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NASA SIGNING UP PAYLOADS FOR SHUTTLE'S FIRST YEAR

NASA has identified some 40 payloads for 11 Space Shuttle flights in its first year of operation beginning in 1980.

Chester M. Lee, NASA's Director of Space Transportation System Operations, says that three civilian firms have deposited "earnest money" with the space agency covering payloads on eight flights. Additionally, Lee says, NASA has firm plans for launching five payloads, and the Department of Defense, one.

"And there are 12 non-NASA civil payloads, 10 NASA and 4 Department of Defense payloads forecast for launch during 1980 and 1981," Lee says. "Clearly the pipeline is beginning to fill up."

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PAYLOADS FOR SHUTTLE'S FIRST YEAR (National
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The Space Shuttle is the key element in NASA's Space Transportation System. It will make its first space test flight in 1979. Six of these orbital flight tests are scheduled leading up to the first operational flight in 1980.

The Space Shuttle is a reusable space vehicle which is launched using a combination of solid-propellant and liquid-propellant rocket motors. After performing a mission of from 7 to 30 days in space the Shuttle returns to Earth, gliding to a landing much as an airplane does, and is refurbished for additional flights in as little as two weeks.

Once operational, the Shuttle will replace the presently used expendable launch vehicles. Because of its reusability and its capability of handling larger and heavier payloads, the Shuttle will reduce the cost of space operations and payload design and construction.

Allocation of payloads to specific flights is still in the early planning stage and will not be firmed up until about one year before launch. Current allocations are given below.

Space Shuttle Flight 7 (Flights 1 through 6 are test flights) -- Long Duration Exposure Facility (LDEF). LDEF is a passive, free-flying satellite that will accommodate a large number of experiments, to be conducted in space and an experiment pallet.

Space Shuttle Flight 8 -- Tracking and Data Relay (TDRSS-A) for Western Union and SBS-A, a communications satellite for Satellite Business Systems.

Space Shuttle Flight 9 -- GOES-D, a geostationary operational environmental satellite for the National Oceanic and Atmospheric Administration (NOAA) and Telesat-E, a communications satellite for Canada.

Space Shuttle Flight 10 -- TDRSS-B for Western Union and SBS-B for Satellite Business Systems.

Space Shuttle Flight 11 -- Spacelab 1. Spacelab is being built by the European Space Agency (ESA). This first Spacelab mission is a joint NASA/ESA science mission.

Space Shuttle Flight 12 -- GOES-E for NOAA and Intelsat 5 for Communications Satellite Corp.

Space Shuttle Flight 13 -- TDRSS-C for Western Union and Telesat-F for Canada.

Space Shuttle Flight 14 -- Spacelab 2 for NASA.

Space Shuttle Flight 15 -- Telesat-G for Canada, GOES-F for NOAA and retrieval of the LDEF launched on Space Shuttle Mission 7.

Space Shuttle Flight 16 -- TDRSS-D for Western Union and SBS-C for Satellite Business Systems.

Space Shuttle Flight 17 -- Spacelab 3, a multi-user mission with experiments in life sciences, technology and applications.

Other candidate Shuttle payloads to be flown on subsequent flights include NASA's Halley Comet rendezvous solar-sail spacecraft, Jupiter Orbiter Probe and the Space Telescope.

An example of the savings possible by using the Shuttle for launching satellites is Shuttle Flight 11. The Intelsat communications satellite to be launched for Communications Satellite Corp. presently is launched by the NASA Atlas Centaur expendable launch vehicle.

The customer in this case is billed by NASA for the Atlas Centaur hardware, launch services and attendant costs totaling about \$25 million. Similar launch services using the Shuttle will total about \$21 million and in the case of Shuttle Flight 11 these costs will be shared between Comsat and Satellite Business Systems which will have its SBS-B satellite on the same flight. Charges to the two customers will be based on a formula that takes into consideration the weight and size of the two payloads and their destinations in orbit.

Launch cost savings for a Delta-class payload will be about \$6.5 million per satellite when the Shuttle is used. NASA bills customers more than \$15 million for a launch on its expendable Delta rocket while the bill for similar services on the Shuttle will be about \$8.6 million.

Space Shuttle launches initially will be made from NASA's Kennedy Space Center, Fla., where facilities formerly used for Apollo manned Moon missions, Skylab and the Apollo Soyuz missions are being modified to accommodate the Shuttle. A 4,572-meter (15,000-foot) landing strip also has been constructed at Kennedy to handle landings after space missions.

By 1984 a second Shuttle launch/landing facility will be operated by the U.S. Air Force at Vandenberg Air Force Base, Calif. The West Coast site will be capable of handling Shuttle launches into polar orbits (across the North and South Poles).

NASA has developed a working traffic model covering the 12 years beginning in 1980 and totaling 560 Shuttle flights. Peak activity is reached in 1988 when 65 flights are anticipated -- 46 from Kennedy Center and 19 from Vandenberg.

NASA is expected to fly about half of the 560 missions on its own, 20 per cent will be flown for the Department of Defense, 6 per cent by other U.S. Government agencies, 12 per cent by commercial firms and 12 per cent by foreign customers.

The Space Shuttle is a reusable spacecraft that will make possible frequent and routine access to space at costs less than if the present expendable launch vehicles were used. The Space Shuttle Orbiter payload bay, or cargo compartment, will carry loads weighing as much as 29,483 kilograms (65,000 pounds) and as large as 4.6 m (15 ft.) in diameter and 18.29 m (60 ft.) long.

The Shuttle will be launched vertically, as are present launch vehicles, maneuver and operate in low Earth orbit (up to 926 kilometers (500 miles) above Earth) and return to Earth by gliding to a landing on a runway as would an airplane. After landing the Space Shuttle will be checked and refurbished and prepared for another space mission in about two weeks.

The first Space Shuttle Orbiter, named Enterprise, is undergoing approach and landing tests at NASA's Dryden Flight Research Center, Edwards Air Force Base, Calif. First orbital flight test is scheduled for launch from Kennedy Center in 1979 and the first operational flight is scheduled for 1980 from Kennedy.

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