NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE
73-01	Astronaut Lovell to Leave NASA	1/7/73
73-02	IMBLMS Contract Signed	1/4/73
73-03	General Motors Contract for Skylab Support	1/4/73
3-04	NASA extends machine manufacturing contract	1/9/73
73-05	NASA Extends Television Support Contract	1/10/73
73-06	3-Day Skylab Simulation	1/15/73
73-07	NASA Extends Sheetmetal & Welding Manufacturing Contract	1/18/73
73-08	Europe to Develop Sortie Lab	1/19/73
73-09	College Student Assisting NASA Scientist with Lunar Photography, Samples	1/22/73
73-10	NASA Extends Custodial Contract	1/22/73
73-11	MSC Awards Guidance Support Contract to MIT	1/26/73
73-12	ASTP Crew Named	1/30/73
73-13	First A-17 Rock Samples Allocated to Investigators	1/31/73
73-14	Protective Fire Garments Symposium at MSC	2/1/73
73-15	Remote Sensing Provides Detailed Land-Use Map	3/1/73
73-16	Kelly appointed MSC special Assistant	2/2/73
73-17	Laboratory Services Contract	2/5/73
73-18	NASA Signs Supplemental Agreement with Grumman for LM Changes	2/14/73
73-19	NASA Issues 5th Installment for Shuttle Development	2/14/73
73-24	Four Firms to Study Space Tug Systems	2/14/73
73-20	Fourth Lunar Science Conference	2/21/73

Released by NASA HQS.

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NUMBER	TITLE	RELEASE DATE
73-21	JSC Awards Lab Maintenance Contract	2/26/73
73-22	JSC Issues Bid for Protective Services	3/2/73
73-23	NASA Awards Minor Construction Contract to Alpha Building Corporation	3/6/73
73-24	ASTP Meeting	3/7/73
73-25	Aircraft Maintenance Contract Awarded	3/9/73
73-26	German Medical Officer Assigned to JSC	3/13/73
73-27	NASA Issues Bid for Shuttle Acuator Test Work	3/15/73
73-28	Paris Air Show Joint Exhibit	3/26/73
73-29	NASA Issues Installment for Shuttle Development	3/19/73
73-30	JSC to negotiate engineering contract with Kentron	3/27
73-31	Atkinson Named to Head EEO Office	3/28/73
73-32	NASA Awards Shop Support Contract to Houston Firm	4/3/73
73-33	Skylab Launch Date Set	4/4/73
73-34	JSC AWARDS CEREMONY	4/5/73
73-35	JSC to negotiate technical interpretation of the contract with Kentron	4/6/73
73-36	NASA Awards Logistic Contract to Houston Firm	4/6/73
73-37	Analyzer Has Spinoff Potential	4/13/73
73-38	NASA Signs Definitive Space Shuttle Contract with Rockwell International Corporation	4/16/73
73-39	Griffin Named NASA Assistant Administrator	4/17/73
73-40	Lay-Off Notices Go To 45 Civil Servants	4/19/73
73-41	Haise Moves to Orbiter Project Office	4/18/73

NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE
73-42	Skylab I and II Preliminary Timeline	4/19/73
73-43	Mexican Space Personnel Receive Training in Remote Sensing at JSC	Immediate 4/25/73
73-44	Abbey Receives Distinguished Service Medal	4/24/73
73-45	Pre-Post Flight Crew Health Program	4/24/73
73-46	Site For Program Design to Improve ~~Medical Care In Space~~	4/25/73
73-47	Skylab Crews Briefed on Photography of Major Earth Events	4/26/73
73-48	JSC Plane Crashes	4/25/73
73-49	Cohen Receives Distinguished Service Medal	4/27/73
73-50	Chrysler Awarded Contract to Assemble & Distribute Shuttle Wind Tunnel Data	5/2/73
73-51	Calio Receives Distinguished Service Medal	5/2/73
73-52	GE Wins Contract to Study Total Earth Resources for Shuttle Era	5/8/73
73-53	John Zarcaro Awarded NASA Exceptional Service Medal	5/4/73
73-54	Bond Receives Distinguished Service Medal	5/4/73
73-55	Skylab Recovery to be Different	
73-56	Owen G. Morris Awarded NASA Distinguished Medal	5/8/73
73-57	Tindall Receives NASA Distinguished Service Medal	5/8/73
73-58	RICHARD S. Johnston Receives NASA Distinguished ~~Service Medal~~	5/9/73
73-59	COSPAR Papers	5/21/73
73-60	Skylab Simulations Begin at MSFC	5/15/73
73-61	Marshall Center Studies Skylab Sun Curtain	5/16/73
73-62	Lunar Scientist Gast Dead	

NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE
73-63	NASA to Negotiate JSC M&O Contract with Pan AM	5/18/73
73-64	Skylab Investigation Board	5/23/73
73-65	James W. Bilodeau Awarded Excep Serv Medal	5/30/73
73-66	Jerry C. Bostick Awarded Excep Serv Medal	5/30/73
73-67	Michael Duke Awarded Excep Sci Achiev Medal	5/30/73
73-68	L. Williams Awarded Excep Service Medal	5/31/73
73-69	Donald Wade Awarded Excep Service Medal	5/31/73
73-70	SL-3 Launch Date	6/1/73
73-71	Also Released at NASA Headquarters Fletcher Statement on Skylab Private Communications	6/1/73
73-72	Wm. R. Kelly Awarded NASA Excep. Serv. Medal	6/1/73
73-73	Third Earth Resources Pass, Sunday, June 3	6-3-73
73-74	Charles R. Haines Awarded NASA Exceptional Service Medal	6-5-73
73-75	Philip C. Shaffer Awarded NASA Exceptional Service Medal	6/5/73
73-76	Dr. Donald E. Stullken Awarded Exceptional Service Medal	6/5/73
73-77	Richard B. Ferguson Awarded NASA Exceptional Service Medal	6/5/73
73-78	JERRY W. CRAIG RECEIVES EXCEPTIONAL SERVICE MEDAL	6/5/73
73-79	Wackenhut Wins Protective Services Award	6/19/73
73-80	C.H. Woodling Awarded NASA Exceptional Service Medal	6/19/73
73-81	Hamilton Standard Awarded MIUS Contract	6/20/73
73-82	NASA Issues Installment for Shuttle Development	6/20/73
73-83	David A. Ballard Awarded NASA Exceptional Service Medal	6/20/73
73-84	JSC to remodel orbiter reproduction facility in california	June 22,73

NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE
73-85	Jack A. Jones Awarded NASA Exceptional Service Medal	6/21/73
73-86	Henry O. Pohl Awarded Exceptional Service Medal	6/21/73
73-87	M. Satterfield Awarded NASA Exceptional Service Medal	6/22/73
73-88	William W. Petynia Awarded NASA Exceptional Service Medal	6/25/73
73-89	Peter J. Armitage Awarded NASA Exceptional Service Medal	6/25/73
73-90	JSC Selects Pratt & Whitney Engine for Orbiter Atmospheric Use	6/26/73
73-91	T-38 Accident Report	7/3/73
73-92	Second Skylab Crew to be Launched July 28	7/2/73
73-93	ASTP Cosmonauts to Visit JSC	7/6/73
HQS. 73-94	Preliminary Timeline for Second Manned Skylab Mission	7/12/73
73-95	NASA Board Reports on Skylab Meteoroid Shield	7/19/73
73-96	Second Skylab Mission's Passengers to incude Fish, Mice, Insects	7/20/73
73-97	2nd Manned Skylab Mission Planned for 59 Days	7/20/73
73-98	Skylab Crew to carry Gyro Package	7/23/73
73-99	Skylab Astronauts, Fishermen join in Ocean Game Fish Experiment	7/24/73
73-100	Protective Services Contract Awarded to Wackenhut	7/25/73
73-101	Charles S. Harlan Receives NASA Exceptional Service Medal	7/24/73
73-102	VOID	
73-103	Col. Scott named as Deputy Director of Flight Research Center	8/3/73
73-104	NASA Space Science Program	8/8/73
73-105	SL-4 Launch Readiness Date Reset	8/14/73
	Communique on Results of ASTP Meetings (Filed after 73-97)	7/20/73

NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE
73-106	Astronauts, Fishermen, Marine Scientists Complete Extensive Ocean Investigation	8/15/73
73-107	Skylab will study Comet Kohoutek	8/16/73
73-108	Johnson Center Dedication August 27	8/16/73
73-109	Martin-Marietta to Develop Space Shuttle Tank	8/16/73
73-110	Skylab ATM Papers to be Presented	8/24/73
73-111	NASA Supports Chemistry,Physics Studies	9/4/73
73-112	FAI Honors Apollo Astronauts	8/31/73
73-113	Four firms submit proposals on rocket motors	8/31/73
73-114	ERTS-1 Use Evaluated in Texas Water Study	9/6/73
73-115	Watkins named to post with Interior	9/6/73
73-116	First Space Shuttle Orbiter Test Article Nearing Completion	9/10/73
73-117	Skylab Observes Major Solar Flares	9/13/73
73-118	JSC Support services Contract Awarded	9/14/73
73-119	Soviet Team at JSC for Tests of Apollo-Soyuz Docking Equipment	9/15/73
73-120	"Quiet" Sun not so Quiet	9/17/73
73-121	NASA Releases Shuttle Training Aircraft Bid Package	9/24/73
73-122	JSC Invites Lockheed to Test Shuttle Orbiter in Unique Ferry Flight Configuration	9/25/73
73-123	Europe to Build Spacelab for U.S. Reusable Space Shuttle	9/24/73
73-124	NASA is 15 years old	9/25/73
	FRED HAISE INJURED IN CRASH	8/22/73

NEWS RELEASE LOG

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73-125	NASA Issues Installment For Shuttle Development	9/25/73
73-126	JSC Awards New Avionics Contract --IBM	9/25/73
73-127	Contract Funds Shuttle Orbiter Assembly Site	9/26/73
73-128	ASTP Meeting in Moscow	9/27/73
73-129	JSC Extends Lockheed's Support Contract	9/28/73
73-130	Johnson Space Center to Celebrate 15th Anniversary with Special Open House	9/28/73
73-131	NASA Invites Boeing to Test Shuttle Orbiter For "Piggyback" Ferry Flights	10/5/73
73-132	NASA Extends Dynalectron Contract at White Sands	10/5/73
73-133	SUPPLEMENTARY CONTRACT FOR EARTH RESOURCES EVALUATION	10/9/73
73-134	ATS In JSC Chamber Tests	10/10/73
73-135	Lunar Sample Processing Equipment Shipped to Energy Research Lab	10/11/73
73-136	New Emergency Medical System Uses NASA Technology	10/17/73
73-137	JSC Releases Funds for Shuttle Building Modifications at Palmdale	10/19/73
73-138	Astronauts to begin isolation period	10/24/73
73-139	Five JSC Employees Receive Awards	10/25/73
73-140	JSC Personnel Earn Honors for Skylab Performances	10/26/73
73-141	Skylab IV Mission Announcement	10/26/73
73-142	Smylie Appointed Deputy Associate Administrator, OAST	10/26/73
73-143	New Food for Third Skylab Mission	11/6/73 ~~10/31/73~~
73-144	Aircraft-Borne Lasers to Profile Earth & Sea During Final Skylab Flight	11/7/73
73-145	Skylab Gypsy Moth Research Project	11/9/73
73-146	NASA extends quality and safety contract with Boeing	11/12/73

NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE
73-147	3rd Skylab Crew to Expand Knowledge of Earth's Resources	11/12/73
73-148	JSC Directs Rockwell to Study New Orbiter Flight Test & Ferry Methods	11/13/73
73-149	ASTP Crew to Visit Soviet Union	11/15/73
73-150	Dr. Brett Receives NASA's Exceptional Scientific Medal	11/19/73
73-151	Nuclear-Powered Moon Stations Begin Fifth Year	11/18/73
73-152	Operation Skylab/Barium	11/20/73
73-153	Special Camera to Photograph Comet Kohoutek from Skylab.	11/20/73
73-154	NASA Awards Shuttle Solid Rocket Motor Contract to Thiokol	11/20/73
73-155	JSC AWARDS SAIL DESIGN ANALYSIS CONTRACT to Autonetics	11/24/73
73-156	Skylab Science Demonstrations	11/27/73
73-157	NASA Issues bid for Shuttle Engineering/Operations Support	11/29/73
73-158	Astronaut Conrad Announces Retirement from NASA, Navy	11/30/73
73-159	JSC Reorganization Announced	11/30/73
73-160	NASA Issues Installment for Shuttle Development	12/5/73
73-161	NASA Issues Bid For Earth Resources Lab Support	12/10/73
73-162	JSC Annual Awards Ceremony	12/13/73
73-163	Apollo 17 Astronauts Present Flag to Center	12/12/73
73-164	Grumman Selected for Shuttle Training Aircraft	12/13/73
73-165	Discoverer of Comet Kohoutek will Speak to Press 12/27	12/12/73
73-166	Skylab Hometown Release - Mrs. Neil Hutchinson	12/17/73
73-167	JSC Award Orbiter Checkout Contract to General Elect.	12/23/73

NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE
73-~~147~~ 168	5th Anniversary of Man's Lunar Adventure	12/21/73
73-~~148~~ 169	Dr. Berry to Head University of Texas Health Center	12/21/73
73-170	NASA Extends Photographic Support Services Contract	12/25/73
73-171	NASA TO BUY # AXIS Dynimic Motion Simulator	12-25-73
73-172	JSC Reduces Energy Use	12-26-73
Released by USDA	"Astromoths" in Skylab IV May Lead to Better Control of Pest	12/27/73
73-173	JSC Issues Over $449 Million in Contracts in Fiscal Year '73	12/31/73

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

Douglas K. Ward
713/483-5111

FOR RELEASE:
HOLD FOR RELEASE
January 7, 1973

RELEASE NO: 73-01

ASTRONAUT LOVELL TO LEAVE NASA

Astronaut James A. Lovell, Jr., a veteran of four space flights and a member of the first crew to circle the moon, announced he will leave NASA and retire from the Navy March 1, to accept a position in private industry.

Lovell, 44, will become Senior Executive Vice President of Bay Houston Towing Company, a Houston-based water transport and harbor towing firm with diversified interests in shipping, agriculture, mining, ranching and oil and gas.

Lovell has been Deputy Director of Science and Applications at the NASA Manned Spacecraft Center since May 1971, with primary responsibility for the Apollo lunar science program at MSC.

Lovell said his decision to leave the space program was one of the most difficult of his life. He said, "I am sure the opportunity of making four space flights -- including two lunar missions -- will remain an experience without equal in my life. I hope these missions have contributed significantly to Man's understanding of the Universe."

"I feel privileged to have been a part of the Apollo program," Lovell said, "and I am particularly grateful to have had an opportunity to absorb part of the management expertise of Apollo."

- more -

MSC Director Christopher C. Kraft, Jr., said "Jim Lovell has made many significant contributions to his country through his outstanding performance while he was an astronaut. These not only include his many hours in space, but his untiring efforts in promoting physical fitness and his most recent managerial activities. We wish him well in his future and know he will succeed in what he sets out to accomplish. I personally will miss his presence at MSC."

Lovell will retire from the United States Navy with the rank of Captain after 21 years of commissioned service. He has been assigned to NASA by the Navy since September 1962, when he became one of the second group of astronauts to be selected for the U. S. space program.

Lovell was commander of the Apollo 13 mission, which was to have landed in the upland Fra Mauro region of the moon in April 1970. The mission was aborted after an explosion disabled command module oxygen and electrical systems, and Lovell and his fellow crewmen Fred W. Haise and John L. Swigert, Jr., had to make a hazardous circum-lunar return to earth using the lunar module as a life-boat.

Lovell was also a member of the Apollo 8 crew which first circled the moon at Christmas 1968. Lovell commanded the Gemini 12 mission, which successfully concluded the Gemini program in November 1966. And he flew on the 14-day Gemini 7 mission, which set a space endurance record and completed the first rendezvous of two manned, maneuverable spacecraft in December 1965, as Gemini 7 was joined in orbit by Gemini 6.

Lovell has spent more time in space than any other human being -- a total of 715 hours or nearly 30 days.

Following his graduation from the U. S. Naval Academy in 1952, Lovell received his flight training and was later assigned as a test pilot at the Naval Air Test Center, Patuxent River, Maryland. In 1971, he completed a course of study

in advanced management at the Harvard Business School, Cambridge, Massachusetts.

In addition to his regular duties at MSC, Lovell has continued to serve as a presidential consultant on physical fitness and sports since June 1967. Among his many special honors, he holds the Presidential Medal for Freedom, the NASA Distinguished Service Medal, two NASA Exceptional Service Medals, the Navy Astronaut Wings, the Navy Distinguished Service Medal and two Navy Distinguished Flying Crosses.

Lovell is married to the former Marilyn Gerlach of Milwaukee, Wisconsin. They have four children, Barbara, James, Susan and Jeffrey. Lovell was born March 25, 1928, in Cleveland, Ohio.

- end -

January 4, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

Robert V. Gordon
713/483-5111

FOR RELEASE:
January 4, 1973
2:00 PM

RELEASE NO: 73-02

IMBLMS CONTRACT SIGNED

A contract that will bring hospital-quality care to a remote community at a distance from established hospital facilities today was signed by the National Aeronautics and Space Administration and Lockheed Missiles & Space Company.

Under the $4.9 million contract, Lockheed will design and test a system which will provide comprehensive health care to people in a remote community. By means of advanced medical instrumentation and communications links using voice, data, and television, a profile of a patient's state of health will be transmitted to a central hospital for analysis and diagnosis. "Paramedical" personnel at the patient's remote location can then be advised of the appropriate action to take. The Health Services and Mental Health Administration of the Department of HEW is a joint participant in the program.

The remote health care system -- which will apply available space age technology -- is a significant example of NASA-industry transfer of space technology. The program was designed originally for space applications under the name of IMBLMS -- Integrated Medical and Behavioral Laboratory Measurement System -- as a means to transmit medical information from space to physicians on Earth.

Applying the system to a remote community on Earth will have the twofold purpose of proving its potential for space use, and its worth to communities at a distance from central hospital facilities.

- more -

NASA now is reviewing proposals from various remote communities who want to participate in the health care system during its test phase.

During the four-year program, Lockheed will install and verify operation of the health care system on site. A large hospital near the remote community will be the operational base which will support fixed and mobile units manned by paramedical personnel. Communications links will tie remote units and their patients to the central hospital.

Lockheed will develop the ground-based test unit in three phases. During the first 10-month period, Lockheed will define and design the system. The second 14-month period will be devoted to fabrication and checkout of a test unit. During the third 24-month phase, the test unit will be installed at the selected remote location and will undergo operational testing and system evaluation.

Participating with Lockheed is Kaiser Foundation International, a firm with long experience in health care. Other subcontractors are: Motorola (communications); Varian Associates (computer equipment); Medical Coaches, Inc. (health services transport equipment); and SCI Systems, Inc. (portable health services equipment).

- end -

January 4, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:
January 4, 1973
2:00 PM

ALSO RELEASED AT NASA HEADQUARTERS

Dave Garrett
202/755-3114

RELEASE NO: 73-03

GENERAL MOTORS CONTRACT FOR SKYLAB SUPPORT

The National Aeronautics and Space Administration has extended Contract NAS 9-10356 with Delco Electronics Division of General Motors Corporation, Goleta, California, to provide for Primary Navigation, Guidance and Control System support for the Command Modules for the Skylab Program. The period of performance is January 1, 1973, through June 30, 1974. A Cost-Plus-Fixed-Fee contract was negotiated.

Under the proposed contract, Delco Electronics will be responsible for analysis of Guidance and Navigation Hardware and Software problems, perform any required retrofit and/or modifications; perform a complete checkout and test for all Primary Navigation, Guidance and Control Systems; and analyze, repair and test failed Guidance and Navigation Airborne Hardware and Ground Support Equipment. This is a continuation of the services performed for the Manned Spacecraft Center by Delco Electronics Division in connection with the support, manufacturing and testing of Primary Navigation, Guidance and Control Systems Hardware. The total cost of the extension is $11,085,000, bringing the contract total to $44,415,379.

The majority of the work will be performed by Delco Electronics at their Goleta, California facility.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:
January 9, 1973

Don J. Green
713/483-5111

RELEASE NO: 73-04

NASA EXTENDS MACHINE MANUFACTURING CONTRACT

NASA has extended its contract with Bernhard Knust, Inc., Houston, Texas, for one year for precision machine manufacturing services at the Manned Spacecraft Center.

Value of the cost-plus-fixed-fee contract through this second year is estimated at $604,085. The second year option remains effective through December 31, 1973, and the contract contains provisions for negotiation for an additional year.

Approximately 15 Houston area journeymen are employed under the terms of the award. Knust, Inc., builds scale size metal models, hand tools and other equipment for the Skylab and Space Shuttle programs.

-end-

January 9, 1973

NASA — MSC

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:
January 10, 1973

Don J. Green
713/483-5111

RELEASE NO: 73-05

NASA EXTENDS TELEVISION SUPPORT CONTRACT

NASA has extended its contract with Taft Broadcasting Corporation, Houston, Texas, for one year for television support services at the Manned Spacecraft Center in Houston.

Value of the cost-plus-fixed-fee contract through this second year is estimated at $575,900. The second year option remains in effect through December 31, 1973, and the contract contains provision for one additional year.

Approximately 26 Houston area personnel are employed under the terms of the award. Taft provides support for the onsite closed-circuit TV system during space missions.

- end -

January 10, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:

January 15, 1973

Milton Reim
713/483-5111

RELEASE NO: 73-06

3-DAY SKYLAB SIMULATION

It's midnight in Houston, and the Earth-orbiting United States space station Skylab is in its 138th revolution.

A shift of flight controllers comes on duty in Mission Control Center to prepare the summary flight plan for the following day's activities, thus begins a fully-manned three-day simulation involving all elements of the team for the first time.

The around-the-clock simulation starting early Wednesday will pick up the flight plan in the 10th day of the mission as Skylab makes its way across the Atlantic Ocean coming up on Ascension tracking station with seven hours remaining in the crew sleep/rest period.

In the normal sequence of activities, the flight controllers coming on at midnight will tally the previous day's activities and prepare a summary flight plan for the following day. The day shift of controllers will execute the flight plan that was prepared the previous day by the evening shift. Then the evening shift will come on duty to prepare another detailed flight plan for use the next day.

- more -

Activities involving all elements in the flight will take place between 8 a.m. and 5 p.m. each day. The Skylab Flight Management Team from NASA Headquarters, Marshall Space Flight Center, Kennedy Space Center and the Manned Spacecraft Center will participate in the simulation.

Skylab astronauts will man the crew simulators in MSC Building 5, and the principal investigators for the Skylab experiments will man their support stations.

The Huntsville Operations Support Center for Skylab at MSFC will provide support for the Orbital Workshop systems. North American Rockwell in Downey, California will support the simulation in the event of problems with the spacecraft systems, and Martin Marietta will have a team on standby status in Denver, Colorado for any problems that may develop. Senior representatives from NAR and Martin will also be in the Mission Evaluation Room in Building 45 here at the Center.

All of the Flight Operations Directorate will be involved in the simulation along with a medical team from Life Sciences Directorate, members of the Skylab Program Office, and an Earth Resources Experiment Package team from Science and Applications Directorate.

The Aircraft Applications Branch will provide simulated aircraft movements, the tracking station data will be simulated, and Recovery Operations Branch will provide updates on the landing areas in the event of an abort of the mission.

Directing the three-day simulation will be three teams of sim controllers from the Simulation and Training Branch. They will insert malfunctions at the proper times to exercise the procedures and mission rules developed for the flight and to observe the reaction of the control teams.

The three days of simulation will be oriented more toward experiments than toward activities connected with flying the vehicles. The simulation is scheduled to end at midnight January 19.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:
January 18, 1973

Don J. Green
713/483-5111

RELEASE NO: 73-07

NASA EXTENDS SHEETMETAL AND WELDING MANUFACTURING CONTRACT

NASA has extended its contract with Esco, Inc., Houston, Texas, for one year for sheetmetal and welding manufacturing services at the Manned Spacecraft Center in Houston.

Value of the cost-plus-fixed-fee contract through the second year is estimated at $412,155. The second year option remains in effect through December 31, 1973, and the contract contains provisions for one additional year.

Approximately six Houston personnel are employed under the terms of the award.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:
IMMEDIATE

ALSO RELEASED AT NASA HEADQUARTERS

Richard Friedman
202/755-3897

MSC RELEASE NO: 73-08

EUROPE TO DEVELOP SORTIE LAB

NASA has been informed that the European Space Research Organization (ESRO) voted yesterday to authorize the establishment of a "Special Project" to develop a sortie laboratory to fly with NASA's reusable Space Shuttle in the 1980s.

The sortie laboratory is conceived as having two elements, a pressurized manned laboratory module and an external unpressurized instrument platform or pallet, suitable for conducting research and applications activities on Shuttle sortie missions lasting seven to 30 days.

The sortie laboratory module and pallet will be carried into orbit in the payload bay of the Shuttle orbiter and will remain attached to the Shuttle throughout the mission. At the end of each mission the orbiter will make a runway landing at the launch site and the laboratory will be removed and prepared for its next mission.

The sortie lab will have the flexibility to accommodate both multidiscipline complements of experiments and complements devoted to a single scientific or applications discipline. The laboratory module will house experimental apparatus, data processing equipment, electrical power equipment, an environment control system, and crew control stations. The staff of up to six scientists and engineers

will eat and sleep in the Shuttle orbiter, but will carry out their experimental activities in the laboratory module working in a normal shirtsleeve environment. Pallet experiments will normally be remotely controlled from the laboratory. The pallet will be the mounting platform for large instruments such as telescopes and antennas that need wide viewing angles and direct exposure to space.

The countries that have so far agreed to participate in the Special Project for development of the sortie lab are Germany, Italy, Belgium, and Spain. It is understood that additional countries may participate as well.

It has been estimated that the sortie laboratory will cost between $250-300 million, to be funded by the participating nations of Europe. ESRO is at the present time instituting studies of the preliminary design of the sortie laboratory and expects to complete the studies in December.

Assuming that cost studies confirm the general validity of current cost estimates, it is intended that the ESRO Special Project will be continued on through the final design and development of the sortie laboratory. A flight unit would be delivered to NASA in 1979.

It is contemplated that negotiations for appropriate agreements at agency and government levels will begin in the near future.

- end -

January 22, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

Dennis Williams
713/483-5111

FOR RELEASE:
January 22, 1973

RELEASE NO: 73-09

COLLEGE STUDENT ASSISTING NASA SCIENTIST WITH LUNAR PHOTOGRAPHY, SAMPLES

Just as the weather in Houston took a turn for the worse, Dean B. Eppler, 20, a college junior from Berkeley Heights, New Jersey, arrived at the Manned Spacecraft Center to begin a two-month assignment assisting with investigations of lunar samples and photographs.

Dean arrived January 7, "and I immediately got blamed for the rotten weather -- every time it rained or got windy or snowed, they blamed me," he laments. Houston had two inches of snow and the coldest weather in several years during Dean's first week here.

A geology student at St. Lawrence University in Canton, New York, Dean says he has always been interested in astrogeology, primarily because of the Apollo program. But he considers his temporary appointment to be the result of unusual good fortune.

"In the middle of last February I had this rather precocious idea and asked my department head if he knew anybody at Houston," Dean recalls. He felt he could learn more about lunar geology through direct contact with the materials and personnel available at the Manned Spacecraft Center.

- more -

As it turned out, William Romey, head of the geology department at St. Lawrence, had met NASA geology branch chief William Phinney at a scientific conference.

Dr. Phinney was looking for someone to assist Dr. Grant Heiken, a principal investigator of lunar orbital photography. Dean's interest, enthusiasm and previous experience all made him seem a logical choice.

"I fully intended to blow the better part of my life's fortune to come down here," he remembers.

Looking at detailed lunar photographs, Dean says, "appears to be a no-work kind of thing, because you just sit and stare at a photograph." But hours of analysis, he hopes, may lead him to a better understanding of crater chains.

In many places on the surface of the Moon, craters appear to line up in chains, but it is difficult to determine whether a series of craters is "a real crater chain or just a synthetic one" produced by coincidental events, Dean says.

"Some of the crater chains are pretty obviously formed by secondary impacts," from the boulders splashed in a stream when a large meteorite struck the Moon, while other chains, Dean notes, are almost certainly volcanic in origin.

Dr. Heiken and Dean hope to put together a paper this spring on the varieties of crater chains and their origins.

In addition to viewing the photographs from Apollo 15, 16 and 17, Dean is also assisting with preliminary investigation of some of the Apollo 17 soil samples.

During his first week at the Manned Spacecraft Center, Dean spent part of his time as an observer in the Lunar Receiving Laboratory, where the Apollo 17 samples are being processed.

Dean says his undergraduate training came in handy when a discussion arose concerning some very small crystals in a lunar sample. Dean suggested an identification that some of the more experienced scientists had overlooked.

"There are certain things that I know now that the others knew as undergraduates, but they have moved further on. It's a little fresher in my mind," he explains.

Since coming to the Manned Spacecraft Center, Dean has been overwhelmed by the amount of material made available to him. Attending a small college, he found it difficult to find highly specialized journals and almost impossible to obtain detailed lunar photographs.

But now everyone hands him piles of photographs and papers. "This is stuff I've wanted to look at for years and years," he exclaims.

During his spare time, Dean is catching up on the reading that he never has time for during the school year. He's also catching up on his correspondence.

"Since I can't pick up a phone and call anybody, I'm writing letters for the first time since I was a freshman," Dean says.

To keep in shape, Dean walks everywhere and runs about 3 miles a day: "I have a course -- I don't even know the names of the roads yet -- around by Clear Lake."

After he completes his degree, Dean expects to attend graduate school, and he may take some time to look at colleges in the Houston area, "particularly the University of Houston" he says. But he adds "my work takes 100 per cent precedence" over investigating possible graduate schools.

Dean arrived January 7, and will be staying until about March 5. He is living at the Portofino Harbor House on Clear Lake, a few blocks from the Center.

Dean's brother, Duane T. Eppler, is working on a master's thesis on glacial geology at Syracuse University. His parents are Thomas W. Eppler, an office manager for A. B. Murray in Elizabeth, New Jersey, and Svea Eppler, a school nurse in Berkeley Heights. They live at 99 Briarwood Drive East, Berkeley Heights, New Jersey.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:
January 22, 1973

Don J. Green
713/483-5111

RELEASE NO: 73-10

NASA EXTENDS CUSTODIAL CONTRACT

NASA has extended its contract with the Klate Holt Company, Webster, Texas, for one year for custodial support services at the Manned Spacecraft Center in Houston.

Value of the cost-plus-fixed-fee contract for one additional year of operation is estimated at $1,395,000.

Custodial services will be performed at the Clear Lake site and at the MSC facilities located at Ellington Air Force Base.

Approximately 160 Houston area personnel are employed under the terms of the award.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:
January 26, 1973

Don J. Green
713/483-5111

RELEASE NO: 73-11

MSC AWARDS GUIDANCE SUPPORT CONTRACT TO MIT

NASA's Manned Spacecraft Center has awarded a $1,375,484, cost-no-fee contract to the Charles S. Draper Laboratory of the Massachusetts Institute of Technology, Cambridge, to provide technical support for guidance, navigation and control in the Space Shuttle Program.

The work statement calls for MIT to provide ....."technical support in the definition, performance analysis and simulation of the Guidance, Navigation and Control (GN&C) Subsystem," and "to provide technical support in the development and verification activities to assure compatibility of designs.."

MIT will develop and evaluate:

Mission requirements

Integration of GN&C with avionics and the Space Shuttle

GN&C failure detection

Navigation techniques and Guidance policies.

-more-

As relates to the development of the GN&C system, MIT will receive technical direction from Space Division, North American Rockwell Corporation, (NR) Downey, California. NR was named to build the orbiter vehicle and to integrate component parts of the Space Shuttle.

Hardware procurement will be negotiated by NASA under a separate contract.

The MIT contract is to remain effective through August 3, 1974.

The Space Shuttle will be developed over the next six years. Horizontal test flights are planned to begin in 1976, and manned orbital test flights are scheduled in 1978. The complete Shuttle system is to be operational by 1980.

The Space Shuttle will be the first reusable space vehicle. The orbiter stage will be a delta-winged airplane-like vehicle capable of landing on conventional runways. It will have a cargo compartment measuring about 18 meters (60 feet) in length and 4.5 meters (15 feet) in diameter, and will be able to place 29,500 kilograms (65,000 pounds) in a 185-kilometer (100-nautical-mile) due East orbit.

The orbiter will be boosted into space through the simulta-

neous operation of the solid-propellant booster rockets and the orbiter stage high-pressure liquid oxygen-liquid hydrogen main engines. The booster rockets will detach at an altitude of about 40 kilometers (25 miles) and descend into the ocean to be recovered and reused. The orbiter, under its own power, will continue into low Earth orbit.

The Space Shuttle will be able to place satellites in orbit; return satellites from orbit; permit in-orbit repair and servicing of satellites; deliver propulsive stages and satellites to low Earth orbit, and conduct short-duration science and applications missions with self-contained experiments in low Earth orbit.

The Space Shuttle will be employed as an operational system by both NASA and the Department of Defense. Primary operational sites for the Space Shuttle will be the Kennedy Space Center in Florida and Vandenberg Air Force Base in California.

-end-

January 26, 1973
NASA — MSC

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

Jack Riley
713/483-5111

FOR RELEASE:
January 30, 1973
2:00 p.m.

RELEASE NO: 73-12

ASTP CREW NAMED

The selection of the United States flight crew for the 1975 Apollo-Soyuz Test Project mission was announced today by NASA.

Prime crewmen for the joint U.S.-Soviet Union earth orbital space flight are Astronauts Thomas P. Stafford, commander; Vance D. Brand, command module pilot; and Donald K. Slayton, docking module pilot.

Backup crewmen are Astronauts Alan L. Bean, Ronald E. Evans, and Jack R. Lousma.

Support crewmen, who will assist the flight crews in training and test activities, are Astronauts Richard H. Truly, Robert F. Overmyer, Robert L. Crippen, and Karol J. Bobko.

Target launch date for the mission is July 15, 1975. The Soyuz spacecraft will be launched first from the Soviet Union and the Apollo launch from the Kennedy Center, Florida, will follow. Apollo will have five launch windows; the first of which will begin 7 1/2 hours after the Soyuz liftoff.

The American and Soviet crews will visit one anothers' spacecraft while the Soyuz and Apollo are docked in earth orbit for a maximum period of two days. The mission is designed to test equipment and techniques that will establish international crew rescue capability in space, as well as permit future cooperative scientific missions.

- more -

An agreement between the two countries on cooperation in the exploration and peaceful use of outer space was signed in Moscow on May 24, 1972, by President Richard Nixon and President of the Council of Ministers A. N. Kosygin.

The first joint crew training session is scheduled for this summer when Soviet cosmonauts will visit the U.S. for several weeks. American astronauts will spend an equal amount of time in Russia beginning next fall. Future training sessions will be scheduled based on experience gained from these visits.

Joint working groups have exchanged a number of visits during the past two years to discuss technical details of a compatible docking mechanism, communications, flight planning, and other mission subjects. The next meeting of all five joint working groups is scheduled for March at MSC.

Stafford, 42, an Air Force brigadier general, is one of NASA's most experienced and senior astronauts. Since his selection by NASA in September 1962, he has logged 290 hours and 15 minutes in space in two earth orbital flights and one lunar orbital mission--Geminis 6 and 9 and Apollo 10. He has served as Chief of the Astronaut Office, and since June 1971, he has been Deputy Director of Flight Crew Operations. He is a native of Weatherford, Oklahoma.

Brand, 41, a civilian, is the backup commander for the second and third manned Skylab missions scheduled to be flown this year. Selected as an astronaut in April 1966, he served as a crew member for the thermal vacuum testing of the prototype Apollo command module and was an astronaut support crewman for the Apollo 8 and 13 missions. He was backup command module pilot for Apollo 15, and he has participated in operational support roles for other Apollo missions. Brand was born in Longmont, Colorado.

Slayton, 48, a civilian, is one of the original seven astronauts selected in April 1959. He was scheduled to pilot the Mercury 7 mission, which flew in May 1962, but was relieved of that assignment when a heart condition was discovered. He

was named Coordinator of Astronaut Activities and since November 1963 has been Director of Flight Crew Operations. In March 1972, following a comprehensive medical review, Slayton was restored to full flight status. He is a native of Sparta, Wisconsin.

Bean, 40, a Navy captain, has been an astronaut since October 1963. He logged 244 hours and 36 minutes of space flight as lunar module pilot of Apollo 12 and was the fourth man to walk on the moon. He is commander of the second manned Skylab mission. A native Texan, Bean regards Fort Worth as his hometown.

Evans, 39, a Navy captain, was command module pilot of the recently completed Apollo 17 mission in which he logged 301 hours and 51 minutes in space. He was selected as an astronaut in April 1966. Evans was born in St. Francis, Kansas.

Lousma, 36, a Marine Corps major, has been an astronaut since April 1966 and is the pilot for the second manned Skylab mission. He is a native of Grand Rapids, Michigan.

Truly, a Navy commander; Crippen, a Navy lieutenant commander; Overmyer, a Marine Corps major; and Bobko, an Air Force lieutenant colonel, were transferred to the NASA astronaut team in 1969 after the Department of Defense Manned Orbiting Laboratory program was cancelled.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:
February 1, 1973

F. Dennis Williams
713/483-5111

RELEASE NO: 73-13

FIRST APOLLO 17 ROCK SAMPLES ALLOCATED TO INVESTIGATORS

Acting on recommendations from the Lunar Sample Analysis Planning Team (LSAPT) meeting this week in Houston, NASA's Manned Spacecraft Center has named the first investigators to be allocated rock samples from the Apollo 17 landing site.

Ten investigators, half of them from foreign countries, will receive the first materials released from the lunar sample curatorial facility. The scientists have already begun picking up their samples.

The first allocations include tiny rock chips and polished thin sections cut from three large rocks. Two of the rocks (#70035 and #75055) are dark gray basalts typical of the material underlying the valley at the Apollo 17 site. The third rock (#76055), a lighter colored recrystallized breccia first described by astronaut geologist Harrison H. "Jack" Schmitt as an "anorthositic gabbro," may have been part of the mountain side at one time.

-more-

Most of the initial investigations will be to determine the ages of the samples by rubidium-strontium and argon analyses. Other studies will concentrate on trace elements found in the samples and on mineralogy.

Early Apollo 17 allocations are being made with the stipulation that the complex research projects be conducted as quickly as possible so that the results can be reported at the 4th Annual Lunar Science Conference held in Houston March 5-8.

Several dozen additional preliminary allocations are expected to be recommended by the LSAPT before the conclusion of its meetings. Included in the material yet to be allocated are samples of the orange soil found at Shorty Crater.

PRINCIPAL INVESTIGATOR	SAMPLE	STUDY
Claude J. Allegre Institut de Physique du Globe France	(#76055)	Rb/Sr dating trace elements
William C. Compston Australian National University Canberra, Australia	PTS (#70035)	Rb/Sr dating
Paul W. Gast NASA Manned Spacecraft Center Houston, Texas	(#70035)	Rb/Sr dating trace elements
Johannes Geiss University of Berne Switzerland	(#70035)	Argon dating
T. Kirsten Max-Planck Institut fur Kernphysik Heidelberg, Germany	(#75055)	Argon dating
V. Rama Murthy University of Minnesota Minneapolis, Minnesota	PTS (#70035)	Rb/Sr dating
John A. Philpotts NASA Goddard Space Flight Center Greenbelt, Maryland	(#76055)	trace elements
Mitsunobu Tatsumoto U. S. Geological Survey Denver, Colorado	PTS (#75055)	Rb/Sr dating Lead determinations
Grenville Turner University of Sheffield England	(#76055)	Argon dating
Gerald J. Wasserburg California Institute of Technology Pasadena, California	PTS (#75055) (#76055)	Rb/Sr dating Argon dating

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:
January 31, 1973

Terry White
713/483-5111

RELEASE NO: 73-14

NASA FIRE PROTECTIVE EQUIPMENT MEETING

Firefighters protective clothing and equipment developed by NASA Manned Spacecraft Center engineers using space-developed fabrics and technology will be demonstrated to professional firefighters in a one-day review at the Center on March 19.

The meeting will be held in the MSC Auditorium and will cover the current status of NASA-developed firefighters protective clothing and breathing devices and an evaluation of their practical use in the field by Jon King, chairman of the Houston Professional Fire Fighters Association Research and Safety Committee. The afternoon session will include a demonstration of firefighters clothing by the Houston Fire Department and the MSC Fire Department.

Persons planning to attend the meeting should notify J. H. Barnett/EC 7, NASA Manned Spacecraft Center, Houston, Texas 77058 (Telephone 713/483-3343) before March 13, 1973.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

F. Dennis Williams
713/483-5111

FOR RELEASE:
March 1, 1973

RELEASE NO: 73-15

REMOTE SENSING PROVIDES LAND-USE MAP FOR TEXAS AREA

Remote-sensing techniques being developed by NASA for space and aircraft investigation of Earth resources have been used to map land uses in an 18-county test site surrounding Houston, Texas.

The multi-colored map, prepared in three different scales showing up to 20 land uses, is now available for purchase from the U.S. Geological Survey.

The experimental mapping project was carried out by the Earth Observations Division of the Lyndon B. Johnson Space Center (formerly Manned Spacecraft Center) to demonstrate the effectiveness of remote sensing as a means of preparing fast, accurate land-use inventories for large areas.

The Houston Area Test Site is a 15,700 square-mile region stretching from the Gulf of Mexico 125 miles north to Lake Livingston, and from east of Galveston Bay to Matagorda Bay in the southwest.

The area surveyed, nearly twice the size of New Jersey, is used by NASA to evaluate remote-sensing techniques.

A specially equipped B-57 aircraft from the Lyndon B. Johnson Space Center collected the information used to prepare the maps in two days of overflights at 60,000 feet. Stereo coverage of the region was provided by about 400 photographs.

- more -

Some 136 photographs, each covering about 275 square miles, were selected from intensive analysis. An average of one week was required for an interpreter to classify the areas shown on each photograph when 20 land uses were defined. A simpler classification of nine land use categories could be completed in about half the time.

The 1:125,000 scale and 1:250,000 scale versions of the multi-colored map identify the following types of land use: industrial, commercial, public and semi-public services, cultural-entertainment-recreational, transportation-communications-utilities, urban (inactive), residential (developed), residential (under development), cultivated land (irrigated), cultivated land (unirrigated), orchard, pasture, agriculture related, non-productive, extractive, forest stand, forest brushland, reforested, marshes, and water.

The classification follows closely the "Level II categories" referenced in the U.S. Geological Survey publication Circular 671, "A Land-Use Classification System for Use with Remote Sensor Data," published in 1972. The 20-category Land-Use classification was generalized to 9 categories on the single sheet 1:500,000 scale version.

Prepared with the cooperation of the State of Texas, the Houston-Galveston Area Council of Governments, and the Houston Chamber of Commerce, the mapped area includes the following Texas counties: Austin, Brazoria, Brazos, Burleson, Chambers, Colorado, Fort Bend, Galveston, Grimes, Harris, Liberty, Matagorda, Montgomery, San Jacinto, Walker, Waller, Washington, and Wharton.

The 18-county map is available in three scales only from the Distribution Section, U. S. Geological Survey, Federal Center, Bldg. 41, Denver, Colorado 80225. Prices are as follows:

6-1/2 x 8', 1:125,000 (1" to approx. 2 mi.) -- $25.00/set of 21 sheets

3-1/4 x 4', 1:250,000 (1" to approx. 4 mi.) -- $5.00/set of 4 sheets

21" x 24", 1:500,000 (1" to approx. 8 mi.) -- $1.00/sheet

There is a 30 percent discount on orders of $300.00 or more.

Reviews and evaluations of this map are welcomed by the Earth Observations Division, TF2, Lyndon B. Johnson Space Center, Houston, Texas 77058.

- end -

February 21, 1973

NOTE TO EDITORS

Colored photo of land-use map is available upon request - #S72-20795.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

Terry White
713/483-5111

FOR RELEASE:
February 2, 1973

Special to the Georgia Tech Alumnus

RELEASE NO: 73-16

KELLY APPOINTED MSC SPECIAL ASSISTANT

William R. Kelly, 1953 Georgia Tech graduate, recently was appointed special assistant for management to NASA Manned Spacecraft Center director Christopher C. Kraft, Jr.

Kelly will assist Kraft specifically in areas of procurement, budgetary planning and contractor manpower planning.

Prior to his new assignment, Kelly was assistant director for procurement at the Houston center, and earlier in his NASA career served as chief of the Institutional Resources and Procurement Division, and chief of the Apollo Spacecraft Support Systems Contract Engineering Branch.

Kelly joined the NASA Manned Spacecraft Center in 1962 and was assigned to the Mercury Program Office. Project Mercury was the United States first manned spaceflight program.

-more-

Prior to joining NASA, Kelly was with General Electric for six years and served as a Naval aviator for three years after graduation from Georgia Tech.

He is a member of the National Contract Management, Association and the Federal Government Accountants Association.

Kelly, his wife and three daughters live in Friendswood, Texas.

-end-

February 2, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:
February 5, 1973

Robert Gordon
713/483-5111

RELEASE NO: 73-17

LABORATORY SERVICES CONTRACT

Technology, Incorporated of Houston has been selected for the award of a $794,000 one-year contract to provide operational and research support for Life Science laboratories at the NASA Manned Spacecraft Center.

Provisions of the cost-plus-award-fee contract call for Technology to provide operational, maintenance, and research support in MSC laboratories effective February 1, 1973 through January 1974. These services have previously been performed under several separate contracts.

The Life Sciences Division of Technology (Houston Branch) will provide approximately 45 man years service in the following MSC Life Sciences Directorate laboratories: Cardiovascular, Neuroscience, Environmental Physiology, and Food and Nutrition. This laboratory service will initially be in support of the Skylab program.

Technology-Life Sciences Division of Technology Incorporated has facilities in Houston and San Antonio, Texas. The corporation also has offices and divisions in Dayton and Cincinnati, Ohio, Los Angeles, California and Grand Haven, Michigan.

-end-

Februaru 5, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:

February 14, 1973

RELEASE NO: 73-18

NASA SIGNS SUPPLEMENTAL AGREEMENT WITH GRUMMAN FOR LM CHANGES

The NASA Manned Spacecraft Center has signed a supplemental agreement valued at $3,312,559, with the Grumman Aerospace Corporation, Bethpage, New York, for changes to the Apollo Lunar Module.

The agreement incorporates into the contract, changes authorized by NASA for modifications to the LM for additional scientific payloads as required by Apollo mission 15, 16 and 17.

The modifications bring the total estimated value of the Grumman contract since January 1963, to approximately $2,004,451,407.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:
February 14, 1973

Don J. Green
713/483-5111

RELEASE NO: 73-19

NASA ISSUES FIFTH INSTALLMENT FOR SHUTTLE DEVELOPMENT

The NASA Manned Spacecraft Center today made a supplemental payment of $8,975,000 to North American Rockwell Corporation, Downey, California, for continued development of the Space Shuttle vehicle.

The installment is the fifth under terms of a letter contract signed August 8, 1972, and increases the total amount of the award to $43,175,000.

More than 1500 contractor personnel now are employed in shuttle development.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

Terry White
713/483-5111

FOR RELEASE:
February 21, 1973
A.M.

RELEASE NO: 73-20

FOURTH LUNAR SCIENCE CONFERENCE

More than 750 scientists are expected to take part in the Fourth Annual Lunar Science Conference March 5-8, at the NASA Lyndon B. Johnson Space Center (formerly the Manned Spacecraft Center.)

Principal investigators from the United States and a dozen foreign countries who have participated in the lunar scientific research phase of the Apollo program, will present more than 250 papers in the four-day session, including the preliminary results from Apollo 17 -- the final Apollo lunar exploration mission.

Scientists from the Soviet Union will also present papers on their analyses of exchanged Apollo samples.

The Conference will be opened with a welcoming address by NASA Deputy Administrator George M. Low and a general session in the Center's Auditorium March 5. Concurrent sessions on different disciplines of the lunar science field will be held in smaller meeting rooms at the Center throughout the remainder of the Conference.

The Apollo 16 and 17 crews will describe their first-hand observations of the Descartes and Taurus-Littrow landing sites on the third and fourth days of the Conference.

Topics to be covered by conference sessions range widely through several lunar scientific disciplines. Among the session topics are Origin and Interior

- more -

Structure of the Moon, Where and When are Lunar Magmas Formed?, Origin and Time of Formation of Lunar Breccias and Moon/Sun/Space Interactions.

The results from the final two Apollo lunar landing missions have raised many questions about the early evolution of the lunar crust and highlands, and the Conference will be the first opportunity for scientists to compare their widely-varying interpretations.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
February 26, 1973

RELEASE NO: 73-21

JSC AWARDS LAB MAINTENANCE CONTRACT

The NASA Johnson Space Center (formerly the Manned Spacecraft Center) has awarded a contract to Northrop Services, Incorporated, Houston, Texas, for operational and maintenance support services to various laboratories and test facilities. The contract is for a one year period at an estimated total value of $9,300,000.

Approximately 500 Northrop employees will work at the Center in support of the Space Environment Simulation Laboratory, Structures and Mechanics Laboratories, Crew Systems Laboratories, Thermochemical Test Area, Life Sciences Laboratories, Lunar Receiving Laboratory, and the Flight Crew Integration Laboratory.

They will assist in the operation of large vacuum chambers used to test spacecraft and related space hardware, help ready flight equipment used by Skylab crew members, and aid in a wide variety of tests concerned with life sciences.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:
March 2, 1973

Don J. Green
713/483-5111

RELEASE NO: 73-22

JSC ISSUES BID FOR PROTECTIVE SERVICES

A request for protective services at the NASA Johnson Space Center, (formerly Manned Spacecraft Center) has been issued by the space agency in Houston.

Support services called for in the Request for Proposals (RFP) include operation of the fire department, plant security services, safety and fire protection inspection, and emergency ambulance services.

The work will be performed on the government's 1640-acre site located 22 miles southeast of Houston and at the NASA facilities located at nearby Ellington Air Force Base.

A cost-plus-fixed-fee contract with provisions for an award fee is contemplated by the government. Companies with specialized skills "may join with other companies in a joint venture," or in a prime contractor/sub-contractor relationship, according to the proposal.

NASA plans call for a three year contract with the initial increment to run for one year starting July 1, 1973. Provisions for two additional negotiated one-year extensions also are called for in the RFP. It is anticipated that over 100 Houston-area personnel will be employed under terms of the award.

Approximately three dozen plant protection contractors have been invited by JSC to bid on the award. Bids on the support service contract are due by April 9.

NASA-JSC

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:

Don J. Green
713/483-5111

March 6, 1973
3:00 p.m.

RELEASE NO: 73-23

NASA AWARDS MINOR CONSTRUCTION CONTRACT TO ALPHA BUILDING CORPORATION

The National Aeronautics and Space Administration on March 1, selected the Alpha Building Corporation, Houston, Texas, for negotiation of a contract to provide minor construction and alterations under a support services award at the Johnson Space Center (formerly Manned Spacecraft Center.)

The contract will be awarded on a cost-plus-fixed fee basis with provisions for an award fee. The estimated cost for the services is approximately $1.8 million for the first year.

The work will be performed on the government's 1640-acre site located 22 miles southeast of Houston, and at the NASA facilities at nearby Ellington Air Force Base.

NASA calls for a three year contract with the initial increment to run for one year starting April 1, 1973, with provisions for two additional negotiated one-year extensions. All employees are to be Houston area personnel.

Alpha Building Corporation won the competitive right to negotiate from among five companies who submitted proposals for the work.

- end -

March 5, 1973
NASA-JSC

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

RELEASED AT NASA HEADQUARTERS

FOR RELEASE:
Wednesday PM's
February 14, 1973

Dave Garrett
(phone: 202/755-3114)

Joe Jones (MSFC)
(phone: 205/453-0034)

RELEASE NO: 73-24

FOUR FIRMS TO STUDY SPACE TUG SYSTEMS

The NASA Marshall Space Flight Center, Huntsville, Ala., has selected four firms for negotiations of contracts for the study of space tug systems.

Two of the firms, General Dynamics, Convair Aerospace Div., San Diego and McDonnell-Douglas Astronautics Co. Huntington Beach, Calif., will be working under identical specifications for a "cryogenic" tug, using liquid hydrogen and liquid oxygen propellants.

Two companies, Grumman Aerospace Corp., Bethpage, N.Y. and Martin-Marietta, Denver, will perform similar parallel studies of a tug which would use Earth storable type of propellants.

These four studies, which are jointly funded by NASA and the Department of Defense, will cost about $750,000 each and will require 10 months to complete. DOD will assist in the technical management of the studies.

The space tug will operate in conjunction with the Space Shuttle and in effect will become the third stage of the Shuttle for some missions.

- more -

Uses planned for the tug include the transfer of satellites from orbit-to-orbit in near-Earth space and the launch and/or retrieval of satellites between low orbits and higher energy orbits such as planetary or synchronous Earth orbits.

In each mission the tug would be ground-based, that is, it would be fueled on the ground, launched from the Shuttle in low Earth orbit, recaptured by the Shuttle at the end of its mission and returned to Earth for repeated use.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:
IMMEDIATE

Jack Riley
713/483-5111

RELEASE NO: 73-24

ASTP MEETING

Meetings of the five United States-Soviet Union joint working groups involved in the Apollo-Soyuz Test Project will begin Thursday, March 15, at the Lyndon B. Johnson Space Center.

Up to 47 Soviet scientists and engineers are expected to spend approximately two weeks at JSC to continue activities directed toward a cooperative manned mission in earth orbit in July 1975. The visiting delegation will be headed by Prof. Konstantin D. Bushuyev, Soviet technical director of the project, and is expected to include three cosmonauts, Vladimir A. Shatalov, Aleksey S. Yeliseyev and Nikolay N. Rukavishnikov. Shatalov and Yeliseyev are veterans of three Soyuz missions, and Rukavishnikov accompanied them on Soyuz 10.

The U.S. group will be led by Dr. Glynn S. Lunney, U.S. technical director for ASTP.

Operational aspects of the joint space mission will be emphasized, including inflight experiments, sequence of crew transfer between spacecraft after docking, communications between control centers, and mission personnel training. Documents exchanged since the last meeting will be reviewed.

Joint working groups cover the following five areas: Mission Model and Operational Plans, Control and Guidance, Docking Mechanism, Communications and

- more -

Tracking, and Life Support Systems and Crew Transfer.

The last meeting of the full delegation was at JSC in July 1972. Several of the individual working groups have met here and in the Soviet Union since that time and the technical directors have maintained regular communications.

Astronauts Thomas P. Stafford, Vance D. Brand and Donald K. Slayton were recently named as the prime U.S. flight crew for the mission. The Soviet Union has not yet announced flight crewmen.

- end -

March 7, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
March 9, 1973
2:00 p.m.

RELEASE NO: 73-25

AIRCRAFT MAINTENANCE CONTRACT AWARDED

The National Aeronautics and Space Administration has selected Serv-Air, Inc. of Vance Air Force Base, Oklahoma to enter into final negotiations for award of a contract for continuation of maintenance and modification of aircraft assigned to the Johnson Space Center, Houston, Texas.

These aircraft are used for Earth observations and astronaut proficiency training. The contractor's estimated cost of the cost-plus-award-fee contract for the initial one-year period (approximately April 1, 1973, through March 31, 1974) is $2.8 million. The contract will provide for two additional one-year optional periods of performance.

The work to be performed includes maintenance, modification, and related ground support of the JSC assigned aircraft; maintenance and ground support of transient aircraft; engineering, design, fabrication, and installation of electronic and mechanical systems, sub-systems, components, and equipment; and related logistics functions.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:
March 13, 1973

Robert V. Gordon
713/483-5111

RELEASE NO: 73-26

GERMAN MEDICAL OFFICER ASSIGNED TO JSC

Lt. Col. Eduard Burchard, medical officer with the German Air Force, last week began a two-year tour of duty with NASA L. B. Johnson Space Center.

Assigned to JSC's Flight Medicine Section of the Life Sciences Directorate, Dr. Burchard, along with several foreign aerospace doctors, will work with U.S. scientists on Skylab. The doctors' respective countries finance the assignment; there is no charge to NASA.

A graduate of the University of Frankfort, Dr. Burchard received his doctorate in Medicine in 1961.

Prior to pursuing the field of medicine, he studied Philosophy and ancient language at the Universities of Mainz and Munich (1949-1955).

Dr. Burchard joined the German Air Force in 1962 and was the first German officer to go into Jet-Pilot-Training. Now on a flying status as Senior Pilot, he has a total flying time of more than 13,000 hours.

From 1965-1971, he was on the staff of the GAF Institute of Aviation Medicine and head of the Physiological Training Unit. In 1971, he was assigned as Flight Surgeon with a flying unit, Fighter Bomber Wing 32, F-104 G for one year. Dr. Burchard is a member of the Aerospace Medical Association and a member of the "German Association for Aerospace Medicine." He is author of several publications and has produced filmstrips on hyperbaric oxygenation and spatial disorientation.

Dr. Burchard is married and has two daughters, aged two years and three months.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:

March 15, 1973

Don J. Green
713/483-5111

RELEASE NO: 73-27

NASA ISSUES BID FOR SHUTTLE ACTUATOR TEST WORK

A Request for Proposals to build and test under space-like conditions hydraulic actuators for Space Shuttle applications has been issued to the aerospace industry by NASA.

The work will be done for the Johnson Space Center, Houston, Texas.

"There is a need to test components under space environmental conditions to aid in the design and development of the flight hardware," according to information released to bidders.

Existing actuators have been qualified for aircraft or spacecraft, but not both and no actuators have been qualified for multiple use.

Actuators are considered for aerodynamic surface and thrust vector control on the shuttle. Exposure to extreme cold and then to high temperatures on reentry presents possible problems with seals and lubricants, according to the instructions in

-more-

the RFP.

A firm-fixed-price-research-and-development contract is planned. Proposals are to be submitted by April 2, and the work is to be concluded 12 months after contract award.

The Space Shuttle represents a new version of NASA exploration--one that reduces costs of operation. Forecasts for Shuttle use include the launching into Earth orbit of unmanned scientific and industrial satellites, defense missions, and the placement of communications and other experimental satellites.

-end-

March 15, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

Terry White
713/483-5111

FOR RELEASE:
March 16, 1973

RELEASE NO: 73-28

APOLLO 16 AND 17 SAMPLES EXCHANGED WITH USSR

Rock and soil samples from the Descartes and Taurus-Littrow lunar landing sites today were delivered to two representatives of the Academy of Sciences of the Soviet Union. The moon fragments were collected by U.S. astronauts during the Apollo 16 and 17 missions in 1972.

The handover of three grams from each mission was made by Dr. Paul Gast, Chief of Planetary and Earth Sciences Division of the Johnson Space Center. The samples were accepted by Vladimir Shcherbina and Lev Tarasov of the Academy of Sciences of the USSR Vernadsky Institute. Shcherbina and Tarasov delivered scientific papers at the recently completed Fourth Annual Lunar Science Conference at JSC.

JSC Lunar Sample Curator Dr. Michael Duke said that the samples presented to the Soviets represented the widest variety of soil and distinct rock types from Apollo 16 and 17.

The exchanges of samples from lunar landing missions is part of an agreement between the two countries for joint study of lunar material. The Soviets have also received samples from Apollo 11, 12, 14, and 15. The United States has received samples from the Soviet Union's unmanned Luna 16 and 20 spacecraft which brought back to earth samples of soil from the Moon's Sea of Fertility.

NASA-JSC

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

John W. King
713/483-3671

FOR RELEASE:
March 26, 1973
10:00 a.m.

RELEASE NO: 73-28

PARIS AIR SHOW JOINT EXHIBIT

The USSR Academy of Sciences and the U.S. National Aeronautics and Space Administration announced plans to participate in a joint exhibit of the Apollo/Soyuz Test Project at the Paris Air Show, May 24 to June 3, 1973.

Representatives of the two agencies agreed to exhibit actual size models of the U.S. and USSR spacecraft involved in the first international cooperative manned mission scheduled for mid-1975. The project provides for an earth orbital mission during which Soviet cosmonauts and American astronauts will test a compatible rendezvous and docking system which will permit possible future cooperation in manned space flight and will contribute to space rescue techniques.

The Apollo/Soyuz Test Project was authorized in an agreement between the two countries on cooperation in the exploration and peaceful uses of outer space signed by President Nixon of the U.S.A. and Premier Kosygin, Chairman of the USSR Council of Ministers on May 24, 1972.

The Apollo and Soyuz spacecraft will be displayed in a docked configuration in a special pavilion at the 30th International Aerospace Exposition at LeBourget.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
March 19, 1973

RELEASE NO: 73-29

NASA ISSUES INSTALLMENT FOR SHUTTLE DEVELOPMENT

The NASA Lyndon B. Johnson Space Center today made a supplemental payment of $13,707,000 to Rockwell International Corporation, Downey, California, for continued development of the Space Shuttle vehicle.

The installment is under terms of a letter contract signed August 8, 1972, and increases the total amount of the award to $56,872,000.

More than 1600 contractor personnel now are employed in shuttle development.

-end-

March 19, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
March 27, 1973

RELEASE NO: 73-30

JSC TO NEGOTIATE ENGINEERING CONTRACT WITH KENTRON

The National Aeronautics and Space Administration on March 26 selected Kentron Hawaii, Ltd., Continental Operations, of Dallas for negotiation of a contract to provide engineering support services at the Johnson Space Center.

Announcement of the selection was made by Dr. Christopher C. Kraft, Jr., Director of JSC.

The contract will be awarded on a cost-plus-fixed-fee basis with provisions for an award fee.

The work will be performed on the government's 1640-acre site located 22 miles southwest of Houston, and at the NASA facilities at nearby Ellington Air Force Base.

Categories of services include design of equipment and systems engineering, and test program and facility support. Technical expertise in the field of cryogenics, electronics, thermodynamics, high vacuum and instrumentation is required.

NASA calls for a three year contract with the initial

-more-

award to run for one year starting May 1, 1973. There are provisions for two additional negotiated one-year extensions. Approximately 60 Houston area personnel are to be employed under the contract.

Kentron won the competitive right to negotiate from among ten companies who submitted proposals for the work.

-end-

March 27, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Manned Spacecraft Center
Houston, Texas 77058

FOR RELEASE:
March 28, 1973

Don J. Green
713/483-5111

RELEASE NO: 73-31

ATKINSON NAMED TO HEAD EEO OFFICE

Joseph D. Atkinson, Jr., a member of NASA since 1964, has been named Chief of the Equal Employment Opportunity Office at the Johnson Space Center, Houston.

As head of EEO, Mr. Atkinson will be responsible for planning and conducting all JSC Equal Employment Opportunity programs relating to Center employees and contractors.

Mr. Atkinson began his NASA career as an administrative assistant in the Technical Services Division, and also served as a personnel management specialist.

In 1970, he was selected to staff an office which set up an equal opportunity program for contractors.

Atkinson graduated from Morehouse College, Atlanta, Georgia, in 1949, with a Bachelor of Arts degree. He also studied at the Harvard Graduate School of Business, Cambridge, Massachusetts and at the University of Houston College of Business Administration.

He entered government service as a management intern at Kelly Air Force Base, San Antonio, Texas. Prior to that time he served for four years with the United States Army.

He was honored on November 27, 1972, with a Superior Achievement Award.

Atkinson is married to the former Arnette Sayles of Birmingham, Alabama. They have four children and reside in Houston.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
April 3, 1973

Don J. Green
(713/483-5111)

RELEASE NO: 73-32

NASA AWARDS SHOP SUPPORT CONTRACT TO HOUSTON FIRM

The National Aeronautics and Space Administration today awarded a contract to Linear Standards Inc., Houston, Texas for Central Shop Support Services at the Johnson Space Center.

The contract was awarded on a cost-plus-fixed-fee basis, and will remain in effect through March 31, 1974. There also are provisions for two additional negotiated one-year extensions.

Work includes fabrication, testing, and check-out of electronic and electromechanical components used at JSC.

The procurement was set aside for firms that qualify as small business. Amount of the award for the first year is $438,600.

Approximately 27 Houston are personnel will be employed under the contract.

-end-

April 3, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
April 4, 1973

ALSO RELEASED AT NASA HEADQUARTERS

Robert V. Gordon
713/483-5111

RELEASE NO: 73-33

SKYLAB LAUNCH DATE SET

Skylab, the nation's first space station, is scheduled to be launched from the NASA Kennedy Space Center in Florida May 14 at 1:30 PM, EDT.

With Skylab successfully in Earth orbit, the first three-man crew to work aboard the stations is scheduled to be launched no earlier than 1 PM, EDT, the following day.

A comprehensive two-day review of the results of accomplished pre-launch tests and the remaining work to be done was completed today by top Skylab Program officials.

"Preparations for both launches are currently proceeding very well. There is still considerable work ahead which may subsequently cause difficulty, but the assessment made today is encouraging," said William C. Schneider, Director of the Skylab Program.

-more-

This is the first time a formal date has been set for launching the complex space laboratory. For nearly two years, the Skylab team had used April 30 and May 1 as planning dates for the first two launches. The planning dates were moved to the month of May in late January when checkout work was running about two weeks behind the pre-launch test schedules. The onboard experiments and the major spacecraft elements have never flown before and require exhaustive first-time testing.

Skylab will operate for eight months in Earth orbit and will be occupied at intervals by three-man astronaut crews conducting scientific and technical investigations and observations relating to such areas as Earth resources, physiological effects of long duration weightlessness, solar phenomena and metals processing in zero-G.

Members of the first crew, planning a 28-day stay in Skylab, are: Commander Charles P. Conrad, Jr.; Science Pilot Dr. Joseph P. Kerwin; and Pilot Paul J. Weitz.

-end-

April 4, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
April 5, 1973

RELEASE NO: 73-34

JSC AWARDS CEREMONY

Individual and group awards will be presented on April 6 to employees, engineering teams, university investigators and industry at the Johnson Space Center in recognition of their contributions to the Apollo 17 mission and to the success of the Apollo Program.

Dr. James C. Fletcher, NASA Administrator, will present the awards in an early afternoon ceremony in the Center's auditorium. He will be assisted by Dr. George M. Low, Deputy Administrator, and JSC Director Christopher C. Kraft, Jr.

A total of 11 Distinguished Service Medals will be awarded including citations to the Apollo 17 crew and one posthumously to an employee who passed away during the height of the lunar program.

Exceptional Service Medals will be awarded to 39 employees, while 15 persons will receive the NASA Exceptional Scientific Achievement Medal.

-more-

Receiving Group Achievement Awards are the JSC Lunar Landing Team, the Lunar Science Team, the Lunar Landing Training Vehicle Support Team and the Public Affairs Office.

Public Service Awards will be presented to four firms in the aerospace industry--Philco-Ford Corporation, IBM Corporation, the Grumman Aerospace Corporation and TRW Systems Incorporated.

Three non-NASA awards also are to be presented at the ceremony--the Presidential Management Certificate to Dr. Jeffrey Warner of the Planetary and Earth Sciences Division; the National Oceanic and Atmospheric Administration, Public Service Award to Dr. Harrison H. Schmitt and the Geological Society of American Certificate for Exceptional Service to the Apollo 17 crew.

-end-

April 5, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
April 5, 1973

Don J. Green
713/483-5111

RELEASE NO: 73-35

JSC TO NEGOTIATE TECHNICAL INFORMATION AND PAO CONTRACT WITH KENTRON

NASA today selected Kentron Hawaii, Ltd., Continental Operations, of Dallas for negotiation of a contract to provide Technical Information and Public Affairs support services at the Johnson Space Center.

Announcement of the selection was made by Dr. Christopher C. Kraft, Jr., Director of JSC.

Kentron will draft, edit and prepare mission-related technical documents required for flight control operations. They will also provide real time mission support and documentation and will prepare reports and other documents for the Earth Resources program.

Public Affairs support includes design, construction and maintenance of exhibits;the operation of a visitor program at the Center's auditorium, and the maintenance of a library to disseminate education materials and information on NASA programs to the general public.

-more-

The work will be performed on the government's 1640-acre site located 22 miles southeast of Houston, and at the agency's storage facilities near the Center.

The contract will be awarded on a cost-plus-award fee basis. NASA calls for a three year contract with the initial award to run for one year starting May 1, 1973. There are provisions to two additional negotiated one-year extensions.

Approximately 255 Houston area personnel are to be employed under the contract.

Kentron won the competitive right to negotiate from among ten companies who submitted proposals for the work.

-end-

April 5, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
April 9, 1973

Don J. Green
713/483-5111

RELEASE NO: 73-36

NASA AWARDS LOGISTIC CONTRACT TO HOUSTON FIRM

Metro Contract Services, Incorporated of Houston today was awarded a contract to provide logistics and warehouse support services at the Johnson Space Center.

The contract was awarded on a cost-plus-fixed-fee basis with provisions for an award fee. Estimated cost for one year of services is approximately $743,000.

NASA calls for a three year contract with the initial increment to run through April 30, 1974. Provisions for two additional negotiated one-year extensions also are included.

Approximately 82 Houston area personnel will be employed under the contract.

The procurement was set aside for firms that qualify as small businesses. Metro won the competitive award from among eight companies who submitted proposals for the work.

-end-

April 9, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
April 13, 1973

Robert V. Gordon
713/483-5111

RELEASE NO: 73-37

ANALYZER HAS SPINOFF POTENTIAL

A miniaturized medical diagnostic system originally planned for use aboard manned space stations and now undergoing extensive laboratory tests at the Johnson Space Center, may find its way into everyday clinical use with pediatric and geriatric pateients.

A prototype of a miniature fast analytical clinical laboratory system developed by the Atomic Energy Commission, Oak Ridge National Laboratory (AEC-ORNL) for the National Aeronautics and Space Administration provides fast, automated blood analyses by using one-fiftieth the amount of blood required by existing analyzers. At the conclusion of lab tests currently underway at JSC, the AEC-ORNL developed analyzer will be used in clinical situations.

The analyzer was developed to meet NASA's requirements for a small lightweight, biochemical analytical system capable of performing 12 different studies on astronaut blood samples rapidly and with the minimum amount of supervision. Studies

-more-

which were begun two years ago by the AEC indicated that a miniature analyzer utilizing a modified existing system could be developed to meet NASA's space station requirements.

Available automatic analyzers have been limited to single point biochemical assays on numerous blood samples. The space agency required numerous and rapid chemical analysis on a single crew member blood sample.

The resultant AEC-ORNL studies not only indicated development of such a system was feasible, but would also be useful in ground based laboratories, especially small clinical laboratories, emergency laboratories, pediatric laboratories, mobile laboratories, and other special situations.

Dr. Elliott Harris, Chief of the Environmental Health Branch of JSC's Life Sciences Directorate, described the AEC prototype as a true space-age spinoff. "Initially," Dr. Harris explains, "the miniature analyzer is light weight (only 30 lbs.), occupies just three square feet, and is close to being totally automated."

One of its benefits, Dr. Harris said, is the small amount of blood required (1/10th of a cc) to complete the 12

simultaneous analyses for which existing analyzers require as much as 5 cc's and perform single analyses.

The present complete AEC system consists of the miniaturized analyzer, several rotors, a portable data printer, an automated sample and reagent loader, and rotor washing station. In addition, the system has the capability of on-line computer application.

Dr. Harris said the analyzer is currently being validated in the Center's environmental health program and early tests are promising. He said it is expected this new system will be verified and subsequently used in clinical situations.

The space age analyzer could provide a pediatrician with the capability of performing rapid analyses of an infant through the use of only a drop of blood as compared to a thimble full required by available analyzers. The doctor could perform the tests right in his office and have the results within minutes.

The same holds true for geriatric patients, emergency room patients, victims of accidents, where rapid multiple diagnosis with minimum blood samples are vital.

-end-

April 13, 1973
NASA-JSC

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
April 16, 1973

RELEASE NO: 73-38

NASA SIGNS DEFINITIVE SPACE SHUTTLE CONTRACT WITH ROCKWELL INTERNATIONAL CORPORATION

A definitive contract has been signed between NASA and the Space Division of Rockwell International Corporation, Downey, California, calling for the Space Shuttle system development.

Rockwell will be responsible for design, development and production of the orbiter vehicle and for the integration of all elements of the Space Shuttle system.

The contract has been awarded on a cost reimbursement basis plus fixed and award fees. It will be funded incrementally and the initial increment has an estimated cost including fees of $477,400,000. The contract supersedes the letter contract issued August 9, 1972. It will continue through August 3, 1974, which will include the Space Shuttle Preliminary Design Review (PDR).

A second increment of work; i.e. the balance of design, development, test, and evaluation plus delivery of two orbiters is planned to begin August 4, 1974.

Design, development and production of the orbiter will be done at the Downey, California facility with installation and

-more-

fabrication at nearby Palmdale, California. Rockwell divisions located in Tulsa, Oklahoma and Columbus, Ohio also will provide specialized support and hardware.

Rockwell plans to subcontract a substantial portion of the dollar value of its contract. Potential program subcontractors and suppliers have been identified in almost every state in the union.

In addition to the orbiter, major elements of the Space Shuttle System include the Space Shuttle Main Engine, a 470,000-pound-thrust hydrogen-oxygen engine already under contract to the Rocketdyne Division of Rockwell; air breathing engines, a large external hydrogen and oxygen tank, and twin solid rocket boosters.

The External Tank (ET) and Solid Rocket Motor (SRM) will be procured by NASA during 1973 independently of the prime contractor. NASA is soliciting competitive proposals for these elements. External Tank Request for Proposal was released April 2, 1973. The planned site for the assembly of the tanks is the government-owned facility at Michoud, Louisiana, where the Saturn rockets used for the Apollo program were assembled.

Overall program management for the Shuttle within NASA has

been assigned by the Office of Manned Spaceflight to the Lyndon B. Johnson Space Center, Houston, Texas.

In addition to the Program and Project Offices established at the JSC, NASA has assigned the development of the orbiter main engine, the External Tank and the Solid Rocket Boosters to the Marshall Space Flight Center, Huntsville, Alabama.

Responsibility for launch, landing and turn-around operations has been assigned to Kennedy Space Center, Florida.

The Space Shuttle will be the first reusable space vehicle. The orbiter stage will be a delta-winged airplane-like vehicle capable of landing on conventional runways. It will have a cargo compartment measuring about 18 meters (60 feet) in length and 4.5 meters (15 feet) in diameter, and will be able to place 29,500 kilograms (65,000 pounds) in a 185-kilometer (100 nautical-mile) due East Orbit.

The Orbiter will be boosted into space through the simultaneous operation of the solid-propellant booster rockets and the orbiter stage high-pressure liquid oxygen-liquid hydrogen main engines. The booster rockets will detach at an altitude of about 40 kilometers (25 miles) and descend by parachute into the ocean to be recovered and reused. The orbiter, under its

own power, will continue into low Earth orbit.

The Space Shuttle will be able to place satellites in orbit, return satellites from orbit, permit in-orbit repair and servicing of satellites, deliver propulsive stages and satellites to low Earth orbit, and conduct short-duration science and applications missions with self-contained experiments in low Earth orbit.

The Space Shuttle will be employed as an operational system by both NASA and the Department of Defense. Primary operational sites for the Space Shuttle will be the Kennedy Space Center in Florida and Vandenberg Air Force base in California.

-end-

April 16, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Milton E. Reim
713/483-5111

FOR RELEASE:
April 17, 1973
1:00 p.m.

RELEASE NO: 73-39

ALSO RELEASED AT NASA HEADQUARTERS

Richard Mittauer
202/755-8341

GRIFFIN NAMED NASA ASSISTANT ADMINISTRATOR

Gerald D. Griffin has been named NASA's Assistant Administrator for Legislative Affairs effective April 23, 1973.

He succeeds H. Dale Grubb who is leaving after holding the post since 1970.

Griffin comes to NASA Headquarters from the Johnson Space Center, Houston, where he was a flight director on all eleven Apollo missions. He was lead flight director on Apollos 12, 15 and 17. A flight director exercises detailed control over all elements of a mission including the control center, tracking stations, spacecraft and crew to most effectively and safely carry out the objectives of the mission.

He was awarded NASA's Exceptional Service Medal for his work on Apollos 12 and 15 and the Presidential Medal of Freedom Group Achievement Award for Apollo 13.

Griffin joined JSC (then the Manned Spacecraft Center) in 1964 and was named a flight director in 1968.

He graduated from Texas A & M University in 1956 with a bachelor of science degree in engineering and spent four years as a flying officer in the U.S. Air Force. He served as an aerospace engineer with Lockheed Missile and Space Company and General Dynamics before joining NASA.

He was born in Athens, Texas, in 1934, is married to the former Sandra Jo Huber of Brownwood, Texas, and they have two children.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
April 19, 1973

RELEASE NO: 73-40

LAY-OFF NOTICES GO TO 45 CIVIL SERVANTS

The Johnson Space Center today notified 45 Civil Service employees that they will be released as a result of manpower reductions of the National Aeronautics and Space Administration.

An additional 38 employees were informed they will be reassigned or placed in jobs at a lower grade.

The move is to be concluded by June 1, and it will reduce the JSC work force to 3727 Civil Service personnel, the maximum ceiling authorized.

The number of employees being separated now is smaller than previously projected because of resignations and retirements, the Personnel Office said.

Among the 45 employees scheduled to leave are 10 engineers and 23 technicians. Most of them are stationed at the Center, although 19 have jobs in field operations of the Center in Downey, California, and Kennedy Space Center, Florida.

The engineers and technicians have backgrounds in electronics, data systems, quality assurance, electrical and mechanical engineering, and mechanical equipment.

JSC has set up an Outplacement Center for the affected workers and has invited other Government agencies and business concerns to interview them.

Organizations wishing to review employee resumes or desiring to interview JSC employees for job openings are urged to contact John (Jack) P. Kochner, NASA Johnson Space Center, Houston, Texas 77058; telephone a/c 713, 483-5823.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Jack Riley
713/483-5111

FOR RELEASE:
April 18, 1973

RELEASE NO: 73-41

HAISE MOVES TO ORBITER PROJECT OFFICE

Astronaut Fred W. Haise, Jr., has been named Technical Assistant to the Manager, Orbiter Project Office, at the NASA Lyndon B. Johnson Space Center.

In this capacity, he is responsible for assisting the manager, Aaron Cohen, in the overall management of the Space Shuttle Orbiter vehicle development.

Haise is one of the 19 astronauts selected by NASA in April 1966. He was backup lunar module pilot for Apollo missions 8 and 11, lunar module pilot for Apollo 13 in April 1970, and backup commander for Apollo 16. He has logged 142 hours, 54 minutes in space.

His extensive background as a military and research pilot and astronaut also includes assignments as a research pilot at the NASA Lewis Research Center and the NASA Flight Research Center, where he was the author of numerous papers on aircraft flying and handling qualities. Haise has received numerous honors, including the NASA Distinguished Service Medal and the Presidential Medal of Freedom.

The departure from the Astronaut Office of Haise and his Apollo 13 fellow crewman, Astronaut John L. Swigert, reduces the number of active NASA astronauts to 37. Swigert was recently appointed Executive Director of the staff for the House Science and Astronautics Committee.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Robert V. Gordon
713/483-5111

FOR RELEASE:
IMMEDIATE

RELEASE NO: 73-42

ALSO RELEASED AT NASA HEADQUARTERS

SKYLAB 1 AND 2 PRELIMINARY TIMELINE

Skylab, the United States' Earth orbiting space station, is scheduled for launch at 12:30 p.m. CDT on May 14, 1973, from NASA's Kennedy Space Center, Florida.

Skylab will operate for eight months in Earth orbit and will be occupied at intervals by 3-man crews who will conduct scientific and technical investigations and observations relating to such areas as Earth resources, physiological effects of long duration weightlessness, solar phenomena and metals processing in zero-G.

One day after the Skylab launch, May 15, at 12 noon CDT, astronauts Charles "Pete" Conrad, Jr., Joseph P. Kerwin, and Paul J. Weitz will be launched from KSC into Earth orbit aboard an Apollo spacecraft where some seven and one-half hours later they will dock with Skylab to begin their 28-day mission.

On June 10, the Skylab crew will don space suits and at 12 noon CDT, Conrad will maneuver outside the space station to retrieve the film from the Apollo Telescope Mount while Kerwin stands in the hatch of the Multiple Docking Adapter to assist.

The morning of June 12, the astronauts will enter their Apollo spacecraft, undock from Skylab, and prepare for return to Earth. Splashdown is planned for 1:44 p.m. on the 12th at 25° 201 N, 127° 04' W, about 800 miles southwest of San Diego.

Following is the preliminary timeline of Skylab 1 and 2 events:

April 19, 1973

- more -

SKYLAB 1 (Skylab space station - Unmanned)

	Date	Time
Launch	May 14	12:30 p.m. CDT
	(launch window closes at 4:00 p.m.)	
S-IC/S-II Separation		12:32:40
S-II Ignition		12:32:42
Payload Separation		12:39
Orbit insertion		12:39:47
Jettison payload shroud		12:45
Rotate ATM 90°		12:46
Deploy ATM solar array system		12:55
Deploy OWS solar array system		1:11
Deploy meteoroid shield		2:06

SKYLAB 2 (First manned launch)

	Date	Time
Launch	May 15	11:59:36 a.m. CDT
S-IB/S-IVB Separation		12:02:22 p.m.
S-IVB Ignition		12:02:23
S-IVB Engine Cutoff		12:09
Orbit Insertion		12:09:25
CSM/S-IVB Separation		12:15:36
NC1 (phasing)		2:19:47
NC2 (phasing)		4:35:39
NCC (corrective combination)		5:21:48
NSR (coelliptic)		5:58:48
TPI (term phase)		6:48:37
TPF (term phase finalize)		7:22:14
Docking		7:39:36
Pressurize tunnel	May 16	7:30 a.m.
MDA hatch open		8:00 a.m.
EVA Egress (EVA 2 hrs. 25 min)	June 9	12:00 noon

	DATE	TIME
Undock	June 12	7:46 a.m.
Separation		8:35 a.m.
Deorbit		12:03 p.m.
Entry interface		12:27 p.m.
Splashdown		12:44 p.m.

* Launch window can vary from 7 to 15 minutes, depending on the orbital parameters of the space station.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
IMMEDIATE

F. D. Williams
713/483-5111

RELEASE NO: 73-43

MEXICAN SPACE PERSONNEL RECEIVE TRAINING IN REMOTE SENSING AT JSC

Nicolas Flores of Mexico's National Commission for Outer Space (Comision Nacional del Espacio Exterior) is completing more than a month of training in remote sensing with an extended flight aboard NASA's earth resources NP-3A research aircraft as it surveys several areas in the eastern United States from New York to Florida and west to Iowa and Texas.

Flores, a physicist specializing in data acquisition, is one of four employees of the space commission's Remote Sensing (Percepcion Remota) Branch receiving on-the-job training at Johnson space Center in Houston. The team is headed by Dr. Jorge Valerdi, who handles electronic data processing for the branch.

The training program began March 19 to prepare the Mexican team to make effective use of a remote-sensing aircraft purchased by Mexico last December. In addition to Flores and Valerdi, two members of the photographic laboratory staff--Luis Corona and Manuel Alvarez--have

also received detailed training at JSC. Valerdi, Corona and Alvarez returned to Mexico Saturday to begin work.

Dr. Valerdi said the training received from NASA was even more useful than he had expected. After he became familiar with the essential facets of the computer operation, Dr. Valerdi spent more than a week reviewing other elements of the earth resources program conducted by NASA.

"We covered all that we planned and, due to the flexibility of the program, we have been able to go into other areas that are of interest to our commission," Dr. Valerdi said.

Increased familiarity with NASA methods and programs will allow the Mexican space commission to offer greater assistance to nearly a dozen scientists working as principal investigators on data returned by the Earth Resources Technology Satellite (ERTS), Dr. Valerdi said.

The remote-sensing team will make immediate use of their training in aircraft scheduling and operations, photographic laboratory management, and electronic data processing as they begin flying missions with the sensor-equipped Aero Commander 500-B.

The flights may also provide additional information to six principal investigators conducting research using the

Earth Resources Experiment Package (EREP) aboard Skylab. Mexico's EREP projects include surveys of land and water use, geological studies, and a search for new areas suitable for agricultural development.

Because much of Mexico is relatively inaccessible from the ground, the aircraft remote sensing program is expected to play an essential part in reducing the cost of acquiring information about the environment for several major national programs.

Dr. Valerdi said that remote sensing would be used to seek new locations for geothermal energy plants. Mexico already has one such installation at Sonora, using heat from deep within the earth to supply electricity to the surrounding area.

Remote sensing may also provide information necessary for a cooperative program with the United States to eradicate the screwworm, a larva that attacks both livestock and wild animals. Dr. Valerdi says Mexico's ranchers, who lose several hundred million dollars worth of cattle to screwworms each year, are very enthusiastic about the program.

Dr. Valerdi hopes to make several return visits to the Johnson Space Center to keep up to date with methods and programs in earth resources and remote sensing.

Remote sensing is one of four branches of Mexico's National Commission for Outer Space. The other branches focus on research using balloons, rockets, and automatic picture transmission. About two dozen employees work in the remote sensing area handling data from ERTS, Nimbus weather satellites, and soon from both Skylab and Mexico's own aircraft surveys.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
April 24, 1973

RELEASE NO: 73-44

ABBEY RECEIVES DISTINGUISHED SERVICE MEDAL

George W. S. Abbey, formerly of Seattle, Washington, but now employed at the NASA Lyndon B. Johnson Space Center in Houston, was awarded the NASA Distinguished Service Medal for his work at JSC contributing to the success of the lunar exploration program.

His citation reads: to George W. S. Abbey,

"In recognition of his distinguished and continuing contributions to the success of the Apollo Program and for his outstanding leadership while participating in the overall management of the programs and operations of the Johnson Space Center."

Abbey is the Technical Assistant to the Director of the Johnson Space Center. He came to the Center in November 1964, as an officer with the United States Air Force on detail, and on April 30, 1967, he resigned his commission to become a permanent member of the NASA staff.

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Abbey graduated from the United States Naval Academy, Annapolis, Maryland, in 1954 with a Bachelor of Science degree. Then he attended the Air Force Institute of Technology, Wright Patterson AFB, Ohio and was awarded a Master of Science degree in Electrical Engineering.

This is the fourth honor Abbey has received during his NASA tenure. He was cited in 1969, with the NASA Exceptional Service Medal and a Certificate of Commendation. During the same year he was a member of the team which received the Apollo Program Management Group Achievement award.

Abbey is a member of the American Institute of Aeronautics and Astronautics and the United States Naval Institute.

Prior to joining NASA, he worked in the USAF Dynasoar program.

Abbey is married to the former Joyce R. Widerman. The couple has four children and reside in Houston.

-end-

April 24, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Robert V. Gordon
713/483-5111

FOR RELEASE:
April 24, 1973

RELEASE NO: 73-45

PRE-POST FLIGHT CREW HEALTH PROGRAM

People with sniffles, sneezes or fevers will not be among the cadre assisting Skylab astronauts in immediate pre-flight and post-flight activities to America's most ambitious manned space flight program scheduled for later this year.

A health stabilization program to be instituted 21 days prior to launch and continued for seven days after recovery will screen out those persons who possess infectious disease agents. Only those on an approved primary contact list and who are given a clean bill of health by NASA health officials will be permitted close proximity to the flight and the backup crews prior to launch and after recovery.

In addition to providing a living and working environment to minimize Skylab crewmembers' exposure to infectious disease agents during the pre-flight and post-flight phases, the program aids in the implementation of an allied, but separate medical activity, namely in obtaining the pre- and post-flight baseline

-more-

data for the Skylab medical experiments in the Nutrition and Musculoskeletal Evaluation, MO70 Series. These experiments require exact knowledge of all crew food intake as well as measurement and analysis of body waste products, feces, urine and/or vomitus.

To implement this phase of the program, the Skylab crews will eat only Skylab foods for 21 days prior to launch and for 18 days following the end of the mission. The pre-flight food fare will follow the Skylab menu and contain the necessary nutrient content of nitrogen, calcium, magnesium, phosphorus, sodium and potassium.

To meet experiment requirements, all food will be inspected and prepared for the flight crews in the kitchens of Building 37 and then transferred to crew areas. The food requiring heating will be placed in a Skylab food warmer serving tray.

The 21-day pre-flight menu is individually designed and consists of foods the crews have selected for eating aboard the Skylab space station (28 and 56 day missions) and will follow the 6-day menu cycle. Each batch of food will be microbiologcally tested prior to preparation.

All residue food will be measured to determine the exact amount consumed by each Skylab crewman. Feces, urine and/or vomitus will also be collected in support of mineral balance studies for the MO70 Series of medical experiments.

For each mission, the prime and backup crews will reside and sleep either at the crew quarters at the L. B. Johnson Space Center, Houston, Texas, or the crew quarters of the Kennedy Space Center, Cape Kennedy, Florida, beginning 21 days prior to launch. The SL-2 crew will begin this program on Tuesday, April 24, 1973 if the planned launch remains on schedule. Two especially equipped house trailers located inside Building 228, are being provided as crew quarters at JSC, while at Cape Kennedy Space Center, Florida, the crew will reside in quarters previously used by Apollo astronauts.

Only those primary contacts who have been designated as essential for crew quarter operations, training activities and Skylab test support will be admitted to those primary areas where crew members will be present. Primary areas are those required for crew activity and areas that contain only medically approved primary contacts during crew occupancy.

Primary areas at JSC include Mission Simulation and

Training Facility (Building 5), Crew Quarters (Building 228), Skylab Mobile Laboratories (outside Building 36), Astronaut Gymnasium and the Ellington Air Force flight-line. KSC primary areas include crew quarters, suit rooms, white room (at launch pad), and the Patrick Air Force Base flight-line.

All those on the primary contact list will undergo physical examinations prior to the start of the pre-launch isolation period of 21 days and will be required to report to the JSC medical surveillance teams in events of illness and/or exposure to illnesses of themselves or members of their families.

Beginning 21 days before flight, crews and the personnel they work with will exist under a rigid regime of controls and checks to prevent spread of infectious agents. Access to primary areas during crew occupancy will be limited to properly badged primary contacts with access being controlled by the JSC and/or KSC security forces.

The flight crews will reside solely in the mobile homes at JSC or the crew quarters at KSC. During the pre-flight and post-flight period of control, the crews will limit their activities to the approved primary areas.

During the first 7 days after recovery, strict control

procedures will be continued to protect the returning crew members from exposure to infectious disease. During a nominal recovery, the crew members will be brought aboard the primary recovery vessel and transferred immediately to the Skylab Mobile Laboratories, a group of labs designed to provide immediate in-depth post-flight medical examinations.

Upon return to JSC, and 7 days after splash, the flight crews will be permitted to return home; with the option of earlier visits if medical conditions so indicate.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

RELEASED BY HEALTH SERVICES AND
MENTAL HEALTH ADMINISTRATION
OF THE HEW

Robert V. Gordon
713/483-5111

FOR RELEASE:
April 26, 1973

RELEASE NO: 73-46

SITE FOR PROGRAM DESIGN TO IMPROVE MEDICAL CARE IN SPACE

The Papago Indian Reservation near Tuscon, Arizona has been selected as the site for design of a system to improve medical care in space and remote locations on earth, HEW Secretary Caspar W. Weinberger announced today.

The Integrated Medical and Behavioral Laboratory Measurement System (IMBLMS) is a joint project of HEW and the National Aeronautics and Space Administration (NASA).

The IMBLMS system is intended to appraise the technical requirements for remote health care in space. It will also serve to make maximum use of advanced medical instrumentation, computers and modern communications to transmit medical information on a patient at a remote site to physicians many miles away. The actual testing of the system is slated to get underway in 1975.

The main support control center plays a major role in the

-more-

system. Data received at the center will enable physicians to diagnose conditions and prescribe treatment to trained medical assistents at the remote sites. The local Health Service Centers and Mobile Health Units located at the remote sites will be staffed with trained physician assistants to provide primary care.

Trained technicians at the Public Health Service Indian Hospital on the Papago Reservation will operate the display and communications consoles at the support control center. These will summon physicians when needed to consult and direct the medical assistants at the remote sites. The information transmitted to the consulting physicians will include measurements of the cardiovascular and respitory systems, other vital signs, x-ray, and biochemical and microscopic data.

The Papago Indian Reservation was selected by a DHEW/NASA Site Selection Advisory Board. Its selection was based on: community willingness to support the costs of the system after the initial two-year test period is over; its willingness to accept primary care from physician assistants; and the legality of the use of physician assistants.

Designing and fabricating the IMBLMS system will be the Lockheed Missiles and Space Company under a contract with the NASA Johnson Space Center, Houston, Texas. Estimated cost of the contract is approximately $3 million.

-end-

April 25, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
April 26, 1973

F. D. Williams
713/483-5111

RELEASE NO: 73-47

SKYLAB CREWS BRIEFED ON PHOTOGRAPHY OF MAJOR EARTH EVENTS

All three Skylab crews were briefed late yesterday by Robert A. Citron, Director of the Smithsonian Institution's Center for Short Lived Phenomena at Cambridge, Massachusetts.

The Smithsonian is under contract to NASA to transmit daily reports of major events on the surface of the Earth. The Center receives rapid communications from a network of 3,000 scientists in 144 countries throughout the world. The correspondents send messages by telephone, teletype, and fast mail for relay to those interested in the study of transient events.

The Center receives reports on volcanic eruptions, earthquakes, floods, animal migration, changes in vegetation, oil spills, and other short-lived phenomena.

During the three Skylab missions, the Center will deliver daily reports to the Mission Control scientists in Houston. These reports will be used in advising members of the Skylab crew as to suitable targets for hand-held photography. The photographs will complement those provided by equipment mounted in the Earth Resources Experiment Package bay.

-more-

In addition, information about events may prove useful in planning or modifying earth resources experiment passes, which require a major reorientation of the spacecraft.

The Center Director said that Skylab will offer greatly improved opportunities for the observation of several events in parts of the world not readily accessible to aircraft equipped with remote sensors. The cameras carried on the spacecraft will offer higher resolution photographs than have been obtained from the Earth Resources Technology Satellite (ERTS), Citron added.

The regularity of Skylab passes, which will permit observations to be repeated as often as every five days, is also a special advantage, Citron told the crews. He noted that the photography would not be encouraged when it might interfere with more essential experiments or duties.

During the five months of Skylab crew activities, Citron said that the crews might expect a total of about 10 major volcanic eruptions, 5 or more major cyclonic storms and 5 earthquakes large enough to cause visible changes in topography.

The crews might also see as many as 10 floods from orbit. Citron said that the first Skylab team might have an opportunity to survey and photograph peak flooding in some of the main tributaries of the Mississippi. The peaks are expected in mid-May, when the first 28-day Skylab mission begins.

Citron hopes that systematic photography of the flooded area from space will provide new information about the rate at which water recedes and the total area inundated by the flood.

Serious oil spills, already detected in photographs from ERTS, may also be photographed by the Skylab crews from the window of their laboratory in space.

Citron said that the Center would also attempt to send research teams into areas where the Skylab scientists observed unusual changes, using local investigators who could be mobilized within 24 to 48 hours.

The crew of Skylab's first manned mission received their briefing via closed circuit television during their second day of quarantine.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Jack Riley
713/483-5111

FOR RELEASE:
April 25, 1973

RELEASE NO: 73-48

JSC PLANE CRASHES

Two NASA pilots escaped serious injury today when their twin-engine aircraft crashed in a sparsely inhabited area of League City.

Charles F. Hayes and Conway H. Roberts, staff pilots in the Johnson Space Center's Aircraft Operations Office, were treated at the Clear Lake Hospital. The two pilots suffered minor bruises and lacerations.

The crash occurred near Louisiana Street and Highway 518 shortly after 4:30 p.m. Hayes and Roberts had taken off from Ellington Air Force Base at 3:43 p.m. for a one hour training flight.

The aircraft, an OV-1C Mohawk, is on loan to NASA from the Army for use in the Earth Resources program. The extent of damage to the plane and the cause of the accident are not yet known. An investigation board will be convened by NASA.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
April 27, 1973

RELEASE NO: 73-49

COHEN RECEIVES DISTINGUISHED SERVICE MEDAL

Aaron Cohen, formerly of Corsicana, Texas, but now employed at the NASA Lyndon B. Johnson Space Center in Houston, was awarded the NASA Distinguished Service Medal for his work at JSC contributing to the success of the lunar exploration program.

His citation reads: to Aaron Cohen,

"In recognition of his outstanding leadership and contributions while serving as Manager for the Command and Service Modules in the Apollo Spacecraft Program. His managerial skill, personal leadership, dedication, and untiring efforts contributed significantly to the success of the Apollo program."

Cohen now is Manager of the Space Shuttle Orbiter Project Office at JSC. He came to the Center in 1962 and has worked principally on the lunar program in engineering and management capacities.

Prior to his NASA employment, Cohen was associated with Radio Corporation of America as a design engineer responsible for studies of thermal behavior on internal component parts.

Cohen has authored numerous technical papers.

He graduated from Texas A&M, College Station, in 1952, with a Bachelor of Science degree in Mechanical Engineering. He was awarded a Master of Science degree in Applied Mathematics from Stevens Institute of Technology, Hoboken, New Jersey, and did advanced study in mathematical physics at New York University and the Universith of California at Los Angeles.

- more -

This is the sixth honor Cohen has received during his NASA tenure. In 1966, he received a Sustained Superior Performance award and a Quality Step Increase followed in 1968. Incremental increases in annual salary accompany each award.

The NASA Exceptional Service award was presented to Cohen twice; in January 1969, and again in September of the same year. He received a Certificate of Commendation awarded by the space agency in 1970.

Cohen is married to the former Ruth Goldberg. The couple has three children. and reside in Seabrook -- a Texas community near the space center.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
May 2, 1973

RELEASE NO: 73-50

CHRYSLER AWARDED CONTRACT TO ASSEMBLE AND DISTRIBUTE SHUTTLE WIND TUNNEL DATA

A $1,947,000 contract to distribute and document wind tunnel data in connection with development of the Space Shuttle has been awarded to the Chrysler Corporation, New Orleans, Louisiana.

A cost-plus-fixed-fee type of contract, the award was made by the NASA Lyndon B. Johnson Space Center in Houston. The contract will run for three years from May 1, 1973.

The space agency noted..."that there will be large quantities of wind tunnel data generated in support of....Space Shuttle design and development," and "data management will allow the aerodynamicist to have ready access (to data)... for analysis."

Wind tunnel test data will be documented in hard copy reports and magnetic tapes.

Technically called Space Shuttle Aerothermodynamic Data Documentation, the task has been tagged with the acronym DATA MAN--for management system.

The work will be done at the Michoud Assembly Facility near New Orleans.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
May 2, 1973

RELEASE NO: 73-51

CALIO RECEIVES DISTINGUISHED SERVICE MEDAL

Anthony J. Calio, formerly of Philadelphia, Pennsylvania, but now employed at the NASA Lyndon B. Johnson Space Center, was awarded the NASA Distinguished Service Medal for his work at JSC contributing to the success of the lunar exploration program.

His citation reads: to Anthony J. Calio,

"In recognition of his distinguished contributions to the Apollo Program as Director of Science and Applications, his exceptional leadership and professional dedication have contributed significantly to the successful conduct of lunar orbital and lunar surface scientific experiments and to the analysis of returned lunar samples."

Calio came to the Center in 1968 from NASA Headquarters. Prior to that he was assigned to the NASA Electronics Research Center, Boston, Massachusetts where he held the management position of Chief of Research Engineering.

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This is the fourth honor Calio has received during his NASA tenure. Earlier the NASA Exceptional Service award was presented to him, as well as Apollo Achievement and Group Achievement awards.

Calio is a member of the American Geophysical Union; the American Institute of Aeronautics and Astronautics; the American Association for Advancement of Science, and the Houston Chapter of American Oceanography.

Calio graduated from the University of Pennsylvania, Phildelphia with a Bachelor of Arts degree in Physics.

He lives in Seabrook--a Texas community near the space center.

-end-

May 2, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

F. D. Williams
713/483-5111

FOR RELEASE:
May 8, 1973
2:00 p. m.

RELEASE NO: 73-52

GENERAL ELECTRIC WINS CONTRACT TO STUDY TOTAL EARTH RESOURCES FOR SHUTTLE ERA

A contract to study future earth resources systems from the acquisition of data to the eventual application by city planners, conservationists, pollution control officials, oceanographers, farmers, and countless other users has been awarded to General Electric's Valley Forge Space Center, Philadelphia, Pennsylvania.

During a year of study, analysts from General Electric will establish detailed guidelines to assist the Earth Resources Program Office at NASA's Johnson Space Center in planning projects to be instituted at the end of the decade. These guidelines will include unique contributions to be made by the Space Shuttle in surveying the earth's resources.

The study will focus on hardware and procedures to be developed during the coming years for use from 1978 to 1982.

-more-

General Electric will provide an analysis of the best use of aircraft, unmanned satellites, and the Space Shuttle in performing a variety of earth observation projects. Such detailed investigation of alternatives will be of considerable use in developing a balanced program for surveying the earth's resources at the lowest possible cost.

Areas to be considered by General Electric researchers during the coming year include remote sensing instrumentation, aircraft, unmanned spacecraft, manned modules, Shuttle experiment pallets, data processing requirements, data analysis techniques, data handling systems, and the active utilization of information acquired by the appropriate user agencies.

By preparing such a study several years in advance, NASA planners can assure that the required equipment will be developed and tested in time for use at the end of the decade, and that the data provided can be handled quickly and converted into useful form at the lowest possible cost.

Earth resources projects are expected to be among the most valuable applications of the Space Shuttle, which will launch automated satellites as well as carrying scientists and sensing instruments for up to 30 days in orbit.

The cost-plus-fixed-fee contract with General Electric calls for total expenditures of $234,788 over a twelve-month period.

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NASA-JSC

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:

IMMEDIATE

F. D. Williams
713/483-5111

RELEASE NO: 73-53

JOHN ZARCARO AWARDED NASA EXCEPTIONAL SERVICE MEDAL

In recognition of his role in the success of America's six landings on the Moon, John G. Zarcaro, now Deputy Manager of the Earth Resources Program Office at NASA's Johnson Space Center, has been awarded the NASA Exceptional Service Medal.

NASA Administrator James C. Fletcher congratulated Zarcaro as he presented the medal "in recognition of outstanding contributions to Apollo." "The Apollo missions have been the most complex engineering achievement and the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand, for the first time, the composition, structure and evolution of another planet--the Earth's Moon," Fletcher noted.

Zarcaro, 40, was born and raised in Asbury Park, N. J. He received his Bachelor of Science in Aeronautical Engineering from the Massachusetts Institute of Technology in 1954. Before joining NASA in 1963, Zarcaro had spent five years as a Naval aviator, was project manager of the Navy's Freestream Test Facility at the Naval Air Station, Lakehurst, N. J., and was on the staff of Princeton University's Forrestal Research Center.

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In his ten years with NASA, Zarcaro has played an important part in all of the manned space programs--from Mercury through Skylab. As Head of the Landing Operations and Facilities Section, he guided the recovery operations on early Mercury missions.

Since then, he has served as Mission Staff Engineer for the Apollo Spacecraft Program Office; Chief of the Lunar Missions Office; and before taking his present job, he was Chief of the Science Missions Support Division within the Science and Applications Directorate.

During the three manned Skylab missions, Zarcaro's duties as Deputy Manager of the Earth Resources Program Office will give him a major place in guiding the operations of the extensive program of earth observations that will be conducted by the astronaut teams supported by remote-sensing aircraft and scientists on the ground.

In addition to his latest award, Zarcaro received two Achievement Awards in 1969, and a Certificate of Commendation in 1971 from NASA's Johnson Space Center (formerly the Manned Spacecraft Center).

Zarcaro now lives in Seabrook, Texas--a town of about 4,000 located 30 miles southeast of Houston. He is married to the former Rose Veronica Gonzalez of New Orleans, Louisiana. They have four children, John, 15, Michael, 13, Rose Ann, 10, and Anthony, 7.

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May 5, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
May 4, 1973

RELEASE NO: 73-54

BOND RECEIVES DISTINGUISHED SERVICE MEDAL

Aleck C. Bond, formerly of Columbus, Georgia, but now employed at the NASA Lyndon B. Johnson Space Center, was awarded the NASA Distinguished Service Medal for his work at JSCcontributing to the success of the lunar exploration program.

His citation reads: to Aleck C. Bond,

"In recognition of his outstanding leadership and direction as Assistant Director for Chemical and Mechanical Systems in the Engineering and Development Directorate. His extraordinary managerial skill, technical ability, and personal dedication were essential elements in achieving the difficult goals established for the Apollo Program."

Bond is one of the pioneers of the US space program. He has been with NASA since 1960. His first assignment was that of an assistant chief in a division responsible for managing the Mercury Program--the USA's first manned space effort.

This is the seventh honor Bond has received during his NASA tenure. In 1969, he received the NASA Exceptional Service Medal; a NASA Certificate of Commendation in 1965; an Apollo Achievement Award, and he was a member of three different organizations which received unit achievement awards.

Bond also was honored by his university in 1943 when he received the Oglethorpe Award for High Point Average in Aeronautics.

He graduated from the Georgia Institute of Technology, Atlanta, in 1943, with a Bachelor of Science Degree in Aeronautical Engineering. He was awarded a Master

of Science Degree in Aeronautical Engineering from the same school in 1948.

Bond is an Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA), and in 1967, served as chairman of the local chapter of the AIAA.

Bond is married to the former Anastasia Marinos of Atlanta. The couple has two children and reside in Seabrook -- a Texas community near the space center.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

David Feldman
713/483-5111

FOR RELEASE:
May 8, 1973

RELEASE NO: 73-56

OWEN G. MORRIS AWARDED NASA DISTINGUISHED SERVICE MEDAL

In recognition of his role in the success of America's effort to place a man on the moon, Owen G. Morris, now Deputy Manager of the Orbiter Project Office at NASA's Johnson Space Center, has been awarded the NASA Distinguished Service Medal.

His citation reads: to Owen G. Morris,

"In recognition of his outstanding leadership as Manager of the Apollo Spacecraft Program and for his highly significant contributions to the manned lunar landings. His managerial skill, technical ability, and personal dedication were essential elements in achieving the successful culmination of the Apollo Program."

Morris, 46, is a native of Shawnee, Oklahoma. He received his Bachelor of Science degree in Mechanical Engineering from the University of Oklahoma in 1948 and a Master of Science degree in Aeronautical Engineering at that university in the same year.

Prior to joining the Johnson Space Center (formerly Manned

-more-

Spacecraft Center) in 1962, Morris was affiliated with the space program at the Langley Research Center in Virginia. Mr. Morris has been involved with Apollo since its inception and was appointed manager of the program on April 28, 1972.

This is the third honor Morris has received during his NASA tenure. He has been the recipient of an Exceptional Service Medal and a Certificate of Commendation.

Morris is an Associate Fellow of the American Institute of Aeronautics and Astronautics and a member of the American Aviation Historical Society.

Married to the former Moree Glover of Tulsa, Oklahoma, Morris has two children, Deborah and Janine, and now resides in Seabrook, Texas.

-end-

May 8, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
IMMEDIATE

David Feldman
713/483-5111

RELEASE NO: 73-57

TINDALL RECEIVES NASA DISTINGUISHED SERVICE MEDAL

In recognition of his role in the success of the Apollo Program, Howard W. Tindall,Jr., now Director of Flight Operations at NASA's Johnson Space Center, has been awarded the NASA Distinguished Service Medal.

His citation reads: to Howard W. Tindall,Jr.,

"For his highly effective management as Director of Flight Operations and for his essential contributions to the success of the Apollo Program through his leadership in the development of the flight techniques and procedures that were essential to the successful accomplishment of the Apollo lunar missions."

A native of New York City, Tindall joined the National Advisory Committee for Aeronautics, the predecessor of NASA, in 1948 as a mechanical engineer. He has been affiliated with NASA since that date and has been instrumental in all three of this country's manned spaceflight projects.

This is the fifth honor Tindall has received during his NASA tenure. He has been the recipient of two Exceptional Service Medals

-more-

ad a Certificate of Commendation, as well as the Institute of Navigation's Norman P. Hays Award.

Married to the former Jane Smith, Tindall has four children, Dana, Mark, Amy, and Claudia, and now resides in Friendswood, Texas, a small community outside of Houston.

-end-

May 7, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

David Feldman
713/483-5111

FOR RELEASE:

RELEASE NO: 73-58

RICHARD S. JOHNSTON RECEIVES NASA DISTINGUISHED SERVICE MEDAL

In recognition of his role in the success of the Apollo Program, Richard S. Johnston, now Director of Life Sciences at NASA's Johnson Space Center, has been awarded the NASA Distinguished Service Medal.

His citation reads: to Richard S. Johnston,

"In recognition of his outstanding direction of life science programs, his leadership in the design, development, and integration of Apollo life support and protective systems, and his expert management of the final readiness phases of the Lunar Receiving Laboratory and of the complex Apollo lunar science experiments program. His major contributions to the Apollo Program from its inception have been vital to accomplishing the manned lunar landings and achieving the established scientific goals."

A native of Keyser, West Virginia, Johnston received his Bachelor of Science degree in Chemistry from the University

-more-

of Maryland. Before joining NASA in 1959, Johnston worked with the Naval Bureau of Aeronautics and the Naval Research Laboratory.

This is the sixth honor Johnston has received during his NASA tenure. He has been the recipient of Gemini Group and Team Achievement awards, as well as the Victor Prather Award from the American Astronomical Society.

Johnston is a member of the AIAA Committee on Life Sciences and Technology and the Office of Advanced Research and Technology Research Advisory Committee on Biotechnology and Human Research.

Married to the former Jean Armbruster, Johnston has two children, Susan and Richard, and now resides in Timber Cove, Texas, a small community outside of Houston.

-end-

May 9, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

RELEASED AT NASA HEADQUARTERS

FOR RELEASE:

Richard T. Mittauer
202/755-8341

May 11, 1973

R. T. JOHNSON NAMED NASA GENERAL COUNSEL

R. Tenney Johnson has been appointed General Counsel of NASA, effective May 21 by the space agency's Administrator, Dr. James C. Fletcher.

Johnson comes to NASA from the Civil Aeronautics Board where he has been General Counsel since June, 1970. At NASA he replaces Spencer M. Beresford who resigned to become counsel to the Select Committee on Committees of the U.S. House of Representatives.

A career civil servant, Johnson was Deputy General Counsel for the Department of Transportation from its inception in 1967 until he moved to the CAB. He received DOT's first Award for Meritorious Achievement.

From 1963 until 1967 he was Deputy General Counsel for the Department of the Army where he received the Award for Exceptional Civilian Service.

-more-

Johnson entered the civil service in 1959 as an attorney in the Office of General Counsel for the Secretary of Defense and became known for his work in patent rights, technical data and the problems of insurance for Government contracts.

He holds a bachelor of arts degree from the University of Rochester and a law degree from Harvard Law School. For the 1954-55 term he studied at Trinity College in Dublin, Ireland, under an O'Hern Fellowship. He is a member of the Federal Bar Association and Phi Beta Kappa.

Johnson, 43, was born in Evanston, Illinois. He is married to Marilyn Meuth of Washington, D.C., and they live with their three children in Bethesda, Maryland.

-end-

May 11, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

RELEASED AT MARSHALL SPACE FLIGHT CENTER

FOR RELEASE:
June 1, 1973

Joe Jones
205/453-0034

SKYLAB SIGHTING TIMES

Because of an orbital trim maneuver on May 28, the scheduled sighting times for Skylab may vary slightly during the next few days.

This means that the previously announced Skylab sighting times for major U.S. and foreign cities, toward the end of the two-week reporting period, may vary as much as four minutes, either earlier or later, from the scheduled times. Variations during the first week of June will be very slight.

The NASA-Marshall Space Flight Center's third bi-weekly release of Skylab sighting data, which will cover the period of June 15 to June 30, will be available about June 12, and will incorporate the necessary corrections.

-end-

June 1, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Terry White
713/483-5111

FOR RELEASE:
May 21, 1973

RELEASE NO: 73-59

COSPAR PAPERS

Three papers, ranging from scientific analysis of rock samples from the Moon to remote sensing of coastal land and water use on Earth, will be delivered by three Johnson Space Center scientists at the annual meeting of the Committee on Space Research (COSPAR) May 23 to June 6 in Konstanz, West Germany.

Dr. Friedrich Hörz of the JSC Planetary and Earth Sciences Division will present a paper titled "Lunar Rocks as Micrometeoroid Detectors" in which he describes a method for estimating micrometeorite impact frequency and density by statistical analysis of microscopic craters on rock samples returned from the Moon. The information gained from the analysis will help in understanding the evolution of lunar soil materials. Co-authors with Hörz on the paper are J. B. Hartung of the Max Planck Institut für Kernphysik, Heidelberg, West Germany; D. E. Brownlee, University of Washington, Seattle; and D. E. Gault of NASA Ames Research

-more-

Center, Moffett Field, California.

A second paper delivered by Hörz and Dr. David S. Strangway, also with the JSC Planetary and Earth Sciences Division, is titled "Long-Term Surface Exposure Experiment." The authors were responsible for the careful documentation of selected pieces of hardware left on the Moon by the Apollo 17 mission. The documentation will serve as a baseline standard for investigations of space environment effects such as micrometeoroid impacts and cosmic rays on the hardware if the Apollo 17 landing site is ever visited again, and the objects returned to Earth.

Robert O. Piland, director of the NASA Earth Resources Laboratory at Bay St. Louis, Mississippi will present a paper titled "Remote Sensing Techniques for Support of Coastal Zone Resource Management." Piland's paper describes how multispectral scanning and photography from high-altitude aircraft can be used for analyzing vegetation in inaccessible coastal marshes and waterways as a tool for fisheries, wildlife and recreational planning and management. Piland points out that unless careful planning is exercised, marshes which serve as breeding grounds for marine life and a habitat for wildlife can be destroyed or

damaged as commercial development expands into these areas.

Piland asserts that a solution to the problem of optimum land use lies in the rapid, low-cost method of preparing 1:24,000-scale land-use maps derived from high-altitude imagery which classify various types of vegetation patterns in areas inaccessible by any type of survey.

Hörz, Strangway and Piland will deliver their papers at the COSPAR Sixteenth Plenary Meeting.

-end-

May 21, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

ALSO RELEASED AT MARSHALL SPACE FLIGHT CENTER

FOR RELEASE:
May 15, 1973

Curtis Hunt
713/483-5111

RELEASE NO: 73-60

SKYLAB SIMULATIONS BEGIN AT MSFC

Testing of methods to place a curtain over the habitable portion of Skylab space station was to begin Wednesday in the Neutral Buoyancy Simulator at the Marshall Space Flight Center in Huntsville, Ala.

The first concept to be evaluated involves the deployment of a large rod down the side of the orbital workshop from which a curtain would deploy in a manner similar to unfurling a sail.

Jim Splawn, chief of Marshall's space simulation branch, said the simulations would be conducted both to determine the mechanical aspects of deploying a curtain and astronaut EVA procedures necessary to perform the job.

Marshall's neutral buoyancy simulator is the same facility in which Skylab astronaut crews practice EVA maneuvers for

- more -

retrieving used and installing unused film magazines in the Apollo Telescope Mount. The Neutral Buoyancy Simulator tank is 75 feet in diameter and 40 feet deep. It holds 1,400,000 gallons of water. It has been in operation at the Marshall Center for about five years.

Splawn said several different Marshall Center laboratories and contractors were providing test hardware for the simulation.

The curtain to be used, Splawn explained, will be 23 feet long and 20 feet wide.

From the forward end of the Workshop, a 48-foot rod, constructed in four foot sections, would be deployed down the side of the space station. The final section of the large rod would contain the curtain and a series of tubes. The tubes would deploy out each direction from the main rod. This deployment would be mechanical, using springs. The curtain would then be pulled by the astronaut, using an attached line, almost like pulling a blind down to cover a window.

Splawn said that the Neutral Buoyancy Simulator is being prepared for work and that several different concepts would

probably be tested during the week.

Test subjects who will be fitted in the same types of suits worn by the astronauts during actual EVA's are Charles Cooper and Dick Heckman. By placing weights on suited subjects until they are neutrally buoyant, weightlessness is partially duplicated.

Full-scale mockupe of portions of the Skylab cluster are submerged in the tank and will be used to simulate the procedures necessary to deploy the curtain.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Curtis Hunt
713/483-5111

FOR RELEASE:
IMMEDIATE

RELEASE NO: 73-61

MARSHALL CENTER STUDIES SKYLAB SUN CURTAIN

Design concepts to determine a means for placing a curtain over the habitable portion of the Skylab space station which faces the Sun are being studied at the Astronautics Laboratory of the Marshall Space Flight Center in Huntsville, Alabama, where a full-scale mockup of the Skylab space station is located.

An engineering team, working around the clock, is headed by J. R. Thompson, chief of the man/systems branch of the laboratory.

The curtain study is only one of several studies underway at the Marshall Center to find solutions to the problems encountered by Skylab since its launch Monday, May 14. The Marshall Center is directed by Dr. Rocco A. Petrone.

Thompson said several concepts for deploying a curtain are being studied. Design work is being accomplished in the mockup area. Testing to determine how well the design will deploy is being conducted in the Neutral Buoyancy Simulator, also located at the Marshall Center.

The full scale mockup provides the engineers with a quick look at the location of the various elements of the Skylab stations.

The concepts being studied include large tubular rods, constructed in sections, which would be transported to the Skylab cluster inside the CSM, and also the use of the spare film transfer boom, which is aboard the orbiting station. The film transfer booms are used to retrieve used film units from the Apollo Telescope Mount.

- more -

Other concepts for placing a curtain over the Skylab station are being studied both at Marshall and Houston.

"There's nothing we're not considering at the moment," Thompson said. "We're looking at all types of materials for use in the curtain and in the deployment systems. We're also looking at all practical locations on the station from which such a curtain could be deployed."

Thompson said the team is being supported by all elements of the Marshall Center.

- end -

May 16, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
May 18, 1973

RELEASE NO: 73-63

NASA TO NEGOTIATE JSC M&O CONTRACT WITH PAN AM

NASA has selected Pan American World Airways Inc., Aerospace Services Division of Cocoa Beach, Florida for final negotiations leading to award of a contract for Plant Maintenance and Operation Support Services at the Lyndon B. Johnson Space Center.

The initial contract will be for a period of one year contemplated to commence on June 1, 1973, and represents the first increment of a three-year program.

The value of the first year contract is expected to be slightly above $5 million.

Pan American is responsible for the operation of all utility systems and maintenance of utilities, building, roads, and ditches, and special equipment at JSC.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
May 23, 1973
8:30 A.M.

RELEASED AT NASA HEADQUARTERS

Richard T. Mittauer
(phone: 202/755-8341)

RELEASE NO: 73-64

SKYLAB INVESTIGATION BOARD

NASA Administrator James C. Fletcher today announced the establishment of a Board to investigate the anomalies which occurred during the launch and initial Earth orbits of Skylab 1.

The Board will seek to determine the actual or probable causes of the anomalies which led to the loss of the micrometeoroid shield and the failure of the orbital workshop's solar power panels to deploy.

Bruce T. Lundin, Director of NASA's Lewis Research Center, Cleveland, has been designated Chairman of the Board, which will report to Dr. Fletcher and NASA Deputy Administrator, George M. Low. The other members of the Board will be designated in the near future.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

David Feldman
713/483-5111

FOR RELEASE:
May 30, 1973

RELEASE NO: 73-65

James W. Bilodeau Awarded NASA Exceptional Service Medal

In recognition of his role in the success of the Apollo Program, James W. Bilodeau, Chief of the Crew Procedures Division at NASA's Johnson Space Center, has been awarded the NASA Exceptional Service Medal.

His citation reads: to James W. Bilodeau,

"In recognition of outstanding contributions to Apollo. The Apollo missions have been the most complex engineering achievment and the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand for the first time, the composition, structure and evolution of another planet--the Earth's Moon."

A native of Minneapolis, Minnesota, Bilodeau recieved his Bachelor's degree in Aeronautical Engineering from the University of Minnesota. After working thirteen years in industry, Bilodeau joined NASA at the Manned Spacecraft Center (later renamed the Johnson Space Center) in 1962. In his present

-more-

position, Bilodeau is responsible for managing his division's activities. Crew Procedures Division publishes and maintains the operations handbooks, special procedures for EVA, launch, rendezvous and entry. The division also publishes the flight plans and all onboard data for manned Apollo and Skylab missions.

Bilodeau has recieved several other awards during his NASA tenure. He previously recieved a Certificate of Commendation and various Group Achievment Awards.

A member of the Beta Theta Pi social fraternity, Bilodeau has been highly active in the civic affairs of his community. Living in Friendswood, Texas, a small community outside of Houston, Bilodeau is presently a School Board Member. He previously served as the ruling Elder of his Church, Chairman of the Committee for Educational Planning, and as a Committeeman for the Boy Scouts.

Married to the former Jean Victoria Hitchcock of Minneapolis, Bilodeau has two children, Paul 19 and David 16.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

David Feldman
713/483-5111

FOR RELEASE:
May 30, 1973

RELEASE NO: 73-66

Jerry C. Bostick Receives NASA Exceptional Service Medal

In recognition of his role in the success of the Apollo Program, Jerry C. Bostick, Chief of the Flight Dynamics Branch at NASA's Johnson Space Center, has been awarded the NASA Exceptional Service Medal.

His citation reads: to Jerry C. Bostick,

"In recognition of outstanding contributions to Apollo. The Apollo missions have been the most complex engineering achievment and the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand, for the first time, the composition, structure and evolution of another planet--the Earth's Moon."

A native of Golden, Mississippi, Bostick recieved his Bachelor of Science degree from Mississippi State University in 1962. Bostick served as Retrofire Officer on Gemini 1 and 2 and Apollo 8. He also served as Flight Dynamics Officer on Gemini 4 through 12 and Apollo 11. In his current assignment

-more-

Bostick is responsible for the supervision and training of trajectory and guidance flight controllers for all Manned Spaceflight Programs.

This is the ninth award Bostick has received during his NASA tenure. He has been the recipient of five Group Achievment Awards, an Apollo Achievment Award, a Certificate of Commendation for Apollo 11, and the Apollo Program Lunar Landing Team Award.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

David Feldman
713/483-5111

FOR RELEASE:
May 30, 1973

RELEASE NO: 73-67

Michael B. Duke Awarded NASA Exceptional Scientific Achievment Medal

In recognition of his role in the success of the Apollo Program, Dr. Michael B. Duke, Lunar Sample Curator at NASA's Johnson Space Center, has been awarded the NASA Exceptional Scientific Achievment Medal.

His citation reads: to Michael B. Duke,

"For superior performance and outstanding achievment as Curator of the Lunar Receiving Laboratory. Through exceptional scientific management, professional competence, and personal dedication, he contributed significantly to the scientific analyses of lunar material returned during the Apollo missions."

A native of Los Angeles, California, Duke recieved his B.S., M.S., and Ph.D. degrees from the California Institute of Technology.

Duke is a member of the American Geophysical Union, Sigma Xi, and the American Association of the Advancement of Science.

Duke, his wife Mary Carolyn, and their children, Lisa, Stuart, Kenneth, and Donna, now reside in El Lago, Texas, a small community outside of Houston.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

David Feldman
713/483-5111

FOR RELEASE:
May 31, 1973

RELEASE NO: 73-68

Lawrence G. Williams Awarded NASA Exceptional Service Medal

In recognition of his role in the success of the Apollo Program, Lawrence G. Williams, the Manager of the Systems Engineering Office within the Apollo Spacecraft Program Office at NASA's Johnson Space Center, has been awarded the NASA Exceptional Service Medal.

His citation reads: to Lawrence G. Williams,

"In recognition of outstanding contributions to Apollo. The Apollo missions have been the most complex engineering achievment and the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand, for the first time, the composition, structure and evolution of another planet--the Earth's Moon."

A native of Barnett, Missouri, Williams joined NACA (the forerunner of NASA) at the Langley Research Center in 1951 as an apprentice engineering draftsman. In 1959 he transferred to

-more-

the Space Task Group and in 1962 he came down to the Manned Spaeecraft Center(later renamed Johnson Space Center) to work on Lunar Module preliminary design studies. In his present capacity, Williams is responsible for overall integration of Skylab CSM's and the Apollo-Soyuz Test Program.

Williams, his wife Vivian, and their two children, Roger and David, now reside in Seabrook, Texas, a small community outside of Houston.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

David Feldman
713/483-5111

FOR RELEASE:
May 31, 1973

RELEASE NO: 73-69

Donald C. Wade Awarded NASA Exceptional Service Medal

In recognition of his role in the success of the Apollo Program, Donald C. Wade, now Assistant Chief of the Structures and Mechanics Division at NASA's Johnson Space Center, has been awarded the NASA Exceptional Service Medal.

His citation reads: to Donald C. Wade,

"In recognition of outstanding contributions to Apollo. The Apollo missions have been the most complex engineering achievment and the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand, for the first time, the composition, structure and evolution of another planet--the Earth's Moon."

A native of San Antonio, Texas, Wade received his B.S. degree in Aeronautical Engineering from the University of Texas and an M.S. degree in the same discipline from Southern Methodist University. Before joining NASA in 1962, Wade

-more-

worked as an Aeronautical Engineer for General Dynamics in Fort Worth, Texas. Prior to assuming his present position at JSC(formerly the Manned Spacecraft Center) he served as head of the Center's Flight Loads Section.

Mr. Wade is a member of the American Institute of Aeronautics and Astronautics and is the author of several NASA Project Apollo Working Papers.

Married to the former Janet D. Wallrath of Dallas, Wade has three children, Michael, Randall, and David, and now resides in Friendswood, Texas.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

William J. O'Donnell
713/483-5111

FOR RELEASE:
June 1, 1973
9:00 a.m.

RELEASE NO: 73-70

SL-3 LAUNCH DATE

The National Aeronautics and Space Administration today announced July 27, 1973, as the target launch date for the Skylab 3 manned mission. SL-3 had previously been scheduled for launch on August 8, 1973.

Skylab Program Director, William C. Schneider stated, "The unexpected usage of the cluster hardware during the unmanned period has exposed the electronics, batteries and systems to unusual environments. It seems prudent, in the interest of recovering the maximum scientific data, to move the launch date forward." Also, the new launch date will schedule the mission at a time when the relationship of the sun to the orbit plane is most favorable and will therefore provide the most power for conducting the experiments.

The precise launch date will not be known until the end of SL-2 since orbit perturbations of the workshop may cause a change. However, the first launch opportunity for a fifth orbit rendezvous on or after July 27 will be selected. A one or two-day change may be necessary. On July 27, the launch window is predicted to open at about 7:00 a.m.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

John P. Donnelly
NASA Hdqs.
202/755-3828

FOR RELEASE:
IMMEDIATE

JSC RELEASE NO: 73-71

ALSO RELEASED AT NASA HEADQUARTERS

FLETCHER STATEMENT ON SKYLAB PRIVATE COMMUNICATIONS

Dr. James C. Fletcher, Administrator of NASA, today made the following statement concerning private communications for Skylab, after a meeting with George M. Low, Deputy Administrator, Dale Myers, Associate Administrator for Manned Space Flight, and John Donnelly, Assistant Administrator for Public Affairs.:

Prior to the first flight of Skylab, we recognized that the long-duration flights of Skylab would present unusual and difficult operational conditions, and, therefore, planned for the possibility of private communications with the astronauts. Rules for these conversations were written in a memorandum dated May 3, 1973, a copy of which is attached.

In brief, these rules called for three types of private conversations:

1. For Morale Purposes, to provide the opportunity for the astronauts to make private phone calls to their families once a week, normally on their off-duty day.

2. For Operational Reasons, as may be required in an "extreme operational emergency."

3. For Medical Reasons, to allow for a reasonable "doctor-patient" relationship in privacy.

June 1, 1973

- more -

On May 29, 1973, a private conversation for operational reasons was held at the request of Astronaut Conrad. After this conversation, it was questioned whether an "extreme operational emergency" indeed did exist. From what is known to us here on the ground, it would appear that it did not. However, we do not really know what was in the astronauts' minds -- they had been faced with a launch and rendezvous to a Skylab with serious damage of unknown specific proportions; they were unable to deploy the failed solar array and were thus facing a serious power shortage; they were finally able to dock only after a number of separate attempts, using the last of their emergency procedures; they did not know how successful they had been in deploying their sunshade; and temperatures in the Skylab were not coming down as rapidly as they had expected. They were concerned about all of these things, and about their ability to undock from the Skylab when required. In their minds, the sum of these may well have added up to a situation of serious enough concern to fit their definition of an "extreme operational emergency."

Under normal conditions, if they were here on the ground and not in space, it would be a simple matter to ask them how they really considered their position, and whether or not they believed an emergency situation existed. But these aren't normal conditions. A question from the ground now might be misinterpreted by the astronauts, and they might hesitate -- next time -- to call for a private conversation when one is needed. We believe that such matters should not be discussed with the astronauts during a flight, but only afterwards. We do not want to risk the safety of the flight by having the astronauts infer, from our questions, that they should not use the private communications loop when a real need might exist. We, therefore, do not intend to raise this question with them for the duration of the flight.

After the conversation of May 29, we stated that we would instruct the Capsule Communicator to ask the astronauts about their judgment of the seriousness of the situation before agreeing that a future private conversation should be held. After reviewing this decision, I have concluded that this too would be wrong: the very question might inhibit the Skylab crew from raising areas of concern which they should be able to raise. I have, therefore, decided to rescind this instruction.

Private conversations for operational reasons can also be requested from the ground, by the Skylab Program Director. These definitely will only be held in case of "extreme operational emergency," in situations which in his judgment clearly involve the success of safety of the mission.

In summary, we believe it would be imprudent to discourage requests by the crew for private operational communications. When private operational conversations are conducted, we will always release a paraphrase of these conversations. We will continue to leave it entirely up to the flight crew as to when to call for such a conversation, and will send no new instructions, or clarification of instructions. This decision was reached so that we would in no conceivable way inhibit them from calling for a private conversation when they believe a need exists, and so that we will not jeopardize the safety of the mission.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

MAY - 3 1973

OFFICE OF THE ADMINISTRATOR

MEMORANDUM

TO: M/Associate Administrator for Manned Space Flight
F/Assistant Administrator for Public Affairs

FROM: A/Administrator

SUBJECT: Private Communications for Skylab

There will be three extended manned visits to the Skylab orbiting workshop. Since these periods of time, 28 days, 56 days and 56 days, are significantly longer than any previous periods of manned space flight, it is anticipated that we will be faced with different morale, operational and medical problems with the crew than we have dealt with heretofore.

For this reason, I have reviewed the concerns of both the Associate Administrator for Manned Space Flight and the Assistant Administrator for Public Affairs, and I have concluded that "private" conversations for morale, operational and medical reasons will be allowed under the ground rules set forth below.

Definition of private communications: It should be fully understood that since air-to-ground communications to the Skylab are carried over an unsecured R-F link and through a number of land-line switching centers, a number of people could have routine technical access to every conversation between Skylab and the ground. When a conversation is designated "private," it will imply that every monitor position within the Ground Operations Support System (control points included) which is not specifically required to provide the communications link between spacecraft and ground will be disconnected. It will also demand communications discipline at every test point within the Ground Operations Support System with immediate dismissal for anyone wilfully and illegally monitoring, taping or discussing the contents of the conversations.

Private conversations for morale purposes: The astronauts will be allowed to make private phone calls to their families once a week, normally on their off-duty day. Recommendations for modifications to this schedule may be made by the crew or by the families to the Flight Director. No public announcement will be made concerning the intent or content of these calls; subsequently, Public Affairs may announce that such calls have been made. The conversations will not be monitored by anyone and therefore not paraphrased for the press. The calls will be recorded to complete the archives of the flight, but these tapes will not be released nor otherwise made available to anyone unless specific written permission of the Administrator has been given. Custody and access control will be the responsibility of the JSC Director of Flight Crew Operations.

Private conversations for operational reasons: A private conversation may be requested by either the crew or the Skylab Program Director or, in his absence, his designated representative. These conversations are expected to be held only in an extreme operational emergency. When such a conversation is required, the Public Affairs Officer on duty will announce to the media that a decision has been made to hold a private operational conversation. The Skylab Program Director and other people he requires will participate in the call and the Public Affairs Officer will monitor it. Immediately after the call has been completed, the Public Affairs Officer will be responsible for paraphrasing the contents of the call and for releasing the paraphrase. He will coordinate the paraphrase with the Program Director, but the final authority to release the subject matter is that of the AA/PA or his designee. Except as noted below, the tape and tape transcripts of these conversations will not be released or made available to anyone unless specifically authorized in writing by the Administrator. Exception: the Program Director and the Assistant Administrator for Public Affairs will have access to the tapes or tape transcripts upon request; custody and access control will be the responsibility of the JSC Director of Flight Crew Operations.

Private conversations for medical reasons: A private medical conversation will be routinely scheduled and conducted daily on an unannounced basis. This conversation will involve only the Flight Surgeon and the Skylab crew for the purpose of doctor/patient detailed discussion of crew well-being and response. This

conversation will not be used to prescribe treatment except for minor medications such as aspirin or to change the diet. There will be no paraphrase of the conversation. After the conversation, the Flight Surgeon will immediately give a statement on crew status to the Flight Director and Public Affairs Officer specifying whether or not medication was prescribed, and will prepare a daily medical bulletin stating crew medical status for public release. This brief bulletin will be the only public comment on the conversation. If, as a result of the conversation, further actions such as medical treatment beyond that stated above or mission modification are required, then these will be conducted on the open loop or by a private operations call as previously described.

Custody of and access to the tapes of the conversations will be the responsibility of the JSC Deputy Director of Life Sciences for Medical Operations. If for any reason the surgeon involved lets anyone listen to the tapes, the AA/PA or his designee will also be invited to listen. Tape or tape transcripts will not be released or otherwise made available to anyone unless specifically authorized by written permission of the Administrator.

Use of teletype: Teletype will not be used in any way to circumvent the guidelines for voice communications outlined above. Copies of all operational teletype traffic will be made available to the Public Affairs Officer as required by the AA/PA.

It is requested that the AA/OMSF and the AA/PA have the necessary directives prepared which will implement the instructions contained in this memorandum.

James C. Fletcher

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

David M. Feldman
713/483-5111

FOR RELEASE:
June 1, 1973

RELEASE NO:73-72

William R. Kelly Awarded NASA Exceptional Service Medal

In recognition of his role in the success of the Apollo Program, William R, Kelly, now Special Assistant to the Director of NASA's Johnson Space Center, has been awarded the NASA Exceptional Service Medal.

His citation reads: to William R. Kelly,

"In recognition of outstanding contributions to Apollo. The Apollo missions have been the most complex engineering achievment and the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand, for the first time, the composition, structure and evolution of another planet--the Earth's Moon."

A native of Atlanta, Georgia, Kelly received his Bachelor of Science degree in Industrial Engineering from Georgia Tech and a Masters degree in Business Administration from Xavier University. He served as a Naval Aviator from 1953 to 1956, and worked for General Electric as a systems engineer from 1956 until joining NASA in 1962.

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While at NASA Kelly has been involved in the technical management and in the procurement and budgetary processes which have supported the nation's space program. In his present assignment he is responsible for assisting the Director of the Johnson Space Center in areas of procurement, budgetary planning, and contractor manpower planning.

This is the ninth award Kelly has received during his NASA tenure . He has been the recipient of five Group Achievment Awards, an Apollo Achievment Award, two Superior Achievment Awards, and a Certificate of Commendation. Also, he is a member of the National Contract Management Association and the Federal Government Accountants Association.

Kelly presently resides in Friendswood, Texas with his wife Carolyn, and his three children, Martha, Linda and Stacey.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:

IMMEDIATELY

F. D. Williams

713/483-5111

RELEASE NO: 73-73

THIRD EARTH RESOURCES PASS: SUNDAY, JUNE 3

Skylab will make its third survey of the surface and atmosphere of the earth this afternoon, beginning at 2:22 p.m. CDT and lasting for 11 minutes. The pass, which follows groundtrack #6, begins in the coastal waters of the Pacific near Eureka, California--about 200 miles north of San Francisco--crosses Nevada and Arizona, cuts through the heart of Mexico and ends in the Pacific just south of Guatemala.

Weather conditions over the United States are expected to be excellent for the 4,000-mile-long pass, which will include up to 32 areas to be scanned by photographic and other remote sensing equipment.

In addition to the Skylab Earth Resources Experiments Package (EREP), scientists on the ground will be recording data, and three specially equipped NASA research aircraft will fly over several sites in the Western United States. The planes, a B-57, P-3A, and C-130--all from Johnson Space Center in Houston--will take off from Edwards, Nellis, and Alameda airfields on the West Coast.

-more-

Today's investigations include a substantial number of basic geological studies, many of them designed to establish methods for identifying geological formations using the data returned from the Skylab first manned mission.

Dr. Mead Leroy Jenson of the University of Utah in Salt Lake City will use data expected to be acquired today to relate fracture patterns, vegetation, and rock coloration to known mineral deposits. This research may eventually lead to rapid identification of substantial mineral deposits using the data provided by sensors in space that can survey the entire globe.

Mr. Carlos Castillo of the Mexican Institute of Petroleum (Instituto Mexicana del Petroles) expects to use data acquired near Chihuahua, Mexico in the search for hydrocarbons--coal, oil, and diamonds.

Other geological projects will map major geological structures, drainage basins, crustal features, and fault zones in Nevada and the surrounding areas. In northwest Arizona, assisted by the data acquired by sensors aboard NASA's C-130, Dr. Alexander F. H. Goetz of the Jet Propulsion Laboratory in Pasadena, California will attempt to map ancient, abandoned drainage systems using EREP information.

Agriculture and forestry investigations will also be included in the EREP pass today. Robin I. Welch of the Earth Satellite Corporation of Berkeley, California will use Skylab and WB-57 data to demonstrate the classification and mapping of natural resources--specifically rice and rangeland--on a global basis.

Welch's colleague, Philip G. Langley, will use both Skylab and WB-57 information to design an automatic pattern recognition system to perform forest inventories over large areas. Langley's site includes the heavily forested areas of northern California.

Another agricultural research project, with substantial importance for the development of remote areas over the globe, will be carried out by Dr. Nicolas Sanchez Duran of the Direccion General de Agricultura in Mexico. His project, using data from southern Mexico--near the end of the EREP pass--will locate areas of erosion and improper land use and identify locations suitable for land and forest reclamation projects.

A major pollution study, covering areas of California not monitored by ground stations, will be conducted by A. Earl Davis of the state of California's Earth Resources Agency. The project, concentrating on the Feather River area, is part of a wide-ranging study of water resources, wildlife, and the environmental impact of man in California.

Urban growth since the 1970 census will be recorded by EREP sensors over Phoenix and Tucson--two of more than a dozen American cities to receive such attention during the five months of planned Skylab activity.

In addition to these, a number of water management studies, including the mapping of the Feather River watershed, the detection of gully erosion in south-central Arizona, and the recording of snow cover in the Sierra Nevada mountains will be on the list of scientific studies to be provided data during the earth resources overflight this afternoon. All of these are essential elements in predicting and controlling floods and developing effective methods for managing land use and irrigation in the coming years.

Should excellent weather conditions hold over the sites selected along today's groundtrack, an excellent return of data is expected from this third pass. Plans for additional passes during the coming weeks are now being detailed by scientists from several government agencies working at the Johnson Space Center. More than 150 principal investigators are participating in the EREP studies.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
June 5, 1973

RELEASE NO: 73-74

CHARLES R. HAINES AWARDED NASA EXCEPTIONAL SERVICE MEDAL

In recognition of his role in the success of the Apollo Program, Charles R. Haines, now chief of the Aircraft Engineering Branch at NASA's Johnson Space Center, has been awarded the NASA Exceptional Service Medal.

His citation reads: to Charles R. Haines,

"In recognition of his outstanding contributions to Apollo. The Apollo missions have been the most complex engineering achievement and the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand for the first time, the composition, structure and evolution of another planet--the Earth's Moon."

A native of Colorado City, Texas, Haines recieved a Bachelor of Science degree in Aeronautical Engineering from Texas A&M.

- more -

From 1957 until 1962 he worked for the Air Force as a Flight Test Engineer at Edwards Air Force Base, California. Since joining NASA-Houston, in 1963, he has worked as a systems engineer in the Apollo Spacecraft Program Office and as the Program Manager for the Lunar Landing Training Vehicle in the Aircraft Operations Office. In his present position, Haines has the engineering responsibility for all aircraft programs at the Johnson Space Center.

Haines previously recieved an award for meritorious Civilian Service from the Air Force in 1962.

Married to the former Catherine Eckstrom of Houston, Haines has two children, Vicki Lynn and Kyle Edward, and now resides in Houston.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
June 5, 1973

RELEASE NO: 73-75

PHILIP C. SHAFFER AWARDED NASA EXCEPTIONAL SERVICE MEDAL

In recognition of his role in the success of the Apollo Program, Philip C. Shaffer, the Deputy Chief of the Flight Dynamics Branch at NASA's Johnson Space Center, and a Flight Director, has been awarded the NASA Exceptional Service Medal, in recognition of outstanding contributions to Apollo.

His citation reads:

"The Apollo missions have been the most complex engineering achievement and the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand, for the first time, the composition, structure and evolution of another planet--the Earth's Moon."

A native of Guymon, Oklahoma, Shaffer received his Bachelor of Science degree in Mathematics from Panhandle State College in Goodwell, Oklahoma. After serving in the Air Force for four years, Shaffer worked in the Navy Department's Polaris Program as a Trajectory/Guidance Analyst. In 1964 Shaffer joined NASA as a Flight Dynamics Officer and after working in that position for five years he assumed his current assignment. Shaffer served as a Flight Director on Apollo 16 and 17 and is currently serving in a similar position on the Skylab missions.

A bachelor, Shaffer now resides in Bacliff, Texas.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
June 5, 1973

RELEASE NO: 73-76

DR. DONALD E. STULLKEN AWARDED EXCEPTIONAL SERVICE MEDAL

In recognition of his role in the success of the Apollo Program, Dr. Donald E. Stullken, Chief of the Flight Operations and Recovery Branch at NASA's Johnson Space Center, has been awarded the NASA Exceptional Service Medal, in recognition of outstanding contributions to Apollo.

His citation reads:

"The Apollo missions have been the most complex engineering achievement and the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand, for the first time, the composition, structure and evolution of another planet--the Earth's Moon."

A native of Chicago, Illinois, Stullken received his B.A. degree from De Pauw University and his M.S. and P.H.D. from Purdue. After serving with the Navy during WWII and again during the Korean conflict Dr. Stullken joined the Naval Aviation Training Command as an Aviation Physiologist. Dr. Stullken has been with NASA since 1962.

This is the second award Stullken has received during his NASA tenure. He is the previous recipient of the Superior Achievement Award. Also, Stullken is a member of Sigma Xi (National honorary research fraternity), the Gulf Coast Science Foundation (Member of Board of Governors), and the American Association for the Advancement of Science.

--more--

Married to the former Elizabeth Russell of Flint, Michigan, the couple has three children, Russell, William, and Kurt, and now resides in Seabrook, Texas.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
June 5, 1973

RELEASE NO: 73-77

RICHARD B. FERGUSON AWARDED NASA EXCEPTIONAL SERVICE MEDAL

In recognition of his role in the success of the Apollo Program, Richard B. Ferguson, Deputy Chief of The Propulsion and Power Division, at NASA's Johnson Space Center, has been awarded the NASA Exceptional Service Medal, in recognition of outstanding contributions to Apollo.

His citation reads:

"The Apollo missions have been the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand, for the first time, the composition, structure and evolution of another planet--the Earth's Moon."

A graduate of New Milford High School in 1943, Mr. Ferguson received his Bachelor of Science degree in Mechanical Engineering from the University of Connecticut in 1949. Mr. Ferguson has been involved with the nation's space program since 1957 and has been instrumental in the accomplishment of all of our manned spaceflight projects.

This is the third award Mr. Ferguson has received during his NASA tenure. He previously received NASA Certificates of Commendation for Apollo 11 and Apollo 13. Also, Mr. Ferguson is an Associate Fellow of the American Society for Aeronautics and Astronautics.

Mr. Ferguson presently resides in Seabrook, Texas, with his wife Valerie and their three children, Sharon, Richard Jr., and Edward.

--end--

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don Green
713/483-5111

FOR RELEASE:
June 5, 1973

RELEASE NO: 73-78

JERRY W. CRAIG RECEIVES EXCEPTIONAL SERVICE MEDAL

In recognition of his role in the success of the Apollo Program, Jerry W. Craig, now Deputy Manager of the Urban Systems Project Office at NASA's Johnson Space Center, has been awarded the NASA Exceptional Service Medal.

His citation reads: to Jerry W. Craig,

"In recognition of his outstanding contributions to Apollo. The Apollo missions have been the most complex engineering achievement and the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand for the first time, the composition, structure and evolution of another planet--the Earth's Moon."

A native of Dixie, Texas, Craig received his B. S. degree in Mechanical Engineering from the University of Texas in 1960 and his

- more -

M. S. degree from that University the following year. Craig has previously served as Chief, Thermodynamics and Materials Branch and Chief, Systems Integration Branch, both positions being in the Apollo Spacecraft Program Office.

This is the second individual award Craig has received during his NASA tenure. He has previously received the NASA Certificate of Commendation as well as numerous group achievement awards. Also, Craig is a member of the American Institute of Aeronautics and Astronautics, and the Tan Beta Pi and Pi Tan Sigma engineering Honorary fraternities.

Married to the former Judi Mears, Craig has two children, Russell and Jeri, and now resides in Clear Lake City, Texas, a small community outside of Houston.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
June 19, 1973

RELEASE NO: 73-79

WACKENHUT WINS PROTECTIVE SERVICES AWARD

Wackenhut Services, Inc., Coral Gables, Florida, has been selected for negotiation and award of a cost-plus-fixed-fee type contract for protective services at the NASA Johnson Space Center, Houston.

Protective services include security services, operation of the fire department, safety/fire engineering, and emergency ambulance services.

Wackenhut's proposed cost and fee for providing those services for the period July 1, 1973, through June 30, 1974, is approximately $1,540,000. Together with previous funds expended for these services, the total dollars set aside are $5,836,500.

The plan calls for a three year contract with provisions for additional negotiated one-year extensions. Over 100 Houston-area personnel are to be employed under terms of the award.

Wackenhut was the successful bidder from among six companies who bid competitively for the award.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
May 19, 1973

D. J. Green
713/483-5111

RELEASE NO: 73-80

C. H. WOODLING AWARDED NASA EXCEPTIONAL SERVICE MEDAL

In recognition of his role in the success of the Apollo Program, C, H. (Pete) Woodling, Chief of the Crew Training and Simulation Division at NASA's Johnson Space Center, has been awarded the NASA Exceptional Service Medal.

His citation reads: to Carroll H. Woodling,

"In recognition of outstanding contributions to Apollo. The Apollo missions have been the most complex engineering achievment and the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand, for the first time, the composition, structure and evolution of another planet--the Earth's Moon."

A native of Milton, Pennsylvania, Woodling recieved his B.S. degree in Physics from William and Mary College in Williamsburg,

- more -

Virginia. Prior to joining the Manned Spacecraft Center (renamed the Johnson Space Center), Woodling started as a research scientist with NACA (forerunner of NASA) at Langley Research Center in Virginia in 1951. Before leaving Langley, Woodling was appointed Head of the Systems Simulation Section, Theoretical Mechanics Division.

Upon joining MSC in June, 1962, Woodling was assigned as Chief, Flight Evaluation Branch of the Flight Crew Support Division and in February, 1965, he was assigned to the position of Assistant Chief for Crew Training. In his present position Woodling is responsible for the definition and implementation of the entire astronaut training program.

Woodling has previously recieved a Certificate of Commendation for contributions leading to the first lunar landing.

Married to the former Mildred Johnson of Petersburg, Virginia. Woodling has three children, Kerry Ann, Joe Carroll, and Steven Hartman, and presently resides in Friendswood, Texas, a small community outside of Houston.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Terry White
713/483-5111

FOR RELEASE:
June 20, 1973
1:00 p.m. CDT

ALSO RELEASED AT NASA HEADQUARTERS

RELEASE NO: 73-81

HAMILTON STANDARD CONTRACT

The NASA Johnson Space Center has signed a $700,000 contract with Hamilton Standard Division of United Aircraft Corporation, Windsor Locks, Conn., for design and fabrication of a laboratory model of a modular integrated utility system. Hamilton Standard was awarded the contract on the basis of a competitive selection.

Hamilton Standard will build and install the laboratory model at JSC as part of a project to develop a more efficient and fully-integrated utility system. This project is being carried out by NASA for the U.S. Department of Housing and Urban Development. Other Agencies participating in the program include the Atomic Energy Commission, National Bureau of Standards and Environmental Protection Agency. Called the Modular Integrated Utility System (MIUS), the project will bring to bear NASA's space technology toward conserving natural resources, lessening air and water pollution and

-more-

reducing energy consumption.

The MIUS concept envisions a single combined source of electrical power, water management, solid waste treatment and heating and air conditioning. Each element of the utility system would interact with another in some way. For example, waste heat produced in the electrical power generation process would be used for heating and air conditioning, and organic wastes would be converted into fuel for heating.

Enough flexibility will be designed into the MIUS so that communities of various populations could be served with networks of modules arranged to serve larger population concentrations.

The laboratory model will allow NASA/HUD to test the integrated concepts on a small-scale, and at low cost before full-scale demonstrations.

The contract with Hamilton Standard calls for completion of testbed installation at JSC in the spring of 1974. The NASA MIUS activities at JSC are managed by the Urban Systems Program Office headed up by E. L. "Ted" Hays.

-end-

June 20, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
June 20, 1973

RELEASE NO: 73-82

NASA ISSUES INSTALLMENT FOR SHUTTLE DEVELOPMENT

The NASA Lyndon B. Johnson Space Center has made a payment of $36,868,000 to Rockwell International Corporation, Downey, California, for continued development of the Space Shuttle vehicle.

The installment increases the total amount of the award to $117,943,000 and covers Rockwell's performance through August 21, 1973.

More than 2400 contractor personnel now are employed in shuttle development.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
May 20, 1973

D. J. Green
713/483-5111

RELEASE NO: 73-83

DAVID A. BALLARD AWARDED NASA EXCEPTIONAL SERVICE MEDAL

In recognition of his role in the success of the Apollo Program, David A. Ballard, a Flight Crew Support Team Leader on the Apollo-Soyuz Mission working at NASA's Johnson Space Center, has been awarded the NASA Exceptional Service Medal.

His citation reads: to David A. Ballard,

"In recognition of outstanding contributions to Apollo. The Apollo missions have been the most complex engineering achievment and the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand, for the first time, the composition, structure and evolution of another planet--the Earth's Moon."

A native of Springfield, Massachusetts, Ballard received a Bachelor of Science degree in Electrical Engineering from the University of Florida. Ballard has been with NASA since 1966 and has previously served as an abort guidance system engineer, a lunar module systems engineer, and a flight crew support team leader for the Apollo 14, 16, and 17 missions. In his present assignment, Ballard directs the activities of a group of technical experts to provide engineering and operational support to the flight crew of the Apollo-Soyuz mission (the joint Soviet-American space effort).

- more -

This is the second award Ballard has received during his NASA tenure. He previously received a NASA/JSC Certificate of Commendation.

Married to the former Nancy Johnston of Springfield, Ballard has two children, David and Christopher, and now resides in Seabrook, Texas, a small community outside of Houston.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don Green
AP3 - JSC
713/483-5111

FOR RELEASE:
June 22, 1973
2:00 p.m.

RELEASE NO: 73-84

JSC TO REMODEL ORBITER PRODUCTION FACILITY IN CALIFORNIA

A $1,160,000 million cost reimbursable contract has been issued to Rockwell International, Space Division for modifications to the NASA Industrial Plant located at Downey, California.

The award was made today by the NASA Johnson Space Center, Houston, Texas, and is designed to upgrade the California facility in preparation for development of the Space Shuttle orbiter.

Rockwell International is the prime contractor for development of the shuttle orbiter to the National Aeronautics and Space Administration.

The remodeling consists of rehabilitation of the heating, ventilation and cooling system in approximately 127,000 square feet of office and production area in the structure. In addition approximately 80,000 square

- more -

feet of area will receive new ceilings, new lights and sprinkler system.

More than 90 per cent of the remodeling will be subcontracted.

Together with this award, approximately $1,700,000 has been spent to date on upgrading the facility.

# # #

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
May 21, 1973

Don J. Green
713/483-5111

RELEASE NO: 73-85

JACK A. JONES AWARDED NASA EXCEPTIONAL SERVICE MEDAL

In recognition of his role in the success of the Apollo Program, Jack A. Jones, Chief of the Quality Assurance Division at NASA's Johnson Space Center, has been awarded the NASA Exceptional Service Medal.

His citation reads: to Jack A. Jones,

"In recognition of outstanding contributions to Apollo. The Apollo missions have been the most complex engineering achievment and the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand, for the first time, the composition, structure and evolution of another planet--the Earth's Moon."

- more -

A native of Helena, Montana, Jones is married to the former Theda B. Shepherd from Norfolk, Virginia. They have five children, Christopher, Cheryl Ann, Timothy, James, and Ronald and now reside in Houston, Texas.

In his present position Jones is responsible for the overall planning, coordinating, management, and assessment of the Center's Quality Assurance Programs and for initiating, developing and implementing policies, detailed requirements, and procedures relating to Quality Assurance.

This is the fifth award Jones has received during his NASA tenure. He previously received two Group Achievment Awards, an Outstanding Performance Award, and a Superior Achievment Award.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
May 21, 1973

Don J. Green
713/483-5111

RELEASE NO: 73-86

HENRY O. POHL AWARDED EXCEPTIONAL SERVICE MEDAL

In recognition of his role in the success of the Apollo Program, Henry O. Pohl, Chief of the Auxiliary Propulsion and Pyrotechnics Branch at NASA's Johnson Space Center, has been awarded the NASA Exceptional Service Medal.

His citation reads: to Henry O. Pohl.

"In recognition of outstanding contributions to Apollo. The Apollo missions have been the most complex engineering achievement and the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand, for the first time, the composition, structure and evolution of another planet--the Earth's Moon."

- more -

A native of Hallettsville, Texas, Pohl received his Bachelor of Science degree from Texas A&M University in 1956. He joined NASA at the Marshall Spaceflight Center in 1960. In 1962 he transferred to the Manned Spacecraft Center, Houston (renamed Johnson Space Center) and since that time has been associated with propulsion and energy systems. In his present assignment Pohl is responsible for the management of 30 research specialists engaged in the development of Attitude Control Systems and pyrotechnic devices for manned spacecraft.

This is the second award Pohl has received during his NASA tenure. He previously received a Certificate of Commendation. Also, Mr. Pohl is a member of the American Institute of Aeronautics and Astronautics.

Married to the former Helen D. Frost of Miami, Florida, Pohl has three children, Lori, Henry, and Nancy and now resides in Seabrook, Texas.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
June 22, 1973

RELEASE NO: 73-87

M. SATTERFIELD AWARDED NASA EXCEPTIONAL SERVICE MEDAL

In recognition of his role in the success of the Apollo Program, James M. Satterfield, Deputy Chief of the Flight Support Division at NASA's Johnson Space Center, has been awarded the NASA Exceptional Service Medal.

His citation reads: to James M. Satterfield,

"In recognition of outstanding contributions to Apollo. The Apollo missions have been the most complex engineering achievement and the most daring and far reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand, for the first time, the composition, structure, and evolution of another planet--the Earth's Moon."

A native of Salisbury, North Carolina, Satterfield received his Bachelor of Science and his Masters degree in Electrical Engineering from North Carolina State University.

- more -

He joined NASA in 1959 at the Langley Research Center, and in 1965 was permanently reassigned to the Manned Spacecraft Center (renamed the Johnson Space Center). In his present assignment, Satterfield is responsible to the Chief of the Flight Support Division for the engineering, development, configuration, and operation of the Mission Control Center; for the coordination, development, and implementation of the Manned Spaceflight Network instrumentation requirements; and for the coordination and development of mission control facility and systems operational requirements with cognizant Johnson Space Center organizations.

A member of the honor society of Phi Kappa Phi, Satterfield now resides in Houston with his wife Jacquline, and their two children, James, Jr., and Lee.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
June 25, 1973

RELEASE NO: 73-88

WILLIAM W. PETYNIA AWARDED NASA EXCEPTIONAL SERVICE MEDAL

In recognition of his role in the success of the Apollo Program, William W. Petynia, Assistant Chief of the Spacecraft Design Division at NASA's Johnson Space Center, has been awarded the NASA Exceptional Service Medal.

His citation reads: to William W. Petynia,

"In recognition of outstanding contributions to Apollo. The Apollo missions have been the most complex engineering achievement and the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand, for the first time, the composition, structure and evolution of another planet-- the Earth's Moon."

A native of Jacksonville, Florida, Mr. Petynia received his Bachelor of Science degree in Aeronautical Engineering from the University of Florida in 1949. After graduation Mr. Petynia joined the National Advisory Committee for Aeronautics (the forerunner of NASA) at Langley Field, Virginia. In 1959 he

-more-

was selected for the Space Task Group at Langley which was responsible for Project Mercury, the first NASA manned space program. This group later became the Manned Spacecraft Center in Houston (renamed Johnson Space Center) where he has been located since that time. Mr. Petynia has been instrumental to the success of all of this country's manned spaceflight projects.

In his present assignment Mr. Petynia has the responsibility to direct the Spacecraft Design Division configuration studies of the Space Shuttle.

A member of the American Institute of Aeronautics and Astronautics, Petynia has written some twenty technical papers during his NACA/NASA tenure. He presently resides in Seabrook, Texas, with his wife, the former Peggy Gilmour, and their daughter Barbara Lynn.

-end-

June 25, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
June 25, 1973

RELEASE NO: 73-89

PETER J. ARMITAGE AWARDED NASA EXCEPTIONAL SERVICE MEDAL

In recognition of his role in the success of the Apollo Program, Peter J. Armitage, now Assistant Director of Science and Applications at NASA's Johnson Space Center in Houston, Texas, has been awarded the NASA Exceptional Service Medal.

His citation reads: to Peter J. Armitage:

"In recognition of outstanding contributions to Apollo. The Apollo missions have been the most complex engineering achievement and the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand, for the first time, the composition, structure and evolution of another planet--the Earth's Moon."

Mr. Armitage was born in Leeds, Yorkshire, England, and later lived with his parents in Hamble, Hampshire, England. He received his HNC in Mechanical Engineering from Southampton University in 1950, and MS Degree in Aeronautical from Cranfield Institute of Technology in 1957. In 1970, he graduated from Stanford University, California as a Alfred P. Sloan Executive Fellow in Business Management.

Mr. Armitage worked in the British Aircraft Industry as a designer and later served as flight crew in the RAF Bomber Command. In 1950, he joined Avco Aircraft in Canada as a flight test engineer and in 1959 joined NASA at Langley Field,

--more--

Virginia. He has been instrumental in all the United States manned space flight projects since that date.

This is the seventh award Armitage has received during his NASA tenure. He has been the recipient of a Superior Achievement Award, an Apollo Achievement Award, and four Group Achievement Awards. Also, Armitage is a member of the Association of Professional Engineers of Ontario, Canada.

Married to the former June Blackett of Grimsby, Lincolnshire, England, Armitage has four children, Mark, Paul, David and John, and now resides in Houston, Texas.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:

June 26, 1973
2:00 p.m.

Don J. Green
AP3 - JSC
713/483/5111

RELEASE NO: 73-90

JSC SELECTS PRATT & WHITNEY ENGINE FOR ORBITER ATMOSPHERIC USE

The NASA Johnson Space Center today announced that it has selected a Pratt & Whitney Aircraft Division engine for use in atmospheric flight onboard the Space Shuttle orbiter.

The engines will be secured for NASA by the United States Air Force; a partner with the space agency in orbiter development. They will be off-the shelf items that currently are in use by the USAF.

The Air Breathing Engines will be used during horizontal flight testing of the orbiter, and for ferry flight once the Space Shuttle is operational.

NASA plans to secure 25 engines of a model identified as TF33-P-7, an engine that is in service on the Air Force C-141 Starlifter transport aircraft. The engine has a sea level static take-off thrust of 21,000 pounds.

Modified engines of the same type also are used by commercial airlines.

This is the fourth major systems selection for NASA's Space Shuttle.

--more --

Release No: 73-90

A contract for design, development, and production of the orbiter vehicle and for integration of all elements of the Space Shuttle system was awarded to Rockwell International's Space Division, Downey, California,last July.

Earlier Rockwell Internationl's Rocketdyne Division, Canoga Park, California, was awarded the contract to develop and produce the orbiter's main engines.

At the present time, four companies have bid on the contract to design, develop and produce the Shuttle's External Tank. Selection is expected in August.

The Space Shuttle will be the first reusable space vehicle. The orbiter stage will be a delta-winged airplane-like vehicle capable of landing on conventional runways. It will have a cargo compartment measuring about 18 meters (60 feet) in length and 4.5 meters (15 feet) in diameter, an will be able to place 29,500 kilograms (65,00 pounds) in a 185-kilometer (100 nautical-miles) due East orbit.

The orbiter will be boosted into space through the simltaneous operation of the solid propellant booster rockets and the orbiter stage high-pressure liquid oxygen-liquid hydrogen main engines. The booster rockets will detach at an altitude of about 40 kilometers (25 Miles) and descend by parachute into the ocean to be recovered and reused. The orbiter, under its own power

will continue into low Earth orbit.

The Space Shuttle will be able to place satellites into orbit, return satellites from orbit, permit in-orbit repair and servicing of satellites, deliver propulsive stages and satellites to low Earth orbit, and conduct short-duration science and applications missions with self-contained experiments in low Earth orbit.

The Space Shuttle will be employed as an operational system by both NASA and the Department of Defense. Primary operational sites for the Space Shuttle will be the Kennedy Space Center in Florida and Vandenberg Air Force base in California.

-- end --

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Jack Riley
713/483-5111

FOR RELEASE:
July 3, 1973

RELEASE NO: 73-91

T-38 ACCIDENT REPORT

An electrical malfunction causing loss of instruments in severe weather was the major factor in an aircraft accident May 10, 1972, involving Astronaut Charles Conrad, Jr., an investigation board has determined.

Conrad, a Navy captain, ejected safely from a T-38 jet aircraft over Bergstrom Air Force Base near Austin, Texas. The aircraft was destroyed.

Conrad was in the final phase of an approach to Ellington AFB near Houston when he was advised the field was below minimums. He was then given radar vectors to William P. Hobby Airport in Houston, which was still open for landings.

At 800 feet altitude on his final approach to Hobby in darkness and in heavy rain and lightning, an electrical failure in the generator system caused the loss of cockpit lightning and partial loss of navigation instruments. Conrad aborted the approach and attempted to climb above the weather. The generator was subsequently brought back on line, and

-end-

he regained cockpit lighting.

Because of the electrical problem, Conrad requested radar to an airport operating under visual flight rules, and he was vectored toward Randolph AFB, San Antonio. When it became apparent that he did not have enough fuel to reach Randolph, he was directed toward Bergstrom AFB.

The aircraft ran out of fuel just after Captain Conrad reached Bergstrom, and he ejected at 3700 feet.

The investigation board determined that a printed circuit card was not adequately protected from moisture and likely was the cause of a short circuit and disconnect of the left generator during the approach to Hobby. The card is part of the voltage regulator and protection circuit that switches the electrical load to the opposite generator when one of them goes off line.

The board recommended that the routing of cooling air for electrical components be modified to exclude water when flying in rain. The implementation of this recommended modification is currently being evaluated.

The accident investigation board was chaired by NASA Astronaut Stuart A. Roosa.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:

IMMEDIATE

Bill Pomeroy
Headquarters, Washington, D. C.
(Phone: 202/755-3114)

Bob Gordon
Johnson Space Center
Houston, Texas
(Phone: 713-483-5111)

RELEASE NO: 73-92

SECOND SKYLAB CREW TO BE LAUNCHED JULY 28

The launching of the second crew to work and live aboard the nation's first space station, Skylab, will be no earlier than 6:08 a.m. CDT, on July 28. After conducting scientific and technical experiments for 56 days in Earth orbit, the crew is expected to splashdown in the Pacific at 7:38 p.m. CDT, Sept. 22.

The crew of the second manned visit to Skylab is headed by Alan L. Bean, Commander, with Dr. Owen M. Garriott as science pilot and Jack R. Lousma as pilot. Bean, 39, is a U. S. Navy captain who walked on the moon as the Apollo 12 lunar module pilot. Garriott, 41, is a civilian with a doctorate in electrical engineering. Lousma, 35, is a major in the U. S. Marine Corps. This will be the first space flight for Garriott and Lousma.

The crew will be boosted into orbit atop a Saturn - 1B from Pad B of Launch Complex 39 at the NASA Kennedy Space Center in Florida.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Jack Riley
713/483-5111

FOR RELEASE:
July 6, 1973

RELEASE NO: 73-93

ASTP COSMONAUTS TO VISIT JSC

A 34-member delegation from the Soviet Union, including 10 cosmonauts, will begin a 3-week visit to the Johnson Space Center Monday, July 9, to further plans for a joint mission in 1975.

The delegation will be headed by Professor Konstantin D. Bushuyev, Apollo-Soyuz Test Project Technical Director for the Soviet Union. Delegation members include the prime and backup flight crews for the mission, the Mission Model and Operational Plans working group, cosmonaut training specialists, interpreters and administrative support personnel.

Prime Soviet crewmen are Cosmonauts Aleksey A. Leonov and Valeriy N. Kubasov. Leonov performed the world's first extravehicular activity during the Voskhod 2 flight, and Kubasov was a Soyuz 6 crewman.

The crew for the second Soyuz spacecraft which the Soviet Union will be prepared to launch if necessary consists of Cosmonauts Anatoliy V. Filipchenko and Nikolay N. Rukavishnikov. Filipchenko flew on Soyuz 7 and Rukavishnikov

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was a crewmember on Soyuz 10.

Backup crewmen are Cosmonauts Vladimir A. Dzhanibekov, Boris D. Andreyev, Yuriy V. Romanenko and Aleksandr S. Ivanchenkov.

The crews will be accompanied by two veteran cosmonauts who attended ASTP meetings here last March, Major General Vladimir A. Shatalov and Dr. Aleksey S. Yeliseyev.

This will be the initial familiarization visit for the crews, and specific mission training will not be conducted. Activities will consist primarily of classroom lectures on the basic elements of the Apollo spacecraft, the Apollo life support and communications systems, the ASTP docking module and basic flight plan time lines.

Several members of the United State's ASTP flight crew will visit the Soviet Union this fall for familiarization on the Soyuz spacecraft.

Scheduled for launch July 15, 1975, the Apollo-Soyuz Test Project mission is designed to checkout in flight a compatible docking mechanism developed by both countries to provide an international space rescue capability. Soviet and American crews will exchange visits in space and may conduct several joint scientific and technical experiments.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
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FOR RELEASE:
IMMEDIATE

ALSO RELEASED AT NASA HEADQUARTERS

RELEASE NO: 73-94

PRELIMINARY TIMELINE FOR SECOND MANNED SKYLAB MISSION

The second manned visit to the Earth-orbiting Skylab space station is scheduled for launch at 6:08 a.m. CDT on July 28, 1973, from NASA's Kennedy Space Center, Florida.

Aboard their spacecraft, astronauts Alan L. Bean, Owen K. Garriott, and Jack R. Lousma will dock with Skylab some eight and one-half hours later to begin their 56-day stay. During this time, they will conduct Earth resources experiments, study the physical effects of prolonged weightlessness on man, and observe solar phenomena. A number of experiments will be conducted in astrophysics, engineering and technology, materials processing in space and other areas of scientific interest. On July 31, two of the astronauts will exit through the Airlock Module hatch to install solar telescope film and to erect a twin-boom sun shade over the temporary parasol now shielding part of Skylab. Again on August 24 and September 19, the astronauts will perform EVA's (Extra-Vehicular Activity) to retrieve and install solar telescope film.

Mid-afternoon of September 22, the crew will undock from Skylab and perform certain maneuvers in preparation for return to Earth. At 7:38 p.m. CDT, they will splash down in the Pacific Ocean about 1830 kilometers (1137 statute miles) southwest of San Diego, California, at 23°28' N and 129°26' W.

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Following is the preliminary timeline of the second Skylab mission events:

LAUNCH	DATE	TIME (CDT)
(10 minute launch window 6:08 - 6:18)	July 28	6:08 a.m.
S-1B/S-1VB Separation		6:11 a.m.
Launch Escape Tower Jettison		6:11 a.m.
S-IVB Engine Cutoff		6:18 a.m.
Orbit Insertion		6:18 a.m.
CSM/S-1VB Separation		6:24 a.m.
Phasing burns		8:26 to 10:42 a.m.
TPI (Terminal Phase initiate)		1:21 p.m.
TPF (Terminal Phase finalize)		1:54 p.m.
Docking		2:38 p.m.
EVA (Install ATM film and deploy sun shade)	July 31	9:50 a.m.
EVA (Retrieve and install ATM film)	August 24	10:10 a.m.
EVA (Retrieve and install ATM film)	September 19	10:10 a.m.
Undock	September 22	2:21 p.m.
Separation		3:08 p.m.
Deorbit burn		6:57 p.m.
Entry interface		7:22 p.m.
Splashdown		7:38 p.m.

- end -

July 12, 1973

NASA-JSC

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
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ALSO RELEASED AT NASA HEADQUARTERS

Miles Waggoner
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RELEASE NO: 73-95

FOR RELEASE:
July 19, 1973

NASA BOARD REPORTS ON SKYLAB METEOROID SHIELD FAILURE

The most probable cause of the meteoroid shield system failure during the May 14 Skylab 1 launch was inadequate venting of the pressure in a tunnel under the shield. The differential pressure buildup in the tunnel, as the vehicle rose through the atmosphere, acted to force the forward end of the shield away from the shell of the workshop and into the supersonic air stream.

An investigation board appointed by the National Aeronautics and Space Administration and chaired by Bruce T. Lundin made this finding in a report to NASA Administrator, Dr. James C. Fletcher.

When the meteoroid shield was torn loose by the supersonic stream, it broke the tiedowns which held one of the two solar array systems on the Skylab Workshop.

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Later -- about 10 minutes into the flight -- the solar array "wing" was completely torn away when it was struck by the exhaust plume of the second-stage retrorockets.

Successful operation of the workshop was jeopardized for a time when the remaining solar array would not deploy. A metal strap from the meteoroid shield still attached to the workshop had curled around the wing and penetrated the metal fairing which housed the array.

The mission was saved, however, when Astronauts Charles (Pete) Conrad and Joseph Kerwin, acting on the basis of information developed by hundreds of NASA and contractor personnel on the ground, cut the strap on June 7. The solar array system was deployed, providing enough power to complete all scientific and technical objectives in a highly successful first manned visit.

(A summary of the investigation board's report is attached.)

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SUMMARY

"At approximately 63 seconds into the flight of Skylab 1 on May 14, 1973, an anomaly occurred which resulted in the complete loss of the meteoroid shield around the orbital workshop. This was followed by the loss of one of the two solar array systems on the workshop and a failure of the interstage adapter to separate from the S-II stage of the Saturn V launch vehicle. The investigation reported herein identified the most probable cause of this flight anomaly to be the breakup and loss of the meteoroid shield due to aerodynamic loads that were not accounted for in its design. The breakup of the meteoroid shield, in turn, broke the tie downs that secured one of the solar array systems to the workshop. Complete loss of this solar array system occurred at 593 seconds when the exhaust plume of the S-II stage retro-rockets impacted the partially deployed solar array system. Falling debris from the meteoroid shield also damaged the S-II interstage adapter ordnance system in such a manner as to preclude separation.

"Of several possible failure modes of the meteoroid shield that were identified, the most probable in this particular flight was internal pressurization of its auxiliary tunnel which acted to force the forward end of the meteoroid shield away from the shell of the workshop and into the supersonic air stream. The pressurization of the auxiliary tunnel was due to the existence of several openings in the aft region of the tunnel. Another possible failure mode was the separation of the leading edge of the meteoroid shield from the shell of the workshop (particularly in the region of the folded ordnance panel) of sufficient extent to admit ram air pressures under the shield.

"The venting analysis for the auxiliary tunnel was predicated on a completely sealed aft end: the openings in the tunnel thus resulted from a failure of communications among aerodynamics, structural design, and manufacturing personnel. The failure to recognize the design deficiencies of the meteoroid shield through six years of analysis, design and test was due, in part, to a presumption that the shield would be 'tight to the tank' and 'structurally integral with the S-IVB tank' as set forth in the design criteria. In practice, the meteoroid shield was a large, flexible, limp system that proved difficult to rig to the tank and to obtain the close fit that was presumed by the design. These design deficiencies of the meteoroid shield, as well as the failure to communicate within the project the critical nature of its proper venting, must therefore be attributed to an absence of sound engineering judgment and alert engineering leadership concerning this particular system over a considerable period of time.

"The overall management system used for Skylab was essentially the same as that developed in the Apollo program. This system was fully operational for Skylab; no conflicts or inconsistencies were found in the records of the management reviews. Nonetheless, the significance of the aerodynamic loads on the meteoroid shield during launch were not revealed by the extensive review process. Possibly contributing to this oversight was the basic view of the meteoroid shield as a piece of structure, rather

- more -

than as a complex system involving several different technical disciplines. Complex, multidisciplinary systems such as the meteoroid shield should have a designated project engineer who is responsible for all aspects of analysis, design, fabrication, test and assembly.

"The Board found no evidence that the design deficiencies of the meteoroid shield were the result of, or were masked by, the content and processes of the management system that were used for Skylab. On the contrary, the rigor, detail, and thoroughness of the system are doubtless necessary for a program of this magnitude. At the same time, as a cautionary note for the future, it is emphasized that management must always be alert to the potential hazards of its systems and take care that an attention to rigor, detail and thoroughness does not inject an undue emphasis on formalism, documentation, and visibility in detail. Such an emphasis can submerge the concerned individual and depress the role of the intuitive engineer or analyst. It will always be of importance to achieve a cross-fertilization and broadened experience of engineers in analysis, design, test or operations. Positive steps must always be taken to assure that engineers become familiar with actual hardware, develop an intuitive understanding of computer-developed results, and make productive use of flight data in this learning process. The experienced 'chief engineer', who can spend most of his time in the subtle integration of all elements of the system under purview, free of administrative and managerial duties, can also be a major asset to an engineering organization."

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
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FOR RELEASE:

RELEASE NO: 73-96

SECOND SKYLAB MISSION'S PASSENGERS TO INCLUDE FISH, MICE, INSECTS

When the second Skylab crew is launched from Cape Kennedy, Florida July 28, Astronauts Alan Bean, Dr. Owen Garriott and Jack Lousma will have a host of co-travelers including an aquarium of fish, a pair of common household spiders, a swarm of vinegar gnats and a half dozen pocket mice.

These space passengers are part of the more than 60 experiments and science demonstrations scheduled to be performed during the 59-day Earth orbiting mission. The mice and vinegar gnats will ride inside a self-contained living compartment in the service module, while the fish and spiders will be secured in the orbiting workshop.

The tiny menagerie will be part of the second manned visit to the orbiting workshop, a 200-ton scientific workshop which has been orbiting 270 miles above the earth since May 14, 1973. The first Skylab crew of Charles "Pete" Conrad, Dr. Joseph Kerwin, and Paul Weitz concluded a 28-day stay in the workshop on June 22 during which time they conducted

-more-

360 hours of experiments in earth resources, studies of the sun, science and technology and, most importantly, 142 hours of medical experiments which indicate the 28-day space flight presented no physiological problems to man.

The fish were added to the flight at the request of science pilot Dr. Owen Garriott. There will be two "brackish water" minnows (3/4 of an inch long) commonly called "Mummichog Minnows" which are found along the Atlantic and Gulf Coasts of the United States plus 50 minnow eggs. These particular minnows were caught off the coast of Beaufort, North Carolina.

The objective of this demonstration is to show what disorientation the fish will experience when exposed to weightlessness. Many fish have vestibular apparatuses quite similar to man and even though they live in an environment usually considered to resemble weightlessness, they do perceive a gravity vector.

A common theory is that the fish will swim with random orientation to the exterior of their aquarium. The aquarium consists of a compartmentalized polyethylene bag

(6 by 6 inches) containing synthetic sea water. During crew leisure time, the bag, which is sealed inside a can, will be removed and placed in front of the onboard television camera to show the disorientation of the swimming fish.

The minnows are expected to live about two weeks and the fish eggs are expected to hatch during the second week of flight providing the astronauts with three to four weeks of observations.

Arabella and Anita, the pair of common "cross spiders" (Araneus diadematus), will be housed in an enclosure onto which a motion picture and still camera will be attached to record the spider's attempts to build a web in the weightless environment. The spider enclosure will be launched with the Skylab crew aboard the command module and later transferred to a special cage aboard the workshop.

The spider experiment (ED52) is one of 25 experiments selected for Skylab by NASA from more than 3,400 experiment proposals submitted by high school students throughout the nation. This experiment was submitted by 17-year-old Judith S. Miles of Lexington, Massachusetts.

The pocket mice, known in scientific circles as Perognathus longimebris, and the vinegar gnat (Drosophila), are part of the circadian rhythm studies SO71 and SO72 designed to determine if space flight will alter the daily physiological rhythms of mammals or the daily emerging cycle of the vinegar gnat. These particular mice are native to the deserts around Palm Springs, California.

The six pocket mice will be housed in a completely dark cage having a 15-degree Celsius (60-degree Farenheit), temperature, relative humidity of 60 per cent and an atmosphere equivalent to sea level.

Principal investigator for this experiment (SO71), Robert G. Lindberg, Northrop Corporate Laboratories, hopes to determine if in fact space flight imposes bio-rhythm restrictions on animals. The mice will be loaded aboard the service module prior to launch.

Prior to and during flight, body temperature and activity level are automatically monitored to establish the natural period, phase and stability of the animal's bio-rhythm. Similar monitoring will be performed on

ground-based mice during the mission. Data gathered on the space mice will be automatically recorded and telemetered to Earth for interpretation.

The vinegar gnat experiment (SO72), located in the service module, seeks to determine if the emerging cycle of the gnat is altered during space flight. Extensive experiments have shown that even gnats in the pupal stage develop at different rates depending on temperature. They will not emerge from the pupae as adult gnats until some kind of internal signal is given. The gnats will be divided into four groups with a synchronizing light used to initiate the hatching of the pupae at different times. This will be monitored by photoelectric cells and the data will be telemetered to the ground.

Principal investigator for the vinegar gnat experiment is Dr. Colin S. Pittendrigh, of Stanford University.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

ALSO RELEASED AT NASA HEADQUARTERS

FOR RELEASE:
July 20, 1973
1:00 p.m.

Bill O'Donnell
202/755-3114

Bob Gordon
713/483-5111

RELEASE NO: 73-97

SECOND MANNED SKYLAB MISSION PLANNED FOR UP TO 59 DAYS

The second manned Skylab mission, scheduled for launch July 28, at the Kennedy Space Center, is planned for up to 59 days duration instead of 56 days.

Skylab Program Director William C. Schneider said the change is being made for operational reasons, specifically to provide for a better recovery posture.

Splashdown now is scheduled for 6:26 p.m. EDT September 25, in the Pacific Ocean 544 kilometers (340 statute miles) southwest of San Diego.

The change was made following a comprehensive review of the medical findings of the first Skylab mission at the Johnson Space Center attended by top NASA, Skylab and medical personnel. These results have been discussed with NASA's medical and safety consultants. It followed a series of medical sessions involving Skylab principal investigators, principal coordinating scientists and medical operations personnel.

The first Skylab crew members, Commander Pete Conrad, Science Pilot Dr. Joe Kerwin and Pilot Paul Weitz, showed expected individual variability in their responses to space flight and tolerated the 28 days of weightlessness extremely well while accomplishing a series of scientific and unplanned repair activities.

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Post-flight responses confirmed the individual variability and that the pattern of post-flight responses was similar to that seen in previous Apollo missions, although the period required for readaptation to the Earth's gravity was somewhat longer than for Apollo flights. The medical findings indicate that the crewmen have essentially returned to their pre-flight baselines.

Dr. Charles A. Berry, NASA Director for Life Sciences, said that the medical data did not reveal reasons to shorten the Skylab 3 mission and recommended that it was medically feasible to plan for up to a 59-day flight. He further indicated that in-flight medical observations, medical experiments and conventional medical operational observations, were a requisite for the flight.

As a safeguard, in view of this major extension of manned space flight duration, it has been determined that the medical data for the first portion of the mission will be reviewed at the mid-mission point and weekly reviews will be scheduled for the remainder of the flight. Following each weekly review, approval for continuation of the flight will be made for the seven-day period by the Program Director.

The second Skylab crew will continue the experiments begun by the first crew. Commander Alan Bean, Science Pilot Owen Garriott and Pilot Jack Lousma will conduct some 62 experiments in the areas of science, solar physics, medicine, Earth resources and technology.

Time of the launch is planned for 7:10 a.m. EDT July 28, but the time may be changed slightly as orbital characteristics of the Skylab Workshop are more precisely determined.

- end -

COMMUNIQUE ON RESULTS OF APOLLO-SOYUZ

TEST PROJECT MEETINGS

July 9-20, 1973

A meeting of Apollo-Soyuz Test Project specialists of the Academy of Sciences of the U.S.S.R. and the National Aeronautics and Space Administration was held at the Lyndon B. Johnson Space Center, Houston, Texas, U.S.A., July 9-20, 1973.

The purpose of the meeting was to discuss technical matters, continue development of trajectories and flight plans, tentatively agree upon the scientific experiment program and familiarize cosmonauts assigned to the joint 1975 space mission with the design and operation of the Apollo spacecraft.

The project technical directors, the flight crews, the Mission Model and Operational Plans working group, and representatives of the Control and Guidance working group took part in the discussions.

A review of project milestones was completed by the technical directors, Prof. Konstantin D. Bushuyev for the U.S.S.R. and Dr. Glynn S. Lunney for the U.S. They reaffirmed that major milestones are on schedule.

The cosmonauts attended a series of lectures and demonstrations which provided them a basic understanding of the Apollo spacecraft and its systems, particularly life support and communications systems. They were briefed on the docking module, and they participated with the working groups in discussions on the crew activities plan for the mission.

Further progress was reported by the working groups on the details of the crew activities plan, control center operations, trajectories and other operational aspects of the joint mission.

Agreements reached in particular include:

* Familiarization of U.S. flight crews with Soyuz equipment will take place in November in the Soviet Union.

* A preliminary schedule of crew training aims for cosmonaut training in the United States in April, 1974 and in February, 1975, and astronaut training in the Soviet Union in July, 1974 and in March, 1975. Duration of training sessions will be agreed upon after the astronaut familiarization visit to the U.S.S.R. The training plan is expected to be completed at that time, and all flight procedures are expected to be finalized by the end of 1974.

* The final selection of joint experiments will be in October, 1973.

* Reports will be exchanged on an assessment of the safety of the flight based upon tests performed in the course of manufacturing and checkout in preparation for the flight.

The U.S.S.R. side stated that the Moscow Center of Control of Manned Space Flight near Moscow, will be used by the U.S.S.R., and Cosmonaut Aleksey S. Yeliseyev will be the flight director for the Soviet Union.

On July 14, part of the Soviet delegation, including the heads of the delegation and the cosmonauts, toured the assembly and checkout facilities at the Rockwell International plant in Downey, California, where the work on ASTP is carried out.

The U.S. technical director and several of the working groups will attend meetings in the Soviet Union in October, 1973.

- end -

PROFESSOR KONSTANTIN D. BUSHUYEV

COSMONAUT ALEKSEY A. LEONOV

COSMONAUT VALERIY N. KUBASOV

COSMONAUT ANATOLIY V. FILIPCHENKO

COSMONAUT NIKOLAY N. RUKAVI SHNIKOV

COSMONAUT VLADIMIR A. DZHANIBEKOV

COSMONAUT BORIS D. ANDREYEV

COSMONAUT YURIY V. ROMANENKO

COSMONAUT ALEKSANDR S. IVANCHENKOV

MAJOR GENERAL VLADIMIR A. SHATALOV

DR. ALEKSEY S. YELISEYEV

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Robert V. Gordon
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FOR RELEASE:
July 23, 1973

RELEASE NO: 73-98

ALSO RELEASED AT MSFC AND NASA HEADQUARTERS

SKYLAB CREW TO CARRY GYRO PACKAGE

The Skylab crew to be launched July 28, will carry with them a package of electronic equipment which will be used if needed by either of the last two Skylab crews to replace malfunctioning rate gyro processors (RGPs).

The Skylab cluster's attitude control system uses nine RGPs -- three in each axis -- to sense motion and provide that information to a computer which, in turn, furnishes signals that control the attitude of the space station.

The three RGPs in each axis are redundant -- actually only one is essential.

At present one RGP has been turned off because it malfunctioned, while five others have overheated to some degree at one time or another during more than two months the spacecraft has been in orbit.

A decision was made last week to carry components and equipment sufficient to permit a change of RGPs, should that become necessary. No decision has been made to effect the change, and probably will not be until and unless all three gyros are lost in one axis.

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RELEASE NO: 73-98

The package which the SL3 crew will carry to orbit in the command module consists of six RGPs, mounted together in a single unit called a rate gyro augmentation package, and associated cables.

The RGPs that would be replaced are installed in several locations on the ATM rack, generally unaccessible to EVA operations. The replacement procedure, should it be called into play, calls for the astronauts to mount the new rate gyro augmentation package on the inside of the craft -- on a bulkhead in the Multiple Docking Adapter. A cable would lead from the package through an existing conduit in the wall of the space station to the outside. On the outside, cable connections must be made in order to send the RGPs' output signals to the computer interface unit located on the ATM.

Replacement of the RGPs, therefore, would call for an extravehicular activity. It would be a relatively easy operation, however, one that required only twenty minutes in underwater simulation by an astronaut at the Marshall Space Flight Center.

The total equipment being carried to orbit to provide this insurance weighs about 145 pounds. It was prepared, along with installation procedures, at the Marshall Center.

If all three units in one axis were lost, it is planned for the CSM to be activated by the crew to provide space station stability through the use of its attitude control system until the EVA is completed and the new RGPs operate properly.

Should the change be made, the six units being sent on this flight could be used in concert with three of the original units -- one in each axis -- to provide the normal number of nine functioning gyros.

The overheating in the gyros now installed is believed to be due to a malfunction in the rate gyro heater circuit.

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FOR RELEASE:
IMMEDIATE

ALSO RELEASED AT NASA HEADQUARTERS
AND THE DEPARTMENT OF COMMERCE

RELEASE NO: 73-99

SKYLAB ASTRONAUTS, FISHERMEN JOIN IN OCEAN GAME FISH EXPERIMENT

Skylab astronauts, land-based scientists, deepsea anglers, and charterboat captains will work together early next month in a concentrated effort to relate physical characteristics of the ocean to distribution of game fish. Planned for August 4 and 5, the sea surface-to-space study takes place in the northeastern Gulf of Mexico and involves a conglomerate of ocean researchers and remote sensing systems under the cooperative direction of the Commerce Department's National Oceanic and Atmospheric Administration and the National Aeronautics and Space Administration.

The oceanographic fact-find mission will try to relate stocks of sport fish such as marlin and sailfish to ocean features detected by advanced sensors carried aboard orbiting satellites and specially equipped aircraft.

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The experiment is the most extensive yet in a series of studies designed to relate satellite acquired information to that gained in traditional oceanographic investigations. It was set to coincide with Skylab's crossover pattern at noon August 5, and with the peak of the region's big-game fishing season. At that time (operations schedules and cloud conditions permitting), the highly sophisticated broad-range Skylab sensors will be focused on the triangularly shaped study area, taking multiple measurements which can be translated into such ocean features as chlorophyll content of the water (an important indicator of nutritive production), salt content, water temperature, and color gradient.

The same kind of data will be collected at the sea surface from the nine research boats and fishermen in the study area will keep careful records of all fish sighted, hooked and caught. Later, after the Skylab splashdown, the satellite data will be coordinated and compared with the voluminous data collected by the aircraft at lower altitudes and the vessels at sea. When the three sets of information are "superimposed" on each other, the scientists hope to see

what amounts to a blueprint of the marine region, displaying currents, temperatures, upwellings, concentrations of plankton, the clarity or opacity of water, and other factors that apparently relate to the presence or absence of fish populations. Skylab's sensing equipment can record a wide range of open ocean color and temperature, an important advantage to studies of the broad oceanic scene, in which demarcation of ocean characteristics is often detectable only through observations of contrasting shades of blues and greens.

NOAA's Principal Investigator for the Skylab event, William H. Stevenson, said: "Oceanographers and biologists have been surveying marine waters for many years and have amassed an impressive volume of information. But the science is hampered by the limited tange that can be covered from surface vessels, however industrious and efficient they may be. To fully chart the three-dimensional immensity of even as small a part of the World Ocean as the Gulf would require an armada of vessels, legions of scientists and years of effort. We now believe the capability of satellite instrumentation to survey wide oceanic regions in precise detail can help abridge our efforts to understand marine

systems. As our experiments gain in sophistication, so will our ability to direct fishermen to productive fishing grounds."

NOAA has been designated the lead agency for this unique experiment. Its participation is directed by the National Marine Fisheries Service Engineering Laboratory and NASA coordination is provided by the Johnson Space Center's Earth Resources Laboratory, both located at the NASA Mississippi Test Facility, Bay St. Louis, Mississippi.

NOAA's National Marine Fisheries Service will coordinate the work of some 60 bluewater fishing craft and nine research vessels deployed over 3,600 square miles of ocean off the Florida coast adjacent to Pensacola, Destin, and Panama City.

NASA directs the activities of the Skylab astronauts, two of its Earth Resources aircraft that sweep over 200-mile-long corridors at heights of 10,000 and 20,000 feet, and a surface vessel scheduled to operate as the "hub boat" during the experiment.

The NOAA research vessel Oregon II will stand at anchor on the fishing grounds to operate as mothership and floating laboratory for the fleet of anglers. Scientists aboard the vessel will weigh and measure gamefish catches, record

biological characteristics of caught fish, and preserve whole specimens or anatomical samples for later analysis of various factors related to life cycles and migration patterns. Oregon II personnel are experienced in such procedure--they have even developed a spceial sampling technique for use on speciments to be mounted in which dissection procedures are confined to one side of the fish, leaving the other side intact. NOAA's research vessel George M. Bowers and Kingfisher II will record oceanographic data.

Aerial observations and measurements will be made by aircraft operated by NASA's Johnson Space Center. The two airplanes involved -- a C-130 and a Beechcraft--use an array of cameras and other sensors similar to those carried by Skylab to monitor at relatively close range predetermined segments of the fishing site. Subsequently, the aerial observations will be correlated with those gained at the sea surface and aboard Skylab.

The NASA remote sensing vessel, the ERL operates as the hub ship and maintains radio contact with the entire Skylab fishing and research fleet. Her mission is to take a series of oceanographic observations and coordinate the

data-collecting activities of the other research boats as they attempt to blanket the large fishing plot with hourly oceanic readings. The ERL will also maintain radio contact with coordinating centers at Pensacola, Destin, and Panama City.

The NOAA-2, an environmental satellite orbiting at an altitude of 900 miles, scans the region twice daily.

To broaden participation of fishermen in this investigation, a special committee made up of representatives of game fish clubs and charterboat associations from Alabama, Florida and Louisiana will manage and administer a fishing tournament.

Acting as coordinators of arrangements for fishermen and fishing craft before and after the tournament are the Golden Meadow and New Orleans Big Game Fishing Clubs, LA; the Mobile Big Game Fishing Club, AL; and the Pensacola Big Game Fishing Club, The Destin Charter Boatmen Association, and the Panama City Charter Boatmen Association, FL. Tournament officials will weigh fish at the three coordinating centers at Pensacola, Destin and Panama City.

As willing contributors to the scientific mission, these clubs have decreed that no entrance fees will be charged for the tournament. They will also present trophies and awards for record catches at a banquet planned for the first weekend in September at Pensacola.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
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Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
July 25, 1973

RELEASE NO: 73-100

PROTECTIVE SERVICES CONTRACT AWARDED TO WACKENHUT

Wackenhut Services, Inc., of Coral Gables, Florida, has been awarded a contract to provide protective services at the Lyndon B. Johnson Space Center at Houston, Texas.

The company has provided protective services, including fire, safety and security, at the Center since July 1, 1967.

Its new contract was awarded on a cost-plus-award fee basis with the first year cost estimated at approximately $1.5 million. Provisions for two additional negotiated one year options also are in the contract.

The Wackenhut force at the Johnson Space Center totals 121 personnel, who provide a variety of engineering, technical, security, fire and administrative skills. In addition to security, the force also mans and maintains the Center's fire equipment, emergency ambulance service and fire alarm systems.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
July 24, 1973

RELEASE NO: 73-101

CHARLES S. HARLAN RECEIVES NASA EXCEPTIONAL SERVICE MEDAL

In recognition of his role in the success of the Apollo Program, Charles S. Harlan, Chief of the Flight Control Operations Branch at NASA's Johnson Space Center, has been awarded the NASA Exceptional Service Medal.

His citation reads: to Charles S. Harlan,

"In recognition of outstanding contributions to Apollo. The Apollo missions have been the most complex engineering achievment and the most daring and far-reaching expeditions of scientific exploration in the history of man, and have provided a wealth of information which will help us to understand, for the first time, the composition, structure and evolution of another planet--the Earth's Moon."

A native of Paducah, Kentucky, Harlan received his Bachelor of Science degree in Mechanical Engineering from the University of Kentucky in 1959. Harlan worked for the Bureau of Naval Weapons from 1959 to 1962, after which he joined NASA at their headquarters in Washington. Since joining NASA, Harlan has been instrumental to the success of this nation's manned spaceflight projects.

Harlan is a member of Tau Beta Pi and Pi Tau Sigma, both honorary engineering societies. He presently resides in Houston with his wife Kathleen, and his three children, Jeffrey, Jennifer, and Kimberly.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Jack Riley
(713/483-5111)

FOR RELEASE:
August 3, 1973

RELEASE NO: 73-103

COLONEL SCOTT NAMED AS DEPUTY DIRECTOR OF FLIGHT RESEARCH CENTER

Colonel David R. Scott, former astronaut, has been appointed Deputy Director of NASA's Flight Research Center at Edwards, California.

AS a NASA astronaut, Colonel Scott flew on Gemini 8, Apollo 9, and was spacecraft commander of Apollo 15. After leaving the astronaut corps in 1972, Colonel Scott was named Technical Assistant to the Apollo Program Manager at Johnson Space Center. Prior to accepting his new position as Deputy Director of Flight Research Center, Scott served as Special Assistant for Mission Operations and GFE (Government Furnished Equipment) in the Apollo Spacecraft Program Office. He holds the rank of Colonel in the United States Air Force with over 5,300 hours of flying time.

On the Gemini 8 mission in 1966, Scott and command pilot Neil Armstrong performed the first successful docking of two vehicles in space. As command module pilot for

-more-

Apollo 9 in 1969, Scott was instrumental in completing the first comprehensive earth-orbital qualification and verification test of a "fully configured Apollo spacecraft." In 1971, Colonel Scott commanded Apollo 15, which was the fourth manned lunar landing mission, and was the first to visit and explore the moon's Hadley Rille and Apennine Mountains.

Colonel Scott, 41, received a Bachelor of Science Degree from the United States Military Academy in 1954, standing fifth in a class of 633, and the degrees of Master of Science in Aeronautics and Astronautics, and Engineer in Aeronautics and Astronautics from MIT in 1962. He was awarded an Honorary Doctorate of Astronautical Science from the University of Michigan in 1971. He has graduated from the Air Force Experimental Test Pilot School and the Aerospace Research Pilot School.

Among Colonel Scott's special honors are two NASA Distinguished Service Medals, the NASA Exceptional Service Medal, two Air Force Distinguished Service Medals, the Air Force Distinguished Flying Cross, the Air Force Association's David C. Schilling Trophy, and the Robert J.

Collier Trophy for 1971.

Colonel Scott is a Fellow of the American Astronautical Society; Associate Fellow of the American Institute of Aeronautics and Astronautics; and a Member of the Society.

Colonel Scott is married to the former Ann Lurton Ott, who is also from San Antonio, Texas. They have two children.

-end-

August 3, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
IMMEDIATELY

RELEASE NO: 73-104

NASA SPACE SCIENCE PROGRAM AT _____ will host the National Aeronautics and Space Administration's mobile lecture-demonstration program at _____ , _____.

Representing the Johnson Space Center, Houston, Texas, the program will be conducted by Mr. George E. Johnson. A member of the Oklahoma State University faculty, he is serving as a Space Science Specialist for NASA.

Mr. Johnson received his Bachelor of Science degree from Southern Colorado State University, and has taught science in public schools for five years. He is a private pilot, and a member of the Civil Air Patrol, Aircraft Owners and Pilots Association, and the Colorado Aerospace Education Association.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Jack Riley
(713/483-5111)

FOR RELEASE:
August 14, 1973

RELEASE NO: 73-105

SL-4 LAUNCH READINESS DATE RESET

Skylab program director William C. Schneider has directed the Kennedy Space Center to prepare the next Skylab vehicle (SL-4) for launch no earlier than September 25.

Previous plans had called for the vehicle to be ready for launch as early as September 10 in the event a Skylab rescue mission was necessary.

A decision concerning when to load hypergolic propellants in the space craft will be made before September 9.

The SL-4 space vehicle is being transferred from the Vehicle Assembly Building at Kennedy Space Center to launch pad 39-B today.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Ann Weeks
202/343-4881

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FOR RELEASE:
August 15, 1973

RELEASE NO: 73-106

ASTRONAUTS, FISHERMEN, MARINE SCIENTISTS COMPLETE EXTENSIVE OCEAN INVESTIGATION

A turnout of more than 350 anglers fishing for sport and science aboard boats in the northeastern Gulf of Mexico during a recent big-game tournament made the event one of the two or three biggest in the history of such tournaments. "It broke existing attendance records at Gulf Coast big-game tournaments by a country mile," said an expert observer of similar game fishing competitions. At the finish of the 2-day contest, fishermen had boated a total of 33 potential trophy fish consisting of billfish, dolphin and wahoo.

It was an historic "first" in marine scientific circles as well--combining as it did, the extensive data-collecting capabilities of sea-surface platforms sensor-equipped aircraft, and two satellites. The scientific aspects of the investigation were under the joint sponsorship of the Commerce Department's National Oceanic and Atmospheric Administration and the National Aeronautics and Space Administration. Coordinating the volunteer fishing program were six fishing clubs and charterboat associations headquartered in Alabama, Florida and Louisiana.

Dubbed the "SKYLAB Game Fish Tournament" by the local fishing fraternity, the scientific and sporting event began in the early morning hours of Saturday, August 4. The sport-fishing fleet cast off from (and virtually emptied the docks of) three Florida Gulf Coast ports--Destin, Panama City and Pensacola--to await the SKYLAB overpass and to take part in the 2-day fishing tournament, which ended officially at 3 p.m., August 5.

The big moment came just before noon of August 5 as SKYLAB orbited on its track 52, when astronaut Alan Bean said to companion Jack Lousma: "Let's see what we can do to help the fishermen down there." "Check," said Lousma, and the advanced sensors of SKYLAB's Earth Resources Instrumentation Package were concentrated on the earthbound force of anglers and oceanographers.

The bluewater fisherman operated from 20 to 57-foot craft scattered over a 1,500 square-mile triangle, the site set to match the orbiting pattern of SKYLAB. Accompanying the fishing fleet were nine oceanographic research vessels. Two NASA aircraft made repeated sweeps over segments of the study area. A U. S. Navy plane also flew over the flotilla at 2,000 feet above the water and took oceanographic readings at the sea surface.

On completion, the NOAA Principal Investigator for the mission, William H. Stevenson declared that it had been a "near-perfect" exercise. He said that every detail of the program was "in place and on schedule, 'doing its thing', including the fish."

"The NOAA-NASA investigation was a most impressive demonstration of many diverse groups working cooperatively toward a common scientific goal," Mr. Stevenson said. "It gives us a data base upon which to test the relationship between game fish and their environment; it also enables us to ascertain which

environmental characteristics of the ocean can be observed from remote sensing aircraft and satellite platforms."

Mr. Stevenson, chief of NOAA's National Marine Fisheries Service Engineering Laboratory headquartered at the NASA Mississippi Test Facility (Bay St. Louis) was involved in a series of earlier studies designed to relate satellite-acquired information to that gained in traditional oceanographic investigations, leading to the ambitious sea surface-to-space experiment.

The Fisheries Service directed and coordinated the work of the anglers, who kept careful records of all fish sighted, hooked and caught. The NOAA research vessel Oregon II stood at anchor on the fishing grounds, operating as mothership and floating laboratory for the fleet; NOAA's R/V George M. Bowers and R/V Kingfish II collected oceanographic data in company with the five chartered research boats. The environmental satellite NOAA-2 scanned the region twice daily from an altitude of 900 miles.

NASA directed the activities of the SKYLAB astronauts. NASA's Johnson Space Center, through its Earth Resources Laboratory, directed the two Earth Resources aircraft--a C-130 and a Beechcraft--which employed an array of cameras and other sensors much like those carried by SKYLAB to monitor the area from the relatively close ranges of 10,000 and 20,000 feet overhead. The Earth Resources Laboratory also directed activities of its surface research vessel, The ERL, which functioned as the "hub boat" and maintained radio contact with all members of the fishing and research fleet. The NASA Marshall Space Flight Center's Mississippi Test Facility provided extensive laboratory and some field site support. The NASA units involved operate from the Mississippi Test Facility, Bay St. Louis.

Fishing tournament officials restricted competition for trophies to seven offshore species: blue marlin, white marlin, sailfish, wahoo, dolphin, bluefin tuna, and yellowfin tuna. Minimum weights were set for wahoo, dolphin and the tunas. To be eligible for prizes, catches had to be taken in the daytime between 9 and 3 o'clock and weighed and measured at one of the three official port stations at Destin, Panama City and Pensacola.

Trophy fish catches consisted of 25 white marlin, 5 sailfish, 2 dolphin, and one wahoo. First prize for white marlin (71 pounds) was taken by Ed Chadbourne, aboard the Caroline of Pensacola; first prize for sailfish (52 pounds) went to Bob Beckroid, aboard the Wahoo of Destin; first prize for dolphin (34-1/2 pounds) was awarded to Ted Jones, aboard the Striker of Shalimar, Florida; and first prize for wahoo (38-1/4 pounds) went to Bob Radcliffe, aboard the Blusky Doodle of Pensacola. First prize for a boat catch went to Captain Sonny Inscho (224-1/2 points, based on points per pound for trophy fish), aboard the See Spray of Birmingham, AL.

First, second and third place winners will receive their awards at a banquet to be held at the Pensacola Big Game Fishing Club on September 15.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Bill Pomeroy
713/483-5111

FOR RELEASE:
August 16, 1973

RELEASE NO: 73-107

ALSO RELEASED AT NASA HEADQUARTERS

SKYLAB WILL STUDY COMET KOHOUTEK

NASA today announced tentative plans to observe the Comet Kohoutek during the Skylab 4 mission which is planned for launch on or about November 9 from the Kennedy Space Center. The November date is the original planned launch date for Skylab 4.

Instruments presently on board Skylab provide a broad capability for comet observations over a range of spectral bands. The observation of Kohoutek will be part of a broad-scoped overall plan being coordinated by NASA's Office of Space Sciences.

Observations by Skylab will commence in mid-November and continue until shortly before mission completion now planned for January 4, 1974. Recovery will be in the mid-Pacific Ocean 300 nautical miles from Hawaii.

The plans are tentative, and will be reviewed after completion of Skylab 3. If at that time, there are

-more-

technical reasons to launch Skylab 4 earlier - to minimize the length of time of unmanned operations - then it could not be possible to observe the comet. The possibility of delaying Skylab 4 by about ten days beyond Novermber 9 will also be considered. This would allow observation of the comet until January 14 while it is receding from the Sun.

The Comet Kohoutek was identified earlier this year and will be clearly visible from Earth. It is expected to be the brightest object in the night sky except for the Moon in late December and early January. However, its most important scientific characteristics can only be determined through observation from above the filtering effects of the Earth's atmosphere where Skylab's instruments are built to operate. Skylab's Apollo Telescope Mount instruments, designed to obtain data on the Sun, will observe Kohoutek during its nearest proximity to the Sun late in December.

NASA also today deleted the requirement to maintain the capability to launch the back-up Skylab Workshop.

Earlier plans were to maintain this capability through September 30.

The decision results in the phase-out of certain contractor personnel about six weeks earlier than planned.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Dennis Williams
713/483-5111

FOR RELEASE:
August 16, 1973

RELEASE NO: 73-108

JOHNSON SPACE CENTER DEDICATION AUGUST 27

Official dedication ceremonies for the Lyndon B. Johnson Space Center will be held August 27 at the NASA site southeast of Houston.

The former Manned Spacecraft Center was renamed in honor of the late President on February 17 of this year. Dedication ceremonies have been scheduled to coincide with the 65th anniversary of Johnson's birth.

A number of local, state, and national dignitaries are expected to attend the dedication which will begin at 3:00 p.m. in the main auditorium of the Visitor's Center.

The program includes brief addresses by Johnson Space Center (JSC) Director Christopher Kraft, NASA Administrator James C. Fletcher, Texas Governor Dolph Briscoe and Mrs. Lyndon Johnson. Music will be provided by the U.S. Air Force Band of the West.

Ceremonies will include the unveiling of a bust of LBJ

-more-

carved by noted sculptress Jimilu Mason. The bust, donated by Houston's Chamber of Commerce and Albert Thomas Space Hall of Fame, will be prominently displayed at JSC.

Following the main ceremonies, a special "Johnson Room" will be opened to the public in the Visitors' Center. The room will contain memorabilia collected from Johnson's years in Washington.

On prominent display in the Johnson Room will be a desk used by the President for signing bills, a chair from the Cabinet Room, photographs of Johnson as Vice-President, original editorial cartoons about the space program, and the original U.S. copy of the Outer Space Treaty signed in 1967 by the United States, the Soviet Union and many other nations.

The Johnson Room will contain a portrait of the late President by Boris Chaliapin. The life-like painting was donated by Time magazine.

The resolution to rename the Manned Spacecraft Center in honor of Johnson, who was a strong advocate of space exploration and the application of space technology to life on Earth, was introduced in Congress shortly after his death.

NASA officals and employees of the Manned Spacecraft Center supported the renaming. NASA Administrator James C. Fletcher wrote in a letter to the Senate Committee on Aeronautical and Space Sciences that "...former President Lyndon B. Johnson is recognized as a principal architect of this Nation's space program."

Listing Johnson's role as chairman of Senate space committees, Vice-President and Chairman of the National Aeronautics and Space Council, and as President, Fletcher concluded: "The renaming of the Manned Spacecraft Center in President Johnson's home state of Texas would, in our view, be an appropriate recognition of the role he played in establishing our space program."

The joint resolution to rename the Center was introduced by Senators Lloyd Bentsen of Texas and Robert Byrd of West Virginia. Calling LBJ "the father of the space program in the United States," Bentsen concluded his statement to the Senate Committee on Aeronautical and Space Sciences with these words: "I think Lyndon Johnson deserves this honor more than any other individual. Just as the Houston facility is a physical center of the space program,

Lyndon Johnson was, perhaps, the spiritual center of it. What better way to honor him, to reflect the new mood of the space effort, than to rename the Manned Spacecraft Center in Houston the Lyndon B. Johnson Space Center,

After signing the joint resolution of Congress in February, President Nixon, too, called attention to Johnson's leading role in the history of man's conquest of space.

"Few men in our time have better understood the value of space exploration than Lyndon Johnson.

"It was he, as a Senator, who wrote, introduced, and helped to enact the legislation which created the National Aeronautics and Space Administration. He called it the proudest legislative achievement of his years in the Congress."

Nixon concluded, "By his vision and his work and his support, Lyndon Johnson drew America up closer to the stars and before he died he saw us reach the moon - the first great plateau along the way."

The Johnson Space Center is at the present time the center of operations and control for the Skylab space station. The second Skylab crew, launched July 28,

is expected to surpass the 28-day record flight of the first crew just two days before the dedication ceremony in Houston.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
August 16, 1973

Joe Jones
713/483-5111

ALSO RELEASED AT NASA HEADQUARTERS

RELEASE NO: 73-109

MARTIN-MARIETTA TO DEVELOP SPACE SHUTTLE TANK

The National Aeronautics and Space Administration has selected the Martin-Marietta Corp., Denver Division, for the negotiation of a contract for the design, development, test and evaluation of the external tank for the Space Shuttle. The contractor's proposed cost is $107 million.

The agency plans to award a cost-plus-award-fee contract for the development phase of the external tank project which will include the fabrication of three ground test tanks and six developmental flight tanks. The contract will run through 1978.

Four firms submitted proposals to the Marshall Space Flight Center for this work: Chrysler Corp. Space Division, New Orleans; Martin-Marietta Corp., Denver, Colo.; McDonnell-Douglas Astronautics Co., Huntington Beach, Calif.; and The Boeing Co., New Orleans.

Tank assembly will be at the NASA Michoud Assembly Facility in New Orleans, a part of MSFC. The external tank will carry liquid oxygen and liquid hydrogen -- a total of 675 kilograms (1.5 million pounds) -- to feed the three main engines on the Shuttle orbiter stage. The tank will be 8.1 meters (27 feet) in diameter and 57.4 meters (158 feet long).

The Space Shuttle will consist of a manned reusable orbiter mounted piggy-back at launch on the large expendable external tank. Two recoverable solid rocket boosters will also be attached to the tank.

- more -

The orbiter will resemble a delta-wing airplane about the size of a DC-9 jetliner.

At launch, the solid rocket boosters and the orbiter's three main engines will carry the vehicle to an altitude of about 40 kilometers (25 statute miles). There the boosters will be jettisoned for recovery in the ocean and reuse.

The external tank will continue to supply propellants to the orbiter engines until just before reaching orbit. When the tank is dropped, the orbiter will switch to the orbital maneuvering engines fed from internal fuel tanks, and the stage will continue into orbit.

After completing the mission -- normally about seven days -- the crew will pilot the orbiter through reentry and land it like an airplane. It can then be refurbished for other flights.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Joe Jones
713/483-5111

RELEASE NO: 73--110

FOR RELEASE:
IMMEDIATE
August 24, 1973

SKYLAB ATM PAPERS TO BE PRESENTED

Two papers on the Skylab solar astronomy achievements to date will be presented to international meetings of astronomers in Australia in the next several days.

Dr. Leo Goldberg, an orginal principal investigator associated with NASA's Apollo Telescope Mount, Skylab's solar observatory, will deliver an invited paper reporting on the overall aspects and findings of ATM's operations. Dr. Goldberg, now the director of the Kitt Peak National Observatory in Arizona, will give the presentation August 28, at the International Astronomical Union (IAU) meeting being held at the University of Sydney August 20-30.

Dr. Goldberg has been closely associated with the ATM project from its beginning and will be representing all of the ATM principal investigators at this 15th meeting of the international organization.

Another paper will be presented by Dr. Robert MacQueen to a subsidiary IAU group of astronomers, also meeting at the University of Sydney, on September 11. Dr. MacQueen, of the High Altitude Observatory, Boulder, Colo., will cover results of all Skylab ATM experiments in the area of coronal disturbances, which is the subject of the symposium he will participate in.

The ATM principal investigators, their professional affiliation and their ATM research instruments are:

- more -

Dr. Robert MacQueen, High Altitude Observatory, Boulder, Colorado; White Light Coronagraph.

Dr. G. S. Vaiana, American Science and Engineering, Inc., Cambridge, Mass.; X-Ray Spectrographic Telescope.

Dr. E. M. Reeves, Harvard College Observatory, Polychromator Spectroheliometer, and H-Alpha Telescope.

James E. Milligan, Marshall Space Flight Center, Huntsville, Alabama; X-ray Event Analyzer/X-ray Telescope.

Dr. Richard Tousey, Naval Research Laboratory, Washington, D. C.; Extreme Ultraviolet Spectroheliograph, and Ultraviolet Spectrograph.

# # #

(Note to JSC press: Dr. MacQueen is tentatively scheduled to present a condensation of his paper the morning of September 4, at the JSC News Center. Consult the News Center for further details.)

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Janet Wrather
713/483-5111

FOR RELEASE:
September 4, 1973

RELEASE NO: 73-111

NASA SUPPORTS CHEMISTRY, PHYSICS STUDIES

Work is nearing completion in two of four studies awarded by NASA to Grambling College, Grambling, Louisiana, for research in chemistry and physics. The four grants total more than $94,000, awarded under provisions of NASA's Minority Institutions Program.

Scheduled for completion in September is a "Study of Coronal Structures in a Non-magnetic Star." Mark A. Cross, principal investigator is exploring the possibility that observed coronal structures can be explained without assuming the presence of a magnetic field.

Another Grambling scientist, Dr. N. Gajendar, is analyzing a theoretical model for low frequency oscillations observed by NASA's ATS-1 satellite during magnetically quiet conditions. Dr. Gajendar's study is titled "A Study of Polarizations for Hydromatic Waves Observed at ATS-1."

Reactions of mice to gamma radiations are being studied in a Grambling laboratory by Dr. Bessie Foster. The

-more-

research involves a comparison study of the lymphoid component of the mouse spleen to determine whether or not its response to continuous irradiation is similar to that obsrved in the human thymus. Dr. Foster's project is titled "The effect of Continuous Low Dose-Rate Gamma Irradiation on Cell Population Kinetics of Lymphoid Tissue" -- scheduled for completion in August, 1974.

Also scheduled for completion in late summer, 1974, is research toward finding a satisfactory explanation for the isotopic anomaly of xenon in carbonaceous chondrites. "We hope our investigation will ultimately lead to a better understanding of the early history of our solar system," Dr. D. D. Sabu, principal investigator said. "This problem is being studied in several other laboratories besides ours," Sabu said, "and Grambling hopes to contribute its share in its ultimate solution."

NASA's Minority Institutions Program was established to provide new avenues through which the space agency can relate to colleges and universities with predominantly minority enrollments.

Proposals for grant awards must be relevant to NASA's mission, must contribute to the solution of problems of concern to the agency, and must be of clearly discernible merit.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Jack Riley
713/483-5111

FOR RELEASE:
AUGUST 31, 1973

RELEASE NO: 73-112

FAI HONORS APOLLO ASTRONAUTS

Astronauts Eugene A. Cernan and John W. Young will receive the two highest awards of the Federation Aeronautique Internationale Monday, September 3, in Dublin, Ireland. The Apollo 16 crew also will be honored.

The FAI Gold Space Medal for 1972 will be presented to Cernan for "outstanding performance as commander of Apollo 17." It is the federation's highest award for space flight.

Young, Apollo 16 commander, will receive the Yuri Gagarin Gold Medal for 1972, the second highest award. In addition, he will represent fellow crewmen Astronauts Charles M. Duke, Jr., and Thomas K. Mattingly II, in accepting the V. M. Komarov Diploma, the only FAI space award which recognizes achievement by a crew rather than an individual.

The FAI is a worldwide federation dedicated to progress in aviation and space flight. It is the official keeper of records in those fields. The Dublin meeting is its 66th annual general conference.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

ALSO RELEASED AT MARSHALL SPACE FLIGHT CENTER

FOR RELEASE:
UPON RECEIPT

Joe Jones
205/453-0034

JSC RELEASE NO: 73-113

FOUR FIRMS SUBMIT PROPOSALS ON ROCKET MOTORS

Four aerospace firms have submitted proposals to the National Aeronautics and Space Administration for the development of solid rocket motors (SRMs) for the Space Shuttle.

Proposals were received at the NASA-Marshall Space Flight Center from: Aerojet Solid Propulsion Co., Sacramento, Calif.; Lockheed Propulsion Co., Redlands, Calif.; Thiokol Chemical Corp., Brigham City, Utah; and United Technology Center, Sunnyvale, Calif.

The proposals are now being evaluated. Selection of one of the four firms for the development contract is expected to be made in November.

Each Space Shuttle will use two solid rocket boosters (SRB) burning from liftoff in conjunction with a cluster of three liquid-fueled Space Shuttle Main Engines.

A SRB consists of a SRM and other elements such as forward and aft skirts, nose cone, attachment structures, thrust vector control, separation and recovery devices. This procurement action is only for the motors. The other elements of the system will be obtained separately.

- more -

August 31, 1973

The SRM's consist of the case, flexible nozzle, ignition system, case liner and insulation, and propellant.

The total weight of each of the units will be about 495,000 kilograms (1.1 million pounds), with about 450,000 kilograms (one million pounds) of that being propellant. The motors will be about 36 meters (120 feet) long and about four meters (12 feet in diameter). They will have a maximum thrust of 11 million newtons (2.5 million pounds) each and will burn for about 125 seconds before being jettisoned into the ocean for recovery.

The motor program will be conducted in three increments. The first increment, ending in September 1979, is the design, development, and test of the SRM, including the production of sufficient hardware for six development flights.

The second increment, beginning early in 1978, calls for the production of new and refurbished SRM's for 54 flights (108 units).

The third increment, beginning in July 1980, would call for delivery of new and refurbished units for 385 flights (770 SRM's).

NASA intends to procure increment one as the initial contract coverage. At its option, the agency may negotiate for increment two and adjust the time and/or quantities for the second and third increments. The agency contemplates a separate procurement for the third increment.

Firms could propose the use of either their own company facilities or existing government facilities, without restriction. Companies also could propose either monelithic or segmented motors.

According to the booster development plan, during most of the first increment period the Marshall Center will act as booster integrator, having responsibility for the total booster system. In 1976 a booster integration contract is expected to be awarded.

Other main elements of the Space Shuttle are being developed under separate contracts. These include the orbiter stage and systems integration, the Space Shuttle Main Engine which functions with the SRB to place the orbiter into Earth orbit, the external tank and the air-breathing engines.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Dennis Williams
713/483-5111

FOR RELEASE:
September 6, 1973

RELEASE NO: 73-114

ERTS-1 USE EVALUATED IN TEXAS WATER STUDY

The Texas Water Rights Commission is evaluating the possibility of using data from Earth Resources Technology Satellite-1 (ERTS-1) to detect and locate surface water bodies in the state.

The Earth Observations Division at NASA's Johnson Space Center in Houston has developed a specialized computer-aided procedure to use ERTS-1 digital tapes in this program.

A preliminary run, indicated all areas of surface water 10 acres or greater were correctly identified by the ERTS-1 data, to a positional accuracy of about 500 feet.

Study area for this preliminary run covered parts of Austin, Brazos, Burleson, Colorado and Washington Counties in Texas.

The Water Rights Commission and U. S. Army Corps of Engineers are making the water impoundments inventory as required by the National Program of Inspection of Dams.

The three inventory techniques being evaluated by the Commission for relative costs and accuracy of identification are: searching state federal and local organizations records; using conventional image interpretation techniques; and using the JSC computer-aided techniques.

ERTS-1 was launched on July 23, 1972 from the Western Test Range in California.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Dennis Williams
713/483-5111

FOR RELEASE:

September 6, 1973

RELEASE NO: 73-115

WATKINS NAMED TO POST WITH INTERIOR

Allen H. Watkins, who resigned last month as assistant manager for planning, Earth Resources program office at NASA's Johnson Space Center, Houston, has been named Chief of the Department of the Interior's Earth Resources Observation Systems (EROS) Data Center in Sioux Falls, South Dakota.

A native of Charlottesville, Virginia, Watkins joined NASA in 1962 and had been Chief, Thermochemical Test Branch Engineering and Development Directorate; Manager, Earth Orbital Missions Office, Science and Applications Directorate; and Manager, Earth Observations Aircraft Program Office.

In his new post, Watkins will direct activities at the Data Center which is a national repository for processing and dissemination of thousands of images each year obtained from space-borne television, air photography and other remote sensing equipment.

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The main source of data handled at the center is from the Earth Resources Technology Satellite (ERTS-1), launched by NASA on July 23, 1972. Photography from the current Skylab missions is also available.

-end-

September 6, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
SEPTEMBER 10, 1973

DON J. GREEN
713/483-5111

RELEASE NO: 73-116

FIRST SPACE SHUTTLE ORBITER TEST ARTICLE NEARING COMPLETION

First major development test article in support of building the Space Shuttle orbiter is in the final stages of assembly at Rockwell International Corporation's Space Division.

The test assembly will simulate the orbiter's mid-fuselage section, which houses the spaceplane's huge 60-feet long, 15-feet diameter cargo bay. It will be used to verify, in advance of final design, analyses of such vital areas as mid-fuselage internal stress distribution and heat transfer, and the capabilities of the fuselage to accept moderately elevated temperatures.

Scheduled for completion in October, the U-shaped test article is 17½ feet wide and 20 feet long. It is made up of seven 17-feet-wide by 12-feet-high frame stations, which are enclosed by three major skin sections and supported by 175 hat-shaped cross section stiffeners.

The full-scale test unit is being assembled in a new modular tool designed expressly for the orbiter program. Built primarily for assembly of the orbiter's aft fuselage, the tool's modular concept enables it to be easily configured for other components.

- more -

Space Shuttle is the first reusable space transportation system. About the size of medium-range jetliner, the shuttle orbiter will be able to transport as much as 65,000 pounds of payload to Earth orbit.

The shuttle will liftoff from Earth like a rocket, fly in orbit as as spacecraft, and return to land on a runway similar to a jetliner.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Terry White
713/483-5111

FOR RELEASE:
September 13, 1973

RELEASE NO: 73-117

SKYLAB OBSERVES MAJOR SOLAR FLARES

Being at the right place at the right time paid off for the Skylab 3 crew September 6 when from their vantage point in Earth orbit 270 miles above the distorting effects of the atmosphere they observed a major flare burst out from the surface of the sun.

The flare, estimated to be about 18 times the size of the Earth, was described by Skylab solar physics investigators as the brightest and largest to have been thrown out by the Sun this year. "It's a big daddy," said Skylab 3 commander Alan Bean as he manned the Apollo Telescope Mount (ATM) console to record the flare's growth and movement on film in several spectral wavelengths. Television cameras boresighted to the Skylab's observatory telescopes allow the man on ATM duty to move the instruments to look at regions of the Sun known or predicted to be "active."

more

Joseph Hirman, National Oceanic and Atmospheric Administra- chief solar forecaster, said, "This is the largest flare we've gotten during the Skylab mission, both in optical and x-rays. It produced an event of energetic particles that will produce auroras and geomagnetic storms on Earth."

Hirman's prediction of increased auroras was borne out later when Bean reported seeing spectacular Aurora Borealis and Aurora Australis--northern and southern lights--over the Earth's polar regions. "We saw in one day two auroras, which must be a record for anybody, I guess," said Bean.

Skylab 3 science pilot Owen Garriott waxed somewhat unscientific as he observed the flare activity under way on the seething face of the Sun. "When you look at the Sun now," said Garriott, "it looks like someone kicked the heck out of it. I can't believe it."

Solar physicist Garriott's enthusiasm for the events taking place 93 million miles across space on our star was shared by fellow scientists. Dr. Robert MacQueen of the High Altitude Observatory, Boulder, Colorado, and principal investigator for the ATM SO52 White Light Coronagraph experiment was especially complimentary about the way the Skylab 3

crew conducted observations of the solar flares. "I am impressed as always with the intelligence with which they went about making both the visual and photographic observations," said MacQueen. "They made a number of observations and pictures with the coronagraph and with the x-ray telescope--they selected a very appropriate mode especially for the x-ray telescope to run in, then halted the observations, examined the corona again in detail using their TV monitors, and reacted to begin yet another mode."

Another ATM principal investigator, James Milligan of NASA Marshall Space Flight Center, PI for the S056 Dual X-Ray Telescope, commented on the way the Skylab 3 crew reacted to the sudden activity on the sun with a minimum of instruction from Mission Control Center. "The report on the flare came in to us from NOAA while Skylab was over the ground station at Guam, but we did not get the message in time to uplink anything to the crew about this event," said Milligan.

"We were faced with the situation where the crew was going to arrive at the ATM panel and we had no way of giving them any instructions. Everybody was pretty excited. We had a communications problem at the tracking ship Vanguard and could not have any voice uplinked to the crew." continued Milligan.

"So there was a lot of hair-pulling on the ground hoping that the crew got to the panel and did the right thing.

"They were on the flare just at the moment they got to the panel. I think it really demonstrated the capability of a man being close to the instrumentation and being able to react in real time. The crew really did a beautiful job and observed the flare just exactly the way everybody wanted them to do it," said Milligan.

Assessment of the significance of the large flares observed by the Skylab 3 crew likely will span several months, according to Milligan. "We're getting such a load of data back that we're really going to have a problem analyzing it and getting the information out to the scientific community. We're really going to have a data management problem on our hands," he said.

The Sun supposedly is in the quiet part of its 11-year cycle, but the two large flares observed last week fit more into the type of activity seen at the cyclic peak. One solar physicist estimated that the second of the two flares emitted some 500,000 times more electrical energy than is consumed by all power users on Earth.

Another estimate of the energy output of the flares was that each flare produced more power than has been used by man since he first appeared on Earth - and far more than has been generated since Ben Franklin flew his kite and made the first step toward harnessing electrical power.

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September 13, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

JOHN MCLEAISH
713/483-5111

FOR RELEASE:
September 14, 1973

RELEASE NO: 73-118

JSC SUPPORT SERVICES CONTRACT AWARDED

Pan American World Airways, Inc., Aerospace Services Division, Cocoa Beach, Florida 32931 has been awarded a contract for Plant Maintenance and Operations Support Services at the Lyndon B. Johnson Space Center (JSC), Houston, Texas 77058.

Pan American will be responsible for the operation of all utility systems and maintenance of utilities, buildings, roads, ditches, and special equipment at JSC.

The definitized contract will be a cost-plus-fixed-fee/award fee type contract and is awarded for a three-month period beginning September 13, 1973, and ending December 15, 1973. The estimated amount of the 3-month period is $1,350,000.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

F. Dennis Williams
713/483-5111

FOR RELEASE:
September 15, 1973

RELEASE NO: 73-119

SOVIET TEAM AT JSC FOR TESTS OF APOLLO-SOYUZ DOCKING EQUIPMENT

Nine scientists and engineers from the Soviet Union have begun an extended stay at the Johnson Space Center, where they will work with U.S. engineers to evaluate the docking system to be used in the Apollo-Soyuz Test Project.

The Soviet team, which arrived early Thursday morning, is headed by Vladimir S. Syromyatnikov, Senior Researcher of the Soviet State Research Institute on Machine Building.

The full-scale development hardware built by the two nations is now at JSC for an extensive series of tests as to its compatibility and operation. The docking module will be used in the Apollo-Soyuz joint mission scheduled for July 1975.

First in the planned sequence of tests will be an evaluation of the two sections, one prepared by each nation, for proper mating. Following this, pressure integrity and structural strength of the combined system will be checked.

The U.S.-U.S.S.R. team will also make dynamic tests of

-more-

the actual docking of the two elements. Each of the components will perform the active docking maneuver with the other element as a target. Other tests include a study of the system under thermal extremes expected in space. The entire sequence of tests could take up to three months.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

ALSO RELEASED AT MARSHALL SPACE FLIGHT CENTER

FOR RELEASE:
September 17, 1973

Curtis Hunt
713/483-5111

RELEASE NO: 73-120

"QUIET" SUN NOT SO QUIET

"We now have underway a new sort of transient event...a loop was formed in XUV (extreme ultraviolet) within the last 30 minutes", an excited Dr. Owen Garriott recently told Mission Control at the Johnson Space Center near Houston, Texas.

The "loop" that Astronaut Garriott had referred to was a magnetic field loop leaping from the surface of the Sun. Such loops have never been observed in XUV through Earth-bound telescopes.

The loop observed by Garriott on an XUV Monitor appeared to extend about 1.5 ARC minutes across the solar disk. Such loops in the visible light wavelength are generally shaped like a gigantic half doughnut that would equal in length about one-sixth the distance from the Earth to the Moon.

The effect of the dramatic event on Garriott was such that he returned to the operation of his instruments later in the evening at a time when he was scheduled for sleep.

The instrument operation during a scheduled shut-down puzzled ground controllers until the next morning when they learned from Garriott that he had been more interested in his solar observations than he was in sleeping.

Skylab's XUV Monitor, and two larger instruments that are guided by the astronauts from visual references provided by the Monitor, are the latest innovations in a long line of ultraviolet wavelength electronic telescopes

conceived by Dr. Richard Tousey, head of the Naval Research Laboratory's Rocket Spectroscopy Branch. The larger instruments are an Extreme Ultraviolet Spectroheliograph and an Ultraviolet Spectrograph.

Dr. Tousey was aware that observation of the Sun above Earth's atmosphere would vastly increase knowledge of the Sun's radiation spectrum. In 1941 he proposed and flew the first rocket spectrograph, which photographed the Sun's previously hidden ultraviolet rays.

Tousey is the principal investigator for the data gleaned from the spectroheliograph and the spectrograph. These instruments are photographing the Sun in selected ultraviolet wavelengths.

But the instrument that alerted Garriott to the dramatic emergence of the loop was the small XUV Monitor that was added to the Skylab's solar observatory by Tousey with the assistance of the Marshall Space Flight Center and Ball Brothers Research Corporation at Boulder, Colorado, early in the development of the Apollo Telescope Mount (ATM) program.

The first Skylab crew operated the XUV Monitor but the men were unable to realize its value because the pictures that were flashed on their television monitor screens appeared and disappeared too quickly for their eyes to retain the images.

It was a different story for the people on the ground where data transmitted from the XUV Monitor television camera far exceeded most expectations.

After their initial use, photographs of these televised, filmed displays gradually began to be appreciated and then were depended upon for the planning of Skylab solor observation activities for following days.

The second Skylab crew carried a small photoelectric image tube into orbit. The image tube, supplied by the Army's Night Vision Laboratory, Fort Belvoir, Virginia, has a semi-persistent phosphor internal coating that causes an image to last long enough for the human eye to retain.

The astronauts also use a new SX-70 Polaroid camera aboard Skylab to photograph the XUV images. The Polaroid camera allows them to compare the Sun's features from one orbit to the next.

After the light from the Sun passes through the optics of the XUV Monitor, it encounters three very thin aluminum filters. These aluminum filters pass extreme ultraviolet wavelengths that range between 171 and 500 angstroms while rejecting the more intense radiations emitted from the Sun in the longer wavelengths that include visible light. The aluminum filters are so thin that a stack of some 2,000 would approach the thickness of aluminum foil used in the kitchen.

The XUV then falls on a special phosphor placed on the front of the TV camera, which turns it into visible light to which the camera is sensitive. From that point on, the system is a regular TV that produces an image for a astronaut monitoring and video transmission.

The XUV Monitor and the other solar observatory instruments in Skylab have shown many interesting and considerably different views of our Sun.

Although some scientists may prefer black and white photography, others are making use of electronics and color TV tubes to introduce artificial color into black and white photographs. This technique allows various shades of gray in the black and white photograph to be converted into very contrasting colors in the color photograph.

It enables the untrained eye to easily distinguish features which would otherwise be almost invisible. Color photographs produced in this manner will be available for textbooks and other uses when Skylab flights are completed.

Solar physicists and astronomers sometimes describe the Sun as active or quiet. But research aboard Skylab has shown that even a quiet Sun is an extremely dynamic sphere. It is a busy furnace that supplies the quiet Earth with temperature conditions that maintain the fragile balance required by all

known forms of life. The Sun is the Earth's source of energy. Skylab studies may someday provide the knowledge needed to better understand solar processes. Better understanding of solar processes may well lead the way to new means of generating and controlling energy for use on Earth.

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September 17, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Dick Young
John F. Kennedy Space Center
305/867-2468

FOR RELEASE:
September 23, 1973

SPACE SHUTTLE FACILITY CONSTRUCTION TO BEGIN IN 1974

KENNEDY SPACE CENTER, Fla. -- The reshaping of Launch Complex 39 to prepare the nation's Spaceport for its new role as prime launch and recovery site for the Space Shuttle will get underway during the first quarter of 1974.

The first facility to be built will be the runway to be constructed on a northwest - southwest alignment a short distance northwest of the Vehicle Assembly Building

And like all of the facilities needed to usher in the Space Shuttle era in the late 1970s, it has been designed and engineered to reduce the environmental impact to a minimum.

Among the factors which led to KSC's designation as the prime shuttle site was the existence of Launch Complex 39 with structures and facilities readily adaptable to shuttle requirements.

Saturn V/Apollo Complex 39, with its twin pads and supporting systems is suitable for Space Shuttle needs. The huge VAB - used in the Apollo and Skylab Shuttle programs - will be modified for erection and mating of the booster and orbiter in the high bay portion. Other areas of the VAB will be adapted to additional space shuttle functions.

The existing Industrial Area will provide shop, laboratory, office and warehousing facilities.

Among the new facilities to be needed for the shuttle era are those required for solid rocket motor receiving, storage and recovery/disassembly, orbiter maintenance and checkout and a landing site for orbiter landings on their return from missions into space.

Darwin Brown, the Shuttle Projects Office Engineer who headed the task force preparing the Environmental Impact Statement required on all federal projects, said "every effort was made to minimize the impact of the new shuttle facilities on the environment."

"When an existing facility could not be used," said Brown, "studies were initiated to determine the best site, weighing equally the concerns of environment, cost and operations."

During the construction period, it is planned to continually monitor environmental conditions at KSC. It is intended that the information gained will be made available to interested agencies and be used as a basis to guide Center efforts to protect the environment.

This work will be accomplished in cooperation with the local representatives of the Bureau of Sport Fisheries and Wildlife, Department of the Interior.

The impact study notes:

"Considerations of operating modes indicate that long and short term land uses will not affect wildlife productivity. The potential for adverse environmental impact is small; such impacts that are foreseen will be local, short in duration, controllable and environmentally acceptable...Where the possibility of some detrimental impact exists, operational constraints will be imposed to minimize these impacts."

Maintenance of environmental stability and planned multiple land use has been stressed at KSC. KSC is also the location of the Merritt Island National Wildlife Refuge. The 140,000-acre Refuge consists of virtually all of the Spaceport's 83,000 acres of land not in operational use plus the surrounding submerged bottomlands in the Indian and Banana Rivers and Mosquito Lagoon owned by the State of Florida.

The Shuttle landing site is comprised of the runway, tow-way, Flight Operations Facilities and equipment for the support and safety of flight operations.

According to Brown, "the initial runway installation will be 15,000 feet long by 300 feet wide with 1,000 foot overruns at each end."

The land area required for the landing site is approximately 540 hectares (1,350 acres). The major portion of the area planned for use is high, dry land. Its use before the

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Spaceport lands were purchased in the early 1960s was primarily agricultural.

The sites for the buildings, tow-way and the runway will be excavated to a depth of 45 to 75 centimeters (1.5 to 2.5 feet), removing approximately 1,514,250 cubic meters (1,850,000 cubic yards) of material unsuitable for stabilizing the landing facility.

This material will be retained in the site area and used for diking and as mulch blanket for grassing along the sides of the runway.

Approximately 1,663,875 cubic meters (2,175,000 cubic yards of fill material will then be added to raise the surface of the runway to an elevation of approximately 3 meters (9 feet) above mean sea level.

Present plans are to use mobile scraper type earth moving machines and/or portable dredges to relocate the fill material required for the project. Studies are now being conducted to determined the most economical methods that would result in minimum impact upon the environment.

Present plans are to construct a borrow canal parallel to the runway to obtain fill material.

Obtaining fill material will displace some wild animals and affect natural vegetation but it is expected that an improved aquatic wildlife habitat and productivity should result.

In fact, from observations, during the Apollo construction period, the landscaping, seeding, sodding, planting of trees and shrubs along with the maintenance of drainage ditches seem to enhance the growth of wildlife.

The extensive network of existing mosquito control dikes effectively isolates the construction site from the riverline habitat and controlled drainage of the site using culverts and sediment screens will minimize sedimentation of Banana Creek.

According to Steve Harris, Runway Lead Engineer for KSC's Design Engineering Directorate, the first phase construction contract will be let in the first quarter of Calendar Year 1974 and plans call for completion of Phase I by mid-1976.

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Harris said Phase I work consists of site clearing and preparation, embankment and paving of the landing strip and tow-way, airfield lights and partial utilities to support airfield lighting and acceptance tests.

The remaining two phases in the construction process will bring the landing facility to a state of operational readiness by the end of 1977.

The beginning of construction and modifications on the other shuttle facilities will follow on this schedule, by calendar years: Orbiter Maintenance and Checkout Facility, 1975; Vehicle Assembly Building modifications, 1975; Mobile Launcher modifications, 1975; Launch Pad modifications, 1975; Hypergolic System Facility, 1976; Solid Rocket Booster Facility, 1976, and Parachute Processing Facility, 1976.

Among the other potential sites investigated for the landing facility was the existing Skid Strip at Cape Kennedy Air Force Station. It was found to be lacking in length, lighting and landing aids. Its remoteness from the Launch Complex 39 - VAB area made it both operationally and economically unattractive.

In addition to higher operating costs due to longer vehicle processing time, an increased risk would also have been incurred in that overflight of the KSC Industrial Area and possibly Titusville would have been necessary to assure a two-directional landing capability.

Another factor in eliminating the Skid Strip site was a probable interference with the existing Victor 3 low altitude, main, north-south coastal flyway which borders Merritt Island along the Indian River. This would necessitate a periodic closing of the airway or relocating it to a more westerly non-intering location.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
September 24, 1973

RELEASE NO: 73-121

NASA RELEASES SHUTTLE TRAINING AIRCRAFT BID PACKAGE

The National Aeronautics and Space Administration has released a request for bid package to the aerospace industry to modify two aircraft for use in training for Space Shuttle operations.

The Request for Proposals (RFP) was issued by the Johnson Space Center, Houston, Texas. A cost-plus-fixed-fee type of contract is planned. Proposals are to be submitted by October 9, 1973 and the work is to be completed in approximately two and one-half years after contract award.

Bearing the title of Shuttle Training Aircraft (STA), the vehicles are to be capable of simulating the flying characteristics, performance and trajectory of the Space Shuttle orbiter during atmospheric flight.

The STA will be used to simulate approach and landing techniques for normal and abort operations and for powered flight for shuttle ferry operations.

The bid calls for cabin configuration closely representing the orbiter cockpit. Functional controls will be installed at the left-hand station to simulate orbiter displays and controls with the right-hand station configured with controls for the pilot.

Design of the training aircraft will allow for possible future installation of actual orbiter avionics flight hardware.

Provisions call for accommodations of three crewmen in the cabin of the aircraft. One position is called the Safety Pilot and the second crew position is the Simulation Pilot. In addition, a stowable jump seat may be added for an observer-passenger.

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There is also an area in the main cabin called Simulation Engineer's Station. It contains the necessary controls and displays to allow the training coordinator to check out, operate and monitor the STA training system. There are also five seats to accommodate additional riders.

Two types of payload capabilities are called for in the bid package. For simulation flights, STA requires a payload of 4,000 pounds; and for atmospheric ferry flights of up to 1,500 nautical miles, the vehicle requires a 2,000-pound capability.

Payload, according to the RFP, is "the allowable weight in excess of the weight of an equipped and fueled STA."

In a characteristic simulation cycle, the vehicle will climb to 35,000 feet altitude, cruise for approximately three minutes, descend to a simulated Shuttle orbiter landing, and then return to altitude.

Normally, a training site will be approximately 50 miles from take-off point. Much of the initial training will be performed at Ellington Air Force Base -- a military installation located near Johnson Space Center.

The Space Shuttle will be the nation's first reusable space vehicle. The orbiter stage will be a delta-winged airplane-like vehicle capable of landing on conventional runways. It will have a cargo compartment measuring about 18 meter (60 feet) in length and 4.5 meters (15 feet) in diameter, and will be able to place 29,500 kilograms (65,000 pounds) in a 185-kilometer (100 nautical mile) due East Orbit.

The orbiter will be boosted into space through the simultaneous operation of the solid-propellant booster rockets and the orbiter stage high-pressure liquid oxygen-liquid hydrogen main engines. The booster rockets will detach at an altitude of about 40 kilometers (25 miles) and descend by parachute into the ocean to be recovered and reused. The orbiter, under its own power, will continue into low Earth orbit.

The Space Shuttle will be employed as an operational transportation system by both NASA and the Department of Defense. Primary operational sites for the Space Shuttle will be the Kennedy Space Center in Florida and Vandenberg Air Force Base in California.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
September 25, 1973

RELEASE NO: 73-122

JSC INVITES LOCKHEED TO TEST SHUTTLE ORBITER IN UNIQUE FERRY FLIGHT CONFIGURATION

The NASA Johnson Space Center has invited Lockheed Aircraft Corporation, Burbank, California through its Houston operations to submit a proposal for wind tunnel tests using a C-5A as a ferry aircraft to carry the Space Shuttle orbiter.

In the proposal, the airplane-like orbiter will be mounted "piggyback" on the C-5A. The tests will be conducted in Lockheed's Low Speed Tunnel located in California using a small scale model of the latest orbiter configuration.

Purpose of the wind tunnel tests are to determine: (1) if the plan is technically feasible, and (2) if feasible, determine the "optimum location for the piggyback" trip.

JSC estimates that 70 test runs will be needed using approximately 40 hours of wind tunnel run time. The work is to be completed by December 14, 1973 and is being analyzed for the Structures and Mechanics Division.

The orbiter is a multi-purpose delta wing vehicle capable of operations in the weightless arena of space and it also will fly in Earth's atmosphere.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

ALSO RELEASED AT NASA HEADQUARTERS

FOR RELEASE:
September 24, 1973
11:00 A.M. CDT

Richard Friedman
202/755-3897

Don Green
713/483-5111

RELEASE NO: 73-123

EUROPE TO BUILD SPACELAB FOR U.S. REUSABLE SPACE SHUTTLE

An unprecedented new international cooperative project is provided for in a Memorandum of Understanding signed in Washington today by Dr. James C. Fletcher, NASA Administrator, and Dr. Alexander Hocker, Director General of the European Space Research Organization (ESRO).

Nine European countries, through ESRO, will design, develop, manufacture and deliver a "Spacelab" flight unit which will be an important element of NASA's Space Shuttle system. The Spacelab will be carried in the Space Shuttle Orbiter, which will look like a delta-winged airplane about the size of a large jet liner. The Spacelab will have two elements, a

-more-

pressurized manned laboratory module permitting scientists and engineers to work in a normal shirt-sleeve environment, and an instrument platform, or pallet, to support telescopes, antennae and other equipment requiring direct space exposure.

The Spacelab module and pallet will be transported, either separately or together, to and from orbit in the Orbiter payload bay, and will be attached to and supported by the Shuttle Orbiter throughout missions lasting seven to thirty days. At the end of each flight the Orbiter will make a runway landing, and the Spacelab will be removed and prepared for its next mission.

The NASA/ESRO agreement represents a major step in the sharing of space costs between the U.S. and European countries participating in this cooperative project. The estimated cost of $300-400 million for the Spacelab will be borne by the ESRO countries involved.

The European Spacelab represents a significant contribution to the space transportation system in an area not funded by the U.S. It provides for the timely availability of a supporting system important to realizing the full potential of the Shuttle; it will also facilitate joint use programs, many entailing the activities of U.S. and European astronauts.

Under the terms of the Memorandum of Understanding, NASA will procure from ESRO any additional Spacelab units of the same basic design which may be needed for U.S. programs. The U.S. will not develop any unit of its own which would substantially duplicate the design and capabilities of the first Spacelab.

It is currently planned that the first operational space flight of the Shuttle will occur in late 1979. To permit adequate time for experiment integration, check-out and compatibility testing, the Spacelab unit will be delivered about one year earlier.

Subsequent to the delivery of the Spacelab by ESRO, NASA will manage all operational activities, including crew training and flight operations. Flight crew opportunities will be provided in conjunction with flight projects sponsored by ESRO or by governments participating in the Spacelab program and utilizing the Spacelab. It is contemplated that there will be a European member of the flight crew of the first Spacelab crew.

While it is too early to define detailed terms and conditions for subsequent operation and use of the Shuttle with the Spacelab, NASA will make the Shuttle available for Spacelab

missions on either a cooperative (non-cost) or a cost - reimbursable basis. In the latter case, the costs of the launching services provided would be charged as they are at present, for reimbursable launches of foreign satellites.

The Memorandum of Understanding is subject to and implements a government-level Agreement between nine member states of ESRO and the United States.

Belgium, Denmark, France, Germany, Italy, The Netherlands, Spain, Switzerland, United Kingdom, and U.S. have signed the intergovernmental agreement. The agreement makes provision for participation by additional nations.

-end-

NATIONAL AERONAUTICS AND
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Johnson Space Center
Houston, Texas 77058

Don Green
713/483-5111

FOR RELEASE:

RELEASE NO: 73-124

NASA IS 15 YEARS OLD

"Skylab, this is Houston...."

Computers plotting trajectories....

Rockets lifting from their launch pad....

"Tranquility Base here: the Eagle has landed...."

This is NASA in terms of sights and sounds of space flight. And this has been NASA for the past decade and a half.

Fifteen years of progress in space exploration will be marked throughout the nation on October 1 as the Johnson Space Center and other NASA installations observe the anniversary with special programs.

The JSC program will be an expanded open house with personnel standing by to explain the functions of the Mission Control Center, the laboratories and other facilities.

NASA began with the enactment of Public Law 85-568. The new agency was created by the National Aeronautics and Space Act of 1958 which President Dwight D. Eisenhower signed into law on July 29. And

-- more --

NASA is charged with carrying out the stated policy of the United States that "activities in space should be devoted to peaceful purposes for the benefit of all mankind."

The agency took tangible form on October 1, 1958, with assignment to it of the 43-year-old National Advisory Committee for Aeronautics (NACA). This organization, headquartered in Washington, D.C., directed five field laboratories: Ames Aeronautical Laboratory (now Ames Research Center), Mountain View, California; High-Speed Flight Station (now Flight Research Center), Hampton, Virginia; Lewis Flight Propulsion Laboratory (now Lewis Research Center), Cleveland, Ohio; and the Pilotless Aircraft Research Center (now Wallops Station), Wallops Island, Virginia.

To this nucleus were added other responsibilities. The Naval Research Laboratory's Project Vanguard was shifted to NASA, as was the Army's Jet Propulsion Laboratory contract operation managed by the California Institute of Technology, and the Development Operations Division of the Army Ballistic Missile Agency at Huntsville, Alabama. The latter developed into the George C. Marshall Space Flight Center. Transferred from the ABMA with Development Operations Division was a part of ABMA at Cape Canaveral, Florida, that was set up as the Launch Operations Directorate of the Marshall Center. Later, this grew into the John F. Kennedy Space Center, Florida.

NASA established other major facilities: Goddard Space Flight Center, Greenbelt, Maryland: KSC Western Test Range Operations Division, Lompoc, California; and the Manned Spacecraft Center (now the Lyndon B. Johnson Space Center), Houston, Texas; one of the agency's most widely publicized centers.

The JSC bears the name of the man who is hailed as the "recognized principal architect of this nation's space program." The former Manned Spacecraft Center was renamed in honor of the late President on February 17 of this year.

JSC opened for business exactly 12 years ago. The first complement of people moved into temporary offices in Houston while cattle grazed on a 1620-acre site where design and control of manned space flight eventually would take place. Construction began with ground-breaking ceremonies on April 2, 1962, and a year-and-a-half later the first buildings were ready for occupancy.

Although manned space flight starts at a launch pad a thousand miles from JSC and ends on the deck of a ship even more distant, the JSC Mission Control Center is the spaceman's link with Earth from lift-off to splashdown.

The JSC employs some 4,000 engineers, scientists and administrative personnel, and a corps of 37 astronauts. Another 7,000 personnel

work at or near the Center to help test spacecraft systems, help plan the missions, train the astronauts or just keep the Center running smoothly. The total combined payroll adds more than $150 million a year to the Houston-area economy.

While all the manned programs from Mercury through Skylab were under management direction of the Houston-based Center, it wasn't until the second manned Gemini mission that the Mission Control Center was ready for operation. And from that June 3rd day in 1965 to the present, the Center's fame grew steadily.

Man's first landing on the Moon- the Apollo 11 mission - drew more than 1250 newsmen and contractor public relations officials to JSC. Twenty-nine manned flights have been launched by the United States. In the beginning Alan Shepard flew a mere 15 minutes and 22 seconds in space. Today Alan Bean has logged nearly 70 days in space - including one mission of more than 59 days as the Commander of Skylab space station.

Manned flight is the most widely publicized of the many programs sponsored by NASA. Other programs include the unmanned exploration of the distant planets, an unmanned visit to Mars, aircraft research, and urban and environmental study.

International cooperation highlighted by the joint US-USSR manned flight set for 1975 is of increasing importance. And NASA further

expanded its international role with a recent agreement with the European Space Research Organization (ESRO) in which the Europeans will develop a sortie laboratory to fly in the 1980's in the Space Shuttle.

At the end of this decade, a new Space Shuttle will begin regular flights to carry men and satellites into space with far greater reliability and at far lower costs than is now possible. With the Space Shuttle, Americans will be able for the first time to return to Earth and land their vehicle on an aircraft runway.

Behind the drama of space flight are the people and programs that are dedicated to expanding human well-being and knowledge through technology.

And that - on its 15th birthday - is what NASA is all about.

# # #

August 22, 1973

FRED HAI SE INJURED IN CRASH

Astronaut Fred W. Haise, Jr. 39, was injured today when the World War II training plane he was flying crash landed near Scholes Field in Galveston.

Haise was admitted to John Sealy Hospital in Galveston. The attending physician reported Haise suffered second degree burns over 50 per cent of his body and a few third degree burns on his legs. He said the prognosis was good, that Haise's vital signs were stable, and that it did not appear that skin grafting would be necessary.

Haise told NASA officials that the plane's engine quit while he was in the traffic pattern at the Galveston airport. Haise had taken off from the Angleton, Texas, airport in the BT-13 aircraft owned by the Confederate Air Force. The plane was painted to resemble a Japanese World War II aircraft.

The crash occured about 6:40 p.m.

Haise is Technical Assistant to the Manager, Orbiter Project Office, at the Johnson Space Center. He transferred from the Astronaut Office in April, 1973 to assist in the overall management of the Space Shuttle Orbiter vehicle development.

Haise was lunar module pilot on the Apollo 13 mission in April, 1970.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
September 25, 1973

RELEASE NO: 73-125

NASA ISSUES INSTALLMENT FOR SHUTTLE DEVELOPMENT

The NASA Lyndon B. Johnson Space Center has made a payment of $7,200,000 to Rockwell International Corporation, Downey, California, for continued development of the Space Shuttle vehicle.

The installment increases the total amount of the award to $160,619,000 and covers Rockwell's performance through October 30, 1973.

More than 2875 contractor personnel now are employed in shuttle development.

-end-

September 25, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
September 25, 1973

RELEASE NO: 73-126

JSC AWARDS NEW AVIONICS CONTRACT - TO IBM

The Electronic Systems Center of IBM Federal Systems Division, Owego, New York has been awarded a contract to design, implement and maintain avionics software for a data system on the Space Shuttle orbiter.

The award was made by the NASA Johnson Space Center, Houston, Texas.

Estimated cost of the development program is $6,618,500 for the initial increment of the contract. A cost-plus-fixed-fee type of award has been issued. It will remain effective through April 10, 1975.

The term "software" relates to mathematical computations and information translated into language acceptable for computer systems.

In space terminology, the IBM award is for a Space Shuttle Orbiter Avionics Software Development. It is to be Government Furnished Equipment (GFE) separate from the orbiter manufacturing program underway by Rockwell International, Downey, California.

Work to be performed by IBM falls into three major categories:

1. Design and maintenance of the software programs for Data Processing System (DPS) on the orbiter.

2. Development and maintenance of the tools required for the software program and,

3. The design, development and maintenance of test software for ground based facilities such as the Avionics Development Laboratory and the Shuttle Avionics Integration Laboratory, both of which are planned for JSC in Houston, Texas.

The contract was awarded in two increments. During Increment 1, the contractor

-more-

will develop a preliminary program. In Increment 2, he will develop in-depth programs for orbiter missions and for the supporting laboratories.

IBM earlier was selected by Rockwell International to design and produce two other key electronic units for the Space Shuttle orbiter. The components are an orbiter general purpose avionics computer and an input-output unit that works in conjunction with the computer.

The two contracts raise the New York-based firm's new business in the last month to nearly $22 million. The major portion of the work will be performed in Owego.

The first reusable space transportation system, the Space Shuttle is being designed as the workhorse vehicle for the nation's future in space. It will be able to carry as much as 65,000 pounds of varied cargo to Earth orbit, ranging from satellites to passengers and sections of other vehicles that will be assembled in space.

The shuttle's payload-carrying orbiter also will have the ability to be outfitted with a variety of scientific equipment to perform such missions as Earth services and natural resources survey in missions of up to 30 days duration.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

ALSO RELEASED AT NASA HEADQUARTERS

FOR RELEASE:
September 26, 1973

Don J. Green
713/483-5111

RELEASE NO: 73-127

CONTRACT FUNDS SHUTTLE ORBITER ASSEMBLY SITE

Provisions for a site for the final assembly and checkout of the Space Shuttle Orbiter were incorporated in a contract awarded to the Space Division of Rockwell International Corporation by NASA's Johnson Space Center, Houston.

Proposed modification and additions covered by the contract, plus use and maintenance of Building 294 and other facilities at Air Force Plant 42, Palmdale, California, involve facilities work amounting to approximately $7.3 million. Work on additions and modifications is planned to start in the near future.

Rockwell Internationl is the prime contractor to NASA for Orbiter development.

-end-

September 26, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Jack Riley
713/483-5111

FOR RELEASE:
September 27, 1973

RELEASE NO: 73-128

ASTP MEETING IN MOSCOW

A 47-member NASA delegation will begin two weeks of meetings in Moscow Monday, October 1, on the Apollo-Soyuz Test Project.

The delegation will continue planning toward a cooperative manned earth orbital mission with the Soviet Union in July 1975 to test a compatible docking mechanism. ASTP is aimed at establishing an international crew rescue capability as well as possible joint scientific space missions.

Headed by Technical Director Glynn S. Lunney of JSC, the delegation will consist of members of three working groups - Mission Model and Operational Plans, Communications and Tracking and Life Support Systems. ASTP Director Chester M. Lee of NASA Headquarters and several other representatives will join the group for the second week.

Agenda items include joint experiments, safety assessment reports, a communications system design review, continued work on detailed crew procedures, planning for a familiarization visit to the Soviet Union by the U.S. crew in November, planning for joint mission control center simulations, and discussions of long term requirements for compatible docking systems.

-end-

September 27, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
September 28, 1973

RELEASE NO: 73-129

JSC EXTENDS LOCKHEED'S SUPPORT CONTRACT

A third year extension in its contract to provide general electronic, scientific and computing Center support services has been awarded to the Houston Aerospace Systems Division of Lockheed Electronics Company Inc., Plainfield, New Jersey.

The amount in the cost-plus-award-fee contract is for an estimated $32,773,000. The work will be done at the Johnson Space Center, Houston, Texas.

Under the terms of the award, Lockheed supports the Engineering and Development, Flight Operations, Flight Crew Operations and Life Sciences Directorates in a variety of functions associated with computer operations and maintenance, general electronics, instrumentation, and engineering.

This is the largest support services contract at JSC in terms of personnel. More than 1550 Houston--area personnel are employed under the contract.

Lockheed initially was awarded the work in 1971. The contract contained provisions for five negotiated one-year periods. This third yearly extension remains in effect through August 31, 1974.

More than $50 million in payments have been made to Lockheed for the prior two years that the contract was in effect.

-end-

September 28, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Dennis Williams
713/483-5111

FOR RELEASE:
September 27, 1973

RELEASE NO: 73-130

JOHNSON SPACE CENTER TO CELEBRATE NASA'S 15th ANNIVERSARY WITH SPECIAL OPEN HOUSE

Visitors touring the Johnson Space Center will be offered a special bonus during the week of October 1-5, as NASA celebrates its 15th Anniversary.

In the high bay area of Building 7, which is normally not open to the public, two representatives of JSC's Crew Systems Division will speak to visitors about the development and testing of space suits and other equipment used for life support by the astronauts.

The vacuum chamber where astronauts Robert Crippen, Karl Bobko and William Thornton participated in an eight-week Skylab medical experiment prior to the launch of the first crew will be on view in Building 7.

In viewing rooms at the Mission Control Center, a limited number of visitors will be able to watch videotapes of the first landing on the Moon. Tour guides will discuss Skylab activities and project a tracking map that shows the current location of the space station.

To visit Mission Control, visitors will have to obtain tickets in person from the information counter in the Visitors' Orientation Center, Building 1.

Displays and public buildings open during most of the year may also be toured during the Anniversary Week. In JSC's Main Auditorium, films of the final landing on the Moon and of the Skylab program are on view. The Center may be visited from 9 a.m. to 4 p.m. daily.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Terry White
(713/483-5111)

FOR RELEASE:
October 2, 1973

RELEASE NO: 73-130

FAGET RECEIVES GUGGENHEIM AWARD

Houston, Texas----Dr. Maxime A. Faget, Director of Engineering and Development at the NASA Johnson Space Center here, has been named by the International Academy of Astronautics to receive the Academy's 1973 Daniel and Florence Guggenheim International Astronautics Award. Faget will receive the award at the International Astronautical Federation 24th Annual Congress October 7-13 in Baku, Azerbaidzhan, in the Soviet Union.

The Academy gives the Guggenheim Award each year in recognition of an outstanding contribution to space research and exploration during the preceding five years. Faget was cited by the Academy for "playing a major role in developing the basic ideas and original design concepts that have been incorporated into all the manned spacecraft flown by the United States.. an expert on vehicles suitable for reentering the earth's atmosphere. He is

-- more --

particularly noted for his contributions to the basic configuration of the command module and to the development of the pressure-fed hypergolic engines used on the Apollo modules."

Faget was elected an IAA corresponding member in 1965.

Among previous recipients of the Guggenheim International Astronautics Award have been former Johnson Space Center Director Dr. Robert R. Gilruth; NASA Director for Life Sciences Dr. Charles A. Berry; State University of Iowa physicist-astronomer Dr. James Van Allen; Jodrell Bank Experimental Station director Sir Bernard Lovell; president of the Academy of Sciences of the USSR, Prof. Mstislav Keldysh; and Soyuz 9 cosmonauts Col. Andrian Nikolayev and Dr. Vitaly Sevastianov.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483/5111

FOR RELEASE:
October 5, 1973
2:00 p.m. CDT

RELEASE NO: 73-131

NASA INVITES BOEING TO TEST SHUTTLE ORBITER FOR "PIGGYBACK" FERRY FLIGHTS

The Boeing Company, with operations in Houston, Texas, has been invited to submit a proposal for wind tunnel tests using a 747 as a ferry aircraft to carry the Space Shuttle orbiter.

The proposal was made by the NASA Lyndon B. Johnson Space Center.

In the proposal, the airplane-like orbiter will be mounted "piggyback" on the 747 jumbo jet.

Purpose of the tests is to determine if the plan is "technically feasible."

JSC estimates that 70 test runs will be needed using approximately 40 hours of wind tunnel time. The work is to be completed approximately 12 weeks after contract award.

A similar proposal earlier was offered Lockheed Aircraft Corporation, Burbank, California, using a C-5A as the ferry aircraft, and some $48,466.00 have been set aside for Lockheed's use in the test program.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483/5111

FOR RELEASE:
October 5, 1973
2:00 p.m. CDT

RELEASE NO: 73-132

NASA EXTENDS DYNALECTRON CONTRACT AT WHITE SANDS

A six month extension in the support services contract at the White Sands Test Facility, near Las Cruces, New Mexico, has been awarded to Dynalectron Corporation, Land-Air Division, Holloman AFB, New Mexico.

Estimated value of the cost-plus-award-fee contract is $1,362,061. The work is to be done for the Johnson Space Center.

Approximately 170 New Mexico area engineering, administrative, and technical personnel are employed under terms of the award. They provide services in technical and administrative operations, maintenance, laboratories, security and fire protection.

The dollars allocated for the work increases the funding of the multi-year contract to $5,938,003.

# # # #

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

F. D. Williams
(713/483-5111)

FOR RELEASE:
October 9, 1973
2 p.m. CDT

RELEASE NO: 73-133

SUPPLEMENTARY CONTRACT FOR EARTH RESOURCES EVALUATION

The National Aeronautics and Space Administration/Lyndon B. Johnson Space Center will issue a $1.2 million cost-plus-a-fixed-fee supplemental agreement to the existing Skylab Payload Integration contract with the Martin Marietta Corporation, Denver Division.

The supplemental agreement is for Earth Resources Experiment Package (EREP) Hardware Evaluation, and includes evaluation of EREP hardware performance during the Skylab missions. The results of the hardware performance evaluations, to be performed at the Martin/Denver, Colorado facility through June, 1974, will be provided to scientific investigators for use in their analysis of EREP scientific data.

The $1.2 million supplemental agreement will bring the total estimated cost of the Skylab Payload Integration contract to $104.7 million.

NASA-JSC

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Terry White
(713/483-5111)

FOR RELEASE:
October 10, 1973

RELEASE NO: 73-134

ATS IN JSC CHAMBER TESTS

Houston, Texas--Space engineers daily encounter new problems in the development of new spacecraft and satellites, but last year engineers at the NASA Goddard Space Flight Center ran into a new problem: Where and how do you test a large satellite with a 54-foot span realistically in the harsh environment of space before actually launching it into the real thing?

One of Goddard's sister NASA Centers, the Johnson Space Center here, offered the solution to the test problem by providing use of a 65-foot diameter by 120-foot high vacuum chamber at the Center's Space Environment Simulation Laboratory. The chamber is the largest such space simulation facility in the world and was used for thermo-vacuum testing of components of the Apollo lunar landing spacecraft and the Skylab space station.

In the most recent test in mid-September, a test model of the Applications Technology Satellite (ATS) was checked out to see if

-- more --

the satellite's 30-foot diameter umbrella-shaped antenna would unfold properly in a space vacuum. The test model satellite was hung by cables from the chamber's top dome for the test which lasted about 20 seconds---after weeks of preparing and instrumenting the satellite. Actual unfolding of the parabolic antenna took only 1.45 seconds, but Goddard engineers not only wanted to test the antenna mechanism itself, but the effects of the unfolding action on the whole satellite.

Earlier tests of the parabolic antenna alone were run in the large vacuum chamber at Johnson Space Center during 1972, including a "back-to-the-drawing-board" failure in which the antenna mesh material ripped.

In September's all-up test of the complete satellite, the 54-foot span solar array "paddles" for generating the satellite's electrical power were spread in the orbital flight position, while the parabolic antenna was folded into a donut-shaped package beneath the solar array booms.

For the test, the vacuum chamber was pumped down to an equivalent pressure altitude of 225,000 feet, effectively eliminating all atmosphere damping forces to simulate orbital antenna deployment.

The 3000-pound ATS-F is scheduled for launch in the spring of 1974 atop a Titan IIIC launch vehicle into a 22,200-mile high synchronous orbit, first above the United States and later above India.

While in its fixed position over the US, ATS will be used for a test-bed for experiments in communications technology, weather forecasting and aircraft traffic control. ATS will also serve as a relay station for educational telecasts to remote regions of the continental US and Alaska.

After a year on station over the US, ATS will be shifted to a point over India to serve as a relay station for an Indian government innovation into beaming instructional television to low-cost community receivers in remote rural areas of the Indian subcontinent. Occupational training, health improvement and teacher training are among the topics planned for programming through ATS relay by the Indian government.

ATS spacecraft prime contractor to Goddard Space Flight Center is Fairchild Industries, Germantown, Maryland. Principal managers for the September vacuum chamber tests at Johnson Space Center were Goddard test manager Roy Courtney, Fairchild project manager J. E.

Ferrell, and test manager Howard Green of the JSC Space Environment Test Division.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

F. Dennis Williams
713/483-5111

FOR RELEASE:
October 11, 1973

RELEASE NO: 73-135

LUNAR SAMPLE PROCESSING EQUIPMENT SHIPPED TO ENERGY RESEARCH LAB

An estimated $2.8 million in laboratory equipment once used to process lunar samples has been dismantled and shipped to the Atomic Energy Commission (AEC) Los Alamos Scientific Laboratory, where it will be part of a research project investigating the use of lasers to produce energy through controlled thermonuclear reactions.

The equipment, from the Johnson Space Center's Lunar Receiving Laboratory (LRL), includes vacuum chambers and pumps, stainless steel pipes, air-tight processing cabinets, and electronic monitoring devices used in preparing and inventorying some 381 kilograms (838 pounds) of material returned by the six crews that landed on the Moon.

The final samples, 110.5 kilograms (243.7 pounds) returned in the Apollo 17 command module last December, completed initial processing in April. With all of the sample material transferred to the nearby Lunar Sample Curatorial Facility, the Lunar Receiving Laboratory ceased operations and its laboratory equipment was declared excess property.

D. C. Winburn, Technical Administrator for the Laser Division of the Los Alamos facility, called the used equipment a "tremendous find" for the AEC research installation, operated by the University of California. The Atomic Energy Commission took full responsibility for disassembling and shipping the hardware--at an estimated cost of nearly $50,000.

The Lunar Receiving Laboratory was closed in June and its staff was reassigned to other duties at the Johnson Space Center (JSC). The essential scientific research

- more -

functions of the LRL have been taken over by the Lunar Curatorial Facility, Building 31. Only the Gas Analysis and Radiation Counting Laboratories remain in Building 37, which housed the LRL.

Lunar Sample Curator Michael B. Duke noted that the Lunar Curatorial Facility, opened early last year, "gives us the opportunity to focus on individual samples rather than occupying ourselves with the large quantities of material that had to be processed following each lunar flight."

At the present time, the National Aeronautics and Space Administration (NASA) continues to support some 183 principal investigators in the United States and 14 foreign nations as part of the lunar sample research program.

The equipment given to the AEC includes about half of the Sterile Nitrogen Atmospheric Processing (SNAP) Line built before Apollo 14 and the entire Nonsterile Nitrogen Processing Line (NNPL) used throughout the lunar landing program. The vacuum chamber and extensive pump system used for handling the first samples returned from the Moon were also dismantled and shipped to Los Alamos.

In addition, NASA has arranged for the loan of other laboratory hardware to principal investigators in the lunar research program and to their universities. About half of the SNAP Line will be retained at the Lunar Curatorial Facility.

Other portions of the LRL will be kept at JSC for use in non-lunar research projects.

A crew of eight technicians, a shipping clerk, and one supervisor began dismantling the LRL's complex equipment October 1, for shipment to the Los Alamos Scientific Laboratory this week.

The laboratory equipment will become part of a large complex for the study of lasers as a means of producing controlled thermonuclear reactions. Such a process may eventually provide vast supplies of electrical power.

By beaming laser light at small hydrogen pellets, scientists will attempt to free tremendous amounts of energy through atomic fusion--the process that gives the hydrogen bomb its force. The control of fusion with lasers may prove an essential link in the development of new and virtually unlimited sources of electrical energy.

As government research requirements change, the transfer of excess equipment--like that shifted this week from the processing of lunar samples to study of nuclear energy--provides maximum benefits to the nation at minimum cost.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Ken Senstad
202/755-3746

Robert V. Gordon
713/483-5111

FOR RELEASE:
October 17, 1973

RELEASE NO: 73-136

NEW EMERGENCY MEDICAL SYSTEM USES NASA TECHNOLOGY

A compact, 18-kilogram (40 pound) medical unit containing essential equipment to help meet a victim's diagnostic and therapeutic needs at the scene of an emergency -- including two-way voice and telemetry communications -- has been developed by SCI Systems, Inc., Houston, based in part on technology derived from NASA's manned space flight program.

Called Telecare, the ambulance-stored unit permits trained emergency medical technicians to administer prompt, professional care under radio supervision of a physician who may be miles away in a hospital emergency room or even in his office.

It is during the first critical minutes after arrival of a rescue squad at the scene of an emergency that quick, accurate diagnosis and therapy prescribed by a physician can be instrumental in saving a patient's life -- particularly cases involving heart attacks, shock or drowning.

The overall concept of the system brings together six major elements to cope with medical emergencies: trained personnel, diagnostic and therapeutic equipment for use in the field, communications, vehicles, physicians and hospital facilities.

The Telecare unit is a key component of the total system. Despite its suitcase size it contains the following equipment -- brought together for the first time

- more -

in a single portable package:

A respiratory resuscitation system.

A 15-minute oxygen supply contained in a light-weight canister developed from space technology.

An electrocardiogram display and telemetry system.

A defibrillator for external heart stimulation.

A semi-automatic indirect blood pressure measurement system using a special microphone placed beneath a hand-inflated cuff, similar to the blood pressure device used in the Skylab program.

Optional equipment can include an electroencephalogram, to permit remote observation and detection, a strip chart recorder and tape recorders.

The unique communications system permits full duplex communication between the physician and the emergency medical technician, including a backup system using telephone circuits. In addition, electrocardiogram data on the patient's condition and voice transmissions can be sent simultaneously to the base station over a single radio frequency by the multiplexing process. This permits continuous transmission of a medical data as well as two-way voice communication without the use of switches.

Comprehensive field tests of the Telecare system were successfully conducted earlier this year by SCI Systems, Inc., under direction of the Harris County Medical Society in Houston. The system was developed by SCI under contract from the NASA Johnson Space Center, Houston, Texas.

As a result, the City of Houston is equipping 28 rescue vehicles with Telecare units and training technicians in their operation. The system is expected to be in operation before the end of the year.

Cities throughout the country are currently evaluating Telecare for possible incorporation in their own emergency medical services programs.

Photographs to illustrate this press release are available by writing or phoning: The Public Affairs Audio-Visual Office, Code FP, NASA Headquarters, Washington, D. C. 20546; Telephone: 202/755-8366 and Public Affairs Office, Johnson Space Center, Houston, Texas 77058; Telephone: 713/483-5111.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:

October 19, 1973

Don J. Green
(Phone: 713/483-5111)

RELEASE NO: 73-137

JSC RELEASES FUNDS FOR SHUTTLE BUILDING MODIFICATIONS AT PALMDALE

Rockwell International, Downey, California has been authorized to proceed with modification of a building for Space Shuttle assembly in Palmdale.

The award was made today by the Johnson Space Center, Houston, through modification of a Facilities Acquisition Contract with the California firm. Approximately $4,969,000 dollars have been allocated for the work.

Proposed modifications and additions covered by the contract for Building 294 at U. S. Air Force Plant 42 in Palmdale, include a 100-foot addition to permit simultaneous final assembly, systems installations, and checkout stations for two shuttle orbiters.

The construction of a ramp area outside the building, a "tank farm" for the storage of gaseous helium and nitrogen, and the enlarging of a parking lot also are in the plan.

The latest allocation of funds increases this cost-reimbursement-no-fee contract to nearly $6,000,000.

Rockwell's Space Division is developing the Space Shuttle orbiter for NASA.

NASA-JSC

# # # # #

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
LYNDON B. JOHNSON SPACE CENTER
HOUSTON, TEXAS 77058

REPLY TO
ATTN OF: BC121

MEMORANDUM

TO: AP/John W. King, Public Affairs Officer

FROM: BA15/Procurement Officer

SUBJECT: Release of Contract Award Information, Modification No. 8, Contract NAS 9-13309(F)

The following information concerning a procurement action exceeding $1,000,000 is furnished as required by, and keyed to the paragraphing of, NASA Procurement Regulation 3.854-3(a):

(i) Modification No. 8 to Facilities Acquisition Contract NAS 9-13309(F).

(ii) Cost Reimbursement - No Fee.

(iii) Modification No. 8, valued at $4,969,000, will increase the estimated cost of Contract NAS 9-13309(F) to approximately $5,990,000.

(iv) Rockwell International Corporation, Space Division, 12214 Lakewood Boulevard, Downey, CA 90241.

(v) Site 1, Air Force Plant 42, Palmdale, CA.

(vi) The contract modification will authorize Rockwell to proceed with the construction phase of the Shuttle Orbiter Final Assembly and Checkout Facility at Palmdale, CA. The work consists of major modifications to Building 294, including a

100-foot addition to permit final assembly, systems installations, and checkout stations for two Shuttle Orbiters simultaneously. Improvements and additions outside the building include a ramp area for egress and ingress of the Orbiter vehicle, and a "tank farm" for the storage of gaseous helium and nitrogen. In addition, the parking lot will be enlarged to accommodate parking for approximately 600 vehicles.

(vii) Not applicable.

Please furnish Mr. George A. Abbott, Code BC121, with a copy of the TWX contemplated by NASA Procurement Regulation 3.854-3(a)(2).

James L. Neal

James L. Neal

cc:
BC1/G. Bailey
BC4/S. Armstrong

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Bill O'Donnell
Headquarters, Washington, D. C.
202/755-3114

Robert V. Gordon
713/483-5111

FOR RELEASE:
IMMEDIATE

RELEASE NO: 73-138

ASTRONAUTS TO BEGIN ISOLATION PERIOD

The third and final crew of Skylab astronauts began a 21-day pre-launch isolation period Saturday, October 20, geared to possible liftoff November 10. NASA's final decision on the launch date will be made Wednesday, October 24.

The latest planning date for the launch of the final manned mission to the experimental space station is November 10. Pre-launch procedures require Skylab flight crews to begin a health stabilization program 21 days before liftoff. The program, directed at minimizing infectious disease exposure of the crew, limits astronaut contacts.

A detailed examination of the medical results of the second manned mission and of the science planning for the final mission will be conducted Wednesday by the NASA Administrator prior to the expected launch date decision.

- end -

October 23, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
October 25, 1973

RELEASE NO: 73-139

FIVE JSC EMPLOYEES RECEIVE AWARDS

Five Civil Servants assigned to the Johnson Space Center are being honored today at NASA Headquarters for outstanding contributions to the United States space exploration program at NASA's 15th Annual Ceremony.

An Exceptional Scientific Achievement Medal went to Scientist-.stronauts Joseph P. Allen and Robert A. Parker, and former Scientist-Astronaut Anthony England; the award also went to Peter Robin Brett.

Allen's award reads, "In recognition of his outstanding accomplishments as Mission Scientist for the Apollo 15 mission. His leadership in the definition, development, and execution of scientific experiments contributed significantly to the sucess of the Apollo lunar science program."

Parker's award reads, "In recognition of his outstanding accomplishments as Mission Scientist for the Apollo 17 mission. His leadership in the definition, development, and execution of

-more-

scientific experiments contributed significantly to the sucess of the Apollo lunar science program."

England, who is with the United States Geological Survey with offices in Denver, Colorado, was honored as follows, "In recognition of his outstanding accomplishments as Mission Scientist for the Apollo 16 mission. His leadership in the definition, development, and execution of scientific experiments contributed significantly to the sucess of the Apollo lunar science program."

Brett's award reads, "For exceptional service in carrying ut a creative program of lunar sample analysis, managing a significant element of the NASA scientific support related to the lunar exploration program, and actively conveying the important results of lunar exploration to the scientific community and the public."

Robert O. Piland was awarded the Outstanding Leadership Medal. The citation reads, "In recognition of his outstanding contributions to NASA's Earth Resources Program, and for direction of the Earth Resources Laboratory at the Mississippi Test Facility. His managerial skill, dedication, and personal leadership have been significant factors in the development and application of emote sensing techniques to earth resources investigations."

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
October 26, 1973

RELEASE NO: 73-140

JSC PERSONNEL EARN HONORS FOR SKYLAB PERFORMANCES

Twenty-seven NASA Johnson Space Center personnel and five JSC organizations were honored today at a ceremony at the Marshall Space Flight Center, Huntsville, Alabama for their work on the Skylab missions.

Five of the group received the NASA Distinguished Service Medals; 19 were awarded NASA Exceptional Service Medals; and three were honored with the Outstanding Leadership Medal.

NASA Group Achievement Awards were issued jointly to the Skylab EVA Operations Team with members at both JSC and Marshall; the Skylab Operations Support Team out of JSC/MSFC and the Kennedy Space Center, Florida; the Skylab System Operations Team, JSC/MSFC; the Skylab Real Time Planning Team, JSC/MSFC/KSC, and the Skylab Emergency Thermal Shield Development Team out of JSC/MSFC and the Langley Research Center, Hampton Virginia.

The Distinguished Service Medals were awarded Astronauts Charles Conrad, Jr., Joseph P. Kerwin, and Paul J. Weitz; the

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crew of Skylab 2. Kenneth S. Kleinknecht, Skylab Program Manager, and Jack A. Kinzler, Chief of the Technical Services Division, were the other recepients.

NASA Exceptional Service Medals went to Flight Directors Neil B. Hutchinson, Donald R. Puddy, Milton L. Windler, and Charles R. Lewis. Also to Paul A. Buchanan and Charles E. Ross, MDs.

Program office personnel honored were Alfred A. Bishop, W. Harry Douglas, Reginald M. Machell, and James C. Shows. Also Astronaut Russell L. Schweickart and Capcom Richard H. Truly.

Others include Larry E. Bell, Robert E. Ernull, Sidney C. Jones, Jr., Thomas U. McElmurry, George A. Post, Leonard T. Spence and James D. Williams.

The NASA Outstanding Leadership Medals went to Donald D. Arabian, Eugene F. Kranz and Philip C. Shaffer.

Dr. James C. Fletcher, NASA Administrator, made the presentations.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Robert V. Gordon
713/483-5111

FOR RELEASE:
IMMEDIATE

RELEASE NO: 73-141

SKYLAB IV MISSION ANNOUNCEMENT

The third manned Skylab mission is scheduled for launch November 10 at 11:40 a.m. EST for a mission duration of 60 days or more, William C. Schneider, Skylab Program Director, announced.

The mission will be planned as a 60-day open-ended mission with consumables aboard to provide for as many as 85 days. Mission extensions would be considered on the 56th, 63rd, 70th and 77th days of the flight based on the medical well being of the crew, consumables and work load.

Crew for Skylab 4 consists of Gerald P. Carr, commander; Edward G. Gibson, science pilot; and William R. Pogue, pilot.

Schneider said the November 10 launch date will allow timely replenishment of coolant fluids in the Skylab Workshop's coolant systems.

The basic 60-day mission is designed to study the Comet Kohoutek in addition to continuing the Earth resources observations, solar observations and other scientific studies begun on the first two manned Skylab missions.

The extension of the mission to 85 days would substantially increase the scientific return.

As many as five extravehicular activities (EVAs) may be scheduled for the mission. The first EVA would be November 18 and would last for four to six hours

- more -

October 26, 1973

for the purpose of installing Apollo Telescope Mount (ATM) film and beginning repair work on the S193 experiment antenna.

A second EVA may be required to complete the antenna repair operation. A third EVA, scheduled on Christmas Day in order to photograph the Comet Kohoutek just before it passes by the sun, would last for about 4 1/2 hours. ATM film change and several experiments would be carried out during this EVA.

A fourth EVA on December 29, also lasting about four and a half hours, would perform additional experiments and retrieve various samples of materials left out on earlier EVAs. The fifth EVA would be in the January 16-31 period, lasting about three and a half hours for the purpose of retrieving ATM film.

For an 85-day mission, splashdown would occur February 3, 1974, at 12:15 p.m. EST off the Pacific Coast near San Diego.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Terry White
713/483-5111

FOR RELEASE:
October 26, 1973

ALSO RELEASED AT NASA HEADQUARTERS

RELEASE NO: 73-142

SMYLIE APPOINTED DEPUTY ASSOCIATE ADMINISTRATOR, OAST

Robert E. Smylie, Chief, Crew Systems Division, NASA Johnson Space Center, today was appointed Deputy Associate Administrator (Technology) for the NASA's Office of Aeronautics and Space Technology (OAST).

OAST, one of five major Headquarters Offices which direct NASA's research and development programs, has the responsibility for providing the technology to meet the nation's future requirements in aeronautics and space exploration.

As Deputy Associate Administrator (Technology), Smylie will be directly responsible for those research and technology discipline offices dealing with space propulsion and power; guidance, control and information systems; materials and structures; aerodynamics and vehicle systems; aeronautical man-vehicle technology; aeronautical propulsion; and research.

Prior to 1969, Smylie held various key assignments in support of the Apollo manned lunar exploration program.

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Prior to joining NASA in 1962, Smylie was employed by the Douglas Aircraft Company, Santa Monica, California, where he was responsible for various systems in the development of the DC-8 aircraft. Upon completion of the DC-8 Program, he was assigned as lead engineer for the Skybolt Missile thermal conditioning system and led a research group concerned with air conditioning problems associated with the supersonic transport.

Smylie graduated cum laude from Mississippi State University in 1952 and received a Master Degree in Mechanical Engineering from MSU in 1954. He completed the requirements for a Master Degree in Business Administration and Public Administration as a Sloan Fellow at MIT in 1967. In addition, he has done graduate work at UCLA. He has received the NASA Exceptional Service Medal, as well as various JSC awards.

Smylie and his wife, June, have three children.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Robert V. Gordon
713/483-5111

FOR RELEASE:
November 6, 1973

RELEASE NO: 73-143

NEW FOOD FOR THIRD SKYLAB MISSION

Something new -- a high energy food bar -- has been added to the menu for the Skylab astronauts who may spend as many as 85 days circling the Earth in the final manned mission aboard America's first space station.

The final Skylab crew of Gerald Carr, Dr. Ed Gibson and William Pogue is scheduled to be launched aboard a Saturn IB from the Kennedy Space Center, Florida on November 10. The scheduled 60-day scientific data gathering expedition includes observations of the Sun and the comet Kohoutek, the Earth, and man himself as well as scores of other scientific and technological experiments aboard the 100-ton orbiting space laboratory. The mission is scheduled for 60-days with the option of extending it for as long as 85 days.

The new food is actually an off-spring of a food bar developed jointly by NASA, the U.S. Air Force and the Pillsbury Company. This bar is a modification of the commercially available Pillsbury food sticks.

The crew will eat these food bars every third day along with the regular Skylab food items. There are three types of bars -- chocolate chip, crispy and flake -- and each of these is coated with one of three flavors -- vanilla, chocolate, or strawberry. This offers a total of nine different types of bars.

The bars are two by four inches in size and weigh approximately 55 grams each.

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Dr. Norman Heidelbaugh of the NASA Johnson Space Center, Houston said that each bar is nutritionally complete and contains 300 calories each.

Requirement for the additional food bars came as a result of the possible extension of the mission to 85 days. There is adequate Skylab food aboard the workshop to provide meals for 56 days. Dr. Heidelbaugh said, "We turned to the Pillsbury bar as a means of providing a tasty and nutritionally balanced food without adding excessive weight to the command module."

One hundred and fifty-nine pounds of additional food has been placed onboard the command module to permit a possible mission extension of 28 days for a total mission duration of 85 days and to provide 10 days of food for an end of mission rescue capability. Seventy-five pounds of Skylab type food has been included to insure a more normal diet with the required variety for maintenance of a balanced menu. Three hundred and ninety-two bars which weigh 59 pounds have been added as high calorie supplements. These bars will be consumed by the crew every third day of the mission in combination with normal Skylab food. The 28 day mission extension would require approximately 233 pounds of Skylab food to be launched in the command module. Twenty-five pounds of the high calorie bars have been included for the 10 day rescue capability.

An example of the every third day menu is:

Breakfast: Flake bar, sausage, grapefruit drink.

Lunch: Chocolate chip bar, crispy bar, pork and potatoes.

Dinner: Crispy bar, beef hash or chicken and gravy, mashed potatoes.

Snack: Chocolate chip bar, dried apricots, spaghetti with meat.

The SL-4 crewmen have started on the planned inflight diet during their 21 day preflight period and will continue on the diet for 18 days postflight. Prior to the start of the controlled 21 day preflight period, the SL-4 crewmen ate samples of the high density food to insure crew acceptance and to preclude any potential individual problems with gastrointestinal compatibility.

- end -

NASA-JSC

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
November 7, 1973

Dennis Williams
713/483-5111

RELEASE NO: 73-144

AIRCRAFT-BORNE LASERS TO PROFILE EARTH AND SEA DURING FINAL SKYLAB FLIGHT

As Skylab's third crew collects data on the Earth's resources from 270 miles out in space, two aircraft from the Johnson Space Center (JSC) will skim near the surface using laser instruments to provide an exact profile of the land and water at more than a dozen sites.

To acquire the profile of wave heights and landforms, JSC's C-130 and P3A aircraft will make slow passes over the selected sites at altitudes of 500 feet or less, with the instrument called a laser profilometer. At this altitude, the thin beam of bright red light transmitted by the helium-neon laser produces a spot less than six inches in diameter on the land or water directly below the plane.

The instrument's operator focuses the small red dot in a powerful light-collecting telescope. Light reflected from the ground is filtered to eliminate the sunlight and other random sources, then converted to an electrical signal.

The laser light is briefly interrupted by a high-speed shutter as it is transmitted from the instrument, then timed as it returns to the aircraft to permit the calculation of the exact height of surface irregularities.

A computer corrects for variations in the aircraft's attitude to give a profile of the height of waves, trees, land formations and other features that is accurate within inches.

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RELEASE NO: 73-144

Flying in support of a Skylab investigation, a laser profilometer recorded wave heights during hurricane Ava, an unusually powerful storm that developed off Mexico's west coast in early June. The instrument has also been used over Sam Houston National Forest, in southeast Texas, to record growth rates by measuring the heights of trees in a test of its possible use for forest inventories.

During the coming months, NASA aircraft will use laser profilometers over portions of the North Atlantic Ocean, the Gulf of Mexico, the Puerto Rican Trench, and the Great Salt Lake to support Skylab remote-sensing passes over the same areas.

One laser, carried aboard JSC's C-130 during the first two Skylab missions, has just been refurbished at the Spectra-Physics facility in Mountain View, California, for use on the upcoming flights.

A second instrument will be borrowed from NASA's Langley Research Center in Hampton, Virginia, for installation on the four-engine P3A used in JSC's Earth Resources Aircraft Program.

Five Johnson Space Center aircraft will carry a battery of earth resources cameras and electronic sensors to support the longest planned Skylab flight, continuing the role they have played in most of the 50 earth resources passes completed since late May, when the first Skylab crew entered the orbiting space station.

# # # #

NASA-JSC

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Robert Gordon
713/483-5111

FOR RELEASE:
November 9 1973

ALSO RELEASED AT NASA HEADQUARTERS

RELEASE NO: 73-145

SKYLAB GYPSY MOTH RESEARCH PROJECT

One thousand gypsy moth eggs in two special vials will be launched aboard the third and final Skylab mission on November 10.

The first moths in space are part of a research project sponsored by the U. S. Department of Agriculture's Agricultural Research (APHIS) in cooperation with NASA.

Agriculture scientists are trying to find out if the state of weightlessness might be the key to altering the gypsy moth's life cycle. If weightlessness does prove to be the factor, the key point may be found in rearing insects by the missions and thus controlling a whole class of insect pests with similar life cycles.

USDA researchers have long know that rearing millions of insects, sterilizing and releasing them to mate native insect populations could eventually eliminate the pest.

Because of the nature of the insect, the gypsy moth may be a possible candidate for this type of biological control

-more-

called "sterile male technique". Whereas millions of insects are necessary for the technique to be effective, the gypsy moth has been difficult to mass rear in laboratory. In addition, this insect reproduces only once a year.

Although gypsy moths are active for about four months, their spontaneous hibernation period of "diapause" stage lasts 150-180 days -- considerably dragging our the period they must be held and processed in the laboratory. If weightlessness were found to be a key to reducing the diapause time, large numbers of insects could be reared at will and be available for release of sterile males in infested areas.

The gypsy moth eggs to be sent aboard Skylab are enclosed in a special container and separated into two lots -- part laboratory reared and part wild insects collected in naturally infested areas. A control group for gypsy moth eggs will be monitored on the ground and should hatch normally next spring. For weightlessness to be the sought-after answer, the eggs in space would have to hatch appreciably earlier than the control eggs on Earth.

Insect researchers of ARS and APHIS have tried many experiments in terminating diapause but so far have been unsuccessful. And for a number of years, scientists have been

interested in weightlessness as a possible factor to activate growth in hibernating insects.

The gypsy moth is a serious threat to the nation's forest resources. While the insect is in its caterpillar stage (May-June), it eats the leaves of trees, sometimes killing them.

The insect presently infests the northeastern United States--Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, New Jersey, Maryland and Delaware. In 1973, it defoliated approximately 1.75 million acres of trees. USDA and the cooperating states are trying to suppress the gypsy moth before it becomes destructive in the valuable hardwood forests of the southern and central regions.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
November 12, 1973
2:00 p.m.

RELEASE NO: 73-146

NASA EXTENDS QUALITY AND SAFETY CONTRACT WITH BOEING

The NASA Johnson Space Center has extended its contract with The Boeing Company, for one year for reliability, quality assurance and safety engineering support services at the center in Houston.

Value of the cost-plus-fixed-fee contract for this third year extension is $4,374,813. The contract remains in effect through October 31, 1974.

Boeing provides reliability and safety technical support for vehicles, equipment and payloads for spaceflight missions. Approximately 140 Houston-area personnel are employed under the terms of the contract.

The dollars allocated for the work increases the funding of the multi-year contract to $12,452,722.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Dennis Williams
713/483-5111

Bill O'Donnell
Headquarters, Washington, D. C.
202/755-3114

FOR RELEASE:
IMMEDIATE

RELEASE NO: 73-147

THIRD SKYLAB CREW TO EXPAND KNOWLEDGE OF EARTH'S RESOURCES

Astronauts Gerald Carr, Edward Gibson and William Pogue will be well equipped to survey the Earth during a final Skylab mission that could last nearly three months.

Their training included 20 hours of special lectures on Earth observations and they're taking along a detailed handbook for viewing Earth from space and the largest store of film and computer tapes ever supplied for a Skylab mission.

Meanwhile, the 20,000 Earth photographs and 25 miles of computer tape obtained during the two previous Skylab flights will be undergoing extensive analysis by 137 Principal Investigators and their staffs in the United States and 18 foreign countries. These research projects may take up to 18 months, as scientists develop sophisticated techniques to use photographic and electronic data provided by Skylab's remote-sensing experiments.

The third Skylab astronaut crew may take as many as 50 vertical-looking passes using the Earth Resources Experiment Package (EREP), a battery of six remote-sensing devices carried aboard the space station. Plans called for only 30 EREP passes, but a longer mission -- up to 85 days -- would permit the additional survey time.

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To support the longer mission, the crew will carry 6 rolls of film for the large Earth Terrain Camera, enough for 2,400 detailed 5-inch photographs of the planet's surface. The command module that ferries the new crew up to the space station will also be stocked with 42 cassettes of 70mm film for the six-camera array of the Multispectral Photography Facility--enough to make nearly 17,000 pictures with filtered, black-and-white, infrared, and color film.

Although 25 reels of magnetic computer tape were stored on the Skylab space station before its launch May 14, only seven remain. The second crew used 13 reels -- about 18 miles -- of the 28-track computer tapes as they completed a total of 39 EREP passes, 13 more than originally planned. The final command module will carry 7 additional reels to the space station, for a total of 14.

During the two Skylab missions completed so far, some data has been acquired for all 48 continental U.S. states and 34 foreign countries. The Skylab flights also collected data on the Atlantic and Pacific Oceans, the Gulf of Mexico, the Caribbean and Mediterranean Seas, the Sea of Japan, the Gulf of Aden, and the South China Sea.

During the first Skylab flight, data was collected for Principal Investigators in Bolivia, Brazil, Canada, Mexico and Nicaragua. Photographic and electronic data from the second flight will be forwarded to Principal Investigators in 13 additional countries: Argentina, Australia, Chile, France, Germany, Israel, Italy, Japan, Mali, Malaysia, Switzerland, Thailand, and Venezuela.

Earth Resources aircraft from Johnson Space and Ames Research Centers, The National Oceanic and Atmospheric Administration, the University of Michigan, and Colorado State University gathered supplementary remote-sensor data during 136 flights in support of U.S. investigations.

In addition, principal investigators on the ground recorded information on weather conditions, soil moisture, water turbidity, vegetation, geology, and related disciplines to correlate to the photographic and electronic sensor data returned by Skylab.

Data has been gathered for more than 90 per cent of the Earth Resources investigations, with more than 75 per cent of the specified test sites already surveyed to minimum requirements.

During the first and second Skylab manned missions, photography and electronic data for a tremendous variety of studies were accumulated aboard the space station and returned by the crew for extensive processing and cataloging by personnel at the Johnson Space Center.

Included in the surveys were research projects in geology that could lead to the discovery of potential new sources of coal, oil, and essential minerals. Principal Investigator M. L. Jensen of the University of Utah reported in September that his study of Nevada geology had uncovered a region likely to contain a significant mineral deposit. Partial information on potential geothermal energy resources in the Western United States and Mexico has also been gathered by Skylab.

Volcanoes from Nicaragua to Italy, and earthquake fault zones in California and several other states were test sites for geological investigators, including Troy A. Crites, a student experimenter from Kent, Washington.

James H. Wray of the U.S. Geological Survey will attempt to calculate population growth since the 1970 Census using Skylab data. During the first two manned flights, 13 U.S. urban areas were photographed for this study: Asheville, North Carolina; Aurora and Peoria, Illinois; Cedar Rapids, Iowa; Denver, Colorado; New Orleans, Louisiana; Phoenix and Tucson, Arizona; Pontiac, Michigan; Riverside-San Bernardino and San Francisco, California; Salt Lake City, Utah; and Washington, D. C.

Skylab investigators in Mali will use data from the first flights to search dry plains regions for new water sources. The photography may provide clues to reversing the southward expansion of the Sahara Desert, which has reduced pastureland and contributed to the famine produced by repeated droughts.

William Hart of the U.S. Department of Agriculture has used photographs brought back by the first Skylab crew to pinpoint areas along the Texas-Mexico border where insect pests including fire ants from the U.S. and fruit flies from Mexico, might cross to infect new areas.

Photography and sensor data from Skylab and its supporting aircraft may provide a much better understanding of the development of tornadoes, hailstorms, and hurricanes. Extensive data on storms in Oklahoma and Texas and a survey of Ava, a Pacific hurricane with winds up to 150 miles per hour, were completed during the first two Skylab missions.

Data for mapping projects in ten nations of the western hemisphere were gathered on a number of EREP passes, including several passes during which the space station remained in solar inertial attitude, with its sensors pointed obliquely at the Earth.

Studies of sea conditions, sedimentation, and marine biology were supplied with information by Skylab's early flights. During the second mission, the millions of tons of seaweed in the Atlantic Ocean's Sargasso Sea were surveyed by the EREP instruments.

The final Skylab flight will concentrate on seasonal changes, the development of sea and lake ice, snow cover patterns, changes in vegetation in the northern and southern hemispheres, and major storms, particularly below the equator.

In addition, data will be sought for many investigators conducting agricultural, forestry, urban and regional planning, and pollution studies -- in which information must be acquired at several separate times during the year.

Before the first EREP pass of the final Skylab mission can be undertaken, Science Pilot Ed Gibson, assisted by his fellow crewmembers, will attempt to repair the antenna drive system for the microwave radiometer-scatterometer-altimeter (S193).

Gibson will work on the S193 instrument during the crew's first walk outside the space station, scheduled for the week following launch. Pilot Bill Pogue will join him outside.

The antenna for the S193 began moving erratically September 14, after two-thirds of the second Skylab's Earth resources passes had been completed. A check of the instrument from within the space station failed to reactivate the antenna drive, and no valid data could be obtained after the 28th EREP pass.

Skylab's three space rookies will be the best trained of all the Skylab crews in the use of hand-held cameras and in visual observations of Earth phenomena. Nearly 2,000 frames of film are available to them for photographing Earth with their 35mm and 70mm cameras. The crew members, trained by more than a dozen Earth scientists and members of previous Skylab and Apollo crews, are expected to substantially increase man's ability to observe Earth processes and to record them from a platform above the atmosphere.

The visual observations of sand dunes, volcanoes, ocean waves, cloud forms, geological features and the like will not only support dozens of scientific projects underway on the ground, it will also pave the way for researchers who may observe Earth in the 1980's as passengers aboard the Space Shuttle.

- end -

November 12, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
November 13, 1973
2:00 p.m. CST

RELEASE NO: 73-148

JSC DIRECTS ROCKWELL TO STUDY NEW ORBITER FLIGHT TEST AND FERRY METHODS

Direction to conduct studies using a 747 and a C-5A aircraft for Space Shuttle orbiter flight test operations has been issued by the NASA Johnson Space Center to Space Division, Rockwell International Corporation, Downey, California.

The studies will be performed under terms of NASA's $2.6 billion contract with RI for design, development, and production of the orbiter vehicle and for integration of all elements of the Space Shuttle System.

JSC issued instructions to Rockwell to "conduct a feasibility study of performing External Tank (ET) ferry operations and orbiter flight test operations...."

In this program, which has been dubbed Space Shuttle Transport Aircraft study, the airplanes will carry orbiter atop in "piggyback" fashion. The contractor also will study possibility of transporting the huge ET in similar fashion.

The ET, one of the main components of the Space Shuttle system, is 8.1 meters (27 feet) in diameter and 57.4 meters (158 feet) long. Dry weight (without propellants) of the tank is approximately 35,380 kilograms (78,000 pounds).

(more)

Rockwell also will conduct wind tunnel testing in its Low Speed Tunnel at the California facility. Scaled-down models of the Space Shuttle components will be used.

An additional task for the contractor is to conduct inflight separation tests of the orbiter from both airplanes.

The tests are to be concluded by January 4, 1974 and the final report submitted approximately a month later.

If the ferry/flight test concept proves operationally feasible and produces significant savings in costs, NASA may substitute it for the present baseline plan which calls for orbiter attachable Air Breathing Engines (ABES).

As presently planned, ABES will be used during horizontal flight testing of the orbiter and for ferry flight once the Space Shuttle is operational. A modified version of an engine currently in service in the United States Air Force has been selected for orbiter use.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Jack Riley
713/483-5111

FOR RELEASE:
November 15, 1973

RELEASE NO: 73-149

ASTP CREW TO VISIT SOVIET UNION

The United States' flight crew for the Apollo-Soyuz Test Project will visit the Soviet Union November 18 - December 1, for initial familiarization with Soyuz spacecraft systems.

Discussions of the flight plan, including joint crew activities and onboard documentation are planned also. Most of the activities will be conducted in the Y. A. Gagarin Centre of Cosmonaut Training at Star City, near Moscow.

Astronauts making the trip include the prime crewmen, Brig. Gen. Thomas P. Stafford, commander; Vance D. Brand, command module pilot; and Donald K. Slayton, docking module pilot; backup crewmen Capt. Alan L. Bean, Capt. Ronald E. Evans and Maj. Jack R. Lousma; support crewmen Lt. Col. Robert F. Overmyer and Lt. Col. Karol J. Bobko; and Capt. Eugene A. Cernan, Special Assistant to the U.S. ASTP Technical Director.

Soviet cosmonauts who will take part in the July, 1975 earth-orbital mission underwent similar familiarization with the Apollo spacecraft at JSC last July. Crewmen from both countries will exchange several visits next year for specific training on joint mission events.

The mission is designed to test equipment and techniques for developing compatible rendezvous and docking systems.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Jan Wrather
713/483-5111

FOR RELEASE:
November 19, 1973

RELEASE NO: 73-150

DR. BRETT RECEIVES NASA'S EXCEPTIONAL SCIENTIFIC MEDAL

Dr. Robin Brett, Chief of Johnson Space Center's Geochemistry Branch, has received the NASA Exceptional Scientific Medal for "Exceptional service in carrying out a creative program of lunar sample analysis, managing a significant element of the NASA support related to the lunar exploration program and actively conveying the results to the scientific community and the public."

Dr. Brett received his B.S. degree in geology from the University of Aledaide, South Australia, in 1956. He received his masters degree from Harvard University in 1960 and his PH.D also from Harvard in 1963.

Prior to joining NASA in 1969, Dr. Brett was employed by the U.S. Geological Survey where he served as Co-ordinator of the Cosmic Chemistry and Petrology Group.

Dr. Brett is a Fellow of the Mineralogical Society of America and President of the Meteoritical Society. He is also a member of a number of other scientific societies.

Among many awards, Dr. Brett has received the Walderman

-more-

Lindgren Citation for Excellence in Research from the Society of Economic Geologist. He has written some 50 scientific papers and has edited numerous publications on lunar science mineral deposits, meteorites, and meteorite impact structure.

Dr. Brett is married to the former Abigail Trafford. They have two daughters; Abigail 6 and Victoria, 4.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

F. D. Williams
713/483-5111

FOR RELEASE:
November 18, 1973
(For November 19)

RELEASE NO: 73-151

NUCLEAR-POWERED MOON STATIONS BEGIN FIFTH YEAR

Scattered across the face of the Moon, five experimental stations relay a steady stream of scientific information--the energetic remnants of Man's first escape from his problem-plagued Earth.

Apollo 12 astronauts Alan L. Bean and Charles "Pete" Conrad Jr. placed the first of the automatic stations on the Moon during a four-hour exploration of the surface on November 19, 1969. Today it begins its fifth year of operation.

With four other nuclear-powered stations scattered across the Moon's face, the Apollo 12 outpost reports its findings from a world where men no longer walk.

Nearly two dozen scientific instruments keep tabs on the Moon's pulse and respiration, expanding the wealth of knowledge gained by surveys made from orbit and from the surface in the first years of intense lunar investigation.

While seismometers register tremors caused by meteoroids, tidal forces, and internal changes in the Moon, other sensors record particles found in the extremely rarefied lunar atmosphere and measure the heat flowing from within the body. Yet another device detects the size and speed of micrometeoroids striking the surface.

Man's knowledge of the Moon has advanced markedly during recent years. Changes have come so quickly that few can remember our great ignorance in the days before the first spacecraft probed the Moon's mysteries.

Before the first flights to the Moon, our sketchy knowledge was based almost entirely on visual observation. With telescopes we could prepare rough maps of the Moon's near side, we could name its features, we could distinguish the dark plains from the rugged highlands. The size, mass, and shape of the satellite--these were the limits of our firm knowledge.

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Less than a decade ago, virtually nothing was known about the Moon's distinct chemical makeup, the geological structure beneath its surface, its age or evolution. No one could say for certain whether life--even limited to the simplest viruses--existed on the Moon. From the Earth, we could not tell whether water or oxygen were hidden beneath the surface, nor if they had perhaps been abundant long ago.

Whether the Moon had a magnetic field now or in the past was unknown. We had not yet learned to distinguish between craters produced by volcanoes and those left by meteoroids.

In the 1960's world of ignorance, speculation was king. Some reputable scientists argued plausibly that the Moon's plains were once washed by great oceans--a theory that had led Galileo to the Latin name "mare," or sea, for the broad, dark basins he saw in his telescope.

The first spacecraft to land on the Moon, another scientist warned, would sink beneath the dusty surface. The lunar rocks would burst into flame, some believed, when brought into the pure oxygen atmosphere aboard the Apollo lunar module.

Many people believed that the Moon had been pulled from the Earth's side, creating the Pacific Ocean.

A large number of scientists were confident that the Moon was cold, dead body composed of material much like that of the Earth. Most believed that unlike the Earth, the Moon would not reveal the effects of any magnetic field present during its evolution--a belief that seemed to be reinforced by the first crude measurements from space.

These myths--once vigorous evidence of man's desire to understand something he saw but could not touch--are now memorials to scientific progress.

Though the flights to the Moon were conceived to develop a new technology that would allow men to venture beyond the Earth, the scientific benefit they have brought is remarkable. We understand our own planet and solar system far better than a decade ago because we have pierced the mysteries of the Moon.

Continuing investigation of the Moon has produced findings that fill thousands of pages in scientific journals.

The Moon was created at the same time as the Earth, about 4.6 billion years ago. Although its origin is uncertain, scientists now have convincing evidence that the Moon was not pulled from the Earth to create the Pacific Ocean. Born long before the Pacific, the Moon's chemical makeup is clearly different from that of the Earth's crust.

For the first 600 million years, the Moon was battered by large meteoroids. The battering culminated in a gigantic cataclysm, as a huge body smashed into the Sea of Rains, melting rocks and showering the Earth and Moon with debris.

The great collision produced a basin hundreds of miles across, the right eye of the Man in the Moon. No one can be certain now whether the whole solar system ran amuck then, or if the event was confined to the Earth-Moon system.

Since the cataclysm, the Moon's face has been scarred again and again by smaller meteoroids. Most scientists are now convinced that active volcanoes have not played an important part in the developments of the past 3 billion years.

Beneath the surface of the Moon, distinct layering can be detected--a surprise to many scientists.

Where Apollo 12 landed, for example, about a kilometer (0.6 mile) or more of broken material lies at the surface. Below this is 20-25 kilometers (12-15 miles) of solidfied lava. The next 40 kilometers (24 miles) are of another type of rock, probably rich in feldspar. Still further down are rocks that have properties similar to the magnesium and silicon-rich rocks believed to exist in the region lying beneath the Earth's crust.

The Moon experiences tremors or moonquakes, most of which originate at a depth of about 800 kilometers (500 miles) beneath the surface. Most are caused by the tidal pull of the Earth and Sun, but some are the result of meteoroid impacts. Even the greatest moonquakes are far weaker than the powerful tremors sometimes felt on Earth.

Every year, earthquakes release a trillion times as much energy as the quakes occurring on the Moon.

Because certain seismic waves are transmitted by solid material, we can be certain that the Moon is solid to a depth of at least 800 kilometers, about halfway to its center.

Other seismic evidence indicates that the Moon is partially molten below 1000 kilometers (600 miles).

Just as the Moon is not entirely solid neither is it completely cold. Heat flows outward from the interior at a rate slight lower than that of Earth, but surprisingly large for such a small body.

Substances on the Moon were exposed to a weak magnetic field during its early history--a field whose source is unknown. Because the remnant magnetism is weak, the first measurements from space failed to detect it.

The chemical composition of the Moon is unique. It is unlike certain meteorites believed to be similar in composition to the original material that formed the solar system, a finding that disappointed some expectations. Neither is it like the Earth.

The Moon has less gold, carbon, hydrogen, nitrogen, free oxygen, lead, mercury, sodium, cadmium, and zinc at its surface than Earth does.

On the other hand, the mountains of the Moon are noticeably richer in aluminum and calcium than the Earth. At some dark plains sites, the surface is surprisingly rich in titanium.

Although the first astronauts to return from the Moon were carefully quarantined to protect Earth from microorganisms that might have lived on the Moon, we now realize that such precautions are unnecessary for visitors to the satellite.

The essential pre-cursors to amino acids, which form the basis of life on Earth, have been found in samples returned from the Moon, but neither amino acids nor primitive life have been detected there.

There is no water on the Moon, nor has there ever been. Not a drop of water can be found on or near the lunar surface. The famed "seas" of the Moon are far drier than the driest deserts on Earth. The Moon is so lacking in water that most iron found there shows no rust at all.

The Moon has so little atmosphere that it may be considered a vacuum. But particles are detected above the surface--many of them produced directly or indirectly by the Sun, which radiates matter outward in a "solar wind."

Even our visual knowledge of the Moon has advanced tremendously. Cartographers have mapped substantial portions of both the near and far sides of the Moon in great detail using the photographs taken by Apollo mapping cameras.

Space flights showed us that the far side of the Moon is markedly different from the face we can see, with more rugged craters and highland regions, and fewer lowland plains.

While investigators continue to study the vast treasure of lunar samples and the continuing flow of data from the Apollo experimental stations, the thousands of pieces of knowledge gathered about the Moon are being combined in new ways to reveal ever greater secrets.

This synthesis of knowledge is expected to flavor the Fifth Lunar Science Conference scheduled to meet in Houston March 18-22, 1974.

Five experimental stations still pulse their messages through space despite years of searing heat and freezing cold-- a symbol of man's desire to reach beyond confining Earth, and a proof that he can do so.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

JSC NEWS CENTER
713/483-5111

FOR RELEASE:
November 20, 1973

ALSO RELEASED AT LOS ALAMOS
SCIENTIFIC LABORATORY
(505/667-6101)

RELEASE NO: 73-152

OPERATION SKYLAB/BARIUM

Skylab's third and last crew of astronauts, now in orbit and embarked on a full program of scientific research, is scheduled to add another important data-collecting task to an already full agenda.

In addition to continuing investigations of the sun, earth resources, and medical effects of long duration space flight begun by preceding Skylab crews, the astronauts are going to participate in an experiment to trace geomagnetic field lines with barium ions.

Beginning with the morning of November 27, Marine Lt. Col. Gerald P. Carr, civilian scientist Dr. Edward G. Gibson, and Air Force Lt. Col. William R. Pogue will join a widespread network of observation stations waiting for the launch of a National Aeronautics and Space Administration Black Brant IV rocket from the Poker Flat Range near Fairbanks, Alaska.

-more-

The rocket payload is designed to create a high-explosive-driven jet of barium vapor and inject it into the earth's magnetosphere. It is hoped that the barium vapor, ionized by solar ultraviolet radiation, will illuminate geomagnetic field lines and make them visible to sensitive optical equipment for many thousands of kilometers. The payload is precisely pointed by an attitude control system so that the explosive force directs the barium ions upward along magnetic field lines. The ions are attracted to the field lines and in a complicated spiraling motion follow them toward the conjugate point. Under optimum conditions it should be possible for scientists using sensitive optical equipment to trace the path of the ion stream out to an altitude of 35,000 km (about 22,000 mi.) at the equator. It may even be possible to record the streak on its way back down into the atmosphere at the conjugate point south of New Zealand, a distance of about 100,000 km (about 62,000 mi.).

Dr. H. Milton Peek, University of California Los Alamos (New Mexico) Scientific Laboratory, and Dr. Eugene M. Wescott, University of Alaska Geophysical Institute, are the chief scientific investigators for the magnetic field line studies. Dr. Peek will coordinate operations from a scientific command

post in Honolulu, Hawaii. Dr. Wescott will be at the Ester Dome Observatory in Alaska. NASA scientist-astronaut Dr. Donald Lind will help to coordinate the experiment at the Johnson Spacecraft Center at Houston.

Previous experiments in 1971 and 1972 by the LASL/University of Alaska group demonstrated that this technique of using a directed barium ion jet does illuminate field lines and makes it possible to trace them for considerable distance. The experiment is analogous to using iron filings sprinkled on a sheet of paper over a magnet to show the magnet's field lines.

The Sklab astronauts, in the blackness of space, should be able to observe the dim, barium ion streak about 10 times better than ground observers because of their position above the atmosphere. With fast lenses and sensitive film they could possibly contribute invaluable information that will complement other data by providing another viewpoint, particularly if the ion stream does not behave as predicted.

A space physics research team from LASL, the University of Alaska, and Sandia Laboratories of Albuquerque will man observation posts on the ground in Alaska and the Hawaiin Islands and in the air aboard an Atomic Energy Commission/Air Force

NC-135 jet aircraft. The specially instrumented four-engine jet (similar to a Boeing 707) will be flying from Hickman Air Force Base, Honolulu.

The Sandia Laboratories Upper Atmospheric Projects group directed by John C. Eckhart will provide telemetry, assemble the payload, and have personnel at Poker Flat as well as aboard the NC-135 aircraft. A. F. Huters will be scientific flight commander for aircraft observations. H. E. Hansen is project manager for payload preparation. LASL and Sandia are operated for the Atomic Energy Commission by the University of California and the Western Electric Company, respectively.

Weather conditions permitting successful optical observations from prime ground stations must coincide with one of 7 favorable Skylab passes over the Pacific Ocean region where the astronauts can see the ion stream produced by the rocket payload. A 20-kg (about 44 lb.) high explosive shaped-charged surrounding a 1.3 kg (about 2.9 lb.) cone of barium metal will be fired at an altitude of about 561 km (about 348 mi.). The launch must take place between November 27 and December 8.

The principal objectives of the experiment are: to determine the geomagnetic field line configuration along as much as possible

of its entire length from the injection point to the magnetic conjugate, nearly 1,300 km (about 800 mi.) south of New Zealand's South Island; to study the effects of plasma conductivity and geomagnetic activity upon the motion of the barium plasma along field lines; and to determine the feasibility of space observation of a low-level light source produced by a cold metal plasma after its injection into the earth's magnetic field.

The earth's magnetic field surrounds our planet with an invisible barrier diverting dangerous energetic solar and cosmic charged particles which, if allowed to impinge on the earth's surface, could be lethal to life as we know it. Evidence is accumulating that the magnetic field variations affect man in other ways, such as weather patterns and disturbed communications, and can have a direct effect on man's psychological attitude.

Satellites have made the study of our magnetic field in space possible and by measuring strengths over a period of time have produced a general picture of the magnetosphere and its dynamics. However, to directly observe changes in the field it is necessary to illuminate field lines and observe their motions.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

F. D. Williams
713/483-5111

FOR RELEASE:
November 20, 1973

RELEASE NO: 73-153

SPECIAL CAMERA TO PHOTOGRAPH COMET KOHOUTEK FROM SKYLAB

As the Comet Kohoutek streams through space at speeds exceeding 160,000 kilometers an hour (100,000 miles per hour), astronauts aboard the Skylab space station will use a special camera to photograph features not visible from Earth's surface.

The camera, called a Far Ultraviolet Electronographic Camera and designated Experiment S201, was built by the Naval Research Laboratory (NRL) in Washington, D.C. Dr. George R. Carruthers prepared the instrument for use aboard the space station during a three-month crash program.

The complex camera records light wavelengths too short to be seen by the human eye. These shorter-than-violet-light wavelengths are scattered and absorbed by Earth's atmosphere, so ultraviolet cameras cannot be used effectively from the ground.

Most far ultraviolet light is produced by hydrogen and oxygen. These elements, believed to exist as ice in the comet's nucleus, will be boiled away as they are heated by the Sun's rays. Skylab's new camera will record the presence of hydrogen, oxygen, carbon

-more-

monoxide, and perhaps other substances in the comet's cloudlike head and tail.

The Far Ultraviolet Electronographic Camera prepared for Skylab was originally the backup hardware for an identical camera carried on Apollo 16. To use the instrument both in the vacuum of space and inside the laboratory, a special air-tight container adapted to use with the mirror system and scientific airlock had to be fabricated in time for the November launch.

The duplicate NRL camera was flown on Apollo 16, the next-to-last moon landing flight, in April 1972. Astronauts John W. Young and Charles M. Duke Jr. placed the camera on a tripod in the shadow of the lunar module to photograph the Earth's upper atmosphere, the geocorona, solar wind, star clouds, galactic clusters and other hydrogen-rich astronomical subjects.

The third Skylab crew will use the special camera more than a dozen times as the Comet Kohoutek approaches, passes by, and recedes from the Sun.

While the Comet is at some distance from the Sun, the camera will be pointed through a scientific airlock in the wall of the orbiting laboratory.

By using a movable mirror system built for the Ultraviolet Stellar Astronomy experiment (SO19) and rotating the space station, Skylab's new camera will be able to photograph the comet around the side of the 100-ton vehicle.

On spacewalks scheduled for December 25 and 29, just before and just after the Comet passes closest to the Sun, the camera will be taken outside and fastened to one of the trusses that support the solar telescopes. The comet passes the Sun at a distance of about 13 million miles on December 28.

The astronauts will also photograph the Comet Kohoutek on a third spacewalk, just a few days before they return to Earth.

Photographs taken outside the space station will provide a broader view than those taken from within the laboratory. Using the scientific airlock and articulated mirror systems, the camera's field of view is limited to 7°. Outside, the field of view if expanded to 20°.

Inside the space station, the camera is attached to the articulated mirror system installed in the scientific airlock. One of the astronauts vents the S201 sealed container through a hose for at least 30 minutes, to produce a vacuum inside.

After the Skylab and mirror system are arranged to photograph the comet with the S201, the astronaut will push a button to begin the camera's automatic operation.

Light entering the camera must first pass through one of two filters: one admits light wavelengths primarily associated with hydrogen (1216 Å), while the other transmits wavelengths associated with oxygen (1304 - 1356 Å) and certain molecules. A sequence of four photographs of hydrogen emission, with exposures from 1 to 15 seconds, is followed by four photographs of oxygen emission, with exposures from 3 to 107 seconds.

A 5-inch mirror concentrates the filtered light on a photocathode, which generates electrons and accelerates them toward the 35 mm. film. Between the cathode and film, a strong magnetic cylinder focuses the electrons, which pass through a thin, lightproof membrane composed of aluminum and Mylar to expose the film frame.

Two film packs, with a combined total of about 350 frames, have been supplied for photographing the Comet Kohoutek. A third film pack is reserved for a series of Earth's atmosphere and space features, including tropical airglow oxygen bands photographed

by the Apollo 16 camera from the surface of the Moon, the polar aurorae, and the very thin hydrogen atmosphere some experimenters believe exists on the Moon.

The crew will also attempt to photograph the Large Magellanic Cloud, the nearest galaxy to our own Milky Way. Far ultraviolet photography from Skylab may confirm data originally obtained using the Apollo 16 camera.

Skylab's new electronographic camera is extremely sensitive and must be handled with special care.

The greatest danger is that the instrument may be inadvertently pointed at the sun. Sunlight could burn a hole in the photocathode, leaving an unexposed dot about the size of a pinhead on every later film frame.

When not installed in the airlock, the sealed container must be filled with dry nitrogen to prevent moisture from degrading the photocathode.

Should the vacuum inside the canister fail during operation, internal electrical arcs could fog individual film frames. Continuous operation under such conditions would burn out the instrument's high-voltage electronics.

The strong magnet used to focus the electronics presents problems of another sort. If steel tools or other magnetic objects come with 10 feet of the instrument while it is operating, they could distort the magnetic field temporarily, degrading the focus.

The focusing magnet is so strong that it might pull free-floating magnetic objects from up to 10 feet away and cause them to crash into the sealed container. Even the astronauts' watches can be affected. The watches speed up when brought within 3 feet, and may stop when moved very close to the S201 canister. When removed from the magnetic field, the watches again run normally.

Principal investigator for the S201 Far Ultraviolet Electronographic Camera is Dr. Thornton L. Page, a Naval Research Laboratory scientist employed at the Johnson Space Center.

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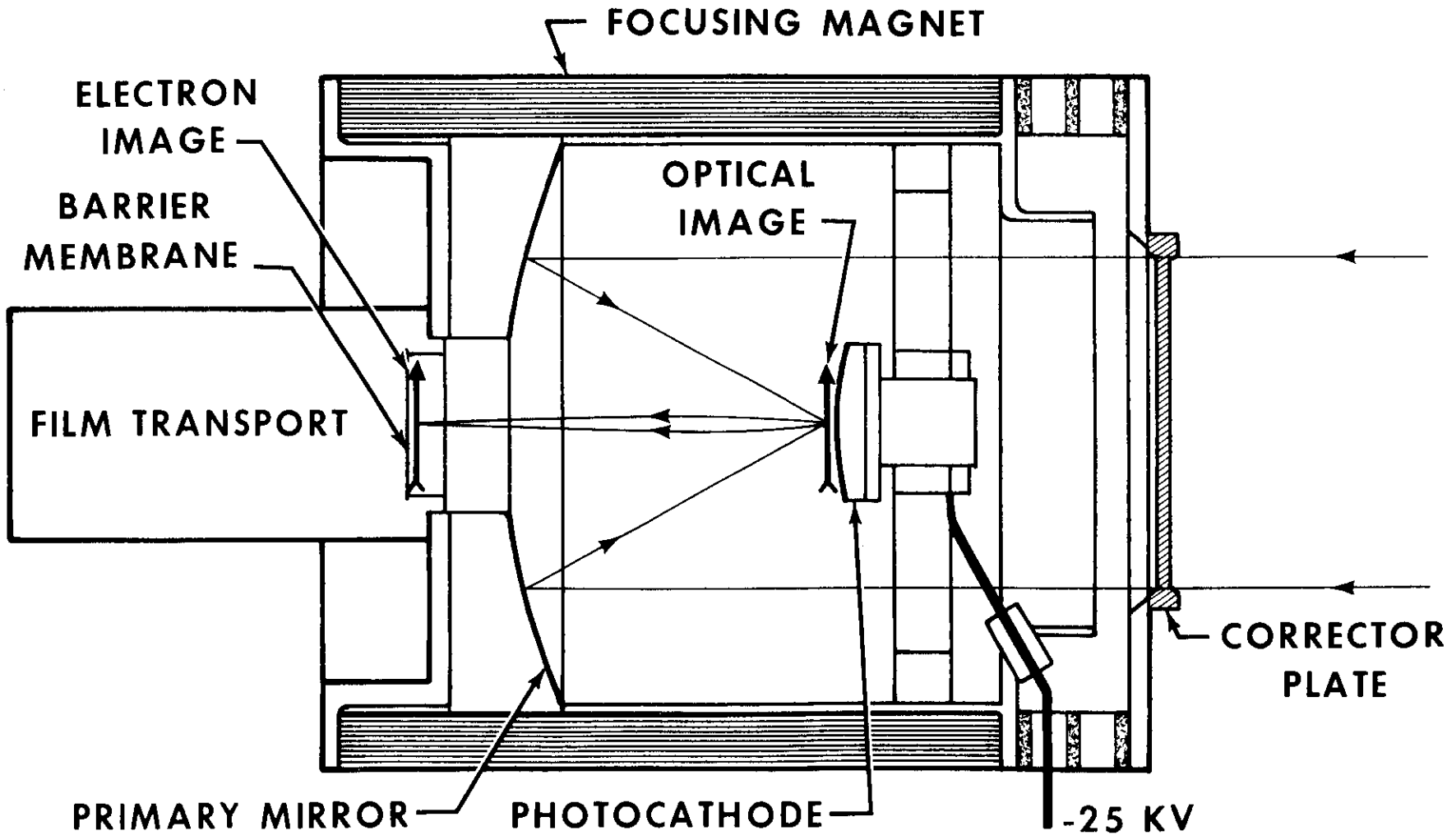
FAR UV ELECTRONOGRAPHIC CAMERA



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

David Garrett
202/755-3114

FOR RELEASE:
November 20, 1973

RELEASE NO: 73-154

NASA AWARDS SHUTTLE SOLID ROCKET MOTOR CONTRACT TO THIOKOL

The National Aeronautics and Space Administration has selected Thiokol Chemical Corporation of Brigham City, Utah, for the negotiation of a contract for the design, development, test, and evaluation of the solid rocket motors for the Space Shuttle. The contractor's proposed cost is $106 million.

The Agency plans to award a cost-plus award fee contract for the development phase of the project, which will include fabrication of ground test and development flight motors. The six-year contract will run through 1979.

The work will be done by Thiokol's Wasatch Division at Lampo Junction, Utah. This element of the Shuttle project will be managed by the Marshall Space Flight Center, Huntsville, Alabama, and will support Space Shuttle orbital flights beginning in 1979.

Three other firms submitted proposals for the work: Aeroject Solid Propulsion Company, Sacramento, California; Lockheed Propulsion Company, Redlands, California; and United

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Aircraft Corporation's United Technology Center, Sunnyvale, California.

The request for proposal issued by NASA in connection with this procurement calls for an initial production quantity of solid rocket motors to be negotiated with Thiokol at a later date. It is anticipated that a follow-on contract for the major engine production will be separately competed.

NASA was given approval to proceed with development of the Space Shuttle by President Nixon in January, 1972. Development of this versatile new space transportation system is designed to routinize space travel and reduce the cost of putting payloads into orbit to a fraction of present costs.

The Space Shuttle will consist of a manned reusable orbiter mounted piggyback on a large expendable external tank. The two recoverable solid rocket motors attached to the tank at launch will provide a total of 12 1/2 million Newtons (approximately two and one-half million pounds) of thrust during the 2-minute burn before separation. Each motor will be 3.6 meters (12 feet) in diameter and 35.4 meters (118 feet) long.

The orbiter will resemble a delta-wing airplane about the

the size of a DC-9 jetliner.

At launch, the solid rocket boosters and the orbiter's three main engines will carry the vehicle to an altitude of about 40 kilometers (25 statute miles). There the boosters will be jettisoned for recovery in the ocean.

The external tank will continue to supply propellants to the orbiter engines until just before reaching orbit. When the tank is dropped, the orbiter will switch to the orbital maneuvering engines fed from internal fuel tanks, and the stage will continue into orbit.

After completing the mission--normally about seven days--the crew will pilot the orbiter through reentry and land it like an airplane. It can then be refurbished for other flights.

As NASA's primary launch vehicle, the Space Shuttle will be used to send most applications spacecraft into orbit, including communications, weather, navigation, and Earth resources satellites. The Shuttle will also be used to launch payloads for the Department of Defense.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Charles Redmond
713/483-4341

FOR RELEASE:
July 22, 1974

RELEASE NO: 74-155

ASTP EXPERIMENT AR-002 MICROBIAL EXCHANGE

Significant postflight microbial alterations have been observed in samples obtained from astronauts and command modules following previous flights. Supporting ground studies have indicated that such alterations may result in potentially harmful microbial imbalances in the crew members.

In addition to American studies, Soviet studies have also indicated microbial changes in cosmonauts which appear to have been influenced by space flight parameters. Soviet space dogs have demonstrated intestinal bacilli in their oral cavities after only two days in space. This was interpreted by the Soviet experts as a result of spaceflight decrease in the dogs' immune mechanism.

Microbial samples were also taken on the three Skylab missions; however, results from these experiments have yet to be determined.

One of the Life Sciences experiments slated for the joint US-USSR Apollo-Soyuz missionin July, 1975, is the Microbial Exchange experiment. This is one of several joint experiments planned for the ASTP mission. The Apollo-Soyuz combination offers a unique opportunity to conduct microbiological studies with 5 crewmen and 2 spacecraft from different geographical locations.

This medical experiment is designed to qualitatively and quantitatively measure the microbe activity of the crew members in both spacecraft. The experiment will involve taking microbe samples from the bodies of the crewmembers and from 15 different areas in each spacecraft. Samples from the neck and head regions and hands of the cosmonauts and astronauts will be taken using swabs. The samples will be kept in sealed containers until return to earth on Soyuz.

In addition to samples taken during the flight, samples will also be taken from each individual during the 60-day pre-launch period and for 30 days following landing.

Principal Investigator for this experiment is Dr. Gerry Taylor of the Johnson Space Center, Houston, Texas. Co-Investigator is Dr. S. N. Zaloguyev of the Soviet Union.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:
November 24, 1973

Don J. Green
713/483-5111

RELEASE NO: 73-155

JSC AWARDS SAIL DESIGN ANALYSIS CONTRACT TO AUTONETICS

The Autonetics Division of Rockwell International, Anaheim, California has been awarded a contract to support breadboard activities for the Shuttle Avionics Intergration Laboratory at the NASA Johnson Space Center, Houston.

A breadboard is a devise used for integrating and testing electronic equipment before installation into the Space Shuttle vehicle.

The laboratory, bearing acronym SAIL, is under construction at the Houston facility.

According to terms of the contract, tasks to be performed by the Autonetics are:

1. Identity of avionics test runs.
2. Comparison study between SAIL and Space Shuttle digital systems.
3. Develop computer programs for check out of software and hardware.

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4. And JSC support during breadboard SAIL test.

A cost-plus-fixed-fee contract amounting to $233,401. has been awarded. Completion date for this work is August 1, 1974.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Milton Reim
713/483-5111

FOR RELEASE:
November 27, 1973

ALSO RELEASED AT MARSHALL
SPACE FLIGHT CENTER

RELEASE NO: 73-156

SKYLAB SCIENCE DEMONSTRATIONS

A Skylab bonus of three unscheduled science demonstrations performed by the SL-3 crew in their spare time has resulted in plans for expansion of this activity by the crew of SL-4.

During the SL-3 mission, as the crew becomes more proficient in performing their duties in the weightless environment, extra time became available and the astronauts asked for additional tasks. Scientists and planners at MSFC selected six of many suggested science demonstrations, three of which were subsequently performed by SL-3 Pilot Jack Lousma.

Twenty-six science demonstrations, designed to demonstrate certain scientific principals or phenomena in the space environment, have been approved for crew performance as time is available during the SL-4 mission. Fifteen of the demonstrations were suggested by MSFC scientists, nine by scientists at the Johnson Space Center, and two were jointly proposed by MSFC and JSC.

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The demonstrations, to be filmed by TV, movie and still cameras, will require a degree of inventiveness from the crew and will provide a change of pace for them during the mission. The activities will also provide material for educational applications. In addition, NASA scientists believe that examination of the photographs and video data of these demonstrations will be of considerable assistance in designing even more valuable and complex science experiments onboard the Space Shuttle.

Fourteen of the science demonstrations will be possible with equipment and materials already aboard the Skylab. A small demonstration kit of supplies for seven of the demonstrations and equipment for five others were stowed in the Command Module of the SL-4 mission. The combined weight of the kit and equipment was less than seven pounds.

Demonstrations suggested by MSFC scientists are: Diffusion in Liquids, Ice Melting, Ice Formation, Effervescence, Immiscible Liquids, Liquid Floating Zone, Silver Crystal, Liquid Films, Lens Formation, Acoustic Positioning, Gyroscope, Cloud Formation, Charged Particle Mobility, Neutron Environment and

Rochelle Salt Growth.

JSC scientists suggested Energy Loss and Angular Momentum, Bead Chain, Wave Transmission/Reflection, Wilberforce Pendulum, Magnetic Effects, Curved Ball Effect, Human Body Momentum, Body Dynamics and Perfect Gas Law.

Scientists at the two centers jointly proposed Water Drop and Orbital Mechanics.

Two of the demonstrations performed by Lousma during the SL-3 mission, Liquid Diffusion and Ice Melting, are to be continued during SL-4.

As with all of the planned SL-4 demonstrations, the simplest of tools are required--cotton swabs, empty containers, a hypodermis syringe, water, tape, tea and liquid soap.

In the SL-3 Liquid Diffusion demonstration, designed to reveal how long it would take for tea and water to mix in zero-G, water was placed in a plastic tube formely used as a forceps container. When tea was placed on top of a fiber ball that had been placed next to the water, there was no diffusion.

The procedure was repeated without the fiber ball, placing the tea on the surface of the water, and the liquids diffused only three-fourths of an inch in 45 hours.

In the ice melting demonstration, water and a cotton swab were placed in a surplus plastic pill container and frozen. The resulting cylinder of ice, looking much like a miniature popsicle with its protruding swab, was taped to an area where air circulation was minimal.

Lousma photographed the cylinder of ice as it melted into a sphere of water. Air trapped within the ice during freezing remained motionless.

A drop of liquid soap, placed on the surface of the sphere, quickly dispersed around the entire sphere before the shape could be affected by the change in the surface tension.

Air, injected into the sphere with a hypodermic needle, formed many small bubbles of uniform size. As more air was injected, the sphere grew until the diameter reached about 1 1/2 inches. At this point, air bubbles began to leave the sphere at the same rate as they were injected.

The SL-4 science demonstrations will receive close attention by materials processing scientists, who believe that the key to processing in space is a better understanding of convection and diffusion. These phenomena, demonstrated on SL-4 in an

uncomplicated manner, may lead to solutions of materials forming problems that appear to be unreachable in gravity-hampered laboratories on Earth.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
November 29, 1973

RELEASE NO: 73-157

NASA ISSUES BID FOR SHUTTLE ENGINEERING/OPERATIONS SUPPORT

Requests for proposal for Space Shuttle Engineering and Operations Support have been released to the aerospace industry by NASA.

The work will be for the Johnson Space Center, Houston, Texas.

Eleven companies on November 26, 1973 were invited to submit bids. Included were:

The Boeing Company, General Electric Company, Grumman Aerospace Corporation, Martin Marietta Corporation, McDonnell Douglas Corporation, TRW, Inc., General Dynamics Corporation, and Northrop Corporation, all with operations in Houston also, the Lockheed Aircraft Corporation, with operations in Webster, Texas; IBM Corporation, Bethesda, Maryland; and Ball Brothers Research, Inc., Boulder, Colorado.

Shuttle engineering support conists of:

1. Systems analysis,
2. Avionics systems support,
3. Mission planning, analysis and software formulation,
4. Computer systems and software integration support,
5. Crew procedures and flight planning, and
6. Internal contract administration.

The contract consists of two phases: (1) Design, Development, Test and Engineering and (2) the Space Shuttle Operational Phase, with this segment applicable to the initial phase only.

As presently planned, term of the award is five years, nine months;

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and it will be negotiated in three incremental periods. The first contract period begins April 1, 1974 and ends March 31, 1976.

A cost-plus-award-fee contract is planned. The award fee will be determined by the Government based on the level of the contractor's performance.

Proposals are to be submitted by January 24, 1974.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Terry White
713/483-5111

FOR RELEASE:
November 30, 1973

RELEASE NO: 73-158

ASTRONAUT CONRAD ANNOUNCES RETIREMENT FROM NASA, NAVY

Astronaut Charles "Pete" Conrad has announced his retirement from NASA and the U. S. Navy effective February 1, 1974. Conrad will become Vice President, Operations and Chief Operating Officer of the American Television and Communications Corporation, a cable television firm based in Denver, Colorado.

Holding the rank of Captain in the Navy, Conrad retired after more than 20 years Navy service, 11 of which have been as an astronaut in the United States' manned space flight program.

Conrad's shift from space flight to private business "was a tough decision," he said. "There will be no way to match my last 11 years in space exploration. But cable television is a growing, exciting new field which uses satellites, computers and a great deal of space-developed technology."

Conrad will continue to serve as a member of NASA's Space Systems Committee, a group of experts within and outside the agency charged with planning current and future space projects.

Selected as a NASA astronaut in 1962, Conrad has flown on four space missions: as Pilot of the eight-day Gemini 5 flight in 1965, as Command pilot of the three-day Gemini 11 in 1966, as Commander of the second manned lunar landing on Apollo 12 in 1969, and as Commander of the first crew to visit and operate the Skylab Space Station in the spring of 1973. In-flight repairs to the space station solar cells and installation of the "parasol" sun shield by Conrad and his crew kept Skylab operational for follow-on

- more -

crews. The first Skylab mission lasted 28 days, bringing Conrad's total space flight time to 1,180 hours.

Conrad, 43, was born in Philadelphis, Pa. He earned a Bachelor of Science degree in aeronautical engineering from Princeton University in 1953 and entered the U. S. Navy to become a naval aviator and test pilot until his selection as a NASA astronaut. He has logged almost 7,000 hours aircraft flight time, most of which was in jet aircraft.

Among Conrad's awards are two NASA Distinguished Service Medals, two NASA Exceptional Service Medals, Navy Astronaut Wings, the Navy Distinguished Service Medal and two Distinguished Flying Crosses. He is a Fellow of the American Astronautical Society and the New York Academy of Science, Fellow Elect of the American Institute of Aeronautics and Astronautics and an Associate Fellow of the Society of Experimental Test Pilots. He holds an Honorary Master of Arts degree from Princeton, an Honorary Doctorate of Laws degree from Lincoln-Wesleyan University and an Honorary Doctorate of Science from Kings College, Wilkes-Barre, Pa.

Conrad is married to the former Jane DuBose of Uvalde, Texas. The couple has four sons: Peter 19, Thomas 16, Andrew 14, and Christopher 13.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

John W. King
713/483-5111

FOR RELEASE:
IMMEDIATE

RELEASE NO: 73-159

JSC REORGANIZATION ANNOUNCED

A reorganization plan involving two key directorates is being implemented at the Johnson Space Center to adjust to the center's evolving role in the post-Skylab era of manned space flight.

Center Director Dr. Christopher C. Kraft, Jr. announced the reorganization essentially combines two directorates--Flight Crew Operations and Flight Operations --into a single operations organization and establishes a new directorate, Data Systems and Analysis.

"The Space Shuttle program and the Apollo-Soyuz Test Project are our major manned space flight challenges in the upcoming years and the resources of the center should be properly organized toward these goals," Dr. Kraft said. "At the same time, however, we intend to implement the reorganization in such a fashion that there is no adverse effect on the ongoing Skylab program."

Although the reorganization is effective immediately, it will not be completely implemented until February 1974, following the end of the current Skylab mission.

Under the plan, Flight Crew Operations and Flight Operations will be combined into a new Flight Operations Directorate that will be entirely devoted to space flight and aircraft activities. The new Data Systems and Analysis Directorate will basically be responsible for providing institutional and programmatic data systems and related analysis. It will also have a primary responsibility for managing and providing the onboard software for Space Shuttle.

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Pilot astronauts in the former Flight Crew Operations Directorate will be assigned to the Astronaut Office in the new Flight Operations Directorate. Scientist astronauts will be assigned to Astronaut Offices in the Science and Applications and Life Sciences Directorates, depending on their specialties.

The pilot astronauts are identified as flight crew candidates for the Space Shuttle program. In their new assignments, the scientist astronauts will serve as the crew operational interface with some designated and potential Shuttle payload users. The scientist astronauts will be candidates as payload specialists for Shuttle flights, and they may also be considered for flights as individual experimenters.

The new Flight Operations Directorate will also be responsible for flight control, flight planning, crew training and procedures, and aircraft operations.

Dr. Kraft announced the following key management personnel assignments involved in the reorganization:

- Kenneth S. Kleinknecht, present Skylab Program Manager, and Eugene F. Kranz, Chief of the Flight Control Division, will serve as director and deputy director respectively of the new Flight Operations organization. They will also continue in their present assignments through the completion of the Skylab program. Alan B. Shepard, Jr. is Chief of the Flight Operations Astronaut Office.

- Howard W. Tindall, Jr. and Lynwood C. Dunseith are named director and deputy director respectively of the Data Systems and Analysis Directorate. They served in the same capacity in the former Flight Operations Directorate.

- Astronaut Dr. Owen K. Garriott has been named Deputy to Director Anthony J. Calio of the Science and Applications Directorate. Dr. Harrison H. Schmitt will be Chief of the Science and Applications Astronaut Office.

- Astronaut Dr. Joseph P. Kerwin will be assigned additional duties as Chief of the Life Sciences Astronaut Office which will also include astronaut physicians Drs. F. Story Musgrave and William E. Thornton.

- In addition to their assignments as Shuttle crew candidates, three pilot astronauts are assigned additional duties in project management. They are Fred W. Haise, Jr., Technical Assistant to the Space Shuttle Orbiter Project Manager; Charles M. Duke, Jr., Technical Assistant to the Acting Manager for Space Shuttle Systems Integration; and Eugene A. Cernan, Special Assistant to the Apollo-Soyuz Test Project Manager.

Thirty-seven astronauts are currently on active flight status at the Johnson Space Center. Of the 26 pilot astronauts, a total of 16 will be participating in Space Shuttle activities by the end of the Skylab program, with 10 assigned to the prime, backup and support crews for the Apollo-Soyuz mission, scheduled for 1975. Eight scientist astronauts will work in the Science and Applications Office and three in Life Sciences. All astronauts will continue to maintain their aircraft flight proficiency.

Astronauts Donald K. Slayton and Thomas P. Stafford, director and deputy director respectively of the former Flight Crew Operations Directorate, are in training as prime crew members for the Apollo-Soyuz mission and, with their designation as flight crew members, are assigned to the Astronaut Office.

- end -

November 30, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

FOR RELEASE:

Don J. Green
713/483-5111

December 5, 1973

RELEASE NO: 73-160

NASA ISSUES INSTALLMENT FOR SHUTTLE DEVELOPMENT

The NASA Lyndon B. Johnson Space Center has made a payment of $7,000,000 to Rockwell International Corporation, Downey, California, for continued development of the Space Shuttle vehicle.

The installment increases the total amount of the award to $198,694,000 and covers Rockwell's performance through January 10, 1974.

More than 4000 contractor personnel now are employed in shuttle development.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
December 10, 1973

RELEASE NO: 73-161

NASA ISSUES BID FOR EARTH RESOURCES LAB SUPPORT

Requests for proposal for support services for the Earth Resources Laboratory have been released to industry by NASA.

The work will be accomplished at the Mississippi Test Facility, (MTF), Bay St. Louis, Mississippi; however, the laboratory is operated by the Johnson Space Center, Houston, Texas.

Technical and scientific support services includes operation and maintenance of three labs:

1. Data Acquisition Laboratory
2. Data Preparation Laboratory
3. Data Processing Laboratory

The contractor will participate in the field operations of Earth resources data acquisition, as well as data reduction, maintaining resource archives, and aid in Gulf Coast research investigations.

The contract consists of two phases lasting over a three year time period. The first period begins May 1, 1974 and continues through April 30, 1976. An additional one-year extension is planned in order to maintain "program continuity and to provide program stability."

A cost-plus-award-fee type of contract presently is contemplated by the Government. Use of the award fee is intended to encourage the contractor to exercise strict cost control and perform in an excellent manner.

Proposals are to be submitted to the Laboratory at MTF by January 11, 1974.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
December 13, 1973

RELEASE NO: 73-162

JSC ANNUAL AWARDS CEREMONY

Individual and group awards will be presented tomorrow to employees and engineering teams at the NASA Johnson Space Center in recognition of their efforts in the manned flight program.

JSC Director Christopher C. Kraft, Jr. will present the awards in a 3:00 p.m. ceremony in the Center auditorium. He will be assisted by Sigurd A. Sjoberg, deputy director.

A total of 49 JSC Certificates of Commendation and 79 Superior Achievement Awards will go to JSC employees and one Group Achievement Award will go to a specialized engineering team.

Receiving the group award is the Shuttle Orbiter Double-Delta Aerodynamic Design Team.

Also recognized tomorrow are those civil servants who have performed continuously in an outstanding manner; retirees; suggestion award winners; invention and contribution awards, and a new category called "Outstanding Secretary of the Month." Many of these awards carry cash increments or salary increases.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Janet Wrather
713/483-5111

FOR RELEASE:
December 11, 1973

RELEASE NO: 73-163

APOLLO 17 ASTRONAUTS PRESENT FLAG TO CENTER

A year ago today, Apollo 17 touched down on Taurus Littrow to finalize manned lunar landings.

Commemorating this event, Apollo 17 commander Eugene Cernan and lunar module pilot, Jack Schmitt today presented a U. S. flag which flew aboard the Apollo spacecraft, "the America," to mission controllers and "all the people at JSC who supported the operation."

The ceremony took place in the Mission Control Center at approximately 1:54 p.m. CST.

"The real significance of this flag," Cernan stated, "is manifested in its own history, but to us, the fact that we had the opportunity to carry it, sort of represents the dedication and effort and the courage and self sacrifice of so many of you people here at the Center who made our mission possible."

Jack Schmitt added, "I think all of you remember what I said when we deployed the flag similar to this on the Moon, that was the flag that flew in the MOCR during Apollo 11 through Apollo 16 and it's up there now, not only representing the country, but everyone involved in Apollo through the years. This flag went to the same place, but comes back to fly in the MOCR and I hope you'll let it fly here for as long as we're flying in space."

Eugene Kranz, Deputy Director of Flight Operations, accepted the flag on behalf of the Center.

"This flag shall always stand in the Mission Control Center," Kranz said "and when we look at it, we'll think that dedication to the job, self sacrifice, attention to detail and craftsmanship are what we need to keep this country great."

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Robert V. Gordon
713/483-5111

FOR RELEASE:
December 13, 1973
2:00 PM CST

ALSO RELEASED AT NASA HEADQUARTERS

RELEASE NO: 73-164

GRUMMAN SELECTED FOR SHUTTLE TRAINING AIRCRAFT

The National Aeronautics and Space Administration has selected Grumman Aerospace Corp., Bethpage, N. Y. for negotiation of a contract to modify two Gulfstream II aircraft for use as crew trainers for the Space Shuttle Orbiter Vehicle. The contractor's proposed cost is approximately $19.5 million.

Grumman will modify production aircraft to simulate the orbiter cockpit, visual cues, handling qualities, and duplicate the orbiter's atmospheric descent trajectory from approximately 35,000 feet altitude to landing on a runway. The training aircraft will be delivered approximately two and one-half years after the contract is signed.

The production aircraft will be purchased on a fixed price basis, while the required modifications will be under a cost-plus-fixed-fee arrangement.

The work will be managed by the NASA Johnson Space Center, Houston.

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Robert V. Gordon
713/483-5111

FOR RELEASE:
December 12, 1973

RELEASE NO: 73-165

ALSO RELEASED AT NASA HEADQUARTERS
Nick Panagakos
202/755-3680

DISCOVERER OF COMET KOHOUTEK WILL SPEAK TO PRESS DECEMBER 27

Professor Lubos Kohoutek of Hamburg Observatory, West Germany, discoverer of Comet Kohoutek, will conduct a news briefing at 10 a.m. Thursday, December 27, in the first floor auditorium of the HEW North Building, 300 Independence Ave., Washington, D. C. Comet Kohoutek will make its closest approach to the Sun on December 28.

Biographical data on Professor Kohoutek and background material on the comet will be available at the briefing.

A tentative itinerary for Professor Kohoutek, who will be serving as a NASA consultant during his visit, is attached.

- more -

ITINERARY
DR. LUBOS KOHOUTEK
Dec. 26 - 31, 1973

Wednesday, December 26

A. M.	:	Dr. Kohoutek and escorts to visit Smithsonian Astrophysical Observatory, Cambridge, Mass.
2:45 p.m.	:	Depart Boston, Mass.
3:57 p.m.	:	Arrive Washington, DC - National Airport

Thursday, December 27

10:00	:	News Conference
Noon	:	Luncheon in honor of Dr. Kohoutek. Hosted by Dr. John Naugle, Associate Administrator for Space Science, NASA
P. M.	:	Visit NASA Goddard Space Flight Center, Greenbelt, Md.

Friday, December 28

9:20 a.m.	:	Depart Washington, DC - Dulles Airport
12:50 p.m.	:	Arrive Houston, Texas
1:30 p.m.	:	Depart Houston
1:45 p.m.	:	Arrive Clear Lake
P.M.	:	Talk to Orbiting Skylab Crew
P. M.	:	Meet "informally" with the Press
Evening	:	Reception and Dinner honoring Dr. Kohoutek attended by Skylab Principal Scientific Investigators. Hosted by Mr. Anthony J. Calio, Director of Science and Applications, Johnson Space Center.

Saturday, December 29

8:15 a.m.	:	Depart Clear Lake
8:30 a.m.	:	Arrive Houston
10:00 a.m.	:	Depart Houston, Texas
10:47 a.m.	:	Arrive Dallas, Texas
11:55 a.m.	:	Depart Dallas, Texas
1:04 p.m.	:	Arrive Tucson, Arizona
P.M.	:	Free

Sunday, December 30

A. M.	:	Visit Kitt Peak National Observatory, Guest of Dr. Arthur A. Hoag, Program Director, Stellar Division
4:45 p.m.	:	Depart Tucson, Arizona
5:50 p.m.	:	Arrive Los Angeles, California
8:00 p.m.	:	Depart Los Angeles

Monday, December 31

1:50 p.m.	:	Arrive Santiago, Chile

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Robert V. Gordon
713/483-5111

FOR RELEASE:

RELEASE NO: 73-166

December 24, 1973

SKYLAB HOMETOWN RELEASE - MRS. NEIL HUTCHINSON

The former Karen L. Zollman, of Wichita, Kansas, wife of Neil B. Hutchinson, one of the Skylab Flight Directors, has played a role in selecting a mascot for her husband's team members at the NASA Johnson Space Center in Houston, Texas.

When Neil Hutchinson's flight team is on duty in the Mission Operations Control Room, a giant caricature of a spider adorns the 10 by 20 foot worldwide plot board which depicts the immediate position of the Skylab. The Spider harks back to the previous Skylab mission during which a pair of common household cross spiders--Anita and Arabella--performed their thing by weaving webs in the weightlessness of space.

Traditionally, flight controllers are designated by a team color--bronze, gold, purple, etc. The Hutchinson group of flight controllers are dubbed the silver team. Several of the five control teams have a symbol or caricature adorning the giant tracking plot board.

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Karen Hutchinson, daughter of former Wichita, Kansas, residents Mr. and Mrs. William K. Zollman, helped her flight director husband select a name for the spider mascot on the plot board. A former Wichita State University English major student and more recently a graduate of the University of Houston, Karen has had an abiding interest in Greek mythology.

So when it came time to name the spider plot board it was only appropriate Karen choose "Arachnea." In the Greek legend Arachnea was a woman so proud of her skills in weaving that she challenged Athena (Minerva) to a contest.

So enraged at such a challenge, Athena changed Arachnea into a spider so that she would have to spend her life spinning. In the case of the manned space program, Arachnea holds a dominant spot on the two hundred square foot tracking board in front of the Mission Operations Control Room of the Mission Control Center.

Karen, 24, attended Wichita State in 1968, and when her father moved to Houston with the Boeing Company, she enrolled at the University of Houston. For ten semesters she was on the dean's list and in 1973 graduated Cum Laude. She is a member of the Phi Kappa Phi.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
December 23, 1973

RELEASE NO: 73-167

JSC AWARDS ORBITER CHECKOUT CONTRACT TO GENERAL ELECTRIC

General Electric Company, Space Division, with operations in Houston, Texas, has been awarded a contract to provide Acceptance Checkout Equipment, acronym ACE, for the Space Shuttle orbiter vehicle.

The equipment, to be purchased or modified and follow on task, will be performed in Houston and at the orbiter's final assembly site; Palmdale, California.

Estimated value of the cost-plus-fixed-fee contract is $6,201.500. Monitoring the contract will be the Johnson Space Center with headquarters in Houston.

GE is to perform initial systems engineering and analysis, modify present ACE equipment located on the west coast, and move install and check out the computers at the Palmdale location.

Maintanence and operations support also is called for in the work guidelines.

The contract remains effective through September 30, 1975. Initial incremental funding made on December 6, 1973, amounts to $400,000.

Approximately 60 contractor engineering personnel will work in the Houston operations and another 40 engineering personnel will be located at the California facility.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Robert V. Gordon
713/483-5111

FOR RELEASE:
December 21, 1973

RELEASE NO: 73-168

FIFTH ANNIVERSARY OF MAN'S LUNAR ADVENTURE

Five years ago today -- December 21, 1968 -- man's first venture to the Moon, Earth's nearest cellestial neighbor began. Apollo 8 -- with the crew of astronauts Frank Borman, James A. Lovell and William Anders -- began an era for United States manned space flight which included three circumlunar missions and six lunar landings culminating in Apollo 17 which left lunar orbit on December 17th of last year. The Apollo 8 crew spent 20 hours orbiting the Moon (10 revs) on Christmas Eve day and splashed down in the Pacific Ocean on December 27, 1969.

Also, one year ago today - December 21, 1972, the Apollo 17 crew of Gene Cernan, Ron Evans and Harrison Schmitt returned to Houston, Texas following their successful flight to the Moon.

This first lunar venture was followed by Apollo 10 - May 18 to May 26, 1969 - which orbited the Moon 31 times. The first lunar landing came on July 19, 1969, followed by Apollo 12 -- October 1969, Apollo 14 in February 1971, Apollo 15 in July 1971, Apollo 16 in April 1972 and the final lunar landing mission, Apollo 17 in December of last year.

The six lunar landing crews spent a total of more than 80 hours exploring the surface of the Moon - on the Sea of Tranquility, Ocean of Storms, Fra Mauro, Hadley Rille, Descartes, and Taurus Littrow, collecting a half-ton of lunar samples and deploying scientific instruments. Five of the packages -- the Apollo Lunar Surface Experiment Package -- continue to transmit an uninterrupted flow of data to the Earth.

- more -

To date the five ALSEPS have a combined total of 4395 hours of operation.

The lunar era which began on Apollo 8 five years ago today -- December 21, 1968 -- ended one year ago -- December 19, 1972, with the splashdown and recovery in the Pacicific Ocean of the Apollo 17 crew.

Apollo 7, the first manned flight of Apollo with Walter M. Schirra, Donn F. Eisele, and Walter Cunningham, was launched October 11, 1968, and spent 11 days in Earth orbit. Apollo 9, the first manned flight using all lunar hardware was launched on March 3, 1969, and crewmen James McDivitt, David Scott and Russell Schweickart spent 10 days in earth orbit checking out systems and performing the first command module and lunar module rendezvous.

MISSION	DATE	CREW
Apollo 8	Dec. 21-27, 1968 10 Revs	Frank Borman James A. Lovell William A. Anders
Apollo 10	May 18-26, 1969 31 Revs	Gene Cernan John Young Thomas P. Stafford
Apollo 11	July 16-24, 1969 EVA time 2:30 47 lbs. sample	Neil Armstrong Michael Collins Edwin E. Aldrin, Jr.
Apollo 12	Nov. 14-24, 1969 EVA time 7:45 75 lbs. sample	Charles Conrad, Jr. Richard F. Gordon, Jr. Alan Bean
Apollo 13	April 11-17, 1970 (Mission Abort)	James A. Lovell, Jr. Fred W. Haise, Jr. John L. Swigert, Jr.
Apollo 14	Jan. 31-Feb. 9, 1971 EVA time 9:15 92 lbs. sample	Alan B. Shepard Stuart A. Roosa Edgar D. Mitchell
Apollo 15	July 26-Aug. 7, 1971 EVA time 18:34 180 lbs. sample	David R. Scott Alfred M. Worden James B. Irwin
Apollo 16	April 16-27, 1972 EVA time 20:14 213 lbs. sample	John W. Young Thomas K. Mattingly Charles M. Duke
Apollo 17	Dec. 7-19, 1972 EVA time 22:05 250 lbs. sample	Gene Cernan Ron Evans Harrison Schmitt

- end -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

ALSO RELEASED AT NASA HEADQUARTERS

Donald Zylstra
202/755-8370

FOR RELEASE:
2:00 p.m.
Friday, Dec. 21, 1973

RELEASE NO: 73-169

DR. BERRY TO HEAD UNIVERSITY OF TEXAS HEALTH CENTER

Dr. Charles A. Berry, NASA Director of Life Sciences and a flight surgeon who has been associated with the medical aspects of the manned space flight program since its beginning, will become President of the University of Texas Health Science Center in Houston on April 1, 1974.

The appointment, announced in Austin by Dr. Charles A. LeMaistre, Chancellor of the University of Texas System, is to a new position created to bring under the supervision of one administrator all the health oriented schools and services of the university, including the schools of medicine, dentistry, public health, biomedical sciences and research institutes.

In addition to monitoring and later supervising the monitoring of the condition and responses of astronauts to space flight in Mercury, Gemini, Apollo and Skylab, Dr. Berry was responsible for developing experimental programs to determine the effects of long-term space flight on man and his ability to function and work under stress and the weightless environment.

"This was a very difficult decision to make," Dr. Berry said. "Having been involved with the manned space flight program since the

- - more - -

beginning, it had become a very important part of my life. But, I could not turn down the new challenge and responsibility offered to me by the University of Texas."

"I am extremely grateful that I will have an opportunity to serve through the Skylab program and complete analysis of the medical data from the third manned mission," he added.

Dr. James C. Fletcher, NASA Administrator, said he deeply regretted Dr. Berry's decision.

"His work in determining the ability of man to function and work in space for long periods of time is an important contribution to the future of the space program," said Dr. Fletcher. "The University of Texas is to be congratulated in obtaining the services of an outstanding medical researcher and administrator."

Dr. Berry, 50, began his work in aerospace medicine when he joined the Air Force in 1951 after three years of private practice in California. He rose to become Chief of the Department of Aviation Medicine at the School of Aerospace Medicine and Chief of Flight Medicine in the Surgeon General's Office.

As an Air Force flight surgeon, Dr. Berry participated in the medical evaluations leading to the selection of the original seven Mercury astronauts in 1958. He continued to work with NASA both in formulating medical monitoring programs and in monitoring the condition of astronauts during Project Mercury.

He was appointed Director for Life Sciences at NASA Headquarters in September 1971.

Dr. Berry has overall NASA responsibility for bringing together and managing all biomedical research, bio-environmental systems, aeronautical life sciences, bioengineering, planetary biology and quarantine programs, ecological applications, medical engineering applications and applications for medical and health-care delivery.

Dr. Berry is the author of more than 100 papers on aerospace medicine and has contributed to several books on the subject. He has received more than a score of the highest honors awarded by professional societies in the United States and abroad. His honors include the NASA Exceptional Service Achievement Medal and the NASA Distinguished Service Medal.

Dr. Berry is married to the former Adella (Dell) Nance of Thermal, Calif. Their children are Michael A. Berry, M.D., Janice (Mrs. Jay) Dudley and Charlene (Mrs. David) Forester.

Dr. and Mrs. Berry reside in Alexandria, Va.

- - end - -

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:

December 25, 1973
10:00 a.m.

RELEASE NO: 73-170

NASA EXTENDS PHOTOGRAPHIC SUPPORT SERVICES CONTRACT

NASA has extended its contract with Technicolor Graphic Services, Inc., Hollywood, California for one year for photographic support services.

The work will be done at the Johnson Space Center, Houston, Texas. The contract is a cost-plus-award-fee running from January 1, through December 31, 1974. Estimated amount of the award is $2,614,300.

This is the third one-year negotiated extension with the California-based contractor. Original contract was signed January 1, 1971, and contained options for four additional one-year extensions.

More than 100 Houston area personnel are employed under the terms of the photo support contract.

In the performance of its work, Technicolor will operate still, motion picture, metric, and other laboratories at the Center.

Technicolor also provides audio visual support for the JSC Public Affairs Office.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Don J. Green
713/483-5111

FOR RELEASE:
December 25, 1973
10:00 a.m.

RELEASE NO: 73-171

NASA TO BUY 3-AXIS DYNAMIC MOTION SIMULATOR

Requests for bids to build an important test component in the development of the Space Shuttle have been released by NASA.

The test component has been dubbed by engineers as a 3-Axis Dynamic Motion Simulator (DMS) and "is sized to hold the multiple redundant Inertial Measurement Units, body rate sensors and optical sensors to be used on the Space Shuttle..."

The simulator will be located at the Johnson Space Center. It is intended also to serve as a flight motion simulator, a calibration station and general purpose inertial evaluation system, according to the work statement which accompanied the request for a bid.

JSC calls for design, construction and the delivery of one DMS incorporating a three-degree-of-freedom test table, electronic control systems, and documentation.

Articles to be tested on this table-like electronic affair are measurement devices roughly 10 inches tall by about one foot wide and nearly two feet long. Like the DMS, they bear the acronym IMUs--short for Inertial Measurement Units.

IMUs are the vital equipment in spacecraft which sense attitude changes and changes in speed. They consist of a stabilized platform containing three reference gyroscopes, three each integrating accelerometers and angular accelerometers.

In its Request for Proposals (RFP), the government calls for a firm-fixed-price-type of contract with the winning firm delivering the DMS 15 and one-half months after signature.

Proposals are to be submitted by January 21, 1974.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Robert V. Gordon
713/483-5111

FOR RELEASE:
December 27, 1973

RELEASE NO: 73-172

JSC REDUCES ENERGY USE

Car pools, lower thermostats, and a 33 per cent reduction in use of light fixtures are providing a sizeable reduction in energy usage at the NASA Johnson Space Center. As of this week, more than 1,570 car pools were operating at JSC - resulting in more than 900 fewer cars entering the Center each day. The majority of car pools were organized and implemented two weeks ago.

Other energy conservative measures have achieved the lowest December daily average consumption of natural gas and electricity in the last 5 years. These consumptions are based on the first 25 days of December. Compared to an average December, this month's energy usage indicates a 23% reduction in natural gas and a 17% reduction in electrical consumption. Comparing this month's energy usage to the lowest December consumption, which was in 1969, a 16% reduction is seen for gas and electrical usage is running 14% lower.

The natural gas savings are the result of setting thermostats lower and reducing the hours that heating and air conditioning are supplied. The Central Heating and Cooling Plant which furnishes heat and air conditioning for the more than 100 buildings at JSC has been operating at a sizeable reduction, utilizing only three of its 5 boilers and 7 chillers during peak work periods. At night and on week-ends, only two of the boilers and chillers are used. Chillers are utilized to provide cool air to the sophisticated computers and other electronic gear in support of the manned spaceflight program.

In addition to the reduction in use of natural gas, the energy management at the Center has resulted in an overall 17 per cent reduction in electrical power usage. The projected reduction of about 2.2 million kilowatt hours of power

-more-

(KWH) for this December is sufficient to supply electricity to approximately 100 homes for one year.

The reduction in electrical power for illumination has been accomplished by shutting down 33 per cent of office lighting fixtures, reduction of street and parking lighting by 75 per cent, a 60 per cent reduction in walkway lighting, and an 80 per cent reduction in building canopy lighting. These reductions combined with the shorter burning hours has resulted in an energy reduction of about 50 per cent in these areas. In addition, surveys will continue at the Center in an attempt to identify areas where additional energy savings can be realized.

-end-

RELEASED BY U.S. DEPARTMENT OF AGRICULTURE

DECEMBER 27, 1973

For Information Contact:
Robert V. Gordon
713/483-5111

"ASTROMOTHS" IN SKYLAB IV MAY LEAD TO BETTER CONTROL OF PEST

Skylab IV is the scene of tests that may help relieve the Nation of an insect threat to its forests, according to the U. S. Department of Agriculture (USDA) and the National Aeronautics and Space Administration (NASA).

Gypsy moth eggs are starting to hatch in vials aboard Skylab IV, according to the astronauts. "We were excited, of course, to hear the astronauts' report," says Dr. Dora K. Hayes, chemist with USDA's Agricultural Research Service, Beltsville, Maryland. "So far, the count is about seven out of the 500 wild eggs that are aboard. Nothing has happened with 500 laboratory reared eggs on the space station. We will have to wait to see if more hatch. If the number hits something like 10 to 20 percent -- then we'll know that we have a really neat breakthrough. It means that zero gravity could possibly be used to end the long hibernation period the moths normally require," said Dr. Hayes.

Dr. Hayes, working with two other ARS scientists--Milton S. Schechter, chemist, and William N. Sullivan, entomologist--wants to find ways to shorten the time period (about one year to rear a single generation of gypsy moths) so that the insects can be used in the sterilization method to eliminate future generations of the pests.

The eggs on Skylab IV normally would not hatch until next spring. A few sometimes hatch earlier, and it is possible that the caterpillers now emerging would also have hatched on Earth.

The eggs that are now hatching were obtained from the wild by entomologists at the Pennsylvania State University and delivered to Beltsville for preparation for the Skylab IV mission. A laboratory-reared group of eggs obtained from

-more-

USDA's Animal and Plant Health Inspection Service (APHIS) is also aboard Skylab IV, but has not yet started to hatch.

Gypsy moths defoliated 1 1/2 to 2 million acres of forest annually for the past three years in the Northeast, and are spreading south and west. The sterile-male technique could be an important means of controlling this destruction. In this method, the insects are reared in large numbers in the laboratory and then are sterilized and released in areas infested by native gypsy moths.

Because adult moths do not eat, there is no threat to forests by releasing sterilized moths. Matings of sterilized males and normal females produce infertile eggs. Enough sterlized males must be released to vastly outnumber the normal males, thus preventing most of the normal female-normal male matings.

Scientists have found it difficult to test this principle because gypsy moth eggs remain in a state of hibernation (called diapause) for nearly 6 months before hatching. Earlier laboratory experiments to break this diapause period have been unsuccessful.

"Exposure to zero gravity for a sustained period of time offered potential for breaking diapause, and could be tested only in a space flight such as Skylab IV," according to Mr. Schechter. He, Dr. Hayes, Mr. Sullivan, Mr. Thomas McIntyre, APHIS, and Dr. Dennis Morrison, NASA coordinator of the project, got the idea of testing zero gravity on gypsy moths from intriguing results obtained with plants by other scientists on earlier biosatellite missions. Zero gravity produced unusual changes in the cells of germinating plants in those tests.

The scientists theorized that hormones in the gypsy moths' eggs might be liberated if similar changes occurred in the insects' cells as a result of zero gravity. The hormones may terminate diapause and cause the eggs to hatch early. This now may be happening aboard Skylab IV, but the scientists want to see if more eggs hatch before they are ready to say the experiment is successful.

Dr. Morrison noted that practical application of the experiment, if successful, could be made with small space capsules fired from the Wallops Island facility

at Chincoteague, Virginia. Scout rockets fired from Chincoteague hold a payload of about 300 pounds. One million eggs could be carried in a pint container aboard a capsule on the Scout rocket, he said. The capsule would remain in orbit until the eggs begin to hatch and then would be recovered. The larvae would then be reared and sterilized in an APHIS laboratory.

-end-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Johnson Space Center
Houston, Texas 77058

Charles Redmond
713/483-5111

FOR RELEASE:
December 31, 1973

RELEASE NO: 73-173

JSC ISSUES OVER $449 MILLION IN CONTRACTS IN FISCAL YEAR '73

Companies in 47 states and the District of Columbia shared in receiving over $449 million in contracts from JSC in fiscal year 1973. Five of the ten largest contracts were with firms in California, making that state the largest recipient of NASA-JSC contracts with over $256 million in awards. Texas, with three contractors in the ten largest, received the second highest dollar amount of awards.

Rockwell International Corporation, in Downey, California, received the three highest awards for three different programs. Rockwell received over $118 million in a new contract for Space Shuttle Orbiter design and development work and another $40 million for developmental work for the Apollo/Soyuz Test Project. In an on-going program, Rockwell's fiscal 1973 award for the Apollo-Skylab contract was over $35 million.

Lockheed Houston Aerospace Systems Division received over $27 million in fiscal '73 contracts for computing center support services. For continued implementation of the Mission Control Center, Philco-Ford Corporation, of Palo Alto, California, was awarded $22 million.

Martin Marietta Corporation, Denver, Colorado, received $18.2 million for payload integration program for the Skylab. IBM in Bethesda, Maryland, received almost $14 million for maintaining and operating the real-time computer complex in the Mission Control Center.

- more -

The General Electric Company, Apollo Systems Division in Houston, received $12 million for their systems engineering contract; and Kentron Hawaii, of Dallas, received over $11 million for institutional support services.

TRW, Incorporated of Redondo Beach, California, was awarded contracts over $10 million for mission trajectory control programs and spacecraft systems analysis programs.

Of the $449 million in contracts awarded to business firms in this country, $19.8 million was awarded to companies classified as "small businesses." In other terms, however, the small business concerns received 45.7 percent of the contracts. NASA awarded over $431,000 to minority business firms in 16 separate contracts.

Of the 47 states and D.C. receiving awards, companies in 17 states and D.C. received contracts in excess of $1 million. These were, in order, California, Texas, Colorado, Maryland, New York, Connecticut, Massachusetts, Minnesota, Michigan, Delaware, Pennsylvania, Florida, New Mexico, Missouri, Louisiana, District of Columbia and Oklahoma.

By geographic distribution, the Pacific West Coast received over $257 million in contract awards, Texas over $103 million, the Middle Atlantic over $44 million, the West over $22 million, New England over $20 million, the Great Lakes area over $10 million, the Mid-West over $9 million and the South over $5 million. Companies in Alaska and Hawaii received, respectively, over $45,000 and $2,000 in contracts.

Not all of the $492 million in contracts were with private industry. Almost $25 million of the awards went to educational and other nonprofit institutions. Of that amount, over 80 percent went to institutions in Massachusetts, Texas, California, Michigan, New York, Indiana and Maryland. Massachusetts Institute of Technology, in Cambridge, Mass., received the largest award, over $7.5 million. The next highest awards went to the Environmental Research Institute in Ann Arbor, Michigan, Purdue University in Lafayette, Indiana, California Institute of Technology in Pasadena, and

Johns Hopkins University in Baltimore. The University of Houston received awards of $466,384 and the various branches of the University of Texas, at Dallas, Galveston, Austin, San Antonio and Houston, were awarded a total of $984,861 in awards. Baylor University's College of Medicine was awarded a contract of $332,500 and Rice University received a $328,722 contract. Texas A&M received a contract for $130,000. Other Texas institutions to receive awards included the Clear Lake Water Authority, the Southwest Research Institute in San Antonio, Stephen F. Austin State University in Nacogdoches, Methodist Hospital in Houston, the Graduate Research Center of the Southwest in Dallas, and North Texas State University in Denton.

Of the 93 institutions receiving awards, 17 are located in Texas, 6 in Massachusetts, 8 in California, 4 in Pennsylvania and 3 in Michigan. Thirty-eight states and the District of Columbia are represented in the 93 total.

Not all of the Johnson Space Center's contract awards were with private concerns or institutions. Reflecting NASA's policy of avoiding duplication of effort and achieving the most effective and economical utilization of government resources, $17.5 million in contracts went to other agencies. Major procurements were placed through the Air Force for Skylab task force support, modification of KC 135 aircraft and Skylab cartographic items. Total contracts let to the Air Force were $4.96 million. The Interior Department received awards totalling $2.69 million for analysis of lunar samples, photo-geological mapping and photographic data analysis. The Navy Department received $2.15 million for Skylab recovery operations and for data used in predicting motion sickness in unusual, zero gravity conditions. The Commerce Department received just over $1.5 million for weather reporting, operation and maintenance of solar observing equipment and for earth resources experiment investigation. Other departments which also received NASA-JSC contracts were the Government Printing Office, the Atomic Energy Commission, the Department of Health, Education and Welfare, and the Department of Agriculture.

Of the $492.4 million awarded in contracts, 91.4 percent went to business concerns, 5 percent to educational and other nonprofit institutions and 3.6 percent to other government agencies. Competitive procedures were used for approximately 62 percent of the contracts and noncompetitive procedures for the remaining 38 percent. Over 6,800 separate purchase requests were received by the procurement operations office, with 584 of them left over from fiscal year 1972. The office processed 6,819 in fiscal 1973 and had 663 on hand at the end of the fiscal year, to be carried over into fiscal 1974.

Handling the enormous volume of procurements were 169 personnel in two divisions. The two divisions are responsible for institutional procurement and for program procurement. In addition there is a small business and industry affairs office, a procurement review office and a procurement operations office.

Companies competing for NASA-JSC contract awards generally devote considerable time in preparing proposals. It is the center's policy to debrief the unsuccessful competitors upon their request. In this manner the contractor can better understand the reasoning for nonselection and therefore improve his chances in future bids. Ten such debriefings were conducted in fiscal 1973.

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