A CAPABILITY GUIDE

CANADA'S AEROSPACE INDUSTRY

1991 • 1992

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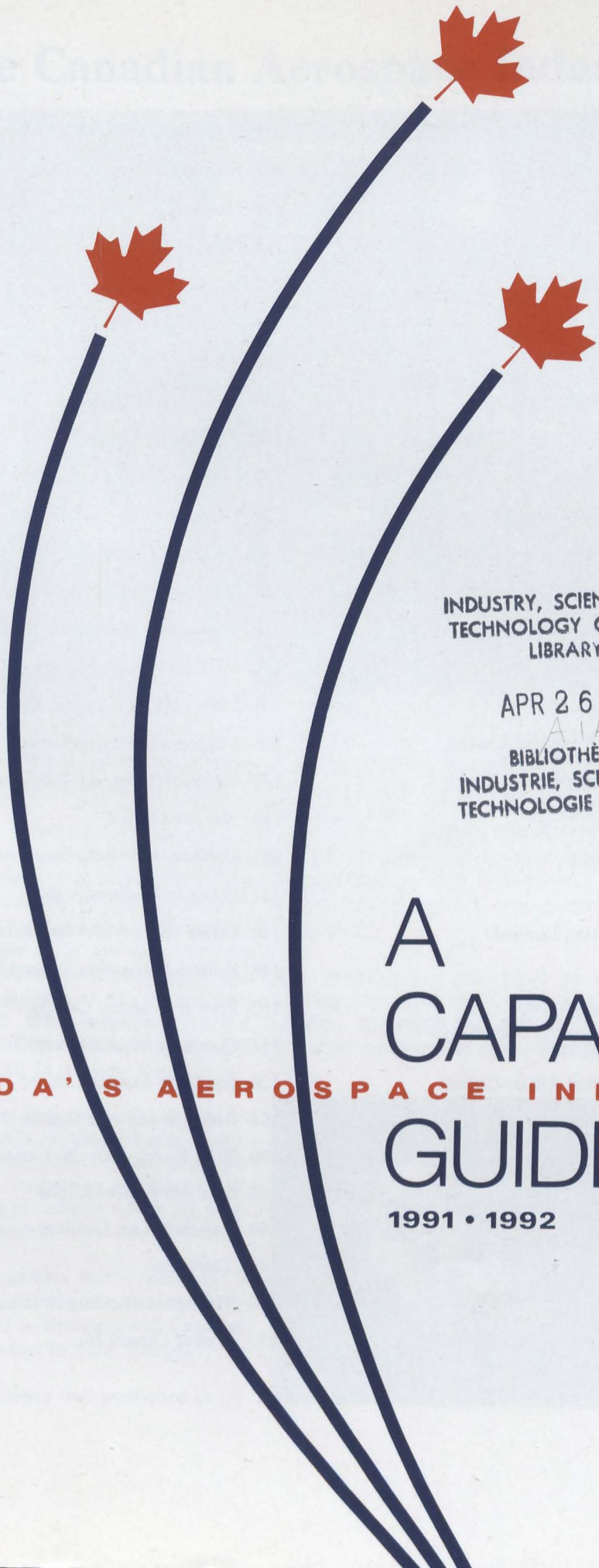

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1991 • 1992

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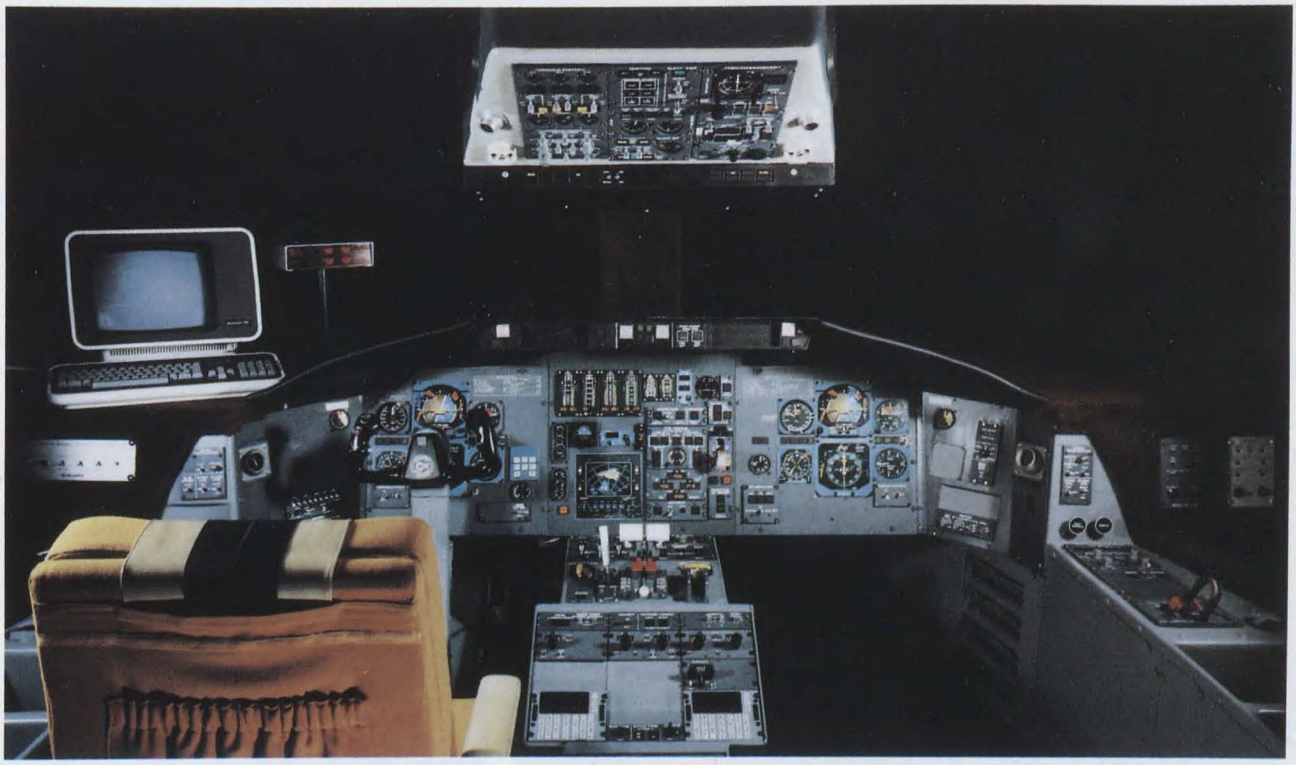
The Canadian Aerospace Industry



Atlantis Aerospace Challenger cockpit procedures trainer.

Despite an economic recession which has battered most sectors of the Canadian and global economies, the Canadian aerospace industry continues to grow and prosper.

The Aerospace Industries Association of Canada, the umbrella group for the country's high-tech businesses, represents about 200 companies. According to the AIAC 1990 annual report, it had total sales of 7.7 billion dollars, an increase of 17 per cent over the previous year. Exports accounted for 71 per cent of sales, an increase of 28 per cent over the previous year. When inflation is factored out, the industry total sales and exports still increased by 12 and 23 per cent respectively.

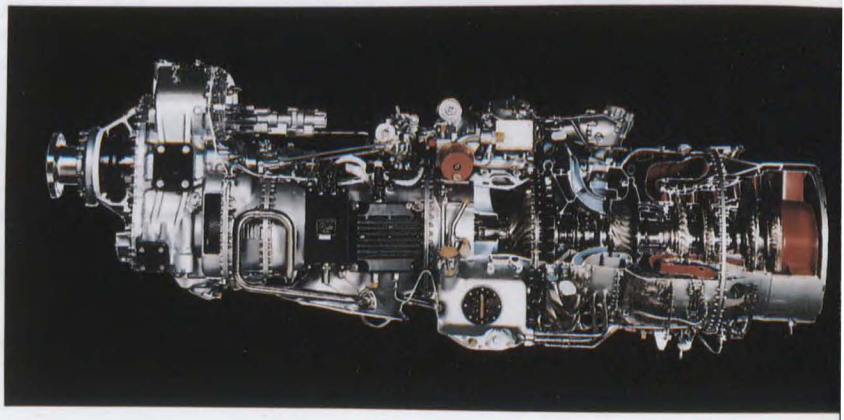
The industry spent over one billion dollars in investments in R&D, plant and capital equipment in 1989, an increase of 15 per cent over 1988. Aerospace companies employed over 61,000 people, 20 per cent of whom are engineers and technologists.

The association predicts that a 'new era' is dawning for the Canadian aerospace industry; the world market is changing and Canadian companies must adapt to those changes.

The industry is already well positioned to meet those changes. In the thirty years since the near collapse of the Canadian aviation industry, it has evolved into a broadly based, diverse, outward-looking entity. It no longer relies on single projects or government contracts for its viability. Rather, it takes a global view of business and works with multinational partners to produce a range of high quality goods and services at competitive rates.

That diversity and broad base has and will continue to allow the Canadian aerospace industry to survive and prosper in any but the most catastrophic of economic depressions.

Pratt & Whitney Canada PW100 turboprop engine.



The Model 230 built by Bell Helicopter Canada.

Right: Air Traffic Controller workstation from Hughes Aircraft of Canada.

Right bottom: Litton Systems Canada's color active cockpit display panel.

The Canadian aerospace industry has historically devoted about 30 per cent of its effort to defence production, most of which is exported. Thus, the rapid and unforeseen decline in defence requirements in the wake of the collapse of the Berlin Wall and East-West tensions has had comparatively little effect on the industry as a whole. The long lead time of defence contracts and the minority share of total production has served to cushion the drop in sales which, in other countries and industries, has had devastating effects.

The Canada-U.S. free trade agreement can and will ultimately benefit the Canadian aerospace industry, as will the expected easing of global trade restrictions and the opening of markets in Eastern Europe. For an industry which relies on exports for over 70 per cent of its sales, the lowering of trade barriers is a most welcome event. Industry and government are working together to open new markets and expand current markets, while remaining vigilant against the erection of trade impediments by local governments or special interest groups.

One of the most welcome results of the 'outbreak of world peace' has been the easing of restrictions on exports to former East Bloc countries. The list of materials restricted by the Coordination Committee for Multilateral Strategic Export Controls, or COCOM, has decreased and the AIAC is actively campaigning to have more restrictions lifted.

Canadair's Regional Jet.

Left bottom: Twin Otter commuter upgrade by Field Aviation Company Inc.

Once the barriers to trade are lowered, Canadian companies will be ready and able to compete on a broad range of products and services.

The Canadian aerospace industry has invested heavily in research and development, new plant, computer aided design, engineering and manufacturing, and is able to produce a range of products, either alone or in consortia, that is competitive in quality and price with anything in the world. That includes everything from aircraft refurbishment to new aircraft production, from individual parts to complete components and assemblies, from systems engineering to integrated logistics systems, from software to hardware, from personal computers to satellite systems.

The industry receives substantial support from the federal and provincial governments. That support ranges from the newly-created Canadian Space Agency which will coordinate the national extra-terrestrial effort, through assistance with government-to-government sales and access to international markets, to participation in tripartite committees with academic institutions. As well, the federal government has undertaken a program of grants and low-interest loans, under the Defence Industry Productivity Program, to assist with plant modernization and product diversification. The provincial governments have been instrumental in forming local and regional aerospace associations to further research and development and establish indigenous manufacturing capabilities.

The Canadian aerospace industry offers a highly skilled and highly motivated workforce, led by dynamic and farsighted management, capable of delivering products to specification, on time and on budget, at competitive rates.

The extent of the industry's capabilities is illustrated in the following pages.

SOURCES OF SUPPLY

ACCELEROMETERS
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Litton Systems Canada Ltd.

ACCIDENT/INCIDENT INVESTIGATION
Hawker Siddeley Canada Inc. Orenda Div.

ACCUMULATORS, HYDRAULIC SYSTEM
Allied-Signal Aerospace Canada

ACOUSTIC SYSTEMS
MPR Teltech Ltd.

ACTUATORS
Allied-Signal Aerospace Canada
Chicopee Manufacturing Ltd.
Devtek Aerospace Company
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Novatronics Inc.
Spar Aerospace Ltd.

ADAPTERS, FUEL & OIL EQUIPMENT
Field Aviation Company Inc.
Field Aviation Sales Ltd.

AERIAL APPLICATION
Conair Aviation Ltd.

AERIAL APPLICATION EQUIPMENT
Conair Aviation Ltd.
Field Aviation Company Inc.
Field Aviation Company Inc. (Eng. Div.)

AERIAL FIRE FIGHTING
Conair Aviation Ltd.
Field Aviation Company Inc.
Field Aviation Company Inc. (Eng. Div.)

AERIAL MAPPING
Conair Aviation Ltd.

AERIAL PATROL
Field Aviation Company Inc.
Field Aviation Company Inc. (Eng. Div.)

AERIAL PHOTOGRAPHY
Conair Aviation Ltd.
Field Aviation Company Inc.
Field Aviation Company Inc. (Eng. Div.)

AERIAL SURVEY
Conair Aviation Ltd.

AERODYNAMIC DESIGN SERVICES
Field Aviation Company Inc.
Field Aviation Company Inc. (Eng. Div.)

AILERONS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

AIR AMBULANCE
Field Aviation Company Inc.
Field Aviation Company Inc. (Eng. Div.)

AIR CLEANERS, ENGINE
Field Aviation Company Inc.
Field Aviation Sales Ltd.

AIR COMPRESSORS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

AIR CONDITIONERS, AIRCRAFT
Allied-Signal Aerospace Canada
Field Aviation Sales Ltd.

AIR DATA SYSTEMS
Allied-Signal Aerospace Canada

AIR SICKNESS ABSORBENT
Field Aviation Sales Ltd.

AIR TRAFFIC CONTROL SYSTEMS
Allied-Signal Aerospace Canada
CAE Industries Ltd.
Raytheon Canada
Thompsom-Hickling Aviation Inc.

AIRCRAFT, AMBULANCE
Field Aviation Company Inc.
Field Aviation Sales Ltd.

AIRCRAFT APPRAISALS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

AIRCRAFT ARRESTING SYSTEMS, MOBILE
Patlon Aircraft & Industries Ltd.

AIRCRAFT BROKERING
Field Aviation Company Inc.
Field Aviation Sales Ltd.

AIRCRAFT CONVERSIONS
Field Aviation Company Inc.
Field Aviation East Ltd.
Field Aviation West Ltd.
Field Aviation Company Inc. (Eng. Div.)

AIRCRAFT EVALUATIONS
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Field Aviation East Ltd.

AIRCRAFT FINANCING
Field Aviation Company Inc.
Field Aviation Sales Ltd.

AIRCRAFT INSPECTION
Field Aviation Company Inc.
Field Aviation East Ltd.
Field Aviation West Ltd.

AIRCRAFT INTERIOR STRUCTURES, COMPOSITE
Boeing Canada de Havilland Div.
Boeing Canada Technology
Cellpack Aerospace Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Field Aviation West Ltd.

AIRCRAFT INTERIORS
Field Aviation Company Inc.
Field Avaiton Sales Ltd.
Field Aviation Company Inc. (Eng. Div.)
Field Aviation West Ltd.

AIRCRAFT LIGHTING EQUIPMENT
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

AIRCRAFT MAINTENANCE
Allied-Signal Aerospace Canada
Bristol Aerospace Ltd.
Field Aviation Company Inc.
Field Aviation East Ltd.
Field Aviation West Ltd.

AIRCRAFT MANUFACTURERS
Bell Helicopter Textron A Division of Textron Canada Ltd.
Boeing Canada, de Havilland Div.
Boeing Canada Technology Ltd. (Arnprior Div.)
Boeing Helicopter Textron A Division of Textron Canada Ltd.
MBB Helicopter Canada Ltd.

AIRCRAFT MODIFICATIONS
Boeing Canada Technology Ltd. (Arnprior Div.)
Bristol Aerospace Ltd.
CAE Industries Ltd.
Conair Aviation Ltd.
Field Aviation Company Inc.
Field Aviation East Ltd.
Field Aviation Company Inc.
Field Aviation West Ltd
Field Aviation Company Inc. (Eng. Div.)

AIRCRAFT OVERHAUL, FIXED WING
Aircraft Appliances and Equipment Ltd.
Bristol Aerospace Ltd.
CAE Industries Ltd.
Conair Aviation Ltd.
Field Aviation Company Inc.
Field Aviation East Ltd.
Field Aviation West Ltd.

AIRCRAFT OVERHAUL, ROTARY WING
Aircraft Appliances and Equipment Ltd.
Boeing Canada Technology Ltd. (Arnprior Div.)
Bristol Aerospace Ltd.
Field Aviation Company Inc.
Field Aviation West Ltd.
MBB Helicopter Canada Ltd.

AIRCRAFT PAINTING
Boeing Canada Technology Ltd. (Arnprior Div.)
Bristol Aerospace Ltd.
CAE Industries Ltd.
Field Aviation Company Inc.
Field Aviation West Ltd.
MBB Helicopter Canada Ltd.

AIRCRAFT REFURBISHMENT
Boeing Canada Technology Ltd. (Arnprior Div.)
Bristol Aerospace Ltd.
CAE Industries Ltd.
Conair Aviation Ltd.
Field Aviation Company Inc.
Field Aviation West Ltd.

AIRCRAFT RESTORATION, CLASSIC & ANTIQUE
Field Aviation Company Inc.
Field Aviation West Ltd.

AIRCRAFT SALES/LEASING, FIXED WING PISTON
Field Aviation Company Inc.
Field Aviation West Ltd.
Field Aviation Sales Ltd.

AIRCRAFT SALES/LEASING, FIXED WING TURBINE
Field Aviation Company Inc.
Field Aviation Sales Ltd.

AIRCRAFT SALES/LEASING, ROTARY WING PISTON
Field Aviation Company Inc.
Field Aviation West Ltd.

AIRCRAFT SALES/LEASING, ROTARY WING TURBINE
Bell Helicopter Textron A Division of Textron Canada Ltd.
Field Aviation Company Inc.
Field Aviation West Ltd.
Field Aviation Sales Ltd.
MBB Helicopter Canada Ltd.

AIRCRAFT SERVICING
Field Aviation Company Inc.
Field Aviation West Ltd.

AIRCRAFT SERVICING EQUIPMENT
Aircraft Appliances and Equipment Ltd.

AIRCRAFT STORAGE
Field Aviation Company Inc.
Field Aviation West Ltd.

AIRCRAFT TIEDOWNS
Field Aviation Company Inc.
Field Aviation West Ltd.

AIRPORT INFORMATION SYSTEMS
Atlantic Research Canada Inc.

AIRPORT LIGHTING
Canadian Marconi Co.

AIRPORT MAINTENANCE EQUIPMENT
Allied-Signal Aerospace Canada

AIRPORT MANAGEMENT SERVICES
Aerodevco Consultants Ltd.
Atlantic Research Canada Inc.
Thompson-Hickling Aviation

AIRPORT RAMP EQUIPMENT
Field Aviation Company Inc.
Field Aviation Sales Ltd.

AIRPORT GROUND SUPPORT EQUIPMENT
Aircraft Appliances and Equipment Ltd.
Canadian Astronautics Ltd.
Patlon Aircraft & Industries Ltd.

AIRSPEED INDICATORS
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

ALTERNATORS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

ALTIMETERS, BAROMETRIC
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

ALTIMETERS, ENCODING
Field Aviation Company Inc.
Field Aviation Sales Ltd.

ALTIMETERS, RADIO/RADAR
Allied-Signal Aerospace Canada
Navair Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.

ALTITUDE ALTERING SYSTEMS
Field Aviation Company Inc.
Navair Ltd.

AMMETERS
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

AMPLIFIERS
Allied-Signal Aerospace Canada
Canadian Astronautics Ltd.
Field Aviation Sales Ltd.

ANALYTICAL TESTING
Allied-Signal Aerospace Ltd.

ANALYZERS, BATTERY
Field Aviation Sales Ltd.

ANALYZERS, ENGINE
Field Aviation Sales Ltd.

ANALYZERS, EXHAUST GAS
Field Aviation Sales Ltd.

ANALYZERS, IGNITION
Field Aviation Sales Ltd.

ANGLE OF ATTACK INDICATORS
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada

ANGLE OF ATTACK SYSTEMS
Aircraft Appliances and Equipment Ltd.

ANODIZING
Havlik Technologies Inc.

ANTENNAS
Andrew Canada Inc.
Canadian Astronautics Ltd.
Cellpack Aerospace Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Navair Ltd.

ANTENNAS, ALTIMETERS
Field Aviation Company Inc.
Navair Ltd.

ANTENNAS, COMMUNICATIONS
Andrew Canada Inc.
Canadian Astronautics Ltd.ted
Canadian Marconi Co.
Cellpack Aerospace Ltd.
Field Aviation Company Inc.
Navair Ltd.

ANTENNAS, DME
Field Aviation Company Inc.ellpack Aerospace Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Navair Ltd.

ANTENNAS, GROUND STATION
Andrew Canada Inc.
Canadian Astronautics Ltd.
Cellpack Aerospace Ltd.
Field Aviation Company Inc.

ANTENNAS,HF HELICOPTERS
Field Aviation Company Inc.
Navair Ltd.

ANTENNAS, MARKER BEACON
Cellpack Aerospace Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Navair Ltd.

ANTENNAS,NAVIGATION
Andrew Canada Inc.
Cellpack Aerospace Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Navair Ltd.

ANTENNAS, TRANSPONDER
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Navair Ltd.

ANTI-ICING COMPONENTS
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

ANTI-STATIC SYSTEMS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

AREA NAVIGATION SYSTEMS
Atlantic Research Canada Inc.
Canadian Marconi Co.

ARMATURES
Aircraft Appliances and Equipment Ltd.

AUTOMATIC DIRECTION FINDERS
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Navair Ltd.

AUTOMATIC WEATHER STATIONS
Pelorus Navigations Systems Inc.

AUTOPILOT, FIXED WING
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Navair Ltd.

AUTOPILOTS, ROTARY WING
Field Aviation Company Inc.
Navair Ltd.

AUXILIARY POWER UNITS
Aircraft Appliances and Equipment Ltd.

AVIONICS
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Canadian Marconi Co.
Computing Devices
Field Aviation Company Inc.
Litton Systems Canada Ltd.
Lockheed Canada Inc.
Navair Ltd.
Paramax Electronics
Patlon Aircraft & Industries Ltd

AVIONICS SPARES
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Lockheed Canada Inc.
Navair Ltd.

AVIONICS TEST EQUIPMENT
Allied-Signal Aerospace Canada
Atlantic Research Canada Inc.
Field Aviation Company Inc.
Litton Systems Canada Ltd.
Lockheed Canada Inc.
Navair Ltd.
Spar Aerospace Ltd.

AVIONICS TESTING
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Atlantic Research Canada Inc.
Field Aviation Company Inc.
Lockheed Canada Inc.
Navair Ltd.
Paramax Electronics
Quantum Inspection & Testing Ltd.

BAGGAGE RESTRAINTS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

BAGS, AIR SICKNESS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

BALL SCREW ASSEMBLIES
Spar Aerospace Ltd.

BATTERIES
Field Aviation Company Inc.
Field Aviation Sales Ltd.

BATTERIES, ENGINE
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Insutries Ltd.

BATTERY CHARGING EQUIPMENT
Field Aviation Company Inc.
Field Aviation West Ltd.
Patlon Aircraft & Industries Ltd.

BATTERY TEMPERATURE SENSING EQUIPMENT
Patlon Aircraft & Industries Ltd.

BEARINGS
Aircraft Appliances and Equipment Ltd.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

BEACONS, MARKERS
Field Aviation Company Inc.
Navair Ltd.

BEACONS NON-DIRECTIONS (NDBS)
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Navair Ltd

BEACONS, ROTATING
Field Aviation Company Inc.
Field Aviation Sales Ltd.

BEACONS, PERSONNEL LOCATOR
Allied-Signal Aerospace Canada
MPR Teltech Ltd.

BEARINGS
Aircraft Appliances and Equipment Ltd.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

BLADDERS, FUEL
Field Aviation Company Inc.
Field Aviation Sales Ltd.

BLADES, COMPRESSOR, ENGINE
Walbar Canada Inc.

BLADES, ROTOR
Walbar Canada Inc.

BLADES, TURBINE
Hawker Siddeley Canada Inc.
Orenda Div.
Walbar Canada Inc.

BLEED AIR SYSTEMS
Allied-Signal Aerospace Canada

BLOWERS/FANS, AIRBORNE
Spar Aerospace Ltd.

BOLTS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

BONDING, COMPOSITES
Cellpack «MDNM»Aerospace Ltd.
Devtek Aviation Co.

BONDING, METALS
Devtek Aviation Co.

BRAKE ASSEMBLIES
Field Aviation Company Inc.
Field Aviation Sales Ltd.

BRAKE DISCS
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.

BRAKE PADS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

BRAKES, WHEEL
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

BROKERAGE
Field Aviation Company Inc.
Field Aviation Sales Ltd.

BRUSHES,CARBON
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.

BRUSHES, ELECTRICAL
Aircraft Appliances and Equipment Ltd.

BULKHEADS, AIRCRAFT INTERIOR
Cellpack Aerospace Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Field Aviation West Ltd.

BUSSES, AC/DC
Aircraft Appliances and Equipment Ltd.
Field Avlatlon Company Inc.
Field Aviation Sales Ltd.

CCTV EQUIPMENT
MPR Teltech Ltd.

CABIN DISPLAY AVIONICS
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Navair Ltd.

CABLE, ANTENNA
Andrew Canada Inc.

CABLE ASSEMBLIES
Aircraft Appliances and Equipment Ltd.
Andrew Canada Inc.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Lockheed Canada Inc.
Navair Ltd.
Patlon Aircraft & Industries Ltd.
Pelorus Navigation Systems Inc.

CABLE, IGNITION
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Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

CANOPIES, AIRFRAME
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CAPACITORS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

CARPETS, AIRCRAFT
Field Avlation Sales Ltd
Patlon Aircraft & Industries Ltd.

CARBURATORS, ENGINE
Field Aviation Company Inc.
Field Aviation Sales Ltd.

CARGO LINERS
Cellpack Aerospace Ltd.
Field Aviation Company Inc.
Field Aviation West Ltd.

CARPETS, AIRCRAFT
Field Aviation Company Inc.
Field Aviation West Ltd.

CASTINGS, INVESTMENTS
Cercast

CASTINGS, METAL
Cercast

CASTINGS, NON-FERROUS
Cercast
Haley Industries Ltd.

CELLS, FUEL
Field Aviation Company Inc.
Field Aviation Sales Ltd.

CHROMIC ACID ANODIZING
Havlik-Technologies Inc.

CIRCUIT BREAKERS
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.

CLAMPS
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

CLEANERS, ENGINE
Field Aviation Sales Ltd.

CLOCKS, FLIGHT INSTRUMENTS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

CLOCKS/CHRONOMETERS
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.

COATINGS, ANTICORROSION
Aircraft Appliances and Equipment Ltd.

COCKPIT VOICE RECORDERS
Field Aviation Company Inc.
Navair Ltd.

COLLISION AVOIDANCE SYSTEMS
Field Aviation Company Inc.
Navair Ltd.

COMMUNICATIONS EQUIPMENT
Allied-Signal Aerospace Canada

Andrew Canada Inc.
Calian Communications Systems
Canadian Astronautics Ltd.
Computing Devices
Field Aviation Company Inc.
MPR Teltech Ltd.
Navair Ltd.

COMMUNICATIONS EQUIPMENTS, MOBILE
Andrew Canada Inc.
Canadian Astronautics Ltd.
Canadian Marconi Co.
Computing Devices
MPR Teltech Ltd.

COMPARATOR, MONITORS
Field Aviation Company Inc.
Navair Ltd.

COMPASSES, FLIGHT
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Navair Ltd.

COMPASSES, MAGNETIC
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Navair Ltd.

COMPOSITES FABRICATION
Boeing Canada Technology Ltd. Winnipeg
Cellpack Aerospace Ltd.
MBB Helicopter Canada Ltd.

COMPRESSORS, AIR
Field Aviation Company Inc.
Field Aviation Sales Ltd.

COMPUTER AIDED MANUFACTURING
Chicopee Manufacturing Ltd.
MBB Helicopter Canada Ltd.

COMPUTER AIDED DESIGN
Allied-Signal Aerospace Canada
Atlantic Research Canada Inc.
Hawker Siddeley Canada Inc.
Orenda Div.
MPR Teltech Ltd.
MBB Helicopter Canada Ltd.

COMPUTER AIDED MANUFACTURING
Allied-Signal Aerospace Canada

COMPUTER AIDED TRAINIG
Allied-Signal Aerospace Canada
Atlantic Research Canada Inc.
Canadian Astronautics Ltd.
Litton Systems Canada Ltd.
MPR Teltech Ltd.

COMPUTER HARDWARE
Computing Devices
MPR Teltech Ltd

COMPUTER SOFTWARE
Atlantic Research Canada Inc.
MPR Teltech Ltd.

COMPUTERS, AIR DATA
Computing Devices
Field Aviation Company Inc.
Navair Ltd.
Spar Aerospace Ltd.

COMPUTERIZED MAINTENANCE PROGRAMS
Allied-Signal Aerospace Canada
Atlantic Research Canada Inc.
Hawker Siddeley Canada Inc.
Orenda Div.

COMPUTERS, AIR DATA
Allied-Signal Aerospace Canada

COMPUTERS, FUEL MANAGEMENT
Allied-Signal Aerospace Canada

CONNECTORS
Andrew Canada Inc.
Field Aviation Company Inc.
Field Aviation Slaes Ltd.
Patlon Aircraft & Industries Ltd.

CONSULTANTS, AIRPORT PLANNING
Aerodevco Consultants Ltd.
Atlantic Research Canada Inc.

CONSULTANTS, COMPUTER SYSTEMS
Atlantic Research Canada Inc.
Paramax Electronics

CONSULTANTS ENGINEERING
Atlantic Research Canada Inc.
CAE Industries Ltd.
Canadian Astronautics Ltd.
Field Aviation Company Inc.
Field Aviation Company Inc. (Eng. Div.)
Hawker Siddeley Canada Inc.
Orenda Div.
MPR Teltech Ltd.
Thompson-Hickling Aviation Inc.

CONSULTANTS, MANAGEMENT
Aerodevco Consultants Ltd.
Atlantiv Research Canada Inc.
Thompson-Hickling Aviation Inc.

CONSULTANTS, OPERATIONS
Aerodevco Consultants Ltd.
Thompson-Hickling Aviation Inc.

CONSULTANTS, RELIABILITY ANALYSIS
Atlantic Research Canada Inc.

CONSULTANTS, TELECOMMUNICATIONS
Aerodevco Consultants Ltd.
Atlantic Research Canada Inc.
MPR Teltech Ltd.
Thompson-Hickling Aviation Inc.

CONTRACT MANUFACTURING
Devtek Aviation Co.

CONTRACT SERVICES, ENGINEERING
MPR Teltech Ltd.

CONTROLS
Aircraft Appliances and Equipment Ltd.
Novatronics Inc.

CONTROL RODS
Field Aviation Company inc.
Field Aviation Sales Ltd.

CONTROL SURFACES
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Field Aviation West Ltd.

CONTROL AILERON
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Field Aviation West Ltd.

CONTROLS, AUTOPILOT
Spar Aerospace Ltd.

CONTROLS, ELECTRONIC
Allied-Signal Aerospace Canada
Novatronics Inc.
Patlon Aircraft & Industries Ltd.

CONTROLS, ENGINE
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

CONTROLS, FEATHERING
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

CONTROLS, FLAP
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Field Aviation West Ltd.

CONTROLS, HELICOPTER MAIN ROTOR HEAD
Spar Aerospace Ltd.

CONTROLS, HYDRAULIC SYSTEM
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Field Aviation West Ltd.
Spar Aerospace Ltd.

CONTROLS, TEMPERATURE
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.
Spar Aerospace Ltd.

CONVERTORS, AC/DC
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Navair Ltd.
MPR Teltech Ltd.

CONVERTORS, DC/DC
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Navair Ltd.
MPR Teltech Ltd.

COUPLERS, AUTOPILOT SYSTEMS
Field Aviation Company Inc.
Navair Ltd.

COUPLINGS
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aviation & Industries Ltd.

COVERS, AIRCRAFT
Field Aviation Company Inc.
Field Aviation West Ltd.

COVERS, AIRCRAFT INTERIOR
Field Aviation Company Inc.
Field Aviaton Sales Ltd.
Field Aviation West Ltd.

COVERS, ENGINE
Field Aviation Company Inc.
Field Aviation Sales Ltd.

COVERS, PILOT TUBE
Field Aviation Company Inc.
Field Aviation Sales Ltd.

COWL FLAPS
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Field Aviation West Ltd.

CRASH POSITION INDICATORS
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
MPR Teltech Ltd.
Navair Ltd.

CRIMPING TOOLS
Patlon Aircraft & Industries Ltd.

CUSHIONS, CABIN SEATS
Field Aviation Company Inc.
Field Aviation West Ltd.

CYLINDERS
Field Aviation Sales Ltd.

CYLINDERS, OXYGEN
Field Aviation Company Inc.

DAMPERS, SHIMMY
Field Aviation Company Inc.
Field Aviation Sales Ltd.

DATA HANDLING EQUIPMENT
Calian Communications Systems
MPR Teltech Ltd.

DATA RECORDING EQUIPMENT
Calian Communications Systems

DE-ICERS, CONTRL SURFACES
Allied-Signal Aerospace Canada

DECALS, AIRCRAFT
Field Aviation Company Inc.
Field Aviation Sales Ltd.

DEICE BOOTS, PROPELLER
Patlon Aircraft & Industries Ltd.

DECIERS, PROPELLER
Field Aviation Company Inc.
Field Aviaiton Sales Ltd.

DECIERS, WINDSHIELD
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.

DESIGN ANALYSES
Boeing Canada Technology Ltd. (Arnprior Div.)
Field Aviaiton Company Inc.
Field Aviation Company Inc. (Eng. Div.)

DESIGNERS/CONSULTANTS
Field Aviaiton Company Inc.
MPR Teltech Ltd.
Field Aviation Company Inc. (Eng. Div.)

DETECTORS, FIRE
Field Aviation Sales Ltd.

DIGITAL VOICE SYSTEM
Canadian Marconi Co.
Field Aviation Company Inc.
Navair Ltd.
MPR Teltech Ltd.

DIRECTION FINDERS (DF)
Andrew Canada Inc.
Field Aviation Company Inc.
Navair Ltd.
MPR Teltech Ltd.

DIRECTIONAL GYROS
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
navair Ltd.
Spar Aerospace Ltd.
Field Aviation Sales Ltd.

DISPLAY, CRT
Canadian Marconi Co.
Litton Systems Canada Ltd.

DISPLAYS, HEAD-UP
Aircraft Appliances and Equipment Ltd.

DISPLAY, LED
Canadian Marconi Co.
Litton Systems Canada Ltd.

DISTANCE MEASURING EQUIPMENT
Field Aviation Company Inc.
Navair Ltd.
Pelorus Navigations Systems Inc.

DOORS, AIRFRAME
Cellpack Aerospace Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Field Aviation West Ltd.

DOORS, HANGAR
Indal Technologies Inc.

DOORS, LANDING GEAR
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Field Aviation West Ltd.

DOPPLER NAVIGATION SYSTEMS
Andrew Canada Inc.
Canadian Marconi Co.
Field Aviation Company Inc.
Navair Ltd.

DRIFT INDICATORS
Canadian Marconi Co.

DRIVE SHAFTS, HELICOPTER
Cellpack Aerospace Ltd.
Spar Aerospace Ltd.

DRIVES, CONSTANT SPEED
Spar Aerospace Ltd.

EMS (EMERGENCY MEDICAL SERVICES)
MBB Helicopter Canada Ltd.

ELECTRICAL DISCHARGE MACHINING
Devtek Aviation Co.
Walbar Canada Inc.

ELECTRONIC CONTROLS
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Patlon Aircraft & Industries Ltd.

ELECTRONIC EQUIPMENT
Aircraft Appliances and Equipment Ltd.
Computing Devices
Litton Systems Canada Ltd.
MPR Teltech Ltd.
Navair Ltd.
Patlon Aircraft & Industries Ltd.
Pelorus Navigations Systems Inc.

ELECTRONIC TEST EQUIPMENT
Allied-Signal Aerospace Canada
Atlantic Research Canada Inc.
Canadian Marconi Co.
Field Aviation Company Inc.
Litton Systems Canada Ltd.
Navair Ltd.
Patlon Aircraft & Industries Ltd.
Quantum Inspection & Testing Ltd.

EMERGENCY LOCATOR TRANSMITTERS
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
MPR Teltech Ltd.
Navair Ltd.

ENERGIZERS, AIRCRAFT STARTING
Aircraft Appliances and Equipment Ltd.

ENGINE COMPONENTS, AIRCRAFT
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Bristol Aerospace Ltd.
Devtek Aviation Co.
Indal Technologies Inc.
Patlon Aircraft & Industries Ltd.
Pratt & Whitney Canada
Walbar Canada Inc.

ENGINE CONDITION MONITORING
Canadian Marconi Co.
Hawker Siddeley Canada Inc. Orenda Div.
Pratt & Whitney Canada

ENGINE EXCHANGE
Pratt & Whitney Canada

ENGINE COWLS
Cellpack Aerospace Ltd.

ENGINE HOUR METERS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

ENGINE INSTRUMENTS
Canadian Marconi Co.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.
Spar Aerospace Ltd.

ENGINE MOUNTS, AIRCRAFT
Field Aviation Company Inc.
Field Aviation Sales Ltd.

ENGINE OIL ANALYSIS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

ENGINES, AIRCRAFT
Field Aviation Company Inc.
Field Aviation West Ltd.
Pratt & Whitney Canada

ENGINES, JET
Field Aviation Company Inc.
Field Aviation West Ltd.
Hawker Siddeley Canada Inc. Orenda Div.
Pratt & Whitney Canada

ENGINES, PISTON
Field Aviation West Ltd.
Patlon Aircraft & Industries Ltd.

ENGINES, RECIPROCATING, OVER 400HP
Field Aviation West Ltd.

ENGINES, RECOPROCATING, UNDER 400HP
Field Aviation West Ltd.

ENGINES, TURBINE
Field Aviation Company Inc.
Field Aviation West Ltd.
Hawker Siddeley Canada Inc.
Orenda Div.
Pratt & Whitney Canada

ENGINES, TURBOCHARGED
Field Aviation Company Inc.
Field Aviation West Ltd.

ENGINES, TURBOPROP
Field Aviation Company Inc.
Field Aviation West Ltd.
Pratt & Whitney Canada

ENGINES, USED
Pratt & Whitney Canada

ENGINEERING CONSULTANTS
Atlantic Research Canada Inc.
Field Aviation Company Inc.
Field Aviaiton Company Inc.
(Eng. Div.)
MPR Teltech Ltd.
Thompson-Hickling Aviation Inc.

ENGINEERING SERVICES
Atlantic Research Canada Inc.
Field Aviation Company Inc.
Field Aviation Company Inc.
(Eng. Div.)
Hawker Siddeley Canada Inc.
Orenda Div.
Havlik Technologies Inc.
MPR Teltech Ltd.
Thompson-Hickling Aviation Inc.

ENVIROMENTAL STUDIES
Atlantic Research Canada Inc.

ENVIROMENTAL TEST FACILITIES
Allied-Signal Aerospace Canada
Atlantic Research Canada Inc.

FBOS (FIXED BASE OPERATORS)
Field Aviation Company Inc.
Field Aviation East Ltd.
Field Aviation West Ltd.

FABRICATION FIBREGLASS
Cellpack Aerospace Ltd.

FABRICATION, METAL
Andrew Canada Inc.
Chicopee Manufacturing Ltd.
Devtek Aviation Co.
Field Aviation Company Inc.
Field Aviation East Ltd.
Havlik Technologies Inc.
Indal Technologies Inc.

FABRICS, CABIN
Field Aviation Company Inc.
Field Aviation West Ltd.

FABRICS, RECOVERING
Field Aviation Company Inc.
Field Aviation West Ltd.
Patlon Aircraft & Industries Ltd.

FAIRINGS
Cellpack Aerospace Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Field Aviation West Ltd.

FANS
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

FASTNERS
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

FILTERS
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.

FILTERS, EXHAUST
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.

FILTERS, FUEL
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

FILTERS, OIL
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

FIRE EXTINGUISHERS, AIRCRAFT
Field Aviation Company Inc.
Field Aviation Sales Ltd.

FIRE FIGHTING SYSTEMS, AERIAL
Conair Aviation Ltd.
Field Aviation Company Inc.
Field Aviation Company Inc.
(Eng. Div.)

FLAP POSITION INDICATORS
Novatronics Inc.
Field Aviation Sales Ltd.

FLIGHT CONTROLS
Aircraft Appliances and Equipment Ltd.
Devtek Aviation Co.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Field Aviation West Ltd.

FLIGHT DIRECTOR SYSTEMS
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Navair Ltd.
Spar Aerospace Ltd.

FLIGHT DIRECTORS, AVIONICS
Field Aviation Company Inc.
Navair Ltd.

FLIGHT INSPECTION SYSTEMS
Field Aviation Company Inc.
Litton Systems Canada Ltd.
Navair Ltd.

FLIGHT MANAGEMENT SYSTEMS, AVIONICS
Aircraft Appliances and Equipment Ltd.
Canadian Marconi Co.
Field Aviation Company Inc.
Navair Ltd.
Field Aviation Company Inc.

FLIGHT SIMULATORS
CAE Industries Ltd

FLOATS
Patlon Aircraft & Industries Ltd.

FLOORING, AIRCRAFT
Field Aviation Company Inc.

FLUIDS, ANTI-ICE
Field Aviation Company Inc.
Field Aviation West Ltd.

FLUIDS, BRAKE
Field Aviation Company Inc.
Field Aviation West Ltd.

FLUIDS, HYDRAULIC
Field Aviation Company Inc.
Field Aviation West Ltd.

FLY-BY-WIRE UNITS, ELECTRICALLY SIGNALLED
Aircraft Appliances and Equipment Ltd.

FOREST FIRE FIGHTING SYSTEMS
Conair Aviation Ltd.

FREQUENCY CONVERTERS
MPR Teltech Ltd.

FROST SHIELDS
Field Aviation Company Inc.
Field Aviation West Ltd.

FUEL CELLS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

FUEL CELLS, AIRCRAFT
Field Aviation Company Inc.
Field Aviation Sales Ltd.

FUEL CONTROL SYSTEMS
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.

FUEL FLOW INDICATORS
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

FUEL FLOW TRANSMITTERS
Spar Aerospace Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.

FUEL INJECTION NOZZLES
Field Aviation Company Inc.
Field Aviation Sales Ltd.

FUEL PUMPS
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.

FUEL PUMPS, ELECTRIC
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

FUEL PUMPS, ENGINE DRIVEN
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

FUEL PUMPS, HYDRAULIC
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

FUEL PUMPS, INJECTION
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

FUEL QUANTITY INDICATORS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

FUEL STRAINERS
Aircraft Appliances and Equipment Ltd.

FUEL SYSTEMS, AIRCRAFT
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada

FUEL SYSTEMS, PISTON
Allied-Signal Aerospace Canada

FUEL SYSTEMS, TURBINE
Allied-Signal Aerospace Canada

FUEL TANKS
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.

FUSES, AIRCRAFT ELECTRIC
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

FUSES, ELECTRICAL
Field Aviation Company Inc.
Field Aviation Sales Ltd.

GAUGES
Field Aviation Company Inc.
Field Aviation Sales Ltd.

GAUGES, FUEL SYSTEM
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

GAUGES, OIL SYSTEM
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

GAUGES, OXYGEN SYSTEM
Field Aviation Company Inc.
Field Aviation Sales Ltd.

GAUGES, PRESSURE, FUEL
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

GAUGES, PRESSURE, OIL
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

GAUGES, QUANTITY, FUEL
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

GAUGES, QUANTITY, OIL
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

GAUGES, TEMPERATURE , AIR
Field Aviation Company Inc.
Field aviation Sales Ltd.
Spar Aerospace Ltd.

GAUGES, TIRE PRESSURE
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

GEARS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

GENERATORS
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

GENERATORS, AIRCRAFT
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.

GLIDE SLOPE, AVIONICS
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Navair Ltd.

GLOBAL POSITIONING SYSTEMS, AIRCRAFT
Canadian Marconi Co.

GOVERNORS PROPELLOR
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.

GOVERNORS TURBINE
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.

GROUND POWER UNITS
Aircraft Appliances and Equipment Ltd.

GROUND PROXIMITY WARNING SYSTEMS
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Navair Ltd.

GROUND SCHOOL INSTRUCTION
Atlantic Research Canada Inc.

GROUND SUPPORT EQUIPMENT
Aircraft Appliances and Equipment Ltd.
Havlik Technologies Inc.
Indal Technologies Inc.
Litton Systems Canada Ltd.
Patlon Aircraft & Industries Ltd.
Spar Aerospace Ltd.

GUIDANCE SYSTEMS, COMPONENTS
Allied-Signal Aerospace Canada
Devtek Aviation Co.
Field Aviation Company Inc.
MPR Teltech Ltd.

GUIDANCE SYSTEMS, INERTIAL
Aircraft Appliances and Equipment Ltd.
Litton Systems Canada Ltd.
Navair Ltd.

GUIDE VANES, AIR INLET, ENGINE
Walbar Canada Inc.

GUN SYSTEMS
Devtek Aviation Co.

GYRO INSTRUMENTS
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Spar Aerospace Ltd.

GYROS
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Litton Systems Canada Ltd.
Spar Aerospace Ltd.

GYROS, ATTITUDE-HORIZON
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Navair Ltd.

GYROS, DIRECTIONAL
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Navair Ltd.
Spar Aerospace Ltd.

GYROS, LASER
Field Aviation Company Inc.
Litton Systems Canada Ltd.
Navair Ltd.

GYROS, VERTICAL
Field Aviation Company Inc.
Navair Ltd.

HANGAR. AIRCRAFT STORAGE
Indal Technologies Inc.

HANGAR DOORS
Indal Technologies Inc.

HARNESSES, WIRE
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Lockheed Canada Inc.
MBB Helicopter Canada Ltd.
Pelorus Navigation Systems Inc.

HEAD-UP DISPLAY SYSTEM
Aircraft Appliances and Equipment Ltd.

HEAT EXCHANGERS
Aircraft Appliances and Equipment Ltd.
Devtek Aerospace Co.

HEAT SHIELDS
Field Aviation Company Inc.
Field Aviation West Ltd.
Indal Technologies Inc.

HEAT SHIELDS, ENGINE
Field Aviation Company Inc.
Field Aviation West Ltd.
Indal Technologies Inc.

HEAT SHRINK TUBING
Patlon Aircraft & Industries Ltd.

HEAT TREATING
Havlik Technologies Inc.

HEATERS
Field Aviation Company Inc.
Field Aviation West Ltd.

HEATERS, AIRCRAFT
Field Aviation Company Inc.
Field Aviation West Ltd.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

HEATERS, GROUND
Field Aviation Company Inc.
Field Aviation West Ltd.

HELICOPTER ACCESSORIES, ELECTRIC
Aircraft Appliances & Equipment Ltd.
Boeing Canada Technology Ltd. (Arnprior Div.)
Spar Aerospace Ltd.

HELICOPTER COMPLETIONS
Field Aviation Company Inc.
Field Aviation West Ltd.
MBB Helicopter Canada Ltd.

HELICOPTER DECK LANDING SYSTEMS
Indal Technologies Inc.
MBB Helicopter Canada Ltd.

HELICOPTER MODIFICATIONS
Boeing Canada Technology Ltd. (Arnprior Div.)
Field Aviation Company Inc.
Field Aviation Company Inc. (Eng. Div.)
Field Aviation West Ltd.
MBB Helicopter Canada Ltd.

HELICOPTER SALES/LEASING
Bell Helicopter Textron A Division of Textron Canada Ltd.
MBB Helicopter Canada Ltd.

HELICOPTER WIRE STRIKE PROTECTION SYSTEMS
Bristol Aerospace Ltd.
MBB Helicopter Canada Ltd.

HOSE ASSEBLIES
Field Aviation Company Inc.
Field Aviation West Ltd.

HOSES
Field Aviation Company Inc.
Field Aviation West Ltd.

HOSES, AIRCRAFT
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Field Aviation West Ltd.
Patlon Aircraft & Industries Ltd.

HYDRAULIC FLUIDS
Field Aviation Company Inc.
Field Aviation West Ltd.

HYDRAULIC MOTORS
Aircraft Appliances and Equipment Ltd.

HYDRAULIC PUMPIMG
Field Aviation Company Inc.
Field Aviation West Ltd.

HYDRAULIC PUMPS
Aircraft Appliances and Equipment Ltd.
Patlon Aircraft & Industries Ltd.
Spar Aerospace Ltd.

HYDRAULIC SKYDROL COMPONENTS
Aircraft Appliances and Equipment Ltd.

HYDRAULIC SYSTEMS
Field Aviation Company Inc.
Field Aviation West Ltd.
Indal Technologies Inc.

ICE DETECTORS
Pelorus Navigations Systems Inc.

IGNITERS
Allied-Signal Aerospace Canada
Patlon Aircraft & Industries Ltd.

INDICATORS, AIRCRAFT
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

INDICATORS, AIRSPEED
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

INDICATORS, AIRSPEED, VERTICAL
Allied-Signal Aerospace Canada

INDICATOTS, ALTITUDE
Allied-Signal Aerospace Canada

INDICATORS, ANGLE-OF-ATTACK
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada

INDICATORS, ATTITUDE
Aircraft Appliances and Equipmnent Ltd.
Allied-Signal Aerospace Canada

NDICATORS, CABIN TEMPERATURE
Allied-Signal Aerospace Canada

INDICATORS, ELECTRICAL
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Spar Aerospace Ltd.

INDICATORS, FLAP
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Novatronics Inc.

INDICATORS, FUEL FLOW
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

INDICATORS, FUEL QUANTITY
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.

INDICATORS, HEADING/SPEED
Allied-Signal Aerospace Canada

INDICATORS, HORIZONTAL SITUATION
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Navair Ltd.

INDICATORS, LANDING GEAR POSITION
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.

INDICATORS, OMNI-BEARING
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Navair Ltd.

INDICATORS, PROXIMITY WARNING
Field Aviation Company Inc.
Navair Ltd.

INDICATORS, RADIO-MAGNETIC
Field Aviation Company Inc.
Navair Ltd.

INDICATORS, RATE-OF-CLIMB
Allied-Signal Aerospace Canada

INDICATORS, TEMPERATURE
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

INDICATORS, TURN & BANK
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

INDICATORS, VACUUM SYSTEMS
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.

INDICATORS, VISUAL APPROACH SLOP
Allied-Signal Aerospace Canada

INERTIAL NAVIGATION SYSTEMS
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Litton Systems Canada Ltd.
Navair Ltd.

INSTRUMENT DIAL REFINISHING
Allied-Signal Aerospace Canada

INSTRUMENTS LANDING SYSTEMS GROUND
Canadian Marconi Co.

INSTRUMENTS, ENGINE
Allied-Signal Aerospace Canada
Canadain Marconi Co.
Navair Ltd.
Spar Aerospace Ltd.

INSTRUMENTS, EXCHANGE
Field Aviation Company Inc.
Navair Ltd.

INTEGRATED LOGISTICS SYSTEMS
Allied-Signal Aerospace Canada
Atlantic Research Canada Inc.
Lockheed Canada Inc.
Navair Ltd.
Spar Aerospace Ltd.

INTERACTIVE TRAINING SYSTEMS
Allied-Signal Aerospace Canada
Atlantic Research Canada Inc.

INTERCOM SYSTEMS
Field Aviation Company Inc.
Navair Ltd.

INVERTERS
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Navair Ltd.
Spar Aerospace Ltd.

KITS, AIRCRAFT
Field Aviaiton Company Inc.
Field Aviation Company Inc. (Eng. Div.)
Field Aviation Sales Ltd.

KITS, CUSTOM AIRCRAFT INTERIOR
Field Aviation Company Inc.

KITS, HELICOPTER MODIFICATIONS
Boeing Canada Technology Ltd. (Arnprior Div.)
Field Aviation Company Inc.
Field Aviation Company Inc. (Eng. Div.)

KITS, REPAIR, AIRCRAFT
Patlon Aircraft & Industries Ltd.

LORAN, AVIONICS
Field Aviation Company Inc.
Navair Ltd.

LAMPS
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

LANDING GEAR
Field Aviation Company Inc.
Field Aviation West Ltd.

LANDING GEAR COMPONENTS
Chicopee Manufacturing Ltd.
Devtek Aviation Co.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Field Aviation West Ltd.
Havlik Technologies Inc.
Patlon Aircraft & Industries Ltd.

LAUNCHERS, ROCKET
Andrew Canada Inc.
Bristol Aerospace Ltd.
Cellpack Aerospace Ltd.

LAUNCHING & HANDLING EQUIPMENT
Indal Technologies Inc.

LAVATORIES, AIRCRAFT
Patlon Aircraft & Industries Ltd.

LEADS, ELECTRICAL
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

LIGHTS, BEACONS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

LIGHT INTERIOR AIRCRAFT, COCKPIT
Field Aviation Sales Ltd.

LIGHTS RUNWAY
Canadian Marconi Co.

LIGHTS, SEARCH
Aircraft Appliances and Equipment Ltd.

LIGHT, TAXIWAY
Field Aviation Company Inc.
Field Aviation Sales Ltd.

LORAN C NAVIAGATION SYSTEMS, AIRBORNE
Field Aviation Company Inc.
Navair Ltd.

MACHINED METALS
Chicopee Manufacturing Ltd.
Hawker Siddeley Canada Inc. Orenda Div.
Havlik Technologies Inc.
Invar Manufacturing Ltd.

MAINTENANACE STANDS
Patlon Aircraft & Industries Ltd.
Aircraft Appliances & Equipment Ltd.

MANAGEMENT CONSULTANTS
Atlantic Research Canada Inc.
Thompson-Hickling Aviation Inc.

MANAGEMENT SERVICES
Atlantic Research Canada Inc.
Paramax Electronics

MANIFOLDS, ENGINE
Field Aviation Company Inc.
Field Aviation Sales Ltd.

MANIFOLDS, EXHAUST
Field Aviation Company Inc.
Field Aviation Sales Ltd.

MANIFOLDS, INTAKE
Field Aviation Company Inc.
Field Aviation Sales Ltd.

MANUALS
Aerodevco Consultants Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.

MANUALS, FLIGHT OPERATIONS
Aerodevco Consultants Ltd.

MANUALS, MAINTENANCE
Aerodevco Consultants Ltd.
CAE Industries Ltd

MASKS, OXYGEN
Field Aviation Company Inc.
Field Aviation Sales Ltd.

MEASURING SERVICES
Quantum Inspection & Testing Ltd.

METAL FABRICATIONS
Chicopee Manufacturing Ltd.
Devtek Aviation Co.
Field Aviation Company Inc.
Field Aviation West Ltd.
Havlik Technologies Inc.

METALIZING
Devtek Aviation Co.

METEROLOGICAL EQUIPMENT
Pelorus Navigations Systems Inc.

METERS, AMPERE-HOUR
Spar Aerospace Ltd.

METERS, FUEL
Allied-Signal Aerospace Canada
Spar Aerospace Ltd.

MICROWAVE LANDING SYSTEMS, AIRBORNE
Canadian Marconi Co.
MPR Teltech Ltd.
Pelorus Navigation Systems Inc.

MICROWAVE LANDING SYSTEMS, GROUND
Andrew Canada Inc.
Canadian Marconi Co.
MPR Teltech Ltd.
Pelorus Navigation Systems Inc.

MOBILE COMMUNICATIONS
Andrew Canada Inc.
Canadian Astronautics Ltd.
Canadian Marconi Co.
MPR Teltech Ltd.

MONITORING SYSTEMS
Canadian Marconi Co.

MOTOR GENERATOR SETS
Aircraft Appliances and Equipment Ltd.

MOTORS, ELECTRIC
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Novatronics Inc.

MOTORS, AC ELECTRIC, STARTING
Aircraft Appliances and Equipment Ltd.

MOTORS, DC ELECTRIC, STARTING
Aircraft Appliances and Equipment Ltd.

MOTORS, ELECTRICAL MECHANICAL
Aircraft Appliances and Equipment Ltd.
Novatronics Inc.

MOTORS, HYDRAULIC
Aircraft Appliances and Equipment Ltd.

MOUNTS, ENGINE
Field Aviation Company Inc.
Field Aviation Sales Ltd.

MUFFLERS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

NACELLES/PYLONS, COMPOSITE
Field Aviation Company Inc.
Field Aviation West Ltd.

NAV/COM EQUIPMENT AVIONICS
Field Aviation Company Inc.
Navair Ltd.

NAVIGATION EQUIPMENT
Allied-Signal Aerospace Canada
Canadian Marconi Co.
Field Aviation Company Inc.
Navair Ltd.
Pelorus Navigation Systems Inc.

NAVIGATION SYSTEMS, INERTIAL
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Navair Ltd.

NON-DESTRUCTIVE TESTING
Chicopee Manufacturing Ltd.
Field Aviation Company Inc.
Field Aviation West Ltd.
Hawker Siddeley Canada Inc. Orenda Div.
Havlik Technologies Inc.
Quantum Inspection & Testing Ltd.

NOZZLES, FUEL INJECTION
Field Aviation Company Inc.
Field Aviation Sales Ltd.

NOZZLES, REFUELING
Patlon Aircraft & Industries Ltd.

NUTS, BALL BEARING
Field Aviation Company Inc.
Field Aviation Sales Ltd.

O-RINGS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

OMEGA AVIONICS
Canadian Marconi Co.

OILS
Field Aviation Company Inc.
Field Aviation West Ltd.

OILS, LUBRICATING
Field Aviation Company Inc.
Field Aviation West Ltd.

OIL COOLERS
Spar Aerospace Ltd.

OIL PUMPS, TRANSFER
Spar Aerospace Ltd.

OIL STRAINERS
Aircraft Appliances and Equipment Ltd.

OMEGA/VLF SYSTEMS
Canadian Marconi Co.
Field Aviation Company Inc.
Navair Ltd.

OSCILLOSCOPES
Field Aviation Company Inc.
Navair Ltd.

OVER VOLTAGE PROTECTORS
Aircraft Appliances and Equipment Ltd.

OXYGEN EQUIPMENT, AIRBORNE
Spar Aerospace Ltd.

PAINT REMOVERS AND STRIPPERS
Field Aviation Company Inc.
Field Aviation West Ltd.

PAINTING SERVICES
Chicopee Manufacturing Ltd.
Field Aviation Company Inc.
Field Aviation West Ltd.
Havlik Technologies Inc.

PANEL, COMPOSITE
Cellpack Aerospace Ltd.

PANELS, CONTROL
Aircraft Appliances and Equipment Ltd.

PANELS, INSTRUMENT
Aircraft Appliances and Equipment Ltd.
Canadian Marconi Co.
Field Aviation Company Inc.
Field Aviation West Ltd.

PARTS CATALOGS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

PARTS, REPLACEMENT , AIRCRAFT
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

PARTS, REPLACEMENT, ENGINE
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.

PARTS, REPLACEMENT, HELICOPTER
Aircraft Appliances and Equipment Ltd.

PARTS, SPARE, MILITARY AIRCRAFT
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

PASSENGER BRIEFING SYSTEMS, AIRBORNE
Field Aviation Company Inc.
Navair Ltd.

PERSONNEL MANAGEMENT SERVICES
Atlantic Research Canada Inc.

PLANNING SERVICES, AVIATION
Atlantic Research Canada Inc.

PLATING
Allied-Signal Aerospace Canada
Havlik Technologies Inc.

PLATING, AIRCRAFT PARTS
Allied-Signal Aerospace Canada
Havlik Technologies Inc.

PLOTTERS, COMPUTER
Allied-Signal Aerospace Canada

PLUGS AND RECEPTACLES, ELECTRICAL
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.

PNEUMATIC SYSTEMS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

POWER RELAYS
Aircraft Appliances and Equipment Ltd.

POWER SUPPLIES
Aircraft Appliances and Equipment Ltd.
Canadian Marconi Co.
MPR Teltech Ltd.

POWER SUPPLIES, AC
Aircraft Appliances and Equipment Ltd.
Canadian Marconi Co.
MPR Teltech Ltd.

POWER SUPPLIES, DC
Aircraft Appliances and Equipment Ltd.
Canadian Marconi Co.
MPR Teltech Ltd.

POWER SUPPLIES, EMERGENCY
Aircraft Appliances and Equipment Ltd.

POWER UNITS
Aircraft Appliances and Equipment Ltd.

PRECISION MACHINING
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Chicopee Manufacturing Ltd.
Devtek Aviation Co.
Havlik Technologies Inc.
Hawker Siddeley Canada Inc. Orenda Div.

PRESSURIZATION EQUIPMENT
Aircraft Appliances and Equipment Ltd.
Andrew Canada Inc.

PRESSURIZATION SYSTEMS
Andrew Canada Inc.

PROPELLER SPINNERS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

PROPELLERS
Field Aviation Company Inc.
Field Aviation Company Inc. (Eng. Div.)

PUBLICATIONS, TECHNICAL
Allied-Signal Aerospace Canada
CAE Industries Ltd
MBB Helicopters Canada Ltd.

PUMPS, AIR
Allied-Signal Aerospace Canada
Field Aviation Sales Ltd.
Field Aviation Company Inc.

PUMPS, BOOST
Aircraft Appliances and Equipment Ltd.

PUMPS, ELECTRIC
Aircraft Appliances and Equipment Ltd.

PUMPS, ENGINE
Aircraft Appliances and Equipment Ltd.

PUMPS, FUEL
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada

PUMPS, HYDRAULIC
Aircraft Appliances and Equipment Ltd.

PUMPS, OIL
Aircraft Appliances and Equipment Ltd.
Spar Aerospace Ltd.

PUMPS, PNEUMATIC
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.

PUMPS, VACUUM
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.

QUALITY CONTROL SERVICES
Andrew Canada Inc.
Quantum Inspection & Testing Ltd.

RADAR, AIRBORNE WEATHER
Allied-Signal Aerospace Canada
Canadian Astronautics Ltd.
Field Aviation Company Inc.
Navair Ltd.

RADAR, GROUND
Andrew Canada Inc.
Canadian Marconi Co.
Raytheon Canada

RADAR TRAINING SIMULATORS
CAE Industries Ltd.
Raytheon Canada

RADAR, WEATHER
Allied-Signal Aerospace Canada
Andrew Canada Inc.,

RADIO BEACONS
Canadian Astronautics Ltd.
Field Aviation Company Inc.
Navair Ltd.

RADIO MAGNETIC INDICATOR
Field Aviation Company Inc.
Navair Ltd.

RADOMES
Cellpack Aerospace Ltd.
Field Aviation West Ltd.
Navair Ltd.

RATE OF CLIMB INDICATORS
Allied-Signal Aerospace Canada

RECIEVERS COMMUNICATIONS
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Navair Ltd.
MPR Teltech Ltd.

RECORDERS COCKPIT VOICE
Field Aviation Company Inc.
Field Aviation West Ltd.
Navair Ltd.

RECORDERS, FLIGHT DATA
Aircraft Appliances and Equipment Ltd.
Canadian Marconi Co.
Field Aviation Company Inc.
Field Aviation West Ltd.
Navair Ltd.

RECTIFIERS
Aircraft Appliances and Equipment Ltd.

RECTIFIERS, POWER
Aircraft Appliances and Equipment Ltd.

REFUELLING EQUIPMENT, GROUND
Aircraft Appliances and Equipment Ltd.

REGULATORS
Aircraft Appliances and Equipment Ltd.

RELAYS
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.

RELIABILITY ANALYSES
Allied-Signal Aerospace Canada
Atlantic Research Canada Inc.
Hawker Siddeley Canada Inc.
Orenda Div.

REMOTE SENSING EQUIPMENT
Canadian Astronautics Ltd.
Indal Technologies Inc.

REMOTELY PILOTED VEHICLES
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Navair Ltd.

RESISTORS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

RETROFITTING, AVIONICS
CAE Industries Ltd.
Canadian Marconi Co.
Field Aviation Company Inc.
Lockheed Canada Inc.
Navair Ltd.

REWINDING AIRCRAFT ELECTRICAL UNITS
Aircraft Appliances and Equipment Ltd.

RIVETING EQUIPMENT
Field Aviation Company Inc.
Field Aviation West Ltd.

RIVETS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

ROTOR ASSEMBLIES
Aircraft Appliances and Equipment Ltd.
Devtek Aviation Co.

ROTOR BALANCING EQUIPMENT
Aircraft Appliances and Equipment Ltd.

ROTOR BLADES
Hawker Siddeley Canada Inc.
Orenda Div.

RUDDER TABS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

RUDDERS, STABILIZERS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

RUNWAY VISUAL RANGE
Pelorus Navigation Systems Inc.

SAFETY ANALYSES
Aerodevco Consultants Ltd.
Atlantic Research Canada Inc.

SALVAGE, AIRCRAFT
Field Aviation Company Inc.
Field Aviation West Ltd.

SATELLITE COMMUNICATIONS FOR AVIATION
Canadian Astronautics Ltd.
Canadian Marconi Co.
Field Aviation Company Inc.
Navair Ltd.
MPR Teltech Ltd.

SCALES, AIRCRAFT WEIGHING
Field Aviation Company Inc.
Field Aviation West Ltd.

SEALS
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

SEARCHLIGHTS, AIRCRAFT
Aircraft Appliances and Equipment Ltd.

SEAT BELTS, AIRCRAFT
Field Aviation Company Inc.
Field Aviation Company Inc. (Eng. Div.)
Field Aviation Sales Ltd.

SEAT BELTS, SHOULDER HARNESS
Field Aviation Company Inc.
Field Aviation Company Inc. (Eng. Div.)
Field Aviation Sales Ltd.

SEATS, AIRCRAFT
Field Aviation Sales Ltd.

SEATS, CREW
Field Aviation Sales Ltd.

SECURITY SERVICES
Field Aviation Company Inc.

SELECTIVE CALLING SYSTEMS
Field Aviation Company Inc.
Navair Ltd.
Patlon Aircraft & Industries Ltd.

SENSORS, AIRFLOW
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada

SENSORS, ANGLE-OF-ATTACK
Aircraft Appliances and Equipment Ltd.

SENSORS, OURSIDE TEMPERATURE
Allied-Signal Aerospace Canada

SEPARATORS, OIL-WATER
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.

SERVOACTUATORS, AILERON
Allied-Signal Aerospace Canada
Devtek Aviation Co.
Field Aviation Company Inc.
Field Aviation West Ltd.

SERVOACTUATORS, FLAP
Allied-Signal Aerospace Canada
Devtek Aviation Co.
Field Aviation Company Inc.
Field Aviation West Ltd.

SERVOACTUATORS, FLIGHT CONTROL, HELICOPTER
Boeing Canada Technology Ltd. (Arnprior Div.)
Devtek Aviation Co.
Field Aviation Company Inc.
Field Aviation West Ltd.

SERVOACTUATORS, RUDDER
Allied-Signal Aerospace Canada
Devtek Aviation Co.
Field Aviation Company Inc.
Field Aviation West Ltd.

SERVOACTUATORS, SPOILER
Allied-Signal Aerospace Canada
Devtek Aviation Co.
Field Aviation Company Inc.
Field Aviation West Ltd.

SERVOACTUATORS, STABILIZER
Allied-Signal Aerospace Canada
Devtek Aviation Co.
Field Aviation West Ltd.

SERVOAMPLIFIERS
Aircraft Appliances and Equipment Ltd.

SERVOMOTORS, AC
Aircraft Appliances and Equipment Ltd.
Novatronics Inc.

SHELTERS, PORTABLE
Cellpack Aerospace Ltd.

SHOCK ABSORBERS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

SHOCK MOUNTS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

SIMULATORS TRAINING
Allied-Signal Aerospace Canada

SIMULATORS
Atlantic Research Canada Inc.
CAE Industries Ltd.

SIMULATORS, ATC & COMMUNICATIONS
Raytheon Canada

SIMULATORS, FIXED WING
CAE Industries Ltd.

SIMULATORS, HELICOPTERS
CAE Industries Ltd.

SKIS
Field Aviation Company Inc.
Field Aviation Company Inc. (Eng. Div.)

SOFTWARE
Atlantic Research Canada Inc.

SOLENOIDS
Novatronics Inc.

SONOBUOY SYSTEMS
Allied-Signal Aerospace Canada
Computing Devices
Devtek Aviation Co.

SONOBUOY
Allied-Signal Aerospace Canada

SPARK PLUGS
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Field Aviation West Ltd.
Patlon Aircraft & Industries Ltd.

SPEAKERS, AIRCRAFT
Field Aviation Company Inc.
Field Aviation Sales Ltd.

SPINNERS, PROPELLER
Field Aviation Company Inc.
Field Aviation Sales Ltd.

SPINGS, LANDING GEAR
Patlon Aircraft & Industries Ltd.

STAIRS, AIRSTAIRS
Field Aviation Company Inc.
Field Aviation West Ltd.

STABILIZED PLATFORMS
Devtek Aviation Co.

STALL WARNING SYSTEMS, AIRCRAFT
Conair Aviation Ltd.

STANDS, MAINTENANCE
Aircraft Appliances and Equipment Ltd.

STARTER GENERATORS
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Spar Aerospace Ltd.

STARTERS, ELECTRIC
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada

STARTERS, PNEUMATIC
Aircraft Appliances and Equipment Ltd.

STATORS
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.

STROBE LIGHTS AIRBORNE
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Navair Ltd.

STRUCTURAL ANALYSES
Field Aviation Company Inc.
Field Aviation Company Inc. (Eng. Div.)
Havlik Technologies Inc.
Hawker Siddeley Canada Inc. Orenda Div.

STRHUTS
Cellpack Aerospace Ltd.

SWITCHES
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

SWITCHES, ELECTRIC
Field Aviation Company Inc.
Field Aviation Sales Ltd.

SYSTEMS INTEGRATION
Allied-Signal Aerospace Canada
Andrew Canada Inc.
Atlantic Research Canada Inc.
Canadian Marconi Co.
Field Aviation Company Inc.
Field Aviation West Ltd.
Lockheed Canada Inc.
MPR Teltech Ltd.
Oerlikon Aerospace
Paramax Electronics
Thompson-Hickling Aviation Inc.

TACAN, AVIONICS
Field Aviation Company Inc.
Navair Ltd.

TACHOMETERS
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Canadian Marconi Co.
Novatronics Inc.

TAILS, VERTICAL
Cellpack Aerospace Ltd.

TAIL WHEELS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

TANKS, FUEL
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.

TELEMETERING EQUIPMENT
Calian Communications Systems

TELEMETERING SYSTEMS DESIGN
Calian Communications Systems
MPR Teltech Ltd.

TEST EQUIPMENT
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Canadian Marconi Co.
Navair Ltd.

TEST EQUIPMENT, ANTENNA
Field Aviation Company Inc.
Navair Ltd.

TEST EQUIPMENT, AVIONICS
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Atlantic Research Canada Inc.
Canadian Astronautics Ltd.
Field Aviation Company Inc.
Navair Ltd.

TEST EQUIPMENT, BATTERY
Patlon Aircraft & Industries Ltd.

TEST EQUIPMENT, BRAKES
Allied-Signal Aerospace Canada

TEST EQUIPMENT, ENGINE
Aircraft Appliances and Equipment Ltd.

TEST EQUIPMENT, FUEL PRESSURE
Allied-Signal Aerospace Canada

TEST EQUIPMENT, GYRO
Allied-Signal Aerospace Canada

TEST EQUIPMENT, HYDRAULIC VOLTAGE
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada

TEST EQUIPMENT, IGNITION
Patlon Aircraft & Industries Ltd.

TEST EQUIPMENT, OIL PRESSURE
Allied-Signal Aerospace Canada

TEST EQUIPMENT, OIL TEMPERATURE
Allied-Signal Aerospace Canada

TEST EQUIPMENT, OXYGEN SYSTEM
Allied-Signal Aerospace Canada

TEST EQUIPMENT, TEMPERATURE
Allied-Signal Aerospace Canada

TEST EQUIPMENT, TRANSPONDER
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Navair Ltd.

TEST EQUIPMENT, VACUUM PRESSURE
Allied-Signal Aerospace Canada

TEST FACILITIES
Aircraft Appliances and Equipment Ltd.
Allied-Signal Aerospace Canada
Hawker Siddeley Canada Inc. Orenda Div.

TEST RIGS
Aircraft Appliances and Equipment Ltd.
Allied-Aignal Aerospace Canada
Havlik Technologies Inc.
Hawker Siddeley Canada Inc. Orenda Div.

TEST STAND EQUIPMENT
Aircraft Appliances and Equipment Ltd.

TESTING SERVICES
Allied-Signal Aerospace Canada
Havlik Technologies Inc.

TIE-DOWN, AIRCRAFT
Field Aviation Company Inc.
Field Aviation West Ltd.

TIRES
Field Aviation Company Inc.
Field Aviation Sales Ltd.

TIRES AND TUBES
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

TIRES, RETREAD, AIRCRAFT
Patlon Aircraft & Industries Ltd.

TOOL BOXES/CHESTS
Patlon Aircraft & Industries Ltd.

TOOLS, AIRFRAME
Field Aviation Company Inc.
Field Aviation West Ltd.
Patlon Aircraft & Industries Ltd.

TOOLS, ELECTRICAL
Field Aviation Company Inc.
Field Aviation West Ltd.
Patlon Aircraft & Industries Ltd.

TOOLS, ENGINE MAINTENANCE
Field Aviation Company Inc.
Field Aviation West Ltd.

TOOLS, SHEET METAL
Field Aviation Company Inc.
Field Aviation West Ltd.

TORQUE MEASUREMENT, AIRCRAFT ENGINES
Patlon Aircraft & Industries Ltd.

TOW BARS
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Field Aviation West Ltd.

TOWERS, ANTENNA
Andrew Canada Inc.
Canadian Astronautics Ltd.
Cellpack Aerospace Ltd.
Indal Technologies Inc.

TRACTORS, TOW
Field Aviation Company Inc.
Field Aviation West Ltd.

TRAINERS, SIMULATORS
Allied-Signal Aerospace Canada
CAE Industries Ltd.

TRAINERS, COCKPIT PROCEDURE
Allied-Signal Aerospace Canada
CAE Industries Ltd.

TRAINING SERVICES
Aerodevco Consultants Ltd.
Allied-Signal Aerospace Canada
CAE Industries Ltd.

TRANCEIVERS
Field Aviation Company Inc.
Field Aviation Sales Ltd.
MPR Teltech Ltd.

TRANSDUCERS
Aircraft Appliances and Equipment Ltd.
Field Aviation Company Inc.
Field Aviation Sales Ltd.
Novatronics Inc.

TRANSFORMERS
Aircraft Appliances and Equipment Ltd.

TRANSMITTERS
Allied-Signal Aerospace Canada
Field Aviation Company Inc.
Field Aviation Sales Ltd.
MPR Teltech Ltd.

TRIM INDICATORS
Novatronics Inc.

TRUCKS, FUEL & OIL
Field Aviation Company Inc.
Field Aviation West Ltd.

TRUCKS, RE-FUELING
Field Aviation Company Inc.
Field Aviation West Ltd.

TRUCKS, TOW, BOBTAIL
Field Aviation Company Inc.
Field Aviation West Ltd.

TUGS, MAINTENANCE
Field Aviation Company Inc.
Field Aviation West Ltd.

TURBINE, BLADES
Hawker Siddeley Canada Inc. Orenda Div.
Walbar Canada Inc.

TURBINE COMPONENTS
Devtek Aviation Co.
Hawker Siddeley Canada Inc. Orenda Div.
Walbar Canada Inc.

TURN-KEY AVIONICS SYSTEMS
Computing Devices

TURNBUCKLES
Field Aviation Company Inc.
Field Aviation Sales Ltd.

UNDERCARRIAGES
Field Aviation Company Inc.
Field Aviation West Ltd.

UNMANNED AIRBORNE SURVEILLANCE SYSTEMS
Aircraft Appliances and Equipment Ltd.
Indal Technologies Inc.

UPHOLSTREY, CABIN
Field Aviation Company Inc.
Field Aviation West Ltd.

UPHOLSTREY, REFINISHING
Field Aviation Company Inc.
Field Aviation West Ltd.

VACUUM PUMPS
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

VALVES
Aircraft Equipment & Appliances Ltd.
Field Aviation Sales Ltd.
Patlon Aircraft & Industries Ltd.

VOR, AVIONICS
Field Aviation Company Inc.
Navair Ltd.

VOR/ILS INDICATORS
Field Aviation Company Inc.
Navair Ltd.

VORTAC GROUND-BASED
Canadian Marconi Co.

VACUUM, PUMPS
Field Aviation Company Inc.

VALVES
Field Aviation Company Inc.

VANES, TURBINE
Hawker Siddeley Canada Inc. Orenda Div.
Walbar Canada Inc.

VIBRATION MONITORING EQUIPMENT
Canadian Marconi Co.
Hawker Siddeley Canada Inc. Orenda Div.
Patlon Aircraft & Industries Ltd.
Spar Aerospace Ltd.

VOICE ADVISORY SYSTEM
Canadian Marconi Co.
Field Aviation Company Inc.
Navair Ltd.

VOLTAGE REGULATORS
MPR Teltech Ltd.
Spar Aerospace Ltd.

WASHING EQUIPMENT, AIRCRAFT
Patlon Aircraft & Industries Ltd.

WARNING SYSTEMS, GROUND PROXIMITY
Field Aviation Company Inc.
Field Aviation West Ltd.
Navair Ltd.

WAVEGUIDE ASSEMBLIES
Andrew Canada Inc.

WEATHER REPORTING SYSTEMS
Pelorus Navigation Systems Inc.

WEIGHT AND BALANCE EQUIPMENT, AIRCRAFT
Field Aviation Company Inc.
Field Aviation West Ltd.
Patlon Aircraft & Industries Ltd.

WELDING SERVICES
Aircraft Appliances and Equipment Ltd.
Havlik Technologies Inc.

WHEELS, LANDING GEAR
Allied-Signal Aerospace Canada
Patlon Aircraft & Industries Ltd.

WIND TUNNEL TEST FACILITIES
Aircraft Appliances and Equipment Ltd.

WINDSHIELD WIPERS, AIRCRAFT
Field Aviation Company Inc.
Field Aviation Sales Ltd.

WINDSHIELDS
Field Aviation Company Inc.
Field Aviation Sales Ltd.

WINGS
McDonnell Douglas Canada Ltd.

WIRE & CABLE
Patlon Aircraft & Industries Ltd.

X-RAY INSPECTION EQUIPMENT
Quantum Inspection & Testing Ltd.

YOKES, CONTROL
Field Aviation Company Inc.
Field Aviation Sales Ltd.

Aerospace Industries Association of Canada

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The Aerospace Industries Association of Canada is the national trade Association serving the aerospace manufacturing industry in Canada. Canada is one of the world's leading aerospace manufacturing nations. AIAC member companies manufacture a wide range of products including complete aircraft, engines, avionics, hydraulics, electronics, satellites, and space components, for both civil and military requirements. Since its formation in 1962, the Association has grown to represent nearly 200 aerospace companies in Canada.

The primary role of the Association is to provide a voice in Canada for the aerospace industry as a whole so that government agencies, press and public, are kept aware of the accomplishments and capabilities of the aerospace industry in Canada, and further, of its ability to contribute to national objectives.

AIAC co-ordinates and develops aerospace industry views; it also advises and assists governments in developing and improving programs to meet the technological, industrial development and manpower needs of the aerospace industry; and in resolving problems relating to the implementation of policies and programs.

The Association facilitates and encourages discussion and resolution of problems within the aerospace industry. AIAC also studies and initiates proposals to government which enhance the future of the industry and which are consistent with Canadian economic and social objectives. As such, the Association participates in both long and short-term planning with governments.

Through all of these activities, AIAC seeks to ensure that the aerospace industry in Canada continues to progress and prosper well into the twenty-first century.

The fundamental strength of the Association flows from the work of its committees. AIAC pursues the practice of forming committees headed by chairmen for consultation on specific subjects with the Government. The purpose of the Committees is to explore, on a collective basis, and make recommendations on issues of importance to the Association. There are currently 14 AIAC committees which address both sector-oriented and function oriented issues.

AIRWORTHINESS COMMITTEE
The Airworthiness Committee provides an effective medium by which the Canadian aerospace industry segment represented by AIAC can participate constructively in the formulation of policy, regulatory and interpretive material relative to the development and approval of aerospace products, for domestic and/or international markets; and informs the Canadian aerospace community of impending or proposed changes to current policy or regulations. The scope of this committee involves both Transport Canada and international agencies or organizations concerned with airworthiness.

CONTRACTS AND FINANCE COMMITTEE
The Contracts and Finance Committee is responsible for formulating views on contractual, financial and economic issues having a direct impact on the viability and competitiveness of the industry. It is called upon to deal with problems associated with the government's financial policies and contracting practices which relate to the economic well being of AIAC members.

CUSTOMS AND TRAFFIC COMMITTEE
The Customs and Traffic Committee maintains a close liaison with government departments with respect to customs, traffic and excise legislation and procedures to ensure the expeditious clearance of aerospace goods and materials at minimum cost to the industry.

DEFENCE AND MARKETING COMMITTEE
The Defence and Marketing Committee promotes defence and commercial marketing activities.

ELECTRONIC SYSTEMS COMMITTEE
The Electronics Systems Committee has as its primary objective, leadership in fostering electronics system design and manufacturing in Canada for Canadian requirements and world needs.

HUMAN RESOURCES COMMITTEE
The Human Resources Committee devises means by which to facilitate the exchange of information pertaining to all aspects of manpower utilization and its development among members, and maintains close liaison in these respects with government agencies and educational institutions.

INTERNATIONAL EXHIBITIONS COMMITTEE
This Committee is responsible for enhancing the international image of the Canadian aerospace industry through its participation in major international aerospace trade fairs and exhibitions. The Committee will enrol participating companies, coordinate pavilion and chalet requirements, cooperate with government when necessary and ensure a prestigious national presence at the shows.

INTERNATIONAL TRADE COMMITTEE
This Committee aims to ensure that the Canadian aerospace industry has an equal opportunity with other national industries to compete on and exploit international markets. As such, its activities and interests include other governments' policies, programs and regulations as well as Canada's.

PRODUCT SUPPORT COMMITTEE
The Product Support Committee establishes the principles by which all repair, overhaul and life cycle support contractors can further business interests with Canadian and foreign governments or private agencies.

PRODUCTIVITY COMMITTEE
The objective of the Productivity Committee is to provide leadership towards improving productivity to maintain world competitive levels in the Canadian aerospace industry through the development of a continuing program of action for the Association and its committees; the development of a forum for communication and exchange of new management, manufacturing and systems technology information within the industry; the organization of seminars within the industry and with other groups interested in productivity improvement; the preparation of position papers on areas for productivity improvement; and, the direction of industry-wide studies.

RESEARCH AND DEVELOPMENT COMMITTEE
The Research and Development Committee determines and recommends policies that the government should implement with respect to research and development in the aerospace field, especially as they affect expenditure of public funds.

SMALL BUSINESS COMMITTEE
This Committee ensures that small business interests are given full consideration; it ensures that the capability of small and medium size companies are known and understood by large companies within the industry, procurement agencies, and main contractors with offsets obligations. The Committee also identifies common problems of small and medium size companies, in order to refer questions and problems to other AIAC committees. The Small Business Committee works with the Board of Directors and staff of AIAC to solve particular problems of small and medium size businesses.

SPACE COMMITTEE
The Space Committee fosters and develops the segment of the aerospace industry which is involved with spacecraft, rockets, missiles and other components of space and satellite systems, including their ground segments, and promotes the growth of a space-related industry in Canada that can serve, analyse and play an active role in advising the government on it's Space Policy and related activities, recommending and assisting in the formulation and implementation of space programs in Canada.

TECHNICAL STANDARDS AND QUALITY ASSURANCE COMMITTEE
This committee is formed for the purpose of discussion of problems related to materials and processes, international standards, engineering and quality assurance specifications, and metric conversion, and to co-ordinate these activities with, and assist, government agencies and AIAC member companies.

MEMBERS

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Ms. J. Mell
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General Manager

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Managing Director

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Mr. K. R. Singh
Vice President Operations Analysis and Marketing

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Mr. S. A. Kearns
Vice President & Corporate Secretary

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External Affairs & International Trade Canada

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External Affairs works in conjunction with the aerospace sector to promote the common goal of increased Canadian exports.

Canada's Aerospace Industry
Canada's era of powered flight started in 1909 with the short distance covered by John McCurdy's "Silver Dart". Since then Canada has become one of the world's leading users and producers of aerospace equipment. Today its aerospace industry has over $7 billion in sales annually.

Canada has the world's second largest fleet of civil aircraft, was the first country to develop a domestic satellite communications system, pioneered short take-off and landing airplanes, and is a recognized leader in the design and production of long-range airborne navigation equipment and flight training simulators. Sixty-five percent of the world's turboprop general aviation aircraft are powered by Canadian designed, developed, and produced engines.

Canada is an excellent source of supply for defence requirements because of its international reputation for high quality products and equipment, manufactured to exacting standards.

Over the past twenty-five years aerospace sector sales alone have accounted for over forty percent of total defence trade exports.

Defence Programs and Advanced Technology Bureau
The principal function of this bureau is the promotion and expansion of exports of Canadian defence and civilian high technology products. The bureau has four divisions:

The International Defence Programs, Aerospace and Marine Division (TDA), which has the major responsibility to seek international marketing opportunities for major defence and civilian aerospace and marine products and manages formal government-to-government defence economic relationships.

Information Technologies and Electronics Division (TDE), which provides marketing advice and guidance for the information technologies and telecommunications industries.

Science and Technology Division (TDS), which is responsible for all matters pertaining to Science and Technology including attracting new technologies to Canada, liaising with educational institutions, bilateral science and technology agreements, and formulating the department's policy on this important subject.

The Machinery, Transportation and Environmental Equipment Division (TDT), which provides marketing advice and support to manufacturers of such equipment.

The aerospace industry naturally has its strongest ties to the **International Defence Programs, Aerospace and Marine Division** which provides the most direct links for the Canadian producer and exporter to the international marketplace. This division is the aerospace industry's main point of contact for government assistance in international marketing.

Specific objectives of the division are:

1. to identify export opportunities for defence and civilian aerospace and marine products, to advise Canadian industry about key markets, to suggest ways to exploit market opportunities and to identify special factors affecting a company's chances of success in these markets.

2. to establish and manage Canadian participation in bilateral and multilateral cooperative defence trading agreements, including the Canada/U.S. Defence Development and Production Sharing Arrangements.

3. to maintain access to foreign markets through negotiations to remove impediments to trade and,

4. to actively promote the export of Canadian defence and civilian aircraft and marine products by working with Canadian posts abroad, conducting seminars and trade shows, leading trade missions overseas, and organizing incoming buyers' missions.

The division is also involved in many of the federal government's major capital procurement activities, often representing External Affairs in inter-departmental consultations with Industry, Science and Technology Canada, the Department of National Defence, Communications, and others. This Division also provides input for the DIPP program, approves proposals under the PEMD program, and coordinates the loan of DND personnel and material for industry marketing plans.

Services Abroad
There are over 800 Trade Commissioners and locally-engaged Commercial Officers located in over 80 countries abroad. The primary responsibility of these individuals is to assist Canadian companies to start or expand export sales in their respective markets.

Foreign companies looking for sources of Canadian aerospace products, considering investments in Canada or joint ventures with Canadians, are encouraged to contact the Trade Commissioner in their nearest Canadian Embassy, High Commission or Consulate General.

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Government of/Gouvernement du Canada

Department of Industry
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ASSISTANT DEPUTY
MINISTER
INDUSTRY &
TECHNOLOGY:
J.C. Mackay

The Department of Industry, Science and Technology acts in the full partnership with the private sector, the science community, federal government departments, and other levels of government to promote international competitiveness and industrial excellence in Canada; to renew and expand our scientific, technological, managerial and production base; and to bring together, in a concerted way, the talents of Canadians to guarantee our place in the first rank of industrial and commercial nations in the twenty-first century.

In the pursue of these objectives, the Department will speak to, for, and about industry, science and technology within the Government of Canada. The Department develops productive relationships with the business and science communities, and with other governments. These mechanisms range from letters of intent and memoranda of understanding to formal agreements with governments. Services and programs evolve as part of this cooperative partnership.

In order to carry out its mandate, the Department is developing a high level and quality of intelligence on global and domestic markets, on the forces that determine business competitiveness, and on industrial, scientific and technological developments.

To this end, the Department implements a systematic, intelligence gathering and review process. This intelligence is linked to the Department's advocacy and policy-making functions and to its programs and services to meet changing circumstances.

The Department of Industry, Science and Technology adopts an integrated approach to the needs of Canada's industrial and scientific communities. Packages of policies, services and programs, carefully targeted to priority business needs, are being developed.

Aerospace and Defence related industries

The Canadian industry features a wide range of capabilities meeting international competitive standards. They include design, development, production, global marketing and after-sales support in select product areas and disciplines.

Yearly growth has been steady and sales for 1989 exceeded $7 billion with over 65,000 employees. This serves to rank Canada in fifth position behind the industries of the U.S.A, United Kingdom, France and West Germany and alongside that of Italy, a position which it has sustained for a number of years.

In general, the industry seeks to specialize in market niche areas offering strong export potential. As described in subsequent pages, these include:

- complete aircraft in the commuter, corporate and utility fields,
  both fixed wing and helicopter;
- gas turbines, engine overhaul and blade production;
- airborne and ground based avionics systems;
- satellites, earth stations and image processing;
- precision components and aerostructures;
- highly specialized defence systems;
- airport and traffic control systems;
- missiles, drones, targets; and
- marine and land vehicle systems;

Exports have varied between 65 and 80 percent of total output over the years and components originating in Canada are to be found on most of the world's civil aircraft and many defence systems.

Aircraft made in Canada are in service in over ninety different countries.

Aerospace and Defence Industries Branch

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DIRECTOR GENERAL:
T.F. Garrard

The mandate of this organization includes the development and implementation of industrial policies and strategies in close consultation with the industry.

It establishes and maintains appropriate statistical and information databases in support of this end acts as the industry advocate within the government.

ADIB is responsible for the management and program delivery aspects of the Defence Industries Productivity Program (DIPP) one principal application of which is the funding of joint international development ventures.

Its three directorates are as follows:

Electronics, Land, Marine and Space
Director - R. Burns
Tel: (613) 954-3415
Fax: (613) 954-4246

Consisting of:

- Defence Electronics
- Electronics Industrial Benefits
- Space Systems
- Marine Industrial Benefits
- Defence System Development

Aircraft, Propulsion and Aerospace Subsystems
Director - W. Laycock
Tel: (613) 954-3343
Fax: (613) 998-6703

Consisting of:

- Aerospace Defence Projects Division
- Airframe Systems Division
- Propulsion and Aircraft Subsystems
- Specialist Firms Division

Planning and Analysis

Director: Y. Moisan
Tel: (613) 954-3749
Fax: (613) 954-3375

Consisting of:

- Sector Analysis
- Procurement, Planning and Analysis
- Emergency Planning

Other departments and agencies with a close working association with the aerospace and defence industries.

. Export Development Corporation
. Department of National Defence
. Supply and Services Canada
. Transport Canada
. National Research Council
. - and, as described elsewhere
. Department of External Affairs
. Canadian Commercial Corporation

Aerospatiale Canada Inc. (ACI)

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PRESIDENT:
Michel Troubetzkoy

TACTICAL MISSILES
DIVISION,
MANAGER - CANADA:
Olivier Le Gall

Aerospatiale Canada Inc. (ACI) is a subsidiary of Aerospatiale SNI (France). Canada's offices were established in Ottawa in early 1989, in order to handle the Group activities as a whole, the aim being to promote Aerospatiale products in Canada, to forge lasting bonds with the Federal and Provincial authorities and with the entire Canadian aerospace industry.

Formed in 1970 through the merger of three aerospace companies, France's Aerospatiale has grown rapidly in international markets. Today, Aerospatiale exports its products to 120 countries. From a revenue of $0.7 billion in 1970, sales are soaring to $6.2 billion in 1990 and are expected to break through the $8 billion barrier in 1992.

With its four divisions, Aerospatiale offers a comprehensive range of aerospace products:

AIRCRAFT DIVISION. Following the marketing successes achieved with programs in whose development it is involved (the Airbus and the ATR families), the Aerospatiale Aircraft Division is experiencing a boom in its civil transport activities.

The aircraft division is also involved in the military field, with the experience gained in the Transall program.

100% of the revenues generated through the Aircraft Division is made in cooperation : through the Airbus planes, through the ATR commuter planes, and through the Military transport project.

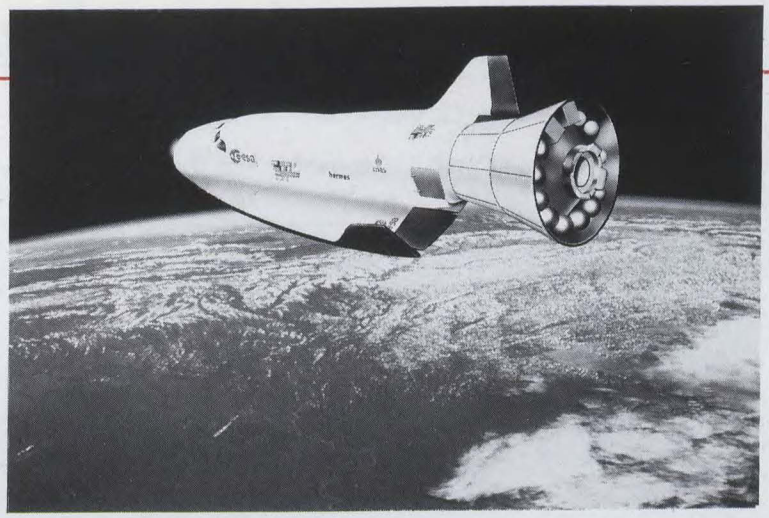
HELICOPTERS DIVISION. Aerospatiale is the leading helicopter manufacturer in Europe and the world's number one exporter. Its wide range including the Super Puma/Cougar, Dauphin 2/Panther, Ecureuil/Fennec, Gazelle and Lama makes it possible to satisfy virtually all market needs. The Helicopter Division is constantly striving to improve its helicopters to keep its technological edge. The winners in this race are of course our customers! Already, programs such as the Tiger and NH 90 provide a glimpse of a promising future as the Division prepares for the single European market. Today, one out of every three helicopters in the world is Aerospatiale. Through ongoing improvement they can operate in hot tropical conditions, or in bad weather and extreme cold. By integrating dedicated equipment and systems, Aerospatiale tailors each helicopter to suit the customer's individual requirements.

TACTICAL MISSILES: The Aerospatiale's Tactical Missiles Division enjoys unparalleled experience in the field of missiles. It offers a product line ranging from antitank systems to tactical nuclear weapons, by way of air defence, air-to-surface and sea-skimming antiship missiles like the Exocet.

Our missiles have been ordered by 64 different countries - a fine tribute to the Division technical and industrial resources and its go-ahead commercial skills. The size of the export order book, allied to successful international cooperation, is enabling the Division to develop high-performance, sophisticated systems at extremely competitive prices.

Today Aerospatiale, the Canadian defence industry and the Canadian Armed Forces are working together to manufacture the ERYX, a short antitank missile designed for close antitank combat, particularly in urban environments.

SPACE AND STRATEGIC SYSTEMS: It is the industrial prime contractor for the ballistic missile systems of the French deterrent force, and it is the only company in Europe with such experience. Aerospatiale's mark is just as evident in space programs. It is the industrial architect for the European launcher Ariane and prime contractor for the space plane Hermes. In cooperation with European and international partners, Aerospatiale has contributed to the development of more than sixty satellites. Within the Space and Strategic Systems Division, Aerospatiale Spin-offs department adapts products and technologies developed for the company's aerospace programs so that they can find applications in other fields. This activity leads to joint venture agreements, partnerships, creation of specialized entities and technology transfers.



HERMES. Ariane 5's performance and high reliability will authorize manned spaceflight. Aerospatiale is the industrial prime contractor for the European spaceplane, Hermes. Able to carry up to 3 persons and 3 tones of freight, Hermes will have a lift-off mass of about 23 tons. The first flights are scheduled for 1998 (unmanned) and 1999 (with a crew).

The Airbus A340 is a twin aisle aircraft powered by four CFM56-5C1 engines. The maximum take off weight is 246 tons and allows a range of 14250 Km with 262 passengers on the A340-200 version and 12700 Km with 295 passengers on the A340-300 version. The first flight is scheduled for Spring 1991.

PANTHER in nap-of-the-earth flight. The panther is a military version of the DAUPHIN. This advanced technology helicopter is both a transport aircraft with a 12-commando carrying capacity and a tactical support machine when armed with 20-mm gun and rockets.

Thanks to direct thrust vector control applied through the center of gravity, accurate steering is ensured even at low speeds and ERYX can be fired with a low initial acceleration. The missile's limited nuisance effects (noise and smoke) and its inherent stealth enable the missileer to launch it from confined spaces with no danger to himself.

aerospatiale

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A. Bishop

Aircraft Appliances and Equipment Limited (AAE) is a diversified company engaged in the design, manufacture, repair and overhaul, and distribution of equipment for aircraft and naval ships.

Founded in 1949, AAE's rapidly growing capability is supported by an 80,000 square foot facility. Initially, the company's operation was the repair and overhaul of aircraft accessories and the distribution of aircraft electrical product accessories to Canadian owners and users of aircraft built by U.S. companies. Over time expertise has been developed in the areas of design engineering and manufacturing.

In 1959 the firm designed and began the manufacture of fuel filters and also pioneered the development of coalescers for the separation of water and solid contaminants from lubricating and fuel systems for marine gas turbine power plants. The design and manufacture of aircraft tachometer generators commenced in 1966. These generators meet all the requirements of MS25038-1, -2, -4, and GEU-7/A. They are primarily designed to provide power for speed-indication systems in aircraft, including helicopters for both military and commercial application. AAE has also designed and manufactured voltage regulators again for both military and commercial use.

The Repair and Overhaul Division is a Department of National Defence and Ministry of Transport approved facility for the repair and overhaul of commercial and military aircraft equipment, ground support equipment, power supplies, generator test stands, and test equipment of all kinds. The division services automatic flight controls, sensing devices, electrical power system components, pumping systems components, ground power units, motor generators, and fuel test stands. The company is certified to AQAP-1 quality assurance standard.

In the field of avionics testing equipment, the company offers a Universal Avionic Component Tester, a self-contained manual tester with flexible capability, power control, signal service, and measuring devices. It also repairs, overhauls, and rewinds stators, armatures, and rotors for aircraft rotating equipment. As repair and overhaul is a crucial aspect of product support, AAE provides an exchange program on many of its products and offers a 24 hour, seven days a week AOG service for its aviation customers.

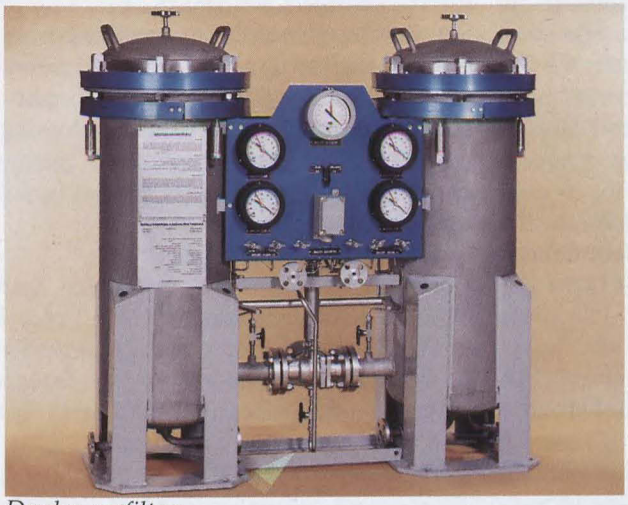
More than 30 years' experience in research and development by the Fluid Power Division has resulted in the installation of AAE equipment on many U.S. and Canadian naval ships. Installations range from simple in-line filters to duplex coalescers that automatically change over from clogged filter elements to clean ones. They come complete with service indicators, pressure and temperature gauges, heaters, automatic level controls, safety locks, and other features. The equipment can accommodate flow rates from 0.1 g.p.m. to 200 g.p.m., and many designs meet rigid military standards for shock and vibration.

Several patented designs are available in different alloys to cope with the most demanding shocks–from arctic vessels to the high-frequency vibrations of hydrofoils and surface-effect ships. Micronic filters and pipeline strainers have been produced for the most advanced navies in the world. Major filtration systems are being supplied to all U.S. and Canadian built frigates and destroyers.

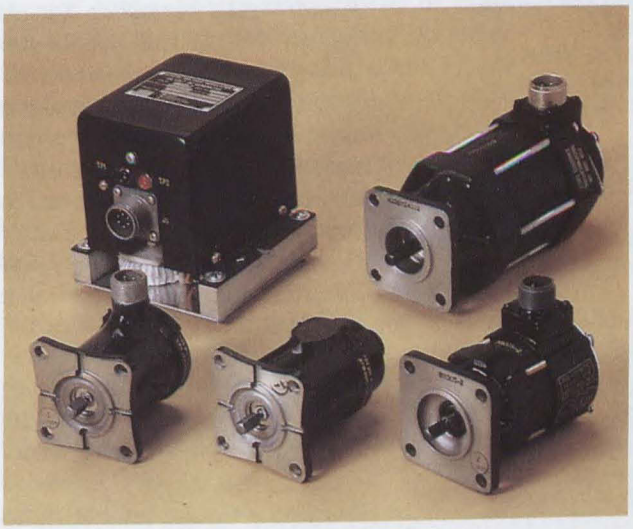
In the area of test equipment, AAE has designed and manufactures a test stand to support the P-3/CP140 Series Aircraft engine driven compressor. The stand delivers advanced diagnostic performance data on the unit thus allowing for service depot level maintenance. This stand is available with a full logistics support package. Other equipment offered includes MC2 conversions, accelerometer testers, inverter test stands and various other electrical/electronic/hydraulic test stands.

The Technical Sales and Service Division functions as a stocking distributor for products manufactured by others. Selling equipment to the Canadian aerospace industry, this division has distribution rights for aircraft electrical, avionics, and fuel accessories produced by divisions of leading component manufacturers. Items include heading reference units, land navigation systems, muzzle velocity radar, display and transceiver units, self-lubricating bearings, anti-corrosion protective components and a wide range of other commercial and military related products.

Products and Services

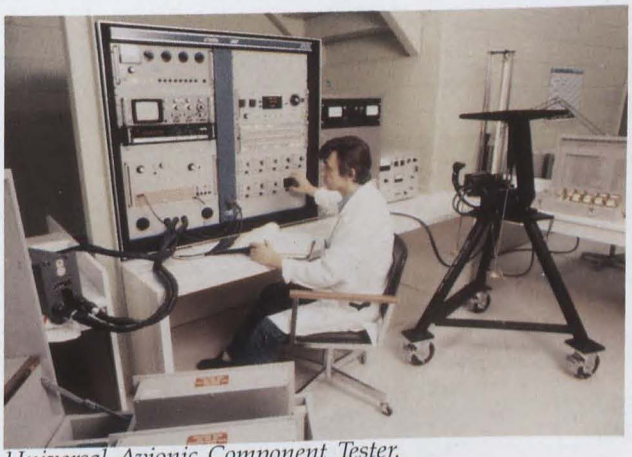


Duplex prefilters.



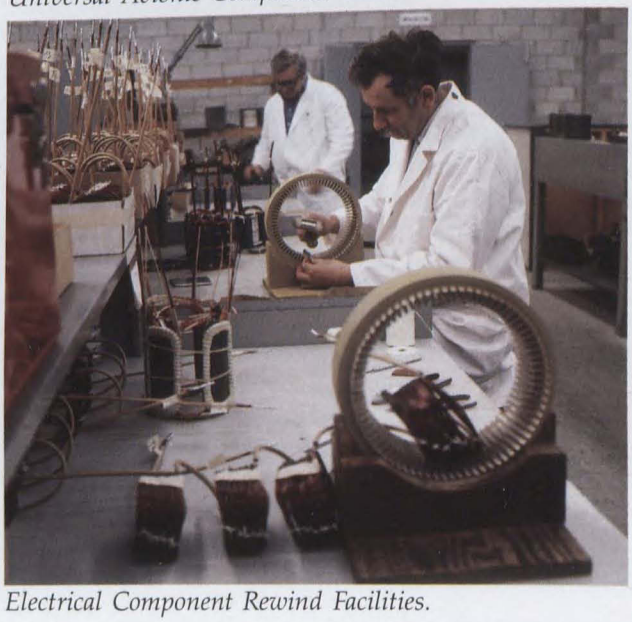
Tachometer Generators & Voltage Regulators.

Duplex fuel oil coalescer.



Universal Avionic Component Tester.

Repair & Overhaul Services.



Electrical Component Rewind Facilities.

Allied Signal Aerospace Canada

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MANAGER, PRODUCT
DEVELOPMENT: John
McDermott

Allied-Signal Aerospace Canada, through its Garrett Canada and Bendix Avelex operating divisions, is an acknowledged leader in the specialized fields of electronic thermal management systems, electro-optics, and aircraft engine controls and accessories. The company also provides full product support for its own products, as well as on a contract basis, to the Government of Canada and Canadian aircraft operators for the products of more than 160 international OEMS.

Overall, the company employs more than 2,000 Canadians and has annual sales of more than $200 million, more than 70 percent of which is for export markets. Allied-Signal Aerospace Canada invests more than 10 percent of annual sales in research and development activities.

Allied-Signal Aerospace Canada and its operating units are approved to NATO AQAP-1 and are cleared to NATO Secret with special COMSEC approvals on specific programs.

Electronic Thermal Management Control Systems

Electronic environmental control systems, the core of Garrett Canada's business for more than thirty years are designed, developed, manufactured and supported for major airframe and defence systems manufacturers. These controls are utilized to ensure that optimum air conditioning (temperature, pressure and flow) is provided to the various compartments of the aircraft, including; cockpit, passenger cabins, crew rest areas, avionics bays and cargo bays. An electronic controller typically consists of electronic controllers which process the information received from the other system elements - temperature sensors, pressure sensors, flow sensors and valves.

Garrett Canada has been chosen by the Boeing Commercial Airplane Group to develop electronic bleed air control systems for the high bypass super engines that Pratt and Whitney, Rolls Royce and General Electric are developing for the 777 aircraft program. This follows a series of successful development programs including flight tests for Boeing's 767-300 and McDonnell Douglas' MD-11 and C-17A aircraft.

Electronic bleed air controls precisely regulate and balance bleed air extracted from the aircraft engines for the cabin environment, anti-icing and various other pneumatic systems. This unique electronic technology is intended to replace conventional pneumatic systems used in many older aircraft in service today.

Under contract to the Aeronautical Systems Division of Wright Patterson Air Force Base and with support from Canada's Government, Garrett Canada is developing an Integrated Closed Loop Environmental Control System for the next generation of aircraft.

To augment our major product line of electronic environmental control and bleed air management systems, new developments are planned. Some will help eliminate present environmentally hazardous de-icing procedures, others include; improved windshield heat controls suited for a wider range of aircraft applications, and smart actuators and sensors that will enable advanced controls for future aircraft and space applications.

Electronic controls appear on the majority of commercial and military aircraft in the western world.

Electro-Optic Systems

Montreal-based Bendix Avelex has established an international reputation for its expertise in the design, development, manufacture and support of sophisticated electro-optical systems.

Bendix Avelex thermal imaging products utilize infra-red technology to detect heat emissions. Working in the far infra-red spectrum (8-12 microns), these devices are ideally suited for day or night surveillance, search and rescue, drug interdiction and numerous defence applications such as weapon sights and targeting systems. The units are light in weight, low cost, and incorporate the latest technological advances in detectors, scanners and cryogenic coolers. Thermal imaging systems can be used in fog, smoke, at night or in daylight.

Light-weight, low cost night vision goggles utilize image intensification technology.

Bendix Avelex is a leading supplier of night vision devices to the Canadian Armed-Forces. Lightweight, low-cost night vision goggles permit personnel to accomplish routine tasks such as driving, patrolling, giving first aid or map reading in low ambient light conditions. The modular design adapts to helmet or gas mask use, and is NBC resistant.

Night driving periscopes (NVP) for armored vehicle in the M113 family, Lynx, Grizzly and Leopard 1 tanks, night vision image intensifying weapons sights (NVS) and weapons training simulators complete the Bendix Avelex electro-optical systems product family.

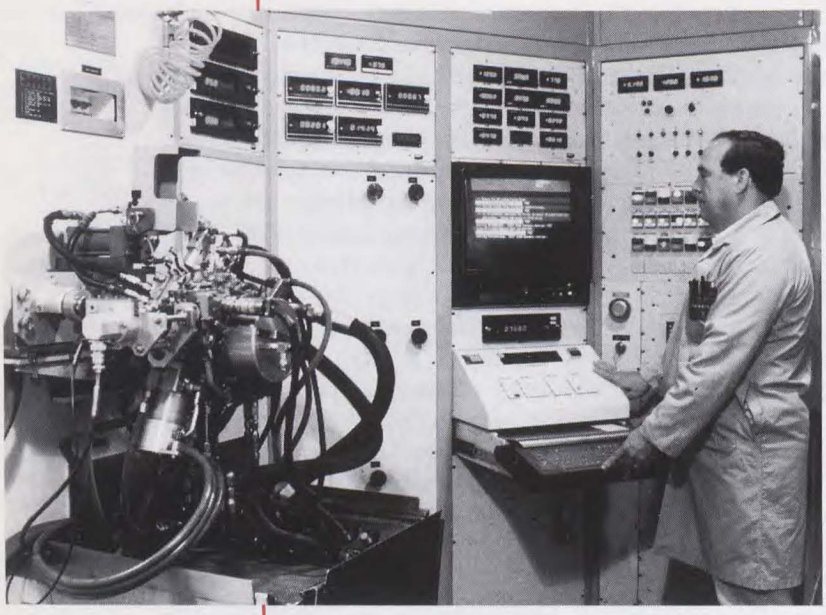
Developed in conjunction with the Defence Research Establishment in Valcartier, the artillery Gun Alignment and Control System (GACS*) eliminates time-consuming artillery gun alignment problems and orientation errors. GACS consists of three integrated components:
an infra-red and laser alignment systems, a radio or land line data transmission systems and a voice communications link. The system helps battery personnel reduce deployment time, increases their accuracy and thereby enhances their battlefield survivability.

(*GACS is a trademark of the Government of Canada, Department of National Defence)

Aircraft Engine Control Systems and Accessories

Bendix Avelex has, during its sixty-year history, established a lead role in aircraft engine fuel systems for small gas turbine engines. The company has manufactured more than 100,000 fuel control systems, which have accumulated more than 125 million operating hours.

Today, Bendix Avelex designs, develops and manufactures sophisticated engine control systems and related components for turbo-prop, turboshaft and turbofan aircraft engines for manufacturers, including Pratt & Whitney Canada.



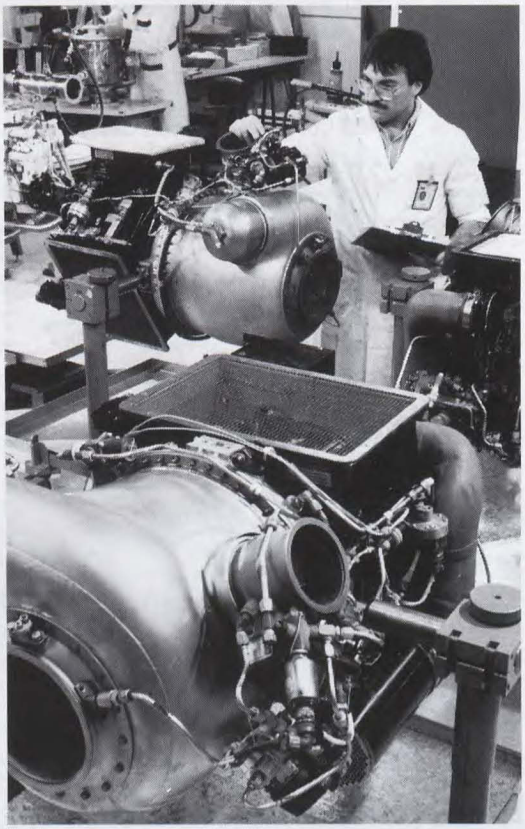
Fuel control developments are supported by extensive experience in pneumatics, fluid dynamics and hydro-mechanics.

The company's control systems have been incorporated on more than 100 airframe applications covering PT6 turboprop and turboshaft engines, JT15D turbofan engines and new-generation PW100 series turboprops, as well as aircraft auxiliary power units.

Support Services

These services include: life-cycle management, integrated logistics support, operations and maintenance engineering services, as well as repair and overhaul, and more. They are offered not only in support of the company's products, but also in support of the products of international OEMs in service with Canadian airlines, regional and commuter airlines, business aviation operators and Government of Canada and its agencies including the Department of National Defence and Transport Canada.

Allied-Signal Aerospace Canada provides complete facilities for the repair and overhaul of all of the company's products, as well as those of international OEMs. Operations include more than 80,000 square feet of facilities located in Montreal, Cornwall, Toronto and Vancouver. Capabilities encompass turbo machinery, air regulating systems, avionics, instrumentation, engine accessories, aircraft air conditioning systems, gas turbine auxiliary power units (APUs), actuators, starters, central air data computers and many other systems.



Repair and Overhaul support of auxiliary power units is now being provided for regional airlines.

Technical publications are prepared and produced in-house. The technical publications staffs are accomplished in both a variety of military standards and airline industry norms, such as ATA-100. As with technical training, technical publications can be supplied in the language of the end user.

Spares provisioning services can range from basic consultation on an initial spares inventory, to a complete and fully integrated life-cycle support program for major government or industry programs lasting decades.

Training services employ the most up-to-date and cost-effective instructional methods, tailored to meet individual customer needs. Training programs typically encompass classroom instruction, manuals, simulators and hands-on sessions.

The Aero-Marine Division of Bendix Avelex, located in Richmond, BC, provides west coast repair and overhaul facilities as well as avionics service and support for marine electronics systems such as sonars, depth finders and related equipment.

The operating divisions of Allied-Signal Aerospace Canada maintain dedicated engineering field support teams ready to travel and provide on-site support. In addition, Allied-Signal Aerospace Canada has complete access to a worldwide network of more than 20 technical and product support offices operated by the Allied-Signal Aerospace Co. around the world.

Advanced Technology Initiatives
Development of technical capabilities in digital signal processing, circuit design and development, complex software, shielding and EMC, COMSEC and TEMPEST at Allied-Signal Aerospace Canada have led the company into a number of related initiatives.

In Tactical Missile Actuation Systems-The company is an experienced Canadian lead partner on multi-national defence programs in the areas of flight control actuation, power supplies, mission electronics and specialized test systems on programs such as: the 155mm Autonomous Precision Guided Munition (APGM); NATO Anti-Air Weapon System (NAAWS); the Advanced Short-Range Air-to-Air Missile (ASRAAM) and, several others.

In Communications and Airport Equipment-Garrett Canada's expertise includes a wide range of communications products. The company's emergency locator transmitters, which work in conjunction with the international search and rescue satellite system, SARSAT/COSPAS, are carried aboard more than 90 percent of the western world's commercial aircraft on transoceanic flights.
Air traffic control transmitters and receivers have been developed, manufactured and supplied to customers in Canada and other countries, while Instrument Landing System (ILS) test sets, supplied to customers in Canada, the U.K. and Turkey, ensure that landing aids are functioning properly.
As part of Transport Canada's Radar Modernization Program (RAMP), Bendix Avelex designed and manufactured PARROT. The Position Adjustable Range Reference Orientation Transponder and a derivative system, the Radar Test Target (RTT) calibrate and continually stimulate the secondary surveillance radar (SSR) and related systems to ensure safety and reliability, and to provide real-time information to radar operators.

In Simulation and Training-For maritime applications, Bendix Avelex has also designed, and developed the computer-based Operational Team Trainer (OTT) for the Canadian Forces Fleet School, in Halifax, NS. The OTT is designed to simulate the operations rooms of ships at sea for the training of command teams.

Bendix Avelex also produces a range of Air Traffic Control training systems and Video Interactive Gunnery Simulators for direct fire weapons systems training. These cost-effective systems provide realistic field personnel training.

In Land Vehicle Navigation-The Bendix Avelex MARK V magnetic-and gyro-based vehicle navigation systems (VNS) deliver reliable and highly accurate position and steering information to the crews of armoured vehicles – particularly important in unfamiliar or hostile terrain when the crew should focus on mission objectives.

Vehicle Navigation System

Andrew Canada Inc.

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VP FINANCE:
Dirk R. deJong

BUSINESS DEVELOPMENT MANAGER, GOVERNMENT PRODUCTS GROUP:
John E. Giraudy

Andrew Canada Inc. is a subsidiary of Andrew Corporation, a major supplier of electronic communication products and systems to worldwide commercial, government and military customers. Its markets are driven by the need for products and systems that enhance the ability to communicate on a global basis. The Canadian manufacturing facility and head office was founded in Canada in 1953, and has continued to grow and develop since that time, serving both the commercial and government/military communications markets. As well as having an established reputation as a designer and manufacturer of terrestrial microwave and earth station antenna systems, Andrew Canada is serving the defence electronics and other government markets with radar and communications reconnaissance systems, direction finding systems, weather navigational radar antennas, positioners, cable and waveguide. The company's quality assurance standards meet with the requirements of military customers and specifications of Canadian and U.S. government agencies including DOT and FAA.

Extensive engineering and test resources allow the development of specialized antenna systems to meet specific customer requirements. The Whitby, Ontario manufacturing plant and Canadian head office has extensive facilities for engineering research and development, a well-equipped model shop and a 19 metre near field anechoic chamber, in addition to an antenna pattern test range with unobstructed sources ranging from 200 to over 5,000 metres from the main test tower. Andrew Canada's manufacturing facilities include metal spinning, stretch forming, welding, machining, silver brazing, soldering, metal finishing and painting. Andrew's field service department offers a comprehensive customer service package, including program management, delivery, site civil works, tower erection and antenna assembly and installation system testing and guarantees.

Andrew Canada Inc. designs and manufactures air traffic surveillance, weather radar, navigation aid, HF antenna systems, and other special purpose and tactical antenna systems built to meet exacting government and military specifications. Other products include fabricated steel and aluminum structures and devices.

Andrew Canada Inc. has successfully secured and is in full production on several programs including communications antennas for Raytheon Company for the USAF AN/TRC-170 (V2) program, Shield II Chaff and IR decoy missile launchers and munitions stowage lockers for Plessey Naval Systems for the TRUMP (Tribal Class Update and Modernization Program), L-band radar antennas for Raytheon Company for the RAMP program (Radar Modernization Project), parabolic doppler weather radar antennas for Unisys Corporation for the NEXRAD program (Next Generation Weather Radar), pedestals for Unisys Corporation for the Mark 99 fire director radar for the Aegis class US Navy cruisers, and SKYLOC TM antennas for the Canadian military's tactical HFDF PALANTIR program, a system similar to the U.S. DRAGONFIX program.

Atlantic Research Canada Inc.

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Ron Nash

VP & GENERAL
MANAGER, AMTEK
TESTWARE:
Laurie McClare

Atlantic Research Canada (ARCAN) is a world-class professional services company and a leader within the Canadian defence and commercial engineering and management services sector. A subsidiary of Atlantic Research Corporation Professional Services Group, in turn a subsidiary of the $2 billion (US) Fortune 500 Sequa Corporation, ARCAN offers a broad range of professional services which include:

- Integrated Logistics Support
- Systems Engineering and Integration
- Automatic Test Systems and Test Engineering
- Software Engineering
- Automated Data Systems
- Project and Proposal Management
- Training Systems
- Electromagnetic Environmental Efforts

With its two main operating divisions, AMTEK Management in Nepean, Ontario, and AMTEK Testware in Edmonton, Alberta, ARCAN has a permanent workforce of over 100 professional engineers and technical specialists representing the top levels of Canadian expertise. Through selective recruiting, ARCAN consistently maintains its leadership role within its selected business areas.

ARCAN's philosophy embodies customer satisfaction as a top priority and responsiveness to customer needs is a cornerstone of the company's success. Our ability to locate qualified professionals in any region of Canada is extended throughout North America through our corporate reservoir, with over 70 locations in the United States. ARCAN also conducts business in Australia, South Korea, and several European countries.

Through self-funded research and development, ARCAN has established a prominent position as a leader in the application of information systems technology. Our capabilities in Computer Aided Acquisition and Logistics Support (CALS) are well known throughout the industry and we are capable of assisting companies to become fully compliant with CALS requirements.

The two AMTEK divisions of ARCAN have been key participants in recent major Canadian defence acquisition projects, including:

- CP140 Aurora Long Range Patrol Aircraft
- CF18 Fighter Aircraft
- Low Level Air Defence System - LLADS
- Tactical C3 System - TCCCS
- Canadian Patrol Frigate
- New Shipborne Aircraft

In addition, the companies have provided services to several international projects, including the NATO Frigate (NFR90) and USAF C17 Transport Aircraft. Current contracts include the design, development, installation and support of a major logistics data management system for the Republic of Korea Ministry of National Defence and the installation of LAAMS (Logistics Analysis And Management System) software for the Royal Australian Air Force.

ARCAN has extensive experience in the European and US defence sectors and is knowledgeable of applicable standards and requirements. The compnay is particularly effective in assisting foreign companies in bidding for Canadian defence contracts. Our expertise in proposal management can significantly enhance the win probability.

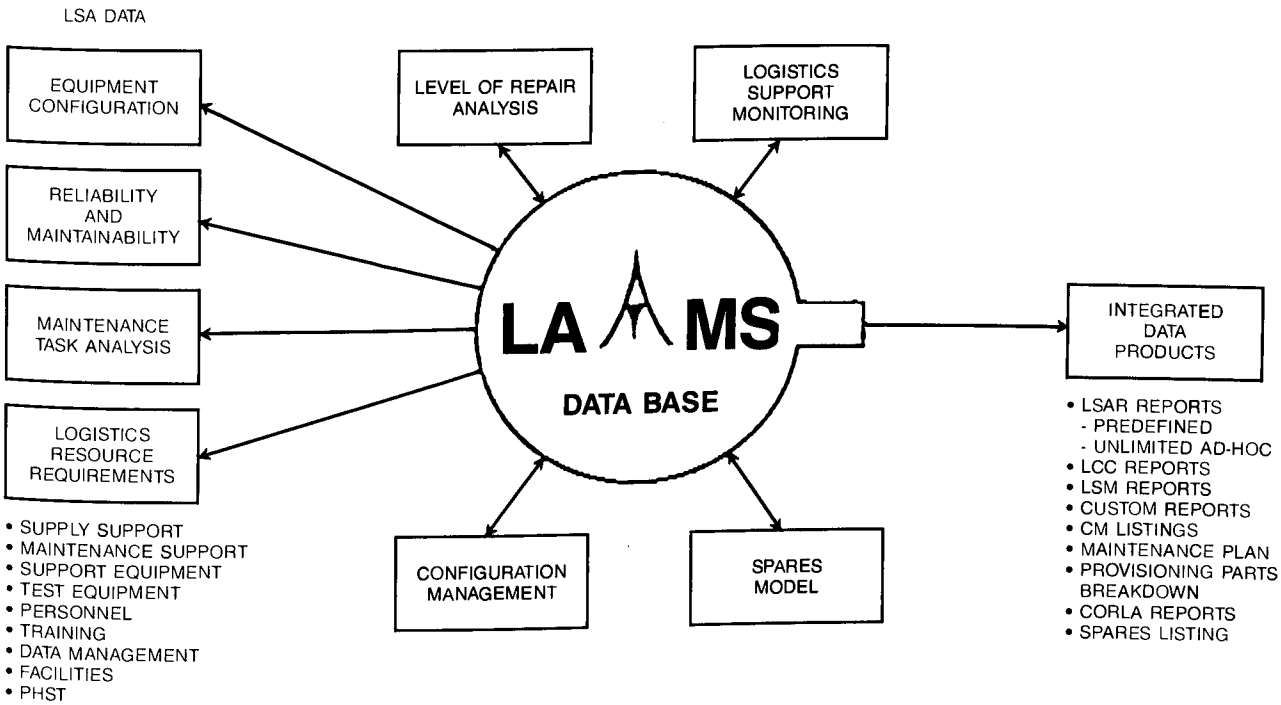
ARCAN's office facilities include:

- Ottawa Headquarters - 3000 sq. ft.
- Nepean - 32,000 sq. ft.
- Edmonton, Alberta - 20,000 sq. ft.

Computer resources include Micro Vax II, IBM PCs, COMPAQ 386s, MacIntosh Desk Top Publishing, and various other hardware systems. Software includes ORACLE, LOTUS 1-2-3, dBase, Pascal, COBOL and other packages.

Annual sales for 1990 exceed $7 million and a growth rate of 20% is forecast over the next two years.

CANADA'S LEADER IN INTEGRATED LOGISTICS SUPPORT (ILS) TECHNOLOGY



LAAMS

LAAMS is a proprietary software product, designed to fulfill a broad spectrum of maintenance and logistics data management needs. LAAMS is developed in fourth generation ORACLE RDBMS and is designed in a modular concept, thus allowing for its extension through add-on functional modules. Existing modules include the Comprehensive Optimum Repair Level Analysis (CORLA) and Automated Reliability Centered Maintenance (RCM) modules. Other modules may include a Spares Model, Life Cycle Cost Model, and Configuration Management module - each tailored to a specific customer's requirement.

LAAMS USERS

LAAMS has been acquired by the Canadian Department of National Defence for its two most recent major acquisition projects:

•CF18 Fighter Aircraft
•EH101 Helicopter - New Shipborne Aircraft

LAAMS has also been acquired by the Royal Australian Air Force and will be used as the core system by the Republic of Korea Ministry of Defence for its updated Logistics Analysis and Management Information System (LAMIS).

Atlantis

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Atlantis has earned an excellent reputation for quality and performance in the international aerospace community. The company has emerged as a leader in the application of leading edge technologies to demanding aerospace environments.

Training Systems Group

The Training Systems Group develops maintenance and operational simulation systems for air, land, and sea applications. The Group has produced training technology as diverse as a Cockpit Procedures Simulator for the Canadair Challenger and a Live Fire Video Based Training Systems for Armoured Vehicles.

An extensive background in maintenance simulator development includes trainers for the Canadian Forces CF-18, Royal Australian Air Force F/A-18, Boeing Vertol H-46 helicopter, and Boeing E-6 aircraft. Atlantis maintenance training systems are in use by the U.S. Navy and Marine Corps, Royal Australian Air Force and the Canadian Armed Forces.

The U.S. Air Force is currently employing Atlantis-designed Integrated Aircraft Maintenance Training Systems for troubleshooting and fault diagnostics training on the F-15E aircraft. Developed by Atlantis under contract to McDonnell Douglas, these training systems incorporate interactive laser video disk technology, mathematically modelled test equipment, and instructor selected system faults.

Atlantis has recently entered the commercial transport simulation and training market with a joint Air Canada/Canadian Airlines International contract for the development of advanced Flight Training Devices (FTD's). Designed to ease aircrew transition to the new integrated digital cockpits, the program involves the development of ten simulation devices for three different aircraft types - B747-400, B767-200/300ER and A320.

The Canadian Navy is providing submarine weapon systems training using an Atlantis designed submarine Fire Control System Trainer which incorporates MK37 and MK48 torpedo simulations. A live fire Video Training System, currently in use by the Canadian Army, has been designed to be used with a variety of weapon systems, including the Leopard 1 and 2 MBTs, M1 and M1A1 MBT's, M2/M3 Fighting Vehicle, and TOW II missile system. Additional applications are also feasible for this system incorporating real time thru-sight video monitoring and range observation.

Test Equipment Group

The Test Equipment Group has developed technology ranging from avionics interface panels to sophisticated digital test equipment.

MIL-STD-1553 A/B Bus testing, capability is represented with the DCM-1553, designed as a user friendly interface for performance evaluation and troubleshooting of LRU's on-1553 Bus aircraft. The DCM-1553 is presently in use with the airforces of Australia, Canada, and the United States.

The Group's DRA-707 and ARA-552 digital and analog radio altimeter Ramp Simulators can interface to virtually all commercial altimeters in service, and are in use with major international airlines. Boeing Seattle has purchased several of these units for its mobile test vans, used to perform pre-delivery aircraft systems checks.

A complete line of dedicated ARINC 429 test equipment is also offered, designed to support the new digital commercial aircraft such as the Boeing 757/767. All applications from the bench to the flight line are covered, including ATE configurations.

Instrumentation/Control Group

The Instrumentation/Control Group at Atlantis has been responsible for the development of a complete line of guidance and control systems for use in a large variety of Remotely Piloted Vehicles (RPV) and target drones. These include the ROBOT-X target drone produced in cooperation with DRES and Boeing of Canada, Winnipeg.

INSTRUMENTATION & CONTROL SYSTEMS

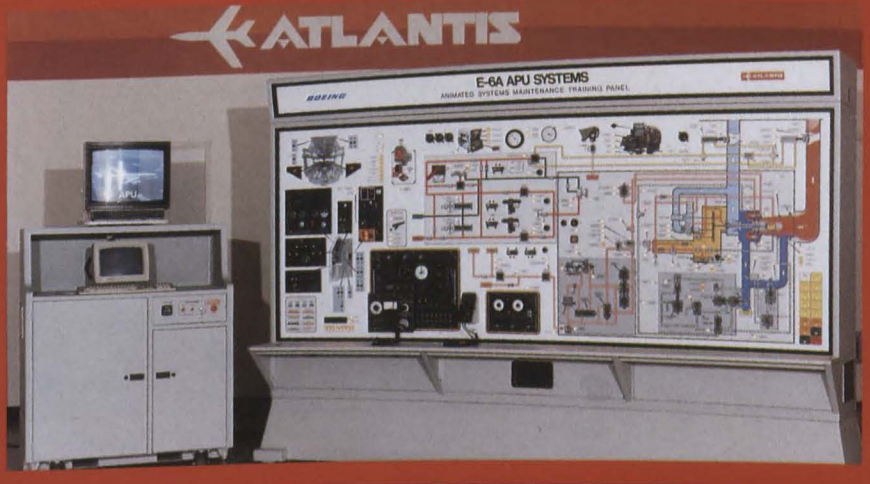
Atlantis produces a complete line of guidance and control systems for RPVs and targets, including the ROBOT-X target drone.

OPERATIONAL & PROCEDURES SIMULATORS

The Canadair Challenger Cockpit Procedures Simulator is one of a variety of simulator types manufactured by Atlantis for air, land and sea elements.

MAINTENANCE TRAINING SYSTEMS

Atlantis is an industry leader in the production of state-of-the-art, free-play simulators designed specifically to enhance transfer-of-training for maintenance technicians.



DCM-1553 DIGITAL BUS COMMUNICATOR

The DCM-1553 is one element of a complete line of commercial and military digital test equipment, supporting all applications from the bench to the flight line.

Bell Helicopter

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TEL: (514) 437-3400

PRESIDENT:
LLoyd Shoppa

Bell Helicopter Textron, a division of Textron Canada Limited ((BHTC) has been in operation since 1986. In the fall of that year, BHTC began production of the model 206B and by year end had delivered its first aircraft.

In 1987, the 206LIII was introduced followed by the 212 in 1988 and the 412 in 1989. In just over 4 years, BHTC has gone from producing one model to four and has delivered over 450 aircraft.

The fifth and latest challenge for BHTC is the Model 230 with its first flight scheduled for summer 91 and certification for the first quarter of 1992. Bell will make the first deliveries in August 1992.

This is a significant step in the maturing of BHTC as it makes its transition to a fully integrated manufacturing facility capable of taking an aircraft model from conception through design into flight test and on to delivery. The 230 will be Bell's first commercial helicopter certified by the Transport Canada Airworthiness Group.

Beginning with a staff of approximately 130 employees in its first year of operation, BHTC has grown to over 1150 at the end of 1990.

This energetic, efficient and well trained workforce is housed in an ultra modern 40,500 square meter facility (2) located on 152 acres of land, 20 miles north of Montreal, adjacent to the Montreal International Airport at Mirabel.

BHTC's management philosophy is based on a non-traditional approach towards employee relations. Key concepts and principles are in place to foster this approach and they include: Teamwork, multiskilling, more involvement in decision-making, effective communication and a genuine dedication to the process of continuous improvement. The end result is that employees are more productive, better adapted, more involved and aware of the product and customer needs.

Bell Helicopter Textron has transferred it's commercial division to the BHTC facility with one specific goal in mind and that is to produce while continuing to improve upon what is known as the most complete and reliable line of helicopters available anywhere in the world today.

The products

Backed by the world's foremost aftersales support organization, BHTC is committed to supplying the market place with the finest quality and safest aircraft in the industry:

1. Bell 206 BIII -
The Jet Ranger, the world's most popular helicopter, is capable of flying 5 passengers at a cruising speed of 132 mph. The 206B III is powered by an Allison 250C-20 engine.

3. Bell 206L III -
The 7 - place Long Ranger is a larger version of the popular Jet Ranger. Capable of speeds of 140 mph, the 206 L, III is powered by the Allison 250-C30P engine.

4. Bell 230
The new model 230 is an exceptional twin helicopter. Available in both wheel and skid gear versions it can seat 2 crew plus 6 in corporate comfort or 8 in utility configuration. The utility version can accommodate one pilot and either 9 passengers or cargo in its 135 cu. ft. cabin that can be quickly configured by storing the folding passenger seats in the baggage compartment. The 230 has a cruising speed of 160 mph powered by 2 Allison C30 G2 engines.

5. Bell 212
The 212 is a medium twin helicopter that can seat 2 crew plus 13 passengers or handle 220 cu. ft. of cargo in it's spacious cabin. The 212 is powered by Pratt & Whitney PT6T-3B "twin-pac" turbines.

6. Bell 412
The 412 Twin is a 15 place helicopter incorporating a four-bladed rotor system, while using the same fuselage as the 212 the combination of proven fuselage and new technology dynamics is providing an outstanding aircraft. The 412 is also powered by the Pratt & Whitney PT6-T-3B "Twin Pac" engines.


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230

Boeing Canada Technology Ltd. Arnprior Division

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R.L. McDonald

Boeing Canada Technology Ltd., Arnprior Division, is a subsidiary of the Boeing Commerical Airplane Group. Over 75 per cent of its business is committed to the needs of that group. Nevertheless, significant resources of the Arnprior Division are involved in the repair, overhaul and modification of tandem rotor helicopters and their components. These helicopters were originally produced by Boeing Helicopters and are operated by the Canadian Armed Forces. Logistic support, technical investigations and engineering services are also provided.

From 1980 through early 1986, Arnprior conducted a major modification and modernization program for the Canadian Forces Search and Rescue CH 113/113A Labrador helicopter fleet. Currently, depot level inspections and repair (DLIR) are carried out on these aircraft as well as on the larger model Canadian Forces CH147 Chinook. Other business initiatives such as Dash 7, Dash 8 publications support, vibration and stress analysis continue to hone the Division's capabilities in the Canadian market place.

The Arnprior Division has the manufacturing mandate for selected machine shop and sheet metal shop detail parts and assemblies required in support of the Boeing Commercial Airplane Group's various jetliner programs. It is the sole supplier of the electrical/electronic trays and shelves for the 747-400, 757 and 767 aircraft as well as a supplier of key components for the 767 engine strut and 747 wing-to-body fairing.

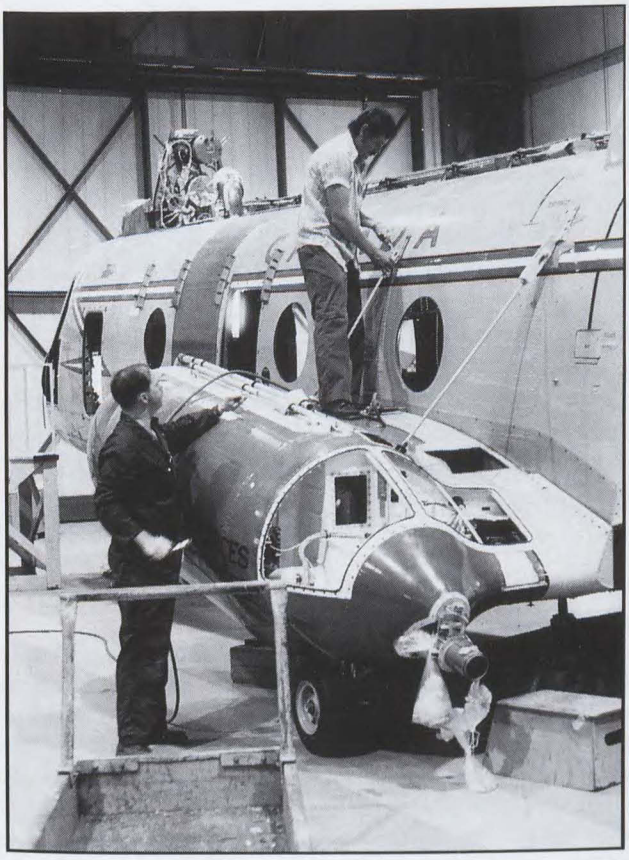
In order to support an ever increasing workload the Arnprior Division has added over 100,000 square feet of manufacturing space over the past 12 years. Most recently a floor was added to accommodate an expanded Material and Operations Support group. The manufacturing facility includes up to date CNC machining centres, heat treatment, non destructive test equipment and a large paint shop. There are extensive CAD facilities and the Division utilizes an MRP II Business System based on Cincom software. This is run on a DEC VAX platform.

Quality control programs conform to FAA MIL-Q-9858, DND AQAP-1, and Boeing standards including D1-8000A (requirements for subcontractors).

Boeing's Arnprior Division pursues a policy of delivering work that meets or exceeds the customer's requirements. In addition, the Division is continuously improving to minimize costs, while meeting schedules in order to remain competitive in metal fabrication, repair and overhaul.

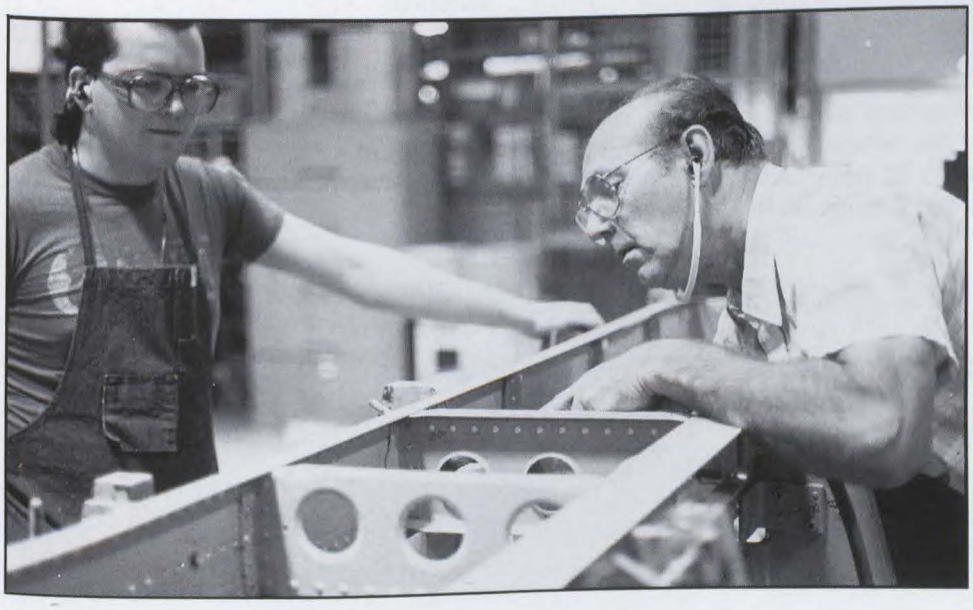
Products and Services

- Sheet metal fabrication machining and assembly of components for Model 737, 747, 757, 767 commercial airplanes and CH 113/113A and 147 helicopters
- Repair and overhaul of CH 113/113A and 147 helicopter airframes and components
- Engineering, publications, vibration and stress analysis, logistics support, and field service for tandem rotor helicopters
- Publications support and stress analysis on Boeing de Havilland Buffalo and Twin Otter aircraft and technical publications support on Dash 7 and Dash 8 aircraft
- CNC machining centres including a five axis turning centre
- Heat treat ovens
- Helicopter paint spray booth
- Process line includes facilities for alodize, anodize and cadmium plate
- The fully equipped inspection department includes a coordinate measuring machine
- Non destructive testing equipment including LPI, MPI and eddy current inspections



Boeing Arnprior has full capability to carry out DLIR inspections and repair on Boeing twin rotor helicopters

This capability enables skilled repairs to be made on aircraft components such as this helicopter fuel tank



The Arnprior Division also produces complex precision sheet metal assemblies such as this vapour barrier component for a Boeing 747

Boeing Canada, deHavilland Division

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TARY:
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Boeing Canada, de Havilland Division, through its Dash 8 family of aircraft, is committed to setting the standards worldwide for regional air transport in the 1990s. Through on-going product development and improvement programs, de Havilland continues to enhance the ability of customer airlines to offer the most modern, comfortable and reliable services to their passengers.

The recent introduction of the new "1990s" Dash 8 interior coincides with new model designations — the 37/39-passenger Series 100A and 50/56-passenger Series 300A — and brings a new level of service to the regional passenger. Headroom is increased by 2.5 inches to six feet, 4.5 inches; overhead bins have been redesigned to offer 70 per cent more stowage capacity and new, softer lighting illuminates both sidewalls and ceiling.

The Series 300A also marks the introduction of high-gross-weight capability for the aircraft, expanding its payload/range envelope and providing airlines with greater flexibility. With the Series 300A, customers can increase the maximum take-off weight to 43,000 lb. (from the standard 41,100) providing greater flexibility in galley arrangements, or to carry more fuel if routes dictate.

Last summer, the Dash 8 family surpassed a million hours in service, recording more than 1.5 million flight cycles in the process.

First among the new-generation regional airliners, the Dash 8 combines the heritage of the de Havilland aircraft that preceeded it — ruggedness, outstanding performance and functional design — and the technologies required to meet the demands of the travelling public through the 1990s.

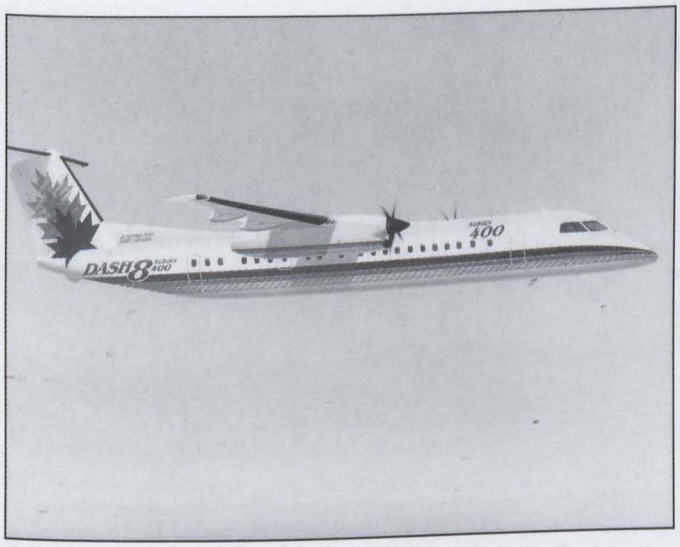
The Dash 8 program involves, in addition to de Havilland, about 225 aerospace suppliers across the country. Through design/build teams, and such programs as sharing of manufacturing technology, composite materials manufacturing techniques, raw materials management, engineering design work and continuous quality improvement and planning, the efficiency and technology base of de Havilland suppliers has been substantially enhanced.

Dash 8 Series 100

Passenger Seats	37/40
Pressurization (p.s.i.)	5.5
Maximum Cruise Speed ISA	271 KTAS @ 15,000'
Powerplant	2 x PW120A or PW121 turboprop
Range (ISA, S.L., IFR Reserves)	980 NM 37 passengers @ 190 lb
Takeoff field length (ft.)	2950
Landing field length (ft.)	2980

Dash 8 Series 300

Passenger Seats	50/56
Pressurization (p.s.i.)	5.5
Maximum Cruise Speed ISA	286 KTAS @ 15,000'
Powerplant	2 x PW123 turboprop
Range (ISA, S.L., IFR Reserves)	1325 NM 50 passengers @ 190 lb
Takeoff field length (ft.)	3675
Landing field length (ft.)	3660



Dash 8 Series 400

Passenger Seats	66/70
Pressurization (p.s.i.)	T.B.D.
Maximum Cruise Speed ISA	350 KTAS @ 20,000'
Powerplant	2 GLC38 or Allison GMA2000 turboprop
Range (ISA, S.L., IFR Reserves)	1140 NM 68 passengers @ 190 lb
Takeoff field length (ft.)	4200
Landing field length (ft.)	4200

Boeing Canada Technology Ltd. Winnipeg Division

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BUSINESS DEVELOPMENT MANAGER:
R.D. Palmer

Boeing Canada Technology Ltd., Winnipeg Division was established in 1971 in facilities adjacent to the Winnipeg International Airport. The facilities currently comprise over 500,000 sq. ft. of manufacturing and office space dedicated to the fabrication of advanced composite material components and assemblies for aerospace applications.

Principal manufacturing equipment includes three production and one development autoclave, each rated for up to 200 psi and 600 degree F; two 4-axis CNC filament winding machines: CNC preimpregnated cloth cutting and cured composite material trimming machines: and a fully automated, multi-channel, through transmission ultrasonic inspection systems.

Products & Services

Advanced composite aerospace components designed and fabricated in the Winnipeg Division comprise glass, kevlar and graphite fibres in a variety of resin systems combined with honeycomb core. Production processes meet the quality assurance requirements of AQAP-1, MIL-Q-9858A, FAA, MOT and BOEING COMMERCIAL AIRPLANE GROUP.

Boeing Canada, Winnipeg Division, designs, manufactures and supplies aerial and surface target systems for Canadian and foreign military requirements. The target family consists of rocket boosted, towed, propeller driven, helicopter vehicles, as well as mobile land and sea surface targets, which provide cost-effective defence training and weapon systems evaluation. In addition, a complete line of services such as operation, training and logistics support is available to assist the user in satisfying operational requirements.

The Company maintains an aggressive R & D program to ensure the target family is compatible with the latest state-of-the-art weapon systems and changing training scenarios.

Personnel (01/10/90) 1119
Manufacturing 393
Management/Technical/Admin. 1512

INDEX:

A. MILKCAN: AERIAL-TOWED •ADOPTED BY THE CANADIAN FORCES, THIS LIGHTWEIGHT, LOW DRAG TOWED TARGET IS DESIGNED FOR ECONOMICAL REPEATED USE.

B. HIND-D: ATTACK HELICOPTER •DEVELOPED TO SIMULATE ATTACK HELICOPTERS, THIS 1/5 SCALE DRONE EMPLOYS A VARIETY OF SIMULATION ENHANCEMENTS.

C. VINDICATOR II: REALISTIC THREAT SIMULATOR •ADOPTED BY THE CANADIAN FORCES FOR AIR DEFENCE TRAINING. THIS TARGET OPERATING AT 200 MPH AND WITH A VARIETY OF SIGNATURE AUGMENTATION DEVICES, SIMULATES MANY ATTACK SCENARIOS.

D. ROBOT-X: ROCKET BOOSTED •THIS ROCKET BOOSTED REUSEABLE TARGET SIMULATES MODERN ATTACK AIRCRAFT OR SEA SKIMMING MISSILES AND IS AN AFFORDABLE OPTION TO THE REAL THREAT.

E. BARRACUDA: SEA SURFACE •IN SEA-STATE 3 AND AT SPEEDS OF 35 KNOTS, THIS REMOTELY CONTROLLED TARGET SIMULATES ATTACK MANEUVERS OF HOSTILE SURFACE THREATS.


BOEING

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Just completing its 60th anniversary, Bristol Aerospace Limited is Western Canada's largest aerospace company employing more than 1900 people.

Located in Winnipeg, Canada, Bristol owns and operates its main facility and aircraft hangars comprising over 620,000 sq. ft. of floor space with direct taxiway access to the Winnipeg International Airport. Bristol's propellant plant is situated on 5,000 acres of property 30 km. north of the main plant.

Skilled technicians supported by a dedicated engineering staff and a quality assurance group form a team that produces a sophisticated range of products.

Bristol's 60 year history has revolved around the repair and overhaul of various military aircraft. In January 1987 Bristol was appointed the principle industrial support center for the Canadian CF-5 aircraft. As such, Bristol is responsible for upgrading and extending the life of the CF-5 into the 21st Century and has become a world leader in F-5 Modernization.

The CRV7 rocket weapon system developed by Bristol Aerospace in conjunction with the Canadian Department of National Defence is the chosen 2.75 inch rocket weapon system of a number of Air Forces around the world. The system is cost effective and boasts greater velocity, better accuracy and longer range with greater impact energy than any other 2.75 inch rocket weapon system.

Responding to the need to reduce helicopter accident and fatality rates, Bristol developed the Wire Strike Protection System (WSPS). The WSPS is designed to provide a measure of protection against frontal strikes from horizontally strung mechanical, power and communications wires and cables.

Bristol's solid propellant, single or multi-stage rockets provide the lowest cost access to space. Providing up to 18 minutes of useful time for micro-gravity experiments, auroral studies, deep space observation or other extraterrestrial research; Black Brants can carry payloads to altitudes in excess of 1500 kilometers. Black Brants have a demonstrated reliability above 98% in over 600 launches.

Bristol is Canada's leader in missile systems, participating in international cooperative missile programs such as NATO Anti-Air Warfare System (NAAWS) and the U.S.N. Advanced Rocket System (ARS). Bristol has capabilities in design, development and integration and test of missile propulsion systems. It also has engineering capabilities for six D.O.F. simulations, aerodynamics, guidance, control, lethality studies and diagnostic telemetry.

The Company's continued involvement in engine and airframe component manufacture is linked with it's adoption of advanced welding and forming techniques and its experience with exotic new alloys and composite materials. Exceptionally comprehensive in-house capabilities enable Bristol to undertake some of the most challenging work on major modern aeroengine and aerostructure programs.

All manufacturing is carried out to meet the stringent quality requirements of MOT and FAA commercially, and the Department of National Defence. Bristol operates under a single Quality Control System that conforms to the NATO standard AQAP-1.

BLACK BRANT

CRV7

COMPONENT MANUFACTURE

WSPS

REPAIR & OVERHAUL

bristol aerospace limited

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The company is the world leader in commercial and military simulation and training. It is also one of Canada's premier high-technology companies, with two of its six Canadian operating divisions engaged in the aerospace industry, serving customers throughout Canada and around the world.
CAE Electronics Ltd. designs and manufactures civil and military flight simulators. The company holds more than half of the world's commercial jet aircraft flight simulator market.

Commercial jet aircraft types to date include Boeing 727, 737, 747, 757, 767 and Boeing de Havilland Dash 8; McDonnell Douglas DC-8, DC-9, DC-10, MD-11, MD-80, MD-81, MD-82, MD-87 and MD-88; Lockheed L-1011 TriStar; Aeritalia Aerospatiale ATR 42; Saab 340; Fokker F28, Fokker 50 and Fokker 100; Airbus Industrie A300, A310, A320 and A340; the Canadair Challenger and Cessna Citation 500.

Military aircraft flight simulators include the Lockheed C-130 Hercules, CP-140 Aurora and C-5B Galaxy; Panavia Tornado; McDonnell Douglas CF-18 and A-4S; Northrop F-5E; Dassault-Breguet/Dornier Alpha Jet; P-3C Orion and the Boeing E-3A (NATO AWACS).

Helicopter simulators include the Boeing Vertol CH-47C; Bell UH-1; Sikorsky CH-53; Westland Sea King and Sea Lynx; Agusta Bell 205 and the Agusta Bell 212.

Airborne magnetic anomaly detection (MAD) and magnetic compensation equipment are manufactured for the defence forces of Canada, the United States, Great Britain, Australia, Japan and the Netherlands.

The company is currently producing the ADATS training systems for Canada's Low Level Air Defence (LLAD) and is involved in software engineering support for the Canadian Armed Forces CF-18 aircraft.

CAE has developed and manufactured Canada's JETS (Joint Enroute/Terminal System) air traffic control system installed at seven major airports.

The company designed and manufactured the hand controllers and display panel used to manipulate the CANADARM aboard NASA'S space shuttles.

CAE Electronics employs approximately 3,600 persons, over 50 percent of whom are engineers, scientists, or technicians.

CAE's plant is a fully integrated design, manufacturing and test facility occupying 52,000 m2 (560,000 feet2) of floor area.

Northwest Industries Limited

Northwest Industries Limited (NWI) is one of Canada's largest and most experienced maintenance, repair, overhaul and modification centres for military and commercial aircraft. Included in current operations are the Canadian Armed Forces fleets of T-33, CT-114 (Tutor) and C-130 aircraft in addition to C-130 transports from both commercial and military offshore customers. The company's large and modern hangars at the Edmonton International Airport provide a total working space of 23,715 m2 (250,000 feet2).

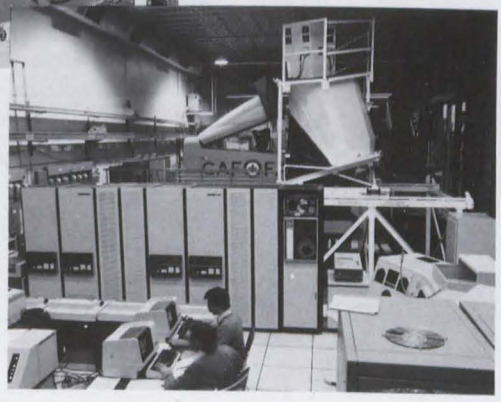
NWI provides a comprehensive aircraft maintenance service ranging from minor inspection to major overhaul, including non-destructive testing, airframe and electrical systems life extension and corrosion control, airframe components manufacture and special cables manufacture, electrical wire harness fabrications, instrument repair, design and installation, and the production of both unilingual and bilingual technical publication, including translation into the French language.

NWI was the first Canadian company to carry out structural work on the CF-18's and it is a sub-contractor to Canadair on the documentation support program for the CF-18.

The company's operations are approved by the Canadian Department of National Defence to NATO AQAP-1 level, and a similar level of approval is held with Transport Canada.
Approval is also held for the supply of NWI manufactured components to the U.S. Department of Defense and other foreign government agencies.

MONTREAL – Three Boeing 747-400 flight simulators on test at CAE Electronics Ltd., for Lufthansa, KLM and Singapore Airlines.

EDMONTON – C-130 Hercules and T-33 on the ramp at the Northwest Industries Limited #1 hangar at Edmonton International Airport. Inside, a CT-114 Snowbird undergoes maintenance checks.



MONTREAL – One of three CF-18 flight, tactics and mission simulators manufactured by CAE Electronics Ltd.

CAL Corporation

Dynamic *Creative* *Successful*

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CAL is a multi-national company with subsidiaries in Europe, the United States and Australasia.

CAL Corporation is a leading-edge company known worldwide for quality products and creative technology. Confident about the future of the industry, CAL has committed the time and resources to develop a technology base competitive in world markets.

Since entering the aerospace industry in 1974, CAL has continued to attract a highly professional workforce of engineering and scientific talent, who are equipped and trained in a wide variety of disciplines.

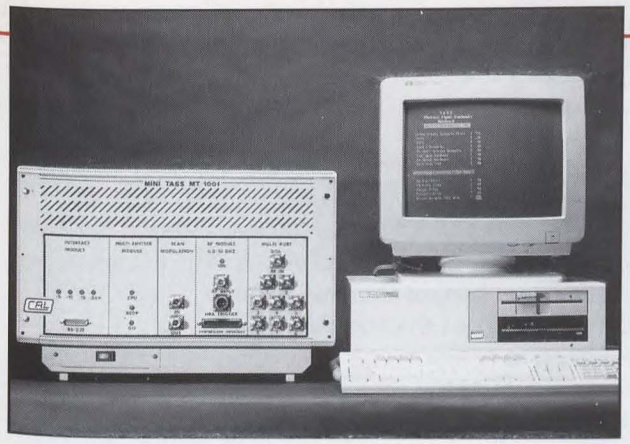
CAL has four business areas: Space Systems, Radar and Communications Systems, Advanced Systems, and Defence Electronics. These four areas result in a tremendous cross-fertilization of ideas and products. The major strength of each group lies in its ability to provide an appropriate blend of skills tailored to unique program requirements, with the ability to respond quickly to new project demands.

CAL's full scope research, development and manufacturing facilities are located in a three-building complex in the core of the Nation's Capital. Manufacturing offers a flexible and cost-effective production capability for a wide range of products, from sub-assemblies to complete systems.

Precision is second to none, and quality assurance programs ensure compliance to the most exacting military and civilian workmanship standards. Reliability, consistency, quality control and efficient test laboratories guarantee that every project undertaken at CAL not only meets, but exceeds customer expectations. Proximity to government and a large customer base gives CAL the added advantage of face-to-face customer relations.

CAL continues to be challenged by opportunities to find real solutions for demanding problems and specialized tasks. Recognized worldwide as a company at the forefront of today's technologies, CAL believes in quality, efficiency, cost-effectiveness and attention to detail. This philosophy has earned them the satisfaction and praise of customers worldwide.

Production facilities, laboratories and cleanrooms for aerospace hardware assembly are equipped to support analog and digital electronics, plus antenna and RF development. The UHF spacecraft antenna (right) is undergoing inspection in one of CAL's cleanrooms.



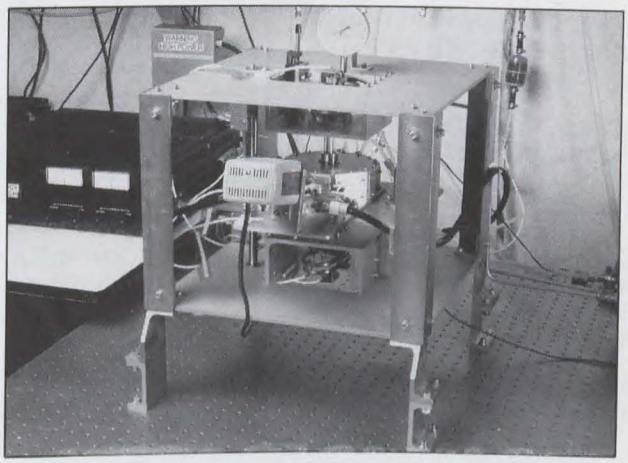
MINI TASS (left) - the newest development in the TASS® family of modular EW simulators.

DEFENCE ELECTRONICS GROUP

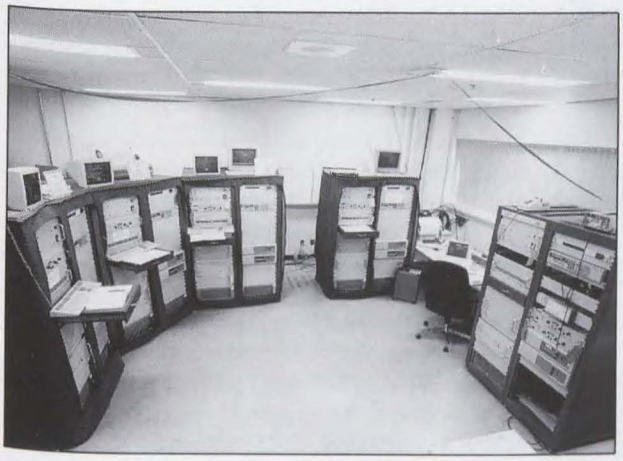
This group is a leader in the demanding and competitive field of Electronic Warfare (EW) simulation, military communications, and other defence related technologies. Substantial expertise in both technical and operational EW disciplines allows CAL to fully understand and address the EW requirements of the modern and dynamic electronic battlefield.

SPACE SYSTEMS GROUP

The largest of the four autonomous profit centres at CAL, this group is engaged in the development of space systems design studies, space science instruments, spacecraft antennas and RF systems, space station power and data management subsystems, spacecraft battery and power management subsystems, and materials processing in space.



CAL's Optical Float-Zone Furnace (right) will be flown on NASA's KC-135 in January 1991 to demonstrate functionality in microgravity.



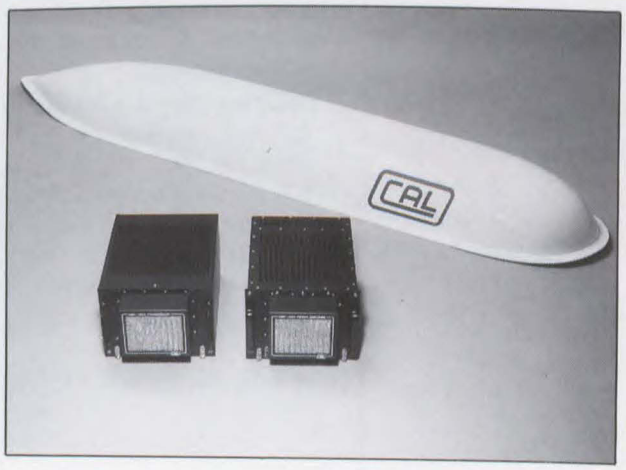
ADVANCED SYSTEMS GROUP

The Advanced Systems Group develops and produces Local User Terminals (LUTs) for satellite systems, computer-based systems for process control, data base management, communications, applied acoustics, systems integration, and electromagnetic compatibility consulting and testing.

The SARSAT lab (left) is shown in full production preparing systems for Japan and Indonesia. This group has developed and installed 90% of the world's SARSAT search and rescue satellite ground stations.

RADAR AND COMMUNICATIONS GROUP

The 1990's will be a decade of dramatic growth for the Radar and Communications Group as they play a leading role in developing equipment for mobile satellite communications. Other innovations include antenna products (ie. cellular base station antennas), and airborne radar.



CAL's aeronautical terminal (right) provides reliable, high-quality global satellite communications to and from an aircraft.

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Dugald Buchanan

PRESIDENT
CALIAN (US):
T. David Young

CALIAN Technology Ltd. provides advanced technology services to the aerospace, communications and defence sectors in Canada and Internationally. Located in Ottawa, Saskatoon, and Washington DC, CALIAN has a total of 145,000 square feet of office, design and manufacturing space, and an employee base in excess of 350 people. The company was founded in 1982 and is 80% employee owned. CALIAN has three divisions as follows:

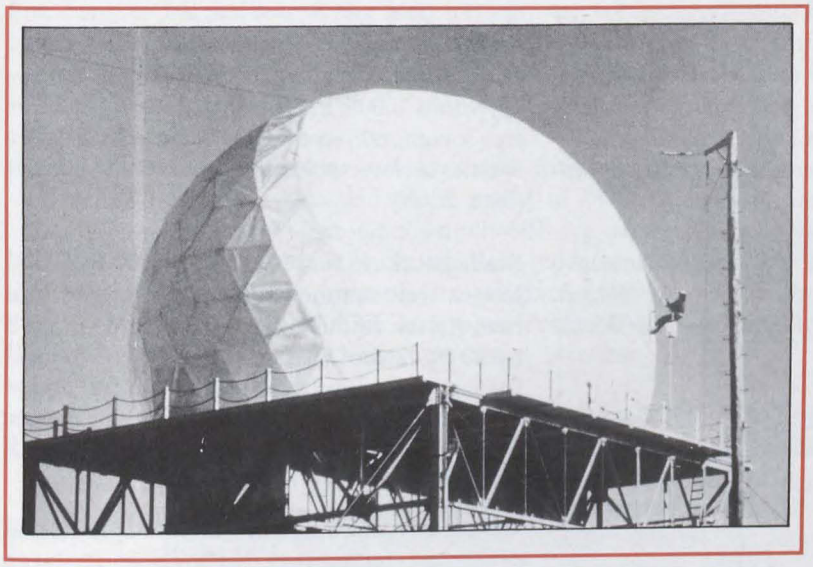
CALIAN Communications Systems Ltd.
CALIAN Communications Systems Ltd. designs, manufactures and maintains highly specialized instrumentation and control systems for satellite and other advanced communications applications. CALIAN Communications Systems ground segment solutions offered include: the Satellite Carrier Monitoring System –to analyse the quality of RF downlinks from satellites; the Mobile Spectrum Monitoring System –for VHF and UHF spectrum surveillance; Telemetry Communications –links for applications such as the Canadian Ice Reconnaissance Program and Fading Channel Simulators which simulate a variety of propagation effects in maritime, aeronautical and ground mobile communications systems using satellites.
CALIAN Communications Systems has an international reputation for excellence and has a fully equipped lab with the latest in RF test equipment for systems integration and evaluation.

SED Systems Inc.
Located in Saskatoon, SED Systems Inc. was acquired by CALIAN Technology in 1990. The company has 25 years of expertise in space, communications, satellite test and control, and defence systems engineering and manufacturing.
SED has played a leading role in many international satellite programs, does extensive work for Inmarsat, and recently won the first international contract to develop Access Control and Signalling Equipment for Inmarsat's new digital Mobile Communications standards, SED is also heavily involved in the Canadian Radarsat and Space Station Programs.
A fully recognized AQAP-1 contractor, SED is supplying the complete External Communications Systems for the Canadian Patrol Frigates, and will receive significant systems engineering and manufacturing contracts for the Tactical Command, Control and Communications Systems Program.

CALIAN Technical Services Division
The Technical Services Divison of CALIAN operates and maintains aerospace facilities on behalf of the Canadian Government. CALIAN is an O&M service partner on projects such as the Department of National Defence sponsored Search and Rescue Satellite. In remote sensing, CALIAN works with specialists in the Canadian Centre for Remote Sensing and supports the operation of the Prince Albert Satellite Station as well as operating the Gatineau Satellite Station. CALIAN also provides technical support to the David Florida Laboratory scientists.
The Aerospace Services Division is located in Washington, D.C. and was incorporated in the United States in 1989 as CALIAN Technology (US) Ltd., a wholly owned subsidiary. CALIAN (US) provides engineering and logistics support to the Canadian and Australian Governments for F-18 operations. Their liaison services cover a variety of engineering activities, from procurement assistance through systems engineering support, and operations and maintenance policy analysis. Both the Washington and Kanata facilities have full security clearance.

CALIAN Quality Services
CALIAN Quality Services supports both the industrial market and government with a broad scope of services including; ISO-9000/AQAP/MIL STD Quality Assurance training and program implementation, Quality Engineering Services, Quality Control Technical Services and Environmental Qualification Services.
CALIAN's ISO-9000/AQAP/MIL STD Implementation Program is offered to customers who are sensitive to the need to meet the high quality standards demanded by International Trade. The program includes an audit of current capabilities, definition of upgrades required to meet National and International standards, training of staff and implematation of required systems.

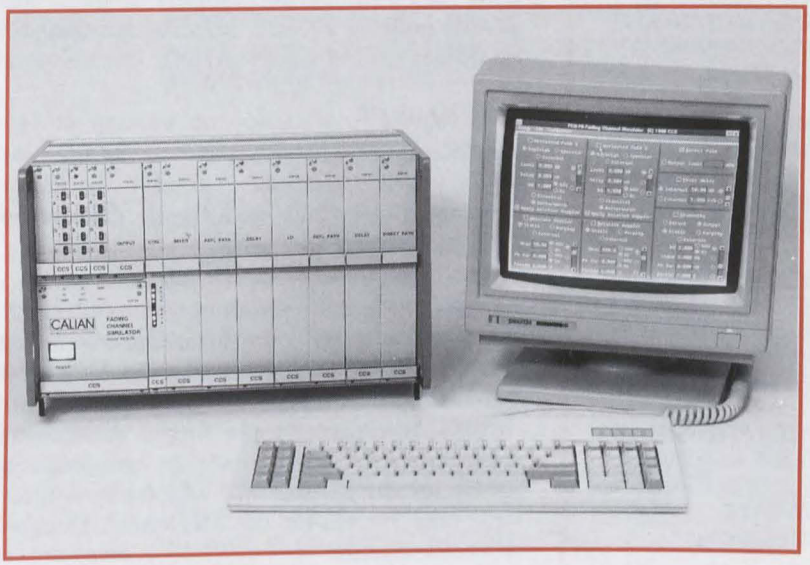
CALIAN

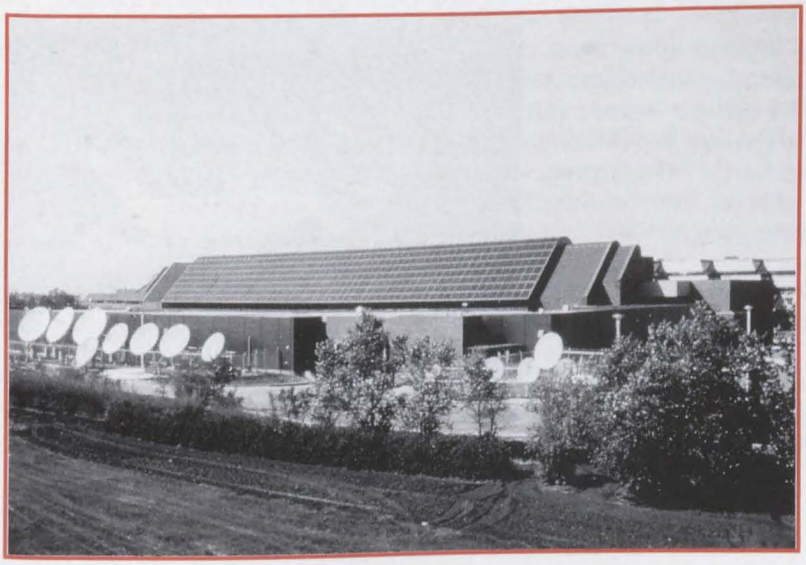


NWS Radome, containing an FPS-117 Radar. Calian Technology was sub-contracted by Frontec to provide quality control services for the entire North Warning System.

Photo courtesy of Communications Canada

The Calian Communications Fading Channel Simulator (FCS-70) simulates multi-path fading, multipath delay, doppler shifts, additive noise, phase noise, and terrain shadowing.





In 1987 SED integrated its operations under one roof in a new 11,600 square metre (125,000 square foot) custom-built facility, located at Innovation Place Research and Development Park near the University of Saskatchewan, in Saskatoon.

Canadair-a Group of Bombardier Inc.

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VICE-PRESIDENT AND GENERAL MANAGER, MILITARY AIRCRAFT DIVISION:
Walter Niemy

VICE-PRESIDENT AND GENERAL MANAGER, MANUFACTURING DIVISION:
Roland Gagnon

The Canadair Group of Bombardier Inc. is the largest diversified manufacturer in the Canadian aerospace industry, having produced more than 4,100 civil and military aircraft, including some 600 supersonic jets, since its start in 1944. Canadair has also manufactured several unmanned surveillance systems and numerous other products.

Bombardier's aerospace activities include two subsidiaries–Short Brothers PLC of Belfast, Northern Ireland, and Learjet Inc. of Wichita, Kansas.

Canadair currently produces the Canadair Challenger 601-3A widebody business jet; the Canadair Regional Jet, a new-generation 50-passenger airliner; the CL-289 unmanned airborne surveillance system; and provides technical and engineering support services for several military aircraft including the Canadian Forces fleet of CF-18 aircraft.

The CL-215T, a turboprop version of the CL-215 amphibian, will be certificated in early 1991; and the CL-227 Sentinel unmanned air vehicle is currently engaged in customer evaluation trials.

Canadair also produces components for other airframe manufacturers including six major fuselage components for Aerospatiale and inboard leading edge wing assemblies for British Aerospace on the Airbus A330/A340 airliner; the aft fuselage section and pressure dome for the Boeing 767; and forward fuselage nose barrels for the McDonnell Douglas F/A-18A Hornet.

Canadair operates seven facilities in the Montreal area, including a new facility dedicated exclusively to supporting military aircraft in Mirabel, Quebec. Total land area is 643 acres (260 hectares) including Cartierville Airport, with a total covered area of three million square feet (278,700 square metres).

Manufacturing facilities include 49 numerically controlled spindles for machining aluminum alloy, steel, titanium and other aerospace metals. The largest machines are two numerical control five-axis milling machines, each having three triple-spindled gantries and a working table surface of 214.8 by 13.5 feet (65.5 x 4.1 m). Designed and built to Canadair specifications, these machines are capable of repeated part accuracy within 0.005 inches (0.127 mm). There is also a computer-controlled three-axis profiler with a surface table measuring 98 x 66 feet (30 x 20 m).

Fuselage skins for Challenger and Regional Jets–as well as other aircraft–are formed in a heat-stretch forming facility consisting of an 8 by 30 by 12-foot (2.4 x 9.2 x 3.6 m) overhead furnace, three mobile quench tanks and a 1,000-ton capacity longitudinal stretch former capable of handling aluminum sheets 40 by 8 feet (12.2 x 2.4 m).

Canadair makes extensive use of sophisticated computer technology throughout its large machining centre in Saint-Laurent–from manufacturing design through fabrication–and CADAM programs are applied directly to numerically controlled machines.

High technology materials and aerospace techniques are continually upgraded thanks to Canadair's strong commitment to ongoing research and development.

As of Nov. 1, 1990, Canadair employed more than 7,200 people.

Canadair Challenger Inc., a subsidiary responsible for marketing, commercial sales and service of Challenger aircraft in North America, is located in Windsor, Connecticut. Another subsidiary, Challenger Aviation Service GmbH near Munich, West Germany, supports Challenger operations in Europe.

CHALLENGER 601-3A JET

The widebody intercontinental Challenger 601-3A–one of the largest and most modern business jet aircraft available today–is designed for the business and utility markets of the 1990s.

The Challenger jet's advanced airfoil design permits a standard cruise speed of Mach .8 and the latest Challenger 601-3A offers sophisticated, fully digital flight guidance and management systems. Its standard range is 3,430 nautical miles and, when outfitted with an optional fuel tank, its range increases to 3,650 nautical miles.

Its twin General Electric CF34-3A turbofan engines–flat-rated to maintain their 8,650-pound-thrust up to 73 degrees F–provide the Challenger 601-3A with outstanding hot-day, high-elevation takeoff performance. For extra safety, an automatic power reserve permits the engines to generate 9,140 pounds of thrust.

The aircraft's exterior engine noise levels meet the strictest noise regulations, permitting unrestricted operation at noise-sensitive airports.

Challenger structures and systems are designed to the highest airworthiness standards now applied to the most recent airliners and–eight feet, two inches wide and 28 feet, three inches long–the Challenger's cabin provides ample room to stretch and comfortably move about.

Although designed as a corporate transport with a maximum of 19 seats, the Challenger jet is proving its flexibility as air ambulances for the Province of Quebec and the Swiss Rescue Guard, in navigation facilities inspection for the Canadian Ministry of Transport, and as an electronic countermeasures platform for the Canadian Forces. It also serves in maritime surveillance, search and rescue, mapping and reconnaissance missions.

As of Nov. 1, 1990, a total of 228 Challenger jets had been delivered to customers in North America, Europe, the Middle and Far East, Africa and Australia. In addition to the 194 purchased by corporations, a total of 34 have been delivered to various governments in Canada (20), the People's Republic of China (5), Germany (7) and Malaysia (2).

CANADAIR REGIONAL JET

Officially launched March 31, 1989, the Canadair Regional Jet (RJ) is the first 50-passenger jet-powered aircraft specifically designed for the regional transport market.

A derivative of the Challenger 601-3A jet with a 20-foot (6.1 metre) fuselage stretch and other modifications to optimize its commercial transport mission and the high utilization and high dispatch reliability required by regional scheduled airlines, both the standard RJ Series 100 and the extended range RJ Series 100ER will be certificated at the same time.

First flight is expected to take place in spring 1991, with Canadian DOT and U.S. FAA certification in the second quarter of 1992.

The 50-passenger RJ Series 100 will feature a maximum gross take-off weight of 47,450 pounds (21,523 kgs.) and a range of 970 statute miles (1,564 kms). It will be delivered to customers with a standard airline interior including single galley, Collins Pro Line 4 all digital avionics suite and a Garrett auxiliary power unit.

The RJ Series 100ER, at 51,000 pounds (23,133 kgs) is a higher gross weight version of the standard RJ. Equipped with an additional fuel tank in the wing centre section, it will have a range of 1,630 statute miles (2,620

km) when equipped with a standard galley. The increase in gross weight allows airlines to carry additional fuel to achieve the longer range.

Bombardier's two principal aerospace subsidiaries are participating in the Canadair Regional Jet program. Shorts Brothers PLC in Belfast, Northern Ireland, is designing and manufacturing the 32-foot (9.75 metre) centre fuselage and the RJ flight test and certification program is being conducted at Learjet Inc.'s new flight test centre in Wichita, Kansas.

CL-215 AMPHIBIAN

Canadair's CL-215 amphibian has the distinction of being the world's only aircraft specifically designed for fighting fires. Whether battling forest and brush fires in the wilderness or extinguishing industrial blazes in populated areas, the versatility and efficiency of the CL-215 are unequalled after more than 20 years of demanding service.

A total of 125 piston-powered CL-215s have been produced for service with government agencies in Canada, France, Greece, Italy, Spain, Thailand, Venezuela and Yugoslavia.

Now the new generation CL-215T, a turboprop variant of the CL-215, is preparing to enter service after receiving Transport Canada Type Approval in early 1991.

The CL-215T features Pratt & Whitney Canada PW123AF turboprop engines, powered controls, updated flight instrumentation systems and cockpit air conditioning to provide operators with more power, improved reliability and enhanced productivity.

The CL-215T's amphibious qualities and its ability to scoop 1,600 gallons of water from any lake, river or ocean in just 12 seconds–thereby avoiding airfields and other ground stations–allow operators to maximize their flying time and fight fires uninterrupted for many hours. However, if necessary, the CL-215T can be filled to capacity by ground stations in less than three minutes.

Pilots can enhance the CL-215T's effectiveness by mixing biodegradable foaming agents with their payload while en route to the fire.

Retrofitted CL-215Ts–production CL-215s which incorporate the new turboprop engines as well as several of the modifications featured in production CL-215T aircraft–are now being delivered to customers.

MILITARY AIRCRAFT

Canadair provides systems engineering and technical support at a modern, dedicated facility at Montreal International Airport, Mirabel, for several military aircraft including the entire Canadian Forces fleet of CF-18 jet fighters.

As prime contractor, Canadair is responsible for program management and for airframe and associated systems. This includes configuration management of system hardware and software; technical data management and repository services; modification design and implementation; structural integrity; aircraft inspection, modification and repair; technical investigations and studies; and software development, verification and validation.

CAE Electronics of Montreal and Northwest Industries of Edmonton are principal subcontractors.

As part of its integrated logistic support activities, Canadair also supplies spare parts, component repair and overhaul, manufacturing at the subassembly level, technical publication services, structural testing, engineering support, designing avionic upgrades, and logistic studies and analyses.

CL-227 SENTINEL AND CL-289 DRONE SURVEILLANCE SYSTEMS

A world leader with more than 30 years experience with unmanned airborne surveillance systems, Canadair is well-positioned to play a pivotal role in addressing the changing needs of customers.

The CL-227 Sentinel system is designed for land-based and maritime military and paramilitary forces to either obtain valuable intelligence data or to effectively fulfill other roles.

Composed of a small vertical takeoff and landing (VTOL) unmanned air vehicle (UAV), a control station and other support equipment, the CL-227 provides rapid and simple deployment without bulky launchers.

Its ability to carry a variety of advanced sensors enables the Sentinel to perform roles ranging from surveillance and target acquisition to electronic warfare missions.

The land-based version of the CL-227 Sentinel has been under evaluation by the U.S. Army and the Canadian Forces since mid-1989; while the maritime version, the Sea Sentinel, is undergoing operational evaluation by the U.S. Navy.

The CL-289 unmanned reconnaissance system featuring a high-speed preprogrammed air vehicle carrying both a three-lens photographic camera and an infrared linescan sensor to transmit real-time data to a ground station–recently entered operational service with the German and French armies.

The CL-289, designated as the AN/USD-502 by the North Atlantic Treaty Organization, is produced by an international consortium led by Canadair as systems manager and supported by principal subcontractor Dornier GmbH of Germany. SAT of France provides the optronics subsystem including the infrared sensor which allows day/night operation.

Composed of non-radar reflecting composite materials, the CL-289 drone system features a quasi-terrain following capability allowing it to automatically respond to terrain changes should they threaten the vehicle.

An earlier drone system, the CL-89, has been in service with Britain, France, Italy and Germany since 1972–the only mature and successful unmanned reconnaissance system ever employed by NATO. While Canadair has discontinued CL-89 production, NATO countries will continue to use the system until the mid-1990s.

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SYSTEMS:
Gerald R. Smith

Canadian Marconi Company (CMC) is Canada's foremost defence electronics company, with extensive expertise in avionics, specialized components, tactical communications, data communications and radar. Since incorporation in 1903, CMC has become internationally known for excellence and innovation in the design, manufacture, integration and support of complex high technology products. Sales in 1989-90 were $321.5 million. The General Electric Company, p.l.c. (GEC) of England holds 51 per cent of Canadian Marconi's common stock.

CMC's headquarters and main manufacturing plant are located in Montreal. A second plant in Kanata, Ontario, houses the Avionics Kanata Business Unit, the DataComm Products Division, and the Naval and Ground Systems Division. In 1988, a third facility was opened in Cornwall, Ontario for the manufacture of a line of tactical communications systems.

CMC's two U.S. subsidiaries, CMC Electronics, Inc. and Cincinnati Electronics Corporation, complement CMC's activities in product development, sales and systems support.

Micronav International Inc. was jointly acquired by I.M.P. Group Limited and Canadian Marconi Company in September 1990. Located in Sydney, Nova Scotia, Micronav designs and builds Microwave Landing System (MLS) ground stations.

AVIONICS

The Avionics Division has a staff of more than 600 engaged in the design, manufacture, production and support of a wide range of avionics and related products and services. Areas of expertise include navigation systems, display systems, monitoring and control systems, and systems engineering. The Division has extensive facilities in Montreal and Kanata in Canada, and at CMC Electronics locations in the United States, plus a comprehensive network of dealers and representatives throughout the world. Customers include military, para-military, and commercial organizations in over 40 countries, with installed systems on over 100 aircraft types. This breadth of experience and capability enables the Division to undertake a wide variety of specialized projects and product lines.

Since the late 1950's, the design and production of navigation systems have been a mainstay of the Avionics Division's business. First to implement the FM/CW Doppler technique for navigation, Canadian Marconi now manufactures the sixth generation of these systems, utilizing the latest techniques in electronics and software design. Omega/VLF navigation systems are also a leading product line, sold to airlines, business aircraft operators and military organizations around the world. The Avionics Division's range of navigation systems also includes receivers for the satellite-based Global Positioning System, which can give positional accuracy to within 16 metres, and CMA-2000 Microwave Landing System receivers currently installed in the new Air Force One aircraft and selected for the US Air Force CMLSA program.

Display systems are another important area of expertise in the Avionics Division. Canadian Marconi solid-state, vertical-scale engine instruments have long been famous as a standard for reliability and readability, particularly in the demanding environment of military helicopter installations. Other state-of-the-art techniques, including LCD, TFEL and colour CRT, are being utilized for the displays in both dedicated and multi-purpose systems, such as the CMA-2055 Integrated Instrumentation Display System, the CMA-882 Avionics Management System, and the CRT-based CMA-2014 and CMA-2050 Multi-function Display Systems.

A range of monitoring and control systems completes the airborne products of the Division. These systems include Helicopter Flight Advisory Computers and Structural Usage Monitors, both designed to decrease cockpit workload and enhance the safety of flying.

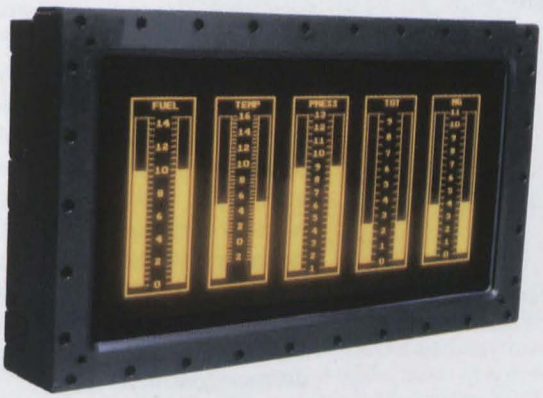
The Avionics Division is fully equipped for the internal manufacturing, test, repair, and overhaul of all its products. It has extensive capabilities for automatic and semi-automatic assembly and test, and is continually upgrading such equipment to remain abreast of cur-

The CMA-2071 Structural Usage Monitor acquires, validates, processes, and stores aircraft engine and structural data and produces time histories, load diagrams, and usage information.

Canadian Marconi's CMA-2122 Single-Module GPS has been specifically designed to be integrated into other systems where size and cost are of prime importance.

The CMA-2014 Multi-Purpose Control/Display Unit features a colour CRT display, full graphics capability, and sunlight readability.

Thin-Film Electroluminescent display technology has been used in the CMA-2048 to produce a self-contained, multi-purpose display that is both NVG compatible and sunlight readable.



The CMA-2000 "Microlander" airborne MLS receiver system has been chosen for the new Air Force One aircraft and for the USAF CMLSA program.

CANADIAN MARCONI COMPANY

rent techniques. Other specialized departments ensure that customer needs for documentation and training are met in the most cost-effective manner. Quality assurance is also a major concern, and the Division is fully qualified to NATO Requirement AQAP-1 (equivalent to MIL-Q-9858A).

The Avionics Division's strength in the marketplace is the result of many advantages, including the fact that it can draw upon the expertise and production capabilities of other departments within Canadian Marconi. One of the most important of these is the Components Group, which designs and manufactures many of the highly specialized components required for use in advanced avionics systems.

COMPONENTS

Canadian Marconi is a world leader in the design and manufacture of specialized electronic components for military and high reliability aerospace, communications and radar applications. Specialized electronic components are supplied to many leading North American and European defence and aerospace manufacturers, forming the basis for many of these companies' sophisticated avionics and tactical communications systems. The Components Group has formed technological partnerships with major international defence contractors.

Areas of expertise include the design and manufacture of:

- •hybrid microcircuits: thin-and thick-film, analog and digital
- •specialized electronic components: power conversion products, magnetics, components and subassemblies
- •Night Vision Goggle (NVG) compatible display products: edge-lit panels, tactile keyboards
- •complex precision machined metal and plastic injection molded parts

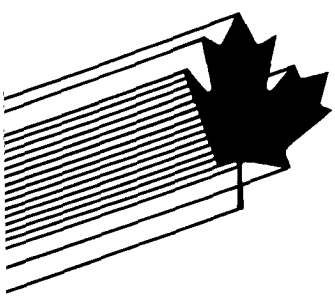
The Components Group relies on advanced technology and highly automated equipment to maintain its prestigious position in the defence electronics market. The Group's MIL-STD-1772 Class 10,000 clean room for hybrid microcircuit production meets stringent military criteria for environmental conditions and manufacturing, and is the only facility certified to military standard 1772 in Canada. The Group also has build-to-print and test capability for electronic subsystems and a wide variety of microwave components, including complete antennas.

NAVAL AND GROUND SYSTEMS

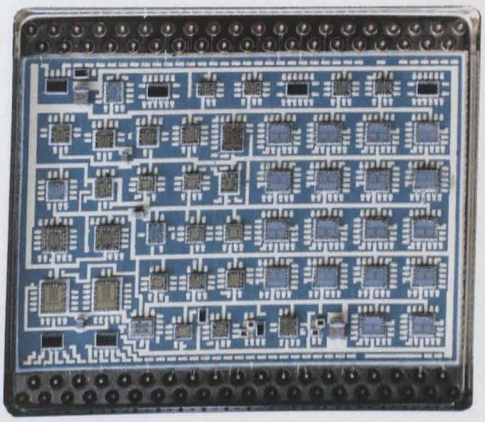
The Naval and Ground Systems Division is the principal Canadian supplier of ILS, VOR, VOT and air surveillance radar systems, while also providing airspace systems engineering services.

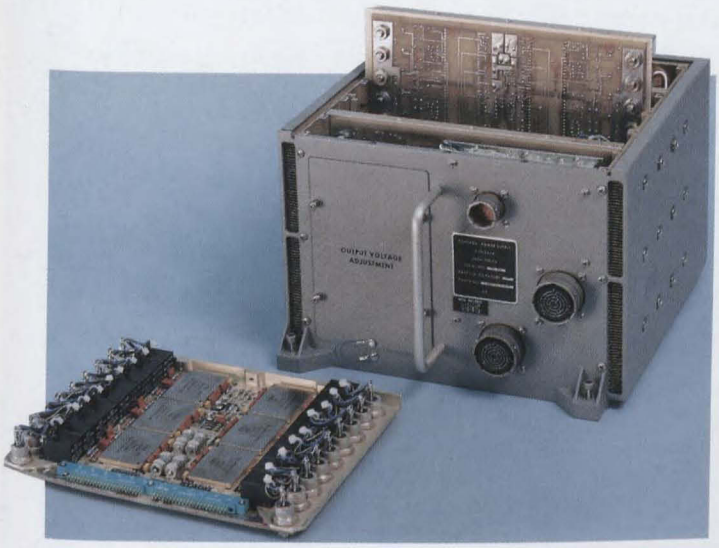
CMC's Instrument Landing Systems are located at most of Canada's civil and military airports and air bases in Europe. The Division also supports and provides navaids repair and overhaul service for equipment installed in Canada and 35 other countries.

The Division is currently under contract to deliver 62 units of a new-generation VOR with RMMS for Transport Canada, as part of the Canadian Airspace Systems Plan, and 112 VOT systems to U.S. airports for the FAA. In addition, more than 120 LN66HP radars are operational on U.S. LAMPS Mark I helicopters.



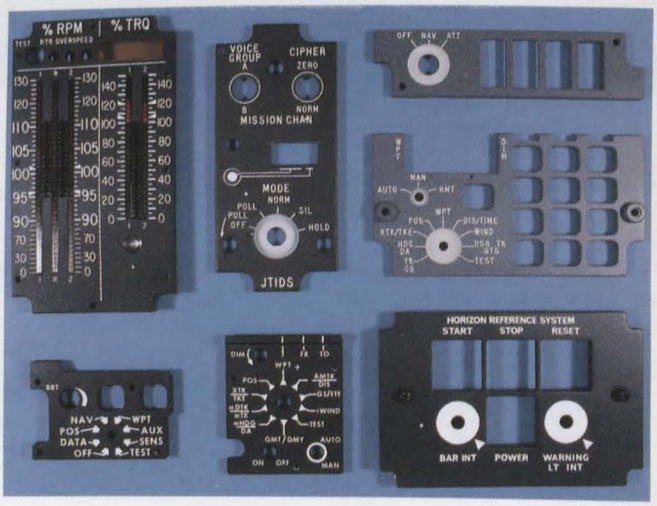
Thin- and thick-film hybrid microcircuits are produced in Canadian Marconi's MIL-STD-1772 Class 10,000 facility. The thick-film hybrid illustrated is typical of CMC's production for major U.S. military programs.





This power supply was developed by CMC for a strategic U.S. military helicopter program. CMC's expertise in the fields of circuit design and analysis, materials and electronic packaging, thermal design and analysis, and magnetics design uniquely qualifies this product group to respond to a complete range of aerospace industry needs.

CMC produces panels and keyboards for military avionics and missile control applications. The panel group is an acknowledged international leader in the development and production of night vision goggle (NVG) compatible products, as well as displays and subsystems for a range of high reliability applications.



CMC
CANADIAN MARCONI COMPANY

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V.P. OPERATIONS:
R.M. (Rene) Gagnon

CASP Aerospace Inc. is a privately-owned Canadian company and for over 20 years has been a leading distributor and repair and overhaul center for aircraft safety and life support equipment.

CASP Aerospace Inc. was formed through the merger of operations of Canadian Aviation Safety Products Inc. and CFH Industries Ltd. Aerospace Division bringing together the distribution activities of CASP and the repair and overhaul activities of CFH. The merger in 1988 gave the company complete sales and service capabilities in the areas of fire extinguishing systems and components, aviators' oxygen breathing equipment, emergency pneumatic inflation equipment, aircraft interior decorative laminates, specialty aircraft tapes and explosive ordnance devices.

The company serves all segments of the aviation industry - national and regional airlines, corporate and charter operators, helicopter operators, completion and overhaul centres, airframe manufacturers and Government and military aircraft operations.

The CASP Aerospace quality assurance system is maintained to NATO AQAP-4 (MIL-I-45208) and DOT Airworthiness standards.

CASP has been selected to maintain specific life-support components from the Canadian CF-18 fleet. Major airlines throughout Canada and the U.S. rely on CASP for the regular servicing of components such as engine fire extinguishers, crew breathing oxygen components and evacuation slide inflation cylinders. CASP was instrumental in developing a portable fire extinguisher designed specifically for the aviation industry. Major contracts have been awarded CASP for the supply of interior decorative laminates for fleet refurbishment programs.

The company has developed its depth and competence through the hiring of professionals and others with military or commercial experience in the field of safety systems. Working out of their 15,000 square foot facility located just west of Montreal's Dorval International Airport, the staff of CASP Aerospace offers the industry a dedicated and quality approach to solving product support problems and have earned a reputation in the industry for prompt responsiveness to customer requirements.

CASP aerospace

Sales • Service • Overhaul

Hermetically Sealed Engine Fire Extinguishers

General Aviation Engine Fire Extinguishers

Vehicle Fire Extinguishers

For more than 20 years, CASP Aerospace has been a leading distributor and repair and overhaul center for aircraft safety systems and components.

Portable Halon Fire Extinguishers

Fireports

Sales and Service:

- Aircraft fire protection
- Aviators breathing oxygen equipment
- Life raft inflation equipment
- Emergency blow-down equipment
- Cylinders, valves and regulators
- Filament wound cylinders
- Explosive actuated devices and cartridges
- Aircraft security systems
- Interior decorative laminates
- Specialty tapes

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Cellpack Aerospace Limited is a Canadian company which was incorporated in November, 1987 for the development, production, and sale of advanced composite components and subassemblies for military and aerospace applications.

As a subsidiary of Cellpack Ltd., Wohlen Switzerland, Cellpack Aerospace was established to implement and develop upon the technologies and skills of the parent company's Advanced Composite Division, within the North American environment.

Construction was completed in 1988 on a new 42,000 square foot facility, located in Lunenburg Nova Scotia near Halifax. This fully flexible facility was designed to meet the rigorous requirements of aerospace manufacturing within a controlled environment.

Cellpack's emphasis on quality, cost competitive products, and strict adherance to schedules is well known throughout the international aerospace industry. Remaining on the leading edge of advanced composite technologies including materials, manufacturing processes, design and applications, is a mandate at Cellpack Aerospace.

Cellpack's capabilities in production of advanced composite components using filament winding and autoclave technologies were developed over many years through concentrated research and development and extensive production.

Cellpack Aerospaces' Quality Assurance program complies with NATO specification AQAP-1 and U.S. military specification MIL-9858A.

Cellpack has been involved in the following programs:

Defence Related

- Dragon Launch Tube
- TOW-2 Launch Tube
- ADATS Canister
- AT-4 Launch Tube
- STINGER Launch Tube
- Leopard Smoke Detractor
- Launch Tube-Shoulder Launch System
- Rocket Motor Cases

Space Related

- MPSS/EBA on FSLP (Modular Payload Support Structure for first SL-Mission)
- SPAS 01 (Shuttle Pallet Satellite)
- USS (Unique Support Structure for SL/D1-Mission)
- ASTROSPAS
- EURECA (European Retrievable Carrier)
- ADRM (Antenna Deployment and Retraction Mechanism)
- Ariane Actuator Struts (2nd Stage Engine)
- ERS 1
- OLYMPUS
- DFS opernikus
- COLUMBUS Polar Platform
- IBSS
- ISO Sunshield Struts
- ISO SVM Struts
- Cryostate Cones
- Several Satellite Structures

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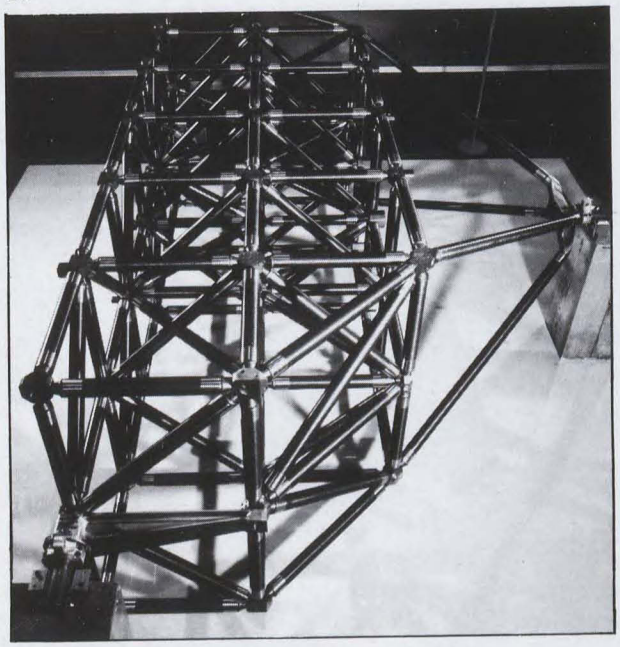

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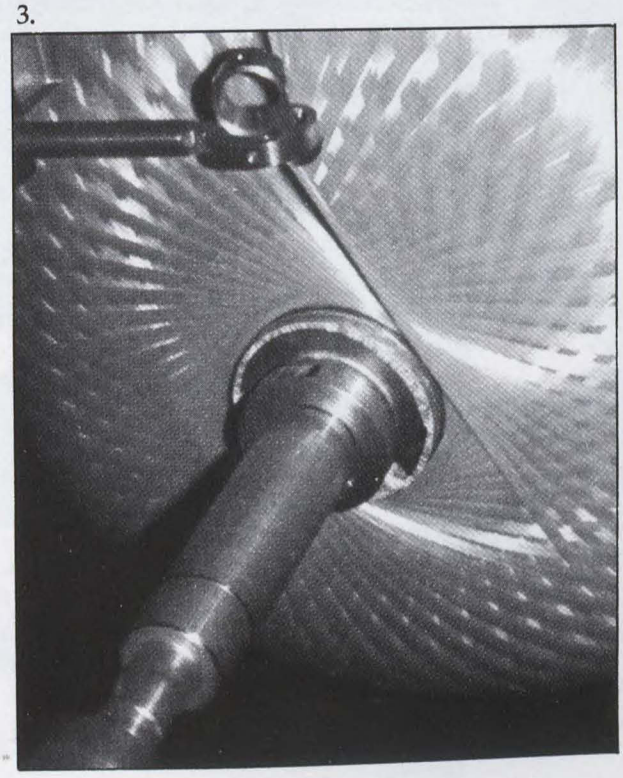


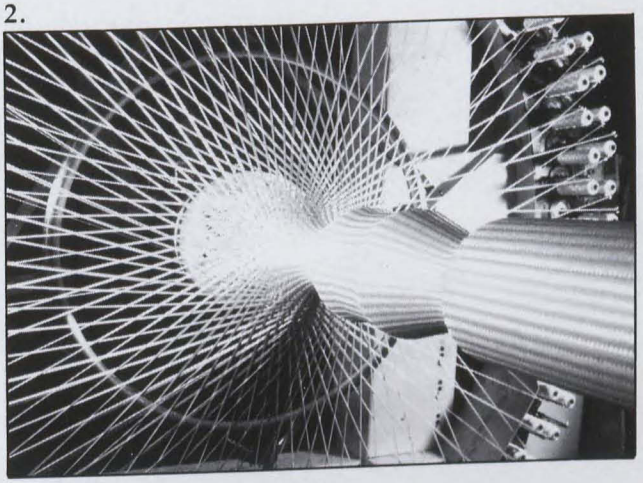
1. Eureka structure with carbon fibre tubes and integrally bonded metal fittings.

2. Braiding of a rocket motor case.

3. Aramid fibre reinforced fuel tank.

4. Cellpack produces the launch canisters for the ADATS System.

2.



4.

LEADERS IN ADVANCED COMPOSITE TECHNOLOGIES

Cercast

a division of Howmet
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ENGINEERING MANAGER:
G. Wintgens

Incorporated in 1959, Cercast is known throughout North America and Europe as one of the leading producers of large aluminum investment castings, utilized mainly in the aerospace field. To service the various geographic areas of Canada, the USA and Europe, Cercast expanded to a total of 7 manufacturing facilities. Although these 7 plants are independent companies they have the same technology, offering greater flexibility and better service to customers.

The CERCAST group of companies was acquired by the HOWMET CORPORATION of Conn. in 1989. HOWMET CORPORATION is a world leader in the manufacture of precision superalloy and titanium investment castings, primarily for jet aircraft and other gas turbine engines.

Castings up to 48" (1.200mm) are made in various Al.Si.Mg. alloys such as A356, A357, AS7G03 & 06, LM25 or L99, and are certified to MIL-A-2ll80 and other European specifications. All inspection is carried out in approved laboratories performing radiography, penetrant inspection and chemistry. Metallurgical laboratories are also available for continuous monitoring of the casting process.

Economical casting designs are the combined efforts of the mechanical designer and the casting producibility engineers.

This company offers a broad spectrum of specialized capabilities in the investment casting fields. Their product, service and capability record includes all of the following features:

. Value engineering.
. Castability of configuration.
. Cold walls and double wall pin fin heat exchanges.
. Size limitations and relationship to wall thickness.
. Design features to improve capability. Wall thickness, ribbing,
gussets, openings, card guides, corner and fillet radii, etc.
. Dimensioning of castings. Centerline dimensioning. Effects of
dimensioning on machining targeting or machining start.
. Contact (tooling) points and datum reference planes.
. Linear and geometrical tolerances. Optimum dimensioning to mini-
mize tolerances on functional features. True positioning.
. Process and manufacturing tolerances.
. Alloy selection.
. Mechanical properties of alloys, classification and selection.
. Proving of physical properties in castings.
. Pressure tightening of castings.
. Drawing notes and specifications.
. Non-destructive testing (NDT), Radiographic quality and inspection
frequency, Penetrant inspection.
. Surface finish and machining allowances.
. Traceability, lot sizes, melt and heat treat lot definitions.
. Inspection plans, fixturing and gauging.
. Casting and tooling costs.
. Tooling modifications, cost relations.
. Lead times for tooling, samples and production.

THE CERCAST GROUP

ALUMINUM INVESTMENT CASTINGS FOR AEROSPACE. THE ECONOMICAL SOLUTION FOR COMPLEX, LIGHTWEIGHT STRUCTURAL COMPONENTS.

The TADS/PNVS (Target Acquisition Designation Sight/Pilot Night Vision Sensor) systems are manufactured by Martin Marietta for the U.S. Army/Hughes Helicopters, Inc. AH-64 APACHE Advanced Attack Helicopter. The AH-64 uses a multitude of aluminum investment castings. The main support casting shown here holds the TADS/PNVS systems and is an excellent example of the flexibility, size, complexity and structural integrity of this investment casting application.

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FAX: (943) 70 18 74

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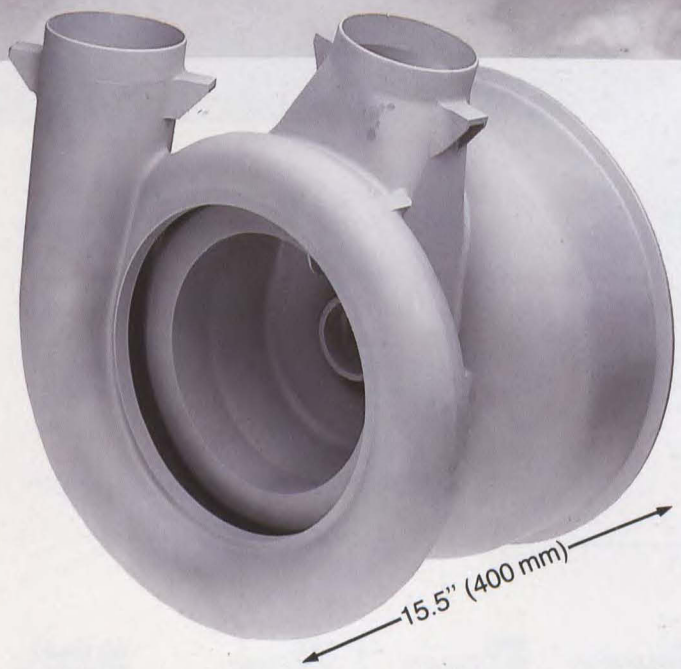
THE CERCAST GROUP

ALUMINUM INVESTMENT CASTINGS FOR AEROSPACE. RELIABILITY IN METAL FORMING.



The airconditioning system of the 757/767 aircrafts are manufactured by Airesearch Manufacturing Company of Los Angeles, CA for the Boeing Company of Seattle, WA. The illustrated casting is the compressor housing for this system. Significant features of this investment casting, manufactured in A356 T6 aluminum alloy, are:

- The relativity thin wall of .09" (2.20 mm).
- The high complexity of the part.
- The use of a mechanical core to form the volute section resulting in better repeatibility of each casting.
- The fact that each casting is pressure tested at 120 PSI prior to shipping, shows the mechanical integrity of this design.
- The significant cost savings over other manufacturing methods.

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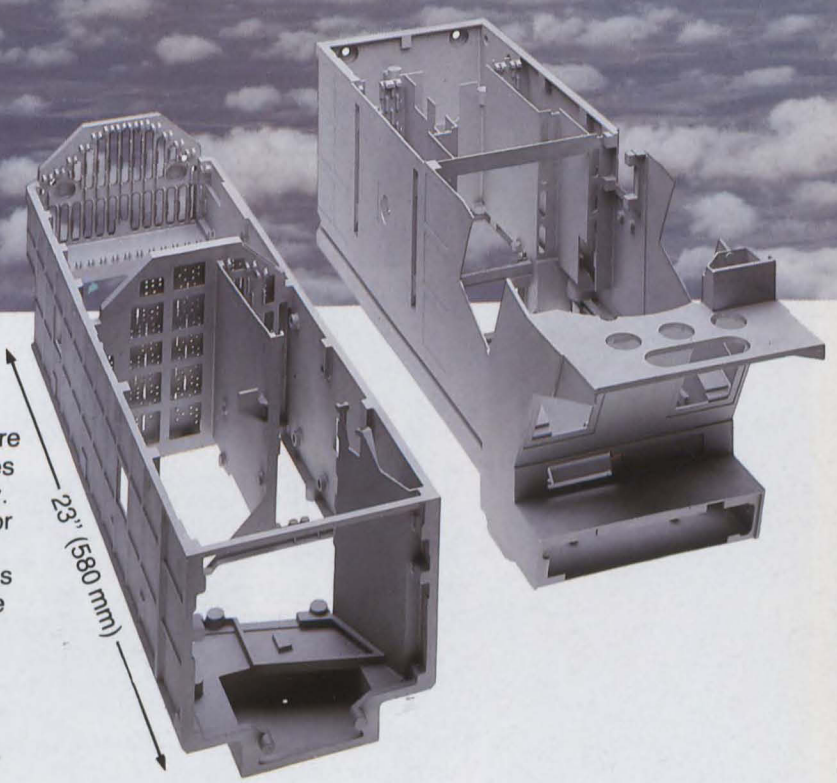
DIVISIONS OF HOWMET CERCAST, s.n.c.

THE CERCAST GROUP

ALUMINUM INVESTMENT CASTINGS FOR AEROSPACE
LIGHTWEIGHT VERSATILITY IN METAL FORMING.



Tight specifications and weight limitations of all components are characteristic of the F18 fighter aircraft. The main HUD housing and MDI chassis are both cast in A356 alloy with typical wall thicknesses of .060" (1.5 mm) and 0.50" (1.2 mm) respectively. Other features such as cast card guides, connector openings and openings for air cooling passages make these two housings other excellent examples of the versatility and design freedom offered by the investment casting process.

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DIVISIONS OF HOWMET CERCAST, s.n.c.

Chicopee Manufacturing Limited

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PRESIDENT &
GENERAL MANAGER:
Betty Sims

MARKETING
MANAGER:
Tim Rueffer

Chicopee Manufacturing Limited services the aerospace and related industries by providing custom precision machining of medium to large complex components and sub-assemblies.

The company's particular expertise is in machining the many various alloys of titanium, high strength steels and aluminum to precise tolerances from forgings, castings or plate stock.

The company is located on Wilson Avenue in Kitchener's Industrial Basin one hour from Toronto and easily accessbile from the MacDonald-Cartier Freeway (Highway 401). The company has been in business for 37 years and its current modern facility consists of over 100,000 square feet employing 200 people. Chicopee's customers include most of the leading manufacturers of commercial and military aircraft in North America, for which it machines a wide variety of components for inclusion in airframes, wings, landing gears, and helicopter rotor systems. Its expertise also includes assembly and testing of hydraulic actuators using Skydrol fluid and the machining of parts for other industries including pump impellers, radar tracking components and sophisticated RAST (Recovery Assist Secure Traverse) parts for shipboard landing in rough seas.

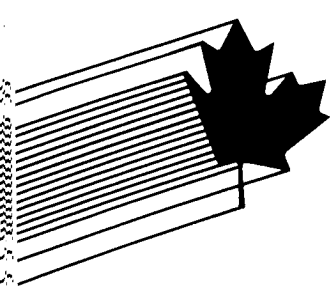
Chicopee's concept of state of the art machining is the blending of the most sophisticated machining and support equipment that is available with the skilled craftsmen who are required to achieve the high standards that the company demands be maintained. Computer Numerical Controlled (CNC) equipment includes two five axis gantry type profile milling machines, three axis profile milling machines, three and four axis vertical machining centres, four axis horizontal machining centres, lathes and boring mills and other supporting conventional equipment. Our machining centres includes one vertical and one horizontal with high RPM spindles particularly effective for machining aluminum components.

The machine shop is supported by a CAD/CAM system which provides our in-house staff with the capability of providing our wide range of CNC machines with timely part programs increasing flexibility, CNC cutter grinding for increased tool accuracy, and CNC Co-Ordinate Measuring equipment to insure the highest standard of quality control. The company complies to Defence and National Bureau of Standards specifications, AQAP-1 (formerly D.N.D. 1015) and MIL-Q-9858A. Quality control procedures call for first-off inspection of every manufacturing operation, as well as 100% final inspection of all critical dimensions. Reverse traceability of all material, parts, and process is guaranteed.

To provide greater in-house control of quality the company has the capability to perform Magnetic Particle Inspection, Fluorescent Penetrant Inspection and Nital Etch Inspection. This facility includes grit blast and stress relief for large sized components and is available to other vendors as well as for our own machined components. Adjacent to NDT is a water wash paint booth giving us the capability to apply fuel resistant and impact resistant coatings.

The company is wholly Canadian and privately owned with years of experience in complying with the customs requirement of shipping across borders to foreign customers. Decisions are made locally and priorities can be rapidly adjusted to meet customer schedules and emergency situations. Chicopee's team of professionals welcomes the challenges of intelligent problem solving and flexible manufacturing methods. The computerized manufacturing and administrative systems provide exact schedule positions, material inventories and machining procedures. The system is completely integrated to encompass manufacturing planning operation, job lot costing, financial records, procedures and reports.

Chicopee welcomes the opportunity of quoting on any need for custom precision machined products.

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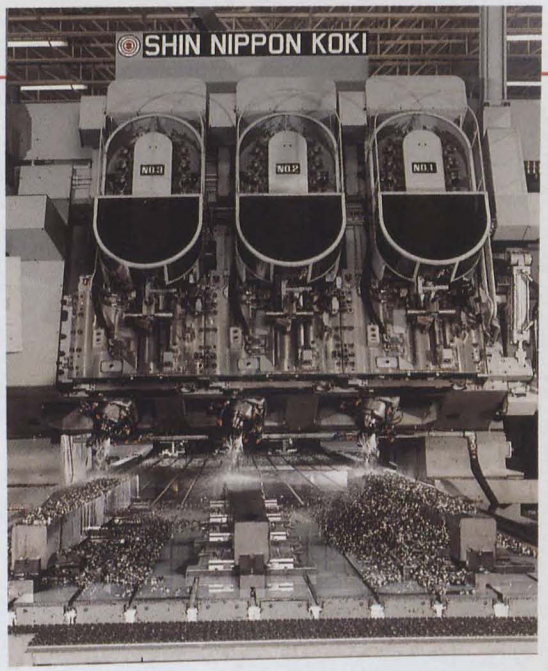
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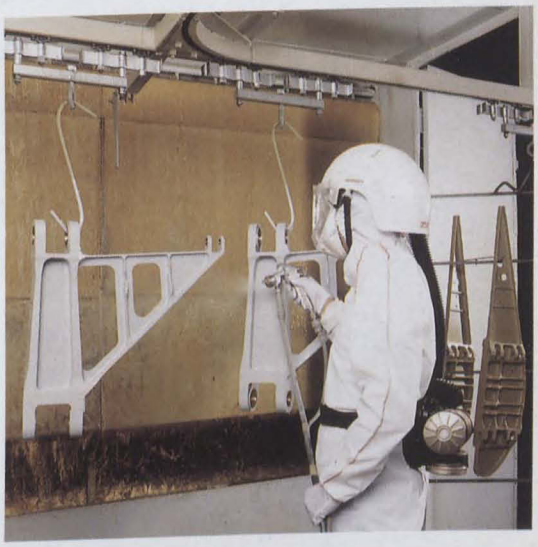
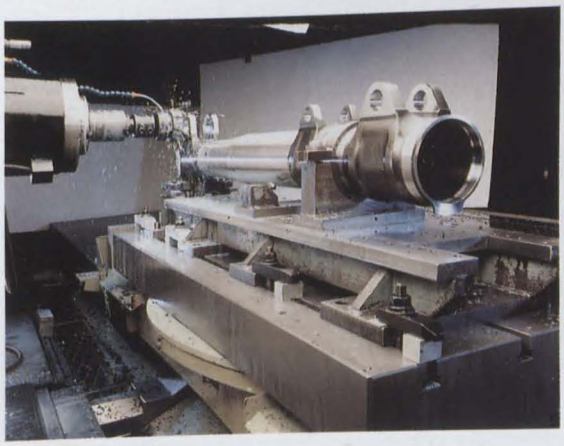
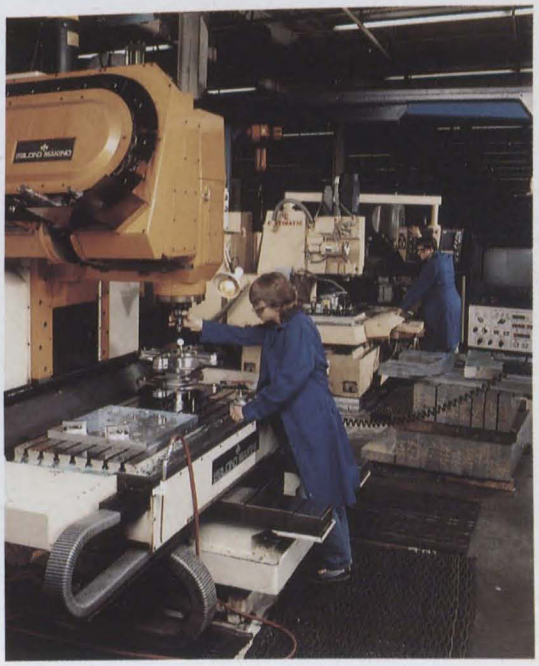
NO.3
NO.2
NO.1






MAKINO

COM DEV Ltd.

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PRESIDENT:
Mr. Keith Ainsworth,

DIRECTOR OF MARKETING:
Mr. Ken Allstaff

CHIEF SCIENTIST:
Dr. Chandra Kudsia,

COM DEV is a major Canadian source of strategic technology for communications, radar and electronic warfare. The company's products are deployed on satellite, airborne, surface, subsurface and terrestrial platforms within civil and military markets. It is a prestigious international trading company with a high proportion of its sales in American, European and Far-East markets.

COM DEV's product range includes the following advanced subsystems:

. Millimeter-Wave Radiometer Systems
. Multiplexing Networks
. Specialized Antennas and Beamformers
. SAW Pulse Compression Subsystems
. SAW Microscan Receivers
. Satellite On-Board Signal Processors
. Digital Encoders-Decoders
. Waveguide and Coaxial Combiner Networks
. Millimeter-Wave Subsystems
. Switching Matrices
. Radar Receivers
. Low Power Radar Transmitters
. On-Board Microwave Calibration Subsystems

Enabling Technologies

In order to achieve state of the art performance in all of its products COM DEV has developed expertise in all critical enabling technologies.

. Gallium Arsenide Microwave and Millime tre Wave Devices
. Surface Acoustic Wave Components
. Microwave Integrated Circuits
. Microwave and Millimetre-Wave Dielectric Ferrite Components
. Electromechanical Motors and Mechanisms
. Waveguide and Coaxial Mechanical and Ferrite Switches
. High Conductivity Precious Metal Plating and Finishing

The company is renowned for its multiplexer subsystems which have been installed in over 123 spacecraft for more than 30 International programs.

COM DEV's high power microwave switching networks have been selected for the European ERS-1 and ERS-2 satellites. A substantial portion of the Canadian Radarsat Synthetic Aperture Radar (SAR) is supplied by COM DEV. The company's fast ferrite switching system was selected for the American NSCAT satellite and the Japanese EXOS-D program uses a mass spectrometer built by COM DEV.

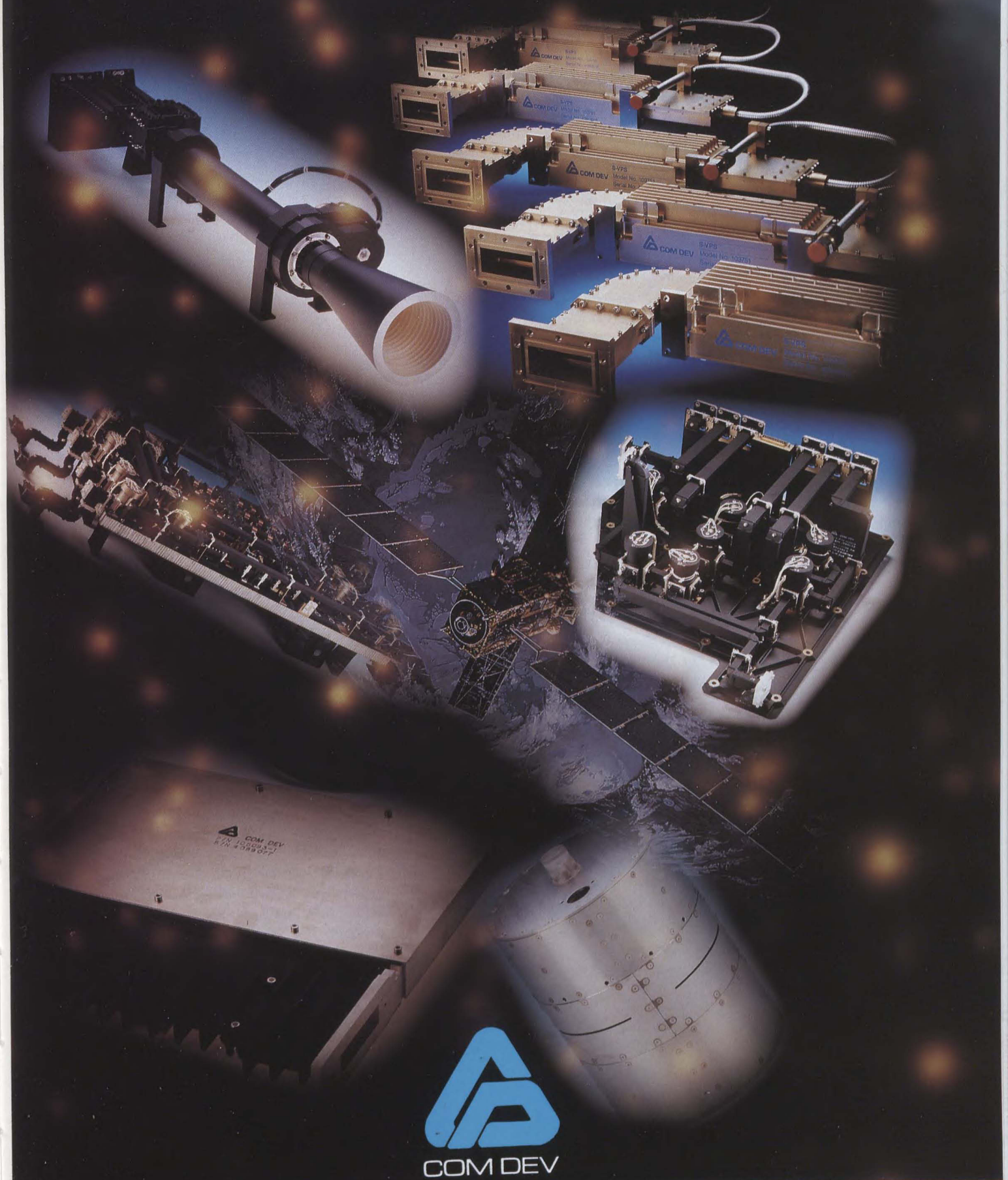
COM DEV's surface acoustic wave (SAW) signal processing subsystems are used in the Canadian Department of Transport RAMP Air Traffic Control radar. The company's SAW technology will be deployed on the INMARSAT 3rd generation payloads which will service the ever growing market for mobile communications.

The company's millimeter-wave technology in the form of components and subsystems have been selected for a wide range of National and International defence contractors. Millimeter-wave downconverter subsystems which increase the frequency coverage of current Radar Warning Receivers to above 110 GHz have been flight qualified for deployment on Canadian CF-18 military aircraft.

A significant proportion of COM DEV's revenues is invested in R & D programs which enable the company's products and technologies to be ahead-of-the-art. In terms of its annual investment in R&D COM DEV ranks among the top fifty companies in Canada. COM DEV has close ties with many of the Canadian universities.

COM DEV's facility is a 110,000 square feet building located in Cambridge, Ontario which is fully equipped to permit the engineering and manufacturing of all of the company's products.

In 1985, COM DEV Europe was established to provide a European base for the design and manufacture of COM DEV's products for the European Space and Defence market. COM DEV Europe is also developing technologies and products which are complementary to those of COM DEV in Canada and therefore broaden the total company capability.


COM DEV
COM DEV

Computing Devices Company

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PRESIDENT:
J.W. Fawcett

SENIOR VP:
G.M. Mount

Computing Devices Company, an established producer of sophisticated electronics for defence applications, has achieved a global reputation for excellence. The Company, a unit of Control Data Corporation, has supplied the armed forces of over twenty countries, from NATO to the Pacific Rim, with state-of-the-art technology.

Founded in 1948, Computing Devices is recognized today as an innovative industry leader. The Company's continuous investment in research and market-led development has resulted in a number of world firsts and significant technical breakthroughs.

The early 1950's saw the development of the Company's expertise in airborne tactical navigation systems, with the Position and Homing Indicator (PHI). Quick to gain worldwide acceptance, over 4,500 systems were produced for the airforces of 17 countries. Later in the mid 60's, the highly successful Projected Map System (PMS) was installed in U.S. Air Force and Navy A-7 aircraft, Italian Air Force G-222's and U.S. Air Force Pavelow III helicopters. The PMS led to more than $40 million in contracts, and over 2,000 delivered systems.

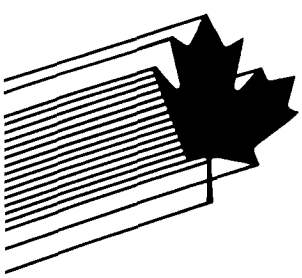
An outstanding success of the 70's was the Airborne Acoustic Processor, the AQS-901, an Anti-Submarine Warfare (ASW) processing system installed in the British Nimrod aircraft and Australian P-3. In 1973 Computing Devices also began development of the world's first digital fire control computer, for the US Army M1 Main Battle Tank.

Exploiting these early achievements, the Company has developed unique expertise in a number of core technologies. These include digital signal processing, multi-sensor scan conversion, ballistics and high resolution digital displays.

More recently, Computing Devices was selected to produce the new TCCCS/Iris land tactical communications system, one of the largest contracts of its kind ever awarded by the Canadian Government. The system will provide Canadian Land forces with a secure, reliable mobile communications system.

Computing Devices is organized into business areas, each utilizing the Company's core technologies to meet specific customer requirements. The four main business areas are secure military communication systems, anti-submarine warfare acoustic signal processing, direct and indirect fire control and advanced display systems.

In addition, Computing Devices offers a proven contract manufacturing service in accordance with military standards and specifications. As an autonomous division, customers are assured dedicated resources and capabilities and provided with fully compliant product.



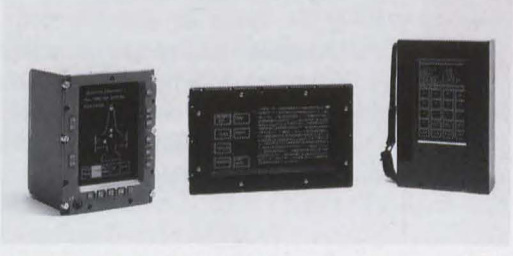
Employing some 1200 people, Computing Devices continues to develop new applications for its core technologies, and offer proven solutions to operational requirements. Principal facilities are located on the outskirts of Ottawa, consisting of 435,000 square feet of research and development laboratories, and comprehensive manufacturing facilities. A second facility in Calgary is being established for the Communications systems Division.

The Challenger 2 fire control system is a full solution fire control system which accepts atmospheric, ballistic and gyro reference data and computes the pointing information for the main gun. Shown is the Fire Control Computer and Control Panel.

The new Iris frequency-hopping radios will be a development of the highly successful Racal Jaguar V range of manpack and vehicle-mounted combat net radios.

Ruggedised multi-sensor MAGIC 2 Display in dual screen configuration with multiple windows.

The AN/UYS-503 processor, the lightest, most flexible, expandable, ASW acoustic signal processing system ever developed.



Computing Devices offers a full range of EL displays to meet all mechanical, electrical and optical requirements.

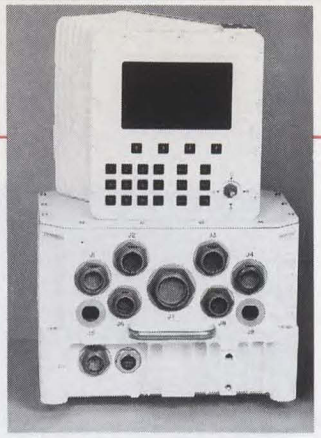
Communications Systems
Established to fulfill the requirements of the TCCCS/Iris project, Computing Devices' Communications Division is leading a "World Class" team of Canadian and international companies. Acting as prime contractor and systems integrator, the division is also developing the heart of the Iris system, the Headquarters Information Distribution System (HIDS), and manufacturing all system components in Canada.

Iris, named after the goddess of the rainbow and messenger of the gods in Greek mythology, includes handheld, portable and vehicle-mounted radios operating in several bands. The transmitted information is protected by communications security devices.

The radios will be supported by Headquarters Information Distribution Systems and terminals for long range operations including satellite links.

The system will be secure and capable of operating effectively in a hostile environment, permitting commanders at all levels to fully use electromagnetic, manpower, material, and time resources to tactical advantage.

Designed to operate on the modern battlefield, Iris will be used by the Canadian Land Forces in all their activities, ranging from day-to-day training to Arctic and UN peacekeeping operations.



Ground Systems
Computing Devices Company is the world's foremost supplier of digital fire control systems for both direct and indirect applications. Its experience in digital computer-based ballistic computing systems began in the 1960s.

The Company produced the original fire control computer for the U.S. Army M1 main battle tank - the world's first all digital system. Since then, over 10,000 ballistic computer systems have been fielded, and are currently in service on the U.S. Army's M1 and M1A1 tanks and the Korean type 88. The system is also a major component of several M48A5 tank modernization programs. Modified versions have also been developed for the M60, the Close Combat Vehicle Light (CCVL), and the USMC LAV 105.

In indirect fire control, Ground Systems has product improved its reliable and successful Military Portable Artillery Computer (MiliPAC) and introduced a smaller, more powerful variant based on the new AN/TYC-501 Digital Data Set fielded for the Canadian LLAD project.

Ground Systems division has also developed a new Vehicle Control and Tactical Information System (VCTIS) which provides the tank commander with the ability to monitor the operational capabilities of his vehicle and weapon systems, diagnose faults, receive and transmit tactical communications, mapping and navigation data, and conduct crew training.

In the area of crew served weapons, the company has developed a computerized laser sight with automatic crossing speed compensation. This sight (CLASS - Computerized Laser Sight) has been successfully field tested with the 84mm Carl Gustaf anti-armor weapon and the 106mm Recoilless Rifle.

Recently, a totally new Fire Control System has been developed for the British Army's new main battle tank, the Challenger 2. This system meets extremely stringent requirements, utilizes a 1553 Data Bus, 32 bit processor and has over 50,000 lines of Ada code - a true quantum leap in capability.

ASW Systems

Computing Devices' ASW division specializes as a supplier of acoustic and mission systems for various ASW platforms.

Current products included the AN/SQS-501 Active Sonar, the AN/UYS-501 Array Processor and the AN/SQR-5f01 Canadian Towed Array Sonar System (CANTASS). The An/UYS-503 Sonobuoy Processor has won four international competitions and is now being fitted in ASW ships, helicopters and fixed wing aircraft for Canada, Australia, Sweden and the U.S. Navy.

Computing Devices is the prime contractor for the integrated mission avionics system HINPADS for Canada's New Shipborne Aircraft (NSA) and the HAPS (AQS-503) Dipping Sonar/Sonobuoy Processing Systems.

AS submarines become quieter and their torpedo and missile ranges increase, the detection problem becomes more and more acute. Computing Devices' ASW division combines the engineering know-how to provide increasingly more sensitive equipment to Western forces.

Display Systems

Exploiting the Company's expertise in signal management and scan conversion technology, the Display Systems division is actively involved in the design of advanced digital display systems.

The MAGIC2 (Multimode Advanced Graphics and Imaging for Command and Control) display System is a multisensor display that accepts video input data from all shipboard sensor systems. MAGIC2 combines digital scan conversion techniques and a real-time graphical overlays on high resolution colour monitors. The system is provided as a complete work station or any combination of the modular blocks.

MAGIC2 is a development of the AN/UYQ-501 SHINPADS Display produced for the Canadian Navy and adopted as their standard. SHINPADS provides system integration encompassing the whole ship — this includes the combat systems equipment, and related sensors.

The Display Systems division has also developed a family of advanced militarized electroluminescent (EL) flat panel displays. Compact and lightweight, these high performance full Mil-spec displays are available as part of MAGIC2, and are also currently being integrated into systems for the U.S. Army — HIP and MIA2, U.S. Navy Trident and Canadian Forces LLAD.

Conair Aviation Ltd.

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PRESIDENT:
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VICE-PRESIDENT AND
GENERAL MANAGER:
K.B. (Barry) Marsden

Conair Aviation Ltd. is a leader in the design, development, manufacture and operation of specialty aviation equipment for resource protection. Conair headquarters are located at Abbotsford Airport, Abbotsford, British Columbia, 40 miles east of Vancouver. The Abbotsford facility includes four hangars totalling 155,000 square feet, which house the company's manufacturing and operations facilities. A second operations and maintenance facility is located at the Edmonton Municipal Airport in Edmonton, Alberta.

SERVICES

Conair is Canada's senior specialty-aircraft operator, known in Canada and world-wide for its experience in fire fighting services. The company's fleet of 50 fixed wing aircraft is the largest private fleet of fire fighting aircraft in the world. Conair's subsidiary company, Frontier Helicopters Limited, operates a fleet of 35 to 40 helicopters. While aerial fire fighting is Conair's primary service, the company also provides services for fire detection and mapping, fisheries surveillance, and aerial control of oil spills, disease and pests.

PRODUCTS

Conair has developed world-recognized expertise in the design and manufacture of specialty aviation aircraft, equipment and systems, especially those used for fire fighting and aerial spraying. In 1989 Conair became the first company in Canada to be empowered by Transport Canada to act as a Design Approval Organization (DAO) under the Aeronautics Act. This authority enables Conair to approve major modifications and repair work to the company's aircraft and the aircraft of its clients. The fire fighting aircraft and systems manufactured by Conair include:

Firecat Aircraft

Conair has built over 30 Firecats (converted Grumman Tracker aircraft) for its own fleet and for others.

Turbo Firecat Aircraft

The turbine-engined version of the Firecat, with its Pratt & Whitney PT6A-67AF engines, has been certified in Canada since 1989.

F27 Firefighter Aircraft

The Conair F27 Firefighter, the first turboprop aircraft in the world to be dedicated to aerial fire fighting, has been certified in Canada since 1986.

Helitanker Systems

The company also designs and builds fire fighting systems for a variety of Bell and Aerospatiale helicopters. These systems are used in Canada, France, Australia, Spain, Portugal and the United States.

Aerial Spray Systems

Conair designs and manufactures a number of aerial spray systems, including computerized flow control systems for a variety of specialty uses and a number of aircraft types. These systems are used in Canada, France, Italy, Saudi Arabia and the United States.

BRIEF COMPANY HISTORY

Conair, a privately-owned Canadian company, was formed in 1969 by company President, Les Kerr. Several members of Conair's present day management were involved in developing fire fighting and other specialty techniques since the late 1950's. The company has grown from a small aircraft operator to become a leader in the operation and manufacture of specialty aircraft. During the past two decades, the company has grown from a staff of 35 to over 400 personnel.

Products and Services

Conair Aviation Ltd. manufactures aircraft, equipment and systems and provides the services for aerial fire fighting and control of marine oil spills, disease and pests.

The Conair Turbo Firecat, with its Pratt and Whitney PT6A-67AF engines, is the turbine engine version of Conair's highly successful Firecat aircraft. Certified in Canada in 1989, the Turbo Firecat features an improved stall warning system, a single-point refuelling system, and completely updated aircraft systems.

Conair also manufactures fire fighting systems for two models of Bell Helicopters and three Aerospatiale models. Conair designed and manufactured aircraft and systems have been exported to a number of countries including Australia, France, Italy, Japan, Portugal, Saudi Arabia, Spain, and the United States.

DY 4 Systems Inc.

DY 4 Systems Inc.
21 Fitzgerald Road
Nepean, Ontario
Canada K2H 9J4

TEL: (613) 596-9911
FAX: (613) 596-0574

PRESIDENT AND
CHIEF EXECUTIVE
OFFICER:
Danny Osadca

VICE PRESIDENT,
MARKETING:
John Beaven

VICE PRESIDENT,
TECHNOLOGY:
Kim Clohessy

The Company

With its technology based on VMEbus open-system architecture, DY 4 Systems is an established leader in MIL SPEC, field-proven system solutions. The company offers innovative, high-quality, supportable products and systems meeting current and future operational requirements.

DY 4's prime capability is providing defence and aerospace contractors with integrated solutions for their embedded-computer requirements.

DY 4 Systems Inc., has over 180 employees, most of whom work at the company's Nepean head office. Marketing offices are located in Campbell, CA, Nashua, NH, Denmark and Australia.

Products

DY 4's rich inventory of MIL SPEC VMEbus board and chassis products is augmented by system level diagnostic software, real-time operating systems and application software.

DY 4's software capabilities encompass communications protocol support, C and Ada development environments, drivers and servers, and comprehensive diagnostics.

DY 4's product line is designed to provide cost effective solutions for system integrators by offering MIL SPEC, ruggedized and commercial levels to meet a range of programme requirements.

This approach optimizes the use of off-the-shelf non-development items (NDI) and modified commercial off-the-shelf products. Aside from reducing development costs, this approach reduces the overall schedule risk. DY 4's MIL SPEC NDIs comply with MIL-E-4158, 5400 and 16400 specifications.

Engineering development procedures comply with DY 4's configuration management practice and are consistent with MIL-STD-482/483. Standard practices are used from the design specifications based on MIL-STD-490, through to reliability predictions based on MIL-HDBK-217.

DY 4's quality assurance programme is equivalent to AQAP-1 or MIL-Q-9858A. Application has been made for AQAP-1 certification.

DY 4's VME boards and chassis have been selected for numerous military applications. DY 4 has a proven track record in the management of large development programmes for prime contractors.

Typical Customer Applications

Naval Applications

•Development and supply of over 1,500 MIL SPEC VMEbus circuit cards for use throughout the command and control systems of the Royal Australian Navy's new submarine.

•Supply of VMEbus card sets to General Dynamics, Electric Boat Division for incorporation into the US Navy's submarine based Tactical Weapon Simulator.

Vetronics Applications

•Development and supply of computer card sets, used as common modules within the electronics package of the US Army's new M1A2 main battle tank.

•Development of an integrated, conduction cooled computer system for the West German Panzer 2000 self propelled howitzer application.

Airborne Applications

•Development of a Mission Processor computer system which incorporates multiple CPU's and high resolution graphics display generators. The system was developed for a U.S. military helicopter manufacturer.

•Development and production of airborne computer used on board Canadian Forces Boeing deHavilland Dash 8 aircraft used by the Canadian Department of National Defence for navigational training.

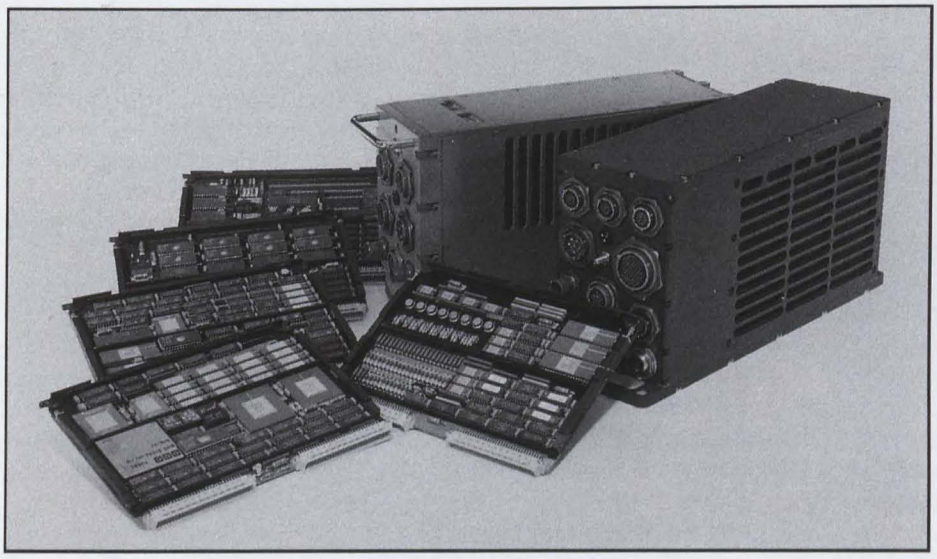
Air Traffic Control Applications

•Over 500 integrated multi-processing systems delivered to Raytheon Canada as part of Transport Canada's Radar Modernization Program (RAMP).

•Close to 1,000 DY 4 VMEbus modules are now in service in Contel Federal System's GS-200 Automated Weather Data Distribution System, for FAA and US Air Force.

"CUSTOMER FIRST, QUALITY ALWAYS"

Mission Ready - Military VME from DY-4



DY-4 Systems Inc. offers a wide range of fully MIL-Spec VME boards and chassis. All military-grade, off-the-shelf boards have commercial equivalents to reduce system development costs. The MIL-Spec products are designed to meet MIL-E-4158, MIL-E-5400 and MIL-E-16400 specifications. Chassis products include fully sealed, conduction-cooled ATR style for both cold-plate and aircraft ARINC-404 mounting.

DY-4 Headquarters, Nepean, Ontario

Devtek Aerospace Company

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L5N 2W3

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FAX: (416) 542-9204

PRESIDENT:
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V.P. AIRCRAFT PRODUCTS DIVISION:
H. Wittholz

V.P. OPERATIONS, DEFENCE AND SPACE:
H. Nosegaard

V.P. BUSINESS DEVELOPMENT, AIRCRAFT MARKETS:
P. Rousseau

V.P. BUSINESS DEVELOPMENT, ENGINE MARKETS:
J. Over

G. MANAGER, HERMES ELECTRONICS:
W. Trowse

AIRCRAFT PRODUCTS DIVISION

- DEXTER TOOL CO.
- GMI PRECISION INC.
- HOCHELOGA AEROSPACE INC.
- WEST HEIGHTS MFG.

DEFENCE AND SPACE PRODUCTS DIVISION

- DIEMACO
- GRANTECH MFG.
- MAGTRON
- VERRAL

HERMES ELECTRONICS LIMITED

CAPABILITIES

AIRCRAFT PRODUCTS DIVISION

Hydraulic Actuation Systems
Design, engineering, manufacturing, testing repair and overhaul of hydraulic actuation systems, flight controls and other aircraft actuation systems, hydraulic assemblies and helicopter rotor hubs, for commercial and military aircraft.

Aircraft Components and Assemblies:
Manufacturing, assembly and testing of critical tolerance components of 300M and other high tensile alloys used in aircraft structural components, and aircraft landing gear.

Aircraft Engine Components and Assemblies:
Prototype and production manufacturing, fabrication and assembly of large complex rotating components such as disks, hubs, cases, seals, and rings for high performance military and commercial aircraft engines.

HERMES ELECTRONICS

Antisubmarine Warfare Systems:
Totally integrated capability to research, develop and produce antisubmarine warfare detection devices and systems. Areas of expertise include sonobuoys and towed arrays.

Communications:
Capability to design and manufacture specialized communications equipment. Areas of application include HF broadband antenna arrays, ionospheric oblique sounding transmitters and receivers, and ARGOS transmitters.

DEFENCE AND SPACE PRODUCTS DIVISION

Military Weapon Systems and Components:
Developing, designing, engineering, manufacturing, testing, repair and overhaul of military weapons systems and components. Sole supplier of C-7 rifle and C-8 carbine to the Canadian Forces.

Stabilized Platform Systems:
Designing, engineering, manufacturing and testing of stabilized platforms utilized toward supporting electronic and optical systems in commercial and military guidance and tracking systems. World mandate on stabilized platform for the ADATS (Air Defence Anti-Tank System) electro-optical module.

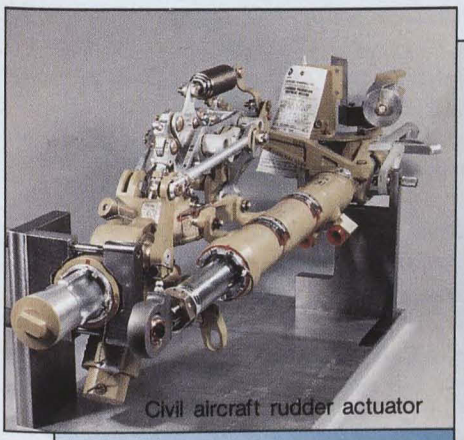
Ultra-Precision Communication And Space System Components:
Applications include gyroscope components, phased array radar system power dividers, satellite/space shuttle components and components of exotic materials including pure beryllium, titanium, hastelloy and high nickel-based alloys. Sole supplier of grapple fixtures for the remote manipulation systems of NASA's space shuttle.

Aircraft Heat Exchangers And Electronic Enclosures:
Design, engineering, manufacturing, and testing of complex aluminum chassis assemblies and heat exchangers. Fabrication technologies include dip-brazing, vacuum brazing, epoxy bonding, welding and mechanical fastening.

Electronic Cabinetry:
Precision sheet metal components and assemblies for use in electronic cabinets, weldments, consoles and chassis. Supplier of electronic cabinetry meeting NATO Navy standards for protection against shock, vibration and electronic interference.

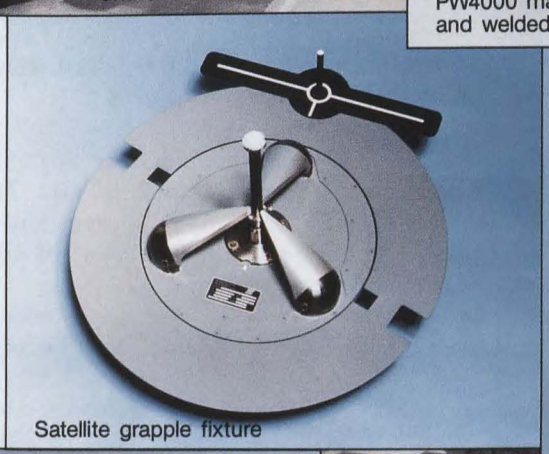
All products and services are to the appropriate requirements of AQAP-1, AQAP-4, MIL-Q-9858A, MIL-I-45208.

Devtek Aerospace Company


Civil aircraft rudder actuator


PW4000 machined
and welded compressor case

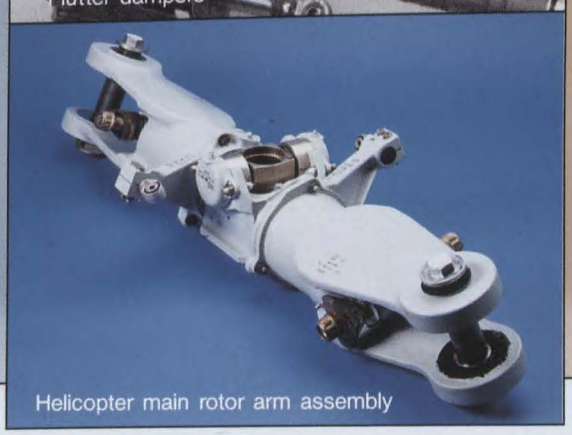

Stabilized
platform
for ADATS

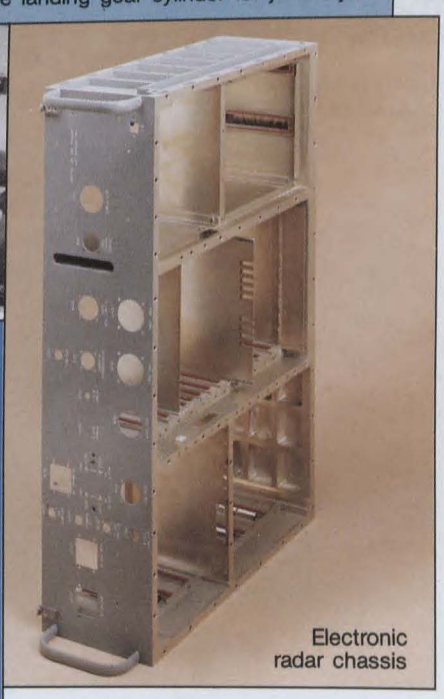

Satellite grapple fixture


Nose landing gear cylinder for jumbo jet


Sonobuoy 53D


Flutter dampers


Helicopter main rotor arm assembly


Electronic
radar chassis

Dowty

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D.J.C. Crook

INTRODUCTION

The design, development and manufacture of Commercial and Military Aircraft Landing Gear and Ground Steering Systems is the predominant product line of the three Canadian Aerospace Division companies.

The Canadian companies are a very active and expanding segment of over 50 companies which make up the UK based Dowty Group PLC, having established an excellent reputation for its advanced engineering capabilities and the consistent high quality of its products and services, the Canadian companies are meeting the objectives of its parent Group in becoming the Preferred Partner of its customers and associates by providing a competitive advantage to them through the quality of its products, performance and service.

DOWTY AEROSPACE TORONTO

The original Dowty operation in Ajax, Ontario designs and manufactures Landing Gear for both Fixed and Rotary Winged Aircraft. The company maintains an extensive engineering capability having developed a range of analytical design models that enhances the company's specialized Landing Gear design technology, to ensure schedule compatability with more than one customer the Test Laboratory is equipped with two Test Management and Data acquisition systems, the Lab is fully equipped to conduct Droptesting, Strength, Fatigue and Cycling tests.

Cost effective manufacturing is ensured by a modern DNC machining capability supported by a computer aided manufacturing engineering and production control operation. Dowty Aerospace Toronto utilizes today's computer technology to the maximum and has a computer integrated manufacturing operation supporting just-in-time production programs.

Dowty Aerospace Toronto is approved to AQAP-1 and MIL-Q-9858A quality Standards and conduct its business in accordance with the applicable Canadian, US and European Commercial and Military Aerospace requirements.

The company's current major contracts are:-

- Main and Nose Landing Gears with Electronically controlled Nose Wheel Steering Systems for:

- Boeing Canada deHavilland Dash 8, Series 100 and 300 Regional Airliner.
- Bombardier Inc. Canadair Division CL601 Business Jet and the new Regional Jet.

- British Aerospace Airbus A340 Centerline Landing Gear and the A330/340 Main Landing Gear Side Stay.

- Main Landing Gear for Bell/Boeing V-22 Osprey and the Kaman Aerospace SH-2G.

- McDonnell Douglas Outrigger Landing Gear for the AV-8B and the Tail Bumper Gear for the MD-80.

- Other Defence Landing Gear Spares and Support programs include CT-114 Tutor Trainer, CF-5 and A-10 spares, and the Logistic Support and Overhaul of CF-18 Landing Gears.

DOWTY AÉROSPATIALE MONTRÉAL

The Mirabel operation is the newest Dowty Canada project, the custom designed 200,000 sq. ft. facility became operational as of June 1991 with the production of the large Airbus A330/340 Main Landing Gears.

The new modern facility is equipped for the complete in-house production of these and future four and six wheel bogie type Commercial Jet Liner Landing Gears.

Latest state-of-the-art machine tools, processing, heat treating and manufacturing support systems have been designed to ensure a cost effective operation in a highly specialized segment of the Aircraft industry.

DOWTY AEROSPACE PETERBOROUGH

The Peterborough Electronics company specializes in the design and development of digital and analogue microprocessor software based System Controllers and Monitors for

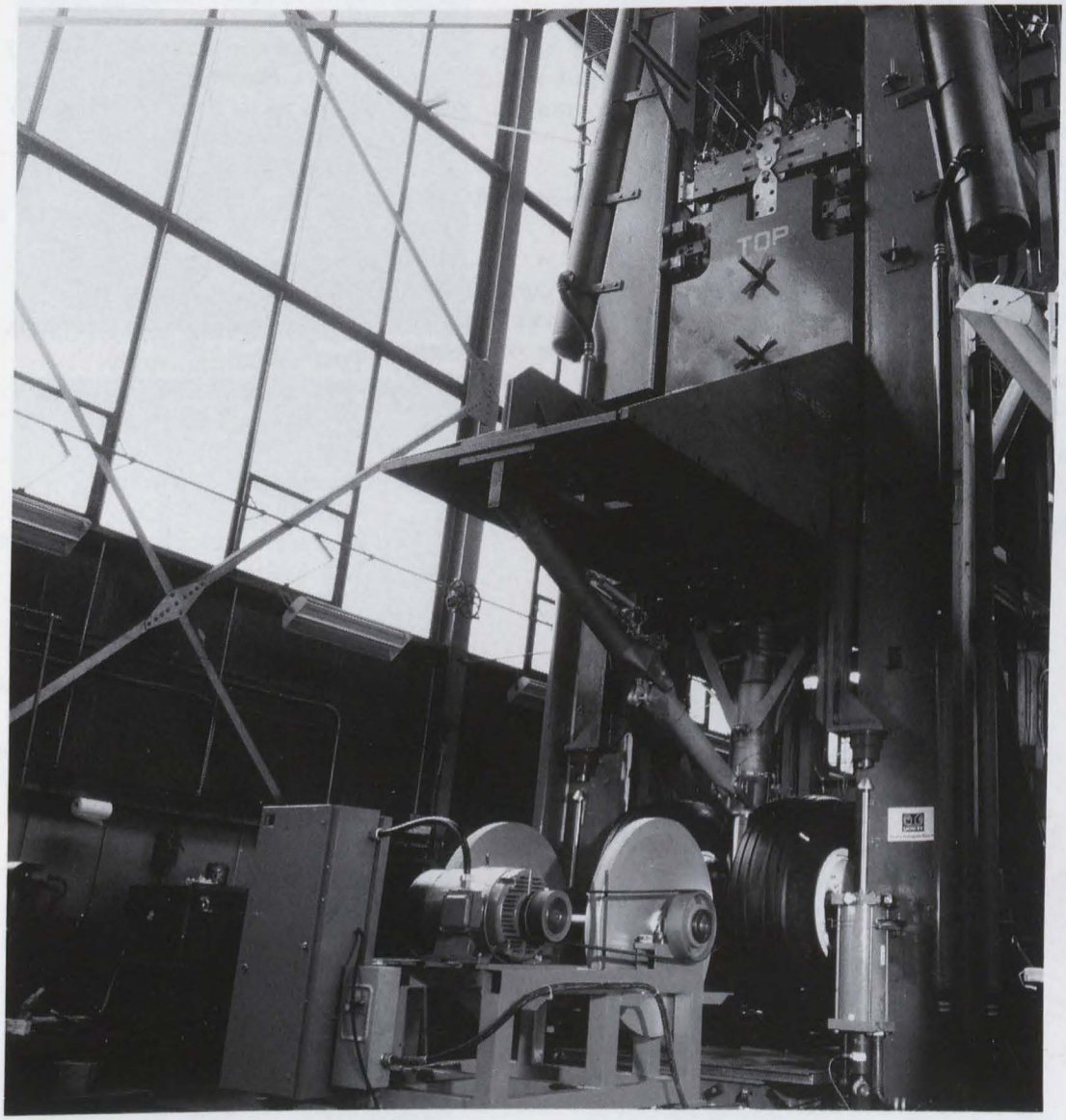
Aerospace and other Commercial and Military applications.

Digital Aircraft Nose Wheel Steering Control Units and Aircraft Engine Fault Monitors are typical examples of the industry niche held by Dowty Aerospace Peterborough.

The company has developed the infrastructure to design and qualify its products to MIL-STD-810D and is approved to AQAP-13 and DO-178. Product assembly workmanship is qualified to MIL-STD-2000.

Current contracts include Ground Steering Control Units for the CL601, Dash 8, GIV, Regional Jet and the BAe Hawk 60/100 Trainer. Other Aerospace design contracts include the Landing Gear Control Unit on the Bell/Boeing V-22 Osprey and an Engine Fault Monitor for the Pratt & Whitney JT-15D Turbo Fan.

The company is also well known for its success in developing brake control systems for Rapid Transit Rail Systems and provides specialized low volume contract manufacturing services to several Aerospace and Defence high tech companies.



DROPTESTING THE AIRBUS A340 CENTERLINE LANDING GEAR AT DOWTY AEROSPACE TORONTO.

The EBCO Group of Companies

EBCO AEROSPACE
DIVISION
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FAX: (604) 946-4671

VICE PRESIDENT &
GENERAL MANAGER:
David Belanger

HEAD OFFICE

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British Columbia
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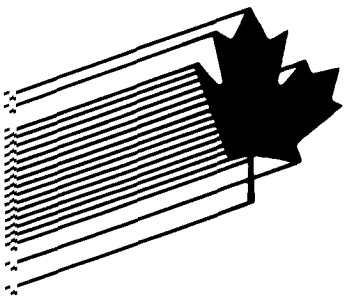
VICE PRESIDENT-
SALES & MARKETING:
Reg Allen

VICE PRESIDENT -
OPERATIONS:
Bill Merritt

MANAGER-LIGHT
METAL FABRICATION
DIVISION:
Alberto Petricca

MANAGER-
METAL FINISHING:
Alan Webb

MANAGER-
TOOL & DIE:
Art Guthrie



The Ebco Aerospace division is a 43,000 sq. ft. DNC machining facility built to support the diverse needs of the North American Aerospace and Defense Contractors. The plant is equipped with the latest state-of-the-art (DNC) machine tools, including:

One of the largest 5 axis SNK gantry profilers ever built. The machine bed is 13.3 ft. wide X 190 ft. long equipped with four (4) independent, three (3) spindle, 5 axis gantries.

Our quality system is approved to AQAP-4 and MIL-1-45208A.

The Ebco Aerospace Division currently produces medium to large, complex structural components and precision wing components for the aerospace industry, manufactured from material such as aluminum alloys, titanium alloys, and 4340 modified steels.

Ebco Industries Ltd. is the parent company of the Ebco Group of Companies.

It operates from a 210,000 square foot plant, in Richmond, British Columbia. Autonomous business units within the Richmond plant include:

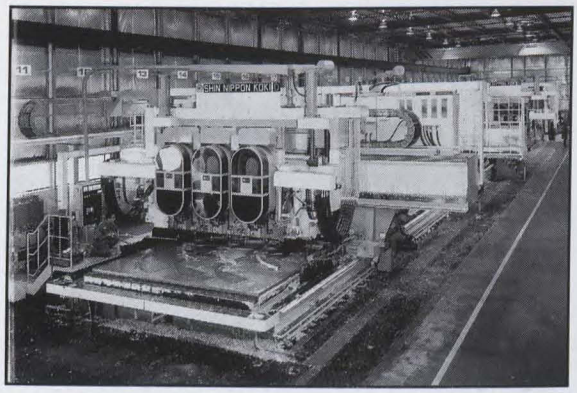
- Heavy Fabrication and Assembly shop
- Heavy Machine shop
- Light Metal Fabircation division
- Metal Finishing division
- Tool and Die shop

The Ebco Group of Companies is comprised of:

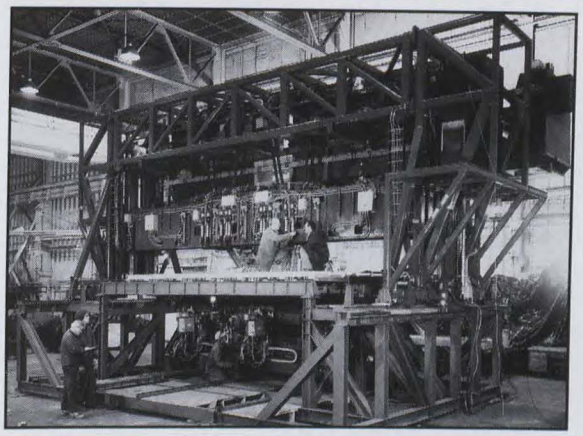
- EBCO INDUSTRIES LTD.
- EBCO AEROSPACE DIVISION
DNC machining facility
- EBCO TECHNOLOGIES INC.
Applied accelerator systems
- EPIC DATA INC.
Data collection systems
- EIF SALES LTD.
Executive office and institutional furniture and systems
- KEYSTONE
Automotive parts distributor
- EBCO FARMTECH
Agricultural products

Ebco's manufacturing facilities are supported and complemented by a highly skilled workforce of 900 people.

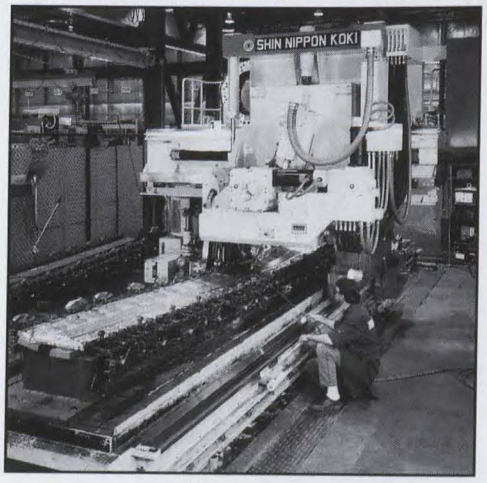
Products and Services



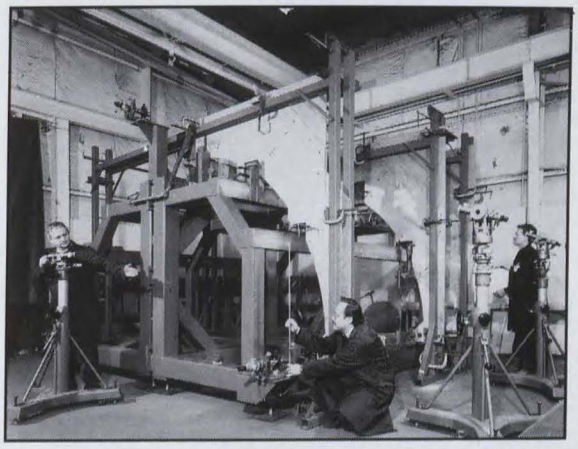
DNC 3-spindle, 5-axis, 4 gantry profiler (60m long)



Auto Driller for USAF C-17 advanced airlifter

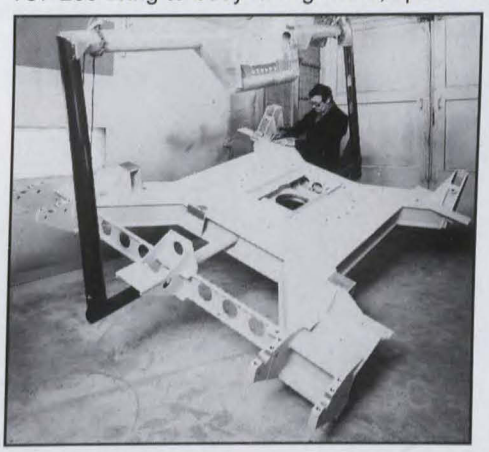


Single spindle 5-axis profiler



757-200 Wing-to-body fairing FAJ's, optical verification

5-axis machining centre



Radar antenna platform

Co-ordinate measuring machine

Electrical connectors plated to military standards

EDO Canada Limited

1940 Centre Ave. N.E.
Calgary, Alberta
T2E OA7

TEL: (403) 569-5400
FAX: (403) 569-5499

PRESIDENT AND CEO:
James S. Butyniec

DIRECTOR, MARKETING & CONTRACTS:
Fraser B. Rea

EDO Canada Ltd. is a world class manufacturing enterprise committed to producing quality advanced material components for the international aerospace and space industries, the defence industry and the global commercial sector.

We have combined a team of professional engineers, technicians and support staff with state-of-the-art equipment and processes to pioneer new applications for filament winding and manufacturing lay-up technology.

Equipment and Capabilities
Multi-million dollar contracts, such as the 480 (U.S.) gallon CF-18 composite fuel tank and the space qualified satellite antenna reflector program, (SARRRO) have established a complete range of in-house equipment and capabilities.

A custom designed 3.05m x 5.25m (10ft x 50ft) autoclave system allows for the curing of multi-layered high tech sandwhich paneling and composite parts.

Three, 4, and 5 Axis Numeric Control Filament Winding Machines - Allow for adaptable fibre mixes and highly accurate tow tensioning for consistent quality, N/C capacity guarantees controlled duplication.

An OOYA RE-5AX-2300 N/C Machining Centre [Full 5 Axis - XYZ/A(45) B(45)] includes a dust extraction system 2.25m X lm X .75m (7.5' X 3.2' X 2.5') working zone and less than -/+ .0025cm (.001") positioning accuracy.

A full 3 Axis LECTRA 9317 Automatic Knife Cutter has recently been installed complete with moulded fiberglass vacuum table, penetrable conveyorized bristle bed and advanced aluminum beam.

Research and Design
Our Research and Design Engineers and Technicians are committed to perfecting and developing applications for the rapidly progressing advanced materials industry.

Whether a product is designed to a client's pre-determined specifications, or to those developed by EDO Canada's specialists, our Design, Analysis Materials and Process efforts are integrated, to ensure the highest levels of productivity and performance.

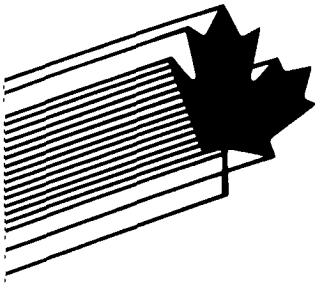
Each effort is supported by Computer Aided Design (CAD) and Computer Aided Engineering (CAE), Finite Element Analysis Programs and a Composites R & D Laboratory.

Quality
EDO Canada Ltd. is committed to providing the highest achievable level of quality in our products and services. To ensure quality we have implemented a Quality Assurance Program that complies to NATO's most stringent requirement, Allied Quality Assurance Publications - AQAP-1.

Our comprehensive program guarantees a systematic approach to the assurance, control and verification of quality, from the design stage through to product deployment.

Company Background
In 1983 EDO Corporation acquired a successful Canadian company involved primarily with electronic survey equipment. EDO Canada Ltd. has designed and manufactured some of the industry's most accurate and cost-efficient positioning equipment and our committment to the burgeoning GPS (Global Positioning System) industry continues today.

EDO Canada's diversification into advanced materials, was the result of a joint venture agreement between EDO Corporation and the Alberta Government. With the support of nearly a century of technological experience and the "can do" attitude associated with Alberta business, EDO Canada's mandate is to further establish the advanced materials industry in Canada and to support the International aerospace industry.



EDO

COMPLETE...COMPOSITE...CAPABILITY

■Equipped with technological foresight, specialized skills, and an innovative vision of the future, EDO Canada Ltd. is one of the new breed of Canadian high technology companies. ■Our commitment to research, design, structural analysis, and quality has positioned us at the forefront of advanced composite technology. ■EDO Canada Ltd. has pioneered filament winding techniques to develop new products for the aerospace and transportation industries and optimized fabrication and moulding techniques to help expand the use of existing laminated composites in space. ■Composites guarentee - Resistance to corrosion and fatigue...Superior performance under stress, heat, and impact pressure and Economy in manufacturing ■EDO Canada Ltd. believes Advanced Materials are custom made for Tomorrow's needs.

EDO
CANADA LTD.

1940 CENTRE AVENUE N.E. CALGARY, ALBERTA, CANADA T2E 0A7 • TELEPHONE: (403)569-5400 TELEFAX: (403)569-5499

EDO CORPORATION: EDO FIBRE SCIENCE • BARNES ENGINEERING • EDO ELECTRO-ACOUSTICS • GOVERNMENT SYSTEMS DIVISION • EDO ELECTRO-CERAMICS • EDO CANADA LTD.

Field Aviation Company inc

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CHAIRMAN:
W.B. Boggs

PRESIDENT AND CEO:
G.D. Teele

VICE-PRESIDENT, FINANCE:
P.E. Tyrrell

Field Aviation Company inc. is a leading Canadian aviation sales, service and support company which offers a complete range of services to the general, commercial and military aviation communities in Canada and abroad. Established in 1947, Field's more than 600 employees are engaged in an extensive range of activities, including aircraft repair, overhaul, modifications and conversion; the international sale and brokering of pre-owned business, commercial and military aircraft and helicopters; exclusive distribution of Beech aircraft in Canada; the sale and manufacture of aircraft parts; aeronautical engineering; Fixed Base Operations; avionics and the provision of aircraft seats. Field's facilities are approved under Canadian Department of Transport and Department of National Defence criteria and meet NATO AQAP-1 requirements, U.S. Military Standard MIL-Q-9858A and U.S. Civil Standard FAR 43-17. The company has offices and branches in Calgary, Toronto, Trenton and Ottawa and consists of four subsidiary management companies and one division.

Field Aviation East Ltd., located at Pearson International Airport, Toronto, provides comprehensive aircraft and component maintenance, modification, repair and overhaul services to regional, business and general aviation aircraft. Field East owns and operates an award-winning Esso Avitat and provides a full range of on-line service functions including space leasing and aircraft refueling to tenant-based and itinerant aircraft. Field East has a Department of National Defence contract which provides for the on-site maintenance and logistics support of Canadian military aircraft at the Canadian Forces Base in Trenton, Ontario.

Field Aviation's Engineering Division, co-located with Field East at Pearson International Airport, has earned worldwide recognition in the field of specialized aeronautical designs and developments. The Division has been a pioneer in complex aircraft conversions and modifications, both military and civil, for fixed and rotary wing aircraft. Such activities include the installation of remote sensing and airway inspection systems, aircraft upgrade programs, the mechanical design and installation of avionics equipment, cargo pods, cargo doors and aerial firefighting systems.

Field Aviation West Ltd., located at Calgary International Airport, specializes in the repair, overhaul and modification of commercial, military and general aviation aircraft and military and commercial helicopters. Field West operates a modern airline support facility in which major maintenance and repair and overhaul programs on Boeing 707-sized aircraft are undertaken. Field West manufacturers and repairs and overhaul parts and components for de Havilland Caribou and Buffalo aircraft. A refinishing centre includes an aircraft painting facility which can accommodate aircraft as large as a Boeing 737. Field West specializes in aircraft interior refurbishment and a separate facility is dedicated to the production of aircraft seats. Field West is a prominent commuter aircraft repair and overhaul centre and also operates a full-service Esso Avitat.

Field Aviation Sales Ltd., is the aircraft sales arm of Field Aviation Company. Since 1954, Field has been the exclusive Canadian distributor of the complete line of aircraft manufactured by the Beech Aircraft Corporation of Wichita, Kansas. Field also supplies a complete range of Beech aircraft parts, spares and accessories, thereby providing complete support to Beach aircraft owners in Canada. Field is also actively involved in the sale and brokering of pre-owned business, commercial and military aircraft and helicopters in Canada and abroad.

Navair Limited, Field Aviation's avionics subsidiary, is a leader in the aerospace and defence avionics and electronics industries. Navair offers a wide range of services including military and commercial avionics engineering and installation; avionics repair and overhaul; avionics training; avionics workshops and support systems for foreign customers; and product distribution. The company represents in Canada such major avionics manufacturers as Bendix/King, Collins and Sperry and is the exclusive Canadian distributor of Instrument Flight Research (IFR) communications and avionics test equipment and BIRD power measurement equipment. Besides working to NATO AQAP-1 standards, the company has received Canadian Department of Transport approval to undertake avionics overhaul and modification work on aircraft as large as the Boeing 727.

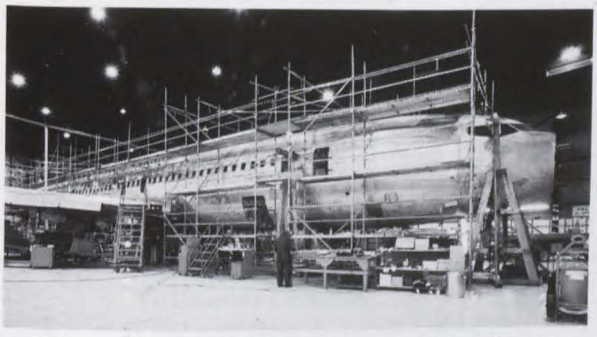
Services and Capabilities

Field Aviation's Engineering Division has achieved worldwide recognition for its aeronautical engineering designs and developments, such as its recent upgrade of the DHC-6 Twin Otter into a modern commuter airliner for the 1990's.

Field Aviation's capabilities include the manufacture of spare parts and components for de Havilland Buffalo and Caribou aircraft, and the production of aircraft seats.

Through its subsidiary company Navair Limited, Field Aviation offers a wide range of services to the aerospace and defence avionics and electronics industries. These services include avionics repair, overhaul, installation and engineering, the sale and support of avionics and telecommunications test and measurement equipment, and avionics training.

Since 1954, Field Aviation has been the exclusive distributor of Beech aircraft in Canada. Field sells and distributes Beechcraft parts in Canada and also is involved in the sale and brokering of pre-owned business, commercial and military aircraft and helicopters.



Field Aviation is a specialist in the repair and overhaul, maintenance and conversion of commercial transport, commuter, corporate and military aircraft and helicopters.

Field Aviation's Fixed Base Operations in Toronto and Calgary provide a complete range of aviation services to corporate, commercial and military aircraft operators from Canada, the United States and overseas.

Field Aviation East Limited
P.O. Box 6023, A.M.F.
Toronto, Ontario
L5P 1B9
Tel: 416-676-1540
Fax: 416-676-9951

Field Aviation West Limited
Calgary International Airport
P.O. Box 3186, Station B
Calgary, Alberta
T2N 4L7
Tel: 403-275-2111
Fax: 403-275-0366

Field Aviation Sales Limited
P.O. Box 6023, A.M.F.
Toronto, Ontario
L5P 1B9
Tel: 416-676-1540
Fax: 416-676-9951

Navair Limited
P.O. Box 214
Malton, P.O.
Mississauga, Ontario
L4T 3B6
Tel: 416-676-4150
Fax: 416-676-9737

Fleet Aerospace Corporation

Fleet Industries
1011 Gilmore Rd.
Fort Erie, ON
L2A 5N3

TEL: (416) 871-2100
FAX: (416) 871-2722

CORPORATE
PRESIDENT & C.E.O.:
Cecil G. Cline

CORPORATE VICE
CHAIRMAN FINANCE:
Bruce W. Gowan

MANAGER SALES &
MARKETING:
Brian M. Oakley

Fleet Industries' emergence as a dominant manufacturer of aerospace components was achieved through more than sixty years of aircraft involvement. Within our 500,540 square foot facility in the Ontario border town of Fort Erie, Fleet supports the needs of customers throughout North America and beyond.

As a division of Fleet Aerospace Corporation, the company has grown to more than 800 employees, whose average service length supports their claim of quality craftsmanship. The stability and dedication of this workforce is enhanced by progressive systems and equipment supporting the manufacture of complete aerospace components. After producing 5,000 complete aircraft in their formative years, the company now specializes in structural airframe components. The ability to take a customer design from the tooling stage, into detail metal fabrication, metal-to-metal and composite bonding stages, through to final assembly and skin quality is, by definition, an all-encompassing manufacturer. These abilities allow Fleet management the necessary program control while minimizing subcontract reliance.

Bonding Operation

By pioneering the process of metal-to-metal and metal-to-honeycomb, Fleet developed a reputation in favour of difficult wing components such as flaps, vanes, ailerons and spoilers. Manufacture with materials such as Kevlar, Nomex, and carbon graphite, on more than 60 satellite structures has provided the working experience necessary to transfer this knowledge into aircraft components.

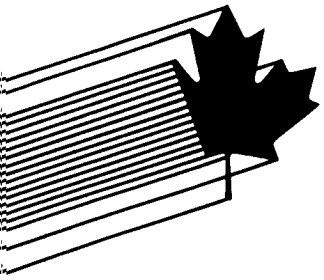
The bond facilities also contain the equipment to perform the various metal treatments; including phosphoric-anodizing to BAC 5555, sulphuric and chromic - acid anodizing, and sulphuric-acid etching. Additional operations include water-jet cutting, honeycomb-core five-axis cutting, and full non-destructive testing through ultrasonic c-scan and x-ray.

Quality

The accepted quality approach in the aerospace sector has changed dramatically over the years. Fleet is a better company for these improvements since they adapted to satisfy their entire customer base, by extracting the best from each plan to formulate the Fleet Quality Assurance Manual.

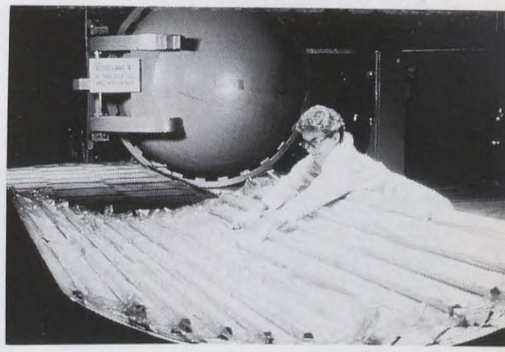
Compliance to the requirements of U.S. Military Specification MIL-Q-9858A, NATO AQAP-1 and Canadian DND 1015 are strictly maintained.

First in Aerospace
Built on Pride and Vision
Where Exceptional People
Provide Excellent Service

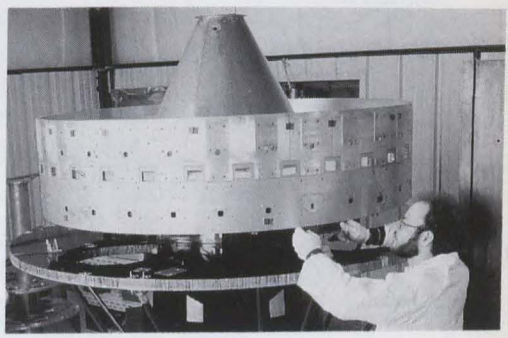


BOEING 707 FIN AND RUDDER
AWACS E3A/E6A

McDONNEL DOUGLAS
MD-80 WING FLAP ASSEMBLY



DE HAVILLAND DASH 8
BONDED FUSELAGE PANEL



SPAR AEROSPACE
BRAZILSAT SATELLITE

Aircraft Components:

Bell Helicopter
230 Helicopter Fuselage Structure

Boeing
707 E3A/E6A Fin and Rudder
E3A TF33 Engine Nacelles
757 APU Doors
A6 Intruder Flaperons

de Havilland
DHC-8 Bonded Wing and Fuselage Panels
Inboard/Outboard Flaps
Engine Nacelles
Wing Spoilers

Lockheed Aircraft
CP140/P3C Flight Stations

McDonnell Douglas
F18A Graphite Avionics Doors
MD-80 Flaps and Ailerons
DC-10/MD-11 Flap Vanes; Spoilers;
Main Landing Gear, Slat Actuator and Refuel Doors

Radar Equipment:

Hughes Aircraft
F18 Radar Rack Assemblies

ITT Gilfillan
Falcon Reflector

Lockheed Saunders
Gun Fire Control System: Antennas and Electronics Cabinets

Raytheon
Phased Array Antennas "Pave Paws" Aegis Antennas

Satellite Structures:

Hughes Space Division
Solar Panel Substrates: Anik C. SBS, NASA Anik D. Goes/GMS, Westar/Palapa B. Leasat, AT&T, Brasilsat

Spar Aerospace
Bonded Panels/Structures: Anik C. SBS, Anik D, Westar; Spun & Despun Structures for Brasilsat

GE Canada

AEROSPACE RELATED OPERATIONS

2300 Meadowvale Boulevard
Mississauga, Ontario
L5N 5P9

GE AEROSPACE CANADA MANAGER:
Mr. H.D. (Howie) Byer
TEL: (416) 858-5494
FAX: (416) 858-5222

GE AIRCRAFT ENGINES CANADA MANAGER:
Mr. J.R. (John) Hawkes
TEL: (416) 858-5479
FAX: (416) 858-5222

GE is a world leader in designing, developing and producing advanced equipment for the Defence and Aerospace sectors. GE Canada provides engineering marketing, products and technological support to these industries in Canada.

GE Aircraft Engine Programs Canada began with the decision by the Canadian Government to purchase the McDonnell Douglas F-18 as the new Fighter Aircraft. Since that time GE Canada has supplied all the engines and supported spare parts procurement through offices at GE Canada headquarters. In addition, a plant in Bromont, Quebec was opened to manufacture blades and vanes for GE jet engines worldwide in accordance with the mangement of the Industrial Benefits Program.

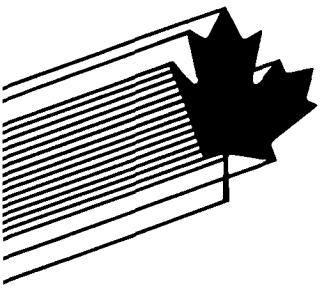
GE's leadership also extends to aircraft derivative Marine and Industrial gas turbines engines. In Montreal, GE Canada packages LM2500 Marine propulsion units which are the primary engines used to power Canada's new Naval Frigates.

Supporting the Aircraft Engines operations are Field Service Representatives located throughout the country. In Halifax this support extends to the new Canadian Patrol Frigate program, while in Montreal, Toronto and Calgary this responsibility covers mature engine lines (T64) and Industrial installations.

GE Aerospace Canada markets a broad range of Aerospace, Defence and Communication Electronic equipment for the GE system. Products range in scope from microelectronic devices to advanced air defence systems and are employed in all environments - sea, land, air and space. Additionally, this group provides Canadian Industry and Government with marketing support services and field service representation.

The Electronic Service Program specializes in the repair, overhaul and technical support of Military electronic equipment for both domestic and international customers. Additional support activities include design and development; custom manufacture and modification, and technical investigations and studies. Quality Assurance procedures used are approved by the Canadian Government to the requirements of NATO specification AQAP-1.

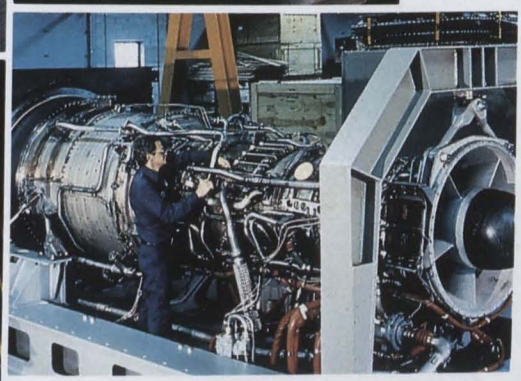
The Industrial Benefits Management group was formed when GE Canada and McDonnell Douglas won the CF-18 order. This group has been involved with meeting the GE corporate commitment of over $1 Billion in offsets. The group has expanded its expertise in Industrial Benefits area by assuming additional management responsibility for offset commitments in Medical Systems, Mobile Communications and several others both on behalf of GE and third party interests. This group maintains an up-to-date database of hundreds of Canadian suppliers in diverse product areas, cross referenced by size, capability and geographic region.



GE Canada

The CF-18, Canada's foremost fighter, is powered by GE's F404-400 Turbofan engine.

The Canadair Challenger is equipped with GE CF34 Turbofan engines shown here at Transport Canada's Ottawa hangar.



The GE LM2500 marine gas turbines used on the Canadian Patrol Frigate feature Canadian bases, enclosures, tooling, module assembly and test.

Aircraft engine blades and vanes produced at GE Canada's Bromont, Quebec facility are used in various commercial transport aircraft worldwide.

Haley Industries Limited

Haley, Ontario
KOJ 1YO

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TELEX: 053-3920
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PRESIDENT & CHIEF EXECUTIVE OFFICER:
Greg J. Kedrosky

SENIOR VP, MARKETING:
Harvey W. Murray

VP, FINANCE:
James C Lemenchick

Haley Industries Limited has specialized in the casting of complex aluminum and magnesium castings for aerospace markets since 1952. These castings include constant-speed drive housings, main propulsion engine gearbox housings and accessory doors for fixed wing aircraft, and main transmission and tail rotor gearbox housings for helicopters. Parts range in size from 5 lbs. to 190 lbs. and up to 5 ft. in diameter while maintaining strict aerospace specifications.

Each of the parts cast have some quantity of complex internal passage-ways cast into them by a special coring process developed at Haley. Unique processes such as this one, that facilitate casting of several metres of passages into a part while meeting high metallurgical standards, are the key to Haley's success. Over the years Haley has successfully developed a number of new processes through R & D which have helped to maintain its enviable position in the forefront of light metal foundry technology.

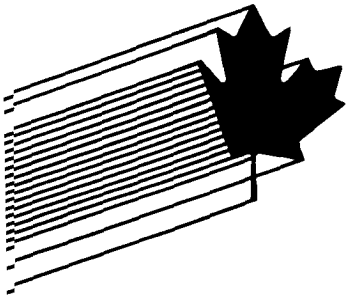
One of the major R and D efforts, an advanced system for pouring aluminum alloys, has successfully been in production since mid 1986. This micro-processor controlled bottom pouring process enables Haley to produce premium quality castings with superior mechanical properties, excellent radiographic quality and thinner wall sections. Such advancement has given the foundry an entree into other areas of the aerospace industry, particularly for requirements of cast structural components and fuel and oil pump type castings. Another major R and D project which has entered the production phase is the utilization of a C.N.C. 4 axis milling machine with both vertical and horizontal capability. This piece of equipment is dramatically reducing the amount of time required to router, grind and hand finish our castings with a repeatability not previously available. With the addition of a twin machine in late 1990, we will then be able to offer our customers a capability for certain machining operations.

The 1990's will be one of the most challenging decades Canadian business has seen for some time. We must be in a position to reduce costs and to be more responsive to customers with higher quality and better support services. With an emphasis on the communication and co-ordination between customers, sales, production and technical staff, Haley is currently implementing a new Management Information System (MIS) to upgrade present systems. In conjunction with and at the request of several of its customers, Haley is also in the process of introducing electronic data interchange (EDI), a necessity to successfully manage the rapidly changing requirements of the aerospace world.

Haley provides a complete service to its customers; from pattern making to dimensional inspection, destructive testings, non-destructive testing, chemical analysis and microscopic analysis of metal poured. Complimenting this service is an available range of premium and regular quality aluminum and magnesium alloys cast to international aerospace specifications.

In 1984 Haley acquired Presto Casting Company of Phoenix, Arizona. Presto, a smaller facility, produces castings similar to those produced by Haley but of a generally less complex design and therefore at a lower cost. Being able to take advantage of Haley manufacturing technology and production techniques permits Presto to be very aggressive in its marketing strategies. In 1990 Presto commenced a $1.6 million expansion/modernization program which will provide them with an additional 30,000 sq. ft. of manufacturing space. This will provide a better product flow through the foundry while increasing capacity to meet the demands of the 1990's.

A publicly-owned company, with shares traded on the Toronto Stock Exchange, Haley's consolidated sales figures for fiscal 1990 were $40 million. The Haley facility employs 340 people while Presto employs 175 people.



HALEY

Havlik Technologies

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Cambridge, Ontario
N3H 4V2

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(416) 364-6208
(Toronto Line)
FAX: (519) 653-5774
ext. 269

PRESIDENT AND CEO:
David M. Gee

Havlik Technologies is a leading supplier to the aerospace, defense and precision engineering industries. Specialist divisions employ the latest in CNC, CAD/CAM, metal processing and stress analysis hardware and software, bringing unique single source service and single source accountability to the collaborative engineering, fabrication and testing of any product - all under the Havlik umbrella. All divisions have fully independent quality assurance and inspection capabilities and offer absolute material and process traceability including configuration control.

PRECISION MACHINING

Havlik's **Williams Machines** division undertakes precision machining of medium to large components in aluminum, titanium and high strength steel. Our broad complement of CNC turning, profiling and milling equipment, together with quality programs to the requirements of AQAP-4, CSA Z 299.3 and MIL-I-45208, ensure maximum sub-contractor support.

FABRICATION AND ASSEMBLY

Williams Machines combines large scale welding and metal forming facilities with its precision machining capability to produce ground support equipment and specialized jigs, fixtures and tooling. Space related programs include Olympus and Anik E satellites, as well as the Canadarm and L-Sat Solar Array programs.

METAL PROCESSING AND INSPECTION

Our **Material Processing** division is an industry leader in quality, minimal reject rates, rapid product turnaround and excellent pricing on short run processing. Capabilities include anodizing, heat treating, cadmium plating, abrasive blasting, shot peening, spray painting, chemical conversion, dry film lubrication and non-destructive testing.

Numerous customer approvals range from National Defense (special process) to Transport Canada.

NON-DESTRUCTIVE TESTING

Havlik's **Vis-U-Ray Testing** division is the largest independent commercial non-destructive test facility of its kind in Canada. Areas of specialization include radiography, ultrasonic, penetrant, magnetic particle and eddy current inspections. Capabilities range from large armour plate vehicle shells and aircraft wing skins to small, ultra-sensitive guidance system components. Approvals include utilities, companies in the nuclear and aerospace industries and the Department of National Defence.

STRESS ENGINEERING

Stress engineering services are provided to aerospace clients, including NASA, by Havlik's **Securamax International** division. We employ advanced methodology for thermal and dynamic stress analysis developed as a critical component in the manufacture of clamp joints, flexible ball joints and ball valves designed and engineered for severe service conditions.

Havlik Technologies is a member of the Derlan Industries group of companies, a publicly held Canadian corporation with a wide range of aerospace interests in Canada and the United States.

Williams Machines Division
Division Manager: Dainis Asaris

Material Processing Division
Vice-President & Division Manager: Sandy Sykes

Vis-U-Ray Testing Division
Vice-President & General Manager: B. Paul Astbury

Securamax International Division
President: Ray Pecoskie

ING INDUSTRIES LTD.

FABRICATION OUTLINE

TO: Havlik Technologies Inc.
695 Bishop St. N.
Cambridge, Ontario
N3H 4V2

P.O. NO. 05-0901702 | ISSUE DATE 12-05-91 | JOB NO. 375 | CONFIRM TO: Paul Raymore

SUPPLIER NO. 78-9766 | DESCRIPTION Strut | QTY. 100 | MATERIAL SPEC. Al Forging 7075-01 | PART NO. 143Q3009-4

OP NO	OPERATIONS	SUPPLIED BY
10	ISSUE MATERIAL AND SERIALIZE	HAVLIK
20 TO 70	ROUGH MACHINE TOP AND BOTTOM	HAVLIK
80	INSPECT	HAVLIK
90	HEAT TREAT TO T73	HAVLIK
100	HARDNESS AND CONDUCTIVITY TEST	HAVLIK
110 TO 190	FINISH MACHINE COMPLETE TO DRAWING	HAVLIK
200	DEBURR	HAVLIK
210	100% INSPECT	HAVLIK
220	PENETRANT INSPECT	HAVLIK
230	SHOT PEEN	HAVLIK
240 TO 250	FINISH BORES AND REAM HOLES	HAVLIK
260	ANODIZE	HAVLIK
270	URETHANE COAT	HAVLIK
280	INSTALL BUSHINGS AND SPACERS	HAVLIK
290	BRUSH CADMIUM PLATE	HAVLIK
300	PART MARK AND SERIALIZE	HAVLIK
310	FINAL INSPECT	HAVLIK

NOTE: ALL DOCUMENTS AND PACKAGING RELATING TO THIS ORDER MUST CONTAIN THE P.O. NUMBER

VENDOR

Hawker Siddeley Canada Inc. Orenda Division

3160 Derry Rd. East
Mississauga, Ontario
L4T 1A9

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TELEX: 06-968727
CABLE:
ORENDA TELECOPIER:
(416) 678-1538

VICE PRESIDENT &
GENERAL MANAGER:
R.J. Munro

R&O BUSINESS
MANAGER:
F. Button

COMPONENT
BUSINESS MANAGER:
K.W. Beel

DIRECTOR OF
FINANCE:
T. Crawley

DIRECTOR OF
QUALITY ASSURANCE:
I.J. Leishman

Orenda Division has been the leading manufacturing and overhaul centre of Canadian Forces' high performance gas turbines since 1946. More recently, Orenda has built up a significant subcontract component manufacturing activity producing high quality parts for such customers as Pratt & Whitney Aircraft, General Electric, Pratt and Whitney Canada, Rolls-Royce, Textron-Lycoming, Lucas Aerospace, McDonnell-Douglas and others.

Orenda developed Canada's first jet engine, the "Chinooks" which ran in March, 1948. This work led to the 7,500-lb.-thrust "Orenda" jet engine of which more than 3,800 were built between 1952 and 1958 to power CF-100 and F-86 Sabre jet aircraft for the air forces of Canada, Belgium, Colombia, South Africa and West Germany.Aero engine design at Orenda peaked in the mid-1950s with the development of the 26,000-lb.-thrust "Iroquois" for the Avro Arrow supersonic fighter. With cancellation of the Arrow program in 1959, skills and facilities were channelled to the design and development of the Orenda "OT" series of industrial gas turbines and the manufacture of the General Electric J79 and J85 jet aircraft engines. During a 13-year period from 1961 to 1974, Orenda built 478 J79s for the F-104 "Starfighter" aircraft and 840 J85s for the Canadian Forces "Tutor" and CF-5/NF-5 versions of the Northrop F-5 interceptor.

Orenda currently employs approximately 500 people at its modern, climate-controlled facility located close to Toronto's International Airport - where it utilizes some 450,000 square feet (41,805 m2). The comprehensive manufacturing and overhaul capabilities are complemented by extensive and experienced supporting activities such as R&D, design engineering, manufacturing and process engineering, government-qualified laboratories (materials, instruments, electronic, mechanical, accessories), computerized data processing and a modern graphics department.

Repair and overhaul activities encompass the J85 engines for the CT114 Tutor and CF-5 Freedom Fighter, and the F404-GE-400 for the CF-18. Orenda provides not only engine overhaul but also extensive component repair, spare parts manufacture and supply, and comprehensive technical support both "in-house" and in the field. All repair and overhaul activities are undertaken with strict compliance to NATO AQAP-1 quality standards.

Component manufacture under subcontract involves a wide variety of machining and fabrication techniques encompassing small parts for engines such as the Pratt & Whitney JT15D to large parts for commercial engines such as the Rolls-Royce RB211 or Pratt & Whitney JT9D. An extensive range of equipment - from manually operated to fully NC machines to modern welding and heat-treatment facilities- provides capabilities to manufacture components in aluminum, magnesium, titanium, alloy steels and current generation high temperature metals. Orenda is a fully-qualified supplier to all major gas turbine manufacturers and is fully conversant with their stringent quality and process standards.

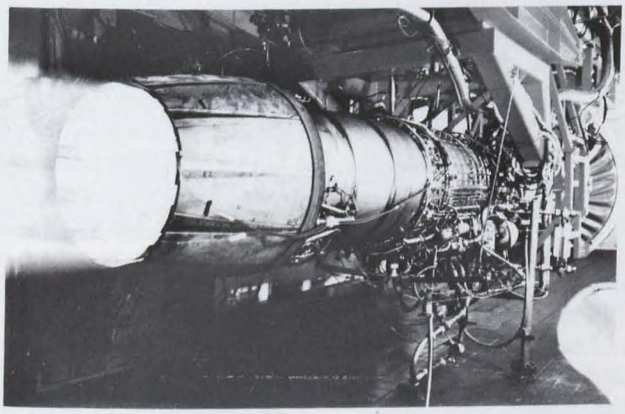
Orenda's component manufacturing capabilities are complemented by two wholly-owned subsidiaries, Middleton Aerospace Corporation of Middleton, Mass., and Windsor Aerospace Ltd. of Windsor, Ont., both of which supply high precision machined parts for the Aerospace industry.

A dynamic team of experts of international recognition forms the backbone of Orenda's Research and Development Group. Current efforts of this group center around improving the durability of expensive and critical components in the F404-GE-400 engine, the J85-CAN-15 and the J85-CAN-40 engines. These efforts include the development of innovative repair techniques for service damaged blades, nozzles and casings. Similar services on other engine types are now being offered on a contract basis. The R&D group works closely with a number of government laboratories, universities, and other corporations. The benefits of this national and international cooperation are passed on to engine operators in the form of high quality solutions to advanced engineering problems, improving flight safety and reducing maintenance costs.

AIRCRAFT GAS TURBINES

- Manufacture, assembly and test of complete engines. In excess of 5000 Orenda, J79 and J85 produced.

- Repair and overhaul of complete engines. Fully integrated capability including component overhaul, parts manufacture, laboratory services, engineering services. 31,000 square feet (2 900 square metres) of overhaul space and a 30,000 square foot (2 800 square metre) test cell complex capable of handling 30,000 lb. (13 600 Kg) thrust class engines.



F404 Engine on Test.

COMPONENT MANUFACTURING

- A full range of machining and fabricating equipment, including CNC machines, with capacity up to 10 feet (3.0 metres) diameter. Typical parts manufactured include:
  - Compressor Stator Assemblies (F100, TF33, JT9D)
  - Gas Generators (PT6)
  - Turbine Nozzles (J85, T53, ALF502)
  - Exhaust Ducts, Cones and Cases (TF30, PT6, J52, JT8D)
  - Combustion Liners (JT15D, JT8D)
  - Compressor Cases (J79)
  - Front Frame (F404)
  - Turbine Cases (PW100, 570)
  - Compressor Discs, Spacers, Torque Rings (J85)
  - Turbine Wheels, Drive Shafts (J85)

Compressor Stator Assembly — TF33 Engine.

Combustion Liner — JT15D Engine.

INDUSTRIAL GAS TURBINES

- Repair and overhaul, and supply of spares for Orenda produced units.
- Assembly of G.E. LM1600 units.

OTHER

- Engineering Department support to manufacturing, overhaul and customers.
- Quality Control Department approved to MIL-Q-9858A, AQAP-1 and D.O.T. (for aerospace).
- Graphics Department providing a comprehensive full colour service to industry, specializing in technical manuals.

CUSTOMERS

- include: governments
  aerospace industry
  oil and gas industry
  utilities

PLANT

- 450,000 square feet in use (41 805 square metres) with road, rail and air transport.

HAWKER SIDDELEY ORENDA

Indal Technologies Inc.

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Mississauga, Ontario
L5C 2V8

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G.R. Rutledge

PRESIDENT AND
CHIEF OPERATING
OFFICER:
A.G. Wakefield

VICE PRESIDENT,
SALES AND
MARKETING:
V.P. Lacey

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(A Division of ITI.)
10 Kingsmill Ave.,
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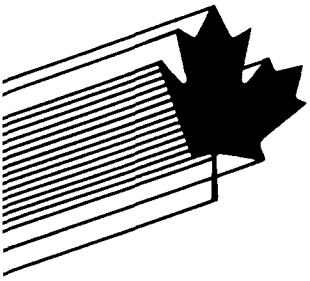
Guelph, Ontario, Canada
N1H 6M6

TEL: (519) 822-6630
FAX: (519) 822-7806

VICE & GENERAL
MANAGER
D. E. Roberts



Indal Technologies Inc. (ITI), based near Toronto, Ontario, designs and manufactures high-technology systems for aerospace, marine, defence and commercial applications.

In 1989, Indal Technologies acquired Fathom Oceanology Limited (Mississauga, Ontario) as part of an aggressive strategy to broaden the company's product lines and engineering capabilities.

Indal Technologies is the world's leading supplier of specialized landing assist and protection systems for helicopters operating from ships and in heavy sea and poor weather conditions, day or night. Over 100 of its renowned Recovery Assist, Secure and Traverse (RAST) systems, based on a system developed for the Canadian Navy in the 1960s, have been delivered to the U.S. Navy as a key element of the Light Airborne Multi-Purpose System (LAMPS) MK III program. RAST is being installed on the Canadian Navy's six City class patrol frigates and the six follow-on SRP II ships. Units have also been sold to other navies, including those of Australia, Japan, Spain and Taiwan. Indal Technologies offers the latest in shipborne recovery systems called ASIST, (Aircraft Ship Integrated Secure and Traverse). This system enables helicopter pilots to make free-deck landings in sea state five conditions and is expected to revolutionize shipborne helicopter operations in the 1990s.

The company also developed the telescopic hangar concept to protect helicopters operating from small ships with limited deck space. It designs and builds specialized door systems for all types of hangars and other shipboard enclosed spaces. Indal Technologies has built more than 200 helicopter hangars and 400 doors. The specially constructed lightweight flight deck, helicopter refuelling system, aviation lighting package, helicopter landing assist systems, hangars and hangar doors combine to create a fully-integrated system of total helicopter recovery, maintenance and protection unequalled in the world today.

Indal Technologies' Fathom Oceanology product line includes lightweight dipping sonar winches, torpedo decoy handling systems and integrated systems such as Tactical Towed Line Array (TTLA) and Variable Depth Sonar (VDS) handling systems: ITI is the world's leading supplier of handling systems for active towed sonars. In conjunction with Plessey Naval Systems and the Canadian Government, the company has developed a lightweight, high performance dipping sonar winch for the airborne Cormorant sonar. The system has undergone extensive testing by the Canadian and United States navies. ITI also manufactures the "Nixie" torpedo decoy handling system for the Canadian Navy.

Building on shipborne helicopter experience, ITI is developing launch, recovery and handling systems for Unmanned Air Vehicles, and is applying results of research into infared vision systems to allow automation of these operations. The company is active in several forums including the NATO Vehicle Platform Interface Committee and the Industry Support Group to the United States UAV Joint Program Office.

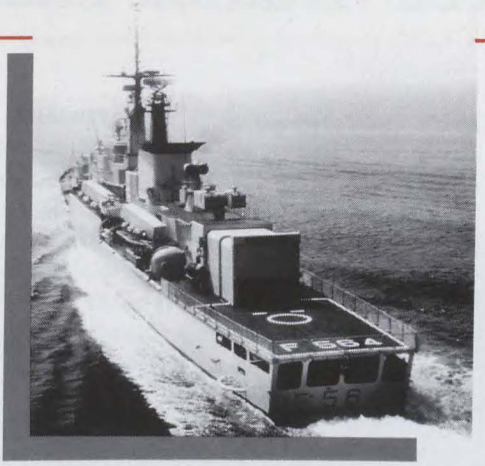
Indal Technologies produces the H.I. Thompson product line of components for thermal, acoustic and personnel shielding applications in the aerospace, defence, power generating, heavy equipment and marine equipment fields.

ITI employs approximately 350 highly-skilled people at its three facilities in southern Ontario. It maintains a large engineering department, staffed by professional engineers of many disciplines, supported by design draftpersons proficient in related fields, and as by computer aided engineering facilities. A program management, cost and schedule control system has been developed and validated by the U.S. Navy, which, with the appropriated quality assurance programs up to AQAP-1 or equivalent, make Indal Technologies well qualified to take on major contracts.

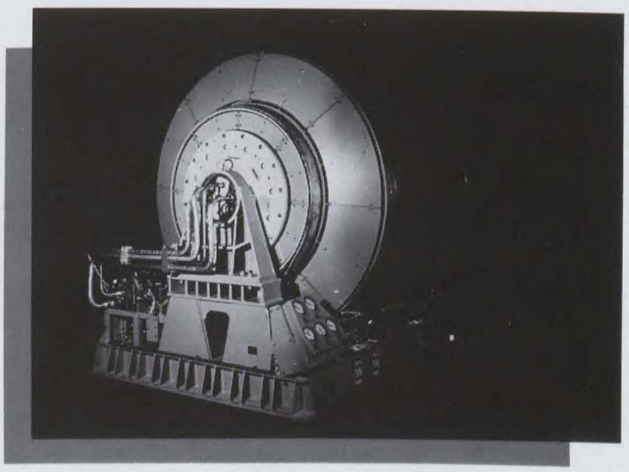
Indal Technologies is a member of the Indal group of companies, a diversified industrial organization with 26 subsidiaries and divisions in Canada and the United States, more than 9,000 employees and annual sales in excess of $1 billion Cdn.

▲Helicopter handling systems enable pilots to operate from ships in conditions up to sea state five.

◀The H. I. Thompson product line includes heat shields created from composite materials and metallic foils.



▲ITI is a leading supplier of helicopter hangars and hangar doors to navies and coast guards around the world.



▲Indal manufactures the OK-410 handling and stowage winch as part of the CANTASS program.

◀The naval variant of the Canadair CL-227 employs a launch and recovery handling system designed by Indal Technologies.

▼Indal offers variable depth sonar handling systems for ships ranging from fast patrol vessels to destroyers.

INDAL TECHNOLOGIES

Innotech Aviation Limited

595 Stuart Graham
Boulevard
Dorval, Quebec
H4Y 1E3

TEL: (514) 636-8484
TELEX: 05-821856
FAX: (Head office)
(514) 636-8887

CHAIRMAN:
Victor R. Bennett

PRESIDENT:
Neil A. Mackay

SENIOR
VICE-PRESIDENT,
Modification & Completion Division:
W. Robert Price

VICE-PRESIDENT,
Aircraft Sales:
Ray Kuliavas

VICE-PRESIDENT,
Aircraft Maintenance Division:
Ken Dandy

VICE-PRESIDENT,
Finance:
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VICE-PRESIDENT,
Flight Operations:
Rich Gage

VICE-PRESIDENT,
Special Projects & Government Programs:
Douglas M. McGregor

VICE-PRESIDENT,
Remote Sensing:
Ernie Gardiner

VICE-PRESIDENT,
Engineering & Quality Assurance:
Peter Ayre

Innotech Aviation Limited, a member of the IMP Aerospace Group, is Canada's largest business and corporate-aviation sales, modification, interior completion, flight-operation, aircraft maintenance and airborne remote sensing organization. Established in 1955, the company today employs more than 500 people at four locations in Canada and one in the United States.

Innotech's services for Canadian and international operators of turbojet and large-size turboprop aircraft include: overhaul and repair of airframes and engines; major structural modifications and customized completions; custom cabin interiors; avionics-system design and integration; aircraft and equipment sales and distribution representing more than 60 major manufacturers; flight management; remote sensing; and aircraft management and flight operation services.

The company is organized into five major divisions, plus an Instrument Check Pilot Centre:

Aircraft Modification and Completion:
At Innotech, aircraft interior completions involve specialist trades ranging from engineering and avionics-system design to cabinetwork, painting and sheet-metal work. In addition, the firm carries out structural modification and systems-upgrading work for civilian and military aircraft, as well as major repair of damaged fuselages and control surfaces.

Aircraft Maintenance:
Innotech's bases in Montreal, Toronto and Vancouver are factory-authorized service centres for many aircraft types, including the BAe-125, Cessna Citation, Learjet and Canadair Challenger. Services range from line maintenance to major inspections involving X-rays and complete overhauls of hydraulic, electrical, avionics and navigation systems plus major repairs for virtually all Garrett, Rolls Royce and Pratt & Whitney business-aircraft turbine powerplants in service today.

Aircraft Management and Flight Operations:
Routinely capable of functioning as the flight department for any size of enterprise, Innotech can provide flight crews, handle aircrew scheduling, oversee maintenance, select aircraft for fleet replacement or enlargement, perform route analysis, and ensure strict cost control.

Aircraft Sales:
Innotech markets new business jets and turboprops through exclusive distributorship agreements, such as British Aerospace, for whom Innotech handles Canadian sales of the popular BAe-125 series of corporate jets and the new-generation BAe 1000. The firm is also exclusive distributor for North America for the Boeing/de Havilland Corporate D8.

This division also finds the best in previously owned aircraft for clients whose needs are best-served by that type of equipment.

Remote Sensing:
Airborne data-acquisition and its interpretation into a variety of end products (such as digital maps that are compatible with geographic information systems—-GIS) are provided by this Innotech division, which employs a fleet of highly modified aircraft (Falcon 20, Convair 580 and DC-3) for natural-resource management, environmental-impact monitoring and mapping applications.

Instrument Check Pilot Centre
In 1990, Innotech opened Canada's first private-sector training centre for instrument check pilots. Under Transport Canada supervision, Innotech trains these check pilots, to ensure that they, in turn, can provide quality examinations when they test commercial pilots on these skills.

Innotech regional facilities:

Toronto (Aircraft-Sales)
Airway Centre
5915 Airport Road, Suite 522
Toronto, ON L4V 1T1
TEL.: (416) 673-0800
FAX: (416) 673-1657

Toronto (Aircraft Maint)
Hangar 7
2450 Derry Road East
Toronto, ON L5S 1B2
TEL.: (416) 673-2222
FAX: (416) 673-8733

Ottawa
6 Gurdwara Road
Nepean, ON K2E 8A3
TEL.: (613) 727-8131
FAX: (613) 727-9738

Vancouver
5455B Airport Road South
Vancouver International Airport
Richmond, BC V7B 1B5
TEL.: (604) 273-8686
FAX: (604) 273-5813

Burlington, Vermont
P.O. Box 2326
1150 Airport Drive
South Burlington, VT 05401
TEL.: (802) 658-2200
FAX: (same as above)

Innotech Aviation's wide range of services includes (main photo) airborne flight inspection systems for Transport Canada, and (clockwise from upper left) electronic warfare components for three Canadian Armed Forces Challenger jets; airborne remote sensing operations with a fleet that includes a modified Falcon 20 transport; specialized medevac interiors for Challenger business jets; and modern, customized business interiors, such as this Concept 2000 design.

INNOTECH AVIATION

Interfast Inc.

TORONTO (Head Office)
21 Constellation Court
Rexdale, Ontario
M9W 1K4

TEL: (416) 674-0770
FAX: (416) 674-5804

MONTREAL
(Branch Office)
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H9R 1A3

TEL: (514) 426-2755
FAX: (514) 426-2756

VANCOUVER
(Branch Office)
7-3691 Viking Way
Richmond, British
Columbia
V6V 1N6

TEL: (604) 273-0599
FAX: (604) 273-1090

PRESIDENT
S.D. (Doug) Woollings

VICE PRESIDENT
AND DIRECTOR
AEROSPACE
PRODUCTS GROUP:
N.D. (Norm) Whittaker

VICE PRESIDENT,
INTERNATIONAL
SALES:
Len Leclerc
(Montreal Office)

INTERFAST INC. (International Fasteners), since 1966, has been Canada's leading stocking distributor and manufacturers' representative organization, supplying aerospace precision fasteners, fastener systems and wire and cable to the Canadian and international marketplace.

Interfast is an engineering oriented sales organization that has, over the past 25 years, steadily expanded its products and customer base. The Company's more than 2,000 customers include many aerospace and electronic related companies, such as McDonnell Douglas, Boeing, Boeing deHavilland, Canadair, Raytheon, Bell Helicopter Textron, Spar Aerospace, Garrett Canada, MBB Helicopter, Short Bros., Government of Canada, Swiss Federal Air Force, British Aerospace, Aerospatiale and commercial airlines worldwide.

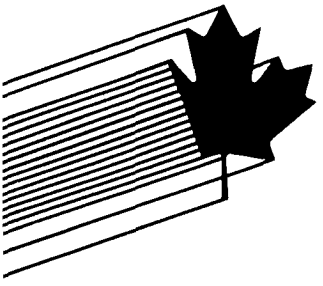
Major accounts are serviced by experienced senior sales managers. Major product lines are developed under the expertise and guidance of individual product managers. These customers and product experts are supported by a team of technical sales representatives, strategically located to give complete and comprehensive field coverage. Senior management and a team of independent representatives service the international marketplace.

The inside sales team operates from three offices, situated in Toronto, Montreal and Vancouver, through an integrated system of sales order desks, sourcing and expediting groups who, with the aid of a recently expanded computer inventory management and sourcing system, is able to provide instant response to its customers.

Interfast's commitment to its customers begins with 50,000 line items - over 40 million pieces of traceable inventory - housed in three locations. The Company's computerized inventory control system, bar coding, and specialized quantity packaging to military and commercial specifications, ensure accurate shipments in respectable turn-around times. A quality assurance program has been designed to meet the NATO requirements AQAP4 and MIL-I-45208 specifications and is recognized by The Department of National Defence and major North American prime contractors, and guarantees complete traceability.

Customer commitment starts with the inherent knowledge that, to continue to be successful, Interfast must meet and exceed its customers' requirements for product quality, timely delivery, competitive pricing and technical support. The desire to excel has propelled the organization into providing new product design, modification of existing design, solutions to specific problems, or assuring just-in-time delivery for major programs.

Interfast recognizes the demanding conditions and environments to which its products are routinely subject and, as industry leaders, is celebrating its 25th anniversary by making the uncompromising commitment to continually meet these challenges.



Vancouver
Serving
Western Canada

Toronto
Serving
Central Canada
& North America
Markets

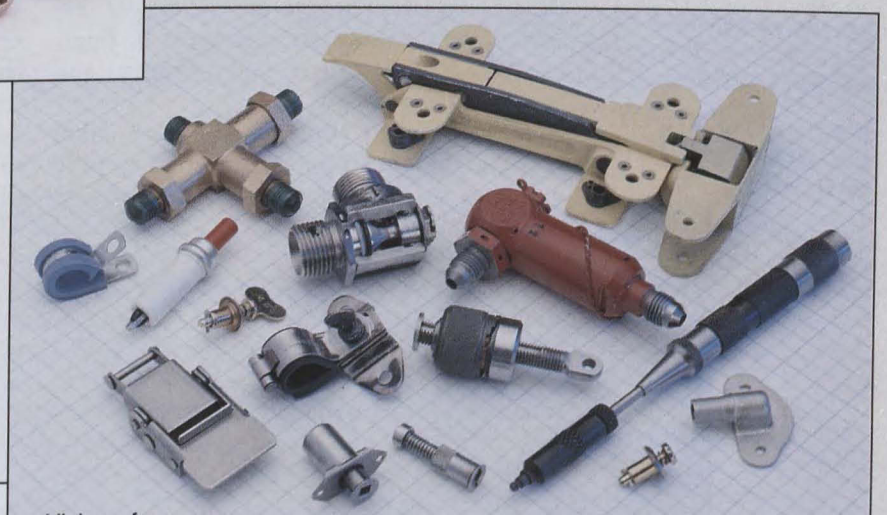
Montreal
Serving
Eastern Canada
& The International
Markets

INTERFAST INC.
INTERNATIONAL FASTENERS

Fastening solutions for the aerospace industry

Precision aerospace male fasteners

Precision aerospace female fasteners



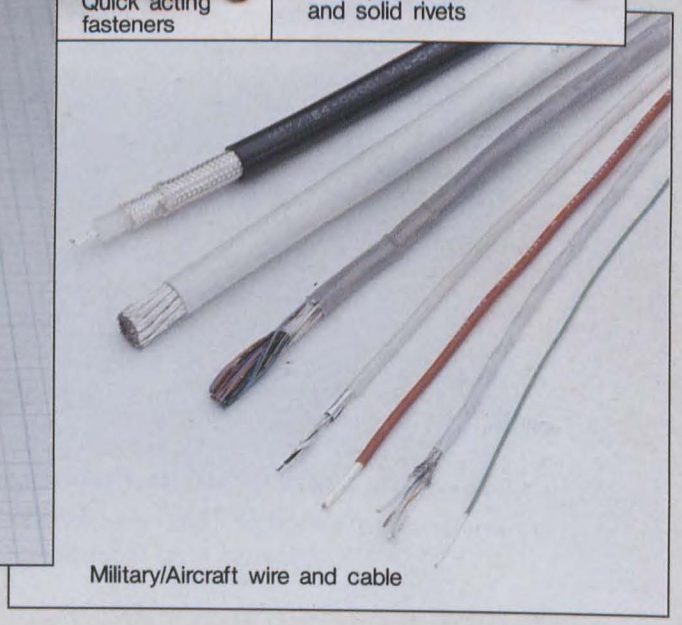
High-performance
latches, fittings, swivels and tooling

Aerospace fastener systems

Quick acting
fasteners

Aerospace blind
and solid rivets

High-performance screws and bolts



Military/Aircraft wire and cable

ATA 2000 CAPABILITIES

Irvin Industries Canada Limited

479 Central Avenue
Fort Erie, Ontario
L2A 3T9

MAILING ADDRESS:
P.O. Box 280
Fort Erie, Ontario
L2A 5M9
TEL: (416) 871-6510
TELEX: 061-5169
FAX: (416) 871-6534

PRESIDENT AND GENERAL MANAGER:
John D. Swanigan

DIRECTOR OF SALES AND MARKETING:
John C. Simis

Since 1925, Irvin Industries Canada Limited has been actively engaged in the design, development, manufacture and export of military defence products; aerospace safety, rescue and life support equipment.

Irvin's 65,000 sq. ft. facility in Fort Erie, Ontario is comprised of approximately 200 skilled and professional employees in Engineering, Production, Quality Control and Support Operations.

As a government approved company, Irvin Canada's Quality Control Program is fully qualified to Canadian Forces Specification AQAP-1, DND 1015 and U.S. Specification Mil-Q-9858A. Annual quality audits, conducted by independently-assigned specialists, combined with a full-time, in-house Government Source Inspection office, further assures the quality of Irvin products throughout all phases of the manufacturing process, from the initial receipt of raw materials through to the final inspection, packaging and delivery of the finished product.

Irvin Canada is a prime supplier for the Canadian Forces; and the company's international customers include all branches of the U.S. military and the military organizations of over 60 nations throughout the Free World.

CAPABILITIES AND PRODUCTS

Irvin's **Parachute Production Department** is equipped with over 350 industrial sewing machines, cloth laying and cutting tables, grommet and eyelet machines, light tables and a variety of computerized inspection and test equipment - for both destructive and non-destructive testing of materials, components and finished products. The company's major product line includes an extensive range of parachute products and systems for military aerospace applications.

Irvin's **Mechanisms Department** is a dust free, environmentally controlled facility equipped with modern calibration and test equipment, ultrasonic cleaners, extreme temperature and vacuum chambers, centrifuges and vibration testers. This department is responsible for the manufacture and assembly of new Irvin instruments, and for the after sales servicing and routine inspections of instruments for Irvin's customers.

Irvin's **Inflatables Department** is equipped with ultra-modern, Frequency Stabilized Electronic Heat Sealing equipment and associated jigs and fixtures for the production of a wide range of inflatable products and life support equipment.

Personnel Parachutes:
- Steerable and non-steerable troop parachutes
- Emergency escape parachutes for pilots and crew
- Ejection seat parachutes (A.I.M.) for high speed jet aircraft (CF-18)
- Tactical Assault Personnel Parachute (T.A.P.P.) for low altitude troop delivery
- Tactical Gliding Parachute System (CT-3) for High Altitude, High Opening (H.A.H.O.) military standoff operations
- Para Rescue parachutes for Search and Rescue operations
- Loadmaster/Despatcher parachutes

Aerial Delivery Parachute Systems:
- Cargo Delivery systems for airdrop of bundles, containers, heavy platform loads and Low Altitude Parachute Extraction (LAPES)
- Bomb retardation parachutes
- Stabilizer/Delivery parachutes for torpedoes, sonobuoys, flares and air-droppable sea survival/rescue systems (Sea SKAD & L.W. SKAD)

Aerial Recovery Systems:
- Parachute recovery for the CL-89 reconnaissance drone
- Parachute recovery and Landing bag system for the CL-289 reconnaissance drone
- Parachute recovery system for the Robot 'X' target drone
- Anti-spin and aircraft deceleration parachutes (V.P.C.R.) for the CF-5, F-5, F-104, F-105, Mirage V, Hawker-Hunter and F-16 aircraft.

Precision Instruments:
- FF-2 Hitefinder and FF-3 Saver Automatic Parachute Release Mechanisms for military freefall parachutes
- MK 10B & MK 10C Automatic Parachute Release mechanisms for emergency escape parachutes
- DM-1 mechanical dereefing mechanism for cargo parachutes
- B-100 barometric cutter-staging device for cargo delivery applications
- PA-100 military parachutist altimeter

•Irvin Vacuum Test Chamber for field testing/calibration of Irvin barometric devices.

Inflatable:

•Aircrew and military parachutists' life vests/jackets

•Anti-G suits and waistcoats for pilots and crew

•Impact attenuation, inflatable bags for shock absorption of delicate loads

•Inflatable decoy systems

Light Weight Survival Kit, Air Droppable (L.W. SKAD): a completely self-contained, wing-mounted sea rescue system that is automatically sequenced to deploy, deliver and inflate two 6-man life rafts, and accompanying survival equipment in close proximity to endangered personnel.

Irvin Aircrew Life Support Equipment: Automatic Inflation Modulation (A.I.M.) ejection seat parachute, MK-10B Automatic Parachute Release Mechanism, inflatable Aircrew Life Preserver and Anti-Gravity suit.

Irvin Industries Canada Limited is a wholly-owned subsidiary of Irvin Aerospace Limited of Ampthill, England. The Irvin corporation was originally founded in Buffalo, NY in 1919; and, since its inception, has grown to include North American aerospace divisions in Kentucky, North Carolina, California and Canada; and overseas aerospace facilities in England and Italy. Irvin also has manufacturing licensees in West Germany and Japan, plus a comprehensive network of sales agencies in 60 countries throughout the world.

Irvin Military Parachuting Equipment: FF-2 Hitefinder Automatic Parachute Release mechanism, PA-100 Military Parachutist Altimeter and CT-3 High Glide, Tactical Ram Air Parachute System for High Altitude, High Opening (H.A.H.O.) military standoff, parachuting operations.

Irvin Vacuum Test Chamber for the calibration/testing of Irvin barometric devices.

Istec Incorporated

1810 Highway 6 North
Hamilton, Ontario
CANADA L9J 1H2

TEL: (416) 529-5132
FAX: (416) 529-5311
TELEX: 061-8548

PRESIDENT:
Mark Chamberlain

EXECUTIVE VICE PRESIDENT:
C. James Cooper

MARKETING:
Michael G. Wlodek

The Stabilization System currently manufactured by ISTEC (Isolation Stabilization Technology) Incorporated was originally designed to isolate line-of-sight sensor systems for Military Airborne Surveillance applications in 1974.

ISTEC currently employs approximately 50 people. The distribution of personnel is evenly divided between development, engineering and production. The Engineering staff has extensive experience and expertise in the fields of Mechanical Design, Electronics, and Optical Engineering. This group is dedicated to developing and customizing ISTEC's various Stabilized Platforms and related Surveillance Systems for the specific applications our customers demand.

Markets

These Stabilized Mounts are being sold world wide for a variety of industries. These include Security, Surveillance, Military, Utility Inspection, Electronic News Gathering and Film. An established network of twenty-two (22) Agents, which represent ISTEC in over 30 countries around the world, are responsible for front line sales and marketing. Systems have been used by Police Forces, Military Departments, Hydro Line Inspection Companies, Film Companies and the Broadcast News Industry.

Airborne Surveillance Systems

ISTEC's Airborne Surveillance Systems are remotely controlled, vibration isolated, gyroscopically stabilized platforms. When attached to moving vehicle, the line-of-sight Sensor Package is isolated from the vibration and angular motion of the vehicle. Because of the high degree of stability provided by ISTEC's Stabilized Platforms (less than 5 microRadians line-of-sight jitter), image magnification of several hundred times may be achieved.

With the remote control, the sensor package line of sight can be steered by an operator from within the transporting vehicle. Steering is accomplished by using a stiff joystick through 360 degrees in pan, continuously in either direction. In tilt, the sensor package can be pointed 30 degrees above the horizon, and straight down at 90 degrees below the horizon. In addition to standard steering aids, sensor functions such as zoom, focus, iris, extenders and filters may be remotely controlled from the console.

Because of the modular design of the system and the different package sizes available, a wide variety of Sensor Packages can be installed on the Mount. These include long range, large aperture Zoom Lenses with high resolution Video Cameras as well as Thermal Imagers with varying fields of view.

The Product Line

With extensive experience configuring different sensor packages, ISTEC has selected three which form the basis of a complete product line. These systems are the 12DL, 24DL and 36DB Series.

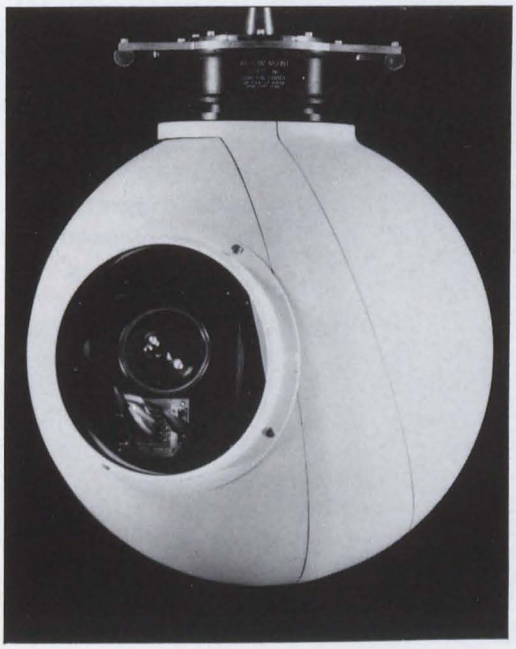
12DL-Series Mount

The 12DL-series of mounts are Gyrostabilized gimbal systems which offer excellent stability for smaller Sensor Packages. This 12" system provides stability in the order of 50 microradians which can support optical packages providing image magnification of 30 times. Typical Sensor packages include color or low-light video cameras with zoom lenses or multiple field of view Thermal Imagers. This system is ideally suited for fixed wing and R.P.V. applications because of its low aerodynamic profile.d

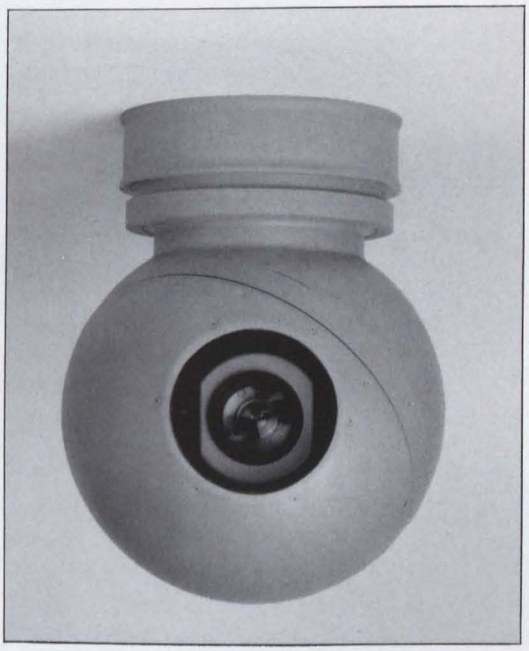
24DL and 36DB Series Mounts

The 24DL and 36DB series Mounts use Istec's patented stabilization concept differing only in size. These systems can support a wide variety of optical packages with image magnifications up to 180 times. Both Systems can accommodate very large aperture optical packages providing excellent viewing at undetectable standoff ranges. The typical optical packages used with these systems include: long range zoom lens with lowlight cameras, Thermal Imagers and Lasar Range Finders/Designators.

Airborne Surveillance System



24DL1100



12DL300

ISTEC

Linamar Machine Limited

301 Massey Road
Guelph, Ontario
N1K 1B2

TEL: (519) 836-7550
FAX: (519) 824-8479

PRESIDENT AND CEO:
Frank J. Hasenfratz

EXECUTIVE
VICE PRESIDENT:
Larry J. Pearson

DIRECTOR
OF MARKETING:
James E. Hacking

VICE-PRESIDENT &
MANUFACTURING:
Paul Brophy

Linamar Machine Limited was established in 1966 and since that time has become known for its highly innovative and entrepreneurial approach, and for its commitment to plans and management objectives for the long term.

Linamar Machine Limited and its group of companies is a major manufacturer of close tolerance metal parts, components & systems in aircraft/aerospace, defense, transportation and automotive. At present, the group has more than 1,300 employees with a product range which spans over 500 components & assemblies.

The Linamar group of companies is committed to constant expansion of its traditional market base to ensure sustained long term growth in all sectors, enabling us to accommodate any shifts in strength in any particular market segment. Through the diversity of our capabilities, product range and service, the Linamar group is also able to explore new technological frontiers.

By continuing to establish select corporations, we are able to amalgamate our extensive resources and joint strength for the benefit of our customers.

Hastech Inc.
Hastech Inc., was established for exceptionally high technology production for aircraft/aerospace, including transmission components for U.S. Military Land Vehicles.

Invar Manufacturing Ltd.
The largest single company within the Linamar group, Invar Manufacturing Ltd. is one of Canada's leading contract batch manufacturing operations, recognized for its precision machined products and systems.

The scope of the company's capabilities encompasses fabrication, machining and assembly–from the initial purchase and prefabrication of raw materials and components to the final assembly and testing of the manufactured parts & systems.

Invar production facilities accommodate an advanced CAD/CAM Applicon Equinox 7000 system together with a wide range of NC/CNC machining centres, some with DNC transfer capabilities. Accordingly, Invar can perform sophisticated multi-axis work involving design transferring and 3-D sculptured surfaces.

Invar Manufacturing Ltd. specialized in manufacturing an extensive line of components for wings, landing gears and jet engines as well as hydraulic components. Complementing its involvement in the aerospace industry, Invar Manufacturing Ltd. manufactures a wide array of complex components and hydraulic assemblies for the defense, commercial, transportation and nuclear energy markets. With manufacturing facilities in excess of 200,000 square feet (18,580 M) Invar Manufacturing Ltd. utilizes the most advanced NC/CNC machine tools available, including high concentration of four & five axis machining centres.

Testing facilities for Hydraulic applications include bench and special fixture testing units with pressure capacities of up to 10,000 P.S.I. Invar facilities are controlled to meet a level cleanliness of 200–MIL-STD-1264A and all components undergo a regulated quality control inspection. Invar Manufacturing Ltd. has an established quality control program approved to AQAPl and CSA Z299.2 standards; Canadian Government specification DND 1015; and U.S. Government specification MIL-Q-9858A.

Non-destructive testing (MPI and LPI) is carried out by CGSB certified operators to accepted Military, Aircraft and Nuclear Energy standards.

Invar Manufacturing Ltd.
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Batawa, Ontario KOK 1EO
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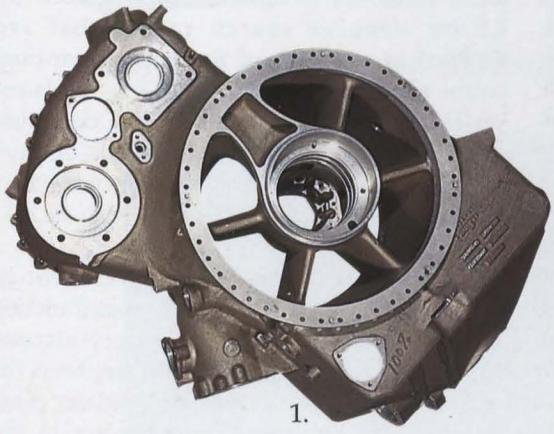
FAX: (613) 966-7932

VICE PRESIDENT AND GENERAL MANAGER: Brian R. Riden
REGIONAL SALES MANAGER: Cam E. Nardocchio
TECHNICAL SALES MANAGER: James Burns
MANUFACTURING MANAGER: Fred Ireland

LINAMAR

invar



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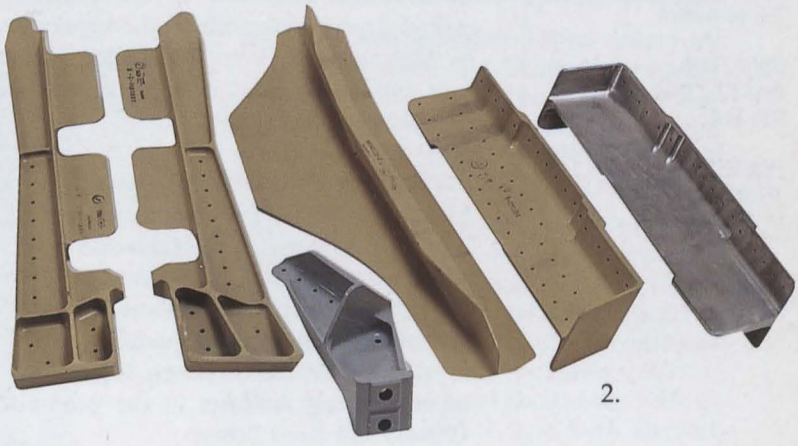


2.

3.

4.

5.

6.

1. Inlet housing for jet engine.
2. Various wing components programmed on our CAD/CAM system.
3. Flap fitting produced on a 5 axis machining centre.
4. Gear housing for helicopter.
5. Impeller for jet engine, produced on a 5 axis machine centre.
6. Cover for jet engine, produced on a 4 axis machining centre.

Litton Systems Canada Limited

25 City View Drive
Etobicoke, Ontario
M9W 5A7

TEL: (416) 249-1231
TELEX: 06-989406
FAX: (416) 245-0324

PRESIDENT:
T.J. McGuigan

DIRECTOR,
MARKETING:
S.F. Bell

DIRECTOR,
MARKETING:
D. Hughes

Litton Systems Canada Limited is a Canadian company with over 30 successful years as a producer of highly sophisticated electronic equipment. The company has a proven track record for its engineering and manufacturing capabilities in the demanding field of airborne, land based and maritime electronics. In addition, however, Litton Canada has earned strong credentials in the application of its high technology to the design, manufacture and integration of large, ground based special purpose systems.

A division of the multinational organization Litton Industries, the company is one of the leading members of the Canadian advanced electronics industry. It currently employs over 2200 scientists, engineers, technologists and other highly skilled specialists who work in some of the most modern engineering and manufacturing facilities in the provinces of Ontario and Nova Scotia.

The company's products include inertial navigation systems for both commercial and military aircraft. Litton Canada is one of the world's largest manufacturers of inertial guidance systems and is the only one based in Canada.

Canadian made systems are used by approximately half of the world's intercontinental, commercial airlines as well as scientific aircraft, military and long range corporate aircraft. To date, almost 15,000 systems have been produced in Canada.

The company's navigation expertise has also ben applied to the development of the world's only self-contained flight inspection system capable of calibrating up to Category III Instrument Landing Systems. Litton fully automatic and semi-automatic flight inspection systems have the capability to calibrate all existing navigation aids such as ILS/MLS/TACAN landing systems as well as VOR/DME and other en route navaids.

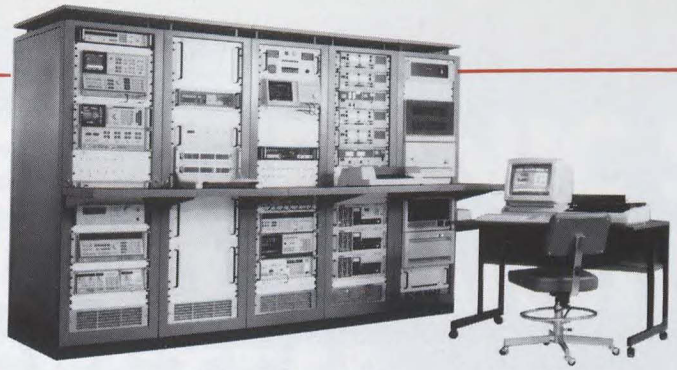
Litton automated test equipment provides high speed, computer controlled testing of analog, digital, microwave and radio frequency avionic systems at intermediate, and depot level for many air force customers. The advanced architecture of Litton test equipment provides a cost effective solution to the problem of testing a high volume of modern, complex systems.

Airborne surveillance of the coastlines of many countries is significantly enhanced by Litton airborne search radars that are installed in a variety of fixed wing maritime patrol aircraft. The APS-504(V) 5, the latest variant of Litton radars, uses pulse compression and frequency agility to provide optimal detection of small targets in high sea states and provide considerable immunity to ECM.

Litton Canada's considerable investment in the development of flat panel, multifunction display technologies has proven very successful for the company. The result has been the capability to manufacture the highest pixel density light emitting diode displays in the world. The company has been manufacturing LED displays with a resolution of 64 pixels to the inch since 1982. Thousands of Litton Canada LED displays have been delivered for various aircraft programs such the F-16 C/D, C-17A, AH-64 Longbow, EF-111, B-52, B1-B, E-3A and RF-4C.

A more recent application of the company's advanced display technology has been to color, active matrix liquid crystal displays. Once again, Litton Canada's success has resulted in the company being chosen to develop the liquid crystal displays and controls subsystem for the SuperTeam in the US Army's LH helicopter competition. For the C-130 Reliability and Maintainability Technology Insertion Program (RAMTIP) Litton Canada has delivered 6" X 8" full color, high resolution active matrix, liquid crystal displays and dual display processors to Lockheed Aeronautical Systems Corporation, Marietta, Georgia.

Litton Canada's expertise has also been contributed to the Northrup/McAir team in the Advanced Tactical Fighter competition. The company has provided color active matrix, liquid crystal displays as well as developing prototype floating point modules and structure transversal software in support of ATF display processing.



EXPANDED LITTON AUTOMATED TEST SET (ELATS)

AIRBORNE SEARCH RADAR

DISPLAY SYSTEMS

INERTIAL NAVIGATION SYSTEMS (INS)

Litton advanced technology systems serve customers throughout the world.

Expanded Litton Automated Test Set (ELATS) is a general purpose, high-speed automated test system designed to meet the exacting test requirements of modern analog, digital, microwave and RF avionics.

Airborne Search radar: Litton radars are designed to satisfy the demanding requirement of airborne tactical and maritime surveillance. These modern systems are currently installed aboard a wide variety of fixed wing maritime patrol aircraft.

Display Systems: Litton advanced display technology has been selected for a wide variety of avionic programs. Litton color, active matrix Liquid Crystal Display technology is being applied to the LH helicopter and the C-130 aircraft programs. Litton LED technology is used aboard the F-16, B-52, C-17, RF-4C, EF-111, and E-3A aircraft and has been chosen for the Apache helicopter Longbow update program.

Inertial Navigation Systems: The LTN-90 series of ring laser gyro inertial reference and inertial navigation systems are configured for both all-digital or digital/analog aircraft requirements.

Flight Inspection Systems: Litton Flight Inspection Systems are currently in use with the United Kingdom, the Netherlands, Canada, People's Republic of China, Japan, Thailand and the Republic of China.

Litton

Litton Systems
Canada Limited

FLIGHT INSPECTION SYSTEMS

Lockheed Canada Inc.

2421 Lancaster Road
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FAX: (613) 738-4510

PRESIDENT:
Larry A. Ashley

MANAGER,
MARKETING:
Michael McKay

For more than 50 years Lockheed has supplied products such as the T-33, F-104, C-130 and CP-140 to the Canadian Forces. These programs resulted in strong associations with Canadian aerospace firms across the country. Building upon this heritage the Lockheed Corporation in 1988 integrated Lockheed Canada Inc. with the Canadian subsidiary of their recently acquired electronics company, Sanders Associates. This move formed an integral part of Lockheed's strategic objective for Canada and the newly constituted company was given a mandate to develop an international competitive core Electronic Warfare (EW) capability and to broaden its technological base consistent with corporate goals.

Based upon the development of a Canadian air EW expertise, the capabilities of this growing Lockheed presence have matured into the fully developed fields of systems engineering, hardware and software engineering, integration and test, Integrated Logistics Support, the manufacture of high technology electronics systems and additional disciplines accruing from the management of a complex Major Crown Program Definition Study.

The assembly of Lockheed Canada's highly skilled EW systems engineering staff resulted in the award of Phase I of the Electronic Support and Training (EST). This program will optimize airborne EW training for the Canadian Forces. The EST will produce a revolutionary airborne training system and a means to verify sensor performance in various weapons platforms.

In the field of software engineering, the company has designed and developed a Portable Universal Programming System which is in use with the Canadian Forces and the U.S. Navy and is pursuing numerous other engineering initiatives.

Manufacturing capabilities include the assembly of complex electronic cables and harnesses, printed wiring boards, power supplies and sub-systems. The bulk of manufacturing programs are for military applications and, presently, a large portion of this production is exported to the United States. The company is AQAP-1 (MIL-Q-9858A) qualified and complies with U.S. Navy Weapons Specification WS-6536E and MIL-STD-2000.
For the future, Lockheed Corporation intends to merge the competitive capabilities of its Canadian subsidiary with the high technology expertise of Lockheed Corporation to benefit new Canadian programs. Lockheed Corporation stategic plans include the continued building of a Canadian total systems integration expertise. Transfer of high technology Lockheed Corporation products and services will accomplish this objective

The company is located in Ottawa and occupies a 60,000 square foot facility that houses state-of-the-art computer technology, engineering laboratories and a sizeable TEMPEST room for simulation and modelling of classified EW systems.

With a combination of talent and resources to sustain its leading edge in high technology hardware and software product development, Lockheed Canada Inc. is rapidly heading to the forefront as a leader in Canada's aerospace industry.

ELECTRONIC SUPPORT AND TRAINING SYSTEM

Realistic Versatile EW Training For Land, Sea And Air Forces.

The EST System is an airborne EW training package. It has the versatility to train land, sea and air forces. This multi-functional capability spans radar and communications ECM and ESM. Total data recall supports post mission analysis. EST is interactive and flexible.

The CANADAIR Challenger wide-body jet has large internal volume, ample prime power and superior performance characteristics. The EST suite is well matched and configured for future expandability. The EST Challenger is rapidly and easily deployable to remote sites having minimal support.

LOCKHEED CANADA's sophisticated EW design and systems integration capability and CANADAIR's aerospace manufacture, modification and installation capability offer outstanding quality and support.

Lockheed Canada Inc.

BOMBARDIER canadair

CONTACT OUR TEAM FOR FURTHER INFORMATION: **LOCKHEED CANADA INC. (613) 738-4500**

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MacDonald Dettwiler is a world leader in systems for aerospace, resource management and defence applications. Using advanced software engineering techniques, it provides design, development, system integration and logistics support in accordance with NASA, European Space Agency (ESA), or military standards. Among its clients are ESA, NASA, major American prime contractors, the U.S. Air Force and the Canadian Space Agency. The company exports over 70% of its work outside of North America.

MacDonald Dettwiler's state-of-the-art product line includes:

- Optical and radar reception, processing and analysis systems for both satellite and airborne sensors;
- Meteorological data reception and analysis systems;
- Air traffic control/flight operation systems;
- Space-qualified systems and software;
- MIL-SPEC systems and software.

MacDonald Dettwiler has been prime contractor for more turnkey satellite ground stations than any other company. Building on that experience, it has developed advanced spatial data management and analysis systems for integrated land use planning and resource management.

As the prime contractor for ESA's ERS-1 satellite ground station network. The company has provided ERS-1 processing facilities to a number of international agencies. MacDonald Dettwiler is also the prime contractor for the Radarsat satellite ground segment and a founding member of Radarsat International (the company which will distribute Radarsat data and products). The company is solidly at the forefront of radar remote sensing, one of the most important remote sensing technologies of the 1990s.

MacDonald Dettwiler was the first civilian company to digitally process Synthetic Aperture Radar (SAR) data and developed the first commercially-available digital SAR processor. IRIS, the real-time airborne digital imaging system, sets the world standard for the quality of its all-weather, 24-hour radar surveillance imagery.

The Aviation Systems Group is the main Canadian contractor on the $380 million Canadian Automated Air Traffic System (CAATS), responsible for most of the ATC software. On Transport Canada's System Engineering and Integration Project (SEIP), all aspects of ATC automation and aviation meteorology are being managed. In Australia, the group is developing the National Aviation Information Processing System (NAIPS) for the CAA, while in the United Kingdom, the company is helping define the Civil Aviation Authority's Systems Engineering Infrastructure.

MIL-SPEC capabilities have been developed on projects for the Canadian Department of National Defence, as well as the U.S. Air Force. The system developed for USAF will provide a global weather information network, linking several thousand computers worldwide. Advanced meteorological applications continue to be developed and implemented around the world for both civilian and military applications. Other MIL-SPEC projects include work on sonar-based Mine Countermeasures systems and high-speed signal processing.

MacDonald Dettwiler is a major partner in Canada's Mobile Servicing System for the International Space Station. Responsible for the development of complex software, data processing and artificial intelligence applications, the company is also conducting research into advanced space-based surveillance systems, with an emphasis on radar signal processing and control.

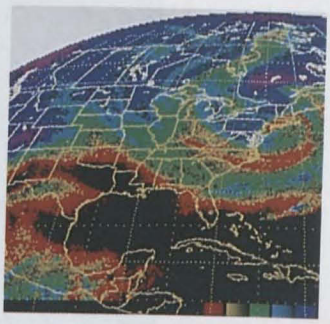
MacDonald Dettwiler is an international prime contractor, employing over 500 engineers, computer scientists, application specialists, project management and system support personnel. Headquarters in Richmond, British Columbia, the company maintains offices in Ottawa, Canada, the United States, Europe, Asia and Australia.

AIR TRAFFIC CONTROL

MacDonald Dettwiler's Aviation Systems Group specializes in developing high-reliability, advanced technology computer systems for airspace management. Systems and services in air traffic control, flight planning and aircraft operations are supplied to civil and military aviation authorities and airlines.

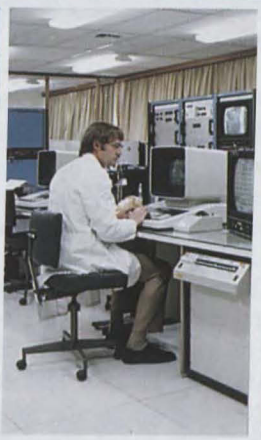
MERIDIAN SATELLITE MAPPING SYSTEM

MERIDIAN is a computer-based mapping system capable of producing topographic maps from satellite data only. The system combines input from conventional and digital data sources with an automatic digital terrain modelling capability. Geocoding and sophisticated image analysis functions allow the user to create maps for a variety of applications in environmental monitoring, land use, ice reconnaissance and disaster assessment.



GROUND STATIONS

MacDonald Dettwiler is the world's leading supplier of ground stations for earth resource satellites such as Landsat and SPOT. Over the past 13 years, MacDonald Dettwiler has built, or helped build, most of the Landsat stations worldwide. Many of these ground stations were built and installed on a turnkey basis, including on-site training and maintenance. MacDonald Dettwiler's modular design approach provides for economical upgrading for new satellites and sensors. Intensive research and development of remote sensing technology ensures that the company will continue to lead the field in ground station design.



SPACE-BASED SURVEILLANCE

MacDonald Dettwiler is chosen by both space and military agencies around the world to develop digital radar and signal processing systems. The company specializes in synthetic aperture radar imaging and moving target detection techniques and is a major contributor to Canadian technology studies for a Space-Based Radar surveillance system.

Martin Marietta Canada Ltd.

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William E. Griffin

DIRECTOR BUSINESS DEVELOPMENT:
W. Neil Russell

Martin Marietta Canada Ltd., a Canadian company with business in systems engineering, systems integration and program management support, pursues high technology business opportunities in large-scale aerospace, defence, electronics and information management programs.

The largest effort currently under way for Martin Marietta Canada Ltd. is the Systems Engineering, Systems Integration and Program Management Support (SEIP) contract for the $5 billion Canadian Airspace Systems Plan (CASP). The CASP modernization program involves three major Crown projects and multiple smaller efforts. It directs the planning, acquisition and integration of some 30,000 subsystems at 2,000 sites across Canada, with interconnections to the United States, across the Atlantic and the Pacific. The Martin Marietta SEIP team — consisting of Martin Marietta Canada Ltd., Canadian Marconi Company, I.M.P. Group Limited, Lavalin, MacDonald Dettwiler and Associates Ltd., and Thompson Hickling Aviation Inc. — is located in Ottawa near Transport Canada Headquarters, providing its expertise across the complete spectrum of aviation system engineering.

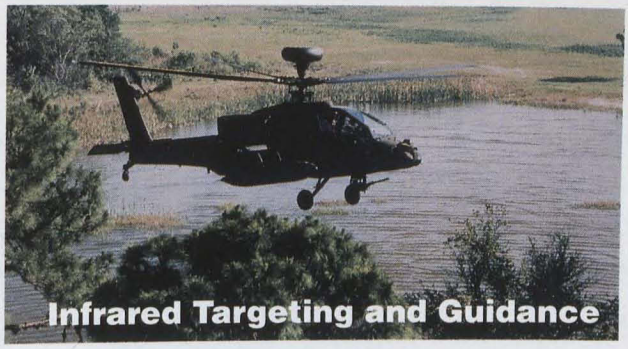
While the main contract started in January 1989, in March 1990 a second contract was gained to supply Supplementary Engineering and Technical Assistance (SETA) specifically for the Canadian Automated Air Traffic Control Project, which is part of the CASP. Through these two contracts, expertise that originated in the United States has been transferred to Canada. Today, Martin Marietta Canada Ltd. and teammates have over 120 employees, the majority of whom are Canadian citizens.

The company is an integral part of Martin Marietta Corporation, a $7.5 billion (CDN) international aerospace and information technology leader. Martin Marietta employs more than 65,000 persons who design, build and manage complex projects ranging from space programs exemplified by the Titan launch vehicles and the Magellan radar mapper circling Venus, to such defence and electronics programs as the ADATS air defence-antitank system and the LANTIRN flight navigation and targeting pods.

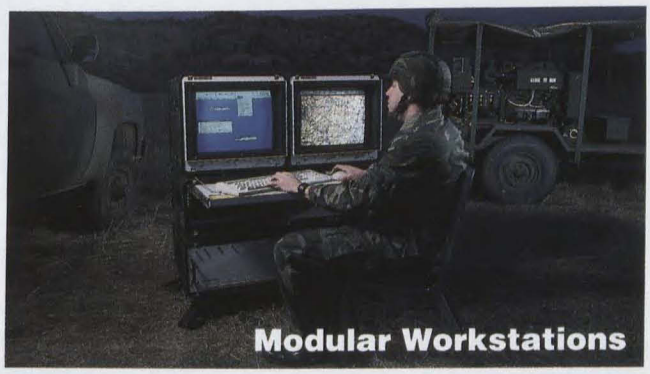
Other areas of Martin Marietta expertise include underwater surveillance and targeting systems, featuring towed and tethered sonar arrays. Also, such programs as the National Test Bed for the U.S. Strategic Defence Initiative demonstrate the corporation's world leadership in large-scale distributed simulation systems. Information management is another corporation strength where the latest in data fusion technologies is being applied to mission planning and command-and-control requirements. The large-scale use of computers is being used to create the "paperless factory" and, in the near future, "computerized" maintenance facilities and digital technical engineering orders for the United States Department of Defense.

For the next few years, Martin Marietta Canada Ltd. will concentrate on systems engineering and integration services required for large interdependent government and corporate projects. The company will continue to grow through other aspects of air traffic modernization (both within Canada and abroad), large defence projects such as the Canadian Forces Supply System Upgrade, plus other government and corporate information management programs. Essentially, Martin Marietta Canada Ltd. will continue its successful business development strategy — looking for niche areas where Martin Marietta corporate capabilities are required, both in Canada and abroad.

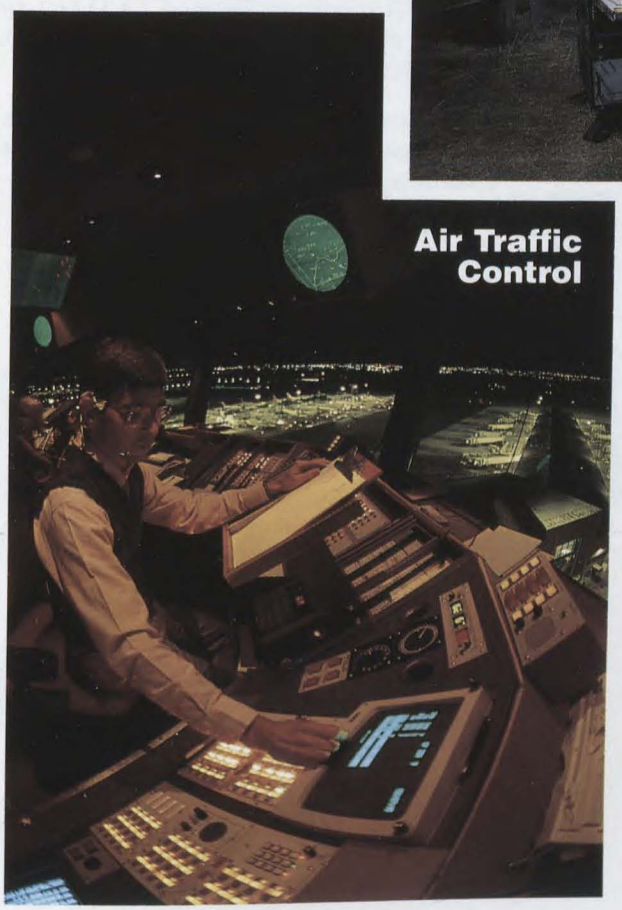
An international customer base confirms Martin Marietta's superiority in ECM test and measurement equipment.



Martin Marietta's milimeter wave and laser-guided weapons and guidance systems are found throughout the world.



Martin Marietta's portable ruggedized workstations give battlefield commanders instant access to vital information.



Martin Marietta is the system integrator for modernizing airspace systems in the United States, Australia and Canada.

Masterminding Tomorrow's Technologies

MARTIN MARIETTA

Martin Marietta Canada Ltd.

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Donald P. Chambers

VICE PRESIDENT, FINANCE:
Willy Heidbuchel

DIRECTOR, OPERATIONS:
Elwood Schmidt

DIRECTOR, ENGINEERING:
Klaus Brunsch

MBB Helicopter Canada Limited is a subsidiary of Messerschmitt-Bolkow-Blohm (MBB) GmbH of Germany. On June 20, 1986, MBB officially opened its first North American helicopter manufacturing plant in Fort Erie, Ontario.

The primary purpose was to establish a helicopter industry in Canada and to achieve this, the BO 105 LS, the latest model in MBB's highly successful series of light twin engine helicopters, was selected for manufacture. The BO 105 LS has been designed for areas of high altitudes and hot climates or for any application requiring demanding performance characteristics.

MBB, in Canada, has the world product mandate for the BO 105 LS, but is also responsible for the marketing, sales and customer support for MBB's complete line of helicopters - the BO 105 CBS, BO 105 LS and larger BK 117. These helicopters have received worldwide acceptance in a variety of configurations, including corporate transport and utility applications, and more recently have developed a niche in the Emergency Medical Service (EMS) and Airborne Law Enforcement markets, particularly in Europe and North America.

Associated with our manufacturing capability, is a complete flight test facility and engineering department that has been designated as the engineering design centre for North America. Using a state-of-the-art three dimensional computer aided design system our engineers have completed over sixty engineering developments in response to customer demands.

MBB Helicopter Canada Limited also offers complete product support through extensive training programs for pilots and technicians, provision of technical representatives, a complete Aircraft on Ground (A.O.G.) spare parts department and repair and overhaul capabilities.

Government marketing is co-ordinated through the Ottawa office at the following address:

MBB Helicopter Canada Limited
60 Queen Street, Suite 1202
Ottawa, Ontario
K1P 5Y7
CANADA

Telephone: (613) 232-1557
Telefax: (613) 232-5454
Telex: 053-4109

The helicopter production and completion areas are supported by highly skilled specialists in sheet metal fabrication, composite materials, avionics, hydraulic testing, wire harness fabrication and aircraft painting.

Engineers employ three dimensional computer aided design systems for product improvements and new helicopter developments.

Located in Fort Erie, Ontario, MBB Helicopter Canada Limited's modern 85,000 square foot facility encompasses all aspects of helicopter manufacturing.

The flight test department uses state-of-the-art equipment to test the performance of each helicopter design.

MPR Teltech Ltd

8999 Nelson Way
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PRESIDENT AND CEO:
Bruce G. Hartwick

DIRECTOR, BUSINESS DEVELOPMENT:
Alistair W. Taylor

SPECIAL ADVISOR, GOVERNMENT PROGRAMS:
John Markham

MPR Teltech Ltd. is a high technology company providing research and development services to government agencies and the telecommunications, aerospace and defence industries.

MPR Teltech is a subsidiary of B.C. Tel and the technology leader of the B.C. Tel Group. Our staff of more than 450 includes experts in a wide range of telecommunications and related electronics and computer technologies.

Systems Engineering and Integration

MPR Teltech designs and develops hardware and software products at all levels from components to integrated systems.

System engineering is at the heart of our activities. Our rigorous development methodologies ensure the quality and integrity of our system design.

In March, 1990, MPR Teltech was selected prime contractor for the FASSET project, the largest R&D contract ever awarded by DND. This three-year, $28 million project calls for the development and fabrication of a ground based model of a highly sophisticated military satellite communications system operating in the extremely high frequency (EHF) band. MPR Teltech is responsible for program management, system engineering and system integration. The design tasks for the ground station equipment and space payload model will be shared by MPR Teltech and our subcontractors, Raytheon Canada and COMDEV.

MPR Teltech has successfully completed several other major satcom projects, including the development of the system architecture, ground terminals and network management system deployed in NORAD's North Warning System. MPR Teltech also developed the SPACETEL ™ SCPC thin route integrated voice/data system used extensively in remote locations in western and northern Canada. These systems have achieved an international reputation for reliability when operating under severe environmental conditions.

Broad Technology Base

MPR Teltech has outstanding capabilities in the design and development of large software systems, backed by extensive computing resources and state-of-the art development tools.

Our radio communications expertise extends over a wide range of applications: digital and analog, fixed and mobile, terrestrial and satellite, commercial and military.

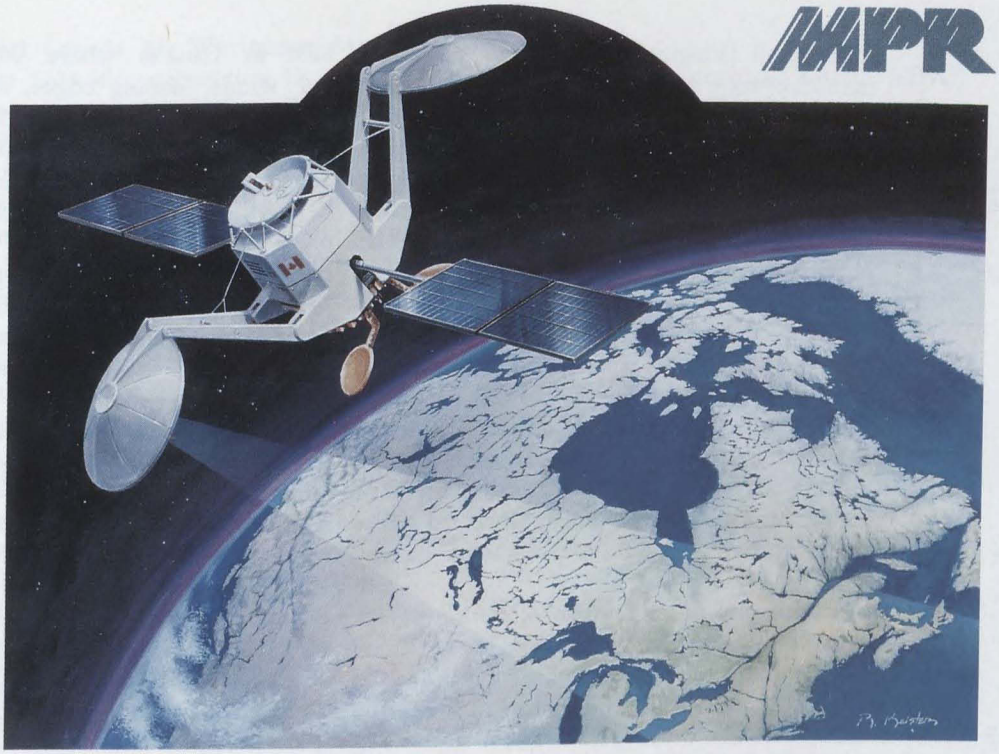
Through our advanced technology programs in digital signal processing and fibre optics, we are developing significant innovations in voice and image processing, fast packet switching, LAN interconnections and video/image/audio conferencing.

Microelectronics Capability

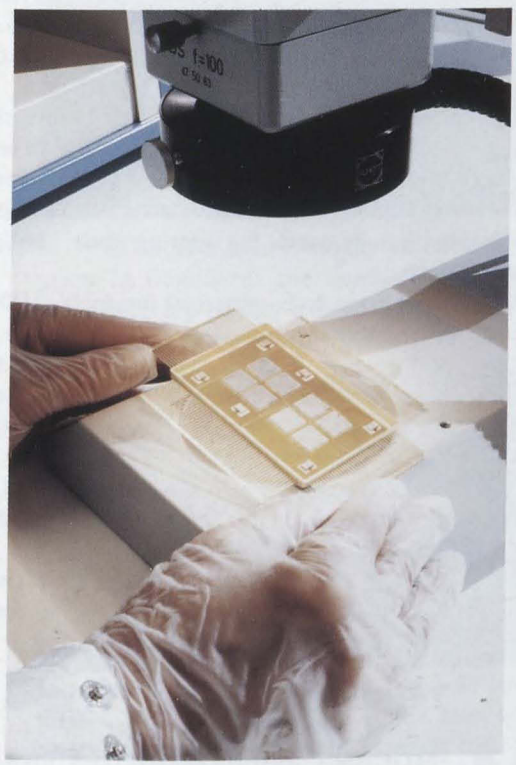
The Pacific Microelectronics Centre (PMC), a division of MPR Teltech, provides complete development services for the design and fabrication of silicon integrated circuits and multichip modules (MCMs). MCM technology provides the capability to package complete systems or subsystems on a single silicon substrate. Various semiconductor technologies such as silicon, GaAs, ECL, bipolar, analog or digital, can be combined in a single module. MPR Teltech's multichip modules are the state-of-the-art solution for aerospace requirements where high performance, low power consumption and minimum size and weight are critical.

Emergency Communications

MPR Teltech has developed a 406 MHz Emergency Position Indicating Radio Beacon (EPIRB) which will operate within the international COSPAS-SARSAT system. The EPIRB, to be known as SATFIND-406 ™ will be manufactured and marketed under licence by Alden Electronics, Inc. of Westborough, Massachusetts. MPR Teltech plans to develop a series of 406 MHz emergency communications products, including miniaturized Personal Locator Beacons (PLBs) and airborne Emergency Locator Transmitters (ELTs).



Military satellite communications — the ideal solution for Canada's vast northern hinterland.



High performance systems on silicon — multichip module implementation of dual 32 tap symmetrical Finite Impulse Filters.
(Photo courtesy of Communications Research Centre, Ottawa).

406 MHz satellite rescue beacon (EPIRB) — first of a family of emergency communications products designed by MPR Teltech.
(Photo courtesy of Alden Electronics Inc. of Westborough, MA).

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Lee A. Harvey

DIRECTOR, MD-11:
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DIRECTOR, PRODUCT CENTRE OPERATIONS:
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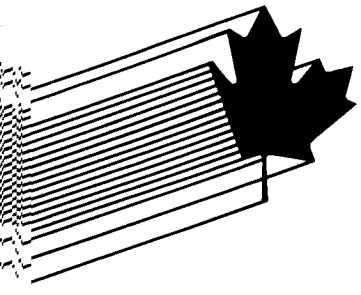

McDonnell Douglas Canada Ltd. (MDCAN) manufactures major components for both commercial and military jet aircraft. The company's capabilities include building a variety of close tolerance, high precision components. Its expertise, however, remains the fabrication and assembly of commercial aircraft wings.

Located just north of Toronto, McDonnell Douglas Canada maintains 167,220 square meters (1.8 million square feet) of building space, making it one of the largest aerospace manufacturing facilities in Canada. An investment of more than a quarter billion dollars since 1965, has kept the plant up-to-date with new manufacturing methods, advanced operating systems, and high technology equipment.

A population of more than 4,500 employees has total responsibility for managing the company's major projects, including wings for the MD-80 commercial twin jet; wings for the new MD-11 commercial trijet; and wing pylons for the F-18 Hornet. MDCAN handles the development of manufacturing concepts; the purchasing of materials and subcontract work; design and fabrication of tooling; as well as complete production and assembly of the aircraft components.

Cumulative exports are close to $5 billion and annual sales reach about half a billion dollars. In 1990 more than 2,000 jetliners, serving every continent on the globe, flew on McDonnell Douglas's Canadian wings.

MDCAN, a wholly owned subsidiary of the St. Louis-based McDonnell Douglas Corporation, celebrated its 25th anniversary in 1990. It also completed a major reorganization which streamlined both the company's structure and management team. The changes reduced the number of management levels and organized workers around specific product and support groups instead of traditional disciplines.

The reorganization was designed to enhance customer satisfaction with first-time quality. It has reaffirmed MDCAN's consistent concern for continuous improvement and restated its commitment to excellence.

Products

The MD-80 family of twin jets has about 20 per cent of its airframe fabricated and assembled in Canada where MDCAN builds the wings, leading edges, and flaps. Since that aircraft succeeded the DC-9, an intensive program of continued engineering development and product improvement has kept the MD-80 family competitive with other aircraft in its class.

Available in five different configurations, the MD-80 offers airlines a spectrum of passenger capacities and aircraft ranges. The twin jets can carry between 155 and 172 passengers over ranges of about 2,000 to 4,750 km (1,575 to 2,550 nautical miles), providing dependable service to small and large communities worldwide.

McDonnell Douglas Canada also manufactures wings for the corporation's newest commercial aircraft, the MD-11 trijet. MDCAN's contribution represents about 15 per cent of the MD-11's airframe and gives the aircraft the highest Canadian content amongst internationally competitive wide-bodied aircraft.

The standard MD-11 is available in three models, including passenger, all-freighter, and a "combi" where passengers and freight are carried on the main deck. Advances in aerodynamics, propulsion, aircraft systems, cockpit avionics, and interior design have greatly improved the performance and operating economy of all MD-11 models.

Seating capacities range from 250 in a three-class arrangement to more than 400 in an all-economy configuration. New flexible interior features enable operators to meet a variety of market demands by altering their configurations.

In addition to commercial products, MDCAN also manufactures wing pylons for the high performance F-18 Hornet. This tactical fighter aircraft performs multiple missions including all-weather intercept, fighter escort, and attack. The F-18 includes a number of innovative features and is one of the world's most sophisticated fighter jets with state-of-the-art technology.

Canada uses the CF-18 for air defense in North America and for the NATO conventional attack mission in Europe.

TECHNICAL CAPABILITY

•MDCAN's quality control and inspection system meets the requirements set out by the

Transport Canada Air Worthiness Manual, Chapters 561, 505, subsection D, and 591, subsection A; the United States Department of Defense (DOD), Specification MIL-Q-9858A; and the United States Federal Aviation Regulation (FAR Part 21).

•Computer aided design and manufacturing (CAD/CAM) supported by in-house programming specialists. Some of the tools available at MDCAN include CADD, the Unigraphics II system; Numerical Control Tape Verification; APT-Automated Program Tool language; Finite Element Analysis; and micro-computer based systems.

•Numerical Control routing of sheet metal parts using computerized nesting and programming techniques.

•A Process Planning System (PPS) dramatically reduces the time needed for planning the sequence and operations involved in new parts fabrication.

•Computerized Numerical Control (CNC) machining of parts. MDCAN operates about 60 CNC machining centres, including three, four and five axis machines as well as drivematic fastening machines. Conventional machines include presses, profilers, lathes, tube benders and drills.

•Direct Numerical Control (DNC) involves further computerization to enhance productivity in NC operations.

•Computerized tool management using a tool presetter as well as a CNC tool and cutter grinder.

•Composite parts manufacturing which includes honeycomb and metal bonding.

•MDCAN's spar mill facilities are amongst the world's largest with bed lengths of up to 100 feet.

As a leading manufacturer, McDonnell Douglas will continue to shape the future of Canada's aerospace industry by competing for national and international projects with the best quality parts at the lowest possible cost.

In 1990 McDonnell Douglas celebrated 25 years in Canada at the company's 113-acre manufacturing facility located next to Toronto's Pearson International Airport.

The MD-11 commercial trijet took its first flight in January 1990. Powered by the latest fuel efficient engines, the MD-11 incorporates new aerodynamic features to offer significant gains in fuel economy compared with other wide-bodied aircraft.

In terms of customer orders, the MD-80 commercial twin jet remains one of the most successful aircraft programs in aviation history. The next generation of twin jets, the MD-90, is scheduled to go into service in 1994.

MDCAN builds wing pylons for McDonnell Douglas's F-18 customers around the world. The F-18 Hornet is a high performance fighter aircraft.

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John M. Cybulski

VICE-PRESIDENT,
PROGRAM
MANAGEMENT &
PRODUCT SUPPORT:
E. Eriksmoen

Menasco Aerospace Ltd., a wholly-owned subsidiary of Coltec Industries, designs and manufactures the following:
- Landing gear systems.
- Primary and secondary flight control actuation systems.
- Fly-by-wire electrohydraulic systems.
- Ground steering including steer-by-wire systems.
- Variable wing sweep actuation systems.
- Ramp and door actuators.

The company's Engineering Department is supported by experienced engineers, technicians and state-of-the-art CAD/CAM technology, enabling all phases of design, development stress, dynamics and testing for electrohydraulic and hydromechanical applications employed in landing gear and flight control systems.

Menasco Aerospace maintains a complete physical and environmental testing laboratory for landing gears, flight controls and actuating devices. The facility has three drop test towers (two, 45 feet high), with the ability to check shimmy and steering characteristics. Other capabilities include vibration, structural, photostress survey, fatigue and environmental testing.

Numerically-controlled equipment, combined with a computer-aided production control system, allows Menasco Aerospace to deliver products that meet all military and commercial quality control requirements, on time and in the cost-effective manner.

Menasco Aerospace operates a separate Flight Control Overhaul Division which is staffed, equipped and committed to meet the stringent demands of aircraft operators. This department offers a thirty day trunaround service, worldwide. Exchange programs are available to operators of commercial and military transport aircraft, commuter aircraft and helicopters. Our Product Support Department provides complete worldwide services meeting all ATA requirements.

The company's technical expertise is recognized by all major airframe manufacturers including Airbus, Bell Boeing, Boeing Helicopters, Boeing Commercial Airplane Group, Boeing of Canada (deHavilland Division), Canadair, Fairchild, Fokker, General Dynamics, Lockheed, McDonnell Douglas, Short Brothers and Sikorsky Aircraft.

The company's products meet applicable FAA, Transport Canada, MIL-Q-9858A, and AQAP-1, quality control specifications.

Current programs include the design, development and manufacture of the Canadair RJ primary and fly-by-wire spoiler-spoileron flight controls; primary and secondary flight control systems for the new Fokker 100; design assistance and development of the nose landing gear and ground steering for the McDonnell Douglas C-17 "Airlifter", together with design and development of the fly-by-wire flap actuation system for this aircraft. Menasco designed and developed the nose landing gear and retract systems for the Bell-Boeing V-22 Osprey.

Menasco's experience in the manufacture of landing gear systems extends to many types of aircraft:
- Main landing gears for the Bowing 737-300, -400, and -500 aircraft.
- Main landing gear components for the Boeing 757.
- Main landing gears for the McDonnell Douglas MD-80 and MD-90 families of jetliners.
- Nose and centerline landing gears for McDonnell Douglas DC-10 and KC-10 Transport.
- Landing gear components for the Airbus A320, under contract to Messler-Bugatti.

Proprietary designs, development and manufacture of flight controls comprising the following:
- Fokker 100 and F-28 ailerons, horizontal stabilizers, elevator controls, flap drives, lift dumpers and speedbrake actuation systems.
- Fokker F-28 rudder actuation systems.
- deHavilland Dash 7 flap system.

Menasco Aerospace operates a 300,000 square-foot plant located in Oakville, Ontario (halfway between Toronto and Hamilton, and half an hour from Person International Airport).

In recognition of Menasco's performance to support the 737 and 757 programs, Boeing awarded the company the prestigious "President's Award" for 1988 and 1989. Boeing recently recognized Menasco's contribution of the 2,000th shipset of main landing gears for the Boeing 737 family of jetliners.

The nose landing gear (with ground steering) and the flap flight control system for the new McDonnell Douglas C-17 is designed and manufactured by Menasco.

The main landing gear for the McDonnell Douglas MD-80 and all variants, is manufactured by Menasco Aerospace.

The Boeing 737-400 Series is the latest addition to the 737 family. Menasco is the sole supplier of main landing gear for this program.

Menasco designed and built the nose landing gear, retract actuators and drag brace systems on the new Bell Boeing V-22 Osprey; seen on its maiden flight.

LANDING GEAR AND FLIGHT CONTROLS

Menasco Aerospace Ltd. designs and manufactures Landing Gear Systems, Primary and Secondary Flight Control Systems, including Fly-by-Wire Electrohydraulic Systems, Ground Steering/Steer-by-Wire, Variable Wing, Wing Sweep, and miscellaneous Ramp/Door Actuation Systems for major airframe manufacturers throughout the world:

Airbus	A-320	Main Landing Gear Components
Bell	YAH-63	Landing Gear
	XV-15	Landing Gear
Bell Boeing	V-22	Nose Landing Gear and Retract Actuation
Boeing	727	Main Landing Gear Side Strut
	737-200/300	Main Landing Gear
	737-400	Main Landing Gear
	757-200	Main Landing Gear Side Strut
	CH-47	Landing Gear, Steer-by-Wire Ground Steering
	BV-360	Main Landing Gear
Boeing of Canada	DHC-4	Landing Gear Systems, Steering, Rudder and (deHavil land Div.) spoiler Actuators and DHC-5
	DHC-7-100	Landing Gear Systems, Steer-by-Wire and Flap Actua tion System
Canadair	CL-44	Landing Gear Systems, Steering
	CL-84	Landing Gear Systems, Wing Tilt Actuation
	RJ	Rudder, Aileron and Elevator Actuation Systems, and Fly-by-Wire Spoiler and Spoileron Power Control Units
Fairchild Republic	A-10	Landing Gear, Retraction Actuators
Fokker	F-28	Rudder, Aileron, Horizontal Stabilizer, and 100 Eleva tor, Flap Drive, Leading Edge, Stat, Lift Dumper and Speed Brake Actuation Systems
General Dynamics	F-111	Wing Sweep Actuator, Landing Gear Retraction Actua tors
McDonnell Douglas	DC-10	Nose and Centerline Landing Gear
	KC-10	Nose and Centerline Landing Gear
	C-17	Nose Landing Gear with Ground Steering and Flap Actuation System
	MD-80	Main Landing Gear
Shorts	SD3-30	Landing Gear
Sikorsky	Ch-53	Landing Gear

Fokker 100 horizontal stabilizer actuation system, designed and manufactured by Menasco in Oakville, Ontario.

The Canadair Regional jet

Novatronics

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CHIEF EXECUTIVE OFFICER:
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Rodney I. Jones, P. Eng., M.B.A.

VICE PRESIDENT/ GENERAL MANAGER:
Bernard Dilliott, P. Eng.

DIRECTOR OF SALES:
Laraine A. Murray

BUSINESS MISSION

Novatronics Inc. is a privately-owned Canadian company focussing on the design, development and manufacture of custom precision electromagnetic/electromechanical systems and devices and related electronics for sensing, indication, actuation, and control of mechanical motion and positioning.

PRODUCTS

Sensors	Synchros, Resolvers, Tachometers, Linear Variable Differential Transformers (LVDTs, RVDTs).
Indicators	Cockpit Indicators, Digital Indicators (electromechanical types).
Motors/ Actuators	Stepping Motors, Servo Motors, Brushless DC Motors, Rotary and Linear Actuators, Solenoids/ Valves.
Electronic Circuitry	Related to Control Systems. e.g. Signal Conditioning/Interfaces, Logic Circuitry, Output Drivers, etc.
Systems	Systems incorporating the above components.

MARKETS

Novatronics primary markets are the North American commercial and military aircraft industries. Major customers include Boeing Seattle, de Havilland, Canadair, Honeywell-Sperry, Allied Signal Bendix Avelex Division and Bendix King Division and Parker Hannifin - Gull Electronics Division.

DESIGN AND DEVELOPMENT

The engineering design and development capabilities at Novatronics have earned the company international recognition in its extremely specialized and competitive field. This highly innovative group is supported by CAE/CAD systems, extensive environmental test facilities and creative prototype departments.

MANUFACTURING

First established in Canada in 1955, Novatronics achieves high precision manufacturing through modern CNC and NC machining equipment, along with specialized winding and assembly units, and a dedicated team of skilled technicians.

Strict adherence to industry specifications is assured by the company's uncompromising quality control systems. These conform to the requirements of AQAP-4 and are progressing towards AQAP-1.
Effective management of Development and Production Start-up Programs is achieved through formal project planning and control methods, facilitated by computer-based Critical Path techniques.

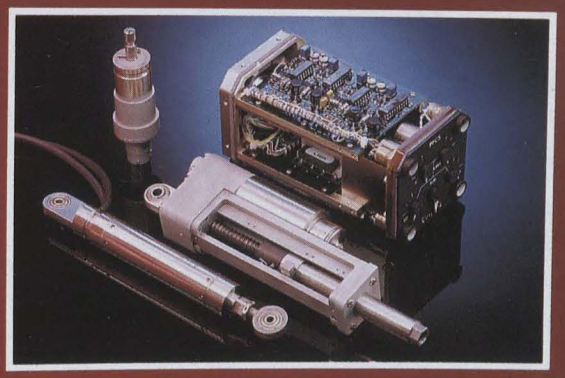
REPRESENTATIVE CUSTOMER LIST AND APPLICATIONS

AIRCRAFT MANUFACTURERS

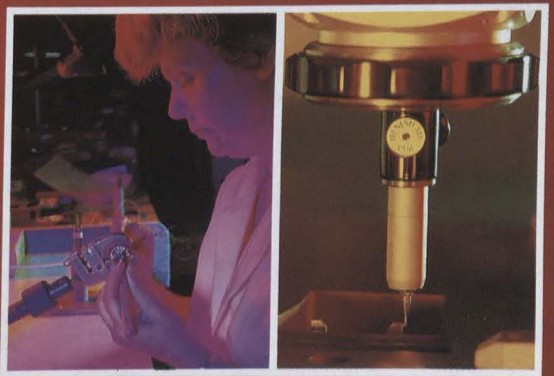
Boeing Seattle 737/747/757/ 767	Control Surface Transmitter single and tandem Spoiler, LVDT, Rudder Ratio
Boeing Canada de Havilland Division Dash 8	Control Surface Transmitter Powered Flight Control Surface Indicator Rudder Trim Actuator
Canadair Ltd. Challenger/ Waterbomber CL215T	Control Surface Transmitter Nacelle Actuator/BLDC Motor

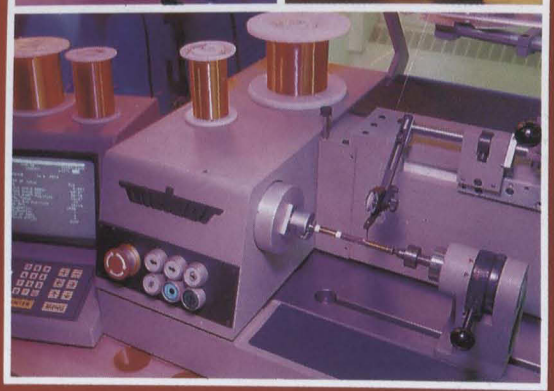
SYSTEM SUPPLIERS

Allied Signal Bendix Avelex Division	Fuel Control	Stepping Motor/ Gear Head Solenoid RVDT
Parker Hannifin (Gull Inc.)	Fuel Management	Digital Indicator
MBB Helicopter Canada Ltd.	Fuel Control	Tandem Resolver (collective input)
Ronson Hydraulics	Control Surface Actuator	LVDT



NOVAtronics





Reliability by Design

Oerlikon Aerospace Inc.

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Oerlikon Aerospace is a technology and systems engineering company that designs, engineers, integrates and tests advanced defence and electronics systems. In addition, the company provides full life cycle support and project management services.

Oerlikon Aerospace Inc. was established in Canada when Swiss-based Oerlikon Buehrle Holding Ltd. was awarded a Cdn. $600 million contract to deliver ADATS systems and other related equipment to the Canadian government as part of the Low Level Air Defence program (CF-LLAD). In 1988, the first of the ADATS systems was rolled out and the 35 mm Twin Gun and Skyguard contract was fulfilled with deliveries made to CFB Chatham and to CFB Lahr, Germany.

In partnership with Martin Marietta Corp, OA also won the U.S. Army's competition in 1987 to build the ADATS system for the Foward Area Air Defence (FAAD-LOS) program; OA started deliveries of the ADATS system in 1989.

Oerlikon Aerospace, which has invested over $140 million in its state-of-the-art facility, is located in St-Jean-sur-Richelieu, just south of Montreal, Quebec. Many of the 500 people employed by OA are professionals, engineers, and technicians who work in the areas of electro-mechanical engineering, electronics and software development.

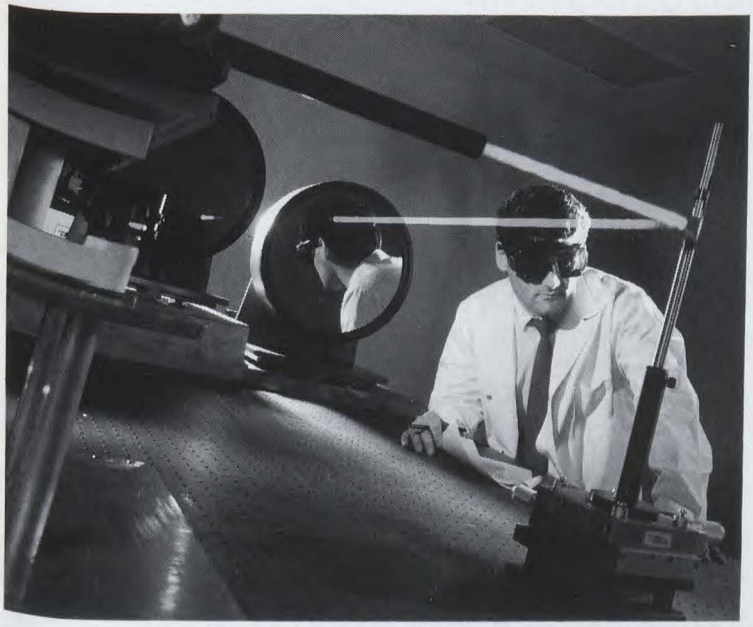
From the beginning of the Canadian Forces' contract, OA has been surpassing the requirements of the industrial benefits program stipulated by the federal government. And in the process the Company has established a wide range of business relationships in Canada.

The ADATS system is one of the most sophisticated air defence solutions available today. Using a combination of radar, laser and electro-optical technologies, the system has proven to be reliable and efficient. It can detect air targets that are more than 20 km away and ground targets that are more than 6 km away. The ADATS system can then fire its missiles at targets that are up to 8 km away.

Tests on the ADATS system conducted by the U.S. Army last February 1990 showed that the system was successful against aircraft and helicopter targets at the White Sands Missile Range Test Site in New Mexico. Results showed that the system performs well in difficult conditions. U.S. Army personnel used moving targets to deploy a full variety of defensive countermeasures -- electronic jamming, flares, chaff and smoke as part of the testing.

Furthermore, tests conducted in late 1989 revealed that the system operates reliably both in foul and fair weather conditions. The system successfully completed 50 target search, acquisition and tracking tests together with the missile firing sequence in foul weather conditions. Tests showed that if meteorological conditions allowed an aircraft or helicopter to fly, the ADATS system is able to detect and engage it.

Aerial view of the Oerlikon Aerospace complex.



From concept to research and development, to assembly and integration, our expertise is systems.

Integrated logistic support at all levels of implementation.

Oerlikon Aerospace

Paramax Electronics Inc.

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FAX: (514) 340-8318

PRESIDENT:
Dr. W. Lee Shevel

SENIOR VP:
Paul Manson

The prime activity of Paramax Electronics is Systems Management - an intricate science involving the design, integration and testing of complex computer based electronic and combat systems. Paramax is performing this service for the Canadian Navy's twelve new patrol frigates under a $2.5 billion contract.

The Canadian Patrol Frigate is the first new fighting ship designed and being built in Canada in well over a decade. A fast and maneuverable ship with low profile and high combat capability, it will be patrolling Canadian territorial waters and will play an important anti-submarine warfare role with NATO defence forces in Atlantic sea lanes. As prime subcontractor to Saint John Shipbuilding Limited, the prime contractor for the ships' construction, Paramax is responsible for the frigate's overall systems design and integration, the selection of electronic and combat equipment from existing inventory within major defence industries and the management of $1.6 billion in Industrial Benefits, one of the largest industrial benefit programs in Canada.

Paramax conducts rigorous testing of equipments and software within a unique test facility it has developed, named the CSTSF - Combat System Test and Support Facility. This 16,000 square foot metal clad building-within-a-building contains a super secure 10,000 square foot RF (Radio Frequency) shielded room. It is impervious to electronic eavesdropping on sensitive test procedures and contains over $150 million worth of sophisticated electronic equipment. In an adjacent 6,000 square foot grooming area, completed shipsets of equipment are tested and debugged, using a series of external radar towers at the rear of the Paramax building.

It is also within this CSTSF enclosure that the Canadian Navy crews undergo intensive training designed by Paramax. They learn the operation and maintenance of complex communications and combat equipment. These range from sensors systems, including long and medium range radars and sonars to defensive systems such as the Sea Sparrow and Harpoon missiles, Phalanx close-in weapons system, torpedoes and rapid-fire 57mm Bofors gun. Paramax is responsible for the training of over 600 navy personnel representing 21 different trades. They will be trained on 125 major new pieces of equipment. The program will total some 2,400 days of highly technical training and will see Paramax deliver over 150,000 pages of training documentation to the Navy.

In full size mock-ups of the frigate's bridge, operations room and other ship's spaces - authentic in detail down to the ventilation, lighting and ship space - Navy crews practice responding to a variety of repeatable, realistic combat scenarios against simulated threats above and below the sea surface.

This type of expertise has been soundly built up at Paramax's Montreal headquarters facility staffed by some 700 people - probably the largest concentration of scientists, electronic engineers, and software development talent of any comparable company in its field. Montreal is complemented by its new Western Operations division, with facilities in Winnipeg, Manitoba, Ottawa, Ontario, and Halifax, Nova Scotia. Western Operations is responsible for engineering, manufacturing and support of the Navy's standard computers and for a variety of other defence products. With over 320 employees, Western Operations - Winnipeg is a manufacturing facility capable of handling all aspects of MIL-SPEC assembly and testing. This division is designing, developing and manufacturing the latest Canadian computer system for the Canadian Patrol Frigate, the AN/UYK 507.

While the fulfillment of its major contract for the Patrol Frigate will keep Paramax intensively active well into the 1990's, the company - in cooperation with EHI(C) - is also working on a definition contract for the proposed New Shipborne Aircraft (NSA), the EH 101, to be acquired by the Department of National Defence. Paramax's role in the NSA program will be as the avionics systems integrator which includes the production of complex software systems, the procurement of sensor subsystems, the design of system interfaces, the definition of installation requirements and the building of simulation and test facilities.

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SYSTEMS INTEGRATION FOR CANADA

PARAMAX

UNISYS

Patlon Aircraft and Industries Limited

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Patlon Aircraft & Industries Limited has three office locations: Mississauga, Ottawa and Miami. The company has been in business for over 35 years and continues to register record growth in sales. Patlon is manufacturing various static protective products through its U.S. operation and provides significant value added to many products it markets in Canada.

Patlon began its operations in 1953 around a capability of supplying logistic support for North American designed military, transport and fighter aircraft. This capability is still a very important part of the firm's business, and has grown to a point where Patlon maintains one of the largest computerized master reference libraries in Canada which includes all the military aircraft, vehicles and equipment operating in the free world. This enables Patlon to cross reference products replacing specified materials and equipment with qualified products from multiple sources usually at a lower cost. Patlon has been particularly successful in this area with the Canadian military and currently holds many Canadian government "blanket" contracts for the supply of airframe and engine spares, instruments, electronic equipment and other equipment. Patlon provides a similar capability to various armed forces around the world.

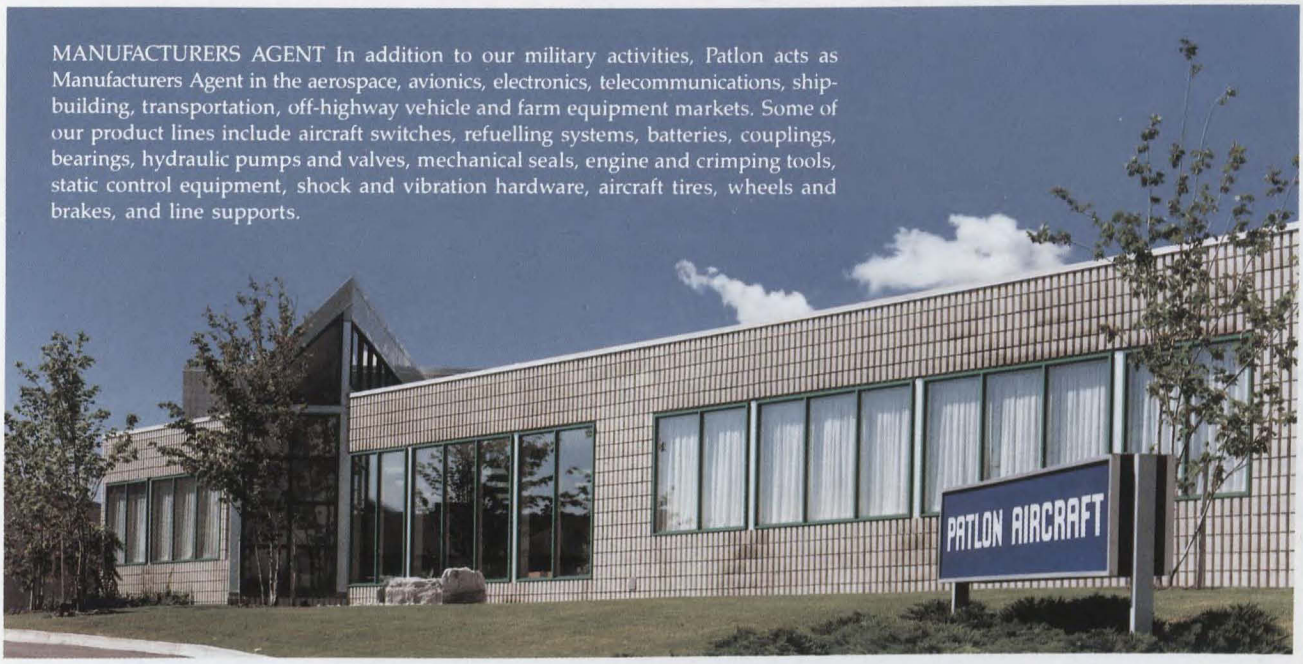
Patlon considers itself an Engineering Sales organization. With engineering sales capability and the products of many principals, Patlon has provided valuable service to the Canadian government, specifically the Department of National Defence. Patlon has, in conjunction with its Principals, designed and supplied mobile electronic weighing systems for the CF18, electrical connector crimping tool kits for the CP140 and CF18 maintenance facilities; and supplied static control materials and equipment for various avionics shops, naval facilities, army vehicles and supply depots. Patlon supplies noise/shock attenuation hardware to the Canadian navy, and this equipment is appoved for use on the Canadian Patrol Frigate program. All Frigates will be equipped with Patlon outboard bearings. Patlon also designed and supplied aircraft and ground support equipment cleaning machines. These examples illustrate how Patlon has utilized its capabilities and expertise to help National Defence solve particular problems.

Although many of the products Patlon supplies are manufactured outside of Canada, the Company makes a very conscious effort to maximize Canadian content. All of the examples above, including the supply of aircraft spare parts, have a substantial amount of Canadian content. In fact, solely through the efforts of Patlon, a Canadian manufacturer has designed and supplied a sophisticated lubrication pump to Canadair on the CL227 program.

Over the years Patlon's capabilities as an engineering sales organization have overlapped into non-government industries. A strong presence and a large customer base have been developed in the following industries: aerospace, avionics, electronics, telecommunications, shipbuilding, transportation, off-highway vehicle and farm equipment. Whether it be the Dash 8 at de Havilland, subway cars at Bombardier, military vehicles at UTDC, switching equipment at Northern Telecom, frigates at Saint John, various military programs or CL215 Water Bomber operators, Patlon's selling procedure is basically the same. Depending upon the product and customer requirements, meetings are held with the appropriate management, engineering, procurement, service and sometimes manufacturing personnel to identify the requirement and attempt to develop an appropriate solution. This procedure has been quite successful in having Patlon's equipment specified at the drawing board stage of the customers' program.

Patlon has more than doubled both the number of employees and sales in the past three years. The firm has recently completed a third expansion in its Mississauga head office facilities, and the Miami operation has moved to a larger, more modern facility. Engineering sales staff is completely supported by competent, factory-trained order desk personnel and a state-of-the-art office automation system. All facets of Patlon's operation have been automated to some degree to provide more effective, more efficient service for customers.

Products and Services



MANUFACTURERS AGENT In addition to our military activities, Patlon acts as Manufacturers Agent in the aerospace, avionics, electronics, telecommunications, shipbuilding, transportation, off-highway vehicle and farm equipment markets. Some of our product lines include aircraft switches, refuelling systems, batteries, couplings, bearings, hydraulic pumps and valves, mechanical seals, engine and crimping tools, static control equipment, shock and vibration hardware, aircraft tires, wheels and brakes, and line supports.

LOGISTIC SUPPORT For over thirty-five years, Patlon Aircraft & Industries Limited has been providing logistic support to a wide variety of military programs. The following diverse examples illustrate just a few of Patlon's solutions to meet the needs of the military.

CRIMPING TOOL KITS Custom crimping tool kits have been designed and supplied in support of the CF18, CP140 and other programs.

STATIC CONTROL EQUIPMENT Static control systems, including protective materials and equipment, have been supplied to practically every arm of the Canadian military.

FRIGATE All City-Class Frigates will go to sea with many of our products including outboard bearings, shock mounts and expansion joints.

ADEC ARRESTING GEAR All Forward Operating Locations as well as many Canadian Military Bases utilize our arresting gear.

SPARE PARTS SUPPORT Airframe and engine spare parts, components and rotables can be provided for virtually every North American manufactured aircraft.

CL215 SUPPORT Extensive support for the Water Bomber is provided including tires, wheels and brakes, instruments, engine and airframe components.

Pelorus Navigation Systems Inc.

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DIRECTOR, ENGINEERING:
J. Wesmann

VICE PRESIDENT, FINANCE:
T. Lindquist

Pelorus Navigation Systems Inc. is Canada's only manufacturer of enroute and precision Distance Measuring Equipment (DME/N and DME/P).

Since incorporation in 1981, Pelorus has become internationally known for its dedication to excellence in aviation.

Pelorus develops, manufactures, distributes and installs a wide range of high technology electronic navigation and meteorological systems. Advanced micro processor technology is used to produce affordable, highly accurate navigation systems to facilitate safe, reliable aircraft landings.

The Company maintains an aggressive Research and Development Department constantly redefining the best approach for safe reliable landings for the nineties and beyond.

Products and Services

- Distance Measuring Equipment (DME/N)
- Distance Measuring Equipment (DME/P)
- Automated Weather Observation Systems (AWOS)
- Runway Visual Range (RVR)
- Microwave Landing Systems (MLS) Ground and Airborne
- PWA Custom Assembly
- Runway Ice Detection Systems
- Skilled technicians in Installation, Monitor--ing and Maintenance

Design Engineering and Manufacturing

- Radio Frequency and Microwave Communications
- Systems Integration
- Systems Software

Facilities

Head Office located at Calgary International Airport, Pelorus facilities comprise 26,000 sq. ft. of engineering design and testing, manufacturing and offices.

Markets

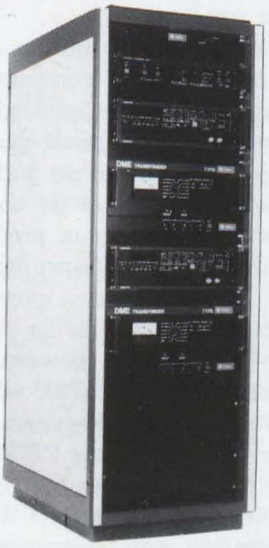
- North America
- Europe
- South East Asia
- Australia
- New Zealand

Winner of the "Canada Award of Business Excellence" in the Small Business Category as well as a winner of an Award of Excellence in Transportation from the International Winter Cities Corporation.

Dedicated to Excellence In Aviation

The Best Approach to, Safe, Reliable Landings for the Nineties and Beyond

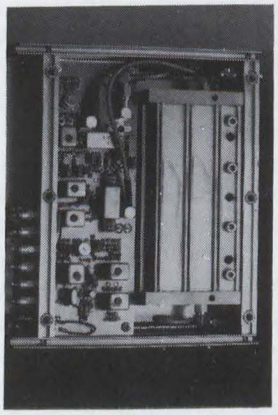
Distance Measuring Equipment (DME)



Pelorus DME/N and DME/P - enroute and MLS installations; operating at over 100 airports in North America, Europe, South East Asia and Australia.

Meets ICAO Annex 10 specifications.

RF Manufacturing

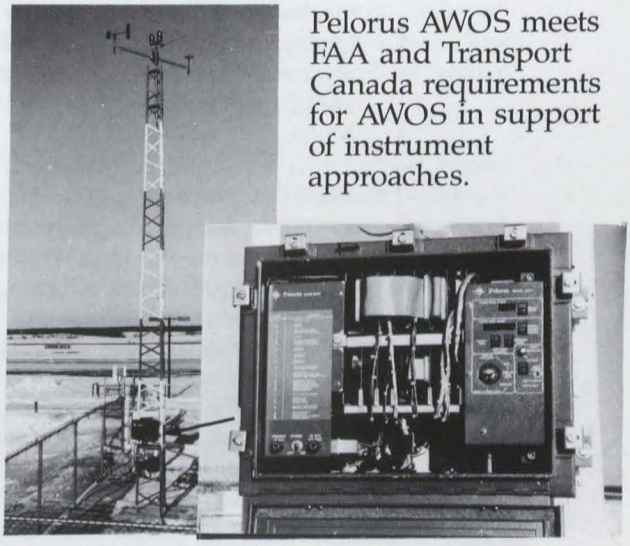


Pelorus manufactures to AQAP 4 standards with emphasis on radio frequency (RF) modules in the microwave frequencies.

Microwave Landing System Avionics

Pelorus MLS Avionics Receiver employs VLSI and MMIC technology to facilitate an affordable and cockpit compatible product for general aviation.

Automated Weather Observation Systems (AWOS)



Pelorus AWOS meets FAA and Transport Canada requirements for AWOS in support of instrument approaches.

Pelorus - The Name
Pelorus n. Sighting device like ship's compass for taking bearings (perch f. Pelorus name of Hannibal's pilot).
— The Oxford Dictionary, Sixth Edition

Pelorus Navigation Systems Inc.

CANADA WORKS FOR BUSINESS EXCELLENCE Winner 1988

Pratt & Whitney Canada

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VICE PRESIDENT, COMMUNICATIONS:
Pierre Henry

In 1990 sales of Pratt & Whitney Canada (P&WC) exceeded $1.5 billion, 80 per cent of that for export.

As of December 1990, some 34,500 gas turbine engines had been produced in P&WC plants. The company's engines power a wide variety of aircraft in 150 countries.

These statistics are part of the business record of an autonomous Canadian corporate unit totally responsible for the design, development, manufacture, international marketing and service of small gas turbine engines for air, sea and land applications.

Pratt & Whitney Canada employs some 8,500 people in its Quebec, Ontario and Nova Scotia-based facilities. Approximately 1,800 employees work full time on research and development projects to improve gas turbine technology. They form the second largest engineering department in the Canadian private industrial sector.

P&WC's headquarters, main R&D and manufacturing facilities are located in Longueuil, Quebec. The company has also established engineering facilities in Mississauga, Ontario, and a manufacturing plant in Halifax, Nova Scotia.

P&WC's overhaul and service organization employs approximately 1,400 people throughout the world. The company operates a network of three overhaul shops, nine regional service centres, and 14 authorized service centre affiliates worldwide.

Pratt & Whitney Canada is a subsidiary of United Technologies Corporation - a diversified, multi-market industrial organization with headquarters in Hartford, Connecticut, U.S.A.

Founded in 1928, the company remained a service and sales organization up to the 1950s.

In 1957, P&WC began design work on its first homegrown turbine engine. The resulting PT6 series of engines which were introduced to the world market in 1963, became a world standard.

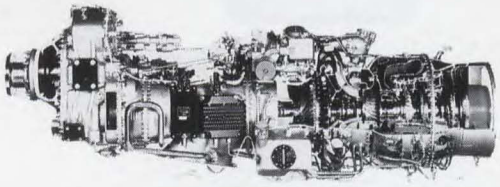
The outstanding commercial success of the PT6 series, the subsequent development of the JT15D turbofan, the PW100 turboprop, the PW200 turboshaft, the PW300 turbofan, and the PW901A auxiliary power unit have allowed the company to establish and maintain a leadership position in the international aviation industry.

In addition to its aero engine design and manufacturing capabilities, the company is involved in industrial and marine applications of gas turbine engines, such as power-generating units, pumping stations for gas and oil pipelines, and propulsion systems for ships. Six engine families are currently in production at P&WC. The PT6 turboprop/turboshaft engine - the world's most popular and proven aircraft powerplant in its class. The JT15D turbofan engine, a powerplant designed for business jets. The PW100 which powers the majority of the new-generation 30-to 80-passenger commuters, the PW200 a new family of turboshaft engines for light- and medium-size helicopters, and the PW300 for mid-size business jets with transcontinental/intercontinental capability. The latter is the most recent product introduced to the marketplace. The PW901A auxiliary power unit (APU) selected for the Boeing 747-400 wide-body transport is rapidly becoming the industry standard.

Products and Services

PW100
The turboprop for the Eighties and Beyond

PW100



The PW100 is an advanced technology fuel-efficient turboprop. The engine has been selected to power the majority of regional transport aircraft introduced in the 1980s.

The engine reflects more than 20 years of intensive research in centrifugal compressors. The result is a compressor comprised of two rugged and efficient impellers. High component efficiency and state-of-the-art technology result in fuel consumption significantly below that of current gas turbine engines in the same class.

The PW100 operates on a twin-spool principle. The low-pressure spool (LP) consists of a single centrifugal stage and one axial turbine stage. The high-pressure spool (HP) consists of a single centrifugal stage and a single air-cooled turbine stage. The twin-spool principle allows each stage to operate at peak efficiency throughout the flight envelope.

A two-stage power turbine drives the propeller, through an offset gearbox, via a shaft which is concentric with the LP and HP spools.

The reduction gearbox features a twin-layshaft design which results in lower gear stresses and lighter weight.

The patented compressor pipe diffuser is similar to that used on the PT6 as is the reverse-flow annular combustion chamber. The engine is controlled by a mechanical fuel control with an electronic supervisory control. The electronic control automatically provides precise power setting data to the pilot.

The air inlet system employs a bypass separator duct which protects the engine against the ingestion of birds or other foreign objects.

The PW100 first ran in 1981 and first flew in 1982 in a Viscount flying test bed. Prototype engines were delivered in 1983, and production started in 1984.

PW100 engines power nine new commuters: the de Havilland Dash 8-100 and 300, the Embraer EMB-120 Brasilia and the Aerospatiale/Aeritalia ATR 42 and 72, the British Aerospace ATP, the Fokker 50, the Dornier 328 and the Chinese YT-200A.

The PW100 has also been selected to power the Canadair CL-215T aircraft water bomber.

The engine is available at powers ranging from 1,600 to 2,750, SHP growth models to 20 per cent-plus SHP are being studied.

PT6

The Most Popular Small Gas Turbine Engine in its Class.

The PT6 engine, introduced to the market in 1963, is currently offered in some 34 variants in turboprop or turboshaft versions and in single or Twin Pac® configurations. To date, more than 150 million flying hours have been recorded by the 27,000 PT6 engines delivered and installed in some 127 aircraft types/models used for executive, business, airline, utility and agricultural applications. Versions of the PT6 power several high performance primary turboprop trainers. The trainer version features a special oil system with inverted flight capability.

The PT6 turboprop is a free turbine engine that consists basically of an annular intake, a three-stage axial and single-stage centrifugal compressor, an annular reverse-flow combustor and a single-stage compressor turbine. A counter-rotating free power turbine drives the propeller through a two-stage reduction gearbox. Fuel is provided by 14 simplex fuel nozzles connected to a dual manifold, and combustion is initiated by two igniter plugs.

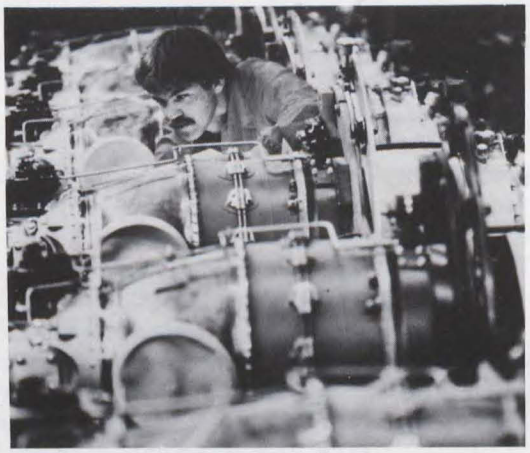
PT6 single engines are available at powers ranging from 475 to 1,424 SHP for turboprop and 750 to 981 SHP for turboshaft applications.

The Twin Pac® version of the PT6 is widely used in medium-size helicopters for utility, commercial and military applications. The PT6T Twin Pac® is a twinned turboshaft engine that consists of two PT6 free turbine engines coupled to a common gearbox with a single output shaft. PT6 Twin Pac® engines

are available at powers ranging from 1,800 to 1,875 SHP.

The ST6 designation is used for industrial, commercial and marine applications of the PT6. These include auxiliary power units, pumping stations for gas and oil pipelines, marine propulsion systems, etc.

PT6



JT15D

The Quietest Turbofan

The JT15D turbofan engine is available in several versions, ranging in power from 2,200 to 2,900 lbs. of take-off thrust. The engine is noted for its low fuel consumption, low noise and high reliability. It has achieved significant popularity as a power plant for corporate aircraft.

The JT15D is a twin-spool, front-fan, jet propulsion engine with a full-length annular bypass duct. The JT15D low-pressure compressor is a single-stage fan. In the larger models (2,500-plus lbs. thrust) the single-stage fan is supplemented by a boost stage in the engine core. The low-pressure rotor is driven by a two-stage turbine. The compact rotor arrangement and reverse-flow combustor result in an engine configuration that combines simplicity, high reliability and ease of maintenance.

Versions of the JT15D engine, developed for trainer aircraft, feature a special lubrication system permitting inverted flight.

The JT15D-5B has recently been selected as the powerplant for the T1 Jayhawk, a U.S. Air Force training aircraft for the Tanker Transport Training System (TTTS).

JT15D

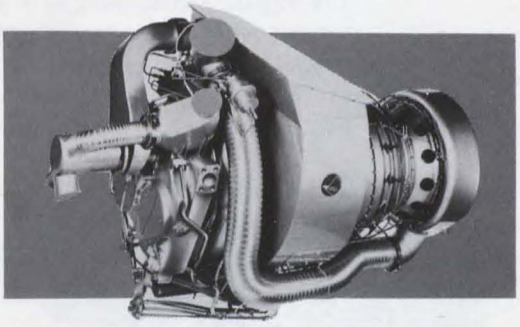
PW901A

The Discreet Challenger

P&WC has re-entered the commercial and military auxiliary power unit (APU) market as a prime supplier with the launch of the PW901A, selected for the Boeing 747-400 series. The first production engines were delivered in May 1988 and the first 747-400 equipped with the PW901A was delivered in January 1989.

The PW901A is based on the proven JT15D turbofan which has accumulated more than 10 million flight hours. This 1500 SHP class APU features a full authority digital control unit with built-in test capability, two-spool design for low fuel burn and reliable starting. The engine drives two 90 KVA generators.

PW901A



PW200

Rugged and Reliable

The PW200 series of engines has been designed to meet the power requirement of light and medium helicopters. The PW200 engine has approximately 46 percent fewer

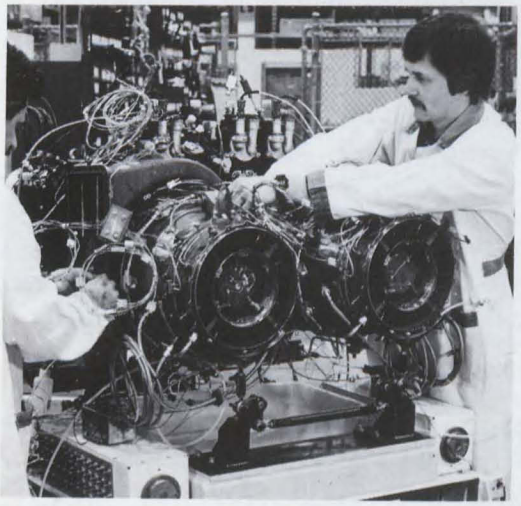
parts than equivalent PT6 models. Use of proven technology has permitted the design of an engine with only three turbomachinery elements; a single-stage centrifugal compressor and single-stage compressor and power turbines. Power management is through a Full Authority Digital Electronic Control (FADEC) which reduces pilot workload, prevents excursions outside safe and stable engine parameters (including the start sequence), and provides rapid response to power demand.

The first model of this series, the PW205B, successfully completed its first flight in October 1988, powering Messerschmitt-Bölkow-Blohm's BO 105 LS twin-engine helicopter.

McDonnell Douglas has selected the PW206A as one of the lead powerplant for the new MDX helicopter. Certification of the PW206A is expected by December 1991.

Growth versions of the PW200 are being considered for new-generation light single- and twin-engine helicopters.

PW200



PW300

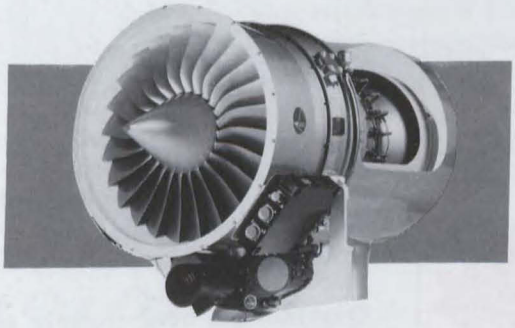
A new turbofan series, the PW300 was officially launched in 1988. The 4,500 to 6,500 lbs. thrust class engine is being developed by P&WC in collaboration with Motoren-und-Turbinen-Union München (MTU) of Germany. The PW300 is designed for the next generation mid-size intercontinental/transcontinental business corporate jets. Its certification is scheduled for 1991.

Sized initially for an aircraft with 3,000 nm-plus range capability, the PW300 has excellent growth and down-rating potential to cover a wide range of aircraft design specifications.

The main characteristics of the engine are a by-pass ratio of 4.5, an unshrouded fan of 30.7 inches dia. driven by a three-stage low turbine. The high-compressor is a four-stage axial single centrifugal layout with the first two-axial-stages incorporating variable guide vanes. The compressor is driven by a two-stage high turbine with cooled first-stage vanes and blades. A Full Authority Digital Electronic Control (FADEC) will provide the necessary fuel response for optimum high altitude handling.

The first model in this series, the PW305 — rated at 5225 pounds of take-off thrust — received Canadian type approval in August 1990. The engine has been selected for the BAe 1000, and the Learjet Model 60. In addition, two Falcon 20 conversion programs are being offered with the PW305 — by Volpar Aircraft and by Retrofit Partners Vantage 305.

PW300



Quantum Inspection and Testing Limited

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Quantum's product is Contract Quality Services and Expertise–peoples, facilities and related capabilities readily available in-house to meet specific requirements. The company's broadly based resources, experience and capabilities are geared to integrate with the client's organization in an efficient and cost effective manner to fulfill those requirements.

Established in 1968 as a firm of consulting engineers, Quantum has evolved into Canada's largest specialist independent professional quality services surveillance and laboratory testing inspection organization dedicated to the aerospace, defence and precision manufacturing sectors.

Quantum's Test Centre and corporate headquarters are strategically located in a 18,000 square foot facility in the hub of Canada's manufacturing/industrial heartland which also provides convenient access to the East and Midwest regions of the United States market.

All Test Centre facilities are traceable to NRC (Canada) N.I.S.T. (U.S.) and the operational capabilities operate under such validated governmental recognitions as The Department of National Defence, Canadian Standards Association, Transport Canada and the Canadian Government Standards Board. Quantum is Canada's only Standards Council of Canada recognized facility for both Mechanical Metrology and Non-destructive Examination.

Buyer approvals include such organizations as Pratt and Whitney, Boeing, McDonnell Douglas, Rockwell, Avco Lycoming, Menasco Aerospace, Lockheed Georgia, Bell Helicopter, and Spar Aerospace. Quantum is recognized by NASA as being the sole Canadian source approved for the non-destructive testing of facture critical components for the Space Program.

Quantum has been recently appointed by Spar Aerospace as the Space Station Mobile Servicing System Project team subcontractor for Non-destructive Evaluation (NDE) Services.

On March 1, 1990, Quantum Inspection and Testing Limited was acquired by Westinghouse Canada Inc. Services Division and shall continue to operate as an autonomous Quality Centre. Westinghouse is committed to seeing the growth of our services capabilities and has added an electrical/electronic calibration and test centre to compliment our existing mechanical calibration capabilities.

Quantum's permanent staff resources and facilities base allows the aerospace sector optimal flexibility and economics in fulfilling its mandate for quality in confidence and security.

SERVICES OFFERED

Electronic/Electrical and Mechanical Metrology and Measurement Services

- Calibration laboratory (Mechanical/Electronical)
- Three coordinate measurement
- Casting layout
- Dimensional verification
- Relapping and calibration of granite surface plates
- Portable three coordinate optical theodolites for verification of large fixtures and components
- Robotic installation alignment services

Non-Destructive Testing

- Radiographic
- Ultrasonic
- Liquid Penetrant
- Magnetic particle
- Eddy Current

Vender Surveillance

- Capability and pre-award surveys
- Performance monitoring
- Sampling Inspection
- Test witnessing
- Expediting
- Certification

Thermographic Inspection Services

- Field portable and laboratory

Quality Management Consulting

- Quality systems development
- Training
- Problem solving/trouble shooting

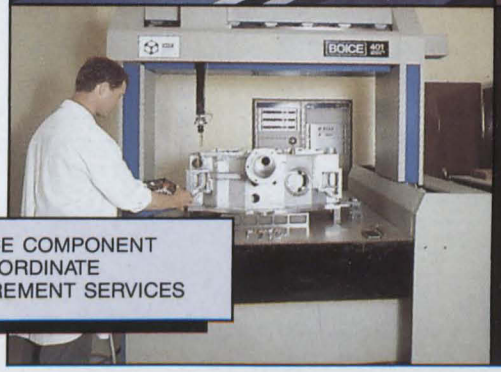
Product Development Services

Quantum participates in Industry/government schemes for product development/improvement.

QUANTUM DEFINES QUALITY *PRECISELY*

GAUGE BLOCK CERTIFICATION WORK STATION

FIELD SERVICE X-RAY OF AIRCRAFT WING SECTION



DEFENCE COMPONENT FOR COORDINATE MEASUREMENT SERVICES

TECHNICIAN PROVIDING RADIOGRAPHIC REVIEW OF ALUMINUM CASTINGS

Commitment and dedication to quality details.
On time delivery. Affordable costs.
The Hallmark Of Our Operations.

Quantum NDT

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ASSISTANT GENERAL MANAGER:
R.P. Gaffney

DIRECTOR OF MARKETING:
G.R. Beaumont

THE COMPANY

Raytheon Canada Limited was formed in 1956 to supply equipment for Transport Canada's National Civil Air Traffic Control (ATC) Radar Network, the first of its kind in the world. The company later became a major supplier of microwave communications systems, satellite earth stations, and numerous defence programs. Today, Raytheon Canada is the Raytheon Company's Canadian design and manufacturing centre for Primary Radars for Civil Air Traffic Control, Precision Approach and Airport Surveillance Radars, Automated Data processing Systems, Display Systems and Defence Systems. The Company is chartered to design and manufacture high technology electronic products and systems for the Canadian Government, the international market place and commercial and public utilities.

Located in a 130,000 square foot facility in Waterloo, Ontario, Raytheon Canada's state-of-the-art plant includes a development laboratory, military secure area with Tempest shielded room, and CAD facilities for product design. The military quality production area has automated assembly and production inventory controlled stores, quality control and extensive mil-spec testing facilities.

Raytheon Canada Limited is a wholly owned subsidiary of the Raytheon Company, a company with over $9 billion U.S. annual sales, and a world wide employment population of some 78,000 men and women in its diversified, international technology-based business.

SERVICES

Raytheon Canada Limited is a manufacturer of major radar and communications systems and similar equipments providing a facility for the production of high technology components and equipments to the necessary MIL standards. The quality operations of Raytheon Canada meet the NATO requirements of AQAP-1 for Industrial Quality Control, AQAP-6 control system for Measurement and Calibration and AQAP-13 Software Quality Control Requirements. Within the Raytheon enterprise, the achievement of quality and excellence over the entire range of company products and services constitutes a major on-going policy to which all operating units are dedicated. Raytheon Canada takes pride in playing its part in this plan.

PRODUCTS

Raytheon Canada Limited has two major product areas, communications and air traffic control systems from radar through processing to displays. The company specializes in the design and manufacture of air traffic control systems and communications for both the civil and military markets and today is presently in the process of installing equipment to replace that supplied for the world's first air traffic control system of its kind to Transport Canada in 1956. This is being carried out under two major contracts, known as the Radar Modernization Project (RAMP). The first contract was awarded in 1984 for the supply of Primary and Secondary Radar Systems, and the second in 1985 for the supply of Radar Data Processing Systems and Display Systems. The total project is scheduled for completion in 1992.

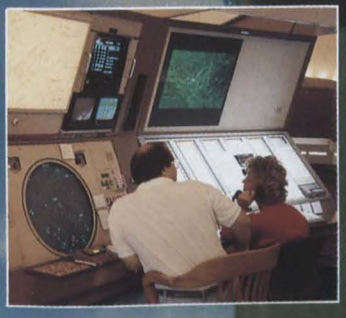
The L-Band Primary Surveillance Radar, ASR-9000, is a totally solid state design, and employs the most advanced digital processing techniques. It is available in two basic configurations; the ASR-9100 providing approach control up to 80 nmi range and 25,000 feet altitude, and the ASR 9120 with an extended range coverage for area control up to 120 nmi range and 50,000 feet altitude. Other versions for area control at longer ranges up to 180 nmi can be made available on request.

Another product, the Ground Control Approach (GCA) Radar for military airfields is the only system specifically designed for todays high performance aircraft and traffic volumes.

Raytheon Canada provides complete turnkey services, including system design, testing, site planning, construction supervision, installation and training, to deliver operating systems ready for use by the customer. Ongoing product support is offered to assure system availability.

Air traffic control systems: From the ground up.

The world's most flexible air traffic control system from Raytheon Canada comes complete: Unbeatable performance, competitive pricing – and a turnkey package that gets the system up and running. Our responsibilities extend to site planning, construction supervision of buildings, roads and services, and training of local staff.



Installation of ASR9120 air traffic control system, Trinidad and Tobago.

Raytheon Canada Limited

For further information, contact:

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Rohde & Schwarz Canada Inc.

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FAX: (613) 592-8009

PRESIDENT:
David G. Stephenson

MANAGER:
COMMUNICATIONS
PRODUCTS SALES
Peter Foulger

Rohde & Schwarz Canada Inc. is a recognized Canadian Leader in the field of:

. Electronic Test & Measurements & Systems
. Sound & TV Broadcasting
. Radio Monitoring Systems
. Radio Direction Finders, and
. Radio Communication Equipment

Based in Kanata, Ontario, in a 18,400 square foot plant, the company is capable of undertaking engineering, manufacturing and testing of products to satisfy customers' requirements. Particular emphasis is placed on studies and product development related to Direction Finding and Electronic Support Measures, as well as systems solutions and customization of Rohde & Schwarz products to meet special purpose Test Equipment and Communications applications.

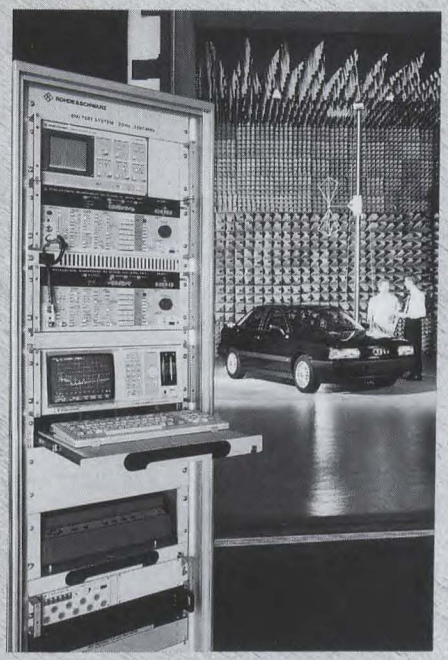
As part of the international Rohde & Schwarz organization, Rohde & Schwarz Canada Inc. has access to the technologies and marketing resources of all of the affiliated companies. The Canadian Head Office is situated in Kanata, Ontario, and sales offices are established in Toronto and Montreal, with distributors in Western and Eastern Canada. These offices provide sales and technical support for all Rohde & Schwarz products directed to the defence, communications, broadcasting and test and measurement markets.

Rohde & Schwarz Canada Inc. was instrumental in the development of the PA2000 Integrated Signal Intercept System, and now has the world product mandate for this state-of-the-art signal interception and direction finding system. The PA2000 was designed to detect and provide lines of bearing on complex signals in the 2-512 MHz range. Units are in service in several countries around the world. Ongoing research and development continues on this systems in order to meet increasing customer demands and changing technologies.

The Rohde & Schwarz product line also includes a complete range of doppler direction finders and high quality radio communication equipment from large fixed station HF systems to Mil Standard VHF/UHF equipment for high performance aircraft and helicopters. Full shipboard external communication systems are also offered. A complete series of monitoring receivers and antennas for the range 10 kHz to 18 GHz fulfills the needs of military, intelligence and security customers.

Other fields of activity include:

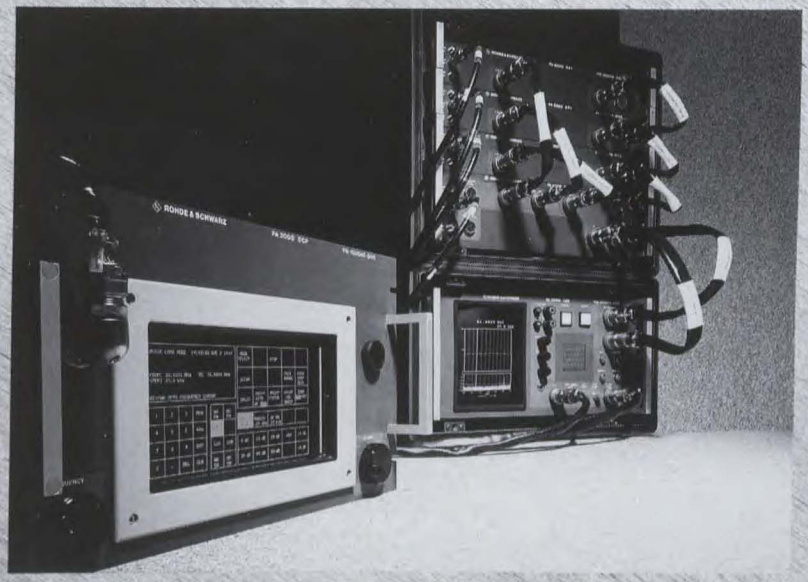
. Automatic test systems for radio communications equipment.
. Monitoring and remote control systems for EMI, EMC, fieldstrength measurements and broadcast equipment;
. Light-weight, portable direction finders.
. High gain phased array antennas for mobile satellite communications;
. Site survey and installation services for all Rohde & Schwarz direction finders;
. Operator and service training.



Rohde & Schwarz specializes in all aspects of electromagnetic compatibility testing and measurement. Test receivers, antennas and complete test systems are available.

Complete test systems for automatic measurement of key RF parameters can be designed and developed by Rohde & Schwarz. Shown is a computer controlled radio monitoring and recording system typically used for frequency spectrum management and signals intelligence gathering.

The expertise of Rohde & Schwarz in the field of radio direction finding includes highly sensitive and very accurate equipment such as the PA 100 used for air traffic control and vessel traffic management.



The PA 2000 Integrated Signal Interception and Direction Finding System was developed by Rohde & Schwarz Canada to locate conventional and frequency hopping signals. The system can be networked to provide the position of exotic communications sources.

ROHDE & SCHWARZ

Rolls-Royce (Canada) Limited

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VICE-PRESIDENT,
MARKETING AND
TECHNICAL
SERVICES:
T.D. Cribbes

Rolls-Royce (Canada) Limited is one of North America's most modern aero and industrial gas turbine engine repair and overhaul centres.

The company is located adjacent to Montreal's Dorval International Airport.

Rolls-Royce (Canada) employs more than 800 people. This team of dedicated specialists is engaged in engine and component manufacture, research and development, engine overhaul and component repair using advanced technologies and processes.

Each year the company provides service for over 400 corporate, airline and military aero engines. It also supports operators of industrial gas turbines used in oil pumping, gas transmission and electrical generation, and has a world product mandate for the manufacture of Rolls-Royce industrial engines and lubrication systems.

Since it was established, Rolls-Royce (Canada) has handled over 15,000 engines of all types.

Rolls-Royce (Canada) repairs and overhauls a wide variety of Rolls-Royce engines, including: Tay, Spey, Dart, Viper, Nene and RB211 aero engines; RB211, Avon and Spey industrial engines.

It also repairs and overhauls or completes component repair and manufacture for other makes of engines, including: General Electric CT64 and Allison TF41.

Rolls-Royce (Canada) offers many repair and overhaul packages, from full and partial engine overhauls to deep repair. The repair of precision engine components is an integral part of the company's repair and overhaul services, but is also offered as an independent service.

Rolls-Royce (Canada) engineers have developed over 5,000 repair applications which have been approved by the original equipment manufacturers and relevant airworthiness authorities. In addition, Rolls-Royce (Canada) was recently approved to NATO's AQAP-1 quality standard.

The Rolls-Royce (Canada) plant is complemented by a 65,000 square-foot parts warehouse. To maintain a high degree of precision in parts management and to ensure engine parts are returned to the same engine, Rolls-Royce (Canada) employs sophisticated in-plant management systems.

Real time computer systems, developed by Rolls-Royce (Canada), contain all the repair schemes in the Rolls-Royce overhaul manuals as well as repair schemes developed by Rolls-Royce (Canada). Relative priorities are constantly adjusted for optimum queue dispatching at work stations to ensure a complete kit for engine rebuild on the scheduled date.

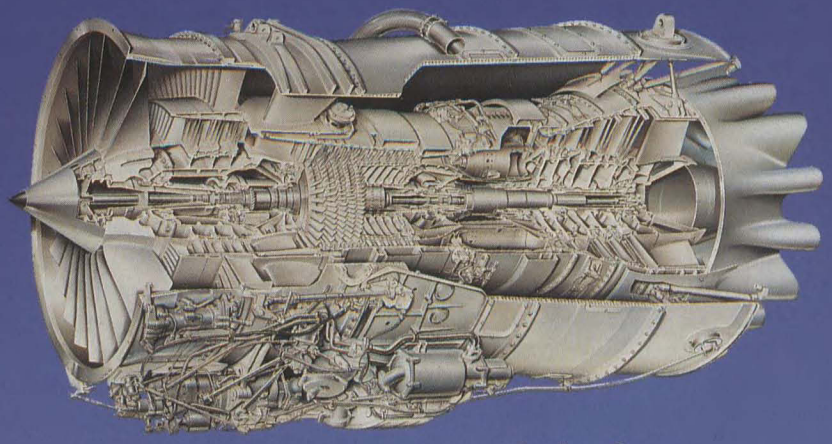
Rolls-Royce (Canada) has enhanced this system by introducing advanced computerized component tracking and identification using electronic bar coding for all engine components in its plant.

As part of its continuing efforts to offer customers the most up-to-date services, the company recently built a $9.17 million expansion which allows it to handle larger engines from North American commercial aircraft.

The new extension complements the company's newest engine test facility completed in 1986, which can accommodate engines producing up to 100,000 lbs. of thrust.

The goal of Rolls-Royce (Canada) is to provide its customers with dependable engines which operate longer between overhauls. This approach, combined with outstanding customer support in the plant or in the field, decreases engine operating costs and has enhanced Rolls-Royce (Canada)'s reputation in the industry for responsiveness to customer requirements.

YOUR ENGINE



Quality
We've set the highest standards of workmanship for ourselves. Every repair has to meet them.

Technology
We've invested in the very latest diagnostic, repair and test equipment to provide the most advanced maintenance facilities.

Service
We pride ourselves on fast service response with efficient turnaround to save you time and money.

Experience
Over 30 years with Dart and Spey, and now leading the field with Rolls-Royce Tay and RB211-535E4.

OUR REPUTATION

We never forget our reputation is on the line.

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EXECUTIVE VICE
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Since its inception in 1967, Spar Aerospace Limited has gained international recognition as an advanced technology company. Spar is a Canadian shareholder-owned company engaged in the design, development, manufacture and servicing of systems for the space, robotics, communications, remote sensing, defence and aviation markets. The company employs more than 2,500 people, including approximately 700 engineers and technicians - one of the largest technological groups in the private sector in Canada.

The company is structured into four major business groups:

Advanced Technology Systems Group
Spar is a world leader in the design, development and manufacture of teleoperator systems. The Remote Manipulator System (RMS) or Canadarm designed for NASA's space shuttle program, is a leading example. Spar's expertise in space teleoperators, combined with the utilization of new technology, has allowed the company to broaden its product range and to develop new products and capabilities for space and terrestrial applications.

Canada's contribution to the International Space Station Freedom, the Mobile Servicing System (MSS), has now entered the detailed design and hardware development phase. Spar, as prime contractor, and the Canada-wide Space Team continue to bring subcontractors and suppliers from across Canada into the advanced technology world of space. This leading edge program is under the overall direction of the Canadian Space Agency. Astro Aerospace Corporation, a Spar subsidiary, under contract to McDonnell Douglas is developing the Mobile Transporter, an element of the U.S. portion of Space Station.

Spar received a contract in mid 1990 from Toshiba to provide engineering support for the Japanese Experiment Module Remote Manipulator System (JEM RMS), also to be part of the Space Station.

In 1989, the European Space Agency's Olympus communications satellite was launched following integration and testing at the David Florida Laboratories in Ottawa. The high powered solar arrays, designed and built by Spar, were successfully deployed. Spar is presently developing the solar arrays for Canada's remote-sensing satellite,Radarsat.

In August 1989, the first AN/SAR-8 Infra-red Search and Target Designation System was delivered to the U.S. Navy for testing and evaluation. Successful demonstration of the advanced capabilities in 1990 will reinforce the fleet's need for the system and will result in production orders for Spar. The AN/SAR-8 was also identified in joint NATO studies as the infra-red sensor of choice for future fleet defence.

Satellite and Communications Systems Group
Spar is the principal supplier in Canada and a major international manufacturer of satellites and satellite subsystems for communications and surveillance markets.

Spar and its predecessor companies have contributed to the design and manufacture of more than 80 satellites and subsystems, including the following Canadian and international satellites: Alouette I and II, ISIS-I and II, the CTS (Hermes), SBS, Palapa-b, Westar-IV, G-Star, Satcom, TDRSS, Inmarsat, SARSAT, ERS-1, Intelsat and the Anik A, B and C series, as well as the prime contract for the Anik D1 and D2 satellites. Spar successfully completed a prime contract in 1986 to provide two satellites and related ground control systems for Brazil. This was the first domestic communications satellite system in Latin America.

In 1986, the company signed a $200 million contract with Telesat Canada to supply two dual-band Anik E communications satellites.

In January 1990, Spar was awarded a contract by the Canadian Space Agency for Phase One of the RADARSAT remote-sensing satellite program. Designed and built in Canada,this satellite is scheduled for launch in 1994, and is the most advanced commercial remote-sensing satellite in the world. RADARSAT will provide valuable scientific, resource and environmental data. This program will allow Spar and its partners across Canada to diversify their business base and develop new

technologies and expertise in the field of remote sensing. The data gathered by RADARSAT will be marketed worldwide by Radarsat International (RSI), a consortium of Canadian private sector organizations, of which Spar is a founding shareholder.

Telesat Mobile Inc. (TMI) and the American Mobile Satellite Corporation (AMSC) awarded separate contracts in December 1990 with the team of Spar Aerospace Limited and Hughes Aircraft Company as satellite suppliers for their respective mobile satellites (MSAT). Spar and Hughes have entered into a teaming arrangement to supply these satellites which together will establish an integrated North American mobile communications system providing voice and data services to mobile terminals throughout Canada and the United States. These spacecraft to be launched in early 1994, will be the most technologically advanced and most powerful ever built for commercial mobile communications.

Spar continued work on telecommunications payload equipment for the French Telecom II satellites, under contract from Alcatel Espace, and the Tracking and Data Relay Satellite System (TDRSS) for TRW. Spar was also a part of the MATRA Espace team which was awarded the contract for the Spanish telecommunications satellite HISPASAT for Spain's first communications satellite. Spar continues to build transponders for the Search and Rescue Satellite-Allied Tracking (SARSAT) system under contract to the Department of National Defence. In another major project, Spar supplies Hughes Aircraft Company with subsystems for Intelsat VI satellites. In addition, General Electric selected Spar to supply communications antennas and equipment for Space Station Freedom.

Spar enhanced its position in the field of satellite telecommunications networks through the award in 1990 to COMTEL, a Spar subsidiary in California, of three large networks in Mexico. Spar was also awarded a contract by Transport Canada for an advanced system for air traffic control communications. In 1989, Spar started construction of a ground based satellite communications system for the Republic of Sierre Leone which will use Spar's unique 15 metre antenna technology.

Aviation Group

Spar solidified its position as an industry leader in the production of high precision aerospace gears and transmissions with the award from General Electric of multi-year contracts for the CT7 - and CFM-56 gas turbine engine power transmission box. The company continues to supply Blackhawk helicopter transmission modules to Sikorsky. Contracts for a further two years were received from the Canadian Forces, relating to repair and overhaul of aircraft components.

Applied Systems Group

Principal activities of this group include Forward Looking Infra Red (FLIR) technology. Production continues on the "Tiger Eye" night observation device long range (NODLR) for the Korean Government and the Canadian Forces. In addition, Spar has been responsible for the FLIR sensor assembly for the Canadian Air Defence Anti-Tank Systems (ADATS^{tm}) and the U.S. Forward Area Air Defense System (FAADS) for Martin Marietta.

Certain assets acquired from Leigh Instruments in October 1990 include the Shipboard Integrated Interior Communications System (SHINCOM) developed for the Canadian Navy to provide secure, digital voice communications. A total of 30 systems are to be built for the new Canadian Patrol Frigate, the Tribal Class ships, and the REMSEV (Remote Control Secure Voice System) for the Navy's retrofit program.

Spar is also building sixty Tactical Air Navigation Systems (TACAN) for the Canadian Airforce. As well, Spar will supply the stores management and communication system control sets for Canada's CF-18 fighter aircraft. In addition, there a number of avionics products such as Crash Position Indicators (CPIs) and Cockpit Voice Recorders (CVRs) which will be manufactured at the newly acquired Carleton Place facility in Toronto.

Standard Aero Limited

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VP GOVERNMENT RELATIONS:
J.R. Allingham

VP ENGINEERING & QUALITY:
D. Shaw

VP SALES & MARKETING:
R.A. Carter

VP FINANCE & ADMIN.:
D.E. Unruh

VP HUMAN RESOURCES:
B.Clarke

In more than fifty years of operation, Standard Aero Limited has become one of the world's largest independent gas turbine engine and accessory repair and overhaul companies, with more than 700 employees in Canada and the United States. In October 1989, Standard Aero was purchased by Hawker Siddeley Group PLC of London England.

Standard Aero is headquartered in Winnipeg, and serves both military and civilian customers around the world providing a comprehensive service dedicated to every aspect of gas turbine maintenance. A network of strategically located service centres in Canada and the United States provide engine servicing, heavy maintenance inspections and field repairs between overhauls. Regional Service Centres are located in Vancouver, Montreal, Charlotte, Dallas and Van Nuys.

Standard Aero entered the turbine engine repair and overhaul field in 1960 with the Allison T56 engine for the Canadian Forces C-130 Hercules aircraft. Since that time, Standard Aero has expanded its turbine engine overhaul capabilities to include:

- Allison T56/501 series turboprop engines (Flight Distributor/Overhaul Centre)
- Allison 501 series industrial engines (Indus trial Major Repair Centre)
- Allison T63/250 series all models of turboshaft engines (Flight Distributor/Overhaul Centre)
- Textron Lycoming T53 and T55 series turboshaft engines (Service Centre)
- General Electric T58 series turboshaft engines
- Pratt & Whitney Canada PT6A series turboprop engines (Designated Overhaul Facility)
- Sundstrand Turbomach T62 Series APU's

Standard Aero takes great pride in it's fully equipped Accessory Overhaul Facility which is capable of overhauling 1,600 different types of engine accessories including fuel, oil, pneumatic and electrical systems and airframe accessories such as wheels, brakes, actuators, valves and hydraulic components.

In 1985, Standard Aero reorganized into a Product Line structure with individual departments supporting specific families of aero engines. Each Product Line has dedicated Service Engineering, Customer and Product Support personnel and specially trained technicians and quality control inspectors. Fundamental to Standard Aero's strategy is the ability to rework engine component parts to achieve the most cost effective overhaul for our customers. To facilitate this, a Rework Product Line was established, encompassing a wide range of machining, welding, coating, processing and plasma spray capacities.

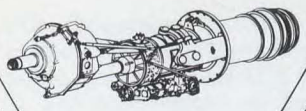
Field service engineers are on call 24 hours a day, seven days a week, to provide troubleshooting and maintenance service at any location. To assist operators in avoiding costly downtime, a large inventory of turbine engines are available for exchange or rental.

To complement its repair and overhaul capabilities Standard Aero has developed a sophisticated Technical Publications department. State of the art electronic document and illustration generation and storage combined with highly trained bilingual personnel allow this department to create, translate or reformat a wide variety of technical manuals.

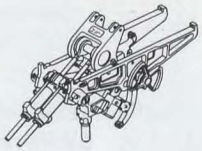
Standard Aero operates under Canadian Department of Transport approval No. 22-58, and NATO's highest standard, AQAP-1, which is equivalent to MIL-Q-9858. FAA approval is automatic as a result of the Canadian/American bilateral agreement ETT-1583.

HAWKER

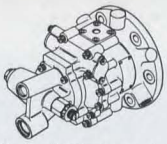
SIDDELEY



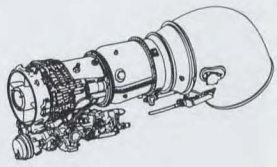
Allison T56



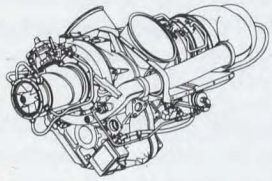
Flight Control Components



Hydraulic Components

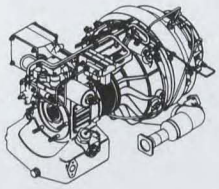


General Electric T58

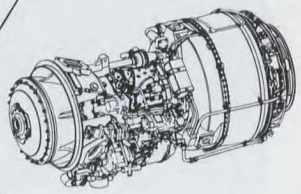


Allison T63 / 250

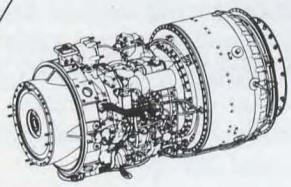
Reworks
Parts Support
Technical Training
Engineering Support
Repair and Overhaul
Field Service Reps
Engine Rentals
Publications



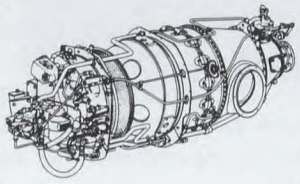
T-62T Sundstrand Turbomach



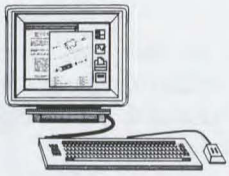
Lycoming T53



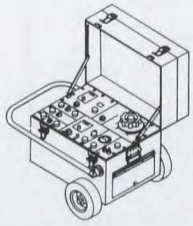
Lycoming T55-L-11



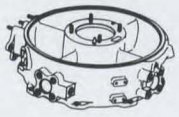
Pratt & Whitney PT6A

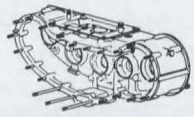


Technical Publications



Ground Support Equipment

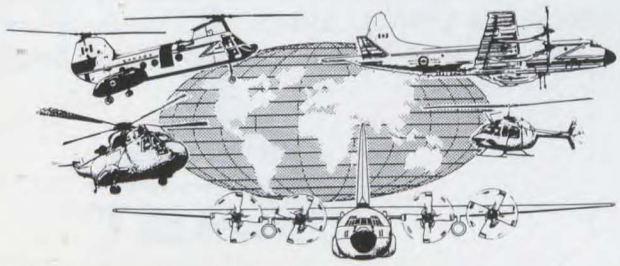




TOTAL SUPPORT

Maintaining a fleet requires more than just a repair facility. It requires total support! That's our approach.

Standard Aero provides everything from fast and efficient engine, component and accessory repair and overhaul, to engine rental and QEC packages, turbine parts distribution, engineering services, technical training and publications support.



Standard Aero supports a variety of turboshaft and turboprop engine families for military and civilian customers around the world.

Standard Aero's customers have learned through experience that we have the commitment, staff, facilities, and expertise to deliver the highest-quality work in a timely and cost-effective fashion. Standard Aero provides total support second to none.

And with the power of Hawker Siddeley behind it, it's a great company, in great company.

HAWKER SIDDELEY STANDARD AERO

A GREAT COMPANY IN GREAT COMPANY

Team Inc.

2980 Diab Street
St. Laurent, PQ
H4S 1M7

TEL: (514) 745-1600
FAX: (514) 745-2711

PRESIDENT AND CEO:
Edgar Lapeyronnie

In November 1985, TEAM Canada, a subsidiary of TEAM France, was established in Montreal. Since January 87, TEAM has acquired the ability to develop, manufacture and repair any audio and intercom system for military and commercial vehicles in its Saint-Laurent plant.

What is TEAM?

Since the company's establishment in 1951, TEAM has designed, developed and manufactured equipment for military and commercial vehicles.

The range of products includes intercommunication systems, alarm computers and centralized frequency and command systems, selective calling systems, audio amplifiers, acquisition equipment and aural indication systems.

TEAM'S equipment is installed on all the vehicles of the French Army, the Airforce and the Navy, on fighter and attack aircraft, electronic warfare aircraft, anti-submarine aircraft, and helicopters.

TEAM'S equipment is in use in many foreign armies and many well-known airlines such as Lufthansa, Air France and Iberia. It is fitted on airplanes such as the Boeing 747, DC-10, Airbus A320, ATR 42, Fokker, British Aerospace, as well as CROTALE shelters, RUBIS submarines, and others.

During the last 35 years, TEAM has continued to improve its products using the best techniques available. The improved performance of products allows TEAM to supply the end-user with assemblies which are ideally suited to his needs in terms of the critical aspects of shape and weight.

TEAM has kept on the forefront of technical and technological evolution by using High Scale Integration Components (DSP IC, Microprocessors), Hybrid technology, surface mounted components, chip carrier, multi-layers PCB, flexible PCB, and high efficiency switching power supply.

TEAM'S activities still include the production of analog intercom systems, although the greater part of industrial and aeronautic equipment is manufactured according to the most up-to-date technologies. Listed below are some of TEAM'S products which are currently in use:

–Selective Calling Decoder fitted in SAR helicopters, commercial and corporate airplanes. A microprocessor decodes the frequency pattern which makes up the call. Moreover the microprocessor executes real time algorithms performing pass-band filtering.

–Centralized mode and frequency control system designed for radiocommunication, radio navigation and identification equipment which is fitted on navy patrol vehicles.

–On-board intercommunication system which uses digital remote control and is installed in the commuters developed by Aerospatiale/Aeritalia's ATR 42.

–On-board intercom system which uses digital remote control and is installed in the Airbus A320. A militarized version of the equipment is to be installed in helicopters of the SA332 type for the army.

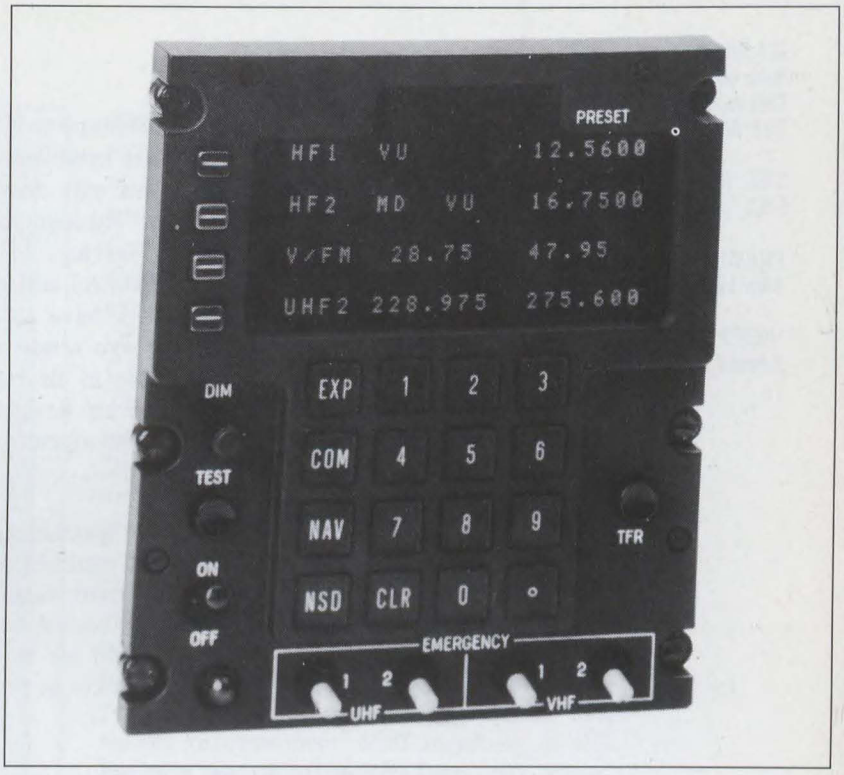
–Alarm computer for the Navy airplane ATL2 (Search and Attack Vehicles against surface ships and submarines).

–Hardened intercom system to be protected against EMI resulting from nuclear bomb explosion and to be installed in the TRANSALL ASTARTE (Transfer aircraft for the submerging nuclear submarine fleet).

The Audio Frequency Central Control System (AFCCS) enables crew members to interface with the various airborne systems (NAVAID, Radio communication, ...). The main features are the management of the airborne intercommunication and the control of radios facilities.

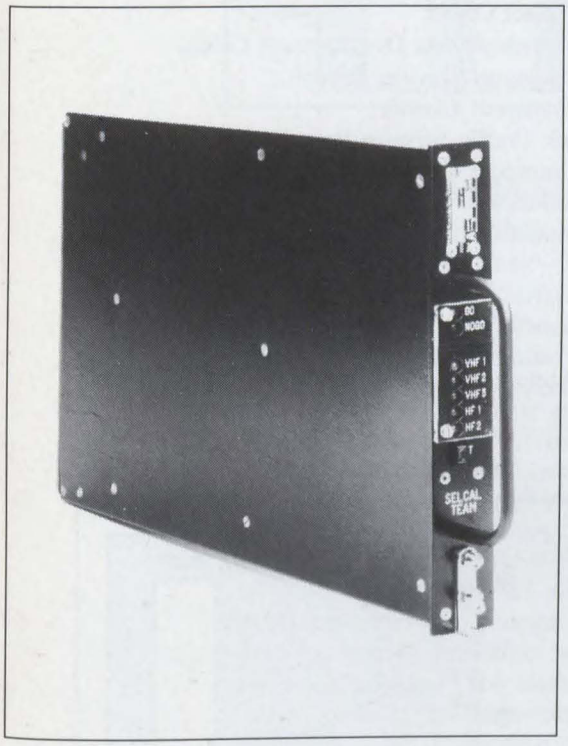
This equipment incorporates new digital audio techniques, multiplex transmission and optical fiber connections.

Equipment aboard the ATR42 and AIRBUS A320 already incorporates these new technologies and tomorrows's ACE/RAFALE fighter and AIRBUS A330,A340, as well as new breeds of helicopters will benefit from even more advanced technology.



The SELCAL system can monitor any type of HF or VHF radio receiver installed in an aicraft.

This ARINC 714 unit illustrates the TEAM's ability to design any standard compliant equipment.



TEAM has designed and produced over 1000 products in 40 years for applications ranging from FALCON to the AIRBUS A340; from light helicopters to the supersonic CONCORDE.

TEAM digital audio control panels have been adopted for use on a number of the world's newest commercial aircraft such as the AIRBUS A320.

TEAM

Thompson-Hickling Aviation Inc.

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FAX: (613) 563-4272

PRESIDENT:
John M. Belcher

VICE PRESIDENT:
Edward H. Montgomery

CORPORATE PROFILE

Since incorporation in 1985, Thompson-Hickling Aviation Inc. (THA) has established a reputation for providing clients with answers to aviation system problems. Through innovative thinking and quality service, THA's skilled engineers, air traffic control and program management specialists have solved many of the problems that have arisen as a result of the dramatic increase in air traffic and the resulting pressure on air navigation systems and the personnel who operate the systems.

THA is a Canadian company specializing in systems engineering, air traffic control operations and program management support. Since incorporation, THA has focused on the aviation industry in general and air navigation systems and air traffic services in particular.

THA is affiliated with Jerry Thompson and Associates Inc., Washington, D.C., a world leader in aviation systems engineering and James F. Hickling Management Consultants Ltd., a well respected management consulting firm with headquarters in Ottawa and branch offices across Canada.

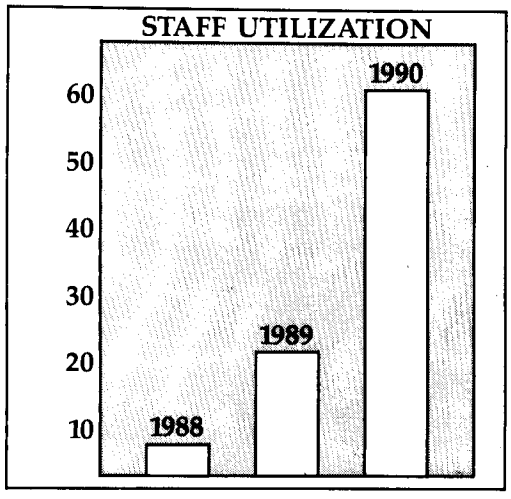
Professionally, THA's goal is to contribute significantly to the field of aviation systems by hiring and nurturing the best people in their respective fields. To accomplish this goal, THA maintains a sound financial base in order to sustain the company's growth and to reward employees and stockholders.

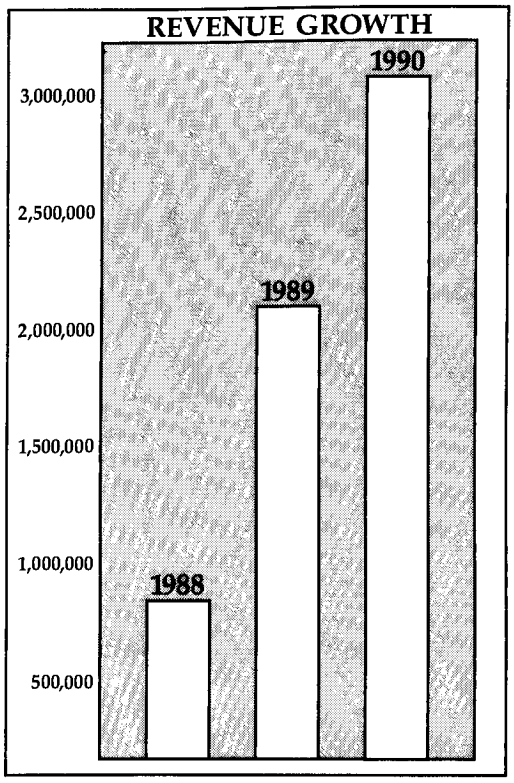
THA is divided into three divisions: Air Traffic Control (ATC) Operations, Systems Engineering and Management Services. Each division is staffed with experts in their respective fields. Air traffic control specialists with an average of 25 years experience, are fully conversant with airspace management, air regulations, air traffic control systems, training, simulation, operational concepts and requirements. The systems engineering division is comprised of professional engineers and technicians with expertise in designing, integrating and implementing complex aviation systems. Program management staff are experts in project and financial management as well as benefit-cost analyses and trade studies.

Since incorporation, THA has enjoyed continued, high, steady growth in revenue and staff. We believe this record of performance is directly attributable to our ability to provide quality work, on time, within budget. This service coupled with an honest, forthright philosophy of doing business, a commitment to fairness to employees, fiscal responsibility and acceptance of community responsibility have combined to provide an excellent history of customer satisfaction and corporate growth.

THA's client base has continually expanded within government and industrial sectors. Current and past clients include:

- Canadian Automated Air Traffic System (CAATS) Project Office
- Microwave Landing System (MLS) Project Office
- Canadian Airspace Review (CAR) Project Office
- Transportation Development Centre
- Technical Services Branch, Transport Canada
- Air Traffic Services Branch, Transport Canada
- Indonesian Civil Aviation Authority
- Monenco Engineering Ltd.
- Raytheon Canada Ltd.
- Martin Marietta Canada Ltd.
- James F. Hickling Management
- Consultants Ltd.
- Jerry Thompson and Associates Ltd.





The ATC Operations Division is staffed with former civilian and military air traffic controllers who have extensive experience with ATC operations as controllers, managers, headquarters staff officers, instructors and administrators. This division of the company has assisted clients in developing operational and functional requirements and formulating operational concepts. Microwave Landing System (MLS) procedures have been developed and tested using sophisticated simulation techniques and equipment. An inventory and assessment of all Global Positional Systems (GPS) research carried out by Canadian federal government agencies is underway. ATC Operations personnel were also key members of a larger THA team that is tasked to carry out an in-depth assessment of Transport Canada's Air Navigation System (ANS) and its ability to meet future demands in the post 1995 period.

THA's Systems Engineering Division has continually demonstrated its system development and integration expertise. Technical expertise is combined with automated tools, management support and system technology to form multi-discipline project teams capable of solving the most complex systems problems. This approach has been proven on the Canadian Airspace System Plan's System Engineering and Integration Project, specification development for the MLS Project Office, systems engineering support for the CAATS Project Office to mention only a few. The Systems Engineering Division specializes in software engineering, independent validation and verification (IV&V), system design and implementation all the way to installation, testing and evaluation.

THA's Management Services Division provides financial analysis, financial management system operation, cost benefit analyses, configuration management, documentation support and other administration support to a variety of customers. Staff members of this Division are skilled project managers, financial analysts, statisticians, training specialists and computer scientists. THA personnel have provided administrative, documentation and data base management support to the Canadian Airspace Review (CAR) Project for three years. The success of this industry applauded initiative by Transport Canada has been due in part to the program management support supplied by THA. This Division has also been instrumental in supporting Transport Canada's Canadian Airspace Systems Plan (CASP) through the Systems Engineering and Integration Project (SEIP). A key element of the support offered by SEIP is the tracking and forecasting of capital expenditures. THA, with the prime contractor Martin Marietta Canada Ltd., is responsible for this support.

Thompson-Hickling Aviation is a company with a relatively short but dynamic history. We have unique capabilities and a dedication to quality, service, innovation and integrity that will allow us to continue our rapid growth. THA has established a company with experience, expertise and a philosophy that places us in an ideal position to meet the challenges faced by the aviation industry in the 1990s and beyond. To learn more about our capabilities, please contact our corporate offices at 255 Albert Street, Ottawa, Ontario; telephone (613) 563-3849; facsimile (613) 563-4272.

Walbar Canada Inc.

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Mississauga, Ontario,
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FAX: (416) 625-6030

PRESIDENT & G.M.:
Richard A. Neill

DIRECTOR, SALES &
MARKETING:
David C. Hughes

Walbar Canada Inc has been meeting the critical demands of the Jet Engine and Gas Turbine Industry since 1962 with precision machined compressor blades and vanes, turbine blades, vanes and nozzle segments.

Located in the heart of Industrial Canada, Walbar employs 720 people in its four state-of-the-art plants with a total area of 150,000 sq. ft.

We are your precision interface between design and delivery. The total capability supplier dedicated to delivering quality and customer satisfaction.

Walbar Canada Inc has the capability to use exact Customer data in the CATIA CAD/CAM System along with Diffraction Laser Inspection to verify total conformance to customer specifications and ensure quality.

Walbar possesses the technical expertise in a variety of specialized machining and processing operations such as C.N.C. Five Axis Machining, C.N.C. Twin and Single Wheel reciprocating or creep feed grinding employing Cemented Diamond Particle (CDP) Dressers, Electro Chemical Machining (ECM), Diffusion Coating and Electrical Discharge Machining (EDM) to produce tiny airfoil cooling holes for the most advanced turbine cooling schemes.

Quality Assurance depends on quality consciousness every step of the way and Walbar's total Quality Assurance Program involves constant checking against customer specifications from design to final production. The Walbar developed Transducer inspection system checks up to 24 blade characteristics simultaneously.

Each part is uniquely identified from raw material to completed product and subjected to a vast array of sophisticated inspection techniques to absolutely ensure the integrity of every part that leaves our plants.

In 1985, Walbar was acquired by Colt Industries Inc., now Coltec Industries Inc., thus providing a solid financial and management foundation for our confident growth into the future with the aerospace industries we serve.

As aircraft engines have become increasingly more sophisticated, Walbar has kept pace with technological innovations, unique tooling, processing and expanded facilities that have maintained the Company's position at the leading edge of a dynamic industry.

Walbar's unique teaming of highly qualified human resources and advanced technology places the Company on the forefront of a rapidly evolving industry.

International Markets represent 67% of Walbar's total sales. Exporting compressor and turbine blades, vanes and nozzle segments for RB199, CFM56, Gnome, Trent, F404, AGT 1500, SSME, T64, TFE731, T58, J85 and ATF 3 engine programs to Germany, France, Belgium, United Kingdom, Italy and the U.S.A.

Domestically, Walbar's compressor and turbine blades and vanes are supplied for the PT6, PW100, PW200, PW300, and JT15D engine programs.

Walbar Canada Inc.... Your total capability supplier.

CAPAB FACILITIES PRODUCTS

CATIA CAD/CAM SYSTEM:

A capability to use exact customer data that governs every phase of the manufacturing process.

DIFFRACTO CMM:

A diffraction laser inspection system that verifies total conformance to customer specifications.

LK CMM:

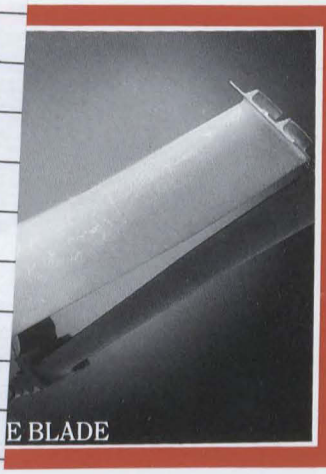
A 4 Axis Touch Probe Programmable Measuring System for checking airfoils as well as gauges, masters and fixtures.

CNC EX-CELL-O GRINDER:

Turbine Blade root form and side grinding.

COMPRESSOR BLADES

NOZZLE SEGMENT



E BLADE

ELECTRIC DISCHARGE MINING (EDM):

oduces tiny airfoil cooling oles for the most advanced e cooling schemes.

5 AXIS BOSTOMATIC:

Machining complex shapes and compound angles using five axes simultaneously on blisks and impellers.

CNC LATHE:

Machining radial inner and outer shrouds of vane sets.

WALBAR CANADA INC.
1303 Aerowood Drive
Mississauga, Ontario L4W 2P6
Telephone: (416) 625-2880
16) 625-6030