

# Space Enterprises

**H**igh-tech business is reaching new heights. Canadian businesspersons have joined scientists and astronauts in the exploration of space. The result is a thriving Canadian space industry, with a strong annual growth rate averaging between 10 and 20 per cent.

From the beginning, the Government of Canada has emphasized the growth of an industrial space expertise and economic returns through a competitive space capability. Today, Canada's space industry, which is 90 per cent Canadian-owned, is a world-class competitor. Seventy-three per cent of its sales were to foreign markets in the 1985-86 fiscal year. And Canadian expertise in communications satellites, subsystem and components manufacturing, ground stations, and remote sensing capabilities, is at the forefront of the international space industry.

## Communications Satellites

Since the establishment of the world's first domestic satellite communications network, Canada has been a leader in the conception, design and operation of telecommunications systems. As well, Canadian firms have pioneered new advances in satellite construction and launch control.

The country's successful operation of 10 communications satellites over the past 16 years is second to none. And in 1985, Brazil's first domestic communications satellite, designed and built by Canada's Spar Aerospace Limited, was launched into orbit. The Brazilsat and its ground control systems now provide television, radio, telephone and data links to 130 million Brazilians over 8.8 million km<sup>2</sup>.

Spar, a diversified space systems manufacturer, is the largest of the approximately 100 companies that make up the Canadian space industry which employs some 3 500 people in total. Spar's international reputation for the design and manufacture of satellites and subsystems, including all 14 of the Canadian satellites launched to date, exemplifies Canada's ability to successfully compete in the world market. And as the prime contractor for Canada's next series of communications satellites, the Anik E1 and E2, Spar is developing the world's most advanced domestic communications satellite technology ever.

The largest satellite ever built by the European Space Agency, the Olympus, is currently undergoing year-long testing at the David Florida Laboratory outside Ottawa.

## Building the Parts

Along with Spar, companies like SED Systems, Canadian Astronautics, COM DEV, and Fleet Industries have demonstrated that Canadian firms are among the world's most capable contractors for satellite systems and components. Canadian components ranging from innovative satellite antennas to sophisticated optical systems and solar array panels are used in both domestic and foreign spacecraft. At present, there are 35 satellites in orbit carrying COM DEV equipment.

The vitality of Canadian space industries was also dramatically illustrated by the remote manipulator system carried aboard NASA's space shuttle. More popularly known as the Canadarm, it was designed and built by Spar and a team of more than 40 Canadian suppliers and subcontractors.

The Canadarm enables shuttle astronauts to lift satellites out of the cargo bay and position them for insertion into orbit, or to retrieve malfunctioning satellites. Following the unqualified success of the Canadarm, Spar was selected to build the mobile servicing system (MSS) for the space station.

A key facility in Canada's burgeoning space industry is the David Florida Laboratory, a world-class test site for checking the structure and performance of satellites and components before launch. One of the few facilities

