

Space News **ROUNDUP!**

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MANNED SPACECRAFT CENTER, HOUSTON, TEXAS

NOVEMBER 13, 1963



EXPLAINS REORGANIZATION—At a press conference here last week, James C. Elms, deputy director MSC, explains the new reorganization of MSC and answers questions for the news media representatives. He emphasized that the realignment was necessary in order to strengthen the Apollo and Gemini programs.

MSC Structural Reorganization To Strengthen Space Programs

Reorganization of the Manned Spacecraft Center, aimed at strengthening the Apollo Spacecraft and Gemini program management structure, was announced here last week by Dr. Robert R. Gilruth, MSC director.

Under Dr. Gilruth and Deputy Director James C. Elms, MSC has been re-grouped into seven major functions headed by four assistant directors, the managers of the major programs, and the manager of MSC Florida Operations.

Under the new structure, personnel who performed the highly successful Mercury flight program are being reassigned to support the Apollo and Gemini programs. This provides a means of assuring that Mercury experience will effectively be brought to bear on the Apollo and Gemini programs.

Two new Assistant Directorships have also been established to emphasize the in-put of the operations area and flight crews into the Apollo and Gemini programs. The Assistant Director for Flight Opera-

tions and the Assistant Director for Flight Crew Operations are the two new Assistant Directors established under the reorganization.

The new organization also combines under one assistant directorship the offices of the Assistant Director for Engineering and Development, and the Assistant for Information and Control Systems. This expanded assistant directorate will have responsibility for performing subsystem engineering and for monitoring MSC contractual operations in subsystem engineering.

The new Manned Spacecraft Center organization reduces the number of offices reporting directly to the top management from sixteen to twelve, and more effectively groups key line and staff functions.

The direct in-put of flight crews into development of

spacecraft systems through an assistant director is assured, as well as the direct contribution of Mercury program experience to the two follow-on missions.

Under its new manager, Dr. Joseph F. Shea, and deputy manager Robert O. Piland, the Apollo Spacecraft Program Office will be reorganized into five functional units. These are the offices of Program Control, Systems Engineering, Test, Flight Operations, and Reliability. In addition, the positions of manager, Lunar Excursion Module; manager, Command and Service Module; manager, Guidance and Navigation, have been retained.

Charles W. Mathews, who has been acting manager of the Gemini Program Office, has been named Gemini Program manager. Serv-

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Four Saturn Missions Deleted Apollo S-IB Phase Accelerated

The National Aeronautics and Space Administration announced recently, a rephasing of manned flight missions among the three Saturn class vehicles: the Saturn I, Saturn I-B and Saturn V.

Principal changes in planned manned flight missions include acceleration of the critical Apollo-Saturn IB spacecraft phase

and deletion of four previously scheduled Apollo-Saturn I spacecraft flights.

Engineering design and development effort related to the Saturn I manned flight program will be re-directed to the Saturn I-B and Saturn V programs.

Concentration of effort and resources of these phases of the manned lunar landing program is expected to increase the assurance of meeting vital Saturn I-B and Saturn V-based Apollo spacecraft milestones by taking advantage of the larger payload capability of the Saturn I-B to make an earlier launch of an all systems lunar orbit configuration--command module, service module, and LEM.

In addition, it is now planned to begin Apollo manned flights using this full configuration from the start thereby providing greater assurance of astronaut safety and successful completion of the manned orbital phase of the lunar landing mission.

The program of two Saturn vehicles, Saturn I/I-B and Saturn V, is based on the maximum use of common stages. The Saturn I,

(Continued on page 3)

Astronauts Move To New Offices At Ellington AFB

Approximately 30 Manned Spacecraft Center employees, including the astronauts, moved recently from Houston into two rehabilitated buildings at Ellington Air Force Base.

The move was another in a series which will culminate with the major move to the permanent site in February and March of next year.

At that time over 2,000 employees, equipment, furniture and office supplies will be relocated. MSC will completely occupy the Clear Lake facility by July 1, 1964.

The rehabilitated buildings will serve as office space for the astronauts until their facility at Clear Lake is completed. When they leave Ellington, other MSC employees housed at the base will occupy the offices.

WSMR Apollo Pad Abort Test No. 1 Termed Successful By MSC Officials

In a three minute, 45 second flight at White Sands Missile Range, Apollo Boilerplate No. 6 last week completed the second consecutive successful step in the Apollo spacecraft escape system test program.

Test engineers of Manned Spacecraft Center and its contractors teamed in Pad

Abort Test No. 1 to send BP6 soaring to about 5,000 feet altitude and 7,680 feet down range after a "near-

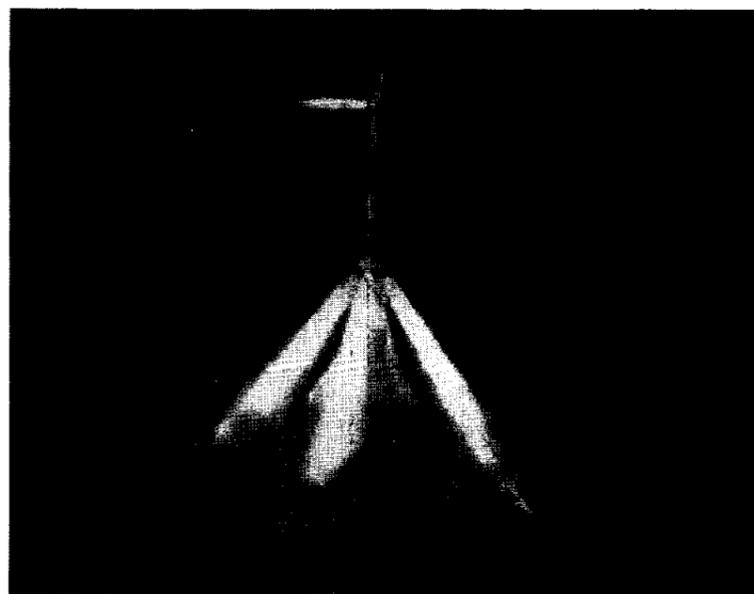
perfect" countdown November 7 and recovered the spacecraft apparently undamaged from a sand dune where it came to rest under its three huge parachutes.

Sigurd Sjoberg of the Flight Operations Division, who was test director for the flight, said shortly after impact that there was "every indication" BP6 met every objective of the test of the Apollo launch abort system.

David M. Hammock, Manager for the Command and Service Module in the Apollo Spacecraft Program Office, commented that the test indicated the aerodynamic characteristics of the escape system "appeared to be just what we expected."

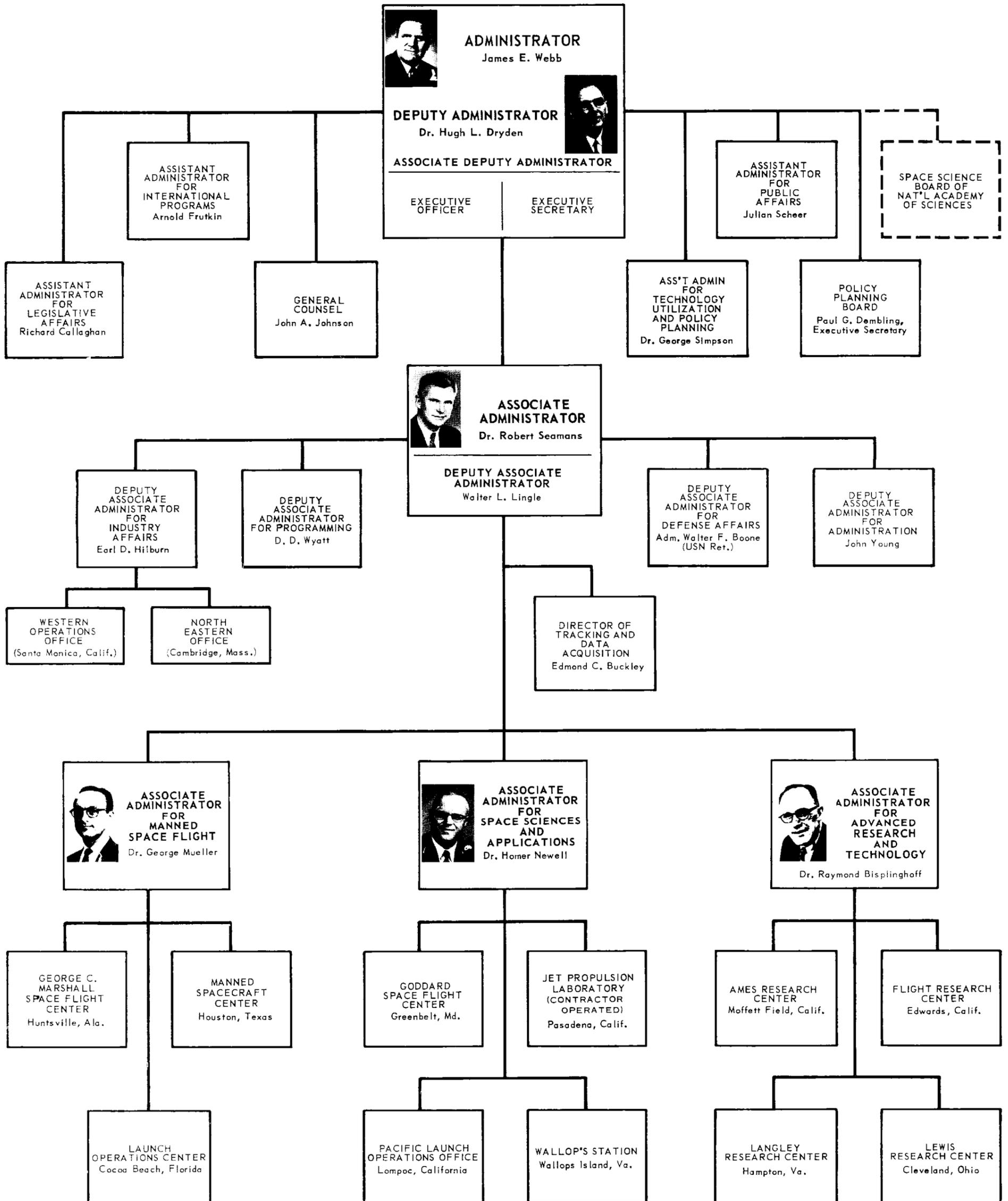
Sjoberg added that lift-off occurred "within one

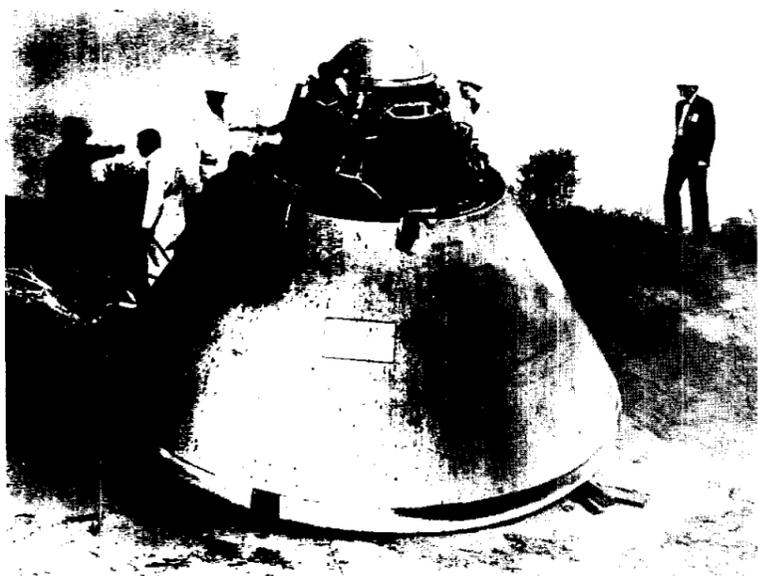
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BP6 LIFT-OFF—Bracketed by the fiery tails of her escape rocket, Apollo Boilerplate No. 6 lifts-off after a "near-perfect countdown in Pad Abort Test No. 1.

ORGANIZATION EFFECTIVE NOVEMBER 1, 1963 NATIONAL AERONAUTICS AND SPACE ADMINISTRATION





SAFE LANDING—Manned Spacecraft Center recovery personnel get ready to remove Apollo Boilerplate No. 6 from the side of a White Sands Missile Range sand dune, where the boilerplate impacted after a three minute, 45 second flight in the successful Pad Abort Test No. 1.

Apollo

(Continued from page 1)

or two seconds" of the schedule after a seven-hour countdown that presented no problems to the MSC-Industry test team. Sequencing during the flight took place very close to the nominal, he said. For instance, jettisoning of the burned-out escape motor and its 20-foot tower occurred at 15.6 after lift-off, one second off schedule.

BP6 reached a maximum velocity of 700 feet per second during the flight and experienced about 9 G's at lift-off.

The escape tower came to earth about 10,000 feet downrange.

More detailed analysis of the test will be obtained from instrumentation.

Primary objectives of the test last week included determination of the aerodynamic stability characteristics of the Apollo configuration in a pad abort, and investigation of the escape system to propel the command module to a safe distance during a pad abort, of the proper operation of the escape tower release mechanism, of the proper operation of the tower jettison motor and of the proper operation of the parachute recovery system.

The six secondary objectives were to investigate satisfactory abort and recovery timing sequence, determine spacecraft dynamics during tower jettison, investigate the operation of research and development instrumentation and communications to be used on later flights, investigate the capability of prototype ground support equipment, determine initial separation trajectory of the launch escape tower and determine escape tower vibration during a pad abort.

Additional Apollo flight tests at White Sands will include pad abort tests and several Little Joe flights. The next test in the series

will be a Little Joe II "High Q" test to determine characteristics of the launch escape system during period of maximum aerodynamic loads. First test in the series was the Little Joe II qualification test in August, during which all the major objectives were met.

Participating in Pad Abort Test No. 1 with MSC engineers were technical personnel from North American Aviation's Space Systems and Information Division, primary contractor for the Apollo program; Lockheed Propulsion Company, builders of the escape motor and Northrup-Ventura, contractor for the parachute recovery system.

Saturn

(Continued from page 1)

a two-stage vehicle, capable of placing 10 tons in earth orbit, was to be used to test Apollo command and service modules.

Saturn I-B is an uprated version of the Saturn I vehicle capable of placing 16 tons in earth orbit and will be used to test the complete lunar orbit configuration of Apollo—the command module, service module and lunar excursion module (LEM). The Saturn I-B uses the same first stage as Saturn I.

Its second stage, the S-IVB, which replaces six 15,000 pound thrust engines on the S-IV stage with a 200,000 pound thrust engine, is also the third stage of the Saturn V, the vehicle which will send the astronauts on their lunar mission.

The decision to rephase the Saturn based manned flight missions, based on studies initiated several months ago, was made possible by the success of the four Saturn I Research and Development launchings, the successful ground tests of the liquid hydrogen stages and the J-2 engine. The decision also permits the introduction of a flight

NASA Personnel Take Part In Testing Of New Space Docking Laboratory

National Aeronautics and Space Administration specialists—including Astronauts Neil Armstrong and Frank Borman—recently participated in shakedown tests of a new Martin Company Space Rendezvous, Closure and Docking Laboratory in Denver, Colo.

The NASA group from the Manned Spacecraft Center was among the first to test the new facility at the company's Denver Division.

Members of the party attending the two-day briefing and test run session, included from MSC's Flight Crew Operations Division, James Brickel and Herbert E. Smith, both assigned to engineering and operations problems, Roger M. Davidson, guidance control pilot; Harold Johnson, simulators; Arthur Assadourian, training; Wayne Williams, docking; Frank Coe, and from Flight Operations Division, Robert W. Becker and Richard Parten, both of Rendezvous Analysis.

Armstrong, Brickel, Davidson and Smith "piloted" the laboratory during the mock space missions. Borman took his turn earlier while accompanying a group from the Air Force Aerospace Research Pilots School at the Flight Test Center, Edwards AFB, Calif.

The laboratory is capable of duplicating control and test concept designed to result in an overall time saving—the so called concept of all-up testing.

In this approach launch vehicle stages, and spacecraft modules are tested in their final configuration on each flight. Previous planning had called for a gradual buildup of subsystems, systems stages and modules in successive flight tests. Experience in other missile and space programs has demonstrated that "all up testing" is the quickest way of reaching final mission objectives.

The six remaining Saturn I development flights will be carried out to provide vehicle development data essential to the Saturn I-B and Saturn V programs as well as to gather important information on micrometeorites.

Although the cancellation of Saturn I based manned Apollo flights results in a later (9 months) first flight of a manned orbital Apollo, the on-going Gemini program will provide the astronauts with the flight operations experience that otherwise would have been gained from the Apollo-Saturn I missions. Moreover, deletion of the Apollo-Saturn I manned flights saves \$50 million and is a step which helps NASA to stay within the \$5.35 billion authorized by FY 1964.

sensor problems encountered when two spacecraft rendezvous and dock in space.

Rendezvous and docking is mandatory in a number of future missions, including Gemini.

MSC Reorganization

(Continued from page 1)

ing as deputy manager, Gemini Program Office, will be Kenneth S. Kleinknecht. Kleinknecht, form-



KLEINKNECHT MATHEWS

er manager of Mercury Project, brings to the Gemini program his extensive experience within NASA in the management of project activities.

Maxime A. Faget will continue as assistant director for Engineering and



GRAVES FAGET

Development, with George Barry Graves serving as deputy assistant director in the new enlarged engineering organization. Aleck C. Bond has been named manager, Systems Test and Evaluations in the assistant director's office.

Engineering and Development divisions include Guidance and Control - Faget, acting chief; Structures and Mechanics - Joseph N. Kotanchik, chief; Crew Systems - Richard S. Johnston, chief; Instrumentation and Electronics Systems - Graves, acting chief; Advanced Spacecraft Technology - William E. Stoney, Jr., chief; Computation and Data Reduction - Eugene H. Brock, chief; and Propulsion and Energy Systems - Bond, acting chief.



KRAFT SLAYTON

Christopher C. Kraft, Jr., former head of the

Flight Operations Division, will become the new assistant director for Flight Operations. The three divisions under his direction will be Flight Control - John D. Hodge, chief; Mission Analysis - John P. Mayer, chief; and Recovery Operations - Robert F. Thompson, chief. Kraft has served as chief flight controller on the successful Mercury manned flights.

Flight Crew Operations activities have been consolidated under a new assistant directorship. Maj. Donald K. Slayton, one of the original seven astronauts and formerly chief of Astronaut Activities, has been named to the new position of assistant director for Flight Crew Operations. He will also serve as chief of the Astronaut Office. Other offices reporting to Slayton are Aircraft Operations Office - Joseph Algranti, chief; and Flight Crew Support Division - Warren J. North, chief. Major Slayton has resigned from the Air Force to accept a permanent civilian appointment with Manned Spacecraft Center.

Wesley L. Hjernevik, assistant director for Administration, will continue in that position; and Philip H. Whitbeck will continue as deputy assistant director. Hjernevik will continue to be responsible for providing all administrative and technical service support for Manned Spacecraft Center. In addition, the MSC White Sands Missile Range Operations Office, Wesley E. Messing, manager, will report directly to the assistant director for Administration.

Hjernevik will supervise the Personnel, Procurement and Contracts, Management Analysis, and Security Divisions; and the Office of Technical and Engineering Services, and Office of Administrative Services. Chiefs of these divisions remain unchanged.

Staff offices reporting to the Director's Office will be the Center Medical Operations Office, Legal Office, Reliability and Quality Assurance Office, and the Public Affairs Office.

Garrett AiResearch Has Responsibility For Environment



LOS ANGELES DIVISION—Adjacent to Los Angeles International Airport is the corporate offices of The Garrett Corporation and its largest division, AiResearch Los Angeles. AiResearch Los Angeles employs approximately 5000 and is producing the environmental control system for Project Gemini and Apollo.



VALVE CHECK—Details of AiResearch liquid oxygen and fuel valves for the Saturn C5 launch vehicle are studied by AiResearch and Marshall Space Flight Center representatives. The 17-inch LOX valve is typical of AiResearch's line of cryogenic valves.



CLEAN ROOM—This laminar flow clean room, largest of its type in the world, is part of Garrett's new space lab. It is now being used to assemble and test environmental control systems for Projects Apollo and Gemini.



TOP MANAGEMENT of Garrett Corporation includes E.A. Bellande, chairman of the board, right, and Harry Wetzel, president, left. Bellande, well-known in aviation circles, is one of this country's pioneers in aviation transportation. Wetzel, associated with the aerospace industry since 1936, is an engineering graduate of Cornell University.

The Garrett Corporation has often been referred to as "a successful business created out of thin air."

While this does not adequately describe all the interest areas of Garrett, it does give a clue to the reason why Garrett has in 27 years become the leading developer of environmental control systems for aircraft and space vehicles.

Its founder, the late J. C. "Cliff" Garrett, in 1939 had become one of industry's most ardent believers in the theory of pressurized, air-conditioned aircraft. In face of opposition in some quarters, Garrett established his own organization to actively pursue his belief in pressurized flight.

That organization has come to be known as AiResearch Manufacturing Company of Los Angeles. Some of Garrett's theories were tested on a practical basis during World War II in the B-29, the first large production aircraft to be pressurized.

From the production of pressure regulators for the B-29 Garrett has extended one product into another until today it produces more

than 2000 different end items.

It operates through seven divisions and two subsidiaries and has world-wide field service and sales organization, and employs 10,000 people.

In AiResearch Los Angeles, Garrett produces the environmental control system for Project Gemini and Apollo under contract to McDonnell Aircraft Co. and North American Space and Information Systems Division respectively, as well as, the thermal management system on Dyna-Soar for Boeing.

While space effort represents less than 10 per cent of Garrett sales, it does receive a tremendous amount of top management attention and support.

For example, in a new complex of buildings in Torrance, Calif., AiResearch is testing both Gemini and Apollo environmental control systems in a new laboratory. Complete with high altitude chambers and test apparatus, the new 87,000 foot space lab contains the largest laminar flow clean room in the world.

Once again, Garrett's

EDITOR'S NOTE: This is the sixteenth in a series of articles designed to acquaint MSC personnel with the Center's industrial family, the contractors who make MSC spacecraft, their launch vehicles and associated equipment. The material on these two pages was furnished by the Public Relations Office, The Garrett Corporation.



PHOENIX DIVISION—Garrett's second largest division—AiResearch Phoenix—is located in Phoenix, Ariz., adjacent to Sky Harbor Airport. This division is an associate contractor for Project Spur/Snap 50. Occupying a 100 acre site, the division has approximately 4,000 employees.

The Spotlight On MSC Secretaries....

In the continuing series to acquaint you with the personable group of ladies who serve as secretaries to the various sections at Manned Spacecraft Center, we present four more who represent their profession admirably.

CAROL O'LOUGHLIN, top left, secretary to David M. Hammock, acting deputy manager, Spacecraft, Apollo Project Office, is one of the "old-timers" with MSC, having joined the Space Task Group at Langley in January 1961 and the Apollo office the following April. She and her husband John, an engineer in MSC's Flight Operation Division, moved to Houston in June 1962 along with one of the last groups to arrive here from Langley. Carol's home town is

Beaver Falls, Pa. She, her husband and son, David, four and one-half months, reside in El Lago on Clear Lake. She enjoys cooking and loves to play bridge, when time permits.

DORIS P. FOLKES, (top right), another "old-timer" with MSC, joined the Space Task Group in December 1959 at Langley in the Flight Operations Division of which she is still a part. She is secretary to John P. Mayer, assistant chief for Mission Planning. She and her husband William G., also with MSC in the Logistics Division, moved to Houston from Langley in July 1962. Born in Lynn, Mass., she grew up in Livermore, Maine. While at Langley she took extension courses in psychology from the College of William and Mary,

and she has been jokingly accused of using her psychoanalytical power on those around her. Prior to joining NASA, Doris worked about seven years with the Continental Army Command at Ft. Monroe, Va., and the Pentagon, Washington D.C. The couple has four children, Gregory 14, Steven 12, Melanie 8, and Robin 6, and all like Houston very much. Doris counts, reading, listening to music, swimming, dancing and cooking as her most enjoyable pastimes.

MARGARET HOPKINS, lower left, has worked over 20 years for the government and other than here in Houston she has been employed in Ft. Smith, Ark., and Washington D.C. She joined MSC in December 1962, having been previously employed at Ellington AFB. Margaret is secretary to Paul H. Vavra, manager, Ground Systems Project Office. She was born in Ft. Smith, Ark. and attended school there. Living in Houston with her mother Mrs. Sarah Clayton, Margaret enjoys as favorite spare time interests, ceramics, playing bridge and reading.

VIRGINIA HUDSON, lower right, joined MSC in July 1962 but has over 10 years of government service, having worked previously for Army Recruiting here in Houston as secretary to the commanding officer. She is now secretary to Howard C. Kyle, deputy manager, Ground Systems Project Office. Virginia was born in Blackstone, Va. where she completed her early schooling. She later attended Smithdeal-Massey Business College in Richmond, Va. Her husband, Willoughby (Bill), is the GMC Truck fleet sales representative in this area and the couple reside in Houston. Virginia likes to bowl and do gardening around the house but she said keeping house seems to occupy most of her free time from her job at MSC.



Space Jewelry Available From Employees Group

The MSC Employees Activities Association has announced that representatives are now taking orders for Apollo and Gemini spacecraft jewelry.

Ten of the 14 sites have representatives and volunteers to take orders are needed at Sites 7, 10, 11 and 12.

The sites and representatives are: Site 1, Bernice Slaughter; Site 2, Helen Patterson; Site 3, Polly Jones and Jean Reecer; Site 4, Joyce Lowe; Site 5, Doris Folkles, Patsy Saur and Janet Campbell; Site 6, Mamie Hall; Site 8, Lucille Blanco, Vira Henry, Peggy Carlisle, Sue Pusey, Darlene Butler, Dorothy Szopski and Thelma Horn; Site 9, Shirley Brown; Site 13, Valdean Wardlow and Mary Bothwell; and Site 14, Carole Smith.

MSC Basketball League Being Formed Team Entry Deadline 4:30p.m. Friday

The MSC Employees Activities Association (EAA) has announced plans for a MSC Basketball League which is scheduled to get under way November 18.

Games will be played at Ellington AFB on Monday through Thursday evenings each week. Preliminary games are now being played.

All teams interested in participating in the league must contact Ragan Edmiston at Ext. 2504 before the entry deadline, which is this Friday at 4:30 p.m.

Referees for the league games are in great demand, Edmiston said, and it is anticipated that they will be paid about \$7 for a two-game night.

NASA Ping Pong Club

Now Organizing Teams.

Christmas Party Planned

The NASA Ping Pong Club is now organizing teams to play in the handicap league at the original Ping Pong Palace.

Interested parties are requested to contact Steve Jacobs at Ext. 7566.

Singleton Club members are urged to make plans to attend the club's Christmas party which is scheduled for Friday, Dec. 13.

PECANS FOR SALE

The MSC Employees Activities Association executive board members now have Clear Lake Site Pecans for sale at \$1 per bag. It's for a good cause, buy a bag today.



RECEIVE 30-YEAR AWARDS—In recent ceremonies, Dr. Robert R. Gilruth, director, MSC (right), presented certificates and emblems for 30 years federal service to Vernon E. Powell (left), Public Affairs Office and Raoul P. Lopez (center), Office of Technical and Engineering Services. Also due to be presented a 30-year service award is John C. French of Reliability and Quality Assurance Office.

MSC BOWLING ROUNDUP

MSC COUPLES LEAGUE Lights 912, 902.
Standings as of Oct. 29.
High Team Series: Lunar Lights 2573, 2554.

| Team | Won | Lost |
|--------------|-----|------|
| Goofballs | 24 | 8 |
| Ridgerunners | 23 | 9 |
| Schplitz | 22 | 10 |
| Lame Ducks | 20 | 12 |
| Spare-O's | 18 | 14 |
| Shucks | 13½ | 18½ |
| Bowlernauts | 12 | 20 |
| Four Aces | 10½ | 21½ |
| Hackers | 10 | 22 |
| Piddlers | 8 | 24 |

High Game Women: M. Jordan 191, 184, V. Lantz 184.

High Game Men: G. Sanders 223, H. Bishop 213.

High Series Women: V. Lantz 500, 483.

High Series Men: P. Thomas 559, B. Jones 554.

MSC MEN'S LEAGUE

Standings as of Oct. 31.

| Team | Won | Lost |
|--------------|-----|------|
| Whirlwinds | 21 | 11 |
| Turkeys | 21 | 11 |
| Tecnic | 20 | 12 |
| Cosmonuts | 19 | 13 |
| Lunar Lights | 18 | 14 |
| Fizzlers | 14 | 18 |
| Asteroids | 14 | 18 |
| Pseudonauts | 13 | 19 |
| Spastics | 10 | 22 |
| Overshoots | 10 | 22 |

High Game: J. Garino 266, L. Lee, P. Horsman, W. Chase 233.

High Series: J. Garino 616, P. Petersen 596.

High Team Game: Lunar

MSC MIXED LEAGUE

Standings as of Nov. 5.

| Team | Won | Lost |
|---------------|-----|------|
| Celestials | 27 | 9 |
| Alley Oops | 26 | 10 |
| Eight Balls | 24½ | 11½ |
| Little Splits | 21½ | 14½ |
| Aborts | 21 | 15 |
| Five Flushers | 17½ | 18½ |
| Core Dumps | 15½ | 20½ |
| Hardley Ables | 15½ | 20½ |
| Snap Shots | 14½ | 21½ |
| Virginians | 14 | 22 |
| Decigones | 13½ | 22½ |
| Pricers | 13½ | 22½ |
| Space Mates | 13 | 23 |
| Gabs | 13 | 23 |

High Game Women: M. Lewis 211, C. Barnes 207, 203.

High Game Men: Pavlosky 236, Petersen 220, Lawhorn 218.

High Series Women: C. Barnes 545, 543, 534.

High Series Men: Shumilak 600, Petersen 599, 586.

High Team Game: Alley Oops 930, 898, Five Flushers 868.

High Team Series: Alley Oops 2658, 2537, 2489.

Dr. Gilruth Presents 20-Year Awards



TWENTY YEAR AWARDS— Dr. Gilruth, director, MSC, recently presented 20-year awards to the following: (upper left) Maxime A. Faget, assistant director for Engineering and Development; (upper right) Charles W. Mathews, manager, Gemini Office; (center left) Kenneth S. Kleinknecht, deputy manager, Gemini Office; (center right) J. Wallace Ould, chief counsel, Legal Office; (lower left) Robert H. Voigt, deputy manager, Audit Office; (lower right) Thomas J. Cassias, manager, Audit Office.

MSC Personnel

Skydiving Team Being Formed

You are about 3,000 ft. up, over an open stretch of land, and standing on a step jutting from the side of a small aircraft, a firm grip on the wing strut, then with a backward thrust you are on your way to try to land in a predetermined circle

on the ground with the aid of a parachute. It's called the thrilling sport of skydiving.

A group of Manned Spacecraft Center personnel spend their weekends pursuing this fascinating pastime and are in the process of forming a skydiving club for interested MSC personnel.

The group usually meets on Sunday afternoons at a ranch east of League City. Located on the ranch is an auxiliary WWII landing strip.

Those from MSC presently taking part in the sport are Coy Martin, Bill Drummond, Gordon Miller, Charlie Rogers and Bill Whipkey of Technical Services; Lee Norman, Carlisle Campbell and Kirby Hinson of Structures and Mechanics Division; Walt Karakulko of Propulsion and Energy Systems Division; Dick Tunland and Fred Koons of Flight Operations; and Nancy Lowe of the Astronaut Office.

Lee Norman said the group plans to train enough skydivers to form an exhibition team. The 'divers' use a Cessna 180 with Fred Westergren as the pilot and John Whitworth and Coy

Martin as jump masters and riggers.

Martin of MSC is a former Navy experimental high altitude jumper. He helped organize and was a member of the Navy Chuting Stars for two years. Martin has almost 400 jumps to his credit and holds a Class D parachute license (highest given). One of his specialties is the "free fall" where in a stable fall your rate of descent is 120 mph and in a full delta goes up to 190 mph.

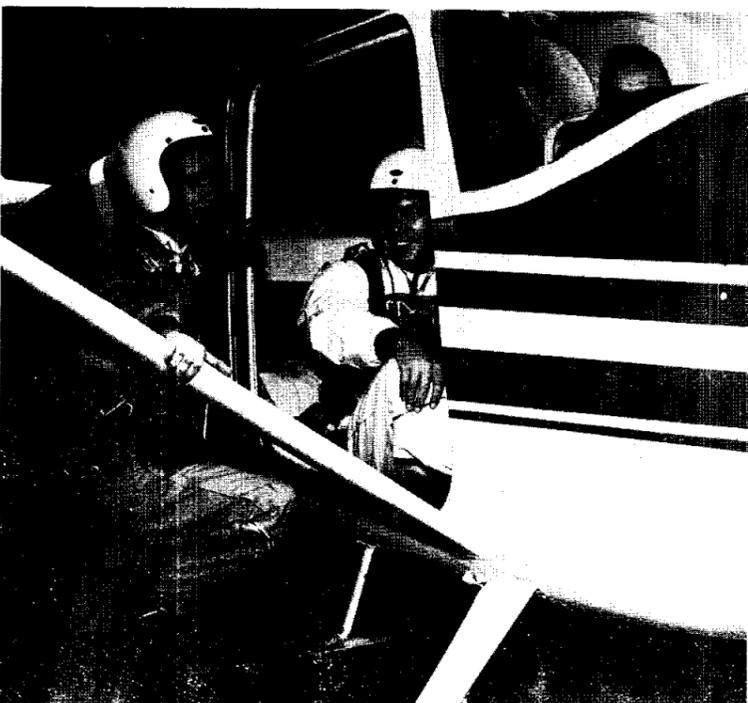
Interested parties may contact Lee Norman at Ext. 7411 (if you've got the nerve!).

NASA Travel Insurance Coverage Now Effective

Kimble Johnson, president of the MSC Employees Benefit Association, announced last week that the required number of enrollments in the NASA Travel Accident Group Insurance Plan has been waived by Home Life Insurance Company.

Coverage for those employees enrolled became effective Nov. 1, 1963.

Additional enrollments will be accepted through November 20, and thereafter at quarterly intervals.



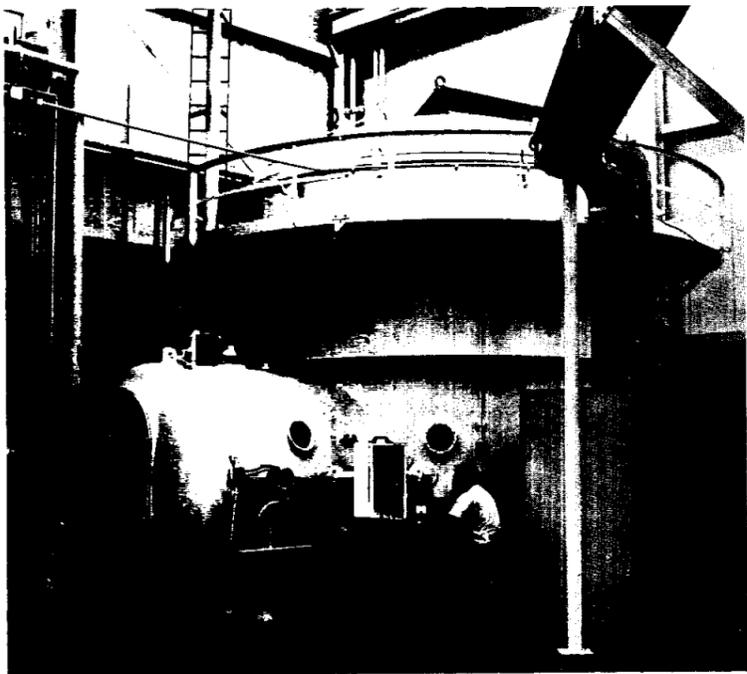
SKYDIVERS—Nancy Lowe prepares to climb aboard the Cessna 180 prior to takeoff for a jump from the sky. Already in the plane is Walt Karakulko. Both have two jumps to their credit and Nancy's were both in the target circle. Had she been in competition she could have been the winner of a meet.

Retired Langley Employee Dr. W. A. Aery Dies

Funeral services were held October 17 in Virginia for Dr. William Anthony Aery who died Oct. 16 in Hampton, Va.

He was born Sept. 24, 1882 in New York City and was a retired director of education at Hampton Institute in 1939 after 33 years on the faculty. From 1942-48 he was senior administrative assistant to the personnel officer at Langley, handling selective service affairs of essential employees. In recent years he had been very active in civic affairs. He was well known by many present and former Langley employees.

Control Systems Of Project Gemini And Apollo



SPACE CHAMBER—This space chamber, one of sixteen, is the largest in a new 87,000 square foot laboratory now nearing completion in Garrett's AiResearch Torrance Facility. Both Gemini and Apollo environmental control systems are tested here.

broad capabilities enabled it to efficiently integrate the components of space environmental control systems. Heat exchangers, compressors, cryogenic storage vessels, valves, static water separators are part of Garrett's traditional product lines and evolves out of the company's experience in air-conditioning and pressurization of high altitude aircraft.

Garrett's second largest division is located on a 100 acre site in Phoenix, Ariz. AiResearch Phoenix is the world's largest producer of small gas turbine engines ranging in horsepower from 30 to 850. These tiny jets are used for starting jet aircraft, as airborne auxiliary power units, converting natural gas into electricity and a variety of other purposes in the oil industry.

By expanding its gas turbine technology into space applications, AiResearch Phoenix has become an associate prime contractor for Project Spur/Snap 50. This program converts nuclear power into electric power (300 KW) for space missions of over a year. Presently, the program is now in the development stage and soon will begin development testing in a new power laboratory being erected in Phoenix. Already, AiResearch engineers have reported significant technological breakthrough in the handling of high temperature liquid metals.

AiResearch Phoenix has a large valve capability. These facilities were used to produce some of the valves for the Mercury, Gemini and Apollo environmental control systems.

Today, Garrett continues to grow from within. Through government and company funded research programs, Garrett and its

AiResearch divisions are enlarging their contributions to the defense and space effort.

Although AiResearch Los Angeles has more than 400 environmental control components manufactured specifically for man rated flight, it continues a variety of research programs.

Under Manned Spacecraft Center contract, AiResearch is conducting a research on the reclamation of atmosphere and waste for space vehicles. This program is referred to as Project RAW. Also under an MSC contract, AiResearch in its new Torrance, Calif. facility is producing a new coincidence mass spectrometer, one million times more sensitive than any unit yet devised.

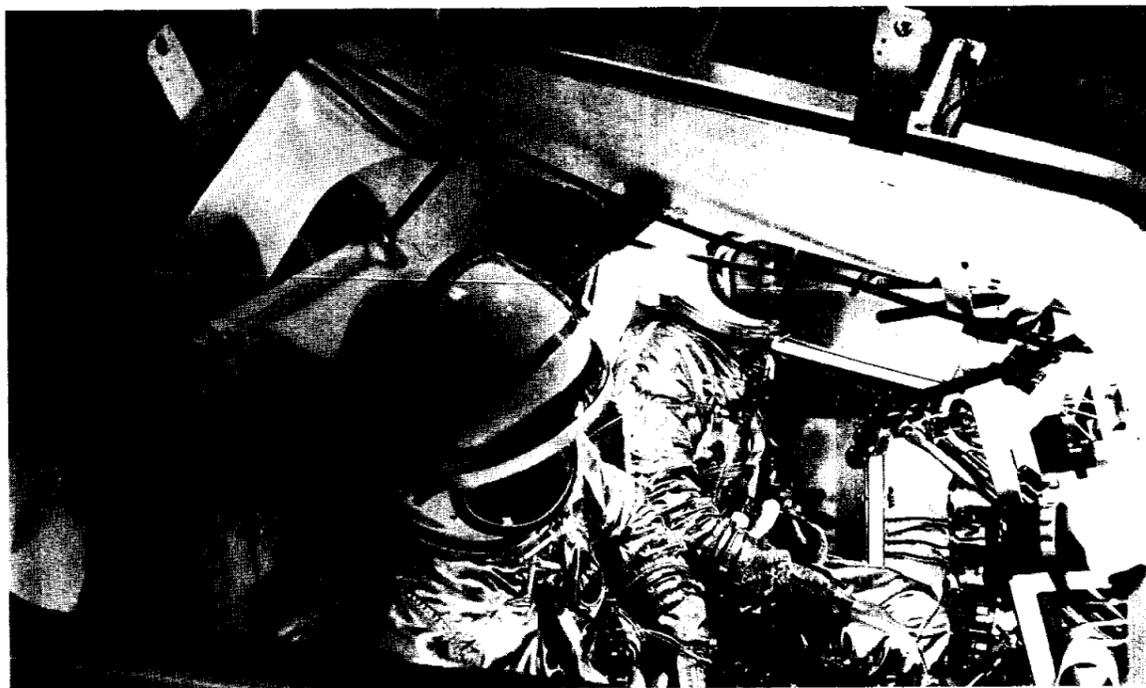
In the life science area, MSC sponsored programs are being conducted in heat balance studies. NASA Ames Research Center is sponsoring a program in pulmonary pathology. A company sponsored program initiated well over a year ago in response to a challenge posed by NASA, is resulting in a revolutionary new cooling system for space suit use.

In the field of power, AiResearch is extending its technology into new concepts in space power. In a company sponsored research program both divisions in Los Angeles and Phoenix are studying chemically fueled and radio isotoped fueled Brayton cycle power systems. Already a prototype system is under test in the Los Angeles division.

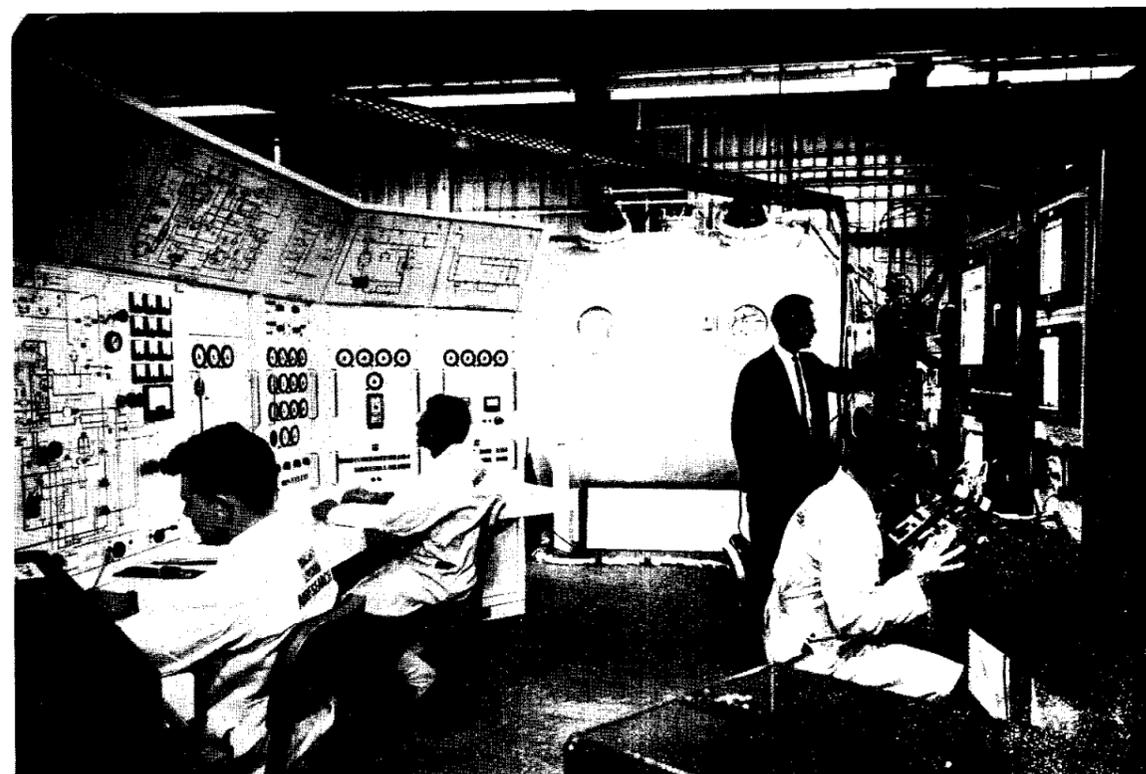
A considerable number of other advanced research programs, funded by the company, are well under way. These programs have space, military and commercial applications.



GEMINI TESTS—Two test subjects, outfitted in Gemini suits, complete suiting-up operations in preparation for the first manned tests of the Gemini environmental control system conducted in July. The test engineers are Bert North, McDonnell Aircraft Company, St. Louis, right, and Karl F. Jackson, Garrett-AiResearch, Los Angeles. McDonnell is prime contractor for the Gemini program operating under the technical direction of NASA's Manned Spacecraft Center, Houston.



COUNTDOWN—In launch position, two test subjects perform necessary countdown checklists in preparation for first manned tests of Gemini Environmental Control System held in July. Cabin interior only remotely resembles actual Gemini spacecraft interior. However, the interior volume and size are the same as the Gemini vehicle.



APOLLO TEST FACILITY—The new test facility, laboratory, in AiResearch Los Angeles, is partially shown here. It is used to test portions of the Apollo environmental control system.

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Public Affairs Officer Paul Haney
Chief, News Bureau Ben Gillespie
Editor Milton E. Reim

On The Lighter Side

Dear Civil Service Commission

(from actual letter received by CSC)

WEDDING KNELL

"I wish to find out if my examination is scheduled to take place on Saturday, October 16. I am planning to be married on that date, but if the examination is on the 16th, I can postpone the wedding."

INITIAL SETBACK

"With regard to my application blank returned for full name, I will say my parents named me the initials A. J. from infancy. If I must have a full name to secure a Government position notify me at once. I will name myself and send it immediately."

KIN-DREAD SPIRIT

"My main reason for desiring foreign employment is to get away from my wife's relations."

SHOE-NANIGAN

"I applied for cook. I have been told that a man of my weight must be 5 feet 4 inches tall in his stocking feet. I have been cooking for 20 years and it has not been necessary for me to cook in my stocking feet yet."

TIRED BLOOD

"I can certainly recommend him as a conscious worker."

A THANK-WHO NOTE

"Will you kindly put my name in your inactive file for at least 1-year. I have been married for 6 years and in this period of time I had no family. Thinking that I could not have a family, I took a civil service test; however, to my pleasant surprise, I am now with child. Thank you in advance."

LONG LONG EGO

"The disapproval of my application for the Senior Tool and Gage Designer was a squalid action of your department and very unfair to disapprove my application because it has not been confirmable therefore expunged for approval. I deprecate your letter and will not succumb until I prevail and expiate the reason."

Reprinted courtesy Civil Service Journal

MSC Accepts Vibration Test Equipment

The Manned Spacecraft Center has accepted the final items of a vibration environment test system from the Electronics Division of Ling-Temco-Vought, Inc., under terms of a \$237,000 contract.

The system includes a 10,000 pound shaker, two

thrusters each with 10,000 pounds force, a power amplifier and a control console. MSC uses the vibration equipment to test spacecraft parts.

The system came from LVT's Anaheim, Calif. plant. It was developed for MSC's Systems Evaluation Development Division.

WELCOME ABOARD

Twenty-three new employees joined the Manned Spacecraft Center during the period September 23 through October 28. Of these, 19 were assigned here in Houston.

MSC-ATLANTIC MISSILE RANGE OPERATIONS (Cape Canaveral): George A. Kohler.

SYSTEMS EVALUATION AND DEVELOPMENT DIVISION: Charlotte L. Eberwein.

WHITE SANDS MISSILE RANGE (New Mexico): Gilbert I. Good.

PERSONNEL DIVISION (Dallas): Eugene W. Lovelace.

SPACE ENVIRONMENT DIVISION: William B. Chapman.

SPACECRAFT TECHNOLOGY DIVISION: Harold E. Gartrell, Oaul Donald Gerke, and Henry T. Howard.

INSTRUMENTATION AND ELECTRONIC SYSTEMS DIVISION: Vernon C. Mel-liff Jr.

RELIABILITY AND FLIGHT SAFETY OFFICE: Harvey L. Curlee.

COMPUTATION AND DATA REDUCTION DIVISION: James M. Sanders, Winston C. Janes, and Howard D. Shekels.

FLIGHT OPERATIONS: Samuel D. Sanborn, and Beverly B. Peer.

PROCUREMENT AND CONTRACTS: Stanley R. Nevin.

GROUND SYSTEMS PROJECT OFFICE: Sharon L. Henderson.

PERSONNEL DIVISION: Bailey R. Chaney.

MERCURY PROJECT OFFICE: Perry E. Westmoreland.

FINANCIAL MANAGEMENT DIVISION: Terry M. MacFarlane, and Marion Yoder Bailey.

OFFICE SERVICES DIVISION: Herbert W. Klaus.

GEMINI PROJECT OFFICE (St. Louis, Mo.): Kenneth E. Willett.

Apollo Spacecraft Explosive Actuators Contractor Selected

Space Ordnance Systems, Inc. of El Segundo, Calif., has been selected by North American Aviation to provide a series of ordnance devices for the Apollo spacecraft, it was announced recently by the Manned Spacecraft Center.

The contract is expected to exceed \$300,000 by completion.

Under the contract, Space Ordnance will design, develop and fabricate explosive devices that will actuate and initiate components and assemblies in the

MSC PERSONALITY

Collins Is Technical Director Of MSC Gemini Contractors

Duncan R. Collins, formerly an aircraft designer and structural designer on the Atlas missile at General Dynamics, joined the Manned Spacecraft Center in June, 1962 as Spacecraft manager in the Gemini Project Office.

In this position, Collins has technical direction over MSC contractors for the Gemini program which is scheduled to put the next American astronauts in space.

Born in Livia, Ky., he attended high school in Livermore, Ky., and from 1934-38 he studied mechanical engineering at the University of Kentucky.

Collins accepted a job with Consolidated Aircraft, San Diego, Calif., doing aircraft design work from 1938-40. He then went with Vultee Aircraft in Nashville, Tenn. for a six month period in the same capacity. From there he joined Curtiss-Wright Corporation in New Jersey as an aircraft designer and remained with that company until 1950.

For 14 months in 1950-51 Collins was with the National Advisory Committee on Aeronautics (NACA) as a flight test engineer at the

High Speed Flight Research Station, Edwards AFB, Calif. At this time he worked under Walter C. Williams who was project engineer for the X-1 experimental aircraft research program at Edwards AFB.

Prior to joining General Dynamics/Astronautics in San Diego, Collins was with the Bureau of Aeronautics for six months in 1951. While with General



DUNCAN R. COLLINS

Dynamics he worked in aircraft design until 1954 when he became involved in the development of the Atlas booster and was then made head of structural design on the Atlas missile.

He continued with General Dynamics, later going into Project Engineering on an advanced version of the Atlas missile. It was while working in this capacity that he joined MSC here in Houston.

Like many other people who have joined MSC in the past, Collins encountered a little difficulty in just picking up and moving across country. He had his home in San Diego to dispose of and the added problem of two children in college in California. He plans to move his family here as soon as he can get the details worked out.

Collins is married to the former Mary Strong of Jackson, Ky. Their daughter Bonnie, 20, is presently enrolled in San Diego State College and also taking nurses training and their son Stuart, 23, just recently took time out from college for a tour of duty in the Army at Ft. Ord, Calif.

One of Collins' hobbies is cooking and in addition to being pretty good at cooking a steak, he says he likes to cook hams and other cuts of meat on a spit over an outside open fire.

Collins presently resides in an apartment here in Houston.

WSMR Operational Support Contract Awarded By MSC

The Manned Spacecraft Center awarded a \$875,-276.00 cost-plus incentive-fee contract recently to the Zia Company, Los Alamos, N. M., for maintenance and support operations at the space agency's White Sands Missile Range facility in New Mexico.

The contract calls for 1) maintenance and operation of buildings and equipment, 2) maintenance of roads and grounds, 3) fire protection, 4) maintenance of an industrial dispensary, 5) the operation of a water pumping and a sewage treatment plant, 6) maintenance and operation of the cryogenics and propellant storage areas, 7) transportation of equipment, and 8) maintenance and upkeep of special vehicles.

Some \$708,564.00 of the total amount covers labor costs during the period of the contract.

The contract will begin Nov. 1, 1963 and continue for 12 months.

Apollo spacecraft.

These components will be integrated into the various spacecraft module systems. Explosive devices are used to perform critical separation functions because of their high-power-to-weight ratio, their small size and their high reliability.