

HISTORY: MacDonald Dettwiler is a private, Canadian-controlled corporation with two plants in Vancouver, Canada, and sales, service and engineering offices worldwide.

CAPABILITY: MacDonald Dettwiler is a world leader in computer-based systems for aerospace, resource management and electronics manufacturing applications. Founded in 1969, the company was launched to success as a major supplier of ground processing systems for the remote-sending Landsat satellites. Today, MacDonald Dettwiler is the world's largest supplier of turnkey remote-sensing satellite ground stations, and has branched out into:

- Space-Qualified Systems.
- Image Mapping systems for generating accurate maps from digital images.
- Meteorological Data Analysis and Distribution Systems.
- Systems for acquiring, correcting, analyzing and displaying optical and radar images from both spaceborne and airborne sensors.
- Flight operations management and air traffic control systems.
- High-resolution, high speed laser imaging systems for the electronics, manufacturing, graphics reproduction, and remote sensing industries.

The company offers design and development to MIL-SPEC or European Space Agency standards, advanced software engineering techniques, high-reliability and distributed systems, large-scale systems integration, and full integrated logistics support.

Since incorporation, MacDonald Dettwiler has grown to over 600 employees, of whom about 60% have university degrees, mainly in electrical engineering, computer science and physics. The company counts NASA, the European Space Agency, General Electric's Space Division, the US Jet Propulsion Laboratory, the USAF, and the Canadian Government among its clients. It exports 80% of its products and maintains a network of sales, service and engineering offices throughout the world.

As a result of its experience and track record, MacDonald Dettwiler is recognized worldwide as the leading supplier of ground receiving and processing systems for remote-sensing satellites. The company has been prime contractor for eight turnkey remote sensing satellite ground stations worldwide and major subcontractor for another 11. These constitute 19 out of the world's 23 Landsat and SPOT ground stations. Full turnkey services, including training and support, were provided for most of these installations. MacDonald Dettwiler is the prime contractor for both the ground segment of the ERS-1 radar satellite and Canada's Radarsat satellite ground station system.

The company is also a leading developer of space-qualified systems and associated artificial intelligence technology. As a major partner in Canada's Mobile Servicing System for the international Space Station Program, the company is contributing towards development of complex software, data processing subsystems and artificial intelligence applications.

MacDonald Dettwiler's MERIDIAN Image Analysis and Correction Systems combine both geometric and radiometric image correction with an advanced image analysis and processing capability. The MERIDIAN Image Mapping Systems produce topographic and thematic maps from digital imagery sources such as the SPOT and Landsat satellites and airborne Synthetic Aperture Radar (SAR). Their capabilities include geocoded image correction, height extraction, feature detection and extraction, and sophisticated interfaces to digital mapping systems.

The company has also played a leading role supplying meteorological satellite ground systems and components for all commercial weather satellites. MacDonald Dettwiler has been the prime contractor for 14 turnkey weather satellite ground stations. In the broader field of weather data processing and distribution, MacDonald Dettwiler has developed an Automated Weather Distribution System (AWDS) for

the USAF. AWDS will eventually provide a global weather information network connecting several thousand mini/micro-computers distributed over 166 sites worldwide.

MacDonald Dettwiler has always been at the forefront of digital Synthetic Aperture Radar (SAR) processing. The company was first to digitally process data from the Seasat A satellite, and first to develop a commercial digital SAR processor. It now manufactures a complete airborne SAR system - IRIS - in both remote-sensing and defense versions. The defense IRIS produces three meter resolution imagery and performs both moving and static target imaging in real time, on-board the aircraft. Images are downlinked, also in real time, to tactical mobile ground stations and to central processing and analysis facilities.

MacDonald Dettwiler's Aviation Systems Group specializes in developing high-reliability, advanced computer systems for flight operations and air traffic control. Systems and services are provided in airspace management, flight plan filing and validation, flight progress tracking, conflict detection and resolution, aeronautical data communications, simulation and training, radar data processing, flight data processing and weather data processing.

MacDonald Dettwiler FIRE 240 film image recorders plot high quality monochrome and color satellite images onto film for resource management and other remote-sensing applications.

AVERAGE WORK FORCE: Elect Eng - 80
Software Eng - 190
Systems Engs - 40
Scientists - 20
Admin - 265
TOTAL - 600

GROSS SALES: 1986 - \$55M
1987 - \$65M

PLANT SIZE: 150,000 Sq Ft (5 Buildings on 2 Sites)

EQUIPMENT: MacDonald Dettwiler's systems engineering facilities include an extensive VAX-based development environment. The hardware manufacturing plant includes full assembly, integration and test facilities for both custom and production units. Electronic assembly techniques include computer-guided stitch wiring. High precision electro-optical test equipment is used to ensure machined surfaces and electro-optical assemblies adhere to exacting tolerances.

EXPERIENCE: MacDonald Dettwiler has served as prime contractor on large scale systems for the US Air Force, Swedish Space Corp, Australia Center for Remote Sensing, National Research Council of Thailand, Indonesian Space Agency, German Space Agency, European Space Agency, Swissair Transport Co Ltd, Canada Center for Remote Sensing, and Atmospheric Environment Service Canada. The company has also served as subcontractor to Bendix, TRW Systems, General Electric Co, Jet Propulsion Laboratories, NASA, Messerschmitt-Bolkow-Blohm (W Germany), National Space Development Agency of Japan, and Hitachi.

KEYWORDS: Data Handling; Ground Stations; Image Processing; Image Recorder; Interactive Analysis; Landsat; Laser Film Image Recorder; Meteorological Satellite Processing; Remote Sensing; SAR; Software Systems; Space Qualified Systems; Spot; Synthetic Aperture Radar; Weather Forecasting Systems; Weather Image Processor.

REVISED: February 88

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HISTORY: Magnum Distribution is a Canadian-based manufacturing and distribution company founded in 1983. Originally the distributor