Space News ROUNDUP!

VOL. 4, NO. 22 MANNED SPACECRAFT CENTER, HOUSTON, TEXAS AUGUST 20, 1965

Gemini V Rescheduled For Tomorrow Morning

The Gemini V flight which was scheduled to have been launched yesterday from Pad 19 at Cape Kennedy was scrubbed at 11:40 a.m., Houston time, because of spacecraft telemetry problems.

An earlier delay in the flight was caused by difficulty with the hydrogen fuel supply for the fuel cell. The flight has been rescheduled for 9 a.m. EST, tomorrow.

This flight will mark the first use of radar in a rendezvous exercise and the first operational use of fuel cells to supply electric power for a space flight.

Astronauts L. Gordon Cooper Jr. and Charles Conrad Jr. are the command pilot and pilot for this flight. The backup crew members are Astronauts Neil A. Armstrong and Elliott M. See, command pilot and pilot.

Gemini V is to be launched by a two-stage Titan II, modified U.S. Air Force missile, into an orbit with a high point (apogee) of 219 statute miles and a low point (perigee) of 100 miles. Each orbit will take about 90 minutes and range between 33 degrees north and south of the Equator.

Scheduled flight time for Gemini V will be about 191 hours and 53 minutes during which it will complete 121 revolutions of the Earth. Landing is planned at the beginning of the 122nd revolution at a point about 500 miles southwest of Bermuda in the West Atlantic Ocean. The prime recovery ship is the Aircraft Carrier USS Lake Champlain.

This third manned Gemini flight will be the second space flight for Astronaut Cooper and will give him more time in space than any other man—a total of more than 226 hours. His first flight was 34 hours and 20 minutes aboard Faith 7, May 15, 1963, the longest flight of the Project Mercury series.

Astronaut Conrad will be making his first space flight. He joined the space program in September 1962.

Primary objectives of Gemini V are:

(1) Demonstrate and evaluate the performance of the Gemini spacecraft for a period of eight days.

(2) Evaluate the performance of the rendezvous guidance and navigation system using the radar evaluation pod.

(3) Evaluate the effects of prolonged exposure to the space environment of the two-man crew.

Seventeen experiments are scheduled to be conducted during the flight. Five are medical, six scientific and six technological. Six of the experiments are sponsored by the Department of Defense.

Six of the experiments repeat tests conducted on previous Gemini flights. They are; In-flight exerciser, in-flight phonocardiogram, bone demineralization, electrostatic charge, terrain and weather photography.

New experiments include: cardiovascular conditioning, human otolith function, basic object photography, nearby object photography, celestial radiometry, surface photography, astronaut visibility, zodiacal light photography, cloud top spectrometer and visual acuity.

The eight-day mission is about the time required for an Apollo crew to fly to the Moon, explore its surface and return to Earth. Gemini V is expected to demonstrate that the prolonged weightlessness of a manned Moon landing mission is not a threat to the health of the crew and that well-conditioned, well-trained astronauts can perform effectively over the duration of such a flight.

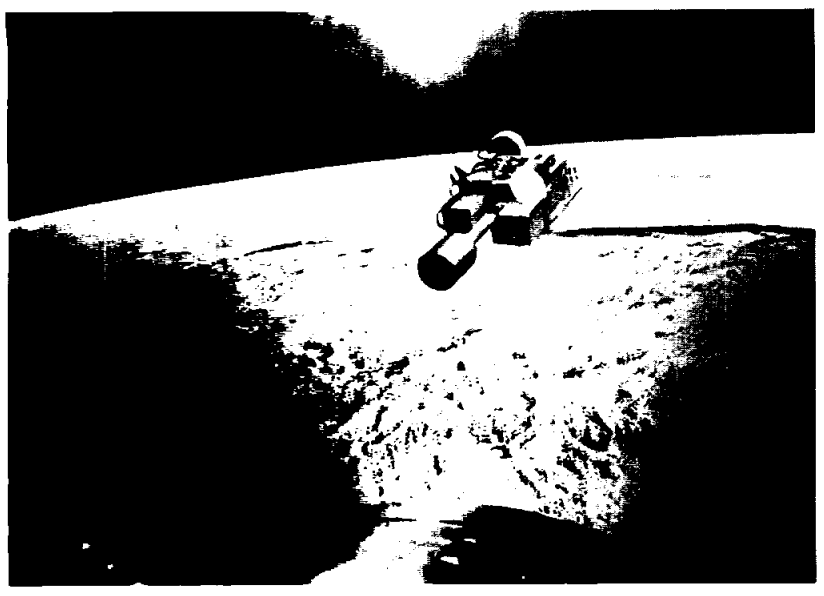
New equipment on Gemini V includes the rendezvous radar and guidance system, developed for rendezvous and docking with an orbiting Agena rocket. A radar evaluation pod will be carried in the adapter section of the spacecraft and ejected in space to simulate the Agena.

Instrumentation in the pod is similar to Agena instrumentation. It contains a rendezvous radio transponder, batteries, antenna and flashing lights. Its life expectancy is about six hours.

Purpose of the radar pod in Gemini V is to test equipment and provide practice in rendez-

(Continued on Page 3)

SPACECRAFT INGRESS—Astronauts (l. to r.) L. Gordon Cooper Jr., command pilot, and Charles Conrad Jr., pilot, practice insertion into the Gemini V spacecraft in the White Room during a simulated countdown at Complex 19. The Gemini V flight is scheduled for eight days duration.



RENDEZVOUS EXPERIMENT—The Rendezvous Evaluation Pod (REP) is approached in orbit in this artist's concept utilizing an actual photograph taken on the Gemini IV mission. The REP will be used by the Gemini V crew to practice rendezvous techniques that will be used on later flights.

Returning Gemini V Astronauts To Be In Seclusion For 11-Days

Gemini V Astronauts L. Gordon Cooper Jr. and Charles Conrad Jr. will undergo intensive debriefing and medical tests for 11 days following their mission, it was announced August 13.

This unbroken period of medical tests and pilots reporting in seclusion is necessary to extract the maximum scientific and technical information from the eight day flight.

"Producing scientific and technical information is the purpose of the flight," said Dr. George E. Mueller, associate administrator for Manned Space Flight, "this information is vital in determining the effects of long duration flight on the human systems and in proving out flight systems for future flights."

News media will be permitted to photograph the astronauts on the Lake Champlain on their departure from the ship and arrival at Cape Kennedy and on their departure from Cape Kennedy and arrival at Ellington Air Force Base near the Manned Spacecraft Center.

Following the 11-day debriefing period, the Gemini 5 crew will be made available for a press conference and other public activities.

James C. Elms

Former MSC Deputy Director Appointed To NASA Hq Post

James C. Elms and Lt. Gen. Frank A. Bogart (USAF-ret.) have been appointed deputy associate administrators for Manned Space Flight at the National Aeronautics and Space Administration effective September 1, it was announced August 5 by Dr. George E. Mueller, NASA associate administrator for Manned Space Flight.

Elms is presently vice president and general manager of Raytheon Co., Space and Information Systems, Lexington, Mass. Prior to his association with Raytheon he was deputy director at the Manned Spacecraft Center, from February 1963 to March 1964. He has held executive positions with Aeronutronic Division of Ford Motor Co., AVCO Corp. Martin Co., and North American Aviation.

JAMES C. ELMS

As Dr. Mueller's general deputy, Elms will give special attention to the three centers primarily responsible for management of the manned space flight programs to insure the most effective use of total resources. The centers are the John F. Kennedy Space Center, Kennedy Space Center, Fla.; Marshall Space Flight Center, Huntsville, Ala.; and Manned Spacecraft Center.

General Bogart, a former comptroller of the USAF, who has served as director for Management Operations, Office of Manned Space Flight, since February will fill the vacancy created by the reassignment of William Rieke as NASA Associate Administrator for Industry Affairs in June. He will be concerned primarily with management problems.

Douglas Aircraft Head Visits MSC

RECENT VISITOR—Donald Douglas Sr., chairman of the board, Douglas Aircraft Company, is shown with Dr. Robert R. Gilruth, director, MSC, during a visit to the Center August 11. Douglas was taken on a tour of Center facilities. Here, Dr. Gilruth shows him the view of the Center from his ninth floor office in Building 2.

Astronaut's Assignments Announced

An announcement of the updated astronaut assignment roster was made early this month by Donald K. Slayton, assistant director for Flight Crew Operations.

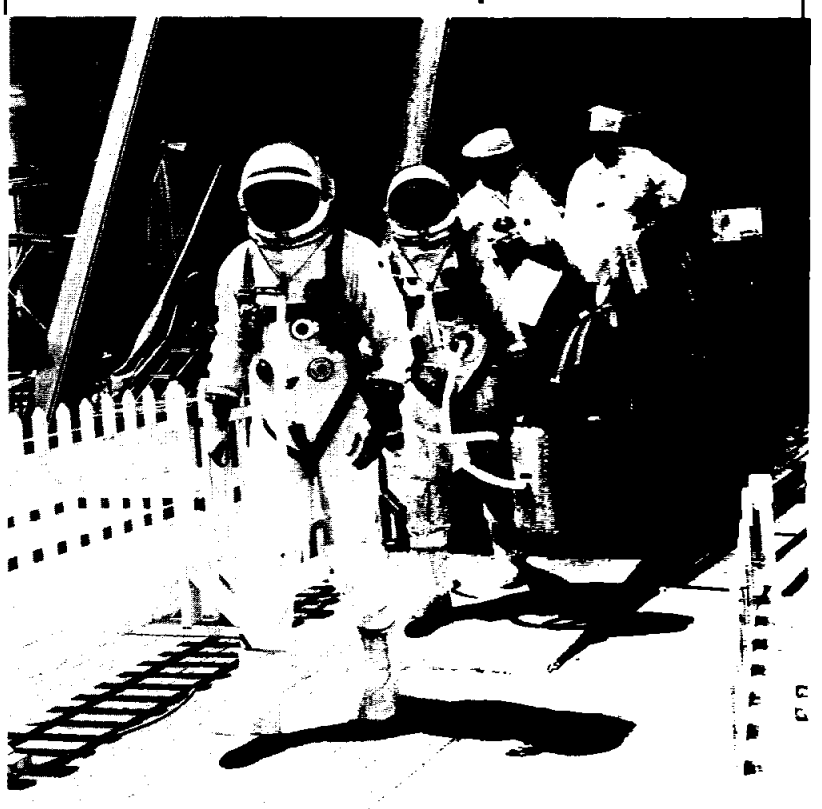
Alan B. Shepard Jr., chief of the Astronaut Office heads up the astronaut organization which is composed of three groups: Gemini Flight; Apollo Flight; and Operations and Training Flight.

The Gemini Flight group is headed up by Virgil I. Grissom and members of the group are: John W. Young, Walter M. Schirra, Thomas P. Stafford, James A. McDivitt, Edward H. White II, Frank Borman, James A. Lovell, L. Gordon Cooper Jr., Charles Conrad, Neil A. Armstrong, and Elliot M. See.

Richard F. Gordon is chief of the Apollo Flight group and members are Donn F. Eisele, William A. Anders, Eugene A. Cernan, Roger B. Chaffee, R. Walter Cunningham and Russell L. Schweickart.

The Operations and Training Flight group has as its chief Edwin E. Aldrin and members are Charles A. Bassett, Alan L. Bean, Michael Collins, David R. Scott, Clifton C. Williams, Owen K. Garriott, Edward G. Gibson, Joseph P. Kerwin, F. Curtiss Michel, and Harrison H. Schmitt.

Gemini V Backup Crew



BACKUP CREW—The Gemini V backup crew for the NASA flight that was to have been launched yesterday, Astronauts Neil A. Armstrong (front), command pilot, and Elliot M. See Jr., pilot, walk down the ramp at Cape Kennedy Pad 19 following ingress exercises. The flight of Gemini V is scheduled to last for eight days.

Air Force Assigns 128 Officers To MSC Flight Operations Area

The National Aeronautics and Space Administration and the Air Force have signed an agreement whereby 128 Air Force Officers will be detailed to NASA's Manned Spacecraft Center, Houston, for two years.

Their assignments in Flight Operations at the Center will augment NASA Flight Operations organization while providing the officers with on-the-job training and experience in the operational control of manned space flight.

The first group of officers arrived for duty at the Center earlier this month. Others will follow each month until March 1966 a total of 128 officers—6 majors, 38 captains, and 84 lieutenants, will be located here.

They will be staffed into the Flight Crew Operations Directorate on the same basis as NASA employees.

MSC Historian To Review Reading Files

The NASA Project Coordinator for "Operation Clean Up" has requested that reading files which are eligible for destruction be forwarded to James Grimwood, MSC Historian at mail code AP6, who will destroy the files after appropriate review.

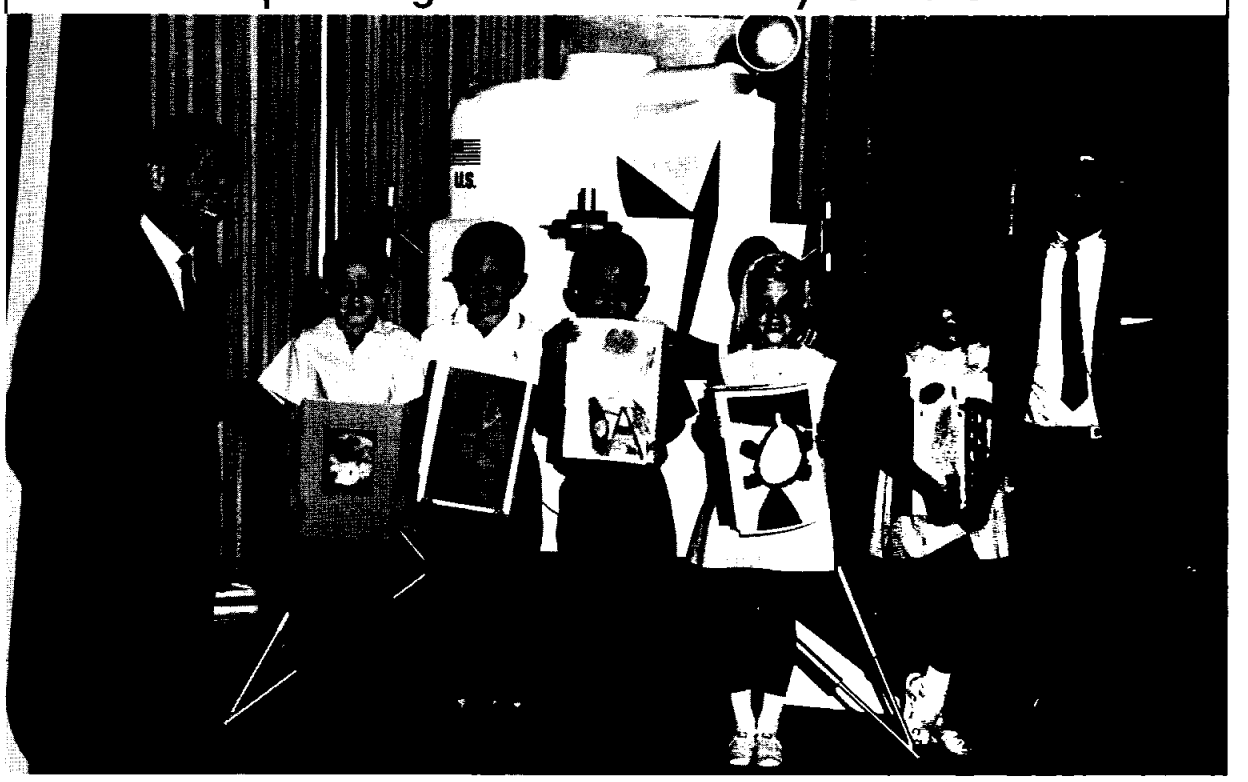
Mexico Official Visits Center

VISITOR FROM MEXICO—Senor Antonio Alvarez Perez (left) listens to an explanation of the United States program by George M. Low, MSC deputy director. Senor Perez, a recent visitor to the Center, is director of Public Works in Mexico.

Experiment For Gemini V

RENDEZVOUS EXPERIMENT—The pilots for the NASA Gemini V mission, Astronauts L. Gordon Cooper Jr., command pilot, and Charles Conrad Jr., pilot, demonstrate the operation of a full-scale mockup of the Rendezvous Evaluation Pod (REP) experiment that is to be used on the mission to develop techniques for later rendezvous missions. The practice rendezvous with the REP in the Gemini V mission is a scaled down version of the Atlas-Agena rendezvous scheduled for Gemini VI.

Space Age Calendar Art By Children



SPACE AGE CHILDREN—These five children, all kindergarteners from Orange County, Calif., were guests of Douglas Aircraft Corp. for a visit to MSC where they met Astronauts William A. Anders (l.) and Russell L. Schweickart (r.). The prize-winning paintings they are holding were entered in a contest Douglas Aircraft held to find artwork for their 1966 calendar. The children are (l. to r.) David Jackson, first place winner, Rick Murray, Arthur Alviso, Jacqueline Michielsen, and Anita Moore.

Gemini V

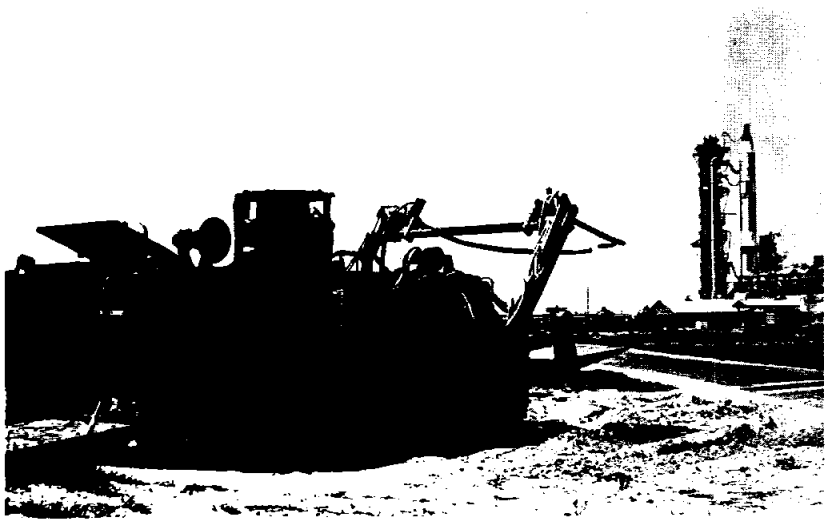
(Continued from Page 1)

vous techniques. Once the pod has been ejected the astronauts will pull away. Later they will seek it out as a test of the equipment. There will be no docking.

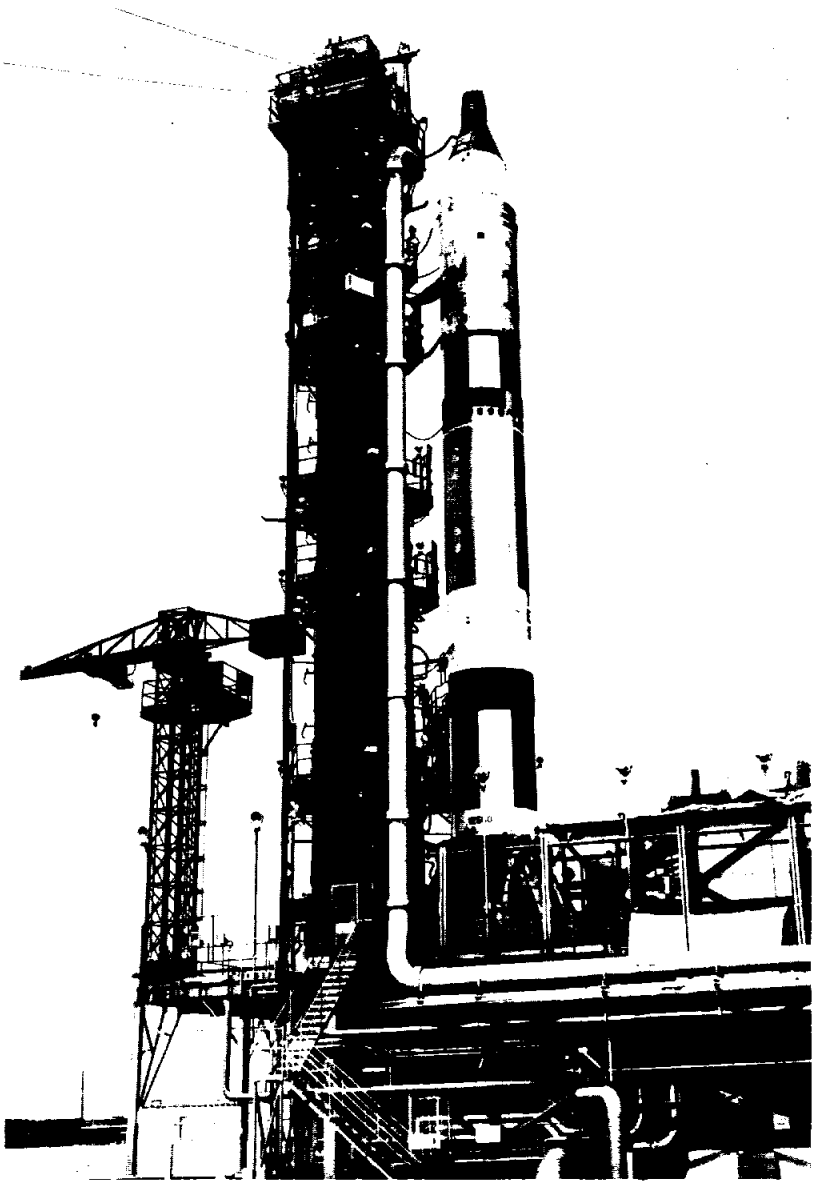
Use of a fuel cell as the electrical power also is new in Gemini V. It is a device produces electrical energy from the reaction of hydrogen and oxygen. The fuel cell replaces the storage batteries previously used and will supply all inflight electrical power for the spacecraft. Batteries will be used during reentry.

Gemini, the second phase of the United State's manned space flight program, is designed to provide experience in orbiting maneuvers, rendezvous and docking, space flights lasting up to 14 days and for manned scientific investigations in space.

The Gemini program is under the direction of the Office of Manned Space Flight, NASA Headquarters, Washington, D.C., and is managed by NASA's Manned Spacecraft Center. Gemini, a national space effort, is supported by the Department of Defense in such areas as launch vehicle development, launch operations, tracking and recovery.

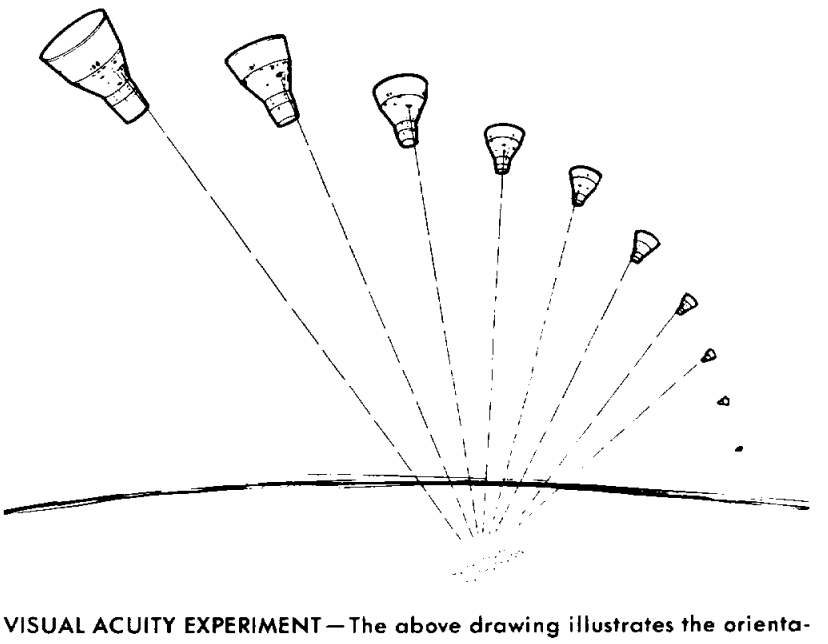


RESCUE VEHICLE—During a wet mock simulated test July 22 for the NASA Gemini V mission, an M1-13 rescue vehicle (left) used for pad abort, stands ready to rescue Astronauts L. Gordon Cooper Jr., command pilot, and Charles Conrad Jr., pilot. The two astronauts (right) practice emergency exit from the spacecraft during a simulated test flight at Launch Complex 19.

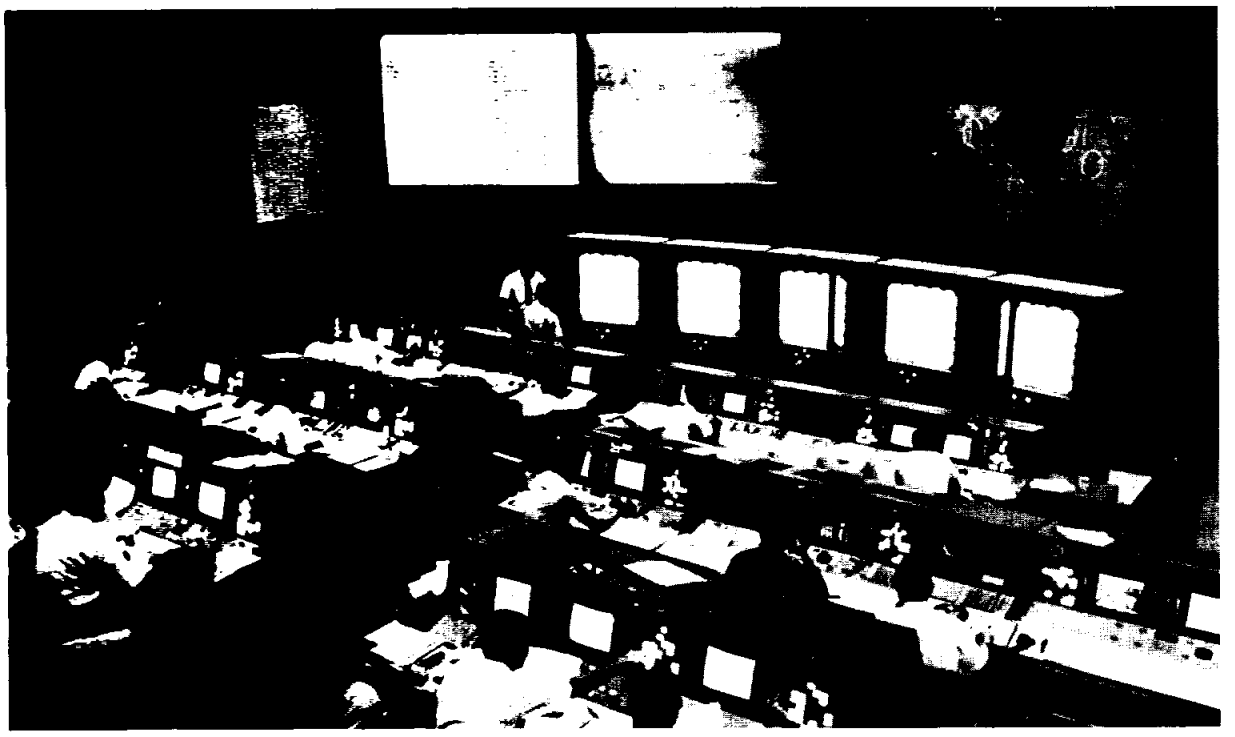


GEMINI V ON PAD—The Gemini V spacecraft and launch vehicle at Pad 19 during wet mock simulation exercise on July 22. The prime crew, Astronauts L. Gordon Cooper Jr. and Charles Conrad Jr. were in the spacecraft during the simulation.

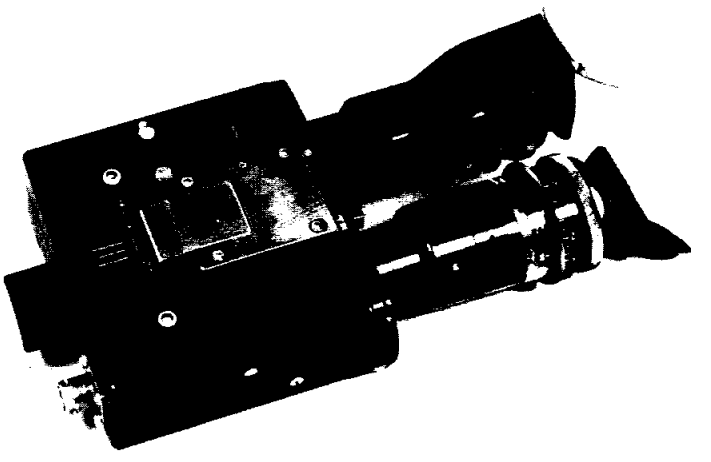
SPACECRAFT COMMUNICATOR—Astronaut James A. McDivitt is shown at the spacecraft communicator console in the Mission Operations Control Room of the Mission Control Center. McDivitt along with Astronauts Edwin E. Aldrin Jr. and Neil A. Armstrong will serve as spacecraft communicators during the Gemini V flight.



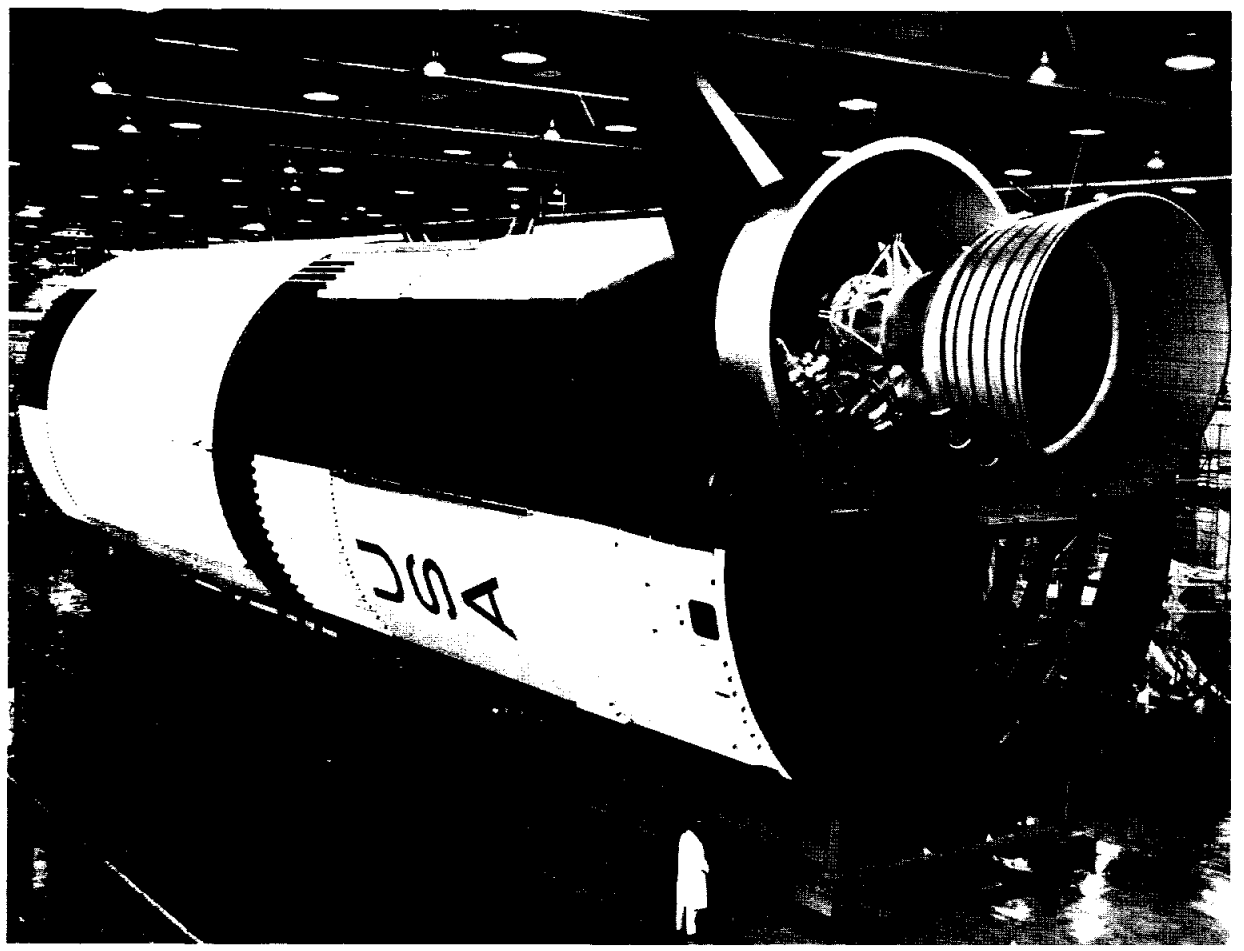
VISUAL ACUITY EXPERIMENT—The above drawing illustrates the orientation of the Gemini spacecraft during the visual acuity experiment in which the visual ability of the astronauts in the detection and recognition of objects on the Earth's surface will be tested. Ground patterns which have been laid out near Laredo, Tex., and near Carnavon, Australia, will be viewed.



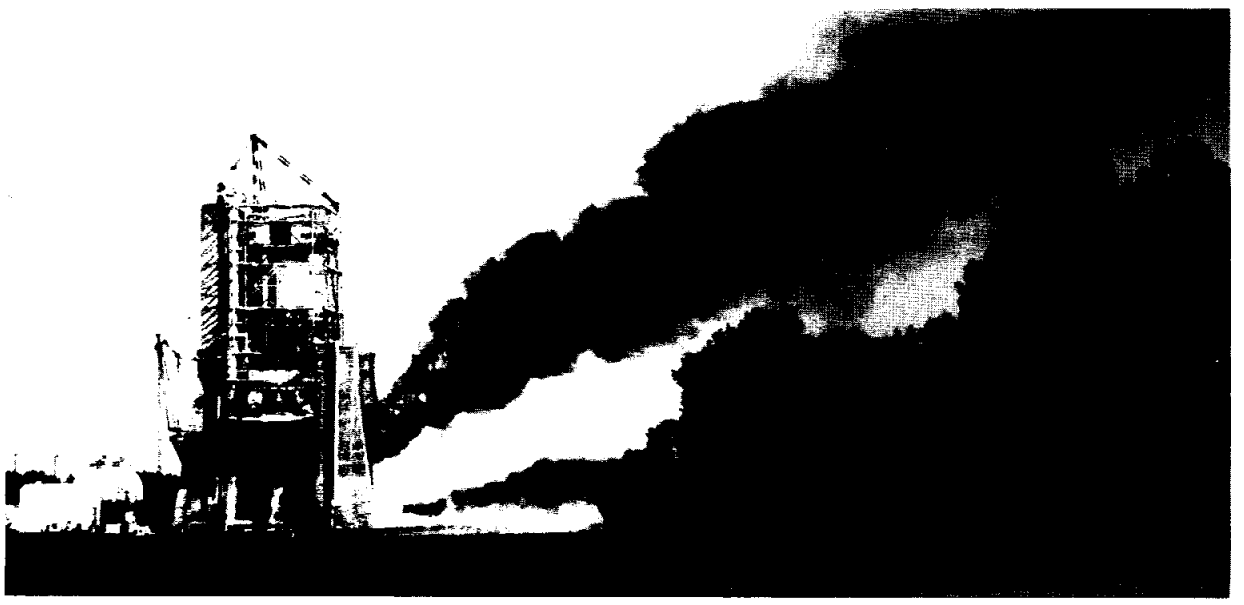
GEMINI V SIMULATIONS—Consoles in the Mission Operations Control Room in the Mission Control Center are manned during Gemini V flight simulations August 15. The MCC is the center of a huge global network of tracking and communications stations providing centralized control for the Gemini V flight. The world map at the upper right shows the location of the spacecraft at all times during flight. Mission director for the eight day flight will be Christopher C. Kraft.



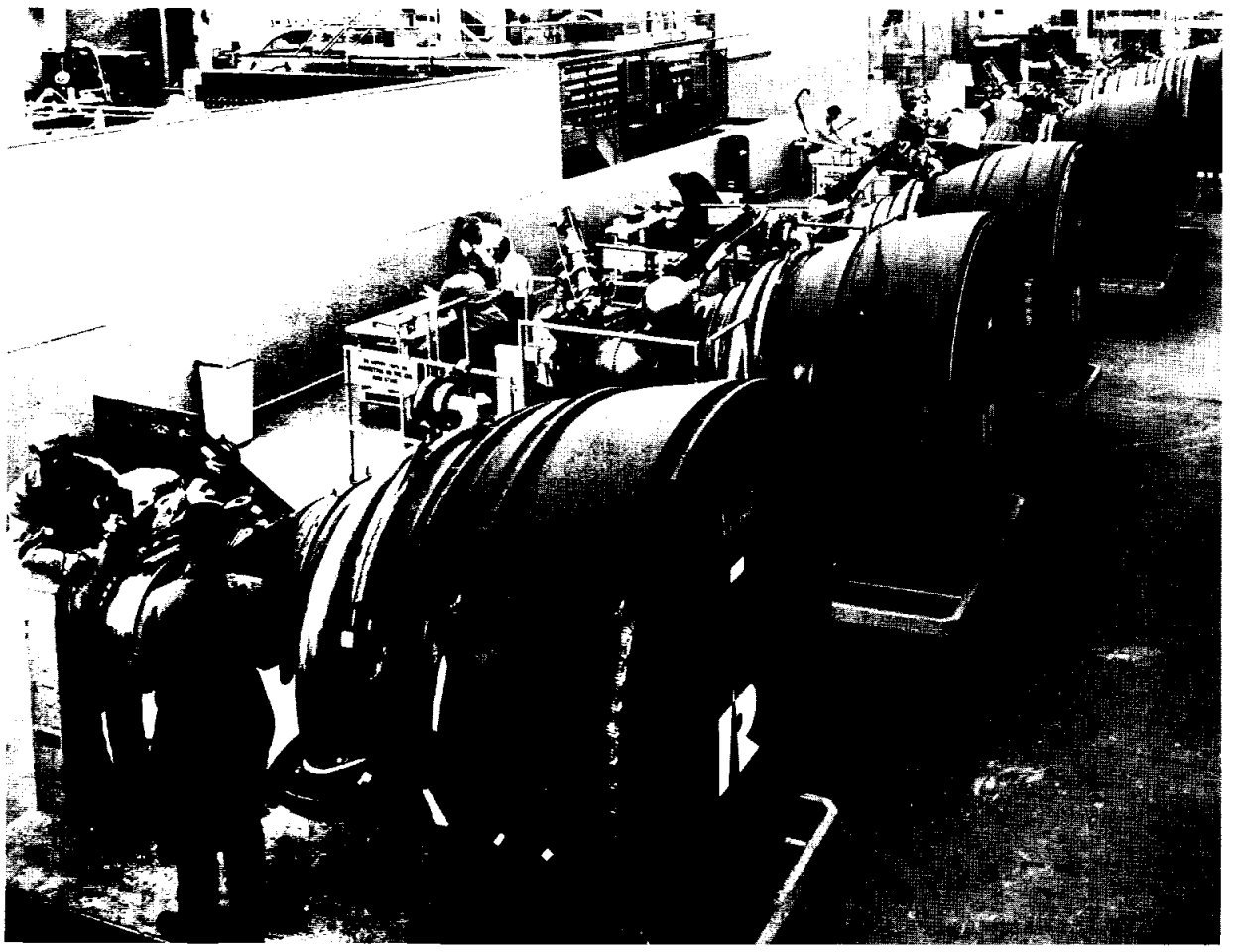
VISUAL TESTER—The In-Flight Vision Tester planned for use in visual acuity tests during Gemini V and VII missions. Astronauts will hold the item in their teeth by the bite board and look into the eye piece to check their own vision once every 24 hours during the mission.



HUGE SATURN STAGE—This is a mockup of the giant S-IC booster stage for the Saturn V moon rocket which is being built by The Boeing Company for NASA at its Michoud Operations in New Orleans, La. A cluster of five Rocketdyne F-1 engines developing a total thrust of 7,500,000 pounds will power the S-IC.



TREMENDOUS THRUST—NASA photo shows first flight duration firing of ground test version of the first stage of Saturn V space vehicle at Marshall Space Flight Center, August 5. Powered by five Rocketdyne F-1 engines, system was operated at its full thrust of 7,500,000 pounds for 143 of the 150 seconds.



J-2 ASSEMBLY—Hydrogen-fueled J-2 rocket engines for upper stages of Saturn IB and Saturn V vehicles are completed on this assembly line at the Canoga Park, Calif., plant of Rocketdyne, a division of North American Aviation, Inc. Engines are delivered to NASA, Douglas Aircraft Company and North American's Space and Information Systems division for installation in Saturn upper stages.

Rocketdyne Engines

The deep-throated voice of the most powerful machine ever created by man is being echoed in a stab of flame through a nighttime Los Angeles sky, a billowing cloud of dust rolling over a desolate desert floor and a muffled rumble in a distant Ozark valley.

The voice is the resonant roar of five F-1 engines operating together in ground tests of the huge S-IC first stage for Saturn V at NASA's Marshall Space Flight Center in Huntsville, Ala.

Its echoes are tests of the Saturn programs' three rocket engines, which have reached or are now nearing flight qualification at test sites of Rocketdyne, a division of North American Aviation, Inc.

In a unique mountain laboratory on the fringe of Los Angeles' populous San Fernando Valley, tests through the day and into the night are being carried out on the hydrogen fueled J-2 engine that will power Saturn's upper stages—the Saturn IB's second stage and the Saturn V's second and third stages.

On California's yucca-dotted Mojave desert within sight of the boron mines where 20-mule teams once plodded their course, the S-IC's F-1, the most powerful rocket engine ordered into production, is demonstrating its qualification for manned flight—often as many as three times a day.

And in the Ozark mountains in the southwestern corner of Missouri, a new series of uprated H-1 engines, carrying with it the legacy of 10 out of 10 successful Saturn I flights, is being put through its paces in preparation for the first launch of Saturn IB—and the start of the Apollo flight test program.

The engines were designed and developed by Rocketdyne at its main plant in Canoga Park, California. They are being produced there and in Neosho, Mo., and delivered to MSFC and the stage contractors.

The H-1 has demonstrated its reliability in 10 consecutive successful flights of the Saturn I vehicle. This outstanding performance—representing 80 engines—confirmed the confidence NASA placed in the H-1 engine when its development was ordered in September 1958.

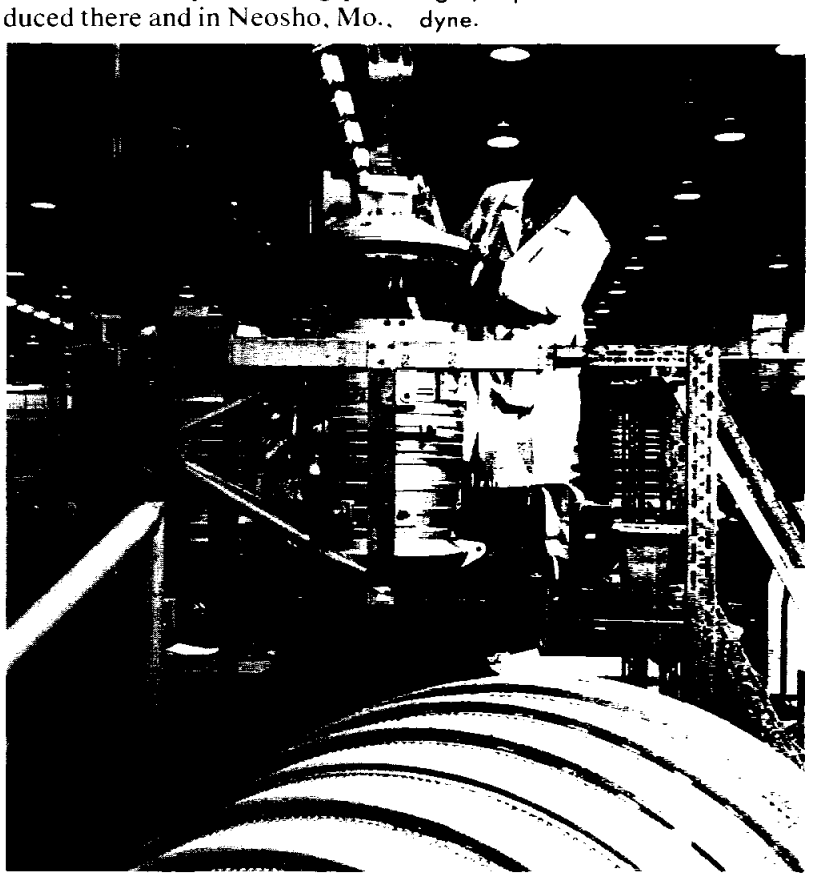
An outgrowth of Rocketdyne's Atlas, Thor and Jupiter engines, the H-1 design was selected for its relative simplicity, proven reliability and early availability. The engine is currently being delivered in its third version which develops 200,000 pounds of thrust.

F-1 design and development began Jan. 9, 1959. F-1 was first fired at its 1,500,000 pounds of thrust for its approximate flight duration of two and one half minutes on May 26, 1962.

The J-2 engine development program has been underway since Sept. 1, 1960. Since that time, the technology of both liquid hydrogen and engine design has been greatly advanced.

Rocketdyne is developing these engines under the technical direction of NASA's Marshall Space Flight Center, Huntsville, Ala.

JOSEPH P. McNAMARA
Vice President and General Manager, Liquid Rocket Division Rocketdyne.



DOME ASSEMBLY—A liquid oxygen dome-injector assembly is lowered for attachment to an H-1 rocket engine at the Neosho, Mo. plant of Rocketdyne, a division of North American Aviation, Inc. Injector is baffled type to insure smooth combustion in engine.

Make Saturn Man's Most Powerful Machine

Two other Rocketdyne engines will also see duty in the Saturn/Apollo program.

Eight ullage motors produced by Rocketdyne's Solid Rocket division will provide the S-II stage of the Saturn V with artificial gravity by momentarily accelerating it forward. This moment of forward thrust is necessary in the weightless environment of space to make certain the liquid propellant is in the proper position in its tank to be drawn into the pumps prior to start of the second stage engines.

Under the technical direction of the Manned Spacecraft Center, Rocketdyne is developing 91 pound thrust engines that will be used in two sets of six each in the Apollo Command Module to control the attitude of the Apollo spacecraft during its re-entry into the earth's atmosphere.

To date, Rocketdyne engines have powered the booster vehicles for 85 per cent of all U. S. missile and satellite launchings, including the six flights of the Project Mercury astronauts.

Its low thrust systems have been used for attitude and maneuvering as well as re-entry control of the two-man Gemini spacecraft and for attitude control of the Titan III Transtage.

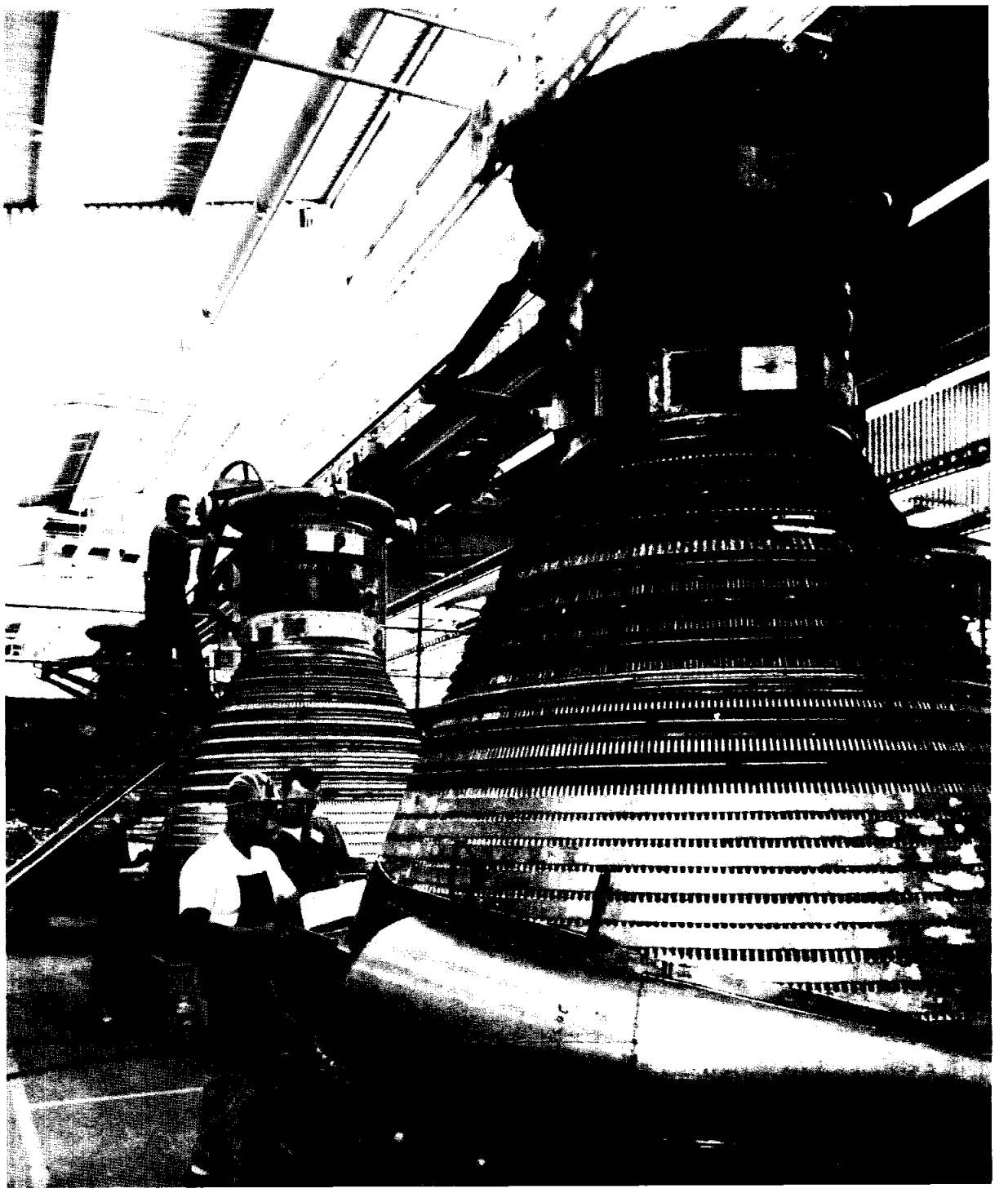
Rocketdyne President S. K. Hoffman, who joined North American in 1949, has led the development of this broad range of rocket propulsion systems. Heading the Liquid Rocket division and guiding the development of the F-1, J-2 and H-1 engines is J. P. McNamara, LRD vice president and general manager, a North American veteran of 22 years.

Rocketdyne has six product operations. They are the Liquid Rocket division, the Solid Rocket division, the Spacecraft Engine division, Nuclionics, Ordnance Engines and Research.

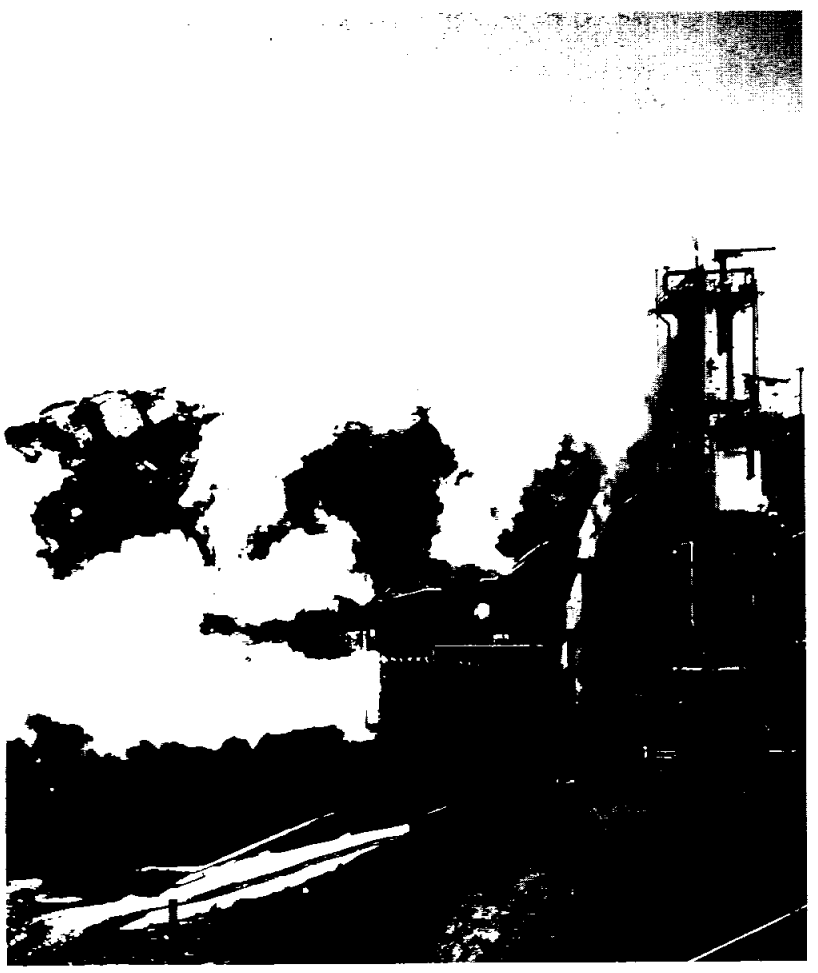
Approximately 15,500 of its 18,500 employees are located at plants in southern California. The remainder are employed at the Liquid Rocket division's manufacturing plant in Neosho, Mo., the Solid Rocket division in McGregor, Tex., and the Nevada Field Laboratory, near Reno, Nev. Rocketdyne also operates regional offices throughout the country.

SAMUEL K. HOFFMAN
President, Rocketdyne

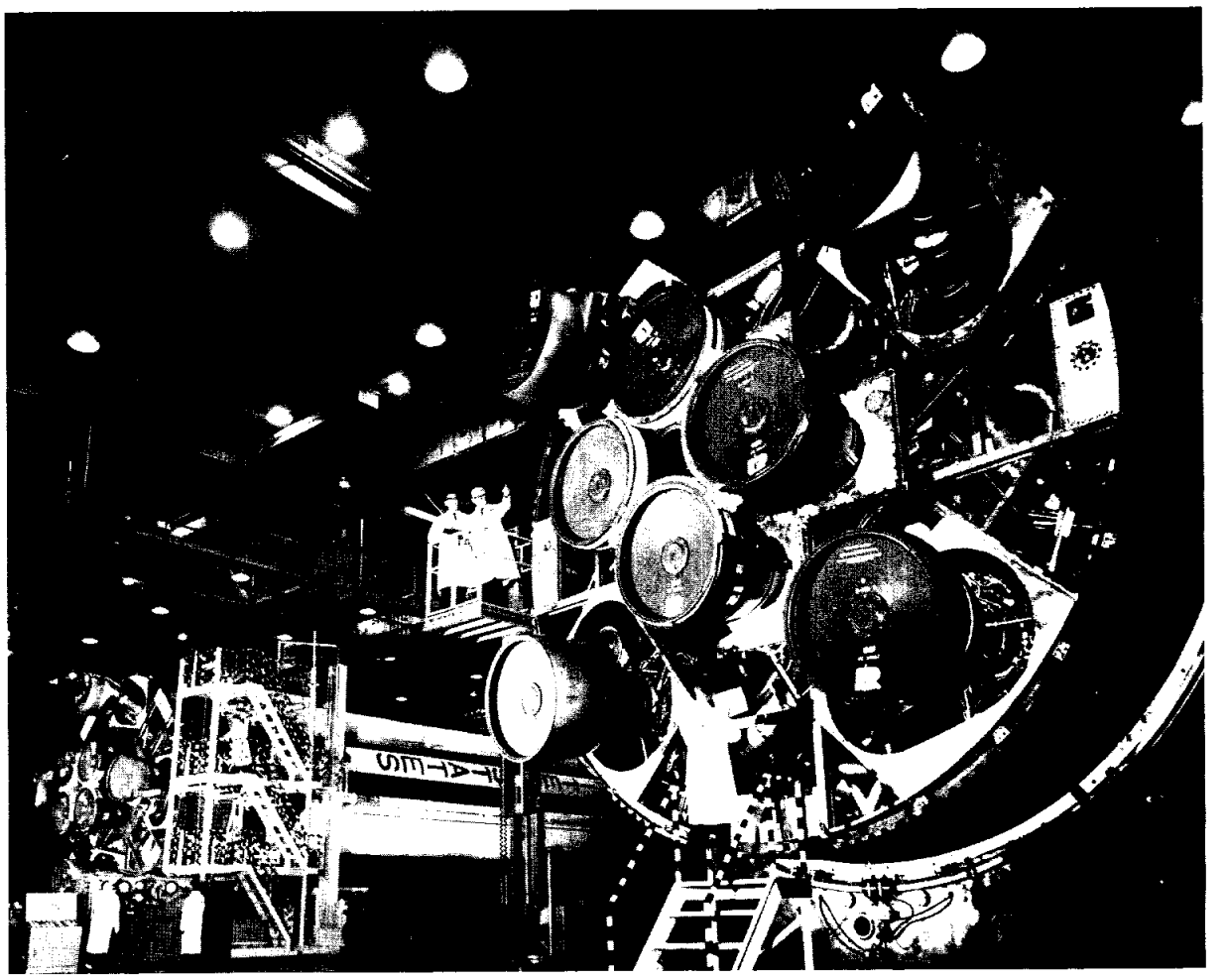
EDITOR'S NOTE: This is the first in a series of articles being presented to acquaint the employees of the Manned Spacecraft Center with the contractors who make the Saturn launch vehicles and related equipment that will be used in the Apollo program. The material on these two pages was furnished by Rocketdyne, a division of North American Aviation, Inc.



MOST POWERFUL—This is manufacturing line for thrust chambers of F-1 rocket engine at Canoga Park, Calif. plant of Rocketdyne, a division of North American Aviation, Inc. F-1 is most powerful engine under development by United States.



J-2 ALTITUDE TEST—Hydrogen-fueled J-2 engine is fired under simulated space conditions on altitude test stand at Santa Susana Field Laboratory of Rocketdyne, a division of North American Aviation, Inc. J-2 develops 200,000 pounds of thrust and will power upper stages of Saturn IB and Saturn V vehicles.

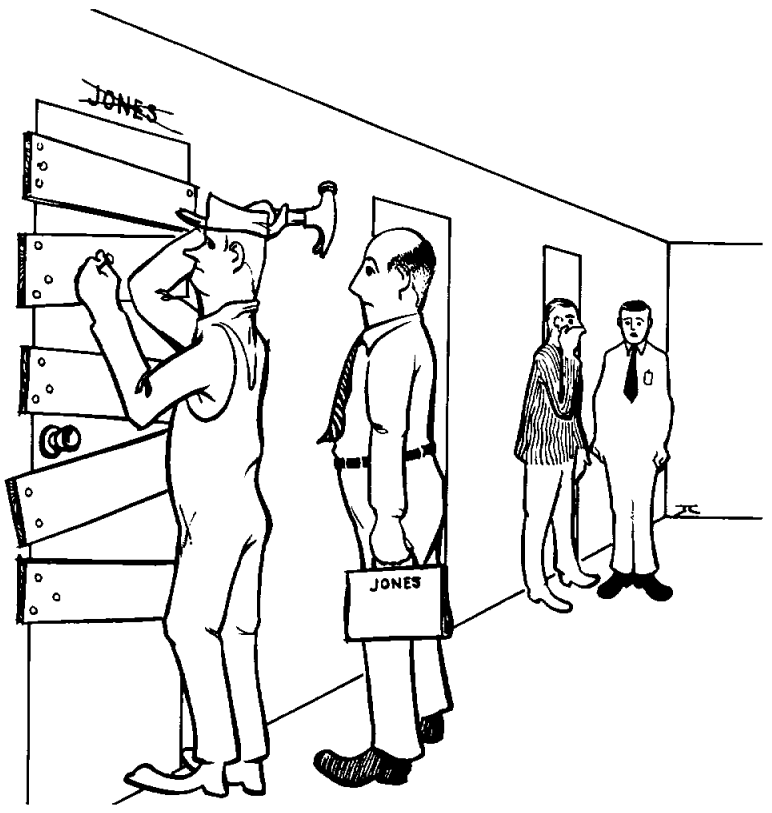


BIG BOOSTERS—Shown in various phases of final assembly operation at Michoud Operations, New Orleans, La., are S-1 booster stages produced by Chrysler Corporation for Saturn IB vehicle. Cluster of eight Rocketdyne H-1 engines will power this stage. Saturn IB vehicle will launch the first Apollo astronauts into earth orbit in flights prior to lunar landing.

The SPACE NEWS ROUNDUP, an official publication of the Manned Spacecraft Center, National Aeronautics and Space Administration, Houston, Texas, is published for MSC personnel by the Public Affairs Office.

Director . . . . . Dr. Robert R. Gilruth
Public Affairs Officer . . . . . Paul Haney
Editor . . . . . Milton E. Reim
Staff Photographer . . . . . A. "Pat" Patnesky

On The Lighter Side



"JONES WAS ON LEAVE DURING THE LAST REORGANIZATION"

Welcome Aboard

Thirty new employees joined the Manned Spacecraft Center during the last reporting period.

Center Medical Programs Office: Glenda L. Malone.

Public Affairs Office: Judith E. Ballard and Marilyn D. Grimes.

Procurement and Contracts Division: Thomas L. Carter, Nicholas G. Constan, and Carol J. Olson.

Technical Services Division: William L. Thomas.

Photographic Technology Laboratory: Marvin L. Griffin.

Engineering Division: Sharon A. Rebouche, Robert G. Spickelmier, and Robert W. Meitzen.

Personnel Division: James T. Richards.

Resources Management Division: Richard F. De la Garza and Daniel F. McKenzie.

Astronaut Office: Owen K. Garriott, Edward G. Gibson, F. Curtis Michel, and Harrison H. Schmitt.

Flight Crew Support Division: Elvin B. Pippert.

Computation and Analysis Division: Alexander H. Treadway.

Propulsion and Power Division: Fred L. Havard, John D. Norris, George S. Crittendon, and Terry G. Watkins.

Landing and Recovery Division: Robert F. Thompson.

Structures and Mechanics Division: Freddie E. Jones.

Advanced Spacecraft Technology Division: Robert C. Runnels and Jesse L. Kersh.

Flight Support Division: Carl R. Stroud.

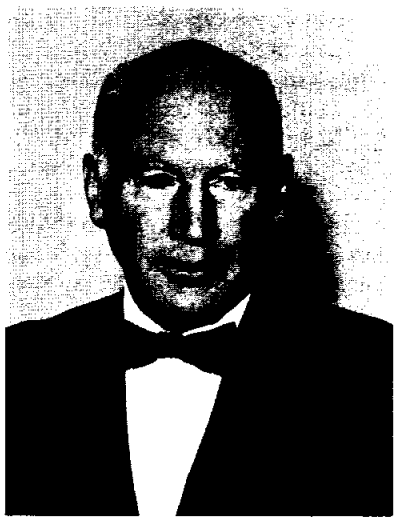
White Sands Test Facility: Dale R. Blann.

MSC PERSONALITY

George F. MacDougall, MSC's Gemini Program Control Deputy

George F. MacDougall Jr., deputy manager of the Office of Program Control, Gemini, was one of the 35 Langley Field employees selected to form the Space Task Group "to implement a manned satellite project."

When that group was formed in November 1958, MacDougall was assigned the duties as deputy manager of Program Control on Project Mercury, and through



GEORGE F. MacDOUGALL JR.

his efforts, and the efforts of many others that later joined the NASA space program, the "manned satellite project" has become a reality.

In his present assignment, MacDougall is responsible for central planning, coordination and control in the areas of technical requirements and performance, schedules, and resources management on all phases of the Gemini program that fall under the cognizance of the Gemini Program Office. This encompasses all spacecraft and vehicles, ground equipment and supporting activities required to complete the objectives of the program. In the absence of the manager of the Program Control Office, he also assumes his duties.

A recent project in which MacDougall played a big part was the incentive contract that was signed in January of this year with McDonnell Aircraft for Gemini spacecraft. The contract uses the Planned Interdependency Incentive Method, and he was deeply involved in establishing the relative weighting to be given to the cost and performance parameters employed in the incentive contract arrangements. He was also active in negotiations with McDonnell prior to letting the contract.

Prior to joining the Space Task Group, MacDougall was executive engineer from 1949 to 1958 in the Stability Research Division at Langley Research Center. One of his duties included serving on the Stability and Control Committee at Langley.

He first joined NASA (then NACA) in 1940 and worked as an aeronautical research engineer in the Spin Tunnel Section, Stability Research Division, Langley Research Center.

During this period he took part in research on spinning aircraft and methods of obtaining recovery from a spin. The research was a type of flight safety, MacDougall stated. The spin information was passed on to the pilots of aircraft of that day. Aircraft of that era were designed more for speed, spin recovery was secondary, MacDougall said.

During 1946-47, MacDougall served on a special group that established classification categories for engineers in various fields, such as categories for aeronautical engineers.

He authored over 30 technical reports and memorandums on spinning and tumbling aircraft while at Langley, and performed wind tunnel tests and aided in the discovery of aerodynamic instability in such aircraft as the P-55, and the B-35. He also performed wind tunnel tests on many other WWII aircraft.

MacDougall was born in Waltham, Mass., and received his bachelor of science degree from Boston University in 1939.

He is married to the former Anne G. Ashwell of Phoebus, Va., and the couple has two sons, Donald 19 and Douglass 13. Donald will attend the University of Texas this fall where he will major in mathematics and geology. The family resides in Houston.

Out Of Texas' Past . . .

(EDITOR'S NOTE: To acquaint MSC employees with the rich historical background of the Galveston Bay area, and of Texas in general, a series of historical articles prepared by the Historical and Library Services Branch will appear in the Roundup.)

About 12 miles northeast of MSC, near the mouth of Cedar Bayou, on the Evergreen-Pelley Road in the edge of Baytown, is the site of Evergreen Plantation, the home of Ashbel Smith, who served the Republic of Texas as surgeon-general, secretary of state and minister to the Courts of St. James and St. Cloud.

A lifelong bachelor, Dr. Smith was born in Connecticut in 1805 and was educated at Yale University and in Paris, where he was an intimate friend of the Marquis de Lafayette, James Fenimore Cooper and Samuel F. B. Morse.

In 1837 he immigrated to the new Republic of Texas and immediately was appointed surgeon-general of the Army. Five years later he was named charge d'affaires to England and France.

Dr. Smith was not a handsome man. He was small of stature, with bushy hair and whiskers. But he was a brilliant physician and a talented diplomat. He was a roommate of Sam Houston when the liberator of Texas lived in the city that was named for him. In England, Dr. Smith danced with Queen Victoria and discovered and reported to his government a plot that involved the annexation of Texas by the United States. In France he lunched with Napoleon III, and in Rome he made a diplomatic call at the Vatican.

Appointed secretary of state by Anson Jones, last president of the Lone Star Republic, Dr. Smith negotiated a controversial treaty with Mexico by which that country, defeated in the war of 1835-36, promised to recognize the independence of Texas. But for that service he was burned in effigy by partisans of annexation.

After serving the United States in the Mexican War, Dr. Smith retired to his Galveston Bayshore plantation, practiced medicine and wrote a number of scientific papers, many of them on the treatment of yellow fever. But the demands of public service continued to interrupt his professional life until long after the end of the Civil War. Among the last offices he held with distinction were the board presidencies of both the Texas Medical College and the University of Texas. Shortly before his death at Evergreen in 1886, he collaborated on a translation of the American Revised Version of the Bible.

A priceless portrait in oils of Dr. Smith used to hang in the old assembly room of the Harris County Medical Society, in the Medical Arts Building, in Houston. But it was stolen in 1949 and has never been recovered. The portrait was a gift to the society from Anna Allen, Dr. Smith's foster-daughter, whom he saved from blindness when she was nine years old. After treating the orphan in his surgery at Evergreen, he gave her a home there for life.

The lonely and aging physician wanted to adopt Anna legally, but she demurred because she disliked the thought of changing her name to Smith.

Dr. Smith made her his heir anyway. The land she inherited later became the heart of the famous Goose Creek oilfield.

Space News Of Five Years Ago

AUG. 21, 1960—U.S.S.R. announced safe recovery of biologic payloads of SPACECRAFT II after 17 orbits, and reported two dog passengers were in excellent condition. This was the first successful recovery of life forms from orbit.

AUG. 23, 1960—Smithsonian Astrophysical Observatory reported that solar pressure was pushing ECHO I's perigee one and one-half miles closer to the earth every 24 hours. ECHO I was launched Aug. 12, 1960.

DURING AUGUST 1960 — Astronaut side-egress training was completed with no difficulties encountered. The astronauts later received refresher training prior to mission flights of Mercury spacecraft.

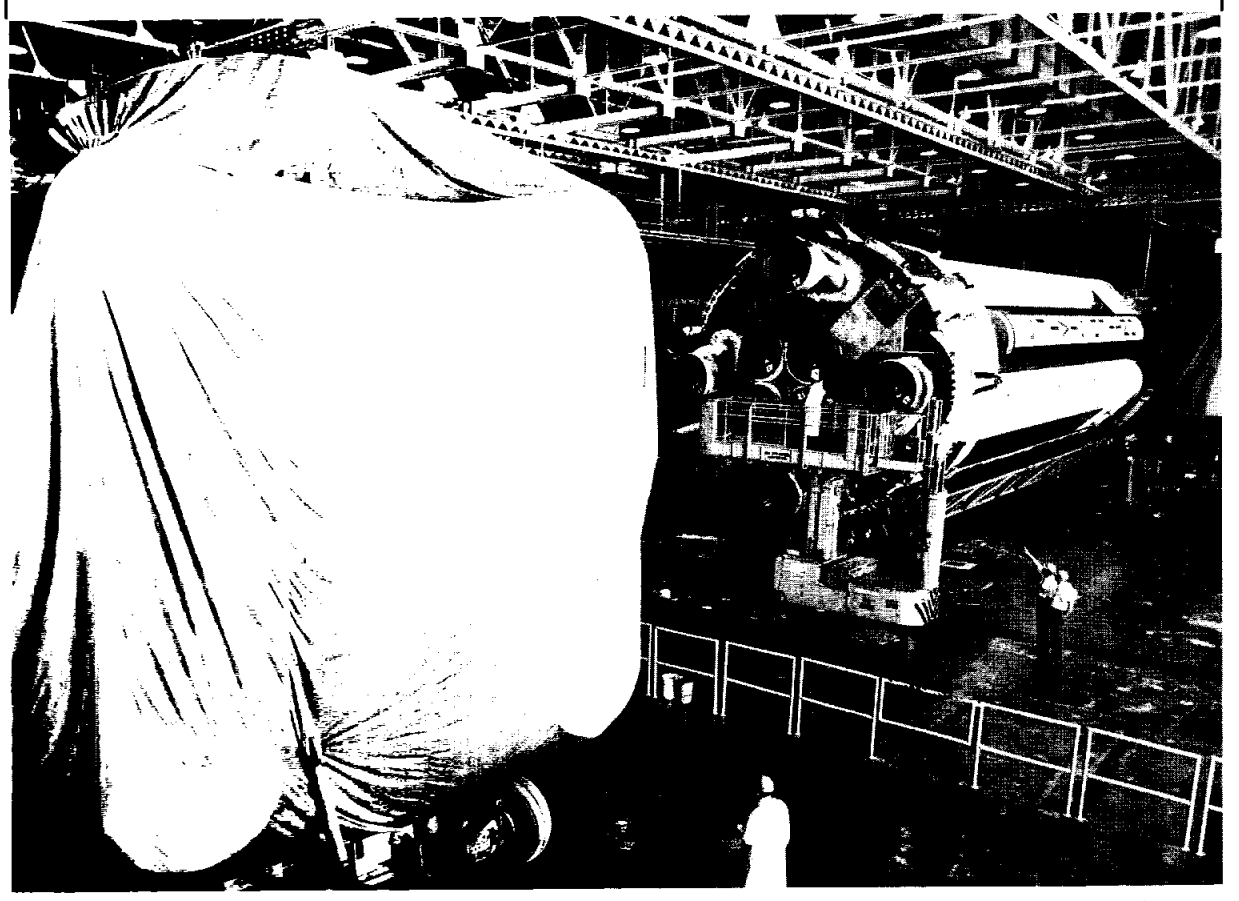
—The first phase of the Mercury program in which boilerplate spacecraft with impact skirts were dropped by helicopters on water and land surfaces was completed. These tests were performed to investigate spacecraft dynamics, effects of parachute restraint and release time on spacecraft dynamics, and to determine maximum landing decelerations.

—Beginning in August 1960 and continuing until February 1961, the overall Mercury-Atlas program underwent an exhaustive review because of the failure of the Big Joe Atlas test flight and the Mercury-Atlas (MA-1) flight to attain all mission objectives.

SEPT. 1, 1960—The Space Task Group drafted and forwarded to McDonnell the specification requirements for spacecraft on-board data system instrumentation tests. McDonnell was to demonstrate the satisfactory performance of all space communication and instrumentation systems.

SEPT. 1, 1960 — Mercury spacecraft No. 6 was delivered to Cape Canaveral for the Mercury-Atlas 2 (MA-2) unmanned mission intended to gain data on maximum dynamic pressure and maximum heat on the spacecraft afterbody.

First Two Saturn IB Flight Boosters



FIRST FOR FLIGHT—The first two Saturn IB flight boosters—one arriving and one being prepared for shipment—are shown as they crossed paths early this month at the National Aeronautics and Space Administration's Michoud Assembly Facility. Covered in the foreground is the tail section of the second Saturn IB first stage (S-IB-2), which had just returned to Michoud following static firing tests at NASA's Marshall Space Flight Center, Huntsville, Ala. In the background is the first Saturn IB booster (S-IB-1), being prepared for shipment August 9 to its launch site at Cape Kennedy, Fla. The S-IB-1 booster, scheduled to be launched early next year, will first be used to check out Saturn IB launch facilities at the Cape. The two stages are the first of 12 Saturn IB boosters to be assembled at Michoud by the Chrysler Corporation Space Division.

Series Of Apollo C/SM Systems Courses To Be Conducted At Center By NAA/SID

During the months of October, November, and December, a number of Apollo command and service module (C/SM) systems courses will be presented here at the Manned Spacecraft Center.

These presentations which will be conducted by North American Aviation, Space and Information Systems Division instructors, will consist of orientation and familiarization courses.

Tim Brown, subsystem manager for training, said the orientation courses may be expected to provide a broad treatment of the subject matter for those persons who have had limited experience with general or particular aspects of the Apollo spacecraft program.

Familiarization courses will provide information to a level of detail which will permit an attendee to understand the operating characteristics of specific Apollo Spacecraft systems.

Persons attending these courses will receive course guides which may be retained as personal references. The titles, lengths, and descriptions of the courses to be conducted follow. The first two are orientation courses and the other familarization courses:

Apollo Spacecraft and Systems Orientation: 24 hours; provides a description of the CSM structure, the location, and general operating characteristics of the CSM systems. The course is concluded with a discussion of system event sequences for a typical lunar mission.

Telecommunications System Orientation: 6 hours; provides a general description of the Apollo CSM Block I/Block II telecommunications systems and the Manned Space Flight Network.

Electrical Power System Familiarization: 12 hours; provides a detailed description of power distribution and regulation; cryogenic storage systems and interfaces with the Electrical Power System; power generation, encompassing fuel cells, batteries, battery charger, and inverters.

Sequential Events Control System Familiarization: 15 hours; provides a detailed description of the Block I Apollo CSM sequential events control system and its interface with the emergency detection system, the launch escape system, the earth landing system, the reaction control system, and related controls and displays.

Propulsion Systems Familiarization: 12 hours; provides a detailed description of the service module propulsion system and the service module and command module reaction control systems, including equipment description and interface with other systems.

Crew Systems Familiarization: 16 hours; provides a detailed description of the configuration, location, and operations of CFE and GFE Apollo crew equipment which includes garments, lighting, food, bio-med equipment, couches, restraint harnesses, water and waste management.

Structures and Mechanical Systems Familiarization: 12 hours; provides a detailed description of the design and fabrication of the Apollo spacecraft (excluding LEM); descriptions of the reference systems; the mechanics of the LES, C/M, S/M, and SLA; and the operation, checkout, and installation procedures for the mechanical systems.

Environmental Control Systems Familiarization: 12 hours; provides a detailed description of the regulation of gas and fluid flow.

Stabilization and Control Systems Functional Operations Familiarization: 20 hours; provides detailed description of SCS functional operation and emphasizes signal flow and equipment mechanization from operator's view point.

It is anticipated that each course will be conducted daily with four-hour sessions until completed. Class sizes are not expected to exceed 25 persons. A memorandum containing course registration information has been circulated concurrently with this announcement to all MSC organizations. Provided that six or more persons indicate an interest in any given course, enrollments will be confirmed and detailed class schedules will be announced in September.

Attached to the memorandum will be a survey form indicating Apollo Spacecraft courses which can be made available to MSC. If sufficient interest can be established for any listed course, it will be scheduled early in 1966.

These courses are open to all persons at the Center that have a need for the Apollo C/SM systems knowledge in connection with their duties. Additional information may be obtained by calling Brown at Ext. 4371.

Apollo Tracking Station At Corpus To Use Unified S-Band System

The National Aeronautics and Space Administration has announced that plans for the tracking network to service the Apollo flights to the Moon include installation at Corpus Christi of intricate long-distance radio communications, the Unified S-Band System.

With Unified S-Band, the Corpus Christi station will be able to combine in a single two-way transmission all types of communications with the three Apollo astronauts. This had to be done by five separate transmissions for the single astronaut in the Mercury capsule.

Seven different kinds of communications will be conducted simultaneously for Apollo—two more than were required for Mercury.

They are: (1) tracking the spacecraft, (2) commanding its operations and confirming that the command has been executed, (3) two-way voice conversation with the three astronauts with telephone clarity, (4) continuous checks on the astronauts' health, (5) continuous check on the spacecraft and its functions, (6) continuous flow of information from the Apollo onboard experiments, and (7) television pictures of the astronauts and their exploration of the Moon.

All of this will be done with one ground antenna instead of a number of separate antennas as used heretofore. NASA's plans for Corpus Christi include construction of a 30-foot diameter parabolic antenna for use with the Unified S-Band System, the same type of equipment to be installed at Cape Kennedy, Bermuda, Ascension Island, Carnarvon, Australia; Guam, Hawaii and Guaymas, Mexico.

For NASA And Contractors—

Largest Aerospace Literature Collection To Provide Central Reference Service

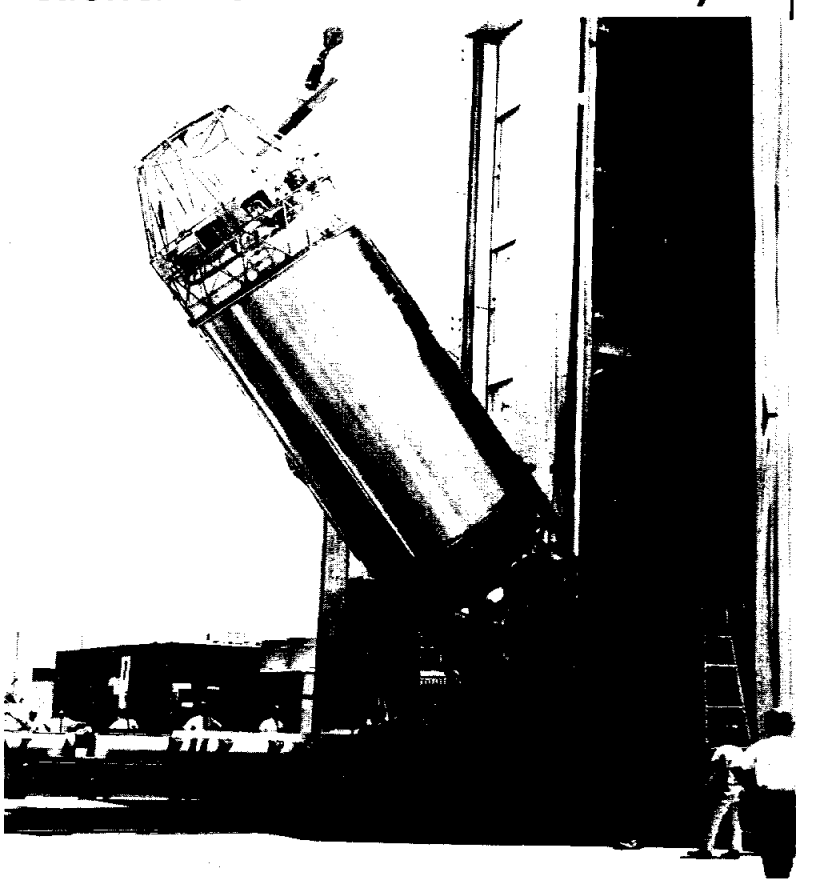
NASA has selected Documentation, Inc., Bethesda, Md., for final negotiation of a contract to operate its Scientific and Technical Information Facility, the world's largest collection of aerospace literature.

The negotiations are expected to result in a cost plus award fee contract initially for approximately $3,600,000. The contract calls for Documentation, Inc. to operate the facility in a Government-provided building in College Park, Md., through June 1966.

Mission of the facility is to acquire and organize worldwide technical reports in the aerospace sciences, indexes, abstracts and items of value in the exploration of space; prepare announcement journals; process selected items on microfilm for economical reproduction and distribution; and provide a central reference service to NASA and its contractors.

Monitored by the NASA Headquarters Scientific and Technical Information Division, the contractor will also operate the Selective Dissemination of Information Program, using computer techniques to notify NASA scientists and engineers of new developments of direct interest to their work.

Launch Vehicle For Moon Surveyor



SURVEYOR LAUNCHER—The Centaur high-energy space vehicle scheduled for use in the launch of the first Surveyor spacecraft late this year is shown being lowered onto a transportation trailer prior to airlift to Cape Kennedy, Fla. This Centaur, designated AC-7, has completed its test program in the CSTS (Combined Systems Test Stand) at right. The next Atlas-Centaur, or AC-6, is now at Cape Kennedy being prepared for launch. The Surveyor flight late this year will be the first of a series of missions intended to explore the moon prior to manned landings there.

Space News ROUNDUP!

SECOND FRONT PAGE

DOCKING SIMULATOR—Administrator James E. Webb prepares to take a "flight" in the Gemini rendezvous and docking simulator here at the Manned Spacecraft Center, August 7.

CONTROL CENTER—The workings of the Mission Control Center, Houston, are explained to Administrator James E. Webb (l.) and David Williamson Jr., (r.) executive assistant to the NASA Associate Administrator, by Christopher C. Kraft Jr., assistant director for Flight Operations. Webb and his party were here at the Center August 7 for a tour of the facilities.

MSC's Flight Training, Control Facilities Toured By Administrator James E. Webb

NASA Administrator James E. Webb arrived in Houston the evening of August 6 for a visit to the Manned Spacecraft Center and to confer with Center officials.

The evening of his arrival he had dinner with the Gemini V crew and Center officials at the home of Dr. Robert R. Gilruth, director, MSC.

Saturday August 7 Administrator Webb and his party toured the flight control and training facilities, laboratories and other areas at the Center, where Webb met and conferred with heads in each area visited.

MEDICAL DEMONSTRATION — Dr. Charles A. Berry, chief of Center Medical Program, demonstrates an injector from the inflight medical kit for NASA Administrator James E. Webb. Shown (l. to r.) are Dr. Berry, Webb, Dr. Robert R. Gilruth, director, MSC, and Richard S. Johnston, chief, Crew Systems Division.

Schedule Of Graduate Courses Announced For University Of Houston At Clear Lake

The final schedule for the University of Houston Graduate School courses at Clear Lake has been announced by the Programs and Employee Development Branch of the MSC Personnel Division.

All employees interested in these courses are reminded that in addition to the University requirements, an MSC Form 75 (application for training) must be initiated.

The courses are also open to MSC-contractor employees in the Clear Lake vicinity. Contractor employees are advised that all entrance requirements and financial arrangements are the same as those that prevail on the University of Houston campus.

A listing of the courses and scheduled times follows:

Course No.	Course Title	Course Schedule
ME 633	Adv. Heat Transfer I	7:30-9:00 a.m. T. Th.
ME 660	Advanced Dynamics	7:30-9:00 a.m. T. Th.
ME-EE 690	Theoretical Problems	7:30-9:00 a.m. M-W
EE 576	Communications Theory	4-5:30 p.m. M-W
EE 566	Transistor Electronics	7:30-9:00 a.m. T. Th.
EE 633	Control Systems	4-5:30 p.m. T. Th.
Math 363	Higher Math for Science and Engineering	7:30-9:00 a.m. M-W
Math 665	Functional Analysis	4:00-5:30 p.m. T. Th.
Phy 661	Methods of Mathematical Physics	4:00-5:30 p.m. M-W
Pol 431	Principles of Public Administration	4:00-5:30 p.m. M-W
Pol 384	Public Personnel Administration	4:00-5:30 p.m. T. Th.

To Be Carried In LEM—

Instrument Packages To Be Built For Transmission Of Moon Data

Packages which will contain scientific instruments to measure the Moon's structure and surface characteristics, atmosphere, heat flow, solar winds, radiation and micrometeorite impacts are to be designed for the Apollo missions under NASA contracts.

The Apollo Lunar Surface Experiments Packages (ALSEP) will be designed concurrently under separate and concurrent $500,000 six-month fixed-price contracts by Bendix, Houston Division, Bendix Corporation, Ann Arbor, Mich.: Space-General Corporation, El Monte, Calif.; and TRW Systems Group, Thompson Ramo Woolridge, Redondo Beach, Calif.

The packages will be carried to the moon in the Lunar Excursion Module on the initial Apollo flight and placed on the surface by astronauts. The instruments will transmit data back to earth for six months to one year. Weight of each package will be less than 150 pounds.

Contracts call for the firms to deliver mockups of the experiments package to the NASA Manned Spacecraft Center, Houston, and to Grumman Aircraft Engineering Corporation, Bethpage, New York about March 1, 1966.

Dr. Graveline Resigns Astronaut Appointment

Dr. Duane Graveline, 34, one of six recently selected scientist-astronauts, resigned Wednesday from the training program for "personal reasons."

Dr. Graveline will return to his former job in the NASA Manned Spacecraft Center Medical Operations Office.

President's 'Mission SAFETY-70' Effort To Reduce Employee Accidents

In an effort to reduce the accident rate among employees of the Federal Government, President Johnson has launched a Government-wide program "Mission SAFETY-70" to step up accident prevention efforts.

Here at MSC, Dr. Robert R. Gilruth, director, has solicited the cooperation of employees in redoubling safety efforts to reduce the Center's present excellent accident record by another 30 per cent.

The President asked that a reduction in accident rates be achieved at MSC. Accident frequency rates are expressed in the number of injuries resulting in lost time per million manhours worked.

MSC's goal in reducing the injury frequency rate is 1.80 for 1965 with the rate declining each year to 1.32 by 1970.

Dr. Gilruth said, "Because of my confidence in MSC personnel in the face of this challenge, I pledged (to the President) that the Manned Spacecraft Center would achieve the goal established by the program."

The program has as its goal a reduction of 30 per cent in job injuries among all Federal civilian employees by 1970.

Employee Strength Here At Center To Be Augmented

Employee strength of the Manned Spacecraft Center will be augmented to meet the increasing tempo of Gemini and Apollo manned spaceflight operations, it was announced early this month.

In the first of these actions, approximately 200 personnel will be transferred from the Marshall Space Flight Center, Huntsville, Ala., to the Manned Spacecraft Center over the next ten months.

Dr. George E. Mueller, associate administrator for Manned Space Flight said the completion of the first phase of the Saturn program with the successful launch of SA-10 had made it possible for the Marshall Space Flight Center to make personnel available for Saturn Apollo operational activities at the Manned Spacecraft Center.

The total number of personnel to be provided from other NASA activities has not yet been determined.