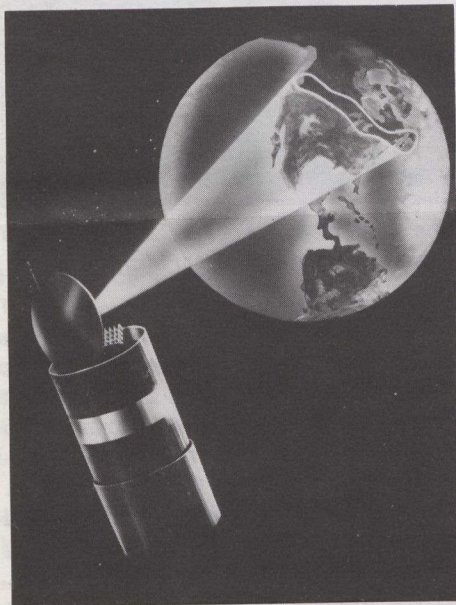


Newest Canadian satellite parked in space

Telesat Canada's newest communications satellite, the *Anik D2*, has arrived at its assigned geostationary parking spot at 111.5 degree west longitude, due south of Medicine Hat, Alberta, where it will remain in a unique two-year storage orbit.

The 6/4 GHz satellite was launched on November 9 by astronauts aboard the United States space shuttle *Discovery*.



An artist's conception of the *Anik D2* in space with the communications reflector up and in operation.

"The deployment went on time without any problems at all," said astronaut Joe Allen who started the automatic launch sequence by entering numbers in a computer. The sequence caused the 1 225-kilogram satellite to spin at 50 revolutions per minute on a rotating table. Then springs ejected the craft into independent orbit.

Forty-five minutes later, a rocket engine fired automatically sending the *Anik D2* into an elliptical orbit with a low point of 300 kilometres and a high point of more than 36 000 kilometres.

Three days later, at the highest point of the sixth orbit, the apogee motor aboard the satellite was fired to help put the satellite in a more circular orbit. It then took seven days for the satellite to drift into its assigned 111.5 degree west longitude position.

The *Anik D2* has been placed in space because it is less expensive to store the satellite there than on earth. In addition the launch fees of the National Aeronautics and Space Administration (NASA) are scheduled to double at the end of 1985.

"The storage orbit also allows us to be responsive to customers," said Telesat

Canada president Eldon Thompson. "If new demand develops, *Anik D2* can be moved into an operational orbit in about three days. If we stored it on earth, it might take months or years to get a launch date," he said.

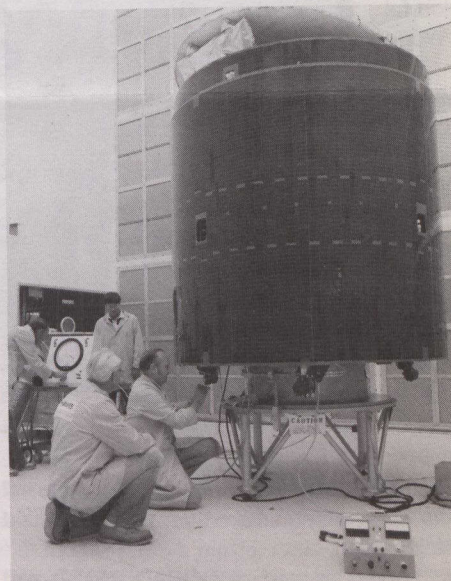
The *Anik D2* is Telesat's eighth satellite since the company launched the world's first domestic communications satellite in 1972. The company currently maintains five operational satellites in space and is scheduled to launch the *Anik C1* in 1985.

Twin satellites

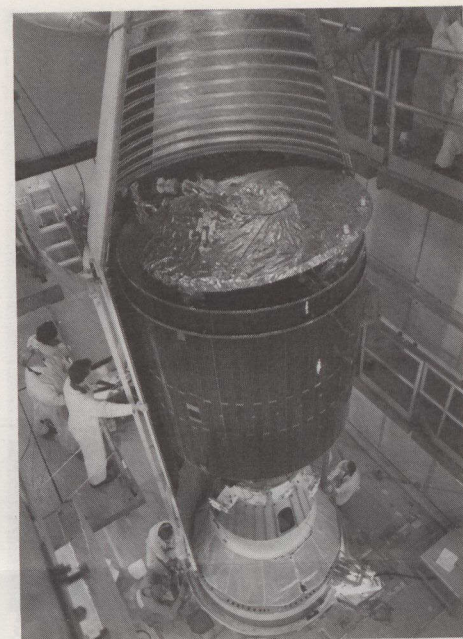
Telesat Canada's *Anik D2* satellite is identical to the company's *Anik D1* spacecraft that was launched by a NASA *Delta 3920* rocket from the Cape Canaveral Air Force Station in Florida on August 26, 1982.

Built by Spar Aerospace Limited of Toronto, the *Anik D* spacecraft are spin-stabilized structures with concentric, cylindrical solar panels that soak up energy from the sun and provide close to 1 000 watts of electrical power to run each satellite. For launch, the lower solar panel was telescoped up over the upper panel and the communications reflector (antenna) folded across the top of the satellite. On station, with its reflector erected and the lower solar panel deployed, each *Anik D* measures 6.57 metres high and has a maximum diameter of 2.16 metres.

Each *Anik D* satellite provides 24 channels and each channel is capable of carrying one colour television program with its associated audio and control circuits, or the equivalent of 960 one-way voice cir-



Personnel from Spar Aerospace Ltd. and Hughes Aircraft Co. complete solar drum positioner installation on an *Anik D* satellite.



Workmen install a protective payload fairing around the Canadian communications satellite.

uits. The satellites use the technique of frequency re-use and orthogonal signal polarization: 12 channels are transmitted with horizontally-polarized radio waves; the other 12 with vertical polarization.

There are 24 transponders (radio devices which receive signals beamed from earth on one frequency, amplify them and re-transmit them back to earth on a second frequency) on each satellite.

One *Anik D* satellite has double the communications capacity of any of Telesat's original trio of *Anik A* series satellites. They were designed to provide communications across all of Canada, including the Arctic.

Three satellites, the *Anik A3*, *Anik B2* and *Anik D1* currently carry telecommunications such as Canadian Broadcasting Corporation television, Global network television and private business networks. The *Anik D2* will replace the *Anik A3* and *Anik B* when they are retired and the *Anik D* twins will carry all of Telesat's 6/4 GHz traffic into the 1990s. They are expected to have operational lifetimes of eight years each.

The earth segment of the Canadian domestic satellite system, has several hundred earth stations, more than 135 of which are owned and operated by Telesat.

The *Anik D2* was the first of two commercial communications satellites that was launched by the *Discovery* astronauts. The second, a US satellite owned by Hughes Communications Services was also successfully deployed.

The *Discovery* mission also rescued two communications satellites stranded in low orbit after faulty rocket firings in February 1984.

NASA

NASA