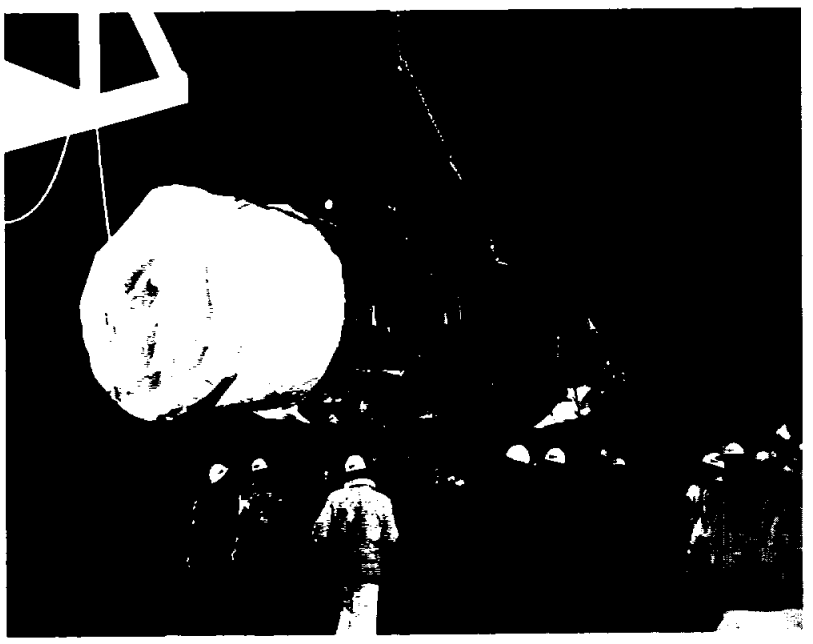


TARGET FOR ARMSTRONG—Gemini VIII rendezvous vehicle Agena 5003 is shown being lowered into the cradle atop the Kennedy Space Center Radar Boresight Range tower prior to interface checks with Spacecraft VIII.

Space News NASA ROUNDUP!

VOL. 5, NO. 8 MANNED SPACECRAFT CENTER, HOUSTON, TEXAS FEBRUARY 4, 1966

# Gemini VIII Hard-Mate Nears As Interface Tests Continue

Interface checks between Gemini Spacecraft VIII and Agena 5003—the so-called Plan X—were completed at Kennedy Space Center late last week and the spacecraft was hoisted to the Pad 19 white room early this week for mating with the launch vehicle.

A communications problem encountered last Friday caused by improper grounding during checkout of the extravehicular equipment with the spacecraft was corrected and that portion of the test was successfully re-run the following day.

The EVA equipment tested earlier this month in the Crew Systems 20-foot vacuum chamber in Building 7 was used in the Cape tests.

Pre-mate testing of Gemini Launch Vehicle VIII and the Atlas which will boost Agena 5003 into orbit was on schedule at Launch Complexes 19 and 14.

The Augmented Target Docking Adapter (ATDA) Review Board met at the McDonnell Aircraft plant in St. Louis Wednesday. The ATDA, a possible Agena substitute, was scheduled to be shipped to KSC late this week.

Also at St. Louis, preparations for Gemini Spacecraft IX altitude chamber tests were underway for probable start next week.

A change in pre-launch work procedures whereby there will be a longer gap between electrical and mechanical mating will allow adapter section work to run later in the schedule. The change will begin with Gemini IX.

Testing of modifications to the Agena primary propulsion system are still scheduled to begin at the USAF Arnold Air Engineering Center, Tullahoma, Tenn., in late February. (See Jan. 21, 1966 *Roundup*)

A three-day Gemini Mid-Program Review is scheduled for February 23-25 in the MSC Auditorium. The first two days will cover the spacecraft and the third day will cover experiments. Program results through Gemini VII will be reviewed during the conference. Conference agenda will be announced later.

HAND ME THE HAMMER, JIM—

## MSC Studies Prototype Lunar Geology Tool Box

A tool box that can be turned inside out and carried on the surface of the moon has been delivered to MSC by the Martin Company, Baltimore, Maryland.

The prototype unit is the container for 16 geological tools which could be used on the surface of the moon to examine and obtain samples of lunar rock. It and other prototype hardware with the same function are to be evaluated for suitability.

The two-cubic foot container is designed for storage in the LEM during flight to the moon. When the LEM lands, the tool box can be taken out and "refolded" on its hinges by the astronaut to expose the tools. The new interior of the box becomes a storage area for rock samples.

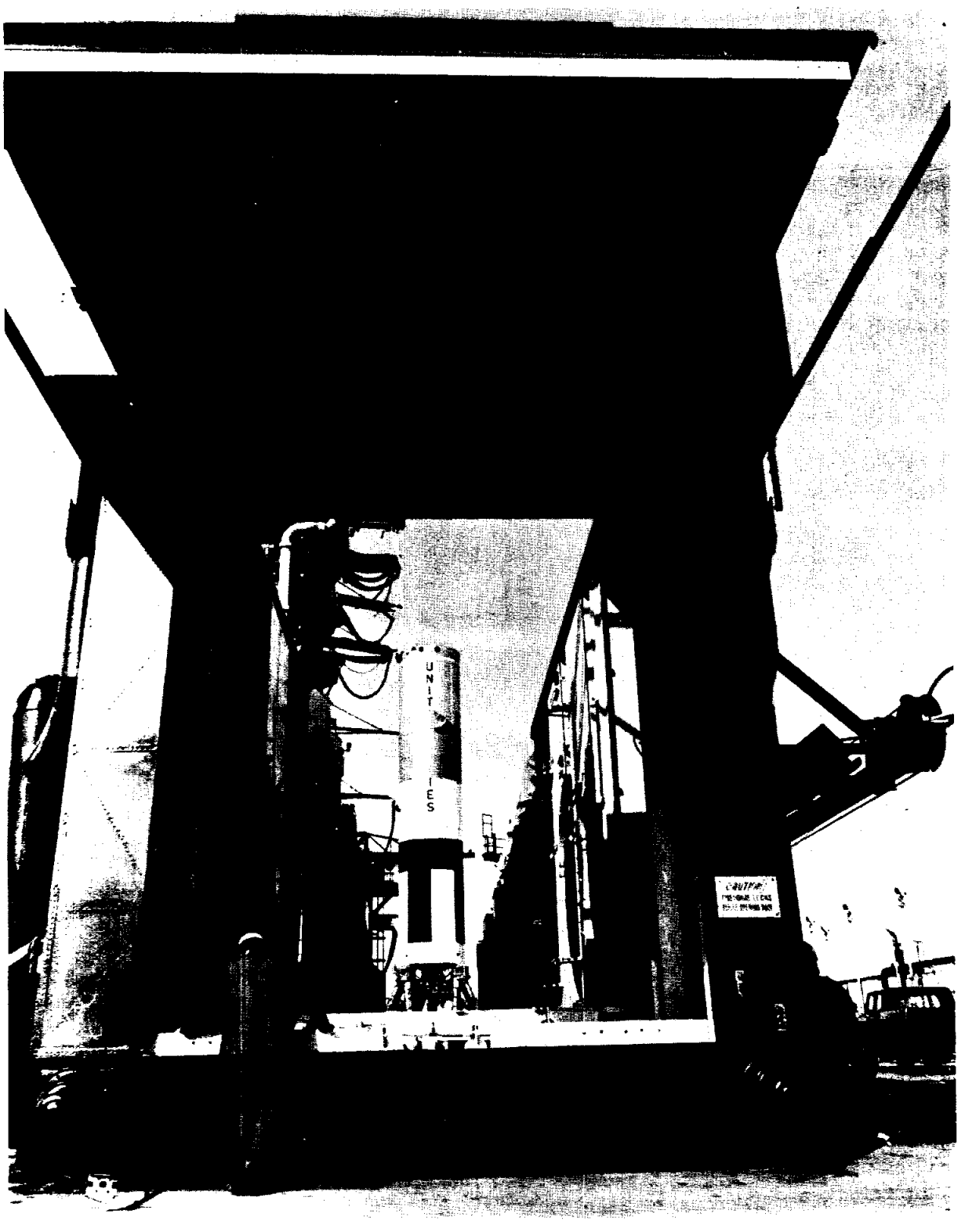
The main item in the lunar tool kit is a battery-powered drill capable of chiseling or coring any rock material from basalt to pumice. It can operate for as long as an hour and drill cored holes six inches into the moon's crust.

A dust scoop that can function as a spade, a hoe or a scoop has been designed to aid in picking up any loose or light material which may be found on the surface.

Since it is planned to return only 80 pounds of lunar material, a sample-weighing device has also been proposed which allows the astronaut to weigh the specimens. The beam-type scale can weigh rocks from five to 65 pounds, and insures that the baggage limit of the LEM will not be exceeded for a return flight.

Other items include a hand-held magnifier designed to be used by the astronaut through the spacesuit visor, several types of surveying instruments and rangefinders, and a sample retriever which can reach into holes and cracks and pick up small specimens of rock which a suited astronaut could not grasp.

Further refinements will probably be made in the lunar tool kit after additional tests and evaluations have been conducted. It is also expected that information from the Surveyor unmanned soft landings will help MSC engineers and geologists to develop the final tools which the astronauts will use on the lunar mission.




A SECOND STORY JOB—Gemini Launch Vehicle VIII's first stage stands expectantly on Launch Complex 19 at Kennedy Space Center while waiting to be joined by its second stage. The erector is in the prone position, foreground.

## Saturn/Apollo 201 Mock Countdown On For Weekend

Apollo Spacecraft 009 last week underwent a flight readiness review and appeared to be in good shape for the suborbital flight downrange February 22 boosted by the first Saturn IB launch vehicle.

Pre-launch activities this week included installation of spacecraft pyrotechnics Sunday, and a "plugs-out" test of the spacecraft internal electrical system Tuesday. Data from pre-launch tests was evaluated yesterday in preparation for a countdown demonstration over the coming weekend.

Pending a successful countdown demonstration and test series, a combined flight readiness review of the launch vehicle and ground support facilities will be conducted next week. *(See related story, page 2.)*

In other Saturn/Apollo developments, the second flight Saturn IB is enroute from Michoud Assembly Facility, New Orleans, to KSC aboard the NASA barge *Promise* and is scheduled to arrive at the Cape tomorrow. Saturn IB flight booster No. 4, static fired for full two-and-one-half minutes duration at Marshall Space Flight Center January 21, was scheduled to leave MSFC last Saturday aboard the NASA barge *Palaemon* for the Michoud Facility. At Michoud, the booster will receive an extensive post-static firing checkout.

Other elements of the second Saturn IB launch vehicle are also expected to arrive soon at KSC.

COMPLETE CONFIDENCE—

# Flight Director Describes Saturn/Apollo 201 Mission

When Apollo Spacecraft 009 splashes down in the South Atlantic near Ascension Island after a 35-minute flight downrange from Cape Kennedy, two major data points will have been gained toward man-rating the Saturn IB and the Apollo Command and Service Module.

Glynn Lunney, chief of the Flight Dynamics Branch of Flight Control Division, and flight director for the Saturn/Apollo 201 mission scheduled for February 22, outlined for newsmen the major objectives of the mission in a recent press briefing.

Lunney stated that Saturn IB booster performance, as well as command module heat shielding, would be wrung out by operating on both sides of the earth-orbit reentry corridor, with final downhill velocity of 27,500 feet per second.

The flight profile for the Saturn IB first stage will be quite similar to the profile for a manned mission, Lunney said. A three-minute burn of the Service Module propulsion system for an increase in velocity of more than 4600 feet per second will produce reentry velocity well beyond that of reentry from earth orbit, but less than reentry from a lunar return. The command module will be oriented for full lift prior to encountering the sensible atmosphere and reentry.

Lunney compared the sequence programmer for initiating powered-flight events to a "music box" which closes circuits instead of producing tones as points on a rotor shaft make contact.

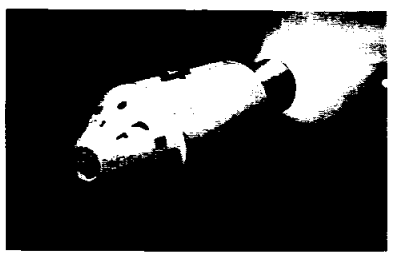
Flight controllers in the second-floor Mission Operations Control Room in Mission Control Center-Houston will play the role of "devil's advocates" under Flight Director Lunney's leadership. Lunney emphasized that "We have complete confidence in the spacecraft and launch vehicle, but we have to assume something may fail." He said also that the same constraints would apply to this mission that have applied to other missions — weather, maximum camera coverage, and readiness of much new ground equipment and many new people.

During the launch phase, Lunney's flight controller team will monitor the Saturn IB's trajectory closely to spot abort conditions resulting from launch vehicle anomalies. After second stage S-IVB cut-off, there will be a go no-go decision by Mission Control after it is determined whether the vehicle is high enough and on the proper flight path to permit the full sequence of events.

Telemetry and tracking of the 201 vehicle will have a two-minute gap between the acquisition range of the last station in the Air Force Eastern Test Range and the tracking ship *Rose Knot*. During the pass over the *Rose Knot*, flight controllers aboard the ship will monitor service module propulsion system gimbal angles, burn times and resulting velocity changes, spacecraft turn-around and attitude, and relay these data back to Mission Control.

After *Rose Knot's* loss-of-signal, the Ascension Island station tracking will predict landing point of the command module. On-board homing beacons and other such devices will aid recovery forces in recovering the spacecraft—a "soon as possible" operation, according to Lunney.

Landing will be at 4750 nm downrange after a maximum altitude of 250 nm, with splashdown at 35 minutes after liftoff.



T+20 min—Service Module 4,641 fps burn

T+24 min—CM/SM Separation

T+25:05 min—Command module oriented for reentry

T+26 min—Begin blackout

T+39:28 min—Splashdown

## Gemini X Crew Selected

JOHN W. YOUNG
Prime Command Pilot

MICHAEL COLLINS
Prime Pilot

JAMES A. LOVELL, JR.
Back-up Command Pilot

EDWIN E. ALDRIN
Back-up Pilot

BLACK BAG FOR SPACE—

# Lunar Mission Medical Kit Development Work Begins

Development of a space version of the doctor's black bag for use in lunar missions has begun under terms of a contract announced by MSC Chief of Medical Programs Dr. Charles A. Berry.

In his best moon-side manner Dr. Berry outlined plans for procuring the emergency medical kits for the Apollo program, and said that the kit will satisfy all in-flight and training requirements for the command and lunar excursion modules. "The design, development and fabrication of an emergency medical kit, containing drugs and other medical supplies, is required to deal with emergency situations which may arise during flight and outside the spacecraft after landing," Berry said. The kit is also required for use inside or outside the LEM during lunar operations.

Under terms of the contract, awarded to Rodana Research Corporation, Bethesda, Maryland, two training units will be delivered for each flight. In addition, the contract calls for one mock-up and six prototype models. Numbers of flight and backup kits will be determined by the number of flights scheduled. The contract is for $70,000.

The kits will consist of loaded injectors, tablets, capsules, ointment, inhalers, bandaids and compressed dressings. These will be packed in a box that is about four inches square by about five-and-a-half inches deep. Partitions will be provided within sections of the box to form individual compartments for ointment, bandaids and for each drug in tablet or capsule form.

The partitions may be movable to facilitate the use of single box design to accommodate different drug requirements on different flights.

"Specific types and quantities of each drug to be included in the kit will vary with requirements for each flight," Dr. Berry said. However, a representative list of the contents might include injectors containing meperidine hydrochloride; injectors containing cyclizine hydrochloride; analgesic capsules consisting of dextro propoxyphene hydrochloride; dextro amphetimine sulfate tablets; coated tetracycline CH1 tablets; cyclizine hydrochloride capsules, and antidiarrhetic tablets.

The LEM medical package will consist of tablets and capsules only. Included will be dextro propoxyphene hydrochloride, phanacetin aspirin and caffeine capsules and two dextro amphetimine sulfate tablets. These will be packaged in a single strip of laminated film and film-foil packaging. Each capsule and tablet will be sealed in a separate pocket.

The LEM medical package will be stowed inside the food storage compartment of the LEM and will be fastened to the inside of the food compartment door by Velcro fasteners.

Under terms of the contract, work on the medical kit will be done in three phases. Phase I includes design, fabrication, maintenance, support and test of the prototype kit. Phase II of the program will be the necessary qualification testing, redesign and fabrication of the final configuration kit. Phase III is the production phase.

Dr. Berry said that "while we do have a general concept of what medicines will be used during Apollo and are still testing and packaging several types, it is still too early in the program to make a definitive list."

# Apollo C/SM Contract Converted To Incentive

The National Aeronautics and Space Administration has converted one of its major contracts from a-cost-plus-fixed-fee type to a cost-plus-incentive agreement.

With the North American Aviation Space and Information Systems Division, Downey, California, the contract is for development of the Apollo spacecraft command and service modules and the adapter which houses the lunar excursion module.

The conversion covers the contract period from October 1965 to December 3, 1966. Estimated cost is $671,300,000. Additional negotiations will be held for subsequent periods.

The contract provides profit incentive for outstanding performance, cost control, and timely delivery as well as potential profit reductions when performance, cost and schedule requirements are not met.

North American was selected by NASA in November 1961 to develop the command and service modules of the Apollo spacecraft. The work includes manufacture of the spacecraft, LEM adapter, spare parts, ground support equipment and extensive ground testing. Cost of work, including the new agreement, is $2.2 billion.

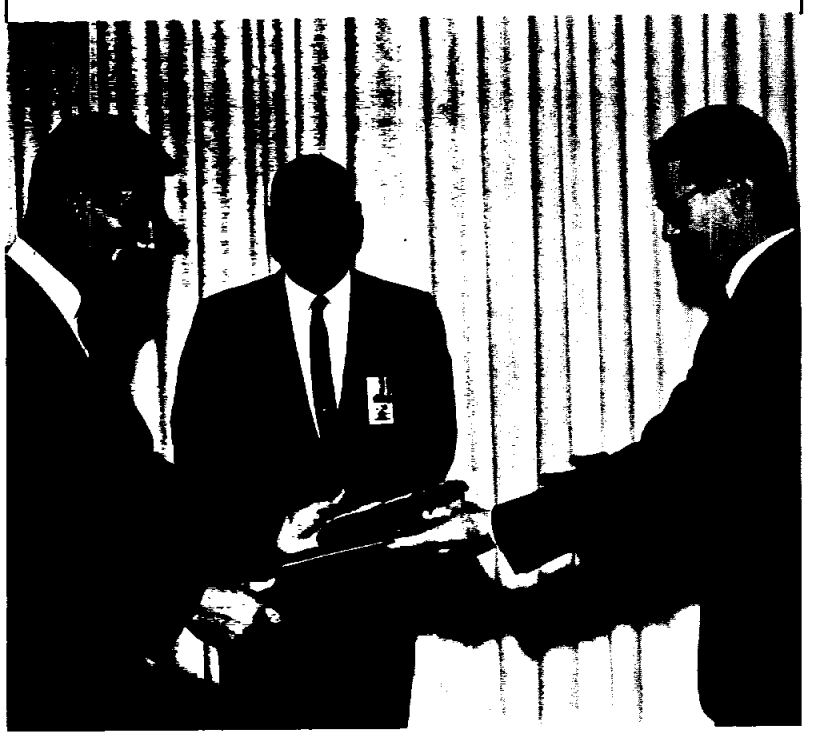
## Markley Gives Paper At Management Meet

J. Thomas Markley, Chief of ASPO Program Control Division, will present a paper dealing with Apollo spacecraft program management at the 1966 meeting of the Institute of Management Sciences in Dallas February 16-19.

Several other papers on aerospace topics will be presented during the meeting, which has a theme of "the accomplishments of management sciences so far in particular industries and institutional settings and the opportunities for future contributions."

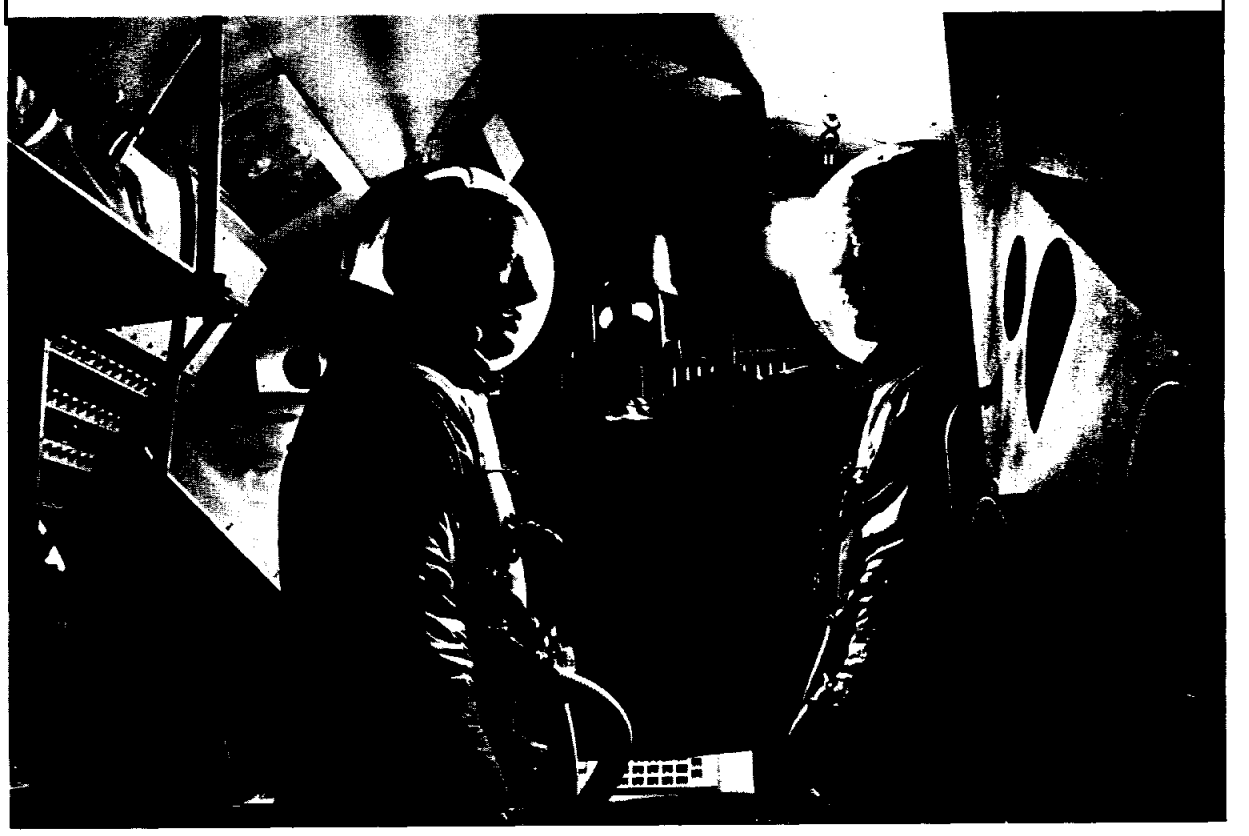
A total of 68 technical papers are scheduled for presentation. The meeting's general and program chairman is Albert H. Rubenstein of Northwestern University.

## Dr. Slayton, I presume . . .



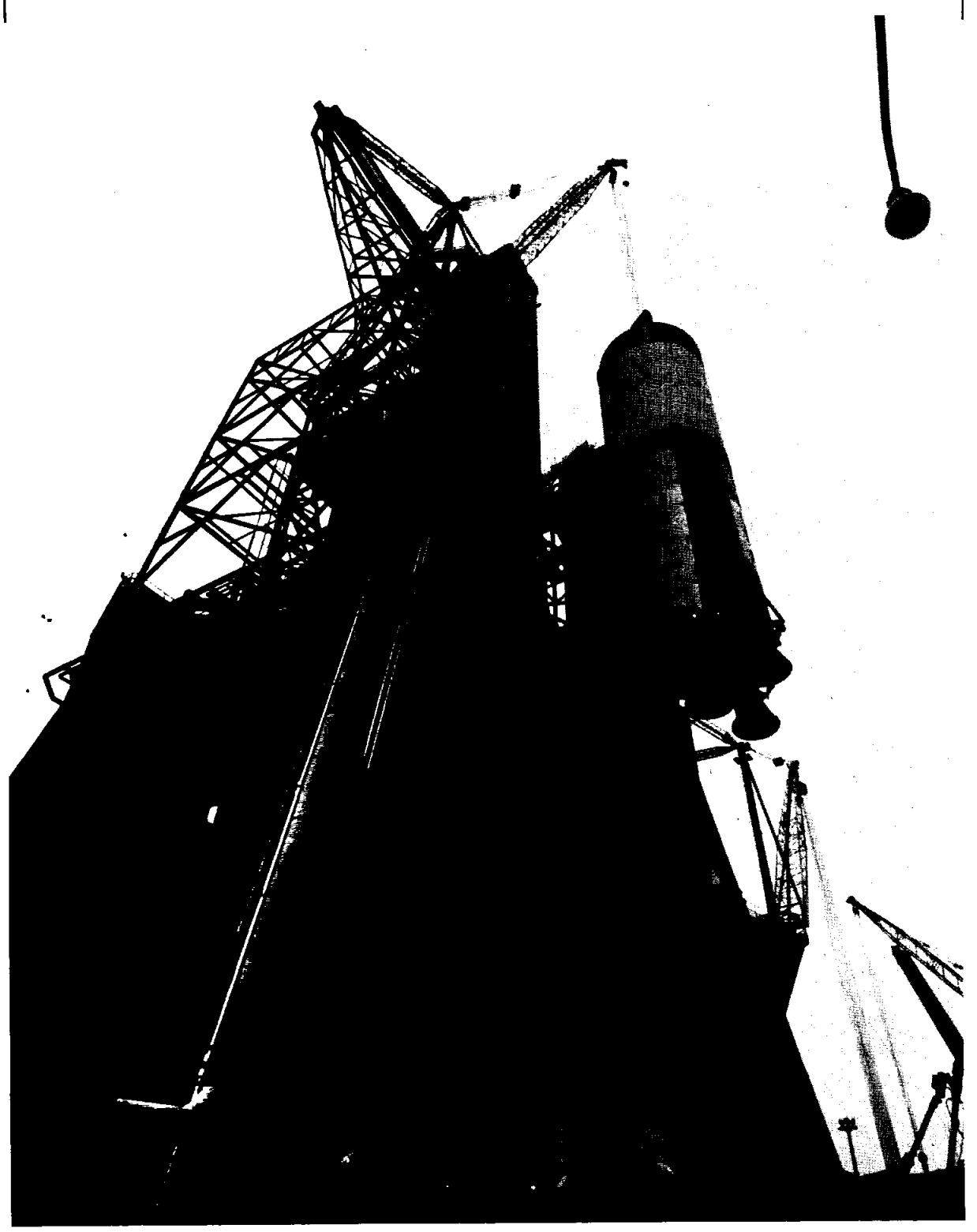
SHEEPSKIN HANDOVER—Donald K. Slayton, Assistant Director for Flight Crew Operations, is presented the hood and diploma of an honorary Doctor of Engineering degree during a January 21 ceremony at MSC. Michigan Technological University President Dr. Raymond L. Smith conferred the degree upon Slayton "in recognition of high attainments in engineering." MSC Director Dr. Robert Gilruth, holder of a similar degree from Michigan Tech, center, also took part in the ceremony.

## Why Wait Until 1970?



AFTER YOU, ALPHONSE—Astronauts Joseph P. Kerwin, left, and Russell L. Schweikart each seem to be urging the other to take the honor of stepping out on the moon first. It all worked out all right, though, since they were in a LEM mock-up in Building 5 ironing out stowage procedures for LEM equipment, specimen containers and other such gear.

## Stand From Under



FLIGHT HARDWARE, HEAVY TYPE—The crane atop Marshall Space Flight Center's captive test stand grunts as it hoists the first Saturn V SI-C flight booster into position for a series of tests to begin in late February or early March. Following MSFC tests of the 300,000-pound stage, it will be barged to Kennedy Space Center for the first Saturn V launch next year.

## Control Center Access Badge System Revised

An overabundance of MSC employees holding "All Mission" access badges to Mission Control Center-Houston has prompted Security Operations to revise access procedures for Building 30.

Unescorted access to areas other than the viewing room requires a Secret or Top Secret clearance. Exceptions can be made only with the prior approval of the MSC Security Officer.

"All Mission" badges issued for past Gemini flights are no longer valid. MSC Form 1872, MCC Badge Request, must be submitted for each employee at least 30 days prior to each mission.

MSC Management Instruction 24-2-5 spells out in detail the Mission Control Center access requirements.

## Rendezvous Recognition

FOR ACHIEVEMENT—Dr. Robert R. Gilruth, MSC Director, last week presented a Group Achievement Award to representatives of MSC and industry organizations who contributed to the success of the Gemini VII/VI mission rendezvous. Top row, left to right, are Richard R. Carley, chief of Guidance and Control Office of Gemini Program Office; Marvin Czarnik, McDonnell Aircraft Corporation. Bottom row: Dean F. Grimm, Spacecraft Operations Branch, Flight Crew Support Division; Howard W. Tindall, Assistant Chief, Mission Planning and Analysis Division. The four accepted the awards on behalf of the many persons who developed the trajectories, equipment and procedures for rendezvous.

BENCH TEST—A module for the LEM communications transceiver is tested by an engineer at Motorola's Western Center. An engineering model of the LEM transceiver sits atop the test equipment, right.

STARTING WITH MR-3—

# Motorola Commu Mercury, Gemini

ON MAY 5, 1961 when Alan Shepard made his historic Freedom 7 Mercury flight, he relied on many spacecraft systems, subsystems and components including a small electronic black box mounted just above his left shoulder.

The little black box, about the size of a brickbat but containing more parts than a television set was a Motorola command receiver. Mounted just above it was a command decoder, another Motorola device of about the same size and component density.

Working together these units received and decoded vital commands from earth to help insure success of the mission. They also served as communications backup if the main communications system had malfunctioned.

Shepard's suborbital flight was America's entry into the space program, and it also marked the beginning of Motorola's contributions to all U.S. manned spacecraft missions.

The Motorola command receivers and decoders continued to be used on every Mercury flight, and like most other systems on the spacecraft, they were in redundant pairs.

But beginning with Walter Schirra's six-orbit flight on October 3, 1962, the backup command receivers and decoders were left on the launch pad. The official NASA report on Schirra's mission stated in part, "One of the two previously used command receivers and decoders was removed in an effort to save weight since these units have exhibited a high reliability in previous missions."

The equipment for Mercury was produced by Motorola's Western Center in Scottsdale, Arizona, a complex where more tha olans have since produ for Gemini and are no advanced equipment for Lunar Excursion Module

The Western Center i for the Motorola Milita Division. Joseph A. Chan Vice President and Gene the Division, said that ab of his Division's busine projects.

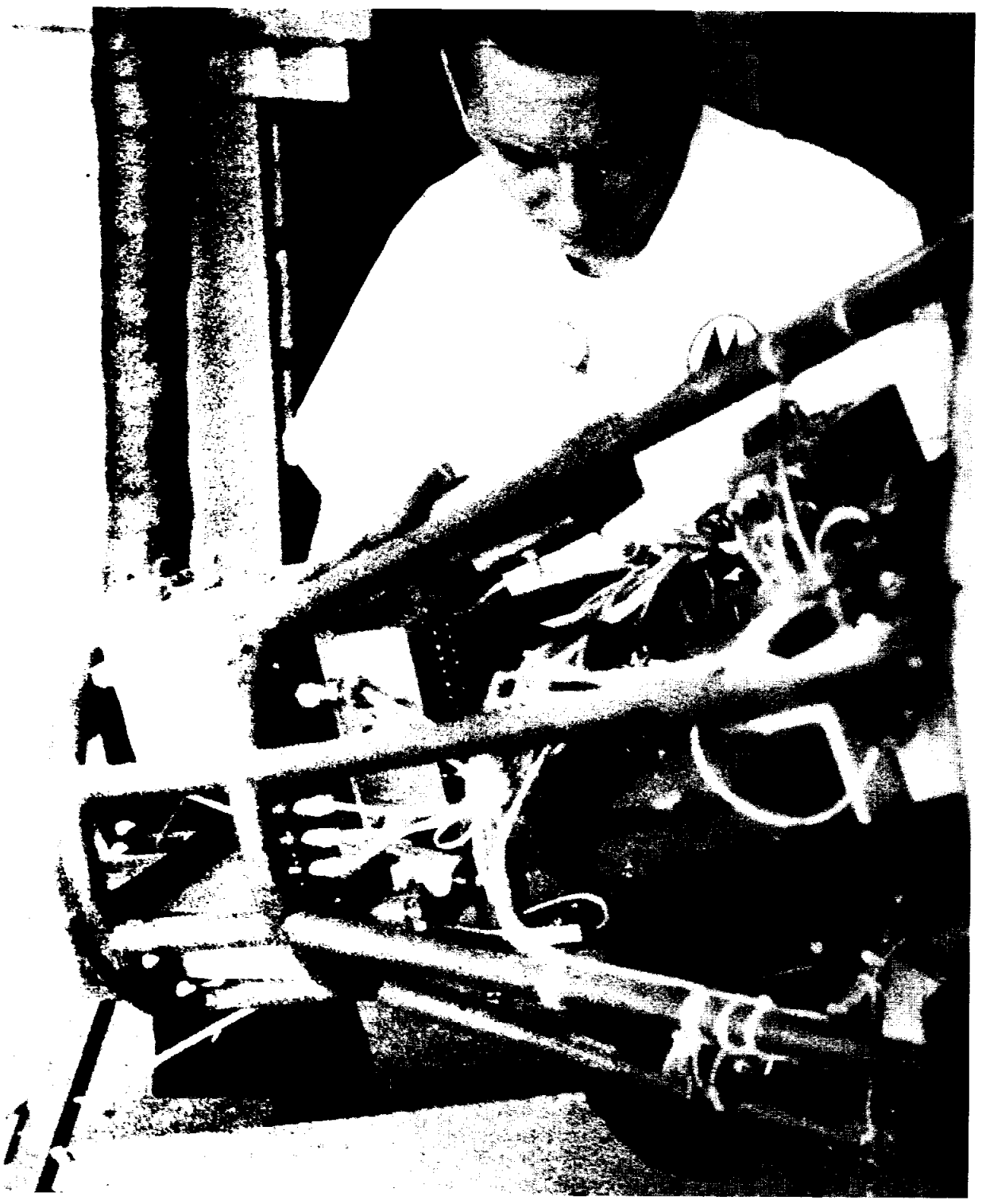
An important segmen sion's space business Gemini. As in all mann sions, reliability of the paramount. And here too had to be packed into a cause of size and weight

Two spaceborne devi plied for Gemini. The Digital Command Syste multi-purpose communic receives a message from it, passes it on to another board the spacecraft, rece from a third piece of on-b and sends a reply back about 1/5 of a second.

The accuracy of the DC important because errone of a received message c mission safety.

Thus the probability ceiving and accepting an sage is figured in thous This can be compared who starts speaking techr he can when he is an infa make a slip of the tongue thousand years old—prov he could live that long.

IMPACT PROOF—A Motorola command receiver, originally delivered six years ago for the Mercury program, was used in the one-third scale Gemini land-landing test mock-up at MSC for relaying ground-sent commands to parachute turn motors. The mock-up was known by those who worked with it as "Li'l Gemmy."



MIND IF I LOOK OVER YOUR SHOULDER?—An electronic assembler at Motoro Astronaut Roger Chaffee during a plant visit recently.

# nications Equipment Aboard and Apollo Spacecraft

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The DCS is about the size of a standard table model radio, contains approximately as many parts as 20 television sets and weighs only 20 pounds.

Also on board every Gemini flight since Gemini IV was a second Motorola unit called a "transponder" which serves as an integral part of the spaceborne end of the tracking system. This unit aids mission controllers in knowing exactly where our astronauts are at any point in a mission.

For the Agena space vehicle the Western Center produced a spaceborne command system to receive the signal to fire the Agena propulsion system and position it for rendezvous and docking with Gemini.

When the Gemini program is completed and flight crews prepare for the historic Apollo mission, significant Motorola communications equipment again will help insure mission success.

On the Apollo command module will be a Motorola communications S-band transponder and a device called an "Up Data Link."

The transponder will provide voice, digital and television communications between the earth and the command module. The Up Data Link will be used, as the name implies, to receive data from earth for on-board equipment.

For the Lunar Excursion Module (LEM) the company is building another communications unit called a "transceiver." This device will be used to communicate to and from the LEM and the earth. Thus as the first American steps down onto the lunar surface, the sound of his voice will be returned to earth through the transceiver.

And when the first American is out exploring the surface of the moon, he will communicate back to the LEM with the aid of a small antenna mounted on his Primary Life Support System (backpack). The Western Center is currently active in advanced development of the antenna for the mission.

To accurately test various antenna prototypes, a life-size mannikin was constructed and hoisted to the top of the Western Center tower which serves as part of the facility's antenna test range.

The Western Center is also producing ground equipment to be used in conjunction with the spaceborne devices. Now being built is a new Digital Test Command System to check out the equipment on board the Apollo immediately before launch.

Other ground units produced at the company's Scottsdale plant include equipment for the Manned Space Flight Network which will be used in tracking Apollo. The company is also building equipment for the Deep Space Network used in tracking deep space probes such as Mariner-Venus and Mariner-Mars.

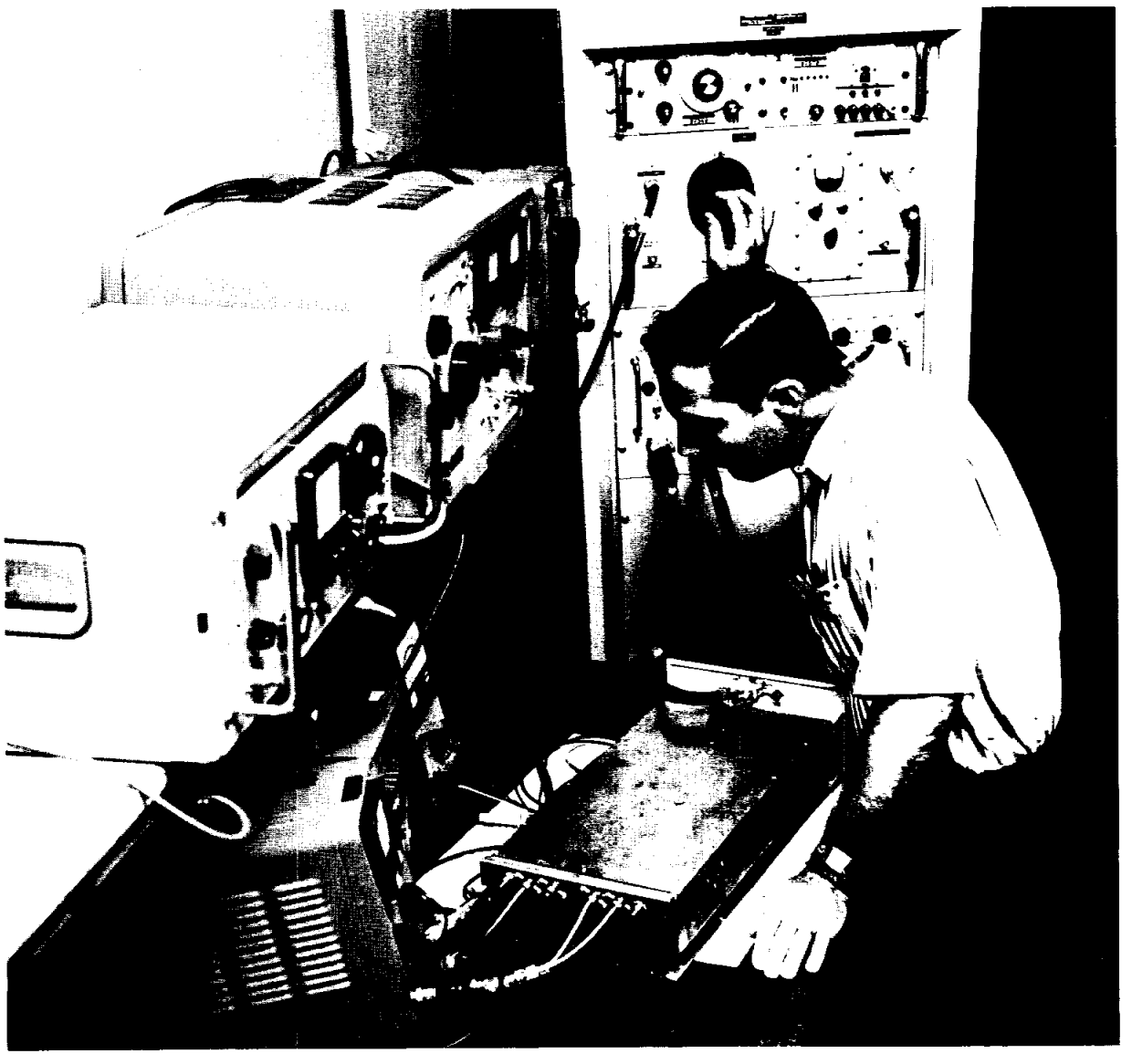
The equipment Motorola produces is represented at NASA locations by men with years of experience in the electronics field. Bill Birks was recently assigned as Motorola's Senior Representative for NASA programs in the Houston, Texas and Huntsville, Alabama areas.

The Military Electronics Division, which also includes the Chicago Center, is one of the six Divisions in the company. Others are the Consumer Products, Communications, Automotive Products, Semiconductor Products, and Control Systems Divisions.

LYNCHED CATTLE RUSTLER?—Nope, just an astronaut mockup used at Motorola's Scottsdale antenna test range in developing a helmet or backpack antenna for lunar surface communications between the LEM and an exploring crewman.

's Western Center working on Apollo communications equipment chats with

APOLLO GEAR—An Apollo command module communications transponder undergoes bench testing at Motorola's Western Center. The transponder is one of two pieces of Apollo communications equipment produced by Motorola.



# Dr. Mueller Praises MSC's 1965 Success

*Achievement in the manned space flight program during 1965 has evoked a feeling of pride and accomplishment in members of the NASA-Department of Defense-industry team charged with conducting the program.*

*Epitomizing MSC's role in the nation's 1965 space flight feats Dr. George E. Mueller, NASA Associate Administrator for Manned Space Flight, wrote the following letter to MSC Director Dr. Robert Gilruth:*

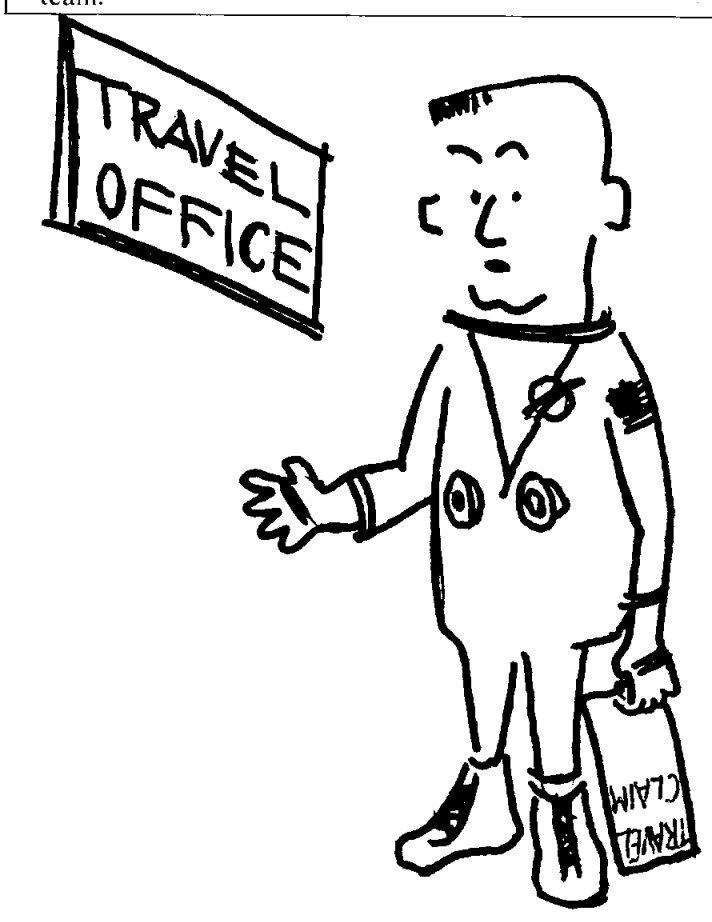
"It is a particular pleasure to extend to you and all of the wonderful people of Manned Spacecraft Center my congratulations for the progress achieved during the past year in all areas of the Manned Space Flight program.

"During these historic 12 months, the accelerated Gemini program has brought this nation to new levels of operational capability with five manned missions, each contributing much toward attainment of Gemini objectives. We succeeded in strengthening control of the program costs and schedules while moving ahead rapidly, to the extent that we accomplished two more missions than had been scheduled for 1965. The achievements in rendezvous, long duration flight, extravehicular activity, controlled reentry, conduct of experiments, and technological gains such as your fuel cell development, are a stronger testimonial to your work than any words.

"In the Apollo program during the past twelve months, we had notable progress that promises successful accomplishment of mission objectives. We completed a perfect record for Saturn I with the tenth success in ten flights. We have proven the Saturn instrument unit and guidance system, progressed to advanced testing on all stages for both Saturn IB and Saturn V, completed the spacecraft boilerplate program and accomplished the major part of our large construction projects. We have overcome significant problems of technology.

"In addition, the definition of the Apollo Applications program has progressed toward its serving as a forerunner to the advanced manned missions that will follow. For 1966, every area in Manned Space Flight holds opportunity for continued progress toward the national space goals.

"Looking back on the gains of 1965, we all realize they could not have been accomplished without your success in overcoming countless problems of technology and management through loyal effort, teamwork and dedication to NASA objectives. We are proud of your collective performance this past year and I am confident that you and your people will meet the challenge of 1966 with the same spirit and determination that spell success for the entire Manned Space Flight team."




**They told me I had eight cents a mile for 5,832,194 miles coming. I'm here to collect.**

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 . . . . . Terry White
Staff Photographer . . . . . A. "Pat" Patnesky

OUT OF TEXAS' PAST—

# Sometime Cowboy's Gas Engine First To Propel Boat Up Bayou

Nobody ever challenged Capt. Herman Parsons' claim that he took the first gasoline-powered vessel up Buffalo Bayou to Houston, because he said he made the voyage in 1894, and he had the home-made engine to prove it.

He and his wife Bertha lived on Kirby Road, in the second house on the left after you turn off the boulevard to go to Timber Cove and "Astronaut Row." They bought the 4.11-acre homestead in 1926 for $1000. The little frame house where the Parsonses lived stands empty now, like the garage where the captain kept his treasured engine with its 300-pound flywheel. But the present owner is thinking about building a high-rise apartment building there.

Born in Brooklyn, Herman had run away to sea at the age of seven—probably another record. He sailed on a brigantine to Memel, where Amazonian longshorewomen, as beautiful as Valkyries, unloaded the vessel's sand-ballast and loaded her holds with lumber for Australia.

"By 1893," the captain said in an interview when he was in his 80s, "I was as good a man as you could find at reefing a topsail in a howling gale. But I had it in me to be a cowboy. So I quit my ship in Galveston and got a job punching cattle on Sam Allen's ranch, where the Sinclair Refinery stands today, just off the LaPorte Road."

At 21, this halfhearted cowboy still loved the sea. So between chores he built a 24-foot yawl, launched her in Sims' Bayou and christened her the *Rockwell*. Then he designed a gasoline engine to drive her.

"Sure, I could have built a kerosene engine," he admitted. "But in those days kerosene was 15 cents a gallon, and gasoline was only 8. Anyway, I sent my patterns to a shop in Lowell, Massachusetts. They made the castings, and I built the engine."

One day in the summer of 1894, Herman got up the courage to crank that 300-pound flywheel. It took nerve because he had to stand with his head right over the cylinder head. But the engine fired without blowing up.

The cowpoke-engineer was unable to connect his exhaust pipe, because it needed to be bent. So he threw the pipe into the boat and cast off for Houston with the engine wide open.

"There wasn't a cowboy on the ranch who would ride with me," Captain Parsons said. "That engine made 300 r.p.m.s., and every other revolution she made a noise like one of the Twin Sisters cannons going off at the Battle of San Jacinto. I'll never forget how the city folks crowded along both banks of the bayou when I got to Houston. There must have been 500 people there to meet me."

In the deafening silence of Little Old Houston's bayou waterfront, Herman dragged his exhaust pipe up the bank to Ben Riesner's blacksmith shop. A crowd of curious citizens followed him to the corner of Travis and Commerce.

Captain Parsons spent a long and useful life in these waters as a builder of many boats, a Ship Channel pilot, a tugboatman and skipper of the Texaco yacht *Virginia*. As a young man, he once said, he meant to return to Memel and marry one of the beautiful blonde Niemen-River longshorewomen. But a Texas gal won his heart instead.

As an old man, he hoped to see the engine of the *Rockwell* on display in a museum, possibly the one at San Jacinto Battleground. But after the captain and his wife died, the first gas engine up the bayou was sold for scrap-iron.

## Space News Of Five Years Ago

**Feb. 4, 1961**—Sputnik IV launched into orbit by the USSR, a 7.1-ton payload, but mission of flight was not announced.

**Feb. 8, 1961**—When asked at press conference about US man-in-space plans, President Kennedy stated: "We are very concerned that we do not put a man in space in order to gain some prestige and have the man take a disproportionate risk . . . even if we should come in second in putting a man in space, I will still be satisfied if when we finally put a man in space his chances of survival are as high as I think they might be."

North American delivered X-15 No. 2 with XLR-99 engine to NASA for the initiation of the NASA flight research program.

**Feb. 10, 1961**—Voice message sent from Washington to Woomera, Australia, by way of the moon. NASA Deputy Administrator Dryden spoke on telephone to Goldstone, Calif., which "bounced" it to the deep space instrumentation station at Woomera. The operation was held as part of the official opening ceremony of the deep space instrumentation facility site in Australia.

First static test of prototype thrust chamber of F-1 engine achieved a thrust of 1,550,000 pounds for a few seconds, at Edwards, Calif.

**Feb. 12, 1961**—Sputnik VIII launched into earth orbit by the USSR, from which it placed 1,419-pound Venus probe on its course.

**Feb. 14, 1961** — Last of second series of static firings of Saturn I completed at Marshall Space Flight Center for 110 seconds, approximately full duration.

**Feb. 15, 1961** — After his nomination by the President as Administrator of NASA on January 30, 1961, James E. Webb was sworn into office, replacing T. Keith Glennan.

**Feb. 17, 1961**—Information was released by NASA Headquarters that Space Task Group engineers directing Project Mercury had selected the flight trajectory for the Mercury-Atlas 2 mission. This trajectory was designed to provide the most severe reentry heating conditions which could be encountered on an emergency abort during an orbital flight attempt. The reentry heating rate was estimated to be 30 percent higher than a normal Mercury orbital reentry, and temperatures were predicted to be about 25 percent higher at certain locations on the afterbody of the spacecraft. In addition, the acceleration g-load was calculated to be about twice that expected for a normal reentry from orbit.

Egress hatch procedures for recovery force operations were discussed at a coordination meeting. One suggestion involved the installation of a pull-ring for activating the hatch explosive charge. Another proposal was made for a paint outline of an emergency outlet that could be cut through, if necessary.

The last successful communication with the USSR Venus probe was made.

## SPACE QUOTES

**TEXT OF TELEGRAM FROM PRESIDENT JOHNSON TO NASA ADMINISTRATOR WEBB, December 15, 1965:**

**"I want to congratulate the astronauts and the thousands of scientists, technicians and administrators fot the success of today's rendezvous. You have all moved us one step higher on the stairway to the moon.**

**"By conducting this adventure for all the world to see, you have reaffirmed our faith in a free and open society. We invite those throughout the world who have shared our suspense and suffered with us during our temporary failures to share with us this triumph for it belongs not just to the United States, but to all mankind.**

**"Our efforts in space will take us not only to the moon but, by increasing our knowledge of technology and the world around us, to a better life for all.**

**"'Without adventure,' Alfred North Whitehead said, 'civilization is in full decay.' Today's accomplishment is a new declaration of the vigor of our society and the hope of all man can hold for the future."**

Space News ROUNDUP!

MANNED SPACECRAFT CENTER, HOUSTON, TEXAS

# EMPLOYEE NEWS

## 1965-66 MSC/Ellington AFB Basketball League

All games played at the Ellington AFB Gymnasium

| American Division | | National Division | |
|---|---|---|---|
| Team No. | Name | Team No. | Name |
| 1. | 747th Rams | 10. | Air Nat'l Guard |
| 2. | Guidance and Control | 11. | Tech Svcs Div |
| 3. | Coast Guard | 12. | AV Corp |
| 4. | MPAD-Gunners | 13. | G.E. |
| 5. | Grasshoppers | 14. | FCD |
| 6. | FSD | 15. | Philco |
| 7. | ASPO | 16. | Univac |
| 8. | 2103rd Comm Sqdn | 17. | Prop & Power Div |
| 9. | ASTD-Lone Stars | 18. | IBM |

Schedule for February 7 to February 10

| | Feb. 7 | Feb. 8 | Feb. 9 | Feb. 10 |
|---|---|---|---|---|
| 6:30 pm | 12-16 | 13-14 | 10-17 | 11-15 |
| 8:00 pm | 3- 7 | 1- 9 | 4- 6 | 2- 8 |

## Air Park Manager Briefs Aero Club

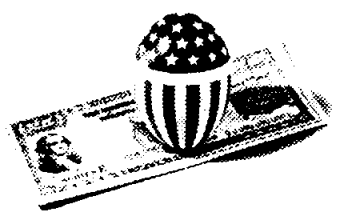
Throttle-benders in the MSC Aero Club will have their February meeting Tuesday at 5 pm in the MSC News Center Auditorium, Nassau Bay Building 6.

The meeting is open to all MSC and contractor employees.

The manager of the new Spaceland Air Park in League City will discuss aircraft rentals and purchasing, and other phases of his operations.

Members will also have the opportunity to vote on the proposed Club instrument ground school. Club dues for 1966 are due on the meeting night, February 8, and will be delinquent after that date. Delinquent members will be dropped from the Club roster.

The Star Spangled Nest Egg



UNITED STATES SAVINGS BONDS

## Got You Covered!

MOON WALKER'S TV CAMERA—Max Engert of IESD's Microminiature Applications Section is hardly dressed for a stroll on the moon, but the television camera mock-up he holds is the forerunner of the equipment to be carried aboard the LEM for broadcasting back to earth in real time an image of the moon.

## Your EAA Executive Board

THE OLD AND THE NEW—The MSC Employee Activities Association Executive Board paused in its deliberations long enough to pose for a photo. On the left side of the table are new Board members Jesse Phillips, vice president-treasurer; Lana Matthews, vice president-social activities; Wilfred (Will) A. Brugger, executive vice president; David B. Mullins vice president-competitive sports. Outgoing Board members, continuing left to right around the table, are: Rex Bauerlein, Claude Ingels, holdover President Philip T. Hamburger, Mary Slyvia, Rita Sommer, holdover vice president-children's committee Joyce Lowe, and Phoncille DeVore. New Board members not present in photo are Hugh Scott, vice president-club activities, and Stanley P. Weiss, vice president-publicity and promotion.

## First Science Series Lecture Given by Balloonist Dr. Piccard

Dr. Jeannette Piccard, MSC consultant, opened the Distinguished Lecturer Series of the Gulf Coast Science Foundation January 29 when she lectured the group on "Early Scientific Exploration of the Earth's Outer Atmosphere."

In her lecture, Dr. Piccard discussed early hig-altitude research by manned stratosphere balloon and the associated problems of directional control, habitability and safety in small pressurized balloon gondolas, and how these problems relate to current space exploration programs. Dr. Piccard knew whereof she spoke, for in 1934 she and her husband, Jean Piccard, ascended to an altitude of 57,579 feet in a stratosphere balloon. She received the Clifford B. Harmon International Trophy that year for outstanding achievement in the Aeronaut (spherical balloonist) category.

The lecture in the MSC Auditorium was attended by some 300 science students, faculty and parents representing 32 schools in the Houston-Clear Lake area.

Attendance of students and faculty at the lectures is by invitation extended through participating schools.

Dr. Jeannette Piccard

The Gulf Coast Science Foundation is not affiliated with NASA, but several MSC employees assist the Foundation in their free time.

## MSC BOWLING ROUNDUP

MIMOSA MEN'S LEAGUE

Standings as of January 27

| TEAM | WON | LOST |
|---|---|---|
| Whirlwinds | 19 | 9 |
| Green Giants | 18½ | 9½ |
| Chizzlers | 18 | 10 |
| Alley Oops | 16 | 12 |
| Foul Five | 15 | 13 |
| Agitators | 14 | 14 |
| Road Runners | 11 | 17 |
| Technics | 10½ | 17½ |
| Goobers | 10 | 18 |
| Fabricators | 8 | 20 |

High Game: B. Graham 273, G. Amason 266.

High Series: G. Amason 701, B. Harris 701.

High Team Game: Whirlwinds 1108, Alley Oops 1105.

High Team Series: Chizzlers 3138, Technics 3093.

## February AIAA Meet Features XB-70 Pilot

Featured speaker at the February meeting of the Clear Lake Chapter of the AIAA will be Al White, chief test pilot of the Los Angeles Division of North American Aviation on the triplesonic XB-70 program.

The meeting will be held at 6:30 pm February 7 in the Candlelight Room of the Flintlock Inn. Interested MSC and contractor employees are invited to attend.

## East End 'Y' Seeks Additional Members

The East End YMCA offers a varied program of activities for children and grown-ups, and MSC employees have been invited to participate either as active members of the Y, or by supporting the organization as a sponsor member.

Donations from sponsor members insure that no youngster is turned away from YMCA activities because he hasn't the money for membership.

Jim Bodmer at Ext. 4426, or the East End YMCA at MI 3-4396, can furnish further details on how one can support the Y.

## 25 Years' Service

A. "Pat" Patnesky
PAO News Services

## 20 Years' Service

LOIS KUGLIN
White Sands Test Facility

## Apollo Launch Escape System Now Fully Man-Rated

START TO FINISH—Qualification of the Apollo launch escape subsystem for manned flight was completed January 20 when a Little Joe II solid-fuel booster put the system through its paces at White Sands Missile Range, N.M. Upper right photo shows a programmed launch vehicle pitch-up and ignition of the launch escape motor shortly before Little Joe's Algol and Recruit rocket motors burned out. Canards on the upper end of the launch escape motor case damped out the tumbling caused by the pitch-up and stabilized Apollo Spacecraft 002 to a blunt-end forward attitude. Landing chutes deployed as programmed and the spacecraft landed intact 20 miles downrange from WSMR Launch Complex 36.

## First US Satellite Marks Eighth Year

Explorer I, the United States' first satellite, marked its eighth anniversary in space last Monday.

The small, stovepipe-like package—80 inches long and six inches in diameter—sailed into space in a big loop reaching 1,585.2 miles at apogee and 233.7 miles at perigee that historic day in 1958. The first orbit required 114.9 minutes.

As of Jan. 15, 1966, Explorer I's apogee was 956.9 statute miles and its perigee was 211.9 statute miles. Its orbit period was 11 minutes shorter, or 103.9 minutes.

The satellite was launched by a Jupiter C rocket developed by the Wernher von Braun group (now serving with the NASA-Marshall Space Flight Center) and the NASA-Jet Propulsion Laboratory.

### AFGE Lodge Recognized For Wage Board Unit

The American Federation of Government Employees, Lodge No. 2284, has been accorded exclusive recognition for a unit of MSC Wage Board employees, except the Wood and Plastic Modelmakers. In addition, the AFGE has received informal recognition for a unit of Class Act employees.

Officers of Lodge 2284 are: James H. O'Neill, President; Raymond A. Donatto, Vice President; Alma A. Hurlbert, Secretary; Herman J. Fisher, Acting Treasurer; and, Norbert Philippi, Sergeant at arms.

## Space-type Skateboard for Gemini

EVA REHEARSAL—Gemini VIII Pilot David R. Scott familiarizes himself with the hand-held maneuvering unit he will use for extravehicular propulsion during the one orbit he will remain outside the spacecraft. Scott fired the freon-powered maneuvering unit while inside the "cold box" of Crew Systems Division's 20-foot vacuum chamber at a simulated altitude of 170,000 feet. Cold box wall temperature was −300°F.

Space News ROUNDUP

SECOND FRONT PAGE

# Experiments Picked For Use In Lunar Surface Package

Scientific experiments have been selected by the National Aeronautics and Space Administration to be left on the moon's surface by astronauts in Apollo manned lunar landings.

Seven geophysical instruments were chosen as primary and backup experiments to be included in three flight packages and one backup on the initial Apollo landing missions.

A package of experiments—called Apollo Lunar Surface Experiments Package (ALSEP)—will weigh about 150 pounds. An ALSEP will be carried in the lunar excursion module on initial Apollo flights and astronauts will deploy and activate each instrument in an effective operating location near their landing site. Experiments will be left on the moon to transmit data for six months to one year.

Selection of the experiments was made by Dr. Homer E. Newell, Associate Administrator for Space Science and Applications, upon recommendation of NASA's Space Science Steering Committee. The experiments were approved by the Office of Manned Space Flight's Experiments Board which is chaired by OMSF Associate Administrator, Dr. George E. Mueller.

Dr. Newell noted that at NASA's 1965 Summer Conference on Lunar Exploration and Science at Falmouth, Mass., the Geophysics Subcommittee pointed out that although the ALSEP is small, "Every basic observation in geophysics could be carried out" with the scientific instruments chosen.

Since the ALSEPs are still in the design stage, the number of experiments for each package is somewhat flexible. ASLEPs will be modular in form, however, to allow for later interchange of scientific instruments.

The seven experiments are listed with their principal scientific investigator and co-investigators:

Passive Lunar Seismic Experiment — Dr. Frank Press of Massachusetts Institute of Technology and Dr. George Sutton of Columbia University's Lamont Geological Observatory. This three-axis seismometer will measure lunar tremors or moonquakes to study the moon's interior to its center—whether it has a crust and core and whether it is layered in structure.

Lunar Tri-Axis Magnetometer—Dr. C. P. Sonnett of NASA's Ames Research Center, Moffett Field, Calif., and Jerry Modisette of MSC. The magnetometer, similar to ones flown in unmanned flights, will measure the moon's internal magnetic field as well as the interraction of the solar wind with the magnetic field around the moon.

Medium Energy Solar Wind Experiment—Dr. C. W. Snyder and Dr. M. N. Neugebauer of NASA's Jet Propulsion Laboratory, Pasadena. This plasma spectrometer will measure the velocity and direction of protons, electrons and alpha particles in the solar wind as they arrive at the moon and the interraction of these particles with the lunar surface.

Suprathermal Ion Detector—Dr. J. W. Freeman, Jr., of Rice University and Dr. F. Curtis Michel, formerly of Rice and now a NASA scientist-astronaut. This experiment will measure the moon's ionosphere by sampling ions in a wide range of energies to determine how strongly it is affected by the solar wind.

Lunar Heat Flow Measurements—Dr. Marcus G. Langseth of Columbia's Lamont Observatory, Dr. Sydney Clark of Yale University and Dr. M. Gene Simmons of MIT. This instrument is designed to measure the outflow of heat from the moon's interior through the surface to provide information on the distribution of radioactive elements and the thermal history of the moon, including volcanism.

Low Energy Solar Wind—Dr. Brian J. O'Brien of Rice University. Like the JPL Experiment, this instrument will study solar wind particles, but in lower energy ranges.

Active Lunar Seismic Experiment—Dr. Robert L. Kovach of Stanford University and Dr. Joel S. Watkins of the U. S. Geological Survey. This experiment will require more astronaut activity than the others. After the instrument is activated, an astronaut will hit the lunar surface with a thumping device as he walks out to 1,000 feet from the lunar excursion module. Beyond that distance, a small mortar device will be used to fire small projectiles to land on the surface and the instrument will study the resulting tremors to obtain information on physical properties of the lunar surface to a depth of about 500 feet.

Three industrial firms have competing contracts with MSC to design the ALSEPs which will house the instruments during flight and provide common power and telemetry support for the experiments on the moon.

One firm will be selected to integrate the ALSEP payload and develop selected hardware in cooperation with the scientists involved in each of the selected investigations after mockups are delivered to NASA in February, 1966.