NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE
81-001	Voyager Project Scientist to Speak at JSC Wednesday, Jan. 14	01-09-81
81-002	Shuttle Flight Simulation	01-15-81
81-003	Note to Editors: (Prime Crew Press Conference)	01-15-81
81-004	Fortune 500 Reps to Hear About Space Technology	01-16-81
81-005	Space Suit Undergoes Final Tests for Flight	01-26-81
81-006	Space Shuttle Dress Rehearsal Set for February	01-29-81
81-007	Final Long-Duration Simulation Feb. 24-26	02-23-81
81-008	Note to Editors: (Pre-Flight Press Conference)	03-01-81
81-009	Lunar and Planetary Science Conference Takes Place March 15-20	03-05-81
81-010	Major Contract Extended at Space Center	03-06-81
81-011	Three-Piece Suits (Shuttle) on Way to KSC	03-09-81
81-012	Flight Control of STS-1	04-03-81
81-013	Note to Editors: (Post-Flight Press Conference)	04-17-81
81-014	NASA Negotiates with Pan-Am for Maintenance Contract	05-13-81
81-015	STS-2 Crew Selected	04-23-81
81-016	Aircraft Maintenance Contract Extended	05-14-81
81-017	Alan Bean Resigns	06-17-81
81-018	Area Native Commended for Work in First Space Shuttle Flight	06-25-81
81-019	Columbia's Second Crew, Mission Control Simulate First Two Flight Days	07-06-81
81-020	NASA Visitor Center Dedication Set	07-13-81
81-021	NASA Extends Boeing Safety & Reliability Contract	07-09-81

NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE
81-022	Shuttle Software Analysis Contract Extended	07-10-81
81-023	STS-2 Flight Directors, Capcoms	07-15-81
81-024	Note to Editors: (Press Conference)	07-23-81
81-025	Faget, Father of Spacecraft, Retiring to Seek New Horizons	07-29-81
81-026	NASA Extends Lockheed White Sands Contract	07-29-81
81-029	Astronaut Candidates Complete Training	08-21-81
81-030	Note to Editors: (Pre-Flight News Conference)	08-19-81
81-031	NASA Negotiates with IBM for Computer Contract	08-19-81
81-032	Leger Receives Largest JSC Invention Award	08-24-81
81-033	Long Duration Simulation	08-26-81
81-034	Johnson Space Center Awards	09-04-81
	OSTA-1 Mission	09-10-81
81-035	Astronaut Injured in Traffic Accident	09-14-81
81-036	NASA Picks Barrios Technology for Instrument Repair Work	09-18-81
81-037/38	Koons Receives NASA Service Medal	09-24-81
81-039	Kleinknecht Leaves NASA After 39 Years Service	09-30-81
81-040	Laser Train	10-07-81
81-041	Faget Named Chief Engineer, Piland New E&D Director	10-05-81
81-042	Joe Schmitt? He Suits Them Just Fine!	10-14-81
81-043	First Spacelab 1 Hardware Shipped	10-09-81
81-044	Flight Control of STS-2	10-27-81

NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE
81-045	Note to Editors: (Bush Visit)	11-15-81
81-046	Note to Editors: (Prime Crew Press Conference)	11-17-81
81-047	STS-3 Crew Selection	11-30-81
	Major Jerry D. Pfleeger Served in Flight Control Room During STS-2	12-10-81
81-048	NASA Picks Omega for Custodial Contract	12-16-81

NASA News

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Kay Ebeling

For Release

RELEASE NO: 81-001

January 9, 1981

NOTE TO EDITORS

VOYAGER PROJECT SCIENTIST TO SPEAK AT JSC WEDNESDAY, JAN. 14

Voyager Project Scientist Dr. Edward C. Stone will present a briefing on the recent Voyager One encounter with Saturn in the NASA Johnson Space Center Visitor Auditorium Wednesday, Jan. 14 at 12 noon.

Stone's presentation will include slides and films of the computer-generated imagery of Saturn and its moons.

Immediately following the briefing, he will be available for conversations with press representatives.

Stone is a physics professor at the California Institute of Technology who has been affiliated with NASA since 1961.

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NASA News

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John Lawrence

For Release

RELEASE NO. 81-002

January 15, 1981

SHUTTLE FLIGHT SIMULATION

A full-scale simulation of the first flight of the Space Shuttle, Columbia, will be conducted at Johnson Space Center, Houston, Tuesday through Thursday, Jan. 20-22.

Astronauts John W. Young and Robert L. Crippen, Columbia prime crew, will be stationed in a mission simulator during the exercise. The simulator provides the crew with feedback identical to the performance expected during the Columbia flight, and has the added feature of simulating problems which might occur during the misssion.

The exercise will employ the actual flight plan for the first Shuttle flight, while simulated problems will be introduced to accustom the flight crew and ground controllers to dealing with anomalies which they might encounter during the mission.

Three teams of flight controllers will work in JSC's Mission Operations Control Room during the simulation. They will be headed by Flight Directors Neil B. Hutchinson, Charles R. Lewis and Donald R. Puddy. In addition to the flight control teams and astronaut crew, hundreds more engineers, program officials and contractor representatives will participate in the simulation.

-more-

The test begins with simulated liftoff at 6:30 a.m. Tuesday and concludes with landing at 2:30 p.m. Thursday. It is the sixth in a series of long-duration simulations. One more such exercise will be conducted in mid-February in preparation for the initial flight of Columbia, anticipated in March.

# # #

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National Aeronautics and
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John Lawrence

For Release

RELEASE NO: 81-003

January 15, 1981

NOTE TO EDITORS:

A press conference with the prime crew for the first Space Shuttle launch--Astronauts John W. Young and Robert L. Crippen--will be conducted 10 a.m. Friday, Jan. 23, in the NASA News Room, Bldg. 2, Rm. 135, Johnson Space Center, Houston.

# # #

NASA News

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Dave Alter

For Release

RELEASE NO: 81-004

January 16, 1981

FORTUNE 500 REPS TO HEAR ABOUT SPACE TECHNOLOGY

Representatives of more than 40 Fortune 500 corporations will be at NASA's Johnson Space Center Thursday to learn how to apply space program technology to their own industries.

The meeting is a joint NASA/AIAA conference, the seventh to be held.

Executives will learn about space program management, flight crew training, Space Transportation System Operations, development of advanced materials, energy conversion technology, and numerous other subjects ranging from medicine to satellite observation of agriculture.

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Dave Alter

RELEASE NO: 81-005

For Release
January 26, 1981

SPACE SUIT UNDERGOES FINAL TESTS FOR FLIGHT

Manned tests began last week to certify for flight the space suits and related support equipment astronauts will use during a space walk if problems arise outside the orbiter.

The first Shuttle flight is targeted for March.

Additional crew training tests are expected to continue through mid-February with Astronauts Robert Crippen and John Young.

The suits are part of the extravehicular mobility unit (EMU), including the space suit assembly, the primary life support subsystem, emergency life support and other crew items designed for venturing outside the orbiting spacecraft.

During the March launch, a spacewalk will be performed by Crippen only if the orbiter's payload bay doors are jammed by debris or fail to close.

-more-

RELEASE NO: 81-005

In the event of an extravehicular activity (EVA), a tether would be connected between the suited crew member and the orbiter.

The manned tests include the high pressure oxygen system, redesigned following a flash fire last year in the spacesuit secondary oxygen pack which malfunctioned, injuring a technician.

After an investigation, a NASA board recommended ways to improve safety and system reliability, although the cause was not found.

The high-pressure redesign included replacing shutoff valves with slow-opening regulators to eliminate valve "jolts".

Wherever possible, aluminum parts and housings have been replaced with monel (nickel and copper). Burrs and corners in tubing have been rounded out and silicone check valves replaced with teflon.

# # #

IMMEDIATE

RELEASE NO: 81-19

Wet Countdown Demonstration and Flight Readiness Firing

January 29, 1981

NASA News

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AC 713 483-5111

For Release

IMMEDIATE

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RELEASE NO: 81-006

SPACE SHUTTLE DRESS REHEARSAL SET FOR FEBRUARY

A dress rehearsal of all aspects of the first Space Shuttle mission (STS-1) will be conducted by NASA in February to clear the way for the launch of the Shuttle's first orbital flight, now scheduled for no earlier than March 17, 1981.

The exercise will touch upon all segments of the mission -- including countdown and launch, ascent and orbital operations, and reentry and landing under normal and abort conditions.

The 11-day test series will involve operations at the Kennedy Space Center in Florida, the Johnson Space Center in Houston, the Dryden Flight Research Center in Edwards, Calif., the Marshall Space Flight Center, Huntsville, Ala., and the White Sands Missile Range in New Mexico.

January 29, 1981

-more-

It will be divided into two major sections: the Wet Countdown Demonstration Test/Flight Readiness Firing, which will include a 20-second test firing of the orbiter's three main engines, and a Mission Verification Test, which will be centered on flight and landing operations.

The first Space Shuttle mission (STS-1) will be 54 hours, 30 minutes in duration with launch from the Kennedy Space Center. Mission operations will be controlled by the Johnson Space Center. The Dryden Flight Research Center is the primary landing site, but provisions exist for a return-to-launch-site abort landing at the Kennedy Space Center and an abort landing after less than a single orbit (abort-once-around) at the Northrop Strip, White Sands Missile Range, N.M.

Astronauts on the prime crew for the STS-1 mission are John Young, commander, and Robert Crippen, pilot. Backup crew members are Joe Engle, commander, and Richard Truly, pilot.

The STS-1 space vehicle, consisting of the orbiter Columbia, the external tank which supplies liquid hydrogen and liquid oxygen propellants to the orbiter's three main engines, and two solid rocket boosters, was moved from Kennedy's Vehicle Assembly Building to Pad A at Launch Complex 39 on Dec. 29.

The space vehicle and mobile launcher platform on which it rests were connected with ground support equipment for the Pad Validation Test which began on Jan. 2.

An extensive series of flight and ground system tests in January and early February set the stage for the 11-day dress rehearsal which must be successfully completed to clear the way for launch.

The Wet Countdown Demonstration Test/Flight Readiness Firing and Mission Verification Test will exercise all elements of the new Space Transportation System, including personnel, facilities, space vehicle and computer programs in a demanding real time environment to demonstrate the proper integration of all elements prior to the STS-1 mission.

The Wet Countdown Demonstration/Flight Readiness Firing at Kennedy will be followed by approximately three weeks by a "dry" launch simulation with the external tank unloaded and the prime crew on board. During this dry countdown test, the space vehicle will be processed through the final five hours of the countdown to a simulated ignition and liftoff.

This test in which the crew will participate is primarily a checkout of flight and ground support systems.

(END OF GENERAL RELEASE)

WET COUNTDOWN DEMONSTRATION TEST/FLIGHT READINESS FIRING

The Wet Countdown Demonstration Test/Flight Readiness Firing is a detailed practice run for the STS-1 launch and is aimed at identifying any failures or weaknesses in spacecraft and ground systems before launch day. Conditions and timelines for the test and firing duplicate as close as practicable those planned for STS-1 launch, and include tanking and detanking of the orbiter Columbia and the external tank (hence "wet") and a complete checkout of Pad A at Complex 39.

Columbia's cabin will be unmanned when propellant loading begins, and orbiter systems will be remotely operated during the test. The six-day demonstration test will culminate in a 20-second firing of Columbia's three main engines at throttle settings ranging from 94 to 100 percent of rated thrust while the engine nozzles are tilted in their gimbals as they would be in flight to control the direction of thrust.

Extra experience and training will be gained from the test and readiness firing by other NASA facilities involved in Shuttle operations. Flight controllers in the Mission Control Center at the Johnson Space Center in Houston will monitor Columbia's systems during the tests, as will personnel at the Huntsville Operations Support Center, Marshall Space Flight Center, Huntsville, Ala.

While the main engines, orbiter, external tank, solid rocket boosters and ground support systems have been tested individually, the demonstration test and readiness firing will be the only chance to test the full vehicle "stack" in launch conditions without proceeding to an actual launch.

A successful test will provide confidence that the Space Shuttle is ready for flight.

Both wet and dry launch rehearsals were conducted prior to all 13 Saturn V and four Saturn 1B launches from Complex 39, but those tests did not include the on-pad rocket engine firing which will be such a significant part of this exercise.

Among the purposes of the test and firing are:

o To test all elements of the Space Transportation System in a real time launch countdown which will culminate in the firing of the orbiter's three main engines and a simulated launch to insure their proper integration prior to the STS-1 flight.

o To verify the capability of the launch facility to provide propellants to the Shuttle under launch conditions. The external tank and orbiter systems will be exposed to the same thermal environment they will experience during STS-1 launch preparations.

The main propulsion system control elements also will be required to maintain pressure in the external tank and in the main engines during the test firing as they would during an actual launch.

o To verify the ability of the orbiter's auxiliary power units and hydraulic system, and the flight control system to throttle and gimbal the main engines.

o To evaluate the performance of avionics and computer programs in controlling and monitoring the interaction of the external tank and main engines under the vibration and sound conditions they will experience during ignition and the pre-liftoff phase.

o To verify that Kennedy's Launch Processing System and Columbia's bank of general purpose computers can work together in controlling the launch countdown sequence.

o To verify compatibility of the Space Shuttle's onboard avionics equipment with the radio frequencies used by ground support elements during the launch phase.

o To assess the "twang" effects of the orbiter's three main engines. At main engine ignition, a bending movement is created, causing the upper extremities of the entire Space Shuttle "stack" to bend toward the external tank side of the stack and to twang back as the spring action of the hold down mechanisms react against the main propulsion system bending forces. The twang effect occurs over a period of a few seconds (approximately 5 seconds) at the end of which the solid rocket boosters would be fired for liftoff. This test will certify the time phasing of the orbiters main engines and solid rocket booster ignition.

o To exercise the ground data processing system and methods and make any needed fixes before the STS-1 launch.

o To compare earlier dynamic and vibroacoustic testing data to actual conditions during launch.

COUNTDOWN AND FLIGHT READINESS FIRING

The Wet Countdown Demonstration Test/Flight Readiness Firing preparation phase begins on the first day of the 11-day STS-1 simulation and ends of the sixth day. The schedule includes a number of built-in holds. All operational elements supporting the STS-1 mission will participate and demonstrate their readiness by exercising all countdown functions and interfaces. T-0 will be planned to occur at the opening of the launch window, which is approximately five hours in duration.

As for the STS-1 launch, the window will open at sunrise plus 45 minutes. The Flight Readiness Firing is scheduled for no earlier than Feb. 10. Window opening times for that date and the six subsequent days are as follows:

Feb. 10	-	7:50 a.m. EST
Feb. 11	-	7:49 a.m. EST
Feb. 12	-	7:48 a.m. EST
Feb. 13	-	7:47 a.m. EST
Feb. 14	-	7:46 a.m. EST
Feb. 15	-	7:45 a.m. EST
Feb. 16	-	7:44 a.m. EST

The firing pre-count will be picked up at T-53 hours with the powering up of the solid rocket boosters, orbiter and ground support equipment. The STS-1 launch pre-countdown begins at T-68 hours. However, for the Flight Readiness Firing, a number of events which would normally occur between T-68 hours and T-53 hours (such as loading hypergolic propellants for the orbiter's auxiliary power units and the boosters' hydraulic power units) will have already been accomplished as a part of earlier tests. Hypergolic propellants for the orbiter's orbital maneuvering system and reaction control system were to be loaded in late January.

The Flight Readiness Firing pre-count includes the capability for three built-in holds. These could include one of 12 hours duration at T-24 hours and two of six hours duration, occuring at T-15 hours, 30 minutes and at T-5 hours, 30 minutes.

Additional holds are planned during the countdown which begins at T-5 hours. These are indicated at the appropriate places in the Flight Readiness Firing Countdown Sequence which follows.

Countdown Sequence - Flight Readiness Firing

Count Time	Function
T-53 hours	Start of FRF call to stations.
T-11 hours	Extend fixed service structure external tank gaseous oxygen vent arm/start retraction of rotating service structure.
T-9 hours, 30 minutes	Retract external tank intertank access arm on fixed service structure.
T-5 hours, 30 minutes	Clear launch pad to begin countdown.
T-5 hours	Start countdown. Chilldown liquid oxygen/liquid hydrogen transfer system.
T-4 hours, 30 minutes	Begin liquid oxygen fill of external tank and LH_2. MPS facility/orbiter chilldown.
T-4 hours, 15 minutes	Begin liquid hydrogen fill of external tank.
T-2 hours, 4 minutes	One-hour built-in hold. ET cryo loading complete. Start ET pressurization tests. No activities planned. (During STS-1 countdown, crew entry will begin following this hold and be completed by T-1 hour, 5 minutes.)
T-1 hour, 50 minutes	External tank ice/frost evaluation.
T-20 minutes	20-minute built-in hold.
T-9 minutes	10 minute built-in hold.
T-9 minutes	Go for launch/start launch processing system ground launch sequencer (automatic sequence).
T-7 minutes	Start crew access arm retraction (fixed service structure).
T-5 minutes	Start orbiter auxiliary power units.
T-3 minutes, 45 seconds	Run orbiter aero surfaces profile.

T-3 minutes, 30 seconds	Orbiter placed on internal power.
T-3 minutes, 10 seconds	Run gimbal slew profile, Space Shuttle main engine.
T-2 minutes, 55 seconds	External tank oxygen to flight pressure.
T-2 minutes, 50 seconds	External tank gaseous oxygen vent arm retracted.
T-1 minute, 57 seconds	External tank hydrogen to flight pressure.
T-25 seconds	Solid rocket booster hydraulic power units activated/orbiter onboard general purpose computer assumes control of terminal countdown/ground launch sequencer remains on line supporting.
T-18 seconds	Verify solid rocket booster nozzle position.
T-11 seconds	Initiate pre-liftoff sound suppression system water (post-liftoff system - "rainbirds" - inhibited for Flight Readiness Firing).
T-3.8 seconds	Main engine start sequence begins.
T+.24 second	All engines at 90 percent thrust.
T+2.88 seconds	Simulated external tank umbilical retract/simulated solid rocket booster ignition and holddown post release.
T+3 seconds	Simulated liftoff.
T+18.2 to 20 seconds	Main engine shutdown commands issued.
T+22 seconds	Solid rocket booster hydraulic power units shut down.
T+22.7 to 25.9 seconds	Main engine LOX/LH_2 prevalves closed.

Flight Readiness Firing

The Flight Readiness Firing operation is limited to approximately 20 seconds of main stage operation with the start identical to that planned for the STS-1 launch. The engines will be tested at 94 percent and 100 percent rated power level with shutdown occurring from 100 percent. Gimbaling of the main engine will be performed at both power levels.

The three engines are not ignited simultaneously but start commands are issued at intervals of about 120 milliseconds. The start command for engine 3 is issued at T-3.8 seconds, that for engine 2 at T-3.68 seconds, followed by the start command for engine 1 at T-3.56 seconds. The engines are throttled to 100 percent at approximately T-0. Part way through the burn, the engines are throttled back to 94 percent of rated thrust. Near the burn's end, they are throttled up to 100 percent of rated thrust. The engine nozzles are gimbaled during both peak and reduced thrust.

The Wet Countdown Demonstration Test/Flight Readiness Firing will end when all propellants and cyrogenics have been removed from the vehicle after engine firing.

The seventh day of the overall 11-day dress rehearsal will be reserved for securing pad operations and will not include any flight simulation test activity.

MISSION VERIFICATION TEST

A series of four coordinated tests and simulations will follow the Countdown Demonstration Test/Flight Readiness Firing at the Kennedy Space Center. The simulations begin on the eighth day of the 11-day series.

They include a return-to-launch-site abort simulation at the Kennedy Space Center's Shuttle Landing Facility; an abort-once-around landing simulation at the White Sands Missile Range; a 56-hour-long duration mission simulation at the Johnson Space Center of the flight phase of the mission from solid rocket booster ignition to a routine landing at the end of the flight; and an end-of-mission landing exercise at the Dryden Flight Research Center in California.

Return-to-Launch-Site Abort Exercise

This will involve a series of four activities at Kennedy's Shuttle Landing Facility to demonstrate the ground team's readiness to support various situations following a return-to-launch-site abort. The exercise is a simulation of the orbiter approach and landing from approximately 12,200 meters (40,000 feet) after a return-to-launch-site abort and runs through landing and post-landing activities and orbiter safing.

The major differences between this abort exercise and such an actual abort will be related to using a T-38 jet aircraft instead of an orbiter for the approach and landing and a simulated orbiter aircraft with simulated interfaces for ground connections.

The T-38 landing will be planned to occur at a time of day compatible with a liftoff at the opening of the launch window. The purpose of the simulated return-to-launch-site abort is to exercise the flight control team, post-landing operations team, crash and rescue team, and airspace and chase aircraft control organizations.

Abort-Once-Around Exercise

A similar series of four activities will also be conducted on the eighth day at the Northrop Strip, White Sands Missile Range, in parallel with the return-to-launch-site abort exercise at Kennedy. This exercise is a simulation of approach, landing and post-landing activities following an abort-once-around from approximately 12,200 m (40,000 ft.) through orbiter safing. As at Kennedy, a T-38 aircraft will be used to simulate the orbiter's approach and landing and the post-landing activities on the ground.

The purpose of the simulated approach and landing and subsequent activities is to exercise the flight control team, post-landing operations team, crash and rescue team, and airspace and chase aircraft control organizations.

Mission Simulation

A Shuttle mission simulator and the Mission Control Center at the Johnson Space Center will be electronically linked to provide a realistic, 56-hour simulation of the STS-1 mission from solid rocket booster ignition and liftoff to a landing at the primary landing site, the Dryden Flight Research Center at Edwards Air Force Base, Calif. This exercise will be conducted on days 9, 10 and 11 with the simulated liftoff to occur at the opening of the launch window. This will be the seventh and final long-duration mission simulation for the STS-1 flight crews.

During the months of training leading up to the Mission Verification Test, prime and backup flight crews and flight control teams have routinely run mission phase simulations (launch, entry, aborts, on-orbit operations) on a Tuesday and Thursday schedule, with long-duration simulations spaced a month to six weeks part.

This full-duration mission simulation during the Mission Verification Test will be the final "walk-through" of the STS-1 flight profile and timeline before the actual flight begins.

End-of-Mission Exercise

This is a series of four activities at Dryden Flight Research Center to demonstrate the ground team's readiness to support various situations following the end-of-mission landing at the primary landing site. They will be conducted on the 11th day of the test series and wrap up the combined Countdown Demonstration Test/Flight Readiness Firing and Mission Verification Test.

A T-38 jet aircraft will be used to simulate the orbiter approach and landing phase beginning at an altitude of approximately 12,200 m (40,000 ft.). The landing will be timed so that touchdown coincides with that of the long-duration mission simulation underway at the Johnson Space Center in Texas. After landing, the T-38 will taxi past an orbiter mockup which will be placed at the nominal wheels stop point. The orbiter mockup has the appropriate interfaces for ground connections to enable ground crews in the recovery convoy to simulate post-landing safing operations and turnaround initiation. Both on-runway and off-runway contingency situations will also be simulated as they were during the return-to-launch-site abort exercise at Kennedy and the abort-once-around abort exercise at White Sands.

PROGRAM MANAGEMENT

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David R. Braunstein — Deputy Associate Administrator for Space Transporation Systems (Management)

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Walter F. Dankoff — Director, Engine Programs

Edward P. Andrews — Director, Ground Systems and Flight Test

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Frank Van Rensselear — Director, Expendable Equipment

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James M. Sisson	Manager, Engineering and Major Test Management Office

-end-

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John Lawrence

For Release

RELEASE NO. 81-007

February 23 1981

FINAL LONG-DURATION SIMULATION FEB. 24-26

The last in a series of long-duration simulations of the first flight of the Space Shuttle Columbia will be conducted at Johnson Space Center, Houston, Tuesday, Feb. 24-26.

This 56-hours exercise duplicates the flight profile and timeline to be followed by Columbia on its maiden mission, scheduled for the week of April 5. The simulation begins with liftoff at 6:23 a.m. (CST), proceeds through the planned nominal 36 orbits of the Earth, and culminates with a simulated landing at Edwards AFB, Calif.

Columbia astronauts John Young and Bob Crippen will man the flight simulator during the exercise. Flight Directors Neil Hutchinson, Don Puddy and Chuck Lewis will head teams of flight controllers working in Houston's Mission Operations Control Room.

Computers and flight simulators give astronauts and ground-based flight controllers a sense of reality in the exercise by providing feedback identical to that which should be experienced during an actual flight.

-more-

The simulation is part of a Mission Verification Test (MVT)—a series of exercises which represent a comprehensive dress rehearsal of all aspects of the mission. the successful 20-second firing of Columbia's main engines on Feb. 20 was another segment of the MVT.

Simulation hardware has the added feature of presenting problems to the flight and ground crews. A variety of unexpected anomalies are duplicated during the test to accustom the team to dealing with problems like those which might occur during the actual flight.

# # #

NASA News

National Aeronautics and
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Lyndon B. Johnson Space Center
Houston, Texas 77058
AC 713 483-5111

John Lawrence

For Release

RELEASE NO: 81-008

March 1, 1981

NOTE TO EDITORS:

The final pre-flight press conference with Space Shuttle Astronauts John Young and Robert Crippen, prime crew for the maiden flight of Columbia, will be held 9 a.m. Monday, March 9, in the NASA News Center, Bldg. 2, Johnson Space Center, Houston.

In the afternoon of March 9, a separate series of briefings will be held concerning the flight plan and other aspects of the Columbia flight. That session also will be held in the NASA News Center.

# # #

NASA News

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Kay Ebeling

For Release

Immediate

RELEASE NO. 81-009

LUNAR AND PLANETARY SCIENCE CONFERENCE TAKES PLACE MARCH 15-20

The 12th annual Lunar and Planetary Science Conference will be held at the NASA Johnson Space Center in Houston March 15-20.

A public forum on the Voyager encounter at Saturn and a workshop on the use of non-terrestrial resources highlight this year's conference. The Saturn forum will be in the Bldg. 2 auditorium at 8 p.m. Tuesday the 17th, and the workshop will be Wednesday at 1 p.m. in the Gilruth Center on site at JSC.

Topics to be covered in the 23 sessions include:

*Origin of the solar system

*Satellites of Jupiter

*Meteorite chronology

*Lunar remote sensing

*Planetary physics

*Mars—geologic evolution, and

*Venus

March 5, 1981

-more-

The science sessions and exhibits, unless otherwise indicated, will be located in the Gilruth Center.

Coinciding with the conference, "The Case for Man on Mars by 1999" will be the topic of the monthly JSC Astronomers Brown Bag Luncheon at noon Wednesday in the Bldg. 31 conference room.

Monday night at 8 p.m. representatives from the European Space Agency, the Japanese Space Agency, and NASA Headquarters will conduct a session on the future of space exploration.

Scientists from around the world have been meeting annually at Johnson Space Center since the first samples of soil and rock were returned from the Moon 12 years ago. Five years ago, the conference topic was extended to cover all planetary bodies in the solar system.

NASA's Johnson Space Center and the University Space Research Association's Lunar and Planetary Institute co-sponsor the conference each year.

NOTE TO EDITORS:

1. There will be a press briefing with visuals from 3 to 4 p.m. each day of this year's conference, where selected papers will be presented in layman's terms.
2. A selection of abstracts rewritten for the press is available in the News Center at 713/483-5111.
3. Reporters who plan to cover the conference should come to the News Center, Bldg. 2 annex, at Johnson Space Center for credentials.

# # #

NASA News

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas 77058
AC 713 483-5111

Steve Nesbitt

For Release

RELEASE NO: 81-010

March 6, 1981

MAJOR CONTRACT EXTENDED AT SPACE CENTER:

Officials at the National Aeronautics and Space Administration's Johnson Space Center in Houston have signed a major contract extension with one of the facility's principal contractors.

The agreement, in excess of $95 million, is with Ford Aerospace and Communications Corporation which employs approximately 900 workers locally in the space program. Most of the Ford work involves engineering, operating and maintaining computer systems in the Mission Control Center and elsewhere at the space center.

The new award brings the total value of the contract to over $235 million.

# # #

NASA News

National Aeronautics and
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AC 713 483-5111

Dave Alter

RELEASE NO. 81-011

For Release

March 9, 1981

THREE-PIECE SUITS (SHUTTLE) ON WAY TO KSC

Astronauts John Young and Robert Crippen last week donned their new three-piece Shuttle space suits: upper torso, lower torso and helmet (with visor).

Then, in a vacuum chamber pumped dry of air, they tested, "bought off" and ordered the "three-piecers" delivered to their Shuttle orbiter, Columbia, at Kennedy Space Center in case...they need to take an unscheduled walk in space next month.

The space-walk suits were tested with the space-certified primary life-support systems (backpacks) supplying the oxygen and suit pressure, as they would if needed during the first orbital flight named STS-1.

No spacewalk is planned, but, if required, it would be performed by Crippen. A spacewalk would be required if Columbia's payload bay doors are jammed by debris or fail to lock shut. A 100-foot tether would connect the suited crewman to the orbiting spacecraft.

-more-

In contrast to the Apollo lunar suit, the Space Shuttle suit costs less because it is not customized for the wearer and is more flexible. It is fitted, much like a suit at a ready-to-wear store here on Earth, from differently-sized parts.

The Space Shuttle suit is sized to accommodate male or female crewmembers. It includes a hard upper torso with gloves, the lower torso, helmet and visor

The lower torso comes in two sizes while the hard upper torso has four, each with matching metal waist rings.

Connecting gloves are available in nine sizes and the helmet single size fits all.

The Shuttle suit's hard ring makes it easier to don and doff than the Apollo suit. Metal snap-ring retainers connect each component. There are no zippers, which often proved to be a problem in the Apollo suits.

The hard upper torso uses bearings in the shoulder and arm joints, making it easier to move around. The new suit's mobility is exceptional, allowing bending, leaning and twisting motions with relative ease. No motion requires more than four "foot-pounds".

All softgoods-to-hardware connections have a combination of mechanical joints (sewn, screwed, clamped) and adhesive bonding.

The suit materials prevent fungus or bacteria growth. The suits may be cleaned and dried after use.

The suit has several bonded layers beginning with polyurethane-on-nylon. Numerous layers of Kevlar are added with folded and tucked joints (for mobility), and ending with Devlar, Teflon and Dacron anti-abrasion layers. The hard upper torso has an aluminum shell.

The visor assembly, which snaps onto the outside of the helmet, protects against micrometeoroids, and sun's ultraviolet and infrared radiation.

The primary life support system (PLSS) backpack mounts on the hard upper torso. It pressurizes the suit and provides constantly-refreshed atmosphere for breathing. It removes metaboliitically-produced heat through a liquid-cooled and vent garment.

The backpack contains the primary oxygen bottles, water tanks, the fan-separator-pump motor, contaminant control cartridges, regulators, valves and sensors; and a communications bioinstrumentation and microprocessor module.

# # #

NOTE: The space suit is described in greater detail in your SPACE SHUTTLE NEWS REFERENCE, Section 5-38.

NASA News

National Aeronautics and
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Lyndon B. Johnson Space Center
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AC 713 483-5111

John Lawrence

For Release

RELEASE NO. 81-012

IMMEDIATE

FLIGHT CONTROL OF STS-1

Centralized control of the maiden flight of Columbia from launch to landing will be provided by the Mission Operations Control Room (MOCR) at NASA's Johnson Space Center, Houston.

The Columbia's first flight is known as STS-1 —- representing the first exercise of NASA's flight hardware, personnel, ground support equipment, communications facilities and all other elements involved in the flight of Columbia.

Three teams of flight controllers and support personnel will man the MOCR around the clock beginning at T-9 hours in the countdown for launch. Real-time in-flight analysis of the mission as associated with trajectory and vehicle systems will be the flight control function of the MOCR.

Flight directors for the Mission will be Neil B. Hutchinson, Charles R. Lewis and Donald R. Puddy. They will be responsible for implementation of the mission objectives and making changes in the flight plan or mission rules.

Full-time manning of the MOCR by flight controllers will occur at T-9 hours by Puddy's team. At T-2 hours, Hutchinson and his team of flight controllers will take up positions at their MOCR consoles for the launch phase of the Columbia mission. Following the ascent phase, the Lewis team will assume responsibility for the flight.

-more-

Thereafter, shift changes will follow regular rotation of the Lewis-Hutchinson-Puddy teams. In its two remaining shifts, the Puddy team will first practice and then execute the deorbit and entry phase of STS-1. Teams will normally come on duty about one hour prior to the shift change and be briefed by the team which it relieves.

Operations of the MOCR during the first few years of Shuttle-era activity will be very similar to its function during the Apollo program. Console groupings remain generally as before, with management personnel in the back row, the flight director, planners and communicators in the second row and vehicle systems positions grouped in the front rows.

The major difference in MOCR operations presently is the incorporation of a new computer system which has increased the volume of data exchanged between the ground and the spacecraft. The present configuration will support single-orbiter operations of the Space Transportation System through 1985. From that date, MOCR activities will be performed by a number of Flight Control Rooms which, with substantially smaller flight control teams, would be able to support a multi-flight capability.

For STS-1, as with other Shuttle operations, the MOCR will be backed up by additional teams operating from nearby staff support rooms, where data on the mission are monitored and analyzed in detail. Console positions in the MOCR and their function will be:

Flight Dynamics Officer —- responsible to the flight director for monitoring the powered phases of the mission, orbital events and trajectories from the standpoint of mission success, and monitors vehicle energy levels on reentry.

Guidance Officer —- Monitors onboard navigation and onboard guidance software.

Data Processing System Engineer —- Responsible for data processing hardware and executes software for the vehicle's five onboard general purpose computers.

RELEASE NO. 81-012

Computer Command — Responsible for computer interface between the control center and onboard control systems.

Surgeon — Responsible for advising the flight director of the crew's health status during the flight and informing the flight director of any physical abnormalities noted.

Booster System Engineer — Responsible to the flight director for monitoring the vehicle's main engine and solid rocket booster propulsion systems during the assent phase of the flight, and monitoring and purging systems before reentry.

Propulsion systems Engineer — Responsible for the status of the Reaction Control and Orbital Maneuvering System engines during all phases of flight.

Guidance, Navigation and Control Systems Engineer — Responsible for all inertial navigation systems hardware, radio navigation aids and digital autopilot systems.

Electrical Power, Instrumentation and Lighting Systems Engineer — Responsible for fuel cells, AC and DC power distribution systems, instrumentation systems, transducers, caution and warning panels and vehicle lighting systems.

Environmental, Consumables and Mechanical Systems Engineer — Monitors cryogenics levels for fuel cells and propulsion systems, cooling systems and mechanical systems such as doors and vents.

Integrated Communications Systems Engineer — Responsible for onboard communications systems, tape recorder and voice transmission. Routinely manages onboard communication system configuration.

Operations Integration Officer — Responsible to the flight director for detailed implementation of mission control procedures and for coordinating and controlling the group displays and clocks in the control center.

Flight Activities Officer — Responsible to the flight director for crew checklists, procedures and timelines as related to the flight crew activities.

RELEASE NO. 81-012

Capcom -- Responsible for voice contact with the flight crew concerning details of the mission flight plan, flight procedures, mission rules and spacecraft systems.

Ground Controller -- Maintains operations of ground systems and interfaces with elements of the ground communications and data network.

Payloads -- Coordinates mission experiments.

Personnel assignments for console positions of each of the three teams of flight controllers supporting STS-1 are:

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RELEASE NO. 81-012

POSITION	CRIMSON TEAM	SILVER TEAM	BRONZE TEAM
Flight Director	Don Puddy	Neil B. Hutchinson	Charles R. Lewis
Capsule Communicator	Joseph P. Allen	Dan C. Brandenstein	Henry W. Hartsfield
Operations Integration Officer	William A. Middleton	John H. Temple	Kim W. Anson
Flight Dynamics Officer	Willis M. Bolt	Jay H. Greene	James E. I'Anson
Guidance	Mike F. Collins	Will S. Presley	J. T. Chapman
Aerodynamics Officer	Gregg C. Hite	Gregg C. Hite	Rick Wray
Propulsion Systems Engineer	Larry W. Strimple	Gary E. Coen	Glenn W. Watkins
Guidance, Navigation and Control Systems Engineer	Don J. Bourque	Richard N. Fitts	Harold J. Clancy
Data Processing System Engineer	Darrell E. Stamper	Brock R. Stone	Kenneth W. Russell
Computer Command	Ray B. Lachney	Joseph N. Deatkine	Lizabeth H. Cheshire
Integrated Communications System Engineer	Ed I. Fendell	Granvil A. Pennington	Alan L. Briscoe
Electron Power, Instrumentation and Lighting Systems Engineer	Paul M. Joyce	W. J. Moon	G. W. Johnson

Environmental, Consumables and Mechanical Systems Engineer	Jack Knight	Charles L. Dumis	Jimmy S. McLendon
Flight Activities Officer	Ben E. Ferguson	Robert H. Nute	Elvin B. Pippert
Phase Specialist	William M. Anderson	Charles O. Lewis	----------
Payloads	John E. Hoover	Tandy N. Bruce	William J. Boone
Booster Systems Engineer	Jack A. Kamman	John A. Kamman	----------
Surgeon	Sharon R. Tilton	Michael A. Berry	M. M. Dungo
Ground Controller	T. Brandenburg	Charles M. Horstman	G. Egan
Trajectory	----------	Ronald C. Epps	----------

# # #

NASA News

National Aeronautics and
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For Release

John Lawrence

RELEASE NO. 81-013

April 17, 1981

NOTE TO EDITORS

A post-flight press conference with the STS-1 crew, John Young and Robert Crippen, will be held 10 a.m. Thursday, April 23 in the Bldg. 2 auditorium at Johnson Space Center, Houston.

# # #

NASA News

National Aeronautics and
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Terry White

For Release

RELEASE NO. 81-014

May 13, 1981

NASA NEGOTIATES WITH PAN-AM FOR MAINTENANCE CONTRACT

The NASA Johnson Space Center, Houston, Texas has selected Pan American World Airways, Inc., Aerospace Services Division of Cocoa Beach, Florida for negotiating a contract for maintenance and operations support services at the Space Center.

The contract would cover maintenance and operation of utility systems, such as heating and cooling, electrical power, potable water, waste disposal; maintenance of buildings, roads, parking lots and drainage ditches at the Space Center and at nearby Ellington Air Force Base. Additionally, the work would include special-purpose equipment maintenance such as laboratory test, machine shop, photographic processing, cafeteria, printing and reproduction, and elevators, and preparation and planning for facility emergencies and disasters.

Estimated cost for the initial one-year contract to begin August 1, 1981 is $8.7 million. Extensions of one year, for no more than a total four years, will be negotiated annually.

Other bidders were Trend Western Technical Corporation, Los Angeles, California, and SASCO Corporation, Beaumont, Texas.

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NASA News

National Aeronautics and
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John Lawrence

For Release

RELEASE NO. 81-015

April 23, 1981

STS-2 CREW SELECTED

Air Force Colonel Joe H. Engle and Navy Captain Richard H. Truly have been selected by NASA as commander and pilot, respectively, for the second flight of the Space Shuttle, Columbia.

Backup crew will be Navy Captain Thomas K. Mattingly II, commander, and Henry W. Hartsfield, Jr., pilot.

Engle and Truly piloted the Space Shuttle, Enterprise, during the second and forth Approach and Landing Tests in 1977, during which the vehicle was released from its 747 carrier aircraft and flew to a landing at Edwards AFB, Calif.

This second exercise of NASA's Space Transporation System is planned for late September and will be a four-day, five-hour mission with 67 orbits of the earth. It will carry the first scientific and applications payload scheduled on the Space Transportation System. The payload, called OSTA-1, has been developed by NASA's Office of Space and Terrestrial Applications to provide an early demonstration of the Shuttle's research capabilities.

STS-2 will also represent the first flight of the Remote Manipulator System --- the mechanical "arm" which would remove payloads from the orbiter's bay and insert them into space in future flights.

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NASA News

National Aeronautics and
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Steve Nesbitt

For Release

RELEASE NO. 81-016

May 14, 1981

AIRCRAFT MAINTENANCE CONTRACT EXTENDED

The NASA Johnson Space Center in Houston has signed a contract extension in excess of $8 million for continued maintenance of its aircraft located at Ellington Air Force Base.

The contract, with Northrop Worldwide Aircraft Services, Inc., moves into its fifth year, providing for the maintenance and modification of aircraft supporting programs in earth resources, astronaut proficiency training, zero-gravity simulation and others.

The value of the extension includes estimated costs of $8,240,000 and maximum award fee (contractor profit maximum based on performance) of $360,000.

The aircraft maintained under the Northrop contract include 26 T-38 astronaut proficiency training aircraft, two Grumman-built Shuttle training aircraft used to simulate Shuttle orbiter flight characteristics, a KC-135 used for simulating zero-gravity conditions, two WB-57F high altitude reconnaissance planes used in earth resources programs and cosmic dust studies, an NC130B, also used in the earth resources program, a Super Guppy (WC97J) cargo transport, an administrative aircraft and a helicopter.

The Shuttle Carrier Aircraft 747, which is part of the Johnson Space Center's inventory, is maintained under a separate contract at another facility.

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NASA News

National Aeronautics and
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Lyndon B. Johnson Space Center
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For Release

Dr. John Lawrence

Release No. 81-017

Immediate

ALAN BEAN RESIGNS

Astronaut Alan Bean, fourth man to set foot on the moon, will resign from NASA effective June 26 to devote full time to his career as an artist.

Bean said his decision was based on the fact that, in his 18 years as an astronaut, he visited worlds and saw sights no artist's eye has ever viewed firsthand, and he hopes to express these experiences through the medium of art.

Bean was among the third group of astronauts selected by NASA in the fall of 1963. He was lunar module pilot on Apollo 12, man's second landing on the moon in Nov. 1969. He and Pete Conrad explored the Ocean of Storms while Dick Gordon circled in the command module.

-MORE-

From July to Sept. 1973, he was commander of the second Skylab mission. On that 59-day, world-record-setting mission, Bean-with Jack Lousma and Owen Garriott accomplished 150 percent of the pre-mission forecast goals. His next assignment was as backup spacecraft commander for the United States flight crew on the joint U. S.-Soviet Apollo-Soyuz Test Project in 1975

Bean's 1,671 hours, 45 minutes in space rank him first among active American astronauts in total space flight time. He is fourth on the all-time list of U.S. astronauts in cumulative space flight time. During his career, Bean amassed 11 world records in space and astronautics. He is presently head of the Astronaut-Canditate Operations and Training Group.

Bean's interest in art is not new. He began formal art training as a night school student while a test pilot in the Navy. His paintings are about what he knows best---the exploration of the moon. He feels that the beginning of man's exploration of space has been the most historically-significant event of our time, and his purpose now is to make a contribution to art by capturing these events on canvas. He plans to pursue this goal in the Houston area.

With Bean's resignation, only one of the 12 Americans who have walked on the moon remains in the astronaut corps. He is John Young, chief of the Astronaut Office and commander of the first Space Shuttle flight.

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June 17, 1981

NASA News

National Aeronautics and
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Lyndon B. Johnson Space Center
Houston, Texas 77058
AC 713 483-5111

For Release

Terry White

IMMEDIATE

RELEASE NO. 81-018

AREA NATIVE COMMENDED FOR WORK IN FIRST SPACE SHUTTLE FLIGHT

Space engineer Bernard J. Rosenbaum, formerly from the Somerset and Johnstown, Pa. area, recently was commended for his role in the first flight of Space Shuttle Columbia.

Johnson Space Center director Christopher C. Kraft presented a NASA Special Achievement Award to Rosenbaum for his "exceptional leadership and technical skills vital to the success of the first flight of Columbia."

Son of Leo and Rita J. Rosenbaum of RD2, Stoystown, Rosenbaum attended high school in Kantner and Johnstown, and earned a BS in chemical engineering from the University of Pittsburgh. He and his wife, the former Patricia Ann Kohen of Johnstown, have three children and live in Seabrook, Texas near NASA Johnson Space Center.

enbaum is technical manager for the Space Shuttle hydraulic system at the Space Center. Hydraulic actuators steer the Shuttle Orbiter's main engine during launch, and move Orbiter control surfaces during the glide flight to landing. He was involved in the early design and development of the Orbiter hydraulic system. During the Apollo lunar landing program, he was a propulsion systems engineer working with Apollo spacecraft space maneuvering engines,and coordinated the engineering detective work across the country seeking the cause of the oxygen tank explosion aboard Apollo 13 en route to the moon. He holds several patents on devices for measuring rocket engine flow rates

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NASA News

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Terry White
John Lawrence

For Release

RELEASE NO. 81-019

July 6, 1981

COLUMBIA'S SECOND CREW, MISSION CONTROL

SIMULATE FIRST TWO FLIGHT DAYS

The first and second days of Shuttle Columbia's second space flight, now scheduled for launch September 30, will be simulated July 7 and 8 at the NASA Johnson Space Center. Prime crewmen Joe Engle and Dick Truly will be in the cockpit of the Shuttle Mission Simulator while three teams of flight controllers operate consoles in Mission Control Center, Houston.

Starting at 47 minutes after launch, the flight simulation will run for 30 hours and is the first long-duration simulation for the second Columbia orbital test flight. Veteran flight directors Neil Hutchinson, Chuck Lewis and Don Puddy will be joined by new flight directors Hal Draughon and Tommy Holloway in heading the flight controller teams.

The simulation will begin at 9 a.m. CDT July 7 and end at 4 p.m. CDT July 8. A 56-hour long-duration simulation is planned for late August.

-more-

Second of four planned orbital test flights, STS-2 (Space Transportation System) will last approximately five days and six hours after launch from NASA Kennedy Space Center, Florida. Landing again will be at Edwards Air Force Base, California.

# # #

NASA News

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Steve Nesbitt

For Release

RELEASE NO. 81-020

July 13, 1981

NASA VISITOR CENTER DEDICATION SET

Officials at the NASA Lyndon B. Johnson Space Center Monday will honor a longtime supporter of the space program when they dedicate the Olin E. "Tiger" Teague Visitor Center.

Newly-confirmed NASA Administrator James M. Beggs will be present for the ceremony along with other agency officials, U.S. Congressmen and former astronauts are expected to attend. Teague's widow, the former Freddie Dunman of Fort Worth, also will be present.

The late U.S. Congressman Teague served from 1959 to 1978 on the House Committee on Science and Astronautics, the last five years as chairman. Before he became chairman of the committee, he headed the subcommittee on manned space flight. He was widely known as one of the most articulate supporters of the space program.

The ceremony will begin at 10 a.m. July 20 on the 12th anniversary of the Apollo 11 lunar landing. A marker dedicating the center to Teague will be unveiled.

-more-

Elected from the 6th Congressional District of Texas, Teague made his home in College Station. He was a 1932 graduate of Texas A&M University and worked for the U.S. Post Office after graduation.

In 1940 he began service with the Army and commanded the First Battalion, 314th Infantry Regiment, 79th Division. He was wounded six times during World War II and was highly decorated. Among his more prominent decorations were the Silver Star with two clusters and the Bronze Star with one cluster. Teague died Jan. 23, 1981.

The visitor center contains memorabilia and displays tracing the development of rocketry from its earliest origins in ancient China through the work of rocket pioneer Dr. Robert Goddard and culminating in NASA's activities over the last twenty years. Lunar rocks, a full size lunar lander and the Apollo 17 command module are among the many items on display

Well over one million visitors pass through the center's doors each year.

# # #

NASA News

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TERRY WHITE

For Release

RELEASE NO. 81-021

July 9, 1981

NASA EXTENDS BOEING SAFETY AND RELIABILITY CONTRACT

The NASA Johnson Space Center, Houston has signed a contract with The Boeing Company of Houston covering safety, reliability and quality assurance support at the Center.

Valued at $9,402,037, the contract is a continuation of an earlier contract with Boeing, but has been converted from cost-plus-award-fee to cost-plus-fixed-fee. The 15-month contract began July 1, 1981 and ends September 30, 1982 and has a 12-month extension option.

Safety, reliability and quality assurance engineering and technical work for space vehicles, ground-support equipment, facilities, and space payloads including experiments, are covered by the contract.

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NASA News

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Steve Nesbitt

For Release

RELEASE NO. 81-022

Immediate

SHUTTLE SOFTWARE ANALYSIS CONTRACT EXTENDED

A $1,274,000 supplemental contract to analyze flight computers and related software for the Space Shuttle Orbiter has been awarded to the Defense and Space Systems group of TRW, Inc., by the NASA Johnson Space Center, Houston.

The contract extension, which runs 15 months, calls for detailed analysis of software covering ascent, paylaod operations and entry.

Analysis is performed routinely with computer systems on which the Shuttle Orbiter is totally dependent for control in flight, NASA engineers said.

July 10, 1981

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NASA News

National Aeronautics and
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Lyndon B. Johnson Space Center
Houston, Texas 77058
AC 713 483-5111

John Lawrence

For Release

NEWS RELEASE 81-023

July 15, 1981

STS-2 FLIGHT DIRECTORS, CAPCOMS

New flight directors and capsule communicators will be on duty at Johnson Space Center during STS-2 -- the second flight of the space shuttle, Columbia.

Harold M. Draughon and Tommy W. Holloway will see duty on the flight director's console in JSC's Mission Operations Control Room (MOCR) during the mission, scheduled to begin with launch on Sept. 30. They will alternate duties with the three flight directors who performed during STS-1: Neil B. Hutchinson, Charles R. Lewis and Donald R. Puddy.

For STS-2, Hutchinson will direct the mission during the launch phase, as he did during the first Columbia flight. That shift of flight controllers will then be under the direction of Draughon during subsequent shifts. Puddy will direct MOCR operations during the entry and landing phase, as he did for STS-1. During its earlier shifts, the entry team will be directed by Holloway.

-more-

Lewis will direct each shift of the orbit team, as with STS-1. Additionally, he has been designated lead flight director, which charges him with added responsibilities for pre-launch mission planning and coordination, as well as further leadership and management duties during the on-orbit phase of the mission.

Two capsule communicators (CAPCOMs) will be on duty with each flight control team. Consistent with NASA policy, all CAPCOMs are members of the astronaut corps.

STS-2 CAPCOMs will be Commander Daniel C. Brandenstein, USN, and Terry J. Hart with the ascent team; Major James F. Buchli, USMC, and Dr. Sally K. Ride, orbit team; and Commander Frederick H. Hauck, USN, and Major Steven R. Nagel, USAF, entry team..

During STS-1, Brandenstein was prime ascent team CAPCOM and Hauck and Buchli were backup CAPCOMs. For Hart, Ride and Nagel, STS-2 will be their first association with CAPCOM duties.

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NASA News

National Aeronautics and
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Lyndon B. Johnson Space Center
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John Lawrence

For Release
IMMEDIATE

RELEASE NO. 81-024

NOTE TO EDITORS

A press conference with space shuttle astronauts Colonel Joe H. Engle, USAF and Captain Richard H. Truly, USN, prime crew for the second flight of Columbia, will be held 9 a.m. Monday, August 3, in the NASA News Center, Bldg. 2, Johnson Space Center, Houston.

July 23, 1981

# # #

NASA News

National Aeronautics and
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Lyndon B. Johnson Space Center
Houston, Texas 77058
AC 713 483-5111

Dave Alter

RELEASE NO. 81-025

For Release
July 29, 1981

FAGET, FATHER OF SPACECRAFT, RETIRING TO SEEK NEW HORIZONS

Maxime A. Faget, father of Mercury, Apollo and Shuttle spacecraft design, is leaving the government shortly after the STS-2 mission to be a consultant and to carry out private investigations of several energy conservation schemes.

Faget, Director of Engineering and Development at Johnson Space Center since 1961, said he plans to remain closely associated with the space program as a consultant.

He will be succeeded by Robert O. Piland, Director of Space and Life Sciences, when Faget leaves in the fall.

Faget in 1946 joined the Langley Research Center, Hampton, Va., as a research scientist into pilotless aircraft. He later was named head of performance aerodynamics, a post he held until 1958.

His creative drive and engineering perception resulted in his selection to the original group of 35 assigned as a nucleus of Johnson Space Center (then the Space Task Group), serving three years as Chief of the Flight Systems Division.

-more-

It was just prior to this period that he conceived and proposed the development of the one-man spacecraft used in Project Mercury. The Gemini and Apollo spacecraft are derivations of the original basic concept.

A NASA member of the Polaris Missile steering Task Group, he is credited with "greatly influencing the design of that Navy missile."

In his current position as Director of Engineering and Development, he is responsible for design, development and proof of performance for all spacecraft systems. His area includes crew systems, experiment systems, telemetry and communications, guidance and control, avionics systems engineering, propulsion and power, future programs, structures and mechanics, spacecraft design and engineering analysis.

His achievements, honors, awards, patents, and technical papers reflect a "Who's Who" of aerospace, starting with his Bachelor of Science degree in Mechanical Engineering from Louisiana State University.

SPECIAL HONORS AND AWARDS:

The Arthur S. Fleming Award, 1959

Golden Plate Award presented by the Academy of Achievement, 1962

NASA Medal for Outstanding Leadership, 1963

Sword of Loyola Award presented by Loyola University, 1965

Honorary doctorate of engineering degree, University of Pittsburgh, 1966.

NASA Distinguished Service Medal, 1969

NASA Medal for Exceptional Service, 1969

National Space Hall of Fame, Houston, Texas 1969

American Institute of Aeronautics and Astronautics Spacecraft Design Award, 1970.

Louisiana State University Alumnus-of-the-Year Award, 1971

Outstanding Accomplishment in the Field of Systems Science and Systems Engineering Award, Institute of Electrical and Electronic Engineers, 1971.

William Randolph Lovelace II Award, American Astronautical Society, 1971

Honorary doctorate of engineering degree, Louisiana State University, 1972

Daniel and Florence Guggenheim International Astronautics Award, 1973

Gold Medal, American Society of Mechanical Engineers, 1975

Harry Diamond Award, Institute of Electrical and Electronics Engineers, 1976

Space Flight Award, American Astronautical Society, 1976

Albert Sperry Medal, Instrument Society of America, 1976

American Institute of Aeronautics and Astronautics' Goddard Astronautics Award, 1979.

Louisiana State University Engineering Hall of Distinction, 1979

Presidential Rank of Meritorious Executive, 1980

TECHNICAL PAPERS AND PATENTS:

He has authored and co-authored numerous technical papers including documents of aerodynamics, rocketry, high-speed bomb ejection, reentry theory, heat transfer, and aircraft performance. He is also co-author of a textbook, "Engineering Design and Operation of Spacecraft," and is author of a book entitled, "Manned Space Flight."

He holds patents on a "Mach Number Indicator" and "Space Shuttle Vehicle and System," and joint patents on the "Aerial Capsule Emergency Separation Device" (escape tower), the "Survival Couch," and the "Mercury Capsule."

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NASA News

National Aeronautics and
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Lyndon B. Johnson Space Center
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Terry White

For Release

RELEASE NO. 81-026

IMMEDIATE

NASA EXTENDS LOCKHEED WHITE SANDS CONTRACT

The NASA Johnson Space Center, Houston, Texas has extended for a year its contract with Lockheed Engineering and Management Services Company, Inc. covering support services at the JSC White Sands Test Facility, Las Cruces, NM.

Lockheed will supply laboratory support services, test stand operation, and maintenance and operation services under the $13 million cost-plus-award-fee contract.

July 29, 1981

# # #

NASA News

National Aeronautics and
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Lyndon B. Johnson Space Center
Houston, Texas 77058
AC 713 483-5111

John Lawrence

For Release

RELEASE NO: 81-029

August 21, 1981

ASTRONAUT CANDIDATES COMPLETE TRAINING

Nineteen National Aeronautics and Space Administration astronaut candidates and two European Space Agency (ESA) mission specialist candidates have completed the first phase of their training at the Johnson Space Center, Houston.

The 19 Americans become full-fledged members of the U.S. astronaut corps, which now totals 79. Their training will continue toward qualifying them for duties as pilots or mission specialists on future flights of the space shuttle. They began training in July 1980.

The new American astronauts are: Dr. James P. Bagian, Lt. Col. John E. Blaha (USAF), Maj. Charles F. Bolden Jr. (USMC), Lt. Col. Roy D. Bridges, Jr. (USAF), Dr. Franklin R. Chang, Dr. Mary L. Cleave, Bonnie J. Dunbar, Dr. William F. Fisher, Maj. Guy S. Gardner (USAF), Maj. Ronald J. Grabe (USAF), Capt. David C. Hilmers (USMC), Lt. Cdr. David C. Leestma (USN), John M. Lounge, Maj. Bryan D. O'Connor (USMC), Lt. Cdr. Richard N. Richards (USN), Capt. Jerry L. Ross (USAF), Lt. Cdr. Michael J. Smith (USN), Maj. Sherwood C. Spring (USA), and Lt. Col. Robert C. Springer (USMC).

-more-

NASA last year agreed to include two European scientists in the astronaut training program in recognition of the substantial contribution ESA is making to the Space Transportation System by funding development of Spacelab. ESA is reimbursing NASA for the costs of training the two Europeans.

ESA has indicated it will soon decide which of the two Europeans will transfer to the Marshall Space Flight Center, Huntsville, Ala.,for payload specialist training in preparation for the first Spacelab flight. The other will continue training as an ESA astronaut at JSC for possible selection as a mission specialist for missions carrying European payloads aboard the shuttle. The two Europeans are Claude Nicollier of Switzerland and Dr. Wubbo Ockels of The Netherlands.

-end-

NASA News

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas 77058
AC 713 483-5111

John Lawrence

For Release

RELEASE NO. 81-030

IMMEDIATE

NOTE TO EDITORS

The final pre-flight news conference with the crew for the second orbital test flight of the space shuttle, Columbia, will be at 8:30 a.m. CDT, Tuesday, Sept. 15, in the Building 2 auditorium at the Johnson Space Center. Mission commander, Col. Joe H. Engle (USAF), and pilot, Capt. Richard H. Truly (USN) are scheduled to lift off aboard Columbia Sept. 30 on a five-day, six-hour flight.

On Monday, Sept. 14, news briefings will be conducted in the News Center briefing auditorium at 1 p.m. on the STS-2 flight plan, at 2:30 p.m. on the OSTA-1 experiments payload, and at 4 p.m. on the Remote Manipulator System. On Tuesday, Sept. 15, a briefing will be conducted in the News Center briefing auditorium at 2 p.m. on how to cover the STS-2 mission.

August 19, 1981

# # #

NASA News

National Aeronautics and
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Lyndon B. Johnson Space Center
Houston, Texas 77058
AC 713 483-5111

Terry White

For Release

RELEASE NO. 81-031

August 19, 1981

NASA NEGOTIATES WITH IBM FOR COMPUTER CONTRACT

The NASA Johnson Space Center, Houston, has selected IBM Corporation for negotiations leading to award of a firm-fixed-price contract for a computer system to be used in the Center's software production facility.

The proposed contract will cover automatic data processing hardware, systems integration, program products and maintenance over a five-year period. Extensions for systems maintenance beyond the initial five years will be provided by the contact, expected to be valued at approximately $16 million.

JSC also received a proposal from Electronic Data Systems Corporation of Houston.

# # #

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Eddy Wittry

For Release

RELEASE NO. 81-032

IMMEDIATE

LEGER RECEIVES LARGEST JSC INVENTION AWARD

The largest JSC invention award, $7,500 was granted Dr. Lubert J. Leger, Head, Nonmetallic Materials Section, Structures and Mechanics Division, for his concept on the strain isolation pad (SIP), a thin layer between the orbiter's aluminum skin and thermal protection system's ceramic tiles. The SIP isolates tiles from structurally-induced stresses.

Successful bonding of ceramic tiles to the body of the aluminum orbiter was a major challenge for thermal protection system engineers. Tiles could not be bonded directly to the skin of the orbiter due to stress and flexing of the vehicle - causing the brittle tiles to crack.

Leger's patent, recorded in 1978, replaced the formerly proposed SIP of elastomeric foam. The foam was suitable for withstanding higher temperatures but became brittle at low temperature in the vacuum of space.

August 24, 1981

-more-

RELEASE NO. 81-032

With this new challenge, Dr. Leger developed his concept of SIP from special felt of Nomex fibers. Bonded to the orbiter's aluminum surface, they resemble felt on a tennis ball. A specially-coated version provides primary thermal protection over a significant area of the orbiter's skin.

Leger's invention saved weight, cost, and schedule time.

The award was recommended by the Inventions and Contributions Board, NASA Headquarters.

# # #

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AC 713 483-5111

John Lawrence

For Release

RELEASE NO. 81-033

IMMEDIATE

LONG DURATION SIMULATION

The final long-duration simulation of the second flight of the space shuttle, Columbia, will be conducted at Johnson Space Center, Houston, Monday through Wednesday, Aug. 31 - Sept. 2.

STS-2 is a planned five-day, six-hour mission with launch presently scheduled for Sept. 30. The simulation, however, will duplicate only the first 56 hours of the flight profile and timeline to be followed by Columbia.

The exercise begins 8 a.m. Monday with the countdown at T-9 minutes. Columbia astronauts Col. Joe H. Engle (USAF), mission commander, and Capt. Richard H. Truly (USN), pilot, will be situated in a Shuttle Mission Simulator. Three teams of flight controllers will alternate shifts on consoles in JSC's Mission Operations Control Room.

August 26, 1981

-more-

Flight Directors Neil B. Hutchinson, Donald R. Puddy, and Charles R. Lewis, veterans of the first Columbia mission, will be joined by new Flight Directors Harold M. Draughon and Tommy W. Holloway.

Purpose of the simulation is to give the astronauts and flight control teams realistic experience and training in preparation for the actual space flight. The Shuttle Mission Simulator in which the astronauts are positioned is a faithful duplicate of the Columbia flight deck, and is computerized to provide feedback identical to that which the crew would experience during a mission.

Imaginary problems are introduced, giving flight and ground crews experience in dealing with unexpected situations. The simulated problems are scripted and scheduled in advance, but are unknown to the participants.

This is the second long-duration simulation conducted in advance of STS-2. Dozens of short-duration simulations have been conducted in preparation for specific ascent, entry and on-orbit portions of the mission.

# # #

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Houston, Texas 77058
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Steve Nesbitt

For Release

NEWS RELEASE 81-034

IMMEDIATE

JOHNSON SPACE CENTER AWARDS

The National Aeronautics and Space Administration September 11 will recognize 275 Johnson Space Center employees for outstanding contributions to the historic first flight of the Space Shuttle Columbia.

The largest number of persons ever honored at JSC following a space flight will be spotlighted for their work in a 2 p.m. ceremony in the Center's Teague Auditorium led by Dr. Hans Mark, NASA's Deputy Administrator.

Eight persons will receive the agency's highest award given to government employees, the NASA Distinguished Service Medal.

The medal will be presented to Dr. Christopher C. Kraft, Center Director; George W.S. Abbey, Director of Flight Operations; Arnold D. Aldrich, Deputy Manager, Space Shuttle Program Office; Aaron Cohen, Manager, Orbiter Project Office;

Lynwood C. Dunseith, Director of Data Systems and Analysis; Maxime Faget, Director of Engineering and Development; Eugene F. Kranz, Deputy Director of Flight Operations, and Robert F. Thompson, retired Manager of the Space Shuttle Program Office.

Astronauts John W. Young and Robert L. Crippen, the crew on Columbia's first flight, were presented the Distinguished Service Medal by President Ronald Reagan at the White House May 19.

The corresponding award given to non-government employees is the NASA Distinguished Public Service Medal. For their contributions to the Space Shuttle Program, NASA is honoring Charles W. Feltz, Space Transportation System Development and Production Division, and Seymour Z. Rubenstein, Shuttle Orbiter Division, of Rockwell International Corporation, and John B. Jackson, Federal Systems Division of IBM Corporation.

Eleven civil service employees will receive the agency's second highest medal, the Outstanding Leadership Medal.

A new award, the NASA Exceptional Engineering Achievement Medal, for advancing the state of the art engineering, will be given to 14 individuals.

Other awards to be presented include the NASA Exceptional Service Medal to 93 JSC employees, the NASA Public Service Medal to 24 non-government employees, the NASA Public Service Group Achievement Award to 44 contractor organizations, the NASA Group Achievement Award to 13 groups of civil service employees or teams composed of both civil service and contractor employees, and certificates of appreciation to 65 individuals.

# # #

NASA-JSC

NASA News

National Aeronautics and
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Lyndon B. Johnson Space Center
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For Release

Dick McCormack
Headquarters, Washington, D.C.
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IMMEDIATE

Charles Redmond
Headquarters, Washington, D.C.
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Stephen A. Nesbitt
Johnson Space Center, Houston, Texas
(Phone: 713/483-5111)

OSTA-1 MISSION

The OSTA-1 payload sponsored by the Office of Space and Terrestrial Applications is the first scientific cargo to be carried on the Space Shuttle. When engineering tests were defined in 1976 for STS-2 it was determined that the Shuttle's cargo bay would face the Earth for 88 hours of the 120-hour mission, making terrestrial observations possible. To demonstrate the potential utility of the Shuttle as a research platform NASA selected six experiments from 32 proposed by the scientific community in 1977. A seventh investigation was later added to the payload to calibrate an experiment planned for Spacelab. There are seven principal investigators and 25 co-investigators for the evaluation of OSTA-1 data, including three co-investigators from foreign countries.

September 10, 1981

-more-

Five of the experiments are mounted on an engineering model of the Spacelab pallet manufactured by British Aerospace for the European Space Agency.

The pallet is located in the Shuttle's cargo bay and weighs 1,218 kilograms (2,685 pounds). The experiments mounted on the pallet weigh 1,016 kg (2,240 lb.) and require 1,452 watts of power. The pallet experiments can be controlled by the astronauts or by ground-based personnel at Johnson Space Center in Houston. The remaining two experiments are located in the crew compartment. One of these experiments is operated by the astronauts, but the other remains stowed throughout the flight.

All of the scientific data collected during the mission will be removed from the Columbia within 72 hours of its landing at Dryden Flight Research Center in Edwards, Calif. All of the data collected by the experiments on the OSTA-1 payload will be available to the public within 6-12 months after the mission, if not sooner, from the National Space Science Data Center at Goddard Space Flight Center in Greenbelt, Md.

The Experiments

The diversity of the experiments to be conducted during the STS-2 mission attests to the versatility of the Shuttle for research and technological development in geology, oceanography, atmospheric science and biology. Each of the experiments selected for the mission represents an incremental advance in current remote sensing technology for specific disciplines.

The experiments were selected because they would obtain new and different types of remote sensing data from orbital altitudes, which when analyzed, would yield valuable information for the efficient design of future Earth observation systems.

NASA first flew an imaging radar in space in 1978 on Seasat. When geologists analyzed Seasat imagery they found that valuable information on geologic structures could be derived from Seasat imagery covering flat-lying areas. However, in mountainous areas the terrain was distorted because Seasat was designed to evaluate ocean surface conditions.

The purpose of the Shuttle Imaging Radar experiment is to evaluate the utility of orbital radar imagery for mineral and petroleum exploration and other geologic applications. The instrument's imaging geometry is designed to analyze terrain having relief. The radar was constructed from spare Seasat components and uses the same L-band frequency. Although the transmitter has a rated power of 1,000 watts, by the time the microwave radiation reaches the ground it has about the same power as a local television station.

Radiation reflecting from the landscape is received by the same antenna onboard the Shuttle and the echo history is recorded on signal film which is later processed on the ground to an image.

The investigators will compare images from this experiment to Seasat and aircraft radar image data in a variety of test sites.

The experiment represents a milestone in the development of radar technology for the United States.

From 1981 to 1985 supplemental imaging radar data will be collected by advanced imaging radar systems in aircraft, and NASA hopes to obtain funding for an advanced Shuttle imaging radar system with dual frequencies and a variable tilt antenna. Such a Shuttle system could acquire multiband imaging radar data at a variety of imaging geometries, and in stereoscopic mode by 1986. Based on these experiments, the United States will be able to efficiently design the best radar satellite imaging system for a variety of resource applications.

Currently the European Space Agency and the Japanese are planning to fly spaceborne radars on satellites later in the decade.

The Shuttle Multispectral Infrared Radiometer experiment is another milestone in the development of space sensors for resource observations. Analysis of Landsat data has shown that iron-oxide stain on rocks can be detected and mapped using data from the Multispectral Scanner on Landsats 1, 2 and 3. The U.S. Geological Survey now routinely uses iron-oxide maps, derived from computer processed Landsat data, in its field investigations in the western United States. Unfortunately, iron oxides are also associated with other non-mineralized geological materials.

Research conducted jointly by NASA and the U.S. Geological Survey has shown that clays can be detected with the wavelength bands to be employed by the new Thematic Mapper scanning instrument planned for launch on Landsat-D in 1982.

The combination of clays and iron-oxides will permit much better discrimination of mineral deposits. This experiment carries this promising research one step further in that it uses very narrow spectral bands to evaluate the possibility of identifying different clay minerals. If the experiment is successful, then it may be possible to efficiently design high-resolution solid-state imaging sensors to aid geologists not only in detecting mineral deposits, but in classifying them.

The Measurement of Air Pollution from Satellites experiment is designed to survey carbon monoxide concentrations in the lower atmosphere (up to 18 km (11 mi.) above the Earth's surface). This represents the first attempt to determine carbon monoxide concentration from orbital altitudes. NASA aircraft from the Langley Research Center, Hampton, Va., and the Ames Research Center, Mountain View, Calif., will acquire simultaneous measurements during the Shuttle overflight.

The experiment will be evaluated as a possible satellite instrument to monitor long-term changes in carbon monoxide distribution that may result from the combustion of fossil fuels. Subsequent Shuttle flights of the experiment are planned to assess seasonal effects on carbon monoxide distribution and the distribution of carbon monoxide at high latitudes.

Detection and mapping of electrical discharges associated with thunderstorms has great, but unproven, potential for determining the intensity and trajectory of severe storms.

Spaceborne platforms are ideal for observation of the occurrence and distribution of lightning in thunderstorms because the electrical dischargees can be analyzed in plain view.

The objective of the Night/Day Optical Survey of Lightning experiment is to correlate the occurrence of lightning with convection in storm systems and evaluate the electrification processes over land and water surfaces. The results of the experiment will be used to evaluate sensors and techniques for identifying severe weather situations using meteorological satellites.

The Ocean Color Experiment is part of a series of aircraft and satellite experiments designed to detect surface chlorophyll produced by algae, and thus determine oceanic environmental conditions and circulation patterns. The results of the Ocean Color Experiment will be evaluated in relation to the results from the analysis of Coastal Zone Color Scanner data acquired by Nimbus-7, and these experiments may form the basis for development of a global monitoring capability for detection, mapping and evaluation of marine chlorophyll. Marine algae play a fundamental role in global photosynthesis and are a major contributor to oxygen in the atmosphere. At the same time they are a vital link in the ocean food chain and maps of algae concentrations have been used by the fishing industry to plan operations along the Gulf Stream.

The Feature Identification and Location Experiment is really a technology demonstration. It represents the development and test of technology for "smart sensors" that can be programmed to acquire only desired data.

Earth observation satellites currently acquire much data which is obscured by clouds and they must be programmed to acquire data only over land areas. Control of data acquisitions from the ground, to eliminate cloud covered areas, is a difficult labor-intensive process which requires near real-time meteorological data.

This experiment is designed to identify vegetation, rocks/soils, water and clouds/snow/ice.

To test the ability of the instrument to make real-time data acquisition decisions, the dominant cover type in each scene will be determined and data acquisition will be terminated after 32 scenes of the same cover-type have been acquired. If these techniques prove successful they will form the basis for future advanced studies with the Shuttle related to separation of clouds from snow and ice, and for a capability for automated sensor tracking and navigation for data acquisition.

A plant growth experiment will be conducted on the first Spacelab mission to be flown on the Shuttle in 1983.

This experiment is known as the Helianthus annuus Flight Experiment (Heflex). Helianthus annuus is a dwarf sunflower species that grows rapidly and it will be studied to determine the effects of weightless conditions on plant growth. The purpose of Heflex Bioengineering Test is to determine the optimum soil moisture for the growth of plants in near zero gravity for the Heflex experiment.

Shuttle Capabilities for Research

The Space Shuttle possesses several advantages over previous types of Earth orbital platforms.

The most obvious advantage of the Shuttle is its ability to return the payload of instruments to the experimenters. This will permit relatively simple experiments to be designed and manufactured under considerably relaxed standards, and it will allow failures in experiment design and operation to be evaluated first hand.

Returned experiments can also be flown in aircraft or reused in the laboratory.

The Shuttle will enable NASA to test prototype sensors for free-flying unmanned satellites for a fraction of the cost associated with testing similar sensors on unmanned satellites. Experiments with repetitive satellites have required large and expensive ground facilities to process and archive the large amounts of data.

The Shuttle will provide a capability to collect limited quantities of experimental data over a wide variety of global test sites, thus reducing the project costs associated with data dissemination to investigators.

Repetitive data can be acquired by subsequent Shuttle flights to evaluate seasonal, annual or longer-term phenomena.

In addition, scientifically trained mission specialists on future missions will play a significant role in collecting data of greatest interest to ground-based researchers by identifying targets of opportunity from orbit.

In the future, launch of the Shuttle from California will permit polar orbits and thus observations of high-latitude regions and complete global coverage. Simultaneous orbital flights of more than one Shuttle will be possible along with longer duration missions. Eventually, by the end of the decade, NASA may be able to test sensors on large orbital platforms which will be serviced by the Shuttle.

The Shuttle will fundamentally change the way in which terrestrial research is conducted in space. Scientists now have a major technological breakthrough for global research and the OSTA-1 scientific payload will provide a good demonstration of some of Shuttle's research capabilities.

OSTA-1 Science Team for Space Shuttle Flight 2

Dr. James Taranik Office of Space and Terrestrial Applications (OSTA) NASA Headquarters, Washington, D.C.	Program Scientist
Dr. Andrew Potter NASA - Johnson Space Center Houston, Texas	Mission Scientist

Principal Investigators:

Dr. Charles Elachi Jet Propulsion Laboratory, California Institute of Technology Pasadena, Calif.	Shuttle Imaging Radar-A (SIR-A)
Dr. Alexander Goetz Jet Propulsion Laboratory, CIT	Shuttle Multispectral Infrared Radiometer (SMIRR)
Dr. Henry Reichle Jr. NASA - Langley Research Center Hampton, Va.	Measurement of Air NASA - Pollution from Satellites (MAPS)
Hongsuk Kim NASA - Goddard Space Flight Center Greenbelt, Md.	Ocean Color Experiment (OCE)
Dr. Bernard Vonnegut State University of New York, Albany	Night/Day Optical Survey of Lightning (NOSL)
Roger Schappell Martin Marietta Aerospace	Feature Identification and Location Experiment (FILE)
Dr. Allen Brown University of Pennsylvania	Heflex Bioengineering Test (HBT)

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NASA News

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Houston, Texas 77058
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Steve Nesbitt

For Release

RELEASE NO. 81-035

IMMEDIATE

ASTRONAUT INJURED IN TRAFFIC ACCIDENT

NASA Astronaut Ronald E. McNair was injured Sunday evening in an automobile accident on U. S. Interstate Highway 45 in Houston.

McNair was admitted to the emergency room of Southeast Memorial Hospital Sunday evening and subsequently placed in the hospital's intensive care unit. He was transferred to a room on the orthopedic floor this morning and was listed in stable condition.

No other details of the accident or of McNair's injuries were available.

McNair was among 35 astronauts selected by NASA in January 1978 and is eligible for selection as a mission specialist on future Space Shuttle flights.

September 14, 1981

# # #

NASA Astronaut Dr. Ronald E. McNair was released from Clear Lake Hospital Monday afternoon and sent home to recuperate from injuries sustained in an automobile accident in Houston Sept. 13.

Dr. McNair sustained eight broken ribs and a bruised lung. He expressed eqarness to return to duties at Johnson Space Center, and expects to do so within weeks.

Dr. McNair said he was happy and thankful that he and his wife, Cheryl, were not more seriously hurt and that they both expect to fully recover from their injuries.

-30-

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For Release

Terry White

RELEASE NO. 81-036

September 18, 1981

NASA PICKS BARRIOS TECHNOLOGY FOR INSTRUMENT REPAIR WORK

The NASA Johnson Space Center, Houston, has selected Barrios Technology, Inc. of Houston for negotiations leading to a contract for instrument calibration and repair at the Center.

Beginning December 1, 1981, the proposed small business set-aside contract will be valued at approximately $3 million for its first two-year period. Extensions for a total of five years will be optional .

Other bidders were: The Bionetics Corporation, Hampton, VA; Custom Cable Television Company, Inc., Chaska, MN; Fernandez Engineering Services, Houston, TX; Rothe Development, Inc., San Antonio, TX; and Simco Electronics, Santa Clara, CA

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Terry White

For Release

NEWS RELEASE NO. 81-037

September 24, 1981

Special to Tauy Talk, Ottawa University, KS
Alumni Mag

KOONS RECEIVES NASA SERVICE MEDAL

Wayne Koons, 1956 Ottawa University math-physics graduate, recently received the NASA Exceptional Service Medal for his part in the successful maiden flight of the Space Shuttle Columbia. Koons is manager of the Space Shuttle Orbiter Manufacturing and Test Office at the NASA Johnson Space Center in Houston.

Koons received the medal at Space Center award ceremonies September 11 in which 275 employees were recognized for the work in the first orbital test flight. He was among 93 receiving the Exceptional Service Medal. His brother, Fred D. Koons, received the NASA Certificate of Appreciation.

Koons joined NASA in 1961 after five years as a U.S. Marine Corps helicopter pilot. He piloted the helicopter that retrieved astronaut Alan Shepard after the first U.S. manned space flight in May 1961.

# # #

NASA News

National Aeronautics and
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For Release

Terry White

NEWS RELEASE NO. 81-038

September 24, 1981

Special to Lyons, KS News

Hutchinson, KS News

KOONS RECEIVES NASA SERVICE MEDAL

Wayne Koons, Space Shuttle Orbiter Manufacturing and Test Manager at the NASA Johnson Space Center, Houston, TX recently received the NASA Exceptional Service Medal for his part in the success of the maiden flight of the Space Shuttle Columbia. He is the son of Mr. and Mrs. Marvin G. Koons of Lyons.

Koons received the medal at Space Center award ceremonies September 11 in which 275 employees were recognized for the work in the first orbital test flight. He was among 93 receiving the Exceptional Service Medal. His brother, Fred D. Koons, received the NASA Certificate of Appreciation.

Koons joined NASA in 1961 after five years as a U.S. Marine Corps helicopter pilot. He piloted the helicopter that retrieved astronaut Alan Shepard after the first U.S. manned space flight in May 1961.

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For Release

Terry White

RELEASE NO. 81-039

IMMEDIATE

KLEINKNECHT LEAVES NASA AFTER 39 YEARS SERVICE

Kenneth S. Kleinknecht, assistant manager of the Space Shuttle Orbiter Project Office at the NASA Johnson Space Center, will leave federal service October 2 to join Martin Marietta Aerospace Denver Division.

His 39-year career with NASA and its predecessor agency, the National Advisory Committee for Aeronautics (NACA), spans wartime and post-war aircraft programs and on into the manned space flight era.

"I've enjoyed every minute of my 39 years with NACA and NASA," said Kleinknecht who begins a new career October 5 with the Martin Marietta Aerospace MX missile launcher program. "I'm proud to have been part of JSC and I wish full success to JSC and all of NASA in the future. Our latchkey will be out in Denver for all our old friends who want to come up to the Rockies skiing, hunting or fishing."

more

Kleinknecht joined NACA's Lewis Research Center in Cleveland in 1942 after earning his bachelor's degree in mechanical engineering at Purdue University. In 1951 he transferred to the NACA Flight Research Center as aeronautical research scientist on the X-1, D-558 and the X-15 rocket research aircraft until 1959, when he joined the Space Task Group at NASA Langley Research Center. Space Task Group evolved into the Manned Spacecraft Center which was renamed the Lyndon B. Johnson Space Center in 1973.

Kleinknecht was manager of Project Mercury, the first U.S. manned space flight program. He became deputy Gemini Program manager at the end of Mercury, and in 1967 was named command and service module manager for the Apollo Spacecraft Program. From 1970 to 1974, he was manager of the Skylab Program in which three crews of three astronauts spent a total of 171 days aboard the nation's first space station.

He became JSC Director of Flight Operations in 1974, and assistant manager of the Space Shuttle Orbiter Project in 1976. Kleinknecht spent two years as a NASA Headquarters representative to the European Space Agency (ESA) in Paris before returning to JSC as Orbiter 102 (Columbia) vehicle manager in charge of completion of Columbia's manufacture and thermal protection system (heatshield tile) modifications prior to the successful first orbital test flight in April 1981.

Kleinknecht has been on temporary appointment as a rehired annuitant since February 28, 1980 when he retired from federal service.

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NASA News

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Dave Alter

RELEASE NO. 81-040

For Release

October 7, 1981

ENGINE

I wonder if the engine
That dashes down the track
Ever has a single thought
Of how it can get back.

Harry Erwin, NASA microwave expert, aimed his invisible pin-thin laser beam at the bicycle reflector mounted on the smoke stack of the Lionel toy train, energized the computer, and switched the engine to "full speed".

Two-hundred-fifty feet down the rails, the electric engine, drawing a three-car load (without a little red caboose) rolled forward. The computer display recorded 5 feet per second, give or take 1/10th of an inch per second; distance, 151 feet, accuracy to a fraction of an inch.

Erwin, head of Johnson Space Center's Microwave and Laser section, was in the midst of a rendezvous and docking hardware experiment, analyzing different types of laser-tracking systems.

To carry out the test series, he had requested, much to the bewilderment of NASA Procurement, an electric train set, requiring a high smoke stack (to accommodate a reflector) and 300 feet of railroad track.

-more-

With fifty cars behind it
And each car loaded full,
I wonder if it ever thinks
How hard it has to pull.

Although it was near Christmastime (1980), backup paperwork had justified the request. The toy train, Erwin explained, was the effective and inexpensive way to test the laser system's ability to measure speed and distance between two moving targets. So Robert L. Duppstadt, NASA buyer, ordered a Lionel train, The (Jesse) JAMES GANG model produced by Fundimensions, a division of General Mills, Detroit. The toy department of La Porte Hardware Co. (Texas) happened to have one on its shelf. The train and 300 feet of track cost $300.

Erwin then requested a small, lightweight, low-powered laser and computer system that could measure speed and distance accurately between two parked or slow-moving objects. Because, Erwin explained, the Space Shuttle orbiter or other systems in space such as the Space Operations Center would some day need to dock. Softly!

"Two parameters we must measure very accurately are velocity and distance at close range," said Erwin. "That rules out existing rendezvous radars which can track a target accurately at long distances, but lose it close in."

A typical radar picks up targets 300 miles out, tracks accurately to 300 feet, where another system must take over.

"It's the final closing 300 feet or so that needs a precise measuring system, one that accurately measures speed and distance at a crawl," said Erwin. "We think we can do it optically."

The search then narrowed to a newly-marketed, low-powered diode laser system that sends light energy modulated with ranging tones. The light energy bounces off the reflector back to the laser's receiver where the computer processes and calculates the time it takes to make the round trip.

One of the first built, the laser diode, about the size of a grain of salt, converts electrons to photons, resulting in an infrared laser beam. The beam, about a millionth of a watt, is visible only through a special image converter.

The laser experiment is being conducted in a blackened 15-foot-diameter steel tunnel to model the lighting conditions that may exist in space docking. Once the diode laser rendezvous and docking technique is perfected, a more powerful carbon dioxide laser beam will be installed to confirm the diode system's accuracy and help set a standard.

If all goes well, says Erwin, an electrical engineer who has been with NASA 16 years, the minuscule beam of light may guide hundreds of tons of metal to a powder-puff-soft docking in the blackness of space.

I guess it trusts the fireman;
It trusts the engineer;
I guess it knows the switchman
Will keep the tracks clear.
---James S. Tippett

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For Release

DAVE ALTER

RELEASE NO. 81-041 IMMEDIATE

FAGET NAMED CHIEF ENGINEER, PILAND NEW E & D DIRECTOR

Dr. Maxime A. Faget, director of Engineering and Development at the Johnson Space Center since 1961, will serve as Chief Engineer until retirement later this year.

Dr. Faget is succeeded by Robert O. Piland, Director of Space and Life Sciences.

Piland joined NASA as an aeronautical research scientist at the Langley Research Center in 1947. In 1958 he became technical assistant to the President's Science Advisor, Dr. James R. Killian.

In 1959, he was named Assistant Chief of the Flight Systems Division, Space Task Group (now NASA Johnson Space Center).

He served successively as Manager of the Apollo Projects Study Office, Deputy Manager of the Apollo Program Office and Manager of the Experiments Program Office.

October 5, 1981

-more-

In 1966, he was named Deputy Director of the Science and Applications Directorate, later serving as technical assistant to Christopher C. Kraft Jr., Center Director.

In 1969, he became acting chief, Earth Resources Division, followed by Director of the Earth Resources Laboratory at the Mississippi Test Facility.

From 1974 to 1980 Piland was Associate Director for Program Development, and until his recent appointment was Director of Space and Life Sciences, responsible for the Center's programs in life sciences, earth survey applications, earth and planetary sciences and medical support to the Center and its space flight operations.

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Lyndon B. Johnson Space Center
Houston, Texas 77058
AC 713 483-5111

For Release

Dave Alter

RELEASE NO. 81-042

IMMEDIATE

JOE SCHMITT? HE SUITS THEM JUST FINE!

Joseph "Joe" W. Schmitt is blessed with two decades of accolades from astronauts who fly in spaceships.

Schmitt is the Johnson Space Center flight equipment specialist who has "suited up" most astronauts before flight, and been among the last to shake their hands before liftoff.

Speaking softly with what must be a bottomless reservior of patience, Schmitt and his five-man crew assist in flight crew training, spacecraft checkout, spacesuit and flight equipment maintenance. He trouble-shoots crew equipment malfunctions and checks and tests suit components, preparing them for flight. It is Schmitt who will carry out the pre-flight inspection of crew parachutes and survival kits for the upcoming STS-2 launch.

From Mercury to Columbia, astronauts have hailed his craftsmanship.

Schmitt personally assisted Astronauts Alan B. Shepard, Jr., Virgil I. "Gus" Grissom, John H. Glenn, Jr., M. Scott Carpenter and Walter M. Schirra, Jr. into their Mercury spacecraft prior to their flights.

Starting with Shepard, and his Mercury suborbital test flight in 1961, Schmitt's memorabilia includes personally-written notes of thanks.

October 14, 1981

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"...With sincere appreciation and thanks for your help," wrote Shepard on one occasion. And on another, "...with happy memories of your devoted contributions."

In 1963, Mercury Astronaut Gordon L. Cooper thanked Joe for being a "good friend and for all the good work."

And thus the men of aerospace have spoken of Joe Schmitt from day one of the space program.

He was praised by John H. Glenn, Jr., first man to orbit Earth in the Mercury program, and equally by David R. Scott after his Gemini flight:

"Many thanks for all of your help and valuable suggestions in keeping Gemini VIII well tailored," said Scott.

Joe Schmitt's motto is perhaps the best tipoff of his success: "Have everything ready and don't waste their time."

Said Wally Schirra during Apollo 7 preparations: "Best wishes Joe--you really suit us."

High on the list, and most recent, is the plaudit from Christopher C. Kraft, Jr., Director of the Johnson Space Center:

"....you have been selected to receive the NASA Exceptional Service Medal for your outstanding contributions to the Space Shuttle Program and to the success of the STS-1 flight..."

Schmitt received the medal Sept. 11, in a presentation by Dr. Hans Mark, NASA Deputy Administrator.

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NASA News

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas 77058
AC 713 483-5111

For Release

Steve Nesbitt

RELEASE NO. 81-043

October 9, 1981

FIRST SPACELAB 1 HARDWARE SHIPPED

The first major piece of hardware for use in Spacelab 1, the multi-national scientific laboratory to be carried into orbit aboard the Space Shuttle, has been shipped to the launch site from the NASA Lyndon B. Johnson Space Center in Houston.

The life sciences mini-lab, a double rack of experiment equipment plus stowage equipment, was shipped last week to the Kennedy Space Center, Florida, where it will undergo checkout and integration in preparation for the flight now planned for fall, 1983.

Spacelab is being developed by the European Space Agency and will be carried in the payload bay of the Space Shuttle Orbiter. A variety of experiments can be conducted in the reusable facility to test the effects of space conditions on living organisms and the uses of a space platform for activities from manufacturing to meteorology.

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Included in the life sciences mini-lab are two human blood experiments, two relating to the vestibular system and one on plant growth. Two other experiments coordinated by the Johnson Space Center to fly on the same mission will be installed in the vehicle near flight time. They are a radiation dosimetry study and an experiment on circadian rhythms.

Other scientific disciplines to be represented on the first Spacelab flight include atmospheric physics, solar physics and astronomy, space plasma physics and material science and technology.

The Marshall Space Flight Center, Huntsville, Alabama, is the lead NASA facility for the first three Spacelab missions.

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NASA News

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Space Administration

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Houston, Texas 77058
AC 713 483-5111

For Release

John Lawrence

RELEASE NO. 81-044

October 27, 1981

FLIGHT CONTROL OF STS-2

Centralized control for the second flight of the Space Shuttle from launch to landing will be provided through the Mission Operations Control Room (MOCR) at NASA's Johnson Space Center, Houston.

The flight is known as STS-2---reflecting the second exercise of the flight hardware, personnel, ground support equipment, communications network and other elements which constitute the Space Transportation System.

Three teams of flight controllers and support personnel will man the MOCR around the clock beginning at T-9 hours in the countdown for launch. Five flight directors will share responsibility for leading these teams.

Veteran STS-1 flight directors Neil B. Hutchinson, Charles R. Lewis and Donald R. Puddy will be joined by Tommy K. Holloway and Harold M. Draughon, who will work in this capacity for the first time. Flight directors are responsible for implementation of the mission objectives and contingency alterations in the flight plan or mission rules.

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Real-time, in-flight analysis of the mission as associated with trajectory and vehicle systems will be the flight control function of the MOCR. Full-time manning by flight controllers will begin at T-9 hours by the Crimson Team. At T-2 hours, the Silver Team will take up positions at MOCR consoles for the launch phase of the mission. Following ascent, the Bronze Team assumes responsibility for the flight.

Thereafter, shift changes will follow the regular rotation pattern of Bronze-Silver-Crimson Teams. Teams normally come on duty about one hour prior to the shift change to be briefed by the team which it relieves.

Hutchinson will direct the Silver Team during the ascent portion of the flight, as he did for STS-1. Subsequent shifts of that team will be under the direction of Holloway. Puddy will direct MOCR operations during the entry and landing phase of the Crimson Team's shift, as with the first flight of Columbia. In its earlier shifts, the Crimson Team will be directed by Draughon.

Lewis will direct each shift of the Bronze Team, as with STS-1. Additionally, Lewis has been designated lead flight director, which charges him with added responsibilities for pre-launch mission planning and coordination, as well as further leadership and management duties during the on-orbit phase of the mission.

Operations of the MOCR during the first several Shuttle operations will be similar to its function during the Apollo era. Console groupings remain generally as before, with management personnel in the back row, the flight director, planners and communications in the third row, vehicle systems officers in the second row, and trajectory-oriented controllers in the front row.

The major difference in present MOCR operations is the incorporation of a computer system which increases the volume of data exchanged between the spacecraft and the ground. The present configuration will support single-orbiter operations through 1985. From that date, MOCR activities will be performed in a number of Flight Control Rooms which, with substantially smaller flight control teams, would be able to support a multi-flight capability.

For STS-2, as with other shuttle operations, the MOCR will be backed up by additional teams operating from nearby staff support rooms, where data on the mission are monitored and analyzed in detail.

Console positions in the MOCR, their call signs and their functions are:

Flight Dynamics Officer (FIDO)--Responsible for monitoring powered phases of the mission, orbital events and trajectories from the standpoint of mission success. Monitors vehicle energy levels during reentry.

Guidance Officer (Guidance)--Monitors onboard navigation and onboard guidance software.

Data Processing System Engineer (DPS)--Responsible for data processing hardware and executes software for the vehicle's five onboard general purpose computer systems.

Aeronautical Systems Officer (Aero)--Monitors and assesses performance of vehicle aerodynamic surfaces during flight phases in the sensible atmosphere.

Computer Command (Command)--Responsible for preparation and transmission of data loads for onboard computer systems.

Flight Surgeon (Surgeon)--Responsible for advising the flight director of the crew's health status.

Booster System Engineer (Booster)--Responsible to the flight director for monitoring the vehicle's main engine and solid rocket booster propulsion systems during the assent phase of the flight, and monitoring and purging systems before reentry.

Propulsion Systems Engineer (Prop)--Responsible for the status of the Reaction Control and Orbital Maneuvering system engines during all phases of flight.

Guidance, Navigation and Control Systems Engineer (GNC)--Responsible for all inertial navigation systems hardware, radio navigation systems hardware, radio navigation aids and digital autopilot systems.

Electrical Power, Instrumentation and Lighting systems Engineer (EGIL)--Responsible for fuel cells, AC and DC power distribution systems, instrumentation systems, transducers, caution and warning panels and vehicle lighting systems.

Ground Control (GC)--Responsible for configuring for acquisition or loss of signal and status of ground support equipment.

Environmental, Consumables and Mechanical Systems Engineer (EECOM)--Monitors cryogenics levels for fuel cells and propulsion systems, cooling systems, and mechanical systems such as doors and vents.

Integrated Communications Systems Engineer (INCO)--Responsible for onboard communications systems, tape recorder and voice transmission. Routinely manages onboard communications system configuration.

Operations Integration Officer (OIO)--Responsible to the flight director for detailed implementation of mission control procedures and for coordinating and controlling the group displays and clocks in the control center.

Flight Activities Officer (FAO)--Responsible to the flight director for crew checklists, procedures and timelines as related to the flight crew activities.

Spacecraft Communicator (Capcom)--Responsible for voice contact with the flight crew concerning details of the mission flight plan, flight procedures, mission rules and spacecraft systems.

Payloads Officer (Payloads)--Coordinates mission experiments.

Personnel assignments follow. An asterisk (*) indicates assignment during the orbit phase, when different from launch and landing phase manning.

	SILVER TEAM	BRONZE TEAM	CRIMSON TEAM
Flight Director	Neil B. Hutchinson	Charles R. Lewis	Donald R. Puddy
	Tommy K. Holloway*		Harold M. Draughon*
Flight Dynamics Officer	Jay H. Green	Gregg Staresinich	Willis M. Bolt
	Ronald C. Epps*		
Guidance	Will S. Presley	Thornton E. Dyson	J. T. Chapman
Aerodynamics Officer	Gregg C. Hite	Linda G. Horwitz	Gregg C. Hite
Operations Integration Officer	William A. Middleton	Wayne Boatman	Kim W. Anson
Data Processing System Engineer	Darrell E. Stamper	Ernest E. Smith	Brock R. Stone
Computer Command	Joseph N. DeAtkine	Ray B. Lachney	Lizabeth H. Cheshire
Guidance, Navigation and Control Systems Engineer	Richard N. Fitts	Frank E. Trlica, Jr.	Harold J. Clancy
Booster Systems Engineer	John Kamman	T. Cleon Lacefield	Jerry L. Borrer
	T. Cleon Lacefield*		
Propulsion Systems Engineer	Gary E. Coen	Ronald D. Dittemore	Larry W. Strimple
	N. Wayne Hale, Jr.*		
Environmental, Consumables and Mechanical Systems Engineer	Jimmy S. McLendon	Albert Ong	Jack Knight William V. Bates, Jr.*

	SILVER TEAM	BRONZE TEAM	CRIMSON TEAM
Electron Power, Instrumentation and Lighting Systems Engineer	W. J. Moon	J. Milton Heflin, Jr.	Paul M. Joyce
	William P. Gravett *		
Integrated Communications Systems Engineer	Granvil A. Pennington	J. E. Connor	Alan L. Briscoe
	Harold Black*		
Flight Activities Officer	Elvin B. Pippert	Ben E. Ferguson	Henry J. Pierce, Jr.
Flight Surgeon	Phillip C. Johnson	Michael A. Berry	James Vanderploeg
Payload	Angienetta R. Johnson	Janis Plesums	John E. Hoover
Capsule Communicator	Daniel C. Brandenstein	James F. Buchli	Frederick H. Hauck
	Terry J. Hart (backup)	Sally K. Ride (backup)	Steven R. Nagel (backup)
Ground Controller	James R. Bandenburg	John E. Williams	G. M. Egan

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NASA News

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Space Administration

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For Release

Dave Alter

RELEASE NO. 81-045

November 15, 1981

NOTE TO EDITORS

Vice President and Mrs. George Bush will breakfast with Space Shuttle astronauts, flight directors and Johnson Space Center executives Sunday morning in a salute to Columbia and its two STS crews.

The breakfast, at 9:45 a.m. in the JSC Gilruth Recreation Center, will be private with no press present. NASA will make still photographs and video tapes available after the meeting.

Television networks may pick up a live video feed from outside the Gilruth Recreation Center during the breakfast. A video screen also is being set up for reporters to view the breakfast, after which Vice President Bush will talk to reporters.

NASA participants in the breakfast will include key members of the Space Shuttle's project management flight control teams and members of the vice president's staff. Among those to be present are Christopher C. Kraft, Jr., center director; Glynn S. Lunney, STS program manager, Aaron Cohen, Orbiter project manager, and George Abbey, director of flight operations, and astronauts John W. Young, Robert L. Crippen, Joe H. Engle, Richard H. Truly, and their wives.

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NASA News

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For Release

John Lawrence

RELEASE NO. 81-046

November 17, 1981

NOTE TO EDITORS

The STS-2 post-flight news conference with astronauts Joe H. Engle and Richard H. Truly will be held 10 a.m. CST Monday, Nov. 30, in Bldg. 2 Teague Visitor Center auditorium at Johnson Space Center, Houston.

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NASA News

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For Release

John Lawrence

RELEASE NO. 81-047

November 30, 1981

STS-3 CREW SELECTION

Col. Jack R. Lousma, U.S. Marine Corps, and Col. Charles G. Fullerton, U.S. Air Force, have been selected by NASA as commander and pilot, respectively, for the third flight of the Space Shuttle, Columbia.

Backup crew will be Capt. Thomas K. Mattingly II, U.S. Navy and Henry W. Hartsfield, Jr.

Lousma is a veteran of Skylab 3, July-September 1973. As mission pilot, he logged over 1,427 hours in space during which he and his fellow crewmembers accomplished 150 percent of preassigned goals.

Fullerton was assigned as pilot of the Space Shuttle Enterprise on the first, third and fifth flights in the Approach and Landing Test Series in 1977, when the vehicle was separated from the back of its 747 carrier aircraft and flown to a landing at Edwards AFB, Calif.

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This third test of NASA's Space Transportation System is planned for March 1982, and will be a seven-day, three-hour mission with 116 orbits of the earth. Columbia will carry a payload, called OSS-1, developed by NASA's Office of Space Science. The flight will also involve further testing of the Remote Manipulator System, the mechanical "arm" which would remove payloads from the orbiter's bay and insert them into space in future flights.

NASA News

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For Release
IMMEDIATE

John Lawrence

Major Jerry D. Pfleeger, U.S. Air Force, served as a member of the flight control team at NASA's Johnson Space Center, Houston, during the second flight of the space shuttle, Columbia, Nov. 12-15.

Major Pfleeger's wife, Joyce, is the daughter of Mr. and Mrs. Don Roberts of 3006 Mark Twain Ave., Farmer's Branch.

In his capacity as electrical power manager during the ascent portion of the flight, Major Pfleeger was responsible for monitoring and analyzing the circumstances pertaining to the failure of a fuel cell on board Columbia, which ultimately caused the mission to be abbreviated from five to two day's duration. Major Pfleeger was a member of one of three teams of flight controllers which alternated shifts in NASA's Mission Operations Control Center at Houston. Flight controllers monitor and assess the performance of the vehicle and its systems during the launch, orbit and entry phases.

Major Pfleeger is on assignment from the Air Force to NASA. He also participated as a flight controller during the first flight of Columbia in April, and will do so again during the third flight, presently anticipated in March 1983.

December 10, 1981

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NASA News

National Aeronautics and
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Lyndon B. Johnson Space Center
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AC 713 483-5111

Terry White

For Release

RELEASE NO. 81-048

IMMEDIATE

NASA PICKS OMEGA FOR CUSTODIAL CONTRACT

The NASA Johnson Space Center, Houston, has selected Omega Services, Inc. of Houston for negotiations leading to award of a contract for custodial support services at the Center. Covering calendar year 1982, the proposed cost-plus-fixed-fee contract is expected to be valued at approximately $1.8 million. Two one-year extension options are included.

Omega currently holds the Center's custodial services contract.

Other firms bidding on the contract were: Black & White Services, Inc., Deer Park, TX; Cassidy Cleaning, Inc., Silver Spring, MD; Government Contractors, Inc., Columbia, SC; Nation-wide Building Maintenance, Inglewood, CA: Porshia Alexander of America, Covina, CA; Springfield Building Maintenance, Inc., Springfield, MO: and Unified Services, Inc., Kennedy Space Center, FL.

December 16, 1981

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