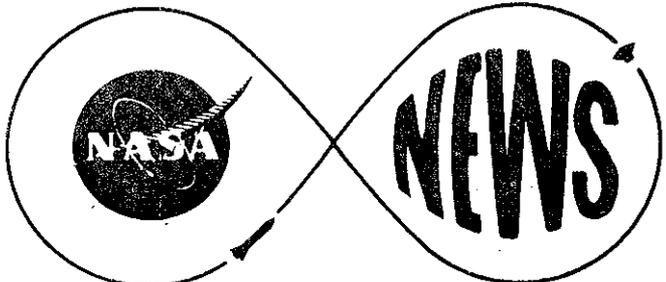


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**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 967-2468

**FOR RELEASE:**  
January 15, 1973  
Release #KSC-9-73

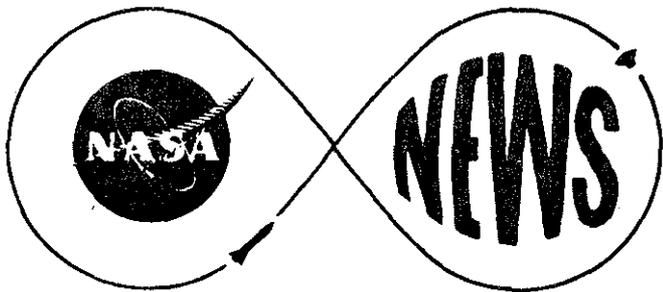
**MANY KSC CONTRACTS AWARDED FLORIDA FIRMS**

KENNEDY SPACE CENTER, Fla.--Seventy-seven Florida firms received \$182,633,000 in prime contracts awarded by the Center during FY 1972.

KSC spending in other States:

	Number Companies	Number Contracts	Dollar Amount
California	17	18	786,000
New Jersey	3	3	314,000
Massachusetts	5	5	288,000
Michigan	1	4	287,000
Oregon	1	1	231,000
New York	3	3	150,000
Louisiana	1	1	144,000
Pennsylvania	2	2	132,000
Alabama	2	2	70,000
Texas	2	2	56,000
Virginia	1	1	52,000
Georgia	1	1	26,000

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**NATIONAL AERONAUTICS AND  
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John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
January 16, 1973  
Release #KSC-10-73

**DRAMATIC INCREASE IN SMALL BUSINESS AWARDS AT KSC**

KENNEDY SPACE CENTER, Fla.--Small business firms received \$12,436,000 in KSC procurement awards during FY 1972 compared to \$8,433,000 the previous year.

William Lohse, Procurement Director, said the increase of 47.5% resulted from the Center's emphasis on set asides exclusively for the smaller firms.

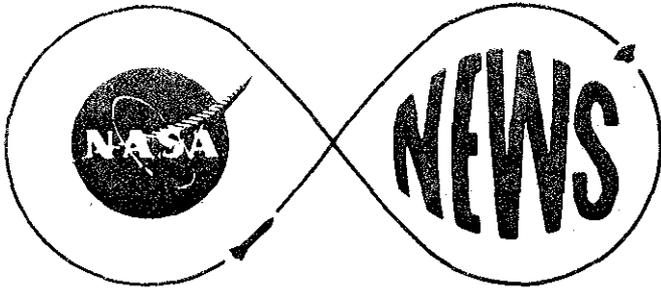
Of the FY 72 total, 55% or \$6,930,000 was included in awards of \$2,500 and over while \$5,506,000 or 44% represented awards of less than \$2,500,

The Center placed \$5,674,000 directly with small business through set-aside procedures which may be applied in certain procurement categories.

Overall procurement for KSC in FY 72 amounted to \$192,882,000 compared to \$211,996,000 in FY 1971.

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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
January 17, 1973  
Release #KSC-11-73

## BOEING TOPS KSC CONTRACTOR LIST

KENNEDY SPACE CENTER, Fla.--Of the 14 NASA contractors who recieved direct awards during FY 72 at this Center, the Boeing Company topped the list with two contracts totaling \$38,282,000.

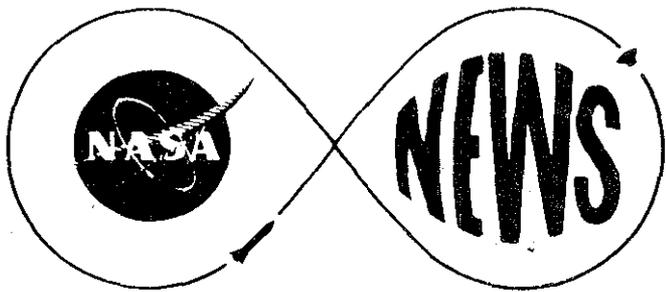
North American Rockwell followed with three contracts for \$24,037,000. McDonnell Douglas received a contract for \$21,873,000 and Bendix Corp., \$21,406,000.

### Other awards:

Federal Electric Corp., \$18,434,000; Grumman Aerospace, \$16,839,000; International Business Machines, \$13,436,000; Chrysler Corp., \$6,004,000; General Electric Co., \$4,407,000; McGregor & Werner Inc., \$2,131,000; Martin Marietta Corp., \$2,308,000; Pan American World Airways, \$1,735,000; Southern Bell Telephone Co., \$1,516,000 and General Motors Corp., \$1,076,000.

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**NATIONAL AERONAUTICS AND  
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John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
January 26, 1973  
Release #KSC-14-73

**BREVARD PLANNERS STUDY ERTS-1 DATA**

KENNEDY SPACE CENTER, Fla.--Brevard County planners found new "eyes" with which to view East Central Florida when KSC launched ERTS-1 from the Western Test Range in California on July 23, 1972.

Earth Resources Technology Satellite - 1 has returned a torrent of valuable data concerning the Earth from its 910-kilometer (570-mile) high, near-polar orbit which permits it to cover any given location on the ground below every 18 days.

The Brevard County Planning Department is receiving data periodically in the form of imagery and digital tapes from the spacecraft's multispectral scanner.

The spacecraft is controlled from an Operations Center at NASA's Goddard Space Flight Center, Greenbelt, Md. Data received from the satellite at three data acquisition facilities is sent to the NASA Data Processing Facility at Goddard. This facility can handle some 1,300 scenes a week covering 45 million square kilometers (17 million square miles).

A striking color composite photograph of East Central Florida was released by Goddard last November. Taken on September 6, the picture was a brilliant contrast of reds and deep blues - the red representing vegetation and the blue-black hues the water covering and surrounding the Florida peninsula.

Cities appeared in greyish patterns and a few fleecy, white clouds appeared as punctuation marks.

But the real value of this and other ERTS-1 photographs is not in their "prettiness" but in the wealth of data which can be extracted by experts in agriculture, forestry, oceanography, geology, hydrology, geography, map-making, land use planning, ecology and meteorology.

-more-

For the ERTS color composites are not one photograph but four - combinations of green and red bands of the visible spectrum and two near infrared bands not discernible to the human eye.

The Principal Investigator in the Brevard ERTS experiment is John W. Hannah, Brevard Development Administrator. "The basic purpose of our participation is the development of analysis techniques required to use remote sensing data in urban and regional planning," said Hannah.

ERTS is an experimental program and hundreds of investigators are working with spacecraft data to determine exactly what can be detected with the new spaceborne sensors.

A December progress report by Hannah's office indicates "preliminary visual interpretation of the images of the four bands has led to some tentative opinions regarding the relative utility of the four bands from the standpoint of the purposes of this project."

Paraphrasing some of those "tentative opinions", Band 4 (the green band) provides water penetration which serves as a rough indicator of lake depths and a good indication of bottom patterns off beaches, which should be useful in beach erosion studies. The coverage parallels some of that in Band 5 (the red band) but the contrast is less in Band 4.

Band 5 (the red band) "gives the greatest contrast for features on land, therefore, appears to be the most useful band for this purpose."

Among the features shown in the red band are a good distinction between urban and non-urban areas and street and development patterns within cities, a good indication of landscape disturbances (such as large-scale residential development, truck farming or phosphate mining), definition of beaches and major highways, identification of some farm plots, identification of general land use, identification of heavily vegetated areas and a general matching of patterns with soil maps.

Bands 6 and 7 are both in the near infrared with frequencies not visible to the human eye.

Study of Band 6 data has proven these frequencies to be good for identification of water surface as opposed to land, drainage patterns, delineation of areas of wet soil, excellent delineation of rivers, a good indicator of wetlands (swamps and water within swamp or wetlands) and some vegetative differences.

-more-

Band 7 appears to provide a clear definition of water surface, drainage patterns and moist soil.

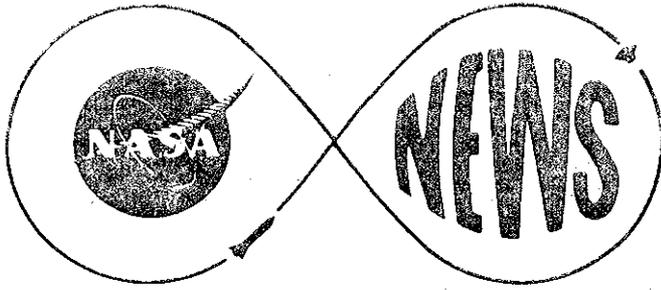
Water is black in both of these bands because it almost totally absorbs the radiant energy in the infrared frequencies.

The Brevard County Development Administrator receives this data under a contract with the Goddard Space Flight Center. This contract is one of three ERTS-1 projects in which KSC's Earth Resources Office under the direction of John P. Claybourne acts as scientific monitor.

The others are a water resources study with the U. S. Geodetic Survey in South Florida and a study of water pollution in St. Thomas Harbor in the Virgin Islands.

# # #

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**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**  
John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
January 31, 1973  
Release #KSC-17-73

**FIRST U.S. SATELLITE LAUNCHED 15 YEARS AGO**

KENNEDY SPACE CENTER, Fla.--Passing almost unnoticed as the Spaceport made preparations for the launch of the nation's first manned space station was the 15th anniversary of the launch of Explorer I, the United States' first artificial satellite.

The 31-pound satellite was launched on January 31, 1958, by a Jupiter C from what was then Cape Canaveral by a launch team under the direction of KSC Director Dr. Kurt H. Debus.

The Soviet Union had electrified the world with the launch of the first artificial satellite - Sputnik 1 - on October 4, 1957. A second satellite - Sputnik 2 - was launched on Nov. 3, 1957.

Both satellites were heavyweights for those times - Sputnik 1 weighed in at 184 pounds and Sputnik 2 weighed 1,121 pounds.

An American attempt to launch a 3-pound Vanguard satellite fizzled just off the pad when its pencil-thin Vanguard launch vehicle lost thrust two seconds after liftoff. This was on December 6, 1957.

The Army's Ballistic Missile Agency was given the go-ahead to make a satellite launch attempt in January, 1958. Dr. Debus was then director of the ABMA's Firing Laboratory.

Recalled Dr. Debus: The launch was a great satisfaction to everyone who worked on it. Our future in space was very uncertain then and there was a need for the nation to realize we couldn't afford to ignore such a field with the impact on prestige and knowledge that might be gained.

-more-

High winds plagued launch preparations as the late January launch date approached.

Said Dr. Debus: "The shot had originally been scheduled for January 27 and we were using a new fuel that was so highly corrosive it could remain in the tanks only five days before we would have to replace the seals in the fuel system."

Upper air currents in the jet stream increased to over 200 knots and the flight had to be scrubbed day after day but the winds appeared to be dying down by January 31.

Dr. Debus recalled the countdown: "I couldn't say there was apprehension, but there was a tone of excitement, of eagerness. This was mixed with fatigue for we had been working for days without rest. I think we were all aware that this wasn't just another mission - that perhaps the entire world was watching this one."

At 10:47:56 p.m. on January 31, 1958, the 64,000 pound vehicle stirred into motion from the Cape's Complex 26 to begin its historic mission.

Early telemetry readings indicated that the shot was going according to plan.

But it was 96 pulse-pounding minutes before the Jet Propulsion Laboratory tracking station in California acquired signals from the satellite's radio transmitters confirming preliminary indications that Explorer I had achieved orbit.

Explorer 1's greatest tangible accomplishment was the discovery of the Van Allen radiation belts, named after Dr. James A. Van Allen, whose experimental instrument package was contained in the satellite.

Explorer 1 transmitted data from its 224 by 1,584 mile orbit until May 23, 1958, and remained in space until its orbit finally decayed on March 31, 1970.

Among those in the blockhouse at launch time were the following KSC employees:

Dr. Debus, Gordon L. Harris, Robert E. Moser, Dr. Hans F. Gruene, Isom A. Rigell, Jose L. Gonzales, Carner W. Dowling, Milton Chambers, Carl A. Whiteside, William O. Chandler Jr., Grady F. Williams, Richard P. Dodd, Albert Zeiler, James R. White, Peter A. Minderman, Karl Sandler, Reuben L. Wilkinson,

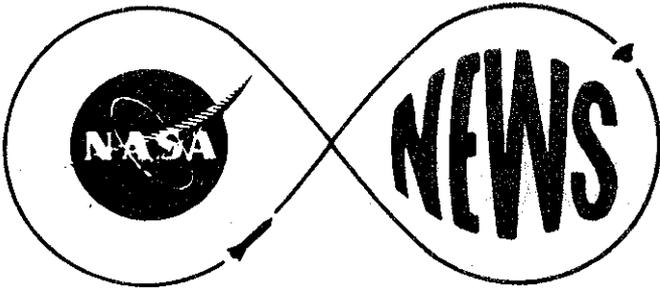
Lafayette C. Taylor, William M. Bogart, Frank M. Childers,  
Bailey E. Stimson and Bobbie W. Clark.

The Jupiter C was a mere firecracker compared to the Saturn V launched from KSC on the Apollo lunar exploration missions. Jupiter had a lift-off thrust of 75,000 pounds - a mere one per cent of the 7.6 million pound thrust of the Saturn V at liftoff. Its diameter was 5 feet, 10 inches - about one-sixth of the Saturn V's 33 feet.

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FEB 5 1973

BY  
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**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**  
John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
February 2, 1973  
Release #KSC-22-73

**SHUTTLE MOTOR DROP TESTS TO BEGIN MONDAY**

KENNEDY SPACE CENTER, Fla.--A series of water impact and towing tests which will help NASA to gather data essential to the design of the boosters for the Space Shuttle to be flown from KSC beginning in the late 1970s will be held beginning Monday, February 5, at the Long Beach, California, Naval Shipyard.

The impact tests will be carried out by the Navy under the direction of the NASA Marshall Space Flight Center, which has the responsibility for designing and building the shuttle's solid propellant reusable boosters.

KSC is responsible for developing techniques to retrieve the solid motor casings after they're jettisoned at an altitude of approximately 40 kilometers (25 statute miles). The solid rockets will then descend by parachutes to be recovered, refurbished and reused.

Monitoring the tests for KSC will be Lawrence J. Junker, a systems project engineer, who will act as KSC's technical representative.

A solid rocket motor (SRM) casing provided to NASA by the Air Force will be used in the tests. It is 30 meters (97 feet) long, 3 meters (10 feet) in diameter, weighs 39,375 kilograms (87,500 pounds) and is a 77 per cent scale model of an actual shuttle booster.

The casing was prepared and instrumented for the tests at the Marshall Space Flight Center before being shipped to California.

After the drop tests are completed, MSFC will turn the casings over to KSC for towing tests by the Navy in which tow speeds and tow cable lengths will be varied to gather information on towing characteristics.

The Space Shuttle will be a reusable space transportation system designed to carry out various missions in Earth orbit beginning late in this decade. The shuttle will consist of a manned reusable orbiter stage mounted "piggy back" at launch on

-more-

a large expendable liquid propellant tank and two recoverable and reuseable solid propellant rockets.

At launch, the twin solid rocket motors will be ignited simultaneously with the liquid fueled orbiter engines and burn in parallel with the orbiter engines to an altitude of about 40 kilometers (25 miles), at which altitude they're jettisoned and start their descent for an ocean recovery.

It is that planned recovery that prompts this study. The solid rocket casings are expected to be capable of at least 10 reuses.

Following solid rocket separation, the orbiter and expendable propellant tank continue to low Earth orbit.

The Long Beach drop and tow tests are expected to continue for about six weeks and prospective developers of the shuttle booster will be invited to witness the drop tests.

The drop testing will be done from between two piers into 15 meters (50 feet) of water. Hoisting the SRM will be a self-propelled floating crane which is believed to be the largest in the world.

The test hardware will be raised to heights of from one to 40 feet and dropped at angles of 10, 20 and 30 degrees off vertical into the water. The assembly will be in a nozzle-down position at the time of the drop.

The free-fall water impact velocities on the SRM assembly will vary initially from 3 to 12 meters (10 to 40 feet) per second. Higher impact velocities, up to 18 meters (60 feet) per second, will be considered and performed pending evaluation of the results at lower velocities.

These drop test velocities are comparable with anticipated parachute descent velocities.

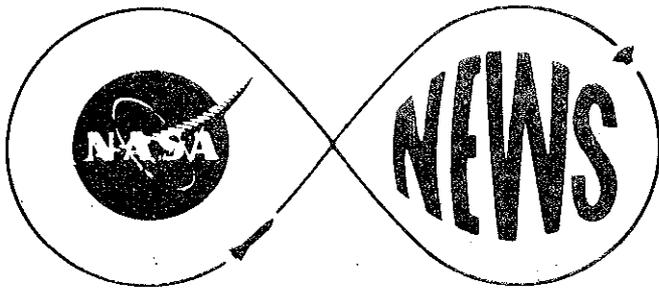
The tow testing will be done in the Long Beach inner harbor and at sea. Towing the SRM case will be a harbor tug and a sea tug. The harbor tests will use tow line lengths of 15 to 180 meters (50 to 600 feet) at tow speeds of 3.7 to 14.8 kilometers (2 to 8 nautical miles) per hour.

The ocean tests will utilize tow line lengths of 15 to 540 meters (50 to 1,800 feet) with tow speeds of 3.7 to 18.5 kilometers (2 to 10 nautical miles) per hour.

Planning for the Long Beach tests was initiated in early 1972 when sea recovery of the solid rocket shuttle booster was first considered. Previous drop tests have been performed at the Marshall Space Flight Center with only small scale models of a booster - the largest being 8 per cent of actual size.

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FEB 8 1973  
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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

**FOR RELEASE:**  
February 8, 1973  
Release #KSC-27-73

## SECOND JUPITER PIONEER SPACECRAFT DUE AT KSC FEB. 13

KENNEDY SPACE CENTER, Fla.--Pioneer G, the second spacecraft with a mission to observe the solar system's largest planet, Jupiter, will arrive at KSC on February 13. It's predecessor, Pioneer 10, was launched March 2, 1972 and became the first voyager to set out on the thrilling and perilous journey to one of the five outer planets.

The launch window for Pioneer G opens April 5. The launch will be from Pad 36B, on an Atlas/Centaur vehicle with an added Delta third stage. If liftoff occurs within the first few days of the window, and the trajectory is accurate enough that only minor course corrections are required, Pioneer G may be programmed for a new and fascinating task--acquiring enough speed from its fly-by of Jupiter to go on to the solar system's only ringed planet, the gas giant Saturn.

When Pioneer G arrives in the vicinity of its target, about January 1975, Jupiter and Saturn will be nearly aligned in the heavens. Saturn is the next planet out from Jupiter, and second only to it in size. If the necessary conditions have been met, the spacecraft will acquire part of Jupiter's orbital velocity as it flies by, a pop-the-whip effect that will send it hurtling toward Saturn at increased speed.

A similar maneuver is planned for Pioneer 10, due to arrive at Jupiter next December. The added speed will enable the spacecraft to escape the solar system entirely, and become the first voyager to set out on the immense and lonely journey between the stars.

Mariner Venus/Mercury, to be launched in the last quarter of 1973, will use the same pop-the-whip effect when performing a fly-by of Venus, gaining added speed for a trip to Mercury, closest planet to the Sun.

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Pioneers 10 and G (to become Pioneer 11 after a successful launch) are designed for a minimum lifetime of seven years in flight. They utilize long-lived Radioisotope Thermal Generators (RTGs) for power rather than solar cells. The experiments and supporting systems are also designed for an unusually long life.

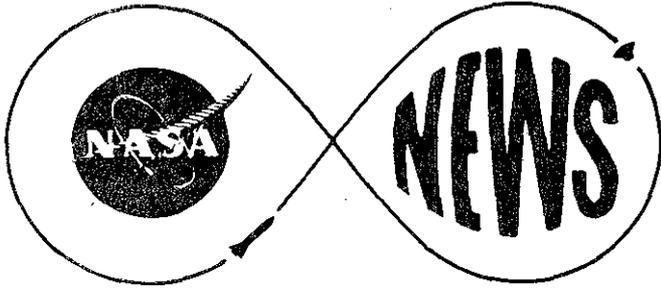
In January Pioneer 10 completed its passage through the Asteroid Belt, the forbidding area between Mars and Jupiter where millions upon millions of rocks whirl in orbit around the Sun. Despite their numbers, the space involved is so vast the spacecraft penetrated it without encountering more than dust grains. Scientists now feel the Asteroid Belt is not a danger to future outbound spacecraft, including Pioneer G.

The main task of Pioneer 10, the fly-by of Jupiter, still lies ahead. But its 10 operating instruments have already returned so much data the scientists collecting it have held a meeting at NASA's Ames Research Center, to present some preliminary results.

On January 1, 1973, Pioneer 10 was 639.5 million kilometers (397.4 million miles) from Earth, though still 280.5 million kilometers (174.3 million miles) from Jupiter. It was 497.5 million kilometers (309.1 million miles) from the Sun, by far the deepest penetration man has made toward the outer planets.

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FEB 26 1973  
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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

**FOR RELEASE:**  
February 20, 1973  
Release #KSC-30-73

## NASA DEVELOPMENT PROMISES AID IN OVERCOMING PARALYSIS

KENNEDY SPACE CENTER, Fla.-- For centuries, man has tried to find means of effectively bringing paralyzed human muscles back to life. A new development by NASA engineers has brought this age-old goal much closer to reality.

The development is a tiny one -- just about one-fourth the size of a dime. But it gives medical researchers a vital link in their work to connect dormant muscles to the outside power it takes to move them.

Ray Cerrato is chief of the Advanced Technology and Technology Applications office at the John F. Kennedy Space Center. The quiet, intense engineering chief recently attended a technology applications meeting. He heard a plea by doctors from the Rancho Los Amigos Hospital in Downey, Calif., for the development of a new type of electrical connector needed in research at the hospital.

Doctors have long known that an electrical pulse can make a muscle move. And they have found that tiny platinum wires, attached to small pads on certain nerve endings, can be brought up through the surface of the skin and attached to external power supplies, to move those muscles.

But here is where the problem came in. The connections to outside power sources are made through a vitreous carbon implant to which the skin attaches itself, growing to it firmly and securely. The connector attaches to a contact mounted in the implant.

Doctors found that almost any sudden or excessive movement of the limb to which the connector was attached would result in damage to the skin, because the connector would pull the implant rather than disconnect from it. They tried to find a connector which would come off easily, but which would perform properly while connected. Accent was on small size, light weight and low cost.

Cerrato returned from the meeting with a challenge for the Kennedy Space Center. Could such a connector be made, using the technologies developed for space flight?

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Walt Parsons, chief of Systems Engineering, thought so. He moved into a vital liaison spot, assembling the requirements of the hospital and providing sketches for prototyping to the KSC development laboratories

Miles Hollingsworth, engineering technician from the Development Testing branch, was the next one to pick up the challenge. His drawing board was his work bench; his experience in medical connector design came from the shapes and materials he put together at that bench.

It took several tries. But each time the persevering technician came up with a smaller and more effective model than the one before. And rather than needing a pull of 15-20 ounces to disconnect, the newest units take only two to three ounces.

The Kennedy Space Center has sent samples to the hospital for testing and should have some definite results from them soon.

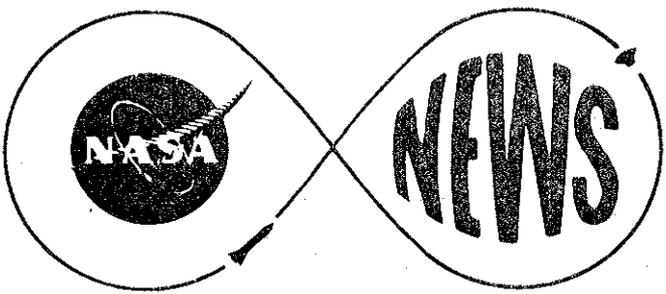
Original connectors tried by hospital authorities had costs ranging around \$1,000 per copy. Parsons estimates the new NASA-developed units will cost between \$50 and \$100 per connector.

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MAR 6 1973  
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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899



Dick Young  
305 867-2468

**FOR RELEASE:**  
February 27, 1973  
Release #KSC-36-73

## CIVIL DEFENSE TO USE SATURN PAD WATER TANK

KENNEDY SPACE CENTER, Fla.--The Brevard County Department of Civil Defense has obtained a million gallon water tank valued at \$60,000 from the Kennedy Space Center.

A federal program offers excess government equipment to certain state, county and local government agencies and non-profit organizations.

The Brevard Civil Defense Department took advantage of this program to obtain the tank from KSC without cost.

Located at the site of the first Saturn launches, the tank held water to deluge Complex 34 and 37 pads during launches of the Saturn I and Saturn IB.

During launch, six diesel pumps located adjacent to the tank forced 30,000 gallons of water a minute from the tank onto the pad to protect it from flame damage.

After 10 years of service at KSC, the tank will continue its useful life holding Brevard County's only emergency water reserve.

In case of fires, massive power failure or storm damage to the normal water supply, the million gallon tank will be able to alleviate some of the drain on Cocoa's present reservoir which must supply 15 million gallons of water daily.

A 10-man crew, including James Hammack, Cocoa municipal engineer, began dismantling the steel-plate tank on February 5.

They are cutting the tank's shell into seven-foot sections for transport by truck to Cocoa's Weewahootee Pre-treatment Plant in Orange County. This process will take several weeks.

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Hammack is pleased with the new acquisition. "Even though we must pay to take down the tank piece by piece and reconstruct it at the new location," he said, "it's just like a gift for us. This expense doesn't compare to the cost of buying it new."

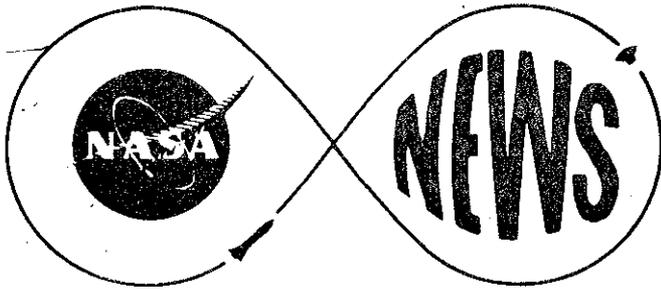
When reassembled, the tank will rest directly on a bed of sand which must support 8.3 million pounds (one million gallons) of water. Only its walls will have underground concrete foundations.

Following the dismantling of Complexes 34 and 37 at Cape Kennedy, Barney Marsh of KSC's Property Disposal Office notified the Civil Defense unit of the equipment's availability. Marsh is responsible for finding excess equipment at KSC and compiling a list of available items.

If none of the equipment is needed at KSC, he submits the list to the General Services Administration in Atlanta where directors of programs may write requesting available equipment.

Marsh enjoys helping eligible organizations find items they can use and gets personal satisfaction out of seeing KSC's excess equipment get a new lease on life with other governmental agencies.

# # #



**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

**FOR RELEASE:**

*March 2, 1973*

Dick Young  
305 867-2468

**NOTE TO EDITORS/NEWS DIRECTORS:**

A spacecraft showing and press briefing for the second Pioneer spacecraft to be launched on a Jupiter mission will be conducted by the Kennedy Space Center at 11:00 a.m. on Friday, March 9.

Newsmen will be able to view and photograph the spacecraft inside the "clean room" where it is being prepared for launch no earlier than April 5.

Newsmen wishing to cover the Pioneer briefing should report to the old KSC News Center (Parachute Building) at the corner of Third and E. Streets by 10:30 a.m. Bus transportation will be provided to Cape Kennedy where the Pioneer is being prepared for flight.

Members of the media without permanent access badges may obtain press credentials at the Gate 3 Pass and ID Building just off U. S. Route 1 two miles south of Titusville. Newsmen without badges should allow 20 minutes for badging and transit on to the old News Center.

Representatives of KSC, the Ames Research Center, which manages the Pioneer program, and TRW, spacecraft manufacturer, will be on hand to explain the Pioneer program and outline in brief some of Pioneer 10's adventures since its launch nearly one year ago.

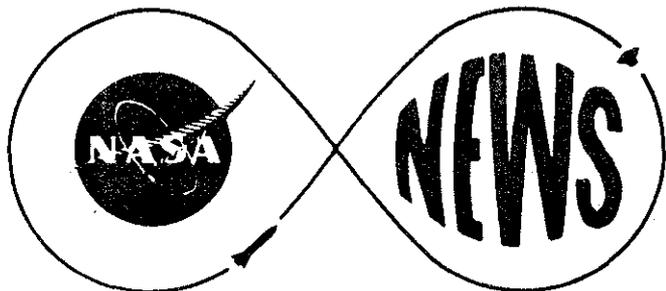
Pioneer 10 is scheduled to make its nearest approach to Jupiter in early December of this year. The second Pioneer to the outer planets may be targeted to make a flyby of Saturn as well as Jupiter.

Additional information on the briefing may be obtained by contacting the KSC Public Information Office 305 867-2468.

# # #

March 2, 1973

MAR 19 1973



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
March 18, 1973  
Release#KSC-47-73

## BETHUNE-COOKMAN AWARDED NASA STUDY GRANT

KENNEDY SPACE CENTER, Fla.--Can the spotted sea trout find happiness, success and prosperity in a sub-tropical lagoon enhanced by artificial reefs?

This is among the questions to be studied under a NASA research grant for \$19,884 awarded to Bethune-Cookman College of Daytona Beach, Fla.

The nation's Spaceport is virtually surrounded by the Banana and Indian Rivers and Mosquito Lagoon. These brackish arms of the sea are shallow and their grassy bottoms are ideal habitat for the spotted sea trout, a major food and game fish in Florida and the southeastern United States.

Both sport and commercial fishermen have observed a general decline in fish populations in coastal Florida's lagoons during the past two decades.

Stricken along with the general decline has been the spotted sea trout, known to his more learned admirers as *Cynoscion nebulosus*.

East coast landings of sea trout declined from nearly 900,000 pounds in 1960 to approximately 620,000 pounds in 1970. In Brevard County - the Cape Kennedy region - the catch declined from nearly 200,000 pounds in 1966 to 125,000 pounds in 1969.

"Among the major factors in this decline is direct injury to the underwater habitat," said Ray Norman, of the Kennedy Space Center's Unmanned Launch Operations, NASA Technical Officer for the study.

Habitat destruction ranges from dredge and fill activities for housing developments, shopping centers, roads, bridges and other structures to water pollution from sewage treatment plants and land runoff.

-more-

In addition, space-related construction and operations have had some impact on fish life in the surrounding waters, although every effort has been made to reduce this to a minimum.

Purpose of the NASA grant by NASA Headquarters' Office of University Affairs is to determine whether the productivity of affected waters can be restored by the beneficial deposit of tires at several sites near the Kennedy Space Center.

Principal Investigator from Bethune-Cookman is Dr. Premasukh Poonai, Professor of Biology. Dr. Poonai is being assisted in the project by Dr. J. C. Marlins and Dr. Zoila R. Avalos, professors of biology, and four student assistants chosen on merit.

Artificial reefs built of discarded automobile tires are operating successfully at the entrance to the St. Johns River in Jacksonville and in the Gulf of Mexico off the City of St. Petersburg. Artificial reefs are also in operation off Marco Island and Fort Lauderdale.

The studies will break new ground.

Observed Dr. Poonai: "No known attempt has been made so far to increase fish population in estuaries and lagoons although a fair number of offshore tire havens are still being established."

Dr. Poonai noted "the spotted sea trout spawns in the deeper parts of the estuaries and the young move after hatching to the shallow areas for protection. The period of migration would be particularly hazardous in the presence of smaller carnivores and the absence of adequate sanctuaries in the shallows would certainly result in severe reduction in young sea trout."

He described the automobile tire as "particularly suited to serve as sanctuary for small and helpless young organisms against fast moving predators."

Dr. Poonai has already received the approval of local arms of government for a pilot project consisting of two fish havens of 50 tires each. Coordination of the project with the State of Florida and other federal agencies is now underway.

Tentative locations of the two havens - to be built in the Banana River - are in the vicinity of Kelly Park south of the Bennett Causeway and to the north of the NASA Causeway.

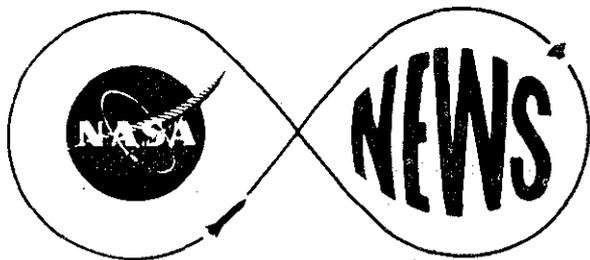
The tires will be immersed at a depth sufficiently great that they will not pose any hazards to navigation and the fish havens will be clearly marked.

The fish havens will be studied on a continuing basis to determine whether the experiment should be abandoned, continue unchanged or modified by increasing or decreasing the size of the havens.

# # #

MAR 22 1973

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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
March 21, 1973  
Release #KSC-49-73

## SPACEPORT TOUR PATRONS OFFERED LAUNCH VIEW

KENNEDY SPACE CENTER, Fla.--A night tour combined with an opportunity to witness a launch will be offered for the first time April 5.

NASA plans to launch an Atlas Centaur vehicle carrying a Pioneer spacecraft that evening. The window opens at 9:11 p.m. If successful, Pioneer will reconnoiter the planet Jupiter in December, 1974, after a journey of over 500 million miles.

The Kennedy Space Center and its tour contractor, Trans World Airlines, will test public interest in an after-dark tour. Thirty minutes before launch, the tour buses will arrive at a viewing site on Cape Kennedy Air Force Station.

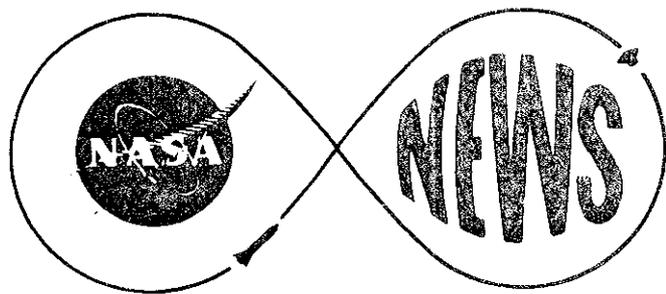
There the bus patrons will hear the countdown over public address speakers and watch the liftoff of the big rocket.

Since the Greyhound bus fleet available for the occasion has a fixed capacity, Trans World Airlines will accept reservations in advance by telephone or letter. The tour will commence at 7:30 p.m. However, patrons are encouraged to arrive at the Visitor Information Center at 6:00 p.m. to take advantage of a Pioneer mission briefing, Skylab film showing and to see the Visitor Center exhibits.

The daily escorted bus tours have been operating since July, 1966. Customarily, the last tour is timed to return to the Visitors Center before nightfall.

# # #

MAR 27 1973  
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**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**  
John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE: SUNDAY**  
March 25, 1973  
Release#KSC-50-73

**NASA-6 CAMERAS TO FOLLOW WEED CONTROL EXPERIMENT**

KENNEDY SPACE CENTER, Fla.--Can the Siberian white amur check the burgeoning growth of aquatic weeds choking Florida's ponds, lakes and freshwater streams?

This is a question Florida's Department of Natural Resources and Game and Freshwater Fish Commission hope to answer by stocking hundreds of white amur - alias the grass carp - in four experimental ponds and lakes.

And mapping the manner in which the amur chews its way through the vegetation in those control waters will be NASA-6, a specially equipped twin Beechcraft aircraft operated by the Kennedy Space Center's Earth Resources Office.

Hopefully, the experiment will provide a remedy for a \$10 million a year headache.

According to Robert L. Lazor, botanist for the Environmental Research and Protection Division of the Department of Natural Resources:

"Florida has a tremendously diverse and expensive problem with noxious aquatic plant species such as water hyacinth, Brazilian elodea, hydrilla and Eurasian watermilfoil.

"These noxious aquatic plants cost federal, state and local agencies well over \$10 million in 1971 for combined research and control," said Lazor.

Control methods include mechanical harvesting - expensive and inefficient when done on a large scale - and chemicals, potentially dangerous with many unknown direct and indirect effects upon native plant and animal life.

A third possible method of control uses a biological agent - in this case a fish with a voracious appetite which will hopefully be zeroed in on unwanted plants.

--more--

Florida's experience with exotic imports - witness the walking catfish, water hyacinth and hydrilla - has not been good.

Introduced into the state free of the biological controls which kept their populations in bound in their native lands, they have experienced booms which makes the human population explosion appear like a firecracker in comparison.

And state officials are not about to turn the white amur loose until they're sure it will help solve the noxious weed problem and not attack beneficial vegetation.

Lazor indicated stocking of four "isolated and secure pond sites in Florida which have variable aquatic plant and related sports and rough fisheries problems" will begin in September.

The experiment will continue for three years with the amur's potential as a hero or a villain under the constant scrutiny of multispectral imagery. This includes false color infrared and standard color photography which will be used periodically to track the amur's progress.

The photographs will be processed at KSC and provided to the state agencies conducting the program for analysis.

Lazor noted that "conventional means of obtaining remote sensing information have been most unacceptable from both a financial and practical viewpoint."

The NASA-6 data in the form of vegetational maps of the test sites will be used to determine the acceptability of the white amur for state-wide introduction.

Each species of plant life has its own tell-tale signature and the NASA-6 imagery will enable the experimenters to follow the white amur's choice of vegetation and the capacity of its appetite.

If the white amur turns out to be a "good guy" suitable for introduction into the state's waters, Florida sportsfishermen may have a new game fish.

-more-

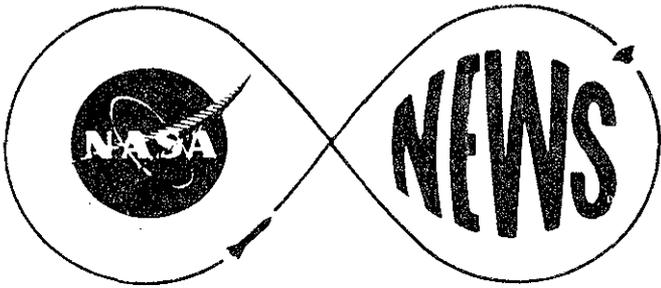
According to Lazor, the white amur is a "tremendous eating and fighting fish." The fish is reported to reach a maximum weight of approximately 100 pounds.

"Preliminary indications are that the inventory of vegetation can be done more effectively and more economically using remote sensing than by conventional means," said John P. Claybourne, chief of KSC's Earth Resources Office.

"Department of Natural Resources personnel estimate that two days spent analyzing the imagery can accomplish with greater accuracy what would require 30 days of working in the field."

# # #

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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

**FOR RELEASE:**  
April 19, 1973  
Release #KSC-52-73

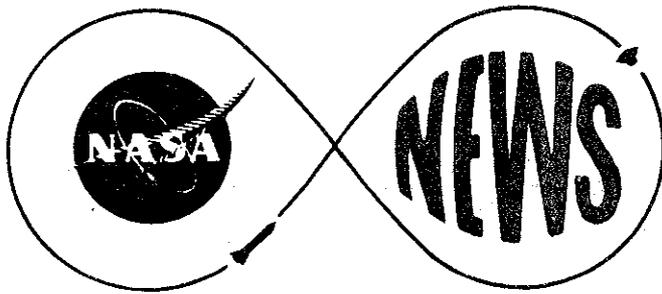
## SPACEPORT EXTENDS PAN AMERICAN CONTRACT FOR HEALTH SERVICES

KENNEDY SPACE CENTER, Fla.--Pan American World Airways, Inc., Aerospace Services Division, 1225 N. Atlantic Avenue, Cocoa Beach, Fla., has been awarded a one-year extension of its contract to provide occupational medicine and environmental health services at the John F. Kennedy Space Center, NASA and Cape Kennedy Air Force Station.

The \$1,296,057 extension, bringing value of the contract to \$3,568,013 over a three year period, was jointly announced by Dr. Kurt H. Debus, Director of the Kennedy Space Center and Maj. Gen. David M. Jones, Commander of the Air Force Eastern Test Range.

The contract, which extends from March 1, 1973 through February 28, 1974, provides for medical and health services for civil service and contractor employees at the two installations. Services are provided by physicians, nurses and medical technicians.

# # #



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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

**FOR RELEASE:**  
April 4, 1973  
Release #KSC-54-73

## NASA AWARDS CEREMONY WILL HONOR KSC EMPLOYEES, CONTRACTORS

KENNEDY SPACE CENTER, Fla.--Dr. James C. Fletcher, NASA Administrator, and the crew of Apollo 17 will head a group of top-level executives tomorrow (Thursday) in honoring a large group of Kennedy Space Center personnel for their contributions to the Apollo program.

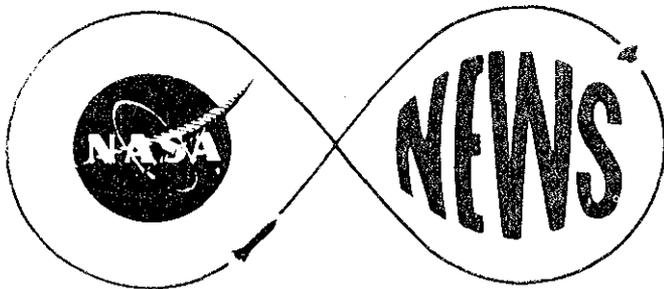
In addition to Dr. Fletcher and astronauts Eugene Cernan, Harrison Schmitt and Ronald Evans, several other NASA officials will be present for the ceremony. They are Dr. George M. Low, Deputy Administrator, who will present the awards; Dale Myers, Associate Administrator for Manned Space Flight; and Chester M. Lee, Apollo/Soyuz Test Project Director.

Awards will be presented to KSC and contractor employees and KSC elements that made significant contributions to success of the now completed program.

The award ceremony is scheduled in the KSC Training Auditorium at 3:30 p.m.

# # #

**NOTE TO EDITORS:** Media representatives are invited to attend the ceremony. Those desiring to attend should be at the KSC News Center, KSC Headquarters Building by 3:00 p.m.



A. H. Lavender  
305 867-2468

BY4  
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## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

### FOR RELEASE:

April 3, 1973  
Release #KSC-55-73

### KSC EXTENDS NEW WORLD SERVICES LIBRARY CONTRACT

KENNEDY SPACE CENTER, Fla.--The Small Business Administration in Atlanta, Georgia, has awarded a \$180,765 contract extension for continuation of library support services at the Kennedy Space Center to New World Services, Inc., 3910 S. Washington Avenue, Titusville, Florida.

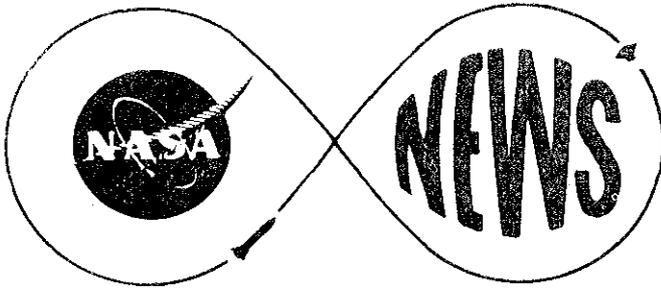
The fixed price contract extension for a one-year period beginning April 1, 1973, provides for operation of KSC's Technical Library in the Headquarters Building.

The contract--one set aside for small business firms--was awarded to the Small Business Administration, which in turn contracted with New World Services, Inc.

The \$180,765 contract award brings contract value to \$562,635 over a three-year period. Contract value during each of the first two years was \$190,935.35.

NASA is actively pursuing efforts to increase participation of minority business firms in the NASA Procurement Program. The purpose of this activity is to assist and foster qualified minority firms in achieving productive and economic stability in a competitive business environment.

# # #



**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

**FOR RELEASE:**  
April 4, 1973  
Release #KSC-56-73

**SPACEPORT EXTENDS MCGREGOR & WERNER REPRODUCTION CONTRACT**

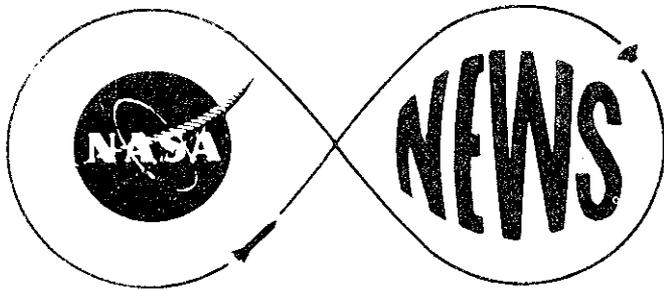
KENNEDY SPACE CENTER, Fla.--NASA's John F. Kennedy Space Center has extended its contract with McGregor & Werner, Inc., Kennedy Space Center, Fla., for printing, reproduction and microfilming/documentation services for an additional year.

The \$2,138,000 extension, from April 1, 1973 through March 31, 1974, brings the three-year contract value to \$6,102,445. The cost plus award fee contract, a small business set aside, originally negotiated in 1971, included an option for extension.

KSC launches manned spacecraft from its Merritt Island Spaceport and unmanned scientific and applications spacecraft from NASA facilities at Cape Kennedy and the Western Test Range in California.

# # #

APR 4 1973  
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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

**FOR RELEASE:**  
April 3, 1973  
Release #KSC-57-73

## SPACEPORT EXTENDS MAIL AND DISTRIBUTION SERVICES CONTRACT

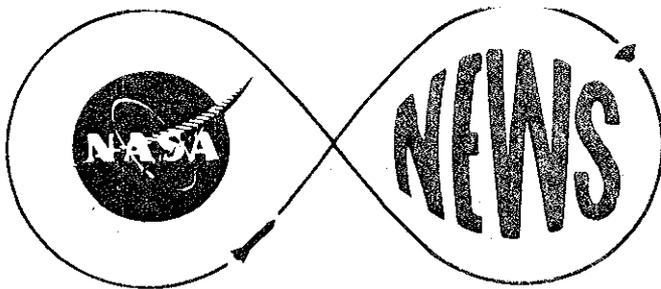
KENNEDY SPACE CENTER, Fla.--NASA's John F. Kennedy Space Center has extended its mail and distribution services contract with Atlantic Technical Services, Inc., Casselberry, Fla., for an additional year.

The new action exercises an option for a third year of performance negotiated in the basic contract and covers the period April 1, 1973 through March 31, 1974.

The new award is for \$444,000, bringing the three-year value of the cost plus fixed fee contract to \$1,429,731. The contract is a set aside for small business.

KSC launches manned spacecraft from the Merritt Island spaceport and unmanned scientific and applications spacecraft from NASA facilities at Cape Kennedy and the Western Test Range in California.

# # #



305 867-2468

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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

FOR RELEASE: 12:00noon

April 4, 1973

Release #KSC-58-73

## SKYLAB LAUNCH DATE SET

Skylab, the nation's first space station is scheduled for launch from the NASA Kennedy Space Center in Florida on May 14 at 1:30 p.m., EDT.

With Skylab successfully in Earth orbit, the first three-man crew to work aboard the station will be launched no earlier than 1:00 p.m. EDT, the following day.

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

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

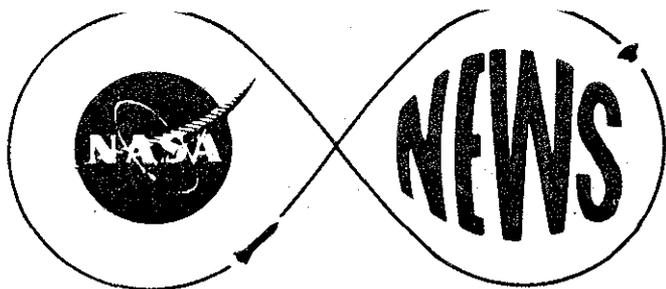
This is the first time a formal date has been set for launching the complex space laboratory. For nearly two years, the Skylab team had used April 30 and May 1 as planning dates for the first two launches. The planning dates were moved to the month of May in late January when checkout work was running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

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

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

# # #

APR 6 1973



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dave Garrett  
202 755-3114

FOR RELEASE: 12:00 Noon  
April 4, 1973  
Release #KSC-59-73

## MALKIN TO HEAD SPACE SHUTTLE OFFICE

Dr. Myron S. Malkin has been named Director of the Space Shuttle Program, Office of Manned Space Flight, NASA Headquarters, Washington, D.C. His appointment is effective April 9, 1973.

In this position, Malkin will report to Dale D. Myers, the Associate Administrator for Manned Space Flight. He will be responsible for planning and directing the design, development and test of the Space Shuttle system which was initiated by NASA last year. The major components of the Shuttle are the orbiter, the main propulsion system for the orbiter, the external hydrogen oxygen tank and the twin solid rocket boosters.

Malkin comes to NASA from the Department of Defense where he served as Deputy Assistant Secretary of Defense (Technical Evaluation) from 1972.

Prior to this position, Malkin was president and a director of NUS Corporation, Rockville, Md., a multi-divisional firm providing engineering consulting services in the field of air and water pollution, nuclear energy, and instrumentation for chemical and pipeline industry. He held this position from 1969 to 1971.

From 1961 to 1969, Malkin was employed by the General Electric Co. successively as Program Manager of the Titan II, Minuteman III and General Manager of the Manned Orbiting Laboratory Program.

Malkin was a faculty member of Yale University and Associate Director of the Yale Heavy Ion Accelerator Laboratory from 1954 to 1961.

Malkin was graduated from Yale University with a B.S. in physics and elected to Phi Beta Kappa. He also received his M. S. in physics and his Ph.D. in physics from Yale.

In his new position, Malkin succeeds Charles J. Donlan who has been acting director of the Shuttle program since 1970.

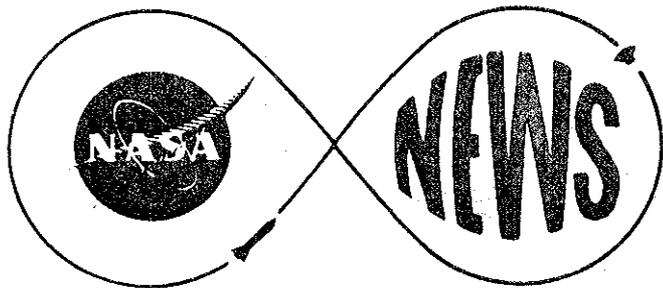
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Donlan will resume his position as Myers' deputy for technical matters, a post he has held since 1968.

Malkin is married to the former Jocelyn Schoen of Brooklyn, N.Y. They have two children. The family resides in Bethesda, Maryland.

# # #

APR 10 1973  
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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

**FOR RELEASE:**  
April 6, 1973  
Release #KSC-61-73

## 1,800 NASA TOURS PATRONS VIEWED PIONEER LAUNCH

KENNEDY SPACE CENTER, Fla.--The first night tour of this launch base was an unqualified success.

The public reserved all available bus seats - 1,800 - for the tour conducted by Trans World Airlines and Greyhound for NASA.

Patrons visited the Flight Crew Training Building where Apollo astronauts prepared for their lunar explorations, the Vehicle Assembly Building where America's first space station, Skylab, is being prepared for mid-May launch.

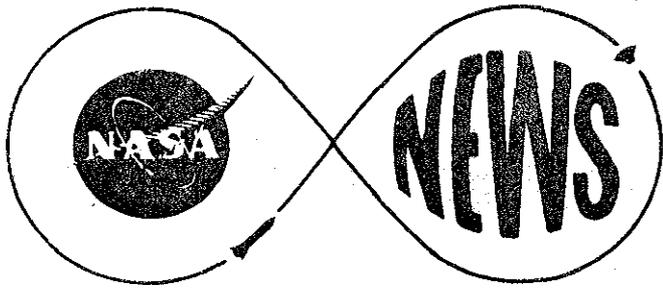
They heard a briefing concerning the launch of Pioneer, an interplanetary spacecraft which began a 600,000,000 mile journey to the planet Jupiter from NASA's Complex 36 at the end of their tour.

Pioneer was launched by an Atlas Centaur rocket and thundered up into the night sky as the visitors looked on from a vantage point one mile away.

NASA is considering a second test of the night tour for April 19 when a communications satellite, called Telesat, will be launched for Canada aboard a Thor Delta space vehicle.

Until last night, all public tours of the national Spaceport have been conducted in daylight hours. The tours have attracted more than 6,000,000 visitors since they began in July, 1966.

# # #



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**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**  
John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
April 6, 1973  
Release #KSC-62-73

#### DU PONT AWARDED SPACEPORT CONTRACT

KENNEDY SPACE CENTER, Fla.--NASA's John F. Kennedy Space Center has awarded a one-year contract with an estimated value of \$192,874 to the Freon Products Division of E. I. du Pont de Nemours and Co., Wilmington, Delaware.

The contract - awarded on April 2 - is for an indefinite quantity of trichlorotrifluorethane solvent.

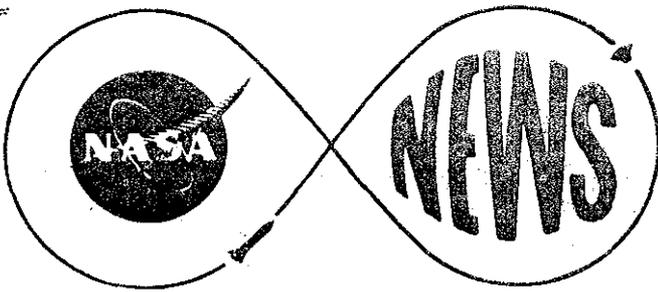
This product is used at the Spaceport to clean and flush hypergolic units. The Apollo spacecraft and other elements of space hardware use hypergolic (ignite on contact) fluids for propulsion and attitude control.

The solvent is to be provided by du Pont's Montague Works at Montague, Michigan.

KSC launches all the nation's manned space missions from its facilities on the Spaceport and launches numerous unmanned communications, weather and scientific satellites and spacecraft from other facilities at Cape Kennedy and the Western Test Range in California.

# # #

APR 13 1973  
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**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**  
John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

**FOR RELEASE:**

Dick Young  
305-867-2468

**NOTICE TO EDITORS/NEWS DIRECTORS**

The Saturn V/Skylab Orbital Workshop for the nation's first manned space station will be moved to Complex 39's Pad A on Monday morning, April 16. Members of the news media are invited to cover the move.

The trip, covering a distance of approximately 3.5 miles from the Vehicle Assembly Building to the launch pad will begin at approximately 7 a.m. EST and take about six hours.

Newsmen wishing to cover the Skylab 1 rollout should be at the Launch Complex 39 press site no later than 6:30 a.m. At that time, arrangements will be made for those who wish to ride on the mobile launcher with the rocket and workshop part of the way to the pad.

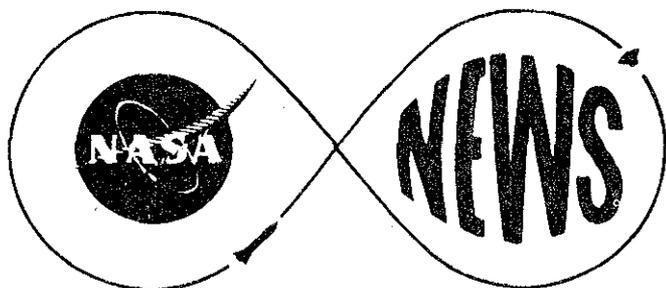
Badges for the earlier Skylab 2 rollout and press picture badges will be honored at Gates 2 and 3. Those without such badges may obtain press credentials from the Pass and Identification Buildings at Gate 2 (State Road 3 on Merritt Island) or Gate 3 (first building on the right after turning east off U.S. Route 1 just south of Titusville). These buildings will be open for badging purposes at 5:30 a.m.

When the move is completed, it will mark the first time that both pads at Complex 39 have been occupied by space vehicles simultaneously. Launch of the Skylab workshop by a two-stage Saturn V is scheduled for 1:30 p.m. EDT on May 14.

The Saturn IB rocket and Apollo spacecraft with the first crew for Skylab will be launched from Pad B by a Saturn IB at approximately 1 p.m. EDT on May 15.

# # # #

April 10, 1973



A. H. Lavender  
305 867-2468

## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

**FOR RELEASE:**  
April 19, 1973  
Release #KSC-64-73

### SPACEPORT EXTENDS PAN AM ENGINEERING AND DRAFTING SUPPORT CONTRACT

KENNEDY SPACE CENTER, Fla.--NASA's John F. Kennedy Space Center has awarded the Pan American World Airways, Inc., Aerospace Services Division, 1325 N. Atlantic Avenue, Cocoa Beach, Florida, a \$1,694,500 extension to its current detail engineering and drafting support services contract.

The new contract period is for six months beginning April 1, 1973.

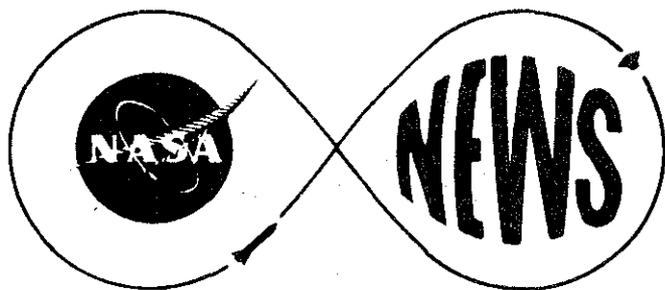
The cost plus fixed fee award will bring the total contract amount to an estimated \$11,011,914 over a three and one-half year period. The extension also provides for options for extending the contract for three additional one month periods in the amounts of \$245,600 for October 1973, \$155,000 for November and \$121,600 for December.

Under terms of the contract extension, Pan American will continue to provide engineering and drafting services, including preparation of detail design for KSC launch facilities and systems.

KSC is the launch site of the Skylab workshop and manned spacecraft that will carry three-man astronaut crews into orbit to dock with the orbital workshop and enter it to live and conduct experiments for periods up to 56 days.

The Center also launches unmanned applications and scientific spacecraft from NASA facilities at Cape Kennedy and the Western Test Range in California.

# # #



## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
April 16, 1973  
Release #KSC-70-73

### SPACEPORT DUNES RESTORATION PROJECT UNDERWAY

KENNEDY SPACE CENTER, Fla.--A fragile five-mile stretch of dunes north of Playalinda Beach will be restored under a program now underway as a joint undertaking of the Kennedy Space Center and the Merritt Island National Wildlife Refuge.

Approximately 50 cuts across the dunes exist in the five miles of oceanfront open to the public when space hardware is not on KSC's launch pads.

The program was outlined at a briefing in the KSC Headquarters Building Monday afternoon attended by representatives of local governmental agencies, conservation and ecology groups and the press.

Greeting the group was Dr. Kurt H. Debus, KSC Director.

The program was outlined by Paul Gauger, a project management engineer from KSC's Design Engineering Directorate, and Robert Yoder, manager of the Merritt Island National Wildlife Refuge.

The program entails construction of 20 crossover points, a "hitching-rail" barricade to the east of the dune road, revegetation of the most seriously eroded dunes and improvement of some of the parking areas to the west of the dune road on the lee side of the beach.

"A major part of the program is building the stabilized crossovers," said Gauger. "These will be constructed every quarter of a mile. The public will thus not have to walk more than an eighth-of-a-mile, or one or two city blocks, from their cars to the authorized crossover points."

The "hitching-post" barricades will channel foot traffic from the parking areas to the sandbagged ramps at the dune crossovers.

-more-

According to Gauger, one crossover has been completed and others are under construction.

A total of \$33,000 has been transferred to the Refuge for the dunes restoration project and four men are now working full time erecting the barricades behind the dunes. Twelve cuts have already been closed and planted and additional equipment will be moved to the site to expedite the project this week.

No vehicular crossovers are contemplated.

The area involved stretches from Playalinda Beach north to Camera Site 10, a distance of five miles. A permanent barricade exists at this point to bar vehicular traffic north to the NASA boundary in Volusia County.

The restoration area is closed to the public while the Skylab 1 and Skylab 2 space vehicles are on the pad.

These are scheduled for launch in mid-May and the beach area will be reopened to the public until the Skylab 3 Saturn IB rocket and Apollo spacecraft are moved to Complex 39's Pad B this summer.

The unique and frail nature of the coastal strand was described in a 1968 survey by the National Park Service.

"Anchored by dense plant cover, the dune line represents one of the best examples of naturally stabilized dunes along the eastern coast.

"The dune is uniformly high and has a constant profile within the study area, indicating that it was been able in the past to withstand the onslaught of storm and tide.

"The only gaps by erosion occur where man has desired access to the beach, by car or by foot. Cars driving across the dune trample down and eventually kill the vegetative cover which provides cohesion of sand grains.

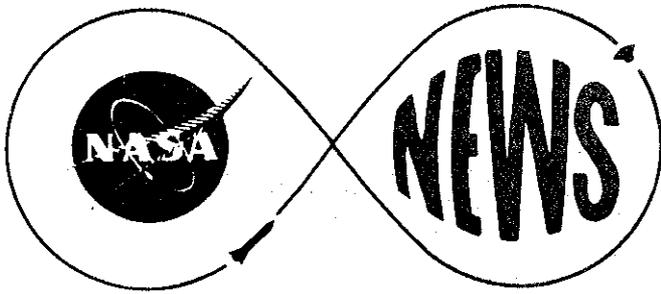
"Even where large numbers of people have walked across the dune line in the same place, there is an obvious erosional gap being created. The plant cover, while quite stable under natural conditions, is not able to withstand the impact of heavy visitor use.

-more-

"Since the continuance of the dunes is important to the stability of the whole barrier island, methods for crossing the dune in areas of heavy use will have to be developed to prevent such erosion from taking place."

The project is intended to protect and preserve the dunes while making the beaches available for public use when it does not conflict with the center's space mission.

# # #



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

305 867-2468

## FOR RELEASE:

April 19, 1973

Release #KSC-73-73

### SKYLAB 1 and 2 PRELIMINARY TIMELINE

Skylab, the United States' Earth orbiting space station, is scheduled for launch at 1:30 p.m. EDT on May 14, 1973 from NASA's Kennedy Space Center, Fla.

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

One day after the Skylab launch, May 15 at 1:00 p.m. EDT, astronauts Charles "Pete" Conrad, Jr., Joseph P. Kerwin, and Paul J. Weitz will be launched from KSC into Earth orbit aboard an Apollo spacecraft where some seven and one-half hours later they will dock with Skylab to begin their 28-day mission.

On June 10 the Skylab crew will don space suits and at 1:00 p.m. EDT, Conrad will maneuver outside the space station to retrieve film from the Apollo Telescope Mount while Kerwin stands in the hatch of the Multiple Docking Adapter to assist.

The morning of June 12, the astronauts will enter their Apollo spacecraft, undock from Skylab, and prepare for return to Earth. Splashdown is planned for 1:44 p.m. on the 12th at 25° 20' N, 127° 04' W, about 800 miles southwest of San Diego.

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

-more-

SKYLAB 1 (Skylab space station - Unmanned)

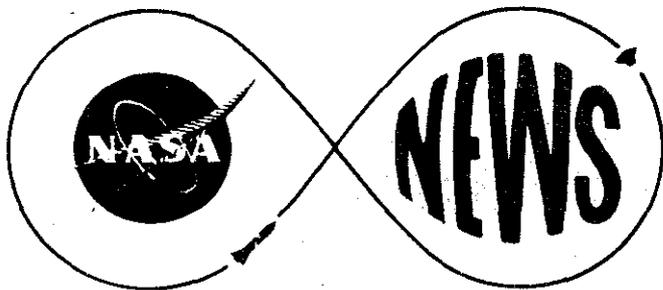
	<u>Date</u>	<u>Time</u>
Launch	May 14	1:30 p.m. EDT (launch window closes at 5:00 p.m.)
S-IC/S-II Separation		1:32:40
S-II Ignition		1:32:42
Payload separation		1:40
Orbit insertion		1:40
Jettison payload shroud		1:45
Rotate ATM 90°		1:46
Deploy ATM solar array system		1:55
Deploy OWS solar array system		2:11
Deploy meteoroid shield		3:06

SKYLAB 2 (First manned launch)

	<u>Date</u>	<u>Time</u>
Launch	May 15	1:00 p.m. EDT*
S-IB/S-IVB Separation		1:02:22
S-IVB Ignition		1:02:23
S-IVB Engine Cutoff		1:10
Orbit Insertion		1:10
CSM/S-IVB Separation		1:16
Phasing burns		3:20 to 6:59
Station keeping		7:49 to 8:22
Docking		8:40
Pressurize tunnel	May 16	8:30 a.m.
MDA hatch open		9:00 a.m.
EVA Egress (EVA 2 hours 25 minutes)	June 10	1:00 p.m.
Undock	June 12	8:46 a.m.
Separation		9:35 a.m.
Deorbit		1:03 p.m.
Entry interface		1:27 p.m.
Splashdown		1:44 p.m.

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

# # #



R. Young  
305 867-2468

APR 24 1973  
**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

**FOR RELEASE:**  
April 24, 1973  
Release #KSC-80-73

## DRIVE-THROUGH TOURS SUSPENDED UNTIL AFTER LAUNCH

KENNEDY SPACE CENTER, Fla. - Sunday drive-through tours of the nation's Spaceport and adjacent Cape Kennedy Air Force Station will be suspended until after the dual Skylab launches scheduled for mid-May.

The public may drive through the NASA and Air Force facilities here from 9:00 a.m. until 3:00 p.m. each Sunday when operational requirements permit.

The Countdown Demonstration Test - a dress rehearsal for launch of the Saturn V/Skylab Orbital Workshop and the Saturn IB/Apollo with the first space station crew - begins on Thursday, April 26, and will continue through Friday, May 4.

Both Skylab space vehicles are on their launch pads at Complex 39.

The orbital workshop, the nation's first space station, has a living and working area approximating that of a small two-bedroom house. It is to be launched by a two-stage Saturn V from Complex 39's Pad A at 1:30 p.m. EDT May 14.

The first Skylab crew - Astronauts Charles Conrad Jr., Dr. Joseph P. Kerwin and Paul J. Weitz - is to be launched by a Saturn IB from Pad B at approximately 1:00 p.m. EDT May 15.

The Apollo spacecraft is to rendezvous and dock with the space station over Texas at about 9:00 p.m. May 15.

The first crew will spend up to 28-days living and working in space before reentering the spacecraft for the return trip to Earth.

more

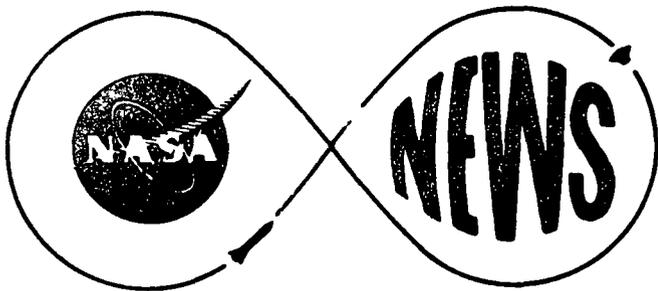
During the remaining two Skylab missions, flight crews will man the space station for up to 56 days.

The crew will conduct about 270 different scientific and engineering investigations using 54 different pieces of experimental hardware.

The experiments will study the Earth, the Sun and man's ability to live and perform meaningful work in space.

If the dual Skylab launches take place as scheduled, the Sunday drive-through tours will be resumed on Sunday, May 20.

# # #



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F Kennedy Space Center  
Kennedy Space Center Fla 32899

**FOR RELEASE**  
April 26, 1973

A H Lavender  
305 783-7781

## NOTICE TO EDITORS/NEWS DIRECTORS

The Kennedy Space Center Public Information Office will move its operations to the Skylab News Center, 7011 North Atlantic Avenue, Cape Canaveral, Florida, effective Friday, April 27, 1973

The telephone number for the Skylab News Center is 305 783-7781. During non-working hours prior to T-5 days and on a 24-hour basis until after the Skylab 2 launch taped messages providing Skylab status information may be obtained by telephoning 305 784-2380.

All KSC news activities will be conducted from the Skylab News Center through two days after the launch of Skylab 2 and the Public Information Office on KSC will be closed during that period.

Hours of operation of the Skylab News Center will be as follows:

April 27 thru T-6 days (Skylab 1)	8 00 a m	to	5 00 p m
T-5 days (Skylab 1) thru T-2 days	7 00 a m	to	7 00 p m
T-1 day (Skylab 1)	7 00 a m	to	midnight
Skylab 1 Launch Day	12 01 a m	to	midnight
Skylab 2 Launch Day	12 01 a m	to	midnight
T+1 day (Skylab 2) thru T+2 days	7 30 a m	to	6 00 p m

At T+3 days (Skylab 2) the Skylab News Center will be closed and business should be transacted at the KSC News Center Headquarters Building, phone 305 867-2468.

# # #

The Helios spacecraft will penetrate to and study the fringes of the outer solar corona where the charged particles receive their final acceleration

The intent of the Project is to make a significant contribution to solar physics and demonstrate the space technology capability of West Germany

After an initial period of U S control - starting at liftoff - the flight will be directed by Germany from its Control Center at Oberpfaffenhofen, Germany will also collect all data obtained by the Jet Propulsion Laboratory Deep Space Network and the German Ground Stations and share it with the United States

The German spacecraft and American vehicle/launch efforts are managed primarily through an institution called the Helios Joint Working Group (H J W G)

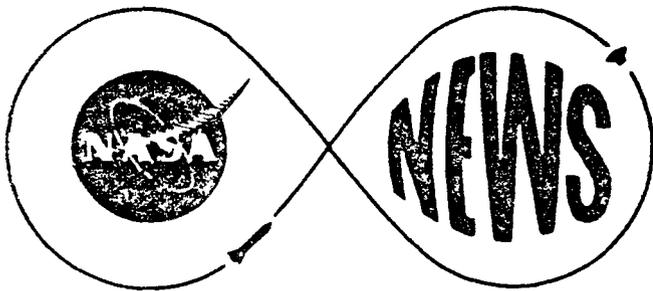
The HJWG meets every six months alternating between Germany and the United States Prior meetings have been held in Bonn and Oberpfaffenhofen in Germany and the Goddard Space Flight Center and the Jet Propulsion Laboratory in the U S

The meeting at KSC is to be the eighth in a series of working sessions

The co-chairmen of the HJWG are Gilbert Ousley of the Goddard Space Flight Center, NASA, and Ants Kutzer of the Gesellschaft Fur Weltraumforschung an aerospace corporation under the German government

Within NASA Goddard is responsible for overall planning and management of the U S activities and directs management of the U S experiments Lewis Research Center is responsible for launch vehicle development, JPL has been assigned tracking and data acquisition support and KSC is responsible for launch operations management

Helios will be the first operational launch of NASA s newest and most powerfull unmanned launch vehicle - the Titan-Centaur An initial proof flight is scheduled in January 1974 prior to the Helios launch in September



**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**

John F Kennedy Space Center  
Kennedy Space Center Fla 32899

Dick Young  
305 783-7781

**FOR RELEASE**  
May 4 1973  
Release #KSC -86-73

**HELIOS WORKING GROUP TO MEET AT KSC**

KENNEDY SPACE CENTER Fla - A 200-member American-German working group making plans to send twin spacecraft closer to the Sun than has ever been attempted before will hold a weeklong planning session at KSC the week of May 7-11

Scheduled to greet the group at its opening session in the KSC Training Auditorium Monday, May 7 is Dr Kurt Debus KSC Director

The Helios Project (named after the ancient Greek god of the Sun) is a major cooperative space effort being equally funded and carried out by the United States and West Germany

Two spacecraft built in West Germany are to be launched from Complex 41 by KSC's Unmanned Launch Operations Directorate atop Titan Centaur rockets augmented by a solid fueled third stage

Helios trajectory in toward the Sun will call for the greatest speed ever imparted to a man-made object Its velocity at injection will approximate 36 000 miles per hour substantially faster than the 32,000 miles per hour needed to send Pioneers 10 and 11 on their voyage to the outer planets

Helios A - to be launched in September 1974 - is to approach to within 45 million kilometers (about 28 million miles) The targeting point of Helios B will be determined by the results of the first mission

The sun expells about a million tons per second of hot ionized particles traveling at tremendous velocities a force commonly called the solar wind

This wind spreads far out into the solar system and - along with the sun's other electromagnetic radiations - strongly affects the environment of Earth

more

The Helios spacecraft will penetrate to and study the fringes of the outer solar corona where the charged particles receive their final acceleration

The intent of the Project is to make a significant contribution to solar physics and demonstrate the space technology capability of West Germany

After an initial period of U S control - starting at liftoff - the flight will be directed by Germany from its Control Center at Oberpfaffenhofen, Germany will also collect all data obtained by the Jet Propulsion Laboratory Deep Space Network and the German Ground Stations and share it with the United States

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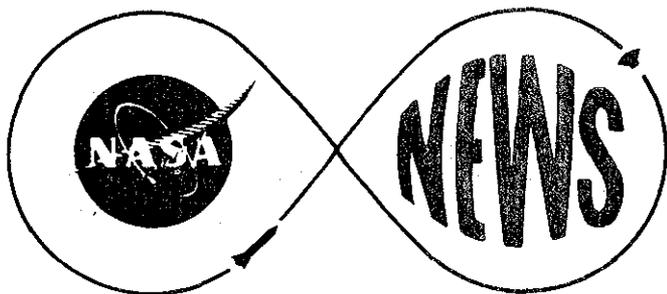
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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Al Lavender  
305 867-2468

## FOR RELEASE:

June 5, 1973  
Release #KSC-123-73

### NOTICE TO EDITORS/NEWS DIRECTORS

A pre-launch Press Conference on RAE-B, the last programmed U. S. space mission to the Moon, is scheduled at the Skylab News Center, 7011 North Atlantic Avenue, Cape Canaveral at 3:00 p.m. EDT, Friday, June 8.

RAE-B, to be renamed Explorer-49 in orbit, will study low-frequency radio waves that do not penetrate the atmosphere strongly enough to permit study on Earth. The Moon will serve as an ideal "anchor" for Explorer-49. When operating on the far-side of the Moon, the spacecraft receivers will be shielded from radio noise produced by the Earth and its magnetosphere, providing interference-free data acquisition.

The launch is scheduled from NASA's Complex 17, Cape Kennedy at 9:18 a.m. EDT, Saturday, June 9. A post-launch Press Conference will be held approximately an hour and a half after launch.

Media representatives desiring to cover the launch should report at the Skylab News Center Saturday morning. Transportation to the Press Site will be provided, with a bus for photographers departing the News Center at 7:45 a.m. and a bus for radio news representatives and the writing press departing at 8:00 a.m.

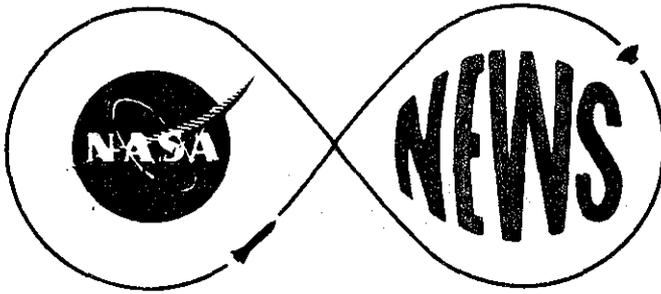
RAE-B pre-launch and post-launch briefings will not be carried on the "black box" system to which many news organizations subscribe since Skylab commentary is carried on the system throughout the mission.

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6/4  
1973



**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**  
John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Al Lavender  
305 867-2468

**FOR RELEASE:**  
June 5, 1973  
Release #KSC-124-73

**NOTICE TO EDITORS/NEWS DIRECTORS**

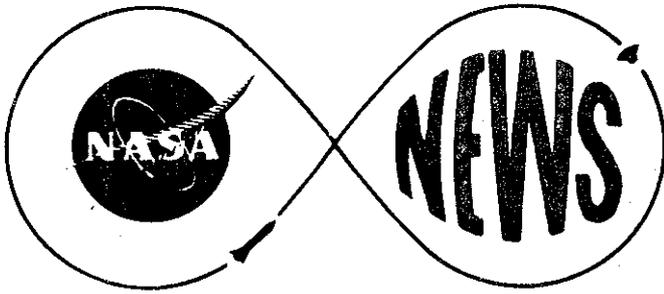
Rollout of Skylab 3 from the Vehicle Assembly Building to Complex 39's Pad B is scheduled to begin at 7:00 a.m. EDT, Monday, June 11.

Members of the press wishing to cover the rollout may pick up special badges at the Gate 3 Pass and Identification Building, east of U. S. 1 south of Titusville, or Gate 2, State Road 3, Merritt Island beginning at 5:30 a.m., June 11. These special badges are not available at Gate 1, the Cape Kennedy Air Force Station entrance. Upon obtaining access badges, media representatives should proceed directly to the Complex 39 Press Site.

It is anticipated that press photographers will be permitted on the Mobile Launcher during the trip from the VAB to Pad B. These press positions will be on a rotating basis to give all photographers an opportunity to obtain coverage.

First motion of the transporter with Skylab 3 is scheduled for 7:00 a.m. and early arrivals will have the first opportunity to obtain underway coverage.

# # #



**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

**FOR RELEASE:**

June 5, 1973

Release #KSC-125-73

Al Lavender  
305 867-2468

**PLAYALINDA BEACH TO BE CLOSED FOR SKYLAB 3**

KENNEDY SPACE CENTER, Fla. - Playalinda Beach, the popular swimming and fishing area north of Complex 39, will be closed until after the Skylab 3 launch, scheduled July 27.

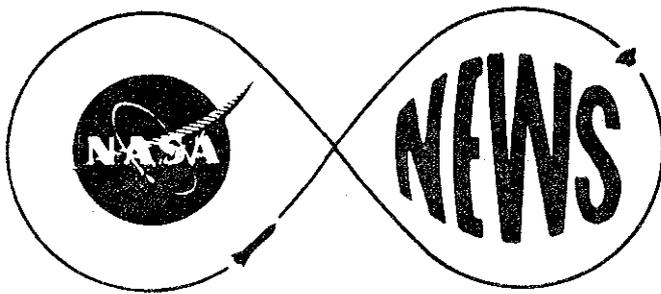
The beach will be open as usual through Sunday, June 10, and will be closed beginning Monday, June 11, when Skylab 3 is moved to Pad B.

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JUN 11 1973



## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Al Lavender  
305 867-2468

**FOR RELEASE:**  
June 7, 1973  
Release #KSC-127-73

### O'BRIAN YOUTH SEMINAR SCHEDULED AT KSC NEXT WEEK

KENNEDY SPACE CENTER, Fla. - Sixty-seven young men and young women from throughout the United States and six foreign countries will receive a firsthand look at the United States space program during a week-long seminar at the Kennedy Space Center beginning Monday, June 11.

The seminar is sponsored by the Hugh O'Brian Youth Foundation in cooperation with the United States Jaycees, the National Association of Student Councils, and NASA.

"Through participation in the seminar these young men and young women will gain a better understanding of the space program," said William Nixon, chief of KSC's Educational Programs Branch. "The program provides the youths an opportunity to view activities in Spaceport operational areas and talk with experts in the space field."

NASA launch officials will participate along with O'Brian.

Center Director Dr. Kurt H. Debus will welcome the group at the opening KSC session Monday and Deputy Director Miles Ross will brief them on NASA programs.

The 15 and 16 year old youngsters, all high school sophomores, were chosen from almost two million representing 10,000 schools. They were selected on the basis of community and school service, good citizenship and scholarship.

The Monday program includes an opportunity to view Skylab 3 as it is moved from the Vehicle Assembly Building to Pad 39-B in preparation for a July launch, visits to the VAB and the Launch Control Center, and briefings on the roles of the mobile launcher and crawler-transporters in launch operations and on Skylab at Launch Pad 39-B.

- more -

Throughout the week all participants will be kept informed about the progress of the current Skylab mission. Periodic announcements and graphic presentations will be added to each day's activities to keep the students abreast of all mission events.

Later in the week the participants will view the flight simulators where Apollo astronauts trained for their lunar landing missions and receive a briefing on crew training from astronaut Karol Bobko. The youths will also participate in a fire suppression demonstration.

Visits to the Central Instrumentation Facility and the Unified S - Band Station will permit the students to observe data processing and spacecraft tracking operations.

The 67 youths also will visit NASA launch sites on Cape Kennedy Air Force Station where they will receive a briefing on U. S. unmanned space programs.

They will tour the Air Force Museum, Complex 5/6, launch site of Alan Shepard, the first American in space; Mercury-Atlas and Gemini launch sites and Complex 34, site of the first manned Apollo launch.

They will receive briefings on future U. S. space programs, including ASTP, the joint U. S. - USSR spaceflight scheduled in 1975, and the Space Shuttle.

A daily seminar feature is a question and answer period during which the boys and girls will have an opportunity to discuss space activities with space officials and public figures.

Dr. Kurt H. Debus and other Spaceport officials will participate in a closing summation on Friday. With Dr. Debus will be Miles Ross, Deputy Director; Walter J. Kapryan, Director of Launch Operations; Raymond L Clark, Director of Design Engineering; Frederic H. Miller, Director of Installation Support; Peter A. Minderman, Director of Technical Support; George A. Van Staden, Director of Administration; and William H. Rock, Manager, Sciences and Applications Projects Office.

A farewell dinner is scheduled for Friday evening.

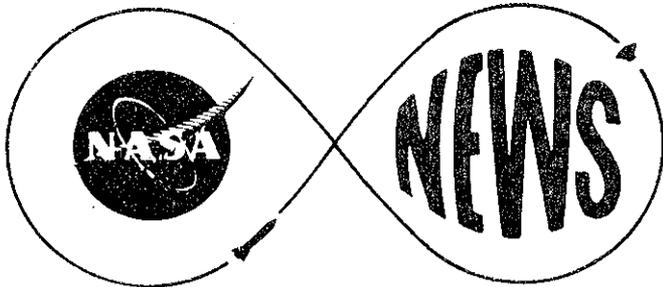
The youths will be housed at Patrick Air Force Base.

# # #

NOTE TO EDITORS/NEWS DIRECTORS

Hugh O'Brian youth seminar participants will view the rollout of Skylab 3 at 7:00 a.m., Monday, June 11, from the NASA Guest Viewing Site near the Vehicle Assembly Building. Seminar officials and participants will be available for press interviews at that time. Media representatives will also be welcome at any of the youth sessions throughout the week. For other interviews please telephone Al Bishop at 783-2272.

JUN 14 1973



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Al Lavender  
305 867-2468

FOR RELEASE:  
June 14, 1973  
Release #KSC-131-73

## SKYLAB TO BE VISIBLE OVER CENTRAL FLORIDA

KENNEDY SPACE CENTER, Fla. - The Skylab space station will be visible to Central Florida viewers during 14 orbital passes through June 26. The Skylab orbital assembly now includes the command service module launched by a Saturn IB from the Kennedy Space Center on May 25.

This sighting chart is for the Orlando area but the data is applicable to much of Central Florida.

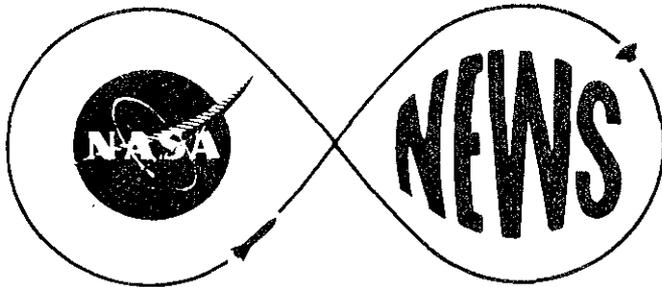
"Pickup time" means time of first sighting and is given in Eastern Daylight Time. "Range" means the distance of the spacecraft from the viewer in statute miles. Maximum elevation is given in terms of degrees above the horizon.

<u>Date</u>	<u>Pickup Time</u>	<u>Direction of Movement</u>	<u>Duration of Visibility</u>	<u>Maximum Elevation</u>	<u>Range</u>
6/21	5:45 a.m.	N to E	5 min 12 sec	19 deg.	653
6/21	8:52 p.m.	SE to E	1 min 58 sec	10 deg.	905
6/21	10:27 p.m.	SW to NE	6 min 36 sec	45 deg.	362
6/22	5:03 a.m.	N to NE	3 min 39 sec	13 deg.	815
6/22	9:43 p.m.	SW to NE	6 min 50 sec	81 deg.	270
6/23	5:55 a.m.	NW to SE	6 min 49 sec	87 deg.	266
6/23	9:00 p.m.	SW to NE	6 min 42 sec	54 deg.	322
6/23	10:39 p.m.	NW to N	3 min 24 sec	13 deg.	836
6/24	5:12 a.m.	NW to SE	6 min 38 sec	49 deg.	344
6/24	9:54 p.m.	W to N	5 min 5 sec	19 deg.	674
6/25	4:29 a.m.	NW to E	6 min 5 sec	29 deg.	495
6/25	9:10 p.m.	W to NE	6 min 5 sec	28 deg.	509
6/26	3:45 a.m.	N to E	5 min 7 sec	19 deg.	660
6/26	5:22 a.m.	W to S	5 min 59 sec	28 deg.	500

During a viewing pass, Skylab will appear as a moving star with a variable brightness ranging from that of the most brilliant star in the sky down to the sixth magnitude, which is barely visible to the naked eye.

These computations were provided by the Marshall Space Flight Center in Huntsville, Ala., and will be updated at bi-weekly intervals.

# # #



**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

**FOR RELEASE:**  
June 13, 1973  
Release #KSC-132-73

Al Lavender  
305 867-2468

**KSC EARTH RESOURCES STUDY CONTRACT AWARDED**

KENNEDY SPACE CENTER, Fla. - NASA's John F. Kennedy Space Center has awarded a \$98,100 contract for a study to demonstrate the feasibility of using ultra-high frequency and microwave radars to obtain Earth resources data to the Environmental Research Institute of Michigan, Ann Arbor, Michigan.

The study, to be conducted by the Institute's instrumented aircraft in flights over Brevard County, is designed to provide information on pools of water covered by vegetation that are fertile breeding grounds for mosquitos, determine water drainage patterns throughout the county, and provide data to be used in water resources management and land use planning.

In addition to overflying Brevard County areas, the Institute will have a geologist and geographer in the field working with geologists of the Brevard County Mosquito Control District in identification of mosquito breeding areas.

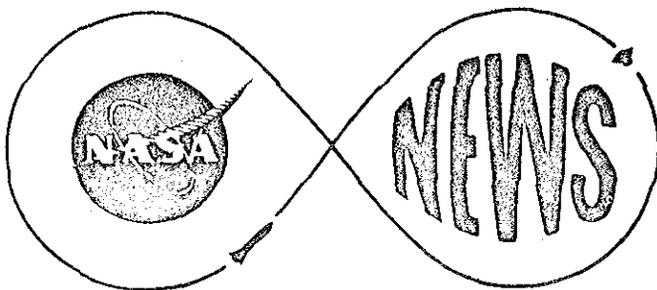
The flights and scientific work on the ground are scheduled to begin in early Autumn and the study is to be completed prior to the end of the year.

Simultaneously recorded images from the two airborne radars identifying Brevard County's hidden water areas, which should improve the county's ability to control the mosquito population, will be delivered to the Kennedy Space Center as part of the study.

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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Al Lavender  
305 867-2468

**FOR RELEASE:**  
June 29, 1973  
Release #KSC-143-73

## SKYLAB TO BE VISIBLE OVER CENTRAL FLORIDA

KENNEDY SPACE CENTER, Fla. - The Skylab space station will be visible to Central Florida viewers during 6 orbital passes.

This sighting chart is for the Orlando area but the data is applicable to much of Central Florida.

"Pickup time" means time of first sighting and is given in Eastern Daylight Time. "Range" means the distance of the spacecraft from the viewer in statute miles. Maximum elevation is given in terms of degrees above the horizon.

<u>Date</u>	<u>Pickup Time</u>	<u>Direction of Movement</u>	<u>Duration of Visibility</u>	<u>Maximum Elevation</u>	<u>Range</u>
7/10	9:33 p.m.	N to E	4 min 27 sec	16 deg	732
7/11	8:50 p.m.	N to NE	2 min 5 sec	11 deg	897
7/12	9:41 p.m.	NW to SE	6 min 41 sec	61 deg	296
7/13	8:56 p.m.	NW to E	6 min 16 sec	34 deg	435
7/14	9:49 p.m.	W to S	5 min 36 sec	24 deg	557
7/15	9:05 p.m.	NW to SE	6 min 27 sec	44 deg	365

During a viewing pass, Skylab will appear as a moving star with a variable brightness ranging from that of the most brilliant star in the sky down to the sixth magnitude, which is barely visible to the naked eye.

These computations were provided by the Marshall Space Flight Center in Huntsville, Ala., and will be updated at bi-weekly intervals.

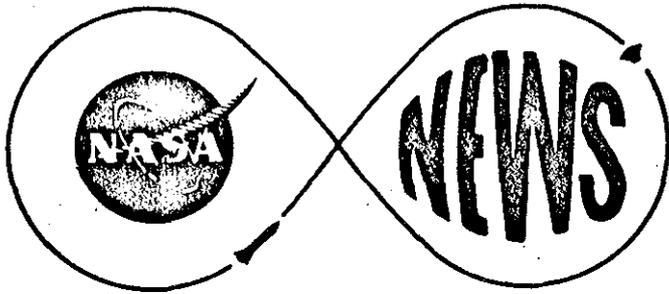
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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Weida McAuley  
305 867-2468

FOR RELEASE:

Release #KSC-158-73

## KENNEDY SPACE CENTER'S VISITOR INFORMATION CENTER CELEBRATES SEVENTH ANNIVERSARY

KENNEDY SPACE CENTER, Fla. - July 22 marks the seventh anniversary of Kennedy Space Center's Visitor Information Center which opened on a rainy day in 1966 with 1,552 bus patrons.

More than 654,000 visitors throughout the U. S. and many foreign countries have taken bus tours of KSC and the Cape Kennedy Air Force Station this year.

The concept of public access to the nation's major spaceport was first presented to NASA by Congressman Olin Teague of the House manned spaceflight subcommittee in 1963.

Dr. Kurt H. Debus, Center Director, supported the proposal which caused some controversy. Soon afterwards the Air Force opened Cape Kennedy to a Sunday drive-through tour in December 1963. When construction progress permitted its development, KSC opened its drive-through tour in November 1964.

Thirty-three thousand people drove through the Center during the Christmas holiday weekend in 1965, and this response inspired Dr. Debus to consider public access on a daily basis.

After meetings between members of the National Park Service and NASA representatives, the park service recommended the establishment of escorted tours and construction of a Visitor Information Center.

KSC then contracted with Trans World Airlines, the firm which furnished housekeeping services at the time, to operate the bus tours at the Center.

The temporary visitor center at US #1 and the NASA Causeway was made up of portable trailers and a tin shed with 3,000 square feet of floor space served as a museum.

(more)

Ten reconditioned buses were obtained to start the first tours and TWA employed escort-drivers for the routes.

From May 1968 through June 1972, the VIC expanded to include an administrative building, a souvenir shop, extra paved parking, and an enlarged bus loading area.

TWA operates the present Visitor Information Center and NASA Tours, with Greyhound, a sub-contractor furnishing buses and driver-escorts. There is now a permanent fleet of 25 air-conditioned buses.

Now that more and more people are becoming interested in the space program, the number of tourists who visit the VIC is skyrocketing. And the only problem, according to Prosper A. Fagnant, Chief of the Public Affairs Office's VIC Planning and Operations Branch, is that the VIC can only comfortably accommodate 3,000 people at a time.

"There's a mass of jammed elbows. And on those peak days we wind up having to park on the grass. We're just fortunate that we've never had a devastating rain on one of those days that would have forced us to close. But if it ever does, we'll have to close temporarily," Fagnant said.

An average of 9,000 people take NASA Tours each day, and plans are now under consideration for another expansion, which officials hope will occur soon.

With the increase of public interest, two new things were done this year at the Visitor Information Center.

Tours were arranged to coincide with launches, on launch day, so tour patrons were able to watch a launch from a special viewing site. Previously, the VIC had been closed to the public during launch time. Bus tourists will also be able to view the Skylab launch in late July.

Also, during the last two weeks of June, a trial-run was conducted for evening tours, with the VIC remaining open until 11:00 p.m.

Visitors are admitted to parking, museum and exhibits areas at the VIC free of charge. A fee is charged for bus tours to cover the cost.

Space lectures, movies and exhibits are shown daily in one of the theaters at the museum. The Lunar Rover is the most popular of all exhibits, according to Fagnant.

(more)

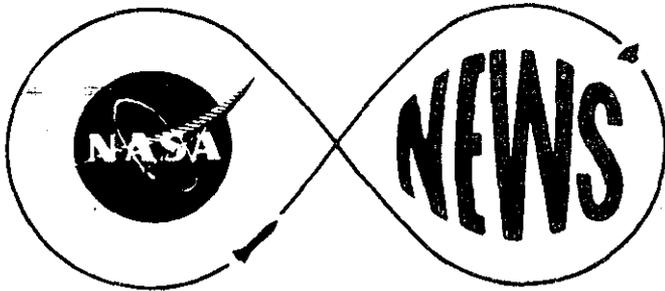
Fagnant says he hopes to house the Lunar Rover in a permanent garage soon. Then a lecturer will be able to put on an astronaut suit at the end of a session, climb into the Lunar Rover, and do a test-drive demonstration for the audience.

Because of the growing crowds, officials hope the expansion will come soon, so they can make as much information as possible available to the public.

"Dr. Debus feels very strongly about the visitor program and the availability of information to the public. He takes this (the program) very personally," says Arnold Richman, special assistant to the chief of Visitor Information Services.

# # #

JUL 13 1973  
FNU 155



## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

### FOR RELEASE:

A.M., July 13, 1973  
Release #KSC-163-73

### SKYLAB 3 COUNTDOWN TO BEGIN SUNDAY

KENNEDY SPACE CENTER, Fla. - The countdown for the launch of Skylab 3 - scheduled for 7:08 a.m. EDT July 28 - is to begin at 11 p.m. Sunday, July 15.

The Skylab 3 Saturn IB/Apollo is to carry the second Skylab crew into space to rendezvous and dock with the nation's first space station.

Astronauts Alan L. Bean, Owen K. Garriott and Jack R. Lousma are to spend up to 56 days living and working in space - double the time spent aboard Skylab by the Skylab 2 crew.

The countdown includes many of the functions and tests normally accomplished during the Countdown Demonstration Test (CDDT) and marks the first time in the launch of a manned Saturn-class vehicle that there will be no participation in a dress rehearsal by the flight crew with the KSC launch team.

Elimination of the CDDT dress rehearsal - as such - was attributed to launch confidence based on the perfect performance record of the Saturn IB/Saturn V launch vehicles.

The SL-3 countdown will include a simulated T-zero, ignition and liftoff with a fully-fueled Saturn IB/Apollo on Complex 39's Pad B. This is scheduled for 7:08 a.m. EDT Friday, July 20.

In the past, the rocket's liquid hydrogen and liquid oxygen propellants would be detanked and the test followed on the next day with a similar exercise with the rocket unfueled and with the crew participating. The SL-3 countdown will not include this crew exercise.

During the SL-3 countdown, the liquid hydrogen and liquid oxygen taken aboard for the fueling test will be offloaded and the count held in abeyance until the final portion resumes on Thursday, July 26.

"In effect," said Charles F. Henschel, Skylab 3 Test Supervisor, "we will have a 130-hour built-in hold until we pick up the count at T-minus 47 hours at 7 a.m. on July 26.

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Elimination of the "dry" CDDT with crew participation was further explained at the Johnson Space Center in Houston, Texas.

"The dry CDDT has always been a crew preference item," said Russell Clickner, Test Manager at JSC.

Citing launch experience and crew confidence, Clickner said the SL-3 crew felt this element of flight preparation was not necessary for the upcoming launch and elected to forego it.

Henschel pointed out that the merging of the countdown with the now eliminated CDDT will mean that some actual launch preparations will now be undertaken earlier.

During the dress rehearsals conducted for prior Saturn IB/Saturn V launches, for example, the hookup of space vehicle ordnance was only simulated.

Under the processing schedule for the SL-3 countdown, these functions will not be simulated and actual ordnance hookup will take place during the coming week.

RP-1, a kerosene-type fuel for the Saturn IB first stage, was tanked aboard the booster stage on July 10. RP-1 is a storable propellant and will not be detanked following the simulated ignition on July 20 but remain on-board until launch.

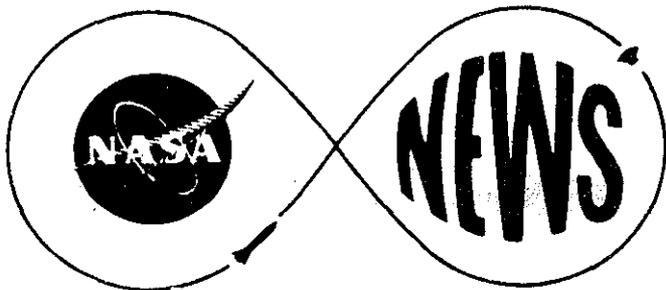
Loading of the Command/Service Module's hypergolic propellants was completed July 8.

Launch of SL-3 will be conducted by a government/industry team of approximately 600.

Of these, approximately 500 will be located in the Launch Control Center's Firing Room. The remaining 100 - primarily concerned with spacecraft functions - will be located in control rooms at the Manned Spacecraft Operations Building in KSC's Industrial Area.

# # #

AUG 8 1973



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

## FOR RELEASE:

August 3, 1973

Release #KSC-180-73

Dick Young  
305 867-2468

### SPACEPORT'S SKYLAB RESCUE PREPARATIONS ON SCHEDULE

KENNEDY SPACE CENTER, Fla.--The KSC checkout and launch team is preparing the Skylab 4 space vehicle for possible rescue mission as a result of a serious problem which developed in the Skylab 3 command/service module launched from KSC on August 28 and now docked with the orbiting Skylab.

"We started our rescue flow Thursday night," said Walter J. Kapryan, KSC Director of Launch Operations, "and our preparations are on schedule."

The "rescue mode" has brought an acceleration in launch preparations with launch and checkout crews on a 24-hour day, seven-day week schedule.

Kapryan noted that KSC had a rescue flow plan prepared even before launch of the first manned Skylab mission in May. This plan was refined to meet the current flow situation and implemented Thursday night.

The Skylab 3 astronaut crew - Alan Bean, Owen Garriott and Jack R. Lousma - are in no immediate danger and are carrying out routine experimental assignments aboard the Skylab space station while ground controllers investigate the command/service module problems.

The problem which developed Thursday morning is located in quadrant D of the Service Module's reaction control system. Quadrant B developed a problem on launch day. Isolation of the two ailing quadrants leaves only two of the four maneuvering rocket systems on the service module fully operable.

Early investigations centered around the possibility that both "quad" problems are associated with the RCS oxidizer and flight controllers in Houston as well as engineers and technicians here at the Spaceport are trying to gain a better understanding of the cause or causes of the oxidizer leaks.

-more-

The SL-4 Saturn IB launch vehicle is now in the Vehicle Assembly Building. Work underway on Friday included checks of the S-IB booster mechanical systems and swing arm integrated tests.

There will be no respite on testing over the weekend.

Saturn IB launch vehicle activities on Saturday include checks of the Instrument Unit/S-IVB second stage electronics and electrical tests.

The SL-4 command/service module is in an altitude chamber in the Manned Spacecraft Operations Building for tests in the simulated vacuum of space.

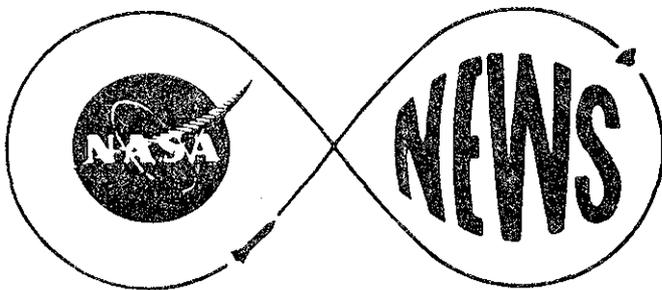
An unmanned altitude run is scheduled for Sunday. The SL-4 prime crew- Astronauts Gerald P. Carr, Edward G. Gibson and William R. Pogue - are to participate in a manned altitude run on Tuesday. The backup crew - Astronauts Vance D. Brand, William E. Lenoir and Don L. Lind - will repeat the test of spacecraft integrity at altitude on Wednesday.

The spacecraft will be in the standard configuration for Skylab and a decision on installation of the "rescue kit" with its two additional astronaut couches and other equipment will be made prior to a major spacecraft test scheduled for August 21.

The new "rescue flow" schedule calls for rollout of the Skylab 4 space vehicle to Complex 39's Pad B in mid- August and a launch date in early September.

The accelerated "rescue flow" will be maintained until the SL-3 command/service module problems are solved or a rescue mission is carried out.

# # #

**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899Dick Young  
305 867-2468**FOR RELEASE:**  
August 6, 1973  
Release #KSC-181-73**MOSQUITO LAGOON HAS FASCINATING GEOLOGICAL HISTORY**

KENNEDY SPACE CENTER, Fla.--Two scientists at the University of Florida have endorsed the means being used at the Kennedy Space Center to protect the fragile barrier dunes of Mosquito Lagoon against further beach erosion.

In addition, they outlined the fascinating geological history of KSC's surroundings and the natural forces that brought them into being.

The presentation was made before KSC Director Dr. Kurt H. Debus, Deputy Director Miles Ross, directorate heads and representatives, and officials of the U. S. Bureau of Fisheries and Wildlife. The latter organization operates the sprawling Merritt Island National Wildlife Refuge on KSC property.

Making the presentation were Prof. M. P. O'Brien, Head, Coastal Engineering Laboratory, University of Florida, and Prof. H. K. Brooks of the University of Florida's Department of Geology.

Purpose of the University of Florida study was an investigation of dune barrier erosion, a possible ocean breakthrough due to storm and hurricane wave activity and the consequent danger to KSC facilities.

The study of the long, shallow lagoon extending north 33 miles from Playalinda Beach and protected from the Atlantic Ocean only by a fragile barrier beach brought this conclusion:

"The results of a geological as well as a hydrodynamic appraisal of the problem area indicates that no inlet has existed across the dune barrier since 500 A.D. and that there is little likelihood of a possible breakthrough inlet remaining open permanently."

The danger of a permanent storm-created breakthrough inlet which might endanger KSC facilities is minimal "primarily because the relatively shallow lagoon does not contain enough

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volume of water to maintain an inlet between the ocean and the lagoon." (The lagoon has a maximum depth of 9 feet).

"It is therefore recommended that only minimal measures such as closing up the man-made passes across the dunes, be carried out to ensure continuation of the action of natural beach maintaining processes.

Tracing the geology of the lagoon, geologists have determined "there has been at least five separate inlets opening directly into the lagoon from the Atlantic Ocean during the past 6,000 to 7,000 years."

The older portion of Merritt Island consists of material nearly one-quarter of a million years old but the Canaveral Peninsula - Cape Kennedy - is a geological "kid" with an age of only about 7,000 years.

The barrier beach inlets were formed progressively northward from the peninsula and the most recent inlet - in the vicinity of Turtle Mound - closed before 500 A.D.

The northern end of the lagoon is marked with clusters of lagoonal marshes and mangrove islands. Again, the most recent are those near Turtle Mound.

These islands are basically marshes developed on sand shoals in tidal deltas and the clusters indicate the position of former inlets through which sand was carried into the lagoon from the ocean.

The University of Florida study made these recommendations, implemented during the recently completed beach restoration project by the Merritt Island National Wildlife Refuge and KSC:

1. Since the entire beach along the KSC property is in a state maintained by natural processes, it should not be manipulated by any means that would alter the action of these processes.
2. Low spots in the dunes, particularly those caused by beach vehicles and human traffic should be covered up, where possible by sand and overgrown by vegetation from adjacent areas.
3. A limited number of convenient access passes over the dunes may be maintained for human traffic.
4. Since plant life growing on the dunes is a part of the dune system, it should be retained, where possible, in its natural state.

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"This is a fine beach and I'd leave it alone," said Professor O'Brien. "I believe you've done what can be done."

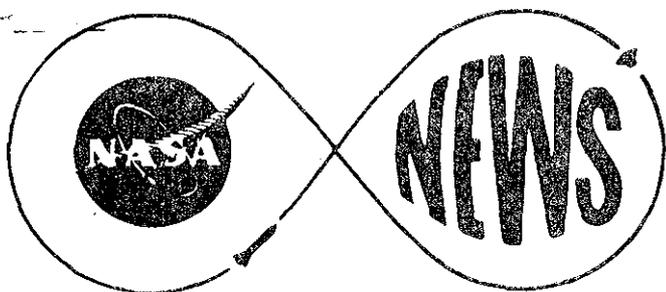
A five-mile stretch of the dunes north of Playalinda Beach is being restored by the repair of approximately 50 cuts across the coastal strand.

The program entails construction of 20 crossover points, a "hitching-rail" barricade to the east of the dune road, revegetation of the most seriously eroded dunes and improvement of some of the parking areas to the west of the dune road on the lee side of the beach.

The stabilized crossovers - construction every quarter of a mile - are designed to channel foot traffic from the parking areas to the sandbagged ramps at the dune crossovers. Completion is scheduled later this year.

# # #

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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

C. T. Hollinshead  
305 867-2468

**FOR RELEASE:**  
August 10, 1973  
Release #KSC-184-73

## BUSY LAUNCH SCHEDULE FOR KSC

KENNEDY SPACE CENTER, Fla.--NASA's current five-year launch schedule reflects increased Delta activities in 1974 which is also the year when the Titan Centaur configuration will be launched for the first time.

The SL-4 manned launch of Saturn 1B is expected to complete the Skylab missions this year, although the third crew to occupy the 100-ton workshop may not return to Earth until January, 1974.

No manned launch will occur in 1974. The joint mission with the Soviet Union, known as ASTP, will be launched in July, 1975. That will be the last Saturn vehicle.

The other missions scheduled from 1973 to 1978:

Space Science - Planetary: two Viking spacecraft to Mars in 1975 on Titan Centaur vehicles; a Mariner probe of Mercury in October, 1973 on Centaur; Helios, a German sun measuring satellite, in 1974 aboard Titan Centaur; Helios, a German sun measuring satellite, in 1974 aboard Titan Centaur and two missions to the outer planets in 1977 utilizing the same type vehicle.

Physics and Astronomy: an Orbiting Solar Observatory, on a Delta vehicle, in 1973; Interplanetary Monitoring Platform, on Delta, 1973; Atmosphere Explorer in 1973, and two in 1975, on Delta; seven Scout launches carrying smaller scientific payloads including one for Britain and another for the Netherlands, in 1974 and 1975, from the Western Test Range and the San Marco platform.

Earth Observations: ITOS weather satellites in 1974, 1975, 1976 and 1978 on Delta vehicles at WTR; two SMS, on Deltas, at ETR in 1974; Nimbus, on Delta, 1977 at WTR; TIROS, at WTR in 1977, on Delta and the second ERTS satellite at WTR on Delta in 1976.

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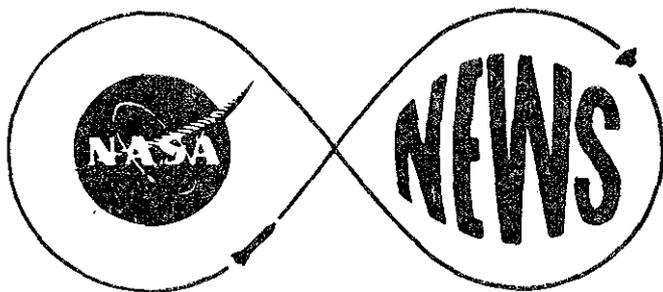
Communications: Applications Technology Satellite, on Titan III C, at ETR in 1974; Lageos, at WTR, in 1976 on Delta; CAS, Delta, 1975, ETR; two Intelsats, on Centaur, at ETR in 1973; three WESTARS, on Delta vehicles, in 1974; two AMERSATS, Delta, 1974 and two COMSATS, on Deltas, also in 1974.

A GEOS spacecraft will be launched on Delta at WTR in 1974.

Planned reimbursable launches on Deltas include a SIRIO satellite for Italy at ETR in 1974, two Skynet communications satellites for Great Britian in 1973 and 1974, and a NATO satellite in 1975.

# # #

AUG 13 1973



**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

C. T. Hollinshead  
305 867-2468

**FOR RELEASE:**  
August 10, 1973  
Release #KSC-185-73

**FIRST SKYLAB CREW RETURNS TO KSC**

KENNEDY SPACE CENTER, Fla.--The first Skylab astronauts will return to Florida Sept. 5 and 6, Dr. Kurt H. Debus, Center Director, announced today.

Commander Charles Conrad, Dr. Joseph Kerwin and Paul Weitz will visit Tallahassee Sept. 5 to present a lunar sample to Governor Reubin Askew.

NASA has scheduled similar presentations to the Governors of the 50 States.

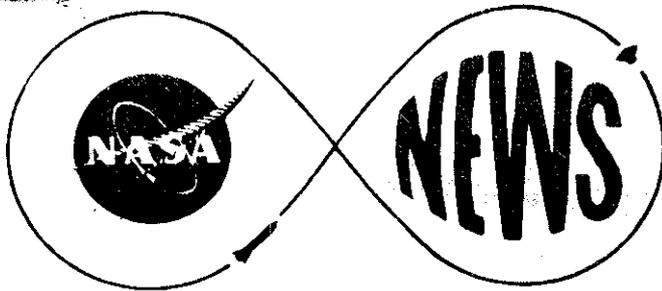
The Skylab crew will return to Kennedy Space Center Sept. 6 for the traditional reunion with the launch organization. A one-hour ceremony is planned in the Vehicle Assembly Building for the work force and astronauts. Dr. Debus will preside. Government and contractor managers will meet the crew at lunch.

In early afternoon the Cocoa Beach Jaycees will arrange a motorcade from Gate 1, Cape Kennedy Air Force Station, through Cape Canaveral and Cocoa Beach along SR A1A to Patrick Air Force Base where the astronauts will board their planes for return to Houston.

Commenting on the activities, Congressman Louis Frey urged the people of Brevard County to turn out for the Parade. "In so doing, we will not only demonstrate our appreciation for these brave adventurers, but also recognize the thousands of other people in our county and elsewhere who provided the technology and backup services which ensured the success of this Skylab mission," Frey said.

# # #

AUG 17 1973



**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

**FOR RELEASE:**

August 16, 1973  
Release KSC-189-73

William O'Donnell  
202 755-3114  
A. H. Lavender  
305 867-2468

**SKYLAB 4 TO OBSERVE COMET: LAUNCH SET FOR NOVEMBER 9**

NASA today announced tentative plans to observe the Comet Kohoutek during the Skylab 4 mission which is planned for launch on or about November 9 from the Kennedy Space Center.

Instruments presently on board Skylab provide a broad capability for comet observations over a range of spectral bands. The observation of Kohoutek will be a part of a broadscoped overall plan being coordinated by NASA's Office of Space Sciences.

Observations by Skylab will commence in mid-November and continue until shortly before mission completion now planned for January 4, 1974. Recovery will be in the mid-Pacific Ocean 300 nautical miles from Hawaii.

The plans are tentative, and will be reviewed after the completion of Skylab 3. If at that time there are technical reasons to launch Skylab 4 earlier - to minimize the length of time of unmanned operations - then it could not be possible to observe the Comet. The possibility of delaying Skylab 4 by about ten days beyond November 9 will also be considered. This would allow observation of the Comet until January 14, while it is receding from the Sun.

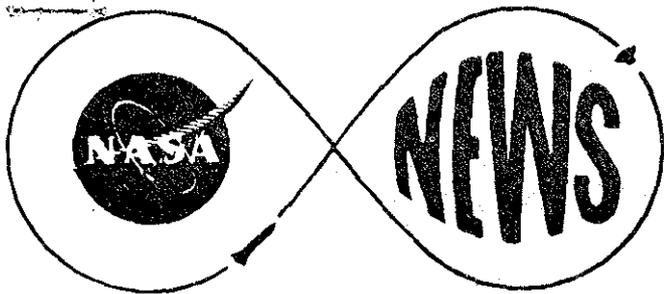
The Comet Kohoutek was identified earlier this year and will be clearly visible from Earth. It is expected to be the brightest object in the night sky except for the Moon, in late December and early January. However, its most important scientific characteristics can only be determined through observation from above the filtering effects of the Earth's atmosphere where Skylab's instruments are built to operate. Skylab's Apollo Telescope Mount instruments, designed to obtain data on the Sun, will observe Kohoutek during its nearest proximity to the Sun late in December.

- more -

NASA also today deleted the requirement to maintain the capability to launch the back-up Skylab Workshop. Earlier plans were to maintain this capability through September 30.

The decision results in the phase-out of certain contractor personnel about six weeks earlier than planned.

# # #



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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

**FOR RELEASE:**  
August 17, 1973  
Release KSC-192-73

## FIRST REDSTONE LAUNCHED 20 YEARS AGO

KENNEDY SPACE CENTER, FL - At 9:37 a.m. August 20, 1953, a slender single-stage missile blasted off from Pad 4 near the tip of Cape Canaveral.

It was the initial launch in a long series for Redstone, the first large ballistic missile developed in the United States.

The successful launch signalled a major step forward in the development of U. S. military missiles. Redstone with modifications became Jupiter A, Jupiter C, Juno I and Mercury-Redstone.

Beginning in late 1945, the U. S. Army brought to the United States 130 scientists and engineers from the Peenemuende development center in Germany. The mission of this group was to assist the Army and its industrial contractors in research, design and development of guided missiles. Dr. Kurt H. Debus, Director of the Kennedy Space Center, was a key member of the group. Dr. Wernher von Braun became technical director.

At this time, the Army Ordnance Corps was conducting a research and development program called Hermes at the White Sands Missile Range, New Mexico. General Electric was the prime contractor. It was decided to incorporate in the Hermes schedule the launching of captured V-2 rockets which would be assembled from components shipped to White Sands.

By 1947, the Army undertook the development of a two-stage rocket called Bumper. The V-2 served as the first stage and the U. S. developed WAC Corporal rocket became the second stage. Eight Bumper launches were conducted between May 1948 and July 1950 to achieve higher altitudes and explore techniques for launching two-stage missiles. On July 24, 1950, Bumper 8 became the first rocket launched from Cape Canaveral, Florida, re-named Cape Kennedy in 1963.

Out of the Hermes program evolved Redstone, conceived as a moveable ballistic missile system for overseas deployment. Coincidental with the missile's development was the growing need for a long-range proving ground and on May 11, 1949, the U. S. Air Force was authorized to establish an overwater range for the use of the Navy, Army and Air Force with the Cape as Station 1 of the Joint Long Range Proving Ground.

The Army decided to consolidate its rocket and guided missile programs at one installation and selected Redstone Arsenal, a former chemical development center near Huntsville, Alabama.

The first project assigned to the new Guided Missile Center at Huntsville was the development of a surface-to-surface ballistic missile for support of ground forces at the theater level. This was the Redstone system consisting of a booster, an instrument compartment and warhead. The warhead would separate after burnout of the booster stage. Redstone was a direct descendant of the V-2. Ground support equipment would include transporters, erectors, firing tables and cranes.

The missile was to have a gross weight of 55,994 pounds, maximum diameter of 70 inches, an overall length of 63 feet, a thrust of 75,000 pounds at sea level, a burn duration of 100 seconds and a range of approximately 150 miles. The propellant was a mixture of alcohol and liquid oxygen. The Redstone's length later was increased to 69 feet.

One of Dr. Debus' duties at Redstone Arsenal was to select a test and launch area for Redstone at the Cape. The Air Force proposed to assemble and check out the missile in a hangar at Patrick Air Force Base, the Range headquarters 18 miles south of the Cape proper. The missile would then be transported to the firing site where it would be erected vertically and launched.

Under this concept, permanent facilities at the Cape would be minimal, i.e., launch pads and blockhouses. This concept proved impractical, however, and the Army decided to use a Redstone assembly building at the Cape.

Dr. Debus first visited the Cape January 7, 1952. At that time the total population of Brevard County, in which the Cape is situated, was less than 24,000 people; its population today is in excess of 225,000. He found on the Cape a lighthouse, an old fishing pier, a quonset hut and primitive launch facilities.

Shortages of funds and personnel combined to delay the first attempt to launch Redstone until 1953. For the initial checkout, Dr. Debus and his small launch crew drove from Huntsville to Florida when the missile left Redstone Arsenal.

At the Cape, the team installed instrumentation in trailers, and converted an oil derrick into a service structure or gantry which was used to check out and fuel the missile. Cost of the gantry was about \$360,000. The structure was 140 feet tall, had cantilivered access platforms and was mounted on railway tracks. It also had a 15-ton hammerhead crane and elevators.

On top of struggling with inadequate funding, personnel shortages and rough accommodations, the launch crew also waged continuous war on hordes of mosquitos and snakes, many of which were poisonous. For office space, the lower section of the gantry and part of a quonset hut were used. The hut's roof leaked badly. Working conditions were so poor that Dr. Debus had some difficulty at the time filling authorized personnel spaces.

People from other Redstone Arsenal organizations were borrowed, resulting in a team of 79 for the first launch. Only 37 were permanently assigned to the launch organization, then known as the Missile Firing Laboratory. All of the launch team, however, had been active in Redstone research and development.

Preliminary checkout of Redstone 1 began July 30, 1953, leading up to the successful launch from Pad 4 near the eastern tip fo the Cape. The rocket traveled 8,000 yards.

Over the next 18 months, five more Redstones were launched from Pad 4. Succeeding launches were conducted from new and permanent facilities designated as Launch Complex 5/6. One blockhouse, or control center, served both pads. Pad 6 was primarily tailored to Redstone vehicles and Pad 5 was later used for Jupiter-type vehicles.

Following the Army's philosophy of in-house development succeeded by industrial contracting for production, the Chrysler Corporation was selected in 1954 to build Redstone missiles in a government-owned plant near Detroit.

Other Redstone contractors included Rocketdyne for engines, Ford Instrument Company for guidance and control and Reynolds Metals Company for basic fuselage sets.

Significant technical achievements in the Redstone program included the first accurate and reliable inertial guidance system and the first demonstrated solution to the reentry heating problem.

In 1954, interest within the scientific community in orbiting an artificial Earth satellite increased appreciably. The Army development organization worked up a satellite proposal called Project Orbiter which would employ a Redstone rocket and a second stage consisting of small, solid propellant rockets developed by the Army, known as Loki. A Navy satellite proposal called Project Vanguard was later selected. The launch vehicle was to be a new three-stage rocket employing the Navy's Viking as the booster.

In 1955, the Army was directed to develop a new intermediate range ballistic missile, called Jupiter, to propel a warhead through space along a ballistic trajectory over 1,500 miles and bring it safely back through the atmosphere. It required a solution to the reentry heating problem. The Army elected to test the ablative method which, in turn, required a booster capable of imparting the necessary velocity which would be encountered in warhead reentry.

For this requirement, a modified Redstone known as Missile 27, or Jupiter C, was assembled at Redstone Arsenal. It had an elongated Redstone first stage to increase burning time, a second stage made up of eleven solid propellant Recruit rockets, a third stage consisting of three Recruits and an inactive fourth stage. The Recruit was a scaled-down version of the Sergeant missile motor. A cylindrical metal container, referred to as the launch tub, held the upper three stages atop Redstone.

The container was spun by means of an electric motor prior to lift off at 550 RPM in order to stabilize the trajectory of the upper stages. During flight, the container rotated at 600 RPM.

The missile was 67.5 feet tall, had a diameter of 5 feet 10 inches and weighed approximately 64,000 pounds. The Redstone booster stage thrust was increased to 83,000 pounds by using a fuel called hydyne (unsymmetrical dimethylhydrazine and diethylene triamine).

Missile 27 was launched September 20, 1956, in secrecy. The nose cone traveled 600 miles into space and reentered successfully approximately 3,300 miles from Cape Canaveral. The data for Missile 27, except for its dummy fourth stage, was identical to the rocket carrier which would orbit the first U. S. satellite 16 months later. The fourth stage in the latter vehicle consisted of a single Recruit rocket and the satellite.

The success of the Soviet Union in launching two Sputniks in October and November 1957, as part of its participation in the International Geophysical Year, dramatically heightened interest in the United States in satellite capabilities. As a direct consequence, the Army was directed November 8, 1957, to prepare a Jupiter C type vehicle to launch an Earth orbiting satellite. Named Juno I, the vehicle arrived at the Cape December 20.

Meanwhile, on December 6 the Navy made its first attempt to orbit a test satellite aboard a Vanguard rocket. Although unsuccessful, it should be noted that the attempt was the first scheduled flight for a complete Vanguard vehicle with all three live stages.

Pre-flight testing of the Juno I first stage was conducted by the launch crew in a hangar while the Jet Propulsion Laboratory, under contract to the Army, assembled the upper stages and packaged the satellite. On January 15, the vehicle was transported by road to Launch Complex 26 several miles distant. Final testing on the pad was completed January 27 and launch was scheduled for the evening of the 29th. High upper winds delayed the launch until the 31st.

At exactly 10:47:56 p.m. on January 31, Juno I blasted off from its pad. Atop it was 30.8 pound satellite called Explorer I. It was 80 inches long, six inches in diameter and carried a payload of 18.13 pounds. When it achieved orbit, it became the first U. S. satellite.

The satellite transmitted data until May 23, 1958, in an orbit of 224 x 1,584 miles. The orbit decayed gradually until the satellite reentered March 31, 1970. Explorer's most significant scientific achievement was the discovery of the Van Allen radiation belt, named for Dr. James Van Allen of the State University of Iowa, whose instrumentation found the belt.

By 1960, virtually all of Dr. Debus' launch team had joined the NASA launch organization at the Cape. The organization later became the Kennedy Space Center and was relocated on adjacent Merritt Island. Dr. Debus was named Director.

Meanwhile, the Redstone vehicle was selected to carry the first U. S. astronaut into space aboard a Mercury capsule. Redstone was modified and test flights were scheduled prior to the first manned launch. The first unmanned launch November 21, 1960, was unsuccessful, but the second a month later was a success.

On January 31, 1961, a chimpanzee called Ham was successfully propelled 422 miles downrange. One final checkout of the Mercury-Redstone space vehicle took place with a successful unmanned launch on March 24, 1961.

At 9:34 a.m., May 15, 1961, fire burst from the engine nozzle of a slender black and white rocket poised on Pad 5. Atop the rocket in a black cone-shaped Mercury capsule, named Freedom 7, rode Alan B. Shepard, Jr. He became the first American in space as he piloted the spacecraft on a southeastward trajectory to a splashdown 15 minutes later in the Atlantic.

Shepard's historic flight was followed by a similar Mercury-Redstone mission on July 21, 1961, when the late Virgil Grissom successfully completed what was the final Mercury-Redstone mission.

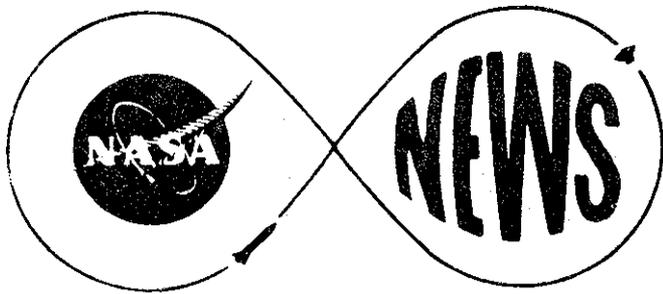
Mercury-Redstone launches initiated the NASA manned space program that progressed through Mercury-Atlas orbital missions, two-man Gemini flights, Apollo lunar explorations and the current two-month visits to the Skylab space station.

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AUG 22 1973  
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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

**FOR RELEASE:**  
August 20, 1973  
Release #KSC-193-73

## NOTICE TO EDITORS/NEWS DIRECTORS

KENNEDY SPACE CENTER, FLORIDA - INTELSAT-IV-F-7 is scheduled to be launched from Complex 36, Cape Kennedy, Thursday, August 23. A launch window opens at 6:57 p.m. EDT and extends to 7:32 p.m. A second launch window opens at 8:01 p.m. and extends to 8:27 p.m.

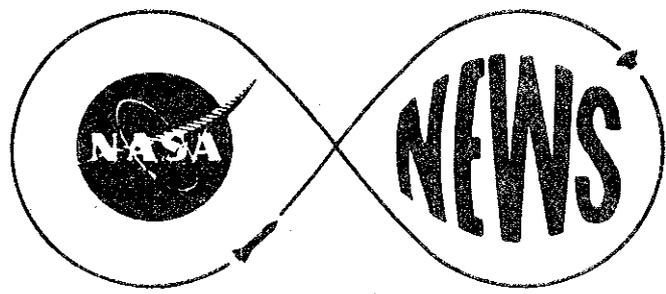
A prelaunch press conference is scheduled at the Kennedy Space Center's Skylab News Center, 7011 N. Atlantic Avenue, Cape Canaveral, at 2:30 p.m. EDT, Wednesday, August 22.

Transportation to the Press Site to cover the launch will be provided, with a vehicle for photographers departing the Skylab News Center at 5:15 p.m. and a vehicle for writers departing at 5:45 p.m.

NASA will launch the INTELSAT-IV communications satellite for the Communications Satellite Corporation.

# # #

SEP 13 1973



**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

C. T. Hollinshead  
305 867-2468

**FOR RELEASE:**  
September 11, 1973  
Release #KSC-207-73

**SKYLAB 4 READY FOR RESCUE OR NORMAL MISSION**

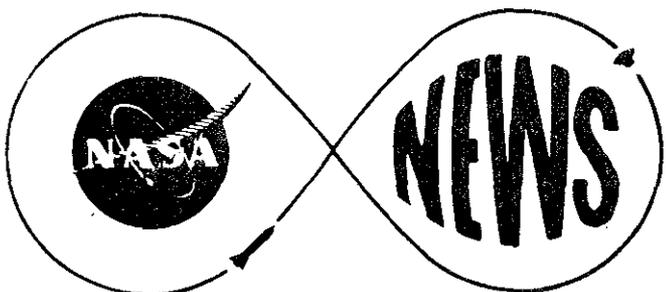
KENNEDY SPACE CENTER, Fla.--Checkout operations for the Skylab 4 space vehicle went into a hold period at Kennedy Space Center this morning. The checkout preparations have continued up to this time at a somewhat accelerated pace so the Skylab 4 could be in a position to act as a rescue vehicle if needed.

The space vehicle is now ready for hypergolic loading. Hypergolics are fuels used in the command service module reaction control system and the auxillary propulsion system of the launch vehicle second stage. Following the loading of the hypergolic fuels, spacecraft ordnance is loaded, RP-1 first stage fuel is loaded, and preparations are made to begin the final countdown. These activities, including hypergolic loading, will not be conducted until a firm launch date is set.

The current planning date for Skylab 4 launch is November 11. After a successful recovery of the Skylab 3 crew, scheduled for September 25, the launch team at Kennedy Space Center will begin its normal flow leading to a November 11 launch. The critical flight readiness test, an overall check of the space vehicle when it is in as close as practicable to a flight ready condition, will be rerun before beginning the hypergolic fueling.

# # #

SEP 14 1973  
6:10



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
September 13, 1973  
Release #KSC-208-73

## SKYLAB TO BE VISIBLE OVER CENTRAL FLORIDA

KENNEDY SPACE CENTER, Fla.--The Skylab space station will be visible to Central Florida viewers during six orbital passes from September 16 - 30. The Skylab orbital assembly will include the Skylab 3 command service module launched by a Saturn IB from the Kennedy Space Center on July 28 until undocking, reentry and splashdown, now scheduled for September 25.

This sighting chart is for the Orlando area but the data is applicable to much of Central Florida.

"Pickup time" means the time of first sighting and is given in Eastern Daylight Time. "Range" means the distance of the spacecraft from the viewer in statute miles. Maximum elevation is given in terms of degrees above the horizon.

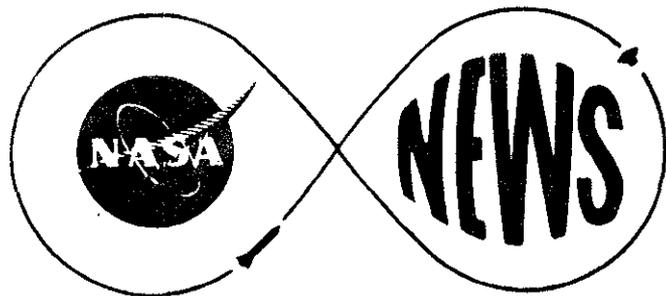
<u>Date</u>	<u>Pickup Time</u>	<u>Direction of Movement</u>	<u>Duration of Visibility</u>	<u>Maximum Elevation</u>	<u>Range</u>
9/16	7:58 p.m.	W to S	5.5 minutes	24 degrees	568
9/25	6:50 a.m.	S to NE	6 minutes	32 degrees	462
9/26	6:07 a.m.	S to E	5 minutes	19 degrees	665
9/27	5:24 a.m.	SE to E	2.5 minutes	11 degrees	888
9/28	6:15 a.m.	SW to NE	7 minutes	79 degrees	272
9/30	6:26 a.m.	W to N	5 minutes	18 degrees	675

During a viewing pass, Skylab will appear as a moving star with a variable brightness ranging from that of the most brilliant star in the sky down to the sixth magnitude, which is barely visible to the naked eye.

These computations were provided by the Marshall Space Flight Center in Huntsville, Alabama, and will be updated at bi-weekly intervals.

# # #

SEP 14 1973 B14  
2100



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

**FOR RELEASE:** Friday  
September 14, 1973  
Release #KSC-210-73

## FREEZE PREDICTION CONTRACT TO UNIVERSITY OF FLORIDA

KENNEDY SPACE CENTER, Fla.--Florida fruit and vegetable growers will follow with interest a feasibility study on an improved surface temperature prediction system during periods of freeze conditions under a Kennedy Space Center contract awarded to the University of Florida.

KSC awarded a \$25,420 contract for a study of the application of remote sensing devices for temperature evaluation to the university's Institute of Food and Agricultural Sciences.

Investigating earth-air interface relationships through the use of remote sensors, the contractor will attempt to find if development of a predictive analytical model for determination of interface temperatures and duration of freeze conditions is feasible.

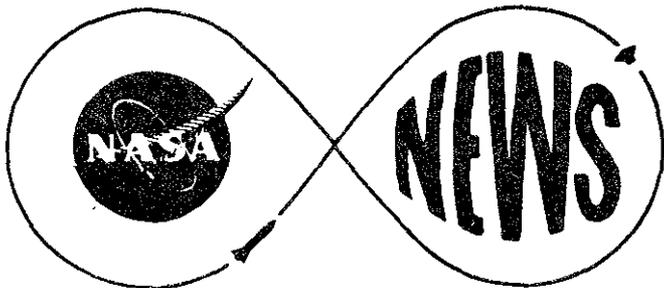
The university will conduct the investigations in an agricultural area of peninsular Florida.

At present, freeze warning data is provided by a 300-station Federal-State Agricultural Weather Service system, using its own data and information from a 100-station National Weather Service climatological network and University of Florida reporting stations.

Although there has been extensive work on development of minimum temperature prediction models using these measurements, large scale evaluation of the predictions has been difficult since information was based on temperature readings from scattered locations.

Through remote sensing techniques, topographic temperature data on broad geographic areas could be available for prediction of freezing conditions.

# # #



A. H. Lavender  
305 867-2468

**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

FOR RELEASE: Friday  
September 14, 1973  
Release #KSC-209-73

**STUDY CONTRACT AWARD TO FLORIDA INSTITUTE OF TECHNOLOGY**

KENNEDY SPACE CENTER, Fla.--NASA's Kennedy Space Center has awarded a \$75,000 contract for study of hypergolic propellant liquid and vapor disposal methods to the Florida Institute of Technology, Melbourne, Florida.

FIT's Department of Space Sciences and Mechanical Engineering will compile data on current methods of disposal of the propellants, both fuels and oxydizers, that spontaneously ignite upon contact, surveying techniques of users and manufacturers in the United States and other countries.

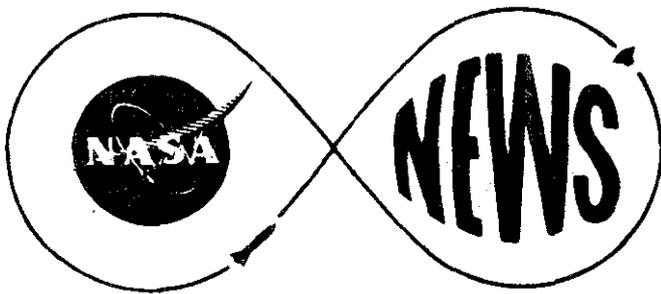
Hypergolic propellants are used in most spacecraft launched from the Kennedy Space Center and will also be used in the Space Shuttle orbiter.

Various disposal techniques will be studied and recommendations for adoption of new KSC methods will be submitted.

While recommendations are for methods to be used during Space Shuttle operations in the late 1970s, faster and more effective disposal techniques could be adapted to KSC operations earlier.

# # #

SEP 19 1973 614  
8101



## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
September 18, 1973  
Release #KSC-212-73

### MARINER VENUS-MERCURY LAUNCH SCHEDULED FOR NOVEMBER

KENNEDY SPACE CENTER, Fla.--Preparations are on schedule for the early November launch of Mariner Venus-Mercury on history's first dual-planet mission.

To be designated Mariner 10 after launch, the 1,100-pound spacecraft will be the first to use one planet's gravitational field (that of Venus) to propel it on to another (Mercury). It will also involve the first exploration of Mercury, closest planet to the Sun.

Atlas-Centaur 34 has been erected on Complex 36-B and is now undergoing checkout by an Unmanned Launch Operations launch team.

The spacecraft is in Cape Kennedy's Hangar AO undergoing buildup and checkout. The project is under the management of the Jet Propulsion Laboratory. The spacecraft was designed and built by the Boeing Company using much of the technology developed on the JPL Mariner 1969 and 1971 programs.

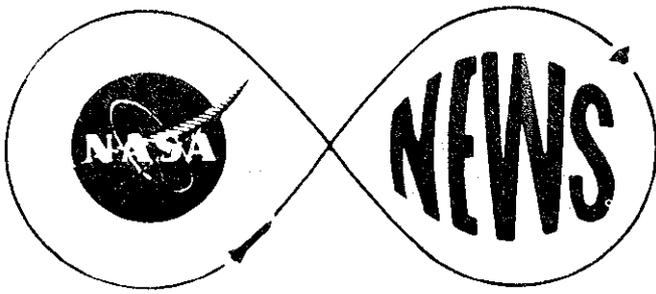
Current scheduling calls for the spacecraft to be moved into the Explosive Facility September 28 for installation of ordnance and loading of hypergolic propellants. It is to be encapsulated and mated with its launch vehicle on October 18.

Major tests further down the line include the Flight Events Demonstration to be conducted October 19 and the Composite Electrical Readiness Test scheduled for October 23.

The spacecraft's trajectory will carry it to within 3,000 miles of Venus in February, 1974, and it will make an approach to within 600 miles of Mercury in March, 1974.

Two television cameras aboard Mariner 10 will take about 8,000 pictures of the two planets. Six other scientific experiments will be conducted to return planetary and interplanetary data, with primary emphasis on Mercury.

# # #



**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
September 18, 1973  
Release #KSC-213-73

**FINAL IMP TO BE LAUNCHED BY KSC IN LATE OCTOBER**

KENNEDY SPACE CENTER, Fla.--The tenth and final spacecraft in the Interplanetary Monitoring Platform (IMP) series is scheduled for launch from Complex 17 atop a Delta by KSC's Unmanned Launch Operations no earlier than October 25.

The launch window for October 25 extends from 9:11 - 9:32 p.m. EDT.

IMP-J is to be placed in a nearly circular orbit of 119,774 by 145,950 miles. It will be placed approximately 180 degrees away from IMP-H (Explorer 47) which was launched into a similar orbit by KSC September 22, 1972.

Both are automated space physics laboratories designed to continue the study of interplanetary radiation, solar wind and energetic particle emissions and magnetic fields in the Earth environment from an orbit reaching about halfway to the Moon.

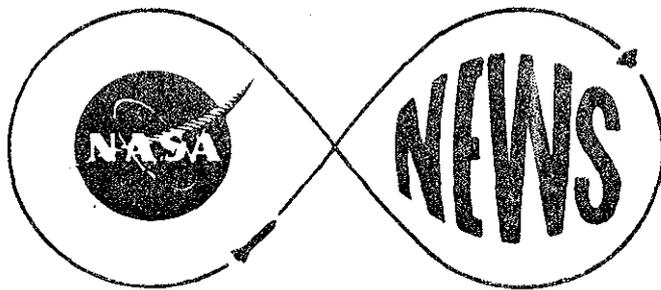
The IMP/Explorer series has permitted the monitoring of solar radiation during an entire solar cycle of 11 years.

The Delta first and second stages were erected on the pad last week and the six solid rocket strap-on motors have been mated with the booster stage. The third stage has been built up and 877-pound spacecraft is scheduled to arrive late this week.

The third stage and spacecraft are to be mated on October 11. The combined third stage and spacecraft are to be erected atop the first two stages the following day.

The two spacecraft will also form a reference point for data being received from other spacecraft such as Pioneers 10 and 11, which are taking measurements in deep space as they hurtle toward a rendezvous with the planet Jupiter.

# # #



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

FOR RELEASE:  
September 18, 1973  
Release #KSC-215-73

## TITAN/CENTAUR "CORE" TO BE MATED WITH SOLID ROCKET BOOSTERS

KENNEDY SPACE CENTER, Fla.--The liquid-fueled "core" vehicle of the Titan/Centaur which will be launched on its "proof" flight in mid-January, 1974, was moved from the Vertical Integration Building to the Solid Motor Assembly Building in the Titan III Complex in the Banana River on Monday, September 17.

Twin 85-foot-tall solid rocket strap-on boosters will be attached to the "core" this week and movement of the triple-barreled Titan/Centaur to Complex 41 overlooking the Atlantic Ocean is scheduled for Monday, September 24.

Titan/Centaur marries the Titan III core vehicle and its twin solid rocket boosters with the NASA Centaur high-energy final stage. Centaur uses liquid hydrogen as a fuel.

This is a supercold, light, high-energy fuel which has approximately 40 per cent more bounce to the ounce than conventional rocket propellants.

The 160-foot-tall Titan Centaur configuration is designed to carry heavy payloads on orbital and planetary missions during the mid and late 1970s.

Liftoff thrust of the twin solid boosters is 2.4 million pounds.

Among the missions slated for Titan/Centaur are launch of the twin Viking Mars spacecraft in 1975 and the joint United States-West German Helios missions in toward the Sun.

On its proof flight early next year, Titan/Centaur will carry a mass model of the Viking spacecraft and a 145-pound Space Plasma High Voltage Interaction Experiment (SPHINX) spacecraft. The Viking dynamic simulator will not be separated from Centaur during the flight but the SPHINX spacecraft will be separated at the end of the Centaur's third burn for a year-long mission measuring the interaction of the space plasmas with high voltage surfaces.

Total weight of the Titan/Centaur-1 payload is 7,959 pounds.

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Purpose of the proof flight is demonstration of the Titan/Centaur launch vehicle and launch facilities to support operational missions; demonstrate Centaur capability to perform both an operational two-burn mission, with an extended parking orbit coast, and an operational three-burn orbit mission carrying a payload to synchronous altitude of 22,300 statute miles.

The effort to integrate the Titan with the Centaur began in the mid 1960s when NASA-Lewis Research Center studies were conducted to define an improved Centaur vehicle to integrate the Centaur with the USAF Titan III booster.

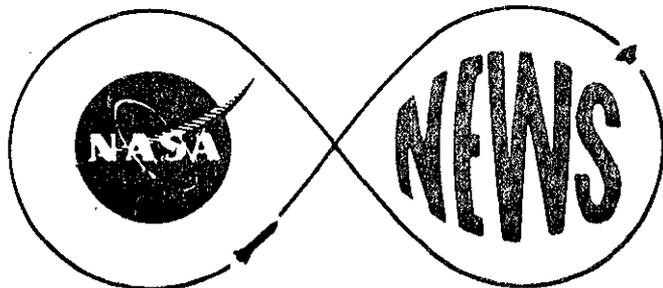
The development was undertaken because NASA recognized the need to fill a performance and cost gap between the Atlas/Centaur and Saturn launch vehicles.

The unique capabilities of the Titan/Centaur - which provide a high energy restartable upper stage - fill the need for a launch vehicle capable of delivering larger and heavier payloads to interplanetary trajectories and synchronous orbits.

A three-day baseline review of Titan/Centaur facilities, flight hardware and launch operations was concluded at KSC last Thursday. The meeting was attended by approximately 240 NASA, Air Force and contractor personnel.

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SEP 25 1973  
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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

FOR RELEASE: SUNDAY  
September 23, 1973  
Release #KSC-216-73

## SPACE SHUTTLE FACILITY CONSTRUCTION TO BEGIN IN 1974

KENNEDY SPACE CENTER, Fla.--The reshaping of Launch Complex 39 to prepare the nation's Spaceport for its new role as prime launch and recovery site for the Space Shuttle will get underway during the first quarter of 1974.

The first facility to be built will be the runway to be constructed on a northwest - southeast alignment a short distance northwest of the Vehicle Assembly Building.

And like all of the facilities needed to usher in the Space Shuttle era in the late 1970s, it has been designed and engineered to reduce the environmental impact to a minimum.

Among the factors which led to KSC's designation as the prime shuttle site was the existence of Launch Complex 39 with structures and facilities readily adaptable to shuttle requirements.

Saturn V/Apollo Complex 39 with its twin pads and supporting systems is suitable for Space Shuttle needs. The huge VAB - used in the Apollo and Skylab programs - will be modified for erection and mating of the booster and orbiter in the high bay portion. Other areas of the VAB will be adapted to additional space shuttle functions.

The existing Industrial Area will provide shop, laboratory, office and warehousing facilities.

Among the new facilities to be needed for the shuttle era are those required for solid rocket motor receiving, storage and recovery/disassembly, orbiter maintenance and checkout and a landing site for orbiter landings on their return from missions into space.

Darwin Brown, the Shuttle Projects Office Engineer who headed the task force preparing the Environmental Impact Statement required on all federal projects, said "every effort was made to minimize the impact of the new shuttle facilities on the environment.

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"When an existing facility could not be used," said Brown, "studies were initiated to determine the best site, weighing equally the concerns of environment, cost and operations."

During the construction period, it is planned to continually monitor environmental conditions at KSC. It is intended that the information gained will be made available to interested agencies and be used as a basis to guide Center efforts to protect the environment.

This work will be accomplished in cooperation with the local representatives of the Bureau of Sport Fisheries and Wildlife, Department of the Interior.

The impact study notes:

"Considerations of operating modes indicate that long and short term land uses will not affect wildlife productivity. The potential for adverse environmental impact is small; such impacts that are foreseen will be local, short in duration, controllable and environmentally acceptable...Where the possibility of some detrimental impact exists, operational constraints will be imposed to minimize these impacts."

Maintenance of environmental stability and planned multiple land use has been stressed at KSC. KSC is also the location of the Merritt Island National Wildlife Refuge. The 140,000-acre Refuge consists of virtually all of the Spaceport's 83,000 acres of land not in operational use plus the surrounding submerged bottomlands in the Indian and Banana Rivers and Mosquito Lagoon owned by the State of Florida.

The shuttle landing site is comprised of the runway, tow-way, Flight Operations Facilities and equipment for the support and safety of flight operations.

According to Brown, "the initial runway installation will be 15,000 feet long by 300 feet wide with 1,000 foot overruns at each end."

The land area required for the landing site is approximately 540 hectares (1,350 acres). The major portion of the area planned for use is high, dry land. Its use before the Spaceport lands were purchased in the early 1960s was primarily agricultural.

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The sites for the buildings, tow-way and the runway will be excavated to a depth of 45 to 75 centimeters (1.5 to 2.5 feet), removing approximately 1,514,250 cubic meters (1,850,000 cubic yards) of material unsuitable for stabilizing the landing facility.

This material will be retained in the site area and used for diking and as mulch blanket for grassing along the sides of the runway.

Approximately 1,663,875 cubic meters (2,175,000 cubic yards) of fill material will then be added to raise the surface of the runway to an elevation of approximately 3 meters (9 feet) above mean sea level.

Present plans are to use mobile scraper type earth moving machines and/or portable dredges to relocate the fill material required for the project. Studies are now being conducted to determine the most economical methods that would result in minimum impact upon the environment.

Present plans are to construct a borrow canal parallel to the runway to obtain fill material.

Obtaining fill material will displace some wild animals and affect natural vegetation but it is expected that an improved aquatic wildlife habitat and productivity should result.

In fact, from observations during the Apollo construction period, the landscaping, seeding, sodding, planting of trees and shrubs along with the maintenance of drainage ditches seem to enhance the growth of wildlife.

The extensive network of existing mosquito control dikes effectively isolates the construction site from the riverine habitat and controlled drainage of the site using culverts and sediment screens will minimize sedimentation of Banana Creek.

According to Steve Harris, Runway Lead Engineer for KSC's Design Engineering Directorate, the first phase construction contract will be let in the first quarter of Calendar Year 1974 and plans call for completion of Phase I by mid-1976.

Harris said Phase I work consists of site clearing and preparation, embankment and paving of the landing strip and tow-way, airfield lights and partial utilities to support airfield lighting and acceptance tests.

The remaining two phases in the construction process will bring the landing facility to a state of operational readiness by the end of 1977.

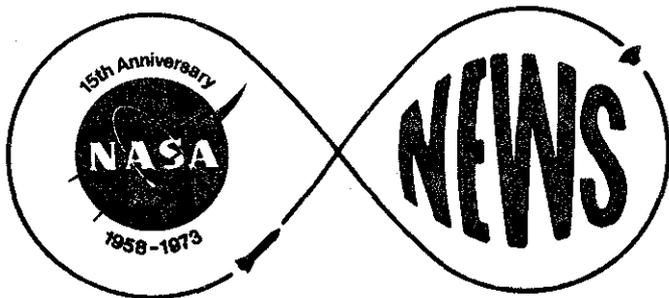
The beginning of construction and modifications on the other shuttle facilities will follow on this schedule, by calendar years: Orbiter Maintenance and Checkout Facility, 1975; Vehicle Assembly Building modifications, 1975; Mobile Launcher modifications, 1975; Launch Pad modifications, 1975; Hypergolic System Facility, 1976; Solid Rocket Booster Facility, 1976, and Parachute Processing Facility, 1976.

Among the other potential sites investigated for the landing facility was the existing Skid Strip at Cape Kennedy Air Force Station. It was found to be lacking in length, lighting and landing aids. Its remoteness from the Launch Complex 39 - VAB area made it both operationally and economically unattractive.

In addition to higher operating costs due to longer vehicle processing time, an increased risk would also have been incurred in that overflight of the KSC Industrial Area and possibly Titusville would have been necessary to assure a two-directional landing capability.

Another factor in eliminating the Skid Strip site was a probable interference with the existing Victor 3 low altitude, main, north-south coastal flyway which borders Merritt Island along the Indian River. This would necessitate a periodic closing of the airway or relocating it to a more westerly non-interfering location.

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**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

**FOR RELEASE: MONDAY**

October 1, 1973

Release #KSC-217-73

C. T. Hollinshead  
305 867-2468

**SPACEPORT BUSY AT 15TH ANNIVERSARY**

KENNEDY SPACE CENTER, Fla.--NASA's 15th anniversary October 1, 1973 finds the major launch team fully occupied in preparing vehicles and spacecraft for two launches in October and two more in November.

KSC will launch a meteorological satellite in mid-month for the National Oceanic and Atmospheric Administration from the Western Test Range in California.

An interplanetary monitoring platform will be launched aboard a Delta rocket October 26 from Complex 17 at Cape Kennedy. The Mariner spacecraft equipped to explore the environment near Venus and Mercury will be launched on a Centaur vehicle about November 1 from Complex 36.

The third and last Skylab astronaut crew will be launched on a Saturn 1B vehicle from Complex 39 November 11.

Another Intelsat international communications satellite may be launched from Complex 36 in December. In that same month the Pioneer craft launched from Cape Kennedy two years ago will fly by Jupiter.

Awaiting launch in January, 1974 is the first Titan Centaur vehicle at Complex 41. This is a proof flight for the new booster which will be used in 1975 to send two Viking spacecraft to Mars.

While some further reduction in contractor manpower will occur as the Skylab program approaches its end, KSC is designing additional facilities in support of the Space Shuttle which must be ready for the new transportation system when it reaches the launch base in 1977.

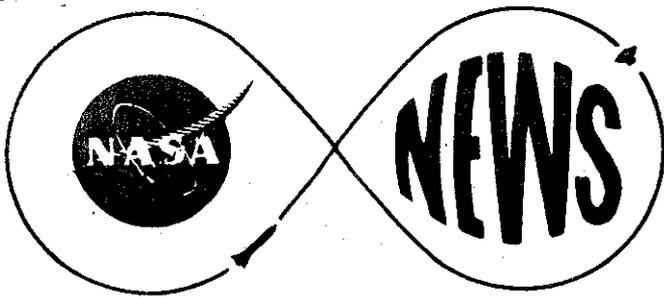
Shuttle facilities construction is expected to commence in 1974 and will be virtually completed by the end of 1976.

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The next two years will see an increase in the launching of automated communications satellites by virtue of franchises awarded to U. S. firms recently by the Federal Communications Commission. NASA will provide vehicles for them under reimburseable arrangements.

Within the Government launch organization are many employees who joined NASA in its formative phase and shortly thereafter. Some were then engaged in the Vanguard project which launched scientific Earth satellites, or in planetary exploration for which the Jet Propulsion Laboratory designed spacecraft. Still others were identified with the Space Task Group which conducted Project Mercury, or the former Army launch team which tested Redstone, Jupiter and Pershing missiles.

# # #



Dick Young  
305 867-2468

**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

**FOR RELEASE:**  
September 25, 1973  
Release #KSC-218-73

**"KASEY" 'GATOR OUTGROWS KSC POND**

KENNEDY SPACE CENTER, Fla.--"Kasey II", KSC's second 'gator-in-residence at the pond in front of the Headquarters Building, has outgrown his home and will soon be moved to a Spaceport wild area populated with others of his breed.

Kasey II appeared in the Headquarters Building pond in late 1972 shortly after the first Kasey disappeared from the pond in which he had made his home for approximately three years.

Robert Yoder, Manager of the Merritt Island National Wildlife Refuge, said that the second generation Kasey now measures approximately 5 feet in length and weighs about 60 pounds.

Yoder said the decision to relocate the alligator was made jointly by KSC and Refuge management.

"Kasey is to be removed for his own safety and the safety of Center personnel," said Yoder. "He's become too tame and has lost his fear of man.

"He will be relocated to an area where he won't come into contact with people and will revert to the wild," said Yoder.

Kasey II will be replaced with several small ones.

The 'gators which have taken up residence in the Headquarters Building pond have augmented their natural food supply in the pond with handouts by KSC personnel who fed them with scraps brought from home or the Center's several cafeterias.

Kasey's increasing size and increasing tameness as well as several recent incidents in which alligators have attacked humans were responsible for the decision to move him to wilder haunts.

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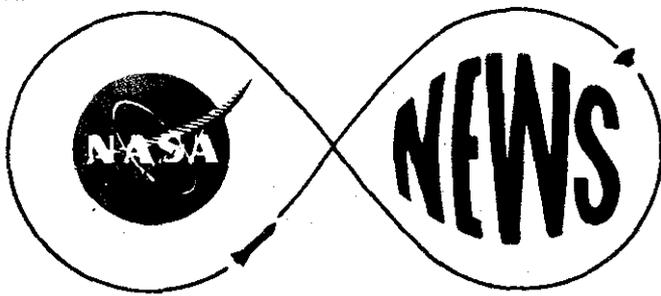
The KSC 'gator population is estimated at 2,000 - 2,500 reptiles. Yoder noted that the size of the 'gator population is increasing gradually but does not appear to be following the dramatic upward trend purportedly taking place elsewhere in Florida.

The original "Kasey" received his (her?) name in a contest among Spaceport personnel. The name is a direct play on the Kennedy Space Center acronym - KSC.

Concentration of the alligator population in borrow pits and in such areas as Shiloh Marsh and the southern end of Mosquito Lagoon gives the impression that the KSC 'gator population is larger than it is.

According to some authorities, cannibalism - with the larger ones eating the smaller ones - tends to keep concentrated alligator populations under some form of natural control.

# # #



Dick Young  
305 867-2468

**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

**FOR RELEASE:**  
September 25, 1973  
Release #KSC-219-73

**SKYLAB RESCUE CRAFT TO RECEIVE ALTITUDE TEST**

KENNEDY SPACE CENTER, Fla.--The command/service module which will be readied for a possible rescue mission following the launch of the Skylab 4 crew on the final manned mission planned for the Skylab Program will be given a manned altitude test on Thursday.

Skylab 4 crewmen Gerald P. Carr, Dr. Edward G. Gibson and William R. Pogue are scheduled for launch from Complex 39's Pad B atop a Saturn IB rocket at 11:04 a.m. on November 11.

Shortly after their launch, the modified mobile launcher will be returned to the Vehicle Assembly Building for erection of the booster and second stage of the Saturn IB and mating of the rescue spacecraft.

The spacecraft for that possible rescue mission is now in an altitude chamber of the Manned Spacecraft Operations Building.

Participating in the altitude run of the spacecraft scheduled to begin at 8:00 a.m. Thursday will be Astronauts Vance D. Brand and Don L. Lind, who have been designated crewmen for a rescue mission. Assisting them will be Astronaut Henry W. Hartsfield, Jr.

The altitude chamber will be pumped down to simulate the near vacuum of space at approximately 200,000 feet. The test is designed to check spacecraft integrity and the operation of its life support and communications systems.

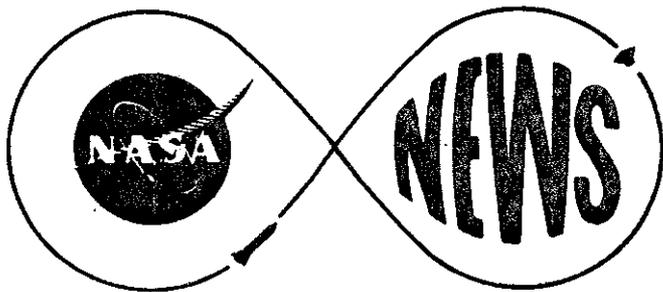
Charles D. Gay, Acting Chief of KSC's Spacecraft Operations Division, said the altitude run will be conducted with the "rescue kit" installed. The rescue kit consists of additional crew couches, oxygen hoses and communications harnesses.

A rescue mission would entail the launch of a two-man crew and the rescue kit would enable the spacecraft to accommodate the three crewmen aboard Skylab for the return trip to Earth.

-more-

Although only Brand and Lind would be launched on an actual rescue mission, Gay said, Hartsfield is participating in the altitude test for safety purposes and to perform lower equipment bay functions which must be performed during the test but would not be required for an actual launch.

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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Weida McAuley  
305 867-2468

**FOR RELEASE:**  
September 26, 1973  
Release #KSC-220-73

## SKYLAB TO BE VISIBLE OVER CENTRAL FLORIDA

KENNEDY SPACE CENTER, Fla.--The Skylab space station will be visible during four orbital passes to Central Florida viewers.

This sighting chart is for the Orlando area but the data is applicable to much of Central Florida.

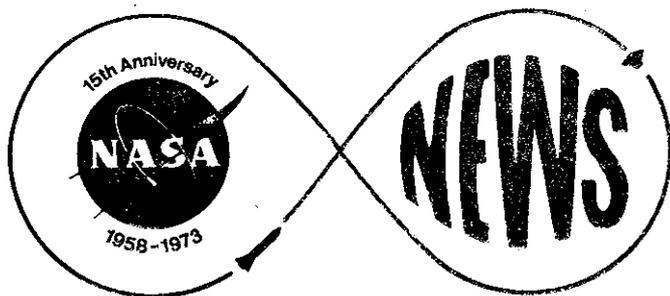
"Pickup time" means the time Skylab first becomes visible and is given in Eastern Daylight Time. "Range" means the distance of the space vehicle from the viewer in statute miles. Maximum elevation is given in terms of degrees above the horizon.

<u>Date</u>	<u>Pickup Time</u>	<u>Direction of Movement</u>	<u>Duration of Visibility</u>	<u>Maximum Elevation</u>	<u>Range</u>
10/15	6:54 a.m.	N to E	5 Min 49 Sec	25 degrees	539
10/16	6:10 a.m.	N to E	4 Min 43 Sec	17 degrees	708
10/17	5:27 a.m.	N to NE	2 Min 47 Sec	11 degrees	867
10/18	6:19 a.m.	NW to SE	6 Min 45 Sec	70 degrees	278

During a viewing pass, Skylab will appear as a moving star with a variable brightness ranging from that of the most brilliant star in the sky down to the sixth magnitude, which is barely visible to the naked eye.

This data was provided by the Marshall Space Flight Center in Huntsville, Ala., and will be updated at bi-weekly intervals.

# # #



## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

**FOR RELEASE:**  
September 28, 1973  
Release #KSC-223-73

A. H. Lavender  
305 867-2468

### OCTOBER 1-6 PROCLAIMED SPACE WEEK

KENNEDY SPACE CENTER, Fla.--NASA's 15th anniversary was recognized by many Florida county and municipal governments and the Brevard County School System in messages to the Kennedy Space Center.

NASA Day was proclaimed for October 2 by Brevard County Superintendent of Schools Dr. Luther Rogers. Rogers' letter to Dr. Kurt H. Debus, Center Director said:

"The Brevard County school district is happy to join with the National Aeronautics and Space Administration and Kennedy Space Center in the celebration of the fifteenth anniversary of NASA. We recognize that the space program within our county has gained us a national reputation and has provided many leadership opportunities. We thank you for the opportunity to participate in so great an effort through these years.

"As Superintendent, I am proclaiming Tuesday, October 2, 1973 as NASA Day in the Brevard County school district. On this day our 68 schools and 60,000 students will give special recognition to the space program's many contributions to mankind.

Metropolitan Dade County proclaimed October 1-6 as Space Week. The proclamation, signed by Mayor John B. Orr, Jr., stated:

"The National Aeronautics and Space Administration, which has made possible the successful exploration of outer space, helping unravel the bountiful secrets of the universe, will observe its 15th anniversary with activities centered about the Kennedy Space Center, whose location in Florida has placed both our state and Dade County in the international spotlight.

"I call upon the people of Metropolitan Dade County to join with me in showing our fullest measure of appreciation to the National Aeronautics and Space Administration for its invaluable role in the noble pursuit of the exploration of space and the universe in which we live."

-more-

Indian Harbour Beach proclaimed October 1-6 as Space Week. A proclamation signed by Mayor-Commissioner Charles A. Francois pointed out "the tremendous achievements of the National Aeronautics and Space Administration."

Space Week was proclaimed by Melbourne Beach, calling upon all of the city's people "to join in honoring our space achievements and all who participate in this most important and beneficial program." The proclamation was signed by Mayor John M. Hunt.

Neighboring Volusia County also proclaimed October 1-6 as Space Week. The proclamation, signed by Volusia County Council Chairman Joseph Benedict, III, stated, "The citizens of Volusia County and the State of Florida should take great pride, along with other Americans, in the accomplishments of the National Aeronautics and Space Administration, which has established our nation as the leader in space exploration and technology and which has brought international acclaim and interest to our State."

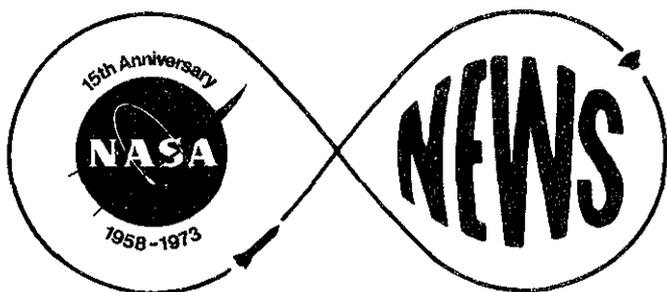
The City of Orlando proclaimed October 1-6 as Space Program Appreciation Week. Mayor Carl T. Langford wrote that "man's conquests of space have constituted the most momentous geographic events of all time, culminating in landings on, and explorations of, the moon. I...urge all citizens to reflect solemnly and prayerfully upon the magnificent achievements of the heroic pioneers in this field and upon the awesome possibilities for the future."

Mayor Randolph Wedding of St. Petersburg, in a proclamation designating October 1-6 as Space Week, wrote:

"I call upon all citizens to observe the fifteenth anniversary of the National Aeronautics and Space Administration."

The City of Miami also proclaimed October 1-6 as Space Week. Mayor David T. Kennedy wrote: "I urge the people of Miami to be aware of the accomplishments of the staff of NASA who have worked untiringly to conquer unknown areas for the benefit of mankind and I urge all residents to recognize the fame the Space Center has brought to Florida and Miami."

# # #

Byd  
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Dick Young  
305 867-2468

## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

### FOR RELEASE:

Sept. 28, 1973  
KSC-224-73

Note to Editors/News Directors

### IMP-J SPACECRAFT SHOWING SCHEDULED FOR OCT. 4

A press showing of the Interplanetary Monitoring Platform-J (IMP) will be conducted by the Kennedy Space Center Public Information Office in Hangar S on Cape Kennedy Air Force Station Thursday, October 4.

IMP-J is the tenth and final spacecraft in this series of automated space physics laboratories which has permitted the monitoring of solar radiation during an entire solar cycle of 11 years.

IMP-J is scheduled for launch from Complex 17 atop a Delta rocket no earlier than October 25. The launch window for that date extends from 9:11 - 9:32 p.m. EDT.

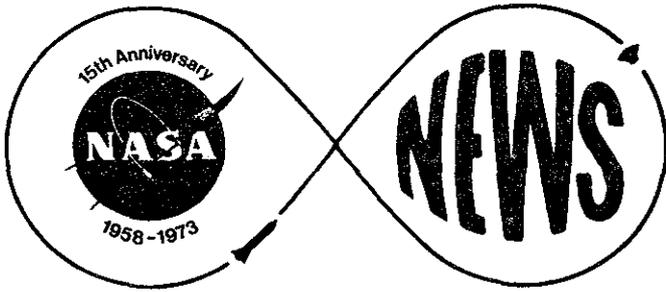
Members of the media covering the spacecraft showing will be admitted into the Hangar S "clean room" for viewing and photographic purposes. Project personnel from the Goddard Space Flight Center and Kennedy Space Center will be on hand to make a brief presentation on the mission and answer press questions.

Members of the press planning to cover the IMP-J showing should be at the KSC News Center at the Headquarters Building - Room 1207 - no later than 9:30 a.m. October 4.

Still photographers or TV camera operators with questions on lighting restrictions may contact Dick Young, 867-2468. This is THE flight spacecraft and photo floodlights can not be used. Most other forms of illumination are acceptable.

Newsmen planning to cover this event are requested to call the KSC News Center by October 3 in order that arrangements can be made for transportation and "clean room" entry.

# # #



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**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**  
John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
October 2, 1973  
Release #KSC-226-73

NOTE TO EDITORS/NEWS DIRECTORS - IMPORTANT SCHEDULE CHANGE

IMP-J SPACECRAFT SHOWING RESCHEDULED FOR OCT. 5

A press showing of the Interplanetary Monitoring Platform-J (IMP) spacecraft - originally scheduled for October 4 - will be conducted by the Kennedy Space Center Public Information Office in Hangar S on Cape Kennedy Air Force Station on FRIDAY, OCT. 5.

IMP-J is the tenth and final spacecraft in this series of automated space physics laboratories which has permitted the monitoring of solar radiation during an entire solar cycle of 11 years.

IMP-J is scheduled for launch from Complex 17 atop a Delta rocket no earlier than October 25. The launch window for that date extends from 9:11 - 9:32 p.m. EDT.

Members of the media covering the spacecraft showing will be admitted into the Hangar S "clean room" for viewing and photographic purposes. Project personnel from the Goddard Space Flight Center and Kennedy Space Center will be on hand to make a brief presentation on the mission and answer press questions.

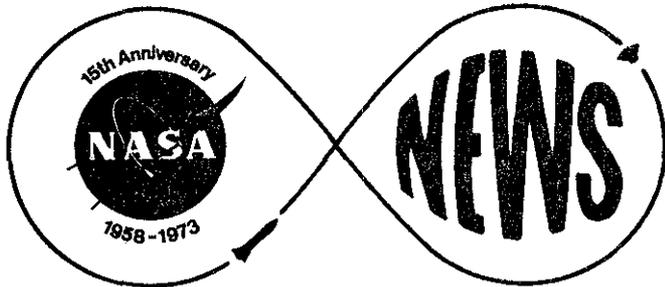
Members of the press planning to cover the IMP-J showing should be at the KSC News Center at the Headquarters Building - Room 1207 - no later than 9:30 a.m. October 5.

Still photographers or TV camera operators with questions on lighting restrictions may contact Dick Young, 867-2468. This is THE flight spacecraft and photo floodlights can not be used. Most other forms of illumination are acceptable.

Newsmen planning to cover this event are requested to call the KSC News Center by October 4 in order that arrangements can be made for transportation and "clean room" entry.

# # #

By 8/10/73



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
October 9, 1973  
Release #KSC-231-73

## IMP-J FIRST LAUNCH OF NASA'S ANNIVERSARY YEAR

KENNEDY SPACE CENTER, Fla.--The first launch of NASA's 15th anniversary year will be that of an Interplanetary Monitoring Platform from KSC atop a Delta rocket on October 25.

NASA marked its 15th anniversary October 1 to observe its formation in 1958 by the Congress on the recommendation of President Dwight D. Eisenhower to explore space "for the benefit of all mankind."

IMP-J, to be designated Explorer 50 after launch, will be launched by KSC's Unmanned Launch Operations Directorate no earlier than October 25 during a "window" extending from 10:11 to 10:32 p.m. EDT.

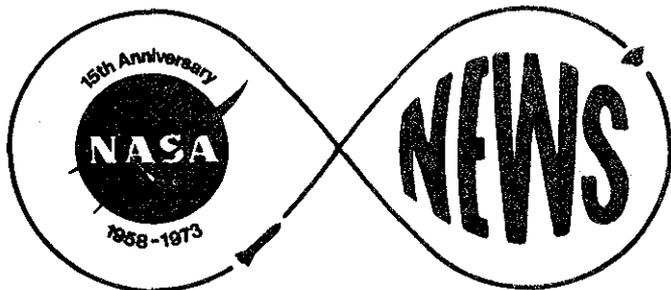
IMP-J is the 10th and final spacecraft in a series initiated in 1963. The IMP/Explorer spacecraft series has permitted the monitoring of solar radiation during an entire solar cycle of 11 years.

The 877-pound spacecraft will be lofted into a nearly circular orbit of 119,774 by 145,950 miles--approximately halfway to the Moon. It will be placed approximately 180 degrees away from Explorer 47 which was launched into a similar orbit by KSC September 22, 1972.

Both are automated space physics laboratories designed to continue the study of interplanetary radiation, solar wind and energetic particle emissions and magnetic fields in the Earth environment.

The IMP series has provided the first accurate measurements of the interplanetary magnetic field, magnetosphere boundary and the shock wave associated with the interaction of the solar wind with the earth's magnetic field.

# # #



Dick Young  
305 867-2468

**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

P.M.s  
**FOR RELEASE: Thursday**  
October 18, 1973  
Release #KSC-238-73

**EUROPEAN SPACELAB OFFICIALS VISIT SPACEPORT**

KENNEDY SPACE CENTER, Fla.--Representatives of a nine-nation European combine with a stake in the Spacelab which is to be launched from KSC by the Space Shuttle in late 1979 visited the nation's Spaceport Tuesday and Wednesday.

KSC has been designated the prime launch and recovery site for the reusable Space Shuttle which is to revolutionize space travel in the decades to come.

The United States and the nine nations of the European Space Research Organization (ESRO) have signed a Memorandum of Understanding which calls for ESRO to design, develop and manufacture the Spacelab.

The Spacelab will be carried in the Space Shuttle Orbiter and have two elements: A pressurized manned laboratory permitting scientists and engineers to work in a normal shirt-sleeve environment, and an instrument platform, or pallet, to support telescopes, antennae and other equipment requiring direct space exposure.

The Spacelab module and pallet will be transported, either separately to together, to and from orbit in the Orbiter payload bay and will be attached to and supported by the Shuttle Orbiter throughout missions lasting from seven to 30 days.

The NASA/ESRO agreement represents a major step in the sharing of space costs between the U. S. and European countries participating in the cooperative project. The estimated \$300-\$400 million cost of Spacelab will be borne by the ESRO countries involved.

Headed by Heintz Stoewer, team leader, the European delegation includes representatives of ESRO and the European Space Research and Technology Centre (ESTEC) as well as two industrial consortia competing for the prime contract.

The industrial groups are led by Messerschmitt-Boklow-Blohm (MBB) and ERNO VFW FOKKER, respectively, as prime contractors.

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The European group has already visited the Marshall Space Flight Center in Huntsville, Ala., and the Johnson Space Center in Houston, Texas, as well as the facilities of several American aerospace concerns acting as consultants.

Jack Dickinson, KSC representative on the Marshall Space Flight Center management team which has recently concluded preliminary design and definition studies of Spacelab, said the visit to KSC was "a ground operations working session." ESRO and its contractor will also provide ground support equipment for Spacelab operations and the visit here will acquaint the group with existing and planned shuttle launch and recovery facilities.

The visit began with a tour of the facilities of Launch Complex 39 and the group received briefings on KSC payload operations, shuttle ground operations, shuttle safety considerations, KSC Spacelab planning and shuttle checkout techniques.

European nations involved in the ESRO/ESTEC agreement with the United States and NASA include Belgium, Denmark, France, Germany, Italy, The Netherlands, Spain, Switzerland and the United Kingdom.

Under the unprecedented new international agreement, ESRO will deliver a Spacelab flight unit, engineering model and two sets of ground support equipment, NASA will establish requirements for the design of these items.

The European Spacelab represents a significant contribution to the space transportation system in an area not funded by the United States. It provides for the timely availability of a supporting system important to realizing the full potential of the shuttle. It will also facilitate joint use programs, many entailing the activities of American and European astronauts.

NASA may procure from ESRO any additional Spacelab units of the same basic design which may be needed for U. S. programs and the U. S. will not develop any unit of its own which would substantially duplicate the design and capabilities of the first Spacelab.

The first operational flight of the Space Shuttle is now planned for late 1979. To permit adequate time for experiment integration, checkout and compatibility testing, the Spacelab unit will be delivered about one year earlier.

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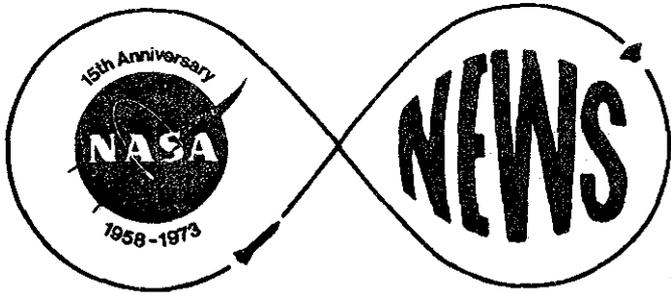
After the delivery of the Spacelab by ESRO, NASA will manage all operational activities, including crew training and flight operations.

The Memorandum of Understanding on Spacelab was signed September 24 by NASA Administrator Dr. James C. Fletcher and ESRO Director General Alexander Hocker.

The group will return to Marshall Space Flight Center on Thursday for a final wrap-up of its American tour.

# # #

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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
October 18, 1973  
Release #KSC-239-73

## SIX PROPOSALS SUBMITTED FOR SPACEPORT SUPPORT CONTRACT

KENNEDY SPACE CENTER, Fla.--Six proposals have been received by NASA's John F. Kennedy Space Center for providing engineering support services to KSC's Design Engineering Directorate beginning in February, 1974.

The proposals were received in response to a Request for Proposals issued by KSC in August.

The contemplated contract covers Design Engineering functions at KSC and at facilities located on Cape Kennedy Air Force Station. The services to be provided include systems engineering and design and engineering support functions.

The contract will include work now being performed by the Boeing Company and Pan American World Airways under separate contracts and includes a substantial new work load related to the Space Shuttle Program.

The proposed contract will be of the cost-plus-fee/award fee type and contemplates a five-year period beginning February 1, 1974. The contract period is one year with options for four more years.

Proposals have been received from the following firms:

Pan American/Boeing Joint Venture  
320 North Atlantic Avenue, Suite 6B  
Cocoa Beach, FL

McDonnell Douglas Astronautics Company  
Post Office Box 600  
Titusville, FL

Raytheon Services Company  
Post Office Box 1686  
Cocoa, FL

FED-ROE Design Inc. (Joint Venture of Federal  
Electric Corporation and Burns and Roe Inc.)  
621 Industrial Avenue  
Paramus, NJ

Kentron Hawaii, Ltd.  
2345 Mockingbird Lane  
Dallas, TX

PRC Systems Services Company  
7911 Charlotte Drive  
Huntsville, AL

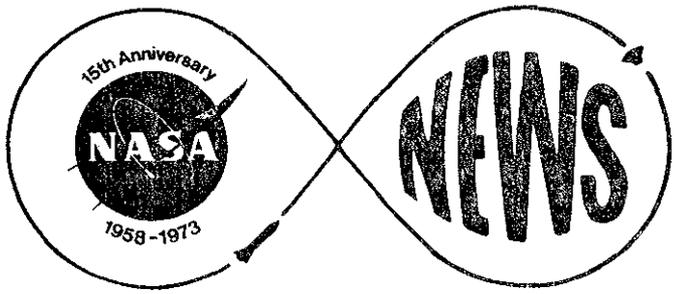
The Request for Proposals was issued to 34 companies and approximately 20 firms were represented at a preproposal conference held at KSC in late August.

Proposals will be evaluated by a board appointed by the Associate Administrator for Manned Flight at NASA Headquarters, Washington, D. C. Selection of the successful contractor will be made by the Administrator of NASA.

A decision is expected in January, 1974.

# # #

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**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**  
John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
October 23, 1973  
Release #KSC-240-73

**ARTIFICIAL FISH REEF CREATED IN BANANA RIVER**

KENNEDY SPACE CENTER, Fla.--The first of two artificial fish reefs to be created in the Banana River by Bethune-Cookman College of Daytona Beach under a NASA grant was put in place October 20.

The reef consists of 50 tires - bundled together in groups of three - systematically placed on the bottom of the river to the northeast of Kelly Park.

The \$19,884 research grant involves an investigation of the restoration of lagoonal and estuarine processes through the beneficial deposit of automobile tires in the brackish waters near the Kennedy Space Center.

The original grant is being supplemented by a \$27,000 grant extending the study period from November 1, 1973, through October 31, 1974. The new grant covers construction of a second reef and continuing studies of reef productivity and a control site located at a third point in the Banana River. It includes an investigation of the impact of Space Shuttle runway construction on Banana Creek.

A second reef will be created in the near future to the north of the NASA Causeway between the Kennedy Space Center and Cape Kennedy Air Force Station.

Last Saturday's reef creation operation was carried out in the face of 20 knot winds out of the northeast but was completed without difficulty in early afternoon.

Participating in the reef-sinking operation were Dr. Premsookh Poonai, Principal Investigator from Bethune-Cookman; Fred Schoenberger, a Project Engineer in KSC's Unmanned Launch Operations Directorate, technical manager; Ray Norman, the Unmanned Launch Operations Directorate engineer who originated the project and now a study team member, and Royce Hall, Federal Electric Corp., boat captain and diver.

Both sport and commercial fishermen have observed a general decline in fish populations in coastal Florida's brackish lagoons during the past two decades with the spotted sea trout a prime example of species showing a decline in numbers in Brevard and Volusia Counties.

East Coast landings of sea trout declined from nearly 900,000 pounds in 1960 to approximately 620,000 pounds in 1970. In Brevard County, the catch declined from nearly 200,000 pounds in 1966 to 125,000 pounds in 1969.

Among the major factors suspected of contributing to the decline are destruction of underwater habitat and decimation of the breeding population by overfishing.

Habitat destruction ranges from dredge and fill activities for housing developments, shopping centers, roads, bridges and other structures to water pollution by sewage treatment plants and land runoff.

Among the aims of the Bethune-Cookman study is a determination of whether it is possible to restore estuarine productivity by artificial fish reefs which would protect young fish during their vulnerable juvenile stages. Reef materials such as tires also attract algae, barnacles, mussels, crabs and a large variety of other organisms.

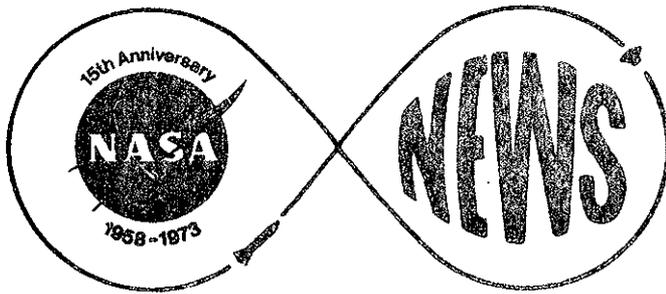
Artificial reefs built of discarded automobile tires are operating successfully at the entrance of the St. John's River in Jacksonville and in the Gulf of Mexico off the City of St. Petersburg. Successful artificial reefs are also in operation off Marco Island and Fort Lauderdale.

The study calls for fish counts to be made by divers and through test net drags at frequent intervals.

The Bethune-Cookman study will supplement research into the total KSC environment now being conducted by the Florida Institute of Technology in Melbourne and the Florida Technological University in Orlando.

The study is being conducted with the cooperation of the U.S. Fish and Wildlife Service, Brevard County, the Florida Internal Improvement Fund and the U. S. Army Corps of Engineers.

# # #



## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

FOR RELEASE:  
Oct. 26, 1973  
KSC-242-73

### THIRD MANNED SKYLAB LAUNCH SCHEDULED NOV. 10

The third manned Skylab mission is scheduled for launch November 10 at 11:40 a.m. EST for a mission of 60 days or more, William C. Schneider, Skylab Program Director, announced.

The mission will be planned as a 60-day open-ended mission with consumables aboard to provide for as many as 85 days. Mission extensions would be considered on the 56th, 63rd, 70th and 77th days of the flight based on the medical well being of the crew, consumables and work load.

Crew for Skylab 4 consists of Gerald P. Carr, commander; Edward G. Gibson, science pilot; and William R. Pogue, pilot.

Schneider said the November 10 launch date will allow timely replenishment of coolant fluids in the Skylab Workshop's coolant systems.

The basic 60-day mission is designed to study the Comet Kohoutek in addition to continuing the Earth resources observations, solar observations and other scientific studies begun on the first two manned Skylab missions.

The extension of the mission to 85 days would substantially increase the scientific return.

As many as five extravehicular activities (EVAs) may be scheduled for the mission. The first EVA would be November 18 and would last for four to six hours for the purpose of installing Apollo Telescope Mount (ATM) film and beginning repair work on the S193 experiment antenna.

A second EVA may be required to complete the antenna repair operation. A third EVA scheduled on Christmas Day in order to photograph Kohoutek just before it passes by the Sun would last for about four and a half hours. ATM film change and several experiments also would be carried out in this EVA.

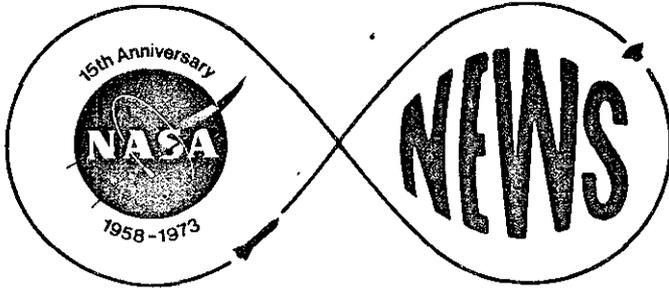
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A fourth EVA on December 29, also lasting about four and a half hours, would perform additional experiments and retrieve various samples of materials left out on earlier EVAs. The fifth EVA would be in the January 16-31 period, lasting about three and a half hours for the purpose of retrieving ATM film.

For an 85-day mission, splashdown would occur February 3, 1974 at 12:15 p.m. EST off the Pacific Coast near San Diego.

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**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**  
John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

**FOR RELEASE:**  
October 29, 1973  
Release #KSC-245-73

MARINER 10 PRELAUNCH PRESS CONFERENCE SCHEDULED NOV. 1

NOTE TO EDITORS/NEWS DIRECTORS:

The launch of Mariner 10 (Mariner Venus Mercury '73) is scheduled November 3, 1973 at 12:45 a.m. Eastern Standard Time. Mariner 10 will be launched from Complex 36, Cape Kennedy, atop an Atlas Centaur booster by KSC's Unmanned Launch Operations Directorate.

A prelaunch press conference is scheduled in the Skylab News Center, 7011 North Atlantic Avenue, Cape Canaveral, at 3:00 p.m. EST, November 1.

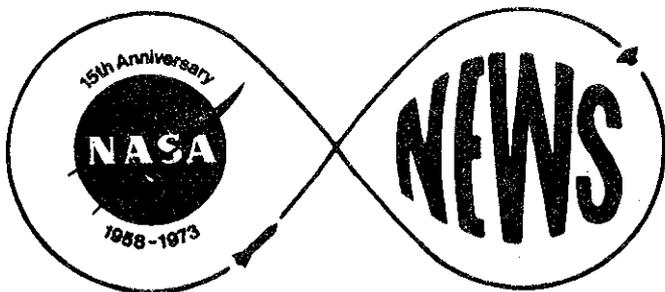
News media representatives desiring to cover the launch will be provided transportation to the press site from the News Center. A bus for photographers will depart the News Center at 11:15 p.m., November 2. A bus for writers and broadcasters will depart the News Center at 11:45 p.m.

Mariner 10 will be the first spacecraft to use the gravity of one planet, Venus, to reach another. It will also be the first to explore Mercury, the planet nearest the Sun. The spacecraft will sweep by cloud-shrouded Venus at an altitude of about 3,300 miles on February 4, 1974. Venus' gravity will bend the trajectory and decrease the speed of Mariner, allowing it to cross the orbit of Mercury on March 29, 1974 and fly by the planet at a distance of 621 miles.

# # #

NOV 19 1973

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**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

R. Young  
305 783-7781

**FOR RELEASE:**  
November 6, 1973  
Release #KSC-252-73

**KOHOUTEK TO TRACE BRILLIANT PATH THROUGH FLORIDA SKIES**

KENNEDY SPACE CENTER, Fla. - A rare and spectacular celestial visitor - Comet Kohoutek 1973 - will become visible to Florida viewers later this month.

First sightings will require binoculars or other visual aids but Kohoutek will become a brilliant and spectacular sight in late December when it makes its closest approach to the Sun. It may, in fact, be one of the brightest comets of the century.

NASA will make extensive investigations of the comet through its "Operation Kohoutek". A major effort will be made by the Skylab 4 crew using the unique equipment of the Skylab Apollo Telescope Mount aboard the orbiting space station.

The Skylab 4 crew is scheduled for launch from KSC no earlier than November 16, at 9:01 a.m. EST.

Unmanned spacecraft such as Orbiting Solar Observatory 7, Mariner 10 (launched by KSC on November 3) and the Orbiting Astronomical Observatory "Copernicus" will also train their sophisticated sensors on Kohoutek as it makes its rapid passage near and away from the Sun.

Tied in with these investigations will be observations by instruments borne by balloons and aircraft as well as ground-based telescopes and the 210-foot radar "dish" at Goldstone, California

This sighting chart, compiled by the Computer Sciences Corp., of Silver Spring, Md., is for the Miami area but should not vary by more than five minutes for Florida locations within several degrees of longitude of Miami.

The comet will be visible daily - weather permitting - from mid-November through mid-February. The sighting chart reflects the comet's changing position over intervals of several days and is not meant to imply that it will be visible only on the dates listed.

-more-

Date	Approximate Local Standard Time			Comments
	Rise of Comet's Head	Begin Morning Twilight	Sunrise	
Nov. 14	3:28 a.m.	5:17 a.m.	6:38 a.m.	Comet rises tail first ESE. May be visible in binoculars and maybe by naked eye before morning twilight.
Nov. 22	3:36 a.m.	5:23 a.m.	6:44 a.m.	Rapidly brightens to possible naked eye object. Tail to rise prior to times listed for comet head.
Nov. 30	3:55 a.m.	5:27 a.m.	6:50 a.m.	Visible on ESE horizon for about one hour before morning twilight. Comet just south of star Spica.
Dec. 4	4:09 a.m.	5:29 a.m.	6:53 a.m.	Rises tail first in ESE sky. May be easy naked eye object prior to morning twilight.
Dec. 8	4:29 a.m.	5:33 a.m.	6:56 a.m.	Head becomes smaller while tail continues to grow in length. Visible briefly in SE sky prior to and maybe during early twilight.
Dec. 12	4:53 a.m.	5:35 a.m.	6:59 a.m.	Visible prior to and perhaps during early twilight as it rises tail first in SE. Tail rises before times listed for comet head.
Dec. 16	5:21 a.m.	5:37 a.m.	7:01 a.m.	Visible in early phase of twilight. At end of month, comet moves into glare of dawn.
Dec. 20	5:53 a.m.	5:39 a.m.	7:03 a.m.	Visible in early SE morning twilight. Comet rises about one hour before Sun. Comet tail visible earlier

Date	Approximate Local Standard Time			Comments
	Rise of Comet's Head	Begin Morning Twilight	Sunrise	
Dec. 24	6:29 a.m.	5:41 a.m.	7:05 a.m.	Visible to W of Sun during morning twilight. From Dec. 21 through Dec. 31, comet is within 10 degrees of Sun and SHOULD BE VIEWED BY EXPERIENCED OBSERVERS ONLY.

Date	Approximate Local Standard Time			Comments
	Time of Sunset	End Evening Twilight	Set Time: Comet's Head	
Dec. 28	5:38 p.m.	6:59 p.m.	5:38 p.m.	Comet passes closest to the Sun on this day. Comet changes from a morning to an evening object. AVOID LOOKING AT SUN.
Jan. 1	5:40 p.m.	7:01 p.m.	6:32 p.m.	May still be a daylight object following Sun and should be magnificent in WSW evening twilight with tail extended up from horizon. For first two weeks of January, visible after sunset.
Jan. 5	5:43 p.m.	7:03 p.m.	7:13 p.m.	Still magnificent in WSW sky during and after evening twilight. Jupiter, Venus and comet roughly align on this day. Venus is brightest of the two planets.
Jan. 9	5:46 p.m.	7:06 p.m.	7:51 p.m.	Nearly full Moon rises in E while comet may remain magnificent in WSW sky before and after twilight. Comet tail shortens and dims with each passing day.

Date	Approximate Local Standard Time			Comments
	Time of Sunset	End Evening Twilight	Set Time: Comet's Head	
Jan. 13	5:49 p.m.	7:09 p.m.	8:30 p.m.	Comet still impressive in WSW after twilight. Jan. 10 - 20 best for photography as comet appears higher above horizon after twilight and Moon is waning.
Jan. 17	5:52 p.m.	7:11 p.m.	9:07 p.m.	Comet moving out of Aquarius. Still easily visible to naked eye above WSW horizon after twilight.
Jan. 21	5:55 p.m.	7:14 p.m.	9:40 p.m.	Comet tail continues to shrink as it grows less bright. Still a naked eye object during and after twilight.
Jan. 25	5:58 p.m.	7:16 p.m.	10:08 p.m.	Comet close to vernal equinox and may remain visible to naked eye in WSW after twilight.
Jan. 29	6:03 p.m.	7:20 p.m.	10:31 p.m.	Tail continues to shorten while head grows dim. Binoculars would be useful.
Feb. 6	6:07 p.m.	7:24 p.m.	11:00 p.m.	Binoculars useful to observe comet in W evening sky.
Feb. 14	6:11 p.m.	7:28 p.m.	11:14 p.m.	Comet reaches its highest altitude above horizon at mid-month. Binoculars or small telescope required.

---

Comet specialists have made these viewing suggestions:

1. Be very careful when viewing comet near Sun. Looking at the Sun can result in permanent eye damage.

2. Wide field binoculars and small telescopes at low power are useful when comet is dim. Naked eye is best when comet is at its brightest.

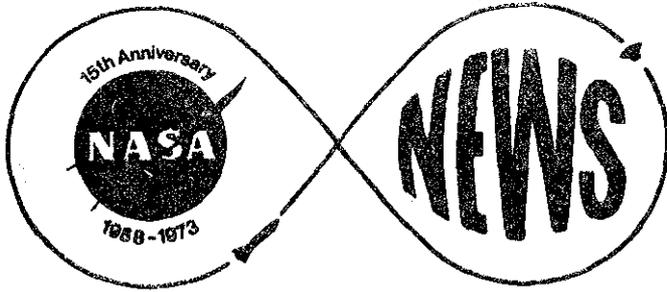
3. Photography requires a tripod for stability. Set lens wide open and use infinite focus. Use fast color or black and white film and try several exposure times, from a few seconds to a minute. Try and include foreground objects (e.g., trees, rooftops, etc.) in picture so that size comparisons can be made.

There are many still living who viewed Halley's Comet during its appearance in 1910 and look forward to its next appearance in 1986.

For Kohoutek viewers, the sight will be a once-in-a-lifetime opportunity. This comet has an estimated period of 80,000 years.

####

NOV 8 1973 2:16



**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**  
John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 783-7781

**FOR RELEASE:**  
November 7, 1973  
Release #KSC-254-73

**SKYLAB 4 GUEST PASSES VALID FOR NEW LAUNCH DATE**

KENNEDY SPACE CENTER, Fla.--The launch of Skylab 4 originally scheduled for Saturday, November 10, has been rescheduled for no earlier than 9:37 a.m. EST, Thursday, November 15.

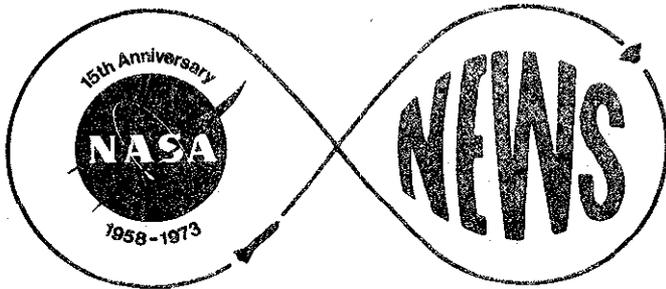
Guest passes issued for the earlier date will be valid for the new November 15 launch date or any future launch time designated for the SL-4 mission.

The Sunday drive-through tours of the Kennedy Space Center and Cape Kennedy Air Force Station, suspended since October, will remain suspended until after the launch of Skylab 4.

Visitors may still tour the aerospace complex, however, via the guided bus tours operated from the Visitor Information Center located off U.S. Route 1 two miles south of Titusville. These tours are operated for NASA/KSC by Trans World Airlines and will be offered through the day prior to launch.

Tours will be suspended on launch day until approximately two hours following the liftoff of SL-4 with its three-man crew.

####



NOV 19 1973  
BY  
#101

# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 783-7781

**FOR RELEASE:**  
November 17, 1973  
Release #KSC-263-73

## SKYLAB TO BE VISIBLE OVER CENTRAL FLORIDA ON SIX PASSES

KENNEDY SPACE CENTER, Fla.--The Skylab space station with the docked Skylab 4 command and service modules will be visible to Central Floridians during six orbital passes during the November 17 - 26 period.

This sighting chart is for the Orlando area, but the data is applicable to much of Central Florida.

"Pickup" time means the time Skylab first becomes visible and is given in Eastern Standard Time. "Range" is the distance for the space station from the viewer in statute miles. Maximum elevation is given in degrees above the horizon at its highest point.

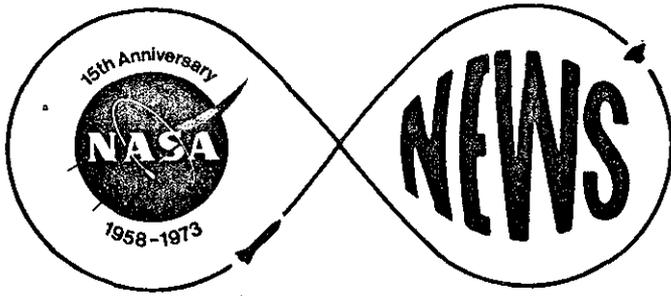
<u>Date</u>	<u>Pickup Time</u>	<u>Direction of Movement</u>	<u>Duration of Visibility</u>	<u>Maximum Elevation</u>	<u>Range</u>
11/17	5:51 p.m.	W to S	6 min 4 sec	26 deg	551
11/22	5:59 a.m.	S to E	4 min 43 sec	17 deg	703
11/23	5:17 a.m.	SE to SE	36 sec	10 deg	937
11/24	6:06 a.m.	SW to NE	6 min 50 sec	89 deg	267
11/25	5:22 a.m.	SW to NE	6 min 35 sec	47 deg	353
11/26	6:16 a.m.	W to N	5 min 24 sec	21 deg	628

During a viewing pass, Skylab will appear as a moving star with a variable brightness ranging from that of the most brilliant star in the sky down to the sixth magnitude, which is barely visible to the naked eye.

This data was provided by the Marshall Space Flight Center in Huntsville, Ala., and will be updated at bi-weekly intervals.

####

NOV 27 1973 BY H/101



**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**  
John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

C. T. Hollinshead  
305 867-2468

**FOR RELEASE:**  
November 27, 1973  
Release #KSC-266-73

**DRIVE-THROUGH TOURS SUSPENDED**

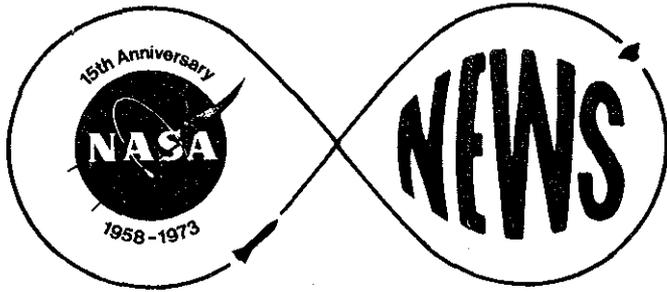
KENNEDY SPACE CENTER, Fla.--The drive-through tour of Cape Kennedy Air Force Station and NASA's Kennedy Space Center will be suspended during the current energy conservation program announced by President Nixon.

Effective Sunday, December 2, 1973 the Space Center and the Cape will be closed to the public. NASA's Visitor Information Center will continue to remain open Sundays and escorted bus tours will be available.

The drive-through tour route, which was open only on Sundays, covered approximately 50 miles. Average gasoline consumption by the 200-300 private cars which drove the route in recent weeks was about 12 mpg.

# # #

NOV 30 1973  
810



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

**FOR RELEASE:**  
November 29, 1973  
Release #KSC-268-73

## NOTE TO EDITORS/NEWS DIRECTORS

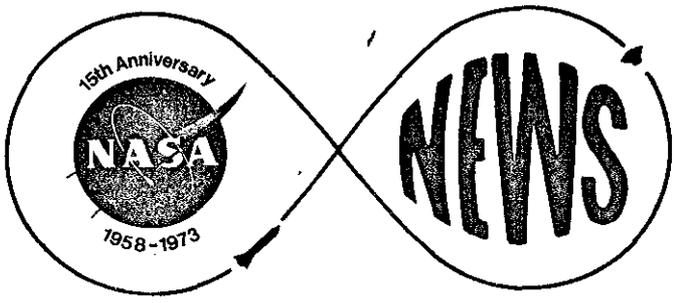
Rollout of the Skylab Rescue Vehicle from the Vehicle Assembly Building to Pad B, Complex 39, is scheduled to begin at 7:00 a.m. EST, Monday, December 3.

To be used for a rescue mission only in the event of an emergency necessitating rescue of the Skylab 4 crew, the Saturn 1B/Apollo will be prepared for launch and will remain at Pad B until splashdown.

Members of the press desiring to cover the rollout may obtain badges for access to the Complex 39 Press Site at Gate 2 (via State Road 3) and Gate 3 (via SR 405 from U. S. 1) Pass and Identification Buildings starting at 5:30 a.m. December 3. These access badges will not be issued at Gate 1, the Cape Kennedy Air Force Station entrance. Media representatives should proceed directly to the Complex 39 Press Site upon obtaining their badges.

# # #

NOV 30 1973 BX4  
#101



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

**FOR RELEASE:**  
November 29, 1973  
Release #KSC-269-73

## PLAYALINDA BEACH, WATERFOWL HUNTING AREAS TO CLOSE

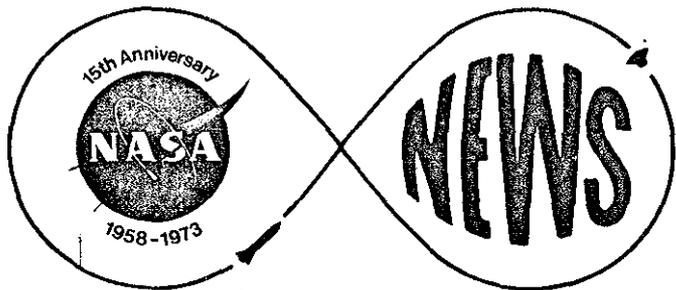
KENNEDY SPACE CENTER, Fla.--Playalinda Beach, the fishing and swimming area near launch Complex 39, and the Mosquito Lagoon waterfowl hunting area south of Haulover Canal will be closed to the public while the Skylab Rescue Vehicle is on the launch pad.

The rescue vehicle will remain on the pad, unless required for a mission in the event of a Skylab 4 emergency, until after splashdown of the Skylab 4 crew.

The beach and hunting areas south of Haulover Canal will be open as usual through Sunday, December 2, and will be closed beginning Monday, December 3, when the Skylab Rescue Vehicle will be moved to the pad.

# # #

DEC 4 1973  
BY  
D/101



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
December 3, 1973  
Release #KSC-271-73

## NEARLY 60,000 TAKE KSC TOURS DURING NOVEMBER

KENNEDY SPACE CENTER, Fla.--A total of 59,871 patrons of NASA/TWA Tours inspected the nation's Spaceport during November, many of them viewing the launch of the third and final manned Skylab mission - Skylab 4 - on November 16.

November patronage of the guided bus tours brought the total for 1973 to 1,191,561. This is within 5.6 percentage points of the 1,262,878 patronage figure for the same period of 1972, a time when highway tourist traffic was unaffected by possible gasoline shortages.

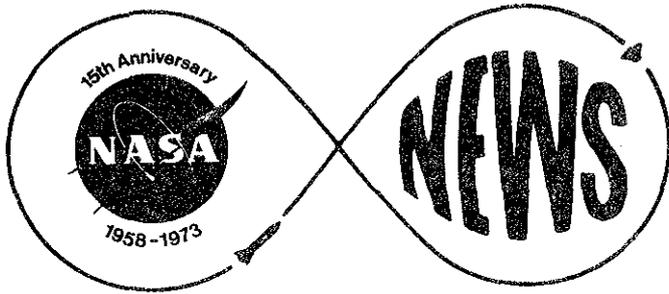
November visitor volume was substantially ahead of October, when a total of 51,413 bought tickets for tours of the Spaceport and Cape Kennedy Air Force Station.

The Visitor Information Center, reached from U. S. Route 1 two miles south of Titusville, has a wide variety of free displays, models, exhibits, space-oriented movies and space science lectures. These attract many visitors who do not have time for the guided bus tour. It is estimated that the visitor center has probably accommodated nearly 1.5 million persons this year.

Tour volume has exceeded one million annually for five consecutive years.

# # #

DEC 8 1973  
524  
101



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

## FOR RELEASE:

December 5, 1973  
Release #KSC-273-73

### SKYLAB VISIBLE ON THREE PASSES OVER CENTRAL FLORIDA

KENNEDY SPACE CENTER, Fla.--The Skylab space station with the docked Skylab 4 command and service modules will be visible to Central Floridians during three orbital passes during the December 5-14 period.

This sighting chart is for the Orlando area, but the data is applicable to much of Central Florida.

"Pickup" time means the time Skylab first becomes visible and is given in Eastern Standard Time. "Range" is the distance of the space station from the viewer in statute miles. Maximum elevation is given in degrees above the horizon at its highest point. Zero degrees elevation is the horizon and 90 degrees elevation is directly overhead.

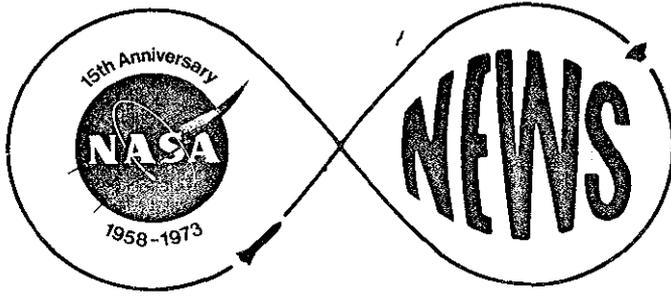
<u>Date</u>	<u>Pickup Time</u>	<u>Direction of Movement</u>	<u>Duration of Visibility</u>	<u>Maximum Elevation</u>	<u>Range</u>
12/12	6:10 a.m.	N to E	5 min	18 deg	678
12/13	5:27 a.m.	N to NE	3 min 18 sec	12 deg	839
12/14	6:19 a.m.	NW to SE	6 min 49 sec	81 deg	269

During a viewing pass, Skylab will appear as a moving star with a variable brightness ranging from that of the most brilliant star in the sky down to the sixth magnitude, which is barely visible to the naked eye.

This data was provided by the Marshall Space Flight Center in Huntsville, Ala., and will be updated at bi-weekly intervals.

# # #

12/7/73  
BY 4  
15/101



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

## FOR RELEASE:

December 6, 1973  
Release #KSC-275-73

### SPACEPORT AWARDS CONTRACT TO MERRITT ISLAND FIRM

KENNEDY SPACE CENTER, Fla.--NASA's John F. Kennedy Space Center has awarded a contract for \$175,593 to the W. & J. Construction Corporation of Merritt Island, Fla.

The contract is for the construction of an addition to the Launch Equipment Shop at Launch Complex 39. The work consists of site preparation, concrete and masonry work, steel erection, roof decking, built-up roofing, water and compressed air lines, bituminous paving and associated electrical work.

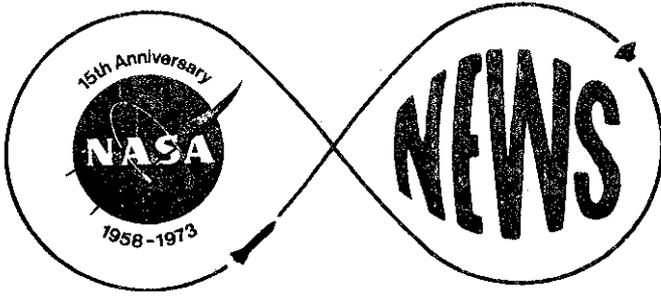
The contract is one set aside for small business firms. Completion of the work should be accomplished within 180 calendar days.

KSC is the launch site for all NASA manned missions in space and has been designated the prime launch and recovery site for the Space Shuttle which is to begin vertical flights from KSC in 1979.

In addition, KSC launches numerous unmanned communications, weather and scientific satellites and spacecraft from facilities at Cape Kennedy Air Force Station and the Western Test Range in California.

# # #

DEC 14 1973  
614  
E102



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

## FOR RELEASE:

December 14, 1973  
Release #KSC-277-73

### VISITOR CENTER TO DRAW LARGE HOLIDAY CROWDS

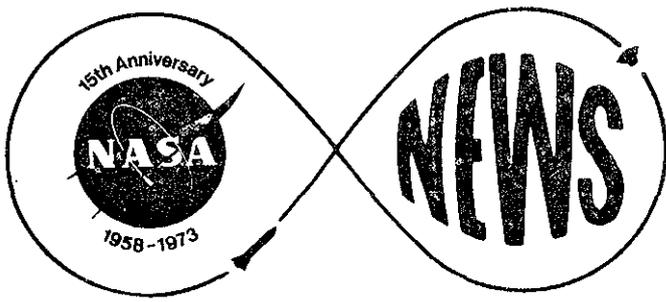
KENNEDY SPACE CENTER, Fla.--Preparations are being made to accommodate Christmas holiday throngs at the Visitor Information Center, according to P. A. Fagnant, who is in charge of the visitor activities for KSC.

The Visitor Center and daily bus tours will operate throughout the holidays, closing only on Christmas Day. The fleet of buses will be increased to 45 or 50. Parking lot attendants will assist arriving and departing motorists. Outdoor snack and film stands will be available.

In concert with KSC energy reduction steps, the VIC and bus tours have cut back on fuel consumption. The first tour now commences at 8 a.m. Bus motors and air conditioning systems are turned off at tour stops.

# # #

DEC 17 1973 BY4 #102



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

**FOR RELEASE: SUNDAY**  
December 16, 1973

Dick Young  
305 867-2468

## SKYLAB, LAUNCH DEBRIS, VISIBLE FROM EARTH

KENNEDY SPACE CENTER, Fla.--The Skylab Orbital Workshop is clearly visible to the great bulk of the earth's population as it orbits the globe at an altitude of 270 miles between 50 degrees north and south latitudes.

Depending upon sighting angles and other factors, the orbital workshop launched from KSC on May 14 can appear as brilliant as a first magnitude star or as dim as a star just within the threshold of human vision.

Skylab should be an object of interest in the heavens for years to come. According to computations made at the Marshall Space Flight Center, its orbital decay and fiery reentry will not occur until 1981.

A number of bright objects can still be seen at times with the naked eye, preceding or trailing Skylab in its orbit. Six pieces of Skylab 1 are clearly visible. These include the Skylab 1 second stage, due to reenter in June, 1975, and a Solar Array Wing, scheduled to reenter in January, 1977.

Four payload shroud panels jettisoned after orbital insertion of Skylab 1 are among the visible objects. These have reentry dates of September, 1975; March, 1975; August, 1975, and December, 1975.

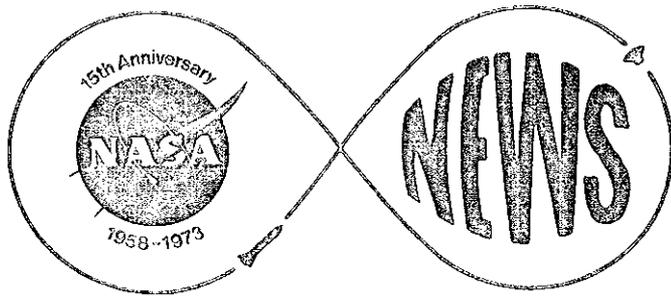
Skylab 1 debris still in orbit but not visible to the naked eye includes two retro rocket covers, one piece of the Skylab micrometeoroid shield, a sample array extension boom and six miscellaneous fragments.

Skylab 1 objects with orbits that have already decayed include two retro rocket covers, an Orbital Workshop radiator cover, three miscellaneous fragments and a piece of the Skylab micrometeoroid shield.

Because of differing altitudes and rates of orbital precession, their orbits are interesecting in such a fashion that some objects may be seen going northwest to southeast while others go southwest to northeast at the same time.

# # #

DEC 20 1973  
614  
12102



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

FOR RELEASE:  
December 18, 1973  
Release #KSC-281-73

## "STAR OF LIFE" NEW KSC AMBULANCE SYMBOL

KENNEDY SPACE CENTER, Fla.--The red cross symbol is being replaced. And KSC's ambulances will be among the first to sport the new medical emblem.

V. E. Christensen, KSC's Chief of Medical Services, says his group hopes to have the new insignias placed on Spaceport ambulances within the next few weeks.

Called the "Star of Life", the new emblem consists of a snake entwined around a staff. The snake is superimposed on a blue, three-barred cross.

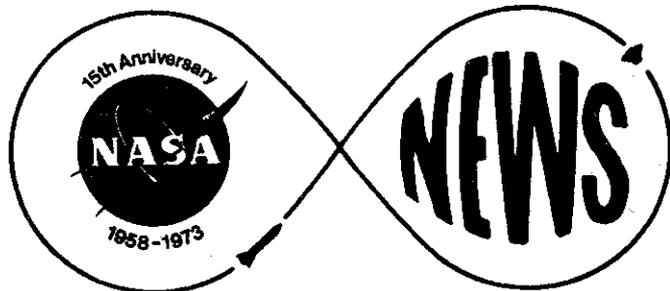
In mythology, the staff and snake figure was the trademark of Aesculapius, the Greek god of medicine and healing.

Although a U. S. Department of Transportation directive only specifies the new emblem's mandatory use on emergency medical vehicles, it will probably replace the red cross on most medical equipment and uniforms, said Christensen.

Christensen maintains that since KSC's ambulance fleet operates off the Center as well as within the confines of the Spaceport, it's important for everyone to be familiar with the new symbol.

# # #

DEC 20 1973  
BY  
#102



## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
December 21, 1973  
Release #KSC-282-73

### APOLLO 8 CHRISTMAS TV "SPECIAL" GAVE NEW INSIGHT ON MOON

"A Merry Christmas and God bless all of you -  
all of you on the good Earth."

Astronaut Frank Borman,  
Christmas Eve, 1968

KENNEDY SPACE CENTER, Fla.--The message was familiar but the context was eerily new to the millions of spellbound TV viewers around the world who witnessed one of history's most spectacular Christmas "specials" five years ago December 24.

Apollo 8 - the second manned flight of Project Apollo and the first manned mission for the Saturn V - had been launched from KSC at 7:51 a.m. EST on December 21.

The Apollo 8 crew - Frank Borman, commander; James Lovell, Jr., command module pilot, and William A. Anders, lunar module pilot - were the first men to reach beyond the Earth on a bold flight which had carried them into orbit around the Moon.

After a dramatic three-day flight outward bound, they had successfully fired Apollo 8's big main engines and were now in a 70-mile-high lunar orbit.

And now - shortly before 10:00 p.m. EST on Christmas Eve - began a television transmission which would thrill and inspire countless millions of awestricken television viewers.

The backdrop - flashed back to Earth by a 4.5-pound TV camera peering at the Moon's mottled face through a command module window - was the grim, austere lunar landscape, now being seen by human eyes with closeup detail for the first time.

All three crewmen are articulate and their commentary carried descriptive reactions to the spectacular scenes flowing below the spacecraft orbiting the Moon from east to west.

-more-

Borman: "The Moon is a different thing to each of us... My own impression is that it's a vast, lonely, forbidding type of existence, a great expanse of nothing, that looks rather like clouds and clouds of pumice stone. It certainly would not appear to be a very inviting place to live or work."

Lovell: "The vast loneliness of the Moon up here is awe-inspiring, and it makes you realize just what you have back there on Earth. The Earth from here is a grand oasis to the big vastness of space."

Anders: "I think the thing that has impressed me most is the lunar sunrises and sunsets...The long shadows really bring out the relief."

As the spacecraft neared the terminator line, Anders began what many recall as the most moving and inspiring moment of the historic flight:

"For all the people back on Earth, the crew of Apollo 8 has a message we would like to send to you." Then he began the reading of Genesis, first book of the Bible:

"In the beginning, God created the Heaven and the Earth. And the Earth was without form and void and darkness was upon the face of the deep. And the spirit of God moved upon the face of the waters and God said, let there be light. And there was light. And God saw the light and that it was good and God divided the light from the darkness."

The stark lunarscape continued to roll beneath Apollo as Lovell picked up the majestic reading:

"And God called the light day, and the darkness he called night. And the evening and the morning were the first day. And God said, let there be a firmament in the midst of the waters. And let it divide the waters from the waters. And God made the firmament. And divided the waters which were above the firmament. And it was so. And God called the firmament Heaven. And evening and morning were the second day."

Borman, a lay reader in the Episcopal Church, completed the Genesis passage: "And God said let the waters under the Heavens be gathered together in one place. And the dry land appear. And it was so. And God called the dry land Earth. And the gathering together of the waters called He seas. And God saw that it was good. And from the crew of Apollo 8, we pause with good night, good luck, a Merry Christmas and God bless all of you - all of you on the good Earth."

-more-

The memorable telecast came during the ninth of Apollo 8's 10 orbits of the Moon and the spacecraft engine would soon be fired to break the spacecraft free from the Moon for the return trip to Earth.

Splashdown came at 10:52 a.m. EST December 27 in the Pacific Ocean to mark the successful end of a flight which had helped set the stage for man's first landing upon the lunar surface 7 months later.

The scientific and historical contributions of the Apollo 8 mission were duly noted by public officials and by the world's press:

U. S. Rep. Olin Teague, Chairman of the House Subcommittee on Manned Space Flight: "Congratulations on another job well done. This Apollo mission has been on the lips and in the heart of every American."

"The magnitude of Apollo's accomplishment is so great that it boggles the mind." - Los Angeles Times.

"A superlative feat of human history occurred yesterday, one that will deservedly become the subject of song, story and pictorial art in the decades and centuries ahead...Man is still too close to this staggering crossing of the space frontier to grasp the full significance of what has been accomplished." - The New York Times.

"This has been a Christmas to remember - a time when the human race reached the watershed dividing Earthbound existence and the great beyond. A threshold has been crossed and we who are alive in 1968 can scarcely imagine what it portends for the course of civilization in eons to come." The Philadelphia Inquirer.

"And if man obtained a new view of the Moon, he also received a fresh new perspective of his Earth editorialized the Christian Science Monitor:

"To see our planet through the astronauts' TV camera, a gleaming sphere standing lonely in space, helped us share the new perspective those men have gained...We should cherish our home planet. Men must conserve Earth's resources. They must protect their planetary environment from spreading pollution. They have no other sanctuary in the solar system. This, perhaps, is the most pertinent message for all of us that the astronauts bring back from the moon."

-more-

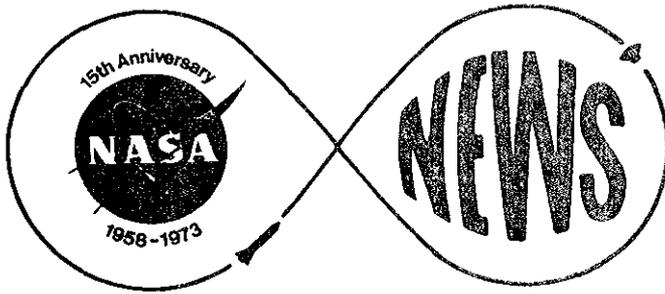
In Florida on that Christmas Eve five years ago, the Moon - then in the first quarter - had risen shortly before 11:30 a.m. It would sink below the western horizon shortly after 11:00 p.m. that evening.

But to those who had witnessed the moving Apollo 8 telecast, the Moon would never again be the same. Nor would the Earth.

Man's new perspective on his Earth was phrased eloquently by poet Archibald MacLeish: "To see the Earth as it truly is, small and blue and beautiful in that eternal silence where it floats, is to see ourselves as riders on the Earth together, brothers on that bright loveliness in the eternal cold - brothers who know they are truly brothers."

# # #

DEC 20 1973  
BHY  
8102



**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**  
John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
December 19, 1973  
Release #KSC-283-73

**RESCUE HARDWARE READY - CAN BE VIEWED BY SPACEPORT VISITORS**

KENNEDY SPACE CENTER, Fla.--The Saturn 1B/Apollo which would be used in the event a rescue of the Skylab 4 crew becomes necessary has successfully completed its Flight Readiness Test.

The two-day FRT - a final overall test of rocket and spacecraft systems and ground support equipment when all systems are as near as possible to a launch configuration - was conducted Friday and Monday with a simulated T-zero and liftoff at 12:37 p.m. Monday.

"By December 21," said William Schick, Chief Test Supervisor, "the vehicle will be within 9 days of launch readiness. It will hold at that point unless the Skylab Rescue Vehicle is committed to launch."

The hold comes at the point where preparations would be made to load hypergolic propellants aboard the 224-foot-tall Saturn 1B/Apollo now standing on Complex 39's Pad B atop its modified mobile launcher.

Processing of the rescue vehicle began immediately after the launch of Skylab 4 from KSC on November 16.

The mobile launcher was returned to the Vehicle Assembly Building for refurbishment the day following launch. Erection of the Saturn 1B first stage, second stage and instrument unit was accomplished on November 20 and the mated command and service modules were placed atop the rocket on the following day.

Despite a six-day delay in the launch of Skylab 4, the KSC launch team met an earlier deadline and moved the assembled rocket and spacecraft from the VAB to Pad B on December 3, the original rollout date.

The rescue vehicle will remain on the launch pad until the end of the Skylab 4 mission. If not required for an emergency, it will then be returned to the VAB.

--more--

The rescue command module differs from those flown previously in that it has been equipped with two additional crew couches and additional life support and communications connections to enable it to return the three Skylab 4 crewmen and two rescue crew members to Earth if a rescue mission becomes necessary.

Prime crewmen for a rescue mission are Astronauts Vance D. Brand and Don L. Lind.

The long-standing Sunday drive-through tours of the Spaceport and adjacent Cape Kennedy Air Force Station were suspended in late November as part of an overall energy conservation program but Spaceport visitors taking guided bus tours from the KSC Visitor Information Center will be able to view the rocket as part of their tour.

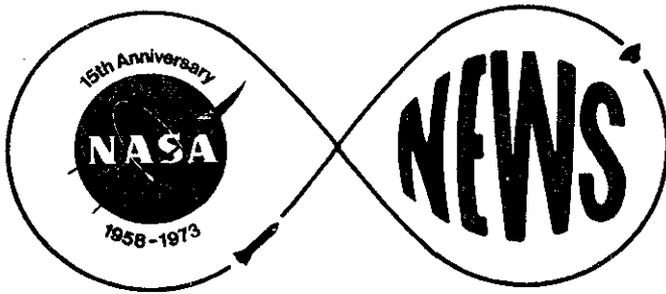
The VIC is accessible from U. S. Route 1 two miles south of Titusville or via State Route 3 on Merritt Island.

The tour includes the Industrial Area and Complex 39 at the nation's only manned Spaceport and the unmanned launch facilities and Air Force Space Museum at the adjacent Cape Kennedy Air Force Station.

The attractions of the Visitor Information Center are open to the public without charge but there is a nominal charge for the guided bus tours, conducted for NASA/KSC by Trans World Airlines.

# # #

DEC 20 1973  
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**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**  
John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
December 19, 1973  
Release #KSC-284-73

**SINGLE SHIFT TO REDUCE SPACEPORT ENERGY NEEDS**

KENNEDY SPACE CENTER, Fla.--A series of moves designed to reduce energy consumption have been implemented at the nation's Spaceport.

The newest move - designed to go into effect on January 6, 1974 - was announced December 18 by KSC Director Dr. Kurt H. Debus.

As part of the nationwide energy conservation program, KSC will implement a single daylight shift from 8 a.m. to 4:30 p.m. effective January 6. This date is coincident with the nation's return to Daylight Savings Time.

This uniform tour, which is the existing KSC basic work day, will apply to all contractor and civil service employees except those few employees whose jobs require an irregular tour of duty.

According to Dr. Debus: "This single tour of duty is intended to encourage and facilitate car pooling; will reduce energy requirements by maximizing use of facilities during daylight hours; and will minimize the number of days employees will have to travel during hours of darkness."

To further assist in the accomplishment of fuel savings through increased use of car pools, a computer system is being established and data will be collected to help interested employees locate potential car pool members in their immediate neighborhoods.

Also, bulletin boards have been set up in central locations to help potential car pool members get together.

It is estimated that an increase of one additional passenger per vehicle at KSC will result in an annual gasoline savings of more than 2,900,000 gallons.

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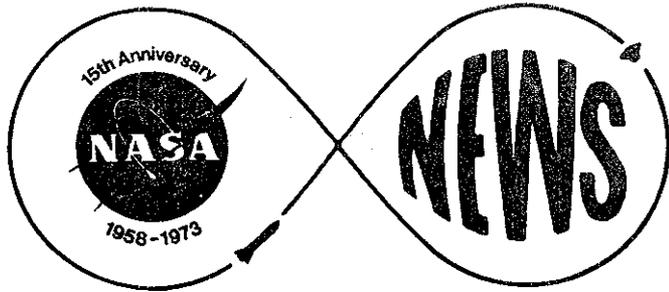
Energy conservation steps taken earlier have included reduction of the speed of government vehicles to 50 miles per hour on and off KSC and the limiting of speeds for all vehicles on KSC to 50 miles per hour. Public drive-through tours of the Spaceport on Sundays have also been suspended.

In addition, lighting levels have been reduced and changes made in air conditioning and heating thermostats as part of a long-term drive to reduce energy requirements.

Energy consumption has also been reduced in connection with the Visitor Information Center and guided bus tours which operate from there. The first tour now commences at 8 a.m. and bus motors and air conditioning systems are turned off at tour stops.

# # #

DEC 27 1973  
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**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**  
John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

Dick Young  
305 867-2468

**FOR RELEASE:**  
December 20, 1973  
Release #KSC-285-73

**SKYLAB VISIBLE ON TEN PASSES OVER CENTRAL FLORIDA**

KENNEDY SPACE CENTER, Fla.--The Skylab space station with the docked Skylab 4 command and service modules will be visible to Central Floridians during 10 orbital passes from December 21 through January 15.

This sighting chart is for the Orlando area, but the data is applicable to much of Central Florida.

"Pickup time" means the time Skylab first becomes visible and is given in Eastern Standard Time for those sightings through December 25. The sightings from January 10 - 14, 1974, are given in Eastern Daylight Time as the nation reverts to EDT on January 6.

"Range" is the distance of the space station from the viewer in statute miles. Maximum elevation is given in degrees above the horizon at its highest point. Zero degrees elevation is the horizon and 90 degrees elevation is directly overhead.

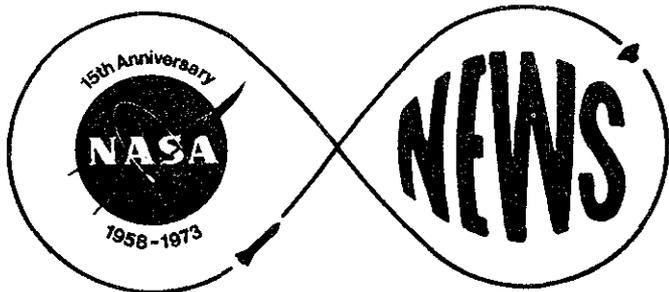
<u>Date</u>	<u>Pickup Time</u>	<u>Direction of Movement</u>	<u>Duration of Visibility</u>	<u>Maximum Elevation</u>	<u>Range</u>
12/21	5:55 p.m.	S to E	4.5 minutes	17 deg	717
12/22	6:51 p.m.	SW to NE	6.66 minutes	50 deg	339
12/23	6:08 p.m.	SW to NE	7 minutes	89 deg	267
12/24	7:03 p.m.	W to N	3.75 minutes	13 deg	809
12/25	6:19 p.m.	W to N	5.25 minutes	20 deg	648
1/10	7:10 p.m.	N to E	5 minutes	18 deg	683
1/11	8:03 p.m.	NW to SE	6.5 minutes	56 deg	311
1/12	7:20 p.m.	NW to SE	6.75 minutes	79 deg	269
1/13	8:15 p.m.	W to SE	2 minutes	11 deg	890
1/14	7:31 p.m.	W to S	5 minutes	18 deg	668

During a viewing pass Skylab will appear as a moving star with a variable brightness ranging from that of the most brilliant star in the sky down to the sixth magnitude, which is barely visible to the naked eye.

This data was provided by the Marshall Space Flight Center in Huntsville, Ala., and will be updated at appropriate intervals.

# # #

DEC 27 1973  
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## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

**FOR RELEASE:** 3:00 p.m.  
December 20, 1973  
Release #KSC-286-73

### ROCKWELL INTERNATIONAL CONTRACT EXTENDED

KENNEDY SPACE CENTER, Fla.--NASA's John F. Kennedy Space Center has awarded the Space Division, Rockwell International Corporation, Downey, Calif., a \$14,670,525 contract extension in support of Apollo Soyuz Test Project operations.

Extension of the contract from December 30, 1973 through July 31, 1975 brings total value of the parent contract to \$62,885,682. All work will be performed at the Kennedy Space Center.

The contract extension provides for Rockwell International to provide support in the processing of the command and service modules (CSM), spacecraft lunar module adapter (SLA), launch escape system (LES) and docking module (DM) for the United States mission of the Apollo Soyuz Test Project, scheduled for launch in mid-1975, including pre-launch, launch and post-launch activities.

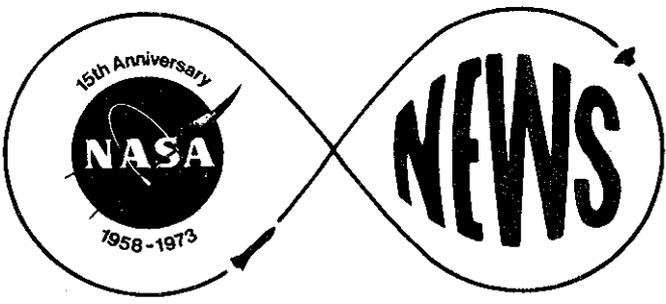
The Apollo Soyuz Test Project, involving launches of two cosmonauts in a Soyuz spacecraft and three astronauts in an Apollo to rendezvous and dock in Earth orbit will be the first manned space project involving launches by two nations. The purpose of the missions is the joint testing of common rendezvous and docking systems and techniques.

# # #

DEC 7 1973  
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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899



A. H. Lavender  
305 867-2468

**FOR RELEASE:**  
December 26, 1973  
Release #KSC-287-73

## KSC SCHEDULES 19 LAUNCHES IN 1974

KENNEDY SPACE CENTER, Fla.--Nineteen launches are scheduled from Kennedy Space Center complexes in 1974, with 15 from Spaceport facilities at Cape Kennedy and four from the Western Test Range.

Noting that the launch rate will exceed the 1973 level, Unmanned Launch Operations Director John J. Neilon pointed out that cost to the space agency will be lower since NASA will be reimbursed for many of the launches.

NASA acts as launch agent, with its services subject to reimbursement, for numerous meteorological and communications spacecraft and for many spacecraft sponsored by other nations.

Skynet, a United Kingdom communications satellite, is scheduled for launch atop a Delta booster January 18. The UK reimburses NASA for the cost of the Skynet launches.

The first Titan-Centaur booster is scheduled for launch January 24. The new configuration, which mates a liquid hydrogen-fueled Centaur upper stage with the Titan IIIC, will launch two Viking spacecraft to Mars.

The Titan-Centaur will carry a mass model of a Viking, similar in weight and shape to the spacecraft scheduled for launch in 1975, and a SPHINX (Space Plasma High Voltage Interaction Experiment) spacecraft to be released in Earth orbit.

An Intelsat IV communications satellite is scheduled for launch atop an Atlas Centaur January 30. NASA launches Intelsats for the Communications Satellite Corporation, agent for the 75-nation International Telecommunications Consortium.

The first Synchronous Meteorological Satellite (SMS) is scheduled for launch, using a Delta booster, in March. To be placed in stationary orbit 22,300 miles above the equator, it is the first of two satellites to be used by the National Oceanic and Atmospheric Administration in development of an operational geosynchronous weather satellite system.

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Another Intelsat IV communications satellite, an Applications Technology Satellite (ATS) and a Westar communications satellite are scheduled for launch in April. ATS, to be launched by a Titan IIIC, is designed to test stationary orbit and satellite application technology. Westar, the first U.S. domestic communications satellite, will be launched for Western Union on a Delta.

A second SMS from Cape Kennedy and ITOS and Nimbus satellites from the Western Test Range are scheduled in May. Delta will be the booster for each.

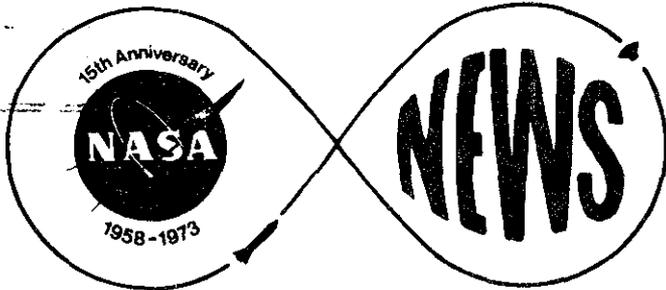
A Westar, Helios, a Geostationary Operational Environmental Satellite (GOES) and a Skynet are scheduled for launch in mid-summer. Helios, to be launched by a Titan IIIC-Centaur, is a NASA-German cooperative satellite designed to study the solar environment. GOES, the first National Oceanic and Atmospheric Administration geostationary operational weather satellite, and Skynet, will be launched by Deltas.

GEOS, a Geodetic Explorer, is scheduled for launch from the Western Test Range atop a Delta in late summer. A Westar and an Intelsat IV are scheduled for launch from the Spaceport's Cape Kennedy facilities in the late summer period.

Later in the year the second Earth Resources Technology Satellite (ERTS-B) will be launched from the Western Test Range and Marisat, first of a new series of communications satellites developed by Intelsat, will be launched from Cape Kennedy atop Deltas.

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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

**FOR RELEASE:**  
December 26, 1973  
Release #KSC-288-73

## MOBILE LAUNCHER 3 DEACTIVATION TO BE COMPLETED IN '74

KENNEDY SPACE CENTER, Fla.--A specialized team of NASA and contractor employees at the Spaceport is engaged in the complex task of deactivating one of the three mobile launchers used for Apollo operations.

With completion of deactivation in mid-1974 equipment worth millions of dollars will have been salvaged for future use in Space Shuttle and other programs.

The task team, organized in early 1973, is removing and storing useable equipment from mobile launcher 3, which was used for five manned Apollo/Saturn V launches.

The two-storied launch platform measures 160 feet long and 135 feet wide, roughly half an acre. The tower, topped by a large crane, is 399 feet tall, with 17 working levels and two elevators. The mobile launcher's nine swing arms have already been removed.

Other major items scheduled for removal include an Acceptance Checkout Equipment (ACE) room, a computer station, numerous racks of electronic, timing and communications gear; and instrumentation cables that run the full height of the umbilical tower.

Cable salvage alone should cover half the cost of deactivation. The basic launcher structure will be modified and used for Space Shuttle launches

The task team was organized by the KSC Support Operations Directorate. The Bendix Launch Support Division provides the primary contractor support, with Boeing supplying heavy equipment, transportation and storage support. Support Operations and Bendix developed the concept for the project.

-more-

Following a complete inventory of reusable ground support and electrical support equipment, thousands of accountable items from Grumman, McDonnell Douglas, Boeing, IBM and Rockwell International were turned over to Bendix.

Next, Bendix team members identified real property items, such as propellant, communications, pneumatic and water systems, for possible Space Shuttle use.

Each piece of hardware is prepared for removal by Bendix personnel, Boeing heavy equipment operators lower items to the surface and a Bendix unit prepares them for storage.

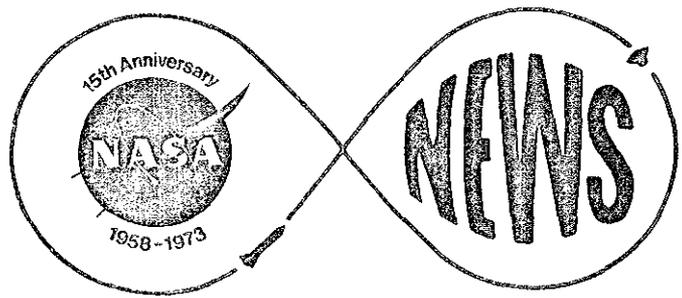
Support Operations, directed by Robert E. Gorman, has overall responsibility for the project and Bendix, managed at KSC by Dr. H. P. Bruckner, oversees all contractor activities. William R. Quinn is support operations manager for the project and Walter R. Bower, Bendix configuration manager, is contractor coordinator.

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**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**  
John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

**FOR RELEASE:**  
December 28, 1973  
Release #KSC-290-73

**KSC EXTENDS McDONNELL DOUGLAS CONTRACT**

KENNEDY SPACE CENTER, Fla.--NASA's John F. Kennedy Space Center has awarded the McDonnell Douglas Astronautics Company's McDonnell Douglas Corporation, Huntington Beach, Calif., a \$10,517,967 contract extension in support of the Apollo-Soyuz Test Project.

The contract extension provides for McDonnell Douglas to provide necessary services in processing of the Saturn 1B second stage for the United States launch of a manned Apollo spacecraft that will rendezvous and dock with a Soviet manned Soyuz spacecraft in 1975.

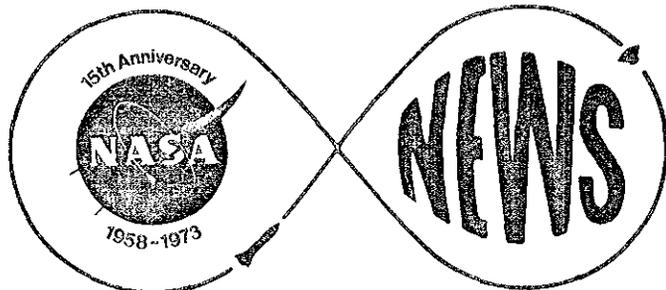
The latest award covers a period from January 1, 1974 through July 31, 1975, bringing the total value of the contract to \$101,995,628.

The three-man astronaut crew of Thomas P. Stafford, Commander; Vance D. Brand, Command Module Pilot; and Donald K. Slayton, Docking Module Pilot, will be launched in an Apollo spacecraft equipped with a Docking Module from Complex 39's Pad B.

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**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**

John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

**FOR RELEASE:**  
December 28, 1973  
Release #KSC-291-73

Dick Young  
305 867-2468

**SPACEPORT AWARDS BENDIX CONTRACT EXTENSION**

KENNEDY SPACE CENTER, Fla.--NASA's John F. Kennedy Space Center has awarded the Bendix Corporation Launch Support Division a six-month contract extension with an estimated value of \$7,909,148.

The award extends the existing contract from January 1, 1974, through June 30, 1974, and brings the total value of the parent contract to \$240,857,165.

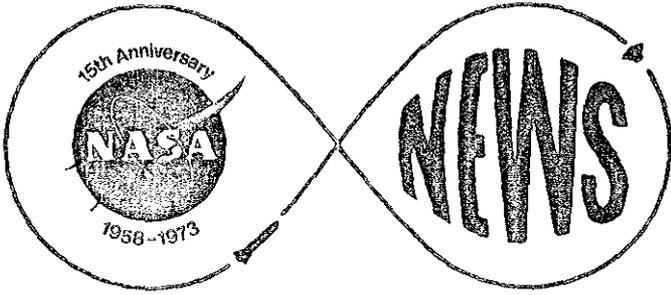
The contract covers launch support services at the Kennedy Space Center and NASA/KSC facilities sited on the Cape Kennedy Air Force Station.

These services consist of operation and maintenance of Launch Complex 39, the mobile launchers and mobile service structure, industrial complexes, technical shops, propellant systems component cleaning laboratory, and propellant and life support system facilities. They also embrace support in the fields of systems safety services, test operations, reliability and quality assurance, engineering services, production control and other related services.

KSC is the launch site for all the nation's manned Apollo and Skylab missions and has been selected as the prime launch/recovery site for the reusable Space Shuttle which will make its first flight from here in 1979. In addition, KSC also launches a large variety of unmanned weather, communications, and scientific satellites and spacecraft from facilities at the Western Test Range in California.

# # #

JAN 2 1974  
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**NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION**  
John F. Kennedy Space Center  
Kennedy Space Center, Fla. 32899

A. H. Lavender  
305 867-2468

**FOR RELEASE:**  
December 28, 1973  
Release #KSC-292-73

**SPACEPORT EXTENDS IBM CONTRACT**

KENNEDY SPACE CENTER, Fla.--NASA's John F. Kennedy Space Center has awarded a contract extension of \$11,831,263 to the International Business Machines Corp., Gaithersburg, Md.

The extension covers the period January 1, 1974 through July 31, 1975, increasing the total value of the contract and all of its modifications to \$58,772,009.

All work will be performed at the Kennedy Space Center.

The extension covers a follow-on effort to provide launch support services in connection with Instrument Units of Saturn 1B boosters for a possible Skylab Rescue Vehicle launch and the Apollo Soyuz Test Project launch in 1975

The Instrument Unit contains the electronic and electrical equipment required for guidance of a Saturn 1B.

The Kennedy Space Center, NASA's major launch organization, launches manned spacecraft from the Spaceport's Complex 39 and unmanned scientific and applications spacecraft from facilities at Cape Kennedy and the Western Test Range.

# # #