At WSMR Next Week

Apollo Launch Escape System Test Scheduled

Apollo HIGH ALTITUDE TEST—Emergency launch escape and earth landing systems for Apollo spacecraft are shown in this drawing of scheduled high altitude abort sequence test at White Sands Missile Range, N.M., a Little Joe II rocket (General Dynamics/Convair) plays role of Saturn rocket in trouble and lifts Apollo command to high altitude region where abort sequence is initiated. Launch escape rocket motor (Lockheed Propulsion Co.) pulls command module from booster to safety area and Apollo coasts to about 35 miles altitude. Wing-like canards stabilize tumbling command module to blunt end forward position. Tower jettison motor (Thiokol Chemical Corp.) fires pulling tower clear of command module. Forward cover is jettisoned exposing parachute recovery subsystem (Northrop Ventura Divsion) which lowers five-to-command module to safe landing speed of about 25 feet per second (17 miles an hour). Apollo spacecraft (North American Aviation's Space and Information Systems Division) is produced for NASA's Manned Spacecraft Center.

NASA—Wide Contest

Cash Prizes Offered For Best Cost-Reduction Symbol And Slogan

A NASA-wide contest to provide a Cost Reduction Symbol and Slogan was announced early this month with cash prizes to be offered at the NASA Center level and also for the finalists by NASA Headquarters.

The contest was announced here by Dr. Robert R. Gilruth, director, Manned Spacecraft Center, who said that “The contest is the first step in the enlarged and continuing program involving recognition and reward for individual achievement.”

Two separate contests are being conducted: one for the purpose of selecting the slogan and the other for selection of a symbol. The monetary and other awards will be identical for both contests.

All MSC employees are encouraged to participate and help make the contest a success. Cash awards to be presented to local winners at the Center will be: 1st prize—$150, 2d prize—$75, 3d prize—$25, with the winning entry being submitted to NASA HQ and entered in NASA-wide competition for additional monetary rewards.

Dr. Gilruth said, “President Johnson directed on Dec. 4, 1964, that increased recognition be given to those organizational elements and individuals making notable advances in conducting efficient operations at lower cost. I agree with the President and feel that this type of activity stimulates the ingenuity and imaginations of our employees.”

The rules state that contestants may participate in one or both contests or submit a combined entry containing both a slogan and a symbol. Entries should be marked on the transmittal envelope to indicate whether they are to be considered for the symbol contest, the slogan contest, or both. Prize winners will be selected from many entries as they wish; however, not more than one award will be given to an individual in the same category.

Deadline for entries in the contest is 5:30 p.m., May 28, with entries to be submitted to the MSC Cost Reduction Officer, Rm. 167, Building 2.

Slogans will be judged for originality and for appeal, and should not exceed 15 words.

Symbols should attempt to strikingly depict the idea of cost reduction and/or the benefits associated with it in a manner

(Continued on Page 7)
Apollo Tracking Station Contracted For Bermuda

The test model, Boilerplate 14, is an engineering development tool that will never leave North American Aviation’s Space and Information Systems Division at Downey. Consisting of both command and service modules, the “house” spacecraft contains actual flight hardware that can be operated and monitored through a comprehensive check-out system identical to that which will be used at Cape Kennedy.

Boilerplate 14 is a veritable jack-of-all-trades. In it, flight systems can be put through an extensive test program under simulated operational conditions, and it can be used for advanced compatibility checks between the spacecraft systems and ground support equipment. It also will help prove out engineering modifications prior to their being incorporated into flight spacecraft, and will be used as a training vehicle to better qualify test engineers for their jobs.

Built on an aluminum structure, Boilerplate 14 has removable skins which provide easy access to its wiring and internal systems. It is undergoing testing in the huge clean room area of the Apollo Systems Integration and Checkout facility (Bldg. 290) at Downey.

Paul Koenig of the Space Division’s Apollo Test and Operations, test project engineer for Boilerplate 14, said the test program is being conducted in phases and will check the majority of the major systems for flight spacecraft, including the fuel cell, communication, instrumentation, guidance and navigation, and stabilization and control systems. The command and service module reaction control motors and the service module propulsion motor systems will be checked electrically to the point of ignition, said Koenig.

“Currently,” Koenig said, “the test program includes support of the unmanned flight of Spacecraft 009, which is scheduled for the first Saturn 1B launch.”

The current testing program will simulate the entire mission of Spacecraft 009 from launch to water landing, using systems which are functionally the same as those for the launch vehicle. Two integrated systems checks already have been conducted, in which all the major flight systems have been tested.

In 1964, the initial portion of the test program was a fit-check of the systems to insure that they actually could be installed in the spacecraft. The Boilerplate 14 program is but one phase of the intensive ground test program which is serving as a dress rehearsal for the first manned lunar landing.

By the time Spacecraft 009 is launched, the reliability of its systems will have been thoroughly proved out in simulated operational conditions checks of hours of testing in Boilerplate 14—more than enough time for several trips to the moon and back.

MSC To Lease News Center For Flights

A real time (no delay) deep space tracking and data acquisition system for support of Apollo Moon missions is to be built by Radio Corporation of America under a $4.6 million contract by NASA’s Goddard Space Flight Center.

The contract calls for the installation, checkout, and documentation of RCA’s most sophisticated long range (32,000 miles) radar, called the FPQ-6, at NASA’s Bermuda site on Cooper’s Island.

The Manned Space Flight Tracking Network’s first “Q-6” was previously installed by RCA at NASA’s Carnarvon, Australia, station and has performed creditably throughout earlier Gemini and Saturn booster test missions.

Since the giant Saturn booster will insert the three man Apollo spacecraft into earth orbit at a more eastward point than either Mercury-Atlas or Gemini-Titan boosters, the Bermuda facility will be a key station throughout the critical launch period of the flight. First to electronically “see” the initial powered flight stages of the giant rocket, Bermuda will provide the much needed “go-no-go” data to mission directors for decision-making purposes.

Operating at “C-Band” frequencies, the highly precise system has a power capability of 2.8 million watts and employs a 29-foot, dish-like antenna that yields a pin-point beam width of one-half degree accurate to 30,000 miles within six feet. By comparison, Bermuda’s present tracking radar, the RCA FPS-16, tracks to 500 miles with an accuracy of 15 feet.

First S-IC Stage Assembled

A spacecraft that will never leave the ground is being used to check and perfect the systems that one day will insure the astronauts’ safety on the historic Apollo flight to the moon.

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Apollo

(Continued from Page 1)

cles conducted from White first using canard subsystem, Spacecraft 002 will be the first launch vehicle’s fins. later, exposing the compartment one of the three main spacecraft planned this year at White Sands, degrees to the horizontal. A launch escape rocket motors, drogues will be reefed for eight launch pad. control fins for guided flight dur- vehicle calls for it to be launched abort signal will begin separation Dual-drogue parachutes will

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Giant ‘Eye Charts’ To Check Visual Perception In Space

How well astronauts can see the Earth and objects on the Earth from an orbiting spacecraft will be determined scientifically in a project that will use areas in Australia and the southern part of Texas for the tests.

The scientific program of some future Gemini flight will include an experiment to shed light on this subject, which has been of interest to scientists since several astronauts in orbit reported seeing surprising detail on the Earth.

Main objective of the experiment will be to measure the cut-off point in recognizing objects on the ground as they are displayed in progressively smaller fashion, much as an ordinary eye chart uses lettering of decreasing sizes.

Australia has agreed to provide a site in Western Australia which is well suited to Gemini flightpaths in the Southern Hemisphere, providing a sufficient number of sightings for the results to be statistically significant. A similar Northern Hemisphere area is being prepared 40 miles north of Laredo, Tex.

Flat plots of land in a semi-arid region are required for such an experiment so that cloud-cover interference is less likely. The terrain needs to be either barren of vegetation or easily cleared. The plots will range in size from a mile or more wide to several miles long.

Each plot, or strip of land, will be divided into a number of squares with some of the squares containing markings for use in the sighting experiments.

The shapes, or markings, presented for viewing by the astronauts will be of white material, such as sea shells, spread on the ground. The markings will have varying sizes and orientations.

The astronauts will be asked to report the number and orientation of the markings they can observe. The results will also be repeatedly checked in flight with an on-board device to test their brightness discrimination, contrast threshold and visual acuity, or sharpness.

As the flight continues, the several tests will help determine how the visual capability of the astronauts is affected by prolonged weightlessness, breathing pure oxygen, breathing under a pressure of five pounds per square inch, and other in-flight stresses.

The experiment for testing visual perception in space will have as its principal investigator, on behalf of NASA, S.Q. Dun- ley, director of the Visibility Laboratory of the Scripps Insti- tute of Oceanography, University of California, La Jolla.

Flight trajectory will be programmed by an autopilot aboard the Little Joe II, “steering” the launch vehicle by actuating aero- dynamic control surfaces on the launch vehicle’s fins.

Abort will take place about 89 seconds after liftoff, commanded by radio from the ground. The abort signal will begin separation of the Apollo command module from the service module, ignition of the pitch control and launch escape rocket motors, and (11 seconds later) deployment of the canard surfaces.

The Apollo launch escape vehicle will coast in tumbling flight to an altitude of about 75,000 feet, then begin its tumbling descent. Canards and the Little Joe II launch vehicle will stabilize the spacecraft with its aft heat shield forward and downward.

At an altitude of about 21,000 feet above the range the tower jettison rocket motor will carry away the launch escape subsystem and boost protective cover. The forward heat shield will be jettisoned 0.4 seconds later, exposing the compartment which contains parachutes, the egress hatch and other equip- ment.

Dual-drogue parachutes will be deployed in reeled condition two seconds after jettison of the launch escape subsystem. The drogues will be reefed for eight seconds.

At an altitude of about 6,000 feet above the range, the dual- drogue parachutes will be jettisoned and three main parachutes will be deployed in reeled condi- tion by mortar-actuated pilot and the launch escape vehicle will be dis- reefed and inflated fully, lowering the spacecraft to a landing approximately 110 miles from the launch point.

Portable Launching Pads For Apollo

LUNAR LAUNCH TOWERS—Artistically framed, through the structural steel work of the Vehicle Assembly Building on Merritt Island, Fla., are three mobile launchers that will help send National Aeronautics and Space Administration Apollo-Saturn V moon rockets on their way. The tower at right is being topped out as huge hammerhead crane is lifted to its crown. The structures are 443 feet high. With each launcher topped off, ground support equipment and electrical apparatus are now being installed, to be completed by December, 1966.
Seven MSC Employees Named To AIAA Technical Committees

Seven members of the Manned Spacecraft Center team were named recently to serve on key technical committees of the American Institute of Aeronautics and Astronautics (AIAA) for 1965. These committees are comprised of persons considered to represent the best technical leadership in the aerospace disciplines.

The committees and the MSC employees are:
- Aerospace Power and Power Systems Committee: Dr. John W. Kiker, chief, Engineering Department, Ground Testing and Simulation, AIAA; and David G. Brecher, chief, Structures and Dynamics Division, AIAA.
- Dynamic Systems Committee: Dr. Robert E. Charles, chief, Structures and Dynamics Division, AIAA; and Donald J. Michael, chief, Structures and Dynamics Division, AIAA.
- Materials Committee: Dr. John W. Kiker, chief, Engineering Department, Ground Testing and Simulation, AIAA; and Samuel J. Cottrell, chief, Structures and Dynamics Division, AIAA.

Space News Of Five Years Ago

MAY 14, 1960—The first production Mercury spacecraft, used in the beach abort test, was returned to the McDonnell plant for an integrity test.

MAY 15, 1960—SPACECRAFT I weighing 10,000 pounds was launched into orbit by the U.S.S.R., the first successful effort to orbit a vehicle large enough to contain a human passenger, although efforts to recover the spacecraft capsule failed.

MAY 15, 1960—Qualification tests for the Mercury spacecraft explosive egress hatch were completed.

MAY 21, 1960—The first public showing of the F-1 engine mockup for the Saturn V launch vehicle was held.

SPACE QUOTES


"I am an advocate of a dynamic space program—a program which will succeed in reaching the goals we have set—and one which will set new goals—one that can see beyond the moon and into fields where we can only speculate about the knowledge awaiting us."

"And I can promise you this will not be an advocacy simply of formal duty and responsibility. What I have learned of our space and aeronautics programs has made me an enthusiastic advocate...."

"This strong and prosperous economy permits us to do many things and to do them well. We can put a man on the moon at the same time as we help to put a man on his feet. We conquer outer space even as we conquer poverty..."

"Our space dollars need not—and will not—deprive, starve or desolate any other useful programs..."

Sighting Of Familiar Looking Object Makes MSC Employee Nostalgic

A bit of nostalgia gripped MSC's William M. Bland Jr. early last month when he sighted a bright orange familiar looking shape mounted on wheels and being towed behind a truck in a local subdivision.

Bland, one of the original members of the Space Task Group and former deputy manager of the Project Mercury program, thought he had discovered what happens to "old spacecraft" when he saw the vaguely familiar shape moving through the neighborhood.

While working at Langley, Bland was one of the earliest contributors to the concept that was to become the Mercury spacecraft, and this "thing" on wheels gave him quite a start.

Upon closer examination of the bright orange object, Bland discovered that, while the exterior shape of the "thing" on wheels looked somewhat like an old Mercury spacecraft, there was the semblance of the "thing" in bold letters... the words "Flexible Pipe Cleaning Co."—a firm from Houston devoted to cleaning pipes. At least one connoisseur thought was forthcoming, old spacecraft are not being used to clean pipes. Photographic proof of the sighting was furnished by Bland who just happened to have his camera handy.

Bland is now heading up the Checkout and Test Division in the Apollo spacecraft Program Office, and whether he has ideas about going into the pipe cleaning business as a sideline, has not yet been determined.

Mariner IV Still On Course Going A Million Miles Daily

Distance between the Mars-bound Mariner IV spacecraft and Earth is increasing by about one million miles daily, the National Aeronautics and Space Administration announced recently.

May 14, after 167 days in space, Mariner IV is 18 million miles from Earth and has travelled 251 million miles in its separate orbit. Its velocity relative to the Earth is 46,500 miles per hour, and 51,000 miles per hour relative to Mars.

Straight-line distance between Earth and the spacecraft will be 133 million miles when Mariner IV makes its closest approach to Mars July 14.

The spacecraft continues to return scientific and engineering data to ground stations daily while continuing to set new records for distance of communications.

LUNAR ROCKET TEST—The NASA Marshall Space Flight Center conducted a static test of all five engines of the Saturn V booster (S-II stage) April 16. The brief test ran for the intended six and one-half seconds, during which time the Rocketdyne F-1 engine produced 7.5 million pounds thrust. More than 500 measurements of the booster's performance were made and recorded in a blockhouse some 800 feet from the test stand, which was built especially for this stage. The S-II is 138 feet long and 33 feet in diameter.

Welcome Aboard

Twenty-one new employees joined the Manned Spacecraft Center during the last reporting period.


Mission Planning and Analysis Division: Kayleen B. Behringer and Garner R. Kimball. Apollo Spacecraft Program Office: Barbara J. Harper, Lo- rene C. Clinton (Downey, Calif.); Maile H. Oshita (Dewey, Calif.); and Ella N. Pellerin (Downey, Calif.).
**MANNED SPACECRAFT CENTER, HOUSTON, TEXAS**

**EMPLOYEE NEWS**

**Style Show Scheduled May 18 By Ellington Toastmistress Club**

The Ellington Toastmistress Club will hold a style show with “Summertime in Houston” as its theme, at the clubs May 18 meeting at the Benoue Inn. Tickets will be $1.25 per person and may be obtained from any club member. The meeting will begin at 6:45 p.m. Refreshments will be served, and door prizes will be awarded.

Featured on the program will be fashions by Foley’s, and a Thought. Betty Rogers will present a thoughtful message. Mrs. Peter Harris, Jr., will come as a Millie Rogers, Inspiration; Mrs. T. E. A. Alston, Toastmistress; and Mrs. A. J. Van Lanen, Drag. Models for the style show will be furnished by Nick Navarre and Christenberry, Ext. 3091. Con- and equipment); maximum scope

**EAA Cancels Picnic In Domed Stadium, Plans Other Events**

Tentative plans by the Executive Board of the Employees Activities Association to hold a picnic in the Harris County Domed Stadium have been cancelled.

It was decided by the board to have a picnic this year in the baseball park. In the early fall we will have our annual Picnic for all employees of the Center.

Plans are underway for the 1965 EAA Picnic in the baseball park. If you wish to perform or have any suggestions, please contact Juanita Bower, Ext. 4951.

**Singletons Plan Beach Party**

The Singleton Club planning committee has announced plans for another “swinging beach party.” It will be held in Freeport, Tex. on June 5.

There will be food, drinks, and lots of fun. Look for posters displayed on bulletin boards, etc., and for more detailed information (time, transportation, tickets) in the next Roundup.

If you’re not yet a member of the Singleton Club, join now. No dues, no applications, the only requirement is to be single. Just call and give your name, phone number, and office symbol to Mary Lopez, Ext. 2761. Con- tractor workers at the Center are also invited to join.

**MSC, Marshall Employees Exchange Ideas**

**MARSHALL VISITORS—Representatives of the Manned Spacecraft Center Employees Activities Association are shown at a meeting with representatives of the Marshall Space Flight Center Athletics and Recreation Society at a recent meeting to exchange ideas and information. The two Marshall representatives took annual leave to pay a visit here. Shown standing (L to R) are Marvin Hughes, Abner Askew, Phoencille De Vore, and Rita Sommer (EAA), Seated (L to R) are John Welzyn (MSFC), Philip Hamburger (EAA), and Wendell McKinney (MSFC).**

**Rod-Gun Club Sets Varmint Hunters Shooting Contest**

The MSC Rod and Gun Club will sponsor a varmint hunters type shooting contest beginning at 10 a.m. May 31, at the Bayou Rife Club range at Juliff. The event will be open to all and awards will be given. All shooting members of the club are encouraged to participate.

Matches are designed to appeal to a wide range of shooting interests, and offer the opportunity of winning an award in particular classes by somewhat equalizing differences in shooting skills and types of rifles.

Two rifle classes are specified for this event: Class A—.22 to .25 caliber; centerfire; Class B—above .25 caliber; maximum rifle weight—12 lbs. (including scope and equipment); maximum scope height—9 inches.

Three matches are specified for this event as follows: (1.)—five shots—bipod rest—100 yards—MOA scoring; five shots—bench rest—200 yards—MOA scoring, winners are determined by the smallest average MOA (minute of angle) group. Applicable rifle—class A; (2.)—same as 1, except applicable rifle—class B; (3.)—five shots—prone—crow target—numerical scoring—five shots—bipod rest—rabbit target—numerical scoring, winners are determined by total score. Applicable rifle—class A or B.

One award will be presented for each three shooters participating in a given match. A shooter can enter any or all matches. Entry fee will be $1.75 for the first match and $1.25 for each additional match.

Complete rules governing the match will be available before May 31. An early indication of your interest or intentions of participating will be appreciated for planning purposes. Please contact Hoyt McBryan, Ext. 4771.

**20-Year’s Service Acknowledged**

TWENTY-YEAR AWARD—A certificate and pin for 20 years of government service were presented recently to Herman H. Lauterbach, Quality Assurance and Inspection Office at White Sands Operations. The award was presented by M. L. Rainier, manager, WSO.

BOBBY V. GRAY, Photographic Instrumentation Section, Photographic Division, looks film in a Milliken high speed motion camera in preparation for photographing tests in the Systems Evaluation Laboratory, Bldg. 13.
Trophies Presented Duplicate Bridge Champions

BRIDGE CHAMPIONS—J. L. Roney (seated center), tournament director of the Duplicate Bridge Club, presents trophies to the winners of the recent bridge tournament. Shown are: (standing, l. to r.) Lee Pearson and Bob Hodgson, winners of the Men's Pair Championship, and Charlie Brown, winner of first series awards; (seated l.) Betty Herman, winner of Women's Pair Championship, (Dolores Sheridan, not shown, shares Mrs. Herman's title); (seated r.) Joe Duke, winner of Mixed Pair Championship, (his wife, Phyllis, shares the title).

Duplicate Bridge Winners Announced

Winners of recent Duplicate Bridge Club play were announced by the club secretary Leona Kempainen.

April 6: Section A: North-South, Floyd Bennett and Clarke Hackler, first; Betty and John Herrmann, second; East-West, Max Cone and John Stanfield, first; Bob and Terry Hodgson, second. Section B: North-South, C. J. Bates and Charles Shoemake, first; Bill De George and J. T. Marco, second; East-West, Gary Hunt and Stephen Lowe, first; Charlie and Eugenia Brown, second. The April 6 game was the regular monthly Club Master Point.

April 13: North-South, C. J. Bates and Charles Shoemake, first; Otto Kuhlmann and Art Manson, second; East-West, W. H. Hamby and Floyd Bennett, first; Tom Moore and Gay Walker, second.

The Men's Pair Championship was won by Bob Hodgson and Lee Pearson, with Betty Herrmann and Dolores Sheridan capturing the Women's Pairs. These events were held on April 20. The winners received handsome trophies.

At the fractional rating point game on April 27, the winners were: North-South, C. J. Bates and Charles Shoemake, first; Marilyn and Larry Gallagher, second; East-West, Bob and Terry Hodgson, first; Sue Shrader and Leona Kempainen, second. Winners at the regular Club Master Point on May 4 were: North-South: Mr. and Mrs. William Puderbaugh, first; C. J. Bates and Charles Shoemake, second; East-West, Sue Shrader and Leona Kempainen, first; Mr. and Mrs. Paul Swanzy, second. Games are held at 7:15 p.m. each Tuesday at the Noncommissioned Officers Club at El Centro.

SAFETY OFFICE RECOMMENDS TV DRIVERS PROGRAM

“The National Drivers Test” a special CBS television network program on KHOU-TV Ch. 11 in Houston, 9 p.m., May 24, has been recommended for viewing by MSC employees by John Kanak, assistant chief for Safety, Center Medical Office. This program should be of special interest to Center employees because all must commute in an automobile to and from work and knowledge of good driving judgement could very well save lives of MSC employees.

The broadcast, first of its kind, uses spectacular photography to test the viewing audiences' driving judgement. Also high-speed head-on collisions staged by experienced stunt drivers will be shown as they develop and occur.

In another part of the program the viewing audience will be in the driver's seat and be faced with a number of potentially serious driving hazards and asked: “How many did you spot?”

During the broadcast questions will be asked to test the viewers' driving ability and correct answers will be shown to give the viewers a chance to compare his score with that of typical drivers in other parts of the country.

The test program on this page will be the form used in marking answers during the TV program.

AFGE Granted Recognition

RECOGNITION—W. H. Gray, NASA resident manager, St. Louis, recently presented Elmer Hardaway, NASA inspector, a letter from Dr. Robert R. Gilruth, director, MSC, which granted informal recognition of the American Federation of Government Employees Lodge 2455, representing NASA employees at McDonnell. Hardaway is a union representative. Shown (l. to r.) are: Gray, Hardaway, and R. A. Dittman, administrative assistant, Gemini Program Office, Houston.
IF YOUR CAR GETS 15 MILES TO A GALLON, YOU COULD DRIVE 15 MILLION MILES OR AROUND THE WORLD ABOUT 700 TIMES ON THE FUEL REQUIRED FOR THE APOLLO/SATURN LUNAR LANDING MISSION

Contest
(Continued from Page 1)

which clearly identifies the effort as a NASA effort or associated with the NASA mission. Neutrality is requested, but entries will be judged by concept, rather than graphic or artistic skill. Symbol concepts should be described in concise language and although it is desirable that a rough sketch be submitted, the absence of an accompanying sketch will not affect favorable consideration of the entry.

All entries must be submitted on letter-size bond-type white paper and should contain the contestant's name, name of institution, organization, element and date of submission, along with indication of the portion of the contest being entered. All NASA employees are eligible except those working directly in the areas of Cost Reduction and Incentive Awards and those individuals selected to act as contest judges.

The MSC winners in the contest will be announced July 2. A ceremony and presentation of awards for the winners in the NASA HQ contest will be held in Washington, D.C., July 29. This will mean an expense paid trip for the NASA-wide winners to Washington to receive a cash prize of $500 and a certificate for each symbol and slogan.

In NASA Space Park At Fair

FEELING 100 MILES TALL—Two happy youngsters are playing astronaut in a cutaway model of the National Aeronautics and Space Administration's Mercury Spacecraft. The vehicle, like that in which six Project Mercury astronauts rode into space, is in the Space Park at the New York World's Fair which opened April 21. While the nose of the Mercury model rocks up and down, its young passengers hear a countdown and then see, on a screen before them, a life of the earth 100 miles below.

FASTEST GUN IN THE WORLD—The 20-foot light-gas gun at NASA's Ames Research Center that fired the fastest shot ever recorded. B. Pat Denardo, Ames research scientist in charge of the shot, checks the gun.

The gun fired a polyethylene cylinder at 25,300 mph, 700 mph faster than Earth escape speed and 3,200 mph faster than the previous record shot. The research "guns" are used to study entry into Earth's atmosphere from space, properties of gas flow, and hypervelocity impacts of meteorites on spacecraft and space suits.

In Meteorite Impact Study

World's Fastest Gun Shoots Plastic Projectile 25,300 Miles Per Hour On Controlled Flight

Super speed runs of this type depend on skills built up with a great deal of practice. The present model of the gun was developed at Ames about four years ago. The launch tube must be honed "like glass" to absolute smoothness. There is a difficult sealing problem because of the half million pounds of pressure in the gun. Sometimes the polyethylene piston breaks a solid steel cylinder because of its great speed.

Many members of the Hypersonic Free Flight Branch at Ames have contributed techniques and flight improvements since the Center began building high speed guns in 1949. There are now about 1,500 miles per hour was considered really top speed. For the record-setting shot, the vacuum flight chamber was pumped down to 1/700th of normal atmospheric pressure.

NASA's Newest Center To Explore Possible Space Guidance Techniques

Possibilities of new space guidance techniques will be explored in programs directed by NASA's new Electronics Research Center at Cambridge, Mass., Dr. Waston E. Kock, its director, reported in a speech in Houston, April 29.

In his address at the annual banquet of the Institute of Naviga- tion at the Rice Hotel, Dr. Kock mentioned particularly the use of Mossbauer radiation which he termed "the most precise electromagnetic frequency yet known" in guidance applications.

The new Electronics Research Center, he said, is considering a program to investigate the feasibility of using Mossbauer Radiation as an accelerometer for use as a systems performance monitor on future ion propelled or other low thrust spacecraft.

Dr. Kock said the Center, which moved into its temporary quarters five months ago, already is engaged in a wide area of research and is issuing grants and contracts to universities and firms throughout the nation.

The Center currently has 170 of its planned total of 2100 personnel. Dr. Kock was the guest of Dr. Robert R. Gilruth, director of the NASA Manned Spacecraft Center on a tour of its facilities while here in Houston.
KSC Cease And Desist Order Bans Collecting Of ‘Federal Rattlesnakes’

The civilization of some of Florida’s swampland is progressing fast enough to suit the Industrial Safety Committee of the Kennedy Space Center in Florida. The committee has ruled against collecting rattlesnakes as long as they don’t disrupt construction activities at the National Aeronautics and Space Administration’s Merritt Island moonport.

It seems that one contractor on the island made a habit of catching rattlers and putting them in boxes on the job site. The committee acted to prevent possible injuries. It gave the order to “cease and desist collecting Federal rattlesnakes due to hazards to personnel as well as snakes.”

The committee has ruled against freely collecting Federal rattlesnakes due to hazards to personnel as well as snakes.

Chamber “A”, the 120 foot high by 65 foot diameter vacuum chamber—under construction here at the Manned Spacecraft Center, successfully passed structural and vacuum integrity tests on April 14 and May 3 respectively. The chamber, located in Building 32, was “pumped down” to an altitude of approximately 130,000 feet and a pressure of 225 instruments placed on its steel skin measured the stress as the air on the outside pushed against the chamber during the structural integrity test.

The pumpdown of the chamber began at 9 a.m. April 13 and terminated at 6:30 p.m. April 14. Normal pumpdown time would be less, but frequent holds were called to check data obtained. The vacuum integrity test, requiring about one and one-half weeks, was successfully completed May 3. During this test, the chamber was pumped down to an equivalent of 70 miles in altitude and the leak rate of air into the chamber was checked.

Engineers from Manned Spacecraft Center, the Army Corps of Engineers, and the prime construction contractor for the chamber, Chicago Bridge and Iron, conducted the test. Test conductors were Tom Milton, Lou Vosteen and Phil Glynn, all MSC engineers.

Chamber “A” will be used by the MSC for checking full Apollo lunar spacecraft under vacuum and thermal conditions. The tests are part of a series designed to qualify the large chamber for operational use.

To Support Manned Exploration
Potential Use Of Lunar Materials Studied

Potential use of lunar materials to support manned exploration of the Moon is the aim of a three-year $300,000 research program awarded recently by NASA to the Interior’s Bureau of Mines.

The long-range goal of the Bureau’s Minneapolis Mining Research Center is to develop technology for the most efficient use of extraterrestrial materials by lunar explorers.

The research team will study the possible production, processing and uses of materials on the Moon for the construction, supply and operation of manned lunar bases. Scientific findings from NASA’s unmanned lunar programs will be used in their studies.

The studies will seek to learn how lunar resources could be used by manned exploration missions for shelter from solar heat and radiation and as a source for fuels for vehicle propulsion. The team will seek to learn how these resources could be mined and transported from one location to another on the Moon and how the material reacts to the changing lunar environment.

The program will be carried out under the direction of Thomas C. Atchison, assistant director of the Bureau’s Minneapolis Mining Research Center.

The research team will include engineering experts in mining, geology, chemistry, physics and materials. Faculty consultants and graduate students from the University of Minnesota will aid the team as part of the Bureau’s program to develop future capabilities at educational institutions.

The Minneapolis Center was selected from among seven institutions which submitted proposals. Selection was made by a panel representing NASA, the U.S. Geological Survey and the Office of the Chief of Engineers.

Gemini-4 Readied For Flight

Gemini-4 has been readied for flight by workmen at the Manned Spacecraft Center. The spacecraft is lowered for mating with the Gemini Launch Vehicle on Pad 19 at Cape Kennedy, April 23.