Mr. French

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Press Kit

Project FLTSATCOM-E

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FIFTH FLTSATCOM TO BE LAUNCHED

The fifth FLTSATCOM communications satellite, FLTSATCOM-E, will be launched by NASA from the Kennedy Space Center, Fla., no earlier than Thursday, Aug. 6, 1981. The Department of Defense satellite is intended for service over the eastern Pacific Ocean.

FLTSATCOM-E will be placed in a geostationary orbit at 73 degrees west longitude above the equator, where it will provide two-way communications in the 240 to 400 MHz frequency band, between any two 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 Division, Los Angeles, is responsible for production, launch vehicle/spacecraft integration and tracking and data acquisition.

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The FLTSATCOM satellites are the spaceborne portion of a worldwide Navy, Air Force and Department of Defense system to enable communications 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 channel.

This will be the 57th launch of an Atlas Centaur, NASA's standard launch vehicle for intermediate-weight payloads. The first Atlas Centaur was launched May 8, 1962.

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-59) launch vehicle will place FLTSATCOM-E into a highly elliptical orbit of 167 by 35,970 kilometers (104 by 22,351 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.

NASA's Lewis Research Center, Cleveland, 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 in Redondo Beach, Calif., by the Defense and Space Systems Group of TRW, Inc., are 6.7 meters (22 feet) tall and weigh 1,876 kilograms (4,136 pounds) at lift-off and 1,005 kg (2,215 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 39.9 m (131 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.

LAUNCH VEHICLE CHARACTERISTICS

Liftoff weight including spacecraft: 148,173 kg (326,665 lb.)

Liftoff height: 39.9 m (131 ft.)

Launch Complex: 36

	Atlas Booster	Centaur Stage
Weight (with propellants)	129,397 kg (285,272 lb.)	18,826 kg (41,504 lb.)
Height	21.3 m (70 ft.)	18.6 m (61 ft.) with payload fairing
Thrust	1,920 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 822,920-N (185,000-lb.) thrust booster engines, one 266,890-N (60,000-lb.) thrust sustainer engine, two 2,890-N (650-lb.) thrust vernier engines.	Two 66,723-N (15,000-lb.) thrust RL-10 engines, 12 small hydrogen peroxide thrusters.
Velocity	8,642 km/hr (5,370 mph) at booster engine cutoff (BECO), 12,971 km/hr (8,060 mph) at sustainer engine cutoff (SECO).	35,021 km/hr (21,761 mph) at spacecraft separation.
Guidance	Preprogrammed profile through BECO. Switch to inertial guidance for sustainer phase.	Inertial guidance

LAUNCH OPERATIONS

NASA's Kennedy Space Center is responsible for the preparation and launch of Atlas Centaur AC-59 which will loft FLTSATCOM-E into orbit.

The Atlas Centaur vehicle arrived by C5A transport plane at the Skid Strip on Cape Canaveral Air Force Station on April 29. The Atlas booster stage was erected at Launch Complex 36's Pad B on May 4. The following day, the Centaur stage was mated atop the Atlas. The first power-on testing started on the 28th of May. A Terminal Countdown Demonstration test was conducted July 8 to verify the integrity of the vehicle-to-ground systems in an environment duplicating launch conditions.

The FLTSATCOM-E spacecraft arrived June 29 and underwent initial checkout in the Air Force's Satellite Assembly Building on Cape Canaveral Air Force Station. The spacecraft was moved to Spacecraft Assembly and Encapsulation Facility-2 in the Kennedy Space Center's Industrial Area on July 17 for mating with its apogee kick motor, loading attitude control propellant and encapsulation in the payload shroud which will protect it during its flight through the atmosphere.

The spacecraft and payload fairing assembly will be mated with the launch vehicle at Complex 36 on July 28.

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

LAUNCH SEQUENCE FOR FLTSATCOM-D

FLIGHT EVENTS	TIME (Seconds)	VELOCITY (km/hr)	VELOCITY (mph)	RANGE (Kilometers)	RANGE (Miles)	ALTITUDE (Kilometers)	ALTITUDE (Miles)
Liftoff	0.0	0	0	0.0	0.0	0.0	0.0
BECO	138.2	8,739	5,430	77.8	42.3	56.2	34.9
BSTR, Pack Jettison	141.3	8,831	5,428	84.7	52.6	59.2	36.8
Insulation Pack Jettison	183.2	9,963	6,191	185.9	115.5	96.0	59.7
SECO	254.4	12,951	8,047	400.8	249.0	145.5	90.4
Atlas/Centaur Separation	256.4	12,954	8,049	407.7	253.3	146.7	91.1
MES-1	262.9	12,919	8,028	430.3	267.3	150.5	93.5
Nose Fairing Jettison	274.9	13,129	8,158	472.1	293.4	156.8	97.4
MECO-1	610.5	26,774	16,636	2,172.4	1,349.9	169.0	105.0
MES-2	1,512.4	26,844	16,650	8,737.1	5,429.0	161.9	100.6
MECO-2	1,610.2	35,398	21,995	9,548.7	5,933.3	178.7	111.0
Spacecraft Separation	1,745.2	35,027	21,765	10,819.7	6,723.1	293.3	182.2
Reorient Centaur	1,750.2	-	-	-	-	-	-
Start Blowdown	2,025.2	-	-	-	-	-	-
End Blowdown	2,275.2	-	-	-	-	-	-

THE NASA FLTSATCOM TEAM

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