

HAW Roger.

HOUSTON Okay. And, we'd like you to leave the TM on for Guaymas; and you can set your TX for Guaymas LOS, that's 211802, Zulu.

HAW Roger. Understand.

HOUSTON Okay. Any questions?

HAW Negative.

END OF TAPE

This is Gemini Control. We are now at 217 hours and 51 minutes into the mission of Gemini 7. At this time, our spacecraft is passing over the Pacific, and very shortly will be coming up on the west coast of South America and then will begin its 137 rev. We are just putting in the tail end of the 136th revolution at this time. Here in Mission Control we have had a shift change. The White Team of flight controllers has replaced the Red Team. And, the Red Team, very shortly, will be leaving this building for their daily press conference. We have had a voice communication, a very limited voice communication, between the spacecraft and the Guaymas, Mexico Station; and at this time, we will play back the taped conversation.

GYM Guaymas has solid TM.

HOUSTON Roger, Guaymas.

GYM All systems are go.

HOUSTON Roger.

GYM AFD, Guaymas.

HOUSTON Go ahead, Guaymas.

GYM Roger. We show him at a pulse mode with his primary horizon scanners on in search. He was locked on solid horizon scan the last time we saw him around.

HOUSTON Okay. Roger. We copy.

GYM Gemini 7, Guaymas Cap Com. All systems look good on the ground.

S/C Thank you, Guaymas.

GYM Gemini 7, Guaymas Cap Com.

S/C Go ahead, Guaymas.

GYM Roger. We noticed you had your horizon scanners on and you were in a pulse mode. We were wondering if you were having trouble staying locked on.

S/C No, Guaymas. It's a glitch. We were using horizon scan for a while and then we went to pulse; it stayed 0-0-0, and then we went back

to horizon scan.

GYM Roger. Very good.

S/C We lost one lock right at the sunset, the scanner gear...good  
pitch down range we lost and we had to go to pulse to bring it  
back.

HOUSTON Roger. Understand. Thank you.

GYM Guaymas has LOS.

HOUSTON Roger, Guaymas.

END OF TAPE

This is Gemini Control. We are now 219 hours and 38 minutes into our mission with spacecraft Gemini 7 passing over the South American Continent reaching for the East Coast and very shortly will be within voice range of the Rose Knot tracking ship. According to our flight plan here we have little activity, we're winding up the day's activity, we will have a fuel-cell purge and a little activity aboard while we're over the Rose Knot, and following that, our spacecraft crew will enter a sleep period which will extend for approximately 10 hours. We are expecting, now shortly, to pick up the voice conversation between the spacecraft and the tracking ship and we intend to bring this live. Let's listen in now and get the pickup.

RKV ..then close the fuel-cell control to the circuit breaker. Then purge separately H<sub>2</sub> and O<sub>2</sub> and then open the fuel-cell control to the circuit breaker.

S/C Right. I understand.

RKV Okay. We're standing by for your purge.

S/C Does (garbled) ... take the (garbled) off all night?

RKV Let me give it a check.

S/C The fix is south 12.

RKV Right.

Did you get our summary, Flight?

FLIGHT Say again.

RKV Did you get our summary?

FLIGHT Affirmative.

RKV Thank you. .... 1 Charlie.

FLIGHT Doesn't look bad to me.

RKV Okay. It looks all right, Gemini 7.

S/C Roger. .... fuel-cell about average ...

RKV Uh, roger. I've got quite a bit of information about .....  
when you're ready to copy.

S/C Go. .

RKV Okay. I've got a ..... update.

S/C Okay, we're ready.

RKV Area 140-3: 223 11 57. Area 141-Bravo: 224 49 06. Area 142-Delta:  
235 46 10. Area 143-2: 227 20 08. Area 144-2: 228 55 58.  
Area 145-1: 230 24 28. 106-1: 231 5 niner 57. Area 147-1:  
233 35 28. The attitude of point for various peaks for all  
areas is 21 plus 40.

S/C Roger.

RKV The weather is good in all areas.

S/C Thank you.

RKV Your next fuel-cell purge after you wake up will be at Carnarvon  
at rev 144, time will be 230 plus 01.

S/C Fuel time 230 plus 01.

RKV Right.  
The purge is going good, Flight.

FLIGHT Roger, RKV.

S/C RKV.

RKV Roger. On your - for your update on your OAMS status, your fuel  
remaining is 305 pounds, your oxidizer remaining is 109 pounds,  
your actual percentage remaining is 25 percent, your onboard  
..... readings are 21 percent ..... than 1 percent of what  
we expected.

S/C Roger.

RKV I'd like to give you your bedtime rules for your cryogenic sensors.

S/C Go.

RKV Okay. Your ECS O<sub>2</sub> heater switch should be OFF. Your fuel-cell O<sub>2</sub> heater switch to AUTO. Your fuel-cell H<sub>2</sub> switch to OFF. We'd like your quantity read switch to ECS O<sub>2</sub> position tonight.

S/C Roger. I'm putting that all down.

RKV Okay.

Your fuel-cell ..... to maximum. We'd like you to pump it up to 490 and your VENT ON for tonight will be 445.

S/C 490 and 445.

RKV Right.

I'll give you a little run down on the spacecraft anomalies we've run into.

S/C Rog.

RKV Roger. Your fuel-cell O<sub>2</sub> pressure has been reading about 910 psi for the last 20 hours. We think the transducer is stuck. I have fuel-cell on control 2 circuit breaker with ..... monitor. We don't have a good explanation right now. It's probably one of the coils didn't break contact when it opened.

S/C Roger.

RKV Over a long time of conducting the coil may have burned out the information resulting in a long-distance short. I think that it might be the water valve on section 2.

S/C Roger.

We feel (garbled) the purge (garbled) to .....

RKV Roger.

S/C Any other anomalies?

RKV On our cross-over valve we don't think we got 209. Our monitor went out on the section. The delta P light went out about 210 and as far as we know it came back on at 211. The theory is (garbled).... O<sub>2</sub> and O<sub>3</sub> or that the alcoholic content will raise the O<sub>2</sub> 10 percent we'll get ..... lots of water.

S/C Roger.

FLIGHT Okay, Bill. You can also tell him they'll be having music on HF for the next 3 hours.

RKV We'll give you some music on HF for the next 3 hours.

S/C Okay.

RKV How was your view over South America this last pass?

S/C A little cloudy.  
(garbled)

RKV Have LOS less than 1 minute, Flight. You got anything else?

FLIGHT Negative, good pass, Bill.

RKV Roger. Good go.

FLIGHT Roger.  
Okay. Let's have LOS Main, RKV.

RKV Roger. Coming up here.  
RKV has LOS.

FLIGHT Roger.  
That was live voice communication between spacecraft Gemini 7, with Frank Borman doing most of the talking, from the space ship, and our Rose Knot tracking ship, located off the east coast of South America. During the past 1 and  $\frac{1}{2}$  hours, while the press conference was being held at Building 6, we had accumulated - we have accumulated several voice tapes, as the spacecraft passed

over Tananarive, the Coastal Sentry tracking ship, and the Hawaiian tracking station, and at this time we will play back those taped voice communications.

CAP COM Gemini 7, Gemini 7, Houston Cap Com. Over.

Gemini 7, Gemini 7, Houston Cap Com. Over.

S/C This is Gemini 7, you're on your .....

CAP COM Roger, Gemini 7, reading you a lot better now. Standing by for your flight plan report.

S/C Roger. D --- ASA 64. 135 exposures. Free-band tape on 35 exposures. 217 - 500, we only used 3 exposures. The IR film was 13 exposures. High-speed black and white - 12. High-contrast black and white - 5. 16-mm  $2\frac{1}{2}$  magazines. 8 -  $9\frac{1}{2}$ . S-8/D-13 scores today - Pilot minus 9. Command Pilot minus 11. Total to date column 5 - Pilot 23, Command Pilot 24. Column 6 - Pilot 3, Command Pilot 5. We accomplished everything in the flight plan today except those things which were cancelled because of the weather and you were notified at the time.

CAP COM Roger, Gemini 7. We got all your flight plan report. Just one question. Can you give us an idea of what you've been able to accomplish throughout the flight in the way of the dim-light photography?

S/C Roger. We've got some pictures of the air-glow, the night air-glow. That's about it.

CAP COM Understand air-glow, the night air-glow is about all you were able to get. Right?

S/C Right. Air-glow .....

CAP COM Okay, Frank. I think we got it all. And we'll see you, probably not for a while, tomorrow or so.

S/C Okay.

CSQ is next on .....

CSQ ..... about next ..... Jim.

Also, Houston would like for the crew, both members, to bring up their water intake just a little.

s/c Rog.

CSQ We have you GO on the ground. All systems operating normally.

s/c Git it .....(garbled) updates not.

CSQ Flight, CSQ. He's still playing with that external EKG now.

FLIGHT Roger.

CSQ He's powering down. All systems GO.

FLIGHT Roger.

CSQ Flight, CSQ. Our computer's back up, the summaries are on their way.

FLIGHT Roger.

HOUSTON CSQ, AFD.

CSQ Go ahead.

FLIGHT Give me a hack at LOS, please.

CSQ Roger. 45 minutes 13 seconds is about my TX time.

FLIGHT Okay..

CSQ LOS.

FLIGHT Roger. Roger, CSQ.

CSQ He was still playing with that EKG at LOS, flight. You might have the next flight take a look at it.

FLIGHT Okay.

Hawaii Cap Com. Houston Flight.

HAW Houston Flight, this Hawaii Cap Com.

FLIGHT Roger, Bill. You can advise the crew they'll be UHF 6 at RKV.

HAW Roger.

FLIGHT Hawaii, we're standing by.

HAW Roger. Hawaii has TM solid.

FLIGHT Roger, Hawaii.

HAW Gemini 7, Hawaii Cap Com.

S/C Seven, Hawaii.

HAW Roger. We show you GO on the ground here. We'd like to have a fuel-cell O<sub>2</sub> pressure reading, please.

S/C We're reading 740 psi and 56 percent.

HAW Roger. Understand 740 - 56 percent. I'd like to also have an OAMS prop quantity readout.

S/C Roger. Reading 21 percent onboard.

HAW That was 31 percent?

S/C Negative. 21 percent.

HAW You're 21 percent.

Would you give me an OAMS source helium pressure?

S/C About 1300.

HAW Roger, understand 1300.

We have nothing else for you at this time. Standing by.

S/C Roger.

HAW We show your sternal lead on the Command Pilot as still being bad.

S/C Roger. .... operation.

HAW Roger. Would you turn your quantity read switch OFF, please.

S/C Roger .....

HAW Roger, thank you.

HAW Houston Flight, Hawaii Cap Com. Did you copy all his transmission?

FLIGHT Roger. Dell, would you ask the crew if they've noticed any variations in their fuel-cell O<sub>2</sub> pressure reading. You can advise them we think we have a stuck transducer, that the ground TM value has not changed for approximately 20 hours.

HAW The ground what?

FLIGHT The ground reading on TM and fuel-cell O<sub>2</sub> pressure has not changed for 20 hours. We believe we have a stuck transducer. Would you find out if they have noticed any variations in their onboard reading?

HAW Roger. Would you - have you noticed any change in your fuel-cell O<sub>2</sub> pressures in the past time? We have a suspected stuck transducer. Your ground TM has not changed in the past 20 hours.

S/C Our gage hasn't changed either.

HAW Roger, understand.

S/C But the heater is cycling in here because we're getting jumps on the amp meter.

FLIGHT Okay. That's probably the best indication we've got then that it's staying within range.

HAW Roger, flight.

S/C Hawaii.

HAW It's affirmative, 7.

S/C Okay, thanks.

HAW Gemini 7. You also have a UHF 6 coming up over the RKV on this pass.

S/C Roger, Hawaii.

HAW Hawaii has TM LOS.

This is Gemini Control. We have been listening to some taped voice communication between spacecraft Gemini 7 and the tracking stations at Tananarive, Hawaii, and Coastal Sentry, taken on the last revolution. We are now in the 138th revolution with spacecraft Gemini 7. Our crew is in a sleep period, which will last for approximately 10 hours. We are playing for the crew some musical selections which will continue for approximately 2 hours, should they care to listen, and at this time we are 219 hours and 54 minutes into the flight of Gemini 7. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 220 hours and 20 minutes into our mission with spacecraft Gemini 7. At this time the spacecraft is passing over India on its 138th revolution around the earth. The crew is in an extended period of sleep. We do not as yet have a readout from ground data that indicates they are asleep. However, we will keep watching the medical data and will pass it along as soon as we get confirmation that the ground data would indicate sleep. We are playing for the crew, prior to their actually going to sleep, some music. Some music musical selections which will continue for the next hour should they care to listen. This is Gemini Control and in our Mission Control Center a lot of our flight controllers are taking advantage of the lull in activities here to eat their evening meal. We are now 220 hours and 20 minutes into the mission.

END OF TAPE

This is Gemini Control. We are now 221 minutes -- 221 hours and 20 minutes into our mission. The spacecraft is now passing over the South Atlantic on its 139th revolution. Here in the Mission Control Center our flight controllers are working on their reports updating the activities that took place today, committing them to paper so that they can brief the Blue Team which is due to come in here in about three to four hours. Aboard our spacecraft, our pilots are in a sleep period, and we do not as yet have an indication from the ground data as to whether they are asleep. This is Gemini Control, 221 hours and 20 minutes into the flight of Spacecraft Gemini 7.

END OF TAPE

This is Gemini Control. We are not at 222 hours and 20 minutes into our mission. Spacecraft Gemini 7 is on the 139th revolution passing over the Pacific Ocean about midway between the Coastal Sentry tracking ship and South America, very close to our Canton tracking station. Our latest information from the ground readouts shows us that the crew is resting quietly and possibly is asleep at this time. This is Gemini Control, 222 hours and 21 minutes into the flight.

END OF TAPE

This is Gemini Control. We are now 223 hours and 20 minutes into our mission, with the spacecraft Gemini 7 on its 140th revolution around the earth. At the present time it is passing over Africa, just about reaching the east coast of Africa and will shortly come up over the continent of India. Here in the Control Center, our flight controller -- most of them are having their evening meal. This is Gemini Control, 223 hours and 20 minutes into the mission. Our last report from the Rose Knot tracking ship, as the spacecraft passed over, reports the crew is asleep. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 224 hours and 20 minutes into the flight of spacecraft Gemini 7. Gemini 7 is just now reaching the west coast of South America on its 141st revolution around the earth. It is just beginning the 141st. Here in the Mission Control Center, our White Team of flight controllers are entering their last hour of duty and within the hour the Blue Team will take over to carry this flight on through the night. This is Gemini Control, 224 hours and 20 minutes into the flight.

END OF TAPE

This is Gemini Control. We are now at 225 hours and 16 minutes into the flight of spacecraft Gemini 7. At the present time, spacecraft Gemini 7 is passing over the Pacific in the vicinity above the Coastal Sentry tracking ship. It is on its 141st revolution around the earth. In a very few seconds now, approximately 30 seconds, our flight crew will have rolled up 225 hours and 17 minutes in flight, in approximately 15 more seconds and thus Command Pilot Frank Borman and Pilot Jim Lovell will each have exceeded the record of astronaut Gordon Cooper, who until now had spent more time in space flight than any other man. This is based upon his total of 225 hours and 16 minutes accumulated in 2 orbital space flights. One in the Mercury Program and then his flight with Pete Conrad in the Gemini Program. Now we have reached the figure of 225 hours and 17 minutes and now 21 seconds and thus Borman and Lovell are now the world's most experienced space pilots, from the standpoint of time spent in flight. According to the latest ground readouts of flight data, the crew is still asleep. We are now on the 141st revolution and 225 hours 17 minutes into this mission. This is Gemini Control.

END OF TAPE

This is Gemini Control. Gemini 7 is now in its two-hundred and twenty-seventh hour and 20 minutes of flight, beginning the dark period over the South Pacific, ending its one hundred and forty-second revolution. It should reach the Canary Islands area in about a half an hour. The last report we had over the Coastal Sentry tracking ship was that all systems are normal, and the crew appears to be asleep and in good condition. We have this information from Cape Kennedy on the activities down there regarding the Gemini 6 launch and the Gemini 6 launch vehicle preparations. They estimate completion of the reinstallation of a gas generator by 2:15 a.m. EST. The cryogenic oxygen tanks aboard Spacecraft 6 were topped off -- completed by 7:45 p.m. EST Monday, and some time between 6:00 and 8:00 EST in the morning today, an abbreviated mid-count will begin basically for the launch vehicle, but to check mostly the interface between the launch vehicle and the Gemini 6 spacecraft. A flight safety review is scheduled at 9:00 a.m. EST probably including Astronauts Schirra and Stafford, and a mission review is scheduled at about 11:00 a.m. EST also with the crew probably participating. About 6:00 or 7:00 p.m. EST Tuesday night, they begin fueling the Gemini 6 launch vehicle, and this procedure should take from three to five hours. Then at 2:10 a.m. Wednesday EST the spacecraft countdown should get underway. Two hours later at 4:10 a.m. EST

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the launch vehicle countdown should get underway, and we will look  
forward to a Gemini 6 launch at 8:37:08 EST Wednesday. So at 227  
hours and 22 minutes into the flight of Gemini 7, this is Gemini  
Control.

END OF TAPE

This is Gemini Control. Gemini 7 is passing over Southeast Asia, having just crossed the Bay of Bengal where it went right over the top of a very large tropical depression with winds at -- winds of 60 knots circling inside. Yesterday this storm was much more violent with winds of more than 80 knots. The spacecraft has been in the air now for 228 hours and 20 minutes, and is now about in the middle of its one-hundred and forty-third revolution. This is Gemini Control.

END OF TAPE

This is Gemini Control. Gemini 7 has been in space for 229 hours and 20 minutes, and in approximately 100 hours and 37 minutes will fire its retros for reentry in the Atlantic Ocean. We are on the one-hundred and forty-fourth revolution, and the one-hundred and fifty-third orbit. The orbit is  $161\frac{1}{2}$  miles -- nautical miles high circular, and it takes  $96\frac{1}{2}$  minutes to complete a revolution around the earth and  $90\frac{1}{2}$  minutes to complete an orbit in space. Our flight surgeon has just reported that his data from the Canary Islands -- from Antigua looks very good. The Antigua station said that "Everything looks good, Flight." Dr. Coons, Flight Surgeon's quote, "All our data are good, and the crew is asleep." This is Gemini Control.

END OF TAPE

This is Gemini Control, at 230 hours and 20 minutes into the flight of Gemini 7. The spacecraft has passed the Carnarvon tracking station in Hawaii, where the crew to have been woke up. The crew however, was awake. They got an update of their flight plan, which command pilot, Frank Borman, took from the Cap Com at Carnarvon. The crew is now getting ready to eat breakfast. The pilot is in the exercise period. We have a tape of that conversation between the spacecraft and Carnarvon. And we will play that tape for you now.

CRN Gemini 7, Carnarvon Cap Com. Will you place your cross over to the ON position and leave it on for 30 minutes . 30 minutes.

S/C Roger, Cross over to the ON for 30 minutes.

CRN Roger and we should have a purge on the pass. I'd like to start out with an <sup>normal</sup> / purge on section 1.

S/C Okay, normal purge on section 1.

Flight Carnarvon Cap Com, Houston Flight. Do you read?

CRN Go ahead Flight.

Flight Okay, we hadn't heard from you and we thought the line was out.

CRN Roger, we've got the purge started. It might have gone down there for a little while.

Flight Your main looks good.

CRN Roger, thank you flight.

CRN                    Okay, Gemini 7 before we start the purge on section 2 we are going to have to turn that section 2 circuit breaker off. Let me know just as soon as you finish with section 1.

S/C                    Roger.

CRN                    Okay would you place your quantity read switch to the fuel cell H<sub>2</sub> position.

S/C                    Position reading about 490 ft per sec.

CRN                    Roger. Okay I have a flight plan update when you are prepared to copy.

S/C                    Go ahead.

CRN                    Roger. I have a node update. Time 230:41:31 elapsed; rev 144;99.7 degrees west; right Ascension 09 hours 03 minutes 58 seconds. A flight plan fine line update. Change 2320000 to 2321000; HF test 2321000; Sequence number 01; attitude control not required; use UHF for station passes; stop at 2334000; last item 2321749 crew status report command pilot have breakfast. Do you copy?

S/C                    We have it all.

CRN                    Okay will you place your quantity read switch in the fuel cell O<sub>2</sub> position.

S/C                    Purge is complete . . garbled . .

CRN                    Okay, thank you. I am to remind you that the biomed recorder no. is to go off at 230:10;00 .

S/C                    Roger.

CRN

Okay you can place your quantity read switch to the  
OFF position. Okay, we will have LOS here shortly. Good  
morning from Australia. And that completes the items for  
this pass.

S/C

Thank you.

That was a taped communication between Gemini 7 and  
Carnarvon station a few minutes ago and this is Gemini Control.

END OF TAPE

This is Gemini Control. Gemini 7 is on its 145th revolution heading - beginning its track down down across the Indian Ocean toward Australia, where the crew will perform a visual acuity experiment using the world's largest eye chart. This consists of several panels 2000 by 2000 feet square and we call this the S-8/D-13 experiment. Right now we are 231 minutes - 231 hours and 20 minutes into our flight and just a little while ago the spacecraft passed within range of several of our U.S. stations and some lively conversation ensued between our Cap Com, astronaut Charles Bassett and the Gemini 7 crew. We'd like to play that tape for you now.

CAP COM Gemini 7, Houston.

S/C Good morning, Houston, 7 here.

CAP COM The Blue Team wishes you good morning! How's everything this morning?

S/C Pretty good. You're coming in pretty weak though, Charlie.

CAP COM Okay, Jim. Could I have an OAMS prop readout, please?

S/C 41 percent.

CAP COM 21 percent?

S/C 21 percent.

CAP COM Roger. Would you please verify your crossover OFF?

S/C Roger, crossover is OFF.

CAP COM Did you see any rates resulting from ECS O<sub>2</sub>?

S/C We'll look outside. Just a minute.

Uh, they're not bad, Charlie.

CAP COM Okay, very good. Listen, EECON thinks that your pressure transducer on fuel cell O<sub>2</sub> is hung up. We'd like you to turn your fuel cell O<sub>2</sub> heater switch to OFF for one or 2 revs to

let the tank pressure decay slightly and then perhaps unstick the transducer.

S/C Roger. Fuel cell O<sub>2</sub> going - heater going OFF at this time.

CAP COM Okay. And you can turn your delayed tape transmitter back - transmitter circuit breaker OFF and this won't be used again since the tape is - since the tape recorder has failed.

S/C You want the tape recorder power circuit breaker back OFF?

CAP COM Yeah, that's to your delayed time transmitter circuit breaker.

S/C Okay. The delayed time is turned OFF.

CAP COM And listen - are you aware that last night you passed Cooper's individual time in orbit? His record was 22 - 225 and a quarter hours or so and you're now standing almost 240 hours.

S/C No, we forgot about that.

CAP COM Almost 231 hours, I guess.

S/C 230 hours 49 minutes and 28 seconds, Charlie.

CAP COM You're exactly right. Did your delta P light go on anytime the crossover was on, Gemini 7?

S/C Negative.

CAP COM Okay. Next stateside pass will probably be a UHF 6 pass.

S/C Very well. How's everything in Houston?

CAP COM Real fine.

S/C Charlie, could you take a message for me?

CAP COM Sure, be happy to.

S/C Would you tell Dr. LaChance, of the Crew Systems Division, that his chicken with gravy should be labeled gravy with chicken.

CAP COM Chicken with gravy instead of - - Okay, I got it.

S/C Charlie, our tumble mode out of this ..... seems to be a left roll and a left yaw.

CAP COM Left roll and left yaw.

S/C And very . . . . . we haven't even looked outside for  
10 hours.

CAP COM Okay. Real good.

Would you like to hear some of late last night's news?

S/C Sure would.

CAP COM Well, there's quite a bit of stuff on Viet Nam. The Marines  
and the Vietnamese troops eased into mopping up stage of  
operation harvest moon today with an estimate that ground and  
air strikes have killed about 1000 of their quarry which is a  
hard-core Viet Cong regiment.

U.S. Officers said the area where up to 3700 Viet Cong had  
sought to hold their ground against an Allied Task Force  
of several thousand men is now secure. They're proposing to  
keep it that way.

Here's something from Notre Dame, the College. There were  
apparently a group of students who were going to fast for  
clerical freedom of speech. The College told them to go right  
ahead. But all of a sudden all of the fasters disappeared.

S/C Great.

CAP COM The psychological warfare experts are mighty happy in that  
voluntarily, a group of 22 Viet Cong Platoon - a group of 22  
in a Viet Cong Platoon surrendered to the 173rd Airborne at  
Beaudat which is 60 miles northeast of Saigon. A U.S. spokes-  
man said that that was the largest single defection of arms  
and surgeons in months.

CAP COM Don't have any sports news. Apparently we don't get that on our tape. I'd be happy to give you some if there were. There's been a little turnover in the management of the Oilers.

S/C Of the Oilers or the Astros?

CAP COM Oh, that was the Astros. Had you heard about that?

S/C Yeah, we heard about that yesterday.

CAP COM Okey doke.

S/C They checked with Frank before they made the turnover!

CAP COM Yeah.

S/C How are things going at the Cape, Charlie?

CAP COM Things are going along real well, Frank. They're going to do an abbreviated mid-count this morning and pick up the count tomorrow night at the regular time.

S/C What time is launch scheduled for now?

CAP COM It's 8:37.

S/C Houston or in Cape time?

CAP COM That's Cape time.

S/C Aiming for 4?

CAP COM I beg your pardon?

S/C That for rendezvous at the 4th apogee?

CAP COM That's affirmative.

S/C Can you tell us what our orbit has decayed to now?

CAP COM Stand by, one.

It's right about 161 and a half, Frank. We haven't tracked it this morning to get any good updated information. We'll give you that just as soon as we get a good track on it.

S/C Okay.

CAP COM Say, we have some dim-light photography updates we'd like to give you if it would be of any assistance.

Would you like to take that?

S/C Get it later on. We got all of our - we're eating right now.

CAP COM Yeah, I understand that. We'll give you that with your big flight plan update.

S/C Very good.

We would like it. We want to get the - - - - to be taken care of tonight, Thursday and Friday night if we can.

CAP COM Okay. Real good. We think we'll have a pretty interesting day for you today. We hope so.

S/C What time do you go off duty, Charlie?

CAP COM I go off at 7.

That's 7 local.

Can I do something for you, Frank?

S/C No, I just wondered. It's been a long night for you'll, hasn't it?

CAP COM Yeah. I bet it's been a lot longer for you'll though.

S/C Jim and I are beginning to notice the days seem to be lengthening a little.

CAP COM I'll bet.

Believe me, we can hack it if you can.

S/C (entirely garbled)

Who's the Surgeon on duty with you, Charlie?

CAP COM I beg your pardon?

Oh, it's Nick Coons.

Gemini 7. Nick Coons is Blue Surgeon.

S/C I figured he'd have the night shift. He wouldn't have gone  
to bed anyway.

CAP COM Yeah, he's laughing!

LOS ANTIGUA

This is Gemini Control. That was a taped transcription, taped  
conversation between Gemini 7 and the U.S. Stations. Right now we are at 231  
hours and 28 minutes into the flight. This is Gemini Control.

END OF TAPE

This is Gemini Control at 232 hours and 20 minutes into the flight. Gemini 7 is now over Southern Mexico on its way to beginning its 146th revolution. It's just now ending its 145th. Meanwhile we have a status report from Cape Kennedy on the Gemini launch vehicle and spacecraft for the 6 mission, scheduled to get off Wednesday morning. The gas generator has been reinstalled on the Gemini 6 launch vehicle at the Cape. It was done last night and they have begun topping off spacecraft cryogenics, or at least they will within the hour. An abbreviated midcount is scheduled to get under way about now at the Cape. Mostly on the launch vehicle although the spacecraft will be powered up to support this operation. A flight safety review should get underway at 9:00 a.m. Eastern Standard Time. And a mission review is scheduled two hours later. The Gemini 6 countdown is to begin at 2:10 a.m. e.s.t. Wednesday with liftoff planned for 8:37 a.m. e.s.t. At 232 hours and 21 minutes after the hour this is Gemini Control.

END OF TAPE

This is Gemini Control. 232 hours and 58 minutes into the flight of Gemini 7. The spacecraft is just beginning another pass across the Indian Ocean heading toward darkness, which they'll meet somewhere over Australia. They have just passed within range of the Kano, Nigeria station and the Canary Island station; and previous to that, they were in contact for a little while with the U. S. stations. We have a tape of some of the conversation between the U. S. stations and the spacecraft; and we'll play that tape for you now.

HOUSTON Gemini 7, Houston.

S/C Go ahead, Houston, this is Gemini 7.

HOUSTON Roger. This won't be a UHF-6 pass as we previously mentioned. Would you verify your TM and real time and Acq-Aid?

S/C Roger.

HOUSTON And place your adapter C-Band on continuous. Place tape playback on reset momentarily, then command. Leave C-Band, real time, and Acq-Aid in continuance until Canaries' LOS. I note you have temperature. Would you start your blood pressure, please. I'm passing you over to Flight Surgeon. Gemini 7, your cuff is full scale. Gemini 7, while that's bleeding down, could the pilot tell me if the M-1 has been going continuously and whether he has any comment on the cuff comfort?

S/C Houston, Seven.

HOUSTON Gemini 7, this is Houston Surgeon. I'll come to you again in a moment. Stand by. Gemini 7, we have a good blood pressure. You can start your exercise now, please.

S/C Mark.

HOUSTON Gemini 7, Houston Surgeon. Would pilot comment on the pneumatic cuff comfort; the thigh cuffs.

S/C Here comes the blood pressure.

HOUSTON Roger. We copy, 7.

S/C The cuffs are okay. He's on an HF test on another frequency. The cuffs are okay.

HOUSTON Roger, Gemini 7. Thank you. Your cuff is full scale. Gemini 7, Houston Surgeon. While that's bleeding down, could you give me a reading on your suit and cabin temperature control valve settings?

S/C Roger. Suit's full flow, both of them; and the..uh..everything's full cold. The cabin, of course, is full hot.

HOUSTON Roger.

S/C We can maintain mighty nice conditions by warming up a little when we go to sleep and then turning them back cold when we wake up.

HOUSTON Roger, Gemini 7. We have a good blood pressure. While you're turning over your food and water log, would you comment on your sleep last night, please.

S/C Jim got about 7 hours and I got about 6 hours of pretty good sleep.

HOUSTON Both pretty good?

S/C Roge.

HOUSTON Roger.

S/C The pilot now has a total of 658 ounces of water. We had this morning Day 10, Meal A; and he did not eat the peanut cubes. I did not eat the beef sandwiches. He's had Column 5, 24; Column 6, 4. Command pilot's had 780 ounces of water; Column 5, 26; Column 6, 5.

HOUSTON Roger. And, we're standing by for your supper report last night.

S/C We had Day 11, Meal...Stand by one, that's not right. We had a Meal C last night, I think it was Day 10, Meal C.

HOUSTON Roger, Frank. We'll put it down and check to see if it's been recorded before. Would you give us a total gun count, now?

S/C Roger. 3521.

HOUSTON 3-5-2-1. Your lips and nose satisfactorily comfortable?

S/C Say again, please.

HOUSTON Are you having any difficulty with drying of your lips and nose?

S/C We're using this skin cream. We're about of it. We're getting to the stage now where we're starting to itch a little bit.

HOUSTON On the skin generally, or in the scalp only?

S/C ...scalp; and we're just getting a little crooby.

This is Gemini Control; and that was the status report on the command pilot, Frank Borman. I'm sorry...Yes, that's right. A similar report will be given by the pilot, Jim Lovell, when we get to Carnarvon in about 15 minutes. This is Gemini Control.

END OF TAPE

This is Gemini Control at 233 hours and 20 minutes into the flight of Gemini 7. Not long ago we passed the Tananarive tracking station off the east coast of Africa and we taped a conversation between the ground station and the crew and we will play that tape for you now.

Cap Com Gemini 7, Houston.

S/C Go ahead Houston, Gemini 7.

Cap Com Gemini 7, Houston. Place your crossover on and request an onboard readout of 2C.

S/C 2C is down to 2 amps. Do you read, Houston.

Cap Com Roger Gemini 7, thank you.

S/C Roger, you mind asking him about the platform?

Cap Com That's affirmative, we are considering that now Frank.

S/C I think that's needless to turn the platform on under these circumstances.

Cap Com Roger, we'll be back with you on the next Stateside pass. Incidentally, you wondered about your orbits, your present orbit from tracking for the last Stateside pass was 163.1 by 159.7.

S/C Thank you.

Cap Com G.e.t. of Gemini 6 lift-off is about 258 07.

S/C Houston, Gemini 7.

Cap Com Gemini 7, go.

S/C That 429 at 237 Or, is that ..... (garbled)

Cap Com Say again. Say again Gemini 7.

S/C Sequence 429 D-4/D-7, is that .... (garbled) 2.

Cap Com That's 02, sequence 02.

S/C Igot the mode 02, but what about the (garbled) ...

Cap Com We'll be back with you on the next Stateside pass, Gemini 7. I'm not sure I'm reading you.

S/C                    Okay.

Cap Com                Gemini 7, one more statement, do not use experiment recorder.

S/C                    Roger, understand. Do not use experiment recorder.

Tananarive            Tananarive has LOS.

                         This is Gemini Control. That was a conversation between Tananarive and the Gemini 7 spacecraft. The spacecraft is now over Australia. Right this minute the Red Team Flight Controllers are coming in to relieve the Blue Team Flight Controllers who have been here all night long and are getting prepared to go over for a press conference. Chris Kraft is discussing the days activities with outgoing Flight Director John Hodge and Elliot See the on coming Cap Com is discussing his duties for the day with the outgoing Cap Com Charlie Bassett. Dr. Berry will relieve Dr. Coons and that will complete the -- almost complete the change of shift which should take place within the half-hour. At 233 hours and 23 minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control, the spacecraft on its 146th revolution. It is now off the East coast of Australia in its 233rd hour and 26th minute of flight. They had a conversation with the Carnarvon station in Australia. We have a tape of that conversation and we'll play it for you now.

CRO Gemini 7, Carnarvon Cap Cap Com. Turn the BCS circuit breaker on.

S/C Roger, Carnarvon.

CRO Roger, thank you. Okay, and you can terminate that HFT test.

S/C For good?

CRO Negative, just for this pass.

S/C Roger.

CRO Gemini 7, we're ready for your blood pressure.

S/C Carnarvon, .....(garble) but we thought that should be rad 3, instead of rad 2.

CRO Say again, Gemini 7.

S/C D-4/D-7 sequence 429, we understand it's mode 2, we want to know what the rad should be on it.

CRO Rog.

HOU FLIGHT They want to know what the rad should be on this experiment.

CRO Stand by.

HOU FLIGHT Stand by, we'll give it to you.

CRO Gemini 7, we have your pressure, we're ready for your exercise.

S/C Do you have the temperature also Carnarvon?

CRO That's affirmative.

S/C Thank you.

CRO Mark.

HOU FLIGHT           Can we have another cross one main please.

S/C                    Blood pressure coming up

CRO                    Roger.    It should be on the line flight.

HOU FLIGHT            Roger.

S/C                    ...garble...

HOU FLIGHT            We had a good blood pressure thank you.

CRO SURGEON           Surgeon out.

CRO                    Okay, Gemini 7, Carnarvon Cap Com, we're standing by for  
your going over readings.

S/C                    Roger, here they are -- main batteries 1, 2, and 3, read 22.8  
volts.   Number 4 is 22.5 volts; the fuel cell readouts  
1A - 3.5 amps; 1B - 4.0; 1C - 3.0; 2A - 3.0; 2B, - 3.0; 2C - 2.0.  
Main buss voltage 26.5.   RCSA 3,000; 80 degrees; RCSB 2900.  
75 degrees.   Left hand secondary 02 5400; right hand secondary  
02 5300.

HOU FLIGHT            Can we have another cross main please Carnarvon?

CRO                    Roger flight.    Okay, Gemini 7.

HOU FLIGHT            Give him a go.

CRO                    Gemini 7, we have you go here on the ground and I'm going to  
update your TR clock at this time.

S/C                    Roger.

CRO                    Roger, we have you updated and go on the ground.

S/C                    Roger, thank you.

HOU FLIGHT            Tell him we're two days ahead on that thing, will you?

CRO                    Okay, that time is for two days ahead, you have a go for 178-1.

S/C                    Thank you.

HOU FLIGHT            That's negative, he has a TR for 178-1.

CRO                    Okay, what does he have a go for?

HOU FLIGHT Stand by. 163-1 Carnarvon, Houston.

CRO Go ahead flight.

HOU FLIGHT 163-1.

CRO Rog. Gemini 7, that go is for area 163-1. However, the TR time is for 178-1.

S/C Roger, we thought you were getting pretty liberal.

CRO Roger.

HOU FLIGHT Carnarvon, Houston flight.

CRO Go ahead flight.

HOU FLIGHT That rad should be 3.

CRO That rad should be 3?

HOU FLIGHT Rog.

CRO Gemini 7, Carnarvon, the rad on that experiment should be 3.  
Do you copy?

S/C Roger, we copy, thank you.

CRO Roger. We have nothing much farther for you. Would you turn your DCS circuit breaker to the open position five minutes from now?

S/C Roger.

CRO Roger, and you can start that HFT again.

S/C Roger, we will have the cross over switch on until we get back over the states and talk to them about the fuel cells, is that correct?

CRO That's affirmative.

S/C Thank you.

END OF TAPE

This is Gemini Control. We are 233 hours and 50 minutes into the flight of Gemini 7. We have just made contact between Gemini 7 and Guaymas Station. Let's tune in on that conversation, live, now. The Guaymas Station did report to the Gemini spacecraft, and the crew did report back; we're just waiting for some conversation now.

GYM Roger.

HOUSTON Okay. We haven't seen it yet. We're going to run that down.

GYM Okay. Sing out if you don't get it.

HOUSTON Texas, go remote.

TEXAS Texas is remote.

HOUSTON Guaymas, we're primed for voice now.

GYM Roge.

HOUSTON Gemini 7, Houston.

S/C Go ahead, Houston.

HOUSTON Good morning.

S/C And, good morning to you. Hi, Houston.

HOUSTON We are ready to place the fuel cell O2 heater switch back on; but first we would like a read out from you on that pressure.

S/C Roger. The pressure reads 740.

HOUSTON Roger. For your information, we read a steady indication throughout the period you had it off; so we're convinced that it is an inoperative transducer.

S/C Roger. We've been plotting it steady also.

HOUSTON Roger. Okay, we're ready for you to put the fuel cell O2 heater back in the auto position.

S/C Roge. I did; and we got an increase in amps, so I guess that the heater's working some.

HOUSTON Roger. In regards to OAMS fuel usage, we want you to realize that

we're still allowing this 2 pounds per day that we had originally planned on, for you to use to control attitude as you find it necessary; but whatever you can conserve is just that much more that we can use for the experiments.

S/C

Roger.

HOUSTON

Surgeon advises that you have...Stand by. Surgeon advises that you have a sternal lead that's marginal or coming loose from Frank; and we'd like to make a check to find which one it is. Would you hold the top one on for a minute, please? Are you holding the top one on, Frank?

S/C

Roger.

HOUSTON

Okay. Now hold the lower one on. Release the top one.

S/C

Holding the lower one on.

HOUSTON

Roger. Okay, it's apparently the lower one that's..that has the poor contact, Frank; and we'd like you to replace that or put it on again as you did with Jim's at the first opportunity you have.

S/C

Roger. How's it reading now?

HOUSTON

It's a poor reading.

S/C

Thank you.

HOUSTON

It got better for a second there; and then it went bad again.

S/C

Roger.

HOUSTON

We have a procedure that has been made for taking the squib batteries off the line during a purge. I'd like to read off that procedure to you and have you look it over and be ready; and we'd like to try it on the next purge, specifically to observe the change in a main bus current during that period; to see just how much it is.

The thinking here is that if we can do this, we will be conserving the squib battery power. And, we're also considering turning the squib batteries off completely; but we're not ready to do that yet. So, let me read you this procedure, and you'll have it on hand for the next time we do a purge.

S/C

Go ahead.

HOUSTON

Have you got a....Are you ready to copy it. It's fairly lengthy.

S/C

Roger.

HOUSTON

Place squib battery switch #1 off. Squib battery switch #2 off.  
Step #2: Place bus tie switch #1 on. Bus tie switch #2 on.  
Step #3: Place squib battery switch #3 off. Place crossover switch on. Step #5: Normal purge Section One. Do you copy so far?

S/C

Roger.

HOUSTON

Step #6: Fuel cell control circuit breaker #2 on. Monitor change in main bus current. Step #7: Normal purge Section Two. Step #8: Fuel cell control #2 circuit breaker off. Monitor change in main bus current. Step #9: Crossover switch off. Step #10: Squib battery switch #3 on. Step #11: Bus tie switch #1 off. Bus tie switch #2 off. Step #12: Squib battery switch #1 on. Squib battery switch #2 on. Do you copy?

S/C

Roger. We have it.

HOUSTON

Roger.

S/C

Were you concerned about the squib bus voltage, Elliot?

HOUSTON

It's just a procedure to try to conserve some of the power in the squib batteries. They tell me that this should conserve 1/9 of the squib bus power from now until the end of the mission.

S/C                   Okay. How about this powering up the platform? Are you satisfied with the fuel cells the way they are?

HOUSTON               We're still working on that. We're looking into that question, Frank.

S/C                   Thank you.

HOUSTON               We're apparently getting some interference from HF on out TM signals during your HF tests. Have you been copying 2C current?

S/C                   Roger. 2C current is now...Just a minute...Stand by. 2 amps.

HOUSTON               Roger. Are you teeing the HF at the present time?

S/C                   ...(Garble)...

HOUSTON               Drop it off for a minute; and let us get a TM reading here.

S/C                   We're not doing anything. We haven't had the HF on since four zero.

HOUSTON               Roger.

Gemini Control here; and a fairly steady stream of conversation from our very chatty command pilot this morning and Elliot See down here on the ground seems to have come to an end out in the Bermuda area. The Flight Dynamics Officer, this morning, is advised that the orbit is showing a little ellipticity, that is it is now quite as circular as it was yesterday. He hasn't quoted any numbers yet, but we get the impression that it's probably averaging 161.5 or slightly under that. But, it is showing a little bit of apogee and a little perigee. For about the last several days, we haven't been able to detect an apogee and a perigee; it has been so circular. At...The crew is to perform Apollo landmarks this time over Central Africa on this revolution. They will do a fuel cell purge at Carnarvon. And, an S8/D-13, the big eye test, is scheduled over Texas and Larado. At 234 hours, 5 minutes into the flight, this is Gemini Control, Houston.

END OF TAPE

This is Gemini Control Houston, 234 hours, 48 minutes into the flight. About half an hour ago over the Canaries we had some conversation. It went like this.

CYI Gemini 7, Canary.

S/C Go ahead, Canary.

CYI Roger. Have some information. We'd like you to keep that crossover switch on till after the purge.

S/C Roger.

CYI That'll be over Carnarvon. And you can put your quantity read switch to off position now.

S/C Thank you. It looks like you have a pretty clear day there today.

CYI Take a picture.

S/C Smile.

CYI Did you get it?

S/C Roger. We're very appreciative.

CYI Thank you.

FLIGHT Flight, Canary.

CYI Go ahead.

FLIGHT Roger. We're getting a reading on 2C of 1.76.

CYI Rog.

FLIGHT Canary's would you get him to give us an onboard fuel cell O<sub>2</sub> pressure?

CYI Roger. 7, Canary. Would you give us an onboard reading of fuel cell O<sub>2</sub> pressure, please.

S/C Roger. ....

MCC This is Houston again. Our latest onboard consumable readings are as follows: Breathing oxygen 64.3 percent remaining, fuel cell oxygen 52.9 percent remaining, fuel cell hydrogen 59.6 percent remaining. Our onboard maneuvering fuel supply remains at 25 percent, that's about 95 pounds. The weather bureau this morning continues to predict acceptable weather for the flight of 7, and the liftoff of 6 over the next 48 hours. In the primary Western Atlantic landing area, skies partly cloudy, widely scattered showers, winds variable up to 15 knots, the sea is running 3-4 feet. In the Eastern Atlantic, zone 2, skies partly cloudy, winds easterly 10-15 knots, sea 3-5 feet. In the Western Pacific, skies cloudy with scattered showers as a frontal system moves into the area, winds running 15-20 knots, sea 4-6 feet. And in the Mid-Pacific area, zone 4, skies are expected to be partly cloudy with scattered showers, southeasterly winds 15-20 knots, and sea 5-6 feet. This is Gemini Control Houston.

Gemini Control here. 23<sup>4</sup> hours, 59 minutes into the flight.

Over Carnarvon a few minutes ago, Jim Lovell and Frank Borman put their electrical engineering experience to work. They performed a fuel cell purge in a particular configuration of switches so that the squib bus line was off and they were watching very closely the main bus for any deviations in voltage. They saw none. The conversation went like this.

S/C Roger, Carnarvon.

CRO Roger. We have it. Turn your adapter C-Band to continuous.

S/C Roger.

CRO Okay. We want to get a fuel cell purge this time. We have a procedure which we would like for you to follow. I will read it out to you.

HOUSTON He has it on board.

CRO You don't want to read it out to him, Flight.

HOUSTON He's got it on board. Why don't you tell him to give you a pause when he gets to this main bus current and to read it out to you as he does it.

CRO Roger. Okay. On the purge, when we get to Step 7, monitor of main bus current, we would like to have a pause there, please. And, also on Step 10, monitor change of main bus current again. Okay. You can start your purge any time, 7.

S/C Roger. Go ahead through this special purge procedure?

CRO That's affirm. Squib 1 and squib 2 is off, Flight.

HOUSTON Roge.

CRO Bus tie 1 is on. 2's on. We have C-Band track. H2 purge is on, Flight. O2 purge is on.

S/C ..(Garble)..on the fuel cell control #2, Carnarvon.

CRO Roger.

S/C No noticeable change in the main amps.

CRO Roger. We copy.

S/C Normal purge on fuel cell #2.

CRO Roger. Purging H2 on fuel...on section 2. We didn't see any increase on the ground, Flight.

HOUSTON Roge.

CRO Flight, Carnarvon.

HOUSTON Go ahead.

CRO Alright, the 1218 shows that main bus one did change. Prior to the purge it was reading 9.29. After the purge 10.1.

HOUSTON After the purge?

CRO It read 10.1 after the circuit breaker.

HOUSTON Main bus one. How about main bus two?

CRO Main bus two, no change. 7.49, before and after.

S/C Carnarvon, fuel cell control circuit breaker #2 going off.

CRO Roge.

S/C And crossover switch going off. Crossover switch going off.

CRO Roge.

S/C Squib battery switch #3 coming on.

CRO Roger.

S/C We notice no change in main bus..amps..

CRO Roger. We copy.

S/C Bus batteries 1 and 2 are off; and squib batteries 1 and 2 are on.

CRO Roger. Position your quantity gauge switch to ECS O2, please.

Okay, we're getting ready for our post LOS here. If I fail to get to you, I'll try LOS. Go back to the command position on you TM switch in the adapter C-Band. Go to the fuel cell O2, please.

Okay. Fuel cell H2, please. Can I have an onboard read out of your fuel cell O2 pressure please?

S/C 750, Carnarvon.

CRO Roger. Go to TM switch to real time and Acq-Aid. Adapter C-Band to continuous. We've had LOS, Flight.

END OF TAPE

Gemini Control, Houston here. Over Canton Island we had a brief message for the 7 crew, to the affect that clouds are obscuring the Laredo eye chart site, and to forget about that experiment on this upcoming pass. That's the only conversation we've had since we left Carnarvon. In the upcoming rev, we're going to turn the bio-med tape recorder #1 to continuous position over Kano. A little later, we're going to power up the platform, which has been down now for several days, the guidance platform in Gemini 7. And, still later on in the pass, near Hawaii next time around, they're going to do some dim light photography with some special film the crews have on board. At 235 hours, 20 minutes into the flight.. Now I am advised we do have some tape over Hawaii which has come in since we started this report. Let's play the Hawaii tape now.

HAW You're saying it's open.

S/C Roger.

HAW Okay. Would you close your DCS circuit breaker?

S/C Roger.

HAW Thank you. What position is your adapter C-Band in?

S/C Command.

HAW Okay. TM solid, Hawaii.

HOUSTON Roger, Hawaii.

S/C We've been doing it manually over the other stations, Hawaii.

HAW Okay. Okay. How are you doing this morning?

S/C Pretty good. How are you?

HAW Oh, I'm not bad. A little bit wet. I show you go down here on the ground.

S/C Thank you.

HAW Flight, Hawaii.

HOUSTON This is AFD, go ahead, Hawaii.

HAW                   Okay. You want that C-Band       continuous; or do you want to  
leave it alone until he gets to Guaymas.

HOUSTON               Leave it <sup>alone</sup> until he gets to Guaymas and give us a contingency B,  
please.

HAW                   Okay. And you want me to turn off the TM after he leaves me?

HOUSTON               Okay. You can have him close the DCS circuit breaker now. We're  
going to go to the command configuration.

HAW                   Okay. I've already closed it. Do you want me to leave telemetry  
on to Guaymas?

HOUSTON               That's affirmative.

HAW                   Okay. We're in good shape. We're all set up. Okay, 7. We've  
got nothing for you. We'll be standing by if you need us.

S/C                   Thank you.

HOUSTON               Go ahead, thank you very much.

HAW                   TM LOS at Hawaii.

END OF TAPE

Gemini Control here. The spacecraft is swinging over Houston right now and Elliot See has just called 7. Let's listen.

HOUSTON ...leave it on until we get to the power up. You should, of course, turn it off if you get a Delta P-1 light on at any time.

S/C Roger. You want us to go ahead and power the platform up?

HOUSTON Negative. Not now. That doesn't come until 236:10, I believe it is. Is that right?

S/C That's right.

HOUSTON Yea. Got a TX coming up.

S/C We received it.

HOUSTON Roger.

S/C Clobbered over the States today, Elliot.

HOUSTON Roger. Looks like White Sands is going to be okay, rather Holloman for your pass on the next rev. We had a good weather report just a minute ago.

S/C Yea. We just saw White Sands; and Holloman had some clouds over it, but it wasn't too bad.

HOUSTON We're interested if you've had the Delta P light go out at any time with the operations we've performed.

S/C Negative.

HOUSTON Roger. Surgeon would like to talk to you for a minute here. We need an evaluation of your air flow conditions. Frank, we've been evaluating this suit situation, and particularly the suit off situation; we'd like to get some evaluation as to what you've done about air flow. Where you've had your hoses, and if you had any time with no air flow at all on you. And, we need some sort of an actual evaluation by hours and time that you've had it in these various .

positions and just your own subjective feeling about what the comfort level was. We don't need to have all this passed down to us; but we need to have you work out some sort of a plan for doing it there.

S/C We have tried several different positions. We settled on one with the suit outlet hose down by our left knee, the suit inlet hose up over my right shoulder and Jim's left shoulder, and it's very, very comfortable.

HOUSTON Have you had any time with no air flow across you at all?

S/C We don't have any air flow directly across us in this position.

HOUSTON Okay.

S/C All this bugaboo about no convection is a bunch of baloney. There's no problem at all.

HOUSTON Well, that's one of the things that they were trying to pin down, I think. So, they're going to be real interested in your results and comments about that. How did you decide on this position, Frank? Is this a matter of temperature comfort?

S/C Just overall comfort. We tried several positions and settled on this one. In reality, Elliot, there's only two places we can put the out flow hose; and that's here on the side by the center box or along side our knee. We've tried both. This position is the.. just as comfortable as the other one and it's out of the way.

HOUSTON Roger. Do you have it taped down there or tied down to Delco.

S/C Right.

HOUSTON Frank, you haven't tried to replace that lead yet, have you?

S/C I did put it down with tape, Elliot, but I didn't replace the lead. Is it still bad?

HOUSTON            Yea. It's still very bad, Frank. It's worse now than it was across...It's totally unreadable, and so I think you're going to have to do the whole bit with it.

S/C                Right.

HOUSTON           We are planning to go ahead with the platform power up 7 on the time scheduled. We feel that it's going to be okay.

S/C                Okay.

HOUSTON           Would you place your C-Band adapter switch to command.

S/C                It is in command.

HOUSTON           Roger.

S/C                We have our DCS circuit breaker closed now, also.

HOUSTON           That's fine

S/C                Okay.

HOUSTON           The tests on the Pad have been completed, so you can leave it there.

S/C                Okay.

TEXAS             Texas local.

HOUSTON           I guess word got to you that we do not want to try the D-4 and the MSC 4 at the same time. We've decided against that. We'll be doing the D-4 on the next pass.

S/C                Roger. D-4 next pass.

ANTIGUA           Acquisition Antigua.

S/C                Hello, Houston. This is 7.

HOUSTON           Go ahead.

S/C                Suggest that for Apollo landmarks, not to try anything below 15 degrees north latitude in Africa. Continuing cloudy to over, either clouds, or smoke from fires. We're not very well successful below 15 degrees north latitude.

HOUSTON Roger. Copy, 7.

S/C That includes our last Apollo attempt, sequence 97.

HOUSTON Roger. Understand. It was too smoky or cloudy there?

S/C Too cloudy in this particular spot.

HOUSTON Roger. You ready for the days news?

S/C Roger.

HOUSTON The Gemini news is all about the dust cover left in the gas generator line, oxidizer line. That's been fixed by the way, and everything's looking real good for the launch tomorrow morning. Talked to Wally and Tom this morning. They're all ready to go. Randy Lovelace, Dr. Lovelace, and his wife are missing in a small private plane flight from Aspen to Albuquerque. We'll keep you posted on that one. Darrel Royal has turned down Oklahoma's coaching offer. He has 8 years to run on his present Texas contract. Apparently, they're now trying to get Georgia's coach, that's Dooley. And, the Carrier Independence is back in Norfolk after 7 months off Viet Nam.

S/C I have a lot of friends on the Independence.

HOUSTON Roger. Gemini 7, Houston.

S/C Go ahead.

HOUSTON Did you place the crossover switch on, Jim?

S/C That's affirmative. It's been on since you told us to.

HOUSTON Roger. Would you check the fuel cell O2 and H2 regulator and circuit breaker.

S/C They are both on, regulator and circuit breaker.

HOUSTON Roger. We were wondering if we're actually getting the crossover open, because we aren't seeing the change in the cell that we did yesterday.

S/C                    We've noticed that too.

HOUSTON              Roger.

Gemini Control here. That apparently wraps up the conversation with the spacecraft swinging over the hill from Bermuda. Borman and Lovell sound unusually sharp this morning. Well rested. And plodding along on the 148th rev. of their flight, the time the retro clock now reads 94 hours, 15 minutes. Elapsed time clock 235 hours, 42 minutes. Gemini Control, Houston.

END OF TAPE

Gemini Control here, 236 hours, 33 minutes into the flight. Over Carnarvon a few minutes ago, the conversation went like this.

CRO Gemini 7, Carnarvon. We have your TM solid. You're looking good here on the ground. I see you've started your platform up.

S/C Roger. Carnarvon, we'd like to confirm some supporting angles with you.

CRO Go ahead.

S/C For the D-4/D-7 at 2381840, we copy pitch 63 down, yaw 90 left.

CRO That's affirm. We concur.

S/C Thank you. For the D-4/D-7 going up at 23704 00, we copy pitch 250 and yaw 36 left.

CRO Rog. Good enough.

S/C Thank you. Will you ask Houston if they want the computer powered up with this pass so they can look at it?

CRO Roger. Stand by.

FLIGHT Affirmative.

CRO You do want the computer?

FLIGHT Rog.

CRO Gemini 7, Carnarvon. That is affirmative. Power up your computer.

S/C OK, we'll power it up right now.

CRO Computer is powered up, Flight. He's in prelaunch.

FLIGHT Roger, Carnarvon. Do they have the computer on now?

CRO That's affirmative, Flight.

FLIGHT Give us the computer summary now and at LOS.

CRO Roger. Coming your way flight.

FLIGHT Rog.

CRO ...Gemini 7, do you still read?

S/C Rog. Affirm. Go ahead. Will you ask the Surgeon how the sternal lead is now on the command pilot?

CRO Roger. Stand by.

Roger. They say the sternal lead is good.

S/C Thank you.

CRO Flight, Carnarvon. I have main bus one reading 21.7, main bus two is 17.0. That's with the computer on.

FLIGHT Understand. Send us the LOS mains.

CRO Roger. Will do. Did you get our 930, Flight?

FLIGHT Yeah, they'd like number two now, whatever that means. Like the second one now. Have them both.

CRO Roger. TM LOS, Flight.

FLIGHT Roger.

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CRO                    Everything looked real good. All the way out  
                         he was holding a constant attitude.

FLIGHT                Roger.

END OF TAPE

Gemini Control Houston here. Elliot See has just contacted 7 now approaching the West Coast of Mexico and the Pilots are all set to track a sled run out at Holloman Air Force Base near White Sands. The sled track is 35 thousand feet long, the sled generates something over 100 thousand pounds of thrust and they will turn on their radiometric sensors to try to get the IR signature of this sled run just as Gordon Cooper and Pete Conrad did. See has advised the Pilots that the weather is clear over Holloman and let's tune in and listen to the progress of this test as it happens.

S/C                    We omitted the dim light photography though Elliot, there was not enough time.

Cap Com              Roger.

Houston here where the last 20 minutes the Flight Director Chris Kraft has been conferring with the 6 crew down at the Cape in their quarters regarding the last minute details on tomorrow morning's launch of 6. Wally Schirra, Tom Stafford, Merritt Preston, Mission Director Bill Schneider and others who are conferenced with us here. And everybody says they are happy with the conditions, we will try tomorrow morning. Let's go back to 7 now as it -- over Baja California.

S/C                    Our real time transmitter is on.

Cap Com              Roger.

Flight                Guaymas, we would like another main from you, please.

Guaymas              Roger.

Houston here. Our Astronauts Deke Slayton and Ed White have joined Elliot See at the Cap Com console for this -- to watch the sled run which will begin one minute from now.

In this particular test, the sled covers that 35 thousand feet in something like 20 seconds. 10 seconds to launch. Elliot will probably count him down. It should be launched.

Cap Com Burnout. Water breaking now, 7.

S/C Roger, we ... (garbled) ...

Cap Com Say again.

S/C We have it.

Cap Com Roger. Did you have it all the way on that, 7?

S/C Rog, we did. We can't see much. We saw a little smoke but that's about it.

Cap Com Roger.

S/C We had a beautiful view though.

Cap Com Roger.

S/C We went right on the track and saw the white smoke, so we should have a good one.

Cap Com Roger, very good. Understand you could not actually see the ignition or the rocket firing that?

S/C That's correct.

Cap Com Roger. It will be a good test of the equipment then.

S/C Rog.

Cap Com Did you say you saw the water breaking, you think that was the smoke you reported.

S/C Negative, we saw the ignition smoke from the rocket before you ever called breaking.

Cap Com Roger, did you see the water breaking also?

S/C Negative.

Cap Com Roger.

S/C Couldn't tell the difference anyway.

Cap Com 7, let me know when you are ready to copy the flight plan update.

S/C Ready now.

Cap Com Okay, you have a TX coming up, and we are ready to update your computer for a 163-1 load when you are ready.

S/C All set.

Cap Com Okay, did you get the TX?

S/C Roger.

Cap Com Okay, stand by for the update on your computer.

S/C Got the update on the computer.

Cap Com Okay. We'll start on the flight plan update now 7. Node time 236 42 32, rev 148, 167.9 degrees east, right Ascension 8 56 37. Transponder test, 238 38 00, sequence 01, this will be at the Cape, off at 238 51 00. Time 238 52 00, cabin temperature survey. Dim light photos, 239 18 00, sequence 01, Post-sunset, Command Pilot, code 14B, Pilot code 24XY. Do you copy so far?

S/C Roger.

Cap Com Dim light photos 239 45 00, sequence 01, pre-sunrise, Pilot code 24XY, Command Pilot to start at 239 47 00, code 14B, that is, Baker.

Antigua Acquisition, Antigua.

S/C Roger.

Cap Com 7, your computer load is in and verified.

S/C Roger. Can we turn the computer down now.

Cap Com Yes, you can turn it back off, standby a minute 7. Okay, we would like to leave it on a few more minutes, so I'll call you.

Cap Com Next item, time 240 00 00, crew status report on the Command Pilot at Hawaii. Time 240 15 00, crew status report on the Pilot at Texas. Dim light photos, 240 53 00, sequence 02, cloud with no moon. Dim light photos, 241 06 00, sequence 02, cloud with quarter moon. 241 36 00, flight plan report at Hawaii, time 242 09 00, PLA update at RKV. Time 242 30 00 exercise, housekeeping and eat periods. Time - you copy so far 7?

S/C Roger.

Cap Com Time 243 10 00, bio-med recorder number 2 continuous. Time 243 46 00, purge fuel cells at RKV. Time 255 06 00, end sleep period and begin exercise and eat periods. Same time on bio-med recorder number 2 off and purge fuel cells at Canaries. Do you copy.

S/C Roger.

Cap Com 7, you can turn the computer off at this time.

S/C Roger, it's off.

Cap Com Would you place your quantity read switch to fuel cell O<sub>2</sub>?

S/C It's there, Elliot.

Cap Com Roger.

S/C Houston, do you want us to use the procedure of turning off the squib batteries for every purge now?

Cap Com Negative. We're still looking into this question of this purging 7 and we will let you know if we have any change.

S/C All right. Normal purges for now on.

Cap Com That's correct. Of course, we still have to use our fuel cell control 2 circuit breaker with each purge but other than that it is normal.

S/C Elliot, you want the crossover switch left on?

Cap Com Yes, we would still like to leave it on for a while. We are trying to see if 2C will come up a little more.

S/C Okay.

Cap Com You haven't had any change in the delta P lights I presume.

S/C No. I'm going to write a book when I get back called 14 days with the delta P light.

Cap Com Could be a lot of lessons in that book too.

S/C Houston, this is 7.

Cap Com Go ahead. Did you call 7.

S/C Roger, I'm kindof glad that you didn't give me a dim light sequence with a full moon.

Cap Com Why, does that keep you awake.

S/C The sequence for the dim-light of taking a picture of the day -- of the sky in the daytime, we didn't have time to do it on this last pass.

Cap Com You say you want a new one?

S/C Roger, we need a new time for that.

Cap Com Roger. Gemini 7, you can place your quantity read switch back to the off position.

S/C Roger. Houston, this is 7.

Cap Com Go ahead.

S/C We have 7 minutes and 10 seconds left on the onboard summary recorder.

Cap Com 7 minutes 10 seconds, is that correct.

S/C Roger, we did not use it on 430, but we did use it on 427.

Cap Com Roger.

This is Gemini Control. That probably wraps up the conversation for that Stateside pass in which a sled run was tracked at Holloman Air Force Base. The crew should be having lunch now, just starting lunch. They will probably be fairly quiet for the -- for most of this pass. Over Hawaii next time they will do a fuel cell purge and power down their platform, and over the States this next time at California they will do another transponder test. At 237 hours 20 minutes into the flight, this is Gemini Control Houston.

END OF TAPE

Gemini Contro, Houston here, at 237 hours, 51 minutes into the flight. Over Tananarive, Elliot See called the 7 spacecraft a few minutes ago. Here's that conversation.

HOUSTON Gemini 7, Houston. How do you read?

S/C Loud and clear, Houston. Go ahead.

HOUSTON Roger. Would like to get a "go" from you for the D-4.

S/C Roger. We're go.

HOUSTON Roger. And, we are go on the ground. Also, I'd like to advise you that we plan, over Carnarvon, to have you turn the squib batteries off and the bus ties on. The purpose is to conserve the squib batteries and also to let us monitor the currents during the purge so we can see what this fuel cell control #2 circuit breaker might be telling us as far as the currents that it's popping on. In addition, we want you to do a hydrogen purge at Carnarvon. This is a hydrogen only, on both sections. Then, at Hawaii, we will do an oxygen purge on both sections. The purpose here is to observe the effect of each type of purge and see which one may be helping us the most, if there is a difference. Then, we will power down over the U.S. The crossover should be left open through the entire thing here until you're complete with the purge at Hawaii. Do you read?

S/C Leave the crossover on through Hawaii?

HOUSTON Until after the purge at Hawaii. Did you copy all the rest, 7?

Gemini 7, Houston.

S/C Go ahead. Gemini 7.

HOUSTON Did you copy the other information? Carnarvon will be in contact with you on this. Carnarvon Cap Com, Houston Flight.

CRO                   Carnarvon, go ahead.

                  This is Gemini Control, Houston. One minutes and 37 seconds ago, a Minuteman was launched from Vandenburg Air Force Base in California. It's gone through its pitch program successfully, first staged burn out; we've confirmed second stage ignition. The Gemini 7 spacecraft should come within about 650 miles of this bird as it nears its impact point in the Kwajalein area in the far West Pacific. It'll be something more than 20 minutes to impact after a 5000 mile flight across the Pacific. The pilots are to take radiometric measurements of the re-entering bird. They have all the pointing information. They probably won't see it until it's well below them. And, now we have ignition of Stage 3 confirmed. And, the report from Vandenburg block house is that everything is going good. Third stage right on the azimuth, and a required profile. The bird will pass approximately 100 miles north of the 7 track; and it will be on the order of 650 miles out in front of them. It's still going good, Vandenburg says. We clocked the lift off at 23 minutes after the hour. It'll be Hawaii on this pass before we know how well this re-entry experiment went. We'll be out of range of all the four stations out there in the far West Pacific, Carnarvon, CSQ, Hawaii, and Canton. Vandenburg says all's okay. And, we should have had burn out along about this time. The Flight Director has just advised the D-4, D-7 is go all the way. Carnarvon will advise 7 of that fact in a very few seconds, as 7 swings north and west of the Carnarvon Station. Vandenburg is completely happy with the launch profile. And, Vandenburg has confirmed burn out. After a flight of on the order of 5000 miles, it is to impact in the Kwajalein area. The flight will last something more than 20 minutes. Carnarvon now has TM solid. That's TM on the 7 spacecraft. There's the first call going up from 7. Let's tune in there.

CRO . . . .(Garble) . . .

S/C Roger. Thank you.

CRO Okay. We . . . You're scheduled for a purge on hydrogen only. Is it okay if we go along through the check list with you?

S/C Why don't you go ahead and give it to us as we want it, not . . . because we're working on D-4, D-7 now. So, I'd appreciate it if you did.

CRO Roger. Will do. Squib batteries 1 and 2 off.

S/C One and two are off.

CRO Bus ties 1 and 2 on.

S/C They're on.

CRO Squib battery 3 off.

S/C Off. Go ahead, Carnarvon.

CRO Purge section one, for hydrogen only.

S/C Roger. Purge complete, hydrogen.

CRO Roger. Fuel cell control 2 circuit breaker on.

S/C Fuel cell control 2 is on.

CRO Purge section two.

S/C Roger. Hydrogen purge complete on 2.

CRO Roger. Fuel cell control 2 circuit breaker off.

S/C Control #2 is off.

CRO Roger. Leave your crossover on until after the purge over Hawaii.

S/C Roger. Crossover on.

CRO Okay. That completes your purge. You're looking good here on the ground.

S/C Roger. We have the squib batteries off and the bus ties on.

CRO Flight, you did want to leave the squib batteries off, right; and the bus ties on?

HOUSTON            That's correct. That's the configuration we want.

CRO                Roge.

HOUSTON            Did you notice any change in the current when he ....

CRO                Not yet, Flight. We're getting that now.

HOUSTON            Okay. Fine. Thank you.

CRO                Okay, Flight. Bus 1 before was 21.3 and bus 2 was 15.0; after the  
                     purge, bus 1 was 22.9, bus 2 15.4.

HOUSTON            What do you mean after the purge? You mean after he put the circuit  
                     breaker on?

CRO                That's affirmed.

HOUSTON            Okay. What do you read now?

CRO                Okay, we're getting one now. Okay. Bus 1 is 21.5, bus 2 is 14.8.

HOUSTON            Thank you.

                     This is Gemini Control, Houston. In about 15 minutes, the Minute-  
man should be re-entering the atmosphere in the Kwajalein area. According to the  
calculations made here, it will be 650 miles east of 7; and it'll be approximately  
100 miles north of the 7 track; so the crew should be able to look down to its left  
and track it, hopefully. The missile will have made its flight out there at an  
altitude considerably higher than the 161 mile altitude of 7; and after it re-enters,  
the theory is that the crew should be able to observe it as it burns into the  
atmosphere. That seems to wrap up the conversation by Carnarvon. This is Gemini  
Control, Houston.

END OF TAPE

This is Gemini Control Houston at 238 hours, 23 minutes into the flight. At 11:51 Central Standard Time, Elliot See attempted to raise seven on a patch through the Range Tracker, a ship parked out west of Hawaii. It was a cloudy signal but it was readable. Frank Borman came back at 52 minutes after the hour into the question about how did it go on the D-4/D-7, that is tracking that reentering Minuteman out in the Kwajalein area. Borman had a one word reply "Bullseye" and he sounded pretty elated when he said it. The communications were broken off at this point, garbled as they were and we should raise them again with a clearer signal through Hawaii. But first let's play this Range Tracker tape. Stand by, we don't seem to have that tape racked up, we should have it momentarily.

HOU Range Tracker go remote.

RTK Range Tracker remote.

HOU Gemini 7, Gemini 7, Houston Cap Com, how do you read? Gemini 7, Gemini 7, Houston Cap Com, how do you read?

S/C This is Gemini 7 reading you loud and clear.

HOU Roger, we're coming to you through the RTK, could you tell us how D-4 went?

S/C Bullseye.

HOU Roger

Gemini Control Houston here again. While that tape was playing the Hawaii station had raised seven. Jim Lovell was on the line and they are starting an ode to purge, an oxygen purge of the fuel cells. They also have powered down their platform. There has been no additional conversation regarding that D-4 experiment.

Houston here, according to Jim Lovell's report there, this would indicate he got about two minutes of radiometric tape on that reentry experiment. We don't know whether it was an overlap or whether its all on the bird itself or just what. But he reported earlier he had slightly more than seven minutes, now it's down a little more than five. The Guidance and Navigation and Control Engineer here, Ernie Aldrich, is interested in knowing how much fuel was used during that exercise. We're going to get that right now, I think.

HAW ...Control, number two circuit breaker coming on for section two purge oxygen.

HOU Roger.

HOU FLIGHT Send us another main Hawaii.

HAW Roger, flight.

S/C Hawaii, Gemini 7, here, you might tell people in Houston that we're starting to condense our water in the lower part of the seat so it's pretty cold. The wall temperature and the seats are cold. And we're starting to get condensation from it.

HAW Roger. Copy Flight?

HOU FLIGHT Affirmative.

Houston here, earlier Lovell reported his onboard fuel reading was about 19%. It has consistently read slightly below the correct value. It would correct out to something like 22 to 23 %. Before this rev it was about 25%.

S/C Hawaii, 7.

HAW Roger, 7.

S/C Fuel Cell control circuit breaker number two is on. Cross over is still on.

HAW Roger, would you turn the cross over switch to the off position.

S/C Roger, cross over is now off.

HAW Roger, we'd like you not to start your power down until you're over the states so it can be observed.

S/C Roger.

HAW And let your squibs on until further directed -- I mean squibs off until further directed.

S/C Roger, they're off.....

Houston here, that very likely will wrap up the conversation from Hawaii, as it is now 4 to 500 miles northeast of the island. At 238 hours 31 minutes into the flight, this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston here, 238 hours 57 minutes into the flight. That D-4 Minuteman reentry experiment apparently, by all reports, was very successful, that's what Jim Lovell said about it. He said he could observe it with no strain. Frank Borman said tracking was difficult because it was moving so swiftly, but he was able to keep on it. Those two vehicles had a closing velocity on one another of an estimated 29 thousand miles per hour. The point of closest approach was approximately 140 miles, the Minuteman would have been slightly below and to the left of Gemini 7. The Minuteman went through the Gemini 7 altitude of 160 nautical miles at a point about 650 miles northeast of Gemini 7. A general reference, the Minuteman was on a trajectory which carried it about 100 miles north of the Gemini track. All in all, apparently very successful. The Pilot and the Command Pilot discussed the experiment and some other onboard considerations in this tape going across the United States.

Guaymas            Guaymas has solid TM and all systems are go.

Flight             Roger, Guaymas.

Cap Com            Gemini 7, Houston. We just sent you a TX.

S/C                 Roger, Houston.

Cap Com            We would like to get some readings for you in conjunction with this water report. We would like a reading on the cabin humidity and the dry bulb temperature and the surface temperature.

S/C                 Roger.

Cap Com            Also a report on the position of your recirc valve.

S/C                 Roger, the recirc valve is closed. It may be an erroneous report, we can't find anymore evidence of condensation anywhere else.

Cap Com            Roger and this was under the seats did you say?

S/C In front of the seat.

Cap Com In front of the seats on the floor or behind your legs part.

S/C Behind our legs, I mean my legs.

S/C I have an explanation, but Frank won't buy it.

Cap Com Say again Jim.

S/C I don't believe there is universal condensation in the cabin,  
we can't find anymore.

Cap Com Roger. I was about to suggest the same explanation, Jim.

S/C I'm about ready to believe it.

Cap Com We are ready to watch your power down anytime you are.

S/C Okay, we'll power down now.

Cap Com Roger.

S/C Powering down.

Cap Com Roger, 7.

S/C Okay, I think that's it, Elliot.

Cap Com Very good.

S/C Cabin temperature is 70.

Cap Com Roger, cabin temp 70.

S/C Dew point is 55.

Cap Com Roger.

S/C I'll give you the wall temperature where the condensation  
was from.

Cap Com Roger.

S/C Okay, I get bubbles right at 69 degrees.

Cap Com 69 degrees, roger.

Gemini 7, do you have any other comments on the D-4 run.

S/C Say again Houston.

Cap Com Do you have any other comments on the D-4 run.

S/C Elliot, I'd say very successful, in a direct track, saw it, no strain.

Cap Com Roger, was the tracking considerably different than most of your other targets?

S/C It was entirely different. I had to catch this one, I wasn't on it too long, but we got some pretty good shots of it, it was moving very very swiftly.

Cap Com Roger. We want to watch your fuel here, so we would like you to not use anymore fuel until we do get a chance to look at it. The next fuel using activity should be this dim-light photo at 239 18, so we would like you to not use any until then if you can manage it.

S/C Very well.

Cap Com Gemini 7, Houston. We feel that you are at your, essentially at your cutoff point for fuel in preparation for the rendezvous tomorrow, so we would like you to not use anymore fuel today if you can possibly manage it.

S/C Very well. We won't use anymore fuel today and we will have to scrub those photographs.

Cap Com Roger. Just pick up anything you can in drifting flight and if you have any venting rates or something you have to stop, of course, you are free to do that.

S/C Roger.

Cap Com Gemini 7, we would like you to place your fuel cell O<sub>2</sub> switch in the quantity read position and leave it there for the time being.

Cap Com Gemini 7, Houston.

S/C Go ahead Houston.

Cap Com I'd like to explain about this fuel cell O<sub>2</sub> switch, Jim. Since we cannot monitor the pressure we feel this is the only way that we can -- we have of keeping track of the fuel cell O<sub>2</sub> if the auto switch should stick in the on position, it would build up your pressure and vent you at a prohibited rate and we would want to know about that as soon as we could so our thought is to leave the fuel cell O<sub>2</sub> switch in that position so we can get, essentially a continuous check on it. Of course, you have a continuous check yourself and we'll only go out of that to get readings on the other ones.

S/C Roger, we'll leave it in the fuel cell O<sub>2</sub> position.

Cap Com Roger.

END OF TAPE

Gemini Control here. We've had no additional reports from 7 since it left the State area that last time, when we last heard from it through Antigua, when it swung down the along the northeast coast of South America. Out over the tip of Africa, it's now over the Indian Ocean, on its 150th revolution around the Earth. At Hawaii on this pass, we get a crew status report on Frank Borman, followed up by a crew status report on Jim Lovell over Texas. For the information of those newsmen who carefully monitor the information flow related to these missions, we have a few statistics. As of 7:00 this morning, we had had 408 individual announcements from Mission Control here in Houston or from Gemini Launch Control at the Cape. In addition to that we've had 29 press briefings, and this amounted to —, the reproduction of these statements, the playing of the tapes, the announcements, and the briefings, amounted to 1700 individual pieces of paper. Here in Houston we reproduce each announcement, each piece of paper, 200 times; and at the Cape, they're reproduced 100 times. The total wordage in those 408 briefings and announcements, 29 briefings, 408 announcements, gave us a total wordage of 568,000 words. The total poundage on the paper needed to reproduce those in the quantities I gave amounts to <sup>4,365</sup>~~52,380~~ pounds of paper, a little more than ~~26~~ 2 1/2 tons. The cost of the paper is best estimated at a little over \$500. One general comment on the tapes, the conversations between spacecraft and ground, is that it is running slightly ahead of that of Gemini 5. Apparently, 2 more talkative pilots. This is Gemini Control, Houston, at 239 hours, 28 minutes into the flight.

END OF TAPE

Gemini Control, Houston, here. We're 10 minutes exactly into our 11th day of Gemini 7 operations. 240 hours, 10 minutes. As the spacecraft swung over Hawaii on the last pass, we got medical information on the command pilot; and this is how it went.

HAW Hawaii has TM solid.

HOUSTON Roger, Hawaii.

HAW Gemini 7, Hawaii Cap Com. We have a valid temperature, standing by for your blood pressure.

S/C Coming down.

HAW Your cuff is full scale. We have a good blood pressure. Standing by for exercise.

S/C Mark.

HOUSTON Hawaii Surgeon, this is Houston Flight.

HAW This is Hawaiian Surgeon.

HOUSTON Have your Cap Com tell him to drink more water, will you?

HAW Roger. Your cuff is full scale. We have a good blood pressure. Standing by for your food and water report.

S/C Roger. Total water for the command pilot to date is 823 ounces. For breakfast, he had Dav 10, Meal A, minus the beef bites. For lunch we had...he had Day 14, Meal B. And, the pilot had the same breakfast and lunch; for breakfast, he had minus the peanut tubes, and 2 beef bites. His total water consumption is 658. Total in Column 5 is 24 for the pilot, and 27 for the command pilot.

HAW Gemini 7, do you have a Column 6 report?

S/C Roger. I'm glad to report that the pilot report is now 4 and the command pilot is still 5.

HAW Thank you. Surgeon out. Roger. Seven, we'd like to have you

tape recorder power circuit breaker to the closed position.

S/C Power circuit breaker is closed.

HAW Flight, we have a tape on. It went off again.

HOUSTON Leave it on.

HAW Do you have your delay time transmitter circuit breaker pulled?

S/C That is affirmative.

HAW Would you close the circuit breaker, please.

S/C Roger.

HAW We would like for the pilot to drink more water.

S/C Roger. I'm floating now, but I'll drink some more.

HAW Roger. Understand. Houston Flight, Hawaii Cap Com.

HOUSTON Go ahead.

HAW Okay we have the delay time TM on and the tape recorder is running in a dump position.

HOUSTON Roge. Thank you. We want to leave it there, as you know.

HAW Roge. Hawaii has TM LOS.

Gemini Control, Houston, here, again. Elliot See has raised 7 via California. They've been talking about the fuel cell situation in general, which is looking up right now. We've gone through a different mode it seems like each day. We're remoting through Guaymas; and let's see if we can't get some more through that conversation.

S/C Elliot, is the plan to leave the squib batteries off the line until re-entry now?

HOUSTON That's a possibility, 7. We're continuing to monitor it; and we may very well do that.

S/C Thank you.

HOUSTON Gemini 7, Houston. Did Hawaii give you a briefing on the tape recorder?

S/C Negative.

HOUSTON Okay, the plan here is to let it run and see if this will free it up. We'll just keep you informed on this one.

S/C Did they get any TM on the shot?

HOUSTON Say again.

S/C Did Brentnall get any TM on the re-entry?

HOUSTON They got data on the ground, Gemini 7.

S/C They did get data on the ground, thank you.

HOUSTON That is affirmative. They received 8 minutes of data on the ground, 7.

S/C Roger.

HOUSTON Jim, we have a valid oral temp on you. You can take the thermometer out of your mouth and let me know when you're finished with the purge; we're ready to start your crew status report.

S/C Roge. I'll send the blood pressure right down. I'm starting the second part of the purge of the O2, the last part.

HOUSTON Roger. Texas remote, Guaymas local

TEXAS Texas remote.

GYM Guaymas local.

HOUSTON Cuff is full scale, Gemini 7.

Gemini Control, here. While the Surgeon is getting his data, the Capsule Communicator is squeezing in a bite of lunch, in between conversations. He's handling a sandwich and a piece of cake at his desk.

HOUSTON Give me a mark when you're ready to do the exercise, Jim, after the purge.

S/C Roger. Houston, purge complete. Fuel cell control 2 circuit breaker off. Crossover off.

HOUSTON Roger, Gemini 7.

S/C Exercise starting.

HOUSTON Roger.

S/C Blood pressure coming up.

HOUSTON Cuff is full scale. Gemini 7, you can open up the tape recorder power circuit breaker now. We don't seem to be having any luck with that.

S/C Tape recorder power circuit breaker open.

HOUSTON Roger. Gemini 7, we have a valid blood pressure.

S/C Roger.

HOUSTON Jim, I know you've been told about the water. I want to add just one thing; you're doing better today than you did yesterday, but you still need to keep on the water.

S/C Roger. I'm kind of floating, but I'll keep drinking.

Gemini Control here, with the spacecraft directly over the Panama Canal. We apparently have concluded the conversation. The tag end of that conversation, we were getting about 2000 miles range on our signal out of Texas. This is Gemini Control, Houston.

END OF TAPE

Gemini Control Houston here at 241 hours 2 minutes into the flight. Just a couple of minutes ago, Elliot See called 7 while over Tananarive. And among other operational business he had some bad news to pass on to Frank Borman. Alas, Tommy Nobis has signed with Atlanta. Here is how the conversation went.

Tananarive            ~~Tananarive~~ has acquisition.

Cap Com              Gemini 7, Houston. How do you read. Gemini 7, Gemini 7  
Houston Cap Com, how do you read.

S/C                    Go Houston. 7 here.

Cap Com              You seen any improvement on stack 2C, Jim.

S/C                    Negative. It's way down there, about an amp and one-half.

Cap Com              Roger, copy. Gemini 7, Houston. Do you still read us.

S/C                    Roger Houston.

Cap Com              By the way, you can tell Frank Tommy Nobis went with Atlanta.

S/C                    There's no joy in Mudville.

Cap Com              Roger.

S/C                    Elliot, you got the troops working on another cure for this  
section 2?

Cap Com              Roger, we're working on it.

S/C                    Attaboy, you've done good so far, it's been about 4 or 5 days  
you've nursed it along. Just about 3 or 4 more and we'll have  
it made.

Cap Com              We're thinking about taking stack 2C off the line again, but  
we are not ready to do that yet.

S/C                    Roger.

END OF TAPE

This is Gemini Control, Houston at 241 hours, 26 minutes into the flight. About 15 minutes ago at an elapsed...GMT time of 40 minutes after the hour, it developed that we have some trouble in communications. This is the first communications difficulty we've experienced since the start of this mission. I'd like to emphasize it is not a spacecraft to ground difficulty. It was a communications problem between our Mission Control Center here and the Coastal Sentry Quebec, parked off the coast of China. At this point, it's not clear to us whether the problem is in the SYNCOM Satellite, through which CSQ is beaming its signal or has been so clearly for the past 10 days, or whether it's with the ground equipment associated with SYNCOM. In any case, the signal was...the voice signal was completely unintelligible. CSQ, we know, was communicating with 7; because we still have a teletype circuit open with them. So, we'll have to await 7's passage across Hawaii to know just exactly what's gone on for the last 15 minutes. We're sure that everything's in good shape, though, by CSQ from the teletype line. In the meantime, we'll check additionally to try to pin down the problem; see if it is in the SYNCOM 3 Satellite, the ground equipment, or just where. This is Gemini Control, Houston.

END OF TAPE

This is Gemini Control. We are now 241 hours and 46 minutes into the flight of Gemini 7 which is now passing over the Pacific on its 151st revolution. A few minutes ago we had voice communications between the flight crew and the Hawaiian tracking station and at this time we will play that voice conversation.

Hawaii Gemini 7, Hawaii Cap Com.

S/C Go ahead Hawaii. 7 here.

Hawaii Is that 2 Charlie still on the line.

S/C Roger, stack 2 Charlie still looks like it is pulling about  $1\frac{1}{2}$  amps.

Hawaii Roger. Copy that.

Flight Yes, I guess we don't know why he didn't take it off because we haven't heard from the CSQ.

Hawaii Roger. One of our people thought he said that if it goes below  $1\frac{1}{2}$  take it off the line, but we weren't quite sure either.

Flight That's too bad because we wanted him to take it off.

S/C Hawaii, I have the flight plan report if you are ready to copy.

Hawaii Go ahead with your flight plan report.

S/C Everything ... (garbled)

Hawaii Okay, you are very hard to read. Can you try the other antenna.

S/C How's that now?

Hawaii Lot's better, go ahead again will you please. Will you read that flight plan report for us again please.

S/C Roger, standby. I lost my place.

Hawaii Okay.

S/C                   Okay. Everything was accomplished that was scheduled today with the exception of Apollo sequence 97 and S-8/D-13 which was cancelled because of weather. Also cancelled because of lack of fuel was all the dim-light photography that was scheduled.

Hawaii               Roger, I got that.

S/C                   Okay, now today we are reporting film remaining rather than film used. We have 54 exposures of high contrast black and white, 14 color shifted IR, 57 of the high-speed S0217's, 27 dim light black and white. And we have a 140 standard S0217. We have 16 - correction - 5 magazines plus 35 feet of 16-mm movie camera film and we are requesting permission to try to take more targets of opportunity in drifting flight, it's pretty obvious that we are not going to have the fuel remaining to conduct the serious photography and I think we would like to go ahead and start shooting these things to at least expose the film in orbit.

Hawaii               Okay, let me make sure I got the last two items here, 25 feet of 16-mm movie and 140 exposures of standard S0217, is that right?

S/C                   That's right except for the 16-mm, it's 5 magazines plus 35 feet.

Hawaii               5 plus 35, I understand.

S/C                   And the scores for the vision tester this morning were Command Pilot minus 3, Pilot minus 4.

Hawaii               Okay, got that.

3/C And that's about it.

Hawaii Okay. Give me a dry bulb and a dew point at the return hose, please.

S/C Stand by, just a minute.

Hawaii Flight, Hawaii.

Flight Go ahead.

Hawaii Okay, do you want them to take it off the line or what is your purpose.

Flight No, we are going to give him a time, standby, that we want him to take it off and then put it back on over the RKV.

Hawaii We're reading about 1.7 here.

Flight Say again please.

Hawaii We're reading about 1.7 amps here.

light Okay, what we'd like to have him do is take the 2 Charlie off the line at 241 50, remind him of course, that he's got to put the fuel cell control circuit breaker on.

Hawaii Okay, got that.

Flight We'll have him put it back on at the RKV.

Hawaii Roger, I understand.

S/C Okay, the ambient is 79, the dew point is 60 right at the entrance to the bypass hose and the exit from the cabin.

Hawaii Okay, very good. Here's what we'd like you to do with 2 charlie.

S/C Go ahead.

Hawaii At 241 50 00, put your fuel cell control circuit breaker on and take 2 charlie off the line.

3/C Understand, at 241 50 00, put the fuel cell control number 2 circuit breaker on the line and take 2 charlie off.

Hawaii Roger, and they will have you put it back on over the  
RKV on the RKV's instructions.

S/C Roger.

Flight And then circuit breaker off.

Hawaii And at that time we would like you to turn your circuit  
breaker off.

Flight That's after he puts it on and takes 2 charlie on the line.

S/C Roger, ... (garbled) put it back on the line you want the  
circuit breaker off again, is that right?

Hawaii Roger, affirmative. You got it straight.  
Flight, do you want me to get an open circuit voltage readout  
when he's off the line.

Flight Say again please.

Hawaii You want him to get an open circuit voltage readout and repeat  
it down to the RKV while he is off the line.

Flight Yeah, we want him to monitor the open circuit voltage and see  
what it does during the time it is off the line.

Hawaii Okay. Okay, while you are off the line on that 2 Charlie,  
we'd like you to monitor that open circuit voltage for us.

S/C Will do.

Hawaii Okay.

S/C Hawaii, that time again was 241 50, was that correct?

Hawaii That's affirmative. You've got it. Okay Flight, he'd like  
to know when he can start going after targets of opportunity.  
He feels that with the fuel situation that's about where he's  
going to end up.

Flight I'm sure that's okay, but stand by a minute.

Hawaii Okay.

Flight Okay, tell him that's okay with us. Do as he sees fit with

the film.

Hawaii           Okay, very good. 7, Hawaii. They'd like you to go ahead  
and do as you see fit with the film. You've got a go on  
that.

S/C               Roger.

Hawaii           LOS at Hawaii.

That was voice communication playback on tape from our  
flight crew aboard Gemini 7 and the Hawaiian tracking station. Here in the  
Mission Control Center we are in the midst of a shift of change. The Red  
Team of Flight Controllers moving out and the White Team headed by Flight  
Director Gene Kranz taking over. This is Gemini Control, 241 hours 52 min-  
utes into our flight.

END OF TAPE

This is Gemini Control. We are 241 hours, 57 minutes into our flight mission. Gemini 7 is on its 151st revolution over the earth, as a matter of fact it will in a very few minutes be starting its 152nd revolution. A few minutes ago we had voice communication between the flight crew and the Guaymas, Mexico tracking station. At this time we will play back the taped voice communication.

GYM Flight, Guaymas.

FLIGHT Roger. About 252, excuse me, about 24152. We'll have you verify that he returned that circuit breaker back to the open position on fuel cell control No. 2.

GYM Roger. Will do.

FLIGHT Guaymas, we'd like an LOS main.

GYM Roger.

FLIGHT Roger. And we'd also like to know, does it look like he's pulled two Charlie off the line yet?

GYM We're getting the readouts now.

FLIGHT Pulled it off the line yet?

GYM We're still adding. Roger. . . .

FLIGHT OK, will you have him verify that the fuel cell control circuit breaker No. 2 is open.

GYM Roger. Gemini 7, Guaymas Cap Com.

S/C Go ahead, Guaymas.

GYM Roger. We'd like to verify that the fuel cell control circuit breaker No. 2 is off.

S/C No, we put it on till we opened stack 2C.

GYM Roger. We'd like you to open it until you're informed to put it back on line.

S/C Roger. It's back on the line again.

GYM Negative. We don't want it back on the line again. We want the circuit breaker open.

S/C Roger. The circuit breaker is off now.

GYM Roger. Understand.

FLIGHT OK. You can have them go back to the command position on his telemetry.

GYM Roger. You can place your TM switch back to the command position.

S/C Roger. On command.

GYM We have LOS, Flight, on Gemini 7.

FLIGHT Roger.

GYM And the LOS main is on its way.

FLIGHT Roger.

END OF TAPE

This is Gemini Control. We are now at 243 hours and 45 minutes into the flight of Gemini 7. Gemini 7 is now in the 153rd revolution around the earth and is now passing over South America and shortly will be within voice communication range of the Rose Knot Tracking Ship. The power failure which interrupted our communications with the Coastal Sentry Tracking Ship occurred about an hour and a half ago at Helimonau, Hawaii, where the SINCOM transmitter site is located. The failure was due to an electrical storm in that area. The critical power supply also failed and a power surge knocked out a parametric amplifier at that SINCOM station. Power for the Coastal Sentry Tracking Ship is now being furnished by another circuit, from Honolulu to Guam to Clark Field in the Phillipines, thence to the SINCOM station there, and from that station to a ship call to Kingsport, which is located near the Coastal Sentry, and we are now back in communication via another routing. We expect momentarily, I understand we now have communications with the Rose Knot and we'll tune in live.

S/C Roger, .....

RKV Would you place the switch to fuel-cell H<sub>2</sub>?

S/C Fuel-cell H<sub>2</sub>.

RKV Okay, would you place the switch back to fuel-cell O<sub>2</sub> and we'd like you to leave it there for the rest of the night.

RKV Flight, RKV.

FLIGHT RKV.

RKV Okay. We're watching the purge closely. There's been no change in that delta P light. They're still both on.

FLIGHT Okay.

RKV Gemini 7, RKV.

S/C Go ahead, please.

RKV Okay, we'd like to give you the bedtime cryo rolls for the night.

RKV We'd like your ECS O<sub>2</sub> heater switch to OFF. Your fuel-cell O<sub>2</sub> heater switch to AUTO, and your fuel-cell H<sub>2</sub> heater switch to OFF. Your present pressure is all right for the night, and your minimum for the night will be 490.

S/C Roger, understand. Minimum 490 for hydrogen.  
Say again bedtime rolls for the 2 delta P lights, please.

RKV We're working on it. In fact, we'll give you a real good briefing over Tananarive.

S/C Okay.

RKV I can bring you up to date on your OAMS status. Your fuel remaining is 37 pounds and this is where we want to be at GT-6 lift-off if it goes tomorrow. At the beginning of the rendezvous activities we want to have a minimum of 36 pounds of fuel and this will represent a 1 percent drop in the present gage reading. A cut-off tomorrow for the station-keeping exercise will be 6 percent on the gage. And this will indicate 16 pounds of fuel remaining which will be an adequate minimum for the remainder of the mission.

S/C Roger.

RKV During the station-keeping exercise you should monitor the pressure in the reserve tank and if it drops as much as 50 psi you should stop the station-keeping. And at that time you will have 12 pounds of fuel available.

S/C Roger.

RKV Flight, RKV.

FLIGHT Go, RKV.

KV Okay. The ..... are going all right. The delta P lights are still on.

FLIGHT Roger.

S/C We're not going to be using much fuel on Thursday or Friday,  
are we?

RKV Doesn't look that way.

FLIGHT We'd like an LOS Main, RKV.

RKV Roger.  
The purge is going good, Flight.

FLIGHT Okay.

S/C Purge complete. Heater controls circuit breaker no. 2 is OFF.

RKV Roger.  
You copy, Flight?

FLIGHT Roger.

RKV Cross-over is also OFF.

FLIGHT Roger.

RKV All systems look good, Flight.

FLIGHT Roger. Boy, that section 2 is really up there percolating.

RKV I just got my summary back.

FLIGHT Roger.

RKV We're coming up on LOS flight, you got anything else?

FLIGHT Say again, RKV.

RKV I say we're coming up on LOS. Do you have anything else?

FLIGHT Negative.  
We have been listening to live voice communication between  
Gemini 7 and the Rose Knot Tracking Ship. Now we will play back the voice tapes  
that have accumulated over the past one and a half hours, which include the Rose  
Knot Tracking Ship, Tananarive, the Coastal Sentry Tracking Ship, and Hawaii, on  
the 152nd revolution. We are now in the 153rd revolution.

RKV Flight, this is a GO flight. We have transmitted TX.

FLIGHT Roger, RKV.

RKV Flight, RKV.

FLIGHT Go, RKV.

RKV I got an event light. Bravo Bravo 03, O<sub>2</sub> to H<sub>2</sub>O, section 1, delta P light ON.

FLIGHT Wow!

RKV Section 2 is OFF.

FLIGHT Section 2 BB 04 is OFF but BB 03 is on?

RKV That's affirmative.

FLIGHT Okay.

You could verify that the - oh, the crew doesn't know that. See if they have a section 2 delta P light.

RKV Say again, flight. It's hard to read you here.

FLIGHT Just checking. Verify that they have a section 1 delta P light onboard and that section 2 delta P light is out.

RKV Roger.

Gemini 7, RKV Cap Com.

S/C Roger, RKV. Do you read?

RKV Roger, I read. Do you have a delta P section 1 light on?

S/C ..... Houston watch what's been happening.

RKV Okay.

S/C At 24 - 241 50 we opened circuit at section 2C. At 42 02 the delta P light went OFF with section 2C off the line and when the delta P light went OFF section 2C went off-scale high on the voltage. At 242 06 we got a delta P light again but this time on section 1. So when this - we were using this procedure the other day we were expecting to put 2C back on the line, we

S/C got a delta P light on section 1 so we immediately put 2C back on the line, and 2C is now carrying 4 volts - I mean 4 amps, the sections are even, but now we have a delta P light on section 1.

RKV Roger, understand.  
Did you copy, flight?

FLIGHT Affirmative.

RKV Would you give me an OAMS propellant quantity readout, please?

S/C Roger. I read 16 percent. 16 to 17 percent.

RKV Roger. We'd like an OAMS source helium pressure readout.

S/C Roger. It's approximately 1250.

RKV Roger.  
Gemini 7, RKV. I've got a block update for you when you're ready to copy.

S/C Go ahead.

RKV The RAP for 400K for all areas is 21 plus 40. Area 154-3: 245 42 59. Area 155-3: 247 18 24. 156-Bravo: 24 niner 07 04. Area 147-2: 24 niner 52 02. Area 158-2: 251 25 51. Area 159-2: 253 01 44. 160-1: 254 30 5 niner. Area 161-1: 256 06 4 niner.  
The weather in all that area is good.

S/C Roger.

FLIGHT RKV Cap Com, Houston Flight.

RKV Go ahead, flight.

FLIGHT Roger. We'd like to verify - - -

S/C .....checking now on these delta P light situation by now?

RKV Roger, stand by one, Gemini 7.  
Go ahead, flight.

FLIGHT Roger, we'd like to verify that the cross-over switch is OFF.

RKV Would you verify that the cross-over switch is OFF.

S/C Roger, it is OFF and has been OFF.

RKV Okay. You copy, flight?

FLIGHT Affirmative. Tell 'em we're looking at it and we may come back to him over Tananarive.

RKV We're taking a look at it Gemini 7 and we'll probably contact you over Tananarive.

S/C Thank you.

RKV Flight, you want to know his sum?

FLIGHT Go ahead.

Say again.

RKV You want to know his summary?

FLIGHT Affirmative.

RKV Okay.

FLIGHT ..... What are your delta P indications at the present time?

RKV The same as they were before.

.....Bravo Bravo 03 is ON. Bravo Bravo 04 is OFF.

FLIGHT Okay.

RKV RKV has LOS.

FLIGHT Roger, RKV.

One thing we note here, Bill.

RKV Say again, flight.

FLIGHT One thing we note here. Looks like our fuel-cell water pressure has gone up slightly from the beginning of your pass to the end of your pass. Why don't you take a look at CL 01 and see if you saw any significant changes in that. Replay your tape.

RKV Roger, we'll play the tape back.

FLIGHT RKV Cap Com. Houston flight.

RKV Go ahead, flight.

FLIGHT Roger, Bill. What we think happened is when he pulled the 2C off line he let a big slug of water go into the system that backed up and gave him the  $O_2$  to  $H_2O$  delta P. If you take a look at the Guaymas summary, the fuel-cell water pressure and the drinking water pressure was about 17 psi. At your LOS summary, it had risen to  $17\frac{1}{2}$  psi, both in fuel-cell water pressure and drinking water pressure. We're going to talk to them over Tananarive.

RKV Rog.

CAP COM Tan anarive go remote

TAN Tananarive remote

TAN Tananarive has acquisition.

CAP COM Gemini 7, Gemini 7, Houston Cap Com. Over.

S/C Go ahead, Houston.

CAP COM Roger, Frank. What's the status of your delta P lights right now?

S/C Delta P no. for section 1 is ON.

CAP COM Understand no. 1 is ON and no. 2 is OFF. Here's what we think happened. It looks like possibly when you took 2 Charlie off the line it - indications are here that the fuel-cell water pressure. Let me start over. When you took section 2 Charlie off the line, it appears that a big slug of water went out of section 2. We got a water pressure indication down here which indicates that this is possible. As a result, your delta P light on section 2 would go OFF and apparently it did. Now,

if this happened, your delta P - some of this water could have backed up into section 1, which would be cause for your section 1 delta P light to come on. Now, we feel that if this is really what happened, your delta P light on section 1 probably will not remain on too long. It's difficult to give you an idea but probably within a rev it should be OFF.

S/C

Okay.

CAP COM

If your delta P light does come OFF and everything else looks normal, we may have done it again, we're still working on it, Frank but there's definite indications that you did get a slug of water out of 2 Charlie.

S/C

Okay. Now the section 1 is starting to carry most of the load now, it's about a 1 amp difference, section 2 carrying 1 amp more than section 1.

CAP COM

Yeah, we concur. We got this at LOS over the RKV that section 2 was starting to carry almost a full amp more than section 1.

S/C

Righto.

CAP COM

Now this was normal most of the day and evening last night when we were on.

S/C

Right.

CAP COM

We got 2 Charlie up to about 3.7 at RKV LOS.

S/C

It's over 4 now. Four and a half.

CAP COM

Okay. This is the only logical conclusion we can come up to right now, but as I said we did get a definite indication here of an increase in water pressure from the time you had 2 Charlie on the line 'till the time you took it off.

S/C                    So what you're saying is now the water pressure will go down and the delta P light will go off.

CAP COM                This is what we're hoping. That the water pressure then will equalize or actually go down in section 1 and the delta P light should go out. It looks possibly like we've got a restriction in the water valve in section 2, which may be backing that water up in the section 2 and when we do some of these phenomenal things we've been doing for the last 3 days, we appear to get that water out in big blobs.

S/C                    Roger.

CAP COM                Frank, it appears that section 1 - there's been no problem at all in draining the water out of it. There's no water backup at all.

S/C                    Roger.

CAP COM                This is why we feel that that section 1 light will go off here shortly.

S/C                    Roger.

                         Houston, Gemini 7.

CAP COM                Go ahead, Gemini 7.

S/C                    Now we've got 2 delta P lights!!

CAP COM                Understand you've got section 1 and section 2 on.

S/C                    That's affirmative.

CAP COM                Gemini 7, Gemini 7, this Houston.

S/C                    Go ahead, Houston.

CAP COM                Okay. We're working on the problem trying to analyze it, Frank. If there's any change, I'll just be hanging on here, if there's any change within the next 4 minutes prior to Tananarive LOS, just give me a call.

S/C Do you have any sort of recommended action to take if the amps start dropping in a hurry?

CAP COM Gemini 7, Gemini 7, Houston. Not at the present moment but we're working on it and we'll get word up to you at CSQ.

S/C Okay.

CAP COM Gemini 7, this Houston. We've got one full rev, yet. We've got CSQ, Hawaii, and RKV prior to the sleep period.

S/C Roger. We'll be happy to stay awake 'till you get this thing fixed up.

CAP COM Yeah, I'm with you on that one.

TAN Tananarive has LOS.

Thank you.

HOUSTON CSQ Cap Com Houston procedures voice check. How do you read?

CSQ Houston procedures. CSQ Cap Com. I read you weak, with background noise.

HOUSTON Read you loud and clear, CSQ.

Okay, we'll try to get something here to you shortly, Chuck.

CSQ Roger.

AFD, CSQ.

HOUSTON Go ahead.

CSQ Voice Check.

HOUSTON Loud and clear.

CSQ Loud and clear here. H-1 minute 40 seconds.

HOUSTON Okay, all we want is a readout on the BAO 3 and 4 and we'll advise you.

FLIGHT That's BB 03 and BB 04.

CSQ AFD. CSQ. You faded out and broken, repeat.

FLIGHT Okay. Let us know what delta P lights you have on the ground at your acquisition.

CSQ Uh, Roger.

HOUSTON CSQ, AFD.

CSQ Go ahead.

HOUSTON Have you got a Mi c.s.t 152 on your machine right now?

CSQ Say again number.

HOUSTON 22 20.

CSQ Negative. I'm receiving a PAD for 153-3.

HOUSTON Okay. How about singing out when you get it.

R 22 20.

CSQ Roger.

We show Bravo Bravo 03 and Bravo Bravo 04 both lights ON.

FLIGHT Roger, CSQ.

CSQ AFD, CSQ receiving 22 20 00.

HOUSTON Okay. You can see I made a mistake there on the BA's.

FLIGHT How do the sections look on ground telemetry?

Give me your main bus currents.

CSQ Stand by flight. We'll check it.

FLIGHT Okay. We just got your summary. You don't need 'em.

CSQ Gemini 7, CSQ Cap Com.

S/C Go ahead CSQ. Gemini 7.

CSQ Roger. Still working on that fuel cell - - -

END OF TAPE

Q Roger, Still working on that fuel-cell problem. I have a MAP update when you're ready to copy and I'd like to ask if you've noticed any change in your delta P lights since Tananarive.

S/C Negative, Stu. Delta P lights are ON.

CSQ Roger.

Do I have any map updates?

CSQ Roger. Title is node. Time 242 43 33. Remarks: Rev 152. 75.decimal 5 degrees east. Right ascension: 08 4 niner 04.

S/C Roger, understand. 75.5 degrees east.

CSQ Affirmative.

FLIGHT I'd like an LOS main, CSQ.

CSQ Roger, flight.

IGHT AFD, monitor this loop for me.

CSQ Flight, CSQ.

HOUSTON Go ahead.

CSQ We copy for fuel-cell water pressure 17 decimal 4. The drinking water pressure 17 decimal 5.

HOUSTON Roger, I copied.

CSQ Does that agree with AOS sounding, main sounding?

HOUSTON Yes. I've got 17.4 and 17.5 over your first main.

CSQ Roger.

HOUSTON CSQ, would you send us Alpha and Bravo summary, too, please?

CSQ Roger, Procedures

AFD, CSQ.

FLIGHT Go ahead.

Q Okay. We're showing the stack currents and the delta Pressures holding steady.

FLIGHT Okay.

FLIGHT Give us a mark when you punch up your last main, will you please?

CSQ Roger. Ending main.

FLIGHT Roger.

CSQ LOS, CSQ.

FLIGHT Roger.

CSQ AFD, CSQ.

FLIGHT Go ahead.

CSQ Okay. Again we show no change in any of the currents or water pressures.

FLIGHT Okay. Thank you.

FLIGHT Hawaii, AFD.

HAW AFD, Hawaii Cap Com.

FLIGHT We've got nothing for you except to advise them of a UHF 6 at RKV.

HAW Uh, Roger.

FLIGHT We have our fuel-cell experts in a 360-degree circle around flight at this time.

HAW AFD, Hawaii.

FLIGHT Go ahead, Hawaii.

HAW We haven't locked up solid but both lights are ON.

FLIGHT Rog. Understand both lights are ON.

HAW TM solid, Hawaii.

Gemini 7, Hawaii Cap Com.

S/C Go ahead, Hawaii, Gemini 7.

HAW Okay. Which lights do you have on?

S/C Have them both on.

HAW Okay. We agree with you here on the ground. How're you doing?

S/C Okay. We'd like to get some light out. One of them anyway.

HAW So would we.

S/C Do you have any words of wisdom?

HAW I'm only one of the one thousand people who have an idea on it!

S/C No instructions though, huh?

HAW Nothing as yet. You'll have a UHF 6 over the RKV if that'll make you feel better.

S/C Okay.

FLIGHT Hawaii, you can tell 'em we feel we got a pretty good handle on it right now. We'll probably talk to them over Tananarive again. We want to talk to them after completion of the purge.

HAW Okay, very good.

Think they've got a handle on it.

S/C Okay.

HAW After you complete the purge they'll probably talk to you over Tananarive and then they'll have a little discussion with you there.

S/C Roger.

HAW AFD, Hawaii. Other than the two lights he's looking real good.

FLIGHT Roger, Hawaii.

HAW 2 Charlie is really up there.

FLIGHT What are you reading?

HAW 4.2.

FLIGHT Very nice!

Hawaii, Houston. We'd like an LOS main, please.

HAW Roger.

AFD, Hawaii.

FLIGHT Go ahead.

HAW Okay. Now 2 Charlie is reading 3.76. He's probably got a heater cycling.

FLIGHT Okay. We have 38 at your AOS.

HAW Yeah, well, this is a different reading.

FLIGHT Okay. And we think we've got a pretty good handle on it now. You might monitor the briefing over the Tananarive here. We're doing it over Tananarive mainly because we won't have all of the information available by the time we get to RKV.

HAW Very good.

FLIGHT We do have some slight changes, possibly in his procedures upon awakening in the morning. What this basically amounts to is before they consume any large quantity of water, we're probably going to want them to purge the fuel-cell. In addition, we're going to ask them not to - both of them consume all of their water on awakening, immediately or in very close proximity to each other.

HAW You're going to have them to consume it<sup>or</sup>/not to consume it?

FLIGHT They're going to have to drink water, no question there, but I think what we're after is not to have 'em both take out large slugs of it, very close together, because it looks, well, we'll be back to you on this, Ed. You'll monitor the briefing over Tananarive.

HAW Wouldn't miss it.

FLIGHT And then we'll have the people write up a long, very long detailed briefing here.

HAW Roger, flight.

2 Charlie has now leveled off at 3.76.

FLIGHT 3.76? - it's holding!

HAW Roger

HAW LOS at Hawaii.

That was taped voice communication between Command Pilot Frank Borman of Gemini 7 and the ground tracking stations, the ship Rose Knot, Tananarive, the ship Coastal Sentry, and Hawaii during the 152nd revolution. Gemini 7 is now on its 153rd revolution and is passing over the Indian Ocean. This is Gemini Control, 244 hours and 13 minutes into our mission.

END OF TAPE

This is Gemini Control. We are 244 hours and 19 minutes - 20 minutes now, into our mission of Gemini 7. At the present time Gemini 7 is passing over the Indian Ocean and is just coming up on the West Coast of India. It is on the 153rd revolution over the earth. According to our flight plan our flight crew is now in a sleep period which will extend for approximately 10 hours. As the Gemini 7 passed over, or near the Tananarive tracking station a short while ago, we had voice communication between the flight crew with Command Pilot Frank Borman and the Mission Control Center here in Houston. The Voice on the Houston end is our spacecraft communicator, Gene Cernan. And as you may have been following the problems we are having with the fuel cells, it appears now that we have a handle on the problem and the voice communication will bear this out. We will now play back the voice communication over Tananarive.

Cap Com Gemini 7, Gemini 7, Houston Cap Com, over.

S/C Gemini 7.

Cap Com Gemini 7, Houston. Reading you loud and clear.

S/C The number 1 delta P light went out at 24400.

Cap Com Roger. Gemini 7 I just won a cup of coffee, thanks a lot. Here's the experts evaluation of the status of these delta P lights and the way they have been behaving, if you'd like to listen.

S/C Roger.

Cap Com Okay. We believe here that when the sudden transfer of water took place a couple of revs ago, when you open circuited 2 Charlie, the water reference pressure surged and the oxygen and the hydrogen regulators on both sections

opened up and supplied gas to the cells. The water reference pressure then decayed which left a higher oxygen pressure in both cells. This would account for both delta P lights coming on at the time they did.

S/C Okay, I've still got a delta P light on section 2.

Cap Com Rog. We understand, you still got section 2 delta P light. Here's what we would like you to do, Frank. We feel that the large withdrawal of water in the mornings is disrupting the system . . . . water pressure suddenly. This is when you take a large quantity of water out and drink it. And we would like you to take drinking water . . . . and not both you and Jim at the same time. The doctors concur on this. We are all in agreement. And we'd also like you to purge the fuel cells before drinking your breakfast water. We'll attempt to schedule appropriately in the flight plan.

S/C Very well.

Cap Com Okay, now you've got section 1 delta off and section 2 delta P on, right? Gemini 7, Houston.

S/C Go ahead.

Cap Com Okay, the fact that the section 1 delta P did go out and the fact that section 2 stayed on, without going into a great amount of detail confirms what we have been suspecting down here. So it looks like the evaluation of the problem is

on pretty firm footing. We don't want you to loose any sleep about it because we'll be watching it pretty close throughout the night. Right now, at least as of RKV LOS, both section 1 and section 2 are performing very satisfactorily.

S/C . . . garbled . .

Canaries Canaries has LOS.

That was taped voice communication between Gemini 7 and our command pilot, Frank Borman, with the spacecraft communicator here in the Mission Control Center. We are now 244 hours and 24 minutes into the mission of Gemini 7. We are on the 153rd revolution. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are 245 hours and 20 minutes into our mission. Gemini 7 at the present time is passing over the southern part of South America and very shortly will move out over the South Atlantic. According to our flight plan, our crew is of course still in its sleep period. We do not as yet have any data from the ground readouts as to whether the crew is asleep. As soon as we do get that information we will pass it on to you. Our last readout was over the Hawaiian tracking station and at that time the crew was quiet but awake. This is Gemini Control, 245 hours and 20 minutes into the mission of Gemini 7.

END OF TAPE

This is Gemini Control. We are 246 hours and 21 minutes into our mission. Gemini 7 at the present time is on its 154th revolution and is passing over the Pacific Ocean toward the Canton Island Tracking Station. According to our latest ground readings of telemetry data, it appears that the Command Pilot is asleep. However, Pilot Jim Lovell is still awake. Our latest report also which came from the Coastal Sentry Tracking Ship, reports that all systems on the Gemini 7 are GO. We have a report from the Cape that they have started loading oxidizer in the launch vehicle and this activity started shortly after 8:00 p.m. e.s.t. This is Gemini Control, 246 hours and 23 minutes into the mission of Gemini 7.

END OF TAPE

This is Gemini Control. We are now at 247 hours and 20 minutes into the flight of Gemini 7. Gemini 7 at this time is on its 155th revolution around the earth and is now passing over the Continent of Africa. According to the ground data, a readout from the Gemini 7, the crew probably is asleep. We have a report here from the U.S. Air Force concerning the search for Dr. and Mrs. Randolph Lovelace, he being the Director of Space Medicine of the Office of Manned Space Flight, of National Aeronautics and Space Administration in Washington, D.C. He was reported missing Sunday, or Monday after a flight Sunday noon from Aspen, Colorado to Albuquerque in a private charter plane. The report follows: Poor weather today hampered the search efforts of military and civilian aircraft operating out of Peterson Field, Colorado Springs, Colorado, and Albuquerque, New Mexico. Search in the Aspen, Colorado area was also hampered by 8 feet of snow that has fallen since the aircraft, carrying Dr. and Mrs. Lovelace took off from Aspen Sunday. Fog, which may lift by mid-morning, is forecast for Wednesday in the Aspen area. Air-rescue service aircraft now at Peterson Field. There are 6 air-rescue service aircraft at Peterson Field, 15 Colorado Civil Air Patrol aircraft from the Colorado Springs area, 9 New Mexico Civil Air Patrol from Albuquerque, and 9 aircraft of the Cutter Flying Service, Aspen. We'll resume the search as soon as weather permits. The efforts of more than 100 persons including pilots, air crews, and 2 ground teams, are being coordinated from Peterson Field, Search Headquarters by Lt. Col. W. A. Ryan of Air Rescue Services, Central Air Rescue Center Richards - uh, Richard Gabour, Air Force Space, Missouri. Wednesday's search will be concentrated southeast of Aspen, where a pilot skiing at the 10,000-ft level reported seeing the brown and white Beech aircraft 95 flying east through Independence Pass on Sunday at 12:40 p.m. mountain time. That report from the U.S. Air Force, which is heading the search for Dr. and Mrs. Randolph Lovelace of NASA. This is Gemini Control. We are 247 hours and 23 minutes into the mission of Gemini 7.

END OF TAPE

This is Gemini Control. We are now 248 hours and 20 minutes into the mission of Gemini 7. At the present time Gemini 7 is passing over the Pacific and very shortly will end its 155th revolution and begin the 156th. Reports from our ground tracking station tell us that all systems about the spacecraft are in a GO condition and our flight surgeon, earlier, reported that the flight crew is in excellent physical condition. This is Gemini Control, 248 hours and 20 minutes into the Gemini 7 mission.

END OF TAPE

This is Gemini Control. We are now at 249 hours and 20 minutes into the mission of Gemini 7. At the present time Gemini 7 is on its 156th revolution over the earth and is flying over the Coastal Sentry tracking ship. Here in the Mission Control Center, our White Team of flight controllers are preparing to move out and their places will be taken by the Blue Team headed by John Hodge, flight director for the Blue Team. According to the ground data the readouts from the spacecraft the pilot appears to be asleep, the command pilot is either restless or awake. And this report came from the Rose Knot tracking ship at the beginning of this revolution. We are now 249 hours and 21 minutes into the mission. This is Gemini Control.

END OF TAPE

This is Gemini Control. Gemini 7 has been in space now for 251 hours and 20 minutes and is now crossing the South Pacific on its 157th revolution. We are waiting for word from the Cape soon that the countdown has begun. That should be 1:12 a.m. this morning Central time, for launch at 7:37 this morning Central Standard Time, at Cape Kennedy of the Gemini spacecraft. And we are hopeful that on this day we'll have a rendezvous between Gemini 6 and Gemini 7. The weather at the Cape is predicted to have scattered clouds below 10,000 feet; with light fog; winds variable at 5 knots for the southeast. The loading of fuel aboard the Gemini launch vehicle, the Titan, was completed at 11:32 Eastern Standard Time, last night at the Cape. And the Gemini 6 crew, astronauts Schirra and Stafford are scheduled to get up about 3 a.m. Eastern time, at the Cape. The Gemini 7 crew is due to awake in their spacecraft somewhere in the Cape area about an hour later. So at 251 hours and 21 minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

MISSION COMMENTARY TRANSCRIPT, 12/15/65, 1:14 a.m.

Tape 432, Page 1

This is Gemini Control. The countdown on the Gemini 6 launch vehicle - on the Gemini 6 spacecraft has begun. We are at T minus 358 minutes and 23 seconds. The Gemini 7 spacecraft has been in space for 251 hours and 43 minutes. This is Gemini Control.

END OF TAPE

This is Gemini Control. At 252 hours and 20 minutes into the flight of Gemini 7, and we are 321 minutes and 51 seconds into the countdown of Gemini 6, down at Cape Kennedy. Right now Gemini 7 is passing over India on a sweep down toward Australia on its 158th revolution. It is day time over India. The spacecraft countdown at Cape Kennedy is underway. It has been underway for 40 minutes. This is Gemini Control

END OF TAPE

This is Gemini Control. At 253 hours and 20 minutes into the flight of Gemini 7. The spacecraft is now passing over the Grand Turk Tracking Station having just swept down by the southern part of the United States on its 158th revolution. The countdown on Gemini 6 at Cape Kennedy is at minus 261 minutes and counting. The schedule for the countdown at the Cape is to wake up the crew in about 12 or 15 minutes. They should have breakfast. At about 4:37 a.m. e.s.t., they will go to the trailer to suit up about an hour after that and go to the spacecraft at about 6:30 eastern standard time for a scheduled launch at 8:37 a.m. e.s.t. The countdown on the spacecraft began earlier this morning. This countdown on the launch vehicle is scheduled to begin in about 20 minutes. Weather at the Cape is very mild, with 5000-ft 3 to 5 tenths cloud cover - scattered cloud cover. Wind 5 to 10 knots from the southeast with some ground fog predicted. At 253 hours and 21 minutes into the flight of Gemini 7, and just 260 minutes into - on the countdown of Gemini 6, this is Gemini Control.

END OF TAPE

This is Gemini Control, at 254 hours and 20 minutes into the flight of Gemini 7. The countdown on Gemini 6 is progressing. We are now at minus 202 minutes and counting at the Cape. The crew, astronaut Wally Schirra, astronaut Tom Stafford, were awoke at 4:02 a.m. Eastern Standard Time, on schedule, and have since had their physical examinations and their breakfast. The Gemini 7 spacecraft is passing over the east coast of Australia and the crew aboard the Gemini 7 spacecraft should be waking up in about 20 minutes on their pass across Cape Kennedy. So at 254 hours and 20 minutes of the flight of Gemini 7 and within 200 minutes on the countdown of Gemini 6, this is Gemini Control.

END OF TAPE

This is Gemini Launch Control at 2 minus 175 minutes and 56 seconds and counting. Right on time with our count time at the present time in preparation for Gemini 6 launch this morning. Astronauts Wally Schirra and Tom Stafford, the prime pilots for the mission, just departed from the crew quarters, at the Kennedy Space Centers, Manned Spacecraft Operations building, just several minutes ago. The two pilots were awakened about an hour and 15 minutes ago, we'd put it at about 4:00 a.m. Eastern Standard Time. They went down the hall, at the crew quarters to take their medical exam. They were described by Dr. Dwayne Catterson who gave the exam as being in excellent physical condition. Dr. Catterson also remarked that they are quite relaxed and confident. On the way back down the hall to the crew quarters from the physical, it became more apparent to the people who were watching them go by that the crewmen were in obvious good spirits. They joked about the early hour they had to get up this morning and seemed to feel very good. The astronauts sat down to breakfast with just one guest this morning and that was Alan Shepard, the Chief of the Astronauts Office, at the Manned Spacecraft Center. The breakfast was a regular one. It consisted of Filet Mignon, Eggs, Toast, Juice and Coffee. Both pilots dressed in sport shirts and slacks has departed the crew quarters at the Kennedy Space Center on Merritt Island and are on their way to the suitup trailer located at Launch Complex 16 adjacent to Launch Pad 19 where we have Gemini 6 spacecraft and launch vehicle standing ready. All looking well from here at the Control Center at the present time. We are at T minus 174 minutes and 7 seven seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Control at 255 hours and 15 minutes into the flight of Gemini 7. Gemini 7 is now crossing over the west coast of Africa and during the pass across the United States there was some conversation between the pilot, Jim Lovell and the U.S. Stations. Let's play that tape for you now.

S/C This 7. Go ahead.

CAP COM Gemini 7, Houston.

Gemini 7, Houston.

S/C Roger.

CAP COM Gemini 7, Houston. I have some instructions for you after which I'll pass you to Surgeon for food, water, and sleep report, only. Please place your DCS power circuit breaker off, please confirm each one. C-band adapter beacon switch continuous.

S/C Houston, this is 7. Cannot read. Say again, please.

CAP COM Uh, Roger. Place your DCS power circuit breaker OFF.

S/C Roger, it's off.

CAP COM C-band adapter beacon switch continuous.

S/C Continuous.

CAP COM Stand-by TM switch real-time.

S/C Say again the last.

CAP COM Stand-by TM switch real-time.

S/C Roger. Stand-by real-time.

CAP COM ACQ BEACON circuit breaker OFF.

S/C ACQ beacon circuit breaker coming OFF.

CAP COM Real-time transmitter circuit breaker OFF.

S/C Real-time transmitter circuit breaker OFF.

CAP COM           And HF antenna in the retract position.  
I'll now pass you to Surgeon for a food, water, and sleep report, only.

SURGEON           Gemini 7, Houston Surgeon, do you read me?  
Gemini 7, Houston Surgeon standing by for your sleep report.

S/C               Roger . . . .  
Gemini 7. We've had about 5 hours of sleep apiece. I'd say light to moderate.

SURGEON           Roger, Gemini 7. Copy 5 hours each, light to moderate.  
Your food report now. Supper last night and breakfast - oh, you will not have had breakfast yet. Supper report last night will do.

S/C               Supper was Day 9, Meal C.

SURGEON           Did you eat all items?

S/C               Roger. Ate all items. Pilot's had 709 ounces of water, and the Command Pilot's had 876 ounces of water.

SURGEON           Roger, I copied that. May I have your gun reading?

S/C               Roger. Gun's reading 3798.

SURGEON           Copy 3798.  
Gemini 7, Houston Surgeon. How was your comfort last night?

S/C               It was a little warm when we went to bed. It got very comfortable there towards the morning.

SURGEON           Did you say it was a little warm at the time you were going to sleep and then it got more comfortable?

S/C               Roger.

SURGEON           Roger, I copied that.  
We'll get the Canary Surgeon to pick up your breakfast report later on. Houston Surgeon out.

CAP COM Gemini 7, Houston. I have a flight plan update for you.

S/C Roger, stand by.

Go ahead, Houston.

CAP COM Item node: Time 256 15 48. Rev 160 - 132.3 degrees west.  
Right ascension 08 hours 31 minutes 58 seconds. Flight  
plan time line update: Change 256 00 00 to 256 10 00.  
Time - 255 05 45. Crew status report Command Pilot at  
Canary Islands. Time 255 41 41 32. PLA update and go--no-go  
at Carnarvon. Time 256 41 23. Crew status report, Pilot at  
Canary Islands. Items D-4/ D-7: 258 05 05. Sequence 430.  
Mode: 02. Pitch - 30 degrees down. Yaw - 3 degrees right.  
Make measurement on GT-6 launch. Take S6 photo on weather  
at Cape. Nominal GT-6 launch is 258 07 23. Did you read  
that, ??

S/C Roger, we got most of it.

CAP COM Roger. May I have an OAMS prop readout?

S/C 16 percent. 16 percent.

CAP COM Roger. 16 percent.

Did you have any tumble rates when you awakened this morning?

S/C Tumbling slowly.

CAP COM Be advised your present orbit is 159.2 by 163.3 and we can  
give you a later update on that.

S/C Thank you.

CAP COM The progress on the pad is going well. They're 10 to 15 minutes  
ahead of the count. The crew has eaten, had their medical, and  
left the MSO building and everything appears to be fine. How-  
ever, the weather has been a little bit marginal. The 0500  
eastern weather was high thin broken and 7 miles. The

temperature was 67, dew point 66 and the wind was south at 6 knots with patches of ground fog south and west. But that looks better than it's looked most of the night and we're all pretty hopeful here.

Did you get your HF antenna in the retract position?

S/C Roger.

CAP COM Okay. Well, we'll leave you alone for now. The Blue Team wishes you the very best for a very successful day today.

S/C Thank you.

Gemini Control Houston here. That was a pass across the United States. Since then the Gemini 7 spacecraft has gone over the Canary Islands and we have a tape of the conversation between the crew and the Canary Islands Station. We'll play that tape for you now.

CYI Gemini 7, Canary.

S/C Go ahead, Canary, this is 7 here.

CYI Okay. During this pass we'll like to get a fuel-cell purge done and also a crew status report on the Command Pilot. We're still getting an invalid oral count.

S/C Roger. Stand by one.

CYI Okay. We want a normal purge of section 1 with crossover switch ON. And then we'll get the fuel-cell control no. 2 circuit breaker and put it on. Do a normal purge of section 2. Fuel-cell control no. 2 circuit breaker off and the crossover switch off. Okay?

S/C Roger. Understand. And blood pressure's coming down on the Command Pilot and also the purge.

CYI Rog.

CYI Complete the ..... Canary has LOS C-band track.

HOUSTON Roger, Canaries.

SURGEON ..... your systems are ..... and you have a valid oral temperature.

S/C Ready for the exercise?

SURGEON Negative.

S/C Rog.

SURGEON Roger. You'll begin your exercise on your mark.

S/C Mark.

SURGEON (garbled)

Valid post-exercise blood pressure. Thank you.

Canary Surgeon out.

S/C Roger.

Purge complete, Canaries.

CYI Okay, fine. Crossover switch OFF and fuel-cell control no. 2 circuit breaker OFF.

S/C Roger, heads up.

CYI Okay. And turn off the biomed recorder no. 2, please.

S/C Roger.

CYI Okay. And we'd like some onboard readouts, ECS O<sub>2</sub> quantity and pressure.

S/C ECS O<sub>2</sub> is 830 psi and 66 percent.

CYI I have the psi pressure.

S/C 830.

CYI Ok, thank you, and the quantity read switch to fuel-cell O<sub>2</sub> please.

S/C You want the readout?

CYI Please.

S/C 760 psi and 49 percent.

CYI Roger.

Okay. Fuel-cell H<sub>2</sub>. Pressure and quantity.

S/C 500 psi and 55 percent.

CYI Roger, copy. Quantity read switch OFF, please.

Okay, 7. We have nothing else for you. We'll be standing by.

All your systems are GO on the ground. Everything's looking real good.

S/C Thanks, Canaries.

At 255 hours and 25 minutes into the flight of Gemini 7, now beginning its cross across the Indian Ocean. This is Gemini Control, Houston.

END OF TAPE

This is Gemini Control Houston. The Mission Control Center here reports that all systems in the Control Center are "go." Flight Director John Hodge reports that the world network is "green" and "go." Gemini 7 in its one hundred and sixtieth revolution, has been in space for 255 hours and 31 minutes and is crossing over the Indian Ocean. It is "go" and for the status of Gemini 6, we take you to Jack King at Gemini Launch Control-Cape Kennedy.

King                      This is Gemini Launch Control at the Cape. We're at T-130 minutes and 24 seconds and counting. All looking well on the Gemini 6 countdown at the present time. As we were on Sunday at least as far as the countdown was concerned, once again we're having an excellent countdown this morning. We're from 10 to 20 minutes ahead on certain events during the day's preparations for the launch vehicle and the spacecraft. The backup pilots for the Gemini 6 flight, Astronauts Gus Grissom and John Young, are aboard the Gemini 6 spacecraft making some final checks. They will report to the prime pilots, Wally Schirra and Tom Stafford, when they arrive at the White Room at Launch Complex 19 some 25 to 30 minutes from this time. To repeat some of the activities that have gone on this morning -- Astronauts Schirra and Stafford were awakened at about 4:00 a.m. EST. They went down and took

their physical. They were pronounced by their doctor, Duane Catterson, as being in excellent physical condition. Also described by Dr. Catterson as being relaxed and confident. This clearly became evident as Schirra and Stafford returned to the crew quarters. They quipped as they went along the hallway to some of the people who are working in the area, complaining in a joking fashion about having to get up a little earlier this morning. It was obvious that they were in good spirits. They did get up about an hour and a half earlier today compared to last Sunday on our previous effort for Gemini 6. Our weather conditions this morning call for scattered clouds in the launch area with winds three to five knots, sea state off the Cape of one to two feet. We expect a temperature at launch time of about 65<sup>o</sup>, and our visibility is expected to be about five miles, but we're going to wait for dawn -- we're going to wait for the sun to come up to take a good look at our situation. We don't here anticipate a problem, let me emphasize that, but we will take a look when the sun comes up to see if whether we have a haze condition or not. It is not expected to be a problem at this time. For the rest of the orbital track, things look generally acceptable. We will cover them in more detail later on in the reports this morning. Once again, all looking good on the count-down at the present time -- now T-128 minutes, 7 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at the Cape.

Our count continues to proceed well. We're at T-120 minutes and 53 seconds and counting. In the Gemini 6 spacecraft at Launch Complex 19, the backup pilots for the 6 flight, Astronauts Gus Grissom and John Young, continue their checkouts in the spacecraft. Prime pilots, Wally Schirra and Tom Stafford, are now in the suit trailer at the adjacent complex, Launch Complex 16, and they will be getting their space suits shortly. All is looking good at the present time for this morning's flight. Launch time -- we will have this reverified by the Flight Director Chris Kraft later in the count, but we're aiming for an ignition -- that is T-0 at 8:37 and 23 seconds a.m. EST. This will be as the Gemini 7 spacecraft is making its one hundred and sixty-second revolution. Once again to repeat that time -- the liftoff time is 8:37 and 23 seconds a.m. EST. As we had on our previous attempt on Sunday for Gemini 6, there will be a 25-minute hold. We have 25 minutes of hold time. We have not used any of it thus far because we have had an excellent countdown. If we don't use it prior to T-3 minutes -- the three-minute mark in the count, we will hold at that time for 25 minutes and then proceed on to the exact liftoff time we are seeking. All looking well at Launch Complex 19 at the present time. We are now at T-119 minutes, 22 seconds

GEMINI 7/6 MISSION COMMENTARY, 12/15/65, 5:11 a.m. Tape 439, Page 2  
and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control, T minus 155 seconds and counting. T minus 110 and 50 seconds at the present and counting. All looking well on the Gemini 6 preparations at the present time. We are expecting some 5 to 6 minutes from now for the prime pilots, Wally Schirra and Tom Stafford to step out of the suit trailer at Launch Complex 16 and the proceed to 19, up into the White Room in the Gemini 6 spacecraft. Backup pilots, Gus Grissom and John Young, have just completed a series of suit circuit purge tests within the spacecraft. This is checking out the system which will be used for the spacesuits for astronauts Schirra and Stafford. It was reported that this test was completely successful and from a look at the activities in the White Room at the present time the crews are standing by waiting for the arrival of Schirra and Stafford as I said some 5 to 6 minutes from now. During prebreakfast this morning after the prime pilots were awoken at 4:00 a.m. Eastern Standard Time and took their physical, they had breakfast. The time was about 4:35 a.m. Eastern Standard Time when they started. They just had one guest this morning and that was Alan Shepard who is Chief of the Astronaut Office and who has been working with this crew throughout all the preparations for the 6 mission. Breakfast consisted of - well it was a regular astronaut breakfast of filet mignon, eggs, toast, juice and coffee. They are now in Complex 16. We are going to await their departure coming up now some 4 minutes from now. All still looking well on the countdown. We are still ahead on some of them. The countdown proceeding normally at the present time. Now T minus 109 minutes 7 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. We're at T-102 minutes and 25 seconds and counting. Right on time as far as the countdown is concerned and right on time as far as the departure of the prime pilots, Wally Schirra and Tom Stafford, from their suit trailer at Launch Complex 16 proceeding toward the pad. They left the trailer about one and a half minutes ago and now are proceeding in the van toward Launch Complex 19. The crew is standing by in the White Room. There's a little sign on the spacecraft that says, "Good luck, from the second shift," and a drawn hand on a small chart. The hand, of course, just symbolizes a handshake. Once again, the sign says, "Good luck, from the second shift." This apparently is the crew that worked up until midnight last night. They're extending their greetings to the prime pilots because they will not be on the job when the pilots come aboard. We expect that Schirra and Stafford will be arriving at Launch Complex 19 shortly. They will go up immediately into the elevator into the White Room, and at beginning a brief status check from the technical crew in the White Room, including the backup pilots, Gus Grissom and John Young. Gus and John who, of course, made their mission on Gemini 3 -- the first manned Gemini flight, have been spending quite a bit of time in the spacecraft this morning. They boarded the spacecraft right at the start of the power-up of the spacecraft

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at about 2:12 a.m. this morning, and have been in it since that time except for about 30 to 40 minutes when they had to leave the pad earlier this morning when the launch vehicle was pressurized. The transfer van now has arrived at Launch Complex 19. Astronauts Schirra and Stafford now stepping out of the truck, and they'll proceed up the ramp. There were a few handshakes as they go along. Now proceeding up the ramp, and it's expected in a matter of a minute or so they will be up in the White Room. They departed their crew quarters at the Kennedy Space Center, Manned Spacecraft Operations Building at about 5:12 a.m. this morning, and have spent the remainder of the time in the trailer at Launch Complex 16. The two pilots now are in the elevator, and they are going up to the White Room. They will spend, as they reported, several minutes up there to get a status report before boarding the spacecraft. We will have a further report on their progress. The count is now T-99 minutes and 46 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at T minus 91 minutes and counting. T minus 91, all going well on the Gemini 6 countdown. Prime pilots, Wally Schirra and Tom Stafford are now aboard the spacecraft. They went over the hatch some 5 minutes ago. We had it marked at 35 minutes past the hour when they boarded spacecraft 6. They have now hooked into their suit circuit and we are about to start a series of preliminary checks with both pilots. This includes overall communications and checking out the blood pressure. Getting some blood pressure readings right at the start to make sure they are properly hooked in. Then we will proceed following that to make a complete series of checks, final status checks on their switches and the various dials in the spacecraft as the countdown proceeds down to a zero. We have the same situation as we did on Sunday with a 25 minute built-in hold. We have not used any of this at the present time. We had reported a launch time earlier, this time has been changed slightly and it is possible it will be changed again before we get to zero in the countdown. The present lift-off time they were aiming for was 8:37 and 19 seconds -- correction, the present ignition time we are looking for is 8:37 and 19 seconds a.m. eastern standard time. The final lift-off time will be determined on notification from the Flight Director at the 18-minute mark in the countdown. This will be the final alert for the pad crews to give them the exact time for launch, of course, this is in connection with the orbit of Gemini 7 which will be coming around on its 162nd orbit at launch time of Gemini 6. All still going well with our count at the present time, now 89 minutes and 6 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Control Houston. At 256 hours and 13 minutes into the flight of Gemini 7 now crossing the South Pacific. A few moments ago the spacecraft passed the Carnarvon Tracking Station in Australia. We taped that conversation and we'll play it for you now.

CRO Gemini 7, Carnarvon Cap Com.

S/C Go ahead, Carnarvon, Gemini 7.

CRO Roger. Would you place your DCS circuit breaker ON.

S/C Roger, going on.

CRO Roger, and we're standing by for your go--no-go readings.

S/C Roger. Four main batteries are all, guess it's 23 for the first 3 and 20 for the 4th one.

Have no abnormal functions. Stack 1A reads....(Garble)...

CRO Gemini 7, Carnarvon Cap Com. Gemini 7, Carnarvon Cap Com. Do you read?

S/C Roger. Can you read?

CRO That's negative. Would you say again, please?

S/C Roge. Stand by. Okay, I'll say again. All main batteries check okay. Stack read outs 1A, 3; 1B, 3; 1C, 3; 2A, 3; 2B, 3; 2C, 5. Voltage in the main bus 26.9. RCS A, 3008; B, 2975. Left hand secondary O2, 5400; right hand secondary O2, 5300.

CRO Roger. That sounds good. It's about the same as we had on the last "go/no go". Okay, we have you go for area 178-1. We're going to update your TR clock at this time for 192-1. Transmitting TR.

S/C Have received, Carnarvon.

CRO Roger. And, we show you in sinc on the ground.

S/C Would you give us the time now, Carnarvon?

CRO Roger. We're showing 255 hours, 44 minutes 21 seconds, 22, 23, 4, 5, 6, 7.

S/C Right on it with you.

CRO Roger. When you're prepared to copy, I have a POA block update for you.

FLIGHT Get that DCS circuit breaker off.

CRO Roger, Flight.

S/C Go ahead, please.

CRO Roger. Would you turn your DCS circuit breaker off, first.

S/C Off.

CRO Roger. Thank you. Okay. Area 162-1, 257:42:18. Area 163-1, 259:17:55. Area 164-4, 262:09:24. Area 165-4, 263:44:56. Area 166-4, 265:30:54. Area 167-3, 266:37:57. Area 168-3, 268:13:25. REP 400K 21 plus 40 for all areas.

S/C We have them all, thank you.

CRO Flight, what's the ....

FLIGHT Say again.

CRO What's the weather in those areas?

FLIGHT Stand by. Weather is good in all areas.

CRO Thank you. And, the weather is good in all those areas.

S/C That's good. How about in Australia?

CRO Oh, it's real fine this morning. How's it going up there?

S/C Pretty good.

CRO Roger. Gemini 7, this is Carnarvon Cap Com. Would you stand by for our Surgeon a minute. Gemini 7, this is Carnarvon Surgeon. We lost you respiratory trace for some reason. I wonder if you could contribute anything on this on the command pilot.

/C They mentioned before they thought the amplifier was bad, and I was fooling with the.....

CRO Gemini 7, say again. I do not read.

S/C They're getting a good ECG off the same sensor; from the front sensor.

CRO Gemini 7, Carnarvon Surgeon. I did not copy. Could you repeat that for me.

S/C Roger. This was mentioned before, but they claim there's nothing wrong with the sensors; because ECG is coming off of the same sensor. They sealed the amplifier, and there's nothing I can do about it.

CRO Gemini 7, this is Carnarvon Surgeon. I understand that this has been mentioned before. We have never seen the complete loss of respiratory trace. But, if this has been mentioned before, that's fair enough. Carnarvon Surgeon out.

S/C I take it back. It's not the complete loss, but the deterioration of it that's been noticed.

CRO No. This is a loss. We don't have it.

S/C I'll play with the amplifier here and see if I can get it back for you.

CRO Gemini 7, Carnarvon Surgeon. I did not copy.

S/C I said I will fool around with the amplifier and see if I can get it back for you.

CRO Carnarvon Surgeon. Thank you very much.

FLIGHT Carnarvon, Houston Flight.

CRO Go ahead, Flight.

FLIGHT            You can tell him that the crew on the Cape have a go for insertion now.

CRO                Gemini 7, the crew at the Cape have a go for insertion at the present time.

S/C                Roger. Thank you.

CRO                And, everything is proceeding in real good shape.

S/C                It's been a long wait.

CRO                Yes sir. It sure has.

FLIGHT            Carnarvon, Houston Flight.

CRO                Go ahead, Flight.

FLIGHT            It's kind of interesting there. I think we were reading it better than you. When you couldn't read.

CRO                Yea. We got this messy echo in this cotton-picking Goddard loop; and, when we got rid of that, well then we were okay.

FLIGHT            I see.

CRO                And, we did have C-Band track during that time.

FLIGHT            Roger.

                  This is Gemini Launch Control at the Cape. T-80 minutes and 58 seconds and counting. T-80 minutes and 58 seconds and counting. All is still looking good on our Gemini 6 count down, at the present time. Just a matter of several minutes ago, both hatches on the Gemini 6 spacecraft were closed and taunt. This is the final sequence of putting the astronauts aboard. There's Wally Shirra and Tom Stafford; and, at the present time, we're proceeding with the so called cabin purge. That is purging the complete cabin aboard the spacecraft and bring it up to 100% oxygen as far as the atmosphere is concerned inside. We have received another alert as far as our launch time is concerned. Once again, we are aiming for 8:37 and 23 seconds, a.m., Eastern Standard Time for ignition of the Gemini 6 vehicle. I'll repeat that time. 8:37 and 23 seconds, a.m., Eastern Standard Time.

Once again as we reported earlier, we will not get an exact lift off time until the 18 minute mark in the count down. Then the Flight Director, Mr. Chris Kraft, alerts the launch pad crews of the exact time that he wants to launch in connection, of course, with the Gemini 7 orbit at that time. We are proceeding along in fine manner, both as far as the launch vehicle is concerned and the spacecraft. Astronauts Shirra and Stafford have thus far been responding in a business like manner to instructions from the Test Conductor, John Comer. All is going well. Our count is now at T-79 minutes and 20 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at the Cape -- T-73 minutes and counting. T-73 and all going well with the Gemini 6 mission at the present time. In just a matter of a minute or so, I'll give you exact time shortly, the Gemini 7 spacecraft will be coming across the Cape area on its one-hundred and sixtieth -- actually one hundred and sixty-first -- the start of its one hundred and sixty-first revolution. It is due to pass the Cape area at 30 seconds -- 37 seconds past the hour -- 37 seconds past the hour. If you'll look to the southwest about 45° above the horizon at that time, that is where the spacecraft should be with Astronauts Frank Borman and Jim Lovell aboard. I will count down for you to the hour. We're now at 59 minutes past the hour and 48 seconds. I will count you down to 7:00 a.m. EST. 5-4-3-2-1, Mark. 7:00 a.m. EST. Some 35 seconds from now Gemini 7 is due past the Cape. The next time it comes around, we hope that we will have Gemini 6 ready to join them. All going well on the count now at T-71 minutes and 46 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Control Houston here with a squeaky mike. We are at T-60 minutes on the spacecraft 6 count and we are in a plus count of 256 hours 41 minutes on 7. As 7 swung across the States time the Blue Team Communicator, Charlie Bassett, had a conversation with the Pilots this morning and they sound their usual bright chipper selves at this early hour. Here's how that conversation went.

Guaymas Gemini 7, Guaymas Cap Com. We have nothing special for you this pass. All systems are go on the ground. If you need anything we will be standing by.

S/C A cool beer, Guaymas.

Guaymas Roger, we'll see what we can do about that.

Texas Texas has PCM solid, we got all systems go on the ground.

Cap Com Gemini 7, Houston.

S/C Go ahead Houston.

Cap Com Roger, would you place your C adapter beacon switch continuous.

S/C C-adapter beacon switch has been continuous.

Cap Com And C-beacon circuit breaker on.

S/C The C-beacon circuit breaker has been on.

Cap Com Roger. Thank you. The weather at the Cape is still high thin overcast. They've got 5 miles visibility with some ground fog. You have 66 degrees temperature and 65 dew point. The wind is 210 at 2 knots. We are still optimistic. We just watched Gunner and his crew load Wally and Tom into the spacecraft and everything seems to be progressing satisfactorily.

S/C Great.

Cap Com The lift-off remains the same at 2 58 07 23 and your orbit is still the same as our first transmission, 159.2 by 163.3.

S/C Thank you.

Cap Com I have some news here if you would like to hear it.

S/C Go ahead Charlie. We'd love to.

Cap Com Okay, first a couple of people, the search for Randy Loveless is still unsuccessful but it continues. W. Summerset Maugham suffered a stroke about 4 days ago, he's improving, but still remains in a coma. It turns out, of course, that you're still quite in the news. Fred Kelly was quoted in the Post last night. The paper quoted him as saying, "But this crew is, you'll have to admit, the two boys have been more cooperative in everything, medical experiments and otherwise, than any other crew we've had." Ed White is sitting here and he says that you just learned real well from the 4 crew. He says you are a made over 4 crew.

S/C 14 days seems a lot shorter down there than it does up here. I'll bet you that.

Cap Com I'll bet you're right. The headline for one news article referencing the rendezvous maneuvers says - is called 10 tense minutes, four lonely men in space. What do you think about that? The Soviet Union has announced that it would test a variant of a system of landing space vehicles and warned ships and planes away from an area in the Pacific Ocean where it said some elements of the booster rocket may fall. That area is about 500 miles south of the Aleutians and 2000 miles east of Japan and clear of your orbit. These tests will begin Thursday and end around June 1. That's

about all I have right now. Ed's here and would like to say hello.

S/C Roger.

CM3 This is old CM3 talking.

S/C How are you doing?

CM3 Real fine. I have a little report from your ground crews, they are all in real good shape. I had a nice dinner with Marilyn and Susan last night. Everything is going fine.

S/C Good, good. Thank you.

CM3 Roger, the numbers on the board have 75 hours remaining. It looks pretty little now. You can do that standing on your head.

S/C That's what we doing, you're right.

CM3 Right.

S/C I'll tell you one thing, you can tell this spacecraft is a fighter pilot's aircraft. It always rolls to the left.

CM3 Very good.

S/C If we only had those 55 minute flights, we'd be in a lot better shape.

CM3 Okay. Jim, this is CM3. I've got a special message for you.

S/C Roger, Ed.

CM3 Ho, ho, ho.

S/C Righto. I have one for you too.

CM3 Go.

S/C Be it ever so humble, there's no place like home.

CM3 Got you.

This is Gemini Control. The backup command pilot for this mission who has been in the Mission Control Center every morning checking the flight plan for the day and spending some 4 to 6 hours here. That concluded the conversation on the Stateside pass and now let's go down to the Cape and find out how 6 is doing.

This is Gemini Launch Control at the Cape. We are now at T-65 minutes 32 seconds and counting. All still going well on Gemini 6. It's been some 2 hours and a quarter now since the prime pilots Wally Schirra and Tom Stafford were awakened in the crew quarters at the Kennedy Space Centers Manned Spacecraft Operations Building. They are hard at work in the spacecraft right now. Wally has just completed a series of switch checks going over his switch list in the spacecraft ensuring that all the dials and all the switches are in their proper locations. His Pilot, Tom Stafford, is proceeding to do the same thing at the present time. We are also preparing to break up the White Room, that is, have the final crew of technicians at the White Room level, the spacecraft level, depart. Most of them are leaving at this time. There are just several on hand making some final checks around the spacecraft. Shortly after they do leave, we will break up the White Room, that is, raise the floors that surround the spacecraft in preparation for lowering the erector later in the count, some 20 minutes from now. With the launch vehicle we are going through some final guidance at the present time, sending steering commands from the guidance system to the engines and ensuring that the engines will gimbal, that is, that they will respond in yaw or in pitch to the commands from the guidance system. All going well in our countdown. We still have that 25 minute hold to encounter. We have not had to use any of it at the present time, if we don't have to use it, after the T-3 minute mark, we will hold at T-3 minutes, hold 25 minutes at that time, aiming toward the proper lift-off. All going well on the Gemini 6 preparations at the present time, T-53 minutes 50 seconds and still counting. This is Gemini Launch Control.  
END OF TAPE

This is Gemini Launch Control -- T-50 minutes, 57 seconds and counting on our preparations for Gemini 6. All still going well as it has all this morning since the start of the countdown when we picked up with the spacecraft shortly after 2:00 a.m. this morning. Astronauts Wally Schirra and Tom Stafford have completed their check list. During the last 10 to 15 minutes, they have been checking all the switches and dials in the spacecraft and responding in a businesslike manner to the call from the test conductor as he requests that they check each item. All is still looking well. We have also completed our guidance checks with the launch vehicle, and we are proceeding with the count. Just before we did pick up on the checklist with the prime pilot and the pilot, Wally Schirra did ask the blockhouse how the weather situation looked. He was told that it looked good, and Wally responded that it looked good to him also when he came aboard earlier this morning. We're now at T-50 minutes and counting. All looking well. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at the Cape --  
T-43 minutes, 31 seconds and counting. The 138-foot erector  
at Launch Complex 19 is being lowered at the present time.  
The prime pilot, Wally Schirra, reported just at the first  
movement that he felt the quiver as the erector started to  
come down. He also commented as the erector moved away a  
slight bit, that there was a whole bunch of blue up there.  
All is still going well on our count at the present. The  
erector is on the way down. It will leave the Gemini 6  
spacecraft and launch vehicle ready for launch in the  
terminal phases of the count. We still have that 25-minute  
hold that will be used up at the 3-minute mark if it is not  
used prior to that time. All going well at Launch Complex 19  
at T-42 minutes, 45 seconds and counting. This is Gemini  
Launch Control.

END OF TAPE

.... and counting. All still proceeding excellently on the Gemini 6 countdown at the present time. The blockhouse door has been sealed -- that is the blockhouse at Launch Complex 19. Most of the functions from here on down -- a great majority of them -- as far as the launch vehicle is concerned will be on the Automatic Sequencer in the blockhouse. There are several manual functions still to be conducted coming down to the zero mark, but the majority will be on an Automatic Sequence from here on down. At the present time in the spacecraft, Astronauts Wally Schirra and Tom Stafford are making some preliminary readouts on the spacecraft propulsion system. That is the Orbit Attitude and Maneuvering System, which will be tested some ten minutes from now. We'll have a brief static fire of the 25-pound thrusters on the spacecraft ..... preliminary readouts on it now. To recap on the weather, we have good weather conditions here at the Cape with scattered clouds. The visibility is probably up to about seven miles now in the Cape area. Winds three to five knots, and the sea stood at one to two feet off the Cape. Around the rest of the global track, the weather is satisfactory. In the Atlantic, it is considered satisfactory. We have some strong winds in a small area in the Central Atlantic and rough seas, but they're not to have any effect on the launch. The mid-Pacific -- we

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have quite a bit of wind out there, but once again as being acceptable. In the northern section of the mid-Pacific, we're at 20 knot winds and 5-foot seas. In the southern area of the mid-Pacific, we have winds up to 25 to 30 knots and 8-foot seas. It's good and rough, but acceptable. The skies in that area are partly cloudy. In the west Pacific landing area -- a possible landing area -- partly cloudy conditions, winds about 15 knots and 5-foot seas. All looking well on the countdown at the present time. We are still aiming for a liftoff time of 8:37 and 23 seconds a.m. EST. Correct that -- that's the T-0 time -- the ignition time. 8:37 and 23 seconds a.m. EST. We still have 25 minutes of hold time to use up if we do not need it until the T-3 minute mark in the count -- a 25-minute hold will be declared at that time. It will be resumed leading up to the launch time that I just announced. This is Gemini Launch Control -- T-28 minutes and 25 seconds and counting.

END OF TAPE

Gemini Control, Houston, here at 257 hours, 21 minutes into the flight of 7. We're still looking good here on the 7 mission. Carnarvon has just established contact with 7. And, we should have about a 7 to 8 minute pass there. Meanwhile, over on 6 around the range, one item is down this morning. At Eglund, they have a radar which is inoperative. It is not a mandatory item for launch. It is a highly desirable item. It's an FBS 16 radar than can skin track, anything that passes its way. It is even more a highly desirable item before the re-entry phase. We feel right sure that it'll be fixed by the time either one of the spacecraft gets ready for re-entry. Our 7 orbit this morning is 160 by 163, a very acceptable orbit. The limits on our 7 orbit range from a perigee as little as 102 to an apogee of 215. That is we would go ahead and launch 6 if 7 were in any orbit within those limits. It gets progressively more difficult to catch the vehicle as the orbit gets more elliptical. However, this one is considered quite circular and quite acceptable. The explanation of the 7 orbit to the Equator is 28.9 degrees. And, now for a more definitive report on Spacecraft 6, let's switch to the Cape.

Gemini Launch Control at the Cape. We're now at T-19 minutes, 16 seconds and counting. Our count down still continues to proceed excellently. We have just completed our tests of the spacecraft propulsion system and it was reported as a good test. During this test, as we announced earlier, the 25 pound thrusters are on the base of the Gemini 6 Spacecraft are fired in  $1\frac{1}{2}$  second bursts. We went around the spacecraft in a clockwise fashion and all of our thrusters responded. We had a good test, and we are now proceeding with the count. Once again, we still have that 25 minute hold which will come in at the T-3 minute mark, if it is not used prior to that time. We received a weather report from the command pilot in the spacecraft, Wally Shirra, for the benefit of the people in the block house and for the benefit of the people here at Mission Control. I passed the word that as he

looked up through his spacecraft window, he saw some cirrus clouds, about ten cirrus he reports, and also a good patch of blue up there. The weatherman here in Mission Control confirms that the weather should be acceptable for a lift off. We are still in good condition coming up on 18 minutes and 6 seconds and counting, but still with that 25 minute hold coming up later in the count. This is Gemini Launch Control.

END OF TAPE

CYI Gemini 7, Canary Cap Com, we are standing by for your blood pressure.

S/C Roger, Canary, coming down.

CYI ... (garbled)... Gemini 7, your cuff is full scale. Blood pressure is valid, standing by for an exercise.

S/C Roger, blood....

CYI Your cuff is full scale. Gemini 7 would you..... (garbled)... full scale. You've got the times and everything else. Okay, I'll read it down then. Command Pilot 82 92 76 80. Gemini 7 your blood pressure is valid. We would like to get a report on the meal you had for breakfast this morning, please.

S/C Meal was day 9, Meal A.

CYI Roger, that's for both crewmen. Were there any unconsumed items?

S/C Roger, both crewmen and no unconsumed items.

CYI Roger, could we get an update on your water intake?

S/C Correction on that, the meal we just consumed was day 12, Meal A.

CYI Roger, understand, day 12 Meal A.

S/C Coming up with the water. Command Pilot 873 of the water. Stand by for pilot, 728 for the pilot.

CYI SURGEON Roger, could you give me a water gun count, please?

S/C Roger. 38 71 in the water gun.

CYI SURGEON Roger, 38 71. That's all we have for you. Go back to Cap Com Canary Surgeon out. Thank you.

CYI Gemini 7, this is Canary Cap Com, we have nothing for you. Everything looks good on the ground. Following this pass we'll be reconfiguring for Gemini 76 and we'll see four of you on the next time.

S/C Roger. It will be getting crowded up here.

CYI We think that's terrific.

HOU Gemini 7, Houston how do you read?

S/C Hello Houston, how are you?

HOU Just fine, on your next pass just like the last time, we will not be talking to you. However, we will be listening if you have any questions or comments. We will be monitoring both you and six.

S/C Thank you.

HOU Tried to look for you this morning, but it was overcast and raining.

S/C Looks beautiful up here.

HOU Kano local, Kano LOS.

END OF TAPE

The is Gemini Launch Control at the Cape just under T-11 minutes and counting on the Gemini 6 countdown. All's still going well. We're some 7 or 8 minutes away from the T-3 minute mark when we will hold for 25 minutes aiming for our liftoff time. We received word a short while ago that the Mission Director for Flight Operations, Mr. Chris Kraft, Chris notified Mr. Frank Kerry, the chief test conductor from Martin for the launch vehicle, that he, Mr. Kraft, wants the launch at 8:37 and 23 seconds a.m. EST. That would be the time for ignition and some 3.4 seconds later we would be looking for liftoff. This final information and the data concerned with the Gemini 7 spacecraft will be fed to the guidance system when we resume the count at T-3 following the hold. We're now at T-10 minutes. All looking good. We'll now have some more information on the status of Gemini 7, and we switch you to the Mission Control Center in Houston.

Houston her<sup>le</sup> with the spacecraft over Australia. The 7 pilots got a quick update on the status of 6 and additional discussion as the<sup>v</sup> sailed over the Carnarvon station. That conversation went like this:

CRO                   Carnarvon has C-Band track.  
AFD                   Roger, Carnarvon, C-Band track.  
                      Carnarvon, AFD.  
CRO                   Roger, AFD.

AFD                    You can tell them the cluster firings went well.

CRO                    Gemini 7, Carnarvon Cap Com. Your thruster firings went very good on GT-6.

S/C                    Rog. That sounds good.

CRO                    Roger. It looks like you'll have company before long.

S/C                    I hope the booster firings do the same.

CRO                    Oh, Rogggger.

AFD                    ...., you can tell him we confirm all dust covers removed.

CRO                    Confirm all what?

AFD                    All dust covers removed.

CRO                    Flight advises that they confirm all dust covers removed.

S/C                    Good.

CRO                    C-Band LOS.

AFD                    Roger, Carnarvon, C-Band LOS.

CRO                    And we're still holding TM in over the hill.

AFD                    OK.

CRO                    Now it looks like final LOS.

AFD                    OK, Carnarvon, we hope you get two the next pass.

CRO                    Roger, so do we.

This is Gemini Launch Control. We are at T-3 minutes and holding. The hold was called just as we came on the air. T-3 minutes and holding, the hold is expected to last for 25 minutes leading up to an ignition time of the Gemini launch vehicle at 8:37 and 23 seconds a.m. eastern standard time. Some 3.4 seconds after ignition we will have lift-off. We have just completed a whole series of final status checks in the countdown in which all elements report in on their status, both in the blockhouse and in the Mission Control Centers both here at the Cape and the Mission Control Center in Houston. All elements reported go. When the Command Pilot, whose designated crewman 1, came in to report, Wally Schirra said, "For the third time, GO." We are at T-3 minutes and holding. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at the Cape at 18 minutes past the hour. We are still at T-3 minutes and holding on the Gemini 6 mission and we have about 16 minutes left on this hold prior to resuming the count at T-3 minutes leading up to a lift-off time of 8:37 and 26 seconds a.m. eastern standard time. All go at the Cape. Also at the present time, the Gemini 7 spacecraft is coming across the Pacific, it is southeast of Hawaii. All conditions still looking good. It's been rather quiet as far as the communications have been concerned over the last few minutes as the crewmen in the blockhouse continue to monitor their consoles and the Pilot Wally Schirra, Command Pilot, and Pilot Tom Stafford do the same in the spacecraft. All still looking good at the present time for Gemini 6. This is Gemini Launch Control holding at T-3 minutes.

END OF TAPE

This is Gemini Control at the Cape. Still in the planned hold at T-3 minutes. The hold has now lasted 17 minutes. We have about 8 minutes to go before resuming the count in the Gemini 6 mission. All is still looking very well at the present time. It's been rather quiet as far as communications are concerned of the last 5 minutes or so. As the various crewmen in the block house and command pilot and pilot in the spacecraft keep their eyes on the switches and dials and on the various consoles, other than the stove, looking good. To recap briefly this morning, we picked up the count on the spacecraft at 2:12 a.m. Eastern Standard Time; and with the launch vehicle two hours later. The pilots were awakened at their crew quarters at the Kennedy Space Center in Merritt Island at about 4:00 a.m. They took their medical exam and were pronounced in excellent physical condition. Also, as relaxed and confident by their physician, Dr. Duane Catterson. Breakfast started at the crew quarters with a menu of Filet Minon, eggs, juice, toast, and coffee. They then proceeded to the trailer at Launch Complex 16, suited up, and then came to the Pad. All is still looking well. We are still holding at T-3 minutes. This is Gemini Launch Control.

END OF TAPE

Gemini Control Houston here, 258 hours, one minute into the flight of 7. We are still in our minus three minute hold of 6. Assuming a 37 minute 23 seconds liftoff on 6, we are now predicting that rendezvous would take place at five hours, 48 minutes, and 51 seconds later. This would be in an area northwest of Guam, over the Marianna Islands. Seven at this time is swinging across the states, and we've heard very little conversation there, but let's check and see if we are getting any. I'm advise that there has been none, we really expect none in this pass across the states. The crew will, has the pointing angles and will watch very carefully for that 6 liftoff. They saw it the other day. They also saw the shutdown. This is Gemini Control Houston.

END OF TAPE

This is Gemini Launch Control at the Cape. We've just resumed our count at T-3 minutes, this was some 15 seconds, we are now at two minutes and 41 seconds and counting on the Gemini 6 mission. The count was picked up right on time leading to an ignition of the Gemini Launch Vehicle at 8:37 and 23 seconds a.m. eastern standard time if all goes well through the remainder of the count. We ran a final status check once again prior to resuming the count and got a go from all elements concerned with the mission. All is still looking good at the present time. At this point in the count we give our final feed to the computer for the guidance system. These are the -- this is the final information to the launch vehicle and of course, also to the spacecraft to give us the correct launch time and the correct parameters for the flight. All is still looking very well at the present time. A launch azimuth for the flight of 81.4 degrees has now been placed in the guidance system. We are now at T-1 minute and 45 seconds and counting. T-40 seconds and counting at the present time, everything still looking well. During the last 10 seconds, Astronaut Alan Bean, who is spacecraft capsule communicator will count down for Astronauts Wally Schirra and Tom Stafford in the Spacecraft. As we reach zero in the countdown, the engines will ignite and some 3.4 seconds thereafter we will get lift-off for Gemini 6. Now 1 minute 12 seconds and counting. During these final phases of the count, actually during the 90 seconds down, we have several highlights in which the -- one of the key ones, of course, is the power transfer. Now 1 minute and counting on Gemini 6. Power transfer where we transfer to internal power on the launch vehicle. We have conserved those batteries up to this time. The spacecraft already is on internal power. Now T-45 seconds and counting, T-30 seconds and

counting, all systems looking good. T-30, all quiet on the communications at the present time. T-20, T-15, T-10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0, ignition.

Engine start and we've got a lift-off. 27 seconds after the hour. Flight Dynamics says the trajectory looks very good. Roll program complete, Schirra says. Guidance says we've got proper roll and pitch. Flight Dynamics and Surgeon are both happy. Mark, 50 seconds. Mark, 1 minute and our velocity is 1342 miles an hour. Chris Kraft continues to poll all the consoles here, he gets a happy report from each one of them, looks good, looks good. Mark, 1+40. Schirra says he's gotten an update. Mark, 2 minutes. Two minutes and our velocity is now 3700 miles an hour. Tanks are go for staging. Coming up on staging, 2 minutes 25 seconds. We've got staging. There it is. Schirra called it. Thrust looks good on stage 2. Guidance is steering, radio guidance has taken over, it will yaw the vehicle slightly to the right, bringing it around some 4 degrees to put it in the proper angle, and it's 3 minutes into the flight. Everything looks good on the ground and in the spacecraft. Three minutes and 47 seconds and the performance is right on the mark so far. No deviation up or down and Wally Schirra's voice is just as calm as it was the other day when he had that shutdown. FIDO says we are right down the middle. Kraft is polling all his positions now for the sustainer engine cut-off status check and everybody is go. Elliot See advises 6 he is go, Schirra says so are they. Tom Stafford advises that the attitude errors are zero. Five minutes into the flight, Mark, and our velocity is 13,360 miles an hour and about 82 miles high. Mark, .8. We've achieved 80 percent of the desired velocity. We will make up the rest in the next 15 seconds. Flight Dynamics Officer says he's happy, 5 minutes 33 seconds. SECO, second stage cut-off. You can hear a little bit of applause here in this room. Deke Slayton says you can't do any better than that.

Schirra is calling out his IVI readings preparatory to thrust and he gets an enthusiastic and reassuring you are go from Elliot See. 6 minutes 20 seconds and they have left the launch vehicle, 6 burned  $11\frac{1}{2}$  seconds in leaving the vehicle. Schirra is now calling out his incremental velocity indicator readings. And Guidance Officer Charlie Parker stands and gives a big okay signal with his right hand. This is Houston. We have an initial orbit of 87 by 141. This is being relayed up to the 6 crew right now, 87 by 141. As the man said, you can't come any closer than that. We have now the launch tape which we will start at T-90 seconds and carry it through the powered phase of flight.

Mission Control Gemini network, this is Houston Network. We have picked up the count. We are at T-2 minutes 35 seconds on my mark. MARK.

S/C 6 Secondary guidance light off.

Mission Control Launch vehicle is transferring to internal power, minus 130.

S/C 6 Roger.

Mission Control Stand by for engine gimbaling in 5 seconds.

Gemini 6 Roger.

Mission Control 120, -1 minute. On my mark 20 seconds. MARK.

Cap Com 10, 9, 8, 7, 6, 5, 4, 3, 2, 1. Ignition. Lift-off.

S/C 6 The clock has started. That's real fine.

Mission Control Plus 10.

S/C 6 All .... (garbled) go.

Cap Com Roger.

S/C 6 Roll complete.

Cap Com Roger. Roll.

S/C 6 .1. (garble) is tracking.

Cap Com Roger.

S/C 6 Adjust the pressure relief.

Cap Com 50 seconds.

S/C 6 There's zero ... (garbled).

Cap Com Roger. Give us your cabin pressure Gemini 6.

S/C 6 Cabin pressure is .... (garbled). Cabin pressure looks good.

Cap Com Roger.

S/C 6 Yaw correction looks good.

Cap Com Roger, Wally. Mark, 1+40.

S/C 6 ... (garbled) mode 2.

Cap Com Okay, mode 2.

S/C 6 We have a DCS update.

Cap Com Roger update. Trajectory is looking real good.

S/C 6 Very good. I've got a good second stage.

Cap Com Roger.

S/C 6 DCS update.

Cap Com Roger update.

S/C 6 Staging.

Cap Com Roger, staging.

S/C 6 (garble) ...  
Guidance initiate must be in, it's real slim.

Cap Com Roger, guidance initiate. Steering looks good from here,  
Gemini 6.

S/C 6 Roger, she looks like a dream. I saw some ... (garbled).

Cap Com Roger.

S/C 6 Attitude errors are all zeroes in.

Cap Com Roger.

S/C 6 Attitude errors are zero.

Cap Com Roger. You're right down the line Gemini 6.

S/C 6 Very good.

Cap Com You're go from here, Gemini 6.

S/C 6 You got a big fat go from us. It looks great.

Cap Com Roger, Wally.

S/C 6 Attitude errors are still zero.

Cap Com Didn't copy that time. Standby for point 8.

S/C 6 Roger.

Cap Com Mark, point 8. Be over VR.

S/C 6 (garbled) ...

Cap Com Roger.

S/C 6 We had a very normal burn ... (garbled). She looks very stable here. ...beautiful) separation.

Cap Com Gemini 6, you are go.

S/C 6 Go. You hear that man. .... (garbled).

The azimuth is 52 257 30.

Cap Com Gemini 6, your 1 alpha time is 17+02 and I copied your insertion.

Gemini Control Houston here. The orbit of 6 has now been corrected based on better data coming in from Bermuda. It shows 87 mile perigee and an apogee of 144 miles. The spacecraft, Gemini 7, which is leading 6 by about 1200 miles as they move across the eastern Atlantic right now was just advised of that. Frank Borman came back with a one-word answer, "Wonderful". We are 12 minutes 55 seconds into the flight of 6 and Wally

Schirra said as they moved across the Atlantic the only problem he could see was he had a little smoke on his window, it might have been some of that Florida haze or fog.that surrounded the area, it was probably a facetous comment.

END OF TAPE

We're 12 minutes, 55 seconds into the flight of 6, and Wally Schirra said as they moved across the Atlantic the only problems he could see was that he had a little smoke on his window. It might have some of that Florida haze or fog that surrounded the area and it's probably a facetious comment. All in all we're entirely satisfied with the performance of 6 in this first lap across the Atlantic. This is Gemini Control Houston.

END OF TAPE

Gemini Control, Houston, here. 23 minutes, 8 seconds into the flight of 6. 258 hours, 30 minutes into the flight of 7. And, there's a lot of busy traffic over Africa this morning. The Canary Station found out how busy things can be first. He read out the 7 systems as it preceded the 6 spacecraft by about 1200 miles; and then he turned to 6 and had some brief conversation. Just a passing note between the two spacecrafts, 7's radio sounds a little louder and sharper than 6's; but that's not unusual. Sometimes it takes half a rev to get the proper volume control adjustments made. All in all, both spacecraft are doing fine. It was business as usual over Kano just a few minutes ago; Elliot See contacting 7, giving them a flight plan update. The best information we have now is that 6 will have to perform about a 31 foot per second burn to make these planes absolutely coincide; that's almost immeasurable from the standpoint of degrees; it's down in the order of a few seconds. That burn...There will be first of all a hydrogen adjustment by 6 just south of New Orleans on this first pass. That calls for 13.5 foot per second burn. Right at 2 hours, 18 minutes into the flight, there will be a perigee adjustment by 6 of 59.5 feet per second. At 2 hours and 42 minutes, 18 seconds into the flight, 6 will adjust its plane. That'll be a 31.3 per second burn. At 3 hours, 47 minutes, 36 seconds, 6 will circularize its orbit with a 44.3 foot per second burn; and the terminal phase in this ship, that is 130 degrees away from the rendezvous point, is to begin at 5 hours, 16 minutes, 33 seconds into the flight with a 33.7 foot per second burn by 6. The final maneuver, the terminal phase final, now timed at 5 hours, 48 minutes, 40 seconds. That'll be a 42.5 foot per second burn. We have now some tape conversation with both 6 and 7 as we went by the Canary Station. Let's hear the tape.

HOUSTON

Standing by for I.V.I.'s.

S/C 6

Okay. Here are the I.V.I.'s: 11 for forward, 2 right, 2 down.

Copy. 11 forward, 2 right, 2 down.

S/C 6            That's affirmative. I've got something in sight off to my left  
                  at about 10:00 o'clock.

HOUSTON         Roger. Gemini 6, your orbit is 87 by 144. More tracking coming.

S/C 6            That's great. Very good. ....(Garble).....some little white  
                  stuff that's around us. Little white specks.

HOUSTON         Roger.

S/C 6            Canary, this is Gemini 6. Ready to copy addresses?

HOUSTON         Go ahead.

S/C              Roger. Address 72 257 29. Address 94 000 25. Address 97 000 11.  
                  Address 52 minus 0000 . Address 73 030 15. Everything looks  
                  real nominal.

HOUSTON         Roger, Tom. Copied them all.

S/C 6            Thank you.

HOUSTON         Gemini 6, check your voice recorder off.

S/C 6            Roger. It's off, Elliot. We aligning SEF, platform mode, primary  
                  scanner. All my squibs are off.

HOUSTON         Roger. And, did you jettison the bearings?

S/C 6            ...(Garble)...They left us with..We didn't have much choice once  
                  we punched that button.

HOUSTON         Roger.

S/C              Elliot, Tom admits there's no doubt about lift off.

HOUSTON         Roger, Gemini 6.

S/C 6            He seems to be settling back here. He's more comfortable now.

HOUSTON         Roger.

S/C 6            The ...are working very good in primary; we'll check secondary  
                  probably after LOS.

HOUSTON Roger.

S/C 6 All control modes are very good.

HOUSTON Roger, Tom....Roger, Wally.

S/C 6 Okay. I see a little smoke on my window. This just probably came from the staging, but still, it's there.

HOUSTON Roger. Gemini 6, your GMT LO is 13:37:26.  
Canary Cap Com, Houston Flight.

CYI Go ahead, Flight. Canary.

HOUSTON Did you copy that insertion.

CYI That's affirmative.

HOUSTON Roger. I think you ought to give that to Spacecraft 7.

CYI Roger. Will do. That's 87 by 144, is that right?

HOUSTON Roge. We hope to have better vector shortly.

CYI Okay. Seven, Canary.

S/C 7 Go ahead, Canary, Gemini 7.

CYI Roger. Well, we did it.

S/C 7 Roger. We didn't get to see the lift off; but we saw them coming up.

CYI Okay. Their orbit is 87 by 144. Everything is go. All systems go. Everything looks terrific.

S/C 7 Wonderful.

CYI Oh, incidentally, 7; the lift off time went right on the nose: 13:37:26.

S/C 7 Very good.

HOUSTON Canary, Houston Flight.

CYI Go ahead, Flight.

HOUSTON 87 by 140 is the updated orbit from Bermuda. We require a 31 foot per second out of plane and a height adjust on the next pass over the States.

CYI I missed that Bermuda after the purge. Flight, Canary.

HOUSTON Canary, Houston Flight. Just tell him we've got a height adjust and that a plane change will be required in the normal place.

CYI Okay. That's for 6?

HOUSTON That's affirmative.

CYI Okay. What was the new orbit again?

HOUSTON 87 by 140; but we may change that slightly yet.

CYI Okay. All systems are go on Gemini 7.

HOUSTON Go ahead. Say again.

CYI I said all systems are go on Gemini 7.

HOUSTON Roger that. What's his 1C?

CYI I didn't receive a 1...Oh, 1C; I got you. I'll have to get it off the meter.

HOUSTON Okay.

CYI 2.6, Flight.

HOUSTON Roger. 2.6.

CYI That's calculated. We're switching over to 6, Flight.

HOUSTON Roger. All looks good, then, huh?

CYI Gemini 6, Canary Cap Com. How do you read? Over.

S/C 6 Gemini 6. Loud and clear Canary. How about you?

CYI Roger. Read you loud and clear. We have a Bermuda vector for you. You're 87 by 140, requiring an out of plane maneuver and a height adjust.

S/C 6 Roger. Understand. 87 by 140 which will require an out of plane and a height adjust. What kind of apogee did we have in ignition?

CYI Stand by.

S/C 6 Okay.

HOUSTON 31. We're computing it at the present time 31 feet per second.

S/C 6 .....(Garble)....pilot. You ready to copy, Canary?

CYI Go ahead.

S/C 6 Roger. We have a reading now of 6 feet per second forward, 22 left, and 4 down.

CYI Roger. Copy.

S/C 6 Drift indication..We may be running out of plane.

CYI Okay. Did you get that, Flight? 6 forward, 22 left, and 4 down.

HOUSTON Yea. I copy.

CYI Okay. Is that still 31 feet per second out of plane?

HOUSTON That's affirmative.

YI Roger. Calculated out of plane approximately 31 feet per second.

S/C 6 Okay. Thank you.

CYI Roger. All systems are go on the ground.

S/C 6 Roger. We're in great shape here. That was a beautiful launch we had, and we're kicking right along.

CYI Glad to hear that.

S/C .....(Garble)....

CYI Say again.

S/C 6 How's the 7 boys doing? Did they go over a while ago?

CYI They sure did. They're about 5 minutes ahead of you.

S/C 6 Roger. Tell them we're on the same....See them at the next station.

CYI Okay. We have 7 LOS, Flight.

HOUSTON Roger.

IO Kano remote.

S/C 6            Canary Cap Com. This isn't going to sound too well until we  
                 get our radiator working right.

CYI              Roger.

HOUSTON        What did he say Canary?

S/C 6            ....(Garble)....

CYI              He's talking about his...(Garble)...

HOUSTON        Say again.

CYI              The's talking about communications check, Flight. Stand by.

HOUSTON        Roge.

CYI              Whenever you're ready, 6; we'll check communications.

S/C 6            Go ahead. Would you also give me a call on the adapter, UHF #1.  
                 Do you read?

CYI              Roger. Reading loud and clear. How about me?

S/C 6            You're the same.

CYI              Roger. Gemini 6, Canary. You read on UHF 1?

S/C 6            That's affirmative. We're now on secondary scanning. Will come  
                 up on UHF shortly.

CYI              Roger.

HOUSTON        Gemini 7, Houston Cap Com. How do you read?

S/C 6            Garbled conversation overlaid by conversation from Houston.

S/C 7            This is 7. Loud and clear.

HOUSTON        Roger. Stand by, 7.

S/C 7            This is 7. Loud and clear. Houston.

HOUSTON        Roger. Stand by 7.

CYI              Canary's had LOS.

HOUSTON        Roger, Canary.

CYI Roger. We have the communications check, Flight; and everything went well.

This is Houston again. That three-way conversation continued over Kano. We've got some tape on that. Meanwhile, Elliot See is putting in a call right now to 7 via Tananarive. He's going to advise the 7 spacecraft to go ahead and put their suits on, both pilots preparatory for the rendezvous maneuver about 5 hours from now. Let's continue now with the tape conversation via Kano.

CYI All systems are go on Gemini 6, Flight.

HOUSTON Roger that. Kano go remote. Gemini 7. Kano remote. Gemini 7.

KNO Kano remote.

HOUSTON Roger that. What did he say about his secondary scanners? Did he just say he was checking them?

CYI That's affirmative, Flight. I'll have to go back on the tape I recorded and see what he said exactly.

HOUSTON I think he just said he was checking them.

CYI Roge. He did. He did go to secondary scanners.

HOUSTON Roger. That's the flight plan.

CYI Okay.

HOUSTON Gemini 7, Houston. I have an update for you. Gemini 7, Houston. Do you read?

S/C 7 Roger. Stand by. Go ahead.

HOUSTON Time 259:15:00, purge fuel cells at Hawaii.

S/C 7 Roger.

HOUSTON Gemini 6, Houston. How do you read? Kano go remote. Gemini 6.

KNO Kano is remote.

HOUSTON Gemini 6, Houston Cap Com. How do you read?

S/C 6 Houston Cap Com, Gemini 6. Do you read?

HOUSTON Roger. Read you loud and clear. Sounds like we've got good communications.

S/C 6 Roger. We're talking on UHF #2....(Garble)....

HOUSTON Roger, 6. Carnarvon Cap Com, Houston Flight.

CRO Houston Flight, Carnarvon Cap Com. Go ahead.

HOUSTON I'd like to give you a run down on the SMT we have which has been updated by Canaries and the Canaries' vector confirms the 87 by 140. You ready to copy?

CRO We're ready to copy?

HOUSTON You ready to copy?

CRO Go ahead.

HOUSTON Okay. At 134:03, 13.5 Delta V, heighth adjust. 02:18:02, 59.5 Delta V, catch up or phasing, whichever one you want to call it. Got that?

CRO Roger. Copy.

HOUSTON At 02:42:18, Delta V 31.3, plane change.

CRO Roger. Copy.

HOUSTON At 03:47:36, 44.3 Delta V, NSR.

CRO Roger. Copy.

HOUSTON And the TPI should take place at 05:16:33. And the TPF at 05:48:40.

CRO Roger. We copy.

HOUSTON Okay.

CRO If you don't mind, I'd like to go back over these with you and see if I did get them all.

HOUSTON Okay. Have at it.

CRO                    Alright. Orbit's 87 by 140. At 01:34:03, Delta V 13.5, height adjust. At 02:18:02, Delta V 59.5, catch up. At 02:42:18, Delta V, 31.3, plane change. At 03:47:36, Delta V, 44.3, NSR. At 05:16:33, TPI. 05:48:40, TPF.

HOUSTON                All correct.

CRO                    Roge. Thank you.

HOUSTON                Tananarive, go remote. Kano go local. Tananarive remote. Gemini 7. Repeat, Gemini 7.

TAN                    Tananarive is remote.

Houston here. That was the start of the Tananarive conversation.

On the next piece of tape, you will hear the discussion on the suits, advising 7 to take off...to put on their suits preparatory to rendezvous. Here is the additional portion of that tape...uh...It's not quite ready. Shirra advised over Tananarive that both his primary and secondary scanners, horizon scanners, are operating very nicely now. Earlier he had seen some drop outs or something of that nature as he crossed the Atlantic. But, they're settled down and they're working very nicely. You'll notice the transmission from 6 is slightly distorted to this point. Still adjustment needed. Now, the additional conversation is ready. Let's hear it.

HOUSTON                Gemini 7, Houston Cap Com. How do you read?

S/C 7                    This is 7. Loud and clear.

HOUSTON                Roger, 7. We're go for a 4th orbit rendezvous. You can start putting on your suits at this time.

S/C 7                    Seven, roger.

TAN                    Tananarive has telemetry acquisition.

HOUSTON                Tananarive, go prime, Gemini 6. Repeat, Gemini 6.

TAN                    Roger.

HOUSTON                Gemini 6, Gemini 6, Houston. How do you read?

S/C 6                    Roger. I read you loud and clear. How do you hear me?

HOUSTON Roger. You're weak, but very clear. It's getting better. Would you confirm radiator to flow, adapter C-Band to continuous, and re-entry C-Band to command.

S/C Roger. Radiator is now flow, .....(garble)...We have C-Band re-entry to command and adapter C-Band to continuous.

HOUSTON Roger, Gemini 6.

S/C 6 ...(Garble)...

HOUSTON Did not copy your last, Six.

S/C 6 Houston Cap Com, Gemini 6.

HOUSTON Go ahead, 6.

S/C 6 ...(Garble)...

HOUSTON Say again, 6. You're weak and a little bit garbled.

S/C 6 Roger. Both primary and secondary scanners are looking very well.

HOUSTON Understand primary and secondary scanners are looking good.

S/C 6 Our suit temperature has gone down about one degree.

HOUSTON Roger. Suit temperature has gone down one degree.

This is Houston. Over Carnarvon, Gemini 6 will be given a go for a 17-1 flight. Additional values will be read out; but all in all, we are very happy with the 6 performance. At 43 minutes into the flight of 6, this is Gemini Control, Houston.

END OF TAPE

CRO Gemini 7, Carnarvon.

S/C Go ahead, Carnarvon, Gemini 7.

CRO Roger, we have you go on the ground. You will have a flight plan update over the States. We would also like to have you start your exercise and eat period at 259 00 00.

S/C Roger. We're starting to drift now. We start it as soon as we get into drift.

CRO Roger. ...

S/C You can consider this the exercise period.

CRO Roger. Copy. All systems are go here, Flight.

FLIGHT How are those fuel cells, Carnarvon?

CRO Very good, Flight. 2C looks like it's about 3.8 amps, Flight.

FLIGHT 2C, 3.8.

CRO Affirm.

FLIGHT What's the total current now on both stacks, I mean both cells?

CRO 16 amps, Flight.

FLIGHT Roger. How is it split?

CRO Bus 1 is 7, bus 2 is 9, Flight.

FLIGHT Roger.

CRO Flight, we have C-Band track on 6. We have a carrier with low modulation. We cannot lock.

FLIGHT Say again.

CRO We have C-Band track. We do have a carrier,  
but it's low modulation. We cannot lock up on  
it.

FLIGHT On what?

CRO On 6. We have TM solid. We're still getting  
a lot of drops on 6.

FLIGHT Roger. If you give the SMT to 6, tell them  
that that burn is a plane change burn toward  
the south.

CRO Roger. That's the one at 02 42 18, right?

FLIGHT That's affirmative.

S/C 6 Carnarvon Cap Com, Gemini 6, do you read? Over.

CRO Gemini 6, Carnarvon Cap Com. Read you loud and  
clear.

S/C 6 Roger. ...(garbled)....Over. Go ahead.

CRO Roger. Copy.

S/C 6 Looks like your having some thunderstorms  
down that way.

CRO That's affirmative, 6. We've got you go on  
your radiator.

S/C 6 Roger.

CRO Turn your secondary props off and evaporator  
switch to normal.

S/C 6 Carnarvon, could you give us an estimate of  
our out of plane burn?

CRO Roger. We have have an update for you. We'd  
also like to get your Go No-Go reading at this  
time, please.

S/C 6 OK, .. OK, we're ready for you.

CRO OK, go ahead. We're standing by to hear your  
readings, Gemini 6.

S/C 6 You must have something we don't have. Do you  
want us to read the batteries? We're go.

CRO Roger. I need your adapter batteries 1, 2, and  
3 readings, please. All you've got.

S/C 6 Roger. Adapter battery 1 is 24.5 volts.  
1A is 7.0 amps. Adapter battery B is 24 volts,  
and 6.8 amps. No. 1C is 24, and 6.9 amps. 2A  
is 24, and 8.5 amps. 2B is 24, and 8.3. 2C is  
24 and 9.0. Over.

CRO Roger. We copy.

FLIGHT If you're going to give them that SMT, you better  
hurry.

CRO Gemini 6, we give you a "go" for 17-1. Also,  
I have a update for you on your maneuvers. Are  
you ready to copy?

S/C 6 Rog, on the go for 17-1 and ready to copy on the

update.

CRO Purge TDP, 01 34 03. Delta V, 13.5, height  
adjust, 02 18 02, Delta V 59.5, phase adjust,  
02 42 18, Delta V 31.3, plane change, toward  
the south, 03 47 36, Delta V 44.3. Coelliptical,  
05 16 33, Delta V, 33.7, terminal phase,  
initiate, 05 48 40, Delta V, 42.5 , terminal  
phase, final. Did you copy?

S/C 6 Roger. We have those. We have the general  
ball park. The main thing we want now is  
first one when we get back to the height  
adjustment over the States.

CRO Roger. It's 13.5, isn't that right?

FLIGHT That's roger. Tell him we'll update him over  
Hawaii.

CRO We'll update you on the final height adjust  
over Hawaii. Also, we'd like you to check on  
your axis bias. It's slightly out of tolerance.  
So don't press the start-stop until late for  
your height adjust. We'll get you a better  
hack on it over the States.

S/C 6 Roger, understand we have a slight ....bias  
here and will not push the start-stop until  
just after the burn.

CRO                   That's affirm.

S/C 6                 ..(garbled)

CRO                   Roger, would you like a time hack?

S/C 6                 That's affirm. We'd like a time hack.

CRO                   All right, I'll give you a time hack. It's  
57 minutes 30 seconds. Mark 57, 30.

S/C 6                 Roger, we've got it. At this point, we have  
primary scanner and getting intermittent  
noise.....looking for a good horizon but  
we don't see one either. Over.

CRO                   Roger. Can you place ..... to ECS O<sub>2</sub> position?

S/C 6                 Again.

CRO                   Gemini 6, Carnarvon, would you turn your  
..... switch to the off position?

S/C 6                 Rog. Off. CQA is minus ...percent.

CRO                   Roger on that. Carnarvon has had LOS on  
Gemini 6.

FLIGHT               Anything else, Carnarvon.

CRO                   Flight, Carnarvon.

AFD                   This if AFD, go ahead.

CRO                   AFD, this is Carnarvon.

AFD                   Go ahead.

CRO                   This is Carnarvon.

AFD                   Go ahead.

CRO                   OK, it looks like he had both pumps on when  
                          he went over the hill.

AFD                   Copy, both..(tape cut out)..

END OF TAPE

Gemini Control Houston here. Since Tananarive we have had conversation with both spacecraft over Carnarvon, Canton Island, and Hawaii and we have just put in a call via California. One or two points that have developed since the last time we were on the air. The 7 spacecraft did not see 6 lift-off, but it did see the 6 booster coming up through the clouds, they acquired them shortly after lift-off. Apparently the Cape area was pretty well cloudy from the angle that 7 had. The suit temperature -- the temperature of the 6 cabin has settled down. It had jumped up and started off a little bit high, it's presently reading about 90 degrees in the cabin and coming down. That is precisely the way that Wally Schirra started his Mercury flight, the temperature was a little higher than that during the first orbit and it quickly settled down for that 6 orbit flight. Jim Lovell is all ready back in his space suit, we do not have a report yet on Frank Borman, we'll know as soon as the leads show up reading on the ground. The plane change that 6 will have to perform, first the inclinations are as follows. The Gemini 7 is in a 28.9 degree inclination and Gemini 6 is 28.97 degrees. The maneuver that Schirra and Stafford will perform will be a maneuver toward the south. They will point the nose end south and burn that 31 - roughly 31 feet per second to make those inclination angles coincide. Let's cut in now. Elliot has been talking to 7, he's updated them now. Let's cut in now. I think 6 is coming up on the line.

Guaymas                    Guaymas has solid TM on 7 and all systems are go.

Cap Com                    Roger Guaymas.

Cap Com                    Gemini 6, Houston. How do you read.

Gemini 6, Houston. How do you read.

Gemini 6, Gemini 6. Houston Cap Com. How do you read.

S/C 6                      We just ... (garbled)

Cap Com Gemini 6, you are fading in and out, try again.

S/C 6 Roger Houston. You are coming in clear now. Do you also read me.

Cap Com Roger, read you clear now. We're standing by for your burn. Advise this a UHF 6 pass.

S/C 6 Roger, Elliot. We are trying this first burn in platform mode, we are approaching the aligning, BEF ...(garbled).. mode. Everything looks beautiful.

Cap Com Roger. We are standing by for your burn 6.

Guaymas Guaymas has solid TM on 6 and all systems are go.

Cap Com Roger, Guaymas.

S/C 6 Elliot, take a good check on our accelerometer bias on this burn. We'll bring it up on catch-up start comp just before burn time.

Cap Com Roger, and after your burn when you are completed with it, we plan to update your accelerometer bias. We'll contact you after the burn.

S/C 6 Very good.

This is Gemini Control Houston here. While we are standing by for the burn we should advise that earlier in the pass Gemini 7; Jim Lovell advised that they were not reading the 6 transmissions to earth. I say again, they were not reading the 6 transmissions. We do not know whether Schirra and Stafford are reading 7's transmissions, but perhaps we will know later in this pass.

Houston here again. We are about 4 minutes away from this burn. It's been corrected slightly. We will burn 14.2 feet per second and the fuel remaining onboard 6 after the burn will be an estimated 660 pounds. 6 took off with approximately twice the propellant onboard propellant load that 7 took off with. Here is some more conversation.

S/C 6 Houston Cap Com, Gemini 6. Is 7 talking to you. We hear something coming in very garbled.

Cap Com Negative, they are not talking to us at the present time.

S/C 6 Roger, we read somebody transmitting and it is garbled.

Cap Com Roger. Gemini 6, Houston. You're coming up on 1 minute to the burn. MARK.

S/C 6 Roger, we're right with you. Starting the burn.

Haney We are showing the burn on the ground.

S/C 6 MARK, burn complete.

Cap Com Roger, looks good.

S/C 6 Good.

Our Flight Director Chris Kraft points out now that's the first major milestone in the orbital phase of this dual flight.

S/C 6 All residuals are minimal at 11.2 and propellant quantity remaining is 87.5.

Cap Com Understand. 87.5, is that correct?

S/C 6 That is the quantity remaining, correct.

Cap Com Roger. We are ready for you to go computer prelaunch now so we can update your accelerometer bias.

S/C 6 Roger, going to prelaunch now. .... (garbled).

Cap Com Say again your last, 6.

S/C 6 I said all the systems are performing beautifully.

Cap Com Roger. Your UHF transmissions are slightly garbled Wally.

You might try adjusting your mike.

Cap Com Gemini 6, did you receive that update.

S/C 6 That's affirmative.

Cap Com Roger.

S/C 6 The launch ... (garbled) ...

Cap Com Gemini 6, what ever you did to your mike, do something different. You are worse now.

S/C 6 How do you read me now, Elliot.

Cap Com That's much better.

S/C 6 Okay. All I said was the launch weather at the Cape was great, but the Gulf Coast is all cloud.

Cap Com Roger. Gemini 6, Houston. We are complete with your accelerometer bias update. You can go back to catchup and we suggest you rerun your accelerometer bias check yourself.

S/C 6 Gemini 6. Willco.

Cap Com I have a node update when you are ready to copy.

S/C 6 Go ahead.

Cap Com Node, 01 12 08, rev 1, 179 degrees west, 08 hours 28 minutes, 42 seconds, right Ascension. Do you copy.

S/C 6 Roger. for the 01 12 08 is rev is, 179 degrees west and 08 28 42 on the right Ascension. And do you have the time for that next burn?

Cap Com It hasn't changed from the summary maneuver that Carnarvon gave you Tom. Do you have that? Do you want me to give you that again?

S/C 6 ... (garbled) Australia.

Cap Com Okay, it is 2 18 02 for catchup.

S/C 6 Roger, 2 18 02.

Cap Com Roger, and that will be a delta V of 59.5. We'll update you on it.

S/C 6 Roger, delta V update, thank you.

Cap Com Gemini 6, Houston.

S/C 6 Go ahead Houston.

Cap Com We'd like you to go to Start Comp at this time so we can check your accelerometers while you are still in contact here.

S/C 6 Roger. Start comp.

Cap Com Roger. Gemini 6, Houston.

S/C 6 Go Houston.

Cap Com We have lost a multiplexer and we are unable to readout several temperatures here on the ground. I'd like to advise you of that. These are cabin temperature, left suit temp, right suit temp, analog and range rate. That's all.

S/C 6 Okay. We're yawing around right now to SEF, and we will start getting all our cabin gear up.

Cap Com Roger.

Grand Turk LOS Grand Turk, GT6.

This is Gemini Control Houston. We've lost signal via Antigua so that will wrap up this pass across the States. A few numbers have reached us from the computers downstairs on our cut-off condition as 6 was inserted. Now we are trying once more, here's Elliot again.

Cap Com Roger. I have an update on your catchup burn.

S/C 6 Gemini 6, go ahead.

Cap Com G.e.t. of the burn 2 17 59, delta V, 63.4. Burn time  
1 plus 20, yaw 0, pitch 0. Core 25 00 634, core 26 and 27  
all zeros. Aft thrusters, maneuver posigrade. Do you  
copy.

S/C 6 Roger Houston. For the height adjust the G.e.t. is  
2+17+59, delta V, 63.4, duration 1+20, yaw 0, pitch 0,  
core 25 00 634, 26 is 0, 27 is 0, aft thrusters, posigrade  
maneuver.

Cap Com Roger. And that's your catchup maneuver.

Antigua LOS Antigua, GT-6.

This is Gemini Control. We are going to assume that we have  
lost range now. The spacecraft is at the 40 degree mark out over mid-Atlantic  
and we got unusually good range there from 6 this morning. As you can hear  
the communications are a little murky, but they will probably clear up, that's  
a fairly normal pattern now on the first rev for most of these spacecraft.  
Here are some conditions at - just at 20 seconds after cut-off on 6.. The  
ground range from the Cape, we had planned at the point of SECO+20 seconds,  
we had planned that it should be 614.5 miles from pad 19. It was actually  
618.0 miles. Its altitude, its perigee altitude, we had planned 87.0 miles  
we have 87.2 miles, nautical. The velocity at that time in statute miles  
per hour first, planned 17543, we achieved 17,535. In feet per second,  
25, 730 planned, we achieved 25 718. Our apogee we had planned 146.2,  
we achieved 140.4. Our orbital period, this is based on the inertial  
reference is 88 minutes 42 seconds was the planned, the actual achieved is  
88 minutes 42 seconds. Our inclination for 6, we had planned 28.89 degrees,  
we achieved 28.97 degrees. Lift-off was, as I think you heard, 37 minutes  
and I don't have the precise second, as near as I recall it was 27 seconds.  
We do have booster cut-off at 2 minutes 36 seconds was the planned and that  
was the actual. The second stage cut-off was planned for 5 minutes 36 seconds,

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it cut-off at 5 minutes 39 seconds. This is Gemini Control Houston.

END OF TAPE

\*(Air/ground on pass over Hawaii not aired.)

HOUSTON           Canton go remote. Gemini 6. Repeat, Gemini 6.

HAW                Gemini 7, Hawaii Cap Com. Your adapter C-Band switch to the  
                  continuous position, please.

S/C 7             It's continuous.

HAW                Roger.

S/C 7             Are you ready for our fuel cell purge.

HAW                Stand by. Wait until I get good TM solid. I'll let you know  
                  when we're ready. How are things going? We want you to leave  
                  that adapter C-Band in continuous until further advised.

S/C 7             Roger.

HAW                And, did you copy the States' transmission at 260:00:00, power up  
                  switch coolant tubes...correction...switch coolant pumps prior to  
                  powering up platform.

S/C 7             Roger. At 260:00:00, switch coolant pumps and power up.

HAW                Affirmative. TM solid, Gemini 7. We're showing you go here on  
                  the ground, and we're ready for your fuel cell purge.

S/C 7             Coming down.

HAW                Roger.

S/C 7             First section completed purge.

HAW                C-Band track, Gemini 7 and Hawaii. AFD, Hawaii Cap Com.

HOUSTON           Go ahead.

HAW                Those OPC's that came in garbled: one at AOS, one at mid-test,  
                  and one at LOS.

HOUSTON           Roger. That's affirmative.

HAW                Okay.

HOUSTON           Purge look okay?

\*(Air/ground on pass over Hawaii not aired)

HAW Looking real good, Flight.

HOUSTON Hawaii, in case he asks; we're going to update Spacecraft 6 bias after the burn.

HAW Roger. Understand. Gemini 6, Hawaii Cap Com.

S/C 6 Go ahead, Hawaii.

HAW How are you doing up there this morning?

S/C 6 Very good. Nice to be up here.

HAW It's good to have you up there. We're showing you go on the ground. And, what's your status?

S/C 6 We are completely go. The suit temperature has come under control very nicely. I'll give you a reading.

HAW Go ahead.

S/C 6 It's now about 57 degrees and we're comfortable, in good shape.

HAW Okay. Would you turn your secondary pumps off? Over.

S/C 6 Secondary's off.

HAW Okay. We've got that. Stand by one. What's your cabin temperature?

S/C 6 Cabin temperature is 90 degrees.

HAW Roger. 9-0. I've got your height adjust information. Are you ready to copy?

S/C 6 Ready to copy.

HAW GET B, 01:34:02. Delta V 14.0. Your burn time, 0 plus 24. Yaw 180. Pitch 0. Core 25-00-14-0. Cores 26 and 27 are all zeros. Your forward thrusters, the maneuver will be posigrade. This is your height adjust.

S/C 6 Roger. For the height adjust: the GET of 01 plus 34 plus 02; Delta V, 14.0; Duration 0 plus 24. Yaw 180 degrees; pitch 0; Core 25-00-14-0. Cores 26 and 27 all zeros. Forward firing thrusters, posigrade maneuvers.

HAW                   Okay. You got all that right. Gemini 7, Hawaii Cap Com. We've got a good read out. Would you put your quantity read switch to the ECS O2 position.

S/C 7                 It is.

HAW                   Okay. Fuel cell O2 position. LOS, Gemini 7.

HOUSTON              Roger.

HAW                   Six, Hawaii.

S/C 6                 Six, go ahead.

HAW                   Okay. We'll be standing by if you need anything else. Can we help you now?

S/C 6                 Negative. ...(garble)...on Tom's side, but you couldn't fix that

HAW                   Okay. Say that again. I couldn't read you too well.

S/C 6                 Roger. Apparently on sun rises, they'll be on Tom Stafford's side, but you can't fix that.

HAW                   Okay. Very good. They'll update your bias after you complete your burn, over the States.

S/C 6                 Very good. We'll start inching around for BEF shortly.

HAW                   Roger. Understand. We'll be standing by.

S/C 6                 Roger. Thank you, Hawaii.

HAW                   Hawaii's had complete LOS on 7.

HOUSTON              Roge.

HAW                   Telemetry LOS, Gemini 7, Hawaii.

HOUSTON              California go remote. Gemini 7, repeat, Gemini 7.

CALIFORNIA           California is remote.

HOUSTON              Guaymas, AFD.

GYM                   AFD, Guaymas.

HOUSTON              Okay. You got our mission instruction.

GYM                   Negative.

\*(Air/ground on pass over Hawaii not aired)

HOUSTON Okay. We're going to remote through Cal. this time.

GYM Okay. Do you want any special summaries for 6?

HOUSTON Stand by one. Give us 2 OBC's on 6, please.

GYM Roger. AOS and LOS.

HOUSTON Roge.

GYM Okay.

HOUSTON Gemini 7, Houston. How do you read?

S/C 7 Loud and clear, Houston.

HOUSTON Roger. This will be a UHF 6 pass. Would you confirm your DCS circuit breaker is off?

S/C 7 Roger. The DCS circuit breaker is off.

HOUSTON Are you copying the Spacecraft 6 transmissions?

S/C 7 Negative. We can hear ground transmit to them; but we cannot hear them transmit back.

HOUSTON Roger. I'll have a flight plan update for you after the 6 burn which is in approximately 10 minutes.

S/C 7 Roger.

HOUSTON As a matter of fact, if you're free, I can start giving you some of it now and then I'll leave you in a minute.

S/C 7 Ready to copy.

HOUSTON Okay. You got the 260 entry on coolant pump switching and powering up?

S/C 7 260:00 power up.

HOUSTON That's right. Switch coolant pumps prior to powering up the platform. 261:00:00, transponder on. 262:45:00, purge fuel cells at Texas. 266:16:00, purge fuel cells and PLA update at RKV. 269:00:00, bio-med recorder #2 to continuous. 269:28:00, purge fuel

\*(Air/ground on pass over Hawaii not aired.)

cells, and crew status report on the command pilot at RKV. Node time...Stand by, that was for Gemini 6. Did you copy everything, Seven?

S/C 7 Roger.

HOUSTON Okay. That's your complete update. I'll be switching to 6 now; and I probably won't be calling you back.

S/C 7 Roger. Understand. Seven here.

HOUSTON California go remote, Gemini 6. Repeat, Gemini 6.

CALIFORNIA California is re.....

END OF TAPE

This is Gemini Control Houston, 2 hours and one minute into the six mission, 260 hours 8 minutes into the seven. The closure distance or the distance separating these two is closing gradually. At the time of that height maneuver, immediately after the height maneuver adjustment over New Orleans, just south of New Orleans last time, the separation distance was 635 nautical miles. The distance continues to shrink and at the next maneuver, the phasing maneuver, two hours and 18 minutes into six's flight, the distance between the two will be 430 nautical miles. We may also, we were just advised of another very slight height adjustment over the states next pass that's still under consideration, however. Then at the plane changing maneuver -- two hours and 42 minutes into the flight, the separation distance will be 375 nautical miles. At the time of the circularization maneuver at approximately three hours and 45, 47 minutes, the separation distance will be 167 nautical miles. And at the terminal phase initiation five hours and 15 minutes, 16 minutes, into the flight, the separation distance will be 32 nautical miles. Six all this time, will be slightly below and behind seven. We have tape conversation with both spacecraft as they sailed over Ascension Island a few minutes ago and it sounds like this.

HOU CAP COM 4

Gemini 7, Houston Cap Com, how do you read?

S/C

Loud and clear Houston.

IOU CAP COM

Roger. Everything seems to be coming along fine.  
They got the height adjustment burn over the U.S.

We've updated them for catch up burn. We're  
stand by for your platform power up.

S/C

Did you want the computer on on our power up, over.

HOU CAP

You don't need to put that on at this time, seven.

S/C

Roger.

HOU CAP COM

We're going on over to six again Gemini 7 to  
update their maneuver again. Talk to you later.

S/C

Roger.

HOU

Ascension go remote, Gemini 6.

IOU CAP COM

Gemini 6, Houston Cap Com how do you read?

S/C

Houston this is 6.

HOU CAP COM

Roger, I have a slight change in your catch up  
maneuver update. when you're ready to copy.

S/C

... (garbled) ...

HOU CAP COM

Okay, GET of the burn 21800, Delta V 60.8, duration  
1 + 17, co-ord 25 00 608. Everything else is the  
same. Do you copy?

S/C

GET is 20200, the Delta V is 60.8, the time of  
duration is 1 + 17, co-ord 25 00 608.

HOU CAP COM

Roger. I don't believe you got the GET of the burn  
right. It's 218 00. Do you copy?

S/C 2 + 18 + 00.

HOU CAP COM That is affirmative.

HOU CAP COM Gemini 6, for your information, the accelerometer bias check we made here was very good.

S/C Roger.

HOU Ascension has LOS on Gemini 7.

This is Gemini Control Houston again. Our precise liftoff time is as follows, which will be in Eastern Standard Time: 8:37:26.471. That was 8:37:26.471. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston, 2 hours 17 minutes into the flight of 6 and the pilots within the minute will perform their major burn over the Indian Ocean. We still have the line up, I believe, I don't know that we will be able to hold the communications with 6 throughout the burn. The time of the burn will be nearly 44 seconds long; the velocity increment is to be 60.8 feet per second. During the Tananarive pass Gemini 6 reported they are now reading the 7 transmissions loud and clear and toward the end of the conversation we have for you on tape we can, ...you will hear Wally Schirra call back and say that we have the Gemini 6 patch in view. This was a little confusing to us at first. We had him repeat his transmission and then he clarified and then he said we have the constellation Orian clearly in view. And of course this is the symbol for the patch that Wally Schirra and Tom Stafford adopted as standard for their flight. Here's the conversation now between both spacecraft and Elliot See over Tananarive.

CAP COM Gemini 7, Gemini 7, Houston, How do you read?  
TANANARIVE Tananarive has telemetry acquisition.  
CAP COM Gemini 7, Gemini 7, Houston, How do you read?  
S/C Loud and clear, Houston, go ahead.  
CAP COM We'd like a readout on your ohms quantity.  
S/C This is Gemini 7.  
CAP COM Go ahead, we'd like a readout on your ohms quantity.  
S/C Ohms quantity reads 16 percent.  
CAP COM Roger, 16 percent.  
S/C Affirmative.  
CAP COM Everything seems to be going o.k., uh...Frank, we've given them an update for their plane change maneuver. Uh, correction, for their catch-up

maneuver and we've got one ready for the plane change. They'll be making their catch-up maneuver just past Tananarive here. Looks good so far.

S/C

Very good.

CAP COM

You guys finished lunch and getting the suits on?

S/C

Got our suits on.

CAP COM

Suits on. Roger.

S/C

Houston Cap Com, Gemini 6 here. We read you loud and clear for all those messages.

CAP COM

Roger, Gemini 6. Very good.

S/C

We heard them give one reading which was the fuel quantity of 16 percent but that was the last we heard.

CAP COM

Roger, very good 6.

S/C

Houston, Gemini 7.

CAP COM

Go ahead 7. Gemini 6, Houston, were you copying Gemini 7's answers?

S/C

Only one answer and that was his first answer of 16 percent fuel quantity.

CAP COM

Roger, we plan for that to get better.

S/C

Roger.

HOU

Tananarive, go remote Gemini 6.

Tananarive

Roger, Tananarive remote.

HOU

Roger.

CAP COM

Gemini 6, Houston. If you read, we're standing

by for your burn and counting down. We have four minutes and 52 seconds.

S/C

Roger, affirmative. Cap Com, Gemini 6, we have our (garbled)

CAP COM

Say again, 6. You have what in view?

S/C

(garbled) patch in view.

CAP COM

Gemini 6, we did not understand that last transmission.

S/C

Roger, we have the Gemini 6 emblem patch in view.

CAP COM

Roger, we copied.

Tananarive

Tananarive has LOS.

Gemini Control, Houston, here. 7 has been raised by Carnarvon in the last thirty seconds. We still have no word on the outcome of 6's burn, but the... we're sure they're going to start on time. The computers have looked at the data from 6 for the last two hours and it has been decided that we will perform a second height adjustment over the states. This will only be a, uh, height adjustment of one foot per second; be done approximately over Texas on this next pass by 6. This will not change the times or the amounts of the other burns we've listed before that 6 will perform. The time of that height adjustment has been inserted into our summary maneuver table and it shows up at 3 hours, 3 minutes and 19 seconds into the flight of 6. At 260 hours, 30 minutes, 31 minutes into the flight, this is Gemini Control in Houston.

END OF TAPE

Gemini Control Houston, two hours, 34 minutes into the flight of 6. Wally Schirra reported over Carnarvon that he had completed the burn over the Indian Ocean, when we were out of contact, with success, it was completely nominal. We are presently showing about 611 pounds of fuel remaining on board. Tom Stafford came into the conversation during much of the pass over Carnarvon, checking his readings, and Tom is going to be very busy watching that computer in getting all the right values, getting the right numbers up in the window for Wally to burn off during these adjustments he's making during the early part of the flight. Here now is the Carnarvon tape.

HOU FLT                    Houston, Flight

CRC                        Flight, Carnarvon

HOU FLT                    You have the plane change?

CRO                        That's affirm.

HOU FLIGHT                Roger

CRO                        Since he got the OAMS prop quantity in, you want us to hear it again or not?

HOU FLT                    No, that's fine.

CRO                        Roge.

CAP COM                    One minute to burn.

CRO                        Flight, on this second height adjustment maneuver over the states, will that be updated at Hawaii?

CAP COM                    Yes, stand by on that for a minute. I think that is where we are going to update that. That's correct.

CRO                        Roge.

CAP COM                    You're gonna smoke one with me at six hours.

CRO                        Thank you.

CAP COM                    Not that one, I got a special one.

CRO Carnarvon has TM solid on Gemini 6.

CAP COM Roger, Carnarvon

HOU FLT You gonna smoke a cigar with me, Carnarvon?

CRO Say again? ...You betcha we will.

CRO Gemini 7, Carnarvon Cap Com.

S/C This is 7, go ahead Carnarvon.

CRO Ah roger, we have nothing for you this pass, you are looking good on the ground. Standing by.

S/C • Roger, we are powering up and going ...(Garbled)

HOU FLT Houston, Flight.

CRO Flight, Carnarvon

HOU FLT Tell Spacecraft 7 that the order for the day is still to conserve fuel.

CRO Gemini 7, Carnarvon Cap Com. Flight just advised that the order for the day is conserve fuel.

S/C We'll do our best.

CRO Roger. You've been doing real good so far.

CRO Gemini 6, Carnarvon Cap Com

S/C Carnarvon, Gemini 6 here.

CRO Ah Roger, do you have any information to report to us from that phasing maneuver?

S/C Roger, confirmed burned all residuals, propellant quantity remaining is about 79 per cent.

CRO Roge. Copy burned all residuals propellant quantity remaining 79 per cent.

S/C That's affirmative.

CRO Roger. There will be another height adjust maneuver

which will take place over the states on this next pass. You will be updated over Hawaii.

S/C Roger, understand update over Hawaii.

CRO Roger, I have your plane change information if you are ready to copy.

S/C Roger, send this up a little slower this time.

S/C Carnarvon, Gemini 6, ready to copy.

CRO Roger.

CRO Flight, Carnarvon

HOU FLT Go ahead.

CRO Negative TM on 6.

HOU FLT Is he in realtime and acq aid?

CRO We'll check it.

HOU FLT ....not patched.

CRO ....0317, thrusters aft, maneuver south. Do you copy?

S/C Roger Carnarvon. For the plane change at a GET of a burn, 02+42+07, Delta V, 31.7, duration, 0+40 seconds, yaw, right 90degrees, pitch 00, <sup>core</sup> core 25260, core 2790317, aft thrusters, maneuver south.

CRO Roger, would you check to make sure your TM switch is in realtime acq aid?

S/C Roger, realtime acq aid.

HOU FLT That give it to you?

CRO Roge.

HOU FLIGHT You now have TM.

CRO We now have TM and C-band track.

HOU FLIGHT Roge. You didn't have C-band track before?

CRO Yeah, we had C-band slightly before.

CRO Flight, power up on GT-7 shows main bus one at 17.5  
amps. main bus two 19.0 amps, two Charlie is carrying  
6.7 amps.

HOU FLT Roger.

CRO He's supposed to leave the TM realtime acq aid until  
the end of rendezvous isn't he?

HOU FLT On spacecraft 6.

CRO Roge.

CRO Gemini 6, Carnarvon Cap Com.

S/C Go Carnarvon.

CRO Ah Roger. Would you leave your TM switch in the  
realtime acq aid position until completion of rendezvous  
please?

S/C Roger, leave in realtime acq aid position until completion  
of rendezvous. It must have inadvertently got knocked  
off.

CRO Roger.

CRO Okay, Flight, he looks pretty good from here - that's  
6.

HOU FLT Roger

CRO We've had LOS of 7.

HOU FLT Roger

CRO (Garbled)....LOS of 6

END OF TAPE



HAW TM solid Gemini 7, Hawaii.

HOU Roger, Hawaii.

HAW Gemini 7, Hawaii Cap Com.

S/C This is 7, go ahead, Hawaii.

HAW O.K., how're you doing? We're showing you GO.

S/C Roger, got a (garbled)

HAW How about turning your transponder on at this time.

S/C Roger. Transponder's on. Will you give us the GET of 6, please.

HAW O.K., I'll give you a GET of 6. 168 minutes on my mark...Mark. Want another (garbled)

S/C No, thank you. I got it. Thank you very much.

HAW O.k. O.K., I'm going to switch over to 6 now. I'll be coming back to check to see if everything's going all right after I get him squared away.

S/C Roger.

HAW TM and radar solid on Gemini 6, at Hawaii. Gemini 6, Hawaii Cap Com.

S/C 6 Hawaii, Gemini 6. Go.

HAW How're you doing up there?

S/C Very good. Completed the plane change burn; no residuals. The fuel remaining is 75 percent.

HAW O.K. You burned out all residuals and the fuel remaining is 75 percent.

S/C That's affirmative. We're now back at the upper line.

HAW O.K. If you get too warm, you can turn on your

secondary loop if you like.

S/C

Rog. We're getting warm now. I think we will turn on the secondary loop.

HAW

O.K. Will you turn ECSO2 heater off.

S/C

Roger.

HAW

Got enough heat to maintain pressure and I've got this height adjust here if you'd like to cut me into the tweek burn.

S/C

Uh, roger, we'll give it a tweek.

HAW

O.K. Copy your pump is on. The GETB 030319 delta V 0.8. Your burn time 0+01, yaw and pitch are 0, core 2500008, cores 26 and 27 are 0. Use your aft thrusters, the maneuver is posigrade.

S/C

Roger, copy for the height adjust, GET of burn 03+03+19, Delta V 0.8, duration 0+01, yaw 00, pitch 00, core 2500008, 26, 27 all zeros. Aft thrusters, posigrade maneuver.

HAW

You got that alright. You are in good shape.

HAW

Flight 7 has got his transponder on, flight.

HOU FLT

Roge. We'd like GT-6 LOS main and Bravo, please.

HAW

Roger.

HOU FLT

Class 2.

HAW

Roger, everything's looking real good on both birds.

HOU FLT

I don't have any place to write that in my notes.

AW Write what?

HOU FLT Well, I've got my notes split here and when you say its all good in both birds I don't know where to write it.

HAW Put a big S on it.

HAW Gemini 6, Hawaii, do you need anything else?

S/C Gemini 6 here, we are just watching the sun come up.

HAW Roger, your cohort is doing real fine also.

S/C Roger, very good, we haven't heard him since quite a long time ago.

HAW Okay.

S/C Have they heard us yet?

HAW Stand by, I'll give them a call.

HAW 7, Hawaii Cap Com

S/C Come in Hawaii.

HAW Your cohort would like to know if you heard him call you?

S/C We heard him talking to Houston, but we can't hear him calling us.

HAW Why don't you give him one shout?

S/C Hello, Gemini 6, this is 7, how do you read?

HAW Doesn't sound like he got you yet?

HAW 6, Hawaii.

S/C No joy, no connection with him.

AW Ok, probably by the next time around you'll  
be reading him loud and clear.

s/c/6 Very good.

HAW We'll be standing by if you need  
anything.

s/c/6 (Garbled)

HAW Say again.

s/c/6 Just tell him to keep going ..(garbled)

Haw He'll be there when you get there.

s/c/6 Roger.

HAW 7, Hawaii, we have nothing further,  
we'll be standing by if you need us.

s/c/7 Roger.

AW We have excellent telemetry flight on  
both vehicles. Gemini 7, telemetry  
LOS at Hawaii.

HOU FLIGHT Roge.

HAW Flight, Hawaii.

HOU FLT Go ahead.

HAW 6 has got that thing so lined up we are  
getting hardly any activity at all in  
the OAMS.

HOUFLT Roge.

HAW Conserving that fuel.

CAP COM California, go remote for 7.

HAW LOS all systems on 6 at Hawaii.

JAL California remote on 7

HOU FLt Roger, Hawaii.

This is Houston, three hours, 5 minutes into the flight of 6 and two minutes ago spacecraft 6 made another very slight height adjustment, they burned only .8 foot per second, described here as a "tweaking" maneuver to their orbit. To recap on their maneuvers to date at one hour and 34 minutes 2 seconds into the flight they performed a 14.2 foot per second burn. This left them with 667 pounds of fuel remaining. That against an estimated total of 690 at takeoff. The additional fuel is used in the separation maneuver and the turnaround of the light in getting off their booster. Then at two hours and 18 minutes into the flight, they performed a 60.8 foot per second burn. This a phasing maneuver, and after that burn they read 611 pounds of fuel remaining. At two hours, 42 minutes 7 seconds into their flight they performed a plane changing maneuver, they burned 31.7 feet per second. This left them with 578 pounds of fuel. At 3 hours and 3 minutes, 19 seconds into the flight, they've just completed the tweaking maneuver, the .8 foot per second burn which leaves them with 577 pounds of fuel. They're next maneuver is to occur at 3 hours 47 minutes and 37 seconds. They will perform a 42 foot per second burn and this will be their circularization maneuver. We have now the, uh, beginning of the stateside pass, both spacecraft are just south of Houston at this point, approximately over Brownsville, starting across the Gulf and here's the conversation as it began via California.

CAP COM

Gemini 7, Gemini 7, Houston. How do you read?

S/C/7

Loud and clear. You can go ahead.

CAP COM

Roger. We're coming up on a second height adjust burn for 6. They'll be making that in slightly over 5 minutes from now.

S/C/7

Roger.

CAP COM

Gemini 7, would you place your antenna selector switch to adapter.

S/C/7

Roger. Houston, may I ask why. This is 7 here.

CAP COM

Trying to set up a possible better communication between your two vehicles.

S/C/7

The reason we went back to reentry was that we couldn't hear on adapter.

CAP COM

Roger, sounds very good now. How are you receiving us here?

S/C/7

You're on now.

CAP COM

'K. We're going to go over and pick up 6 now and monitor their burn. We'll come back to you.

S/C/7

O.K.

HOU FLT

Guaymas AFD

Guaymas

AFD Guaymas

HOU FLT

Send it before and after the burn.

Guaymas

O.k. Very good. We've got solid TM on 7. All systems are GO.

HOU FLT

Right.

California

California, remote to 6.

California switching to 6.

California on 6.

CAP COM

Gemini 6, Gemini 6, Houston. Standing by for your burn.

S/C/6

Roger, about three minutes to go now.

CAP COM

Roger.

S/C/6

(garbled) how about giving me a GMT (garbled) just to see how this clock is holding up.

CAP COM Did you say GET or GMT?  
S/C/6 (garbled)  
CAP COM GET, roger. We have 3 plus 00 mark 20 seconds.  
S/C/6 O.K. need the Greenwich Mean Time.  
CAP COM Roger. Coming up on 1637...correction, 163800  
mark. Did you copy 6?  
S/C/6 Roger. We got that. Give me a log on 39, Elliot.  
CAP COM Roger.  
S/C/6 I'm gaining on the GMT at least 40 seconds.  
CAP COM Roger. Coming up on 163900 ...Mark.  
S/C/6 Roger. Cabin clock had gained 40 seconds. Will  
reset it.  
CAP COM Roger 6. Coming up on 1 minute to burn...Mark.  
S/C/6 Roger.  
Guaymas All systems look good on spacecraft 6.  
HOUSTON Roger, Guaymas.  
S/C/6 Stand by for burn. Mark. That was a bunch.  
CAP COM Nice tweek.  
S/C/6 Garbled.  
Guaymas Looked good here, Flight.  
HOU FLT Roger, Guaymas.  
S/C/6 (Garbled) right on schedule.  
CAP COM Roger.  
HOU FLT Texas, go remote on 6.  
Texas Texas remote 6.  
HOU FLT California local...California local

CAP COM

Have a flight plan update when you're ready to copy, 6.

S/C/6

Good, Elliot.

CAP COM

Test rendezvous. You will obtain spacecraft 7 acquisition at 030500. Yaw 0, pitch 5.5 degrees up. Time of 248 nautical miles, 031500. Do you copy?

S/C/6

Roger. For the test rendezvous, spacecraft 7 acquisition at 030500. Yaw 0, pitch 5.5. 248 nautical miles at 03 plus 15 plus 00.

CAP COM

Roger and of course that's pitch up. Also have a node update. Node at 053941. Rev 4, 112.2 degrees east, 082257 right ascension. Spacecraft 7 sunrise 054921.

S/C/6

Roger, Give me the time for Rev 4 they're to start on.

CAP COM

The time for rev 4, the node update time is 053941.

S/C/6

Roger. That's 05 plus 39 plus 41 rev 4 112.2 degrees east, 0822 plus 57 right ascension. Sunrise at 0512.

CAP COM

That's 054921.

S/C/6

05 plus 49 plus 21.

CAP COM

Roger. Gemini 6, your accelerometer bias still looks very good.

S/C/7

Elliot, this is 7.

CAP COM

Gemini 6, going over to 7 for a few minutes. We'll be back to you with ... probably have an update here for you shortly.

S/C/6 Roger. Standing by.

CAP COM Gemini 7, Houston.

S/C/7 Go ahead, Houston.

CAP COM Just completed the second height adjust burn.

Everything looks real good.

S/C/7 Thank you.

CAP COM Aren't keeping you guys very busy today, are we?

S/C/7 The friendly target vehicle is always standing by.

CAP COM Gemini 7, Houston. Did you copy any of our last transmissions with 6?

S/C/7 Negative.... Did you read me, Houston?

CAP COM Roger. Loud and clear.

S/C/6 Is Gemini 7 up on the transponder at this point?

CAP COM Say again 6.

S/C/6 Does Gemini 7 have their transponder on?

CAP COM That's affirmative.

S/C/6 Then they are BAF, is that correct?

CAP COM Roger... Did you copy them?

S/C/6 Only roger, I believe.

CAP COM That's right. He said roger.

S/C/6 O.k. We don't have a lock in. Probably need to get one shortly.

CAP COM Roger.

This is Gemini Control here. A little later in the pass across the states and we're still in touch, by the way. The 6 spacecraft is ...attempted to lock up with its radar on 7. They were in the proper alignment, but I don't think they achieved

a complete lock as yet. Here's how that conversation goes.

CAP COM Gemini 6, Houston. We wonder if your suit temperature has improved since we went to the secondary outlet.

S/C/6 Affirmative. Stands at about 62 now.

CAP COM Roger.

Antigua Gemini 6 position Antigua.

CAP COM Gemini 7, Houston. Could you give us a read-out on your stack currents?

S/C/7 Roger. Stand by.... 1A is 8, 1B 8, 1C 7, 2A 7 2B 6.5, 2C 9.

CAP COM Roger. Where's Jim, out to lunch?

S/C/7 Not exactly, but he's busy.

CAP COM Roger. We copy.

This is Gemini Control in Houston and that concluded the conversation thus far. They're still within range at Antigua, but we've had no discussion now for several minutes with either spacecraft. We'll stand by for... if there is anything, we'll come back to you.

END OF TAPE

This is Gemini Control Houston, we're three hours, 22 minutes into the flight of six. At the present time, the distance separating the two vehicles is approximately 230 nautical miles. Toward the tag end of that pass across the states down in the Antigua area, actually outside the Antigua circle on our big board here in the control center. Tom Stafford took an update from Elliot See on the circularization maneuver. Here's how it went.

HOU LOS Grand Turk, Gemini 7.

HOU Cap COM Gemini 6, Houston, have your NSR update if you're ready to copy.

S/C Stand by.

HOU LOS Grand Turk, Gemini 6.

S/C Standing by 6 and ready to copy.

HOU CAP COM Roger. GET is a burn 3 47 37; Delta V, 42.9; burn time 54 seconds; yaw zero; pitch down three degrees; co-ord 25 00 429; co-ord 26 000 23; co-ord 27 0; thrusters amped; maneuver posigrade down; Do you copy?

S/C Roger. <sup>For</sup> /NSR maneuver. GET / <sup>of</sup> burn 03 + 47 + 37; Delta V, 42 .9; duration 54 seconds; yaw zero; pitch down three degrees; co-ord 25 00 429; 26 000 23; 27 all zeros; thrusters amped; maneuver

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posigrade down.

HOU CAP

That's affirmative Gemini 6.

HOU

LOS GT-7 Antigua.

LOS GT-6 Antigua.

END OF TAPE

Gemini Control Houston here, 3 hours, 31 minutes into the flight of Spacecraft 6 and Spacecraft 7 presently shows 261 hours, 38 minutes. The separation distance between the two vehicles is presently 200 nautical miles. About 4 minutes ago Spacecraft 6 reported, the time locally was 1105 CST, Schirra reported he had established radar lock on with the Gemini 7 spacecraft. You recall during the swing across the eastern portion of the States, they began this attempt with Seven blunt end forward yawed around so that Six could see their transponder. They did lock on to it and it is a good solid lock. Here's some conversation now via the Ascension station.

AFD 12-1, put your UHF in remote and let me know when you have acquisition.

ASCENSION Ascension AOS. Gemini 7 UHF remoted. Ascension AOS, Gemini 6, UHF remoted.

Houston Cap Com Gemini 6, Houston, how do you read.  
Spacecraft Gemini 6

Cap Com Have a slight update on your last maneuver. Are you ready to copy?  
S/C 6 Yes.

C Com The delta V is 42.5, duration 53 seconds, pitch is down 2 degrees, core 25 is 00425, core 26 is 00011, everything else is the same.  
Do you copy?

S/C 6 Roger. The delta V is 42.5, pitch is down 2 degrees, core 25 is 00425, 26 is 00011, Repeat, I have what looks like a positive lock on. Radar rate is 333 as described in the regular rendezvous mode separator dock.

Cap Com Roger, Gemini 6. Understand radar lock on and rendezvous test is going good. The duration is 53 seconds. Do you copy?

S/C 6 Roger, the duration is 53 seconds, and again to verify the frame of 03 plus 47 plus 37.

Cap Comm That is correct.

S/C 6 Roger.

S/C 7 Gemini 6, how do you read Gemini 7 now?

S/C 6 Loud and clear fellows, we are looking at Houston.

S/C 7 Very good, we are reading you loud and clear also.

S/C 6 Good, Frank. See you soon. We will be up there shortly.

S 7 Roger.

Com Gemini 6, Houston. Copy. You are looking at them, but I assume this means radar, you do not have visual. Can you confirm that?

S/C 6 Garbled.

Cap Com Roger.

This is Gemini Control Houston, you heard the tag end there that they have established not only radar lock on but they are communicating fluently now between each other. Their range something under 200 nautical miles. This is Gemini Control at 3 hours, 34 minutes into the mission of Gemini 6.

End of Tape

This is Gemini Control Houston, three hours, 52 minutes into the flight. At 11:25 local time spacecraft six began its circularization burn a burn of some 44 seconds, that was completed. There was some residuals left on their IVI's, they trimmed this up. We're advised now our orbit is approxiamtely 148 by 144 on six. This would put it very close to the desired 15 miles below the orbit of seven, which is being carried as 163 by 159. The two pilots are communicating now, much more easily. They've completed a radar lockon test very successfully and at three hours and 54 minutes into the flight, we show them about 150 miles -- make that 155 miles apart, as they move across the Indian Ocean. Here is the tape conversation of the burn that occurred east of Tananareve.

HOU                   Tananareve has telemetry acquisition.

S/C                   Tananareve this is Gemini 6 radar test appears to  
be valid. Over.

TAN                   Roger, copy, radar test is valid. Standing by  
for your burn.

S/C                   Roger.

S/C                   This is Gemini 7, there's no joy visual contact.

TAN                   Roger, understand, no joy visual contact.

HOU                   Gemini 6, Houston, coming up on NSR burn. Mark  
one minute.

S/C                   Roger. We'll start burn with 34% propellant quantity.

HOU                   Roger.

S/C It's starting to burn. Burning. ... (garbled)...

JU Did not copy, six.

S/C Pass the word there are no residuals

HOU Roger.

S/C Burn has been completed. There are no residuals.

HOU Roger, burn complete. No residuals. Do you have  
your OAMS quantity?

S/C 68% .

HOU Understand 68%. Is that correct?

END OF TAPE

This is Gemini Control Houston, 4 hours and 8 minutes into the flight of Gemini 6; 262 hours 16 minutes into the flight of 7. Over Carnarvon a few minutes ago, spacecraft 6 reported on the results of their circularization burn and here is how the conversation went.

Flight Carnarvon Cap Com, Houston Flight.

Carnarvon Houston Flight, Carnarvon. Go.

Flight We want to make sure that both spacecraft have their HF antennas retracted.

Carnarvon Roger, we have that Flight.

Flight We want to tell spacecraft 7 that the cutoff for station keeping is 11 percent and under no circumstances are they to use the Aux tank.

Carnarvon Roger, copy.

Flight Also we want a PQI from spacecraft 6.

Carnarvon Did I understand PQI?

Flight Propellant quantity indicated.

Carnarvon Rog.

Flight That's flight control talk.

Carnarvon Roger, yes sir.

Flight Sorry about that.

Carnarvon Rog.

S/C 7 We can't tell if the acq lights are working or not Wally, we can't see them.

Carnarvon Carnarvon has TM solid on spacecraft 7.

S/C 7 We are turning off all the lights until you request them.

Carnarvon Gemini 7, Carnarvon.

S/C 7 Go ahead Carnarvon.

Carnarvon I'd like to verify that your HF whip is retracted.

S/C 7 Roger.

Carnarvon Also I have a lot of instruction for you. Your fuel cutoff for station keeping is 11 percent. Under no circumstances are you to use the reserve tank. Did you copy.

S/C 7 I understand.

Carnarvon 7 is go on the ground, Flight. We have TM two solid.

Flight Roger.

Carnarvon Gemini 6, Carnarvon.

S/C 6 Go Carnarvon.

Carnarvon Roger. I'd also like to verify that your HF whip is retracted.

S/C 6 We have ours extended, we'll retract.

Carnarvon Rog. Also would like an OAMS propellant quantity please.

S/C 6 Roger, 68 percent.

Carnarvon Roger, copy. 68 percent.

S/C 6 There were no residuals.

Carnarvon Roger, copy.

S/C 6 We've had no joy with the dock and acq lights at this point.

Carnarvon Roger, copy. We have C-band track.

Flight Roger, you mean 6 don't you.

Carnarvon That's affirmed Flight.

S/C 6 Gemini 6, we are still about 154 miles out.

Carnarvon Roger. We are showing radar lock, Flight.

Flight That data agrees with ours, Carnarvon. You don't have to tell him that, but that agrees almost exactly with what we say he should be.

Carnarvon Roger. Did you copy no joy with the dock and acq lights.

Flight Rog.

S/C 7                    Carnarvon, this is Gemini 7. Coming on with the hydrogen heater here, read about 49 480 on the pressure.

Carnarvon                Roger, 7. We copy. Are you getting our summaries Flight?

Flight                    Say again.

Carnarvon                Are you getting our summaries.

Flight                    Affirmative.

Carnarvon                Flight, Carnarvon. On main bus 1 for GT-7, 21 amps, main bus 2 19 amps. 2A, 6.8, 2B, 6.0, 2 Charlie 6.2.

Flight                    Roger that.

S/C 6                    ..... (garbled)

Flight                    What did he say?

Carnarvon                I didn't copy that Flight.

Flight                    Something about 15 minutes after NSR was 7 hundred and something.

Carnarvon                We'll have to get it off the tape Flight.

Flight                    Just OBC summaries please.

Carnarvon                It's on its way. Flight, Carnarvon. We show on the JFO3, the transponder temperature off scale high.

Flight                    That's on spacecraft 7?

Carnarvon                That's affirmed.

Flight                    JFO3 off scale high.

Carnarvon                Affirmed. We've had LOS on both birds, Flight.

This is Gemini Control Houston. At 4 hours and 13 minutes into this 6 mission, we make the two spacecrafts out to be about 130 miles apart. We are meanwhile advised regarding Dr. Lovelace. The search for Dr. Lovelace the Chief of NASA Medical Programs at NASA Headquarters in Washington, a helicopter has spotted the wreckage of the Lovelace plane. It has been positively identified as the plane. A ground search party is moving on the wreckage. We have no estimate as to how long it will take them to reach the wreckage which is 1000 feet up on a mountain peak about 20 miles south of Aspin, Colorado. The helicopter reported no signs of life as it circled the area. We are getting additional reports in here from the Department of Defense and from the Federal Aviation Agency. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston, four hours and 30 minutes into the flight of six. The two spacecraft are over Hawaii. Tom Stafford is doing most of the talking now. And he will probably continue to do most of the talking as he reads out the quantities he takes from his computer onboard. He just called us and said he shows a range now between the two crafts of about 100 nautical miles. Here's how the conversation is going over Hawaii.

HAW Radar check on Gemini 6 at Hawaii.

HAW CAP COM Gemini 7, Hawaii Cap Com.

S/C This is 7, go ahead Hawaii.

HAW Cap Com You're looking real good here on the ground. How are you doing?

/C Doing fine pleased to say.

HAW CAP COM Okay, I don't have anything for you. I'll be standing by.

S/C Roger.

S/C Hawaii, standing by for the data point.

HAW CAP COM Say again.

S/C Standing by for the data point.

HAW CAP COM Who am I talking to?

S/C Gemini 6.

HAW CAP COM Okay, go ahead six.

Gemini 6, Hawaii Cap Com.

/C Stand by....

HOU FLIGHT Give you a data point there, stand by for it.

HAW CAP COM Roger.

S/C This is Gemini 6 at 035 40, we have a data point  
Theta 6.4 degrees; range 115.58; Delta V2 523;  
Delta V9 24.8; over point looks completely  
normal.

HAW CAP COM Say again the range.

S/C Range was 115.58.

HAW CAP COM We've copied all that, we're showing you go here  
on the ground. How are you doing?

S/C Very good here.

HAW CAP COM Okay, we're standing by.

HAW AFD Hawaii.

HOU FLIGHT Go ahead

HAW We've just lost our 12 18.

HOU FLIGHT Rog

HAW Seven, Hawaii, how do you read on this transmitter.

S/C Loud and clear

HAW Okay, six how do you read?

S/C Loud and clear.

HAW Flight, Hawaii.

HOU FLIGHT Go ahead.

HAW I think you can advise all sites they can go to  
a single transmitter antenna set up.

HOU FLIGHT

Roger

F V

And, we're showing radar lock.

HOU FLIGHT

Roger

S/C

Hawaii, Gemini 6, we're getting data point centered in exchange and/we'd like to know what kind of out of plane velocity we have.

HAW

Okay, stand by one.

S/C

Roger, we'll call you.

HAW

Flight, Hawaii.

HOUSTON FLIGHT

Still showing two feet per second as far as I know.

HAW

Okay. They claim six, they're still showing two feet per second, two feet per second.

S/C

Hawaii, Gemini 6, your data point 6.4 degrees 110.41 nautical miles. Delta V total 486.

HAW

Roger copy

S/C

That was ... (garble)... plus 39 minutes, 39 minutes 07.

HAW

I got all that. All systems still looking good flight.

HOU FLIGHT

Roger, Hawaii.

HAW

I'll tell you he's flat - flying that thing, he's just as steady as can be.

HOU FLIGHT

Roger.

S/C Hawaii, did you get an answer to the out of plane yet?

HAW They're showing two feet per second.

S/C Outstanding.

HAW Roger.

S/C Good show down there, it's all up to us from now on.

HAW Theta 6.9; Range 107.82;

HOU FLIGHT Roger copy that.

HAW .....(garble) about 59 now. Working in real time.

HOU FLIGHT Good.

HAW 12 18 is now working, flight, and summaries are coming at you.

HOU FLIGHT Rog. Will you send us an A please?

HAW Roger. Los telemetry in Hawaii on seven.

HOU FLIGHT Roger.

HAW LOS telemetry of six and radar check on six.

END OF TAPE

This is Gemini Control, Houston, at 4 hours, 43 minutes into this dual mission flight. Tom Stafford continues to call out his range readings as he takes them of the computer. Here's the start of the conversation during the pass which is underway right now across the States.

...All systems LOS.

HOUSTON Roge. California, go remote for 6.

CALIFORNIA California remote.

GYM Guaymas has a solid TM on 7, and all systems are go.

HOUSTON Roger, Guaymas.

GYM We have solid TM on Gemini 6, and all systems are go.

S/C 6 Gemini 6 transmitting data point at 49 minutes. Data 8.0. R 94.82.  
Delta V total 396. Delta VI 185.6.

HOUSTON Roger, 6.

S/C 6 How's that plot looking, Elliot?

HOUSTON Your plot's looking real good. We concur with your points.

S/C 6 Roger. We've juggled a little bit. ....(Garble)...a little bit spunkier than we're used to seeing. We're going around the center point by plus or minus one or two degrees.

HOUSTON Roger. California local. Texas remote.

TEXAS Texas remote.

CALIFORNIA California local.

S/C 6 At this point, we've got so much sunlight in our eyes we couldn't possibly see Schmatze out front.

HOUSTON Roger, 6.

S/C 6 Both our windows are quite badly clouded.

HOUSTON Roger.

S/C 6 New data point at 50:40. Data 7.9. R 92.22. Delta V total 376.  
Delta VI 175.1. And, it looks like the closed lids are working good.

HOUSTON Roger, Tom. I have a terminal phase back up maneuver when you're ready to copy.

S/C 6 Stand by one, please. Ready to copy.

HOUSTON Terminal phase elapsed time, 1 plus 29 plus 17. GET of the burn 5 plus 16 plus 54. Delta V 33.0. Duration 41 seconds. Core 25, 00-301. Core 26, 90-135. Core 27, 00-016. Delta V's 32.9, 1.5, 1.5. Burn time 40 forward, 04 down, 04 left. Yaw 0. Pitch 26.8. Range 139. Range rate 32.69. Do you copy?

S/C 6 Roger. Terminal phase elapsed time, 1 plus 29 plus 17. GET of 05 plus 16 plus 54. Delta VT 33.0. Duration 41 seconds. Core 25, 00-301. 26, 90-135. 27, 00-016. Delta V....Stand by. I want to get a point here. I'll clear the rest up in just a second.

HOUSTON Roger, Tom.

S/C 6 Okay. Continuing on: 32.9; burn time 40 seconds forward, 1.5 for 04 seconds down; and 1.5 for 04 seconds to the left. Yaw 0. Pitch 26.8 degrees. Range 139. Range rate 32.69. And, on the range and range rates, I understand that's in yards. Range should probably be about 33 miles.

HOUSTON Gemini 6. We've got it just backwards here. It's range 32.69, and range rate 139, and the up down burn is down.

S/C 6 Roger. Up down burn is down.

HOUSTON Roger.

S/C 6 At this point in time, it would not be practical for us to either roll over or move in almost any direction to avoid sunlight. We have a white sky beneath us bright sun to our right.

HOUSTON Roge, 6. Gemini 7, Houston.

S/C 7           Go ahead, Houston.

HOUSTON        Would you bump your hydrogen tank pressure to 500 pounds onboard gauge reading?

S/C 7           Roger. We already did. It's 505 now.

HOUSTON        Roger.

S/C 7           And, our friend 3C is starting to drop off again.

HOUSTON        Roger. Gemini 7, Houston. Have you done your fuel cell purge.

S/C 7           Negative. It's at 266 we're supposed to do that, I believe.

HOUSTON        Gemini 7, Houston. You should have a fuel cell purge at this time.

S/C 7           Stand by, then.

              This is Gemini Control, Houston. Shirra reports among other things that both windows are slightly cloudy in the Gemini 6 spacecraft. We hope it doesn't have any effect on those films that are to be taken in the rendezvous maneuver and during the look around of each other. Here's the rest of the conversation as we moved across the States.

S/C 7           Roger. Purging fuel cell.

HOUSTON        Roger.

S/C 7           Elliot, if you're wearing a stop watch, you can give everybody a sinc. In about an even hour they should be in sight.

S/C 6           Roger. Data at 59 minutes was 10.0 degrees. Range 79.25. Delta V total 300.

ANTIGUA        Acquisition GT-6, Antigua.

S/C 6           New data point data 10.7. Range 76.66.

HOUSTON        Roger, 6.

END OF TAPE

The Rose Knot Victor parked off the east coast of South America calling out a new reading approximately every 100 seconds. Tom's last reading showed that the two were about 50 miles, 50 nautical miles apart which is coming right up on the design valued to begin the terminal phase initiation maneuver at an elapsed time of 5 hours, 18 minutes, 39 seconds. There may be a tolerance here of a minute or two for the values given here earlier. The indication it is possible that terminal phase may begin a little more than a minute late; however, all the values are coming up very close to expectation. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston. According to our computations spacecraft 6 should have started its terminal phase maneuver - terminal phase initiate that is, a little over a minute ago. This would be a 33.7 foot per second burn and after that burn they should still have remaining onboard about 500 feet - 505 pounds of fuel remaining. Over the Rose Knot Victor or perhaps Ascension the transmission was quite garbled a few minutes ago. The controllers here think they heard Tom Stafford say that he had the spacecraft in sight, the 7 spacecraft with its blinking lights. At 12 o'clock high, the range at that time would have been about 50 miles. The range right now should be down on the order of 30 miles. We've had no conversation via Tananarive at this point and as Chris Kraft observed earlier, the ground has done all it can at this point through computations, it's all up to them now. We are standing by, we'll come back to you when we have additional information. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston at 5 hours, 25 minutes into the flight. Gemini 7 and Gemini 6 are now about 25 miles apart. They're over Tananarive. We're listening to them via the Tananarive station, and most of the conversation is between Borman and Schirra. Borman apparently cannot see the acquisition lights on 6. Here's how the conversation is going.

HOUSTON                   Tananarive go remote.

TAN                        Tananarive remote. Tananarive has acquisition.

S/C 6                     ...are going along pretty well, Frank. Six o'clock in a few minutes.

S/C 7                     Rog.

S/c 6                     And we're approaching about thirty degrees, Frank.

S/C 7                     Thirty.

S/C 6                     There's twenty seconds to go to two minutes.

S/C 7                     I'll never make it.

S/C 7                     I can't either.

S/C 6                     Move it up to four, Frank.

S/C 7                     Make it three minutes.

S/C 7                     You say you're pitched down to thirty degrees now?

S/C 6                     About 32.

S/C 7                     Allright.

S/C 6                     ..... (garble)

S/C 6                     How does it burn?

S/C 7 We can't see your acq lights. I hope they're working.

S/C 6 They give a very dim source up here, but I think they're working.

S/C 7 Can't see any flashing lights?

S/C 6 Negative. Frank has a green light so far. Hold that for 3 minutes with your circuit breaker.

S/C 7 Will do.

S/C 6 5, 4, 3, 2, 1. Mark. Three minutes.

S/C 7 Roger. Made it.

S/C 6 This is Gemini 6. Just a real dim light up there about 3 o'clock.

S/C 7 We're blinking again.

S/C 6 Roger. Go ahead.

S/C 7 It's off now.

S/C 6 OK. That was it.

S/C 7 It's coming on now.

S/C 6 Good. What do you see?

S/C 7 That we don't have any acq lights.

S/C 6 Don't think so. Frank, it's all yours.

S/C 7 We're about 35 degrees.

S/C 6 Roger.

TAN Tananarive has LOS.

MCC

This is Gemini Control Houston. The time hack that you heard Tom Stafford make there was a reference to the start of his terminal phase initiation burn. The hack he gave was three minutes from the burn and this will be his time reference as they close on 7. As they move some four and a half miles a second swinging across the Indian Ocean, the pass is going to take them right up between the Carnarvon and the Coastal Sentry Quebec acquisition areas. We are hopeful that the Coastal Sentry will see and hear the rendezvous as they come very close together up, right about in the Philippines area. This is the waiting time, of course, and it's all up to them. We'll come back to you as soon as we have new information. This is Gemini Control at 5 hours, 29 minutes into the flight.

END OF TAPE

This is Gemini Control Houston. We have had no contact with either spacecraft since our last announcement. According to all our plots here, at this time the two should be 8 to 9 miles apart. We are very hopeful that the CSQ will be able to get a piece of this or at least the end of it as they come together. We just don't know yet. The line out there is very good today, and their acquisition has been good--good range on it. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston. The coastal sentry, Quebec now is reading the telemetry signal from both spacecraft. They estimate the distance about 2500 feet, on the order of 5 miles, and that agrees very closely with our plots here. We are hopeful that they will get some voice communication as the two come very close together.

Its in the air. Wally Schirra has just advised that he is breaking a little bit. Thats the only part of the conversation that we can understand.

END OF TAPE

Wally Schirra has just advised that he is braking a little bit. That is the only part of the conversation that we can understand. We are standing by.

The CSQ says the conversation is way down, it's murky. We are having trouble copying it here.

The CS reads the range at 20,000 feet.

The CS reads 18,200 feet.

Elliott See advises that they have completed their final midcourse in this sweep up to the altitude of Gemini 7.

Charles Louis, the Manned Spacecraft Center Communicator out on the CS advises the range is now 15,000 feet.

We can hear Schirra coming up on the line every once in awhile, but the conversation might best be described as unreadable. It's just a surge on the line. Just from experience you can identify Wally's voice there, but nothing intelligible coming over it. I don't think the CSQ is reading it any better.

Flight Director here is asking for computer summaries from the CS every 30 seconds.

Now we hear Tom Stafford come through. He said the range is 1.7 miles.

Tom Stafford comes through again with 1.3 miles.

Houston here. They should be breaking into the sunlight. Chuck Louis out on the CS just advised us that we do have LOS, loss of signal there. We may get additional information from the range tracker, parked west of Hawaii.

Last reading we had from Tom was 1.3 miles. The ranges given to us by the Coastal Sentry were slightly larger than those given by Stafford.

The two spacecraft should be breaking into sunlight just about this time. Perhaps a minute or two ago.

This is Gemini Control Houston at 5 hours, 53 minutes, 54 minutes make it into the flight of Gemini 6, and we expect acquisition at Hawaii at 36 minutes after the hour. It is entirely possible that we will have communication with the Range Tracker which is also out on station at roughly the 180 degree parallel prior to that several minutes earlier. By all our estimates here the two should have gotten within say, 100 feet of each other at 5 hours and 50 minutes into the mission. That is what Elliott See called it, and we will have to just sweat out these next two minutes to find out how everything went because we, as we said earlier, the communication as we passed out there on the southern periphery of the CSQ was although murky. The one or two readable messages we got through there came from Tom Stafford calling the range in nautical miles. We heard him say 1.7, 1.3 and that's the last communication we had via CSQ. We are now attempting to get voice communication through the Range Tracker and we will stand by and come back to you when we have new information.

This is Gemini Control Houston. We have raised the 6 spacecraft. Over the Range Tracker Tom Stafford advised us in the calmest voice I think we have ever heard that they are 120 feet apart and sitting. 120 feet apart and sitting. Lets try to get some additional conversation from them. Right now there is a lot of rough air on the line but perhaps they will come back.

Garbled

S/C 6	This is Gemini 6. We have remaining about 50 percent.
Houston Cap Com	Roger. Copy. Oams remaining 50 percent.
Hawaii	Radar track, Gemini 6. Hawaii
Houston Flt	Standing by, Hawaii.

This is Gemini Control Houston. They have taken down the tracker line now and when Tom Stafford came through with that reading of 120 feet and sitting, here in the Control Center everyone broke out an American flag and pinned up on his console. There must be fully 40 flags in this room now. Everyone is standing. Every room looking on this Mission Control Operations room is jammed with people. The floor itself has the u. 1 number. Lets go back to Hawaii which has raised 6.

Houston Flt	We copy.
Hawaii Cap Com	OK

S/C 6                    You guys are really a shaggy looking group with all those wire hanging out.

S/C 7                    How about a trade for nothing. Where are they hanging from?

S/C 6                    Frank, it looks like it comes out about the separation plane, might be the fibreglass, approximately 10 to 15 feet long.

S/C 7                    The separation plane from the booster, right?

S/C 6                    Affirmative.

S/C 7                    Thats exactly where you have one too. It really belted around there when you were firing your thrusters. Looks about 8 or 9 feet long.

S/C 6                    Looks about 8 or 9 feet long. Its a double wire.

S/C 7                    Right.

S/C 6                    We will try and take a picture of it.

Hawaii                   Hawaii to Flt.

Houston Flt              We copy.

Hawaii                   Do you want to go ahead with the flight plan update to each of them or do you want to hold off?

Houston Flt              Ask them if they are ready to copy?

Hawaii                   7, Hawaii

S/C 7                    Go ahead.

Hawaii                   I have got a short flight plan update if you would like to copy it.

S/C 7                    Stand by one. Go ahead, Hawaii.

Hawaii                   OK. D-4, D-7, 2654300, sequence

Houston Flt              Don't forget the tape dump.

Hawaii                   427

Houston Flt              Are you getting a tape dump?

Hawaii                   Getting that, flight.

Houston Flt              Roger that.

Hawaii                   I say again, sequence 427, mode 03. Spacecraft 6, 1 minute of recorder. D-4, D-7, 265 44 00, sequence 427, mode 01. Spacecraft 6, 2 minutes, note, to be performed during Gemini 6 tape playback at Hawaii. Did you copy that alright?

S/C 7                    Roger.

Hawaii                   Gemini 6, Hawaii

S/C 6                    Go ahead, Hawaii.  
Hawaii                   I have an update for you if you are not too busy to copy yours.  
                         Short one.  
S/C 6                    All the time. OK Gemini 6 ready to copy.  
Hawaii                   OK. D-3, 063500, pass at Hawaii

END OF TAPE

HAW ... P8081800, pass at Hawaii, rev 5, that's it.

S/C 6 Roger, D8 at 06+35+00, pass at Hawaii, Rev 4, D8 08+10+00, pass at Hawaii, Rev 5.

HAW Okay very good. You got it.

Flight, Hawaii. They're both looking real good. We sent you some extra OBC's.

HAW Six and Seven, Hawaii. We'll be standing by if you have anything for us.

S/C 7 Roger.

S/C 6 There just seems to be a lot of traffic up here, that's all.

S/C 7 Call a policeman.

S/C 6 It's pretty exciting during the terminal run as we looked out we could see the two Gemini stars, Castor and Pollux, and they are off to the right of Gemini 6, correction, 7, they are all in a line.

HAW Roger.

Flight Could we have a - spacecraft 7 turn off their adapter C-band.

HAW 7, Hawaii, will you turn your adapter C-band off.

S/C 7 Roger.

HAW I turned to the command position.

Flight That's good.

HAW Okay, that will do it.

Flight, Hawaii.

Flight Go ahead, Hawaii.

HAW Okay, we're not having any trouble with radar interference. We're tracking 6 so he is in a good position on his beacon.

Flight Rog.

HAW He's in the catchup mode.

Flight Roger.

HAW He seems to be holding real steady. We're getting very little OAMS activity. And we have copied and completed the tape dump.

This is Gemini Control Houston. You heard Schirra and Borman discussing this incredible encounter in space over Hawaii there, joshing each other about the condition of their spacecraft. The flight plan calls for them to be performing an in-plane fly-around by Schirra. At this time he is to fly completely around the spacecraft and they are to maintain a distance of approximately 100 feet. They are talking to each other again, let's go back.

S/C 6 .... experiment on?

S/C 7 No, they should both be off now.

Flight Ask them what their range is now.

HAW 6, what's your range?

S/C 6 About 20 feet.

HAW Roger. 20 feet, Flight. And we have LOS all systems, both vehicles have LOS.

HAW WE DID IT!!

We apparently have lost signal now via Hawaii. The last message from there, I think, came from Ed Fendell, just a brief statement, "We did it." You heard Tom Stafford estimate the range at 20 feet just before we lost signal. As I said, the 6 is to perform a fly around maneuver, then spacecraft 7 is to take some thruster plume photographs of 6. They are to continue this station keeping at 100 feet. Within a very few minutes we should acquire from California.

Flight Director Chris Kraft here is asking Elliot See to ask the two to enlarge a bit on their description of the encounter. We are also getting some delta V information. Here is Elliot See calling telling the two that several million people are interested in how it went. Here it is.

S/C 6 We initiated with a delta V that was 0 31 forward. It started initially as 00 7 up but decreased 00 4 up at initiation and right 001. At the completion of TPI we had 62 percent fuel remaining.

Cap Com Roger.

S/C 6 Stand by for the midcourses.  
We have about 49 now, Elliot.

Cap Com Roger, 49 percent now.

S/C 6 That's affirmative. Our first midcourse was 00 7 forward, 00 5 left and 00 7 up. The final midcourse was 00 4 forward, 06 right and 00 3 up. This pretty much confirms with the plot. We were a little bit below the nominal line there, on the plot at that time. And at braking we locked up 27 feet per second delta V with our braking, it was 27 feet per second aft, a total of about 14 left.

Cap Com Roger, 27 feet per second aft and about 13 left.

S/C 6 14 left was the final one.

Cap Com Roger.

S/C 6 And when we were in position at 120 feet the (garbled)... we had indicated 50 percent fuel.

Cap Com Roger, copy.

S/C 6 Our docks all the way through looked fairly normal and the one backup solution that I did get for the midcourse... (garbled) with the closed loop.

Cap Com Rog, copied.

S/C 6 Right now we are SEF, 7 is BEF, and I would say 10 feet apart.

S/C 6 Rog, about 10 feet apart.

Cap Com Say again your range 6.

S/C 6 It's about 10 feet.

Cap Com Roger.

S/C 7 Houston, Gemini 7.

Cap Com Go ahead.

S/C 7 Roger, this fuel cell is dropping down again. Do you want us to take the platform off the line?

Cap Com Stand by.

S/C 6 ... (garbled) platform (garbled) ...

S/C 6 I haven't studied it yet, Wally.

S/C 6 Say again.

S/C 6 I just alined the reticle on the horizon.

S/C 6 Oh.

Cap Com Gemini 7, Houston. We'd like to leave the platform on and take stack 2C off the line at this time.

S/C 7 Stand by, Houston. Stack 2C is off the line.

Cap Com Roger, and what was your current on it before you took it off?

S/C 7 About  $5\frac{1}{2}$  amps, it deteriorates from 10 to  $5\frac{1}{2}$ .

Cap Com Roger 7. Gemini 7 and 6, would you continue with the description of your station keeping.

S/C 6 Right now 6 is about 10 feet above and to the left of 7. We are just flying nose-to-nose approximately 16 feet apart.

Cap Com Roger.

S/C 7                    We can very clearly see the horizon scanners operate.

ap Com                 Roger, Jim. Gemini 7, are you able to see in the windows  
of 6 pretty easily and vice versa?

S/C 7                    Roger, 7 can.

END OF TAPE



HOU CAP COM Texas remote. Guaymas local.

TEX Texas remote.

GYM Guaymas local.

HOU CAP COM Gemini 7, Houston.

S/C 7 Go ahead Houston.

HOU CAP COM We plan to put 2C back on the line at the RKV.

S/C 7 Okay.

HOU CAP COM It's approximately 20 minutes off the line.

S/C 7 Rog.

HOU CAP COM Gemini 7, Houston, could you give us a read out on your stack times.

S/C 7 Stand by. Roger, Houston, 1A is  $10\frac{1}{2}$  amps, 1B is 11 amps, 1C  $9\frac{1}{2}$  amps, 2A  $8\frac{1}{2}$  amps, 2B  $7\frac{1}{2}$  amps and ... (garble).... is zero.

HOU CAP COM Roger, Jim.

S/C 7 Open circuit voltage on 2 Charlie reads 31.2.

HOU CAP COM Roger, copy 31.2. Looks very good 7, you might keep an eye on that 2 Charlie voltage and see if you can see it jump up like it did yesterday.

S/C 7 Roger.

HOU CAP COM Gemini 7, will you switch your adapter C band to continuous?

S/C 7 Roger, C band continuous. It looks good.

HOU CAP COM Gemini 6, would you switch your adapter C band to command?

S/C 6 Gemini 6, adapter to command.

S/C 7 Like to see Hawaii?

S/C 6 It sure is a big deal.

S/C 7 HA, HA, HA.....(garble).... you're in style.

HOU CAP COM Gemini 6, Houston,

S/C 6 Go ahead Elliott.

HOU CAP COM On that update at Hawaii, those remarks of pass at Hawaii, rev 4 and rev 5, actually do not apply to you. Those were instructions to Hawaii.

This is Gemini Control Houston. We're now out of touch with those spacecraft as they swing down the west coast of Central America beginning a pass across South America. The Rose Knot Victor should raise them next. You heard in the last transmission that they were running somewhere between six to 10 feet apart. Apparently in good style and good comfort. One can certainly almost sense the feeling of achievement evident in this room, and in the back rooms that have supported this mission. You'll have to go back to the Alan Shepard flight, at least in my memory, to recall a time when all of the flight controllers were standing at their consoles at the moment when this rendezvous occurred and when we got that first report. There's a lot of hand shaking going on in the room now. Dr. Gilruth has come in and congratulating Chris Craft. Dr. Shea, the head of the Apollo Program has come in the room. At 6 hours and 21 minutes into the flight, this Gemini Control Houston.

END OF TAPE

\*Not aired on air/ground pass over CSQ, Hawaii.

HOUSTON CSQ Cap Com, Houston Flight. CSQ Cap Com, Houston Flight.

CSQ Houston Flight, CSQ. Go ahead.

HOUSTON Voice check. How do you read?

CSQ Loud and clear, Flight.

HOUSTON Roger. You also. Looks like you'll see it.

CSQ I hope so.

HOUSTON The rendezvous ought to take place just about the end of your pass.

CSQ Roger.

HOUSTON CSQ Cap Com, AFD. CSQ Cap Com, AFD. CSQ, CSQ, got our voice? CSQ Cap Com, AFD.

CSQ AFD, CSQ. Go ahead.

HOUSTON Okay. Just checking the com out there. I thought we lost you there for a minute.

CSQ I think we've lost the Kingsport.

HOUSTON Goddard concurs.

CSQ Well, it must have gone down to ...(Garble)...

HOUSTON Roger.

CSQ AFD, CSQ.

HOUSTON Go ahead, CSQ. Go ahead.

CSQ Roger. I've got one minor question. On the Spacecraft 7, BBO3 and BBO4, is there any reason to report either one if they do not change?

HOUSTON No. You don't have to worry about those.

CSQ Okay.

\*Not aired on air/ground pass over CSQ, Hawaii.

HOUSTON We just want to make sure we hear what's going on there.

CSQ I'll have my transfer patched up.

HOUSTON Roge. Goddard, did you say we had lost the Kingsport?

GODDARD I think we've got it back, now, Frank. In fact, Flight, now; I think they lost receive at ...(Garble)... and Kingsport, but I think it's back in.

HOUSTON Roger that. Goddard concurs it's back. Momentary loss. Okay, thank you, voice control. You may tell them, voice control; if they don't give us this voice, we're not going to pay our bill.

GODDARD Roger. I understand, and concur.

HOUSTON You hear that Mr. Covington? CSQ Cap Com, AFD.

CSQ Come in. This is CSQ. Go ahead.

HOUSTON Okay. Just making a voice check on this circuit.

CSQ Loud and clear here.

HOUSTON Roger. You're loud and clear here also. A lot of people with bated breath here, CSQ.

CSQ We've got some here, too, Flight. We've got 1 minute, 10 seconds to assume that position.

HOUSTON We probably haven't got more than 100,000,000 people listening.

CSQ Roger. We have air/ground transfer. We have PCM solid with Spacecraft 7.

HOUSTON Roger that.

CSQ We have PCM solid on Spacecraft 6.

HOUSTON Roger that.

CSQ Seven is go. Six is go.

HOUSTON Can you give us range and range rate off your console?

\*Not aired air/ground pass over CSQ, Hawaii.

CSQ We have no range reading, Flight. That's ground.

HOUSTON That's right. What's the range sight?

CSQ 25,000 feet, Flight, by meter. We have radar lock.

HOUSTON Roger.

CSQ He's at 20,400 feet.

HOUSTON What's the range now?

CSQ He switched from rendezvous to catch up on the computer.

HOUSTON Say again.

CSQ From rendezvous to catch up.

HOUSTON Roge.

CSQ 18,200 feet.

HOUSTON Roger. What's your range?

CSQ He's at 15,000 feet, Flight.

HOUSTON Roger.

CSQ He's at 13,300.

HOUSTON Keep cutting us some onboard computer summaries.

CSQ Say again.

HOUSTON Keep cutting onboard computer summaries.

CSQ Roger. We are cutting them, Flight. One's already been sent.

HOUSTON Send others.

CSQ Roger.

HOUSTON About every 30 seconds.

CSQ Roger.

S/C 6 1.7 miles.

CSQ He's at 10,600, Flight. Heard the spacecraft giving 1.7 miles.

HOUSTON We copied the 1.7.

S/C 6 25 degrees and 1.3 miles.

\*Not aired on pass over CSQ, Hawaii.

CSQ We've got LOS, Flight, on both birds.

HOUSTON Roger that.

CSQ I'll give you a read on range at our LOS.

HOUSTON Roger. Actually, the Range Tracker will be there, too, Cap Com.

CSQ Say again, Flight.

HOUSTON I said that we'd have the Range Tracker before we got to Hawaii.

CSQ Roger. We copied 8,890 feet at our LOS.

HOUSTON Say again. 8,000 and what?

CSQ 8,890. That number was about 30 seconds prior to LOS.

HOUSTON CSQ, would you send us an LOS main, if you have it?

CSQ Coming, Flight.

HOUSTON We'd like an LOS Alpha, also.

CSQ Wilco, Flight.

HOUSTON Range Tracker go remote, manual key if necessary. Gemini 6, Gemini 6, Houston Cap Com standing by. Roger. We're interested in your status. Gemini 6, Houston is standing by. Roger. Understand. Space and keeping at 120 feet. Roger. Copy. Ohms remaining 50%.

HAW We now track Gemini 6, Hawaii.

HOUSTON Standing by, Hawaii.

HAW We're showing you here on the ground. What are you reading on 2C at this time? Say again please.

S/C 6 A little over 5 amps.

HAW Roger. Gemini 6, Hawaii Cap Com.

S/C 6 Go ahead.

HAW Okay. We're showing you here on the ground. Can you give me a status?

\*Not aired air/ground on pass over CSQ, Hawaii.

S/C 6            Yea. We're in formation with 7. Everything is go here.

HAW              Roger. Congratulations. Excellent.

S/C 6            Thank you. It was a lot of fun.

HAW              Flight, Hawaii.

HOUSTON         We copy.

HAW              Okay.

S/C 6            You guys are really a shoddy looking group with all those wires hanging around.

S/C 7            I'll trade you an omni. Where are they hanging from?

S/C 6            Well, Frank, it looks like it comes out at the separation plane. It might be the fiberglass. It's approximately 10 to 15 feet long.

S/C 7            The separation planes of the booster, right?

S/C 6            Affirmative.

S/C 7            That's exactly where you've got one, too. It really was snapping around there when you were firing your thrusters. Looks like about 8 or 9 feet long, and double wire.

S/C 6            Right.

S/C 7            Wait until I take a picture of it.

HAW              Flight, Hawaii.

HOUSTON         We copy.

HAW              Do you want to go ahead with this flight plan update to each of them, or do you just want to hold off?

HOUSTON         Ask them if they're ready to copy.

HAW              Okay. Seven, Hawaii.

S/C 7            Go ahead.

\*Not aired air/ground on pass over CSQ, Hawaii.

HAW I've got a short flight plan update, if you'd like to copy it.

S/C 7 Stand by. Go ahead, Hawaii.

HAW Okay. D-4, D-7, 265:43:00.

HOUSTON Don't forget the tape dump.

HAW Sequence 427.

HOUSTON Are you getting a tape dump?

HAW We're getting that, Flight.

HOUSTON Roger that.

HAW I say again, sequence 427. Mode 03. Spacecraft 6, one minute of recorder. D-4, D-7, 265:44:00. Sequence 427. Mode 01. Spacecraft 6 two minutes. Note: To be performed during Gemini 6 tape playback at Hawaii. Copy that alright?

S/C 7 Roger.

HAW Gemini 6, Hawaii.

S/C 6 Go ahead, Hawaii.

HAW I've got an update for you, if you're not too busy to copy. A short one.

S/C 6 Okay. Gemini 6 ready to copy.

HAW Okay. D-8, 06:35:00. Pass at Hawaii, rev. 4. D-8, 08:10:00. Pass at Hawaii, rev. 5. That's it.

S/C 6 Roger. D-8 at 06:35:00. Pass at Hawaii on rev. 4. D-8, 08:10:00. Pass at Hawaii on rev. 5.

HAW Okay. Very good. You've got them. Flight, Hawaii. They're both looking real good. We've sent you some extra ODC's. Seven, Hawaii. We'll be standing by if you have anything for us.

S/C 7 Roger.

\*Not aired air/ground on pass over CSQ, Hawaii.

S/C 6            There just seems to be a lot of traffic up here, that's all.

S/C 7            Call a policeman.

S/C 6            We observed during the general run, as we looked out, we could see the two Gemini stars, Castor and Pollux, off to the right of Gemini 6...correction 7. They were all in a line.

HAW             Roger.

HOUSTON        Could we have Spacecraft 7 turn off their adapter C-Band?

HAW             Roger. Seven, Hawaii. Would you turn your adapter C-Band off?

S/C 7            Roger. It's in the command position.

HOUSTON        That's good.

HAW             Okay. That will do it. Flight, Hawaii.

HOUSTON        Go ahead, Hawaii.

HAW             Okay. We're not having any trouble with radar interference. We're tracking 6, so he's in a good position on his beacon.

HOUSTON        Roge.

HAW             He's in the catch up mode.

HOUSTON        Roger.

HAW             He's holding real steady. We're getting very little OAMS activity. And, we have copied and completed the tape dump.

S/C 7            We've lost you 6.

S/C 6            You've lost sight of me, Frank.

S/C 7            Right.

S/C 6            I've got to burn here. It'll be a little bit.

S/C 7            Okay.

S/C 6            Tweek to your left. This is an Acq Light, isn't it?

\* not aired air/ground on pass over CSQ, Hawaii.

S/C 7 Say again.

S/C 6 You can kill your Dock and Acq Light. It was in the experiment, wasn't it?

S/C 7 Well, they should both be off then.

HOUSTON Ask them what their range is now.

HAW Six, what's your range?

S/C 6 About 20 feet.

HAW Roger. 20 feet, Flight. And, we have LOS, all systems on both vehicles, Hawaii.

HOUSTON California go remote.

CALIFORNIA California remote.

END OF TAPE

Houston, This is Gemini 6, the Paul Revere.

This is Gemini Control Houston at 6 hours 43 minutes into the flight. Based on ground readouts, we are estimating here that Schirra and Stafford used 175 pounds of fuel to complete that rendezvous. That's a figure from the terminal phase initiation point on into the actual rendezvous point, some 6 to 10 feet apart. We show Spacecraft 6 with 365 pounds of fuel remaining. I want to emphasize that is a very conservative usage of fuel to achieve what those two achieved in that last 130 degrees from the southern tip of Africa to a point out over the western Pacific. We were prepared to expend at least twice that much in order to conduct that rendezvous attempt. Here now is some tape conversation of the two talking to each other, occasionally talking to the Rose Knot Victor off the south coast .... off the coast of South America.

RKV Houston Flight RKV, voice check.

HOU FLT Go ahead.

RKV Roger.

HOU RKV What did you say?

RKV I was just having a voice check.

HOU FLT Roger, read you loud and clear, how me?

RKV Loud and clear.

S/6 Borman.

S/7 (Garble) ..... on Saturday

S/6 How's the food supply holding out?

S/7 Oh, we're in good shape. It's holding out, but it's the same thing from day to day.

S/6 (Garble)

RKV RKV has has telemetry solid on both spacecraft.

HOU RKV Roger RKV.

RKV Gemini 7 RKV.

S/C/7 Go ahead RKV. Gemini 7.

RKV Roger, we'd like for you to bring stack 3 back on the line.

S/C/7 Roger, back on.

RKV Roger.

HOU FLIGHT Did you get an open circuit voltage before they turn it on, please?

S/C/7 Look's like it's about the same before they turned it off.

RKV Roger, what was your open circuit voltage before you turned it back on?

S/C/7 31.50

RKV Say again.

HOU FLIGHT 31.5

S/C/7 31.50

RKV Roger. What are you reading now? That's 2C current.

S/C/7 2 C current is reading 6 amps and closed circuit controllers a point below 25.

RKV Roger. Now we're reading 5.5 on 2C fm.

S/C/7 ....(Garble) RKV.

RKV Say again Gemini 7.

S/C/7 I say we have company tonight..

RKV You sure do. We'd like to know how you can see the arc lights on 6.

S/C7 They don't have any acq lights.

RKV They only have dock lights, thats all.

Kraft Did you see the dock lights?

RKV Did you Wally?

S/C 6 One time, way out.

RKV Roge, yeah Wally, you couldn't see the lights on the final?

S/C 6 They looked good.

RKV OK. Gemini 6, have you been doing any in-plane flying around?

S/C 6 No, we're going into a night pass here and we'll do it after that.

RKV Roger. Flight, RKV.

Flight Go ahead

RKV Two C looks about 4.5 on the ground. Flight we'll give you another readout on 2C here shortly.

FLIGHT Roge.

RKV We're configuring the computer, it'll be a couple of minutes yet.

FLIGHT Roger

RKV They both got the GO flight, the radar's turned off on 6. 2C is holding at 4.5.

FLIGHT We'd like to have him take 2C off the line at 265 hours please.

RKV Roger. Gemini 7, we'd like you to take 2 Charlie off the line at 265 hours.

S/C 7 Roger. 2 Charlie off the line at 26500

RKV Roger, we'll give it a check at CSQ

S/C 7 OK

RKV Flight, did you copy on the acq lights?  
Flight, RKV

FLIGHT Go ahead

Rkv Did you copy that on the acq lights?

FLIGHT Have you had LOS?

RKV Negative

FLIGHT Wait until you have LOS and then you can give us  
a full briefing on what they both said

RKV OK. Our computers are ready with 7 data

FLIGHT OK. Don't send it yet, we're not configured

RKV Roger

FLIGHT You put in your buffer and we'll let you know when  
we can use it

RKV Roger

S/C 7 Hey Wally,

S/C 6 Go ahead

S/C 7 When we do enter the next day cycle let us try it for  
a about 5 minutes will ya, the fuels stopped up a little  
bit

S/C 6 Sure/

S/C 7 OK. We might go to platform for the nighttime pass.  
Do you want to back off a little bit?

S/C 6 When we get in there you don't leave the platform up  
huh?

S/C 7 Yeah, we take over from the platform

S/C 6 OK

RKV RKV has LOS on both spacecraft.

END OF TAPE

This is Gemini Control Houston, at six hours, 57 minutes into the flight of 6. Seven has now logged 265 hours 5 minutes. In recent minutes we have confirmed that 7 did not see 6 acquisition lights, the acquisition beacons on the side of 6. Six, however, did see 7's lights. They advised that they picked up the lights at the terminal phase initiation point and could follow them right through, and they also said that the sun was a big help, gleaming on 7 adapter as they came into sunlight over the Pacific. They are presenting running about 20 feet apart, they are in conversation over Tananarive. They are using the docking light from 6 to illuminate the scene and they are also using 7's cabin lights. You can hear Jim Lovell ask Wally Schirra if he can see Frank Borman's beard and Wally says he certainly can, he can see Jim Lovell's beard even sharper though. There is also discussion on the line between the two of them about fire burning on the island of Madagascar below. One of them guesses that it is an oil fire, apparently they have seen it earlier. Let's have the conversation still running over Tananarive.

CAP COM Gemini 6, Gemini 6, Houston Cap Com, do you read?

S/C/6 Gemini 6 here, go ahead.

CAP COM Could you give us a report on your night station keeping.

S/C/6 We are about 20 feet apart, using the docking lights and the cabin lights of the spacecraft.

CAP COM Roger, understand no trouble at all, 20 feet apart

using the docking light on 6.

S/C/6 Using docking light 6 to eliminate 7.

CAP COM Roger, understand. Using docking light 6 to eliminate 7.

S/C/6 Don't you think that's the best way?

CAP COM Say Again?

S/S/6 Using the docking light?

CAP COM You that close?

S/S/6 I can see....(Garbled)

S/S/7 Can you see Frank's beard, Wally?

S/S/6 I can see yours better right now.

S/C 7 ... (garbled)...

S/C 6 Looks like your just wiped your mouth Jim, did you.

S/C 7 Yeah, right.

S/C 6 How's the visibility through these windows, they are pretty bad from this side.

S/C 7 Roger, it's pretty bad. We notice it particularly ... (garbled) at Sunset and we can barely see through the windows to see the opposite side, through your window, (garble) ....

S/C 6 Which side would they be on?

Cap Com Gemini 6, Houston. We'd like a report on whether you have done a fly around yet on the dayside.

S/C 6 Negative, we just left to get the ... (garbled)...

Cap Com Roger 6.

S/C 6 ..... (garble) We are satisfied to stay here as long as you let us. We have about 47 percent .. (garble) remaining at this time.

Cap Com Roger, 47 percent remaining.

S/C 6 Those forest fires really stick out don't they, Jim?

S/C 7 Roger, you can see them all the time, Wally.

S/C 6 Yes.

S/C 7 That fire right down there to your left is an oil fire, I think.

S/C 6 You see one ... (garbled).

S/C 7 Right, maybe down to your left, it has been there every night.

S/C 6 Well I'll be darn.

S/C 7 There's some thruster activity, what are you doing.

S/C 6 I'm taking a plot mode.

S/C 7 With your light on, Wally, I can just see the flame at the front of the nozzle.

Cap Com Gemini 7, Houston. Can you confirm you've turned 2 Charlie open circuit again.

S/C 7 This is 7, roger. 2 Charlie is open.

Cap Com Roger. What does the open circuit voltage look like.

S/C 7 It looks like about 31.2 volts.

Cap Com 31.6, roger.

S/C 7 31.2.

Cap Com 31.2.

S/C 6 It's ... (garbled).

S/C 7 Rog.

S/C 6 ... bluebeard you don't have much of a mustache.

S/C 7 Frank has Wally's ... (garbled)

S/C 6 (garbled)

S/C 7 Don't let them kid you. I'm just a blond.

S/C 6 Platform power up.

S/C 7 ..... (garbled) dock and get it over with.

S/C 7 Yeah, I sure wish we had a part of your fuel here.

S/C 6 We could work up a .... (garbled).

S/C 7 Right.

S/C 6 When your that close Frank, ... (garbled) ...

This is Gemini Control Houston. The conversation will continue in just a moment of two here now. Meanwhile just before CSQ on this pass, the 6 spacecraft will start its fly around maneuver, flying completely around 7. To date, they apparently have just <sup>Jackies</sup> jokeyed from side to side, looked seven over very carefully and this animated conversation continues.

S/C 7 It isn't apparently any shape of thruster firing, just a glob comes out.

S/C 6 ... (garble) the attitude one.

S/C 7 This close with the docking light on, that's all we could see is a ..... flame.

S/C 6 Okay, we'll ... (garble)...

S/C 7 But as you approached us in the rendezvous, we could see the fire way out for about 40 feet.

S/C 6 Very good.

S/C 7 We never even knew you were there Wally.

S/C 6 I could see your chin.

S/C 7 Now I can see a little more with the reflection off the cabin.

S/C 6 ... (garbled)..

S/C 7 No, I guess it's because I get so many reflections on the window.

S/C 7 I saw that little pen light.

S/C 6 I can (garbled) ....

S/C 7 ..... (garbled) .....

S/C 6 Very good.

S/C 7 ..... (garbled) dashlight.

Tananarive Tananarive has LOS.

END OF TAPE

This is Gemini Control. Our two spacecraft are now within voice range of the Coastal Sentry tracking ship and we'll tune in live now.

FLIGHT Another main, please.

CSQ Roger.

This is Gemini Control. Our two spacecraft are now within voice range of the Coastal Sentry tracking ship and we're standing by for their conversation. According to our flight plan, spacecraft 6 will be flying in out of plane fly around.

CSQ We have visual contact, Flight.

FLIGHT Roger. You see two of them?

CSQ (cut out because of S/C conversation)

S/C 7 Go ahead with the flight plan, Wally.

S/C 6 7 hours 22 minutes ..... events.

S/C 7 .....

S/C 6 Right. Go ahead. Switch to your experiment then we'll do the fly around.

S/C 7 OK. Then let us have about 5 minutes, enough time to move around in, then we'll be done.

S/C 6 Oh, fine.

S/C 7 How about that right now?

S/C 6 Sure. My maneuvering switch has been off for the last fifteen minutes.

S/C 7 OK, we'll just pull it around here and see what's on.

S/C 6 Very good.

S/C 7 This sternal was on for about 13 minutes this morning.

S/C 6 OK. Flight mode and no maneuvers.

S/C 7 ...it hasn't been used for eleven days.

S/C 6 Things look pretty good.

S/C 7 Yeah, those heaters work fine.

FLIGHT We'd like a cryo readout on spacecraft 6.

CSQ Cryo readout on spacecraft 6?

FLIGHT Yeah, you're right.

CSQ There doesn't seem to be any.

FLIGHT That's what I mean. There's not any.

CSQ It looks like there's nothing there.

CSQ Yeah.

FLIGHT A couple of ..... and that's about it.

FLIGHT Yeah.

CSQ Say again, Flight.

FLIGHT We'd like a cryo readout on spacecraft 6.

CSQ 51 TCM now. 51.

FLIGHT Say again, please.

CSQ 51, 51, TCM count.

FLIGHT On what?

CSQ Johnny Alpha zero 9 spacecraft 6.

FLIGHT Was he on ECS O<sub>2</sub>?

CSQ .....shall we have him go to cryo?

FLIGHT Affirmative.

CSQ ....(garbled)... Too late, Flight. We have an LOS.

MCC This is Gemini Control. We were listening to live voice communications between our spacecraft and the Coastal Sentry. The conversation did not amount to a whole lot from the spacecraft. We did hear something between Mission Control and the Coastal Sentry. According to our flight plan, Gemini 6 was doing an out of plane station keep around Gemini 7 and they are now moving on over the Pacific. They are out of range with the tracking station at Coastal Sentry. Our next station contact will be made at Hawaii on this rev. Here in Mission Control Center we have had a change of shifts and the White team flight controllers have moved into the consoles and very shortly the Red team headed by our Flight Director, Christopher Kraft, will move over to our press building, Building 6, for a press conference. This is Gemini Control.

We are now 7 hours, 26 minutes into the flight of Gemini 6, the rendezvous flight, and for Gemini 7, the crew aboard Gemini 7, they have now been aloft 265 hours, 34 minutes. This is Gemini Control.

END OF TAPE

GEMINI 7/6 MISSION COMMENTARY, 12/15/65, 3:07 p.m.

Tape 484, page 1

This is Gemini Control. As the spacecraft were passing out of range with the Coastal Sentry, out of voice range, we thought we had a LOS, but sure there will be no problem docking. Its easier than in the Gemini docking trainer." That was a last moment comment from Command Pilot Wally Schirra of Gemini 6 as they were conducting an out of plane station-keeping with Gemini 7 crew, spacecraft. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 9 hours and 25 minutes into the mission of Gemini 6, and we are 267 hours and 32 minutes into the mission of Gemini 7. At the present time, both spacecraft are passing over the Pacific Ocean on their way towards the South American Continent. We are in revolution 6 for Gemini 6 and revolution 167 for Gemini 7. Over the past two hours we have accumulated some voice tapes from the world wide NASA tracking network and at this time we will playback the voice communication between the two spacecrafts and the Hawaii tracking station on revolution 5 and revolution 166, respectively.

Flight Roger, Hawaii.

Hawaii Gemini 7, Hawaii Cap Com.

S/C 7 Go ahead Hawaii, Gemini 7.

Hawaii How are you doing?

S/C 7 It's great. Really outstanding.

Hawaii Okay. Give me a readout on 2 Charlie please.

S/C 7 Roger, 2 Charlie closed circuit is reading 24.8.

Hawaii Roger.

S/C 7 And the amps are a little over 5.  $5\frac{1}{2}$ .

Hawaii Roger, very good.

S/C 7 Hawaii, this is 7 here. We are going to power down the platform unless Flight has some objections and get back on the regular schedule and leave the spacecraft in horizon scan.

Flight Roger, we concur on that Hawaii. We were kicking it around back here.

Hawaii Okay. They say have at it.

S/C 7 Thank you.

Hawaii Okay, Gemini 6. Will you put your quantity read switch to ECS O<sub>2</sub> position.

S/C 6 We've done it.

Hawaii Okay.

S/C 6 We are going to do the in-plane flying around maneuver very shortly.

Hawaii Roger. Going to start a tape dump now.

S/C 6 Roger.

Hawaii We're ready to dump.

Flight Hawaii Cap Com, Houston Flight.

Hawaii Flight, Hawaii Cap Com.

Flight Roger, if possible, if they haven't started powering down yet, we'd like to do a purge before they power down.

Hawaii Okay.

S/C 6 There is the DCS light.

Hawaii Okay, I'll give you a TX. 7 Hawaii. Gemini 7, Hawaii Cap Com.

'C 7 This is 7, go.

Hawaii If you haven't started powering down yet, they want to schedule a purge, Jim.

S/C 7 Okay, we have not started, so we will go ahead and purge.

Hawaii Okay, hold up a second.

Flight Go ahead.

Hawaii Okay. Okay, we are ready for your purge. Have at it.

S/C 7 Durgung section 1.

Hawaii Roger.

S/C 7 ..... (garbled) ..... Boy, those windows are really bad. I can get a good look at your window, Wally, it's really coated.

S/C 6 Yeah.

light Hawaii Cap Com, Houston Flight.

Hawaii Flight, Hawaii.

Flight Roger, we'd like him to stay powered up for approximately 15 minutes after the purge. Then they can power down.

Hawaii Roger.

S/C 6 Looks like you have a big problem there.

S/C 7 Wally, can you tell if we are sending at all?

S/C 6 Say again.

S/C 7 Can you tell us if we are sending at all.

S/C 6 I see some white flakes, bubbles, and things come out.  
Mostly bubbles . . garbled

S/C 7 Can you push down a little to be more in line with us?

S/C 6 Do it right now.

Hawaii 6 quantity read switch to OFF.

S/C 6 Roger, it's off.

Hawaii 7 put your quantity read switch to ECS O<sub>2</sub> position. Okay, just leave it there please.

S/C 7 All right.

Flight Hawaii Cap Com, Houston, Flight.

Hawaii Flight, Hawaii Cap Com.

Flight Roger, as soon as he finishes the purge will you advise him we want him to stay powered up for approximately 15 minutes. That would be an elapsed time of approximately 2 . . . .

Hawaii 266:01

Flight That's exactly what I was going to give you.

Hawaii Okay. 7, Hawaii. Go to fuel cell O<sub>2</sub> position on your quantity read.

S/C 7 Now?

Hawaii Okay, just hold it there and we'd like you to stay up for

about 15 minutes on the power up and hold off on your  
power down till 266 plus 01.

S/C 7 266 plus zero 1, roger.

HAW Okay. Quantity read to the fuel cell H<sub>2</sub> position, please 7.

S/C 7 There you are.

HAW Okay. Flight, Hawaii Cap Com.

Flight Go Hawaii.

HAW ECS O<sub>2</sub> on Gemini 6 is reading from 171 to 172 PCM counts and  
we have completed the tape dump on 6.

Flight Roger.

HAW 7, Hawaii, quantity read switch OFF.

S/C 7 Okay, thank you. We've been leaving it in the ECS O<sub>2</sub>, you  
you want it off tonight.

HAW Say again.

S/C 7 We've been leaving it in the fuel cell O<sub>2</sub> because that  
. . garbled . ., you want me to turn it off tonight though?

HAW Okay, they'll give you a good briefing before you go to  
bed. If you don't mind you can leave it in the O<sub>2</sub> position  
now.

S/C 7 Okay. I don't care. I'll leave it on.

HAW Roger.

6, we're finished with the experiment. 6 Hawaii.

S/C 6 Go ahead Hawaii.

HAW We've got nothing else for you here. Do you need anything?

S/C 6 . . garbled . . power down right now.

HAW Roger, we'll be standing by.

S/C 6 . . garbled about 46 percent prop quantity.

HAW Say again your prop quantity, 46 percent.

S/C 6 That's correct.

HAW Okay thank you.

S/C 7 Hawaii, for your information, 7 is terminating here with about 11 percent.

HAW Thank you 7.

Flight Give me those numbers again, Ed.

HAW Okay, Flight. Gemini 6 OAMS prop quantity 46 percent.

S/C 7 Hawaii, Purge complete.

HAW Roger, we've got the whole thing, thank you very much. And Gemini 7 is terminating. He's at his cut-off point at 11 percent. One One percent.

Flight Okay, give me the numbers again on 6.

AW . . garbled ..

Flight No, he's starting his end flame fly around at what quantity did he say.

HAW 46.

Flight Got it.

HAW And the other one is terminating his fly-around bit at the cut-off, 11 percent.

Flight Roger. Okay and let's have an LOS main on 7.

HAW Roger. 7,Hawaii. We've got nothing further, we'll be standing by if you need anything.

S/C 7 Thank you. Our 2 Charlie in second section looks sick again tonight.

HAW We'll see what's going to happen. Just hang in there.

Flight Do you still see JF02 still sweeping on 7.

HAW Say again flight.

Flight Do you still have JF02 on Gemini 7

S/C 7 Over the top Hawaii.

HAW Yea, Frank.

S/C 7 Okay.

Doctor, about the experiment back of Jim's head. It's all  
clay like an . . garbled . . or something came out on it.

Doctor That's a liquid freon, or neon from the cold IR experiment.

S/C 7 O, is that what it is?

Doctor Yea.

HAW Flight Hawaii, JF Julie at Foxtrox at 02 is holding right  
at zero.

Flight Roger.

HAW Did you get what he said about the cold IR.

Flight No.

HAW I didn't get it either.

Flight Don't sweat it.

HAW We've got LOS on all systems at Hawaii.

Flight Roger, Hawaii. Busy pass.

HAW Well that's what we get paid for.

Flight Yea.

HAW That's what makes it good.

A few minutes later as the spacecraft passed over the Rose  
ot tracking ship on revolution 6 and 167, we had further communication and  
here is the taped playback.

RKV Gemini 7, RKV Cap Com.

S/C 7 Go ahead RKV, Gemini 7

RKV I've got a block update for you whenever you are ready.

S/C 7 Listen, I want to talk to you about one thing first.

RKV Okay.

S/C 7 Our suits were powered up for quite awhile now and I went to take my harness off and I'm getting water out of the suit inlet hose in great quantities and we notice now that out suit temperature is below 40 degrees.

RKV Roger.

S/C 7 We put the B pump on we've turned the heat exchanger to warm but we're still awfully cold . . garbled.

V Roger. You copy flight?

Flight Affirmative.

RKV Roger. Ready to copy this block update.

S/C 7 Ready to copy.

RKV Okay. REP 400 K to all areas, 21 plus 4 zero. Area 169-3, 2690908; Area 170-5, 2712532; 171 delta, 272 23 14; 172-2 373 58 00; 173-2 275 31 30; 174-2, 277 47 04; 175-1, 278 36 05; 176-1, 280 11 41; the weather in area 69-3 is marginal and also the weather in 173-2 is marginal. The weather in all other areas is good.

S/C 7 Thank you.

RKV Flight, RKV

Flight Stand by RKV. We are checking E COM.

RKV Cap Com, Houston Flight.

RKV                   Okay the Charlie Charlie zero three the latitude inlet air  
temp is awfully high. That TM's affirmative.

Flight                Roger.

RKV                   Gemini 6, you'll get your block update over CSQ.

S/C 6                 . . garbled . .

RKV                   Are you powered down Flight, that's Gemini 7?

Flight                RKV Cap Com, Houston Flight.

RKV                   Go ahead flight.

Flight                Roger. Will you ask 7 if at any time he has seen an  
evaporator pressure light.

RKV                   Roger. We'll be dumping in approximately 2 minutes 6.

S/C                   Roger, could you hold off on that for one minute?

RKV                   Sure can.

RKV                   Gemini 7, RKV.

S/C 7                 Okay.

RKV                   Have you at any time seen an evaporator pressure light?

S/C 7                 . . garbled.

RKV                   Is that negative?

S/C 7                 Negative, we have not seen one.

RKV                   Rog. Did you copy Flight?

Flight                Affirmative. RKV Cap Com, Houston Flight.

RKV                   Go ahead Flight.

Flight                Roger, we've looked at all of the data. His systems seem  
to be running normal. We feel that his water that is condensed  
in the hose - we would like to recommend that he go to

primary and secondary heat pumps and turn both suit bands  
on.

RKV

Repeat Flight. The crew was talking.

END OF TAPE

HOUSTON           Okay. We'd like to have them go to B pumps in both the primary and secondary loop, and turn both suit fans on.

RKV                Okay. They've got the B pumps in both loops on now.

HOUSTON           Okay. Just have them turn both suit fans on.

RKV                Roger. Gemini 7, RKV.

S/C 7             Go ahead.

RKV                We'd like you to turn both suit fans on at this time.

S/C 7             Roger. Both suit fans.

RKV                And we'd like for you to leave pump B up in both loops.

S/C 7             Roger. Pump B is on and pump A is off in both loops.

RKV                Right.

HOUSTON           You should have told them that we think the systems operating good.

S/C 7             Both suit fans on.

RKV                Roger. Flight?

HOUSTON           Too late.

RKV                We've had LOS with both, Flight.

HOUSTON           Okay.

                  The next voice communication took place over Tananarive Tracking Station. We are still now in revolutions 6 and 167, respectively.

HOUSTON           Gemini 7, Gemini 7, Houston Cap Com. Over.

S/C 7             Go ahead. Gemini 7 here.

HOUSTON           Roger. How's the water now?

S/C 7             Well, I still can't decide, Elliot. The suit temperature's below forty. The water's really no problem. It's going into the suit. But, I'm concerned about the canister.

HOUSTON           Understand you're concerned more about the temp than you are the water.

S/C 7 No, the canister. The reason, I thought .....

CAP COM Gemini 7, Gemini 7, Houston Cap Com. We evaluated your systems pretty thoroughly on the ground last pass over the RKV, and they all look good from here..We believe the water is due to condensation in the hose. And we'd like you to stay in your same configuration. The suit fan should blow that water out.

S/C7 Okay. Why do you have such a low temperature - suit temperature?

CAP COM Gemini 7, Gemini 7, could you give us that temperature - that onboard temperature reading, please?

S/C 7 Roger. It's off-scale low, below 40 degrees.

..... (garbled)

CAP COM Okay.

HAW ..... still show 60 degrees.

S/C Roger .....

CAP COM Gemini 7, Gemini 7, Houston Cap Com. I've got a D-4/D-7 update. for you during the spacecraft 6 separation burn.

S/C 7 Roger.

.....

CAP COM Gemini 7, Gemini 7, Houston. You're breaking up badly. I've got a D-4/D-7 update if you're ready to copy.

S/C 7 Roger. Go ahead.

CAP COM Okay. D-4/D-7 at 267 51 23. Sequence 430, Mode 03. This is on spacecraft 6 during spacecraft 6 separation burn.

Gemini 7, Houston. We plan on taking you = getting you back out of your suits after the completion of the separation burn.

S/C 7 We probably think we'll just go ahead and stay in 'em until reentry, Gene.

CAP COM You say you'd rather stay in them until reentry?

S/C 7 Roger. Yes, we think instead of getting in and out of 'em we might as well stay in them until reentry. It's only .....

CAP COM Okay. We understand that, but if you so desire, after the separation burn you can get out of them.

S/C 7 Okay. Fine, thank you.

CAP COM Gemini 6, this Houston.

S/C 6 This is 6 . . . . . loud and clear.

CAP COM Roger, Gemini 6. You'll get your PLA updates over the CSQ on this rev. If you can copy.

S/C 6 We don't want to press you ..... for one more orbit, over.

CAP COM Understand you'd rather wait one full more orbit. Is that correct?

S/C 6 ..... one more orbit, over.

CAP COM Okay. We'll hold it off another orbit.

S/C 6 Thank you.  
.....(garbled from 6)

CAP COM Gemini 7, Gemini 7, Houston.

S/C 7 Go ahead Gene. This is Gemini 7.

CAP COM Roger, Frank. We'd like you to get a cabin temperature survey and report it over the CSQ.

S/C 7 Right.

CAP COM Gemini 7, Gemini 7, Houston. Can you give us an idea of the quantity of water you're talking about. Is it dripping out or is it actually streaming out?

S/C 7 Well, when you take your hoses out it's pretty much streaming out, however, it's stopped now.

CAP COM Understand it was streaming out but it's gone now. Is that correct?

S/C 7 Roger. It's stopping now.

CAP COM Okay.

S/C 7 What is your ground readout of our suit inlet temperature?

CAP COM Gemini 7, Houston. We've got the right suit inlet temperature in about 55 degrees.

S/C 7 You must have a gage ..... then.

CAP COM Gemini 7, Houston. It's possible that we've got some water in that gage onboard.

S/C 7 Roger. I think that's what happened.

CAP COM Are you uncomfortably cold at this time?

S/C 7 We're all right. We've got both suit pants on.

CAP COM Roger. Understand.

The next communication with spacecrafts 6 and 7 took place over the Coastal Sentry Tracking Ship and we will now play back that tape.

CSQ Gemini 7, CSQ Cap Com.

S/C 7 Go ahead, CSQ, 7 here.

CSQ Okay. Could we have a result of your cabin temp survey?

S/C 7 Rog. Stand by one.

The cabin temperature in the Command Pilot's area is 80 with dew point of 67. The hatches are running about 80 to 79. And in between the seats it's 79 with a dew point of 74. So ..... in the cockpit is 80 with a dew point of 67.

CSQ Would you repeat your readings between seats.

S/C 7 79 ambient, 74 dew point.

CSQ Flight, did you copy that?

S/C 7 ..... got a little wet. It may have been reading high, but when we came back to these others it was right around 68 degrees.

FLIGHT Roger. We read that CSQ.

CSQ Okay. We want to keep both ..... on and both suit pants on. We think it's condensation in the suit, and we'll check further.

S/C 7 Okay. Thank you. .... suit inlet temperature gage is evidentially off-line, also.

CSQ Roger. Our left suit reading is pretty erratic. It's running between 55 and then 70, normally.

S/C 7 Okay. Our gage is off-scale low, below 40 degrees, and it's not that cold.

CSQ Roger.

Flight, CSQ. The right suit inlet temp on the ground is 58.5 and stable. The left suit reading we have on the ground appears to be erratic.

FLIGHT Okay. In your summary it's indicating 65.

CSQ You just happened to catch it at that point. Did you go on anywhere from, well it's got a light range here, 50 to 80.

FLIGHT Roger.

Both spacecrafts GO there, CSQ?

CSQ Say again, flight.

FLIGHT Are both spacecrafts GO?

CSQ They are both GO.

FLIGHT Roger.

CSQ Flight. You copy all the readings he read on the temp survey?

LIGHT You can put 'em in your post-pass, Chuck.

CSQ                   Okay. It'll be a little late. I'll have to make a tape playback. I missed a couple of 'em.

FLIGHT                Okay. We'll wait for 'em.

                      CSQ Cap Com, Houston flight.

CSQ                   Go ahead, flight.

FLIGHT                Roger. We'd like a couple of side-wall temperature measurements from spacecraft 7. That's actual contact with the wall.

CSQ                   Actual contact with the walls, both sides?

FLIGHT                That's right.

CSQ                   Okay.

                      Gemini 7, CSQ. We'd like a couple more points on your temperature surey. We'd like a reading of both walls, both sides of the spacecraft, against the wall.

S/C 7                 Roger, I made that.

CSQ                   Okay. I guess I didn't copy those, would you repeat those.

FLIGHT                We'll pick 'em up over Hawaii.

S/C 7                 Roger. Those are the - right by our heads on the hatches.

                      80 degrees.

CSQ                   Okay.

                      Did you copy that, flight?

FLIGHT                Affirmative.

S/C 7                 You can turn your parking light off, 6.

S/C 6                 Gemini 7, this is 6. If you can hold it in the yaw for just a little while, we'll try to get in real close and try to get all these close shots..

END OF TAPE

S/C 7                    Try to get in real close and get all these close shots.

CSQ                    LOS flight on both vehicles.

HOU                    Roger, CSQ

The next taped voice conversation took place over the Hawaiian tracking station and we will now play back that tape.

HAW Cap Com            We have solid both vehicles at Hawaii.

HAW                    Gemini 6, Hawaii Cap Com.

S/C 6                    .....(garble)..

HAW Cap Com            How are you doing?

S/C 6                    Very good, we're getting a whole batch of movies.

F CAP COM              That's great, we'll be glad to see those. We show you go here on the ground and I've got a set maneuver update when you're ready to copy.

S/C 6                    Okay, stand by.

HAW CAP COM            Hawaii, are you ready to copy?

S/C 6                    Stand by.

HAW CAP COM            Both looking real good flight.

S/C 6                    Ready to copy.

HAW CAP COM            Okay, GET B 9 44 00; Delta V 9 feet per second; burn time zero + 15; yaw and pitch are zero; co-ord 25 9 00 90; Co-ord 26 and 27 are all zero; foreward firing thrusters a retrograde maneuver, this is your set maneuver.

S/C 6 Roger, for separation burn B 9 + 44 +00;  
Delta V 9.0 duration Zero  $\pm$  15; yaw zero;  
pitch zero; co-ord 25 9 00 90, 26 and 27  
with  
all zeros; thruster forward firing/a retrograde  
maneuver.

HAW CAP COM You sound very good. Stand by one I want to  
get seven. Gemini 7, Hawaii Cap Com.

S/C 7 Go ahead.

HAW CAP COM Okay, we're showing you go, how ARE you doing?

S/C 6 Fine.

HAW CAP COM Okay, I've got a flight plan update if you'd  
like to copy it.

S/C 6 Roger, we're ready.

HAW CAP COM Okay, 268 + 30 + 00. Begin exercise, housekeeping  
and eat period.

S/C 6 Roger.

HAW CAP COM 270, 11 43, crew status report on the pilot.  
270, 20 00. Your sleep period begins CSQ LOS.  
279 47 46, this will be a fuel purge after  
awakening at Carnarvon and it will be revolution 175.  
And the last item 280 48 00 biomed recorder to the  
off position.

S/C 6 Roger, Hawaii, is the D-4/D-7 update still valid?

HAW CAP COM Okay, I've got a D-4/D-7 time of 267 51 23. That's  
still valid.

S/C 6 Roger, understand, biomed number 2 off at 280 48 00.  
Is that correct.

HAW CAP COM 280 48 00.

S/C 6 Roger understand.

HAW CAP COM Okay, very good  
Seven and six Hawaii will be standing by. We've  
got about another four or five minutes here.

S/C 6 Hawaii, Gemini 6. Hawaii Cap Com, Gemini 6.

HAW CAP COM Gemini 6, Hawaii Cap Com.

S/C 6 Roger, we asked for another orbit for photography.  
There seems to be no reason to.....off that.

HAW CAP COM Okay, Wally stand by one.

S/C 6 Okay.

HAW Flight to Hawaii.

HOU FLIGHT Roger, Hawaii.

HAW He wants to hang on another orbit on this rendezvous  
thing and then separate.

HOU FLIGHT Okay, we concur.

HAW Okay, I'll scrub the set maneuver.

HOU FLIGHT Roger, we didn't understand his request over  
Tananareve.

HAW Okay, very good. Gemini 6, Hawaii.

S/C 6 Go ahead.

HAW CAP COM All that I just gave you you can scrub it out.  
They're giving you a go for another rev.

S/C 6                    Okay, very good.  
We have about 41% fuel remaining, over.

HAW CAP COM            Roger, I copy that.

S/C 7                    Hawaii, 7.

HAW CAP COM            Go ahead 7.

S/C 7                    You can tell it looks pretty thick again,  
spread the amps are about six now, 6 on one  
carrying....(garble)... 2 Charlie about 2 amps  
2 Baker about 2½ and 2 Able about 2½.

HAW CAP COM            Okay, let me make sure I've got this right. 2  
Charlie 2. 2 Baker 2½. 2 Alta 2½.

S/C 7                    Roger.

~~F~~ ~~FLIGHT~~            Hawaii Cap Com, Houston Flight.

~~HAW CAP COM~~            Go ahead, Flight.

HOU FLIGHT             Roger. We'd like Spacecraft 7 to give us a  
relative humidity at the suit outlet hoses.

HAW CAP COM            OK. 7, Hawaii.

S/C 7                    Go ahead.

HAW CAP COM            Can you give me the relative humidity at the  
suit outlet hoses.

S/C 7                    Roger. Stand by.

HOU FLIGHT             If they don't get it, we can get it over the  
RKV this rev.

F ' CAP COM OK. I've got three minutes. I'll continue  
the tape dump.

HOU FLIGHT OK.

S/C 7 Do you need the suit inlet hoses, Hawaii?

HAW CAP COM You mean the suit outlets, don't you?

S/C 7 We're back in -- we're in the suits. We  
can't give you the humidity at the suit  
outlet hose.

HAW CAP COM OK. Give us the inlet.

S/C 7 OK. It's spitting water. We'll try it.

HAW CAP COM OK. 7, Hawaii.

S/C 7 Roger.

HAW CAP COM OK. If I don't get that data, pass it on  
to the RKV.

S/C 7 We're reading 70 and 64. 70 temperature.  
64 dew point, Hawaii.

HAW CAP COM OK. I got that. Thank you. Copy that, Flight?

HOU FLIGHT Affirmative.

HAW CAP COM OK. .... LOS both vehicles at Hawaii.  
C-band LOS.

HOU FLIGHT Roger, Hawaii.

Chop That was the taped voice communication between  
the Hawaiian tracking station on revolution 6

and revolution 167 respectively; and since that time, we -- our two spacecraft have moved on over to revolution 7 for Gemini 6 and revolution 168 for Gemini 7. They have passed within voice communication range of the Rose Knot tracking ship. They are at present moving out over the South Atlantic and to bring you up to date to the minute, we will now play back the taped communication between the spacecraft and the Rose Knot tracking ship.

R CAP COM

Gemini 7, RKV Cap Com.

S/C 7

7. Go.

RKV CAP COM

Roger. Will you give me an onboard propellant quantity.

S/C 7

Roger. We are 11%.

RKV CAP COM

Roger. Gemini 6, we'd also like your prop quantity from you.

S/C 6

Roger. 40.

RKV CAP COM

Roger. Gemini 7, on your water problem -- we feel there is a possibility that the water has backed up from the water boiler into your

suit heat exchanger, and we've come up with a little procedure we'd like you to run. We feel it's pretty safe, and it will eliminate about eight pounds of water in the shortest possible time. Let me know when you're ready to copy.

S/C 7

Roger. Ready to copy.

RKV CAP COM

OK. The time of 268 plus 33, we'd like you to turn the primary and secondary A pumps on and turn off the primary and secondary B pumps. We'd like you to orient the spacecraft broadside to the sun, and initiate a  $10^{\circ}$  per second roll rate. We'd like you to maintain that broadside orientation while you're rolling. Then we'd like you to select the radiator to bypass. Did you get all that?

S/C 7

OK. Primary and secondary A pumps on. Turn off the B primary and secondary pumps. Get spacecraft broadside to the sun and initiate a  $10^{\circ}$  roll rate. Does that check?

RKV CAP COM

That's affirm. We then would like you to select the radiator to bypass, and at a

time of 268 plus 37, we'd like you to place the evaporator heater switch to ON. At 268 plus 41, select the radiator to SLOW. At 268 plus 42, turn the evaporator heater switch to OFF. Turn your primary A pump off, your primary B pump on. Turn off your secondary A pump and bring up your secondary B pump. And then start your roll rate.

S/C 7

OK, RKV. I missed the time on the evaporator switch off.

RKV CAP COM

OK. The time for the evaporator switch off is 268 plus 42.

S/C 7

I'll turn the evaporator switch on. I've got that off. Let me get it on.

RKV CAP COM

OK. The on time is 268 plus 37.

S/C 7

OK. 37. Then would you .... your primary B pump on.

RKV CAP COM

OK. Place the A pump to OFF in the secondary loop, and bring up the Pump B in the secondary loop.

S/C 7

Roger. Secondary ....

END OF TAPE

S/C 7 Roger, secondary A off and secondary B on.

RKV Roger. What is the position of your condensate valve at this time.

S/C 7 Its normal. We haven't touched it.

RKV Is it in normal?

S/C 7 We will check it again. It should be. We haven't touched it.

RKV We don't want you to touch it. We just want to know what position it is in.

S/C 7 Normal.

RKV Houston, copy, flight?

Houston Flt Roger. Have them read back that procedure to you, Bill.

RKV Gemini 7, RKV. We would like you to read that procedure back to us if you would.

S/C 7 Secondary B pump on, secondary A off and secondary B on.

RKV Negative. Why don't we start from the top with my first time of 268 plus 33.

S/C 7 Roger.

RKV Gemini 7, RKV

S/C 7 Go ahead, we are ready.

RKV We are standing by. I would like for you to read that procedure back to me if you would.

S/C 7 Roger. It 268 33 00. Turn prime and secondary A pumps off. Turn prime and secondary B pumps off. Get spacecraft broadside for (garbled). Initiate 10 degree (garbled). At that same time, turn radiator/<sup>to</sup>by pass. That is what we did as set up.

R. Roger.

S/C 7 at 216 to 37, evaporator switch on 268 to 41, radiator flow.

S/C 7 At 268 plus 42, turn evaporator off, turn tape dump on, primary B pump on. Same time, secondary A off and secondary B on. Is that correct?

RKV Roger. Your final item is stop your roll rate.

S/C 7 Roger. Stop roll rate.

RKV You have got it.

Houston Flt Thats evaporator heat on.

S/C 7 Understand also to be a new update time for D-4/ D-7. Is that correct?

RKV Roger. At a time of 268 plus 41, thats select radiator heat. I'm sorry, thats my fault. At 268 plus 42, its evaporator heater off.

S/C 7 Roger. Evaporator heater off.

RKV OK. OK, you have got it, Flight.

Houston Flt Roger. Thats it, Bill.

RKV On that last (garbled) air attempt, they were oscillating somewhat, Flight. I would like a date over the CSQ.

Houston Flt Roger.

RKV I won't insist they go on both spacecraft.

Houston Flt Roger.

RKV That clear. LOS on both spacecraft.

Houston Flt Roger, RKV.

That completes our tape playback of voice communication between our spacecraft Gemini 6 and Gemini 7 that have accumulated over the past  $2\frac{1}{2}$  hours. At this time, Gemini 6 is on its seventh revolution and Gemini 7 is on the 168th revolution. At present time, they are both coming up on the western coast of Africa, the southwestern coast of Africa. They are out of voice communication according to our flight plan at this

' e, 10 hours into the flight of Gemini 6, the rendezvous flight. The station-keeping continues and we have word from our flight controllers that bedtime tonight for both crews will take place at an elapsed time, I will give you Gemini 7 elapsed time, 270 hours and 20 minutes, which should be something like 12 hours and 13 minutes elapsed time for the crew of Gemini 6. They will all go to sleep at the same time. This is Gemini Control. We are now 268 hours and eight minutes into the flight of Gemini 7 and 10 hours, 1 minute into the flight of Gemini 6.

END OF TAPE

This is Gemini Control. We are now 10 hours and 12 minutes into the rendezvous mission of spacecraft Gemini 6. And we are 268 hours and 20 minutes into the flight of Gemini 7. At this time both spacecraft are moving out over the Indian Ocean. We have had no voice communication since the Rose Knot tracking ship pass. About 25 minutes ago we did play back the voice tapes. We have some information on the plans now from the recovery people for the recovery of the Gemini 6 crew. They will be taken off the carrier at 0700 Friday according to the present plan. They will be flown to Bermuda, and make a short stop there to change planes and from Bermuda they will fly an Air Force C-140 from Andrews to the skid strip at Cape Kennedy. The Gemini 7 crew, according to the present plan, will fly off the carrier the day after their recovery. They will fly directly to the skid strip at Cape Kennedy. This is Gemini Control. Now we are 268 hours, 21 minutes into the flight of Gemini 7, and 10 hours, 14 minutes into the flight of the Gemini 6 crew. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are 10 hours and 41 minutes into the rendezvous mission of Gemini 6. At the present time the spacecraft are flying approximately 10 to 20 feet apart. They are passing over the Pacific and they are on the 7th revolution for spacecraft 6 and the 168th revolution for spacecraft 7. A few minutes ago we had voice communication with the Coastal Sentry Tracking Ship and at this time we will play back the taped voice communication.

CSQ We have TM sold both our spacecraft.

FLIGHT Roger, CSQ.

CSQ Completed by-pass with both pump A's on.

FLIGHT Roger.

CSQ Gemini 6, CSQ Cap Com.

S/C 6 CSQ Gemini 6. Go.

CSQ Roger. We'd like for you to observe 7 on this roll procedure and let us know if you see any water coming out of 7.

S/C 6 Roger. We'll observe him and let .....

CSQ Roger.

S/C 7 Is this ..... planned norm .....

CSQ Roger.

Also 6, you'll get a maneuver update, your sep maneuver update, over Hawaii this rev.

S/C 6 Roger.

You might inform Colonel Cooper that we took still photographs and movies of Gemini 7 over the Himalayas and Geminides.

CSQ Roger.

S/C 7 Thank you. We're venting now. If you see us .....

S/C 6 I just saw one flame that time, Frank.

S/C 7 There's a whole lot coming by, right by my side.  
..... for you, Wally.

S/C 6 Oh, I see some now, yeah. Could that be your water boiler?

S/C 7 I guess so.

S/C 6 Yeah, I see it now.  
Comes out in the crystalline form.

S/C 7 Right.

S/C 6 ..... after you. It's the water boiler.

CSQ Flight, CK 06 is increasing.

FLIGHT Very good.

CSQ You copy air-to-ground?

FLIGHT Affirmative.

CSQ Flight. CK 06 is 3 degrees higher now than it was at acquisition.

FLIGHT Roger. Very good.

S/C 6 Say, uh, wiring cable is hanging out. The value of centrifugal force is just about straight out now and looks like it's about 15 ..... the length of the adapter.

S/C 7 .....

S/C 6 I'll be damned!

S/C 7 Your burn ..... and it whipped all around back there.

S/C 6 It was right after separation .....

S/C 7 Right.

S/C 6 ..... come up and look for us. We're both .....

S/C 7 Right.

FLIGHT CSQ, we'd like an LOS main.

CSQ Say again.

FLIGHT We would like an LOS main.

CSQ Roger.

FLIGHT CSQ Cap Com. Let me know when you see the radiator go back to the flow position, please.

CSQ Roger.

FLIGHT In fact, why don't you cut me a summary right now.

CSQ Main's on the way.

FLIGHT Okay.

CSQ Okay. It just went back.

FLIGHT Okay. I'd like an LOS summary also then.

CSQ Roger. Okay. That CK 06 is reading 53.6.

FLIGHT Roger. 53.6.

CSQ And AOS was 47.6.

FLIGHT Roger.

S/C 6 Gemini 7, this is 6. .... lots and lots<sup>of water</sup>/coming out all over the back end .....

S/C 7 Thank you.

..... this is 7. I think we ..... our fuel cell ..... too.

S/C 6 Good show. I hope it stays up there .....

S/C 7 See if can stop the rolling, Wally.

S/C 6 Okay.....

CSQ ..... got both ..... back on, flight.

FLIGHT Roger. Looks like we got what we wanted for . . .

S/C 6 ..... cable wind up behind you.

You've got a real ball of ice back there ....you and the water.

S/C 7 Yeah, yeah.

S/C 7 That our water boiler?

S/C 6 .....  
S/C 7 ..... fixed.  
S/C 6 Negative.  
..... starboard about 30 degrees...  
CSQ Gemini 6, CSQ. Did you say the water, the frozen water appears to be on the water boiler?  
S/C 6 That's obvious to us, yes.  
B/C 7 CSQ, you might tell Houston that our section 2 is still real sick, also. Will you please?  
CSQ Roger, will do.  
FLIGHT Roger, we're working on it and we'll take a look at your data at your LOS.  
CSQ 7 - we're still working on it. Houston will take a look at our data and will come up with something on it later.  
FLIGHT Radiator operation look normal at your LOS, Chuck?  
CSQ Affirmative.  
FLIGHT Affirmative. That ought to be good for a replay, and for movies.  
CSQ I hope he had his movie camera on in 6. It'll be the first acrobatic stunt in space.  
FLIGHT Yep. You know you guys are becoming face - famous.  
S/C 7 For what, flight.  
FLIGHT Say again.  
S/C 7 For what, flight?  
FLIGHT For rendezvousing and doing all these good things.  
S/C 7 Yeah.  
CSQ All systems look real good on 6. The only thing on 7 section 2 looked bad. They've been getting low.

FLIGHT           Okay. We're thinking of bringing that off-line, Chuck.

CSQ               Okay. From the way they described it, it looked like a snow storm.

FLIGHT           Roger. That's a White Team Spectacular!!

CSQ               Very good.

                  That was taped voice communication between Wally Schirra in Gemini 6 and the Coastal Sentry Tracking Ship also the voice of Gene Kranz, our Flight Controller here in the Mission Control Center at Houston. We are now 268 hours and 54 minutes, almost now 55 minutes, 268 hours 55 minutes into the flight of Gemini 7. 10 hours 47 minutes into the flight of Gemini 6. At the present time both spacecrafts are passing over the Pacific and are out of voice communication with our tracking stations. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 10 hours and 54 minutes into the rendezvous flight of spacecraft Gemini 6. At this time our spacecrafts are moving out over the Pacific on their way toward the South American west coast. A few minutes ago we had voice communication between Wally Schirra, the Command Pilot of Gemini 6, and the Hawaiian Tracking Station, and at this time we will play back that taped conversation.

HAW Okay. 26 niner 00 00. And that's a deletion, your biomed recorder no. 2 to continuous. Delete that item.

S/C 7 Roger.

HAW D-4/D-7: 26 niner plus 21 plus 53. Sequence 430. Mode 03. And this will be on spacecraft 6 during spacecraft 6 separation burn.

S/C 7 Roger.

HAW 271 00 00. Your biomed recorder will go to continuous. That'll be recorder no. 2.

S/C 7 Roger.

HAW 270 20 00. And they want you to delete the sleep period beginning at the CSQ LOS on rev 16 niner.

S/C 7 What time is the D-4/D-7, please?

HAW D-4/D-7 is 26 niner 21 53.

S/C 7 Thank you.

HAW And they want you to add a sleep period beginning at 271 56 00. And that's at CSQ LOS on rev 170. One rev later than originally.

S/C 7 Roger.

HAW Okay. How's the water situation?

S/C 7 Fine. We'd like to go back to one fan if you don't mind.

HAW Okay. Hold on here a second.

HAW Flight, Hawaii.

FLIGHT Roger. We concur, in going back to one fan.

HAW Say again, flight.

FLIGHT We concur in going back to one fan operation.

HAW Roger, Hawaii.

6 they say you can go back to one fan operation.

S/C 7 Right.

S/C 6 6 is one fan.

HAW ... I'm getting my numbers all fouled up. Seven go on back to one fan.

S/C 7 Rog.

HAW Flight, Hawaii.

FLIGHT Go, Hawaii.

W CK 06 is reading 50 decimal 2.

S/C 7 That's a fine place to start the burn from, Wally. I think they just didn't want this IR sensor pointing into the sun.

S/C 6 Got you, Frank.

I'm going ..... eyes on your water boiler outlet, Frank. Looks like a small duct about the size of a tube.

Seven, we'll see you tomorrow.

S/C 7 Thank you.

S/C 6 Roger, good show here.

That was taped voice communication between spacecraft 7, with Frank Borman doing the speaking, rather than Wally Schirra as we reported. At this time we are 10 hours 57 minutes into the rendezvous mission of Gemini 6 and 269 hours 5 minutes into the mission of Gemini 7 and our flight controllers are tell us that the spacecrafts will be at various times now approximately within 200 feet of each other. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are 11 hours 19 minutes into the flight of Gemini 6. And 269 hours 27 minutes into the flight of Gemini 7. At the present time the spacecrafts are passing over South America and we are on the 8th and 169th revolution, respectively. We are going to establish ground voice communication with the spacecraft from the Rose Knot Tracking Ship, momentarily, and we intend to bring this conversation to you, live. And, as I said, we are expecting it momentarily. We now have made acquisition. Let's listen in.

RKV Go, Gemini 7. RKV Cap Com.

S/C 7 Go ahead, RKV, Gemini 7.

RKV Roger. We'd like to delete the two status reports scheduled for this pass and we'll pick it up in the next rev. That's on the Command Pilot.

S/C 7 Fine. Go ahead.

RKV Okay. Before you start your purge, we've got a couple of steps we'd like to include tonight. First, we'd like you to purge section 1, O<sub>2</sub> and H<sub>2</sub>. Fuel-cell control 2 circuit breaker 2 ON. Purge section 2, O<sub>2</sub> and H<sub>2</sub>. Leave the fuel-cell control circuit breaker 2 ON, and power down section 2. Use the power switch depleted to the OFF position. And then turn off the fuel-cell control 2 circuit breaker.

S/C 7 Okay. After we purge power down section 2 is what you said?

RKV That's affirm.

S/C 7 Okay. Here we go.

How about turning off the .... maneuver thruster heater, too?

RKV Say again, Gemini 7.

S/C 7 We might as well open the circuit breaker to the maneuver thruster heater.

RKV Roger.

FLIGHT We concur on that, RKV.

RKV We concur.

S/C 7 Okey, dokey.

RKV We're copying dope on spacecraft 6, flight.

FLIGHT Roger.

RKV Gemini 7, RKV. I've got your bedtime rules for the cryogenics.

S/C 7 Understand.  
Go ahead.

RKV Okay. ECS O<sub>2</sub> heater switch to OFF. Fuel-cell O<sub>2</sub> heater switch to AUTO. And leave your quantity read switch at fuel-cell O<sub>2</sub> for the sleep period.

S/C 7 Roger. How about hydrogen?

RKV We'd like you to put that in AUTO tonight.

S/C 7 Okay.

RKV Your minimum accepted pressure/<sup>for</sup>tonight will be 445.

S/C 7 Okay, and I'll leave it in AUTO.

RKV Rog.  
Gemini 6, RKV Cap Com.

S/C 6 Go, RKV.

RKV How'd your separation burn go?

S/C 6 Right on the nose .....

RKV Rog.

S/C 6 We did that in ..... for you.

RKV Roger.  
You copy, flight?

FLIGHT Negative, say again, Bill.

S/C 6 We're out to about .68 miles, Bill.

RKV Wally says he's out to about .68 miles. He records the sep  
burn 9 feet per second. No out-of-plane.

FLIGHT Roger.

RKV Separation's going real well, flight.  
Both spacecrafts look GO, flight.  
CK 06 suit end of stage inlet temperature primary on spacecraft 7  
is reading 49.

FLIGHT RKV Cap Com Houston flight.

RKV Go ahead, flight.

FLIGHT Why don't you give me your systems guys. I got some stuff I  
want him to copy for you to pass to the crew and you can keep  
working the crew.

RKV Roger.

RKV Systems Houston flight, this is Gemini 7 systems .....

s/C 7 ..... fly over night, RKV?

RKV That's affirm.

FLIGHT Okay. At time 269 plus 50 00. Evaporator heater switch HEAT.

RKV Systems Evaporator heater switch - what?

FLIGHT To HEAT.

RKV Systems Roger.

FLIGHT Okay. 269 55 00. Evaporator heater switch OFF.

RKV Systems Thank you.

FLIGHT At 270 25 00. Position water boiler towards sun.

RKV Systems Roger.

FLIGHT Evaporator heater switch to HEAT.

RKV Systems Roger.

FLIGHT Time 270 30 00.

RKV Systems Roger.

FLIGHT Evaporator heater switch to OFF.  
Do not exceed 5 minutes on heater.  
Will you read it back?

RKV Systems 269 50 evaporator heater switch to HEAT. 269 55 evaporator  
heater switch to OFF. 270 25 position water boiler towards  
the sun. Evaporator heater switch to HEAT. 270 plus 30  
evaporator heater switch to OFF. Do not exceed 5 minutes on  
heater.

FLIGHT Okay. Why don't you stand by before giving that to the crew.  
I want to talk to EECON.

RKV Systems Roger.

RKV AFD, RKV Cap Com.

FLIGHT Go ahead. I don't want to pass that up this rev. We'll get it another -  
- probably over the CSQ.

RKV Roger, flight. We powered down the secondary loops - I'm sorry - the  
section 2 and the crossover switch is OFF.

FLIGHT Roger.

RKV All systems look good, flight.

FLIGHT Roger.

RKV We've completed the dope flight on spacecraft 6.

FLIGHT Roger.

S/C 6 .....

S/C 7 ..... you want the black light on?

S/C 6 Negative.

S/C 6 ..... Frank, we're fixed up ..... the ground.

S/C 7 Do you want us to follow you?

LIGHT RKV, could we have an LOS main, please?

RKV ... LOS .....

S/C 7 ..... is that what you want?

RKV Say again, flight.

FLIGHT Could we have an LOS main.

RKV That's affirm. Coming at you. Have LOS of both spacecrafts.

FLIGHT Roger.

That was live communication between spacecraft Gemini 6 and Gemini 7 and the Rose Knot Tracking Ship located off the east coast of South America. Just prior to reaching South America on this rev, Wally Schirra fired his forward thrusters of spacecraft Gemini 6 at a rate of 9 feet per second for 15 seconds. This changed his orbit, his orbit now is estimated at 163.2 nautical miles apogee and 154.1 nautical miles perigee. That was the new orbital parameters that he was trying to achieve with this burn. We do not have the exact parameters but we'll check them out. The Gemini 7 remains then at an apogee of 163.6 nautical miles and a perigee of 159.0 nautical miles. This means that Gemini 6 will now move ahead of the Gemini 7 at a rate of approximately 24 nautical miles per revolution throughout this evening, or this night. This is Gemini Control. We are now 11 hours 30 minutes into the flight of Gemini 6, 269 hours 38 minutes into the flight of Gemini 7. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 12 hours and 12 minutes into the rendezvous flight of Gemini 6, and 270 hours and 20 minutes into the mission of Gemini 7. At this time our spacecrafts are passing over the Pacific Ocean. Gemini 6 is in revolution 8. Gemini 7 revolution 169. We have passed beyond the Coastal Sentry tracking ship and we have had some voice communication between Gemini 7 and the Coastal Sentry. And at this time we will play back that voice tape.

CSQ Gemini 7, CSQ Cap Com. We do not have an oral temp on the pilot. Stand by for surgeon and your blood pressure.

CSQ SURGEON Gemini 7 this is CSQ SURGEON standing by for blood pressure on the pilot.

S/C 7 . . garbled . .

CSQ SURGEON Your cuff is full scale. We have a valid blood pressure. Give me a MARK when you begin exercise.

S/C 7 . . garbled . . pressure is coming down.

CSQ SURGEON Your cuff is full scale. We have a valid blood pressure. Standing by for food and water report.

S/C 7 Roger. You have a temperature on the pilot?

CSQ Gemini 7, we can't hear you.

S/C 7 Command pilot has had 928 ounces of water. / We both had  
During the day  
day 12 meal B, for supper we had day 9, meal C. Column 5  
is 30 for the Command Pilot and 6 is 6 for the command  
pilot. 878 ounces of water, column 5 is 28 and column 6  
is 6. Standing by for Cap Com.

CSQ I have a node update 7 when you are ready to copy.  
Surgeon, Aeromed:

S/C 7 We're ready.

CSQ Roger, 92699804, rev 169,19.8 . . Right Ascension 081527.  
Gemini 6 CSQ, do you copy?

S/C 6 . . garbled . . g.e.t.

CSQ Say again.

S/C 6 . . garbled . . g.e.t

CSQ Roger. Your's is coming now are you ready?

S/C 6 Go ahead.

CSQ 114041, rev 8, 19.8 degrees east, right Ascension 08 15 27.

S/C 6 114041, rev 8, 19.8 degrees east, right Ascension 08 15 27.

CSQ Roger, and 6 on your OAMS status. Your fuel remaining is  
148 pounds, oxidizer remaining is 193 pounds. Our calculations  
show that to be an actual 43 percent remaining on propellant.  
And that was calculated prior to your last SEP burn.

S/C 6 Didn't get it all would you say again after quantities?

CSQ Roger, Did you copy the fuel and oxidizer remaining?

S/C 6 Okay.

CSQ Okay. Propellant quantity remaining actual 43 percent.

S/C 6 Roger, 43 percent, we are reading about 32.

CSQ Roger. This calculation was made before your last SEP  
burn.

S/C 6 . . garbled . .

CSQ Gemini 7 CSQ. Have you noticed any less water in your  
SENTO since the temperature run.

S/C 7 Very dry now.

CSQ Good.

S/C 7 . . garbled . . Understand the temperature . . garbled

CSQ Roger . . garbled . . Also we have oxidizer for you 7.

S/C 7 Go ahead.

CSQ Propellant remaining 30 pounds. This is actually 17 percent.

The onboard gauge reading is about 3 percent lower than we expected at this point. That is the gauge should be reading 14 percent at this time. So it appears that we stopped the stationkeeping a little early.

S/C 7 Okay. They told me to stop at 11 percent and that's what I read.

CSQ Roger. This will put us in good shape for the remainder of the mission.

S/C 7 . . garbled . .

CSQ Section 2 was taken off the line in hopes to remove some of the water overnight.

S/C 7 . . garbled . .

CSQ Flight, I don't think I'll have time to complete the reading on that spinup but I think it was explained to him earlier was it not?

Flight Yea, I think he knows what happened.

CSQ Right. LOS on 6 and 7.

Flight Roger.

That was taped voice communication between spacecraft Gemini 6 and Gemini 7 and the Coastal Sentry tracking ship. At this time our spacecrafts

have moved out over the Pacific. And we have some new orbital parameters for you. Gemini 6 having completed a burn, separation burn, is now in an orbit with 163.2 nautical miles apogee and 154.1 nautical miles perigee. The time to orbit one revolution or one orbit is 90.18 - 90 minutes 18 seconds. For Gemini 7 the apogee is 163.7 nautical miles. The perigee 159.0 nautical miles. The time to complete a revolution or orbit is 90 minutes and 24 seconds. This is Gemini Control. We are now 12 hours 20 minutes in the rendezvous flight of Gemini 6 and 270 hours 27 minutes into the Gemini 7 mission. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 12 hours 35 minutes into the flight of Gemini 6. The rendezvous mission. And 270 hours 43 minutes into the mission of Gemini 7. At this time the spacecraft are passing over the Pacific on the 8th and the 169th revolution, respectively. A few minutes ago we had communication, at least an attempted communication, between our Cap Com Gene Cernan here, astronaut Gene Cernan, in the Mission Control Center, remoting through the Canton Island Tracking Station and at this time we will play back that voice tape.

HOUSTON           Canton, go remote.

CTN                Canton remote. Canton has acquisition.

CAP COM           Gemini 6, Gemini 6, Houston Cap Com. Over.

Gemini 6, Gemini 6, Houston Cap Com. How do you read? Over.

Gemini 6, Gemini 6, Houston Cap Com. How do you read? Over.

Gemini 7, Gemini 7, Houston Cap Com. How do you read?

Gemini 6, Gemini 6, Houston Cap Com. I've got your PLA updates. Over.

Gemini 6, Houston. I'm reading you very weak. Are you ready to copy your updates? Over.

S/C 6             Affirmative.

CAP COM           I understand you're ready. Area 9 niner Bravo: That's area niner Bravo: GETRC 13 1 niner 36. 400K is 20 plus 25. Reverse bank is 26 plus 13. All these bank angles for all these updates will be niner 0 degrees. Niner 0 degrees. Area 10-Delta: GETRC 14 17 05. 400K 20 plus 32. Reverse bank 25 plus 54. 11-2: GETRC 15 52 02. 400K 20 plus 11. Reverse bank 25 plus 40. 12-2: GETRC 17 25 40. 400K 20 plus 03. Reverse bank 25 plus 35. Area 13-2: GETRC 1 niner 01 21. 400K is 1 niner plus 58. Reverse bank 25 plus 28.

CAP COM Did you copy, Gemini 6?

S/C 6 Roger. I won't read them all back. What's the rest of entry  
17-1 . . . .

CAP COM Gemini 6, Gemini 6, our estimate right now looks like about  
25 plus 15. That's 25 plus 15.  
Gemini 7, Gemini 7, Houston Cap Com, over.

S/C 7 Go ahead, Gene, 7.

CAP COM Roger, 7, I'm reading you very weak but clear. We'd like you  
to - - we'd like to know if you really feel you've got a good  
handle on this suit off configuration, especially regarding  
location of hose, and ventilation, etc. We were hoping that  
maybe you might be able to do a little bit better experimenting  
tomorrow.

Gemini 7, Gemini 7, understand you can't read me. I'll say  
again more slowly. We would like to know if you feel you really  
got a good hack on the shirt-sleeve operation regarding location  
of hose for ventilation, etc. Over.

S/C 7 Do you read, Houston?

CAP COM Gemini 7, reading you now. Say again.

Gemini 7, Gemini 7, this is Houston Cap Com broadcasting in  
the blind. We would like a film report from you over the RKV  
concerning the day's activities if you can get it together.

Gemini 6, Gemini 6, Gemini 7, Gemini 7, this is Houston Cap Com.  
We will be broadcasting music on HF commencing in about 5 minutes.  
That's HF in about 5 minutes - music.

That was taped voice communication between our Cap Com here in the Mission Control Center, astronaut Gene Cernan, and the two crews, the Gemini 6 crew and the Gemini 7 crew with the voice remoted over the Canton Island Tracking Network. This is Gemini Control. We are 12 hours and 41 minutes into the flight of Gemini 6 and 270 hours 48 minutes into the flight of Gemini 7.

END OF TAPE

This is Gemini Control. We are 12 hours 59 minutes into the flight of spacecraft Gemini 6 and 271 hours and 2 minutes into the mission of Gemini 7. At this time our spacecrafts are passing over South America. They have begun revolution 9 for Gemini 6 and revolution 170 for Gemini 7, respectively. And we are awaiting momentarily to get voice communication established between the two spacecraft and the Rose Knot tracking ship which is located off the east coast of South America. And in a very few minutes we expect that the voice communication will have been established. Then we propose at that time to bring you the live communication between the spacecraft and the ground station. We now have voice communication let's listen in.

RKV 7, RKV your cuff is full scale.

S/C 7 Roger.

RKV We're copying a dump flight on spacecraft 6.

S/C 6 Roger.

RKV Gemini 6, RKV Cap Com. We're copying your dump while transmitting you a TX.

S/C 6 Roger. . . garbled . . .

RKV Roger.

RKV 7 RKV, we have a valid blood pressure. Standing by for your exercise.

S/C 7 Roger.

RKV Gemini 6, RKV. We don't have any maneuver updates up for you as soon as we finish with Gemini 7, crew status report.

S/C 6 Roger.

RKV Gemini 7, RKV, your cuff is full scale.

S/C 7 Roger.

RKV All systems look good, Flight.

Flight Roger, RKV.

RKV 7, RKV, we have a valid blood pressure. RKV surgeon out.  
Gemini 6, RKV Cap Com.

S/C 6 Go.

RKV Roger, you ready to copy your maneuver update?

S/C 6 Stand by one. Gemini 6, ready to copy.

RKV Roger. G.e.t. B 43:25:52, delta V 9 feet per second,  
burn time zero plus 11; zero yaw; zero pitch; course 25  
000:90; course 26 and course 27 all zeros; aft thrusters;  
the maneuver is cross grade.

S/C 6 Roger. Burn 43:25:52; delta V zero 9 feet per second;  
zero plus one one seconds; yaw zero; pitch zero; course 25  
000:90: 26 and 27 all zeros; thrusters aft; cross grade.

RKV Roger, you got it.

S/C 7 RKV 7 here.

RKV Go ahead

S/C 7 Would you tell the people in Houston to plan on giving us  
about 2 or 3 hours tomorrow afternoon to go on reentry  
procedures and about 4 hours on Friday to pack the space-  
craft for reentry.

RKV Roger, will do

S/C 7 Thank you.

RKV 6, did you copy the block update over Canton - the complete block update?

S/C 6 . . garbled . .

RKV Okay.

Gemini 7, can you give us a rundown on your station keeping?

S/C 7 We did about 5 minutes of it. Very little because we cut off on the OAMS fuel.

RKV Roger. How about you 6?

S/C 6 . . garbled . . Started in, looked like a very easy task . .

RKV Roger.

S/C 6 I was told we were all ready for it . . garbled . . any difficulty at all.

RKV Roger.

S/C 6 Both in pulse mode and platform mode.

RKV Rog.

S/C 6 Didn't have any trouble, they were poking all around up there.

RKV Sounds like fun.

S/C 6 Sure was. Got a bunch of . . garbled . . back of that thing.

RKV Did you get some good pictures?

S/C 6 Well I sure hope so. We shot about . . garbled . .

RKV Gemini 7, we'd like a similar report from you, if you've got one.

S/C 7 Roger. We just don't have one yet.

RKV Okay.

S/C 7 Film pack report. Twenty-two frames of black and white. 104 frames of SU-250. 17 frames of color shifted IR. 57 frames of fast SO-217. 74 frames of white contrast, and

2 movie magazines.

RKV Roger. Okay, as soon as we have LOS we're going to have some music for you, up on HF.

S/C 6 What time do you want us to get up tomorrow.

RKV Let me check with flight.

What time do you want them to get up, flight ?

Flight We'll advise them over the CSQ.

RKV They'll give you a wake up time over the CSQ.

S/C 6 . . garbled . .

S/C 7 Give us a call when you want us to wake up. We are both pretty beat tonight.

RKV Yea, we figured you were. We'll do that.

All systems GO Flight. We've completed the dump.

Flight Roger, could we have an onboard prop quantity and source pressure from 7 then?

RKV Roger.

Flight And then they can go to sleep.

RKV Gemini 7, RKV.

S/C 7 Go ahead.

RKV Could we have a prop quantity and source pressure?

S/C 7 Propellant quantity reads 11 percent.

RKV Roger.

S/C 7 Source pressure is 750.

RKV Roger. Have a good nights sleep. I feel like a baby sitter. I tuck you in every night and now I'm baby sitting for four of you.

S/C 7 . . garbled . .

RKV Don't sweat it. We're watching you.

S/C 7 . . garbled . .

That was live voice communication between our two spacecraft Gemini 6 and Gemini 7 and the Rose Knot tracking ship. Speaking for Gemini 7 was our command pilot, Frank Borman and it sounded very much like Tom Stafford was doing the talking for Gemini 6. We are now 13 hours and 5 minutes into the mission of Gemini 6, and 271 hours 13 minutes into the mission of Gemini 7. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 13 hours and 12 minutes into the flight of Gemini 6. And 271 hours 20 minutes into the flight of Gemini 7. At this time the spacecrafts are approaching the west coast of Africa. We are on revolution 9 for Gemini 6 and revolution 170 for Gemini 7. In our voice communications recently over the Rose Knot Tracking Ship with the spacecraft, we learned from Tom Stafford and Frank Borman that there have been pictures made. They made pictures of each other's spacecraft while in space. This is the second report we've had of that and we certainly can look forward to some good pictures, we hope. Since Gemini 6 has terminated its rendezvous and had made a burn to separate from Gemini 7, they are now in a somewhat different orbital plane or orbital parameters and they will be spending this night in varying distances apart - the distances will vary between the spacecraft from 22 to 42 nautical miles throughout the night. All systems from the ground in both spacecraft look good. The crews are in excellent physical condition, although Frank Borman said that they were pretty beat after this long day of work, and we have had instructions from our Flight Director, Gene Kranz, who has put out the word to the network, that there will be no further communication with the spacecraft Gemini 7 for this night, and Gemini 7 thus officially enters its sleep period. We do expect that we will have one more - at least one more - communication with Wally Schirra and Tom Stafford and their Gemini 6 spacecraft. This is Gemini Control. We are 13 hours 14 minutes into the mission of 6. 271 hours 22 minutes into the mission of Gemini 7.

END OF TAPE

This is Gemini Control. We are now 13 hours and 52 minutes into the mission of Gemini 6. And 271 hours 59 minutes into the mission of Gemini 7. At this time our spacecraft are passing over the Pacific, having just got out of voice range with the Coastal Sentry Tracking Ship. During that pass we had voice communication with the Coastal Sentry and spacecraft Gemini 6 and at this time we will play back the taped voice communication for you.

CSQ Gemini 6, this is CSQ Surgeon. Standing by for Command Pilot's blood pressure.

CSQ Gemini 6, this CSQ. Do you copy?

Gemini 6, this CSQ. Do you copy?

S/C 6 CSQ. Read you loud and clear.

CSQ Roger, stand by for Surgeon.

FLIGHT Let's expedite out there, Chuck.

SURGEON Your cuff is full-scale.

We have a valid blood pressure and standing by for the Pilot's blood pressure. Your cuff is full-scale. We have a valid blood pressure. Standing by for a food and water report.

CSQ Gemini 6, standing by for your food and water report.

Also like to get a cabin temp reading, and your suit inlet temp reading.

S/C 6 Roger. On the food and water report. Both pilots have consumed 2 meals. I'll line up the water for you ..... The cabin temperature is 84. The suit temperature is 58.

CSQ Roger. I'd like to get a propellant quantity remaining and OAMS source pressure.

S/C 6 Have 32 percent indicated propellant quantity. OAMS source temperature is 73 psi. Is 16 .....

CSQ I copy 1650.

S/C 6 Roger.

CSQ We have a valid oral temp on the Command Pilot.

Okay. At your convenience we'd like for you to run a cabin temp survey. This will go in your log book for postflight. Like the cabin ambient dry and wet bulb, suit inlet, dry and wet bulb, remove the blue nozzle, and check directly in the O<sub>2</sub> flow. If possible we'd like a hatch surface temperature and side-wall surface temperature.

S/C 6 Okay. .... We're .... after a hard day's work. We'll get that to you sometime tomorrow.

CSQ That's affirmative. At your convenience.

S/C 6 Okay.

CSQ I'd like your evaluation of your posigrade burn.

S/C 6 No residual.

CSQ Roger.

FLIGHT Are they powered down, Chuck?

How does ground TM look?

CSQ Flight, he has the IEVU on, he's inaccurate.

FLIGHT Okay. I'd like an LOS main in spacecraft 7, CSQ.

CSQ Roger. I'd like to go back to their food and water, flight.

FLIGHT What do you mean?

CSQ I haven't got the water, yet and I didn't copy completely their food.

FLIGHT They said they had 2 meals, Chuck.

CSQ They said ..... a meal.

FLIGHT We'll pick that up tomorrow morning.

CSQ                   Okay. And also, I'm not going to push them either for their water.

FLIGHT               Roger.  
They said they were adding it up.

CSQ                   That's affirmative. They sound pretty tired.

FLIGHT               ROGER.

CSQ                   Thought it might be a little attitude thruster activity on the 6 in pulse mode.

FLIGHT               Roger.

CSQ                   We've had LOS on spacecraft 7.

FLIGHT               Roger.

CSQ                   We haven't had LOS but it's broken, just broken TM.  
We have LOS, flight.

FLIGHT               Roger.

That was taped voice communication between spacecraft 6 and the Coastal Sentry Tracking Ship. Both Command Pilot Wally Schirra and Pilot Tom Stafford were in on that conversation with the Tracking Ship. At this time both our spacecraft have moved out over the Pacific. We are now in revolution 9 for Gemini 6. Revolution 170 for Gemini 7. The elapsed time for Gemini 6 is 13 hours 57 minutes, for Gemini 7 272 hours and 4 minutes. At this time both crews are in a sleep period. There will be no further attempt to communicate with the crews for approximately 10 hours which is the duration of their sleep period. We have now a new, some new orbital parameters on spacecraft 6 as a result of the burn that they made recently. They are now, should be now, at 154.1 perigee nautical miles, 154 nautical miles by a 168.2 nautical miles apogee. This would give them an orbital period of 96 minutes 24 seconds. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 14 hours and 12 minutes into the mission of spacecraft Gemini 6. The orbital values for Gemini 6 at this time is 154 nautical miles perogee, 168 nautical miles apogee. We are also 272 hours and 20 minutes into the flight of Gemini 7. And Gemini 7 is flying an orbit 158.9 nautical miles perigee, 163.7 nautical miles apogee. The - because of the way these orbits are overlapping there is a distance that will vary throughout the night between the relative position of the two spacecraft. This will vary between 42, 22, and 42 miles. It's essentially a station keeping orbit for both of them. And when the crew is awake they will be not more than 42 miles apart. According to our flight plan now both crews have entered a sleep period and if you have been keeping up with our voice transmissions through the night you will know that both crews are rather tired and eagerly looking forward to this rest period. We will be in a sleep period for approximately 9 more hours. This is Gemini Control. We are on revolution 9 for spacecraft 6 and revolution 170 for Gemini 7. Both spacecraft are currently ending these revolutions and will very shortly be picking up on the next. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 15 hours and 12 minutes into the flight of Gemini 6 and we are 273 hours and 20 minutes into the flight of Gemini 7. At the present time our spacecrafts are over India. Gemini 6 is on its 10th revolution. Gemini 7 is on its 171st revolution and the crews aboard both spacecraft are in a sleep period. We do not yet have confirmation from the ground data as to whether the crews are asleep. Our last report on ground data is from the Rose Knot tracking ship on the last revolution, or the beginning of this one. And at that time the crews were awake. However, they were resting. This is Gemini Control, 15 hours 13 minutes into the mission of 6, 273 hours and 20 minutes into the mission of 7.

END OF TAPE

This is Gemini Control. At 275 hours and 20 minutes into the flight of Gemini 7, 17 hours 12 minutes into the flight of Gemini 6. We are on the 11th revolution of Gemini 6, which is in an orbit of 168.2 nautical miles by 154 miles nautical. Gemini 7 is in its 122nd revolution and its orbit is 163.7 nautical miles by 158.8 nautical miles. The Gemini 7 crew are asleep, according to reports from the Surgeon, and they are comfortable, their suits are dry. The Gemini 6 crew is also asleep. As the Surgeon put it, the 6 crew is tired, but fine and apparently in deep sleep. They look forward to a busy flight schedule for tomorrow, Gemini 7 does. Gemini 6 also has a busy schedule. It has to come back in 8 hours and 2 minutes from now. The spacecraft are in the same orbital plane but their orbits - and their orbits take about the same amount of time to complete. They come within 22 miles of each other and they go out as far as 40 nautical miles from each other. From the Cape we hear that they are at T minus 30 minutes and counting for a thrust augmented delta launch of a Pioneer Satellite which is expected to orbit the sun and within 6 months get within 77 million miles of the sun and orbit it with a period of 310 days. That gives the Pioneer Satellite a year of 310 days. They are up there to measure atomic and sub-atomic particles in magnetic fields in deep space and the countdown is proceeding toward a launch scheduled at 20 minutes after the hour. That's 20 minutes after 1 c.s.t., 20 minutes after 2 e.s.t. This is Gemini Control.

END OF TAPE

This is Gemini Control. We have four "cool cats" up there. That's how the Canary Island Station described the data they were receiving from the four pilots aboard Gemini 6 and 7 now crossing the northern western part of Africa over the Nile River. Seven has been up there for 276 hours and 20 minutes and 6 has been up there for 18 hours and 13 minutes, during which time they performed the first space rendezvous today. Six is in its 12th revolution, 7 in its 173rd. At Cape Kennedy a delta-Pioneer combination was launched at 2:31 a.m. e.s.t., to put the Pioneer Satellite into solar orbit. That spacecraft is also headed toward Africa. It is in its coast phase and is expected to burn again into its solar trajectory in a few minutes. We have no further word on that from the Cape. At 276 minutes and 21 minutes into the flight of Gemini 7, 18 hours and 13 minutes into the flight of Gemini 6, this is Gemini Control.

END OF TAPE

This is Gemini Control. At 277 hours and 20 minutes into the flight of Gemini 7, 19 hours 12 minutes into the flight of Gemini 6. Both spacecraft now are going across the Southern Pacific on their way toward, cutting right through Panama. Six is still in its 12th revolution, and 7 is still in its 173rd revolution. Both crews are sleeping. But Frank Borman, Command Pilot aboard Gemini 7, woke briefly over the Carnarvon Station, to let them know that his delta P light had come on and that it had burned for half an hour. The little delta P light which is on his console and right in front of him apparently woke him up and he went back to sleep after noting the time, when it went off it woke him up again, he noted the time and he notified Carnarvon. The delta P light is of no significance. At this time the stack that the delta P light represents, in this case is not active. So they'll take care of it in the morning. We understand from the Cape that the Pioneer launch was successful, that the third stage did burn Pioneer into a trajectory toward the sun where it will go into orbit and in 6 months will be within 77 million miles of the sun in an orbit with a 310 day year. The retrofire clock for Gemini 6 reads 6 hours 1 minute and 23 seconds now to the time that Gemini 6 would fire its retrorockets for a landing in the primary recovery zone in the Atlantic. These figures will be updated and we'll give you those figures when they develop. This is Gemini Control.

END OF TAPE

This is Gemini Control. At 278 hours and 20 minutes into the flight of Gemini 7. 20 hours 12 minutes into the flight of Gemini 6. Both spacecraft just now over the Central part of Australia. 7 on its 17<sup>th</sup> pass, 6th on its 13th revolution. About 3:00 o'clock this morning Central time the Gemini 6 crew woke up, or at least they appeared to be awake on the ground. There was a lot of activity in the spacecraft and the surgeon commented that there seemed to be a lot of conversation and activity going on in the cabin. We confirmed that later on, like over Carnarvon we heard them talking. Also the Gemini 7 crew seemed to have woken up over the Indian Ocean not very long ago. And Carnarvon got involved in conversation with the spacecraft and we'll play that conversation for you now.

S/C 6                   Carnarvon Cap Com, Gemini 6.

Carnarvon               Gemini 6, Carnarvon go ahead.

/C 6                   Roger. Now that we are over you can we have an update on our node and . . garbled . .

Carnarvon               Stand by.

Flight                   Carnarvon stand by a second.

You can give him this update. Node 204209; remarks is rev 13, 118.7 degrees west right Ascension 08 hours 04 minutes stand by 10 seconds.

Carnarvon               Roger, Copy. Gemini 6, Carnarvon

S/C 6                   Go ahead

Flight                   Stand by don't . .

Carnarvon               Have your node update - 20 42 09; rev 13; 118.7 Frank did you have something on that?

Flight                    Yea, I don't want to wake up the 7 crew.

S/C 6                    I'm sure they are both awake.

Flight                    Both 7 crew?

S/C 6                    Yea, it looks like it. We've already given him the data.

Flight                    Okay, let's keep the talking down as much as we can.

Carnarvon                Roger, Flight.

                          This is Gemini Control, 278 hours and 22 minutes into the flight of 7, 20 hours and 15 minutes into the flight of 6. This is Gemini Control.

END OF TAPE

This is Gemini Control, 279 hours and 20 minutes into the flight of 7, 21 hours and 12 minutes into the flight of 6. We have some preliminary data on retrofire for 6 this morning and it reads like this. At approximately 8:53:19 central time Gemini 6 should fire retrorockets somewhere northwest of the Canton Island Station. At 9:13:32 they should reach 400,000 feet, that's the beginning of the sensible atmosphere. The so-called blackout period, communications blackout period, should begin at about 9:16:05 somewhere near the Cape and they should get out of that blackout period at about 9:21:12 near the Grand Turk Station. At about 50,000 feet the drogues will come out, that should be at 9:22:55 and the main chute should come out at about 9:24:38. The time of splashdown is currently predicted to be 9:28:59 central standard time at 23 degrees 36 minutes north by 67 degrees 50 minutes west in the prime 17-1 recovery area. Currently, both spacecraft are passing across Africa having just passed the Canary Islands Station. There has been no conversation with the crew since that brief conversation between 6 and the Carnarvon Station a rev ago. At 279 hours and 21 minutes into the flight 7 and 21 hours and 14 minutes into the flight of 6, this is Gemini Control.

END OF TAPE

This is Gemini Control at 280 hours and 20 minutes into the flight of Gemini 7, 22 hours 12 minutes into the flight of Gemini 6. Both spacecraft now crossing the Pacific and headed toward a pass across Mexico and Florida. Spacecraft 6 and 7 both have been talking with our ground stations, somewhat, mostly getting flight plan updates, and we will play a tape of the conversation between Carnarvon and the spacecrafts now.

CRO Gemini 6, Carnarvon.

S/C 6 Go Carnarvon.

CRO Roger, we've had a little problem with your tape recorder. We would like to have you place your reentry C-band to continuous, please.

S/C 6 Reentry C-Band to continuous.

CRO Okay, tape recorder power circuit breaker on.

S/6 Tape recorder power circuit breaker on.

CRO Okay, place your tape playback switch to the reset position momentarily, then back to command.

CRO Roger, reset to command.

Flight You have MA 95?

CRO Negative, MA95, Flight.

Flight I'm afraid we have the same problem we had on 7. The only thing you can suggest is that they try to tap it, if they can.

CRO Roger. Gemini 6, Carnarvon. Seems like we've got the same problem with your tape recorder as we had on 7. If you can reach it, you can try to tap it. Maybe we can get the tape motion.

S/C 6 I thought I heard this conversation before.

CRO Copy.

S/C 6 Rog.

CRO Okay, standby 6, I'm going to 7 now and get a purge.

S/C 6 Roger.

CRO Gemini 7, Carnarvon.

S/C 7 Good morning Carnarvon.

CRO Good morning. Okay, we've got a purge for you, but first I'd like to get your adapter C-band to continuous.

S/C 7 Roger, Adapter C-band to continuous.

CRO Okay, your crossover switch to normal and purge section 1.

S/C 7 Roger, Section 1 coming up.

CRO Okay, while you are listening for your purge 7, I'm going back to 6 for some more information.

S/C 7 Rog.

Flight Don't forget, that's just section 1.

CRO Repeat Flight.

Flight That's just section 1 we wanted to do.

CRO Roger. Gemini 7, that is just section 1 we want purged.

S/C 7 Understand.

CRO Gemini 6, Carnarvon.

S/C 6 Gemini 6, go.

CRO Okay, I have some instructions for you. Okay, you can power up. All right, we'd like to bring your computer and bring it up to power and bring your radar up to standby. After 5 minutes turn radar on and copy radar readings every 10 minutes, between Carnarvon and U.S.

Flight What we want there is range, pitch, and time.

S/C 6 Okay, we've got our computer on. It's in prelaunch, turn the radar on at 42 minutes elapsed time.

CRO Roger, what we want off your radar is your time, range, and

pitch.

S/C 6 On spacecraft 7.

CRO That's affirmed. We'll be turning the transponder on.

S/C 6 Okay, it will be after me, that's correct, is it not?

CRO That is affirmed.

S/C 6 Okay, we are getting a good look at you all now, approaching.

CRO Also I have a flight plan update for you whenever you are ready to copy.

Flight Carnarvon, Houston.

CRO Go ahead Houston.

Flight Did you get the L-band transponder on?

CRO I haven't got it on yet, Flight.

Flight Okay, that takes 10 minutes to warm up.

CRO Rog. Gemini 7, Carnarvon.

S/C 7 Go ahead Carnarvon.

CRO Okay, can you turn your L-band transponder on please.

S/C 7 Roger. It's on.

CRO Now are you ready to copy 6.

S/C 6 That's affirmative. Go ahead.

CRO Okay. Time 22 25 06, crew status report at Canaveral.  
That completes the update of just a short item. Can you position your cryo gauging switch to ECS O<sub>2</sub>, please.

S/C 6 Rog. ECS O<sub>2</sub> and 22 25 06, crew status at Canaveral.

CRO That's all Gemini 6.

S/C 6 Carnarvon, Gemini 6.

CRO Go ahead Gemini 6.

S/C 6 Roger, I took .. (garble) one pill at 35 (garble) .. 21 hours.  
I had some nasal congestion.

CRO Could you repeat, please.

S/C 6 Roger. I took one Actifed pill at 21 hours 35 minutes.

RO Roger, we copy. Okay, you can turn your cryo gauging switch back to off, 6.

S/C 6 Roger, we are going around to pick up 7.

S/C 7 Carnarvon, section 1 purged, section 2 standing by.

CRO Roger, 7. All right, turn your primary coolant valve circuit breaker off.

S/C 7 Is that for 7, Carnarvon.

CRO That is affirmed, for 7.

S/C 7 Roger, primary coolant valve coming off.

CRO Radiator switch to bypass.

S/C 7 Radiator switch is on by-pass.

CRO Secondary pump B off.

S/C 7 Secondary pump B off.

RO Secondary pump A on.

S/C 7 Pump A is on secondary.

CRO Okay, we'd like for you to pump your fuel cell H2 tank prussure up to 550 your gauge reading.

S/C 7 The heater's been on all night, Carnarvon, up as high as it will go.

CRO Okay, what do you show for a reading?

S/C 7 510 Carnarvon.

CRO Okay, pump it up to 550 please.

Flight They can't get it, the heater's on.

S/C 7 We can't ... (garbled)

CRO Roger, Roger. I understand.

S/C 7 It's up as high as it will go.

RO Okay. Also, crossover switch off.

S/C 7 Crossover is off.

CRO Okay, we'd like your cryo readouts please.

S/C 7 .... (garbled)

CRO Okay, will you go to the ECS 02 position.

S/C 7 ECS 02. We are reading 840 pressure and about 50 percent --  
49 percent.

CRO Roger, copy. Okay, you can put your cryo gauging switch to  
Off 7.

S/C 7 Roger, it's off.

CRO Okay, I have a flight plan update if you are ready to copy.  
Gemini 7.

S/C 7 Go ahead Carnarvon.

CRO Okay, node, 281 49 30, rev 176, 164.9 degrees west, right  
Ascension. 07 hours 51 minutes 26 seconds. Flight plan time  
line update, change 280 00 00 to 280 10 00. Did you copy.

S/C 7 Roger.

CRO Time 280 26 38, go--no-go at Guaymas. Time 280 28 51, fuel  
cell purge on section 2 at Texas. Did you copy.

S/C 7 Roger.

CRO Time, 280 47 40, PLA update at Canaries. Time 281 23 41,  
crew status report, Command Pilot at Carnarvon. Did you  
copy.

S/C 7 Roger.

CRO Okay, we are about to have LOS. We've got two or three more  
items. I don't know if I can give them to you. The next  
item is a dim-light, time 281 48 00, sequence number 02,  
clouds, quarter moon use exposure of 1 second and 5 seconds.  
Did you copy? We've had LOS Flight.

That was Wally Schirra who was talking about, "It seems we - I thought I heard that conversation before," he told the station at Carnarvon, referring to the kicking of the tape recorder. There was a little more conversation about that tape recorder when they passed the Canton Station. We will play that tape for you now.

Cap Com Gemini 7, Houston.

S/C 7 Go ahead Houston. You are loud and clear.

Cap Com Roger. Good morning, Frank.

S/C 7 Good morning.

Cap Com I'd like to request that you place your heater on so we can get the hydrogen pressure above the regulation pressure for a double purge. We request you pump it to 550 psi, then place your switch back in the auto position.

S/C 7 All right. I'll do it.

Cap Com And I have the continuation on your flight plan update that you weren't able to get at Carnarvon.

S/C 7 Go ahead.

Cap Com Roger, dim-light, time 281 48 00, sequence 02, clouds, quarter moon, use exposure of 1 second and 5 seconds.

S/C 7 Roger, go ahead.

Cap Com Time, 282 04 07, crew status report, Pilot, at Texas.

Time 282 59 22, purge fuel cells at Carnarvon. Title dim-light, perform sequence 01, twilight bands whenever possible. That's the end of the flight plan update. Also, Frank. We request to know when you intend to get back out of your suits?

S/C 7 Houston, you are gubbeling.

Cap Com Gemini 7, Houston. We would like to know when you would anticipate getting out of your suits.

Cap Com Gemini 7, Houston. Do you read. Gemini 6, Houston. Gemini 6,  
Gemini 6, Houston.

S/C 6 This is Gemini 6 Houston, go.

Cap Com Roger, Gemini 6. Request that you kick the tape recorder.  
We feel that the tape might be out of the limit switch and --  
by kicking it, we might get good tape operation.

This is Gemini Control with some times on the retrofire and  
locations. Retrofire will be at 8 53 19 central time. This should take place  
about 700 miles northwest of Canton. The spacecraft will reach the sensible  
atmosphere, 400,000 feet at 9:13:32 central time, about 80 miles north of  
Laredo and southwest of San Antonio. The spacecraft will pass south of Houston.  
They begin their so called blackout period, the period when the ionized layer  
around the spacecraft prevents communication and that should be at 9:16:05 and  
should be about 140 miles south of Pensacola, Florida. They should enter  
this period of blackout at 9:21:12 near Grand Turk, where we have a station  
and the drogue parachutes are due to come out at 50,000 feet, that's at  
9:22:55 central time, the main chutes at 9:24:38, and splashdown should occur  
at 9:28:59 this morning, central time, about 645 miles south of Bermuda and  
850 miles east of the Cape, Cape Kennedy. The aircraft carrier Wasp, prime  
recovery vessel in area 17-1 is heading for that station and is due to arrive  
there by 7:30 central standard time. The weather in 17-1, 2000 feet, scattered  
visibility 10 miles, wind 10 knots, sea 1 to 2 feet, temperature 75 degrees.  
We got that weather from the Weather Bureau's Spaceflight Meteorology group.  
While spacecraft 6 is ending its 14th revolution now, 7 is ending its 175th  
revolution now at 22 hours and 26 minutes into the 6 flight, 280 hours 34 min-  
utes into the 7 flight, This is Gemini Control.

END OF TAPE

This is Gemini Control. 280 hours, 52 minutes into the flight of Gemini 7. 22 hours, 44 minutes into the flight of Gemini 6. We've just had a pass across the States with two Flight Directors on hand, the oncoming Red Flight Director, John Hodge; Chris Kraft, the outgoing....We've had Chris Kraft and John Hodge in here today plus our Cap Com, Charlie Bassett. There was a lot of lively conversation between the spacecraft and the ground and those 3 people. We'll play that conversation for you now.

GYM Gemini 7, Guaymas Cap Com.

S/C 7 Go ahead, Guaymas.

GYM Roger. We're ready for your "go/no go" quantity.

S/C 7 Roger. Coming up. Okay, Guaymas. Our batteries...main batteries all checked okay. Fuel cell stack read out: 1A, 8.5; 1B, 9; 1C, 8.0; both 2A and 2B are zero, zero, they're open circuit. Main circuit voltage 24.5.

GYM What's the open circuit voltage?

S/C 7 RCS A pressure 3000, temperature 80. B is 3000, temperature is 80. Left hand secondary O2, 5400. Right hand secondary O2, 5300.

GYM Roger. Copy.

HOUSTON Did you get the open stack voltage?

GYM I'll get it. Okay, now give me the open stack voltage on 2A, B, and C.

S/C 7 2A is off scale high. B is off scale.....All three are off scale high.

GYM Roger.

HOUSTON Okay. If you look alright there, you can give them a go.

GYM Roger. We have you go for 192-1. You have that TR in your in your DCS at this time. It will not be updated at this time.

S/C 7 Thank you.

HOUSTON Thank you, Guaymas. Texas, take the air to ground.

TEXAS Texas has it.

GYM Flight, Guaymas.

TEXAS Texas has acquisition. Gemini 7, Texas Cap Com.

S/C 7 Go ahead, Texas.

TEXAS Roger. We'd like you to turn secondary pump A off and secondary pump B on.

S/C 7 Roger. Secondary pump A to off. Secondary pump B to on.

TEXAS Radiator switch to flow.

S/C 7 Radiator is flow.

TEXAS Now, will you put coolant valve circuit breaker to closed.

S/C 7 My coolant valve circuit breaker is closed.

TEXAS Okay. We's like onboard read outs of Section Two voltage please.

HOUSTON We've got those. Texas, we've got those.

S/C 7 All Section Two stack voltages are off scale high, about 32 volts.

TEXAS Roger. Copy. Crossover on.

S/C 7 Crossover's on.

TEXAS Now fuel cell control Section Two circuit breaker closed.

S/C 7 Roger. Completed.

TEXAS Am standing by for a double length purge on Section Two.

S/C 7 After I put Two back on the line.

HOUSTON Open circuit.

TEXAS That's open circuit purge. Gemini 7, do you copy?

S/C 7 Roger. You want 2 back on the main bus, or do you want to leave it off for the double length purge?

TEXAS Leave it off. Leave it off.

S/C 7 Roger. Commencing double length purge.

HOUSTON Texas, would have CM-1 in 6 to see what his oral temp is now, please.

TEXAS Say again please, Texas.

HOUSTON Have the command pilot of 6 put the oral temp in his mouth.

TEXAS Roger. Copy. Gemini 6, Texas Cap Com. We'd like to have the command pilot to put the oral temp probe in his mouth at this time.

S/C 6 Just ruined a good breakfast.

TEXAS Sorry.

HOUSTON Go ahead.

S/C 6 Hello, Houston. This is Gemini 6, with the water and food status report.

HOUSTON Roger, Gemini 6. Houston Surgeon. Go ahead.

S/C 6 Roger. Command pilot has a total of 129 half ounce drinks and three meals. Pilot has 113 half ounce drinks and three meals.

HOUSTON Roger. Copy 3 meals apiece, one with 129 half ounce drinks and 113 half ounce drinks for the command pilot and pilot, respectively. Would you give us a report on your sleep.

S/C 6 We slept approximately 5 hours apiece.

HOUSTON No good. Gemini 6, Houston Surgeon. Would the pilot send us a blood pressure while we're awaiting the command pilot's oral temp.

S/C 6 Roger.

S/C 7 Houston, double purge complete on Section Two.

HOUSTON Roger, on double purge complete on Section Two. Place your fuel cell control to circuit breaker off.

S/C 7 Roger. Completed.

HOUSTON Repeat step 5. Open...  
Cuff is full scale, 6. Open circuit read outs on 2A, 2B, and 2C voltage.

S/C 7 Open circuit read outs on 2A, 2B, and 2C are all off scale high, about 32 volts.

HOUSTON Put back on line.

S/C 7 Roger. Section Two going back on the line.

HOUSTON Command pilot, 6, oral temp valid. After 10 minutes, crossover off.

S/C 7 Houston. Station Two back on the line and crossover still on.

HOUSTON Gemini 6, pilot blood pressure valid. Command pilot blood pressure. We're standing by.

S/C 6 Roger.

HOUSTON Gemini 7, crossover off after 10 minutes.

S/C 7 Roger. Crossover off after 10 minutes.

HOUSTON Gemini 6, Houston. Place your tape recorder power circuit breaker off.

S/C 6 Six has power recorder circuit breaker off.

HOUSTON I'm sorry. That's in error. Place your tape recorder control circuit breaker off.

S/C 6 Roger. Control off. Seven, this is 6. Would you put on your Acq Lights on again for me, please.

HOUSTON Cuff is full scale, CP.

ANTIGUA Acquisition, Antigua.

S/C 7 Acq's on, 6.

S/C 6 Roger.

HOUSTON Command pilot, 6. Pump your cuff up again. You pulled your cuff off...your bulb off. Cuff is full scale. Gemini 6, Houston. We'll be standing by for any time range; and if possible, address

59th data read outs between you and 7. Gemini 6, we have the  
command pilot's....

S/C 6 This is 6. Did you get the word on the data we have to range?

HOUSTON Roger. We'd request that information, but.....

END OF TAPE

S/C 6 7, this is 6. Would you flip on your  
amp lights again for me, please.

CAP COM Cuff is full scale, CP.

S/C 6 Acquisition lights on, please.

S/C 7 Acq's on, 6.

S/C 6 Roger.

CAP COM Command Pilot 6, pump your cuff up again.  
You pulled your cuff out, your bulb off.

S/C 6 Cuff is full scale.

CAP COM Gemini 6, Houston, we'll be standing by for  
any time range, and, if possible, address  
59 data readouts between you and 7.  
Gemini 6, we have the Command Pilot's..

S/C 6 Get the word off the data. We have the  
range.

CAP COM Roger, we request to have that information,  
please.

S/C 6 Roger. The range at 20 hours GET or 215000  
plus 22.24. The range 22 plus 00 00 was  
17.63. The range of 22 plus 12 plus 00 was  
16.33. The range of 22 plus 20 plus 00 was  
19.55. The range of 22 plus 30, the range  
was 26.31.

CAP COM Roger, Gemini 6. Could you tell me if  
spacecraft 7 is above your altitude or

below your altitude.

S/C 6 He is above our altitude.

CAP COM He was above you when you got those readings?

S/C 6 That is affirm. I have him in sight with reflected light here.

CAP COM You have him in sight with reflected light.

S/C 6 That's affirm. We have both acq lights and reflected light.

CAP COM Can you give me an estimate of the elevation angle?

S/C 6 ...but we want to get cleaned up in here. To track him only proves that we're able to rendezvous and we've done that. We'll have to get the cockpit stowed pretty soon here.

CAP COM Roger.

S/C 6 We know what radar range we have already. You want to give us an update on what the real retro time is?

CAP COM Gemini 6, Houston, understand. Will you have any non nominal stowage?

S/C 6 We're considering leaving the water bags in the right aft box instead of changing them to the left aft box. Otherwise, there will be a tangle.

CAP COM Roger. Water bags in the right aft as opposed to the left aft box.

S/C 6                    That is correct. They will be where they were  
for launch.

CAP COM                Roger. Same place that they were during launch.  
And I'd like to reverify that at the time these  
readings were taken Gemini 7 was above you.

S/C 6                    That's affirmative.

CAP COM                Thank you very much, Gemini 6.

S/C 6                    They're about 4 or 5 degrees above. We can see  
them now.

CAP COM                4 or 5 degrees above. Thank you very much.

S/C 6                    Could you give us an update on our 17-1 retrofire  
time? Just so we can prep up to it.

CAP COM                Roger. 14 53 21 GMT. GET is 25 15 55.

Gemini 6, Houston, did you copy?

S/C 6                    Roger. We have a GMT of 14 53 51. GET, 25 15 55.

CAP COM                Roger. That GMT is 14 53 21. Your GET is correct.

S/C 6                    Roger. Got it.

CAP COM                Gemini 6, Houston, please verify tape recorder  
power circuit breaker on, tape recorder control  
circuit breaker off.

S/C 6                    That is affirmative. Our tape recorder power  
is off, controller is on.

CAP COM                Thank you very much, Tom.

SURGEON                Gemini 6, Houston Surgeon, you noticing some

effects on the activators yet?

S/C 6 I'm using left heater.

CAP COM Roger. Gemini 6.

S/C 6 We slept cool, but everything was OK.

CAP COM Roger. Copy, 6.

FLIGHT Good morning, Capt. Schirra.

S/C 6 Good morning, Chris. How's Paul?

FLIGHT You're doing great. Let's put it down on the elevator.

S/C 6 No. 3 or No. 2?

FLIGHT Your choice.

S/C 6 Roger. We'll try them both.

FLIGHT Stand by. We'll have to change the target area.

S/C 6 Good show getting us set up for that rendezvous. Before long and we'll be on the boat.

FLIGHT Roger.

S/C 7 Gemini 7.

S/C 6 Go ahead, Jim.

S/C 7 Want to make a wager on who comes closest?

S/C 6 It's a bet.

FLIGHT I need some payola there.

S/C 6 We're going to make our bet out of contact with ground stations, I assume.



This is Gemini Control. Gemini 7 is in its 176th revolution; Gemini 6 is in its 14th at 23 hours and 4 minutes on Gemini 6's flight; 281 hours and 11 minutes on Gemini 7's flight. We heard some conversation over Canary, let's play that tape for you now.

CYI Gemini 7, Canary Cap Com

S/C 7 This is 7, go ahead Canary.

CYI Roger, read you loud and clear, your status is go here on the ground, what's yours?

S/C 7 Crew status is go here in space.

CYI Okay, we have a BDA update for you, but we'd like ask a question first, we'd like to know when you're going to get out of your suit.

S/C 7 We're eating breakfast and we thought we'd clean up a little before we start getting out of the suit.

CYI Okay, very good, let me know when you're ready to copy.

S/C 7 We're ready now.

CYI 177-1. 281 47 18. 178-1 283 22 27. 179-4 286 15 35  
180-4 287 51 14. Here's a goodies 181-3 Charlie  
289 08 41. 182-3 290 44 13. 183-3 292 19 45.  
REP 400K 21 + 40. Weather is good in all areas.

S/C 7 Thank you.

II [ Roger.

HOU FLIGHT                    Canary Cap Com, Houston Flight.

CYI                                Go ahead.

HOU FLIGHT                    Okay, we'd like to get the 7 transponder off,  
We'd like to get the 6 radar off. And the 6  
computer to prelaunch.

CYI                                Tha's 7 transponder off; six radar off; and what  
was the last one?

HOU FLIGHT                    Six computer to prelaunch.

CYI                                Roger Copy.  
Gemini 7, Canary.

S/C 7                            Go ahead Canary.

CYI                                Roger, will you turn off your transponder.

S/C 7                            Roger cut it off.

CYI                                Gemini 6, Canary.

S/C 6                            Rog, radar going off.

CYI                                Very, Very good. We'd like your computer on pre-  
launch.

S/C 6                            Roger going to prelaunch.

CYI                                Roger, thank you.

HOU FLIGHT                    Do you have any tape motions Canary?

CYI                                Negative flight.

HOU FLIGHT                    Okay. How are the fuel cells doing on 7?

CYI                                Well, flight 2A is showing 1.05; 2B 2.22; and 2C  
2.90.

HOU FLIGHT                   How about one?

CYI                            We're getting those now flight.

HOU FLIGHT                   See if you can get the onboard readings too  
please.

CYI                            Roger. Seven, Canary.

S/C 7                         Go ahead Canary.

CYI                            We'd like the readouts on your readouts on  
your currents 2A, B, and C.

S/C 7                         Roger 2A is really low. It's hanging about  
one volt below; 2 B is 2½ and 2Charlie is 3.

CYI                            Roger, what about one?

S/C 7                         1A is four, 1B is five, 1C is four.

CYI                            Okay, we'll keep an eye on it.  
Gemini 7, Canary.

S/C 7                         Go ahead.

CYI                            Roger, will you turn your cross over switch off?

S/C 7                         Roger.

CYI                            You have huh.  
Flight Canary.

HOU FLIGHT                   Go ahead.

CYI                            Roger, we're getting .814 now on 1A.

HOU FLIGHT                   Say again.

CYI                            We're getting .814 on 1A.

HOU FLIGHT                   1A?

MI 2A flight.

HOU FLIGHT Okay.

Tell him to open circuit 2A please.

CYI Roger.

Seven, Canary, would you open circuit 2A?

S/C 7 Roger, 2A going open circuit.

HOU FLIGHT Have you got the open circuit voltage on 2A?

CYI Roger. Will Give me an open circuit voltage on 2A please.

S/C 7 Roger. 29.5.

CYI Roger. Is it steady?

S/C 7 .....(garble) is 29.8.

CYI Roger. We'll keep that open for a while okay?

S/C 7 Righto.

HOU FLIGHT Tell him to keep an eye on that and we'll contact him again over Carnarvon.

CYI Roger flight.

Seven, let's leave that 2A open circuit and keep an eye on open circuit voltage and we'll take a real close look at at Carnarvon.

S/C 7 Will do.

HOU FLIGHT He can put 2A on in fifteen minutes.

CYI Fifteen minutes.

Tell you what, why don't you 2A back on line 15 minutes, 15 minutes.

S/C 7                            2A back on the line in 15 minutes. Roger.

CYI                                Roger

Sorry we don't have too much for you there  
six.

S/C 6                            We really regret we don't have any fuel cells.

CYI                                We copy that.

HOU FLIGHT                    Good show Canary.

CYI                                Roger, thank you.

HOU                                Canary LOS, Gemini 7 and 6.

END OF TAPE

This is Gemini Control. Gemini 7 and 6, two spacecraft are half way around the World, or nearly half way around the World. Gemini 7 on its 176 revolution at 281 hours and 20 minutes into its flight. Gemini 6 in its 15 revolution at 23 minutes...23 hours and 12 minutes into its flight. The retros aboard Gemini 6 are going to be fired at 8:53 a.m. Central Standard Time this morning, plus or minus a few seconds; 8:53:21, I believe they said the last time. The splash down time for the 17-1, that's the recovery area at the beginning of the 17th revolution, for Gemini 6. They would land there at 9:30, that's south of Bermuda, east of Cape Kennedy. Right now, both spacecraft are over the middle of the Indian Ocean awaiting contact with our Carnarvon Station, on the west coast of Australia. There have been no unusual reports this morning, but there has been a lot of activity aboard both spacecraft. Primarily because of the preparations for retro-fire aboard 6; and because the usual morning purging and peping up of fuel cells that goes on every day aboard Gemini 7. So, at 281 hours and 21 minutes into 7's flight, and 23 hours, 13 minutes into 6's flight, this is Gemini Control.

END OF TAPE

*Page 516 thru 525*

MISSION COMMENTARY TRANSCRIPT, 12/16/65, 7:08 a.m.

Tape 506, Page 1

This is Gemini Control at 281 hours and 37 minutes into the flight of Gemini 7, 23 hours and one-half into the flight of Gemini 6. Both spacecraft crossing the east coast of Australia headed toward Canton Island. We are getting ready to bring Gemini 6 back into the 17-1 recovery area in about - at about 9:30 a.m. this morning, central time. Meanwhile the U.S. Weather Bureau Spaceflight Meteorology Group said that weather conditions remain satisfactory in the areas of primary concern for continuation of the Gemini 7 flight for the next two days, and probably for the remainder of the mission. In the Western Atlantic zone, centered about 800 miles east of Miami skies will be partly cloudy with northerly winds about 10 knots and seas 3 feet. In the mid-Pacific landing zone, centered about 800 miles northeast of Honolulu, skies will be mostly cloudy with widely scattered showers, winds easterly 15 to 20 knots and seas 6 to 8 feet. In the Western Pacific landing zone, centered about 700 miles south-southwest of Tokyo, mostly cloudy skies will prevail with scattered showers. Winds will be northerly 20 to 25 knots and seas will range up to 8 feet. In the eastern Atlantic landing zone, centered about 500 miles north of the Cape Verde Islands, skies are expected to be partly cloudy, winds east at 15 to 20 knots and seas 5 to 6 feet. Both spacecraft now starting their cross of the South Pacific. They have just passed the Carnarvon Tracking Station where we had communication with them. Let's hear that conversation now.

CRO                   Carnarvon has TM contact.

Flight               Roger, Carnarvon.

Cap Com             Gemini 7, Houston.    Gemini 7, Houston. Hello Gemini 7,  
Houston. Gemini 7, Gemini 7, Houston. Gemini 7, Gemini 7  
Houston.

CRO                   TM solid.

Flight               Roger.

CRO Gemini 7, Carnarvon Cap Com. We have a valid temperature, standing by for your flood pressure.

CRO Surgeon Gemini 7, this is Carnarvon Surgeon. Standing by for your blood pressure.

S/C 7 Coming down.

CRO Cuff is full scale.

CRO Surgeon We have a valid blood pressure.

S/C 7 Mark on the exercise.

CRO Cuff is full scale.

CRO Surgeon Gemini 7, I have a valid blood pressure.  
Would you give us your food, water, and sleep report, please.

S/C 7 Roger, Command Pilot has had 949 ounces of water, last night we had meal day 9 meal C, this morning day 13, meal A and the Command Pilot did not eat the sausage. Total on column 6 is 31 for the Command Pilot, correction, column 6 is 6.

CRO Surgeon Would you repeat a little bit slower.

S/C 7 Roger. 949 ounces of water. Last night, day 9, meal C. This morning day 13 meal minus the sausage for the Command Pilot, column 5, 31, total column 6, 6.

CRO Surgeon And your sleep report please?

S/C 7 Roger, about 5 hours of moderate sleep.

CRO Surgeon What was the water for the pilot please.

S/C 7 The Pilot has had 796 ounces, same meals except he ate everything. Total of column 5 is 28, column 6 is 6. And the same amount of sleep.

CRO Surgeon Would you confirm the reason for loss of bio-med recorders from the Pilot is changing suit.

S/C 7 That's correct.

CRO Surgeon Thank you. Carnarvon Surgeon out.

CRO Gemini 6, Carnarvon Cap Com.

/C 6 This is 6.

CRO Roger. I have an update for your RN minus RP for your area 17-1 if you are prepared to copy.

S/C 6 Stand by. Go.

CRO Roger, bank angle, 00 degrees, RN minus RP plus 107, bank angle 44 degrees. RN minus RP, bank angle 90 degrees, RN RP minus 197, do you copy.

S/C 6 Roger ... (garbled)...

CRO Say again Gemini 6.

S/C 6 ..... (garbled) ...

Flight What did he say there.

CRO Gemini 6, Carnarvon Cap Com. You are breaking up on us. Could you say again please.

/C 6 Roger, roger. On these updates, we didn't receive .... (garbled) would you repeat it.

CRO Roger, say again. For area 17-1, bank angle 00 degrees, the RN minus RP will be a plus 107, second reading, bank angle, 44 degrees, the RN RP will be 0, the third one. At 90 degrees bank angle RN minus RP will be a minus 197. Do you copy.

S/C 6 Roger. I copy. 17-1, bank angle 00 degrees, RP + 107, bank angle of 44 degrees RN minus RP 0, 90 degrees bank angle, RN RP minus 197.

CRO That's affirmative. You are looking good from the ground.

S/C 6 Roger, we have just completed stowing our major stowage items.

CRO Flight, Carnarvon. On these fuel cells, main A - I mean Main 1 is carrying 10.7, main 2 is carrying 4.6 .

light Roger.

CRO Our Q6 here, has an optical sighting of both spacecraft during

of both spacecraft during that last pass.

Flight Did you see them separately?

CRO That's affirm.

This is Gemini Control Houston, your friendly Red Team has arrived on the scene and since we've been in the room we've been advised that splash time will be approximately 2 minutes later and we cannot presently account for any change in retro time, but we are carrying splashdown now at 9:30, I believe 9:28 had been quoted earlier. We will get better information on these numbers. Elliot has put in a call to 7, via Canton Island right now and let's tune in there and see what is going on.

S/C 7 Say again Houston.

Cap Com Did you say you are ready to copy.

S/C 7 Houston, go ahead.

Cap Com Roger, time 283 23 18, pitch 10 degrees down, yaw 0 degrees, photograph GT-6 retrofire and reentry. This time is GT-6 retrofire. Time 283 30 00, power up platform over Hawaii. A pumps on prior to power up. S-5, time 284 15 00, mode 01, pitch down 90 degrees, then yaw 20 degrees left, South Africa. MSC-4, 285 03 51, sequence 06, mode 01, pitch 30 degrees down, yaw 27 degrees right, go to mode 03 when station acquired. Time 285 16 00 fuel cell purge and power down. Do you copy.

S/C 7 Roger, we copy.

Cap Com We'll keep an eye on section 2 and we may have to delete the platform power up.

S/C 7 Roger. 2 Charlie is one amp now, I think we are finally losing section 2.

Cap Com Roger, we are continuing to watch it with you.

S/C 7 Okay.

Cap Com Gemini 7, if 2 Charlie goes below 1 amp, take it off the line also.

S/C 7 Roger.

Cap Com Gemini 7, confirm you are on standby transmitter with real-time telemetry and we want you to remain on this until the end of rev 178, so Kwajalein can record your D4 data on their standby frequency.

S/C 7 We are on their frequency.

Cap Com Roger.

S/C 7 Houston. Do you want us to put these stacks back on after we open circuit it?

Cap Com Roger, after being open 20 minutes, try putting them back on again.

S/C 7 Roger.

This is Gemini Control Houston. That will wrap up the conversation via Canton. At 281 hours 52 minutes into the flight of 7, and Schirra and Stafford have been up there now 23 hours 44 minutes. This is Houston.

END OF TAPE

This is Gemini Control, Houston. 282 hours, 18 minutes into the flight of 7; 24 hours, 11 minutes into the flight of 6. For nearly 2 weeks now, we've been beaming daily, music up to our pilots, 2 for most of the time, 4 for the last 24 hours. This morning, the pilots got their revenge. Listen carefully now to the early part of the Stateside pass when the Gemini 6 crew reversed the process.

GYM Guaymas has solid TM on both spacecraft. Both spacecraft are go.

HOUSTON Roger.

GYM It looks like 2B and 2C are dividing the load pretty evenly.

HOUSTON Roger, Guaymas.

S/C 6 Gemini 7, Gemini 6. Can you see us?

S/C 7 Negative. Sure can't.

'C 6 You can now, can't you?

S/C 7 No, I sure can't, Wally.

S/C 6 We're in the light. We'll put the docking light on.

S/C 7 We're just drifting. I don't know which way we're looking.

S/C 6 Okay. Houston Cap Com. Can you read Gemini 6?

HOUSTON Guaymas, AFD. We're going prime for voice.

GYM Roge.

HOUSTON Texas go remote.

TEXAS Texas remote.

S/C 6 Gemini 7, this is 6. Would you place your Acq Light on please?

S/C 7 Roger. Done.

HOUSTON Gemini 7, Houston. Did you call?

S/C 7 Hello, Houston. We just want to know if you're up on the air today.

HOUSTON Roger.

S/C 6 Roger, Houston and Gemini 7. This is Gemini 6. We have an object, looks like a satellite, going from north to south, up in a Polar orbit. He's in a very low trajectory, traveling from north to south. And, it has a very high fineness ratio. It looks like it might even be a ball of sticks. It's very low; looks like he may be going to re-enter pretty soon. Stand by one; it looks like he's trying to signal us. (Jingle Bells played by harmonica and bells.)

S/C 7 We got them too, 6.

S/C 6 That was live, 7; not tape.

HOUSTON You're too much, 6.

S/C 6 Da Da De Da De.

S/C 7 Houston, 7 here.

HOUSTON Go ahead.

S/C 7 We've had to take 2A off the line 3 straight times now. I suggest we leave it off.

HOUSTON Roger. What's your open circuit voltage showing now, Frank?

S/C 7 31 volts. And, I'd also like to delete the platform power up to make this thing go 14 days.

HOUSTON We may cancel that platform power up as I told you, depending on how Section Two is looking at that time. We'd like to keep the option open at this time; and we also want to keep the option open on 2A. We want to keep trying it.

S/C 7 2C is almost below 1 amp, also.

HOUSTON Roger. We copy.

S/C 7 And, Lovell has got the thermometer in his mouth.

HOUSTON Roger. Seven, the temperature is coming up, and also the open circuit voltages indicate that these should be good cells, so we aren't ready to give up on them yet.

S/C 7                   Okay.

HOUSTON                Gemini 6, stand by for an update on your computer for a retro.  
Are you ready to accept it?

S/C 6                   Gemini 6. Affirmative. We are in pre-launch.

HOUSTON                Roger. You're ready.

S/C 6                   Elliot, if you send that update again, we'll take it. We moved  
out of pre-launch, and then back to pre-launch.

HOUSTON                Roger. We'll send it again.

S/C 6                   Okay, Elliot.

HOUSTON                Gemini 6. I'm ready to give you a read out on the MDIU quantities  
so that you can check them. Are you ready to copy?

S/C 6                   Stand by one second, Elliot.

HOUSTON                Gemini 7, you can take the oral temp probe out of your mouth.  
We're not getting a satisfactory reading now.

S/C 7                   Roger.

S/C 6                   Gemini 6 is ready to copy.

HOUSTON                Roger. Address 03 385-49. Core 04, 613-88. Core 05, 075-13.  
Core 66, 653-84. Core 07, 359-99. Core 08, 400-14. Are you  
copying, 6?

S/C 6                   Got all through 6. You cut out on 7. Repeat core 7 on. You  
faded out.

HOUSTON                Roger, Tom. Core 07, 359-99. Core 08, 400-14. Core 09, 124-21.  
Core 10, 023-46. Core 11, 292-17. Do you copy?

S/C 6                   Roger. Copied all of them. We'll check the MDIU.

HOUSTON                Okay. Why don't you read back those real quick, Tom.

S/C 6                   Roger. 03 was 385-49. 04 is 613-88. 05 is 075-13. Core 66  
653-84. 07, 359-99. 08, 400-14. 09, 124-21. Core 10, 023-46.  
Core 11, 292-17.

HOUSTON Roger, Tom. For your information, our TM verifies this; and we have ran out of solution, and it looks good. Would you read 03 back. I was interrupted. I did not get your read back. I think it was correct.

S/C 6 Roger. 03 is 385-49.

HOUSTON Roger. They all check, Tom.

S/C 6 Okay. We're go.

HOUSTON I've got an area 17-1 update for you also, when you're ready to copy.

S/C 6 Go.

HOUSTON GET RC 25:15:58. RET 400K, 20 plus 15. RET RB 26 plus 38. Bank left 55. Do you copy?

S/C 6 Roger. In area 17-1: GET RC 25:15:58; RET 400K 20 plus 15. Reverse bank 26 plus 38. Bank left 55 degrees.

HOUSTON Roger. That's correct, 6.

ANTIGUA AOS, Antigua.

HOUSTON Gemini 6. We want to try another tape dump here. Just one more try. Would you place your tape recorder control circuit breaker on. And, verify the tape recorder power circuit breaker on.

S/C 6 Roger. Tape recorder power and control circuit breakers are on.

HOUSTON Roger.

S/C 6 Houston, Gemini 6. All cores checked that you sent up to us.

HOUSTON Very good, 6. Gemini 7, Houston.

S/C 7 Go ahead, Houston.

HOUSTON We're going to catch your crew status report on another pass. We're not receiving you data anymore since your past Texas and we had to do the re-entry updates on 6.

S/C 7 Roger. We're going to try to put 2A back on the line again now.

HOUSTON Roger. Is the open circuit voltage up any?

S/C 7 Negative. 31.2.

HOUSTON 31.2. Roger. Gemini 6, Houston. How are you coming on the retro preparations? You getting everything stowed away?

S/C 6 Roger. We have one camera out; and we'll throw it down in the box when we're on the other side.

HOUSTON Very good. Don't let that satellite get away from you.

S/C 6 Looks like we're going to get away from him.

S/C 7 Houston, 7 here. It goes immediately down to about half an amp.

HOUSTON Roger. Take it off again for 20 minutes.

S/C 7 Roge.

HOUSTON Gemini 6. We had no joy on your tape dump. We'd like you to place the tape recorder power circuit breaker off. You can leave the control circuit breaker on.

S/C 6 Roger. Power off. Control on.

HOUSTON Roger, Tom.

S/C 6 Houston, Gemini 6. Do you have the .....(Faded).....

HOUSTON You're very weak, 6. Say again.

S/C 6 Roger. Do you have the latest nominal IVI reading with the read outs?

HOUSTON The same as we gave you pre-flight. The 308 number.

S/C 6 Houston, this is 6. ...(Garble)...

HOUSTON Say again, Tom. You were just a little fast there. Something about stowage.

S/C 6 Roger. Give us the IVI numbers if you can. We've stowed that book already.

HOUSTON Roger. It's 308 aft. Stand by. And 117 down.

S/C 6 Roger. That's 308 aft and 117 down.

HOUSTON Roger. Gemini 7, Houston.

S/C 7 Go ahead, Houston. Go ahead, Houston, 7 here.

HOUSTON Stand by a minute, 7. Gemini 7, Houston.

S/C 7 Go ahead, Houston.

HOUSTON We'd like to have you put 2A back on the line and leave it on there for 20 minutes even though it is below 1 amp. We'd like to see if it doesn't come up some.

S/C 7 Roger.

HOUSTON If it stays below 1 amp for 20 minutes, then take it off the line again, for 20 minutes.

S/C 7 Roger.

HOUSTON And, we'll be checking with you again at Kano.

S/C 7 Roger.

HOUSTON Gemini 7, Houston.

S/C 7 Seven here.

HOUSTON Could you confirm your suit configuration on both pilots?

S/C 7 Roger. We're in a state of transition. I'm out of my suit completely, and it's already stowed; and Frank is in the process of getting out of his.

HOUSTON Roger, 7.

ANTIGUA LOS, Antigua.

This is Gemini Control here. According to unconfirmed reports in this Mission Control Center, that was Wally Shirra playing a space qualified harmonica, and Tom Stafford on the bells. This is Gemini Control, Houston.

END OF TAPE

HAW TM solid on Gemini 6 at Hawaii.

Flight Roger, Hawaii.

HAW Radar track Gemini 6, Hawaii intermittent.

Flight Rog.

HAW Gemini 6, Hawaii Cap Com.

S/C 6 Go Hawaii.

HAW How are you doing this morning.

S/C 6 Very good, just about squared away for retro.

HAW Very good. We are showing you go down here on the ground and I don't have anything for you. Do you need anything.

S/C 6 Negative, we want to check with .. (garble) flying across the States.

HAW Roger, understand. If you need anything, give me a call.

S/C 6 Okay, thank you Hawaii.

HAW 7, Hawaii.

S/C 7 This is 7, go ahead.

HAW Good morning. How are you doing.

S/C 7 Oh, we are working on a little dim-light photography.

HAW Okay, just give me a count off your water gun.

S/C 7 Right, our water gun is 4210.

HAW 4210, roger. And we are solid on 7 Hawaii.

Flight Rog.

HAW Looking real good flight.

Flight Roger. Ask him what the open circuit voltages are on the 2 circuits he has open.

HAW Okay. 7, could you give me the open circuit voltages on the 2 stacks you have open.

S/C 7                    We only have one stack open, 2A is 31.2.

HAW                     Roger. Copy.

Flight                  Rog. Stay up there.

HAW                     We've had LOS on all systems anyway.

Flight                  Roger. Guaymas Cap Com, Houston Flight.

Guaymas                Houston Flight, Guaymas Cap Com.

Flight                  Have you been copying all.

END OF TAPE

This is Gemini Control Houston. Over the Canaries we had more conversation. It went like this.

HOU FLIGHT                    Canary, Houston Flight.

CYI                            Go ahead flight, Canary.

HOU FLIGHT                    Would like to have you tell spacecraft 7 to keep his eye on spacecraft 6 adapter after spacecraft 6 separates the adapter.

CYI                            Okay.

CYI SURGEON                    The absence of biomed data on the command pilot is that he's getting into his suit.

S/C 7                         That's affirmative..... off.

CYI                            Roger, thank you.

Seven, Canary.

S/C 7                         Go ahead.

CYI                            Okay, we'd like to give you a little word here on -- we'd like for you to keep an eye on spacecraft 6 adapter as it separates.

S/C 7                         We'll do our best and by the way 2A is holding on  $\frac{1}{2}$  amps.

CYI                            Roger, we monitored that on the ground.

HOU FLIGHT                    What did he say there?

CYI                            He said it was under half an amp, flight.

HOU FLIGHT                    Roger.

YI SURGEON Your blood pressure is valid.

HOU FLIGHT Let's leave it on for a while.

CYI Mark exercise.

S/C 7 Rog.

Blood pressure coming down.

HOU FLIGHT What are you reading on the ground on 2 Alpha?

CYI Say again flight.

HOU FLIGHT What are you reading on the ground on 2 Alpha?

CYI .814. 2 Bravo, 2.62; 2 Charlie .954.

HOU FLIGHT .954?

CYI That's affirmative, 1954 on 2 Charlie.

HOU FLIGHT Let's leave them on for a while.

CYI Roger, flight.

CYI SURGEON We have a valid blood pressure, Canary Surgeon, here

CYI Seven, Canary, let's leave all three stacks up  
for a while. Okay?

S/C 7 Righto. Let's see 2 C is still one amp, and 2A  
is still a little less than one amp.

HOU FLIGHT Flight, Canary, we got all of that.

HOU FLIGHT Roger, Canary.

CYI Have LOS of six.

END OF TAPE

This is Gemini Control Houston 24 hours, 33 minutes into the flight of 6 and we have some adjustments for you on the retro sequence. Retrofire itself now is planned to take place at 8:53:24 CST. That's 8 hours, 53 minutes, and 24 seconds. The spacecraft should reach 400,000 feet which is the beginning of thickening atmosphere at 9 hours, 13 minutes, 40 seconds. The period at which blackout should begin is 9 hours, 16 minutes, 42 seconds. The time to start reverse bank, maneuver onboard, 9 hours, 19 minutes, 56 seconds. The time of end of blackout, 9 hours, 21 minutes, 30 seconds. The time at 50,000 feet, 9 hours, 23 minutes, and 8 seconds -- make it, the number is not quite readable. We'll have to correct that here. Main chute opening, 9 hours, 24 minutes, 51 seconds. Landing, 9 hours, 29 minutes, and 12 seconds. Retrofire is to take place 700 miles northwest of Canton Island on this revolution. This is Gemini Control Houston.

END OF TAPE

MISSION COMMENTARY, 12/16/65, 8:20 a.m.

Tape 511, Page 1

This is Gemini Control Houston. We're 24 hours, 22 minutes into the flight of six. I want to confirm that missing number that we had in earlier retrofire sequence. The number for the time for 50,000 feet is 9 hours 23 minutes 08 seconds CST. The weather report from the carrier is excellent. Couldn't have a prettier day out there. The seas are described as calm, gentle swells of as much as three feet, it's a bright sunny day, 76 degrees, clear sky, 10 miles visibility, 1/10th cloud cover, and three knot winds. Just about as near perfect landing conditions as we could have asked. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston 24 hours, 53 minutes into the flight of 6, and 6 and 7 are running very close together -- within, say, 40 miles over Carnarvon. Coming up very shortly on this retrofire sequence. Carnarvon has been updating Wally Schirra and Tom Stafford on the landing conditions about 795 miles southeast of Miami which is the planned touchdown point. Let's cut in there and find out what's going on.

FLIGHT

Rog.

S/C 6

We're not going to be able to purge on this pass.

FLIGHT

OK. Don't have enough time?

S/C 6

That's affirmative, Flight. We could probably get one section purged.

FLIGHT

Why don't you just give them the instructions and let them do it?

S/C 6

All righty.

CRO

Gemini 6, Carnarvon Cap Com.

S/C 6

Go ahead.

CRO

During retrofire, go ahead and use both rings. After retrofire, turn ring B off and do not confuse it with ring A unless both rings are required for attitude control.

S/C 6

Roger.. That's what I wanted to do.

CRO

Roger. And they do not want you to dump it

after drogue deploy.

S/C 6 You mean the fuel supply?

CRO That's affirmative. 10 seconds. 3-2-1. Mark.

S/C 6 I'm with you.

CRO Roger. Your  $T_R$  is right in sync with them.

S/C 6 You want to keep the fuel lines, don't you,  
Flight?

FLIGHT That's affirmative. Clear the lines, but leave  
the motor valves off.

CRO Flight says on the ring B -- clear the lines  
but leave the motor valves off.

S/C 6 Roger. That's the normal procedure. Thank you.

CRO Roger. Gemini 7, Carnarvon Cap Com.

S/C 6 This is us, Jim.

CRO Roger. We'd like to have you check the open  
circuit voltages on that section 2.

S/C 6 Roger. We're just trying to put 2A back  
on the line, but it went below, almost to zero.  
The circuit voltage now is 30.2 amps.

CRO Go ahead and purge it.

S/C 6 Do you want us to burn test 2B and 2C on the  
circuit?

CRO That's negative. That's OK. Go ahead with the  
purge on it.

This is a normal purge on the complete two sections.

S/C 6 Roger. Doing section 1 first.

CRO Be advised, 7, that if you are having trouble with that section 2, you will not do the power up over Hawaii.

S/C 7 Roger.

S/C 6 We have 2A off the line now. Do you want us to put it back on the line and purge it?

FLIGHT Affirmative.

CRO That's affirmative.

S/C 6 Good.

Carnarvon, our PQI reading is about 29 percent.

CRO That's affirmative, 6.

FLIGHT We copy.

CRO Roger, 6. Flight, when he hit that circuit breaker, we had brief indication of tape run.

FLIGHT Yeah, that's what we've been getting.

CRO OK.

MCC This is Gemini Control Houston. That apparently wraps up the conversation over Carnarvon. We're standing by for retrofire which should take place in about 15 minutes from now. This is Gemini Control Houston.

CRO Section 1 purge has been completed and it looked good.

FLIGHT Rog.

CRO Gemini 6, Carnarvon Cap Com. We'll have LOS shortly. You are looking good here on the ground. We'll see you back at the ranch.

S/C 6 Roger. I'll sing for you "It's a Good Day".

CRO Roger. With our pleasure. Carnarvon bids you good bye.

S/C 6 Roger. It will be a good day.

END OF TAPE

HOU Tananareve go remote.

TAN Tananareve remote.

S/C 6 Tanareve, Gemini 6. Request a time hack on  
.....(garble)...

TAN Roger, Gemini 6, this is Tananareve, on my mark  
it will be 14 14 30. 321 mark.

S/C 6 Roger. Could you give me ground elapsed ....(garble)

TAN Couldn't understand, say again 6.

S/C 6 Roger, could you give me a ground elapsed time  
on 6.

TAN Negative, we don't have ground elapsed time on 6.

HOU FLIGHT Tell him we'll give him that over Carnarvon.

TAN Roger

TAN Did you copy that Tananareve?

HOU FLIGHT Carnarvon, Houston Flight.

CRO Okay.

HOU FLIGHT This is spacecraft 7 information. We have a  
purge scheduled at your site. Before the purge  
you want to check the open circuit voltages.

CRO That's this pass?

HOU FLIGHT That's affirmative. If you can do, if not, we'll  
postpone it until Hawaii.

CRO Rog.

HOU FLIGHT If you can't do it and you're the complete judge  
of that, the main problem at the time is

spacecraft 6, I agree with you. But if you get through and you think you have time, then do it. Stand by on that. Let me think about that for a while. Maybe we'd better postpone the whole thing until Hawaii and give you a chance to do the whole bit with 6. Stand by.

CRO I've got 9 minutes and 17 seconds roughly on this. Should be plenty of time to get it all in.

HOU FLIGHT Okay. I'll continue on then.

CRO Rog.

HOU FLIGHT Want to check the open circuit voltages. If they're okay, then we want to go ahead with the purge on all three stacks, if they open circuit voltages are down below about 29 or 30 volts, or let's say 30 volts, then we don't want to do the purge on those stacks that have open circuit voltages below that. But you would purge the stacks that were above that. Okay? Now if you have problems with.....

CRO Both sections or just one section you want to purge?

HOU FLIGHT No, we want to purge both sections.

CRO Rog.

HOU FLIGHT

Okay, now if they have problems with stack 2 Alpha, we do not want to go ahead with the power up.

And I suspect that's going to be the case.

CRO

Okay, on GT-7, we want a purge on both sections.

Before we start the purge we want to check the

open circuit voltages. If the open circuit

voltages are above 30 volts, we'll go ahead with

the normal purge, on both sections. If any stacks

are below 30 volts, we will not purge those

particular stacks. If section 2 A is --

Section 2 is no good, we will not power up over

Hawaii.

HOU FLIGHT

If any of the stacks are not up we don't want to power up.

CRO

Rog. And we expect this to be the condition

HOU FLIGHT

Say that again.

CRO

And we expect that to be the condition of bad stacks.

HOU FLIGHT

That's correct and we want to check the open circuit voltages on the ones that are presently open circuited.

CRO

Rog.

F

Carnarvon, AFD.

CRO

AFD, Carnarvon.



MISSION COMMENTARY TRANSCRIPT, 12/16/65, 8:42 a.m.

Tape 514, Page 1

This is Gemini Control Houston at 25 hours 4 minutes into the flight of 6 and all the times and values are holding up for the retro-fire maneuver. No changes, while the computers have made their final quick refresher run to make sure of the accuracy of all elements. This is Gemini Control in Houston standing by.

END OF TAPE

This is Gemini Control Houston at 25 hours 8 minutes into the flight of 6 and we are about 7 minutes away from retrofire. We should have voice communication on that via Canton Island. The pass takes it well north of Canton Island but we have been getting reception over the last 2 weeks roughly if that area. We are hopeful today. All the values still remain as was posted earlier and we'll come back to you when we are very close to the retrofire time. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston at 25 hours 14 minutes and we are standing by for that retro maneuver. Spacecraft 7, of course, will have a most unusual seat to watch this maneuver, 6 is slightly below and ahead of them and they have got their film cameras ready in the 7 windows. Elliot See has just called up MARK, 1 minute. 30 seconds to retrofire. 10, 8, 7, 6, 5, 4, 3, 2, 1. No voice communication yet via Canton. We are standing by. Schirra confirms, retrofire complete. Schirra calls out his incremental velocity readings as 309 aft, 1 down, and 166, I believe, 116, I'm sorry, which is exactly the nominal reading that should have come out of that maneuver. The Flight Director and Retro are completely happy with that retrofire maneuver. We've not heard from 7 as to how they made out on any pictures. Schirra has confirmed all the events leading up through and concluding retrofire. Now Hawaii has raised 6. Schirra says all four retros went automatically and they seemed to be right at the desired thrust. 6 is talking to Hawaii right now. We have not had any communication with 7, we are hopeful to get some in a minute or two, and find out how it looked to them. Hawaii has a good radar track. Hawaii is syncing their clocks with the spacecraft 6. Schirra says we are all squared away and thanks Hawaii. If 7 did get pictures of those movements it would be an intricate tracking task because the retro adapter would leave first at retrofire minus 30 seconds and then immediately after retrofire the retro adapter section, the smaller section closer to the spacecraft would leave, and the separation distance is rather abrupt and quick and we are sure it would take some pretty sharp tracking but 7 has proved that they are capable of sharp tracking. Wally Schirra, an old Navy Pilot says if he can't go into the Pacific fleet where he went after his first Mercury Flight, he will proceed into the Atlantic. This is Gemini Control Houston here. Hawaii has raised 7 now and in the course of the conversation Wally Schirra bid farewell to the 7 pilots and said he would see them shortly back at the Cape. 7 advised that apparently just after leaving the Carnarvon

MISSION COMMENTARY TRANSCRIPT, 12/16/65, 8:52 a.m.

Tape 516, Page 2

Station they ran into some trouble with their number 3 and 4 thrusters. These are the yaw right thrusters. They also said due to that trouble they got no pictures. We don't know whether it's an all inclusive statement, or whether they meant very precise pictures, the report from them was We didn't get your picture. Hawaii Cap Com is reviewing the numbers of the distances, the altitudes that events should occur as 6 ..

END OF TAPE

HANEY

....the Cap Com is reviewing the numbers of the distances, the altitudes, the events that should occur as 6 proceeds down toward earth.

Hawaii advises that both astronauts look well on the ground, the biomedical data; they also told Schirra and Stafford they have nothing further, and they'll be seeing them.

California should acquire 6 at 6 minutes after the hour. We will be remoting through Houston during that early portion, Guaymas will acquire about a minute after California.

This is Gemini Control Houston - still no report from Schirra and Stafford as they approach the west coast of the United States. California has been advised to go remote, and within 30 seconds we should have a communication. Now we have raised 6, Elliot See is having a quick chat with Schirra and this is how it sounds.

CAP COM

You're looking real good, Wally, the computer situation looks real good from here.

S/C/6

Very good.

This is Gemini Control Houston. Apparently no further conversation as the two get ready for this all-important steering maneuver in an attempt to bring that spacecraft down just as close to the Wasp as possible.

END OF TAPE

This is Gemini Control Houston. Our altitude clock presently shows 6 at 80 miles altitude. While Elliot See is checking in with 7 to find out how severe his loss of thrusters 3 and 4 is. He says not bad. He can control the attitudes by pitching and rolling. Number 3 and 4 thrusters reportedly went out just prior to retrofire on spacecraft 7, not 6. 6 has been advised that the helicopters are airborne now in the Atlantic and spacecraft 6 simply registers confirming receipt of the information. Our plots here show the spacecraft approximately over El Paso Texas and at an altitude of approximately 60 miles. This is Gemini Control here. We have reached the 400,000 foot mark and in the next few seconds most of the steering, the lift capability of the vehicle will be brought into play. It is approximately some 300,000 to 200,000 that the greatest advantage can be taken of the lift capability in Gemini. Schirra is repeating back some backup bank angles and roll angles, should their guidance computer equipment go out on the -- in the midst of the maneuver they would go to these angles and utilize them to put them down in the place where we want them out in the Atlantic. We are a little more than a minute away from the point in the reentry when communications will be blacked out as the ionized sheath envelopes the spacecraft in its plunge back toward earth. That is to occur at 16 minutes 42 seconds after the hour. All right, now they have entered the point where communications are not possible. They are estimated they will emerge from this blackouted configuration at 21 minutes 31 seconds after the hour. There is just a steady hum on the line here. Elliot See now is putting in a call to the Gemini 7 advising them that 6 is in blackout. 7 says they are just drifting, they are not attempting to control attitudes, they are not going to watch for this reentry.

END OF TAPE

This is Gemini Control Houston. We're about two minutes away from the planned emergence from this blackout period. We've been having a little conversation with ~~getting~~ getting more information on their thruster problem. We'll be able to recap on that after this reentry is completed. Now the Wasp, we've been advised, has radar contact with the spacecraft. We still have not heard from it.

Grand Turk has acquisition on 6. Elliot See is putting in a call. Stafford comes back with a first call from Elliot See, "We read you loud and clear."

Six is being advised they have radar contact from the Wasp. Radar has them in view. Schirra says the altimeter is off the peg. We're about 10 seconds to drogue.

There's the drogue. The drogue is out. And Air Boss I has just put in a call, Air Boss is an airplane in command of Commander D. A. Barksdale of North Kingston, Rhode Island. He's slightly uprange from the Carrier Wasp.

Elliot See is asking 6 for a readout as to how the reentry went on his needles and his eight ball onboard. But this is the point where communications get a little sticky. We'll probably have to wait for that word when they're back down on the water. There is no answer from 6.

MISSION COMMENTARY, 12/16/65, 9:15 a.m.

Tape 519, Page 2

The Wasp advises they're tracking the spacecraft now. They have a plot of about something over 30 miles. According to our information we should have main chute. We've had no visual report from the carrier. The radar plot from the carrier says it's about 33 miles from the Wasp.

END OF TAPE

The aircraft designated The Air Boss One is operating about 15 miles west of the carrier WASP. They've advised they do not yet have 6 in sight.

The Air Boss One and Gemini 6 are now in communication. It's very difficult to understand the conversation here, but we did hear 6 call out they're at 6,000 feet just a few seconds ago.

The WASP advises they are now 2,000 feet.

Approximately 1,000 feet.

The WASP now estimates the landing point at 30 miles, 30 miles west of the WASP back toward Miami. Air Boss, a correction on its earlier position, it is located about 15 miles west of the point where the spacecraft is landing.

Now the WASP is turned in the direction of the landing area. They are moving on it at a rate of 25 knots.

We show a splash time in here on our board at the Mission Control Center at 29 minutes and 9 seconds after the hour.

Still no visual contacts, but we are satisfied they're on the water.

The WASP advises that they have accelerated their speed. They are moving at 32 knots and we're standing by.

This is Gemini Control Houston. Now we do have a visual contact. Air Boss One has a visual contact. He

GEMINI 7/6 MISSION COMMENTARY, 12/16/65, 9:21 a.m. Tape 520, Page 2  
should be approximately over 6. He is in voice communication with  
the 6 pilots.

END OF TAPE

This is Gemini Control Houston. We're advised that one of the swimmers has inflated a liferaft just off -- just very close to the spacecraft and the other swimmers, they operate in teams of three, are moving out near the spacecraft to retrieve the R & R section, the reentry and rendezvous section which contains electronics and other elements which we're very interested in getting back, which will give us a good deal of information on the total reentry performance of this Gemini 6 spacecraft. This is Houston standing by.

This is Gemini Control Houston. Now the Wasp has the search helicopters hovering over the Gemini 6 spacecraft in sight and they're closing on the scene. There are indications that the parachute was not jettisoned, apparently the crew selected to try to save the parachute. It's not presenting any problem pulling them around or under the water. So, they're leaving it attached to their spacecraft. Spacecraft 7, meanwhile, is down over the southern tip of Africa. We've had no communication with it since it left the states.

The 6 crew has advised that they are in good spirits, good health and they're talking directly with the Wasp now. They say they can't wait to get onboard.

Gemini 6 advised they're riding very smoothly and very comfortably on those very calm seas out there today, gentle swells of about three feet, was the report about half an hour ago.

SSION COMMENTARY, 12/16/65, 9:35 a.m.

Tape 521, Page 2

This is Gemini Control Houston. Spacecraft 7 has just been raised by Elliot See. He has advised 7 that 6 is down safely on the water and is standing by for pickup.

This is Gemini Control Houston. We're advised that the Wasp is slowing down, it's down to about 20 to 23 knots. It's seven to eight miles from the spacecraft and they're beginning to make their approach on the craft.

This is Gemini Control Houston. We're advised that the swimmers are now beginning to attach the collar around the 6 spacecraft.

END OF TAPE

This is Gemini Control Houston. We are advised that the Wasp should be in the area in approximately 60 minutes. Some times - the spacecraft 6 reached 50,000 feet at 23 minutes, 5 seconds after the hour; main chute went out at 24 minutes, 48 seconds after the hour; splash time 29 minutes, 09 seconds. This is Gemini Control Houston, standing by.

This is Gemini Control Houston. One of the search helicopters designated "Search II" is in voice contact with 6. We have no report yet on the conditions aboard.

This is Gemini Control Houston. Search II helicopter, a big HC-97 is hovering over 6. They have them in sight, they are talking with them and the Wasp now is something on the order of 15 miles from the scene.

This is Gemini Control. The parachute from 6 is still afloat. The initial voice report from 6 is "we're in great shape, we're in great shape." And now simmers are in the water, they have left the helicopter and are in the water.

Flight Director Chris Kraft has just advised that apparently our impact prediction that we have been going with earlier was incorrect, we have additional radar data from Grand Turk now being analyzed which shows the landing took place 12 miles downrange from the Wasp instead of 30 to 35 miles uprange as we earlier reported. This is based on the latest data coming to us via Grand Turk. A 12 mile overshoot is what it looks like right now.

The Wasp advises that the spacecraft is 11 to 12 miles ahead of them, they are proceeding on a southeasterly course and they as yet have had no visual contact from the Wasp. Helicopters are on the scene and have 6 in sight, of course are communicating with it. We cannot monitor the communications here, however,

A report from the Wasp - they estimate they will be alongside the spacecraft in 20 minutes. Twenty minutes from now. The time is 42 minutes after the hour.

We have been advised that the 6 pilots have requested that they remain in the spacecraft and they are to be hoisted aboard the carrier while still inside the spacecraft.

This is Gemini Control Houston. Another report on the status. The 6 pilots are relaying that they are in fine shape, fine shape.

END OF TAPE

This Gemini Control Houston, the Wasp is now about 2½ miles from the spacecraft. They're maneuvering down wind from it to be in a proper position for pickup. From the Wasp they estimate it will be 15 to 20 minutes before they begin the pickup maneuver. Schirra and Stafford both graduates of the United States Naval Academy, electing to come aboard in the traditional Navy way.

This is Gemini Control Houston. We're advised from the deck of the Wasp that the port hatch from spacecraft Gemini 6 has been opened. It is open right now. We have no report of anybody standing up or not. But that left hatch has been opened, that would be Wally Schirra's side. This is Gemini Control.

This is Gemini Control Houston. We're advised that the left hatch, Wally Schirra's hatch, will be closed before the hoisting maneuver begins. This is a safety precaution should anything happen. And should the 6 get dunked but it has been opened now for a few minutes This is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston. We are advised now that the collar is firmly attached around the Gemini 6 spacecraft. This is Gemini Control Houston. The swimmers have inflated the collar around the spacecraft. They have plugged into the external communications socket, they have conversed with the Pilots and they confirm everythings fine aboard Gemini 6.

END OF TAPE

This is Gemini Control Houston. We're 285 hours, 12 minutes into that other mission. The flight of Gemini 7. During the past hour, many of the flight controllers here in the Control Center, along with millions of others, have been looking at that extraordinary television picture from down range of getting what we would call an eyeball report on the status of Wally Schirra and Tom Stafford. Attention also is centered in the last hour looking into that thruster problem reported by 7 just minutes before 6 went into their retrofire. The crew has reported that the thruster problem was noted this morning after they awoke and when they began to damp out their rates which had built up over night. It's thrusters number 3 and 4. These are the yaw right thrusters. We also are noting some similarity of conditions at the fuel level and so forth when a similar problem developed in Gemini 5. We cannot draw any exact correlation yet, but there is certain similarities to the conditions that existed in 5 when late in that flight they lost their number 7 and 8 thrusters. This is Gemini Control Houston at 285 hours, 13 minutes into the flight of Gemini 7.

END OF TAPE

This is Gemini Control Houston, 285 hours 23 minutes into the flight. We've been advised in the last few minutes by the Flight Director that another record will go into the record book on this flight, that it will be a record of 20 hours 22 minutes for two manned spacecraft remaining within 100 kilometers of each other. The time on that again 20 hours 22 minutes. We are in a pass across the United States right now. Let's take that pass from the start.

Flight Hawaii.

Hawaii Hawaii.

Flight It looks like the temperature started down before we -- he noticed the failure.

Hawaii It looks like it started at Carnarvon.

Flight That's right.

Hawaii And we have one idea, we set the G and C at a point that started down on the dark side and he might have lost the heater and that's why I was asking about the thrusters. If it is so, he was tracking 6 BEF and they are on the cold side like we just found out they are, the chances are these would be the first two to freeze.

Flight Roger. We have redundant heaters on that thing, you know.

Hawaii We knew that Flight, but I'm beginning to wonder about heaters. Is that circuit breaker open or closed at this time.

Flight I'm pretty sure it is closed, but stand by, we are going to talk to him from California here.

Hawaii Roger, we'll stand by.

AFD Guaymas, AFD.

Guaymas Roger.

AFD Okay, we are set up to remote through California.

Guaymas Roger, I understand.

AFD Okay, you monitor the TM on the ground please.

Guaymas Roger, will do.

HOU CAP COM Gemini 7, Houston Cap Com, how do you read?

S/C 7 Loud and clear Houston.

HOU CAP COM Could you give us an open circuit voltage on 2 Alpha and 2 Charlie?

S/C 7 2 Charlie is 31 volts, 2 Alpha is 30.2.

HOU CAP COM Roger.

S/C 7 2 Alpha has been off the line for over an hour, Elliot.

HOU CAP COM Roger, 7. We plan to put 2 Charlie back on the line at Texas acquisition. We'll call you on that.

S/C 7 Roger, it's been on 2 minutes and 40 seconds.

HOU CAP COM Roger. I'll give you some flight plan updates here and then we'll probably be discussing your OAMS problem with you further. We have nothing at the present time, nothing further to discuss with you but we will have very quickly I am sure.

S/C 7 One of the items the booster folks were mentioning, is these were the two thrusters we used on most of the time to turn out the venting.

HOU CAP Roger we are aware of that. Let me know when you're ready to copy your update.

S/C 7 Go ahead, Elliot.

HOU CAP COM           Okay, I have an Apollo here I doubt if you'll be able to get it because of no attitude control. I'll give it to you just in case. 285 23 48. Sequence 10, mode 01, pitch 30 degrees down, yaw 9 degrees right. Stand by 7.

Gemini 7, have you opened the three and four circuit breakers yet? If not we would like them open at this time to observe any possible change in temperatures. We note that there is a definite temperature problem there.

S/C 7                   We have opened them and they're closed now, do you want them opened again?

HOU CAP COM           Roger. Open them and we'll watch it across the states.

S/C 7                   Three and four are open.

HOU CAP COM           Roger.

HOU                     Texas remote, California local.

HOU CAP COM           Seven, we might as well go ahead with this flight plan update.

S/C 7                   Go ahead.

HOU CAP COM           285 30 00 - exercise and eat period; 287 00 00 - bio-med recorder number one continuous; 287 10 00 - crew status report on the command pilot and purge fuel cells at the RKV. Copy so far?

S/C 7                   Yes.

HOU CAP COM           Okay, now I have three dim lights again, you wouldn't be able to do them without attitude control but we'll give them to you just in case. Dim light 287 30 00, sequence 03, mode 01. This is post sunset and we have a comment with that, it says

"Do not go beyond 40 frames on high speed black and white magazine." Do you copy?

S/C 7

Roger.

HOU CAP COM

Dim light 287 45 00, sequence 03, mode 03, south horizon use 120 second exposure time in place of 10 seconds.

Dim lights 288 00 00, sequence 03, mode 05, pre sunrise start time is 3 minutes prior to sunrise. Do you copy?

S/C 7

Roger.

HOU CAP COM

Stand by, Gemini 7, Houston, would you give us a 2 Charlie open circuit voltage?

S/C 7

2 Charlie reads 81.1 volts.

HOU CAP COM

Roger, would you put it back on the line at this time?

S/C 7

Roger, put it back on the line.

HOU CAP COM

Roger, and could you give us a current reading?

S/C 7

2 Charlie reads just above one amp.

HOU CAP COM

Roger, and 2 Baker?

S/C 7

2 Baker is reading about  $3\frac{1}{2}$ .

HOU CAP COM

Roger.

Gemini 7, Houston, would you take 2 Charlie back off the line at this time?

S/C 7

2 Charlie is back off the line.

HOU CAP COM

Roger. Give us propellant quantity reading, Gemini 7.

S/C 7

Roger. 9 percent.

HOU CAP COM

Roger. 9 percent. OK, 7, we'll continue with our flight plan update. 288 13 00, crew status report on the pilot at Hawaii, 288 25 00, flight plan report, 289 00 00, bio-med recorder No. 1 off, dim light, 289 04 30, sequence 02, clouds, no moon, MSC-4, 289 51 39, sequence 05, mode 01,

pitch 30 degrees down, yaw 18 degrees right, switch to mode 03 when acquired, 290 21 00, PLA update at RKV, 291 06 00, purge fuel cells at CSQ, 291 06 00, bio-med recorder No. 2 continuous. Do you copy?

S/C 7 Roger. Elliot, how much longer do you want to stay these circuit breakers off on the 3 and 4?

HOU CAP COM We're monitoring the temperature now. We'll call you in a minute.

S/C 7 OK.

HOU CAP COM Do you need them right now?

S/C 7 I have to keep my attitude control so we don't get any big rates. If we can catch them when they're small, we still have enough to stop them.

HOU CAP COM OK. We'd like to watch them just a minute more here.

S/C 7 It's no problem now. Also, I don't think it would be possible to track anything with the situation we're in now.

HOU CAP COM Roger. We understand that. Gemini 7, would you give us another readout on 2 Able and 2 Charlie?

S/C 7 Two Able reads 30.2 volts. Two Charlie reads 30.9 volts.

HOU CAP COM Roger. We'd like to put them back on the line at this time, and then turn the power switch off to take the entire section off the line at this time. You'll need your control circuit breaker for that.

S/C 7 Roger. Two Able and two Charlie coming back on the line and the power switch to off.

HOU CAP COM Roger, 7.

S/C 7 All accomplished.

Cap Com Roger, and your circuit breaker back off, of course.

S/C 7 Roger, Antigua. 7, we show your number 3 thruster temperature coming up now. We'd like to leave the circuit breakers open for a little bit longer here.

S/C 7 Roger. We are trying to keep it oriented into the sun as much as we can.

Cap Com Roger, do you think you could go for a rev without those breakers. We'd like to keep them open that long if you can manage that long.

S/C 7 Well we can, we'll be drifting and it will be tough to stop it, but we'll go ahead and do it.

Cap Com Okay, very good. Gemini 7, do you have any reason to believe that the water boiler is still venting at this time.

S/C 7 Negative.

Cap Com Roger. And of course, if you have need for these thrusters you are free to put them back on. But we would like to leave them off for a full rev, if you can manage it.

S/C 7 Okay, the only thing we need them for is if we just get too big a drift rate.

Cap Com Roger.

S/C 7 I'd like to save some extra fuel so that even with this limited authority we can align the platform with the OAMS.

S/C 7 Rog, Frank. 7, did you observe the adapter from 6 after separation and how did it travel in respect to you after they jettisoned it.

S/C 7 We didn't even see 6 retrofire. We were drifting very badly and when we tried to stop it we found we didn't have any authority and it took a long time to get stopped.

Cap Com Roger. So you did not see any of their retro or reentry?

S/C 7 That is affirmative.

Cap Com Roger. 7, do you still copy Houston.

S/C 7 Roger, go ahead.

Cap Com Okay, I'd like some information here on your cockpit setup as far as unsuited operation. Could you tell me your hose locations again briefly on the red and blue hoses.

S/C 7 Each red hose, which is our suit outlet hose is located in the by pass stowed position with the screen on. Each blue hose, the inlet hose, is velcroed to the -- (faded out)

Cap Com On the outside of the seat, or inside of the seat that would be, wouldn't it.

S/C 7 Roger, it is pointed aft and is velcroed on the inside of each seat.

Cap Com Pointing aft. Okay, and your suit flow valve positions.

S/C 7 Full cold on the suit flow valve.

Cap Com No, the flow valves.

S/C 7 Full flow on the suit control flow valve

Cap Com Roger, full flow on both. Cabin heat exchanger coolant flow setting.

S/C 7 Full cold and both suit flows are full increase.

Cap Com 7, check that again now. I think you mean the suit flow setting is full cold and the cabin flow setting is full hot.

S/C 7 Roger, that's affirmed. You cut out on us on the cabin flow, I'm sorry.

Cap Com Okay, recirc valve position.

S/C 7 Recirc to the 45 degree position.

S/C 7                    However, we had been flying with it in the full closed position.

Cap Com                Roger. Okay, one or two suit fans.

S/C 7                    One.

Cap Com                Understand, one suit fan. And A or B pumps?

S/C 7                    B pump.

Cap Com                Roger, and I assume you find this is a comfortable setting.

S/C 7                    A little chilly right now, as a matter of fact.

END OF TAPE

\*Not aired air/ground pass over CTN, HAW, CDL, TEX, CRO

HOUSTON Gemini 6, Gemini 6, Houston Cap Com. How do you read?

S/C 6 This is Gemini 6. Loud and clear.

HOUSTON Roger. Can you confirm TR minus 4 plus 16, check list complete?

S/C 6 Affirmative.

HOUSTON Roger. Standing by for count down.

S/C 6 ...(Garble)...

HOUSTON We didn't copy that, 6. 60 seconds. Mark one minute. That was one minute to retro-fire.

S/C 6 ...(Garble)...

HOUSTON 30 seconds. 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, retro-fire.

S/C 6 We've retro-fired.

HOUSTON Roger, 6.

S/C 6 We have an IVI of 309 aft....(Garble)...

HOUSTON Understand 309 aft and 1 right. Say again down.

S/C 6 116.

HOUSTON 116, Roger.

S/C 6 ...(Garble)...

HOUSTON Say again, 6. Say again, 6.

S/C 6 Roger. ...(Garble)...

HAW Hawaii has acquisition, Gemini 6.

HOUSTON Canton go local.

CTN Roger.

HAW Gemini 6, Hawaii Cap Com.

S/C 6 Go ahead, Hawaii

HAW Okay. Give me your attitudes on retro-fire.

\*Not aired air/ground pass over CTN, HAW, CDL, TEX, CRO

S/C 6           Tight as a drum as far as I can tell.

HAW             Okay. All four retros manual or auto?

S/C 6           All auto. And, held within one foot per second, a nominal.

HAW             Very good. Advise retro-jet.

S/C 6           Roger. Hawaii, we're on plane and in re-entry attitude now.

HAW             Roger. You're looking real good here on the ground.

S/C 6           Roger.

HAW             Radar check at Hawaii.

HOUSTON         Roger.

HAW             Gemini 6, I'll give you a time mark to start your event timer counting up to plus 3 minutes in about 15 seconds.

S/C 6           Roger. I'll see if I can read it.

HAW             5, 4, 3, 2, 1, mark.

S/C 6           Roger.

HAW             Okay. You all squared away?

S/C 6           All set here. Thank you.

HAW             Okay. Did you get retro-jet?

S/C 6           That's affirmative. I called that out. I guess I had no hack time at that point.

HAW             Okay. Very good.

S/C 6           Let's go to recover.

HAW             Roger. Flight, Hawaii.

HOUSTON         Go ahead.

HAW             Copy all that?

HOUSTON         Affirmative.

HAW             Okay. RCS is looking real fine.

S/C 6           It sure is.

\*Not aired air/ground pass over CTN, HAW, CDL, TEX, CRO

HAW Secondary O2 and your main bus are looking real good.

S/C 6 Roger. This bird's been a beauty all the way.

HAW You're headed for a good deep thrust command.

S/C 6 Sorry I can't try the Pacific this trip. I'm going for the Atlantic.

HAW Roger. Seven, Hawaii.

S/C 7 Go ahead, Hawaii. This is 7.

HAW Okay. We're showing you real good here on the ground except for 2A, which is off.

S/C 7 Except for what?

HAW Except for stack 2A. We're showing that as off. Is that affirmed?

S/C 7 That's affirmed. And, we're losing our thrusters also. Thrusters 3 and 4 are gone.

HAW Roger. What time?

S/C 7 Let's see...5 minutes ago.

HAW Roger.

S/C 6 Feeling the drift off, Frank and Jim. We'll see you on the Beach.

S/C 7 Okay, Wally.

S/C 6 Did you get a chance to see us on that retro-fire?

S/C 7 We can't get a picture of you because we don't have any thrusters now.

S/C 6 Roger. Did you get a chance to see it, though?

S/C 7 No.

S/C 6 Okay.

\*Not aired air/ground pass over CTN, HAW, CDL, TEX, CRO

HAW Flight, Hawaii.

HOUSTON We copy.

HAW Okay.

HOUSTON Hawaii. Spacecraft 6 arrives and will be lit at 400K.

HAW Roger. Six, Hawaii.

S/C 6 Go ahead, Hawaii.

HAW Okay. Your horizon will be lit at 400K.

S/C 6 Roger. Do you have that time for a 400K?

HAW 400K. 20 plus 15.

S/C 6 That's what we have also. Thank you.

HAW Okay.

S/C 6 Reverse burn 26 plus 38.

HAW That's affirmed.

S/C 6 Very good.

HAW It looks real good, 6.

S/C 6 Roger.

HAW Flight, Hawaii. Both astronauts look well. We could not remote data for 6.

HOUSTON Roger.

HAW Six, Hawaii. We have nothing further. W'll be seeing you.

S/C 6 Roger, Hawaii. Thanks again.

HAW Roger. Seven, Hawaii. We'll be standing by. We'll see you next rev.

S/C 7 Roger.

HAW Got some RCS read outs for you, Flight.

\*Not aired air/ground pass over CTN, HAW, CDL, TEX, CRO

HOUSTON Go ahead.

HAW Ring Alpha 2260. Ring Baker 2360.

HOUSTON Roger.

HAW And the regulator pressure's holding right at 300. It's been looking real good, Flight. Telemetry LOS on Gemini 6 at Hawaii. Gemini 7. And radar LOS.

HOUSTON California go remote.

CALIFORNIA California is remote.

HOUSTON Gemini 6, Houston. How do you read?

S/C 6 Gemini 6. Reading loud and clear.

HOUSTON Roger. We have no further update on your 400K time at this point.

/c 6 Roger, Elliot.

HOUSTON Looking real good, Wally. The computer solution looks real good from here.

S/C 6 Very good.

HOUSTON Gemini 7, Houston. How do you read?

S/C 7 Loud and clear.

HOUSTON Roger. Are you having any attitude control problem with those 2 thrusters out?

S/C 7 Roger. We're trying to control it by pitching and rolling.

HOUSTON Roger. We'll be with you shortly.

S/C 7 Understand. Also, I've got 2A off the line for good, Elliot.

HOUSTON Roger, Frank. Texas remote. California local.

TEXAS Texas remote. Six.

/c 6 We have good horizon.

\*Not aired air/ground pass over CTN, HAW, CDL, TEX, CRO

HOUSTON Roger. Horizon. Gemini 6, your 400K time is good.

S/C 6 Roger.

HOUSTON Gemini 5 says the elevator is lowered.

S/C 6 Roger. ...(Garble)...

HOUSTON Gemini 6, Houston. Have an update on your RET RB.

S/C 6 Roger, Houston. Go ahead.

HOUSTON RET RB 26 plus 39. Roll left 47, roll right 47. Initial needle deflection shows a 12 mile overshoot.

S/C 6 Roger. RET RB 26 plus 39. Roll left 47 degrees. Roll right 47. Initial needle shows 12 miles over.

HOUSTON Roger. Gemini 6. That was RET RB. Did you copy that?

S/C 6 Roger. RET RB 26 plus 39.

HOUSTON Roger. Gemini 7, Houston. How do you read?

S/C 7 Loud and clear.

HOUSTON Roger. Six is in black out now. Are you able to see the re-entry?

S/C 7 No. We don't have any attitude control, Elliot. We're just drifting.

HOUSTON Roger. Gemini 7, Houston. We'd like a brief comment on you here while we're in black out with 6 as to whether both of those thrusters failed at the same time.

S/C 7 That's roger. I'm not getting any roll. Just no yaw. We can hear the solenoids closing.

HOUSTON Roger. Have you started through some of your trouble shooting procedures yet, or are you waiting to talk?

S/C 7 We're starting ourselves through some of our cells, but we didn't want to say anything until 6 gets in.

\*Not aired air/ground pass over CTN, HAW, CDL, TEX, CRO

HOUSTON Roger. We'll be with you shortly.

GRAND TURK Acquisition, Grand Turk, on 6.

HOUSTON Gemini 6, Houston. How do you read?

S/C 6 We read loud and clear.

HOUSTON Roger. We read you out of black out.

S/C 6 Okay. Stand by. We...(Garble)...

WASP Gemini 6, this is...(Garble)... I have you on radar; tracking you at in at 43 miles. Over.

S/C 6 Roger.

HOUSTON Roger. We have radar contact on you from the carrier, Gemini 6.

S/C 6 Roger. Are we being followed?

HOUSTON Roger. They're expecting you.

S/C 6 Roger. I see a good landing place.

NAVY A/C Gemini 6. This is Red Flightleader and we...(Garble).. Over.

S/C 6 Roger. We say you off...(Garble)..

HOUSTON Gemini 6. We have your drogue time as 29 plus 45; main time as 31 plus 06.

S/C 6 29 plus 45.

NAVY A/C Air Boss, this is Red Flight Leader. Would you report any contact with Gemini 6. Over.

NAVY A/C Gemini 6, Gemini 6, Air Boss. Over.

S/C 6 Drogue is out.

HOUSTON Roger. Drogue. Gemini 6. How did the re-entry look on the gauges? Gemini 6, Houston. Can you give us a read out as to how the re-entry looked on the needles?

NAVY A/C Red Flight Leader, we cannot communicate with Gemini 6. Over.

\*Not aired air/ground pass over CTN, HAW, CDL, TEX, CRO

HOUSTON This is Houston. Go ahead, 6.

NAVY A/C Red Flight Leader. We hold his splash point at 279 degrees,  $3\frac{1}{2}$  miles. Do you concur?

NAVY A/C ...(Garble)... spot now. About 2 miles further out.

NAVY A/C Roger. Understand. Do you have them in sight? Over.

NAVY A/C Negative. Not at this time.

NAVY A/C Roger.

S/C 6 Hello...(Garble)... This is Gemini 6 transmitting in the black. How do you read?

HOUSTON Houston reads you, Gemini 6. Can you confirm main?

NAVY A/C Gemini 6. This is Red Flight Leader.

Roger. We are reading you. We believe you are 3 miles away. We are on the way, over.

S/C 6 I hope so...(Garble)...

NAVY A/C Do you read, 6? This is Red Leader. Could you give us your altitude? Over.

S/C 6 Okay. 2000 feet. We were traveling about 35 feet per second.

NAVY A/C This is Red Flight Leader. I read you as 2000 feet.

S/C 6 That's about it. ...(Garble)..feet. 30 feet per second.

NAVY A/C Gemini 6 1:00 o'clock. Rate 30 feet per second.

S/C 6 Roger. Right on it.

NAVY A/C Red Flight Leader. Can you see Gemini 6? Over.

NAVY A/C Air Boss, that's a negative. I do not see Gemini 6. What's the latest on him? Over.

NAVY A/C 2-1-30, over.

NAVY A/C Gemini 6, Red Flight Leader. How do you read? Over. Gemini 6, radio check, over.

NAVY A/C Air Boss 1. Red Flight Leader, do you read Gemini 6? Over.

\*Not aired air/ground pass over CTN, HAW, CDL, TEX, CRO

NAVY A/C Air Boss 1, negative. Break. Gemini 6, Gemini 6, stand by for one, over.

HOUSTON Gemini 7, Houston. How do you read. Gemini 7, Gemini 7, Houston. How do you read? Gemini 7, Gemini 7, Houston Cap Com. How do you read? Gemini 7, Gemini 7, Houston Cap Com. How do you read?

S/C 6 This is Gemini 6. Over.

NAVY A/C Roger. You're in fine shape. We'll have you aboard shortly.

SEARCH 2 Red Flight Leader, Search 2. Gemini 6 states they are in fine shape; request to come aboard WASP if WASP will arrive soon. Over.

NAVY A/C Red Leader. Roger. Out.

AIR BOSS Search 3, Air Boss. Understand you have the R & R package. Is that affirmed? Gemini 6, Gemini 6, Air Boss 1. Radio check. Over.

RED LEADER Search 2. Red Flight Leader, request a status report on the spacecraft. Over.

SEARCH 2 Red Flight Leader, Search 2. Roger. At the present time, Search 3 is hovering close by Gemini 6. The spacecraft is floating with a very small amount of rolling. The antenna is erected. And everything looks okay. Over.

RED LEADER Roger.

SEARCH 2 Red Flight Leader this is Search 2. Search 3 has now a rescue swimmer in the water who is proceeding at this time towards the spacecraft.

RED LEADER This is Red Flight Leader. When in contact, inform Gemini 6 that the WASP will be along side at 1200. They're now only 20 minutes from our rescue area. Over.

AIR BOSS Roger. Advise along side at 1200. Over.

\*Not aired air/ground pass over CTN, HAW, CDL, TEX, CRO

S/C 6           ...(Garble)...to be hoisted aboard.

RED LEADER       Red Flight Leader. Roger. We will prepare to hoist you aboard in  
the spacecraft.

S/C 6           Gemini 6. Thank's a lot.

AIR BOSS         Search 3, Air Boss 1. You'd better check on that one swimmer you  
put in the water back there. Over.

SEARCH 3         This is Search 3. He's in the raft. He's doing fine. He's got  
the parachute tied onto the raft, and the other 2 swimmers are...  
(garble)...

AIR BOSS         Air Boss 1. Understand. Have the parachute and R & R package  
secured. Over.

SEARCH 3         Search 3. Roger.

AIR BOSS         Red Flight Leader, this is Air Boss 1. The swim aircraft are now  
270. It'll be about 15 or 20 minutes before they're...correction  
about 10 minutes before they're over the spacecraft. Over.

RED LEADER       Roger. Red Flight Leader. Out.

AIR BOSS         Swim 1 and Swim 2, stand by for tone for ...(garble)... to the  
spacecraft. Over.

RED LEADER       This is Red Flight Leader. The spacecraft will not be hoisted  
aboard until the collar is attached.

AIR BOSS         Air Boss 1. Understand.

SEARCH 3         Air Boss 1, Search 3.

AIR BOSS         Air Boss 1, over.

SEARCH 3         We have a collar aboard; if you'd like us to pick up our two  
swimmers and take them over there and they'll put the collar on.

\*Not aired air/ground pass over CTN, HAW, CDL, TEX, CRO

IR BOSS            This is Air Boss 1. Negative. The spacecraft is riding...seems to be riding ~~allright~~. Let's wait another 10 minutes or so.

SEARCH 3           Roger.

AIR BOSS           Red Flight Leader, Air Boss 1. Over.

RED LEADER        Red Leader, over.

AIR BOSS           Roger. Have reason to believe that the main chute did not jettison from the spacecraft. Will advise. Over.

RED LEADER        Roger. Out.

AIR BOSS           Gemini 6, Gemini 6, Air Boss 1. Over.

S/C 6              Roger, Air Boss. I think you may be right.

AIR BOSS           Roger. Looks like it's still attached, Gemini 6. We may have to disengage it prior to taking you aboard. Understand you do want to stay in the spacecraft and be hoisted aboard WASP. Is that affirmed?

S/C 6              Yes. That's affirmed.

AIR BOSS           Information, Gemini 6. The WASP is now about 9 miles to the north of us.

HOUSTON           Tananarive go remote.

TAN                Tananarive remote.

HOUSTON           Gemini 7, Gemini 7, Houston. How do you read?

S/C 7              Go ahead, Houston. You're loud and clear.

HOUSTON           Roger. Gemini 7, Houston. Gemini 6 is down safely. Approximately 11 or 12 miles from the WASP. The WASP is proceeding to pick them up. Can you confirm your auxiliary heater on and your OAMS heater circuit breaker on?

S/C 7              Stand by. Roger. Both on.

HOUSTON           Roger, 7. And, can you explain anything further to us at this time on your attitude control?

\*Not aired air/ground pass over CTN, HAW, CDL, TEX, CRO

S/C 7            Roger. Three and four are not igniting properly. We have been able to get a little bit out of them indirectly. Still some fuel and oxidizer being spurted out.

HOUSTON        Roger, 7. Have you checked them individually, and you can confirm that they're both doing the same thing? Gemini 7, Houston. Did you copy? Gemini 7, Houston. Do you read?

S/C 7            Roge. We can hear the solenoids clicking, but no reaction.

HOUSTON        Roger. And you've confirmed that this is the same on each one separately? Gemini 7, Houston. How do you read? Carnarvon, Houston Flight.

CRO             Carnarvon, Flight. Go ahead.

HOUSTON        You have that star reference for Spacecraft 7?

CRO             That's affirmative.

HOUSTON        Tell him that we're not concerned about him doing MSC 4 if he doesn't think he can do the attitude that..uh..not to worry about it. Forget it.

CRO             You want me to pass this star reference data?

HOUSTON        Yes. You might ask him how he feels about MSC 4 experiment before.. about attempting it...before you give it to him. Carnarvon, Houston Flight.

CRO             Go ahead, Flight.

HOUSTON        Did you copy all the recovery information on the Spacecraft 6?

CRO             Well the last message I had said that he was in the water; that they had the R&R section secured and they were estimating pick up at 1600 which should be right about now.

\*Not aired air/ground pass over CTN, HAW, CDL, TEX, CRO

HOUSTON            Yea. Well, they're just a few miles from the carrier at the moment, and the collar has been inflated. We're not sure the chute is disconnected; but other than that, everything looks okay. They're going to bring them aboard the carrier without them getting out.

CRO                How far did they miss that target point?

HOUSTON            It looks like they were 12 to 15 miles down range, and to the right of the carrier.

CRO                A lot better than any of the past ones, huh?

HOUSTON            That's affirmative.

CRO                Flight, Carnarvon. Do you know whether they've reconfigured the bird?

HOUSTON            We don't think they have, because of their flight plan; and we want you to do it; because we've scrubbed the experiment.

CRO                Roger.

HOUSTON            By the way, that IT for more information was 2 miles long and 11 miles to the right.

CRO                Boy. That sounds real good. Gemini 7, Carnarvon Cap Com.

S/C 7              Go ahead, Carnarvon. Gemini 7.

CRO                Roger. We have a little information for you about 6. He's just a few miles from the carrier. They will bring them aboard in the spacecraft. And, everything is secure. Everything is looking real good.

S/C 7              Very fine. Did you get any word about our OAMS problem?

CRO                Roger. Understand you lost 2 thrusters.

S/C 7              Roger. We're also now picking up about 2 amps spike on our main bus voltage every 9 seconds. It's exactly 9 seconds and it's about a 2 amp spike.

\*Not aired air/ground pass over CTN, HAW, CDL, TEX, CRO

CRO Roger. Copy. Flight, did you copy?

HOUSTON Carnarvon, have him try turning off his OAMS heater circuit breaker to see if the spiking stops and then put it back on again.

CRO Gemini 7, would you try turning off your OAMS heater circuit breaker to see if it stops the spiking and after you have it off for a short time put it back on.

S/C 7 Roger. Negative. It did not stop it.

CRO Roger.

FLIGHT Tell him we'll think about it a while and come back at him as soon as we have any kind of a solution.

CRO We've got a bunch of experts back there at Houston and they're looking into this thing and as soon as they come up with anything they'll sure let you know.

S/C 7 Okay.

FLIGHT What mode was he in when the TCA's failed and what has he checked?

CRO Gemini 7, Carnarvon Cap Com. What mode were you in when the thruster failed and what have you checked so far?

S/C 7 We were in the pulse mode and we've checked the individual thrusters, we've checked direct, and we've established that we can maintain attitude control but with very poor efficiency, by blowing whatever it is that's coming out of there, either oxidizer or fuel. And we can hear ..... pushing.

CRO You say you can hear ..... clicking?

S/C 7 Roger.

FLIGHT What was that final thing he said he had checked?

CRO He can maintain attitude by blowing whatever is coming out.

FLIGHT I read that but what was = he said he checked something. The third thing he said.

S/C 7 What are you reading for amperage on 2 Charlie, Carnarvon?

CRO He checked the ..... mode.

FLIGHT I got it. Forget it.

CRO We're showing 2 Charlie at roughly 2 amps here on the ground.

S/C 7 Okay. Looks like 1 does something.

FLIGHT Would you ask him specifically if he has tried the secondary attitude drivers.

CRO Say again, Flight.

FLIGHT Ask him if he's tried the secondary attitude drivers.

CRO Gemini 7, Carnarvon. Have you attempted the secondary attitude drivers?

S/C 7 Roger. We'll do that now.

CRO Roger.

S/C 7 I'm sure the driver ..... we picked all right but we'll try it.

FLIGHT Did you copy my message, Carnarvon?

S/C 7 Exactly the same as primary, Carnarvon.

CRO Roger, thank you Gemini 7.

Did you copy? Flight, he tried it and it's exactly the same.

CRO Gemini 7, would you place your DCS power circuit breaker to the ON position.

S/C 7 It's on.

CRO Roger. I'm going to start a couple of relays.

S/C 7 Okay.

FLIGHT Carnarvon, Houston flight.

CRO Go ahead, Flight.

FLIGHT Have him try turning the ACME inverter off and see if that helps that spike.

CRO Gemini 7, would you try turning the ACME inverter off and see if that helps that spiking.

S/C 7 We've already tried that. It'll just not work.

CRO Rog. Okay. I'd like to change your switch configuration for you, if you would.

I'd like you to go to, let's see, D-band adapter switch to COMMAND, C-band reentry switch to COMMAND.

S/C 7 Roger. D-band adapter and reentry are in COMMAND.

CRO Standby OFF.

S/C 7 Standby is OFF.

CRO TM switch to COMMAND.

S/C 7 TM is in COMMAND.

CRO Real-time transmitter circuit breaker ON.

S/C 7 Real-time TM ON.

CRO Real-time circuit breaker ON.

S/C 7 Say again, please.

CRO Real-time circuit breaker ON.

S/C 7 Real-time is on.

CRO Stand-by power circuit breaker ON.

S/C 7 Okay. They're on.

CRO Okay. Stand-by control circuit breaker ON.

S/C 7 It's on.

CRO ACQ AID beacon on.

S/C 7 ACQ AID beacon on.

CRO And C-beacon circuit breaker ON.

S/C 7 It's on.

CRO Roger.

FLIGHT We'd like to confirm that he has his fuel-cell control circuit breaker OPEN. No. 2, that is.

And we'd also like to see if the secondary ACME bias supply helps either one of his present problems.

CRO Gemini 7. Would you switch your fuel-cell control circuit breaker no. 2 to the open position.

What was that second thing, flight?

S/C 7 It is in the open position.

FLIGHT See if the secondary ACME bias supply helps either problem.

S/C 7 Roger. We'll see.

YRO Carnarvon has LOS at the present.

Flight, we'd had LOS.

FLIGHT Roger that.

HAW Seven, Hawaii Cap Com.

S/C 7 Go ahead, Hawaii.

HAW Okay, how're you doing?

S/C 7 Pretty good. We've at least put a spike in the main bus.

HAW Oh, go ahead.

S/C 7 We evidently left the IR switch on and it was cycling through when we were looking for Six's reentry.

HAW Roger.

FLIGHT Tell him we had just asked him to turn that switch so he knows we were thinking, too, please.

S/C 7 Rog.

HAW Okay. They were right with you in Houston. That was the first thing I was going to ask, the rev switch to OFF.

S/C 7 Rog.

HAW Very good.

FLIGHT Tell him Major Brentnall came up with that. Get that Major!

HAW Yeah, your friend Major Brentnall came up with that one.

S/C 7 Yeah.

HAW Okay. We're showing you GO here on the ground.

S/C 7 Rog.

How - what're you reading now on 2 Charlie, Hawaii?

HAW Hang loose there a second.

What's your readout?

S/C 7 1 amp an m..... We're standing by to turn it off.

HAW Roger.

1 amp amp.

FLIGHT What do you show?

HAW We're getting it now.

FLIGHT Take it off and tell him we'll take a look at it again over the States.

HAW Roger. Take 2 - stack 2 Charlie off the line.

Did you copy that?

S/C 7 Yeah. 2 off the line. The only one we have going in the second section is 2B.

HAW Okay. Give me a readout on open voltage, stack 2 Charlie.

S/C 7 Reading 29 volts slowly rising.

HAW Roger.

Flight, Hawaii.

FLIGHT Go ahead.

HAW Okay. We're showing decimal niner 3 on stack 2 Charlie prior to taking it off the line.

FLIGHT Roger.

HAW And he's showing open voltage of 2 niner volts. Slowly rising.

FLIGHT 2 niner. Roger.

HAW Seven, would you leave that stack 2 Charlie off the line until further advice.

S/C 7 Roger. Leave it off till further advice.

FLIGHT How about asking him if he tried that secondary ACME bias supply.

HAW You want to know what happened?

FLIGHT Yeah.

HAW We'd like to know when you tried your secondary ACME bias, whether you did get any effects off that?

/C 7 No. It's the same as prime.

HAW Roger. Copy?

FLIGHT Affirmative.

HAW Ok.

S/C 7 We pushed them in individually and at nighttime we can see the firing but you're not getting half the impulse out of them that you get out of the others.

HAW Roger. If you can look down, how about taking a look and see if you can get - see my laser.

S/C 7 Okay. Just a minute.

HAW Okay. Look about 110 if you can spare yourself away.

Flight, we're showing 2 Baker as 3 decimal 84 amps.

FLIGHT Roger, that.

HAW You want another main, flight?

FLIGHT That's affirmative.

HAW Rog. Look 154 degrees. 154.

S/C 7 Roger. We're just getting sunrise now.

HAW Roger.  
Flight, Hawaii.

FLIGHT Go ahead.

HAW I've got an MI coming out of my machine. Is that for me?  
Flight plan update?

FLIGHT Negative.

HAW Okay.

FLIGHT You can tell 'em that spacecraft 6 is on the carrier deck.  
And the pilots are now getting out.

HAW Roger. Okay. Your coharts no. 6 are on the carrier deck  
and they're climbing out.

S/C 7 Very good.

HAW Looks like we're getting some pretty heavy cloud coverage, you  
can knock off that laser bit now.

S/C 7 Okay. We had ours out but we can't see it.

HAW Roger. When you fire 3 and 4 individually you do get some  
fluid out of 'em, do you?

S/C 7 Rog.

FLIGHT Can they give us an approximate time when this thing failed?

HAW I gave it to you my last rev post-pass, let me dig it out  
again, flight.  
The GMT was 14 53 30.

FLIGHT That's when they said it failed, right?

HAW That's affirm.

HAW                    These two thrusters, 3 and 4, are they on the colder side of  
                         the spacecraft?

S/C 7                   Well, we've been just drifting so it's hard to say at random,  
                         we, I would think any part would be apt to be colder than the other.

HAW                    I was wondering when you were chasing 6 you were BEF, weren't you?

S/C 7                   Right.

HAW                    Okay. Were these thrusters on the side away from the sun, do  
                         you know?

S/C 7                   Stand by.                ..... let the sunlight.

HAW                    Okay.

FLIGHT                 Ed, uh - - -

S/C 7                   I expect right then it would have been on the warm side.

HAW                    You say it was on the warm side?

S/C 7                   Roger. They're on the right-hand side of the spacecraft.

HAW                    Okay. Thank you.  
                         Go ahead, flight.

FLIGHT                 It's interesting to note that we're at the same mmh conditions  
                         as we began to have troubles on spacecraft 5. I don't know  
                         whether that has any significance or not, yet, but - -

S/C 7                   No, they would have been on the cold side when we went BEF.

HAW                    Okay. Very good.  
                         Flight, not only that, your exact words for the same question,  
                         try the secondary attitude drivers with .....

S/C 7                   We didn't notice until we tried to stop the drift that had  
                         built up during the night, this morning.

HAW Roger. Understand.

We're showing they're off-scale load now, flight.

FLIGHT On what?

HAW On thruster temp.

FLIGHT Rog.

HAW ECS temp, that is.

FLIGHT Rog. We've noticed that.

HAW Section ..... hold on a second.

FLIGHT Yeah, we noticed that on your summary.

HAW Okay, that's TCA 3 right. This looks like the same problem again.

Do you want me to tell 'em about the propellant being the same as 5?

LIGHT No, let's hold that for a while. That's just for our consumption.

HAW Rog. We've lost telemetry and radar in Hawaii.

END OF TAPE

This is Gemini Control, Houston. 285 hours, 48 minutes into the flight of 7. Over, just north of, the Rose Knot Victor a few minutes ago, the 7 crew got the flight plan update. Here's how it sounded.

RKV Gemini 7, RKV.here. ...(Garbled)...

S/C 7 Roger, RKV. ...(Garble)... Fuel cell purge is complete.

RKV Roger. Your next fuel cell purge will be over us on the next rev. That'll be rev 180.

HOUSTON RKV. Would you get us some open circuit voltages on Alpha, Bravo, and Charlie out of cell 2, please.

RKV Roger, Flight. Gemini 7, RKV.

S/C 7 Go ahead, RKV.

RKV, Would you give us your open circuit voltages out of Section Two?

S/C 7 Roger. 2C is reading 31.2.

RKV Roger.

S/C 7 2B, open scale high, about 32.

RKV Roge.

S/C 7 And, 2A is reading 32 volts.

RKV Roger.

HOUSTON 32?

RKV That's 32 volts on 2A, Flight.

HOUSTON Roge. I copied the other 2.

RKV Roger.

HOUSTON Your ~~communications~~ just came up one order of magnitudes.

RKV Good show.

HOUSTON We'd like an LOS A, RKV.

RKV Roger. RKV has LOS.

END OF TAPE

This is Gemini Control Houston, 285 hours, 53 minutes into the flight of 7. From the WASP, we've just been advised that the crew, based on a preliminary look of the doctors, have been pronounced in excellent condition. Wally Schirra is presently on the tilt table getting his first postflight tilt. As soon as the two got down in the sick bay area, they each had a glass of iced tea. While Schirra is on the tilt table, Tom Stafford is getting an X-Ray, a first postflight X-Ray and some EKG readings are being made. Commenting on the overall flight, Schirra said quote, "It was ideal. We had no problems whatsoever." He also told a NASA public affairs officer there that he though he got some excellent film of the rendezvous sequence. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control, Houston. 286 hours, 2 minutes into the flight. We have additional conversation via Tananarive. Here it is.

HOUSTON Gemini 7, Gemini 7, Houston.

S/C 7 This is Gemini 7. Go ahead.

HOUSTON Roger. Have you been able to observe the color of the fluid from thrusters 3 and 4 when it was not firing well? Gemini 7, Houston. Did you copy the question?

S/C 7 Well, as far as we know, it's just a flash of white. We can't see it very well.

HOUSTON Roger. Can you give me open circuit voltages on Section Two? Gemini 7, Houston. Could you give us a read out on Section Two voltages?

S/C 7 Roger. 2A is 32 volts. 2B is off scale high. 2C is 32 volts.

HOUSTON Understand. 2A, 32. 2B off scale high. 2C, 32.

S/C 7 Roger. Did you read that we have a Delta P light on Section One now, also?

HOUSTON Roger. Delta P light on Section One.

S/C 7 One and Two, both have Delta P lights.

HOUSTON Understand. Section One and Two, Delta P lights.

S/C 7 Roger.

HOUSTON Gemini 7, Houston. We want to leave the sections as they are. We will contact you at Carnarvon.

S/C 7 Thank you very much.

HOUSTON How's the tumbling?

S/C 7 It's not too bad now.

HOUSTON Roger.

END OF TAPE

This is Gemini Control Houston. A few minutes ago as 7 sailed over the north of Carnarvon, there was considerable discussion of the fuel cell situation. Here's how the conversation went.

CRO Gemini 7, Carnarvon.

S/C Roger, Carnarvon.

CRO Gemini 7, Carnarvon Cap Com.

S/C Go ahead, Carnarvon, Gemini 7.

CRO Roger. Could you give us another reading on the fuel cell No. 2 voltages open circuit.

S/C Roger. 2A is about 31.5, 32 that is. 2C is awfully hot. 2C is about 31.

CRO Roger. Thank you.

HOU We show that he doesn't have the circuit breaker open on those two chargers.

CRO OK. We're going to take another look at these volt, open circuit voltages over Hawaii, and then consider bringing the section back up on those stacks on this next pass.

HOU What are the firms on the Delta P light on section 1?

CRO They're still sinking.

FLIGHT We think that that is probably the same thing that happened the other night that we cleared

whatever was blocking the water on 2 Charlie and that it's doing the same thing on Bravo and clearing it. I mean on fuel cell No. 1.

CRO Rog. They feel that it is probably something blocking the water a little bit. And that it's just a matter of clearing it again.

S/C Roger.

FLIGHT Ask him if he thinks 2 Charlie has gone down since his reading over Tananarive?

CRO Do you think that 2 Charlie has gone down since your reading over Tananarive?

S/C It looks about the same, maybe a little bit less.

CRO Roger.

FLIGHT What do you show on CLO 1 and CL 10, that is the fuel cell water pressure and the drinking water pressure?

CRO Stand by one, Flight. 17.2 on drinking water and 17.2 on fuel cell water.

FLIGHT Say again. 17.2 on CLO 1.

CRO That's 17.2 on both, yes. CLO 1 and CL 10.

FLIGHT Roger.

CRO Are you getting a good main from us. We were having drop out just about the time we sent it.

FLIGHT                    Still haven't received your main. Send us  
another one. No, here it is. Just got it.

CRO                        OK, does it look OK?

FLIGHT                    Yep.

CRO                        OK.

FLIGHT                    Sending us an A summary?

CRO                        It's been sent. Two A's and one B.

FLIGHT                    Roger. Got it.

CRO                        And we're showing TCA 3 at 10.8 degrees.

FLIGHT                    Roger. We show 12 degrees on your summary.

CRO                        OK, and this was off right at the beginning  
so apparently it's come up a little.

FLIGHT                    Roger.

CRO                        Gemini 7, Carnarvon Cap Com. We're about to  
have LOS. We'll see you tomorrow.

S/C                        Roger. Adios.

CRO                        Roger.

FLIGHT                    Ask him if they've had any water to drink since  
they've had that fuel cell problem.

CRO                        Roger. Have you had any water to drink since  
that problem? I don't think they can copy,  
Flight. They went over the hill about that  
time.

END OF TAPE

This is Gemini Control Houston here, 286 hours 50 minutes, and we are in a swing coming across Guaymas. Elliot See has put in a call and here is the conversation as it occurs.

S/C 7 . . . . (garbled) but not bad.

Cap Com Roger. 7, did you call.

S/C 7 Negative.

Cap Com Give us section 2 open circuit voltages again.

S/C 7 Roger, 2 Alpha, 32, 2 Baker, off scale high, 2 Charlie, about 31.1.

Cap Com Roger.

S/C 7 This is Gemini 7 with a cabin temperature. . . .

Cap Com Okay, before you give me that, would you put section 2 back on the line.

S/C 7 Roger, section 2 going back on the line.

Cap Com Okay, go ahead with the readouts, Frank.

S/C 7 Roger, cabin temperature 79, wall temperature 79, cabin dew point 62, temperature and dew point at the blue hose 65 and 52, temperature and dew point at the red hose 76 and 60.

Cap Com Roger, copy.

S/C 7 Houston, 7.

Cap Com Go ahead.

S/C 7 The amps on section 2 are about  $\frac{1}{2}$  on 2A, 2B is about 3, and 2C is about  $\frac{1}{2}$ .

Cap Com Understand, 2A, 1 amp or was that  $\frac{1}{2}$ , and 2B is 3, and 2C is .5.

S/C 7 Roger, and so is to A, .5

Cap Com Roger.

Cap Com            Might watch them for a minute here 7, and let us know if you see any change. We are watching them also.

S/C 7             Roger.

Cap Com            It was a good try.

S/C 7             Any more ideas?

Cap Com            We are working on it.

S/C 7             I'm worried about the line on section 1 here. What do you feel about that?

Cap Com            You still have that on I see, we are working on it.

                  This is Gemini Control. A little later in this pass we will have a crew status report on the Command Pilot. It will come to us via RKV.

Elliot See is talking again. Let's go back.

Cap Com            .... are not ready with a solution on the thrusters yet.

                  We would like to continue as we are, is the attitude control sufficient, or the lack of there.

S/C 7             We'll leave it alone.

Cap Com            Okay.

S/C 7             You want us to leave it in this mode, right?

Cap Com            That's affirmative, if it is adequate for you.

S/C 7             Okay.

Cap Com            Okay, we are ready to turn off 2 Alpha and 2 Charlie at this time.

S/C 7             2 Alpha and 2 Charlie coming off the main bus:

Cap Com            Gemini 7, Houston. Gemini 7, Houston.

                  This is Gemini Control. Apparently 7 is out of range of Antigua. It is directly over Panama. We are reading here the voltages, amperages on that fuel cell status. Our main bus voltage is 26.1 volts, squib 1 volts 26.2, squib number 2, 26.1, the control bus 25.7 volts and the stack

currents, these are amperage readings. In section 1, 1 Alpha is reading 4.3 amps, 1 Bravo is 4.6 amps, and 1 Charlie is 3.7 amps. In section 2, 2 Alpha reads .2 amps, 2 Bravo, 2.7 amps, and 2 Charlie is .1 amps. 2 Alpha and 2 Charlie have been turned off. They were turned off in this pass across the States. Now, in addition to a medical status report on Frank Borman over the Rose Knot Victor we also will have a fuel cell purge. However, those sections 2 Alpha and 2 Charlie will remain off. This is Gemini Control Houston.

END OF TAPE

HAW CAP COM

Gemini 7, Hawaii cap com.

S/C 7

Go ahead, Gemini 7.

HAW CAP COM

Roger, we'd like to have -- we show you go on the ground and we'd like to have an open circuit voltages on section 2.

S/C 7

Roger.

2 A's: 32 volts, 2 Bs are still high at 32,

2 C's read 31.1 volts.

HAW CAP COM

Roger, copy. Would you check your TM control TM switch into Command position please?

S/C 7

TM to Command position

HAW CAP COM

Roger, and I have a flight plan update for you if you're ready to copy.

S/C 7

Go ahead.

HAW CAP COM

Roger, this is a cabin temperature measurement.

It's a little bit different than what you normally do. So if you're ready to copy, I'll give it to you step by step.

Time 286 44 00 - cabin temperature test number one

Step one - a cabin temperature; step two - wall temperature; step three - cabin dew point;

step four - temperature and dew point at blue

outlet; step five - temperature and dew point at

red inlet. Do you copy?

S/C 7

Roger, we have it.

HAW CAP COM

Roger, we'd also like to have your comments on day versus night thermal coupler...comfort

S/C 7

Say again.

HOU FLIGHT

Day versus night thermal comfort c-o-m-f-o-r-t.  
That is.

HAW CAP COM

That was day versus night thermal comfort.

S/C 7

Day versus night thermal comfort?

HAW CAP COM

That's affirmative.

S/C 7

You can't tell much on a day until you get going around, when we close up at night in here and go to sleep, it's cöbler.

HAW CAP COM

Roger, understand. Also have the map update when you're ready to copy.

S/C 7

Go ahead.

HAW CAP COM

Mode at 287 51 05, rev 180, 102.8 east, right ascension 07 53 10.

S/C 7

Roger, we have that.

HAW CAP COM

We have nothing further for you, we're standing by.

S/C 7

Thank you.

END OF TAPE

RKV                   RKV has telemetry solid.

                      Gemini 7, RKV. We have your oral temp. You can start your  
blood pressure.

S/C 7                 Roger, blood pressure coming down, RKV.

RKV                   We are standing by for your purge.

S/C 7                 Roger, let me damp this rate down. We have two sections  
shut down.

RKV                   Cuff is full scale.

RKV                   That's affirmed, we want you to purge 2 Bravo.

S/C 7                 Say again, RKV.

RKV                   Cuff is full scale.

RKV                   ..... (garbled) .. off the line.

S/C 7                 The circuit .. (garbled)..

RKV                   All systems are go Flight. We've transmitted TX.

Flight                Roger that. Flight Control, Flight Control, something happen  
there.

S/C 7                 ... (garbled) in a mess.

RKV                   .... you have to know.

S/C 7                 ..... (garbled) .....

RKV                   We have a valid blood pressure, 7. Would you give us your  
food, water, and sleep status.

S/C 7                 Roger, we had, the Command Pilot and Pilot just finished  
day 13, meal B, this morning we had day 13 meal A, and  
the Command Pilot didn't eat the sausage. Total water to  
date for Command Pilot 972, total for column 5 is 31,  
column 6 is 6.

RKV                   Roger.

S/C 7                   The Pilot's total water is 813, total column 5 is 30,  
                          column 6 is 7.

RKV                     Roger.

S/C 7                   ... (garbled) we slept some last night, I guess about 5 hours  
                          We both feel we will be able to sleep pretty well when we  
                          get down.

RKV                     Roger. Surgeon out.

RKV                     Flight, RKV.

Flight                  Go ahead.

RKV                     Roger, the purge is going well. The crew reported that the  
                          rates vary from  $\frac{1}{2}$  to 1 degree, primarily roll.

Flight                  Roger, I understand. Delta P lights?

RKV                     Roger, we've got both of them.

Flight                  What sections has he purged?

RKV                     He's through with section 1, and he is now purging section 2.  
                          ... (garble) 2. His ACME is powered down at this time.

Flight                  Say again.

RKV                     His ACME is powered down at this time.

S/C 7                   Purge complete, RKV.

RKV                     Roger.

Flight                  Send us -- Say again.

RKV                     The purge is complete, Flight.

Flight                  Send us a main now, please.

RKV                     Roger.

Flight                  Still have both delta P lights?

RKV                     That's affirmed.

Flight                  RKV, Flight.

RKV                     Go ahead Flight.

Flight                  Ask the crew if they see any objects at all in their vicinity.

RKV Roger. Gemini 7, RKV.

S/C 7 Go ahead RKV.

RKV Do you see any objects at all in your vicinity?

S/C 7 ... (garbled) ... Wait, I'll check.

RKV Say again.

S/C 7 I'll check. Just a minute.

RKV Okay.

S/C 7 Negative. We see none.

RKV Roger. Did you copy Flight.

Flight Affirmative.

RKV Have you got our'.....(garble)

Flight Affirmative. We would like another Main.

RKV Roger.

S/C 7 Are we going to sleep tonight, RKV.

RKV Same as always.

S/C 7 .... (garbled) ...

RKV We'll take care of that.

S/C 7 Rog.

END OF TAPE

This is Gemini Control Houston at 287 hours, 44 minutes into the flight. About 20 minutes ago while over the Rose Knot Victor just before the start of a pass there we experienced voice failure on our voice circuits. Most of the east bound circuits were affected. These are wired through the Goddard Space Flight Center at Greenbelt, Maryland and the area affected apparently was in Lake City, Florida. That's the initial indication in any case. The power outage continued for about two minutes there. However, power was restored via emergency circuits and the lines have come back up and are operating, as they have been for nearly two weeks now. We did however miss that Rose Knot Victor conversation. We do have some conversation that occurred over Tananareve a very few minutes ago and here it is.

HOU Tananareve go remote.

TAN Tananareve remote.

Tananareve has acquisition.

HOU CAP COM Gemini 7, Gemini 7, Houston, how do you read?

Gemini 7, Gemini 7, Houston, how do you read?

S/C 7 Loud and clear, Houston.

HOU CAP COM Roger, how many Delta P lights do you have?

S/C 7 We still have two.

HOU CAP COM You still have what?

S/C 7 Two.

HOU CAP COM Understand, 2 Delta P lights.

S/C 7

There's one for each section Elliot.

HOU CAP COM

Roger, I copy. Have the stack currents changed appreciably since RKV?

S/C 7

1A is 5, 1B 5, 1Charlie 4, 2 Bravo 3.5.

HOU CAP COM

Roger, 7.

Gemini 7, we're going to put some HF on again if you're interested.

S/C 7

Thank you.

HOU CAP Com

Gemini 7, if you read the HF is up.

Gemini 7, Houston, if you read the HF is up.

HOU

Tananareve has LOS.

END OF TAPE

This is Gemini Control Houston. The Coastal Sentry Quebec raised Gemini 7 a few minutes ago for the first pass today, and here's how the conversation went.

CSQ Gemini 7, CSQ.

S/C Go ahead, CSQ.

CSQ Roger. I'd like you to place your cryo read switch to the ECS O<sub>2</sub> position.

S/C Rog.

FLIGHT What is fuel cell No. 1 doing? How are the stack currents?

CSQ One Alpha reads 3.86. One Bravo, 4.1.  
The main 11.5.

FLIGHT Roger. Thank you.

CSQ Go to the fuel cell O<sub>2</sub> position.

S/C Got it. Do we have a good pass on the ...?

CSQ Negative.

S/C OK.

FLIGHT That's in Hawaii, CSQ.

CSQ Gemini 7, Chris said that is Hawaii.

S/C Thank you.

CSQ Would you go to the fuel cell H<sub>2</sub> position?  
Thank you.

S/C All right.

FLIGHT We'd like another main, please.

CSQ Roger, Flight. It's on its way.

Gemini 7, you can put your cryo read switch to the off position now. Did you hear what I said? You can put your cryo switch to the off position.

S/C Roger.

CSQ We have you go on the ground, Gemini 7.

S/C Rog. Can you give some indication of what Flight thinks about the Delta P light on section 1 switch?

CSQ Stand by.

S/C Stand by, CSQ. It just went out.

CSQ Roger. We copy.

S/C Read me?

CSQ That's affirmative.

FLIGHT Do you read the same thing?

CSQ That's affirmative, Flight.

FLIGHT Tell him the predictions were on the ground that that's what it would do.

CSQ Gemini 7, the ground predictions were that that light would go out.

S/C Say again.

CSQ The ground predictions were that that light would go out about this time.

S/C Very good.

FLIGHT Tell them that the ground was predicting it

would go out about 20 minutes ago.

CSQ Gemini 7, the ground predictions were that that light should have gone out about 20 minutes ago.

s/c OK, thank you.

FLIGHT Send us another main, please.

CSQ Roger, Flight. CSQ has LOS.

FLIGHT Roger.

END OF TAPE

This is Gemini Control Houston, 268 hours, 23 minutes of the flight. That thruster problem which has been the subject of so many conversations the last several hours got more discussion over Hawaii. And here it is.

HAW CAP COM Gemini 7, Hawaii Cap Com. Gemini 7, Hawaii Cap Com, we have a good oral temperature standing by for your blood pressure.

S/C 7 Coming down.

HAW SURGEON Your cuff is full scale.

HAW CAP COM Gemini 7, Hawaii Cap Com, I got a TCA test for you to copy.

S/C 7 Roger, stand by one minute.

HAW SURGEON We have a good blood pressure standing by for your exercise.

S/C 7 Okay go ahead, please.

HAW CAP COM Roger, this is a TCA Number 3 test. The temperature problem should have been cleared up at 15 degrees and we're now reading 22 degrees. So we'd like you to do this procedure over Hawaii. So we can monitor on the ground. We don't think it's a temperature problem but we want to try it anyway.

S/C 7 Ready to copy.

HAW CAP COM Want you to bring up the 3 range gyros. TCA number 3

circuit breaker on. Gemini 7 would you  
do this as I read it to you.

S/C 7

Roger, do it as you read it, okay.

HAW CAP COM

Bring up your 3 range gyros.

S/C 7

They're up.

HAW CAP COM

TCA number 3 circuit breaker on.

S/C 7

It's on. Go ahead it's on.  
control

HAW CAP COM

Direct/ and give us a burst.

S/C 7

The only one you want on is 3. Do you want  
all the others off?

HAW CAP COM

Bring up all 3 range gyros.

S/C 7

I mean circuit breakers, do you want all the  
circuit breakers turned off but 3.

HAW FLIGHTM

No, just tell him to give you a burst at right  
yaw.

HAW CAP COM

Just give us a burst at right yaw.

HAW SURGEON

We have a good blood pressure.

Do you have any additions on your food, water,  
and sleep report?

HAW

Roger, Gemini 7, did you get a thrust.

S/C

In what mode do you want me to give you a burst?

HAWAII CAP COM Direct.

S/C Here we go. We get nothing. Other than the solenoid clanking. (garble)....

HAW CAP COM Say again 7.

S/C It looks like it's coming through the thruster without igniting.

HOU FLIGHT Tell him to turn it off.

HAW CAP COM Okay. Disregard we'll stop the test at this breaker time. Turn your TCA number 3 circuit/off.

S/C It's off.

HAW CAP COM And your 3 range gyros off.

S/C You don't want to try number 4, huh?

HAW CAP COM .....(garble) flight?

HOU FLIGHT Negative.

HAW CAP COM Negative 7.

S/C Okay, they're off.

HOU FLIGHT Tell him that my best guess is those are the thrusters that he's used -- they got continuous use and that we've probably got some trouble in the valve seats.

HAW CAP COM Roger. To the best guess these are the thrusters that you've used and we probably have trouble in the valve seats.

S/C Roger.

HAW CAP COM And I have a flight plan update when you're ready to copy.

S/C Stand by. Go ahead.

HAW CAP COM Roger. Title D-4/D-7 at 288 24 28, sequence 427, mode 02, remarks yaw 33 degrees right, pitch 47 degrees down, passing north to south in front of and below spacecraft.

S/C I don't know how you did it but I have pitch control.

HOU FLIGHT Tell him we're aware of that.

HAW CAP COM We're aware of that.

S/C Roger. Hawaii, this is Gemini 7.

HAW CAP COM Roger this is Hawaii.

S/C Do they mind if we turn on the thrusters now and see if we can get any kind of control out of them at all?

HOU FLIGHT We don't mind but we don't quite see the reason or the good that it's going to do him.

HAW CAP COM Flight advises it's alright with them but they don't see the reason or what good it will do you.

S/C Well, I may be able to do D-4/D-7, I don't know why they send up updates if they don't want us to do them.

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HOU FLIGHT                    We just wanted him to know what was there.

HAW CAP COM                   Just wanted you to know what was there 7.

S/C                            Okay, thank you. We're confined to drifting.

HAW CAP COM                   Say again.

S/C                            I said, "we're confined to drifting."

HOU                            Hawaii is TM LOS.

HOU Flight                    Roger.

END OF TAPE

This is Gemini Control Houston at 288 hours 35 minutes. The fuel cells are drawing most of the attention now, they have been the primary subject of discussion during this sweep down the West Coast of Mexico and Frank Borman got Chris Kraft's assurance that we wouldn't go by that dash one area tomorrow morning :- that Western Atlantic landing area unless he was completely satisfied in air - in space and here on the ground as to the operation of the cell, section 2 is - 2 of the 3 stacks have been turned off and here is the conversation regarding the total status of the power supply.

Cap Com Gemini 7, Houston.

Gemini 7, Houston.

Gemini 7, I think we lost you for a minute there. Have you been trying to control the rates at all, or just letting them build up.

S/C No, I've been letting them build up now since you said you wanted these turned loose and not used.

Cap Com Roger.

Guaymas AFD Guaymas.

S/C You can control them with the other thrusters.

Cap Com Roger. Why don't you go ahead and control them as best you can with the other thrusters.

Flight Go ahead Guaymas.

S/C Okay, .... (garbled) .... used at all, is that correct?

Cap Com Roger.

Guaymas We have CBO3 on.

Flight Rog.

Cap Com Roger, we prefer they not be used.

S/C Okay.

Cap Com Gemini 7, did you get Delta P number 1 back.

S/C Negative. Not yet, but we are expecting them.

Cap Com Ah, come on now.

S/C Roger, I could guess. We have it back.

Cap Com You say you do have it back?

S/C That's roger, it's back on.

Cap Com Roger. Are you able to control your attitude rates or have you tried yet.

S/C I'm stopping them now.

Cap Com Roger. Are you going to give us a flight plan report here?

S/C Yes, but about all I have is a film report really.

Cap Com Okay, let's have it.

S/C We have left 76 frames of S0217, 57 frames of S0217 with a ASA of 500. 47 high contrast black and white, 20 frames of dim-light, 13 frames of color shifted IR, 2 magazines of 16-mm. The only thing we have been able to accomplish today is the S-5 over South Africa.

Cap Com Roger, and have you got vision tester scores.

S/C We are going to do that right now.

Cap Com Roger. Gemini 7, we'd like to have you consider the possibility of controlling yaw with the maneuver thrusters, that is, 13 and 14. Actually, 14 would be probably the one you would use.

S/C Well, we'll give it a try.

Cap Com We'd like you to consider it. It would be 11 and 12 that you would use, that is, your forward firing.

S/C Roger.

Flight Frank, what do you think about doing that.

S/C Well, Chris, I think we can control the rates all right, but I'm more concerned about the Delta P light than I am the rates.

Flight Yes, so are we, Frank.

S/C It looks to me like this time it means it.

Flight Looks like what?

S/C Looks to me like this time the cells are really on their way. The maneuver thrusters work pretty well in yaw.

Cap Com Okay.

Flight Why are you more concerned about the Delta P 1 light this time. Do you see something different about it.

S/C This is the first time it has reoccurred like this, the other times it has gone out. Same way with the two stacks this morning. We could almost tell up here that those two stacks had had it before we kept playing with them.

Flight Frank, the people down here are still fairly confident in section 1.

S/C Okay, good.

Flight We're watching it Frank, we will be recognizing it just as quick as you will.

S/C Okay. I'd like to make a go - we prefer to land somewhere near the carrier. You know what I mean.

Flight Frank, you know I would to.

S/C Okay.

Cap Com Would you tell us which magazines, camera magazines were used during the rendezvous and booster station keeping?

S/C We used almost all of the Elliot.

Cap Com Roger.

Flight Frank, let me put that differently to you. I'm going to be as certain ~~that that~~ fuel cell is going to last when we go by dash 1 area tomorrow morning as we absolutely can and I won't make that decision unless I am sure of it.

S/C Very good. We're on .... (garbled). ..

Flight Roger that.

Guaymas Guaymas has LOS.

END OF TAPE

FLIGHT                   RKV, Houston Flight.   RKV, Houston Flight.

RKV                       Go ahead, Flight

FLIGHT                   We'd like to have you turn off all maneuver  
                          circuit breakers except 12 aft on.

RKV                       Roger.

FLIGHT                   And all attitude circuit breakers on except  
                          3 and 4 yaw right off.

RKV                       Say the last again.

FLIGHT                   All attitude circuit breakers on except 3 and  
                          4 yaw right off.

RKV                       Roger.

FLIGHT                   And then have him see how well he can control  
                          attitudes while over your site.

RKV                       Roger.

FLIGHT                   We also gave him a call about maneuver heaters.  
                          Let's make sure he's got those on, please.

RKV                       Want the maneuver heaters on?

FLIGHT                   That's affirmative.   That's the first thing.

RKV                       OK.

FLIGHT                   We gave him an HF call on that, RKV.

RKV                       Roger.   Now we have telemetry solid.   All  
                          systems go.   We have both Delta P lights.

FLIGHT                   Roger.   Understand both Delta P lights.

RKV                       Gemini 7, RKV.

S/C Go ahead, RKV.

RKV Roger. Would you turn your maneuver heaters on, please.

S/C Attitude circuit breakers on.

RKV Roger. We have a little test to run. We want you to turn on all the maneuver circuit breakers except 12 aft. We'd like that off.

S/C Roger.

RKV Did you copy that, 7?

S/C Roger.

RKV OK. Turn all of your attitude circuit breakers on.

S/C All the attitude circuit breakers on? OK.

RKV Except 3 and 4 yaw right. They should be off.

S/C Right. Roger.

RKV OK. We'd like to see how well you can control your attitude.

S/C Looks fine, RKV.

RKV Roger. Do you copy, Flight?

FLIGHT What did he say, RKV?

RKV He said it works fine.

FLIGHT How did the rates look on the ground?

RKV It looked go.

FLIGHT Roger. Roger on that.

RKV Do you want him to stay in that configuration?

FLIGHT Stay in that configuration. We'll think about it awhile and see what he used between here and the CSQ.

RKV We'd like you to stay in that configuration for awhile. We'll talk to you over CSQ.

S/C OK. Fine.

RKV OK. I've got a short flight plan update for you.

S/C Stand by one minute.

FLIGHT And tell him he's free to use the attitude control during that period.

RKV Roger.

FLIGHT You copy that, RKV?

RKV Copy. The flight plan update -- time 218.45 and another time 291 06. We'd like to establish them as test No. 1.

S/C Roger. I copy.

RKV OK. You're free to use the attitude control between now and CSQ.

S/C OK. Thank you.

RKV Roger. Did you copy, Flight?

FLIGHT Has he got the maneuvering heaters on?

RKV That's affirmative.

FLIGHT Did he have them on?

RKV He didn't say. I only told him to turn them  
on.

FLIGHT Yeah, would you ask him if he heard our HF?

RKV OK. Gemini 7, RKV.

S/C Go ahead.

RKV OK. Would you confirm whether you had your  
maneuver heater switch breaker on?

S/C Affirmative.

RKV OK. Did you hear Houston calling you on HF?

S/C Roger.

RKV You did hear?

S/C Negative. We did not hear.

RKV OK. Did you copy, Flight?

FLIGHT Affirmative. Why don't you tell him to  
maintain attitude between here and the CSQ,  
so it'll give us an idea of how much fuel  
it takes to maintain attitude for that length  
of time?

RKV We'd like you to maintain attitude until CSQ.  
Flight wants to know how much petrol you use.

S/C Roger.

FLIGHT Also, tell him that we're considering using  
his attitude control for an MSC-4 over Hawaii  
although at this time the weather doesn't seem

too good and see what he thinks about that.

RKV Roger. We're considering using the attitude control for an MSC-4 over Hawaii; however, the weather doesn't look good in Hawaii right now.

S/C Roger.

RKV All systems look good, Flight.

FLIGHT Roger.

RKV Gemini 7, .....

S/C Roger.

RKV OK.

RKV has LOS.

FLIGHT Roger.

END OF TAPE

This is Gemini Control Houston at 289 hours 8 minutes into the flight. The Department of Defense has advised -- advises that the second stage of the Gemini 6 Launch Vehicle impacted about 10 minutes ago. They estimate 2:30 p.m. central standard time at a point near Midway Island in the Pacific, 29 degrees north, 179 degrees west. That is the second stage of the Gemini 6 Launch Vehicle. We had voice communications by way of the Rose Knot some 10 minutes ago, but communication was so garbled that it is not intelligible and we are going to pass it on to the transcriptionist to see what they can get out of it, but we doubt that they will get very much. Elliot See is in communication now with the spacecraft and let's tune in on that conversation!

Cap Com .... We ran out of time and I didn't get that from you before.

Gemini 7, Houston. Are you checking the vision test scores for me?

S/C We haven't taken the test, I'll have to give them to you later on.

Cap Com Roger, did you take it yesterday. They tell me we did not get any scores yesterday.

S/C We took it yesterday and recorded it, but I'll have to check it in the log book and I'll give it to you.

Cap Com Roger. Do you still have your number 1 delta P light on, Frank?

S/C Roger. They are both on.

Cap Com Roger.

S/C We are keeping real close check of the current, and if they -- if section 1 current starts to drop, I'm going to really ...  
... (garbled).....

Cap Com Say again 7.

S/C I say if the current -- and we are keeping very close check on section one current.

Cap Com Roger, you are checking section 1 current carefully, say again the rest.

S/C I say if it starts to drop tonight, I'm going to hate to see that carrier go by tomorrow.

Cap Com We are going to take care of that Frank. Don't worry.

S/C Com Okay.

Cap Com Gemini 7, Houston. For your information, we are considering turning off section 2 completely if the delta P light does not go out soon. We feel that that should improve the situation.

S/C. Very well.

This is Gemini Control Houston. That may wrap up the conversation via Tananarive. If we are fortunate with weather this time, an MSC-4 Laser type experiment will be attempted over Hawaii, and that's all the flight plan calls for up to that point. The - otherwise the schedule says exercise between the Coastal Sentry Quebec, well, right over the Coastal Sentry Quebec and then at Hawaii the MSC-4, also there is a housekeeping period assigned there followed by a dinner period beginning between Hawaii and the RKV at oh, about an hour from now. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control. We are 289 hours and 40 minutes into the mission of Gemini 7. At this time Gemini 7 is on revolution 181 and is passing over the Pacific Ocean and shortly will come up over the Hawaiian Tracking Station. A few minutes ago we had a voice communication between Gemini 7 and the Coastal Sentry Tracking ship and at this time we will play back that voice tape:

CSQ CSQ has TM solid.

Flight Roger. You got the delta P light.

Does he have the delta P light?

CSQ That's affirmative.

S/C This is Gemini 7.

CSQ Roger, we are going to attempt an MSC-4 over Hawaii this rev.

S/C Roger.

CSQ Can you give me an evaluation of how you have been able to maintain attitude control ... (garble) ...

S/C We maintain it okay.

Flight What's his PQI?

S/C ... (garble) aline the platform with.

CSQ Very good. Say again Flight.

Flight What's his PQI? Propellant quantity.

CSQ Gemini 7, CSQ. Give me a propellant quantity.

S/C Stand by. 8 percent.

CSQ 8 percent, right.

S/C Roger.

CSQ Rog.

Flight I copy.

CSQ Would you also give me an OAMS source pressure readout.

S/C Stand by.

S/C ..... (garble) pressure reads 1100, 1100.

CSQ Roger, copy. Did you copy Flight?

Flight 1100 psi, is that his source pressure .

CSQ That's affirmative.

Flight Rog. Did you send your summary, CSQ.

CSQ Roger, it's been transmitted.

Flight Rog.

S/C I still have both delta P lights, CSQ.

CSQ Roger. .... (garbled)...

Flight What did you say. He just lost the delta P light?

CSQ Negative Flight. He said he still has both.

Flight Rog. We need a main class 1.

CSQ Roger. It's on its way.

Flight CSQ, Houston Flight.

CSQ Go ahead Flight.

Flight You might tell him that the ground readouts of his fuel don't show any detectable usage since we last saw him.

CSQ Roger. Gemini 7, Houston advises that they have -- that the ground readouts do not show any appreciable usage since RKV.

S/C Roger.

That was taped voice communication between Gemini 7 and the Coastal Sentry Quebec tracking ship. Here in the Mission Control Center we are in the midst of a shift change with the White Team of Flight Controllers moving into the consoles and the Red Team moving out of the Control Center. Our Flight Director from the Red Team, Christopher Kraft and several of his controllers will shortly be over at building 6 for their daily press conference. We are now 289 hours and 45 minutes into our mission. Gemini 7 is passing over the Pacific and shortly will come up on the Hawaiian Tracking Station. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 290 and one minute into the mission of Gemini 7. At this time Gemini 7 is passing over the Pacific on revolution 181. A few minutes ago we had voice communications with the Hawaii Tracking Station. And at this time we will play back that voice tape.

HOU Hawaii is TM solid and we show him go.

HAW CAP COM Gemini 7, Hawaii Cap Com

S/C Go ahead Hawaii.

HAW CAP COM Roger, we show you go on the ground and I have a PLA update for you when you're ready to copy.

S/C Stand by one. Go ahead.

AW CAP COM Roger. All REP 400 K 21 + 20 for all areas.  
Area 184-3 293 55 38, 185 Bravo 295 47 56,  
186 Delta 296 29 06, 187 Delta 298 05 20,  
188-2 299 37 01, 189-1 301 06 40, 190-1 302 42 08,  
191-1 304 17 38. Weather in all areas is good.

S/C Roger.

HAW CAP COM We have nothing further for you, we're standing by.

HOU Do you have both Delta P lights on the ground, Bill?

HAW CAP COM Roger, we've got both.

HOU Okay, let me tie you up and make sure which ones you've got. You've got BB03 and BB04.

HAW CAP COM Rog.

HOU FLIGHT                   Hawaii Cap Com, Houston Flight.

HAW CAP COM                 Go ahead flight, Hawaii Cap Com.

HOU FLIGHT                   Roger, I've got some more data you can pass on  
the crew here and it's cryo ground rules.  
The Fuel cell H2 heater auto, fuel cell D2  
heater auto, ECS O2 heater off, quantity read  
fuel cell O2 position, minimum on fuel cell  
H2 pressure 490. Please pass it up.

HAW CAP COM                 Roger. Pressure again.

HOU FLIGHT                   490.

HAW CAP COM                 Roger. We have cryo ground rules for you to  
copy.

HOU  
S/C                           Go ahead, Hawaii.

HAW CAP COM                 Okay, fuel cell H2 heater auto, fuel cell O2  
heater auto, ECS O2 heater off, quantity read  
switch fuel cell O2, minimum H2 pressure 490.

END OF TAPE

This is Gemini Control. We are at 291 hours and 20 minutes into the flight of Gemini 7. At this time, our spacecraft crew is flying over the Pacific between the Coastal Sentry tracking ship and Hawaii, just about mid-way between. They are on the 182nd revolution. During the past hour we have accumulated two voice tapes, one over the Rose Knot tracking ship at the beginning of this 182nd revolution and just a few minutes ago over the Coastal Sentry tracking ship and at this time we will play back those voice tapes.

Flight                   RKV Cap Com, could I have a main summary at acquisition and one at LOS, please?     RKV Cap Com, Houston Flight.

RKV                     Houston Flight, RKV.

Flight                   Okay, could I have a summary at acquisition and one at LOS.

.V                      Roger.

Flight                   Okay, we are standing by.

RKV                     RKV has telemetry solid.

Flight                   Roger RKV.

RKV                     All systems are go Flight. Will you transmit a TX.

Flight                   Roger.

RKV                     Gemini 7, RKV.

S/C                     Go ahead RKV, this is 7.

RKV                     Roger, we'd like another purge. We will use the same procedure we used last night, with the exception that we would like you to purge section 2 first.

S/C                     Roger, purge section 2 first, other than that it is a normal purge.

.V                      Right.

S/C                     Would you inform Flight that we've run out of OAMS fuel also.

We are now - the OAMS' regulated pressure is dropping 300 and 270 and we have stopped using it.

Flight Roger, we've been monitoring that.

RKV Roger. Flight, RKV.

Flight Go, RKV.

RKV It looks like 267 in the reserve tank.

Flight 267 in reserve tank.

RKV Roger. Gemini 7, we will give you a systems update over the CSQ or Hawaii.

S/C Okay. I have those two vision scores for yesterday and today.

RKV Okay.

S/C Borman missed 8, Lovell missed 3. Today Borman missed 6 and Lovell's is just taking the test. I'll give it to them over Hawaii.

RKV Okay.

S/C There was some talk to take ... (garbled) ... also.

RKV They are still looking at it.

S/C Okay.

RKV The .....(garbled) tank is still holding at 267 Flight.

Flight Roger, understand.

S/C Purging section 1 now.

RKV Okay. He has completed the purge on 2, starting on 1, Flight.

Flight Say again, Bill.

RKV He finished the purge on 2. He is starting on 1. We still have both delta P lights.

Flight Okay.

S/C                    Would you ask Flight if they want us to purge more often during the night because of the higher load on section 1.

RKV                    Stand by, I'll check.

Flight                 We are working on that now, Bill.

RKV                    They are working on that right now. We'll update you over the CSQ.

S/C                    Okay.

RKV                    Flight, he's got his quantity read to ECS O<sub>2</sub>. I think for the night we want it in --

S/C                    ..... (garbled) tomorrow, or we have to pop that auxiliary tank.

RKV                    Roger..

Flight                 Roger. We concur in going ahead and popping the auxiliary tank now.

RKV                    You can go ahead and pop the volkswagen tank if you want to.

S/C                    Roger, I think I prefer to save it for alining the platform.

RKV                    Okay.

Flight                 We heard that.

S/C                    .... (garbled) just to see if it works.

Flight                 That's what our intention was.

RKV                    We think that that is a pretty good idea. Would you put your quantity read switch to fuel cell O<sub>2</sub>. That would be the night-time configuration.

                       They haven't copied yet Flight.

Flight                 Okay.

RKV Purge complete. . .

Flight Roger

RKV They still have both delta P lights now. The purge is complete, Flight

Flight Roger.

S/C Okay, I understand. . garbled . .

RKV . . garbled . .

Flight Go ahead

RKV . . garbled . .

Flight That's affirm.

RKV RKV has LOS. TM, flight.

S/C 2 alpha 28.0 and 2 Charlie is 29.0.

CSQ Roger, copy. Want the prop quantity and OAMS source pressure readouts.

S/C Roger, prop quantity now reads 7 percent. And the Source pressure is about . . garbled . .

CSQ I'd like to find out what percentage of stowage is now complete and what your estimate is to complete the rest of it.

S/C . . garbled . .

CSQ That's affirmative.

S/C It would take us about an hour: to stow.

CSQ Roger, I understand. Did you copy flight?

S/C We've got our suits on also.

CSQ Roger, Gemini 7.

Flight Roger, we got that.

CSQ Did you copy that Flight.

Flight Affirmative.

CSQ Looks like we're reading 297 psi on all direct pressure.

Flight Roger.

CSQ TC-22 is reading 300 psi now, Flight.

Flight Roger. Say that again CSQ.

CSQ TC-22, 300 psi.

Flight Okay.

CSQ That's the reserve tank pressure.

Flight Roger, got it. I'm going to try and get you guys moving tonight, after you finish your last pass.

CSQ Yea, we've got stuff sliding all around right now. Getting real rough.

Flight Okay.

CSQ We've got 45 miles an hour winds.

Flight Roger.

CSQ Gemini 7, I have a map update for you, when you are ready to copy.

S/C . . garbled . .

Go ahead.

CSQ Point was node 5295 22 20, Rev 185, 12.7 degrees West, right Ascension 07 43 46.

S/C . . garbled . . .

CSQ Roger.

S/C . . garbled . .

CSQ Negative, Gemini 7. That's all, we are standing by.

Flight You can tell him we are planning to go open circuit on the entire section 2 over Hawaii, we'll advise him.

CSQ Gemini 7, Flight just advised that they plan to go open circuit on section 2 over Hawaii. They will advise you later.

s/c Okay.

CSQ Flight do you want a LOSA.

Flight Affirmative.

CSQ Roger. CSQ is LOS.

Flight Roger, CSQ.

That was taped voice communication between Gemini 7 and the Rose Knot tracking ship, also the Coastal Sentry tracking ship on the 182nd revolution. We are still in the 182nd revolution and our spacecraft has been - right now in voice communication with the Hawaiian tracking station. The quality of voice transmission at this pass is extremely good and at this time we will play back the tape of that voice communication.

AFD Hawaii Cap Com, AFD

HAW AFD, Hawaii Cap Com

AFD We've got some C-band track for you; the flight plan update concerning the purge after awakening; and this ledger on the systems update is really the section 2 off line.

HAW Okay, you want to take it off the line in Hawaii.

AFD Yea. And we want to give them 192-lg TRC and 207-lg TRC, and also advise them that their gauge reading on their fuel is correct based upon our ground computations. So when they hit zero they ought to hit zero really.

HAW Missed the last part, say again.

AFD We advise that the 7 percent gauge reading on propellant

remaining is correct by ground computation.

HAW 10 percent gauge . .

AFD 7, 7 percent. His gauge reads precisely what we have and those TR times are for their planning for the next couple of days.

HAW Okay.

AFD All all that you should have.

HAW I don't have the TR time.

AFD Okay. Wait about 2 minutes and give me a yell, if you don't see it.

HAW Okay. You say the 7 percent reading on his gauge is correct.

AFD That correct and he can depend on the gauge.

HAW Roger.

AFD And how are you today.

HAW I'm fine, how are you?

AFD This is sort of an anticlimax, compared to yesterday.

HAW Say again.

AFD Today is sort of an anticlimax compared with yesterday

HAW I don't call it an anticlimax, I call it the end of a good day for me.

AFD This is just the beginning of a long night for us.

HAW Poor baby.

Flight Going to be a long night for many flight controllers.

HAW Yea. The White Team. You'll keep him GO, we'll be back in the morning, right?

AFD Wilco.

HAW TM solid in Hawaii.

Flight Go Hawaii.

HAW Roger. Gemini 7, Hawaii Cap Com.

S/C Go ahead, Hawaii.

HAW How are you doing?

S/C Pretty good, how are you?

HAW Okay, not bad. We are showing you go down here and I want to power down your section number 2, if you will go along with it.

S/C Fine.

HAW Okay. Fuel Cell control number 2 circuit breaker closed.

S/C It's closed.

HAW Section 2 power switch to OFF.

S/C Off.

HAW Fuel cell control number 2 circuit breaker to OPEN.

S/C It's open.

HAW And verify your cross over switches at the OFF position.

S/C I am.

HAW Okay. Got some more data for you, if you are ready.

S/C Stand by a minute, what kind of data?

HAW O I've got a couple of g.e.t. RC's for you and a small flight plan change.

S/C Roger, just a minute.

HAW What position is your adapter C-band beacon in?

S/C Command.

HAW Okay

S/C                    Go ahead, I've got some paper now.

HAW                    Okay. 192-1 305:52:25 ; 207-1 329:57:56; okay got that.

S/C ]                   Roger.

HAW                    Okay and want to advise you that the 7 percent gauge reading you have is correct by ground computation. So anything you read on your gauge is correct.

S/C                    Okay.

HAW                    Okay, got a couple of changes for your flight plan. 301: 29:12 There'll be a fuel cell purge after awaking and this will be at Grand Turk on revolution 189. 301:30:00 Biomed recorder number 2 to the off position. That's it.

S/C                    Roger.

HAW                    Okay, do you need anything now?

S/C                    No, just a fuel section 1, is all.

HAW                    Say again.

S/C                    Fuel section 1.

HAW                    Okay, let's just hang in there, we'll be okay.

S/C                    Okay.

HAW                    Okay, will you take your biomed tape recorder number 2 and put it in continuous position.

S/C                    Roger.

HAW                    Thank you.

Flight                   Hawaii Cap Com, you can advise them we will be pumping music out on HF for the next 2 hours or longer if they'd like it.

HAW                    Okay. Telling me they are going to give you music for the

next two hours on HF if you'd like it and maybe longer.

Huh, would you like it more than 2 hours?

S/C

We are going to start stowing tonight, so probably more would be good. We are going to try to get everything packed away tonight.

HAW

You say you want more or less?

Flight

We got it, he wants more.

S/C

About 3 hours would be good.

HAW

Okay, very good.

Flight

Hawaii could we have a readout in GDO7 please?

HAW

Roger, Flight GDO7 is 30.8.

Flight

What is that, tenths or what?

HAW

Degrees.

Flight

Okay, we must have got hidden lane because we saw a tenth of a hundred and three degrees, on your summary.

HAW

Yea, that's what they tell me now. It's showing 130.

Flight

Is that a valid reading?

HAW

Negative.

Flight

Okay.

HAW

We'll get another cut on here, hang on.

Flight

Roger, why don't you give us an LOS main.

HAW

Roger.

Flight

And let's have another AIM.

HAW

Yea, that's on the alpha rudder.

It's reading 30.8 degrees.

HAW Flight, your OAMS reserve tank pressure is 296 psi.

Flight Roger, got it.

HAW He's looking real good now.

Flight Roger.

S/C No we couldn't a minute ago, try'em again now.

HAW I'm picking it up here, how are you doing?

S/C Can't hear a thing.

HAW You're getting . . garbled.

Flight Okay Hawaii, we're going to start pumping it through you next rev so they will hear it.

HAW Okay. Okay, we'll see you all in the morning. We'll be standing by for the rest of this pass.

Flight Why don't you tell the crew that every - - that we'll be pumping the music through Hawaii.

HAW Okay. And that HF will start coming out on Hawaii station on the next rev, so you can listen pretty well as you come up on this side of the Pacific.

S/C Fine and dandy.

HAW LOS on all systems in Hawaii. Good evening.

Flight Well done, Ed.

END OF TAPE

This is Gemini Control. We are now 292 hours and 24 minutes into the mission of Gemini 7. At this time Gemini 7 is moving out over the Indian Ocean on the 183 revolution around the earth. Our crew has been in a sleep period for the past hour and we have no voice communications with the spacecraft throughout this sleep period. Here in the Mission Control Center our flight controllers are settling for the long evening, working on their reports, monitoring the systems from the ground as the data is fed here through the tracking network. This is Gemini Control, 292 hours, 25 minutes into the Gemini 7 mission.

END OF TAPE

This is Gemini Control. We are now 292 hours and 53 minutes into the flight of Gemini 7. At this time Gemini 7 is passing over the Pacific and very shortly will be between the Coastal Sentry and the Hawaiian tracking station. Here in the Control Center, our flight directors, all three of them, Chris Kraft, Gene Kranz, and John Hodge, representing the red, white and blue teams respectively, have been studying data on the Gemini 7 fuel cell situation. Kraft told us that fuel cell number one aboard Gemini 7 continues to perform in excellent fashion. He said we are going to continue to monitor its performance throughout this night, but all indications are that the flight will continue as scheduled. That message from Chris Kraft, flight director for this mission. This is Gemini Control, 292 hours and 54 minutes into the flight.

END OF TAPE

This is Gemini Control. We are 293 hours and 20 minutes into the flight of Gemini 7. At the present time, Gemini 7 is on its 183rd revolution around the earth and is practically ending that revolution coming up now over the Pacific Ocean and reaching for the west coast of South America. Aboard our spacecraft, the crew is in a sleep period and has been for the past two hours. As we reported a few minutes ago, Flight Director Chris Kraft, studying the data on the fuel cells aboard Gemini 7 along with Flight Directors Eugene Kranz and John Hodge, has decided that we will continue to monitor the fuel cell situation on Gemini 7 throughout the night. He said that fuel cell Number 1 continues to perform in excellent fashion and that all indications are that the flight will continue as scheduled. This is Gemini Control, 293 hours, 21 minutes into the mission.

END OF TAPE

This is Gemini Control. We are 294 hours and 20 minutes into the Gemini 7 mission. At this time Gemini 7 is on its 184th revolution around the earth. And at the present time is passing over the Coastal Sentry. We have had no voice communication with the spacecraft until, well into the, since we have been into the sleep period and our ground readouts of telemetry data from the spacecraft, the latest one we have was from the Rose Knot Tracking Ship at the beginning of this revolution. It said "the crew probably asleep, judged by respiratory traces" but pilot pulse higher than usual sleeping rates indicating that the pilot may not be asleep. This is Gemini Control, 294 hours 21 minutes into the mission.

END OF TAPE

MISSION COMMENTARY TRANSCRIPT, 12/16/65, 8:50 p.m.

Tape 548, page 1

This is Gemini Control. We are now 295 hours and 20 minutes into our mission. Gemini 7 at this time is passing over the South Atlantic, near the Ascension Island tracking station. And our crew is asleep according to the ground data readouts. We have a little note here that might be of interest. Back on March 4th through the 15th, 1957, a Navy nonrigid aircraft designated ZBP number 2 completed a nonstop round trip Atlantic crossing simultaneously establishing a new world endurance record for unrefueled flight of 264 hours and 14 minutes. Commanding the flight was Navy Commander J. R. Hunt. This morning astronauts Frank Borman and Jim Lovell received a telegram of congratulations from Commander Hunt on their setting a new record for unrefueled flight. An item of interest. Our spacecraft is now on its 185th revolution, 295 hours 21 minutes into the mission. The crew is in a sleep period and from our ground data we believe they are asleep. This is Gemini Control.

END OF TAPE

This is Gemini Control, 296 hours and 20 minutes into the Gemini 7 mission. At this time the Gemini 7 is passing over the Pacific on the 185th revolution around the earth. Our latest telemetry data has reached the ground, indicates the crew is asleep. This is Gemini Control, 296 hours and 20 minutes into the mission.

END OF TAPE

This is Gemini Control. We are now 297 hours and 20 minutes into our mission. With Gemini 7 passing over India on the 186th revolution. Here in Mission Control the Blue Team of flight controller are moving into the consoles and the White Team will shortly be relieved of their duties. Among the controllers on the Blue Team, tonight who is present, is spacecraft communicator astronaut Charles Bassett, who is the Blue Team Cap Com. Mr. Bassett has been notified by the US Air Force of his promotion to ~~Major~~ and he is receiving congratulations from the White Team controllers here. Aboard our spacecraft, the readout from the ground data the crew appears to be asleep. That ground data is the latest we have. They have been sleeping now - appeared to be asleep for the past 3 or 4 hours. We are now 297 hours 21 minutes into the mission. This is Gemini Control.

END OF TAPE

This is Gemini Control. At 1:30 a.m. central standard time Gemini 7 had been in space for 300 hours, surpassing the combined duration of the GT-3, GT-4, and GT-5 flights. The spacecraft is now beginning its 188th revolution, is in contact with our Antigua Station now having just passed the Grand Turk Station. Grand Turk reported that the delta P light on the section 1  
\*  
of the fuel cell is no longer on, the currents are very stable, and the cell seems to be in excellent condition. All the information we have here is that the fuel cell is in excellent condition. The pilots appear to be asleep. That's the report we have from the Surgeon. They appear to be asleep. The last report we had over the Canary Islands was about midnight and the, both delta P lights were on there, although they reported all systems still GO. We have an apogee now of 164.1 and a perigee of 158.4 nautical miles. Some information about the recovery area: Weather in the recovery areas is looking good for today or tomorrow. There is a go--no-go decision on whether or not we go through Friday due in about 2 hours, 3 hours. Right now the spacecraft is leaving the Antigua communication area heading toward Canary Islands. There's been no conversation, of course, both members being asleep. The retrofire time, if it was decided to bring the spacecraft down Friday, would be at 7:22 28 central time with a splash predicted to be about 7:58.. Of course, that's all dependent on the go--no-go decision due at about 5 a.m. central time. So at 300 hours 2 minutes and 35 seconds into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

\* See correction on tape 552.

This is Gemini Control. At 300 hours and 20 minutes into the flight of Gemini 7. Gemini 7 is on its 188th revolution over north Africa and has its delta P light for section 1 on. This was reported at the Grand Turk Station during its, the last pass across Grand Turk not very long ago. It just passed the Canary Station and Canaries reported also the systems looking very good and the section 1 delta P light on. I'm sorry - out. The delta P light is not on, it is out. The information looks very good, the current looks very stable. The pilots are apparently asleep and another bit of statistics. At 293 hours 45 minutes and 12 seconds, a few hours ago, Gemini 7 accumulated more time than Gemini's 3, 4, and 5 combined. So at 300 hours 20 minutes and 59 seconds into the flight, this is Gemini Control.

END OF TAPE

This is Gemini Control, at 301 hours and 20 minutes into the flight of Gemini 7. I just spoke with Flight Director John Hodge who says this: "As things look now, I see no reason why we can't complete the 14-day mission." That's a quote from John Hodge. The fuel cells are okay, section 1 is okay, and they plan to purge both sections of the fuel cell and take another look at stack 2B pretty soon, that's the working stack in the second section. Stack 2A and stack 2C have been off the line, have been shut down and are not going to be operating. The actual go-- or no-go decision will be passed up to the crew over Bermuda at the beginning of the 190th revolution. That's about one and <sup>beginning of the</sup> one-fifth revolutions from now. We're getting very close to the/189th. The Flight Director advises that we need little less than 15 amps to continue the flight powered down and according to EECOM we could get that from the two poorest stacks that are operating and we have four stacks operating and not very poorly, they're operating very well. We estimate that there are at least 150 hours of power in the fuel cells beyond the end of the 14-day mission. Besides that, there are 10 hours of battery power available prior to retro. That means there is 10 hours if the fuel cells were to suddenly stop operating this minute, 10 hours from now we would have 10 hours from now to fire the retros and still have a good power configuration. We're keeping track of the delta P light. It went on - it was discovered on at midnight over the Canary Islands during rev 187 and was reported off at the beginning of rev 188 by Grand Turk and Antigua. It was still off over Canary during the 188th revolution, this revolution, and it is still off according to the Carnarvon Station, which was just passed by the Gemini 7 spacecraft now heading toward/<sup>ACROSS</sup> Central America. So at 301 hours 22 minutes in the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control, at 301 hours and 53 minutes into the flight of Gemini 7. Gemini 7 is now passing over Africa, having just passed the Canary Island station. And we learned over the Canary Island that the section 1 light had come back on. The - previous to the Canary station - over that Canary station by the way there conversation mostly was between the station and flight control. The crew didn't have too much to say, they just read out their stack voltages which coincided with information that had been received over the / <sup>state-</sup> side pass a little while ago. We have a tape of the conversation over the state side pass. We'll play that tape for you now.

Cap Com Gemini 7, Houston.

S/C Come on in Houston.

Cap Com Good morning Gemini 7. Blue Team wishes you a good morning and I have a purge procedure for you.

S/C What was that again.

Cap Com I have a purge procedure for you.

S/C Roger.

Cap Com While I'm doing this I'd like to get fuel cell H<sub>2</sub> and ECS O<sub>2</sub> readouts from you.

The procedure is cross over on; normal purge section 1;  
request open circuit voltage stack two B.

S/C You are going to have to come in again Houston. You cut out.

Cap Com Roger. Place your cross over ON; normal purge section 1;  
request open circuit voltage stack 2B.

S/C Only got the last part - open circuit voltage stack 2B.

Cap Com That's affirm. Let me start over - cross over ON, first

item, cross over ON; normal purge section 1; request open circuit voltage stack 2B. Gemini 7, Houston, do you read?

S/C Normal purge section 1; open circuit voltage stack 2B, is that correct?

Cap Com That's affirmative.

S/C Purge 1 coming up.

Cap Com Request that you place your fuel cell control number 2 circuit breaker ON.

S/C Rog. Will do after the purge of the first section.

Cap Com Okay good. In the meantime can you give me some fuel cell H<sub>2</sub> readouts?

S/C Roger Charlie. H<sub>2</sub> reads . . garbled . . 510 pounds.

Cap Com Cryogenic gauging switch to ECS O<sub>2</sub>. Gemini 7, may we have an ECS O<sub>2</sub> readout?

S/C Coming up. Roger. 1540 pounds at about 40 percent.

Cap Com Roger, replace switch in fuel cell O<sub>2</sub> position.

S/C Roger, Houston 7

Cap Com Go ahead 7.

S/C Why do you want the fuel cell number 2 circuit breaker ON if we do not plan to purge section 2?

Cap Com We plan to purge section 2 with stack 2A and stack 2 switches OFF so we'll be purging stack 2B only.

S/C Roger, understand. 2B open circuit is about 32 volts.

Cap Com Understand open circuit 32 volts on 2B. Then perform a

normal purge of section 2 noting that your fuel cell control number 2 circuit breaker is ON, perform a normal purge of section 2.

S/C Roger , open circuit.

Cap Com Roger, that's with open circuit.

S/C Roger . . garbled . .

Cap Com Gemini 7, at the completion of this purge, I have a short flight plan update to give you.

S/C Roger, Houston. Go ahead with the flight plan update, Houston.

Cap Com Roger. Title node time 302:53:36; rev 189; 128 degrees west; right Ascension 07 hours 34 minutes 59 seconds. Flight plan time line update change 302:00:00 to 302:15:00. Correction change that to 302:10:00. Getting back to the purge now I'd like to request the open circuit voltage of stack 2B.

S/C Roger, purge is complete. Open circuit voltage of stack 2B is above 32 volts, full scale.

Cap Com Leave 2B on the line until Carnarvon, current may be low due to the loop temperature. We'd like to have the section 1 power switch ON. That's the section 2 power switch ON.

S/C Place section 2 power switch on at this time.

Cap Com Roger, then place your fuel cell control number 2 circuit breaker OFF.

S/C Roger, control circuit breaker number 2 if OFF.

Cap Com And cross over OFF.

S/C Roger, the cross over is off.

Cap Com That completed the purge procedure, I'll continue with the flight plan. Time 303:07:10; Go - No-Go at Bermuda. Both

temperature probes should be inserted at 302:55:00 for  
a crew status report on the command pilot at Canaveral at  
time 303:04:00. At 303:18:10 PLA update. Item S-5  
303:26:00;sequence 06;mode 01;pitch 90 degrees down;  
yaw zero degrees. That completes the flight plan update.

S/C Roger, one question here. Did you say both temperature  
probes or just oral temperature probe?

Cap Com That's both oral temperature probes.

S/C Roger, both.

END OF TAPE

This is Gemini Control, at 302 hours and 20 minutes into the flight of Gemini 7. We are on the 189th rev, halfway around the World over Carnarvon and the crew is at this moment talking with the Carnarvon Ground Station. We are expecting at 4:30 a.m. central time to get the go--or-no-go decision for 206 revolutions, landing at the beginning of the 207th. That's called 207 dash 1, where the Carrier Wasp is in the Atlantic recovery area. If we were to go for 207, and all indications are that we will, the time of retrofire would be 7:28:01 central time tomorrow with a splash at 7:59:10. The Flight Directors indicates the fuel cells are looking very, very good and that we will probably get a GO decision over Bermuda in about 40 minutes. At 302 hours 21 minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control, at 302 hours and 46 minutes into the flight of Gemini 7, now crossing the South Pacific on its 189th revolution headed toward Mexico and south of Florida. We had a pass over Carnarvon just a few minutes ago where they got into a discussion of an inter-connector, you'll hear that discussion. They're talking about a connector that connects the pilot's inlet hose, oxygen hose, to his outlet hose. This is to close off the circulation that his hoses would provide. To evaluate the cabin at only 50 percent circulation using just the Command Pilot's oxygen hose circulation capability. This is for an evaluation of the cabin at 50 percent circulation in the shirt-sleeve environment. You'll hear the Pilot say that he doesn't have an inter-connector on board. The feeling here in Mission Control is that during his stowage evaluation yesterday he stowed it somewhere, or that he put stowage on top of it. They're discussing that now. So let's play that tape from Carnarvon.

CRO Gemini 7, this Carnarvon Cap Com.

S/C All right Carnarvon, Gemini 7.

CRO Roger. Good morning from Australia.

S/C Good morning.

CRO I have a flight plan update for you.

S/C Go ahead.

CRO Roger. Time: 303 54 06. Remarks: Crew status report at Carnarvon. Time: 304 32 12. Shirt-sleeve evaluation. And I have a procedure on that for a little later on.

Time: 304 38 39. Purge fuel cells at the Cape.

Title: S8:013: Yeah, that's it. S8/D-13: At time 304 54 00. Sequence 04. Due over Canaries and Kano. Do you copy?

S/C Roger. Understand. S8/D-13 Sequence 04 due over Canaries and Kano.

CRO Roger. Got a whole bunch more here.

Time: 306 00 00

FLIGHT Carnarvon, see if the delta P light -----

CRO Biomed recorder no. 1 to continuous.

MSC-4: Time 306 11 39. Sequence 01. Mode 01. Pitch 25 degrees down. Yaw 41 degrees left. Switch to mode 03 if beacon has successfully acquired. Time: 306 20 00.

Begin exercise in eat period. Title: MSC-4. Time 307 35 36.

Uh, say again on that. 307 35 26. Sequence 06. Mode 01.

Pitch 30 degrees down. Yaw 24 degrees right. Switch to Mode 03 if beacon is successfully acquired. Are you copying me okay?

S/C Roger.

CRO Okay. S8/D-13: 307 48 37. Sequence 02. Pitch 30 degrees down. Yaw 1 degree right. Time of closest approach is 307 49 57. At time 308 00 00. Biomed recorder no. 1 OFF. Title: MSC-4. 308 12 30. Sequence 08. Mode 01. Pitch 30 degrees down. Yaw 6 degrees left. Switch to mode 03 if beacon has successfully acquired. Last item. Time: 308 41 41. Purge fuel cells at Carnarvon. Do you copy?

S/C Roger. We have it all, thank you.

CRO Roger. And this pass you should be coming directly over Carnarvon. During attitude would you take a check and see if you can see us?

S/C Roger.

CRO Flight. 2B now reads 3.71.

FLIGHT Very good.

CRO Okay. Gemini 7. I have your shirt-sleeve environment evaluation information whenever you're ready to copy that.

S/C Roger. Go ahead.

CRO All right. Item No. 1. Pilot: Connect suit nozzle together with inter-connect.

S/C Would you tell 'em we don't have inter-connect on board?

CRO Roger. Stand by, one.  
Flight, they advise they don't have inter-connects on board.

FLIGHT Stand by.

S/C We sure brought that to a screeching halt!!

FLIGHT Tell 'em to scratch that. Scratch the whole thing. We'll get to them later.

CRO Rog.  
They're going to rework that and they'll give you that information later.

S/C Thank you.

CRO Roger. Now that's all we have for you this pass. We're standing by. You're looking good from the ground.

S/C Very good.  
Australia is beautiful in the daylight.

CRO Oh, mighty fine.  
I guess it's been a long time since anybody up there has seen Australia in the daylight.

S/C Roger.

CRO Gemini, we also noted that you turned 2A on and off. Is that correct?

S/C Negative. Fuel cell 2A has never been touched.

CRO Roger. Thank you.

S/C            Would you tell the people of Perth to turn off their lights  
                 now.

CRO            Ha! Ha!

                 This is Gemini Control. We have some later word from the  
environment people about that inter-connector. There never was an inter-  
connector onboard the spacecraft. The procedure was apparently in error. They  
have a very easy fix however. Instead of just connecting the outlet to the inlet  
they will simply turn the outlet off - the inlet off - the oxygen inlet hose off  
and that will get exactly the same results and this information will be passed  
to the crew on this coming stateside pass, at which time we will also get a  
go--no-go decision on the continuation of the flight 'till Saturday morning.  
All indications from Flight Director John Hodge are that we will get a GO. He  
wants to get another quick look at all the information on this pass before he  
renders his decision and passes it up as the spacecraft goes over Bermuda.  
So at 302 hours 54 minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control at 303 hours and 20 minutes into the flight of Gemini 7, which is now approaching Canary Islands. Gemini 7 has a GO for 207-1. We will hear that GO on a pass across the United States. We'll play that tape now.

Cap Com Gemini 7, Houston.

S/C Go ahead Houston. You're on clear.

Cap Com Roger, I understand that you don't have any ear connects, our mistake. In lieu of that, I have another procedure.

S/C . . garbled. . crew status

Cap Com I beg your pardon.

S/C Want to get the blood pressure.

Cap Com That's right but let us hold the blood pressure until Canaveral AOS and request TM switch command.

S/C Command.

Cap Com We'll give you a hack on the blood pressure, Frank.

S/C Okay.

Cap Com I'd like to give you the procedure for the shirt sleeve environment evaluation.

S/C Standby.

Cap Com We've got good temperatures on both pilots.

S/C Go ahead.

Cap Com Roger, place the pilots suit flow valve OFF. Place the red hose in command pilot's legwell. Command pilot remain in previous configuration.

S/C Go ahead.

Cap Com Air flow as desired and the suit heat exchanger as desired.

Cabin heat exchanger full hot. Recirc valve 45 percent or 45 degrees. Evaluate the cabin fan on and off. Record cabin temperature test when scheduled. Air flow lever position; suit heat exchanger setting; and any subjective comments. You might take the same readings you took on the evaluations yesterday, Frank.

S/C Roger, We've already got that temperature probe stowed away in the back. I'll see if we can get it out.

Cap Com Well I would suggest that you don't unstow too much.

S/C Well last night we were told how long we had to get stowed and ready so we did.

Cap Com Right. Well we'll <sup>leave</sup> / you some time in the flight plan today for stowage, about an hour. And we have some more time for review of your retrofire procedures. If comfortable you might keep this configuration, if not return to the configuration that you had yesterday.

S/C We are perfectly comfortable the way we are.

Cap Com I see Frank, they wanted to get an evaluation of your comfort level with this configuration as opposed to the one that you had yesterday.

S/C Roger, we know, we'll try it, but I was just saying that we're very happy and pleasant the way we are. But we will try your approach.

Cap Com Thank you Frank. In passing Frank, I might note that today is the 62nd anniversary of the 1st flight. I'm

passing you over to surgeon now.

Surgeon Gemini 7, blood pressure coming up.

S/C Roger, blood pressure.

Surgeon Your cuff is full scale, Frank.

S/C Roger.

Surgeon While that's bleeding down Gemini 7, give me your sleep report, please.

S/C Roger, I slept about 5 hours, very well last night, Dr. Coons. About 5 hours intermittently.

Surgeon That was the pilot - 5 hours intermittently.

S/C Frank

Surgeon Roger, copy.

S/C Standing by for exercise, coming down with blood pressure.

Surgeon Roger, Gemini 7. Full scale.

S/C Rog.

Surgeon Cut out that diastolic pressure on the preexercise blood pressure but no problem, Frank, we'll carry on with this one.

S/C Roger.

Surgeon Don't unplug it until I advise so. Coming through very nicely, coming nicely now. Have you had any trouble with your lips Gemini 7?

S/C Negative, pretty good. Jims beginning to look like Santa Clause though.

Surgeon We'll let him keep it on when he gets back. Roger, we've got a good blood pressure Gemini 7. I'll stand by for your food and water report now.

S/C Roger. Command pilot - water 1093 ounces; two meals - last night day 13 meal B, excuse me last night was day 10 meal C, we haven't had breakfast yet.

Surgeon Do you know yet what you are going to eat for breakfast?

S/C Standby we'll give it to you right now.

Surgeon And if you don't eat it all, advise us later on.

S/C Roger, the pilot is 845 ounces and last night it was the same meal, day 10 meal C.

Surgeon Did you <sup>eat</sup> them all? Did you eat the whole meal last night Gemini 7.

S/C Yes.

Surgeon Roger. I have a gun count, while you are looking up this mornings meal.

S/C 1 correction 0446.

Surgeon Did you say 0446 on the gun?

S/C 04460, I think.

Surgeon Roger, copy the last 0.

S/C Houston, we are going to have for breakfast this morning day 11, meal A.

Surgeon Roger, 11, meal A.

And how are your skins.

S/C We're in pretty good shape.

Surgeon Very good. You might use the wipes that are in the meal packs and do you have any difficulty with your throats?

S/C No, a little hoarse. Not bad.

Surgeon Roger, Gemini 7 back to the Cap Com.

Cap Com Gemini Go remote.

Cap Com Gemini 7, Houston

S/C Go ahead Houston.

Cap Com Roger, Have you been using your yaw left thrusters?

S/C Negative, we were instructed - Yaw left, yes.

Cap Com Roger, and did you perform on your S-5.

S/C . . garbled . . yes.

Cap Com Have you noticed any degradation in the performance of your yaw left thrusters?

S/C . . garbled . . Negative.

Cap Com Roger, request you bump your H tank pressure to 550.  
2

S/C Roger

Cap Com And we are standing by for your Go - No-Go readouts.

S/C Stand by . . garbled . . Go - No-Go readouts three batteries okay, a little bit lower than usual. .2 - .5 Fuel stack readouts 1A 5.5 amps; 1B 6; 1C 5; 2B 3.5; main bus voltage was was 25.5; RCSA 2900, 35 on temp, RCSB, 3000, 85 on the temp. Left secondary O<sub>2</sub> 5400, right secondary O<sub>2</sub> 5300.

Cap Com Roger. Copy.

S/C . . . . (garble) . . . all these experiments today.

Cap Com Roger, just do what you can get, Frank. The Blue Team is happy to give you the go for the big 207-1.

S/C Okay, fine. But on these experiments we are going to be awful careful with this fuel.

Cap Com I agree with that 100 percent, Frank.

S/C Okay.

Cap Com We are giving you a TR for 207-1.

S/C Thank you.

Cap Com We've got no map. We are trying to get it Gemini 7.

S/C Roger. We got it that time.

Cap Com Roger. Gemini 7, Houston. Did you copy that today is the  
62nd anniversary of the first powered flight.

S/C Roger.

This is Gemini Control. In regard to that first powered flight,  
62 years ago, Orville Wright flew the first Kittyhawk Flight. 120 feet he went  
in 12 seconds. There were four flights that day, the last one, another record  
was set by Wilbur Wright. He went 852 feet in 59 seconds. At 303 hours and  
28 minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control, 303 hours 41 minutes into the flight of Gemini 7 and now crossing north of Tananarive beginning its trek across the Indian Ocean toward Carnarvon, Australia. It is in its 190th revolution and as you know we got a GO for 206 revolutions landing in a 207 dash 1 area tomorrow morning. As we crossed the Canary Islands we heard this conversation.

CYI Gemini 7, this Canary.

S/C Go ahead Canary.

CYI Roger. I have a PLA update for you.

S/C Stand by a minute.

CYI Okay.

S/C Go ahead.

CYI Okay. 1 niner 2 dash 1. 305 53 11. 1 niner 3 dash 4.  
308 46 23. 1 niner 4 dash 4. 310 21 51. 1 niner 5 dash 4.  
311 57 13. 1 niner 6 dash Bravo. 313 28 41. 1 niner 7 Bravo.  
315 05 18. 1 niner 8 Bravo. 316 42 27. RET 400K. 21 ..... 20  
for all areas. And the weather is good in all areas.

S/C Thank you, Canary.

CYI You're welcome.

FLIGHT Canary, Cap Com Houston.Flight.

CYI Go ahead.

FLIGHT We asked the crew to get their H<sub>2</sub> pressure - fuel cell H<sub>2</sub> pressure up to 550 onboard. This means that he has to go to the ON position on the heater and force it up above the AUTO position.

CYI Roger ...

FLIGHT Would you check to see if he's done that, please?

CYI Roger.

Seven, Canary.

S/C Go ahead.

CYI Roger. Do you have your fuel cell heater switch in the ON position?

S/C Yep. .... Canary and I've been holding it there ever since they told me to.

CYI Okay. Very good. We'd also like to know how much high-speed black and white film you have left.

S/C Same as we gave them on the .... last night.

CYI Okay, thank you.

S/C Tell those flight planners to take it easy. While we're controlling the hydrogen .... then we decided to get the cameras out, the third guy is copying down another PLA.

CYI And - - -

FLIGHT Understand.

S/C Roger.

This is Gemini Control with 26 hours 12 minutes and 37 seconds to go to retrofire time for a landing in area 201 dash 1 tomorrow. A lot of that Canary crossing conversation was pretty well garbled but that's the way we get it. I believe it's the multiple lines between the ground stations. At 303 hours 45 minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control. 304 hours, 20 minutes into the flight of Gemini 7, now near Canton Island on its 190th revolution approaching the United States. A short time ago, over the Carnarvon Station, we heard this conversation.

CRO Gemini 7, Carnarvon Cap Com. We have a valid temperature. Would bring your blood pressure up.

S/C 7 Roge.

CRO Gemini 7, Carnarvon Surgeon. Your cuff's full scale. Flight, Carnarvon. Stack 2B reads 2.846.

HOUSTON Roger, Carnarvon.

CRO Gemini 7. We have a valid blood pressure. We'll be standing by for your exercise.

S/C 7 Mark.

CRO Gemini 7, your cuff is full scale.

HOUSTON How about the Delta P lights?

CRO They're both on, Flight. We have C-Band track.

HOUSTON Roger.

CRO Gemini 7. We have a valid blood pressure. There are 2 things we'd like you to help us with if possible. Houston's records disclosed that Meal C of Day 10 that was reported eaten for supper last night has been eaten previously. Have you readily available any information on that, please?

S/C 7 Stand by, and we'll check it. Go ahead with your other questions while we're looking up this one.

CRO Do you have a report on your columns?

S/C Roger. I'll get you that, too.

CRO Thank you.

S/C Column 5 for the pilot was 32, Column 6 was 7.

CRO Roger.

C/C 7 Column 5 for the command pilot is 32, and Column 6 is also 7.

CRO Thank you. Got that.

S/C 7 As we understand it, Day 10, Meal C had been previously reported, is that correct?

CRO That's affirmative.

S/C 7 Roger. We have it here too at 221 hours. We must have made a mistake. We can go back and check on it. I think this bag is still in the cockpit. We'll check this report later on with the meal.

CRO Roger. Thanks a lot, Gemini 7. Surgeon out. Gemini 7, Carnarvon Cap Com. Everything looks real good from here on you.

S/C 7 Well, thank you, Carnarvon. ...(Garble)...

CRO Roger. Say again, 7.

C/C 7 I just said very good.

CRO Oh! Mighty fine. Everything's still looking good here on the ground, Flight.

HOUSTON Roge.

This is Gemini Control. 304 hours, 22 minutes into the flight. The spacecraft is still approaching the United States. We have this updated information on the retro-fire sequence for the entry into 207-1 recovery area, east of the Cape and south of Bermuda. It was in some error the last time. At splash, splash is now 14:05:10, Greenwich, which turns out to be 8:05 and 10 seconds, Central Standard Time. That entire sequence goes like this: retro-fire time 7:28:01; they begin communication black out period at 7:55:51; black out period lasts until 7:57:23; at 50,000 feet, they get a drogue and that's at 7:59:07; then at 10,000 feet at 7:00:48, ...I'm sorry...8:00:48, and splash at 8:05:10. At 304 hours, and minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control. Gemini 7 in its 304th hour, as a matter of fact, 304 hours and 30 minutes into its flight is ending its 190th revolution and approaching the West Coast of the United States. The crew has 25 hours and 27 minutes and 35 seconds to go to retrofire time for a landing in the Atlantic, South of Bermuda tomorrow. Speaking of Bermuda, Astronauts Wally Schirra and Tom Stafford have departed, or are due to depart this very minute from the aircraft carrier Wasp in the prime recovery area to fly to Bermuda. Command Pilot Wally Schirra, Command Pilot of Gemini 6, that is, will fly co-pilot on COD aircraft 755, that is a twin engine Grumman and Tom Stafford will fly as co-pilot on COD aircraft number 763. There is an airforce C140 Jetstar standing by at Kindley Air Force Base Bermuda to fly the Gemini 6 crew to the Cape and they should arrive at Cape Kennedy somewhere around noon, 12:30 or 1 o'clock eastern standard time today. That's about 6 hours from now, 6½ hours from now. Right now the spacecraft is approaching the Guaymas Station in Mexico. They are getting ready to undergo the shirt-sleeve evaluation. They are still, of course, on the dark side of the earth, they are coming toward the dawn. They are scheduled to purge their fuel cells during this pass across the United States. As soon as we pick them up we will bring them to you over this line. On our Canton pass a few moments ago, there was absolutely no conversation between the spacecraft and the ground although data did come into the Control Center from Canton. And on Hawaii, they were slightly out of reach of the Hawaii Station. The next several passes should go across the United States. Right now they are approaching the United States we have got contact with them. Let's tune in on that conversation now.

Cap Com ..... band to continuous.

Still no conversation except from the ground to the spacecraft, but they obviously heard because they did trigger the switch as they were instructed to. You will hear them picking up telemetry any minute now

and calling it as TM solid, that is what they usually get. They have been getting solid telemetry almost every pass.

Guaymas Guaymas has solid TM. All systems are go.

Flight Roger. Guaymas, do you have your air to ground pass to Goddard.

Guaymas Roger. He never made a reply.

Flight Good. How does it look.

Guaymas Everything looks good on the ground, Flight.

Flight Very good.

That was Flight Director John Hodge requiring how they look. They look good and they have looked good all night. Still awaiting word from the crew. They should be getting ready now to do the shirt-sleeve evaluation. That's where they turn off one of the oxygen inlets and stow the outlets so they can have only 50 percent environment, oxygen flow into the spacecraft. It is a test and Cap Com here, Charlie Bassett is about to talk to the crew let's tune in on them.

Cap Com Okay.

Cap Com Gemini 7, Houston.

S/C Hello Houston.

Cap Com Hello again. I'd like to find out how much high speed black and white film you have onboard.

S/C Same as we gave you last night Charlie. Did you copy last nights. We can look it up and find it.

Cap Com Negative, that's okay. We'll say that it is the same. I have a purge procedure for you.

S/C It's 13 exposures Charlie.

Cap Com 13, thank you. I have a purge procedure for you.

S/C Wait just a minute, we are right in the middle of the cabin survey, temperature survey.

Cap Com           Okay, we'll be standing by for your mark to start.

S/C                Okay, the quantitative evaluation -- we've got the red hose in my leg well and Jim's hose shut off and Jim's temperature is about the same as mine but he notices a little lack of circulation.

Cap Com            Gemini 7, understand.

S/C                We've got temperature measurements, we've drawn pictures, we've gotten quantitative descriptions, I hope we are getting everything they want. We've been doing it for about 4 days so I think we've got it covered.

Cap Com            I'm sure you have Frank. Thank you.

                  We have a short flight plan update and this purge procedure and we would like to have some quantitative evaluation of what you think you can do in experiments today. I'd like to start off with this purge procedure when it is convenient for you.

S/C                Okay, Jim's ready.

Cap Com            Okay, place the crossover on and start a normal purge of section 1.

S/C                Roger.

Cap Com            Place your TM switch to command.

S/C                TM to command and crossover on and normal purge of section 1.

Cap Com            And C-band adapter switch, command.

S/C                C-band adapter command.

Cap Com            Cryogenic gauging switch to ECS O2.

Cap Com            Cryogenic gauging to fuel cell O2.

Cap Com            Cryogenic gauging switch to off.

The Cap Com, Charlie Bassett, we learned last night was promoted by the Air Force to the rank of Major.

S/C We are wondering about -- if we ate the meal C twice, evidentially, I think that we had meal C, day 10 last night and the other one must have been logged wrong, they can, I think, determine it by checking back on the other meal C's we've eaten. Some of these meals are logged on the tape that surrounds them and it gets them off when we take them off.

Cap Com Roger, that's okay.

S/C You want to go ahead, I can copy now.

Cap Com Okay, I'll give you your flight plan update. They are all deletions, Frank, for cloud cover and equipment failure. First title is MSC-4, at 306 11 39, delete for cloud cover, the other is S/8-D/13, time 307 48 37, delete for cloud cover.

S/C Charlie, you are coming in very weak.

Cap Com Roger. The second item is an S-8/D-13 at 307 48 37, delete please. And place fuel cell control number 2 circuit breaker on.

S/C Roger.

Cap Com Request normal purge of section 2.

S/C Normal purge of section 2, roger.

Cap Com Third item in the flight plan update is MSC-4 at 308 12 30, delete for equipment failure.

S/C Charlie, we can't read you.

Cap Com Roger, do you read me now Frank.

S/C Negative, just barely. They did some switching and now you are coming in very very weak.

Cap Com Gemini 7, Houston. How do you read now.

S/C Better now, go ahead.

Cap Com Roger, did you get the second and third items on the flight plan update.

S/C I didn't even get the first one.

Cap Com Roger. The first item is the MSC-4 at 306 11 39.

S/C You cut out again Charlie. Say again please.

Cap Com 306 11 39, MSC-4, delete.

Grand Turk Acquisition Grand Turk.

S/C Is that because of clouds.

Cap Com That's affirmative. Second item S-8/D-13 at 307 48 37, same problem.

S/C Roger.

Cap Com Third deletion is MSC-4 at 308 12 30, this is equipment failure.

S/C Understand, equipment failure.

Cap Com There is a general remark to the experiments Frank. We only will attempt to provide you with the information, you are the best judge of whether you can do it or not. We do feel, however, that of primary importance is the D-4/D-7 sun measurement and the S-8/D-13 window measurement.

S/C Okay.

Cap Com If you think there are other experiments of another nature that you feel you could do, we'd be happy to know about it and work up information for you in this line.

S/C The only thing we are short on is OAMS fuel, Charlie.

Cap Com Okay, thank you very much Frank.

S/C Rog. Second Section purge complete.

Cap Com Roger. Next item on the purge is fuel cell control number 2 circuit breaker off.

S/C It's off.

Cap Com Crossover off.

S/C It's off.

Cap Com And place the voltmeter select momentarily to 2A and 2C positions, then back to C. Give readouts on 2A and 2C.

We'd like those voltage.

S/C Roger, 2A and 2C are zero.

Cap Com Understand. Have you been using any thruster activity this morning?

S/C Roger.

Cap Com How were your rates during the night.

S/C We went BEF through the nightside to get a good check the stars for retro.

Cap Com Roger.

Gemini 7 has just begun its 1191st revolution.

Cap Com Gemini 7, Houston. Could you give us an onboard propellant quantity, please.

S/C Roger, reading 7 percent.

Cap Com Understand, 7 percent.

S/C Roger. Charlie, you said something about D-4/D-7 on the sun, we don't have any of that here, written down yet.

Cap Com That's right. That will be coming up in the afternoon update Frank.

S/C Okay. Looks like D-4/D-7 is coming out high on the hog.

Cap Com Yeah, that's been a real successful experiment.

S/C I wish we could get the MSC-4 going.

Cap Com                Yeah, that's been pretty frustrating.    By the way Frank,  
                          a Navy Commander, J. R. Hunt, sends his best congratulations.  
                          He had previously held new world endurance record for un-  
                          refueled flight of 264 hours and 14 minutes.

S/C                      Roger, was that in the .... (garbled)

Cap Com                I beg your pardon.    That's affirmative, Frank.    That was in  
                          a lighter than air craft.

S/C                      Rog.

END OF TAPE

HOU FLIGHT Oh, that's affirmative, Frank. That was in a lighter than aircraft.

S/C Roger.

HOU FLIGHT Frank, this is Houston. We suggest that you could start using up the rest of the film that you've not yet used onboard.

S/C Roger. We've been trying to do that, Charlie. We'll continue to -- we want to get it all used before the day's up.

HOU FLIGHT Very good. The carrier's right underneath you now, Frank; and Wally and Tom are just airborne.

S/C OK. It's cloudy out here now.

HOU FLIGHT Is it. Gemini 7, Houston. Do you think you can do any tracking tasks at all or would you prefer to avoid them completely?

S/C Well, we can try. I'd certainly like to try .... I'd like to know just how much fuel they think they ought to save for this ..... I'd like to save about 5% -- 4 to 5%.

HOU FLIGHT Roger. That's what we've been discussing, and we have arrived at the same figures.

s/c Very good. I'm sure we can do some tracking tests if we set it up properly and do it all in pitch.

HOU FLIGHT Roger, Frank. We'll work on that. Thank you  
very much.

S/C Roger.

Apparently, that's all we're going to hear from Gemini 7 on  
this 191st -- beginning of its 191st revolution. They have 25 hours  
and 9 minutes to go to retrofire. They've been flying in space  
now for 304 hours and 48 minutes -- more time than all the other  
Gemini flights put together. This is Gemini Control.

END OF TAPE

This is Gemini Control. 305 hours, 6 minutes into the flight of Gemini 7 on its 191st revolution. During its pass across the United States a while ago, you probably heard Cap Com, Astronaut Charles Bassett, talking to the flight crew about their flight plan; advising them that they had to delete the MSC 4 experiment, this is the Laser communication experiment, twice on their flight plan, once because of clouds and once because of equipment failure. We've learned that the equipment failure is at Ascension; the clouds are at White Sands, New Mexico. However, they will get a try, we hope, at the Laser experiment at approximately 9:05 a.m. Central Standard Time over the Hawaii Station. Right now, the spacecraft is crossing over Africa and has been absolutely no communication between the spacecraft and the ground stations. Just before leaving the Bermuda Station, however, there was some brief conversation between the crew and the ground station at Bermuda; and here is the tape of that conversation.

HOUSTON Gemini 7, Houston. Gemini 7, Houston.

S/C 7 Go ahead.

HOUSTON Surgeon would like to know if you've finished your breakfast and have updated water data.

S/C 7 Roger. We've finished our breakfast, except Jim Daddy ate all the gingerbread, and I only ate 2 of them.

HOUSTON Roger. And, do you have the water count, please?

S/C 7 Roger. Stand by. We're looking it up.

HOUSTON We would like very much to get any of the micro-meteoroid data that you could from the dim light phenomena photographs. We would like to get any information available from the dim light photographs on the micro-meteoroid section.

GRAND TURK LOS, Grand Turk.

HOUSTON Bermuda go remote.

BERMUDA Bermuda is remote.

HOUSTON Gemini 7, Houston.

S/C 7 Go ahead.

HOUSTON Referring to the dim light phenomena in your flight plan, we would like to get micro-meteoroid information.

S/C 7 We've already made passes; our entire night pass was on it.

HOUSTON Very fine. Very fine. Thank you very much.

S/C 7 ...(Garble)...

This is Gemini Control. The spacecraft is out of touch with any ground station right now. When we have some more communication, we'll get back to you. At 305 hours and 9 minutes into the mission, Gemini Control.

END OF TAPE

Gemini Control here at 305 hours and 20 minutes into the flight of Gemini 7. Chris Kraft's Red Team is just coming into the Mission Control Center and are now briefing John Hodge's Blue Team before they go off after their night shift. Right now Gemini 7 is in contact with Tananarive. There was only a very small exchange there. Gemini 7 told the Cap Com, Charlie Bassett, that he had completed his S8-D13. This apparently is what they were doing when we did not get any communication from them over the Canaries. To go back into the "go" -- the "go" was given by Flight Director John Hodge, Blue Team Flight Director, at 4:43:30 this morning CST over Bermuda. They gave the crew a "go" for 206 revolutions. This means they would come back into the recovery area at the beginning of the 207th revolution -- that's 207-1. They would splash into the Atlantic Ocean hopefully near the aircraft carrier WASP at 140510 Greenwich which comes out 8:05 tomorrow morning Central Time. At 305 hours, 21 minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control at 305 hours, 30 minutes...31 minutes into the flight of Gemini 7 on its 191st revolution exactly opposite us on the other side of the World, Carnarvon. I've got some information here on the Gemini 6 crew, which is now on its way to Bermuda from the aircraft carrier, WASP, aboard what the Navy calls COD aircraft. They're Grumman, twin engine airplanes. Wally Shirra is flying co-pilot aboard aircraft 755. His pilot is Lt. Commander Richard M. Weinfield. of Quincy, Massachusetts. Tom Stafford is flying co-pilot in another Grumman aircraft, same type, number 763; and his pilot is Lt. J.G. W. T. Parker from the Norfolk area in Virginia. They should arrive in Bermuda about 9:00 this morning, Central Time and get aboard a C-140, that's a Jet Star, to be flown by Major Joe Alford and Major Stanley Galloway of the Air Force's 1254 Air Transport Wing at Andrew Air Force Base, Virginia. They're due to arrive at Cape Kennedy about 1:00 p.m. Eastern Standard Time; or between 12:30 and 1:00 p.m. Eastern Standard Time. And, while Wally and Tom are airborne, Gemini 7 is spaceborne over Carnarvon on its 191st revolution at 305 hours and 32 minutes into its flight. This is Gemini Control.

END OF TAPE

This is Gemini Control. 305 hours, 52 minutes into the flight of Gemini 7, now crossing Canton Island on its 191st revolution. We have just a little over 24 hours until splash time tomorrow morning. The U.S. Weather Bureau Space Flight Meteorology Group said this morning that weather conditions will remain favorable in the areas of primary concern for the final day of Gemini 7's flight. The Western Atlantic area, centered about 600 miles east of Miami, is located in an area of high pressure and good weather will prevail for the end of the mission tomorrow. Scattered clouds are expected; winds of about 10 knots; seas 1 to 3 feet with a 75 degree temperature. In the Eastern Atlantic landing zone, centered about 500 miles north of the Cape Verde Islands, skies will be partly cloudy. Winds east at about 15 knots, and 4 to 5 foot seas. In the Mid-Pacific landing zone, about 800 miles northeast of Honolulu, skies will be partly cloudy with northeast winds at 15 knots and seas 5 feet. Strong northerly winds in the Western Pacific landing zone, centered about 700 miles south, southwest of Tokyo. Our building area is up to at least 15 feet. More favorable weather conditions along these revolutions existed contingency points near longitude 165 degrees west in the Central Pacific. At these contingency points, skies will be partly cloudy, winds east 15 to 20 knots, seas 3 to 5 feet. And, at 305 hours, 53 minutes, 28 seconds into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control 306 hours and 8 minutes into the flight of Gemini 7 now approaching the west coast of the United States on the end of its 191st revolution. Gemini 7 has been fairly quiet since leaving the United States the last time about an hour and a half ago. While the Gemini 7 crew is approaching the west coast of the United States, the Gemini 6 crew is approaching Bermuda from the aircraft carrier WASP aboard two Navy aircraft. Right now the Red Team is firmly seated here in Mission Control and the Blue Team is on its way over to Building 6 for its morning press conference. And at 306 hours and 9 minutes into the flight, this is Gemini Control.

END OF TAPE

This is Gemini Control, 306 hours 35 minutes into the flight of Gemini 7, and exactly 24 hours from splashdown tomorrow morning at the end of Rev 206, beginning of Rev 207. We just completed a Stateside pass where the crew gave the status of their fuel cells and there was a lot of active conversation in that pass. Let's play that tape for you now.

Guaymas Gemini 7, Guaymas Cap Com. Everything is looking good here on the ground. We will be standing by if you need us.

S/C Thank you Guaymas, Gemini 7 here.

Cap Com Gemini 7, Houston, Gemini 7, Houston.

S/C Hi there Houston. How are you.

Cap Com Just fine. You sound very cheerful.

S/C Did you sleep very well last night.

Cap Com Yeah, and I'm drinking enough water too.

S/C Okay, just wanted to check.

Cap Com How about you.

S/C Very good.

Cap Com I have an excellent weather report for you in 207-1. It's looking very good. Just couldn't be better. They had the same thing yesterday for Gemini 6.

S/C Very good.

S/C Gosh, I hope there ... (garble) ... 5 feet high for Frank.

Cap Com I would like to find out if you feel your stowage is going to be nominal for retrofire. We are trying to pin that down as accurately as we can.

S/C Yes, I think, we ran through it last night. It will be nominal for retrofire.

Cap Com Roger, and has anyone asked you how much time you feel we should allow you for completing your stowage.

S/C I think we can do it all in an hour Elliot, easy.

Cap Com           Okay, we'll give you a lot more than that. Just wanted to make sure. I'd like to check with you on this shirt sleeve environment evaluation, make sure you completely understand that. Did you get the three sets of readings yesterday. We copied down the first set from you but we did not get the other two sets.

S/C               Roger, we've got a whole - about 15 pages on a blank book here on cabin temperature survey.

Cap Com           Very good. And do you understand that we want the same sets of readings taken today with this configuration you have now.

S/C               There is 30- some minutes.

Cap Com           Say again.

S/C               We evaluated the temp flows off and the two red hoses in my foot well for 30 some minutes this morning and then ran the cabin fan and noted the circulation, and we have drawn pictures and I think we've got it pretty well covered.

Cap Com           Okay, does that mean then, that you have gone back to your previous configuration.

S/C               That's affirmative.

Cap Com           Did you go back because you did not find this other one comfortable or because you just didn't want to fool with it anymore.

S/C               Well, there are several considerations. One is it makes Jim's hose right over all the switches and the amp controller, the second is running the cabin fan really bumps up the amps, and the point is, we were very comfortable the way we were, so we ran it for 30 minutes the other way and wrote down our impressions and then went back the way we were.

Cap Com            Okay, did you take some readings with this other configura-  
                      tion also.

S/C                 Roger, we have a series of readings with the other configura-  
                      tion.

Cap Com            Okay, that sounds very complete.

S/C                 Strangely enough, with both hoses on my side, the temperature  
                      doesn't vary much, the only thing, Jim noticed was a little  
                      stuffiness, not quite as much circulation, but the temperature  
                      is about the same.

Cap Com            Roger. Okay, I have a brief flight plan update here when you  
                      are ready to copy.

S/C                 Roger, we're getting out the book. Go ahead please.

Cap Cap            S-5, 306.47 46, mode 02, pitch 33 degrees down, yaw 90 degrees  
                      right. S-5, 308 23 25, mode 02, pitch 34 degrees down, yaw  
                      90 degrees left. Did you copy that all right.

S/C                 Roger, Elliot.

Cap Com            Okay, let me explain this now. These are both essentially  
                      trying to get the same picture, it is the Kalahari Desert  
                      area in Africa and neither of these revs is very good for  
                      this picture. They essentially just straddle it, it's  
                      probably not going to be too good a picture but we are just  
                      trying to get the best we can and you essentially have a  
                      choice of these two. In other words, if you get it success-  
                      fully on the first one, then you can skip the second one, or  
                      vice versa, so essentially we are after 1 good picture, at  
                      least as good as you can get it, even though that one is  
                      marginal, and considering that, we'd like you to take the  
                      fuel required into consideration also and not try to expend  
                      very much fuel on this if the first try is difficult to get

from a fuel standpoint, then wait for the second one.

S/C Roger, we are still reading 7 percent on the fuel so we'll have a go at it.

Cap Com Roger. On the reentry yesterday, we plan to get some more briefing on this later today, but I'll just tell you some about it right now. Wally had a very good mark on his downrange and it looks like he was extremely close on it. Crossrange still seems to be -- some question about it. He was following the needle and it was telling him to go to the right and he ended up to the right. We are trying to pin that one down a little bit better. We are going to give you some briefing on anything that he might have to pass on to you from that. Also, I would like to say as soon as you come out of blackout, in other words, when you finished your reentry steering, guidance steering, we want you to tell us how you ended up. What it looks like to you as far as how you are going to land, that is, downrange and crossrange. That will help us know -- in the recovery efforts to try to get to you as quickly as possible.

S/C Okay. How far off from the carrier was Wally and Tom?

Cap Com They were 2 miles long and 11 miles to the right.

S/C Okay, fine, ..... (garble) on that.

Cap Com Say again.

S/C I say I got to get the accurate figures because I've got a lot riding on that.

Cap Com Okay. Well, we are trying to pin it down better ourselves and understand it better also. We are having difficulty understanding this cross range error.

S/C Roger.



S/C 7 Roger. Not many more chances?

HOUSTON Yea. Just one more. Good morning, Gemini 7.

S/C 7 Morning, Mr. Kraft.

HOUSTON The fuel cell performance is still excellent.

S/C 7 Looks like it from here, too. Jim and I were just talking last night. In all the briefings and everything on the fuel cell before the flight, the tralando was never purged with the Delta P light on.

HOUSTON Roger.

S/C 7 But, your auxil are doing real good.

HOUSTON Talked to Marilyn and Sue last night. They're in good shape.

S/C 7 Say again.

HOUSTON Talked to Marilyn and Sue last night. They're in good shape.

S/C 7 Is Marilyn still expecting?

HOUSTON Affirmative. You'll be the first to know if she's not.

S/C 7 Drag out the 15 food.

HOUSTON Gemini 7, this is Surgeon. She said to tell you that we had a little bit of a scare the other night, but it didn't amount to anything, and she's sorry she couldn't deliver.

S/C 7 Well, that's the way it goes.

HOUSTON Seven, I have another flight plan update that just came in here.

S/C 7 Okay. Stand by. Go ahead.

HOUSTON Dim light 308:35:15. Sequence 03. Mode 01. Post sunset. Dim light 308:40:00. Sequence 02. Clouds, no moon. Dim light, 308:50:00. Sequence 03. Mode 03. South horizon. Use 120 second exposure in place of 10 second. Dim light 309:05:00. Sequence 03.

S/C 7 Elliot, we can't read you.

HOUSTON           Where'd you loose me?

S/C 7               We can't read you at all.

HOUSTON           Where did you loose me?

S/C 7               We didn't even get started with you.

HOUSTON           Roger. How do you read me now?

S/C 7               You're loud and clear now.

HOUSTON           Okay. Let's try again. Dim light 308:35:15. You reading okay?

S/C 7               Roger. Loud and clear.

HOUSTON           Sequence 03. Mode 01. Post sunset. Dim light 308:40:00. Sequence  
02. Mode ...correction, no mode on that. Clouds, no moon. Dim  
light 308:50:00. Sequence 03. Mode 03. South horizon. Use 120  
second exposure instead of 10 second. Dim light 309:05:00.  
Sequence 03. Mode 05. Pre sunrise. Start time is 3 minutes prior  
to sunrise. And, have a general comment. Do not go beyond 40  
frames total on high speed black and white. Do you copy?

S/C 7               Roger, Elliot. I don't think we're going to have the fuel to do  
all that.

HOUSTON           Okay. That's up..Just play it accordingly with your fuel cut off  
that we've given you.

S/C 7               Okay. Fine. It's right...It's bouncing right between 6 and 7%  
and we notice inaccuracy in this needle. But, we'd like to keep  
using it until cut off.

HOUSTON           Roger. Gemini 7, this is Houston. We'd like to concur or confirm  
with you that you have a cutoff figure for today of 5%.

S/C 7               That's right 5%; and right now we're bouncing around 6 or 7.

HOUSTON           Roger. Gemini 7, this is Surgeon. Frank, do you have any lotion  
remaining?

S/C 7 Dry skin lotion?

HOUSTON Roger.

S/C 7 We have some; but we still don't need it. We're as greasy as can be.

HOUSTON Wonderful. Have you had any air plugging at all with the oxygen?

S/C 7 Roger. When you're asleep and when you wake up, you have to clear your ears just the same as you do when you fly on the ground. I was surprised at this. I didn't think we'd notice that after 13 or 14 days.

HOUSTON Roger. Frank, you might consider re-entry tomorrow morning. You guys think about it today with your sleep and evaluate your own fatigue state so we can get a reading on it early tomorrow morning and think about whether you're going to want to do anything with this dexadrine or not.

S/C 7 I don't know if I could stay in this cockpit with Jim after I give him one of those pills.

HOUSTON That's the spirit. We haven't got any calmers up there.

S/C 7 Did Pete take one?

HOUSTON You say did Pete? That's affirmative.

S/C 7 I guess if he can lump it, then anybody can.

HOUSTON He sounded like he was ready to jump out of the cockpit, though.

S/C 7 Listen, I'll tell you, we both are ready to jump out of this cockpit.

HOUSTON Roger that.

S/C 7 Tell him we're facing the formalities of going aboard ship now.

HOUSTON Very good. Just get him to tell you how to fly a roger pass.

S/C 7 A roger pass?

HOUSTON Affirmative.

S/C 7            We have attached number 3 wire.

HOUSTON        There you go.

END OF TAPE

This is Gemini Control. The spacecraft is on its 192nd revolution having just passed Tananarive on the 62nd anniversary of the Wright Brothers first flight back in 1903. The Wright Brothers flew four times that first day, the first time by Orville Wright and the longest flight that day was by Wilbur Wright and he flew for 59 seconds. So far, we have been flying in space 306 hours and 58 minutes and let's play a tape of that Tananarive pass.

Cap Com Gemini 7, Houston. How do you read.

S/C Loud and clear Houston.

Cap Com Roger, I have a slight update on your MSC-4 time. Are you ready to copy?

S/C Just a minute. Go ahead, please

Cap Com The time is 307 34 30. Do you copy.

S/C 307 34 30.

Cap Com Roger. We are continuing to check the weather. It is variable. It changes rapidly the Hawaii Cap Com tells us, so we are going to keep you posted on it at Carnarvon and Canton, and than again at Hawaii and we will cancel you out at the last minute if the weather goes bad, otherwise plan on it.

S/C Roger, thank you. We will be all ready, we are going to start attitude control early and be ready for you anyway.

Cap Com Roger, Frank. Gemini 7, Houston.

S/C Go Houston.

Cap Com We are considering asking you to set up this alternate circulation - shirt sleeve circulation in the cabin for a longer period than 30 minutes. What do you think about that.

S/C I don't mind doing it, I don't like to use the suit fan -- or the cabin fan any longer than I have to, Elliot.

Cap Com Roger. Well, the evaluation just calls for evaluation with the cabin fan on and off -- that does not mean you have to run it for a very very long time.

S/C We'll do it if you want us to. We both feel we have ample data now, 30 minutes, and we can tell you exactly what it feels like.

Cap Com Okay, well, we were wondering about this stagnation that Jim reported, whether that might tend to clear up in a little longer time, or can you confirm that it would definitely just be that bad or get worse.

S/C Houston, when you put both the exhaust hoses over on one side and have the other hoses up above, the circulation goes to one side and you get a stagnant area. The best thing to have circulation in the cockpit is to have an exhaust hose on either side and that's the way we have it right now.

Cap Com Roger. Do you think the cabin fan would improve that situation or really not particularly help that. You just have to have the exhaust on each side.

S/C The cabin fan definitely improves that situation, when we turned the fan on, we get a lot of circulation on both sides, however, the fan uses electricity and that is why we are reluctant to use it.

Cap Com Say again the last sentence.

S/C The fan helps considerably, however it uses electricity, that's why we are reluctant to use it.

Cap Com Roger, Jim. Good luck on the Laser guys.

S/C Okay, Elliot, thanks a lot.

Cap Com Gemini 7, Houston.

S/C Go ahead.

Cap Com We were trying to check on what your main battery voltages were on the go--no-go this morning and it is not recorded. It just says Okay. Do you remember what the voltage was, or would you check them now.

S/C Roger, they are .... (garble) before they were around 22.5.

Cap Com 22.5, roger.

Tananarive Tananarive has LOS.

END OF TAPE

This is Gemini Control Houston, 307 hours, 36 minutes into the flight. The spacecraft is up in the Hawaiian area now and due to weather, we've been forced to cancel that Laser experiment that had been planned. It's rainy, it's cloudy over the station at Hawaii. First, let's listen to the conversation at Carnarvon.

CRO All systems are go on the ground.

CRO Gemini 7, Carnarvon.

S/C Go ahead Carnarvon, 7 here.

CRO Roger, the MSC-4 is no go at this time at Hawaii due to weather. Houston will update you again over Canton. We have your PM on the ground, you're looking real good. We'll be standing by.

S/C Sorry to hear that, but we'll be standing by for the weather at Canton .

CRO Roger.

HOU FLIGHT We want to make sure they're prepared for the MSC experiment -- MSC 4 experiment on this pass.

CRO Roger flight. Also, you're to be prepared for MSC-4 experiment this pass. YOU Copy, 7?

S/C Go ahead.

CRO Be prepared for the MSC-4 in case of weather change

S/C Roger.

CRO We have C-Band track.

HOU FLIGHT Tell them we've just checked the data again on

U FLIGHT                    where they picked up the spacecraft for their  
                              betting information. It's two miles long,  
                              12 miles right.

CRO                            That's two miles long and 12 miles right. Is  
                              that affirm.

HOU FLIGHT                    That's affirm. Also, tell him I think he's  
                              going to have trouble collecting.

CRO                            Gemini 7, Carnarvon, we have just been advised  
                              from Houston they've checked the landing points  
                              for GT-6, it's two miles long and 12 miles right  
                              and flight advises that he thinks you're going  
                              to have trouble collecting.

S/C                            No strain, tell flight.

CRO                            Rog. Copy flight?

HOU FLIGHT                    Affirmative.

CRO                            Flight, Carnarvon, two Baker reads 3.55.

HOU FLIGHT                    Roger that.

CRO                            Just powered up his ACME and he's in pulse  
                              mode and we're staying the same thruster activity  
                              flight.

HOU FLIGHT                    Roger.

S/C                            Carnarvon, send us another main please.

CRO                            Roger, coming on your way.

AFD                            Carnarvon, AFD

CRO Go ahead, AFD.

AFD It looks like the MSC-4 is no go. It's raining at Hawaii. So you can inform the crew.

CRO Roger.

GT-7, Carnarvon.

S/C Go ahead Carnarvon.

CRO Okay, MSC-4 is no go at Hawaii. It is raining.

S/C Righto, thank you.

CRO They have just powered down.

HOU FLIGHT Roger

CRO It came off as soon as he had the word.

HOU FLIGHT Roger, we copy.

CRO We've had LOS on 7.

This is Gemini Control Houston ..... starting from the top.

HOU Canton go remote.

HOU CAP COM Gemini 7, Gemini 7, Houston.

S/C Hear you loud and clear.

HOU CAP COM Roger, unfortunately the weather at Hawaii is still bad. We're pretty well shot down for this rev. We'll continue to watch for another one.

S/C Roger... (garble)....

HOU CAP COM Gemini 7, Houston. We're going to work on the HF now. Get some music going on the HF. You should have it fairly soon.

HAW Flight, Hawaii

HOU FLIGHT Go ahead, Hawaii.

HAW Okay, disregard.

HOU FLIGHT Go ahead, I'm listening.

HAW Disregard, we didn't have a solid lock at that time, we showed only one light, now we're showing two.

HOU FLIGHT Roger.

HAW Gemini 7, Hawaii Cap Com

S/C Go ahead, Hawaii.

HAW How are you doing?

/C Fine. I understand it's raining down there.

HAW Just like always.

S/C Too bad.

HAW Okay, we're showing you go down here. Just a question, did one of your Delta P lights go out between Carnarvon and here?

S/C Negative, they're both on.

HAW Okay, very good.

Quit pouring water down on top of us.

S/C Inside dump.

HAW One more day, and you'll be able to go back to sunny Houston.

S/C Do I have to?

W That's what we figured.

S/C Maybe I could play the red team, you know a good sailor never gets separated from his baggage.

HAW Righto. Do you hear that music on HF?

S/C Roger. I think they're playing that song for the troops on the RKV.

HAW Right. CSQ had a rough go of it last night.

S/C Yeah, that little ship she just bounces and bobs.

HAW Did you see it when you went over?

S/C No, we just talked to them.

HAW Okay. Looks like you're holding up real well down here. We'll be standing by if you need anything.

S/C Thank you.

HOU FLIGHT How does he look out there Hawaii?

HAW Looks real good flight. Do you want the readouts on those stacks?

HOU FLIGHT No, that's all right, we have your summary.

HAW Okay. Sounds good, sounds like he's in real good shape.

HOU FLIGHT Roger that.

HAW How are you today?

HOU FLIGHT Just great.

HAW Very good.

HAW You don't have any procedures for stopping  
rain do you flight?

HOU FLIGHT Yeah, time.

HAW Time? I was just rubbing this little idol  
I've got on my console, that's not doing too  
well.

HOU FLIGHT Well, I've got a few letters from a rain maker.  
I've never gotten any from the guys that know  
how to stop it.

HAW Send out a plea for help.

HOU CAP COM Get those hula girls out there to do some  
dancing around.

HOU When do I get to look at them?

HOU CAP COM Come on Ed.

HAW .....are holding up real well.

HOU CAP COM Say again, Hawaii.

HAW The stacks are holding right in there flight.

HOU CAP Rog.

HOU LOS all systems at Hawaii.

This is Gemini Control Houston. The capsule communicator was complain-  
ing about how little opportunity he was having to take in some of  
Hawaii's more prominent sights. is Ed Fendell. We've got California  
should acquire here momentarily. We'd like to follow this pass live  
ross the states. Guaymas has advised 7 they're standing.....

END OF TAPE

The only action Guaymas has advised 7 they're standing by. They are to turn off a bio-med recorder #2 during the eastern portion of this pass. No other activities in the flight plan itself. Later in the pass, over Tananarive, they are to do the S-5 terrain photography experiment again. They're piling up quite a lot of movie and still footage of the weather and terrain photography. And, over Carnarvon, they're to do some more dim light operational photography experiments, over the Indian Ocean leading into Carnarvon. At Carnarvon, they'll do a fuel cell purge. The flight plan shows more dim light work in the night pass on this next rev between Carnarvon and Hawaii. And, the next time over the States, the D-4, D-7, is laid on east of Hawaii. That's the radiometric measurements taken with a sentry that protrudes from the adapter some 4 to 6 inches. Still no conversation. The spacecraft right now is over Baja, California. Texas has been remoted. And, it's 16 minutes after the hour. Texas has acquisition. We're..Elliot See now is putting in a call, and let's tune in there live.

S/C 7           Go ahead.

HOUSTON       Node 308:54:39. Rev. 193. 139.6 degrees east. Right ascension 7-26-45. D-4, D-7. 309:22:00. Sequence 432. Mode 02. Do this over Texas; that is when we have acquisition. 309:39:00, begin working on stowage. 310:03:00, cabin temp survey. 310:44:00, crew status report on the command pilot at Hawaii. 311:16:00, crew status report on the pilot at RKV. Do you copy?

S/C 7       We copy. We'd like to change one thing. Do the cabin temp before we start the stowage, because the thermometer stows in the bottom part of the spacecraft.

HOUSTON       Roger. Go ahead and do that.

S/C 7       Okay.

HOUSTON       This stowage time is really just to get you started on it. We realize that there'll be a few items that you'll have to finish

up at a different time.

S/C 7 Well, we..uh..the center bracket on our stowage was sprung during launch, and it's very difficult to close it. We have to try it and everything else, so once we get it locked; we don't want to get back in it again.

HOUSTON Roger. MSC 2 and 3, 311:16:00. Sequence 03...correction...that's mode 03, or 04, whichever is easier. That will be done at the RKV. 312:17:00, flight plan report. 312:50:00, fuel cell purge and PLA update at the RKV. TX coming up. 313:10:00, bio-med recorder #2 continuous. 323:16:00, bio-med recorder #2 off. 324:02:00, fuel cell purge at Antigua. Do you copy?

S/C 7 Roger. We have all that. Roger, Houston. We read.

HOUSTON We show your Section One Delta P light out.

S/C 7 We confirm; it went out.

HOUSTON Very good.

S/C 7 Can you give me some information on how you want to power up for the platform alignment tomorrow?

HOUSTON We'll be getting that to you. We haven't got that ready yet, Gemini 7.

S/C 7 Thank you.

HOUSTON In the news today, there was quite a bit of write up on Gemini 6 and 7. We think you're pretty well up to date on that. One other item on the news here.I'd like to read you. It's a quotation. "It's too late to mail early, so please mail now. Reports from around the country indicate the public is waiting longer than it should to mail Christmas gifts and greetings." Signed Postmaster General, Lawrence F. O'Brien.

S/C 7 I have a stack of stuff up here, but I can't find a post office.  
HOUSTON Outstanding. Texas local. Should have sent it down with Gemini 6.  
S/C 7 Roger.  
HOUSTON As a matter of fact, we're hoping to have films shown in the  
Center today of the GT-6 pictures that they took of you. We're  
really looking forward to seeing those.  
S/C 7 Check our retro-rockets, will you?  
HOUSTON Roger, 7. Copy that. We hope we can't see them, because the adapter  
section, of course, will be in the way.  
S/C 7 Yea, I know. I hope you can't see it too. There ought to be  
some fantastic shots, I'll tell you that.  
HOUSTON Roger that.  
END OF TAPE

This is Gemini Control Houston. A spot of dead air here. Elliot is getting together some more notes. I think there will be additional conversation. We've still got, probably 1500 miles to go before they will be out of the Antigua circle.

Cap Com Gemini 7, Houston.

S/C Rog, Houston.

Cap Com Yesterday, during the recovery, they had live television pictures of Gemini 6 coming on the carrier and they were relayed by a satellite. They were really good pictures. Wally and Tom looked very fresh and looked like they had just been up for a local flight in a T38.

S/C That's all they have been, for crying out loud.

S/C A couple of short timers.

Cap Com Roger that.

S/C Have the doctors noticed any dropout in my TM, Elliot. I just found the connector off.

Cap Com Stand by. No, they look real good.

S/C .... (garble) ....

S/C We're right over Pete Saver Island.

Cap Com Roger that.

GBI LOS, GBI.

This is Gemini Control. That apparently wraps up the conversation on this pass. We've still got a few minutes out of Antigua but I don't think we are going to have any more conversation. At 308 hours into the mission this is Gemini Control Houston.

END OF TAPE

This is Gemini Control, Houston. 308 hours, 51 minutes into the flight. Here's a word or two regarding the film which has been brought back, taken aboard the 6 spacecraft of 7. We've had our first look at 135 feet of the onboard color movie film this morning. It is remarkably clear. The quality is comparable to that of the space walk film, from GT-4. We are presently...We also have some 70mm pictures; and they are being printed right now for selected frame in black and white; will be available at 11:00 a.m., Houston time in the Building 6 News Center. These are pictures taken from 6 of the 7 spacecraft at varying distances. At noon, we will have color transparencies of those four frames in a quantity of 29 each; that's the 70mm stills, in color. At 1:30, we expect to have 30 copies of the movie footage, 135 feet available; 30 copies total. At 11:00 this morning, we will have a press screening of the 135 feet in the Building 6 News Center Auditorium. Mr. Charles Mathews will be there to comment on the..uh.. this remarkable photography taken from Gemini 6. Right now, the Gemini 7 spacecraft is northeast of Carnarvon; and we have some tape conversation that went on while passing north of the Carnarvon Station. Here it is.

CRO Gemini 7, Carnarvon.

S/C 7 This is 7, Carnarvon.

CRO Okay. You're scheduled for a normal fuel cell purge. You can start it whenever you like.

S/C 7 Roger. Starting now with the first section.

CRO Roge. We have C-Band track.

HOUSTON Roger.

S/C 7 Our Delta P light on the first section, by the way, has come back on.

CRO Roger. Copy.

HOUSTON That was before the purge, wasn't it?

CRO That was prior to the purge the Delta P light came on. Is that affirmed?

S/C 7            Roger. It went off just before we passed the States, and it went on just about 10 minutes ago.

CRO             Roger. Copy. Everything looks good, Flight.

HOUSTON        Roger.

S/C 7            Purge complete, Carnarvon.

CRO             Roger. Can you position your cryo switch to the ECS O2, please.

S/C 7            Roger.

CRO             Okay, position the fuel cell O2, please.

S/C 7            Roge.

CRO             Okay, fuel cell H2, please.

S/C 7            H2.

CRO             Okay, you can position it to off. Okay, you're looking real good down here on the ground. That's the last pass for the afternoon, so we'll be seeing you tomorrow; and we'll be standing by.

S/C 7            Roger. Thank you, Carnarvon.

CRO             Did you get our summaries, Flight?

HOUSTON        Affirmative.

CRO             Okay. He's still looking good here on the ground. We'll have summation for you here in just a second. We've had LOS, Flight.

HOUSTON        Roger.

END OF TAPE

This is Gemini Control, Houston. 309 hours, 15 minutes into the mission. Seven is now east of Hawaii. There was no conversation over Hawaii. The ground read out the systems. They were all go. And, they simply advised 7, we are standing by. Meanwhile, in the last 10 minutes, here in the Control Center, we've set up...we set up a screen and did a special...had a special screening of the film that you will see in the News Center in about 15 minutes. The film on completion got a standing ovation from all the flight controllers in our jammed packed viewing room behind the glass here overlooking the floor. This remarkable color photography of the two spacecraft will be on display in the News Center at 11:00. The gentlemen with the film are leaving the building right now. At 309 hours, 16 minutes into the mission, this is Gemini Control, Houston.

END OF TAPE

This is Gemini Control, Houston. 309 hours, 21 minutes into the flight, and 7 right now is over Baja, California. The pilots are going through their final D-4, D-7 radiometric experiment. They will turn...They will position their spacecraft and that radiometric sensor which gets an infra-red signature on the sun. This will have the effect of burning the sensor out. There's only a very short amount of time left on the tape, and this is the normal way to conclude the experiment; by getting an infra-red signature on the sun in the last bit of tape available. No conversation yet, between the ground and the spacecraft as we're coming across the States. It'll probably be the extreme eastern portion before we get any. Everything is go on the ground and in the 7 spacecraft. This is Gemini Control, Houston.

END OF TAPE

This is Zack Strickland with the Kennedy Space Center Public Information Office, reporting from the skid strip at Cape Kennedy. The C-140 Jet Star aircraft returning astronauts Walter Shirra and Tom Stafford to the point of their origin of their flight on Wednesday, has just landed at the skid strip. There's some 300 people here at this skid strip waiting to greet the returning astronauts. Among them are members of the entire launch operations here at Cape Kennedy representing the Kennedy Space Center, the Air Force Eastern Test Range, the 6555th Aerospace Test Wing, the McDonnell Aircraft Corp., the Martin Co., the General Electric Co., the Burroughs Corp., Aerojet General Corp., Pan American World Airways, and Radio Corp. of America. In addition, there are quite a number of officials from the Kennedy Space Center and the Air Force here waiting to greet astronauts Walter Shirra and Thomas Stafford. Among these are Dr. Kurt H. Debus, who is Director of the Kennedy Space Center; Major General Vincent G. Houston, who is Commander of the Eastern Test Range; G. Merritt Preston, who is Deputy Director of Launch Operations for the Kennedy Space Center; Colonel Otto C. Ledford, Commander of the 6555th Aerospace Test Wing for the U. S. Air Force; Colonel John G. Albert, the Chief of the General Ops Division of the 6555th Aerospace Test Wing; Mr. John Williams, Assistant Director of Spacecraft Operations for the Kennedy Space Center. The Jet Star engines have now been shut down; and we are waiting for the astronauts to come off the airplane. Chief astronaut, Alan B. Shepard has gone aboard to chat briefly with Shirra and Stafford. And, we're waiting, and there's a threshold of some 300-odd people here at the skid strip at Cape Kennedy. Actually, this is the beginning of a very busy day for Wally Shirra and Tom Stafford. Immediately after their arrival here, after lunch, they will begin a rather extensive medical debriefing scheduled to last from about 2:00 until 4:00 o'clock this afternoon. From 4:00 until 4:30, they undergo a count down debriefing. From 4:30 until 5:30, they will be debriefed on powered flight; and from 5:30 until 6:30, they will talk about the insertion phase of their flight. From 6:30 onward, they will undergo a general

debriefing until bed time; and the astronauts are expected to go to bed at a rather early hour. Tomorrow, their day is likewise busy. From 9:00 until 10:30, they'll go for an operation on their....They'll go through a debriefing on their orbital operations prior to rendezvous. From 10:30 until 12:00 noon they undergo a rendezvous debriefing. From 1:00 until 2:00 tomorrow afternoon, they'll talk about the station keeping. From 2:00 until 2:30, they'll do a discussion of separation. From 2:30 until 5:00, all the operations after separation prior to retro-fire. Sunday's a general debriefing, and if all goes well, Wally Shirra and Tom Stafford will leave for Houston. Now they have just emerged from the airplane dressed in their flight suits accompanied by Alan B. Shepard and other dignitaries. Shepard has his arm around Tom Stafford. Both are wearing a big grin. They're in blue flight suits and sneakers. They're now saying hello to Dr. Kurt H. Debus and other members of the visiting...people who are here to greet the returning astronauts. I'm sure you heard the applause in the background as the some 300 people, most of whom are with the launch organization here at Cape Kennedy, said hello to the people they put into orbit on Wednesday morning. They've had a rather busy morning. They left the USS WASP the prime recovery ship at about 7:00 o'clock this morning and landed at Kinley Air Force Base in Bermuda. They left Bermuda about 9:33 this morning on this C-140 Air Force plane, the Jet Star; and now they have just landed here at Cape Kennedy. Shirra and Stafford are now chatting with Jack Albert and Colonel Otto Ledford and Merritt Preston. These are the operational people who had a great responsibility in launching these two astronauts into orbit on Wednesday after a rather frustrating effort on the Sunday prior to that. Tom Stafford is now chatting with Jack Albert as is Wally Shirra. They both look rested and quite happy. Alan Shepard has a big grin on his face, too. Now, you hear the press saying "Over this way". There's Tom Stafford and Wally Shirra coming this way. They wave now to the launch organization who.....

SHIRRA I think while we're here we should first say thanks to the launch crew so they'll have another look at us including getting back to the Center. We had a practice launch; after that, though, we had the most perfect launch we've ever seen. I'm sure you must realize that. The Titan boy did the job for us and the Gemini vehicle, of course, did it's job; and we had a most delightful trip. Thank you all.

STAFFORD About all I can do is just re-emphasize what Wally said. We can't really express our thanks too much for the great support and effort we had from all the people at the Cape who turned around and backed the booster and spacecraft. It was real wonderful and just heartwarming to see all the effort you people put out; and thanks a million for us. We hope you see the pictures real soon.

You just heard Wally Shirra and Tom Stafford express their appreciation to the launch organization. They're laughing now at.... Wally Shirra has just said, "You can quote me" to a question which I failed to catch from the press here. Now they are leaving; ready to get aboard automobiles to go over to Kennedy Space Center, to their crew quarters where they will begin their rather extensive debriefings this afternoon. They are now getting into automobiles; and after a short lunch, beginning at 2:00 o'clock, they will begin the first of their debriefing, which is the medical debriefing. Still waving. Smiling, happy. Weather, almost, was a problem for the return of the astronauts this morning. Earlier in the day, the skid strip here at Cape Kennedy was socked in by weather; and for a period of time, it was unknown whether the astronauts would land here at the skid strip or would be required to go to Patrick for their landing. And, now we see that a representative of the Governor of Florida, Attorney General Earl Faircloth, is here to greet the astronauts. They have gotten out of their automobile and Attorney General Faircloth is now talking with Wally Shirra and Tom Stafford. Governor Burns

would have been here in person but for a death in his family, he was unable to attend; and consequently, he designated Attorney General Earl Faircloth as his official representative here. The Attorney General has 2 plaques in his hand. He's presenting both of these to Tom Stafford and Wally Shirra in something of a tradition, which was established by Governor Burns on our first Gemini manned flight. They're chatting briefly, looking at the plaques, talking with Attorney General Earl Faircloth, representing Florida's Governor Burns. Attorney General Faircloth also was a victim of the weather. He arrived a little bit late; and now they're coming back over to the microphone... The astronauts Wally and Tom are now in their automobile. They're on route to the MSOB. And, that concludes the report here. Attorney General Faircloth is now....

FAIRCLOTH

Ladies and Gentlemen, Governor Burns has instituted the traditional procedure of, on the return of Gemini astronauts, being here in person to welcome them back to Florida and to present plaques. Today, the Governor, unfortunately, was unable to be with us due to the death of a new member of his family. He's attending a funeral in Jacksonville....

END OF TAPE

The Governor, unfortunately, was unable to be with us due to the death of a near member of his family. He is attending a funeral in Jacksonville and on his behalf, I'm happy to introduce the Attorney General, Mr. Earl Faircloth.

Thank you so very much, and on behalf of Governor Hayden Burns and the people of the State of Florida, I'm very wonderfully honored to convey the great admiration and gratitude to these young men who have done so much for the World and for our Country and on behalf of the people of Florida, we welcome them back here to Florida soil. Thank you.

This is Gemini Control Houston again. The astronauts safely on the ground and on their way to MILA to start their debriefing in Florida. I think you heard Zac Strickland's report. We are 310 hours into the flight of 7. We have some tape backed up from the last Stateside pass. We would like to play that conversation for you now.

Cap Com Gemini 7, Houston.

S/C 7 here.

Cap Com Roger. I realize you are coming up on your D-4 measurement here. Let me know when you need some quiet to do that.

S/C Rog, we are aligning it now.

Cap Com Roger. Okay, let me brief you a little bit before you get to Texas to do that and let me know when you need me to stop talking so you can work on your measurement.

S/C Righto.

Cap Com On the reentry yesterday, Wally used dual ring rate command for retro and then single ring rate command for the reentry. And he found that he had to cut in the other ring because he ran out on RCS A, he had to cut in the second ring about at the end of blackout, so we wanted to let you know about that.

We noticed that you are planning to use single ring direct on your reentry and we would like to concur in that and then if you have to use more authority, you might try reentry rate command and eventually, if you have to, of course, dual ring rate command, but we wanted to let you know that he did need both rings because he ran out on the first one.

S/C Righto. We still plan on our usual procedure of reentry.

Cap Com Roger 7.

Guaymas Guaymas has solid TM and all systems are go.

Flight Roger.

Cap Com After you make your D-4 measurement, I want to discuss this shirt sleeve environment business with you again and make sure we have the specific questions that we have left here answered, I'll wait until after your D-4 measurement.

S/C Righto.

Cap Com Gemini 7, We have Texas data now. You can do your experiment whenever you are ready.

S/C Roger, we are commencing. Experiment complete Houston.

Cap Com Roger, 7. I would like to discuss this shirt-sleeve environment evaluation with you a little further. I would like to ask specifically, in this second configuration that we had you in for a while this morning, we understood that the air was sort of stagnant on your side, Jim. But we would like to understand also whether the cabin fan being on made it okay or whether there was still some stagnation even with the fan on.

S/C It appeared to me that it was okay with the cabin fan on.

Cap Com Roger. Now, specifically, another question here. Have at anytime you had your inlet and outlet hoses in roughly the same position, same proximity, in other words, very close together for the air to come out and also go back in. We wonder if you do that would the circulation be adequate.

S/C I think we will find stagnation points along that line, if we have the inlet and outlet hoses fairly close together. I think the circulation will go just between them and we will find stagnation points.

Cap Com Okay, if you have not actually tried it, we would like you to try that for a short period because that is the present configuration in Apollo and we want to make certain about this so that we can tell them if it is necessary to change it.

S/C Roger, I'll do that ... (garble). . but it sounds like a poor design based on what we found up here.

Cap Com Roger.

S/C We've made every effort to keep them apart, the inlet and the exit, Elliot.

Cap Com Roger, that's what we understand Frank. And we want to make sure that we can definitely state this.

S/C Fine. Elliot, I'm now reading 6 percent on the attitude fuel gauge and as far as I am concerned, it is the end of the attitude fuel for the experiments.

Cap Com We had planned on a cut-off of 5 percent, Frank. Do you have some reason to keep it different from that.

S/C Well, this gauge is so nebulous that 1 and 1 percent is  
..... (garble) ....

with this big thruster it takes about twice as much fuel because we can't get small enough inputs in it.

Cap Com Roger.

S/C While you all are still reading the TM, we will go ahead and maybe we can get that photo of the window measurement now.

Cap Com That's affirmative. Frank, we've been watching your fuel very closely and we would feel quite confident to let you go down to 5 percent if you are willing to. If you want to stop here, that's all right, but we feel you are quite adequate if you go on down to 5 percent.

S/C But will 5 percent be enough to aline the platform tomorrow. No body knows.

Cap Com That's affirmative.

S/C I'd like to stop right here please.

Cap Com Roger.

S/C ..... (garble)... to make some sweeps on the window.

Cap Com Roger, let me know when you are complete on that Gemini 7. I have another item to discuss with you

S/C Go ahead, Jim is doing it and tell them to me if you want to.

Cap Com I'll wait until he is finished, Frank. Just to be completely, absolutely complete on this environment evaluation when you put the hoses together you might also evaluate that with fan on and fan off.

S/C Roger. Okay, Jim is starting on the window scan now.

Cap Com Roger. Frank, for your information we show you presently have 9 pounds of MMH remaining, if you went ahead and took it down to 5 percent, you would have  $7\frac{1}{2}$  pounds remaining.

S/C Roger, thank you.

MISSION COMMENTARY TRANSCRIPT, 12/17/65, 11:42 a.m.

Tape 576, Page 5

S/C

Elliot, are you receiving any TM on us.

END OF TAPE

/C Elliot, are you receiving any TM on us.

Cap Com That's affirmative. We can't see a specific readout on that parameter, but we are still receiving TM.

S/C Okay, Jim's repeating the Scan now.

Cap Com Roger, are you going to scan your window also Frank, or not.

S/C Negative.

Cap Com Okay.

S/C We've scanned the window twice and it is on our voice tape.

Cap Com Say again Frank .

S/C He scanned the window twice and it is on our voice tape also.

Cap Com Roger. Okay, the other item I have for you, is that we have just seen the pictures, some on the pictures which GT-6 brought back. Just a few of them have been processed so far, but they are really outstanding. You just look great sitting up there.

S/C Well thank you. Can you see our big long piece of wire we were talking about.

Cap Com Sure do. Those pictures are remarkably clear and just completely precise in every detail. We can see the D-4 instrument sticking out the sides, you can see your whole nose section, just every little detail is as clear as a bell.

S/C Roger. I hope we have some good shots of them, also.

Cap Com Roger, we watched the movie film a minute ago, the little bit that has been developed so far, we can see the scanners working and it is just tremendous film.

S/C It was a tremendous experience really.

Cap Com We understand that your pictures are on all 3 networks, live.

/C Great. And here we are in our underwear.

Cap Com Hey, I'm watching it on television now. The pictures. They

are really great, Frank.

S/C                   Okay. Elliot, we are going to shoot the rest of this film  
this afternoon and then ... (garble).

Cap Com               Roger.

This is Gemini Control. You heard the pilots reaction to  
having been advised they were on all three networks. That was Frank Borman  
who said, "And here we are in our underwear." We've got some more conversa-  
tion now, taped between the Rose Knot Victor and Ascension both on this same  
tape. Let's have it now.

RKV                   Gemini 7, RKV Cap Com, we have nothing for you, we are  
standing by.

S/C                   Roger, RKV.

Flight                Can we have an RKV Main from you please, the first one was  
garbled.

RKV                   Roger, we will retransmit. The reserve tank is reading  
296 Flight.

Flight                Say again.

RKV                   The reserve tank, the Volkeswagen tank, is reading 296.

Flight                Roger.

RKV                   Section 1 looks real balanced Flight.

Flight                Roger that. We have your second main. It looks Okay.

RKV                   Roger.

Flight                We would like a class 1 main, RKV.

RKV                   Roger. It's coming at you.

Flight                Roger.

RKV                   I've turned out 21 Flight, all systems are go.

Flight                Roger.

END OF TAPE

Flight RKV, Houston. Did you send Alpha and Bravo summaries.  
RKV Roger, that's affirmative Flight. Do you want a retrans?  
Flight Rog.  
RKV Roger. They are on the way Flight.  
Flight Roger.  
RKV RKV has LOS.

This is Gemini Control Houston. We are on our 194th revolution around the earth at the present time. The Coastal Sentry Quebec has just acquired out in the far west Pacific. Our orbit today, the last reading we had was a calculation based on the 192nd revolution, that was 2 revs ago. It showed an apogee of 164.1 nautical miles, a perigee of 158.2 nautical miles.

This is Gemini Control Houston.

END OF TAPE

NOT AIRED

MISSION COMMENTARY TRANSCRIPT, 12/17/61, 12:03

Tape 579, Page 1

CSQ Gemini 7, CSQ Cap Com, everything looks good here on  
telemetry and we are standing by.

S/7 Roger.

CSQ Flight, CSQ. The currents look pretty well balanced. We  
are reading 3.14 on 2 Bravo.

Flight Roger. 3.14.

CSQ CSQ has LOS Flight.

Flight Roger.

CSQ All systems were go at LOS.

Flight Roger, we copied.

END OF TAPE

Gemini Control Houston here, 310 hours and 3 minutes into the flight. Time to Retro clock shows 19 hours 4 minutes. 7 sailed over Hawaii a few minutes ago, nose up, and the conversation which includes a lot of medical data on Frank Borman went like this.

HAW TM solid Hawaii.

Flight Roger, Hawaii.

HAW Gemini 7, Hawaii Cap Com.

S/C This is 7, Hawaii.

HAW Okay, we are showing you go here on the ground. We have a valid oral temp, standing by for your blood pressure.

S/C Coming down.

HAW Roger, your cuff is full scale.

S/C Roger.

HAW We have a good blood pressure. Standing by for your exercise on you mark.

S/C MARK.

HAW Your cuff is full scale. We have a good blood pressure. Standing by for your food and water report.

S/C The Command Pilot has had a total of 1051 ounces of water, column 5 is 33, column 6 is 8. The Pilot's had a total of 890 ounces of water, column 5 is 33 and column 6 is 7.

Did you copy Hawaii?

HAW Roger, we copied. Is there any change in your food report from last time.

S/C No, I think we report day 10, meal B last time.

HAW Roger, Surgeon out.

S/C Maybe we didn't, it was minus 4 egg bites for the Pilot and minus 1 egg bite for the Command Pilot.

HAW Say again the meal Gemini 7.

S/C Day 2, meal B.

HAW Thank you.

HAW How are you doing?

S/C Fine.

HAW Anything interesting?

S/C No, we are just drifting now, out of gas.

HAW 7, Hawaii.

S/C Go ahead.

HAW Jim, you better drink some more Water.

S/C Roger, I'll get some more water.

HAW You didn't see us as you went by, did you 7?

S/C Sure didn't. We are pointing straight up.

HAW Okay. Trying to get a little weather report if you did,  
that's all.

S/C I can give you one without looking, it's cloudy.

HAW Yeah, we are trying to squeeze a Laser pass in here if  
we could get this stuff out of here.

S/C We don't have any gas.

HAW Rog. Telemetry LOS at Hawaii.

END OF TAPE

Gemini Control Houston here, 311 hours and one minute into the flight and as we started this swing down across the west coast of Mexico pass that will take it over the heart of South America. Ed White came up on the line here in Mission Control Center referred to CM 3 the backup command pilot for the 7 crew and has a long chat with Frank Borman as they start this pass. And here is how the conversation is going.

HOU California go remote

S/C Cap Com go ahead.

HOU CAP COM Okay, we're going to be primed for voice at your acquisition.

S/C Roger.

HOU CAP COM Roger that

S/C We're almost ready almost ready to put up number 13 here.

HOU CAP COM Very good. How's the stowage coming in there are you getting most of the miscellaneous stuff where we planned?

S/C We can't get quite as much behind the seats but we're putting them in these bags and we're going to throw the bags on top of the seats the way we planned.

HOU CAP COM

Very good, it's not so that you can't see out  
I guess, huh?

S/C

No, we're really in pretty good shape.

HOU CAP COM

It's just the way you planned it, isn't it?

S/C

It's working out just the way we planned it  
right.

HOU CAP COM

Very Good. Things down here are looking pretty  
good. I guess you're about at 40,000 feet now  
the engines shut down coming on back to home base.

S/C

Right.

HOU CAP COM

Very good. I've got a little message I'd like  
to send up.

S/C

Go ahead.

HOU CAP COM

EEE.

S/C

Got it. Say, would you ask the flight surgeon  
to open....I plan on taking the cuffs off before  
I put my suit on for the last time, which will  
be tomorrow morning.

HOU SURGEON

Jim, did I read you want to take the cuffs off  
tomorrow morning before you put the suits on?

S/C

That's right, I'd like to stow them away. I don't

S/C think it will do that much good from the time I put the flight suit on to the time I start .....(garble)...on reentry.

HOU SURGEON You're correct and I think that's perfectly acceptable solution. Let's do that. Incidentally I heard some comments about your water and we checked your water here Jim and the intake looks good. I think you forgot to add some you had for breakfast this morning according to the <sup>gun</sup> water/count, you missed some there. Your water intake looks very good to us right now.

S/C Very good, because when we took a drink from it and I just drank 300 ounces.

HOU SURGEON Very good.

GUAYMAS Guaymas has solid TM and all systems are go.

HOU FLIGHT Roger.

CAL California local.

HOU NET California local.

GYM S/C COM Gemini 7, Guaymas cap com, everything's looking real good here on the ground. Don't have anything special for you. If you need us, just give us a hollar.

S/C 7 Thank you, Guaymas.

HOU NET Texas go remote.

TEX S/C COM Texas remote

HOU S/C COM Gemini 7, Houston.

S/C 7 Go ahead, Houston.

HOU S/C COM We have one last chance for the MSC 4 experiment. It would occur tonight about 45 minutes into your presently scheduled sleep period. We'd like to check with you and see if it's acceptable with you to do that, pending weather. Of course, we're going to keep an eye on that and if it does have good weather we'd like to know if you are willing to do it in that period.

S/C 7 No, I don't care about the sleep period but my gauge right now is bouncing right on five and I want to align the platform with this OAMS configuration . It takes a lot of fuel plus its an almost impossible tracking task at night with this thruster. I just don't think its worth it.

HOU S/C COM O.K., very good. Glad to have that information. We'll plan accordingly.

S/C 7 Listen, Elliot, we .... putting these two hoses together and of course it depends upon the way you point them. If you point them both parellel

increase the circulation and we couldn't tell much difference really. If you point them facing each other, well, naturally, the circulation is cut down. But I think that we ought to discuss this thoroughly when we get on the ground, probably would be the best way.

HOU S/C COM

Very good. We just wanted to make sure that you had evaluated it as fairly as it could be done in flight.

S/C 7

Rog.

HOU S/C COM

Have one other piece of information. The GT-6 crew is at the Cape now.

S/C 7

Roger. We thought we had someone calling from an aircraft. Have you heard anyone calling us from there?

HOU S/C COM

No, I haven't heard it.

HOU S/C COM

Gemini 7, Houston. We see a slight drop in the source pressure on the OAMS, and that's why we feel your gauge is down slightly. We feel this is a fairly normal amount of variation.

S/C 7

Roger. You all are working on the power up procedure and everything for us now, right, Elliot?

HOU S/C COM

Rog. What we're doing is trying to get a quick lay out on that and as soon as I get it I'll

\U CAP COM

give you a rough lay out on ~~and~~ and then we'll  
get in more detail as soon as we have that.

S/C

Okay.

HOU CAP COM

I might mention that we're all impressed with  
~~how~~ good you guys sound today.

S/C

We feel a lot better today I think that rendezvous  
with Tom and Wally .....(garble).

HOU CAP COM

Roger.

END OF TAPE

This is Gemini Control Houston, 311 hours 35 minutes. In a pass over the Rose Knot Victor a few minutes ago, the reading from the water gun was challenged by Dr. Berry and was checked several times. The conversation goes like this.

RKV                   RKV has telemetry solid.

Flight                Roger RKV.

RKV                   All systems are go. Gemini 7, RKV. We copy your oral temp, you can start your blood pressure.

RKV                   RKV. Your cuff is full scale.  
We transmitted TX.

Flight                Roger.

RKV                   7, RKV, we had a good blood pressure. Standing by for your exercise.

S/C                   Roger, MARK.

RKV                   Gemini 7, RKV, your cuff is full scale.

S/C                   Roger.

RKV                   We have your blood pressure. Can you clarify the Command Pilots water consumption please.

S/C                   Roger, wait till I get the log book.

RKV                   Flight, the reserve tank is steady at 296.

S/C                   Roger, we made a slight error in his calculation. His actual consumption is 1051.

RKV                   1051?

S/C                   Roger.

RKV                   Any change in the food or water report since Hawaii.

S/C                   Negative.

RKV                   Roger. RKV Surgeon out.

S/C                   When are you going to start for home, RKV.

RKV                   As soon as you are on the deck, babe.

S/C                   ... (garbled).

RKV                   Our rates for babysitting are going up tonight you know.  
It is the weekend.

S/C                   Is it, I've lost track.

RKV                   Flight, RKV.

Flight                This is AFD, go ahead.

RKV                   Okay, you copy that about the water report. Apparently  
they gave the same water report they gave Hawaii, 1051.

Flight                Yeah, I copied that. I guess our surgeons don't look at  
his records.

RKV                   Rog. All systems are good. Still have both delta P lights.

Flight                Rog.

RKV                   It looks real good, AFD.

Flight                Okay, RKV, could you ask them for a total water gun count,  
please.

RKV                   Roger. Would you give us a total count on your water gun.

S/C                   Rog. 1674.

RKV                   Roger. Did you copy AFD.

Flight                Rog.

S/C                   You can tell Houston that we don't have any .... (garbled)  
delta P lights anymore, .... (garble) and we've got them  
turned out.

MISSION COMMENTARY, 12/17/65, 1:05 p.m.

Tape 582, Page 3

RKV Roger, we got that. You must have slept good last night.

S/C Yeah, we did sleep good. .... (garble) .....

RKV Say again.

S/C I said we got the .... (garble) .....

RKV I'm not reading you to good. Say again.

S/C I said I ... (garble) .... from Cocoa.

Flight RKV procedures.

RKV We'll be practicing.

RKV Go ahead procedures.

Flight Send us a Bravo summary.

RKV Roger. RKV has LOS, all systems go

FLight Roger.

END OF TAPE

This is Gemini Control, Houston. 312 hours and 13 minutes into the flight. In a conversation with the Coastal Sentry Quebec, it's apparent that Frank Borman doesn't want to be counted out as a flight controller on future missions. He volunteers to work in Australia, or even the Coastal Sentry Quebec. The conversation goes like this.

CSQ Gemini 7, CSQ Cap Com. You look good from here. We have nothing for you this pass. Standing by.

S/C 7 Could you...Would you ask the Surgeon there. We want to stow everything tonight; might as well stow that exerciser. With the landing in the morning, I don't think they'll need it, more than likely.

CSQ I'll check. Stand by.

HOUSTON Tell him that's okay. We'll give him a report on that later. We don't have a Surgeon in here at the moment. But, Dr. Kraft says it's okay.

CSQ Dr. Kraft says okay to stow. Gemini 7, CSQ. It's okay to go ahead and stow the exerciser.

S/C 7 Thank you. We'll stow her tonight.

CSQ That's straight from Dr. Kraft.

S/C 7 Oh! Sure! Thank you. How's the water now, CSQ?

CSQ It's not as bad as it was yesterday. It's still a little rough.

S/C 7 The sea's giving you a tough day down there, huh?

CSQ It seems like it this time.

S/C 7 Have you been there before?

CSQ This is my fifth trip to the CSQ.

S/C 7 How lucky can you get.

CSQ I have bell-bottoms on all my trousers now.

S/C                   Why don't you tell Dr. Kraft he should rotate that desirable assignment. Everybody should get the CSQ.

CSQ                   Roger. We'll see to that.

HOUSTON             Tell him we're going to send Frank there the next trip.

CSQ                   Chris just said he's going to send Frank there next trip.

S/C                   That's fine; but if they need anybody to go to Australia, I volunteer.

CSQ                   Join the crowd. I'd like to pass up congratulations from the Flight Controllers on the network for the beautiful job you both are doing.

S/C                   Ditto up here. We really appreciate all your help. You really keep our moral up.

CSQ                   All systems still go, Flight.

HOUSTON             Roger.

CSQ                   We've had LOS, Flight.

HOUSTON             Roger that.

END OF TAPE

This is Gemini Control Houston on the 195th revolution of this 206 revolution flight. Here is the conversation with the Hawaii station.

HAW Gemini 7, Hawaii Cap Com.

S/C Go ahead Hawaii, Gemini 7.

HAW Roger, we show you go on the ground and I would like to get this flight plan report if I could.

S/C Okay, the only thing that we have to report today is that we have no more film left. It has all been expended and the only two experiments -- three experiments we were able to accomplish because of fuel or weather was the S-5 over North Africa, the D-4/D-7 calibration on the sun and twice we did the S-8/D-13 calibration of the window.

HAW Roger. I have some information here for you. Yesterday on the retrofire of Gemini 6, the crew had a delay between 1 and 2 retro, and between 2 and 3. They then depressed the manual. We suggest that you use the normal procedure and depress manual one second after your retro.

S/C Roger.

HAW Okay, and I have a PLA update for you if you are ready to copy.

S/C Stand by one. Okay.

HAW Okay, the RET 400K for all areas is 21+20, weather in all areas is good. Area 199-B, 318 18 10, 200-D, 319 00 15, 201-D, 320 35 24, 202-D, 322 11 59, 203-2 323 42 30, 204-1, 325 12 11, 205-1, 326 47 58, 06-1, 328 23 25.

S/C Roger, we copied them all.

HAW Roger. I have also some more information for you, the cyros for bedtime.

S/C Go ahead.

HAW ECS O2 heater off, fuel cell O2 heater auto, fuel cell H2  
heater auto.

S/C Roger.

HAW Fuel cell purge over the RKV.

S/C Thank you.

HAW We have nothing else for you at this time 7, we will be  
standing by.

S/C Thank you.

HAW Hawaii has TM LOS.

END OF TAPE

This is Gemini Control, Houston. 313 hours, 4 minutes into the flight of 7. And, as we approach the end of this mission, recovery considerations become a bigger and bigger item of conversation as they were over the Rose Knot Victor a few minutes ago. Here's how it went.

RKV                   RKV has telemetry solid. All systems are go, Flight. We still have both Delta P lights.

HOUSTON             Roger. Both Delta P lights.

RKV                   Gemini 7, RKV Cap Com.

S/C                   Seven here.

RKV                   Roger. We're ready for your purge whenever you are.

S/C                   Roger. Purging Section One now.

RKV                   Roger.

HOUSTON             RKV, Houston Flight.

RKV                   Go ahead, Flight.

HOUSTON             Ask Frank how much problem for him it is for him to keep the exerciser out and stow it tomorrow morning.

RKV                   Okay. Houston's working on a time line for your activities tomorrow and they'll give you....Gemini 7, RKV.

S/C                   Go ahead.

RKV                   Houston's working on a time line for tomorrow's activities; and they're going to give you a general briefing on it over Tananarive this rev.

S/C                   Okay. Fine. Sounds good.

RKV                   And, Chris would like to know how much trouble it would be for you if you kept the exerciser out and stowed it tomorrow.

S/C                   Well, it's way in the back of our gear. We had .....(Garble)...  
However, we can probably stow it for re-entry someplace else besides the cockpit.

RKV                   Okay.

HOUSTON               Tell him that's what the Surgeons would like if they can do it.

RKV                   The Surgeons would like for you to leave it out if you could.

S/C                   Right. The medics have the last word.

RKV                   Roge. Purge done on 1, Flight. Purging Section Two, now, Flight.

HOUSTON               Would you send us an Alpha and Bravo summary.

RKV                   Roger.

S/C                   Purge complete, RKV.

RKV                   Roger. Purge is complete, Flight. We still have both Delta P  
lights.

HOUSTON               Roger.

RKV                   All systems look good, Flight.

HOUSTON               Roger.

RKV                   3W tank is steady at 296. Flight, you get our main after the  
purge?

HOUSTON               Negative.

RKV                   RKV has LOS. All systems go.

HOUSTON               Roger, RKV.

END OF TAPE

This is Gemini Control at 313 hours and 34 minutes into the mission of Gemini 7. Here in the Control Center we are in the midst of our shift break. The White Team of Flight Controllers moving into the consoles for the last time this mission. Our flight crew is in a sleep period. We do not have any indication that they are asleep, in fact, our indication at this time from the Rose Knot, the ground data from the Rose Knot shows that the crew is active. However, voice communication has been ruled out now and we will not communicate with the crew unless there should be an emergency which is extremely unlikely at this time. The crew with this night's sleep will be on the home stretch and when they awaken we will get ready to come home. This is Gemini Control, 313 hours and 35 minutes into the mission. We do have a tape to play back for you at this time. It is the last voice communication made with the crew of Gemini 7 as they passed over Tananarive, and at this time we will play that tape.

TAN Tananarive has acquisition.

Cap Com Gemini 7, Gemini 7. Houston. How do you read.

S/C This is 7. Loud and clear.

Cap Com Roger, Jim. I have some additional information for you when you are ready to copy.

S/C Ready to copy Elliot.

Cap Com Okay. Modify onboard flight plan to reflect the following: power up and alignment checklist, elapsed time 327 35, that should be about TR-223. We will refine these times in the morning. This is 25 minutes prior to Carnarvon on rev 205. Do you copy so far.

S/C Roger.

Cap Com Before platform cage, add the following. Squib battery no. 3 on. Bus tie switches 1 and 2 off. Squib batteries 1 and 2 on. Main batteries 4 on. Primary pump B off. Primary pump A on. Secondary B off. Secondary A on. Do you copy so far?

S/C Roger.

Cap Com After platform cage, BEF, discontinue checklist -- discontinue checklist until Carnarvon. Time on that is 328 00 and that is about TR-158. 158. Then resume checklist at Carnarvon. At the end of rev 205, that is a time of 328 44, we will give you a TR update and a preretro command load for 207-1. And that will be at TR-1+14. Copy so far.

S/C Roger.

Cap Com Delete C-reentry continuous from the normal place in the preretro checklist. After the first fuel cell purge tomorrow C-reentry continuous, MSC-2 and 3 off. Do you copy.

S/C Roger.

Cap Com That's all we have now and we will continue to work on this tonight and refine it in the morning if there are any changes in this and we will give you exact times on everything.

S/C Roger.

Cap Com Very good. See you in the morning.

S/C Roger, Elliot.

Tananarive Tananarive has LOS.

END OF TAPE

This is Gemini Control. Gemini 7 is now in its 196th revolution. Passing over the Pacific; and we have had one final voice conversation with the crew over the Coastal Sentry Tracking Ship just a few minutes ago; and we will play back this last voice tape.

CSQ Gemini 7, CSQ.

S/C Go ahead CSQ, Gemini 7.

CSQ Roger. Could you put your bio-med recorder #2 on continuous, please.

S/C Recorder's on.

CSQ Roger. Thank you. We have you go on the ground, Gemini 7. We're standing by.

S/C I do have one question on the update that I received. ...(Garble)..

CSQ Gemini 7. I do not copy. Please repeat.

S/C Roge. Do you read me now?

CSQ Roger.

S/C I don't understand one thing here that I just received from Houston. Delete the re-entry continuous from normal place after first fuel purge. C-Band re-entry continuous, and MSC 2 and 3 off. Oh, I guess that means after first fuel purge do that.

CSQ Alright, stand by. Flight, you got that?

HOUSTON Yea. I think what he's talking about is re-entry C-Band beacon. Stand by. As soon as he wakes up, we want the re-entry C-Band in continuous.

CSQ Roger. Copy. Gemini 7. As soon as you wake up, they want the re-entry C-Band in continuous. Do you copy?

S/C As soon as we wake up...(Garble)...

CSQ Say again, Gemini 7. I cannot copy.

S/C Roger. As soon as we wake up put the C-Band re-entry to continuous.

CSQ That's affirmative.

3/C Thank you.

CSQ Flight, CSQ. We have the qual...(garble)...quantity gauge off.  
Do you want it in a particular position, or just leave it off?

HOUSTON I think we might as well leave it off for tonight.

CSQ Roger. CSQ has LOS.

END OF TAPE

This is Gemini Control. We are now 315 hours and 20 minutes into the mission of Gemini 7 and exactly 14 hours 37 minutes away from retro-fire which will take place tomorrow morning. At this time the spacecraft is moving over the Pacific on revolution 197. The flight crew is in a sleep period and activity is low pitched here at the Mission Control Center. This is Gemini Control, 315 hours and 20 minutes into the mission.

END OF TAPE

This is Gemini Control, at 316 hours, 20 minutes into the mission of Gemini 7. Our crew status, according to the ground data readouts, we still do not, we still cannot confirm that both crewmen are asleep. However, they are quieting down. We have a report from White Sands. At White Sands tomorrow we had scheduled a high altitude abort test with the Apollo Program. This test has been postponed now until after January 1. The primary cause was a problem with the autopilot on the Little Joe II launch vehicle and we do not have a firm date for the re-scheduled test. However, it will be after January 1. And now - we have been taking a look with our weather man, Alan Cummings, at the Atlantic Recovery Area. Alan is one of our weather men here in Mission Control that works with the Gemini crew and he will give you an update on what the weather looks like for tomorrow morning. Come in, Alan.

This map shows what we expect the weather situation to look like at landing time in the morning shortly after 8:00 central standard time. The low pressure system depicted here is presently in a position about here, the front shown here, now extends back into here and down to about Miami. We predict that this front will move to the position as shown by 8:00 a.m. in the morning, and the landing zone itself, where the spacecraft will come down is just north of 25 degrees and on the 70 degree longitude line. The outlook is for only partly cloudy skies, with a west wind of about 12 knots and waves only 3 to 4 feet. There's very little chance of showers in this area as the upper air flow patterns controlling movement of real weather producing systems, has been very favorable for the west Atlantic during the past 2 weeks, and they expect it to remain so, at least through Saturday. The outlook is not quite as good as it was for Gemini 6, but it's certainly favorable from all weather standpoints. Little chance for showers, light to moderate winds, and very slight seas. And that's how it looks for the Gemini 7 spacecraft landing in the morning.

Thank you, Alan. That was Alan Cummings, one of the Weather Bureau experts who are assigned here to the Gemini Program.

We are now 316 hours and 22 minutes into the mission of Gemini 7, and we are 13 hours 35 minutes from retrofire tomorrow morning. The mission is drawing closer to the end. This is Gemini Control.

END OF TAPE

MISSION COMMENTARY TRANSCRIPT, 12/17/65, 6:55 p.m.

Tape 590, Page 1

This is Gemini Control. We are now 12 hours and 32 minutes away from retrofire tomorrow morning. The spacecraft is on the 198th revolution . The crew is asleep. At least in a sleep period and the spacecraft is over the Pacific Ocean and very shortly will come up on the West coast of South America. The crew has now spent 370 hours and 25 minutes in space. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are 11 hours and 37 minutes from retrofire tomorrow morning. Our ship, Gemini 7, is passing on its 199th revolution and will very shortly come up over the Coastal Sentry Tracking Ship in the Pacific. According to the latest information that we have received from the spacecraft via telemetry, the crew is asleep. This is Gemini Control, 318 hours and 20 minutes into the Gemini 7 mission.

This is Gemini Control. We are now 319 hours and 20 minutes into the mission of Gemini 7 and 10 hours 37 minutes away from retrofire tomorrow morning. Aboard our spacecraft the crew is asleep. They are now starting the 200th revolution around the earth, and at the present time are passing over the Rose Knot tracking ship range. Our schedule for the morning - the crew will be awakened at approximately 2:00 a.m. Eastern Standard Time; they will suit up and prepare the spacecraft for the retrofire which is scheduled for 8:28 Eastern Standard Time. Splashdown in the Atlantic will be at 9:05 Eastern Standard Time. This is Gemini Control. We are now 319 hours and 20 minutes into the mission

END OF TAPE

This is Gemini Control. We are now 9 hours and 37 minutes away from retrofire, which will signify the end of Gemini 7 mission. At the present time, Gemini 7 is passing over the Pacific on the 200<sup>th</sup> revolution around the earth. We have had no voice communication with the crew since the sleep period started about 3:00 p.m. Central Standard Time. In the Control Center here, our flight controllers are completing their reports on the activities for the day and we have one more hour, approximately, of duty here before being relieved by the Blue Team. Aboard the spacecraft the crew is asleep according to the data we have that we received from the ground. And we are as we say 320 hours 21 minutes into this mission. We will now have a weather report from Allen Cummings, one of our weather men, that has area and support of the Gemini mission. Will you come in now Allen?

Allen Cummings  
A cold frontal system from just South of Miami extending up Northeast into the North Atlantic and rather intense low pressure system at approximately 40 degrees North and 55 degrees West latitude. The front is now approximately 250 to 300 miles Northwest to the anticipated splash point into the -  
beginning of the  
rather the/207th revolution, at approximately 250<sup>4</sup> North and 70 degrees West. We anticipate this low pressure system will move on to the East and Northeast and lighten the present 19 knot winds that are reported by the carrier Wasp in the immediate vicinity of the splash point. During the next 12 hours we anticipate decrease in this wind speed to around 12 knots by splash time a little after 8:00 a.m. Central Standard Time. The waves reported by the Wasp on their last observation were 2 feet. There should be some increase

in this to about 3 to 4 feet. Only partly cloudy skys exist out at the Wasp and we anticipate cloud coverage at the time of spacecraft landing will be only about one half of the sky covered, perhaps even less than this. The front will have approached by that time to within approximately 150 miles, and shower activity should be concentrated in the immediate vicinity of the front and we don't look for any around the carrier at the time of spacecraft landing. The situation is not quite as good as it was for the GT-6 splash on Thursday morning but it's entirely acceptable and we see no reason why the weather shouldn't be quite reasonable and comfortable for the GT-7 landing.

Thank you Allen Cummings. We have received here in Mission Control, as we usually will now, a message from the Rose Knot tracking ship. The spacecraft passed over the Rose Knot beginning this 200th revolution and it so happened that this is the last revolution that will bring Gemini 7 within range of the Rose Knot tracking station. The message reads: "So ends Rose Knot revolution 200 and our modest but proud contribution to space history. The crew is asleep." That was the last message from Rose Knot for this mission and the people in the Control Center here feel that the Rose Knot support was anything but modest. It was very good all the way. This is Gemini Control, 328 hours 24 minutes into the mission.

END OF TAPE

This is Gemini Control. We are 8 hours, 38 minutes from retrofire, which will take place tomorrow morning ending Gemini 7's mission. At this time, Gemini 7 is on its -- it is starting -- has started just a few minutes ago revolution 201, and at the present time is passing over the continent of Africa on its way over towards India. The ground data that we have had up until -- or the ground data that we have received over the past few hours indicates that both crewmen are asleep and have been asleep for quite some time. Here in Mission Control, we are in the midst of a shift change. The Blue Team of Flight Controllers moving in, being briefed by the White controllers, and this will be the last shift for the big White Team here in Mission Control for this mission. This is Gemini Control. We are now 321 hours and 21 minutes into the mission.

END OF TAPE

This is Gemini Control where Flight Director John Hodge's Blue Team has just taken over the consoles at 321 hours and 40 minutes into the flight of Gemini 7 on its 201st revolution now crossing Sumatra. We've just gotten word that the tracking ships Coastal Sentry and the Rose Knot are headed for their ports. The Coastal Sentry will pull into port at Naha, Okinawa and steaming for there now from its position off of Japan. The Rose Knot is steaming for Rio de Janeiro from its position off the east coast of South America. We have eight minutes and 17 seconds -- eight hours, 17 minutes and 20 seconds to go to retrofire. This is Gemini Control.

END OF TAPE

This is Gemini Control, 323 hours and 20 minutes after the hour, into the flight. On the 202nd revolution and the crew is over Carnarvon and they are awake. They woke up just a minute ago, 1:49 a.m. and called Carnarvon and told them they were ready to purge their fuel cells, rather than wait 'till scheduled over the States, let's get it over with. We've been looking at some readouts from the spacecraft and, during the past few revs the cabin temperature has been holding at 71 degrees and the cabin pressure, as it has been all the way through this flight, is over 5 pounds per square inch. The average stacks are giving out over 4 amps, and we noticed over Canaries during the sleep period that there was a little bit of thruster activity and it was guessed that they were probably amping out some minor rates that they had accumulated during the night. Prior to that they had been asleep. This was at 12:17 a.m. The medical readouts indicated that the Pilot, Jim Lovell, had woke up and damped out those rates. We have some figures on retrofire and the sequence from retrofire to splash. Splash is scheduled to take place this morning, at 8:05.29 seconds according to the latest figures. That means the flight will have lasted 330 hours 35 minutes and 26 seconds, if those figures hold up. They usually vary a few seconds. The retros should be fired about 1100 miles north of the Figii Islands, 3000 miles east southeast of the Phillippines. And they should encounter the sensible atmosphere, that's at about 400 000 feet at 7:49.36 over the Rio Grande River near Olenga, Mexico, 300 miles northwest of Monterrey. At 350 000 feet they'll be somewhere between San Antonio and Galveston, Texas. About 60 miles south of San Antonio, as a matter of fact. These are nautical miles. And they begin this - that 350 000 feet by the way should take place at 7:51.01. They should be about  $57\frac{1}{2}$  miles high then. They begin their communi- cations blackout period at 7:52.44 and this is over the Gulf of Mexico, about

150 nautical miles southeast of Galveston. And this period will last until 7:57.46, that's almost exactly 5 minutes, and they'll come out of the blackout, communications blackout, at about 22 miles high, and this is about 400 miles south of Nassau and 500 miles east southeast of Cape Kennedy and 510 south southwest of Bermuda. The recovery area, the point we're aiming for, is 590 miles east southeast of Cape Kennedy, 500 miles south southwest of Bermuda. This is at longitude 25 degrees, 24 minutes north, and 70 degrees west. They should splash at 8:05.29, as we said before. We have some conversation that was just heard over Carnarvon. We're ready to play that tape for you so let's hear what they were talking about over Carnarvon.

S/C                    Anyone read Gemini 7?

CRO                   Gemini 7, Carnarvon Cap Com. I read you loud and clear.  
How's it going up there?

S/C                    Very good. We're ready for a fuel-cell purge if you are.

RO                    Stand by one.

S/C                    Are we scheduled for one this rev?

CRO                    Or do you want to wait 'till over the States?

FLIGHT                That's not due 'till over the States here but if he wants  
to do it let's get it over with.

CRO                    Uh, roger, go ahead, Gemini 7.

S/C                    Rog. Purging now.

Our biomed recorder 2 is OFF. C-band.reentry continuous.

CRO                    Roger, thank you.

You ready to come home today?

S/C                    Ready, ready!!

CRO                    Righto.

He said he had reentry C-band in continuous, but I cut the  
ON command anyway.

FLIGHT Okay. It doesn't matter.

CRO Rog.

FLIGHT Getting an early start.

CRO Yeah, I imagine he's kinda anxious. He sure sounds that way.

FLIGHT How does everything look?

CRO Looks real good here, flight.  
Still have both those delta P lights with us.

FLIGHT Okay. We're getting the cryo readouts over here.

CRO I think we have enough time to do it.

FLIGHT Oh, will you?

CRO No, I guess not. No, I guess not.

FLIGHT Okay.

CRO We're not even going to have to complete the purge.

FLIGHT Fair enough.

CRO Yeah, we've had all that - -

FLIGHT Roger, Carnarvon, we'll see you next time.  
Gemini Control here. They passed pretty far north of Carnarvon and just barely within range of the station so the conversation wasn't very long. They are scheduled to eat their breakfast between now and when they, as a matter of fact, they'll be eating breakfast all the way across this pass. They'll be in touch with the U.S. stations for a brief period of time, probably Antigua and Grand Turk Islands Stations, on a pretty low pass. This is just barely tipping the northern part of South America. They're in the middle of the day right now over the east coast of Australia. They'll be very shortly over the Pacific Ocean and headed for their 203rd revolution counting down toward about 7 hours 'till splash. So at 323 hours 25 minutes and 58 seconds into the flight, this is Gemini Control.

END OF TAPE

This is Gemini Control, 3<sup>24</sup> hours and 20 minutes into the flight of Gemini 7. Gemini 7 now has 5 hours and about a little over 6 hours to go till splash time. Just slightly longer than three revs. About the same amount of time John Glenn spent in orbit on February 20, 1962, the very first orbital flight in our Man<sup>ned</sup> Space Program. Right now the crew is heading over the northern part of Africa, still in contact with - just barely in contact with our Canary Island Station. They've been up there now since 1:30 a.m. Central Standard Time on December 4th. They are in their 14th and final day of flight. Well, on the completion of this flight, the Mercury and Gemini programs combined will have given the United States 1,356 hours and 20 minutes of spaceflight experience. Nearly half of that will have been provided by Astronauts Frank Borman and Jim Lovell. About 1:32 a.m. they reported that the command pilot was getting into his suit and the pilot was already suited. The pilot had woke up over the Indian Ocean, sometime this morning. I gave them that figure as 1:49 a.m. when they contacted Carnarvon - that was an Eastern Time, I should have said 12:49 Central Standard Time is when the crew made their first contact with ground stations this morning and that was with Carnarvon. We've been listening to some conversation over the United States and we have a tape of that conversation. We'll play that tape for you now.

Cap Com Gemini 7 Houston.

S/C Roger Houston, Gemini 7.

Cap Com Good morning. Would you please place your TM switch to real time and ACK.

S/C Roger. Real time and ACK.

Cap Com Cryogenic gauging switch to ECS O<sub>2</sub>.

S/C ECS O<sub>2</sub>.

Cap Com I have a flight plan update for you.

S/C Roger.

Cap Com Can you tell me if the command pilot is getting into his suit right now?

S/C Roger, he is getting into his suit right now.

Cap Com Very fine, thank you.

Would you place your cryogenic gauging switch to fuel cell O<sub>2</sub>?

Cryogenic gauging switch back to fuel cell H<sub>2</sub>.

S/C Fuel cell H<sub>2</sub>.

Cap Com Okay, whenever you are ready I'll read you this flight plan update.

S/C All set.

Cap Com Okay, before that, turn your cryogenic gauging switch to OFF, please.

S/C OFF.

Cap Com How does it feel for the last day?

S/C Just great. Frank just got back into his suit. . garbled .

And we are all set to go home.

Cap Com Great. Here is your NODE - time is 325:27:25; rev 203; 114.5 degrees West; right Ascension 07 hours 06 minutes 31 seconds.

S/C Roger, have it.

Cap Com Flight plan time line update is changed 32400 to 32413.

S/C Roger

Cap Com The next item we can delete. It was to have been a 32440 begin suiting up. I guess you've got that all hacked, huh?

S/C Righto, just about that way right now.

Cap Com Good, next item is 325:00:00 biomed recorders 1 and 2 continuous.

S/C Rog.

Cap Com Time 325:34:49 a crew status report command pilot at Canaveral.

S/C Okay, will do.

Cap Com Time 326:24:37 is a crew status report on the pilot at Carnarvon.

S/C Okay.

Cap Com Yesterday, Jim, you were given the addition to be placed on the checklist prior to platform cage BEF item.

S/C Roger, we have that.

Cap Com I have a few additions to that list of things to be done. After secondary pump A ON, place the tape recorder power circuit breaker ON. The next item in the same checklist will be tape recorder control circuit breaker verify OFF. It seems like magically the tape recorder started playing at retrofire on 6. One thing else we'd like to get immediately before you retrofire or the last time you take water out of the system is a gun count. We'd like to have that both for environment and also for CG location.

S/C                   Its not going to change from the time I retrofire and the time I land.

Cap Com               That's right. What we'd like to have is just the last gun count.

S/C                   We'll get you the last gun count.

Cap Com               And we'd like to have it soon enough so that we could compute a CG based on it.

S/C                   Okay, I see what you mean.

Cap Com               We will expect to have one more purge immediately prior to your power up at Kano and that will be on the State side pass before the purge - before the power up.

S/C                   Roger, Understand.

Cap Com               And one thing I'd like to ask you how you feel about is an extremely small OAMS check. What it entails is simply closing the TCA circuit breaker number 3 and then firing for a minimum of three seconds in direct - firing that circuit breaker. We'd like to do that on that state-side pass if you are inclined to do it.

S/C                   I'm afraid we're not inclined to do it. We are low on fuel and going to save it all for a possible dilemma.

Cap Com               Very well. We won't do it then. Incidentally it turned out in Wally's reentry that there was apparently a small electrical bias on the down range air needle. And if you'd like a description of how he calibrated that, I'd be happy to give it to you. It might help you in your reentry.

S/C

Go ahead.

Cap Com

With the computer in the reentry mode and the FDR's DM in computer in attitude, respectively, at about plus 5 minutes but in any event prior to the 400 K, Wally took a Pentel pen and marked the NO position of the down range needle. The FDI's were on the low scale. Now this new NO position was about 2 and a half needle widths below the nominal or 0 NO position as established on the 8-ball.

S/C

. . garbled . .

Cap Com

I beg your pardon.

S/C

. . garbled.. is that correct?

Cap Com

That's right. Goes on then - Wally then after guidance initiated flew to his Pentel NO for down range correction. From the splash down results this method has definite merit. If he had flown to the 8-ball NO he may have been flying to a point some 15 miles short. This NO error was not evident in the previous computer modes used particularly in radar or platform. That was - he hadn't seen it before until he got in this configuration.

S/C

Roger. We'll take a bias check here after retro and while we're in BF, on the way down before . . garbled . initiate.

Cap Com

Okay, good deal Jim. Jim could you reverify that the standby transmitter power circuit breaker in ON, and the standby transmitter control circuit breaker is ON.

S/C

They are both ON.

Cap Com

Okay, thank you very much.

Grand Turk           LOS Grant Turk.  
Cap Com               Gemini 7, Houston.  
S/C                    Go ahead.  
Cap Com               May I have an OAMS prop readout, please?  
S/C                    4 and 1/2 percent.  
Cap Com               4 and 1/2 percent, thank you.  
Cap Com               Can you give me your sleep report now?  
S/C                    Want our sleep report?  
Cap Com               Roger, if you have it available, if not we'll wait.  
S/C                    We both had about 5 hours of medium sleep.  
Cap Com               5 hours of medium sleep, thank you.  
Antigua               LOS Antigua

Spacecraft is now crossing over the northeastern part of Africa and it is still on its 203rd revolution. It just passed the Canaries. There was very little conversation there. None with the spacecraft, who are finishing up their eating period and getting ready to do a vision test. But we'll let you hear what Canary said.

Canary                Telemetry solid.  
Flight                Roger, Canaries. Roger, Canary AFD?  
Canary                Go ahead.  
Flight                Have any estimate on your radar problem yet?  
Canary                Negative... garbled . . hopefully.  
Flight                Roger.  
Canary                All systems are go in Canary.  
Flight                Roger, Canaries  
Canary                . . garbled . .

Flight            Go ahead Canaries.

Canaries         Which beacon is . . garbled . . ?

Flight            B entry beacons from now on.

Canaries         Roger. . garbled . . biomedical.

Flight            Roger.

Canaries         Delta P lights is still on.

Flight            Roger.

Canaries         45 amp.

Flight            Roger.

Canaries         Canary has LOS but all systems are GO.

Flight            Roger, Canaries.

Flight            Your summary is real good Canaries, thank you.

Canaries         Roger.

END OF TAPE

This is Gemini Control, 325 hours and 5 minutes into the flight of -- the tail end of the flight of Gemini 7, with just 4 hours, 52 minutes to go before retrofire. About 37 minutes after that, a landing in the prime recovery zone in the Atlantic. The crew has just crossed Australia and are just entering another night in space over the South Pacific. There was brief conversation over Australia, and we'll play that tape for you now.

CRO Cap contact at Carnarvon.

S/C Roger, Carnarvon.

CRO Both Delta P lights are back on now.

S/C Roger.

CRO Gemini 7, Carnarvon Cap Com. We have nothing for you this pass. We are standing by. Everything looks good from the ground.

S/C Thank you, Carnarvon. We're standing by, too.

CRO Roger.

HOU FLIGHT Carnarvon, Houston Flight.

CRO Go, Flight.

HOU FLIGHT You haven't seen any of those Delta P lights off this morning, have you?

CRO Canary has reported one off, I thought.

HOU FLIGHT No. Everybody -- They've been on all night, I think.

CRO OK. Canary's post pass showed BB04 off.

HOU FLIGHT My apologies.

CRO We have our computer back in business.

HOU FLIGHT Roger.

CRO Looking real good here, Flight.

HOU FLIGHT Roger.

CRO Gemini 7, Carnarvon Cap Com. I would like to know whether you are in an exercise period or whether it's just exercise as a result of your packing up.

S/C That's it. We're all around the ..... putting things away.

CRO Roger. We're starting to have LOS breakup here.

HOU FLIGHT Roger.

CRO Surgeon noted rather high activity rates so we queried them to determine the cause. Then we've had final LOS.

HOU FLIGHT Roger.

CRO Affirm. Real good, Flight.

325 hours, 7 minutes into the flight of Gemini 7.

There is very little contact with the spacecraft now primarily because they're getting their final stowage and clean-up taken care of. That activity of stowing gear all over the spacecraft was apparently read out by the surgeon at Carnarvon. This

Information is translated to the surgeon by way of telemetry where he looks at his screen and sees the respiratory rates and the heart rates of the astronauts, and determines whether or not they are active and just how active they are. .... getting good reentry radar track on the spacecraft, getting -- all the stations are getting this kind of information, pumping it in here to Mission Control so that figures can be compiled for the precise retrofire time, which at this minute is still 7:28:12 -- that's Central Standard Time. So at 325 hours and 8 minutes and 6 seconds into the flight of Gemini 7, Gemini Control.

END OF TAPE

This is Gemini Control, 325 hours 20 minutes into the flight of Gemini 7 now in the middle of its 203rd night, in the middle of the Pacific Ocean headed up for a cross, for a cross across Central America. There has been no contact with the spacecraft, of course, since its pass over Carnarvon, inasmuch as it will not reach another station until it connects with Grand Turk Island. You'll hear a lot of talk this morning about platforms, modes, reentry, etc., and we have an idea of how that reentry is going to take place, depends of course upon the pilots and what they choose at that time. Right now it looks like they'll probably power up their platform in about 2 hours and then at reentry time which is 4 hours and 37 minutes from now, they'll go to a blunt end forward attitude, this is with blunt end of the spacecraft in a direction of flight looking back to where they've just been, pitch down with a narrowing down, and in rate command to keep their attitude stable throughout the retrofire. After they reach the sensible atmosphere in the reentry mode on the computer, that's at about 400 000 feet, the computer will inertially, by the encounter with atmosphere and the resultant drag, start to give the spacecraft indications of how it should steer to get to a position on the earth. Translated into geography that position is 01 minutes north by 176 degrees - I'm sorry, that's our retro. The landing position is 25 degrees 24 minutes north by 70 degrees west. And they should reach that particular place at about a half a minute before 8:00 this morning when the parachutes, the drogue parachutes, will come out. The weather in that particular area I just mentioned, according to the Wasp, the prime recovery vessel in that area, is 5/10th's cloud cover, 2 foot waves, 15 knot winds, generally from the west, slightly south of west. The Carrier is steaming toward that position, a westerly course at this very moment. At 325 hours 22 minutes and a half into the flight, this is Gemini Control.

END OF TAPE

Gemini Control at 325 hours 51 minutes into the flight of Gemini 7 now approaching the northwest coast of Africa and is in touch with Canaries. He just passed across Mexico and talked to the stations in the United States, also crossed right over Miami, by the way, and those indications that the fuel cells, which have been talked about quite a bit for 2 weeks, are in very good shape and good for just about another week. They have a GO for 311 revolutions, if they need it on the fuel cells, of course the fuel cells will be in space for a long time after reentry. Let's hear that conversation they had over the States.

TEX Gemini 7, this is Texas Cap Com.

S/C Go ahead, Texas.

TEX We've got you GO here on the ground. We've got a valid oral temperature but do not transmit your blood pressure until Canavaral acquisition at 3 25 36.

S/C Thank you.

TEX We have nothing further. We'll be standing by.

S/C Thank you. Texas, say you're still standing by?  
Texas, Gemini 7.

TEX 7 this is Texas. Go ahead.

S/C How about giving us an update on our additional props. What are you reading down there now?

TEX I'll give you a mark on your elapsed time. 325 35 00. Mark.

S/C Okay. We're right with you. Thank you.

SURGEON Hello, Gemini 7. Houston. You're clear to start on your blood pressure.

S/C Coming down.

CAP COM Gemini 7 Houston. I have an initial hack at your GET or BEF if you'd care to have it.  
It'll be updated later.

S/C Roger, stand by a second.

SURGEON Your cuff is full-scale.  
Gemini 7 Houston Surgeon. Send the blood pressure again. It dropped out.

S/C Roger. Coming down again. Standing by until the initial RET or BEF.

SURGEON Your cuff is full-scale.

CAP COM I'll give it to you after the medical data pass, Jim.

S/C Rog.

SURGEON That's a good one, Gemini 7. Your exercise now.

S/C Rog.

SURGEON It's full-scale.  
That's a good one. We're standing by for your food report first.

S/C Roger. Food this morning was Day 9, Meal A, for both of us.  
Plus the Command Pilot had 3 peanut cubes last night for an evening snack.

SURGEON Roger, did you have supper last night? Have a full meal?

S/C Oh, you didn't get that one, sorry. That's Day 11, Meal C.

SURGEON 11 Charlie last night plus 3 peanut cubes for the Command Pilot.  
Now do you have any deletions this morning for breakfast?

S/C No, we ate the whole thing.

SURGEON Roger. Water report.

S/C Roger. The Command Pilot now has 1104 ounces.

SURGEON Roger. 1104.

S/C And the pilot 948.

SURGEON 948, and the Gun count.

S/C The gun count is now 4876.

SURGEON 4876. And I'll copy the columns.

S/C Roger. For the pilot column 5 - 34. Column 6 - 7. For the Command Pilot, 5 - is 34 and column 6 - 8.

SURGEON I roger that.

Do you have anything else you want to talk to me about this morning?

S/C Chuck, we need to talk about taking these dexadrine pills. Hey, when do we take those?

SURGEON You don't have it all squared away with respect to time, eh Frank? Gemini 7, Houston Surgeon. Are you requesting a time to take them?

S/C Roger.

SURGEON All right. You should take them about 2 hours before retrofire.

S/C Thank you. Is that 3 or 4 each?

SURGEON Say again.

S/C Three or 4 apiece?

SURGEON One each. (Laughter)

S/C Okay.

SURGEON Roger, Frank.

CAP COM Gemini 7, Houston.

S/C Go ahead.

CAP COM Roger. Your first hack at a GET of retrofire will be 329 58 05. And we'll give you a later updates based on new tracking information.

S/C Roger. Understand our first hack it'll be 329 58 05.

CAP COM That's right. And when you get your batteries on line you can inspect to see about a 2-volt drop in your voltages. It'll stabilize out a little bit, then wander in slightly as each shares its part of the load.

S/C Roger.

CAP COM For your information EECOM tells me that the fuel cells are GO for 311 dash 1.

S/C We each got 2 delta P lights unresponding now. (Laughter)

CAP COM Okay. We'll tell him that.

S/C Right.

GRAND TURK LOS Grand Turk.

ANTIGUA LOS Antigua.

This is Gemini Control here at 326 hours 20 minutes into the flight of Gemini 7 now approaching Carnarvon exactly in the middle of the Indian Ocean but Carnarvon should pick it up very shortly. After the crew status check on the pilot there'll be a report on his condition, they'll start their power-up check list. Then they will - over the Carnarvon pass and after the Carnarvon pass will be powering up, bringing the 4 main batteries on line. Their primary and secondary pumps will be turned on. The A pumps and the primary and secondary B pumps OFF. Then the three squib batteries - batteries which trigger pyrotechnics aboard the spacecraft for separation and retro and so forth will be brought out and the spacecraft will be configured for - pretty much for reentry. Pilots have pretty well completed their stowage although they're still in that period of activity. It's day time where they are now over the Indian Ocean and as they are almost half way around the world - half way through with their 20<sup>4</sup>th revolution with just - with over two revolutions to go, this is Gemini Control.

END OF TAPE

This is Gemini Control, 326 hours and 39 minutes into the flight of Gemini 7. We just passed Carnarvon. It was a very brief conversation there. Let's hear it.

CRO Gemini 7, Carnarvon Cap Com. We have a valid temperature, we're standing by for a blood pressure.

S/C Coming down.

CRO Gemini 7, your cuff is full-scale.  
Gemini 7, we have a valid blood pressure. Standing by for your exercise.

S/C Just one minute.

CRO Carnarvon standing by.

S/C Mark.

FLIGHT Your summaries look good, Carnarvon.

S/C Blood pressure coming down.

CRO Thank you.

Gemini 7, your cuff is full-scale.

Gemini 7, we have a valid blood pressure. Carnarvon Surgeon out.

S/C Thank you, gentlemen.

CRO Roger.

And everything looks good from the ground.

S/C All right. Things looking good up here, too.

CRO Roger. Only about  $3\frac{1}{2}$  hours to go, huh?

S/C Righto! The carrier will feel good.

CRO Roger.

Everything still looks good here, flight.

FLIGHT Roger.

CRO We have LOS.

More than half-way through rev 204, Gemini 7 is now once again entering a night pass across the Pacific Ocean, headed toward the United States. They did not power-up their platform. The platform-power up is scheduled about an hour from now. The beginning of the power-up checklist procedure is going on right now aboard the spacecraft, they are just about through stowing, according to the flight plan. At 326 hours 41 minutes exactly into the flight, this is Gemini Control.

END OF TAPE

Gemini Control at 327 hours 20 minutes into the flight of Gemini 7, now crossing the Atlantic towards Canary Islands. They're in contact with our Houston Station right now, beginning their 205th revolution, which comes out to 218 orbits. Apogee on this flight right now is 164.3 miles and perigee is 158.2 miles. They'll fire their retros in about  $2\frac{1}{2}$  hours, somewhere between apogee and perigee over the Pacific Ocean. Meanwhile, let's tune in on some Texas conversation.

GYM Guaymas has solid TM and all systems are GO.

FLIGHT Roger, Guaymas.

How's it look, Guaymas.

GYM Looks real good.

GYM Gemini 7, Guaymas Cap Com. Everything's looking good here on the ground. We'll be standing by if you need us.

S/C Thank you, Guaymas.

TEXAS GO REMOTE

TEXAS REMOTE

CAP COM Gemini 7, Houston.

S/C Go ahead Houston. This 7.

CAP COM Uh, Roger, Gemini 7. Would you start your purge, please.

S/C Stand by.

Purging no. 1

CAP COM Roger, purging no. 1

S/C Houston, this is 7. If I can't align well BEF with this OAMS I'm going to use the RCS A-ring

CAP COM Gemini 7, understand. You'll be using your RCS A-ring for platform alinement.

S/C Roger, if the OAMS doesn't work out.

CAP COM            Yeah, that's right.

S/C                 Purge complete, Houston.

CAP COM            Roger, understand. Purge complete.

                    You're clear to start your power-up and alignment checklist  
                    up to and including platform cage BEF.

S/C                 Roger.

CAP COM            And I have someone here that would like to say "good morning"  
                    to you.

S/C                 Very well.

CAP COM            Gemini 7, Houston.

S/C                 Hi, Bud. How are you??"

CAP COM            How you doing?

S/C                 Pretty good.

CAP COM            Understand you're up early again.

S/C                 Just a little.

                    (garbled)

CAP COM            I figured you would be.

                    I sent a message out to the Skipper of the Carrier. I asked  
                    him to move off just a little bit to the left of the spot so  
                    you wouldn't put him in jeopardy.

S/C                 Right. We'll have a go at it.

CAP COM            You bet.

                    How's all the stowage going?

S/C                 The cockpit's clean as a whistle!

CAP COM            Right. I'll bet it was clean last night.

S/C                 No. We did it this morning.

CAP COM Right. Would you go ahead and start your power-up and alignment checklist.

S/C Starting it now.

Just got the ..... on the line now .....

CAP COM Gemini 7, thank you very much.

You're reading our minds!

S/C Four main batteries coming on. .

Four mains are on.

CAP COM Roger, roger.

S/C Just turned that tape recorder circuit back on. It really quits instantly.

CAP COM Thank you very much

ANT Acquisition, Antigua.

CAP COM I'll bet you feel you know the world between 28 North and South latitudes pretty well about now, don't you?

S/C I just put in for a guide at North Africa.

CAP COM The fellows on 6 said you gave them a pretty good guided tour.

S/C Does the time-line you gave us last night still hold for the starting the platform warmup?

CAP COM You're clear to start it now, Frank.

S/C Platform on warmup now also.

Okay. Thank you.

CAP COM Frank, we'd like you to wait that delay-time but you're clear to start into that 20 to 25 minutes delay now.

S/C Rog.

We've got it on CAGE BEF now, to warm up.

CAP COM Roger.

That other voice you heard was that of Astronaut Ed White who walked in space during the Gemini 4 mission. He's the backup Command Pilot, backup to Frank Borman. We just heard some more conversation during that U.S. pass - there was a pause but there was some more conversation and Frank Borman advises that he has got thrusters 3 and 4 working again and is going to use his OAMS system, his OAMS attitude system to aline his platform. Let's get into the rest of that conversation.

CAP COM On the cover of the Houston Post this morning, Frank and Jim, there's a great picture, in color, of Gemini 7 spacecraft.

S/C Very good.

CAP COM It's really beautiful.

S/C (garbled) ... in Russia

CAP COM Great.

S/C Say again.

CAP COM Looks real good.

S/C Okay. Ask EECOM if they care if we try this 3 and 4 thrusters this morning to see if I can get any impulse out of them on the final line.

CAP COM Say again, Gemini 7.

S/C I said I'd like to try the 3 and 4 thrusters this morning to see if I can get any impulse at all out of them for the final aligning.

CAP COM Roger. We'd like it if you would try them individually, putting 3 on the line and attempt a minimum 3-second pulse, if you can. And then take it off line and then try 4 individually in the same method. We'd appreciate it if you would do it on the next, well, over a site so we can get TM on it.

S/C Right.

CAP COM Can you do it right now and we'll get TM through Bermuda.

S/C Roger. But I don't want to do it direct, I'll just do it in PULSE.

CAP COM Okay. Do it anyway you care to do it.

S/C Number 4 on the line now, flight?

CAP COM Roger, 4.

S/C We're getting a low watt from it.

CAP COM Roger

S/C Three is all right.

CAP COM Three is all right?

S/C Three is 436.

CAP COM Roger.

Gemini 7, Houston. How did thruster 4 look to you?

S/C It looks pretty good. If it wasn't for 3 I think I'd be able to use 'em for final aligning of the platform.

CAP COM Oh, swell!

You heard it! Flight Director John Hodge said "if you can get the tape recorder working maybe we'll get a 4.0." That's like an A in school. This is Gemini Control, 327 hours 26 $\frac{1}{2}$  minutes into the flight of Gemini 7.

At 327 hours 41 minutes into the flight we had some conversion over Kano and Canaries and here it is.

Canary Gemini 7, Canaries, we have nothing for you. We are standing by.

S/C Thank you Canaries. . . garbled . .

Canary Yea, we finally got a lucky . . garbled . .

S/C How did you do that?

Canary . . garbled . .

S/C (laughter) . . garbled

Canary . . garbled . . just a little.

S/C . . garbled . .

Canary . . garbled . .

Flight Could we have a mid-pass A summary from you Canaries?

Canary Roger.

Flight Kano go remote.

Kano Kano remote.

Canary Canary

Flight Go

Canary Roger. Could we put 2C back on the line?

Flight Negative, that's the battery . . garbled . . just remember how you worked that out.

Canary All right, roger . . . garbled . .

Flight Okay.

Canary . . garbled . .

Flight Roger, everything okay. .

Canary Yes sir, everything looked good at LOS.

Flight Was he still warming up?

Canary                   That's affirmative, Flight. . . garbled. . . deviations  
                          in our attitude here on the ground.

Flight                   Roger.

Canary                   . . garbled . .

Flight                   Your LOS summaries are good.

Canary                   Roger.

Flight                   See you next time.

Canary                   One more pass.

Flight                   Right

Flight                   Gemini 7, Houston.

S/C                      Go ahead Houston.

Flight                   Will you tell me how long you've been on the adapter antenna?

S/C                      . . garbled . . powered up.

Flight                   Roger, Can you tell me - give me a hack when you turn your  
                          computer on, or when you did turn your computer on?

S/C                      Computer is not on.

Flight                   Roger. If we still have acquisition will you give me a  
                          hack when you do turn it on.

S/C                      . . garbled . .

Flight                   Okay, real swell.

                          Gemini Control at 327 hours 44 minutes into the flight.

Less than two revolutions to go - Two and three quarter hours or three hours  
till splash.

END OF TAPE

Gemini Control here at 328 hours 13 minutes into the flight of Gemini 7. Now more than half way through its 205th revolution, having just passed Australia's Carnarvon station, where they powered up the computer - or rather they brought the computer on line. It will be warming up now. Let's here some of that conversation at Carnarvon now.

AFD Carnarvon Cap Com, AFD.

CRO AFD, Carnarvon, Go ahead.

AFD Roger, did you receive any of our MI.

CRO That is affirmative.

AFD Roger, we will stand by for your pass.

CRO Roger. Carnarvon has TM solid.

AFD Roger.

CRO I have an update for you on your bank angle versus RN minus RP curve for area 207-1 when you are ready to copy.

S/C Roger. Stand by. Go ahead.

CRO The bank angle 0 degrees, RN minus RP plus 159.0. Bank angle 49.5, RN minus RP 0, bank angle 90 degrees, RN minus RP minus 192.5.

CRO C-Band track at Carnarvon.

CRO Did you copy.

S/C Roger. Okay, we'll ... (garble) platform aligning but we will go ahead and proceed with the checklist if it is okay with the checklist if it is okay with you, or do you want us to wait some more.

CRO Standby. Did you copy Flight. You want them to go ahead with their checklist.

AFD Roger.

CRO Roger, go ahead. Give us a mark when you turn your computer

S/C                   Okay. Turning on computer now.

CRO                   Roger.

Flight                Can we have a class 2 main now, please.

CRO                   Roger, Flight.

Flight                Ask him how that thruster is making out.

CRO                   Repeat Flight.

Flight                Ask him how 3 and 4 thrusters are making out, is he using them.

CRO                   Roger. Gemini 7, Carnarvon. How is thruster 3 and 4 making out.

S/C                   Adequate for alining the platform. I used the maneuver thruster for drift until I get it close and then I can use 3 and 4 for ... (garble) thrusting.

CRO                   Roger, copy.

Flight                Very good.

S/C                   We should have a well alined platform now.

CRO                   Roger. He is looking real good here on the ground, Flight.

328 hours and 16 minutes into the flight. Elements of the Red Team are already beginning to filter into the Control Center. Elements of the Red Team include Chris Kraft, Flight Director for the Red Team and Dr. Berry both with him on the floor with members of the Blue Team. At 320 hours 16 minutes into the flight of Gemini 7, This is Gemini Control.

END OF TAPE

This is Gemini Control at 328 hours and 20 minutes into the flight of Gemini 7 with less than an hour and 40 minutes to go till retrofire time which should take place about this time or at least this place on the next revolution ..... 205th revolution over the Atlantic -- over the Pacific, and over the Pacific again on the 206th revolution the retrofires will be fired. Right now that retro time is 13:28:06 ZULU which comes out 7:28:06 CST. Splash-down should occur at 8:05:23, so at 328 hours, 20 minutes into the flight of Gemini 7, this is Gemini Control.

END OF TAPE

This is Gemini Control at 328 hours, 25 minutes into the flight of Gemini 7, which is now passing just south of Canton Island in telemetry contact with the station, but there has been absolutely no voice communication between the ground and the spacecraft. The retro officer has just come up with another set of retrofire times. These times do change by seconds. The time of retrofire elapsed time for the spacecraft is 329 hours, 58 minutes and 4 seconds into its flight. At 7:28:07, the retros will be fired. That's Central Standard Time. The spacecraft should begin blackout period -- the communications blackout period at 7:52:42 and end that communications blackout period at 7:57:45. The drogue parachute is programmed to come out at 7:59:24 CST. That's at 50,000 feet with the main due to come out at 7 -- 8:01:07. That's one minute after 8:00. Splashdown is scheduled to occur at 8:05:28 in the Atlantic Ocean about 500 miles east southeast of Cape Kennedy -- 590 miles east southeast of Cape Kennedy -- 500 miles south southwest of Bermuda. That's where the aircraft carrier Wasp is going to be on its station any minute now. Its steaming in that direction from the west. At 328 hours, 27 minutes into the flight, this is Gemini Control.

END OF TAPE

Good morning. Gemini Control here. In this last pass across the States, Cap Com Charlie Bassett is giving 7 its final update, Stateside update at least, and let's cut in there and listen to what's going on.

S/C Roger, Houston.

Cap Com Roger, next core is 66.

S/C Got it.

Cap Com 39583 that is the number for 66.

S/C Roger.

Cap Com Core 07 62 60 2.

S/C Roger.

Cap Com Core 08 40 94 1. Gemini 7, Houston. Did you copy core 07.

S/C Roger. I have core 07, and 62 60 2, you cut out after that.

Cap Com Roger, core 08, 40 94 1.

S/C Roger.

Cap Com Core 09 14 36 2.

S/C Roger.

Cap Com Core 10 0 25 23.

S/C Roger.

Cap Com And core 11 is 290 00, request a readback.

S/C Roger, core 03, 61 618, core 04, 39 008, core 65 00 165  
core 66, 39 583, core 07, 626 02, core 08, 408 409 41,  
core 09, 143 62, core 10, 02 523, core 11, 29 000.

Cap Com Roger, I'd like to give you core 08 again.

S/C Roger,

Cap Com Core 08 is 40 941.

S/C Roger, I copied, 40 941.

Cap Com That's affirmative Gemini 7. I have your nominal IVI's.

S/C Stand by. Go ahead.

Cap Com Gemini 7, we are sending the TR and the update.

S/C Have received.

Cap Com Roger, received. DCS loads coming. Gemini 7, we have received maps and I'm ready with your nominal IVI's.

S/C Roger, go ahead.

Cap Com Aft, 296, left right is 0, and down is 113.

S/C Roger, IVI's, aft 296, left right 0, down 113.

Cap Com Roger. I'm passing you to Surgeon now.

Surgeon Gemini 7, I'd like to confirm the time of the dexedrine.

Cap Com We didn't take any Chuck.

Surgeon Roger, okay, we'll wait. Frank, if you will pass that to us sometime when you do. Second item, remember the blood pressure we want on Pilot over Guaymas after Retrofire, on Pilot over Guaymas after retrofire.

S/C Roger.

Surgeon Item 3, we want to remind you again about the actions you can take, Frank and Jim, in the spacecraft on descent or in the water as far as elevating your feet and pumping your calves if necessary, and you will have to decide as to whether these are necessary. In spacecraft 6, the crew was warm on the water, it was very calm, there was no nausea or anything, but they were warm and stayed in their suits, however, we do prefer that you stay in your suits as you know, but, it is strictly Pilot's choice depending on the situation.

S/C ... (garbled) ... Houston.

Cap Com Houston, Gemini 7 go ahead.

S/C Jim and I would prefer to get out of the spacecraft as soon as possible after we are on the water, then we can wait to be hauled on a ship if we do land happen to land close to them.

Cap Com Gemini 7, understand. Gemini 7, Houston. I have some more for you. When you are through with the RCS system would you motor off ring B and dump the lines.

S/C Roger.

Cap Com And please make every attempt to keep us informed on what you are doing and how your trajectory looks to you through the reentry.

S/C Roger.

Cap Com I have some forecast weather for you for the recovery area. It is about 6 tenths cloud cover with the lowest layer at 2000 feet, and that layer is about 3 tenths coverage. The visibility is 10 miles and the winds are 280 at 14 knots. We have about 1 to 2 foot seas there and the barometer is 29 98.

S/C Understand the altimeter setting 29 98.

Cap Com That's affirmed Gemini 7. Incidentally, we put your initial conditions into a ground computer solution and they look real good.

S/C Good.

Cap Com We would like to have a final water count from you prior to your retrofire so we can get a cg determination. We would like to have that as soon as possible.

S/C All right, well we will give you a count now and then allow about 5 ounces for each person after that.

Cap Com Okay, a count now then 5 ounces for each person.

S/C Houston, .... (garbled) all look good.

Cap Com We verify it also.

S/C Roger.

Cap Com           Incidentally, do you recall the OAMS squib test that was preformed on GT-5. If you do, you might consider running that, but that will be pilot's option.

S/C                We don't even know what it was.

Cap Com           Roger, it amounts to blowing the OAMS squib on the regulator and pulsing it a few times to see how well you can control the pressure as well as determining whether or not you can hear that squib blowing.

S/C                I remember that test now.

                  Okay, the gun reading now is 4932, and we will each have 5 ounces more before retro, so it will make it add 20 to that.

Cap Com           Roger, understand. It is 4932 and you will each take 5 ounces before retro.

S/C                Roger.

Antigua           Acquisition Antigua.

Cap Com           Gemini 7, Houston. We'll be remoting through Canton for your retrofire, so we will be in touch with you then.

S/C                Okay, .... (garble) Elliot or who.

Cap Com           Elliot will be making the count.

S/C                Okay.

Cap Com           Gemini 7, Houston. Your TR is correct as verified on the ground.

S/C                Hello Houston. How are you.

Cap Com           Just fine, how are you.

Cap Com           Gemini 7, Houston. We took some pictures of the GT-6 shots of you guys over to the wives last night and they really thought they were great.

S/C                Thank you. We now have a real .. (garble) alined platform.

Cap Com Very good.

Flight We concur with that.

S/C I can recommend ECP's for degraded thrusters for a final  
alignment of the platform.

Cap Com Roger. Gemini 7, we got a request for you to fix the  
tape recorder the same way.

S/C Roger, abracadabra.

This is Gemini Control Houston. That apparently wraps up  
the conversation -- here goes Elliot once more.

Cap Com ..... music coming up for you now, if you will turn in on  
HF.

S/C We are listening.

END OF TAPE

This is Gemini Control, Houston. The update is continuing at Canaries. One other piece of information, one of the happier people in this room this morning is one of our retrofire officers, Johnny Bostick, whose wife presented him with a baby yesterday afternoon. Mr. Bostick is quoting the time of the birth, of course, in retrofire language. He calls it 22 hours 18 minutes 18 minutes Greenwich Mean Time, he also has it worked out in ground elapsed time into the mission, 314 hours 48 minutes and 57 seconds. The name of the baby is Christie Ann. This is Gemini Control.

MUSIC FROM HOUSTON

"I'LL BE HOME FOR CHRISTMAS"

"GOING BACK TO HOUSTON"

END OF TAPE

This is Gemini Control in Houston, 329 hours, 11 minutes into the flight of 7. 7 has received its final updates -- getting all of the backup values should anything fail with its electronics aboard which would require the pilot to take over and disregard any signals coming from the computer and other elements -- onboard elements giving the values as they come through this retro period. They are also saying their goodbys to the stations as they make the final loop around the range. And listening to some music, they asked that it be repeated at least once now. The music started playing as we left the states for the last time. The tunes are "I'll be Home for Christmas" and "Going Back to Houston." This is Gemini Control at Houston. We have the tape from the Canary station. We'll play it for you now.

CYI Canary Island Station. Gemini 7, Canary Cap Com. Let's check that tape.

S/C Go ahead, Canary.

CYI OK, put the quantity read switch to ECS O<sub>2</sub>.

S/C OK.

CYI Copy did you copy those four updates.

S/C Yeh, we got them.

CYI OK, at retrofire, got the one about Diphda?

S/C Yep.

CYI What about tank up?

S/C No.

CYI OK. Tank up, 12.0 degrees up, 14.4 degrees left.

FLIGHT I don't think you got Diphda either.

CYI What about Diphda?

S/C .....

CYI OK, at retrofire, Diphda at 14.3 degrees up, 10.6 degrees right.

S/C Roger. Thank you.

CYI OK. Would you place you quantity read switch to fuel cell O<sub>2</sub>?

FLIGHT Spell that star for him, Canary.

CYI Say again.

FLIGHT Spell that D-I-P-H-D-A for him.

CYI OK. That star Diphda is D-I-P-A-D-A.

FLIGHT H-D-A.

CYI H-D-A.

S/C Also known as .....

CYI Wow! How about quantity read switch to H<sub>2</sub>?  
Can you read HF?

S/C No, we couldn't read it.

CYI You couldn't?

S/C No. It sounded like an air raid siren.

CYI You want me to sing it for you?

S/C Yeah.

CYI I'll be home for Christmas. Is that better?

S/C Very good.

CYI OK. Quantity read switch to off. You look good on the ground. We picked you up the first pass, first rev, last pass, last rev. See you back home.

S/C Very good. Thanks a lot.

HOUSTON You lost your vocation, Canary.

CYI First pass remote site.

HOUSTON Tell him the other song was "Going Back to Houston."

CYI "Going Back to Houston"? I didn't even hear that one.

HOUSTON That was the second one.

CYI The second song was "Going Back to Houston".

S/C Very good.

CYI I don't know how to sing that one.

S/C Me neither. It's a good one though.

CYI OK. Lost my sync, Flight.

FLIGHT Tell them to tune in HF again. We'll give them a replay.

CYI Gemini 7, tune in HF again. We'll give you a replay.

S/C It's in. Go ahead. Our HF must be weak.

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FLIGHT Tell them it's not coming yet. Stand by.

CYI Not coming in yet. Stand by.

S/C OK.

CYI There it is.

FLIGHT Can they read it?

CYI Can you read it?

S/C No.

CYI I sounded better anyway. All systems are looking good at Canary.

FLIGHT Roger.

HOUSTON Kano, go remote.

END OF TAPE

This is Gemini Control, Houston. We've had no conversation via Kano; none yet via Tananarive. And, none really is expected at Tananarive. There will be additional conversation at Carnarvon; sure the clocks will be synced again for the final time. Earlier this morning, all the values for this re-entry were taken from the crew on board; and they were run through our real time computing complex here on the ground. This distance came out to be something slightly over one mile. These were using Spacecraft 7 readings. That certainly validates the numbers they have in the computer right now. We're very hopeful that they will come within less than 12 miles; and thereby stand chance to collect a bet from Wally Shirra and Tom Stafford. Their mis-distance is 11.8 miles. At 329 hours, 22 minutes into the flight, this is Gemini Control.

END OF TAPE

Only a minute or so ago, Elliot See did contact 7 as it went over Tananarive. He reminded them that the 6 crew the other day got a little jolt when the spacecraft flipped down the main chute; and the crew on 7 advised that they are ready and they will be braced for any unexpected shock, which certainly isn't going to be unexpected if they get it. Down in the recovery area, we've got 8 communications aircraft in that area. They have radar equipment aboard; and they also can rebroadcast continuous conversation. They're outlining our basic landing footprint, which is about 200 miles long and 50 miles wide. Their spread runs on up to about 80 miles. Also, in the area are 3 ships. The WASP, of course the primary carrier; the USS Waldron which is the destroyer running very close to the WASP; and the USS Power which is some 100 miles or so down range from the WASP. Here's the conversation over Tananarive.

HOUSTON Gemini 7, Houston. How do you read?

S/C This is 7. Read you loud and clear.

HOUSTON Roger. I don't believe it's been mentioned to you yet; but GT-6 experienced a little surprise when they went to landing attitude on the main chute. Apparently, it was about the same as GT-3. So, you might be ready for that.

S/C We'll be all braced.

HOUSTON Roger. Tried to watch for you again this morning; but we had the same weather we've had, overcast and raining.

S/C It's beautiful up here. No clouds.

HOUSTON I believe it.

S/C The pre-retro check list is complete, Elliot.

HOUSTON Pre-retro check list complete. Roger. Gemini 7, how do the RCS rings look?

S/C They're fine.

HOUSTON Yea.

S/C                   Can you give me a slip...(Gargle)...

HOUSTON             Did you ever copy our HF?

S/C                   No. He didn't get around to HF. ...(gargle)...Canary

HOUSTON             Roger.

END OF TAPE

This is Gemini Control Houston at 329 hours, 31 minutes into the flight of 7 and we're about five minutes away from acquisition by the Carnarvon station, the last acquisition for Carnarvon during this mission. Everything will be checked and rechecked as far as times. Retrofire this morning should take place over the Equator about 3,000 miles east of the Philippines. The Canton Island Station should monitor that sequence. Then the crew some 36 to 37 minutes later should splashdown at a point 690 miles east of the Cape or about 10,000 miles from their retrofire point. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control, Houston. 329 hours, 41 minutes into the flight. The weather in the recovery area this morning is 3/10 cloud cover, waves 2 to 4 feet, water temperature is 78 degrees, winds from the west varying from 8 to 15 knots. The WASP is aiming point which 70 degrees west and 25 degrees, 23 minutes north. Seven is over Carnarvon for the last time; and let's listen to that conversation.

CSQ All systems are go. Flight, CSQ. Flight, CSQ. Flight plan indicated...(faded)...1310 left starboard...(faded)...flight plan is tracked. It should be out...(faded)...I got up a Surgeon. I assume...(faded)...

S/C Negative.

CSQ Gemini...(faded)...Could you put your bio-med recorder...(faded)...

CRO Carnarvon has TM solid.

HOUSTON Roger, Carnarvon.

S/C Carnarvon, 7.

CRO Go ahead, Gemini 7, Carnarvon.

S/C Roger. Do you give us a 20 minute time hack for our event timer?

CRO Roger. Set your event timer 20 minutes, and I'll hack you up.

S/C Thank you. ...(garble)...re-entry in the computer.

CRO Roge.

HOUSTON You show re-entry mode?

CRO That's affirm, Flight. C-Band track, Flight.

HOUSTON Roger.

CRO 10 seconds, 3, 2, 1, mark it 20 minutes.

S/C Roger. Counting down.

CRO Would you like a GET time?

S/C Roger.

CRO                   Okay, I'll give you one at 329 hours, 38 minutes, 25 seconds.  
Mark. Did you copy?

HOUSTON               Still there, Carnarvon?

CRO                   Repeat, Flight.

HOUSTON               I just wanted to make sure you were still there.

CRO                   Roger. He's looking good.

HOUSTON               Did he roger your GET hack.

CRO                   That's negative. I'm going back to him. Gemini 7, Carnarvon.  
Did you copy out GET time hack?

S/C                   Roger. I read out, thank you.

CRO                   Roger. You're looking good here on the ground.

HOUSTON               How's the computer look?

CRO                   We didn't get a print out on the computer, Flight. He switched to  
re-entry before we could get it.

HOUSTON               Roger. Understand.

CRO                   TR is in sinc.

HOUSTON               Roger that.

CRO                   You getting our summaries, Flight?

HOUSTON               Affirmative.

CRO                   Roge. Everything still looks real good here, Flight.

HOUSTON               Roger. Send us another main, Carnarvon.

CRO                   Roger.

END OF TAPE

This is Gemini Control Houston 329 hours, 46 minutes into the flight and at this time the surgeon here in Houston is talking to the surgeon aboard the Wasp, Dr. Charles Berry here in Houston and conversation with Dr. Minners. Bringing Dr. Minners up to date on their physical status. He is advised that the command pilot, Frank Borman yesterday consumed 4.6 pounds of water, he's had one pound of water to drink this morning. Jim Lovell he says has had 5.2 pounds of water yesterday, and he too, drank one pound of water so far this morning. There's been discussion back and forth with the crew this morning on the subject of whether they were going to take a dexidrene stimulant before retrofire. The Houston surgeon here assumes they did not take any dexidrene. It had been debated both ways. The Canton Islands Station is due to acquire 7 at 26 minutes after the hour, 26 minutes 40 seconds and that station should monitor through the retrofire, which is to occur a little more than 28 minutes after the hour. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston at 329 hours 52 minutes into the flight. We have had no additional conversation with the crew since they left Australia, and we are in a situation similar to that of the rendezvous. We feel here on the ground all the values have been checked and rechecked, and we feel they are accurate and just as in the case the other day, we now feel that it is up to Frank and Jim. The maneuver is done onboard and we will, of course do anything possible as they come across the States if they need any additional values they will be available, but they already have manual backup angles which they can use if necessary. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston, Canton Island acquired the spacecraft about 30 seconds ago and Elliot See has established voice communications with Frank Borman. He advised that he is cleared for retrofire. Canton Island should hold the spacecraft in contact some 7 to 8 minutes and there will be a 2 to 3 minute gap between there and Hawaii. Hawaii should hold them for 5 to 6 minutes. 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, retrofire.

(pause)

All quiet on the line.

(pause)

Borman confirm retros have fired. He said 4 retros fired. Elliot See says we are standing by for IVI's and lets listen as Frank Borman calls it out.

S/C Retrojet.

Cap Com Roger, retrojet.

Cap Com Gemini 7, Houston. Would you confirm the IVI readouts again.

S/C Roger, IVI readouts, 280 aft, 003 left, 112 bow.

Cap Com Roger, very good.

That was Jim Lovell calling out those incremental velocity indicator readings. And they are right on the nominal, they brought some big smiles here in the Control Center on the face of Chris Kraft, Deke Slayton, and others, standing here monitoring this conversation.

(pause)

Gemini 7's altitude at the time of retrofire would have been about 157 miles high at a point on the equator about 3000 east southeast, 3000 miles east southeast of the Phillipines. They are due to reach the 400,000 foot mark at 49½ minutes after the hour. At that time, they will be over the Rio Grande River, about 300 miles northwest of Monterrey, Mexico. The blackout period will begin at 52 minutes 42 minutes after the hour. Elliot See is engaging in a little facetious questioning of 7, he has asked them if the delta P lights were out and of course the adapter section with those fuel cells

left the spacecraft just prior to retrofire, and Borman confirms that, in fact, the delta P lights which have been on most of the period of this 14-day flight are indeed out. The spacecraft will emerge from blackout at 57 minutes 45 seconds after the hour and Hawaii now has put in a call to 7. Let's listen.

S/C Aft is 299 now.

Hawaii Is that what it was at retrofire.

S/C 298.

Hawaii Roger, copy.

Flight What is the rest of them.

HAW Okay, give me your left and your down at retrofire.

S/C Left is 3, down is 112.

HAW Okay, we copy that. How are you doing.

S/C Fine.

HAW Okay, attitude at retrofire.

S/C Say again.

HAW What were your attitudes at retrofire.

S/C Nominal.

HAW Auto or manual retro.

S/C Auto.

HAW All retros fired normally.

S/C All retros normal.

HAW Okay, very good. You are looking real good. Your RCS seems to be holding real well, your secondary O2 is right in there.

HAW He is in reentry.

Flight Would you give us an AOS and LOS main, please.

HAW Will do, Flight.

This is Gemini Control. We should be getting a summary of the values onboard now coming in from Hawaii. Chris Kraft has asked for it.

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Tape 617, Page 3

Entirely satisfied with the retro maneuver and all events up to this point. Hawaii is reading out the temperatures of his rings out in the forward nose of the section. Hawaii wraps up this summary by saying he is looking real good. And in some 6 minutes we should acquire the spacecraft via Guaymas, Mexico as it begins its let down over the States.

(pause)

This is Gemini Control Houston.

END OF TAPE

This is Gemini Control, Houston. 330 hours, 9 minutes. And, we have at this moment conversation via the Hawaii Station as Borman and Lovell whiz by there, east of it. Their altitude now is down to about 100 miles. And, let's listen in as this conversation takes place.

HAW Okay. Attitude's at retro-fire?

S/C Say again.

HAW What were your attitudes at retro-fire?

S/C Nominal.

HAW Auto or manual retro?

S/C Auto.

HAW All retro's fired normally?

S/C All retro's normal.

HAW Okay. Very good. You're looking real good. Your RCS seems to be holding real well. Your secondary O2 is right in there. He's in re-entry.

HOUSTON Give us an AOS and LOS main, please.

HAW Will do, Flight. Okay, Flight. His Ring A is 2275. Ring B 2375. These are meter readings.

HOUSTON Roger.

HAW He's looking real good. You're looking real good down here.

S/C Roger.

HOUSTON What is your main bus voltage, Hawaii?

HAW 23.9 on the meter.

HOUSTON Roger that.

HAW Not too much RCS activity; a little yaw. Are you ready for a GET time hack? A plus count.

S/C Roger.

HAW Okay. Set up 7 minutes and 30 seconds; 7 minutes and 30 seconds on my mark. 5, 4, 3, 2, 1, mark.

S/C Roger.

HAW Okay. Flight, Hawaii.

HOUSTON Go ahead, Hawaii.

HAW Okay. His 12-18 read outs: 2250 Ring A, 2350 Ring B. Looks real good. Main bus voltage 23.8.

HOUSTON Roger.

HAW Your RCS is holding real good. Your main bus voltage is reading 23.8. Real fine.

S/C Roger. We just came on with the second C. Band.

HAW Say again.

S/C I say we just turned C-Bands 1 and 2 on.

HAW Roger. You need back up guidance computed, Flight?

HOUSTON Negative that.

HAW Okay.

HOUSTON We'll wait until we get some States data in.

HAW Roger. You're holding it real good here on the ground.

S/C Thank you. ...(garble)...

HAW Say again.

S/C We still don't have much of a horizon.

HAW Roger. He shouldn't have a daylight horizon, shouldn't he?

HOUSTON Stand by on that. It'll be after 350,000 before he has a lit horizon.

HAW You'll be below 350K before you have a lit horizon.

S/C Thank you.

HAW And, as you come up toward my LOS, you're looking real fine. We'll be seeing you.

S/C So long, Hawaii.

This is Gemini Control, Houston, at 330 hours, 13 minutes into the flight. That wrapped up the Hawaii conversation. Within a minute or two, we should have acquisition via Guaymas. The present altitude down to about 85 miles. Still no acquisition at Guaymas. It is due at 44 minutes, 50 seconds after the hour. One minute from now.

END OF TAPE

California has acquired. He has advised the Flight Director that everything looks go on the ground. There has been no voice conversation. The Guaymas Cap Com has just advised 7 that they are ready to take a blood pressure reading on the Pilot, Jim Lovell, and Lovell apparently isn't quiet ready to give them the blood pressure reading.

(pause)

Guaymas is advising 7 that he should observe a lit horizon at 61 nautical miles. That will be just before they go into the blackout period.

(pause)

This is Gemini Control, still no conversation. Some of the blackout times, some of the other events are being adjusted slightly, all are staying within a few seconds of the planned value. No change greater than 20 seconds. And we can hear the aircraft out in the Atlantic going through communication checks. They are blasting in here loud and clear today.

(pause)

Now the Texas station has been remoted. We are down to about 60 miles altitude.

(pause)

And we are coming up on the 400 000 foot mark. 400 000 feet altitude with the spacecraft approximately over the Rio Grande River, 300 miles northwest of Monterray, Mexico.

(pause)

END OF TAPE

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Tape 620, page 1

Elliot See is in contact with the spacecraft now. Let's try to catch the tag end of this conversation.

HOU CAP COM            That is correct, bank left 35 bank right 45.

We're coming up on the blackout point. The point where we're about 45 miles altitude. We have one report of blackout beginning here now. Spacecraft about 150 miles east of Houston and this is where the velocity slumps off dramatically. They begin the blackout point and they're moving in the velocity of over 17000 miles an hour and about 5½ minutes later, they emerge from the blackout area and their velocity is slumped down to about 5700 miles per hour.

Our next voice contact should be at a point 3 or 400 miles south of Nassau that's the spacecraft location point. and due about 57½ minutes after the hour.

(pause)

This is Gemini Control, based on a very preliminary look at the computations on Hawaii radar and White Sands radar, the thought here is the spacecraft may be about 10 miles long about 10 miles long. That, I want to emphasize, is very tentative and very preliminary information.

END OF TAPE

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CAP COM Gemini 7, Houston. Your drogue/<sup>time</sup>31+26, your main  
time 32+46.

Fifty nine minutes, ten seconds, and he is showing here below 100,000 feet. He should be coming up on the drogue chute point very shortly at 50,000 feet. He is, so far he has used all of ring A and about two-thirds of ring b, and there's drogue chute called 59 minutes 30 seconds after the hour. Borman called the drogue chute to Elliot See here. He was breaking up, but readable, the communication. (Pause) The Wasp radar is also reading him at about 50,000 feet, 35,000 feet. (Pause) Spacecraft will have slowed now to about 200 miles an hour, just before main chute opening. (Pause) Elliot See has put in a call, has advised we are standing by for their main chute report, we've not heard. (Pause) Borman says the main chute is out and looks okay. Main chute out and looks okay. (Pause) We are predicting splash now in about three minutes from now.

END OF TAPE

(Pause) Frank Borman has advised they are in the proper landing attitude. (Pause) And we have a splash. Air Boss....Air Boss... I'm sorry the transmission was garbled. Now they advise they are standing by to mark the splash. (Pause) We are 5 minutes, 36 seconds after the hour. Now we have confirmation on splash. Air Boss One says the chute jettisoned normally, and he is directly overhead. The search and recovery helicopters are being vectored to the scene. (Pause) Air Boss One is loud and clear communications with 7 on the water. These communications are not being relayed back here but we have been told several times they do have good communications.

END OF TAPE

All right, our best initial estimate on that splashdown point is some 7 miles south of the ground track and 10 to 15 miles from the Wasp, 10 to 15 miles uprange from the Wasp.

(pause)

Frank Borman has just advised Air Boss 1, that he requests helicopter pickup. He says he has elected to go that way. And there is no estimates yet as to when the helios will arrive. It will be something on the order of minutes, though. They are being directed to the scene.

(pause)

7 miles and 10 to 15 miles west of the aiming point.

(Pause)

Now we are advised that a helicopter is over the spacecraft.

(Pause)

The Wasp advises that they should be adide the spacecraft at 28 minutes after the hour, some 17 minutes from now.

(pause)

One of the helicopters advises that they have the chute in sight, they have not yet spotted that radar and reentry section which we also hope to recover. They are looking.

(pause)

Air Boss 1 now has the R and R section in sight. He is directing a helicopter to the scene, and let's listen to some of this busy traffic which is coming through pretty clearly today.

S/C Thank you.

S/C ..... (garble) ...

Air Boss 1 This is the Air Boss 1, put the smoke out for them.

102 The swimmers are in the water and the flotation is in the water.

We are advised that the swimmers and the flotation collar

have been dropped. They are in the water.

Air Boss Roger, I put them on UHF, I think I still see that chute  
.... (garbled) ... over.

... 2 This is ..... The swimmers have the flotation collar just  
to the spacecraft, they are heading around the spacecraft.

Air Boss ... This is Airboss, do you ... (garble).  
.... (garble) .....

This is Houston. The collar now is around the spacecraft  
and the Wasp moving at 30 knots is 10 miles from the spacecraft.

(pause)

.... The spacecraft has drifted very low and still pretty much  
in the concentration of the bow and seems to be riding real  
well.

102.... This is 102, the HF antenna ... (garble)... but I believe  
they have retracted it now .... the beacon.

Air Boss That is affirmative, they have retracted, it did break off.

This is Gemini Control. The man directing traffic out there  
this morning, Air Boss 1 is his call sign, is Commander Davis A. Barksdale of  
North Kingstown, Rhode Island. We are advised that the spacecraft is riding  
very well in the water, riding nicely, and the swimmers are attempting to  
recovery the Parachute, there is engineering interest here in the status of  
the parachute to see if there was any degradation after 14 days in space,  
degradation on the shroud lines, that sort of thing.

102 This is 102, the swimmers have apparently established inter-  
communications with the Astronauts and ..... (garble)...

(pause)

Now the swimmers have plugged in their phones into the  
external communications jack on the spacecraft. They have just signaled the  
helicopter a big thumbs up.

(pause)

END OF TAPE

Helicopter number one, designated "Search One" is making its approach on the spacecraft. It is piloted by Lt. Roger McPherson, his own town, Reno, Nevada. (Pause) The life raft has been dropped to the swimmers in the water, its being inflated. (Pause) This is Houston. The life rafts have been inflated and one swimmer is standing on the collar, leaning against the spacecraft. (Pause) Houston, here. The winds are a little bit brisker than they were the other day when Wally Schirra and Tom Stafford came down. They are running between 8 to 15 knots out there today. In charge of those swimmers in the water is Lt. J. G. Christopher Brent, his home town Los Angeles. With him, David G. Sutherland, a Third Class Swimmer, his rate is a Third Class, in the U. S. Navy. His home town Peoria, Illinois. Also with them is Daniel J. Fraser, and his home town is Lindenville, New York. The port hatch is now opened. Air Boss One confirms the port hatch is opened. (Pause) Frank Borman is out of the spacecraft. He is... we don't know yet whether he is in the raft or standing on the collar, but he is out of the cockpit. (Pause) Jim Lovell is now emerging from the spacecraft. Both astronauts are now reported in the liferaft. Port hatch has now been closed by one of the swimmers, and for anyone who cares to look, the pilots are giving everyone and all a big "thumbs up" sign. (Pause) The hoist collar is now being lowered by one of the helicopters. (Pause) Smoke flares are clearly visible from the Wasp. Flag plot right now, they have their glasses on the entire operation. One astronaut on his way up. We can pick it out here on our picture provided by the television pool.

END OF TAPE

...one astronaut still not identified is safely inside the helicopter as it makes it's second approach to pick up a second astronaut.

(short pause)

And the second astronaut is now in the collar and is on his way up to that helicopter.

Now both astronauts safely aboard the helicopter.

(pause)

This is Gemini Control. ~~And as the helicopter~~ maneuvers to come aboard, we're exactly one hour from retrofire, one hour ~~go~~. Frank Borman and Jim Lovell fired the retros over the Equator west Canton Island.

(long pause)

END OF TAPE

This is Gemini Control, Houston. As the helicopter maneuvers to come aboard, much of the interest here in the Mission Control Center has turned to the landing point. You will recall the other day before Wally Schirra and Frank Borman parted they made a little bet to see who could get closest to the carrier. Schirra's landing point was 11.8 miles. Based on all of our radar data here, accumulative total of that data, the radar shows the splash point was between 7 and 8 miles from the carrier, although much of the visual sightings made it somewhere between 10 and 15 miles. So that wager is still very much in doubt. The Gemini 6 pickup point, and this could allow for some drift, wave action and wind action after splash, was 13.4 miles. The bet should be very close. This is Gemini Control, Houston.

This is Gemini Control, Houston. The prime helo touched down 37 minutes, 24 seconds after the hour.

This is Gemini Control, Houston. Frank Borman emerged from that helicopter door, he's getting a tremendous ovation, and this Control Center, as you can probably hear. He and Jim Lovell waving, and of the two, Lovell's beard is the more prominent.

This is Gemini Control, Houston. A very delighted bunch of Flight Controllers have lighted up their post-splashdown cigars now. Chris Kraft's was lighted, he hacked it at 40 minutes after the hour. He and his two prime assistants, John Hodge and Gene Kranz, on the floor standing shoulder to shoulder with him. Very delighted, looking down at their consoles, looking at those final events, correlating times of actual and planned, something that will go on here weeks and months to come in the data reduction process.

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Tape 626, Page 2

This is Gemini Control. Uh, punch up the network. Chris Kraft is going to say a word to network - let's listen.

END OF TAPE

MISSION COMMENTARY TRANSCRIPT, 12/18/65, 8:45 a.m.

Tape 627, Page 1

Tape 627 had nothing on it.

This is Gemini Control Houston. We show an elapsed time for this mission of 330 hours 35 minutes and 26 seconds. 330 hours, 35 minutes, and 26 seconds. That may vary, but it won't vary by more than a second or two. This room, of course, is jammed with people. It is awash with cigar smoke. It is easily the most jubilant post-splash scene we recall. Some of the people we can see in the room include Dr. Gilruth, Director of this Center, George Low his Deputy, John Glenn is here, Neil Armstrong, Dave Scott who will be the next two Gemini Pilots up flying Gemini 8. Charlie Bassett is here, another one of our pilots who is assigned to Gemini 9, Elliott S. See, of course, will be his Command Pilot on Gemini 9. Every face in this room wears a smile and our initial report from the sick bay on the Wasp is -- was short and very happy, the Pilots are in very good shape, better than expected, better than expected was repeated. And after 335 hours of continuous commentary from this Mission Control Center this is the Public Affairs Console signing off on the Gemini 7 and 6 Mission.

END OF TAPE