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Press Kit

Project FLTSATCOM-B

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April 25, 1979

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For Release:

Jim Kukowski
Headquarters, Washington, D.C.
(Phone: 202/755-3090)

UPON RECEIPT

Marilyn Edwards
Lewis Research Center, Cleveland, Ohio
(Phone: 216/433-4000 Ext. 415)

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SECOND FLTSATCOM LAUNCH SCHEDULED MAY 3

The second of five FLTSATCOM communications satellites will be launched by NASA with an Atlas Centaur rocket from Kennedy Space Center, Fla., no earlier than Thursday, May 3, 1979. The satellite is intended for service over the Atlantic Ocean.

This will be the 50th launch of an Atlas Centaur, NASA's standard launch vehicle for intermediate-weight payloads. The first Atlas Centaur was launched May 8, 1962.

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April 25, 1979

FLTSATCOM-B satellite will be placed into a geostationary orbit at 23 degrees west longitude, where it will provide two-way communications, in the 240 to 400 MHz frequency band, between any points on Earth visible from its orbital location. The spacecraft has a design life of five years.

The FLTSATCOM program is managed by the Naval Electronic Systems Command. The Air Force Space and Missile Systems Organization (SAMSO) is responsible for production, launch vehicle/spacecraft integration and tracking and data acquisition.

The FLTSATCOM satellites are the spaceborne portion of a worldwide Navy, Air Force and Department of Defense communications system that enables communicating between naval aircraft, ships, submarines, ground stations, Strategic Air Command elements and presidential command networks.

The satellite system will provide 23 ultra high frequency communication channels and one super high frequency uplink channel.

NASA is reimbursed for all additive costs of the Atlas Centaur and launch services by the Department of Defense under provisions of a launch services agreement.

The Atlas Centaur (AC-47) launch vehicle will place the FLTSATCOM-B into a highly elliptical orbit of 166 by 35,788 kilometers (103 by 22,237 miles). After reorientation of the satellite, a solid propellant rocket motor aboard the spacecraft will be fired to circularize the orbit at a synchronous altitude of 35,788 km (22,237 mi.). At that altitude, because the speed of the spacecraft in orbit matches the rotational speed of the Earth, the satellite remains in position over one spot on the equator.

The launch of FLTSATCOM spacecraft aboard Atlas Centaur rockets requires the coordinated efforts of a large government and industry team. NASA's Lewis Research Center, Cleveland, Ohio, has management responsibility for the Atlas Centaur development and operation. NASA's Kennedy Space Center, Fla., is assigned vehicle checkout and launch responsibility once the vehicle reaches Cape Canaveral.

The FLTSATCOM satellites, built by TRW Systems, Redondo Beach, Calif., are 6.7 meters (22 feet) tall and weigh 1,876 kilograms (4,136 pounds) at liftoff and 1,005 kg (2,216 lb.) after apogee motor firing.

(END OF GENERAL RELEASE; DETAILED INFORMATION FOLLOWS)

ATLAS CENTAUR LAUNCH VEHICLE

The Atlas Centaur is NASA's standard launch vehicle for intermediate weight payloads. It is used for the launch of Earth orbital, Earth synchronous and interplanetary missions.

Centaur was the nation's first high-energy, liquid-hydrogen/liquid-oxygen propelled rocket. Developed and launched under the direction of NASA's Lewis Research Center, it became operational in 1966 with the launch of Surveyor 1, the first U.S. spacecraft to soft-land on the Moon's surface.

Since that time, both the Atlas booster and Centaur second stage have undergone many improvements. At present, the vehicle combination can place 4,536 kg (10,000 lb.) in low Earth orbit, 1,882 kg (4,150 lb.) in a synchronous transfer orbit and 907 kg (2,000 lb.) on an interplanetary trajectory.

The Atlas Centaur, standing approximately 40.8 m (134 ft.) high, consists of an Atlas SLV-3D booster and Centaur D-1AR second stage. The Atlas booster develops 1,920 kilonewtons (431,300 lb.) of thrust at liftoff using two 822,920-newton (185,000-lb.) thrust booster engines, one 266,890-N (60,000-lb.) thrust sustainer engine and two vernier engines developing 2,890 N (650 lb.) thrust each. The two RL-10 engines on Centaur produce a total of 133,450 N (30,000 lb.) thrust. Both the Atlas and the Centaur are 3 m (10 ft.) in diameter.

Until early 1974, Centaur was used exclusively in combination with the Atlas booster. It was subsequently used with a Titan III booster to launch heavier payloads into Earth orbit and interplanetary trajectories.

The Atlas and the Centaur vehicles have been updated over the years. Thrust of the Atlas engines has been increased about 22,400 N (50,000 lb.) since their first use in the space program in the early 1960s.

The Centaur D-1AR has an integrated electronic system that performs a major role in checking itself and other vehicle systems before launch and also maintains control of major events after liftoff. The new Centaur system handles navigation and guidance tasks, controls pressurization and venting, propellant management, telemetry formats and transmission and initiates vehicle events. Most operational needs can be met by changing the computer software.

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TYPICAL LAUNCH VEHICLE CHARACTERISTICS

Liftoff weight including spacecraft: 148,555.4 kg (327,503 lb.)

Liftoff height: 39.9 m (131 ft.)

Launch Complex: 36A

	Atlas Booster	Centaur Stage
Weight (with propellants)	130,450 kg (287,594 lb.)	17,673.8 kg (38,964 lb.)
Height	21.3 m (70 ft.)	18.6 m (61 ft.) with payload fairing
Thrust	1,919 kn (431,300 lb.) at sea level	133,447 N (30,000 lb.) in vacuum
Propellants	Liquid oxygen and RP-1	Liquid oxygen and liquid hydrogen
Propulsion	MA-5 system two 822,921-N (185,000-lb.) thrust booster engines, one 266,893-N (60,000-lb.) thrust sustainer engine, two 2,891-N (650-lb.) thrust vernier engines.	Two 66,723-N (15,000-lb.) thrust RL-10 engines, 12 small hydrogen peroxide thrusters.
Velocity	9,092 km/hr (5,651 mph) at booster engine cutoff (BECO), 12,967 km/hr (8,059 mph) at sustainer engine cutoff (SECO).	35,028 km/hr (21,770 mph) at spacecraft separation.
Guidance	Preprogrammed profile through BECO. Switch to inertial guidance for sustainer phase.	Inertial guidance.

LAUNCH OPERATIONS

NASA's John F. Kennedy Space Center plays a key role in the preparation and launch of the Atlas Centaur AC-47 which will carry FLTSATCOM into orbit.

The Atlas and Centaur stages of the AC-47 launch vehicle arrived at Cape Canaveral Air Force Station in February and were erected on Pad A, Complex 36, that month. Following completion of electrical, pneumatic, hydraulic, propulsion and guidance system checkout and testing, a Terminal Countdown Demonstration Test (TCD) was performed March 28. The TCD demonstrated the integrity of the vehicle-to-ground systems interface in a cryogenic environment which duplicated launch countdown conditions.

The FLTSATCOM-B spacecraft was received March 30 and underwent systems checkout in the Air Force Satellite Assembly Building. The spacecraft was moved to the Spacecraft Assembly and Encapsulation Facility April 17 for mating with its apogee kick motor and for loading of its hydrazine propellant.

The spacecraft and payload fairing assembly were mated to the launch vehicle about a week later.

All launch vehicle and pad operations during the launch countdown are conducted from the blockhouse at Complex 36 by a joint government-industry team.

TYPICAL LAUNCH SEQUENCE FOR FLTSATCOM-B

Earth Relative

FLIGHT EVENTS	PROGRAM TIME (Seconds)	VELOCITY (Km/Hr	Mph)	RANGE Kilometers/Miles		ALTITUDE Kilometers/Miles	
Liftoff	0	0	0	0	0	0	0
BECO	141.0	9,092	5,651	82.6	51.4	57.9	36.0
Booster Jettison	144.1	9,191	5,712	89.8	55.8	61.0	37.9
Insulation Panel Jettison	186.0	10,415	6,473	195.7	121.6	98.7	61.3
SECO/VECO	245.6	12,967	8,059	379.3	235.8	142.1	88.3
Centaur Separation	247.6	12,967	8,059	386.3	240.1	143.4	89.2
Centaur MES (1)	257.1	12,843	7,982	419.2	260.5	149.3	92.8
Nose Fairing Jettison	269.1	13,121	8,155	461.0	286.5	155.8	96.8
Centaur MECO (1)	603.7	26,767	16,636	2,156.8	1,340.5	169.1	105.1
Centaur MES (2)	1,509.9	26,843	16,683	8,827.5	5,486.3	162.6	101.0
Centaur MECO (2)	1,606.9	35,398	22,000	9,557.9	5,940.3	178.5	110.9
Spacecraft Separation	1,741.9	35,028	21,770	10,829.1	6,730.4	292.6	181.9
Reorient Centaur	1,746.9						
Start Blowdown	2,021.9						
End Blowdown	2,271.9						

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THE FLTSATCOM TEAM

NASA Headquarters	
John F. Yardley	Associate Administrator for Space Transportation Systems
Joseph B. Mahon	Director, Expendable Launch Vehicles
F. R. Schmidt	Manager, Atlas Centaur Launch Vehicle
Lewis Research Center	
Dr. John F. McCarthy, Jr.	Director
Dr. Seymour C. Himmel	Associate Director
Lawrence J. Ross	Director, Launch Vehicles
J. E. Patterson	Chief, Vehicles Engineering Division
C. B. Wentworth	Chief, Program Integration Division
Kenneth A. Adams	FLTSATCOM Mission Project Engineer
Frank L. Manning	FLTSATCOM Vehicle Engineer
Kennedy Space Center	
Lee R. Scherer	Director
Gerald D. Griffin	Deputy Director
Dr. Walter J. Kapryan	Director, Shuttle Operations
George F. Page	Director, Cargo Operations
John Gossett	Chief, Centaur Operations Div.
Barry Olton	Spacecraft Coordinator

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