

NEWS RELEASE LOG

AUG 20 1979

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NUMBER	TITLE	RELEASE DATE
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67-47	W.C. Schneider named Apollo Mission Director	7/31/67
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67-49	Scott Carpenter detached from MSC	8/3/67
67-50	Contract to RCA Defense Electronics Division for dual space-suit communications system	8/10/67
67-51	First Apollo Saturn 5 rolled out of VAP	8/11/67
67-52	Press conference at Douglas, Sacramento	8/11/67
67-53	Arrival of Apollo space suits in Sept.	8/17/67
67-54	Biological Isolation Garment for Apollo crew	9/19/67
67-55	3 day LRL Briefing at MSC	9/5/67
67-56	LTV Awarded Maintenance Contract (also released by=Hqs)	9/28/67
67-57	An astronaut was reported killed in crash	10/5/67
67-58	Major C. C. Williams was named as astronaut killed	10/5/67
67-59	Funeral Services Announced for Astronaut Williams	10/6/67
67-60	Requiem Services Set for Astronaut Williams	10/6/67
67-61	200 Members of JETS to Participate in field trip at MSC on 11/6	10/9/67
67-62	Major changes in top NASA positions announced	10/12/67

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER



Houston
1, Texas

HU3-5111

MSC-66-112
January 3, 1967
For release: AM

WASHINGTON, D. C. -- With one week remaining before the January 8 deadline for submission of applications, over 400 scientists and engineers have already applied for astronaut training, it was announced today by the National Academy of Sciences.

About one in four is a medical scientist, one in five an engineer, and one in six a physicist. Among other fields represented are life sciences (11%), chemistry (9%), and earth sciences (7%).

About 46% are applying from university campuses.

Another 21% of the applicants are in industry, 13% in government or government supported laboratories, and the remainder are on hospital staffs, in military service, or are self-employed.

The Academy was asked by the National Aeronautics and Space Administration to recruit and nominate the group of scientists and engineers to NASA for final selection and training as astronauts "to conduct scientific experiments in manned orbiting satellites and to observe and investigate the lunar surface and circum terrestrial space."

Applications were invited from U. S. citizens (and persons who will be citizens on or before March 15, 1967), no taller than six feet, born after August 1, 1930, having a doctorate in the natural sciences, medicine or engineering, and meeting the physical requirements for pilot crew members. Exceptions to these requirements (other than citizenship) are being allowed in outstanding cases.

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MSC-66-112

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All candidates who have applied by the deadline of midnight January 8, 1967, will be informed of their status in the competition in March. Those who continue will be informed of test results at several stages of the process, with final results to be announced no later than August 15, 1967.

Additional information on the program may be obtained by writing to Scientists as Astronauts, National Academy of Sciences, 2101 Constitution Avenue, N. W., Washington, D. C., 20418.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER  Houston
1, Texas

MSC 67-1
January 6, 1967

HOUSTON, TEXAS -- College-age children of MSC employees may be eligible for financial assistance under a college scholarship program recently established by the MSC Exchange Council. Paying up to \$600 per academic year for four years, the fund awards will be made on the basis of financial need and high school scholastic standing.

Scholarship winners may pursue any course of study leading to a recognized bachelor's degree at any accredited college in the country. Applicants must be children of NASA employees who have been at MSC for at least two years as of January 1 and whose base income does not exceed \$8000 per year.

Students graduating from public, private or parochial high schools in January . June 1967 are eligible to apply provided they have a high school grade average of 3.5 on the 5.0 scale, or 2.5 on the 4.0 scale, and a Scholastic Aptitude Test score of 1000. Students who have taken the American College Test must have scored 22 or higher.

Students now in college are also eligible for scholarships.



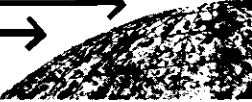
Where base family income exceeds \$8000 per year and it is felt there are extenuating circumstances, scholarships may also be applied for.

Scholarship application forms are available from Mary Beeman in the Educational Programs Office in Building 1, Ext 4343. Completed forms in sealed envelopes must be returned to Mrs. Beeman/AP⁴ no later than February 15, 1967.

The MSC Scholarship Committee, made up of senior staff members, will evaluate students' applications and scholastic records for selecting scholarship winners. All information will be kept confidential and will be reviewed only by the committee.

The winner of the scholarship (or winners, if more than one scholarship is awarded) will be notified by mail no later than April 15, 1967.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER    **Houston**
1, Texas

MSC 67-2
January 6, 1967

HOUSTON, TEXAS -- Test facilities, linked together by miles of underground cable, recently completed an around-the-clock six day test at the Manned Spacecraft Center of the Apollo stabilization and control system and the Service Module's reaction control system engines.

The Service Module RCS engines were fired approximately 3,000 times during the test conducted jointly by the Propulsion and Power and the Guidance and Control Division. The tests were to evaluate the electrical compatibility of the stabilization and control system and the reaction control engines, demonstrate the closed-loop capability of the two systems, and to gain experience for support on manned Apollo flights.

The stabilization and control system (SCS) provides control and monitoring of the spacecraft attitude and may be operated automatically or manually. The service module reaction control system (RCS) consisting of 16 100-pound thrust engines arranged in quads of four provides thrust required for three axis stabilization and control during earth orbit and lunar trajectory.

Underground lines linked engineers in the Thermochemical Test Area who supervised the engine firings in the Auxiliary Propulsion Test Facility's 20-foot diameter subsystem test chamber with the Guidance and Control personnel, one mile away in Building 16.

Test components, in addition to the flight qualified stabilization control system hardware and the RCS engines, consisted of the three axis (yaw, pitch and roll) flight table and analog computers. All systems were in a closed-loop setup.

Paul Horsman, Chief, of the Guidance and Control's Electro Mechanical Section, described the test. Guidance and Control programmed the firings of the RCS through the stabilization control system from Building 16, the resulting impulses of the RCS engines were measured in the 20-foot chamber and relayed back instantaneously to the analog computer which then computed the resulting vehicles dynamics and relayed the spacecraft angular position to the three axis flight table on which the SCS gyros were mounted.

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Add 1

Horsman explained the gyros would then sense the attitude rate and transmit this information to the stabilization systems which if required would then initiate corrective measures via the underground cable to the RCS engines in the Thermochemical area.

Throughout the series, G&C engineers had the capability of changing the flight simulator causing the stabilization system to initiate new RCS firings. For example, Horsman explained, the three axis flight simulator was placed in a motion causing the stabilization system to initiate RCS burns to damp out this movement.

This was accomplished by programmed commands through the analog computer or by manual operation of the hand controller on the test consoles in Building 16.

James P. Crabb of Propulsion and Power's Auxiliary Propulsion Test Section said this was the first time these two systems have been linked together in such a test.

bb said two quads of the RCS system were mounted in the test chamber at Building 353. An altitude of 130,000 feet was maintained in the chamber throughout the test series.

The RCS 100-pound thrust engines used in the test were flight qualified. Special aluminum nozzles replaced the qual tested nozzles of disilicide-coated molybdenum. This was done to assure proper measurement of the engine impulses during firing.

Engineers in the Auxiliary Propulsion Test Section monitored the RCS engine firings on the closed circuit TV in 353.

Test firings were conducted in 20-minute runs. Approximately 20 separate firings were made during each run. Crabb said each engine was fired approximately 500 times during the test.

Viewing the firings on the TV monitors in the control room in 353, one might miss a firing with the blink of an eye. A blip of light accompanied by a dull pop, similar to the crack of a .22 rifle marked the sights and sounds of the engine firings. Crabb explained the firings were milliseconds in length with 500 milliseconds the longest impulse during the test.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER   Houston
1, Texas

MSC 67-3
January 6, 1967

HOUSTON, TEXAS -- Twenty-five MSC employees and one NASA contractor recently received special recognition for their roles in Apollo test programs in the Space Environment Simulation Laboratory and Vibration and Acoustic Test Facility.

Dr. Maxime A. Faget, Director of Engineering and Development, presented the awards to personnel of the Structures and Mechanics Division, Instrumentation and Electronic Systems Division and to an employee of General Electric.

Structural Dynamics Branch personnel receiving Sustained Superior Performance awards for their work in the Vibration and Acoustic Test Facility (IM Test Article-3) were: Wade D. Dorland, Robert J. Wren, Donald K. McCutchen, Billy B. Nelson, William W. Boyd, Robert P. Bolte and Stephen Huzar and Louis Holguin of General Instrumentation Branch of Instrumentation and Electronic Systems Division. George E. Griffith received a Quality Salary Increase for his work in the LTA-3 test series.

Dr. Faget presented a letter of commendation to Dan Earl Newbrough of General Electric for his work on LTA-3.

SSP's were presented to the following SMD personnel for work on Apollo SC 008 test series in the Space Environment Simulation Laboratory: Robert D. Filbert, Albert L. Branscomb, James P. Vincent, Billy D. Etherton, James S. Moore, Peter B. Campbell, David G. Billingsley, Marion M. Lusk, and Edwin Kanyuck. Richard J. Piotrowski and James H. Chappée received Quality Salary Increases for their work on SC 008.

Dr. Faget also presented SSP's to Robert L. Johnson, William L. Castner, Samuel V. Glorioso, Robert E. Johnson and Leslie G. St. Leger members of the Structures and Materials Branch of SMD for their work in the solution of the titanium-methanol incompatibility problem which was the cause of the SC 017 tanks.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER



Houston
Texas

MSC 67-4
January 16, 1967

HOUSTON, TEXAS ...A new directorate has been formed at the NASA Manned Spacecraft Center to meet the Center's growing responsibility in the area of space science and applications.

In announcing the new Science and Applications Directorate, MSC Deputy Director George M. Low emphasized that the new organization will provide a point of contact for scientists throughout the country interested in taking part in the manned space flight program.

Low said that increasing emphasis has been placed on MSC's scientific base with assignment of responsibility in three major areas:

1. Lunar science programs.
2. Earth resources programs.
3. Meteorology investigations using manned spacecraft.

Other areas of science responsibility, performed in the past by various elements of the Center, also have been merged in the new directorate's charter. These areas include:

1. Space physics investigations.
2. Conceiving, developing and integrating experimental packages for science and applications programs.
3. Providing design data and real-time mission information on radiation, micrometeorites and lunar surface conditions for manned missions.
4. Supporting scientists in integrating their experiments into the manned space program.
5. Supporting astronaut training in science areas and experiment operation.
6. Handling the lunar sample program.

Low said a recognized scientist is being sought to head the new directorate. Meanwhile, Robert O. Piland has been named deputy director and will head the organization pending appointment of a director.

Low pointed out that scientists outside NASA are being urged to participate

MSC 67-4
Add 1

in the expanded effort here as principal investigators and lunar sample program experimenters.

In the earth resources-applications areas, the directorate will assess a variety of flight systems and data acquisition approaches and will study potential benefits to be derived from manned space application programs. Much of this work will be done in cooperation with other NASA centers and government agencies.

The potential of the earth resources effort includes more effective world crop status determination, better assessment of the world's water supply, aiding pollution studies, oceanography work and more accurate geological as well as geographical mapping.

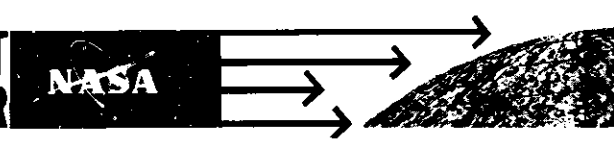
The new unit will employ 230 people, transferred primarily from the Space Science Division and Experiments Program Office, both of which have been merged into the new directorate. The directorate will embrace five offices and two divisions. Offices are Advanced Systems, Applications Analysis, Lunar Surface Project, Applications Project and Test and Operations. Divisions are Space Physics, and Lunar-Earth Sciences.

The directorate brings to six the number of directorates in MSC. The others are Engineering and Development, Flight Crew Operations, Medical Research and Operations, Flight Operations, and Administration. In addition there are three program offices: Gemini, which is being phased out; Apollo Spacecraft; and Apollo Applications.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER



Houston
1, Texas

HU 3-5111

MSC 67-5

January 23, 1967

HOUSTON, TEXAS...The National Aeronautics and Space Administration will launch the first manned Apollo mission from Cape Kennedy, Florida, no earlier than February 21.

The Apollo spacecraft command and service modules will be launched by an Upgraded Saturn I between 10 a.m. and 3:30 p.m. It will be an earth-orbital flight.

Purpose of the mission is to check out manned operation and performance of the spacecraft, ground tracking and control facilities. Although most of these checks can be completed during the first five hours of the "open ended" mission, the flight may continue as long as two weeks to perform additional experiments and to observe long-duration operation of the system.

Eight burns of the service propulsion system (SPS) 21,500-pound thrust engine are planned in the mission. In future flights to and from the moon, the SPS will provide thrust for midcourse guidance corrections and for lunar orbit entry and exit.

The crew members are Command Pilot Virgil I. Grissom, Senior Pilot Edward H. White, II, and Pilot Roger B. Chaffee. Backup crew is Walter Schirra, Donn F. Eisele, and Walter Cunningham.

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MSC 67-5

Included in the A/S 204 flight plan are 11 experiments. Six of the experiments fall into the medical category; four are scientific; and one is technical.

The eight liquid propellant engines of the Up-rated Saturn I first stage will generate 1,600,000 pounds of thrust for nearly two and a half minutes.

The single 200,000-pound thrust engine of the second stage will burn for about seven and a half minutes to insert the spacecraft into a 101- by 153-mile orbit at more than 17,500 miles an hour.

Separation of the Up-rated Saturn I second stage and the spacecraft will occur off the west coast of the United States about three hours after launch.

The first SPS burn is scheduled some 25 hours into the flight, and the final ignition of the engine is scheduled to set up re-entry and splashdown in the Atlantic Ocean about 350 miles southeast of Bermuda.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER    **Houston, Texas**

MSC 67-6
January 27, 1967

HOUSTON, TEXAS -- More than 1,200 persons representing government, industry, and educational organizations are expected to attend the Gemini Summary Conference at the Manned Spacecraft Center here February 1 and 2. The conference is open to news media representatives.

The conference will be broken into four major sessions, two each day. Session topics are Space Orbital Maneuvering, Man's Activities in Space, Operational Experience, and Gemini Onboard Experiments. The conference will end with a summary of the Gemini Program by Charles W. Mathews, Gemini Program Manager.

Dr. Robert R. Gilruth, MSC Director, will welcome the attendees, and the conference introduction will be by Dr. George E. Mueller, Associate Administrator, Office of Manned Space Flight.

Papers to be presented include: First session, Wednesday morning -- Review and Summarization of Rendezvous Operations, Ground Monitoring and Control of Rendezvous, Onboard Operations for Rendezvous, Operational Characteristics of the Docked Configuration, Operations with Tethered Space Vehicles.

Second session, Wednesday afternoon -- Summary of Gemini Extravehicular Activity, Life Support Systems for EVA, EVA Body Positioning and Restraints, EVA Maneuvering About Space Vehicles, Medical Aspects of Gemini EVA.

Third session, Thursday morning -- Radiation Environment Conditions at High Orbital Altitudes, Controlled Reentry, Department of Defense Support of Gemini, Gemini Results as Related to the Apollo Program, Pre-Gemini Medical Predictions Versus Gemini Flight Results.

Fourth session, Thursday afternoon -- Summary of Gemini Experiments Program, Space Photography, Experiments Results Summary, Astronaut Flight Experience.

Copies of the papers will be available at the MSC News Center where news media representatives will be registered.


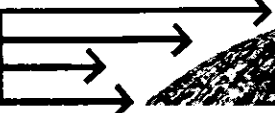
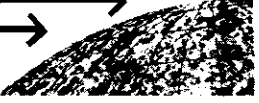
A 45-minute news conference with the chairman and speakers will be held in the News Center approximately ten minutes after each session. The conference will be monitored by closed circuit television in the News Center, and it will be possible to cover from that location.

The summary conference will be in the MSC Auditorium, Building 1, which seats 800 persons. Several hundred of the attendees will watch the conference via closed circuit TV in smaller auditoriums at MSC.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER    Houston
1, Texas

MSC 67-7
January 27, 1967

HOUSTON, TEXAS -- The NASA board investigating the explosion which destroyed a Saturn V S4B Stage at the Sacramento, California static test stand January 20 has determined that the underlying cause of the explosion appears to be weld deficiencies in high pressure vessels in the stage. The cause will be confirmed by further evaluation testing.

The board also determined that the deficiencies occurred only in pressure vessels produced during a limited period. The pressure vessels on the S4B stage for the Apollo/Saturn 204 vehicle, scheduled for launch no earlier than February 21 at Cape Kennedy, were not produced during the period when the deficient welds were made. However, as a precaution, the weld integrity of pressure vessels in AS-204 is being verified. This is not expected to delay the launch.

The board investigating the S4B explosion was named January 21 and is headed by Dr. Kurt Debus, Director of the Kennedy Space Center.

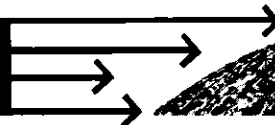
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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER

NASA



Houston
1, Texas

HU 3-5111

MSC 67-8

February 13, 1967

Houston, Texas...Dr. Wilmot Norton Hess, 40, Chief of the Theoretical Division of the National Aeronautics and Space Administration's Goddard Space Flight Center, Maryland, has been appointed Director of the newly-organized Science and Applications Directorate at the NASA Manned Spacecraft Center in Houston.

Dr. Robert R. Gilruth, MSC Director, said Dr. Hess, a nuclear physicist formerly on the teaching and research staff of the University of California, will assume his post at MSC in the near future.

MSC's Science and Applications Directorate was organized at the beginning of this year in recognition of the increased emphasis on the scientific and applied aspects of NASA's manned space flight activities.

Dr. Hess, who has published more than 40 articles on radiation fields and energetic particles, will lead the new Directorate in the planning and implementation of major programs in the areas of lunar science, earth resources and manned meteorology programs.

The Directorate activities will also include conceiving, developing and integrating experimental packages for science and applications

- more -

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MSC 67-8

programs, provision of design data and real-time mission information on radiation, micrometeorites and lunar surface conditions for manned missions; supporting principal investigators in integrating their experiments into the manned space program; supporting astronaut training in science areas and experiment operation; and managing the lunar sample program.

Dr. Gilruth said the appointment of Dr. Hess to head the Directorate brings to the post a nationally-recognized scientist who will lead investigators and experimenters in the broadening space research aspects of Manned Spacecraft Center's activities.

Mr. Robert O. Piland, who has served as Deputy Director of the organization since it was formed, will continue in this capacity.

The new unit will employ 230 people in five offices and two divisions. Offices are Advanced Systems, Applications Analysis, Lunar Surface Project, Applications Project and Test and Operations. Divisions are Space Physics, and Lunar-Earth Sciences.

Dr. Hess has been chief of the Goddard Theoretical

Add 2
MSC 67-8

Division since 1961. He came to Goddard from a post as chief of the Plowshare Division of the University of California's Lawrence Radiation Laboratory at Livermore, which he held from 1959 to 1961.

His scientific interests have included high-energy nuclear physics, neutron scattering, cosmic ray neutrons and major studies of the Van Allen radiation belts.

From 1956 to 1959, Dr. Hess was at the University of California laboratory at Berkeley, prior to which he had been a group leader in experimental hydrodynamics at Lawrence Radiation Laboratory from 1954 to 1956. He also had a tenure as an instructor of physics at Oberlin College, Ohio.

Born at Oberlin, Ohio, in October 1926, Dr. Hess obtained his Bachelor of Science degree at Columbia University, N. Y., his Master of Arts Degree from Oberlin College in 1949 and Doctor of Philosophy Degree from the University of California, 1954.

Dr. Hess is a member of the American Geophysical Union, the American Physical Society, the American Association for the Advancement of Science and the Washington Philosophical

Add 3
MSC 67-8

Society. He is an associate editor for five scientific journals, The Journal of Geophysical Research, The Journal of Atmospheric Sciences, Space Science Review, The Review of Geophysics and the AIAA Journal.

He served as editor of the recently-published volume, Introduction to Space Sciences.

Dr. Hess and his wife, Mrs. Winifred Esther Hess, have three children: Walter, 9; Alison Lee, 8; and Carl, 6. They presently reside at Silver Spring, Maryland.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER    Houston
1, Texas

March 15, 1967
MSC 67-9

WASHINGTON, D.C. -- The NASA has awarded a contract to Bell Aero-
systems Company, Buffalo, to provide three vehicles which the astro-
nauts will use to practice simulated landings on the moon.


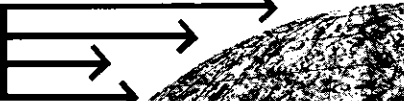
Under the 5.9 million dollar contract the New York firm will provide
three of the moon craft known as Lunar Landing Training Vehicles (LLTV).
The fixed price contract with NASA's Manned Spacecraft Center, Houston,
will run through December 1967 and will include checkout parts and
associated equipment and spare parts.

The LLTV as it is called will provide astronauts with a vehicle
capable of simulating a landing on the moon where gravity is only one
sixth that of earth. During training flights the LLTV is flown to an
altitude of about eight hundred feet and is then maneuvered to a gentle
touchdown in much the same manner and with similar controls astronauts
will use for actual landings on the moon.

The LLTV is a modified version of a research and development
vehicle, the Lunar Landing Research Vehicle, built by Bell, which has
been test flown at NASA's Flight Research Center, Edwards, California.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER   Houston
1, Texas

March 15, 1967
MSC 67-9

WASHINGTON, D.C. -- The NASA has awarded a contract to Bell Aero-
systems Company, Buffalo, to provide three vehicles which the astro-
nauts will use to practice simulated landings on the moon.

Under the 5.9 million dollar contract the New York firm will provide
three of the moon craft known as Lunar Landing Training Vehicles (LLTV).
The fixed price contract with NASA's Manned Spacecraft Center, Houston,
will run through December 1967 and will include checkout parts and
associated equipment and spare parts.

The LLTV will provide astronauts with a vehicle capable of sim-
ulating the one-sixth gravity environment of the moon. When in use,
the LLTV is flown to an altitude of about 4,000 feet, then cut loose.
Through the use of jet engines, the pilot can damp out five-sixths
of the gravity force of the vehicle. The remaining one-sixth gravity
is supported by rocket motors simulating lunar landing conditions.

The LLTV is a modified version of a research and development
vehicle, the Lunar Landing Research Vehicle, built by Bell, which has
been test flown at NASA's Flight Research Center, Edwards, California.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER    Houston
1, Texas

MSC 67-10
March 16, 1967

WASHINGTON, D.C. -- One-hundred-ten scientists from the United States and six other countries were chosen today to conduct experiments with the first samples of the moon's surface returned to earth by U.S. astronauts.

In all, the scientists will conduct 122 experiments with the lunar samples since some scientists will make more than one experiment. Thirty-three of the experiments will be carried out by twenty-seven scientists in laboratories of other countries.

It is planned that the two astronauts who first land on the moon in the Apollo program will return approximately fifty pounds of lunar material to earth. The samples will be studied by scientists of a variety of disciplines to determine the composition of the lunar surface and to search for evidence of its origin.

The four major investigative areas are mineralogy and petrology, chemical and isotope analysis, physical properties, and bio-chemical and organic analysis.

The U.S. principal investigators represent 21 universities, two industrial firms, three private institutions, and ten government laboratories.

In England, the principal investigators represent nine scientific institutions. In Germany, three are represented and in Canada, Japan, Finland and Switzerland, one each.

Most of the investigations will be made by scientists in their own laboratories, but time-critical experiments will be conducted in the Lunar Receiving Laboratory at NASA's Manned Spacecraft Center, Houston, in the period of quarantine which is anticipated to last about 30 days.

The Lunar Receiving Laboratory, now nearing completion, will be a central complex where lunar surface materials will be received, quarantined, and processed for distribution to principal investigators.

Fifty pounds of samples will arrive at the Laboratory in two vacuum-sealed containers weighing a total of 80 pounds.

The samples will be stored under vacuum and most of the operations with the

MSC 67-10

add 1

samples in the Laboratory will be performed under vacuum in order to keep the collected material in an environment similar to the moon's. All of the operations with the samples in the Laboratory will be performed behind biological barriers to eliminate organic and inorganic contamination and to insure that earth quarantine is not violated.

Some 130 proposals for scientific studies of the lunar samples involving more than 400 scientists were received by the June 15, 1966, deadline.

Selection of investigators was made by NASA's Associate Administrator for Space Science and Applications, Dr. Homer E. Newell, upon the recommendation of the Space Science Steering Committee.

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NEWS RELEASE - NATIONAL AERONAUTICS AND SPACE ADMINISTRATION MANNED SPACECRAFT CENTER Houston 1, Texas

HU 3-5111

MSC 67-11
March 24, 1967

Houston, Texas -- Fifteen high school students representing Texas, Oklahoma, Kansas, Colorado, and North Dakota, will participate in the Youth Science Congress to be conducted at Manned Spacecraft Center, Houston, Texas, April 5-7, 1967. They are: (See attached list)

The Houston conference is one of nine conducted at National Aeronautics and Space Administration facilities throughout the United States each spring. The conferences are jointly sponsored by NASA and the National Science Teachers Association.

During the course of the conference at Manned Spacecraft Center, each of the 15 attending participants will present an oral report on a scientific project or research-type study. In addition, each will engage in discussion sessions with fellow students and NASA scientists.

The program will include a tour of the MSC facilities, as well as a tour of the Houston and Galveston Bay area with visits to the Astro-dome, the Burke-Baker Planetarium, and the San Jacinto Monument and Battleship Texas. During the conference the group will be luncheon guests one day in the space center's cafeteria and will hear an astronaut speak.

###

1967 NASA-NSTA YOUTH SCIENCE CONGRESSES
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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-12

March 30, 1967

Houston, Texas -- A U. S. Patent has been awarded to five employees of the NASA Manned Spacecraft Center for design improvements of the Radial Module Space Station.

The patent is among six inventions of MSC employees and former Center employees which recently received U. S. Patent Office acceptance and approval. Marvin Mathews, MSC Patent Counsel, said another invention by an MSC employee has been allowed by the patent office. A patent will be issued shortly, he said.

The space station invention was the handiwork of Owen Maynard, Willard Taub, David Brown, Edward Olling and Robert M. Mason. This invention which received Patent Number 3,300,162 comprises three elongate rigid cylindrical modules, each of which, when fully erected, extends radially from a central hub structure which includes hangar and docking facilities for spacecraft.

This is the thirty-third MSC employee invention approved and accepted by the U. S. Patent Office. Possibly the most famous MSC invention among these was the one submitted by Dr. Max Faget on October 17, 1959, for the Mercury "space capsule." The spacecraft invention was granted Patent Number 3,270,908 last fall after more than seven years of technical search and review by the U. S. Patent Office.

Add 1
MSC 67-12

Included in the list of inventions is one submitted by Richard R. Richard, of the General Instrumentation Branch of Instrumentation and Electronics Systems Division. Richard's invention is an improved angular accelerometer for measuring angular accelerations during flight.

Richard's idea, Patent Number 3,295,377 is an improvement over existing accelerometers which are undesirable for use in harsh environments since their operation is adversely affected by large temperature variations and vibrations which induce unwanted signals. This new accelerometer is of relatively lightweight, rugged construction with an uncomplicated measuring circuitry.

Other patents issued to MSC employees during the past several weeks:

-Patent Number 3,298,362 - Maxwell W. Lippitt, Jr., of Crew Systems Division and Dr. John H. Reed, Jr., formerly with CSD, for their invention of a fluid pressure control device for use in evaluation of the cardiovascular system.

-Patent Number 3,301,507 - to Edward E. Mayo and Robert H. Lamb, both former MSC employees, for their design improvements in a Hypersonic Reentry Vehicle.

Add 2
MSC 67-12

-Patent Number 3,303,304 - to Carlisle C. Campbell, Jr., Structures and Mechanics Division, Joseph A. Chandler, and Thomas M. Grubbs, both of Advanced Spacecraft Technology Division, for their design of a compact lightweight and reliable altitude sensing device.

-Patent Number 3,308,848 - to Harold I. Johnson, Flight Crew Support Division, and Orrin A. Wobig, Technical Services Division for their improved design of a fluid power transmission system.

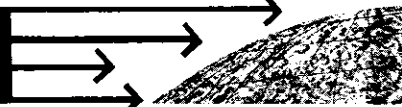
The Cryogenic Storage System invention of William A. Chandler and Robert R. Rice of Propulsion and Power Division is awaiting a patent number. Mathews said the patent office has approved this idea. A Patent number is pending.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-13
March 27, 1967

Houston, Texas -- Warren J. North, Chief, Flight Crew Support Division, Flight Crew Operations Division, NASA Manned Spacecraft Center, will present a technical paper on astronaut training at the Third International Simulation and Training Conference being held April 24-27, at the Statler Hilton Hotel in New York City.

North's paper entitled, "Qualitative and Quantitative Results Obtained in Astronaut Training," will be presented in the afternoon session on April 26. This paper will include a discussion of training techniques for complex mission simulations, and also how past flight and simulation experience in rendezvous, docking and extravehicular activity during the Gemini program, is now being utilized for simulation purposes.

He entered Government service in 1947 at Lewis Flight Propulsion Lab and in October of 1958 joined the manned space program. Degrees held by North include a BS degree from Purdue in aeronautical engineering, an MS degree in theoretical aeronautical engineering from Case Institute of Technology, and an MS degree in applied aeronautical engineering from Princeton.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER    **Houston**
1, Texas

Released by NASA Headquarters

MSC 67-14
April 5, 1967

WASHINGTON, D.C. -- Two personnel changes in the National Aeronautics & Space Administration Manned Space Flight organization were announced by Dr. George E. Mueller, Associate Administrator for Manned Space Flight.

Dr. Joseph F. Shea, Manager, Apollo Spacecraft Program Office, Manned Spacecraft Center, Houston, has been named Deputy Associate Administrator for Manned Space Flight in Washington. As Deputy to Dr. Mueller, Dr. Shea will be responsible for technical aspects of the manned flight program.

George Low, Deputy Director of the Manned Spacecraft Center, will succeed Dr. Shea, with changes effective April 10.

"We have spent a great deal of time and study on our total strength in the Office of Manned Flight since the end of the Gemini flight program and as we have approached the period of manned flight in Apollo," Dr. Mueller said. "These changes reflect our efforts to give us more breadth and depth in the management of the manned flight program."

Prior to his appointment in February 1964, as Deputy Director of the Manned Spacecraft Center, Low was Deputy Associate Administrator for Manned Space Flight at NASA Headquarters. He has been associated

with NASA and its predecessor, NACA (National Advisory Committee for Aeronautics) for 18 years.

Low was born in Vienna, Austria, in 1926. He earned a Bachelor of Aeronautical Engineering Degree in 1948, and a Master of Science in Aeronautical Engineering Degree in 1950, both from Rensselaer Polytechnic Institute.

Low joined NACA at the Lewis Research Center in Cleveland in 1949. There he specialized in research in the fields of aerodynamic heating, boundary layer theory and transition, and internal flow in supersonic and hypersonic aircraft. At Lewis he was Head of the Fluid Mechanics Section, and later Chief of Special Projects Branch.

In October 1958, when NASA was established, he was assigned to the Headquarters as Assistant Director for Manned Space Flight Programs. Early in 1961, Low was Chairman of the select committee which performed the original studies leading to the Manned Lunar Landing Program.

Dr. Shea has been closely associated with the Apollo program since he joined NASA in January 1962 as Deputy Director for Systems, Office of Manned Space Flight, Washington. In October 1963, he was appointed Manager of the Apollo Program Office at the Manned Spacecraft Center.

Born in New York City on September 5, 1926, Dr. Shea earned a Bachelor of Science Degree in mathematics and Master of Science and Ph.D degrees in Engineering Mechanics from the University of Michigan.

Shea formerly was Space Program Director at the Space Technology Laboratories in Los Angeles, California, after serving as Advanced Systems R&D Manager with General Motors' AC Spark Plug Division.

Prior to his assignment as Military Development Engineer with the Bell Telephone Laboratories, Dr. Shea was an instructor in engineering mechanics at the University of Michigan.

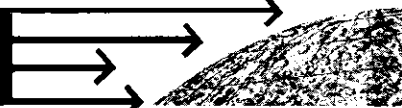
Dr. Shea received the Commander's Award, U.S. Intercontinental Ballistic Program and the Arthur S. Fleming Award in 1965.

He is a member of the American Institute of Aeronautics and Astronautics, the Society of Mechanical Engineers, the Institute of Radio Engineers, and the Institute of Electronics Engineers.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67- 15
April 12, 1967

The American Astronautical Society's annual Space Flight Award May 3 will be presented to MSC Director Dr. Robert R. Gilruth at the AAS Honors Night dinner in Dallas, Texas.

The award cites Doctor Gilruth "for his distinguished contributions to aeronautical and space research leading to the successful accomplishment of manned space flight, his direction of the continuing investigation of man's capabilities in space, and his active participation in the scientific community for the public good."

Gemini XI pilots Charles Conrad and Richard F. Gordon will receive the AAS Flight Achievement Award "for their new space flight altitude record and the world's first one-orbit rendezvous on Gemini XI."

The Society has also named two MSC officials to fellowships in the AAS. They are MSC Director of Medical Research and Operations Dr. Charles A. Berry and MSC Director of Engineering and Development Maxime A. Faget.

Dr. Berry's election as an AAS Fellow is "for providing exceptional medical support for the NASA manned spacecraft programs and his contributions toward expanding the organizational dimensions of the medical profession."

- more -

Add 1
MSC 67-15

Faget was cited "for his contributions to the basic conceptual design of the Mercury spacecraft and his subsequent engineering efforts on Project Mercury as head of the Flight Systems Division, and for his present significant role in the Gemini and Apollo programs."

Also named AAS fellows are Charles W. Mathews, former manager of the Gemini Program Office at MSC, and Walter C. Williams, former MSC Deputy Director. Mathews is now Director of Apollo Applications, NASA Office of Manned Space Flight. Williams is now vice president and general manager of Aerospace Corporation's Manned Systems Division.

The AAS Honors Night dinner will be held at 7 p.m., May 3, at the Statler-Hilton in Dallas.

The 1965 AAS Space Flight Award went posthumously to Dr. Hugh L. Dryden, who at the time of his death in December, 1965, was Deputy Administrator of NASA.

Frank Borman, James A. Lovell, Walter M. Schirra and Thomas P. Stafford received last year's Flight Achievement Award for accomplishing the world's first space rendezvous in the Gemini VI/VII mission. Winners in previous years have included Charles A. Lindbergh, L. Gordon Cooper, Jr., John H. Glenn, Alan B. Shepard and Virgil I. Grissom.

Add 2
MSC 67-15

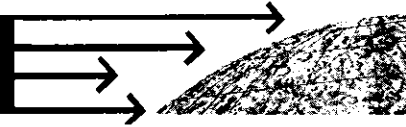
Others at MSC previously elected Fellows of the Society are Gilruth, Cooper, Schirra, M. Scott Carpenter, Christopher C. Kraft, George M. Low and Dr. Joseph F. Shea.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-16
April 13, 1967

HOUSTON, TEXAS --- The second of three phases to evaluate the use of heavy-lift helicopters to support recovery of Apollo spacecraft in the launch area is being conducted by the National Aeronautics and Space Administration and the Department of Defense, at Eglin Air Force Base, Florida.

Phase 1 tests were completed in January at Ellington Air Force Base by the Manned Spacecraft Center and the Air Force Aerospace Rescue and Recovery Service based at Orlando AFB, Florida.

The first series of tests was to define equipment and spacecraft loads and to evaluate spacecraft stability in flight beneath a Sikorsky Aircraft CH-53A cargo helicopter. As a result of these tests, certain modifications were made to some of the test equipment. The Phase II tests will take two to three weeks to complete.

Completion of the test series will demonstrate the practicality and effectiveness of using heavy-lift helicopters for Apollo crew and spacecraft recovery in the immediate area of launch pads 37 and 39 at the Kennedy Space Center. These two launch sites are surrounded by marsh, beach and surf areas not readily accessible to standard recovery equipment.

- more -

Add 1
MSC 67-16

Recovery in the launch site area would be required in the event of a launch escape system (LES) abort from or just off the launch pad.

Phase II testing, to be conducted at Eglin AFB, near Ft. Walton Beach, Florida, will be aimed primarily at developing operational equipment, techniques and procedures for use at the Kennedy Space Center launch area. Procedures will be developed to include recovery with a heavy-lift helicopter over dry land, marsh, calm shallow water, open sea and surf.

At the conclusion of the tests at Elgin AFB, a simulated in-flight refueling of the CH-53A helicopter, with the Apollo spacecraft in tow, will be conducted with an Air Force HC-130P tanker. The two craft will be positioned in-flight as if a refueling operation were taking place.

The spacecraft crew could, but normally would not, be recovered in the spacecraft. Nominal recovery plans call for two helicopters to be used, one to retrieve the crew -- the primary goal of any manned mission recovery -- and the other to pick up the spacecraft.

In the evaluation tests, NASA is responsible for design, fabrication and equipment-vehicle interface of Apollo-unique equipment. The DOD is responsible for the aircraft, crew, flight procedures, and deployment of the helicopters should they prove

Add 2
MSC 67-16

feasible for spacecraft recovery.

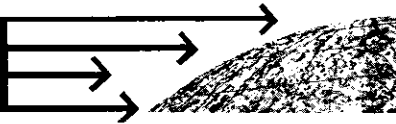
The MSC Landing and Recovery Division of Flight Operations Directorate is conducting the tests for NASA. Robert L. Tweedie, Recovery Systems Branch, is project engineer. Marion C. Coody, Operational Test Branch, is test conductor.

The aircraft are being provided by the 48th Aerospace Rescue and Recovery Squadron, Eglin AFB. Chief helicopter pilot is Air Force Capt. Don Lindenberger.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-17
April 24, 1967

HOUSTON, TEXAS -- The NASA Manned Spacecraft Center has awarded a \$500,000 contract to Massachusetts Institute of Technology, Cambridge, Mass., for the study of an advanced control guidance and navigation system for long-range manned missions beyond Project Apollo.

Under the terms of the contract, the Division of Sponsored Research of MIT will study, develop, and laboratory test advanced guidance and navigation techniques to support extended manned missions from 28 days to a year or more. MIT will provide the necessary technical skills, services, and materials to accomplish this development program.

Specifically, the NASA is looking for a guidance and navigation system which will perform efficiently many diverse tasks for many changes in spacecraft module configuration.

Long duration missions make it necessary to develop equipment which operates on less electrical energy and places few demands on the environmental control system. Also, extended mission spacecraft should be able to make navigation measurements without the rigid constraints imposed on spacecraft attitude.

The NASA contract calls for MIT to develop and demonstrate, via laboratory tests, an advanced G&C technique which will minimize spacecraft constraints, enhance mission flexibility and eliminate the mission-time dependency of G&C system reliability, while maintaining adequate performance to accomplish mission requirements.

MIT will organize the study into four major task areas: System Integration, Computer Design, Inertial Sensors, and Optical Systems.

-- System Integration will insure the overall physical and operational requirements for advanced manned mission G&C are defined and met.

-- Inertial Sensors development will provide inertial sensors to meet G&C requirements for the next five years.

-- Computer Design will provide the studies necessary to establish the structure of an advanced spacecraft computer subsystem.

-- Optical systems development will provide optical sensors and instruments for navigation measurements which have performance reliability and accuracy for long-duration manned missions in the earth-moon system and other solar system planets.

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Examination revealed the boulder to be approximately nine meters (28.8 feet) in diameter and nearly spherical in shape. Eggleston points out in the technical report that the boulder's spherical shape is not typical of other rocks nearby or those on the rim of the crater.

Eggleston said the investigation shows the boulder does not reflect light in the same manner as most other lunar material. The report explains this unusual characteristic is due possibly to the compressing or rubbing effect of the boulder's movements down the wall of the crater.

The most interesting conclusions in the report are that near-spherical boulders with unusual characteristics exist on the moon. Some of these boulders have moved recently enough that their tracks have not been obliterated by lunar erosional processes.

Another point highlighted in the report is that the walls of the Sabine D crater appear to be covered with a compressible material which clearly recorded the passage of this boulder.

Commenting on the study, Eggleston said, "Since the track is still visible, we conclude that the moon is still a living body and still has things happening to it."

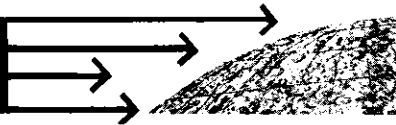
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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANAGED SPACECRAFT
CENTER

NASA



Houston
1, Texas

HU 3-5111

MSC 67-18
April 27, 1967

HOUSTON, TEXAS -- A certain "rolling stone" on the surface of the moon was the object of a recent detailed scientific study at the NASA Manned Spacecraft Center.

This particular "rolling stone" drew the attention of MSC scientists because of its clearly defined trail and the fact that it rolled down the sloping wall of a lunar crater. Approximately 30 feet in diameter, the stone rests near the bottom of a mile-wide crater, Sabine D (23 deg. 39 min E, 1 deg. 20 min N), in the southern Sea of Tranquility approximately three miles away from one of the eight Apollo landing sites recently selected by the NASA.

John Eggleston, Acting Chief of the Lunar and Earth Sciences Division, Space Sciences and Application Directorate, said the Sabine boulder is unique in that it appears to have been dislodged from the upper ridge and rolled down the wall of the crater. Other boulders or rocks on the lunar surface appear to have been thrown out of craters, rolling a short distance before stopping.

Scientists of the Lunar and Earth Sciences Division first noticed the large stone when scanning Orbiter II for possible Apollo landing sites. A preliminary investigation was started several months ago to determine some of the physical characteristics of the rolling stone and of the surrounding lunar terrain.

Writing in a NASA Technical Memorandum (TM X-58007), Eggleston and his co-authors state, "The area where the boulder is located is one of the better lunar module landing sites. Thus, any information derived from this investigation will be helpful in the selection of lunar module landing sites."


A clearly defined track which runs from the ridge to the bottom of the crater, Sabine D, is what first caught the eye of MSC scientists. The track of the boulder was found to average five meters (16 feet) in width and about 700 meters (2,240 feet) in length.

Stereoscopic measurements of the crater further determined it to be 2700 meters (approximately 1½ miles) in diameter and 550 meters (1,760 feet) deep. The average slope of the wall is approximately 31 degrees and the point where the stone rests about 13 degrees.

-more-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER



Houston 1, Texas

HU 3-5111

MSC 67-19
May 2, 1967

HOUSTON, TEXAS -- Representatives of some 160 federal government and private industry organizations will meet in the fifth annual workshop of the Interagency Data Exchange Program (IDEP) May 16-18 at Clear Lake.

The workshop, to be held at the Nassau Bay Motor Hotel across the highway from the Manned Spacecraft Center, will follow the theme, "Economy, Reliability, Standardization."

Co-sponsors of the three-day session are General Electric Co. and the Manned Spacecraft Center.

IDEP is a government chartered program designed to provide interchange of test data among government agencies and their contractors to reduce duplicated spending for component testing and to improve system reliability.

The IDEP members are users, rather than manufacturers, of parts and components used in the manufacture of equipment for the Air Force, the Army, the Navy, and the National Aeronautics and Space Administration.

The workshop's call to order will be at 9 a.m. May 16. The welcoming address will be presented by L.W. Warzecha, manager of the Apollo Support Dept. of General Electric's Manned Spacecraft Center Support Operation.

Workshop keynoter will be Dr. B. L. Dorman, assistant administrator for Industry Affairs, NASA.

Other speakers during the course of the workshop include Lt. Gen. Thomas P. Garrity, deputy chief of staff of the Air Force Systems and Logistics Headquarters, Capt. H. B. West, director of the Naval Air Systems Command's Propulsion Division, and Col. H. F. Vincent of the Army Materiel Command.

Program chairman is Irving Jurist, North American Aviation Inc., Space and Information Systems Division. Chairman of the IDEP Contractor Advisory Board, which sponsors the workshop, is Dallas H. Trent of the Martin Co., Orlando Division.

The workshop, which will include a tour of the Manned Spacecraft Center, is scheduled to adjourn at 4:30 p.m., May 18.

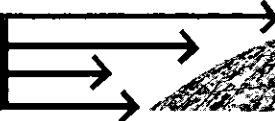
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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNNED SPACECRAFT
CENTER

NASA



Houston
1, Texas

MSC 67-20
May 5, 1967

HOUSTON, TEXAS -- The NASA Manned Spacecraft Center today announced the award of a \$405,000 contract to Rocket Research Corporation, Seattle, Washington, for two hand-held maneuvering units for use in extravehicular activity during future manned space-flight missions.

The contract calls for delivery of two units and two extra propellant tanks.

The EVA units are patterned after the hand-held maneuvering unit developed at the Manned Spacecraft Center and used during Gemini IV, the nation's first manned EVA activity, May 1965. The units to be developed by Rocket Research will be flight qualified, although no definitive flight assignment has yet been assigned for use of this equipment.

The Rocket Research EVA unit will have a 250 P-S (pound second) capability which will give an astronaut a fair amount of maneuvering ability. The propellant will be a hydrazine mixture and the device will be designed to permit an astronaut to change propellant tanks during EVA flight. The Gemini IV unit had the capability of only 50 P-S (pound second).

It is proposed an astronaut will use the device in future flights to maneuver from one point to another during EVA.

The contract calls for delivery of the two units and two extra propellant tanks by February 1968.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER



Houston
1, Texas

HU 3-5111

MSC 67-21
May 8, 1967

HOUSTON, TEXAS - A West Virginia University graduate has been awarded a Certificate of Achievement for his efforts as a member of the Manned Spacecraft Center team which carried out the 12-mission Gemini space flight project for the National Aeronautics and Space Administration.

Lemuel S. Menear, son of Mr. and Mrs. Steve Mavros of Granville, West Virginia, was one of the recipients of the Group Achievement Award made to the Gemini Support Team at MSC. The certificate stated, "The exceptional support of this team was a key factor in the outstanding success of the Gemini Program."

Menear is Chief of the Quality Assurance Office in the Manned Spacecraft Center Flight Safety Office, where he had responsibility for developing quality programs to insure that flight and ground equipment procured comply with standards necessary for manned space flight missions.

During the Gemini Program, from March 1962 until October 1966, Menear was Reliability Advisor to the Gemini Program Office.

Menear joined NASA in 1962 after more than 10 years of reliability engineering experience with the Air Force and Lockheed Missile and Space Division, during which he worked on such programs as Polaris and Snark missiles and major aircraft development projects.

At West Virginia University, Menear obtained a Bachelor of Science degree in Education in 1949 and a Bachelor of Science degree in Electrical Engineering in 1950. He is a veteran of World War II and served overseas in European Theater.

MSC 67-21
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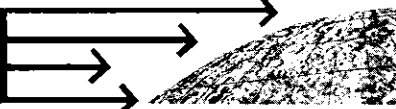
He is a member of the American Institute of Aeronautics and Astronautics, the American Society for Quality Control, and the Institute of Electrical and Electronic Engineers. He has authored or co-authored several technical papers. Menear is an elder in the United Presbyterian Church and is active in YMCA and Boy Scout work.

Menear is married to the former Mary Irene Groghan, daughter of Mr. and Mrs. Belle Groghan of Westover, West Virginia. The Menears have four children. The family resides in Houston.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-22
May 9, 1967

HOUSTON, TEXAS - There will be a press conference with the first manned Apollo flight crew at North American Aviation, Inc., Space Division Plant, Downey, California, at 11:30 a.m., Pacific Daylight Time, (1:30 p.m. Central Daylight Time) Wednesday, May 10, 1967. Present will be Capt. Walter M. Schirra, Maj. Donn F. Eisele, and Mr. Walter Cunningham, prime crew, and Lt. Col. Thomas P. Stafford, Cmdr. John W. Young, and Cmdr. Eugene A. Cernan, backup crew.

An effort will be made to pipe the sound to the Manned Spacecraft Center's news center. For further information, contact NAA Space Division's News Bureau at Downey, California, Area Code 213, 773-0610, extension 6468.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-23
May 19, 1967

HOUSTON, TEXAS -- The Manned Spacecraft Center announced today the award of a contract to Wackenhut Services, Incorporated, Coral Gables, Florida, to provide the Center with protective security and fire protection services. The contract period begins on July 1, 1967, and continues through June 30, 1968. The contract contains options for two additional one-year periods.

The estimated cost of the contract is \$1,240,000 per year and a staff of 142 full-time and 10 part-time personnel will carry out the terms of the contract.

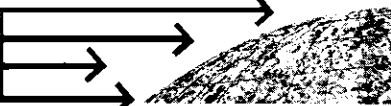
For the past three years, protective security services at MSC were performed by the M & T Company of Philadelphia, Pa., and fire protection service was provided by the Houston Fire and Safety Equipment Co. of Houston, Texas.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-24

May 22, 1967

HOUSTON, TEXAS -- One of 14 Contractor Advisory Board members elected during the Interagency Data Exchange Program (IDEP) fifth annual workshop just completed in Houston is

He attended the workshop and is a member of the board as a representative of

The Interagency Data Exchange Program is made up of some 160 Government agencies and private industry firms and is designed to establish an exchange of data on tests of component parts that make up equipment used by the Government.

The workshop was a three-day session conducted at the Clear Lake area of Houston, site of the National Aeronautics and Space Administration's Manned Spacecraft Center.

MSC and the General Electric Co. co-hosted the conference.

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Name Address Company Newspaper

- ② 1) DAVID KESSLER 2030 TIERRA LOMA DR NORTHROP NORTHROP DIAMOND BAR, CALIF
- ③ 2) 111 W. ... 308 ...
- ③ 3) PETER AMEDEO 848 JERUSALEM AVE GRUMMAN AIRCRAFT CO. "LONG ISLAND PRESS" NO. MERRICK, N.Y. "MERRICK LIFE" GRUMMAN "PLANE NEWS"

~~5 IRVING JURIST ... LAKELAND ... LAKELAND ... DUNNY ... GAET~~

6 Wm ... Lower ...

② 7) S. A. Buckingham 8500 2nd Ave. Silver Spring, Md Applied Physics Lab., The Johns Hopkins Univ., Silver Spring Md Washington Post & Evening Star - both in Washington, D.C.

① 8) CHARLES E. KEYS 15897 LONGWOOD DR. LOS GATOS, CALIF. LOCKHEED MISSILE & SPACE CO., SUNNYVALE, CALIF. (1) SAN JOSE, MERCURY.

① 9) DONALD B. SKINNER TETERBORO, N.J. THE BENDIX CORP. NAVIGATION & CONTROL DIV. (1) THE BERGEN RECORD HACKENSACK, N.J.

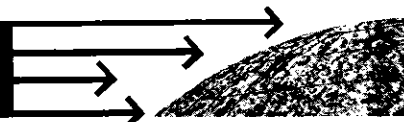
① 10) D. TRENT - 1219 Fernwood DR CRRANCO FLA, MARTIN. MAR 1949 CLEVELAND SENTINAL

	NAME	ADDRESS	COMPANY	NEWSPAPER
① (10)	EDWARD T. MINGOIRE	175 HIGH ST TEMPLEFIELD, MASS.	AVCO MISSILE SYSTEM DIVISION	SALEM, NEWS SALEM, MASS.
③ 12 10	EDWARD L. DURBIN	3008 BELLEVILLE BELLEVILLE, ILLINOIS	McDONNELL	11 COMMUNITY NEWS + 22 POST DISPATCH + 37 GLOBE DEMOCRAT ST. LOUIS, MO
① 13 10	WILLIAM D. SMITH	1199 WOODSTOCK AVE SALT LAKE CITY, UTAH	SPERRY UTAH CO.	SALT LAKE TRIBUNE
① 14	EDWARD J. REID	MZ 562-10, P.O. BOX 1128	GENERAL DYNAMICS / CONVAIR	SAN DIEGO, CALIF. 92112 EVE. TRIBUNE

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-25
May 23, 1967

HOUSTON, TEXAS -- The newest addition to the family of test facilities at the NASA Manned Spacecraft Center -- the Land and Water Impact Facility -- will be put into operation within the week.

Apollo and future manned mission spacecraft will undergo rigorous impact testing at the facility, located in the northwest corner of MSC. The Land and Water Impact Facility, which resembles a portion of a railroad trestle, is a steel frame 100 feet long, 39 feet wide and 20 feet high. For water drop tests an 18-foot deep pool 160 feet in length and 39 feet wide, is located at the west end of the tower.

Flight configured spacecraft and boilerplate spacecraft will be dropped from the test tower, either into the 18-foot pool or onto the ground. Technicians of the Landing and Docking Branch, Structures and Mechanics Division of the Engineering and Development Directorate, will conduct the tests and impact studies of the drops.

The first series of drop tests scheduled after June 1 will be to duplicate landing characteristics in the event of a pad abort at Cape Kennedy, Florida. Vertical descent of 30 FPS (feet per second) will simulate that of an Apollo Command Module during a land landing at the Cape.

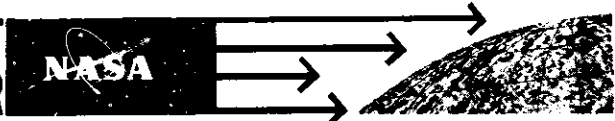
Actually, this is the second generation of spacecraft testing for this test unit. The structure, originally located at the McDonnell Aircraft Corporation, St. Louis, Missouri, was used in water impact studies for the Gemini spacecraft. Recently dismantled and shipped to Houston, it has been modified for use in the support of the Apollo Program and long-range impact studies for future spacecraft.

In addition to duplicating the vertical velocity, the test facility, through a pneumatic catapult system, is capable of building required horizontal wind velocity into the tests. Jerry McCullough, project engineer in charge of the test tower, said winds of 40 FPS (approximately 22 miles per hour) will be simulated during normal drops. McCullough said winds as high as 65 FPS can be programmed into the system.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER



Houston 1, Texas

HU 3-5111

MSC 67-26
May 25, 1967

HOUSTON, TEXAS -- While many engineers, technicians, and scientists at the NASA Manned Spacecraft Center spend their day preparing for America's landing on the moon, a handful of specialists spend their day looking at the sun.

It's all part of MSC's operation SPAN -- Solar Particle Alert Network. SPAN, with NASA and other Government agency observation points throughout the world, represents a constant watch of the sun's fiery surface for flares and sun spots.

The network is developing a warning system for solar flare particle events which could endanger astronauts on a lunar mission. If a dangerous flare is observed, it would be several hours before the radiation would reach the vicinity of the moon. With proper warning from SPAN, the astronauts could leave the lunar surface and return to the safety of the command module.

The Houston facility is a 4-inch solar telescope housed in a 75-foot tower located in the northeast corner of the Center. A 35mm motion picture camera mounted to the telescope is timed to snap photos of the sun every 10 seconds. (News Release MSC-65-106 dated November 22, 1965).

Donald E. Robbins, who is in charge of the operation, said the telescope camera has recorded hundreds of hours of different solar activities in the year since the facility has been operational. Robbins, who is in the Astronomy Section, Space Physics Division of the Sciences and Applications Directorate, said the camera which is equipped with a special filter and timer clicks away at the sun every 10 seconds during the hours the sun is visible from MSC.

A companion station at Carnarvon, Australia, which is operated under the direction of NASA has recorded a similar amount of coverage at 10-second intervals, Robbins explained. Together MSC and Carnarvon have recorded on film more than 1,300 hours or a total of more than half million frames of solar activity. A third NASA station is expected to be operational at Canary Islands in the very near future.

The partial eclipse on May 9 visible in Houston was recorded in sharp detail by the MSC telescope camera. On March 29 the MSC station recorded 30 separate flares ^{on} the sun, an unusually high number for this period of solar cycle, according to Robbins.

Add 1
C 67-26

Each day the film is reviewed by specialists under Robbins' supervision. The film is passed through a viewer and solar data analysts examine each frame of film searching for activity which establishes solar radiation hazard.

Based on the information gained from this operation, the network will be able to monitor the sun during man's first venture onto the moon and be able to warn astronauts of possible danger from solar radiation.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-27
May 25, 1967

HOUSTON, TEXAS -- An Apollo boilerplate command module was sunk in the Pacific Ocean about 100 miles southwest of Hawaii after its towline was broken in rough seas during night pararescue exercises, the National Aeronautics and Space Administration has reported.

The Destroyer USS Philips sank the boilerplate, valued at approximately \$10,000, with gunfire after trying for more than an hour to re-connect the towline in high waves and winds.

The boilerplate was put overboard by the Philips Tuesday night in four to seven-foot seas at the beginning of the night exercise. While the boilerplate Apollo was being retrieved, the hold-off-ring on the davit crane failed and the boilerplate had to be released. The hold-off-ring prevents the spacecraft from crashing into the side of the ship during lifting or lowering.

The Philips was ordered to tow the boilerplate back to port, rather than attempt to bring it aboard without the stabilizing device.

During the towing Wednesday, the recovery loop on the boilerplate parted and could not be re-connected. The Philips was instructed to sink the boilerplate to prevent its becoming a navigational hazard.

Charles Filley, a member of the Landing and Recovery Division, Manned Spacecraft Center, Houston, who was aboard the destroyer, suffered bruises on the body when he was thrown to the deck while switching on the beacons and flashing light on the boilerplate prior to the beginning of the recovery exercise.

Filley, who lives at 9333 Tally Ho, Apt. 99, continued his part in the exercise, but was given a medical examination on arrival of the ship in Hawaii. He was not seriously hurt and is returning to Houston.

Another Apollo boilerplate was available in Hawaii and it will be used to complete the pararescue training over the next two weeks.

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NEWS RELEASE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION MANNED SPACECRAFT CENTER Houston 1, Texas

MSC 67-28
May 26, 1967

HOUSTON, TEXAS -- One man was killed and two others injured when a crane hit a power line at the Manned Spacecraft Center about 12:35 p.m. today.

The three are employees of the Westheimer Rigging Company of Houston.

Fatally injured was Bert Beeler, 25, 5518 Elms Spring, Houston. He was given artificial respiration at the scene by two astronauts, Alan Bean and Charles Duke, who were training in the nearby astronaut gymnasium at the time of the accident.

Doctors continued resuscitation efforts for more than an hour before pronouncing Beeler dead at 1:45 p.m.

E. E. Sanders, 39, Rt. 1, Pearland, was treated at the MSC dispensary for burns of the right leg and foot and then taken to Baptist Memorial Hospital in Houston.

P. Tadlock, 58, 209 Super, Houston, was treated for minor electrical burns and released. Astronaut Russell Schweickart gave first aid for shock at the scene to Sanders.

Early reports indicated the three men were standing near a Westheimer Rigging Company crane which was moving a winch into a storage area when the crane boom struck a 12,500-volt line. It is believed they may have been guiding the winch into position. NASA has appointed a board to investigate the accident. Chairman of the board is William A. Milam, Chief, Construction Branch, Engineering Division. Members are H. F. Erickson, Head of the Electrical Section in the Engineering Division's Test Facilities Branch, and Douglas Campbell, engineer in the MSC Safety Office.

Thirty-two buildings in the north area of MSC were immediately affected by the power outage caused by the broken line. They included 12 buildings in the Thermochemical Test area, six in the administrative and storage area, and 14 in the storage and test area.

Power was restored in the Thermochemical Test area and the administrative and storage area within 15 minutes. Power was restored to the remaining buildings later in the day.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER  **Houston**
1, Texas

HU 3-5111

MSC 67-29

June 1, 1967

SPECIAL TO: St. Louis Post-Dispatch

HOUSTON, TEXAS -- Belleville-born space scientist John Dornbach, June 4, will receive a doctorate from Clark University, Worcester, Mass. Dornbach is chief of the Mapping Sciences Branch at the NASA Manned Spacecraft Center in Houston, where his group undertakes such projects as recommending sites for the Apollo manned lunar landing.

Dornbach will receive his PhD in the field of cartography. His doctoral dissertation was titled, "An Analysis of the Map as an Information Systems Display."

He holds a Masters in Geography from Washington University, a BA in geography and a BS in Education (chemistry major) from Southern Illinois University, Carbondale, Ill. Prior to joining NASA in 1961, Dornbach was for nine years a cartographer with the USAF Aeronautical Chart and Information Center.

Dornbach and his wife, the former Marie Wright, attended Belleville Township High School. They live in the Houston suburb of Seabrook and have three children: John 15, Susan 13, and William 4.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER Houston
1, Texas

HU 3-5111

MSC 67-29
June 1, 1967

SPECIAL TO: East St. Louis Metro East Journal


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Dornbach and his wife, the former Marie Wright, attended Belleville Township High School. They live in the Houston suburb of Seabrook and have three children: John 15, Susan 13, and William 4.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER  Houston
1, Texas

HU 3-5111

MSC 67-29
June 1, 1967

SPECIAL TO: St. Louis Globe-Democrat

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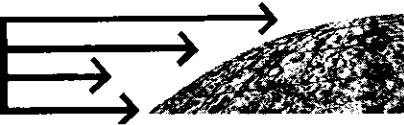
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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-30
June 6, 1967

HOUSTON, TEXAS -- Astronaut Edward G. Givens, Jr. was killed in an automobile accident shortly after midnight south of Houston in Pearland. Officers investigating the accident said Givens apparently failed to make a sharp turn on Knapp Road and crashed into an embankment. Givens was pronounced dead on arrival at Baptist Memorial Hospital Southeast.

Two companions in the car with Givens, Air Force Reserve Lt. Col. Francis Dellorto of Chicago and Reserve Major William Hall of Meadville, Pa., were injured. Col. Dellorto is reported in serious condition at Baptist Memorial Hospital Southeast; Major Hall is in fair condition.

The accident occurred when the officers were returning from a meeting of the Quiet Birdmen, a fraternal organization interested in aviation. The meeting was held at the Skylane Motel, Telephone Road, Houston.

Givens, a thirty-seven year old Air Force Major, joined the astronaut program in April of 1966 as one of a group of 19 astronauts. He was a member of the Astronaut Support Crew for the first manned Apollo flight. This support crew, composed of Astronauts Jack Swigert and Ron Evans, in addition to Givens, assisted the prime and backup crews

- more -

Add 1
MSC 67-30

in engineering details and preflight preparations. A successor will be named.

Givens is survived by his wife, Ada, formerly of Bedford, Mass. and three children, Catherine H., 4, Edward G., 3, and Diane, 2½ months. Givens was born in Quanah, Texas, where his parents, Mr. and Mrs. E. G. Givens reside.

Mrs. Givens was notified of her husband's death by Dr. Charles Berry, Director of Medical Research and Operations; Donald K. Slayton, Director of Flight Crew Operations and Astronaut Stuart A. Roosa.

Astronaut Joe Engle, selected to the astronaut program in the same group as Givens, has been appointed Summary Court Officer and he will assist the family in arrangements. The body was taken to the Art Simpson Funeral Home in LaPorte.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER  Houston
1, Texas

HU 3-5111

MSC 67-31
June 7, 1967

HOUSTON, TEXAS -- Astronaut Edward G. Givens, Jr., will be buried Friday in Quanah, Texas, his hometown.

Memorial services for the 37-year-old Air Force major, who died early Tuesday morning in a one-car accident at Pearland, will be conducted Thursday in Seabrook.

Both the 10 a.m. memorial service at Seabrook Methodist Church and the 2:30 p.m. funeral service at the First Baptist Church in Quanah will be conducted by the Rev. Dallas P. Lee of Quanah.

Pallbearers will be six of Maj. Givens' fellow astronauts -- Walter M. Schirra, Donn F. Eisele, Walter Cunningham, Thomas P. Stafford, John W. Young and Eugene A. Cernan. Members of the prime and backup crews for the first manned Apollo mission, they had worked closely with Maj. Givens in his assignment to support that mission.

The traditional "missing man" flight of aircraft will be carried out for both services by three astronauts from Maj. Givens' 19-man group. The three, not yet selected, will fly T-38 jet planes in the open fingertip formation symbolic of the loss of a comrade.

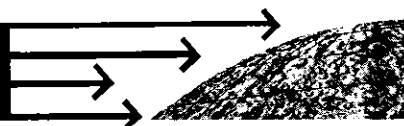
Maj. Givens' family has requested that contributions be made to Father Flanagan's Boys Town, Neb., in lieu of flowers.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

MSC 67-32

June 13, 1967

HOUSTON, TEXAS -- The job of chief of the Guidance and Control Division, Engineering and Development Directorate, at the Manned Spacecraft Center has been filled with the appointment of Robert A. Gardiner.

Gardiner, who came to MSC in September, 1964, has been assistant chief for project management in the G&C Division.

He succeeds Dr. R. C. Duncan, who left MSC last December to become assistant director for guidance and control research at the NASA Electronics Research Center at Cambridge, Mass.

Gardiner, 48, is a graduate of Case Institute of Technology, Cleveland.

He was employed by the National Advisory Committee for Aeronautics at Langley Laboratory, Hampton, Va., in the Instrument Research Division from 1943 to 1955, and as manager of operational engineering at Thompson Ramo Wooldridge Inc., Cleveland, from 1955 until 1964.

He and his wife, Catherine, live in Friendswood. They have two children, Patricia Louise and Robert Allen III.

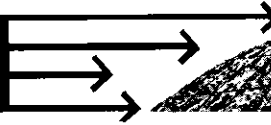
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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER

NASA



Houston
1, Texas

Also Released in Washington, D.C.

MSC 67-33

June 14, 1967

The National Aeronautics and Space Administration is making at least seven changes in hardware materials, procedures, and tasks in the Apollo Lunar Module (LM) Program to reduce the possibility of fire and to increase crew safety.

The lunar module is a two-man space vehicle which will land astronauts on the moon and return them to the command module orbiting about the moon.

The changes are being made at the Bethpage, New York, plant of the LM prime contractor, Grumman Aircraft Engineering Corporation. They are in line with findings of the board which investigated the Apollo 204 spacecraft fire.

The changes call for the following:

1. A re-assessment of combustibility of all non-metallic materials in the LM, with acceptable substitution or re-design to be accomplished wherever needed.
2. Grumman manufacture of an LM metal mockup to test non-metallic material acceptability by intentionally starting fires in a representative lunar module.

-more-

3. Pressurization of on-board water sources, lengthening of the present water hose, so that it will reach all accessible areas in the LM and provision of a hose nozzle to allow use of water to extinguish fires.

4. Use of a built-in handle, rather than the removable universal tool, to open the LM front and top hatches.

5. More stringent standards and control on the installation and inspection of electrical systems and wiring.

6. Addition to electrical systems of isolation switches to insure no electrical connector is "hot" while it is uncovered or while it is being connected or disconnected.

7. Use of the Apollo Block II television camera to monitor LM cabin activity during ground tests.

The increase in total weight because of the changes is expected to be from 25 to 125 pounds.

Delivery of the first flight-rated lunar module, LM-1, from the Grumman plant to NASA's Kennedy Space Center, Florida is expected late this month. The first unmanned lunar module mission is scheduled in the second half of 1967.

Further changes relating to crew safety and mission success are also being studied and will be incorporated into the lunar module if and as they are determined necessary.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER   Houston
1, Texas

MSC 67-34
June 14, 1967

HOUSTON, TEXAS -- The NASA Manned Spacecraft Center today announced the award of a \$227,347 contract to Melpar, Inc., Falls Church, Va., for recovery quarantine equipment in support of the Apollo Program.

Included in the equipment will be four mobile quarantine facility units which will house Apollo astronauts following their return from the Moon. The mobile units will be placed aboard prime recovery vessels following recovery. The lunar-returned astronauts will remain in the mobile quarantine facility until they reach the Lunar Receiving Laboratory at the Manned Spacecraft Center.

Melpar will also furnish transfer tunnels through which the astronauts will pass when they exit the spacecraft. A plastic tunnel will be linked to the spacecraft and the mobile quarantine facility aboard the recovery vessel. A tunnel will also be used following arrival at MSC linking the mobile unit and the Lunar Receiving Laboratory.

The contract also calls for Melpar to furnish containers in which flight film, tapes, hardware and the lunar sample return container will be placed for dispatch to the Lunar Receiving Laboratory.

The mobile quarantine facility units will be fabricated of heat-treated aluminum, have sleeping quarters, work, food preparation and medical areas for the flight crew and support personnel. The units will be completely self-sufficient and will be equipped with bunks, chairs, tables, lavatory, sink and kitchen equipment and other items required in support of debriefing and preliminary medical examinations during the brief transfer period from the recovery vessel to the Manned Spacecraft Center.

The contractor will delivery two of the 35-foot long mobile units within 185-days of award of contract and two other units 30 days later. The units which will weigh approximately 20,000 pounds will be pallet mounted and equipped with a hoisting sling for placement aboard ship or flat bed trailer.

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NEWS RELEASE - NATIONAL AERONAUTICS AND SPACE ADMINISTRATION MANNED SPACECRAFT CENTER Houston 1, Texas

HU 3-5111

MSC 67-35
June 16, 1967

HOUSTON, TEXAS -- The Boeing Company role at the Manned Spacecraft Center, under terms of a contract announced by the National Aeronautics and Space Administration in Washington today, will be to support all MSC elements responsible for acceptance testing and checkout of Apollo spacecraft flight hardware systems.

In addition, the company will provide technical management support in areas of program control, configuration management, and hardware change control including interface documentation.

Contract manager for MSC will be the Apollo Spacecraft Program Office, with William R. Kelly of the Program Control Division, ASPO, to be project officer on the contract.

MSC officials termed the establishment of the Boeing group at MSC "a welcome addition to the Center's overall capability to manage the Apollo program."

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NEWS RELEASE - NATIONAL AERONAUTICS AND SPACE ADMINISTRATION MANNED SPACECRAFT CENTER Houston 1, Texas

HU 3-5111

June 16, 1967

WASHINGTON, D.C. -- The National Aeronautics and Space Administration and the Boeing Company have signed a letter contract enlarging the scope of the company's work with NASA by including integration of the three modules of the Apollo spacecraft with the Saturn launch vehicle.

Value of the letter contract will be about 20 million dollars.

Under the new contract, Boeing will assist and support NASA in performance of certain technical integration and evaluation tasks for Apollo project flights AS-501 thru AS-515.

Boeing will be responsible for supporting the Apollo Program Office and NASA's three manned space centers, Marshall Spaceflight Center, Huntsville, Alabama; Manned Spacecraft Center, Houston, Texas; and John F. Kennedy Space Center, Florida, in integrating Saturn V launch vehicles with the Apollo command and service modules as well as the lunar module. The work will be performed under overall direction of NASA's Apollo Program Office, Washington, D. C.

The new contract extends Boeing's current contracted Saturn work which includes engineering, construction and test of the 7.5-million-pound thrust Saturn V first stage booster; support of assembly and system integration of the vehicle's second and third stages with the first, and design engineering support of certain ground support equipment at Kennedy Space Center, Florida.

Work under the new contract will begin immediately.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER



Houston
1, Texas

HU 3-5111

MSC 67-36
June 21, 1967

HOUSTON, TEXAS -- June, known to millions of Americans as the "Graduation Month," serves as a reminder that graduate study is, in the business of exploring space, a goal sought after and reached not only by scientists and engineers, but by the men who pilot the spacecraft too.

Of the 46 astronauts in the National Aeronautics and Space Administration's manned space flight program, eight have earned doctorates, two more are on the verge of that highest educational degree, and six have been awarded honorary doctorates for their achievements and contributions.

Five of the degrees belong, understandably, to the five men selected in the so-called "scientist-astronaut" group in June 1965. The doctorate was, in fact, one requirement of applicants to that particular group.

The five are Owen K. Garriott, who completed work on his PhD in electrical engineering at Stanford University in 1960; Edward G. Gibson, a PhD in engineering with a physics minor received at California Institute of Technology in June 1964; Joseph P. Kerwin with a Doctor of Medicine degree from Northwestern University Medical School in 1957; F. Curtis Michel, PhD in physics from California Institute of Technology in 1962; and Harrison H. Schmitt with a PhD in geology from Harvard University, 1964.

The other three astronauts holding doctorates are Edwin E. "Buz" Aldrin, a member of the October 1963 astronaut group and a Doctor of Science in Astronautics from Massachusetts Institute of Technology in 1963; Don L. Lind, a PhD in high energy nuclear physics from the University of California in 1964; and Edgar D. Mitchell, a Doctor of Science in aeronautics and astronautics from Massachusetts Institute of Technology, 1964. Lind and Mitchell both are members of the April 1966 astronaut group.

The two prospective doctorate holders are Walter Cunningham, who has completed all but his thesis toward a doctorate in physics from the University of California at Los Angeles, and Bruce McCandless II, working on his PhD in electrical engineering at Stanford University.

-more-

MSC 67-36

Add 1

Astronaut Aldrin also holds an honorary Doctor of Science degree awarded him in May by Gustavus Adolphus College in St. Peter, Minn., and D. K. "Deke" Slayton -- as director of Flight Crew Operations he is the chief astronaut -- holds two honorary doctorates, one in science awarded by Carthage College at Carthage, Ill., in 1961, and one in engineering from Michigan Technological University, Ste. Marie, Mich., in 1965.

Two of the remaining four honorary degrees were awarded this year by Oklahoma City University to L. Gordon Cooper and Thomas P. Stafford, both of whom were made honorary doctors of science by OCU. And the other two honorary degrees are held by James A. McDivitt, Jr., honorary doctorate in astronautical science from the University of Michigan in 1965, and Walter M. Schirra, a doctorate in astronautical engineering bestowed by LaFayette College in 1966.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER    **Houston**
1, Texas

HU 3-5111

67-37
June 22, 1967

HOUSTON, TEXAS -- A briefing and tour for news media of the Lunar Receiving Laboratory at the NASA Manned Spacecraft Center is tentatively scheduled for 9 a.m. June 28th, 1967.

The program will include general description of and the purpose of the new research facility and a tour of the new 83,000 square foot building. The briefing will be held at the News Center Auditorium, Building 6, Nassau Bay. The tour of the LRL will follow the briefing which is scheduled to conclude at about 10:30 a.m.

Scheduled to take part in the briefing will be Dr. Wilmot Hess, Director of Science and Applications Directorate, Manned Spacecraft Center; Joseph V. Piland, Manager of the LRL Program Office; Dr. Walter W. Kemmerer of the Medical Research and Operations Directorate, MSC and Dr. Elbert King, MSC geologist.

The LRL, under the supervision of the Science and Applications Directorate, will provide complete facilities for performing centralized receiving functions for Apollo astronauts and the samples they bring from the Moon later this decade. It is divided broadly into the following areas:

1). Sample Operations Area - where lunar samples will be analyzed and tested will include vacuum laboratory, magnetics laboratory, gas analysis laboratory, physical-chemical test area, biological test laboratories and radiation counting laboratory.

2). Crew Reception Area in which the lunar returned astronauts will remain in quarantine during their de-briefing and physical examinations.

3). Support Laboratory and Administrative area supports the sample operations and crew reception areas.

The Sample Operations and Crew Reception areas are within the confines of a unique biological barrier system designed to prevent contamination of the lunar samples and prevent inadvertent leakages of air or liquids which might carry organisms to the outside. The biological barrier system is unique in that it will protect the lunar materials from earth contaminations as well as protect the outside world from possible contamination by lunar materials.

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NEWS RELEASE - NATIONAL AERONAUTICS AND SPACE ADMINISTRATION MANNED SPACECRAFT CENTER Houston 1, Texas

HU 3-5111

MSC 67-38
June 29, 1967

HOUSTON, TEXAS -- The National Aeronautics and Space Administration has approved Modification Number 47 to Contract NAS 9-1261 with the Philco-Ford Corporation's WDL, Palo Alto, California, for continued systems engineering and operational support of the Mission Control Center located at the Manned Spacecraft Center, Houston, Texas. The contract was extended through June 1968.

The contract modification also provides for the work to be performed under a multiple incentive arrangement covering cost, performance, and schedule at an estimated cost of and incentive fee of \$45,757,000.

Philco-Ford's principal responsibilities under the contract will involve the manning of MCC-H systems consoles during mission periods, the reconfiguration of the Center on a mission by mission basis, the evaluation of technical systems performance and preventive maintenance on the equipment.

The Mission Control Center at Houston monitors and controls manned space flight missions from liftoff to recovery. Mission simulations and tests of the tracking network are also conducted here.

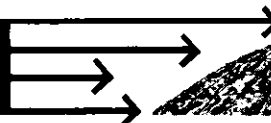
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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER

NASA



Houston
1, Texas

HU 3-5111

MSC 67-39

June 29, 1967

HOUSTON, TEXAS -- More than 120 outstanding government, industrial and university scientists are scheduled to take part in a national conference sponsored by the NASA at the University of California, Santa Cruz, to formulate scientific objectives for lunar exploration beyond the Apollo mission.

The two-week conference -- Apollo Applications Summer Meeting - is scheduled to begin July 31, at the University of California, Santa Cruz. It brings together the outstanding scientists of the nation in the fields of Geology, Geochemistry, Geophysics, Geodesy/ Cartography, Particles and Fields, Biosciences, and Lunar Atmospheres and Atmospheres and Astronomy. Scientists in these disciplines will meet together as working groups at the Santa Cruz campus to prepare sound, feasible, scientific exploration programs for the Moon beyond Apollo.

The conference is sponsored by the NASA Manned Spacecraft Center, Houston, Texas, and is under the direction of Dr. Wilmot N. Hess. Dr. Hess is Director of the Science and Applications Directorate at the Manned Spacecraft Center.

The conference is a follow-on to NASA's 1965 session on Lunar Exploration and Science which was held at Falmouth, Massachusetts. The Apollo Lunar Surface Exploration Package (ALSEP), a series of scientific instruments which will be placed on the Moon's surface by an Apollo astronaut, was the outgrowth of the 1965 Falmouth conference.

Each of the working groups is expected to generate working papers on five principal subjects: scientific requirements for lunar surface mobility, scientific requirements for mission duration, typical scientific mission profiles, orbital studies required (for the mission), and utilization of major hardware items (such as Local Surface Service Module, Lunar Flying Vehicle, Emplaced Scientific Station and others).

Like the Falmouth conference, the findings and recommendations of the Apollo Applications Summer Meeting will serve as a guideline in planning future lunar exploration missions.

The conference is scheduled to begin July 31, and run through August 12. It will be held at the University of California's Santa Cruz campus.

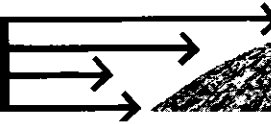
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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

**MANNED SPACECRAFT
CENTER**

NASA



**Houston
1, Texas**

HU 3-5111

MSC 67-40
July 7, 1967

HOUSTON, TEXAS -- An orbital escape vehicle complete with a flexible heatshield, retrorocket assembly and environmental control system is among the latest inventions of NASA Manned Spacecraft Center employees to be issued U.S. Patents.

A product of C. C. Johnson of Advanced Spacecraft Technology Division of Engineering and Development Directorate, the orbital escape device is designed for use in the event of a manned spacecraft becoming disabled during orbital flight. It is one of four MSC employee inventions issued during June and July according to Marvin Matthews, Center patent counsel.

Patents were also issued to William L. Green and Richard W. Bricker for a Mass Measuring System; Jerome H. Grayson for a Voltage-Current Characteristic Simulator and Harold I. Johnson and Arthur G. Trader for a Subgravity Simulator.

The proposed escape vehicle which can be folded and stowed aboard an earth orbiting manned spacecraft is designed to return crewmen safely to the earth's atmosphere. Comprised of a flexible casing with a zippered opening for ingress-egress, the vehicle has an inflatable bladder system for supporting the crewman and for maintaining a stable aerodynamic shape during its reentry.

The outer surface of the vehicle is covered with a heat ablative material and the inner casing is lined with an insulative material. The crewman is able to sight reference points through a small double-panelled window. The vehicle is also equipped with a solid-propellant retrorocket assembly as well as a gaseous oxygen supply for breathing and cooling purposes. The retro system is equipped with air nozzles through which carbon dioxide and used oxygen is expelled thereby providing an adequate means for orienting the vehicle for a proper reentry attitude.

Operation of the vehicle, as described in the patent application, is briefly as follows. The crewman garbed in an extravehicular pressure suit and backpack, unstows the escape vehicle from an external compartment of his disabled spacecraft. He next switches his oxygen supply from his backpack to the internal oxygen system in the escape vehicle and then dons the parachute and related survival gear.

After closing the zippered opening, the crewman positions himself to work the retrorocket assembly. Through the window the crewman is able to determine

preselected reference points on earth. After he fires the retrorocket the bladders are inflated providing a definite aerodynamic shape for a high degree of stability during reentry.

Reentry heat will be dissipated by the heat ablative structure, the patent application explains. After reentry and when the escape vehicle reaches lower regions of the atmosphere, atmospheric pressure will cause the bladders to automatically deflate. The crewman alerted by the deflation of the vehicle is then able to exit the spacecraft and make a standard "jump" by means of his parachute. Survival gear and an oxygen bottle are attached to the parachute harness.

The patent issued to Green and Bricker relates to a method and apparatus for determining the mass distribution of an irregularly shaped body such as the human form. As proposed in the patent application, the Mass Measuring System would be used in an orbiting rotating manned station for the measurement of the relative mass of various portions of the body in gravitational environments other than that encountered on earth. Green and Bricker are with the Structures and Mechanics Division of E & D.

Grayson's invention of the Voltage-Current Characteristic Simulator relates to an apparatus for simulating the power output characteristics of solar cell panels. The invention is presently being used at the Goddard Space Flight Center to test circuits designed to operate from solar cell arrays. Although not in use at MSC, the invention may prove useful in future manned space flight programs where solar cell panels are contemplated as power supplies.

The Johnson and Trader invention is for use to simulate partial gravity conditions in the training of astronauts. Construction of the patented system was carried out here at MSC and is essentially near completion.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

Released by NASA Headquarters
HU 3-5111

MSC 67-41
July 11, 1967

HOUSTON, TEXAS--Graham Corporation of Houston and LTV Range System Division of Dallas have been selected by the National Aeronautics and Space Administration for competitive negotiation of a contract to provide facility support services at the Manned Spacecraft Center, Houston.

A one-year cost-plus-award-fee type contract will be negotiated with provisions for four additional one-year renewals. Estimated cost for the first year beginning December 1 is more than \$10 million.

Services under this contract will include building and ground maintenance, maintenance and operation of utilities, and equipment and associated engineering work related to MSC's plant facilities.

Nine firms responded to request for proposals issued by the Center.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER    Houston
1, Texas

HU 3-5111

RELEASED BY NASA HEADQUARTERS

MSC 67-42
July 11, 1967

HOUSTON, TEXAS -- The National Aeronautics and Space Administration will negotiate a contract with Brown & Root-Northrop Corp. of Houston, a joint venture, to provide operational support services to laboratory and test facilities at NASA Manned Spacecraft Center.

Estimated costs of a one-year cost-plus-award fee type contract to become effective December 1, is \$10 million. The contract will provide for four additional one-year renewals.

Services to be provided under the contract will support operations of the Houston Center's Space Environmental Simulation Laboratory, Crew Systems Laboratory, Experimental Mechanic Laboratory, Lunar Receiving Laboratory, Biomedical Laboratory, and Thermo-Chemical Test area.

The Brown & Root-Northrop Corp. proposal was one of three submitted to the Center.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER    **Houston**
1, Texas

HU 3-5111

MSC 67-43
July 25, 1967

HOUSTON, TEXAS -- Brig. Gen. Carroll H. Bolender, 47, of NASA Headquarters Office of Manned Space Flight was named manager for the lunar module, Apollo Spacecraft Program Office. It was announced today by Apollo Spacecraft Program Manager, George M. Low.

He replaces Dr. William A. Lee, 40, who resigned for personal reasons.

General Bolender, who served as Mission Operations Director for the Apollo 201 and 202 flights, will come to MSC later this week to begin familiarizing himself with his new job. As ASPO manager for the LM, General Bolender will be responsible for the management of the Lunar Module Program including design, development and fabrication of the vehicle by the Grumman Aircraft Engineering Corp., LM prime contractor.

Before his current assignment in Mission Operations at OMSF, General Bolender was a member of a studies group in the Office of the Chief of Staff, Air Force.

A World War II night fighter pilot in the North African and Mediterranean theaters, General Bolender also has worked extensively with Air Force guided missile and aeronautical systems projects.

He is a native of Clarksville, Ohio, and holds a bachelor of science degree from Wilmington College, Ohio, and a master's degree from Ohio State University. He and his wife, Virginia, have a daughter, Carol, 20 and a son, Robert, 11.

Dr. Lee joined NASA in 1962 as Assistant Director for systems studies in the Office of Manned Space Flight. He moved to the Houston center in 1963.

###

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER



**Houston
1, Texas**

HU 3-5111

MSC 67-44
August 4, 1967

HOUSTON, TEXAS -- The National Aeronautics and Space Administration today announced selection of eleven new scientist-astronauts. All are civilians.

Ten of them will report for duty at the Manned Spacecraft Center September 18. The eleventh man will complete his medical internship before reporting for duty in about a year.

The ten scientist-astronauts will have two weeks of general orientation activities at MSC and will begin a program of academic, or "ground-school," training on October 2. They will begin Air Force flight training in March to become qualified jet pilots.

The "ground-school" training at MSC will include orbital mechanics, computers, spacecraft orientation, and general math and physics refresher courses, as well as field trips for contractors facility orientation.

Two of the new astronauts are naturalized citizens of the United States.

The group is the sixth class of astronauts to be selected and the second selected specifically for scientific education rather than for pilot backgrounds.

The 11-man selection increases the number of NASA astronauts to 57.

They were selected from a 69-man group screened from nearly 1,000 applicants by the National Academy of Sciences for NASA. Each member of the group has earned a doctorate. Each is married.

The new astronauts are:

Dr. Joseph P. Allen, 30, a physicist research associate at the University of Washington in Seattle;

Dr. Philip K. Chapman, 32, a naturalized citizen born in Australia, and presently a staff physicist at the Experimental Astronomy Laboratory, Massachusetts Institute of Technology;

Dr. Anthony W. England, 25, a graduate fellow in geophysics at M.I.T.;

Dr. Karl G. Henize, 40, professor of astronomy at Northwestern University and an experimenter in the Gemini program;

-more-

MSC 67-44
Add 1

Dr. Donald L. Holmquest, 28, completing medical internship requirements at Methodist Hospital, Houston, and his doctorate in physiology at the Baylor College of Medicine;

Dr. William B. Lenoir, 28, assistant professor of electrical engineering at M.I.T.;

Dr. John A. Llewellyn, 34, a naturalized citizen born in Wales, presently an associate professor in chemistry at Florida State University;

Dr. Franklin S. Musgrave, 31, a post-doctoral fellow at the University of Kentucky with a doctorate in medicine from Columbia University and a Ph.D. in physiology from the University of Kentucky;

Dr. Brian T. O'Leary, 27, a Ph.D. in astronomy presently in the NASA trainee program at Space Sciences Laboratory, Department of Astronomy, University of California;

Dr. Robert A. Parker, 30, assistant professor of astronomy at the University of Wisconsin;

Dr. William E. Thornton, 38, who recently completed a two-year tour of duty with the Aerospace Medical Division of Brooks Air Force Base, San Antonio, Texas.

###

NAME: Dr. Joseph P. Allen

BIRTH DATE AND PLACE: June 27, 1937, Crawfordsville, Indiana

EDUCATION: B.A. in math-physics, DePauw University, 1959
M.S. in physics, Yale University, 1962
PH.D. in physics (nuclear physics), Yale, 1965

MARITAL STATUS: Married to the former Bonnie Jo Darling,
daughter of Mr. and Mrs. W. C. Darling,
1327 Mason St., Elkhart, Indiana

CHILDREN: None

PRESENT POSITION: Research associate, University of Washington,
Seattle, Washington.

PARENTS: Mr. and Mrs. Joseph P. Allen III, 615 Ridge St.
Greencastle, Indiana

JOSEPH P. ALLEN

Was born June 27, 1937, in Crawfordsville, Indiana. He received a bachelor of arts degree in math-physics from DePauw University in 1959, a master of science degree in physics from Yale University in 1962, and a doctorate in physics (nuclear physics) from Yale in 1966.

Allen was one of eleven scientist-astronauts selected by NASA in August 1967.

Prior to his selection, Allen was a research associate at the University of Washington, Seattle.

He is married to the former Bonnie Jo Darling of Elkhart, Indiana. They have no children.

###

NAME: Dr. Philip K. Chapman

BIRTH DATE AND PLACE: March 5, 1935, Melbourne, Australia

EDUCATION: E.S. in physics, Sydney University,
Australia, 1956
M.S. in aeronautics and astronautics,
M.I.T., 1964
S.D. in physics (instrumentation), M.I.T., 1967

MARITAL STATUS: Married to the former Pamela Gatenby,
daughter of Mr. and Mrs. W. C. Gatenby,
Herberton, Queensland.

CHILDREN: Peter Hume, 1960

EXPERIENCE: 1957-59 - Auroral/radio physicist with
Antarctic Division, External Affairs
Department, Commonwealth of Australia,
with 1958 Australia National Antarctic
Research Expedition, IGY.
1960-61 - Staff engineer (electro-optics),
Canadian Aviation Electronics, Dorval,
Quebec.

PRESENT POSITION: Staff physicist, Experimental Astronomy
Laboratory, M.I.T., since 1961

U.S. CITIZENSHIP: May 8, 1967

PARENTS: Mr. and Mrs. C. R. Chapman, 155 Spit Rd.,
Mosman, New South Wales, Australia .

PHILIP K. CHAPMAN

Was born March 5, 1935, in Melbourne, Australia. Chapman became a United States citizen on May 8, 1967. He received a bachelor of science degree in physics from Sydney University (Australia) in 1956, and a master of science degree in aeronautics and astronautics from Massachusetts Institute of Technology (M.I.T.) in 1964. He received his doctorate in physics (instrumentation) from M.I.T. in 1967.

Chapman was an auroral/radio physicist with the Antarctic Division, External Affairs Department, Commonwealth of Australia in 1957 and 1959. He was with the Australia National Antarctic Research Expedition, IGY, in 1958. In 1960 and 1961 Chapman was a staff engineer in electro optics with Canadian Aviation Electronics, DorVal, Quebec. Prior to his selection as a scientist-astronaut he was a staff physicist, Experimental Astronomy Laboratory, at M.I.T.

Chapman was one of eleven scientist-astronauts selected by NASA in August 1967.

Married to the former Pamela Gatenby of Herberton, Queensland, the Chapman's have one child, Peter Hume, born in 1960.

###

NAME: Dr. Anthony W. England

BIRTH DATE AND PLACE: May 15, 1942; Indianapolis, Indiana

EDUCATION: E.S. in geology and physics, M.I.T., 1965
M.S. in geology and physics, M.I.T., 1965
Ph.D. in geophysics, M.I.T., 1967

MARITAL STATUS: Married to the former Kathleen Ann Kreutz
of Fargo, North Dakota

CHILDREN: None

PRESENT POSITION Graduate fellow, M.I.T., since 1965

PARENTS: Mr. and Mrs. H. U. England, River St.
South, West Fargo, North Dakota

ANTHONY W. ENGLAND

Was born May.15, 1942, at Indianapolis, Indiana. He received a bachelor of science degree in geology and physics from the Massachusetts Institute of Technology (M.I.T.) in 1965, a master of science degree in geology and physics from M.I.T. in 1965, and a doctorate in geophysics from M.I.T. in 1967.

England was one of eleven scientist-astronauts selected by NASA in August 1962.

Prior to his selection, England was a graduate fellow at M.I.T. since 1965.

He is married to the former Kathleen Ann Kreutz of Fargo, North Dakota. They have no children.

###

NAME: Dr. Karl G. Henize

BIRTH DATE AND PLACE: October 17, 1926; Cincinnati, Ohio

EDUCATION: B.A. in mathematics, University of
Virginia, 1947
M.A. in astronomy, University of
Virginia, 1948
Ph.D. in astronomy, University of
Michigan, 1954

MARITAL STATUS: Married to the former Caroline Rose
Weber of Bay City, Michigan

CHILDREN: Kurt Gordon, 1955; Marcia Lynn, 1956;
Karen Skye, 1961

EXPERIENCE: 1954-56 - Carnegie fellow, Mt. Wilson
Observatory
1956-59 - Senior astronomer, Smithsonian
Astrophysical Observatory

PRESENT POSITION: Professor of Astronomy, Northwestern
University, since 1959

PARENTS: Deceased

KARL G. HENIZE

Was born October 17, 1926, in Cincinnati, Ohio. He received a bachelor of arts degree in mathematics from the University of Virginia in 1947, and a master of arts degree in astronomy from the University of Virginia in 1948. In 1954 Henize received his doctorate in astronomy from the University of Michigan.

Henize was a Carnegie fellow at Mt. Wilson Observatory from 1954 to 1956, and a senior astronomer at the Smithsonian Astrophysical Observatory from 1956 to 1959. Prior to his selection as a scientist-astronaut he was a Professor of Astronomy at Northwestern University since 1959.

Henize was one of eleven scientist-astronauts selected by NASA in August 1967.

He is married to the former Caroline Rose Weber of Bay City, Michigan. They have three children: Kurt Gordon, born in 1955; Marcia Lynn, born in 1956; and Karen Skye, born in 1961.

###

NAME: Dr. Donald L. Holmquest

BIRTH DATE AND PLACE: April 7, 1939; Dallas, Texas

EDUCATION: B.S. in electrical engineering, Southern
Methodist University, 1962
M.D., Baylor College of Medicine, 1967
Ph.D. in physiology, Baylor College of
Medicine, expected in 1968

MARITAL STATUS: Married to the former Charlotte Ann Blaha,
daughter of Mr. and Mrs. J. E. Blaha,
4709 Hallmark, Dallas, Texas

CHILDREN: None

PRESENT POSITION: Internship at Methodist Hospital, Houston

PARENTS: Mr. and Mrs. S. B. Holmquest, 615 Glen
Arbor, Dallas, Texas

DONALD L. HOLMQUEST

Was born April 7, 1939, in Dallas, Texas. He received a bachelor of science degree in electrical engineering from Southern Methodist University in 1962. He received his M.D. from Baylor College of Medicine in 1967. Prior to his selection as a scientist-astronaut Holmquest was working on his doctorate in physiology at the Baylor College of Medicine. This degree is expected in 1968. He is also, concurrently, completing his internship at Methodist Hospital in Houston, Texas.

Holmquest was one of eleven scientist-astronauts selected by NASA in August 1967.

He is married to the former Charlotte Ann Blaha of Dallas, Texas. They have no children.

###

NAME: Dr. William B. Lenoir

BIRTH DATE AND PLACE: March 14, 1939; Miami, Florida

EDUCATION: B.S. in electrical engineering, M.I.T., 1962
M.S. in electrical engineering, M.I.T., 1962
Ph.D. in electrical engineering, M.I.T., 1965

MARITAL STATUS: Married to the former Elizabeth May Frost
of Brookline, Massachusetts

CHILDREN: William B. Jr., 1965

PRESENT POSITION: Assistant professor of Electrical Engineering,
M.I.T., since 1965

PARENTS: Mr. and Mrs. S. S. Lenoir, 58570 West 31st,
Miami, Florida

WILLIAM B. LENOIR

Was born March 14, 1939, in Miami, Florida. He received a bachelor of science degree in electrical engineering from the Massachusetts Institute of Technology in 1962, a master of science degree in electrical engineering from M.I.T. in 1962, and a doctorate in electrical engineering from M.I.T. in 1965.

Lenoir was one of eleven scientist-astronauts selected by NASA in August 1967.

Prior to his selection, Lenoir was an Assistant Professor of Electrical Engineering at M.I.T. since 1965.

He is married to the former Elizabeth May Frost of Brookline, Massachusetts. They have one child, William B. Jr., born in 1965.

###

NAME: Dr. John A. Llewellyn

BIRTH DATE AND PLACE: April 22, 1933; Cardiff, United Kingdom

EDUCATION: B.S. in chemistry, University College,
Cardiff, 1955
Ph.D. in chemistry, University College,
Cardiff, 1958

MARITAL STATUS: Married to the former Valerie Davies-Jones,
daughter of Mr. and Mrs. Francis I. Davies-
Jones, Cardiff, Wales

CHILDREN: Gareth Roger, 1957; Sian Pamela, 1962;
Ceri Elummed, 1967

EXPERIENCE: 1958-60 - Research fellow, National Research
Council of Canada

PRESENT POSITION: Associate professor, Florida State
University, since 1960

PARENTS: Deceased

U.S. CITIZENSHIP: February 17, 1966

JOHN A. LLEWELLYN

Was born April 22, 1933, in Cardiff, United Kingdom.

Llewellyn became a United States citizen on February 17, 1966.

He received a bachelor of science degree in chemistry from University College, Cardiff, in 1955, and a doctorate in chemistry from the same college in 1958.

Llewellyn was a research fellow, National Research Council of Canada from 1958 to 1960. Prior to his selection as a scientist-astronaut he was an Associate Professor at Florida State University since 1960.

Llewellyn was one of eleven scientist-astronauts selected by NASA in August 1967.

He is married to the former Valerie Davies-Jones of Cardiff, Wales. They have three children: Gareth Roger, born in 1957; Sian Pamela, born in 1962; and Ceri Elummed, born in 1967.

###

NAME: Dr. F. Story Musgrave

BIRTH DATE AND PLACE: August 19, 1935; Boston, Massachusetts

EDUCATION: B.S. in statistics, Syracuse University,
1958
M.B.A. in operations analysis, University
of California at Los Angeles, 1959
A.B. in chemistry, Marietta College, 1960
M.D. at Columbia University, 1964
M.S. in biophysics, University of
Kentucky, 1966
Ph.D. in physiology, University of
Kentucky, 1967

MARITAL STATUS: Married to the former Marguerite Patricia
Van Kirk, daughter of Mr. and Mrs. Neil
Van Kirk, Wayne, New Jersey

CHILDREN: Lorelie Lisa, 1961; Bradley Scott, 1962;
Holly Kay, 1963; Christopher Todd, 1965

PRESENT POSITION: Post-doctoral fellow, University of Kentucky,
since 1965

PARENTS: Mr. and Mrs. (stepmother) Percy Musgrave
Jr., Stockbridge, Massachusetts

FRANKLIN S. MUSGRAVE

Was born August 19, 1935, in Boston, Massachusetts. Musgrave has earned seven college degrees. They are: A bachelor of science degree in statistics from Syracuse University in 1958; A masters degree in business administration in operations analysis from UCLA in 1959; A bachelor of arts degree in chemistry from Marietta College in 1960; An M.D. from Columbia University in 1964; A master of science degree in biophysics from the University of Kentucky in 1966; and a doctorate in physiology from the University of Kentucky in 1967.

Musgrave was one of eleven scientist-astronauts selected by NASA in August 1967.

Prior to his selection, Musgrave was a post-doctoral fellow at the University of Kentucky since 1965.

He is married to the former Marguerite Patricia Van Kirk of Wayne, New Jersey. They have four children: Lorelie Lisa, born in 1961; Bradley Scott, born in 1962; Holly Kay, born in 1963; and Christopher Todd, born in 1965.

###

NAME: Dr. Brian T. O'Leary

BIRTH DATE AND PLACE: January 27, 1940; Boston, Massachusetts

EDUCATION: B.A. in physics, William College, 1961
M.A. in astronomy, Georgetown University,
1964
Ph.D. in astronomy, University of California,
Berkeley, 1967

MARITAL STATUS: Married to the former Joyce Whitehead,
daughter of Mr. and Mrs. S. R. Whitehead,
Route 2, Kennett Square, Pennsylvania

CHILDREN: None

PRESENT POSITION: NASA trainee in Space Sciences Laboratory,
Department of Astronomy, University of
California

PARENTS: Mr. and Mrs. Frederick A. O'Leary,
4912 River Basin Drive, Jacksonville, Florida

BRIAN T. O'LEARY

Was born January 27, 1940, in Boston, Massachusetts. He received a bachelor of arts degree in physics from William College in 1961, and a master of arts degree in astronomy from Georgetown University in 1964. He received his doctorate in astronomy from the University of California, Berkeley, in 1967.

O'Leary was one of eleven scientist-astronauts selected by NASA in August 1967.

Prior to his selection, O'Leary was a NASA trainee in the Space Sciences Laboratory, Department of Astronomy, at the University of California.

He is married to the former Joyce Whitehead of Kennett Square, Pennsylvania. They have no children.

###

NAME: Dr. Robert A. Parker

BIRTH DATE AND PLACE: December 14, 1936; New York City

EDUCATION: B.A. in astronomy and physics, Amherst
College, 1958
Ph.D. in astronomy, California Institute
of Technology, 1963

MARITAL STATUS: Married to the former Joan Audrey Capers,
daughter of Mr. and Mrs. C. H. Capers,
321 Landis, Waynesboro, Pennsylvania

CHILDREN: Kimberly, 1962; Brian, 1964

PRESENT POSITION: Assistant professor of astronomy, University
of Wisconsin, since 1963

PARENTS: Allan S. Parker, North St., Shrewsbury,
Massachusetts

ROBERT A. PARKER

Was born December 14, 1936, in New York City, New York. He received a bachelor of arts degree in astronomy and physics from Amherst College in 1958, and a doctorate in astronomy from the California Institute of Technology in 1963.

Parker was one of eleven scientist-astronauts selected by NASA in August 1967.

Prior to his selection, Parker was an Assistant Professor of Astronomy at the University of Wisconsin since 1963.

He is married to the former Joan Audrey Capers of Waynesboro, Pennsylvania. They have two children: Kimberly, born in 1962; and Brian, born in 1964.

###

NAME: Dr. William E. Thornton

BIRTH DATE AND PLACE: April 14, 1929; Goldsboro, North Carolina

EDUCATION: B.S. in physics, University of North Carolina, 1952
M.D. at University of North Carolina, 1963

MARITAL STATUS: Married to the former Elizabeth Jennifer Fowler, daughter of Mr. and Mrs. O. B. Fowler, England

CHILDREN: William Simon, 1959; James 1961

EXPERIENCE: 1956-62 - Director of Electronics Division, Del Mar Engineering Labs, Los Angeles
1963-64 - Instructor, University of North Carolina Medical School
1964-65 - Intern, Wilford Hall USAF Hospital, Lackland Air Force Base, San Antonio, Texas
1965-67 - USAF, Aerospace Medical Division, Brooks Air Force Base, San Antonio, Texas

PARENTS: Mrs. William E. Thornton, Faison, North Carolina.

WILLIAM E. THORNTON

Was born April 14, 1929, in Goldsboro, North Carolina. He received a bachelor of science degree in physics from the University of North Carolina in 1952, and a M.D. from the University of North Carolina in 1963.

Thornton was the Director of the Electronics Division, Del Mar Engineering Labs, Los Angeles, from 1956 to 1962. He was an instructor at the University of North Carolina Medical School in 1963 and 1964. In 1964 and 1956 Thornton was an intern at Wilford Hall USAF Hospital, Lackland Air Force Base, San Antonio, Texas. From 1965 to 1967 Thornton was associated with the Aerospace Medical Division, Brooks Air Force Base, San Antonio, Texas.

Thornton was one of eleven scientist-astronaut selected by NASA in August 1967.

He is married to the former Elizabeth Jennifer Fowler from Great Britain. They have two children: William Simon, born in 1959; and James, born in 1961.

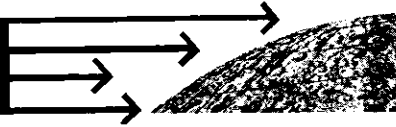
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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNNED SPACECRAFT
CENTER

NASA



Houston
1, Texas

Hu 3-5111

MSC 67-45
July 26, 1967

HOUSTON, TEXAS -- The National Aeronautics and Space Administration has awarded a \$³~~7~~.275 million cost-plus-fixed-fee contract to the Boeing Company, Seattle for procurement of long-lead time materials for two additional Saturn V flight boosters.

The contract is the first Saturn V procurement in support of NASA's Apollo Applications Program. Boeing, prime contractor for the 7.5 million pound thrust first stage (S-1C) of the Saturn V launch vehicle, is manufacturing 15 stages at the NASA Marshall Space Flight Center's Michoud Assembly Facility, New Orleans, for the Apollo manned lunar exploration program.

Boeing will begin acquiring such items as propellant ducts, liquid oxygen tunnels and fuel tank components for the sixteenth and seventeenth stages. The contract expires January 1, 1968.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-46
July 26, 1967

HOUSTON, TEXAS -- Martin Marietta Corp., Denver Division, Denver, was selected today by the National Aeronautics and Space Administration for negotiation of a 27-month contract for payload integration of experiments and experiments support equipment in space vehicles for the manned Apollo Applications Program.

Estimated cost of the cost-plus-incentive-award fee contract will exceed \$25 million. The work will include mission analysis and systems engineering associated with Apollo applications flights in addition to integration of experiments and support equipment.

The contractor will perform tasks for the three NASA Manned Space Flight Centers. Initial work at the Marshall Space Flight Center Huntsville, Alabama, will involve the orbital workshop and Apollo telescope mount. The Manned Spacecraft Center, Houston, work will involve meteorological and earth resources payloads. Test integration planning and support for launch operations will be performed for the Kennedy Space Center, Florida.

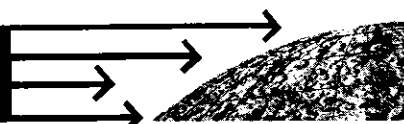
In a competitive definition phase prior to today's selection, Lockheed Missiles and Space Company, Sunnyvale, California, and Martin Marietta, Denver Division, conducted parallel fixed priced study contracts on Apollo Applications payload integration work at a cost of \$2 million each.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

RELEASED BY NASA HEADQUARTERS

MSC 67-47
July 31, 1967

HOUSTON -- The National Aeronautics and Space Administration today named William C. Schneider Apollo Mission Director and Apollo Program Deputy Director for Mission, Office of Manned Space Flight.

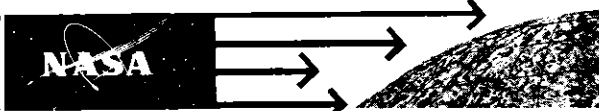
As Mission Director, Schneider will be responsible for management, direction, and coordination of mission and flight plans, schedules and associated activities.

Two former Apollo Mission Directors recently were assigned other duties. Brigadier General Carroll H. Bolender was named Lunar Module Manager at the Manned Spacecraft Center, Houston, and Rear Admiral Roderick O. Middleton, USN, was appointed Apollo Program Manager at the Kennedy Space Center, Florida.

Schneider formerly was Mission Director for NASA's Apollo Applications Program and the recently completed Gemini manned flight program. Schneider also served as Deputy Director, Gemini program.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER  Houston
1, Texas

HU 3-5111

MSC 67-48
August 2, 1967

HOUSTON, TEXAS -- The National Aeronautics and Space Administration today selected the North American Aviation Inc. Rocketdyne Division, Canoga Park, California, for negotiation of a contract to design, develop and qualify an alternate injector for the ascent engine of the Apollo lunar module (LM).

Value of the cost-plus-fixed-fee contract with NASA's Manned Spacecraft Center will be in excess of \$5 million.

The contract initially will provide for design feasibility and development testing, with provision for delivery of four production injectors if required.

Two of the injectors would be used in static test engines at the White Sands Test Facility, New Mexico, and two would be held for possible use in flight engines.

The propellant injectors deliver fuel and oxidizer into the engine combustion chamber. Proper injector design is necessary to insure smooth and reliable ignition and stable combustion in the 3500-pound thrust engine that will lift the LM off the lunar surface and return it to the orbiting Apollo spacecraft.

The new injector will be developed as an alternate to the present injector in the ascent engine being built by Bell Aerosystems Company of Buffalo, New York, under subcontract to the Grumman Aircraft Engineering Company, NASA's prime contractor for the lunar module.

The Bell injector is causing unstable combustion in the engine chamber and excessive erosion of the ablative thrust chamber in tests under some simulated potential severe operating conditions.

Design modifications under way by Bell are hoped to correct these deficiencies, but NASA decided to develop an injector of a different design in the event these problems cannot be corrected.

-more-

MSC 67-48

Add 1

Rocketdyne was selected over four other firms because it proposed the best design and will carry three variations of it through feasibility testing. This will give NASA the greatest option on the design to be selected for development, verification, and qualification testing.

Improved welding, drilling and other fabrication methods planned by Rocketdyne offer the best manufacturing and development schedule.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER  Houston
1, Texas

HU 3-5111

ALSO RELEASED BY NASA HEADQUARTERS

MSC 67-49
August 3, 1967

WASHINGTON, D.C. -- The National Aeronautics and Space Administration and the Department of the Navy announced today that astronaut/aquanaut Commander M. Scott Carpenter, USN, is being detached from the nation's space program at the request of the Navy in order that he may be assigned to the Navy's Deep Submergence Systems Project (DSST).

Commander Carpenter is one of the seven original astronauts selected in April 1959 and the second American to orbit the earth. He piloted Aurora 7, May 24, 1962, on a three-orbit mission. He also was backup pilot for the first orbital mission piloted by Astronaut John Glenn February 20, 1962.

Commander Carpenter has long been active in the planning and conduct of the Navy's Man-in-the-Sea Program under the cognizance of the Deep Submergence Systems Project. He served as an aquanaut and was a team leader during the SEALAB II experiment in 1965. During this experiment, he set a world record in underwater work, living for 30 consecutive days at a depth of 205 feet.

Upon being assigned to DSST he will assist in the preparation and conduct of SEALAB III, a 60-day experiment to be held to depths of 600 feet in 1968. Commander Carpenter is tentatively scheduled to serve as an aquanaut in SEALAB III. As the Navy's senior aquanaut his duties will include responsibility for SEALAB III ocean floor operations experiments and equipment and coordination of aquanaut team training.

NASA Administrator, James E. Webb said, "Commander Carpenter was one of the seven original astronauts assigned to NASA by the military services and we are grateful to him and the United States Navy for his services over the past eight years. During the past two years he has demonstrated that many of the technologies, techniques, and psycho-physiological factors related to space flights have direct applications to the Man-in-the-Sea Program. Commander Carpenter becomes the first astronaut to return to his parent service in order to apply the skills, knowledge and experience acquired during his assignment to NASA.

-more-

MSC 67-49
Add 1

"After a successful career in air and space he now embarks in earnest in this extremely important and interesting new field and all of us in NASA wish him well."

Admiral Thomas H. Moorer, USN, Chief of Naval Operations, added that he was "delighted to have Commander Carpenter return to the Navy for duty in the Navy's highly important deep-submergence program." The admiral said further his conviction was that Commander Carpenter's contribution to the Navy's Man-in-the-Sea Program would be enhanced greatly by his invaluable training and experience as a member of the American space team.

Carpenter was born May 1, 1925, in Boulder, Colorado. He received a bachelor of science degree in aeronautical engineering from the University of Colorado. Carpenter entered the Navy in 1949 and received flight training at Pensacola, Florida, and Corpus Christi, Texas. He attended the fleet airborne electronics school. During the Korean conflict, he flew anti-submarine patrol, ship-surveillance and aerial-mining missions in the Yellow Sea; South China Sea, and Formosa Straits area.

He entered the Navy's test pilot school at Patuxent River, Maryland, in 1954 and was assigned to the electronics test division following this training.

Carpenter's most recent assignment at NASA's Manned Spacecraft Center, Houston, included responsibility for underwater zero-g training and for liaison for the Navy.

Carpenter is married to the former Rene Louise Price of Clinton, Iowa. The Carpenter's have four children, Marc Scott, 18; Robyn Jay, 15; Kristen Elaine, 13; and Candace Noxon, 12.

The Navy's Deep Submergence Project is responsible for the development of advanced submarine location, escape, and rescue; deep sea search and recovery; large object salvage; and ocean-engineering vehicles as well as the Man-in-the-Sea Program.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER  Houston
1, Texas

HU 3-5111

MSC 67-50
August 10, 1967

HOUSTON, TEXAS -- The National Aeronautics and Space Administration has selected the Radio Corporation of America Defense Electronics Products Division, Camden, New Jersey, for negotiation of a contract for a new dual space-suit communications system.

Estimated value of the cost-plus-fixed-fee contract is less than five-million dollars.

The space suit communications (SSC) systems are for use in manned spaceflight and will permit two Apollo astronauts on the surface of the moon to maintain constant voice communications with each other and with flight controllers on Earth. The system will also simultaneously transmit telemetry information from each of the astronauts, while they are on the moon's surface, back to the lunar module for relay to earth.

The contract to be negotiated with RCA will call for production of sixteen flight qualified pairs of the SSC systems, with expected delivery of the first two flight units by October 1968.

The communications units will be mounted on the portable life support system carried by each astronaut on the lunar surface. All controls will be accessible to the astronaut. Each SSC system will consist of two AM transmitters, two AM receivers, one FM receiver, one FM transmitter signal conditioning, telemetry system, warning system and related equipment.

The SSC primary mode of operation will permit telemetry and full duplex (simultaneous transmission and reception) voice between either SSC and the LM. The secondary or backup mode will permit full duplex voice between the SSC and the LM. Combining both primary and secondary modes will permit full duplex voice conference between the two astronauts on the moon and with flight controllers on earth plus simultaneous telemetry transmissions from each astronaut via relay through one SSC.

Communications between the lunar surface and the orbiting command module will be relayed via earth stations.

RCA was selected from among five companies submitting proposals to negotiate a contract for the space suit communication system.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER



**Houston
1, Texas**

HU 3-5111

MSC 67-51
August 11, 1967

HOUSTON, TEXAS -- The first Apollo/Saturn V space vehicle scheduled for flight will be rolled out of the Vehicle Assembly Building at NASA's Kennedy Space Center no earlier than August 19.

Movement of the 364-foot tall space vehicle will begin at 6:00 a.m. on a $3\frac{1}{2}$ -mile trip to its launching pad. At least six weeks of additional testing will be conducted at the pad before it will be launched on an Earth-orbital mission.

The mission, designated Apollo 4, will test performance of the three-stage Saturn V rocket and the Apollo spacecraft command module heat shield under conditions simulating return from a mission to the Moon.

The mission will mark the first flight test of the Saturn V's first stage (S-IC), second stage (S-II), and the first restart in orbit of the third stage (S-IVB) of the Moon rocket.

The Apollo 4 vehicle has successfully completed one overall test (OAT number 1) using outside power, and overall systems test (OAT number 2) using or simulating internal power is scheduled before the vehicle is moved to the pad.

A second Saturn V launch vehicle (AS-502) is assembled in another high-bay area of the Vehicle Assembly Building awaiting the arrival of the Apollo spacecraft. A combined guidance and control test of this vehicle and a launch vehicle overall test is scheduled next week.

This second flight Saturn V will be used in a mission similar to Apollo 4 in an unmanned test. One of the tests on this mission will concern the new Apollo spacecraft hatch designed to permit faster opening for crew egress.

An Up-rated Saturn I rocket (AS-204) is being prepared for launch from Launch Complex 37 on an unmanned test of the Apollo spacecraft lunar module in Earth orbit. The lunar module for this mission is being tested at the Kennedy Space Center's Manned Spacecraft Operations Building before it is moved to the pad and mated to the launch vehicle.

-more-

Spacecraft for future missions, including the command and service module for the first Apollo manned Earth orbital flight next spring, are in manufacture and testing at NASA's contractor plants. Particular attention is being given to modifications of the interior materials and wiring harnesses to ensure maximum protection from fire. North American Aviation's Space Division, Downey, Calif., builds the command and service module. Grumman Aircraft Engineering Corp., Bethpage, L.I., New York, is prime contractor for the lunar module.

A number of Saturn launch vehicle stages and instrument units are awaiting shipment to the Kennedy Space Center. First stages for two Saturn V and five Uprated Saturn I rockets are at Michoud Assembly Facility, New Orleans. Seven S-IVB stages are at the Sacramento Test Facility in Calif.; five to serve as second stages of the Uprated Saturn I and two as Saturn V third stages. Two instrument units are at International Business Machine plant in Huntsville, Alabama.

A Saturn V booster and second stage are in test stands at the NASA Mississippi Test Facility for static firings within a few weeks.

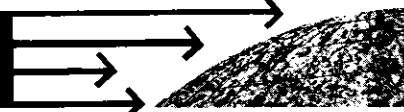
A total of 12 Uprated Saturn I and 15 Saturn V vehicles are being built for the Apollo Program. The Boeing Company is prime contractor for the S-IC (Saturn V first stage). Chrysler makes the Uprated Saturn I booster. Both companies perform the work at the Michoud facility in New Orleans. North American's Space Division also manufactures the S-II, (Saturn V second stage) at Seal Beach, Calif. McDonnell-Douglas Corp.'s Missile and Space Division, Huntington Beach, Calif. is the contractor for the S-IVB stage.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

**MANNED SPACECRAFT
CENTER**



**Houston
1, Texas**

HU 3-5111

MSC 67-52
August 11, 1967

HOUSTON, TEXAS -- Prime crew members for the first manned Apollo flight will hold a press conference at the Douglas Sacramento Test Center near Sacramento, California, Wednesday August 16.

The three crew members, Captain Walter M. Schirra, commander, Major Donn Eisele, and Walter Cunningham, will visit Douglas Wednesday to inspect the S-IVB stage of the uprated Saturn-I vehicle which will launch their spacecraft for an earth-orbital mission of up to ten days early next year.

After taking part in a Douglas employee awards ceremony at 8:30 a.m. Pacific Daylight Time, the crew will visit the S-IVB stage in the Verticle Check-out Laboratory and then will hold the press conference in the new Bi-Administrative Building of the Test Center.

News media representatives will be able to observe and photograph the awards ceremony and S-IVB inspection visit, as well as take part in the press conference itself.

The Douglas facility is located at 11505 Douglas Rd., Rancho Cordova, California, which is about 25 miles east of Sacramento via U.S. route 50 and Sunrise Rd.

Media representatives should plan to reach the Douglas facility about 8:00 a.m. in order to set up equipment.

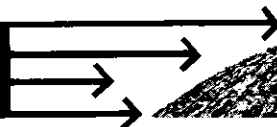
Further information can be obtained from either the Manned Spacecraft Center Public Affairs Office, Houston, or the Douglas Public Relations Department at the Test Center. In Houston call A/C HU 3-5111 and at Douglas call A/C 916 351-0550 extension 221.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

67-53

August 17, 1967

HOUSTON, TEXAS -- The first two Apollo space suits incorporating changes recommended by the Apollo 204 Review Board are scheduled to arrive at the Manned Spacecraft Center, Houston, early in September for thermal-vacuum and compatibility testing.

These will be up-dated versions of the A-6L Apollo pressure suit. The first production models of the re-designed Apollo suit, designated A-7L, are scheduled for delivery in mid-October.

Wherever possible, flammable materials have been replaced in the re-designed suit with non-flammable or low-flammability materials. Beta Fabric, a non-flammable fiber glass cloth, has been substituted for the outermost layer of Nomex. Beta Fabric has also been used instead of nylon to sheath electrical cabling. A Nomex liner has replaced the more flammable nylon liner of the previous suit. Flammable poly-

thane has been replaced with non-flammable carboxy-nitroso rubber for boot soles and by a silicone material for helmet vent and shoulder comfort pads. And fire-resistant Kapton (plastic film)/Beta Fiberglass insulation has been substituted for the previous Aluminized Mylar/Dacron insulation.

The re-designed Apollo suit, in addition to being much more fire resistant, is also more comfortable and mobile than the original A-6L model. It also has an integrated thermal-meteoroid protective covering replacing the more cumbersome two-piece Thermal Meteoroid Garment (TMG), which was worn over the previous suit.

The re-designed Apollo suit eliminates pressure points experienced with the A-6L suit in the thigh, under the arms and over the shoulders. As in later model Gemini suits, the A-7L suit will have a double lock for helmet, glove and umbilical hose disconnects.

There have also been changes in the Apollo suit's outward physical appearance. It is now white rather than blue, and it has gray patches of metallic-fiber cloth over the elbows, knees back and shoulders to protect the Beta Fabric from abrasion.

The A7-L suit is planned for use in all manned Apollo missions. It will be worn during pre-launch and launch phases of the mission and during re-entry. Throughout the rest of the flight, if all is going well, the crew may remove the pressure garments and don light weight, unpressurized Beta Fabric flight suits.

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MSC 67-53

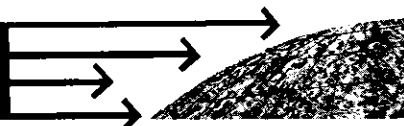
The A-6L and the follow-on A-7L pressure suits are manufactured by the International Latex Corporation, Government and Industrial Division, Dover, Delaware, under contract to the NASA Manned Spacecraft Center. The Beta Fabric application to the re-designed suit was developed by Owens-Corning Fiberglas Corporation under Contract to MSC. Nomex and nylon components of the suit are manufactured by E. I. DuPont de Nemours and Co., Inc.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-54
September 19, 1967

HOUSTON, TEXAS -- Another garment may soon be added to the wardrobe of U. S. Apollo astronauts.

The new garment, termed Biological Isolation Garment (BIG), is being considered for use in the event the Lunar returned crew does not land near the prime recovery forces and is forced to exit the spacecraft. In this case, pararescue men drop the garments to the Apollo crew who don them and await recovery either by pararescue men or helicopters.

The garment, currently under evaluation by technicians at the NASA Manned Spacecraft Center, is designed to provide adequate biological isolation and at the same time afford the crew complete mobility, comfort and safety. Biologically, the garment is capable of restraining minute organisms.

The BIG is a one-piece, loose fitting garment with an integral headpiece. A special respirator, built into the headgear, filters the air which the astronaut expells.

The BIG is a joint development of MSC's Crew Systems Division of the Engineering and Development Directorate, the Landing and Recovery Division of Flight Operations Directorate which has the responsibility of safe recovery and transfer of the astronauts from their Pacific Ocean landing spot to the Lunar Receiving Laboratory at Houston and the Biomedical Specialties Branch of Medical Research and Operations Directorate which has been responsible for the prevention of back-contamination.

This new item is part of the comprehensive control the NASA is utilizing to prevent possible back-contamination.

There is a remote possibility, although highly unlikely, the crew may return with living organisms from the Lunar surface. The NASA, together with the Interagency Committee on Back-Contamination, is guarding against the introduction of extra-terrestrial life forms into the terrestrial biosphere.

- MORE -

MSC 67-54
Add 1

Following recovery, the astronauts will enter a special Mobile Quarantine Facility (MQF) aboard the prime recovery vessel. They remain in the MQF, a unique self-contained, biological isolation unit, for the transfer via ship, aircraft, and truck to the LRL at Houston.

The three astronauts remain in the LRL Crew Reception Area for a quarantine period of approximately two weeks during which time they will unfold the story of their Moon journey.

The biological garment has already been put through habitability tests, including sea trials in the Gulf of Mexico by the Operational Test Branch and the Recovery Systems Branch of the Landing and Recovery Division. During these sea trials, a suit technician, garbed in the BIG and floating in a life raft, spent many hours evaluating the suit's comfort, mobility and safety. Tests have also been performed by the Biomedical Specialties Branch of the Medical Research and Operations Directorate to determine material choices and suit configuration to insure biological isolation.

Additional water tests and biological evaluations are planned before officials at MSC approve the Biological Isolation Garment for use in the Lunar landing phases of Project Apollo.

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(NOTE TO EDITORS: Pictures covering this story are available on request.)

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER  Houston
1, Texas

HU 3-5111

MSC 67-55
September 5, 1967

HOUSTON, TEXAS -- United States and foreign scientists selected by the National Aeronautics and Space Administration to perform detailed studies of the first Lunar samples returned by U.S. Astronauts are scheduled to attend a three-day briefing of the Lunar Receiving Laboratory at NASA's Manned Spacecraft Center September 18-21, 1967.

Primary objective of the program is to familiarize the 110 scientists with the collection and handling procedures the returned Moon samples will undergo in the Lunar Receiving Laboratory at MSC. Preliminary analysis of the approximately 40 pounds of lunar surface samples will be conducted within the LRL before samples are released to the principal investigators.

The principal investigators who represent the American scientific community and six foreign countries were selected by the NASA earlier this year. (Refer to NASA HQS News Release 67-55, dated March 16, 1967.)

The U. S. principal investigators represent 21 universities, two industrial firms, three private institutions and 10 government laboratories.

The foreign investigators represent 16 scientific institutions in Canada, England, Finland, Germany, Japan and Switzerland.

During the three day stay at MSC, the scientists will attend briefings on the Apollo mission, as well as a detailed tour and briefing on the handling procedures and operations of the multi-level LRL.

The MSC conference is being sponsored by the Science and Applications Directorate.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER

NASA



Houston
1, Texas

HU 3-5111

67-56

September 28, 1967

Houston, Texas -- The LTV Range Systems Division, Dallas, has been selected by the National Aeronautics and Space Administration to provide facilities support services to the Manned Spacecraft Center, Houston.

LTV was one of two firms selected in July for competitive negotiations. Value of the one-year cost-plus-award-fee contract is approximately 10 million dollars. The contract, effective December 1, contains provisions for four one-year renewal options.

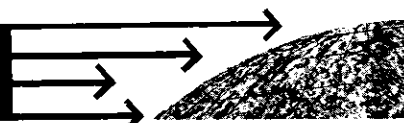
Services to be provided in the contract include building and grounds maintenance, operations and maintenance of equipment, and associated engineering work related to the Center's plant facilities.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-57
October 5, 1967

HOUSTON, TEXAS -- An astronaut was reported killed about 1:30 p.m. EDT today in a crash of a T-38 near Tallahassee, Florida. The plane was returning to Houston from Cape Kennedy. Details of the crash were lacking. Identification of the pilot was withheld pending notification of next of kin.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-58
October 5, 1967

HOUSTON, TEXAS -- Astronaut C. C. Williams, Jr., 35, was killed about 1:30 p.m. EDT today in a T-38 crash near Tallahassee, Florida.

There were no details immediately available on circumstances surrounding the crash.

Williams, a Marine major, was flying by himself in one of 23 T-38 jet aircraft used by the astronauts. He had left Patrick AFB, Florida, at about 1 p.m. bound for Ellington AFB adjacent to the Manned Spacecraft Center in Houston. He planned to make a gas stop at Brookley AFB at Mobile, Alabama.

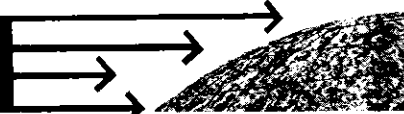
Members of the Board of Inquiry for Williams Accident: Capt. Alan B. Shepard, Chairman; Astronaut Joseph Engle; Mr. H. E. Ream, MSC Aircraft Operations Office; Mr. James Powell, MSC Safety Office; Mr. Ralph E. Keyes, MSC Flight Crew Operations; Dr. John F. Zieglschmid, MSC Medical Operations. The board planned to fly to the scene later this evening to begin an on-site investigation.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-59
October 6, 1967

HOUSTON, TEXAS -- Graveside services for Astronaut C. C. Williams, Jr. will be at 11 a.m. Monday, in Arlington National Cemetery.

Astronaut Williams who died yesterday afternoon in a T-38 crash near Tallahassee, Florida, will be buried with full military honors. The Rev. Eugene Cargill, assistant pastor of Shrine of the True Cross Catholic Church, Dickinson, Texas, will officiate.

Pallbearers are Astronauts Eugene Cernan, Richard Gordon, Alan Bean, Charles Conrad, Michael Collins, and Jack Lousma.

It is anticipated that a memorial service will be held in the MSC area, but arrangements are not complete.

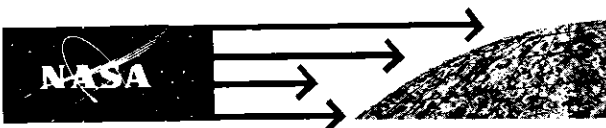
Astronaut Gerald Carr, a Marine Corps major, has been appointed summary court officer to assist Major Williams' family.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-60
October 6, 1967

HOUSTON, TEXAS -- A requiem mass for Astronaut C. C. Williams, Jr., will be at 10:00 a.m. tomorrow at the Shrine of the True Cross Catholic Church, Dickinson, Texas. The Rev. Eugene Cargill, assistant pastor, will officiate.

In lieu of flowers, the family prefers memorial contributions to:

Retired Officers Association Scholarship Fund
Attention: John D. Murphy, Secretary, Scholarship Commission
1625 I Street, NW
Washington, D. C.

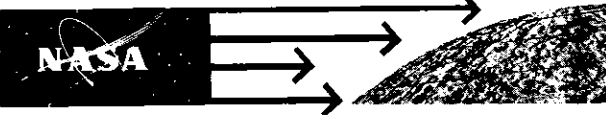
Major Williams' body will be taken directly from Moody AFB, Georgia, to Arlington National Cemetery, where graveside services will be conducted at 11:00 a.m., EDT, Monday.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-61
October 9, 1967

HOUSTON, TEXAS -- An estimated 200 members of JETS (Junior Engineering Technical Society) are expected to participate in an all-day field trip to be held at MSC on Monday, November 6, 1967.

Invitations have been extended to all chapters in Texas by J. G. McGuire, Assistant Dean of Engineering, Texas A & M University, and Texas State Coordinator and Secretary of JETS.

Tentative plans for the MSC field trip include a tour of MSC facilities and lectures on the career of an engineer, a discussion of mechanical and aerospace engineering and a review of the purpose and plans of the JETS organization.

Launched as an experimental program in 1950 by Michigan State University, JETS chapters today are operating throughout the United States and in several foreign countries.

The JETS program is designed to provide a unified guidance program for high school and junior college students in order to identify and stimulate interest in the fields of engineering and the sciences. In addition, the program gives the student an opportunity to apply the principles learned in school to actual engineering and technical projects.

The first Texas JETS chapter was founded in 1956, and the organization in Texas has grown to more than 100 chapters.

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NEWS RELEASE - NATIONAL AERONAUTICS AND SPACE ADMINISTRATION MANNED SPACECRAFT CENTER Houston 1, Texas

HU 3-5111

MSC 67-62
October 12, 1967

HOUSTON, TEXAS -- Manned Spacecraft Center Director Robert R. Gilruth today announced the transfer of George Trimble from the Office of Manned Space Flight in Washington, D. C. to serve as deputy director of the Manned Spacecraft Center in Houston.


Dr. Gilruth also announced that through arrangements agreed to by Dr. Wernher von Braun, director of the Marshall Space Flight Center at Huntsville, Alabama, Dr. von Braun's deputy director, Dr. Eberhard Rees will serve for the period immediately ahead as a special assistant on manufacturing problems to George Low, Manager of the Apollo Spacecraft Program Office, Houston.

Also at the Manned Spacecraft Center today, Dr. George Mueller, Associate Administrator for Manned Space Flight, and NASA Administrator James E. Webb, announced the transfer of Edgar M. Cortright from the Office of Space Science and Applications to the office of Manned Space Flight to serve as deputy associate administrator. In this position, Cortright will be the senior official under Dr. Mueller, responsible for NASA's manned space flight programs.

In the Office of Space Science and Applications Cortright served as deputy associate administrator. For his leadership and important contributions to many projects, including Ranger, Surveyor, Lunar Orbiter, and Mariner, Webb announced that Cortright will be recognized through the award of NASA's distinguished service medal at ceremonies to be held at NASA Headquarters later this month.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER  Houston
1, Texas

HU 3-5111

MSC 67-63
October 13, 1967

HOUSTON, TEXAS -- The National Aeronautics and Space Administration has asked Grumman Aircraft Engineering Corporation, Bethpage, N. Y. to deliver the second lunar module (LM-2) in an unmanned configuration rather than in a manned version as previously planned.

The change was made so that LM-2 will be available for a backup mission if necessary to the Apollo 5 mission. Apollo 5 is an unmanned test of the lunar module (LM-1) in earth orbit. It is scheduled for launch early in 1968 aboard an updated Saturn I (AS-204).

Under the earlier plan, the LM-2 in a manned configuration would have been available as a backup to the Apollo 5 mission, but modifications would have to be made. With the LM-2 on hand, in an unmanned version, NASA will be able to schedule a backup mission and launch it without having to wait for these modifications.

The backup mission would use the updated Saturn I launch vehicle number 206. If the Apollo 5 mission achieves its objectives sufficiently to validate the lunar module for subsequent manned missions, LM-2 will not fly unmanned, but will be prepared for a later manned mission.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER  Houston
1, Texas

HU 3-5111

MSC 67-64
October 20, 1967

HOUSTON, TEXAS -- The Bendix Corporation, Detroit, Michigan, has been selected by the National Aeronautics and Space Administration over four other firms for negotiation of a contract for design, development, qualification and delivery of long duration cryogenic gas storage tanks for the first 56-day manned flight in the Apollo Applications Program.

Decision to award the procurement assuming negotiations are successful will not be made until after FY 1968 appropriation and expenditure levels of NASA have been established.

It is contemplated that a cost-plus-incentive-fee contract valued at approximately \$4.5 million and requiring about 18 months to complete will be negotiated. Performance will be at Bendix's Instrument and Life Support Division in Davenport, Iowa.

The tanks are of double walled construction and will be approximately 39 inches in diameter. Seven of them are required for long duration storage of liquid hydrogen, oxygen and nitrogen in support of spacecraft electrical power and environmental control systems.

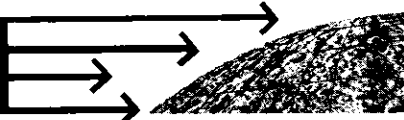
The tanks are a critical pacing item for long duration manned flights in the Apollo Applications Program. Completion of negotiation will permit early award in the event the project as programmed by NASA is carried forward.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-65

October 20, 1967

HOUSTON, TEXAS -- The National Aeronautics and Space Administration has extended its contract with Federal Electric Corporation, Paramus, New Jersey for logistic and technical information support services at the Manned Spacecraft Center, Houston. Valued at \$4.6 million, the one year renewal extends the contract through August, 1968. Total value of the cost-plus-award-fee contract is approximately \$11 million.

Under terms of the contract, Federal Electric will provide support services including technical writing, library, documentation, and data retrieval services, graphic art services, and supply catalog services. The terms also include operation of warehouse facilities, quick copy and microfilm stations, moving, hauling and delivery services and publications and form distribution.

Federal Electric Corporation is a subsidiary of International Telephone and Telegraph Corporation.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-66

November 7, 1967

HOUSTON, TEXAS--The National Aeronautics and Space Administration announced a one year extension to TRW, Inc. of Redondo Beach, California to perform spacecraft analysis for Apollo.

The extension which carries the contract through June, 1968, is valued at \$10.7 million. TRW has been performing since August, 1965, mission planning and spacecraft analysis for the Apollo Spacecraft Program Office (ASPO), Manned Spacecraft Center under this contract (NAS 9-4810). The extension for spacecraft analysis increases the cost of the contract to \$65.5 million.

Under the terms of the extension, TRW will perform studies, technical fact finding, and analyze and investigate spacecraft systems of the Command and Service and Lunar Modules. TRW-furnished data provides basis for decision making by ASPO.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER



**Houston
1, Texas**

HU 3-5111

MSC 67-67
November 20, 1967

HOUSTON, TEXAS -- The NASA today named flight crews for the second and third manned Apollo missions.

The first manned Apollo mission is on an uprated Saturn 1. The second manned mission is scheduled as the last of six Apollo flights in 1968 and will be the first manned launch of a Saturn V launch vehicle. The mission will provide the first manned operation in space with the command, service and lunar modules, including crew transfer from the command module to the lunar module, and rendezvous and docking.

Prime crew for the second mission is James A. McDivitt, commander, and David R. Scott, command module pilot, and Russell L. Schweickart, lunar module pilot. Backup crew is Charles Conrad, Jr., commander, Richard F. Gordon, CM pilot, and Alan L. Bean, LM pilot.

Prime crew for the third mission is Frank Borman, commander, Michael Collins, CM pilot, and William A. Anders, LM pilot. Backup crew is Neil A. Armstrong, commander, James A. Lovell, CM pilot, and Edwin E. Aldrin, LM pilot.

Plans call for the third manned mission to be launched in early 1969. It will be an earth orbit flight simulation of the lunar landing mission. The orbit will have a 4,000 mile apogee. Events of the lunar mission will be conducted in the same sequence and at the same relative times during this mission. Mission plans also call for a maximum distance rendezvous with the LM rendezvousing with the CSM from a distance of several hundred miles.

A three-astronaut support team was named for each flight crew. For the second manned mission, it consists of Edgar D. Mitchell, Fred W. Haise, Jr., and Alfred M. Worden. The third crew support team is Thomas F. Mattingly, II, Gerald P. Carr, and John S. Bull.

McDivitt, 38, an Air Force lieutenant colonel, commanded the Gemini 4 flight. He became an astronaut in September 1962.

Scott, 35, is an Air Force lieutenant colonel. He flew as pilot of Gemini 8. Scott was selected as an astronaut in October 1963.

id 1
SC 67-67

Schweickart, 32, a civilian, will be making his first space flight. He joined the astronaut team in October 1963.

Borman, 39, is an Air Force colonel. He was command pilot of the 14-day Gemini 7 mission. He was selected as an astronaut in September 1962.

Collins, 37, an Air Force lieutenant colonel, was the pilot of Gemini 10 and conducted Extra Vehicular Activity. He became an astronaut in October 1963.

Anders, 34, is an Air Force major. He has not yet flown in space but was backup pilot in Gemini 11. He has been an astronaut since October 1963.

Conrad, 37, a Navy commander, was pilot of the 8-day Gemini 5 mission and command pilot of the Gemini 11 mission. He became an astronaut in September 1962.

Gordon, 38, is a Navy commander. He flew as pilot of Gemini 11 and conducted EVA. He was selected as an astronaut in October 1963.

Bean, 35, a Navy lieutenant commander, has not flown in space. He was backup command pilot for Gemini 10. He was named an astronaut in October 1963.

Armstrong, 37, is the first civilian to fly in space. He was command pilot of the Gemini 8 mission. He became an astronaut in September 1962.

Lovell, 39, a Navy captain, was pilot of the Gemini 7 mission and command pilot of Gemini 12. He has been an astronaut since September 1962.

Aldrin, 37, is an Air Force lieutenant colonel. He conducted EVA as the pilot of Gemini 12. Aldrin was selected as an astronaut in October 1963.

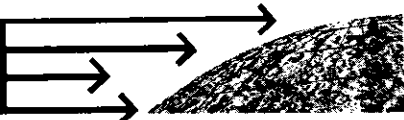
None of the support team members has flown in space. They were among the 19 astronauts selected in April 1966.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-68

December 3, 1967

HOUSTON, TEXAS -- Evaluation of Apollo 4 mission data at Manned Spacecraft Center continues to confirm initial reports that Spacecraft 017 met all flight objectives without problems.

Detailed systems analyses are still in process, but evidence to date indicates that spacecraft systems operated properly and met all specifications.

Liftoff was at 6:00:01.4 a.m. CST, November 9, 1967. The spacecraft landed in the Pacific Ocean at 2:37:08 p.m., CST, the same day. The landing was approximately six miles from the recovery ship, U. S. S. Bennington.

As planned, the first service propulsion burn was started in zero-g environment with no reaction control system ullage maneuvers. No adverse affects were noted. The second SPS burn was 13 seconds longer than planned. The longer burn resulted from a switchover to ground control after the burn was started by the onboard guidance and navigation system. Mission Control Center-Houston took command of SPS on/off after Carnarvon tracking site data indicated possible lack of onboard ignition control. The exact history of the burn is still being reviewed, however, it has been determined there was no failure in the onboard systems involved.

Cabin pressure remained between 5.6 and 5.8 psia for the entire mission. This indicates that the cabin leakage rate is

Add 1
MSC 67-68

negligible and well within specifications. Cabin air temperature appeared to remain stable at 60 degrees F during orbit, increasing to approximately 70 degrees F during reentry.

Instrumentation data available at this time indicates satisfactory structural performance of the spacecraft and Lunar Test Article 1CR during the launch and boost phase of the mission. LTA-1CR simulated a lunar module.

The Earth Landing System functioned as planned. All parachutes inflated properly, and parachute disconnects operated on landing. One of the main parachutes was recovered and inspection shows it was not damaged. Recovery aids deployed and operated normally.

Heat shield performance was good. Maximum char thickness was three-quarters of an inch. The thermal control coating on the hatch and the hatch seal was intact. Maximum indicated seal temperature was less than 200 degrees F. Charring of the crew compartment heat shield was less than expected based on achieved entry conditions.

During the 4½-hour cold soak to check the spacecraft and its systems at extremes of temperature, the surface of the heat shield away from the sun reached a temperature of approximately 100 degrees below zero F. Temperature on the sun side reached approximately 140 degrees above zero F.

Entry velocity was .0058 per cent higher than planned because of the longer than planned duration of the second SPS burn. Velocity achieved was 36,545 feet per second (24,913 miles per hour). Planned velocity was 36,333 feet per second (24,772 mph). This resulted in higher than planned command module maximum heat rate -- 620 BTU/Ft.² second versus 586 planned. Maximum expected on lunar return is 480.

Preflight prediction for the command module trim lift-to-drag (L/D) ratio at 400,000 feet was 0.35, with uncertainty limits of +0.06 and -0.03. Preliminary calculations from the G and N system show an average L/D trim of approximately 0.38 at about 40 seconds after the command module passed through 400,000 feet and the dynamic pressure had built up to where the spacecraft could be considered in a steady state trim condition.

The 0.38 level held until about 20 seconds after the first peak G, when the lowest L/D, approximately 0.35, was calculated. Both of the L/D values are well within expected limits.

Maximum G's on entry were 7.3, compared with the expected 8.33 G's. Peak G's were experienced during the initial entry. On second entry, following "skipout," the spacecraft pulled 4 G's, compared to 4.5 G's expected. The lower G forces resulted from the shallower than planned flight path angle at entry into the atmosphere.

Fuel cell and cryogenic subsystems functioned normally during the mission, and the capability to purge the fuel cells subsequent to the cold soak was satisfactorily demonstrated. Analysis shows the fuel cells produced potable sterile water. Data evaluated to date shows excellent load sharing and thermal control capability of the fuel cells.

Communications system objectives were accomplished. Each Manned Space Flight Network site, the Apollo tracking ship Vanguard, and at least two of the Apollo/Range Instrumentation Aircraft established two-way communications with the spacecraft as scheduled.

The Guidance and Control system and the Mission Control Programmer performed properly throughout the mission. Entry simulations using tracking data verify the guidance commands issued by the G and N system. Range-to-go at drogue parachute deploy calculated by the G and N system was 2.2 nautical miles. Comparisons with the measured landing point indicate better than predicted performance.

Operation of the electrical power subsystem was normal throughout the mission. All available information indicates that the spacecraft sequential devices performed normally, with all functions occurring at the proper times.

Add 4
MSC 67-68

Both the command module and the service module reaction control systems operated properly.

Following is a chronology of major spacecraft events during the mission:

Add 5
MSC 67-68

First SPS Ignition

	<u>Planned</u>	<u>Actual</u>
Time	03:28:20	03:28:07
Geodetic Latitude, Degrees North	13.36	13.46
Longitude, Degrees West	21.33	21.44
Altitude, Nautical Miles	1522	1500
Space-fixed Velocity, ft/sec.	25459	25499
Space-fixed Flight-Path Angle, Degrees	27.99	27.81
Space-fixed Heading Angle, Degrees East of North	117.51	117.46

First SPS Cutoff

Time	03:28:35	03:28:22
Duration of Burn, seconds	15	15
Geodetic Latitude, Degrees North	13.06	13.12
Longitude, Degrees West	20.82	20.89
Altitude, Nautical Miles	1552	1532
Space-Fixed Velocity, ft/sec	25507	25543
Space-Fixed Flight-Path Angle, Degrees	28.44	28.31
Space-Fixed Heading Angle, Degrees East of North	117.64	117.59

Apogee

Time	05:48:43	05:46:50
Geodetic Latitude, Degrees South	28.69	28.68
Longitude, Degrees East	36.39	36.87
Altitude, Nautical Miles	9890	9769
Space-Fixed Velocity, ft/sec	8405	8469
Space-Fixed Flight-Path Angle, Degrees	0.0	0.0
Space-Fixed Heading Angle, Degrees East of North	100.38	100.38

Add 6
MSC 67-68

Second SPS Ignition

	<u>Planned</u>	<u>Actual</u>
Time	08:14:43	08:10:55
Geodetic Latitude, Degrees North	3.67	3.46
Longitude, Degrees East	116.92	117.50
Altitude, Nautical Miles	873	878
Space-Fixed Velocity, ft/sec	28235	28173
Space-Fixed Flight-Path Angle, Degrees	-23.14	-23.21
Space-Fixed Heading Angle, Degrees East of North	59.87	59.86

Second SPS Cutoff

Time	08:19:11	08:15:36
Duration of Burn, minutes & seconds	4:28	4:41
Geodetic Latitude, Degrees North	12.64	12.86
Longitude, Degrees East	131.93	133.29
Altitude	375	359
Space-Fixed Velocity, ft/sec	34816	35120
Space-Fixed Flight-Path Angle, Degrees	-17.98	-17.61
Space-Fixed Heading Angle, Degrees East of North	62.16	62.22

CM/SM Separation

Time	08:21:46	08:18:03
Geodetic Latitude, Degrees North	18.64	18.67
Longitude, Degrees East	143.84	144.86
Altitude, Nautical Miles	148	144
Space-Fixed Velocity, ft/sec	35912	36146
Space-Fixed Flight-Path Angle Degrees	-11.25	-11.01
Space-Fixed Heading Angle, Degrees East of North	65.55	65.53

ENTRY

Time	08:23:13	08:19:28
Geodetic Latitude, Degrees North	21.90	21.86
Longitude, Degrees East	151.58	152.42
Altitude, feet	400,000	400,000
Space-Fixed Velocity, ft/sec	36333	36545
Space-Fixed Flt-Path Angle, Degrees	-7.13	-6.93
Space-Fixed Heading Angle, Degrees East of North	68.35	68.26

Add 7
MSC 67-68

Landing

Planned

Latitude 30:00N
Longitude 172:24 W

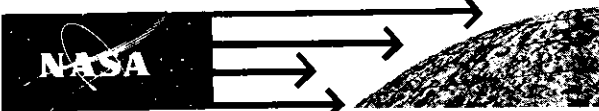
Actual

Latitude 30:06.4N
Longitude 172:32W

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER



Houston
1, Texas

HU 3-5111

MSC 67-69
December 4, 1967

HOUSTON, TEXAS -- The new Apollo pressure suit will be man rated here this week in a series of verification tests marking the first manned use of altitude chambers at the NASA Manned Spacecraft Center since the Apollo 204 accident earlier this year.

Astronauts James B. Irwin and John S. Bull will wear the newly configured A6-L pressure suit during the four hour test runs in the 8-foot altitude chamber in Crew Systems Division. The A6-L suit incorporates design and material changes recommended by the Review Board which investigated the fatal spacecraft fire in January 1967.

During the manned chamber tests the pressure suit will be under a 100-per cent oxygen system at 3.5 pounds per square inch. The chamber will use ambient air.

This is also the first manned operation of the Crew Systems chambers which were recently equipped with detection alarm systems for hazardous gasses and a fire detection, alarm and suppression system. Installation of the detection, alarm and suppression system also was recently completed in Chambers A and B in the Space Environmental and Simulation Laboratories.

Irwin is scheduled to begin the four hour test run on Wednesday and Bull will perform identical tests the following day. These tests are preparatory to manned testing of the Lunar Module Test Article-8 (LTA-8) in Chamber B in the SESL early next year.

The Apollo suits to be worn by the astronauts have already been put through unmanned tests in this chamber. These tests, according to Richard S. Johnston, Chief of Crew Systems, qualified the suits for further manned testing. They were performed at altitudes of 150,000 feet in the eight foot chamber and were conducted over the past several weeks.

Main test objective is to man rate the newly configured Apollo suit. Astronauts Irwin and Bull will perform tasks throughout the four hour test program to approximate the work load anticipated in the LTA-8 chamber runs next year.

Clifford Hess, Test Conductor for the CSD chamber tests, said the astronauts will also execute certain tasks in recharging the Portable Life Support System (PLSS). The PLSS will not be worn or used by Astronauts Irwin and Bull during

Add 1

the chamber tests. It will be on a stand in the chamber and the astronaut will adjust the valves and connect fittings.

The redesigned suit, in addition to being much more fire resistant, is also more comfortable and mobile than the original suit.

The redesigned suit has been covered with Beta Fabric, a non-flammable fiber-glas cloth, replacing the original outtermost layer of Nomex. Other major changes, recommended by the Apollo 204 Review Board, includes the replacement of flammable poly-urethane with non-flammable carboxy-nitroso rubber (boot soles) and a high temperature plastic film (Kapton) insulation has been substituted for previous Aluminized Mylar/Dacron insulation.

Materials testing of the suit fabrics has been conducted at the Manned Spacecraft Center by Crew Systems Division and Structures and Mechanics Division. Rigid flammability tests were imposed on all candidate fabrics before CSD and SMD certified the materials for suit uses.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER

NASA



Houston
1, Texas

HU 3-5111

MSC 67-70
December 7, 1967

HOUSTON, TEXAS -- The Control Data Corporation, Minneapolis, Minnesota, has been selected by the National Aeronautics and Space Administration for negotiation of a contract for an Advanced Computer Complex for the Apollo Procedures Development Simulator at the Manned Spacecraft Center, Houston.

Decision to award the procurement, assuming negotiations are successful, will not be made until after fiscal year 1968 appropriation and expenditure levels for NASA have been established. It is contemplated that a fixed price contract will be negotiated.

The computer complex will be installed in Building 35, now under construction at the Manned Spacecraft Center. The contract would require CDC to provide, install and checkout a Model 6400 computer and associated interface equipment. CDC would also provide spare parts, an executive software system, maintenance service and personnel training.

The advanced computer complex will be a high-speed, multi-hybrid system capable of operating the Lunar Module Procedures Simulator and Command Module Procedures Simulator in a simultaneous, real-time mode.

Completion of negotiation will permit early contract award in the event the project as programmed by NASA is carried forward.

Control Data Corporation was chosen for negotiation of a contract from among three firms submitting proposals.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER    **Houston**
1, Texas

HU 3-5111

MSC 67-71
NASA Headquarters Release #67-299
December 7, 1967
For Release 2 p.m. CST

HOUSTON, TEXAS -- Negotiations have been concluded with North American Rockwell for the continuation of the Apollo Command and Service Module program from December 4, 1966 through program completion.

The agreement reached covers the basic and off-site activity pertaining to spacecraft of improved design and associated equipment required for the Apollo program, including the production of four additional spacecraft through that identified as spacecraft 115A. Improved plans for quality assurance, reliability and safety are also incorporated in the agreement. The contract price for this continuation effort has been negotiated at \$812,000,000.

It is expected that the formal contract documents will be executed within the next 45 days. The contract will be awarded on a cost-plus-fixed-fee basis. In addition to the negotiated contract price, the contract will include provision for an award fee based on the achievement of specific management objectives.

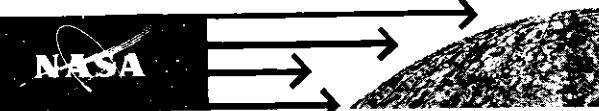
The principal portion of the contract work will be performed at the North American Rockwell Space Division in Downey, California. Other divisions of the contractor and many subcontractor organizations will participate. In addition, launch support operations will be performed at the Kennedy Space Center, Florida, and related test activities will be carried out at the Manned Spacecraft Center, Houston, and at the White Sands Test Facility in New Mexico.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER



Houston
1, Texas

HU 3-5111

MSC 67-72
December 7, 1967

HOUSTON, TEXAS -- Delivery of the second of three Lunar Landing Training Vehicles to the NASA Manned Spacecraft Center for astronaut training was made today by Bell Aerosystems Co. of Buffalo, New York. The third LLTV is scheduled to arrive at MSC this weekend.

The two vehicles were accepted for NASA by an MSC LLTV Customer Acceptance Readiness Review Board at the Buffalo plant on December 1.

The first LLTV was delivered to MSC on October 9, 1967, and is now in a ground and flight test program. The two newest LLTV's will be put through a similar test program of about 30 weeks duration. Bell Aerosystems will support the ground and flight test program before astronauts begin using the vehicles for training purposes.

Construction and delivery of the three LLTV's and associated test hardware is under a \$5,653,063 fixed price contract with the New York firm.

The vehicles are being transported by truck from Buffalo to the MSC flight training facility at Ellington Air Force Base.

The LLTV will provide astronauts with an earth-based vehicle capable of simulating a landing on the surface of the moon where gravity is only one-sixth that of earth. During training flights, the single-seat vehicle will reach altitudes of up to about 800 feet and then in a mode that simulates the pilot handling characteristics of the Lunar Module, it can be maneuvered to a gentle touchdown.

Two earlier research models of the lunar training vehicle are also at the MSC flight training facility and one of these vehicles is currently being readied for astronaut training which should begin early in 1968.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER  Houston
1, Texas

HU 3-5111

MSC 67-73
December 8, 1967

HOUSTON, TEXAS -- Robert F. Thompson has been appointed manager of the Apollo Applications Program Office at the NASA Manned Spacecraft Center. Thompson had been assistant manager since July 1966 when the Program Office was established.

George M. Low was appointed acting manager at that time in addition to his duties as MSC Deputy Director. Low is presently manager of the Apollo Spacecraft Program Office, a position he assumed in April 1967, leaving the Apollo Applications Program Office manager post vacant.

The Apollo Applications Program is aimed toward extended manned space missions in earth orbit and on the lunar surface utilizing spacecraft and launch vehicle hardware developed for the Apollo program. An extensive array of scientific investigations is planned for the Apollo Applications missions.

Thompson was previously chief of the Landing and Recovery Division of the MSC Flight Operations Directorate where he planned and directed recovery operations for the Mercury, Gemini and Apollo programs. He has been with NASA and its predecessor, the National Advisory Committee for Aeronautics (NACA) since 1947.

Thompson received a bachelor of science degree in aeronautical engineering from Virginia Polytechnic Institute in 1944. He received the NASA Medal for Outstanding Leadership in November 1966.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER   **Houston**
1, Texas

HU 3-5111

MSC 67-74
December 21, 1967

HOUSTON, TEXAS--A modified parachute system, designed to handle the added weight of the Apollo Command Module, was successfully tested yesterday, December 20, at the Naval Air Facility, El Centro, California.

The test was a repeat of a similar test which failed October 30 due to a structural weakness in the two drogue chutes used to stabilize and decelerate the spacecraft prior to deployment of the three main chutes. Rings which hold the reefing lines in place separated from the drogue chute canopy, causing the chute to go from partial-open to full-open prematurely and fail.

For yesterday's test the reefing ring attachment to the drogue chutes had been strengthened. An instrumented parachute test vehicle (PTV) containing the two drogue chutes and the three main chutes was dropped from an aircraft at an altitude of 30,000 feet. The drogue chutes deployed as planned at about 24,000 feet, stabilizing and slowing the 13,000 pound PTV sufficiently for deployment of the main chutes at an altitude of 10,000 feet.

A 16.5 foot diameter drogue chute and a two stage reefing system for the main chutes are modifications being tested to handle weight increases in the Apollo Command Module resulting from the new hatch design and fireproofing modifications recommended by the Apollo 204 Review Board. The previous Apollo earth landing system used two 13.7 foot diameter drogue chutes and a single stage of reefing for the 83.3 foot diameter main chutes.

The main chutes, with the new two stage reefing system, had successfully completed a series of tests before the unsuccessful PTV test combining both drogue and main chute systems.

- more -

Add 1
MSC 67-74

Following the PTV failure October 30, the enlarged drogue chutes were strength-verified in a separate test to determine if fixes to the reefing ring attachments were sufficient. The chutes were dropped with a 13,000 pound weight December 8 at El Centro in a test, which subsequent data analysis showed, produced loads on the chutes far in excess of design limits. Although both drogues eventually failed in the test, they remained intact until dynamic loads reached 150 per cent of "worst case" conditions.

The full complement of Apollo parachutes will be tested at least three more times with an instrumented parachute test vehicle before being dropped with a full-scale boilerplate spacecraft.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER    **Houston**
1, Texas

HU 3-5111

MSC 67-75
December 22, 1967

HOUSTON, TEXAS--J. Thomas Markley today announced his resignation as Assistant Manager, Apollo Spacecraft Program Office (ASPO), effective late in January.

Markley has accepted the position of Assistant to the President of Link Group, General Precision Systems Inc., Binghamton, New York.

The vacated position here will not be filled. George M. Low, ASPO Manager, said Markley's responsibilities will be distributed among the program office's division chiefs. Those responsibilities include supporting Low in the management of the overall Apollo program, with particular emphasis on contract management, budgeting, scheduling, and program planning.

Markley has been involved in the Apollo Program since 1960. Prior to becoming Assistant Manager, he served as Chief of the Program Control Division, and Resident Manager of the ASPO office at the North American Aviation plant, Downey, California.

Markley joined NASA in 1956 at Langley Research Center, Virginia, after graduation from Shippensburg State College, Shippensburg, Pennsylvania, with a Bachelor of Science degree in physics and mathematics. He was active in the Mercury Program and has served on loan to the Air Force as a technical advisor and to industry to develop management systems.

Markley said that he has desired for some time to gain industry management experience with a diversified organization. He said he considered the successful Apollo 4 mission a milestone in his personal career plans and the culmination of his contribution to the program, and he would like to pursue his interest in corporate management.

Markley, his wife, and their three children live in Dickinson, Texas.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT
CENTER



Houston
1, Texas

HU 3-5111

MSC 67-76
December 26, 1967

ALSO RELEASED BY NASA HEADQUARTERS

HOUSTON, TEXAS--The first flight test of the Apollo Lunar Module is scheduled no earlier than January 17, 1968. The earth orbit mission is designated Apollo 5.

The Lunar Module, one of three making up the Apollo spacecraft, is designed to carry two American astronauts from lunar orbital flight to a landing on the moon, then back to the Apollo spacecraft in lunar orbit. Apollo is the U. S. program for manned exploration of the moon.

The National Aeronautics and Space Administration said the primary objective of the unmanned Apollo 5 flight is to verify that the lunar module is ready for manned operations in space.

Following a planned early morning launch from Cape Kennedy, Florida, Complex 37, the 31,700-pound Lunar Module will be inserted into a 123 by 88-nautical mile (138 by 107-statute mile) orbit. The tests planned will flight qualify the descent stage propulsion engine of the Lunar Module, including restart, as well as its ascent propulsion stage engine, the systems and structures and staging of the Module.

Launch vehicle for the 6 hour 30 minute test flight will be the 1.6 million-pound thrust Up-rated Saturn 1 (AS-204) rocket originally scheduled for the first manned Apollo mission last February. The Lunar Module will not be recovered.

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