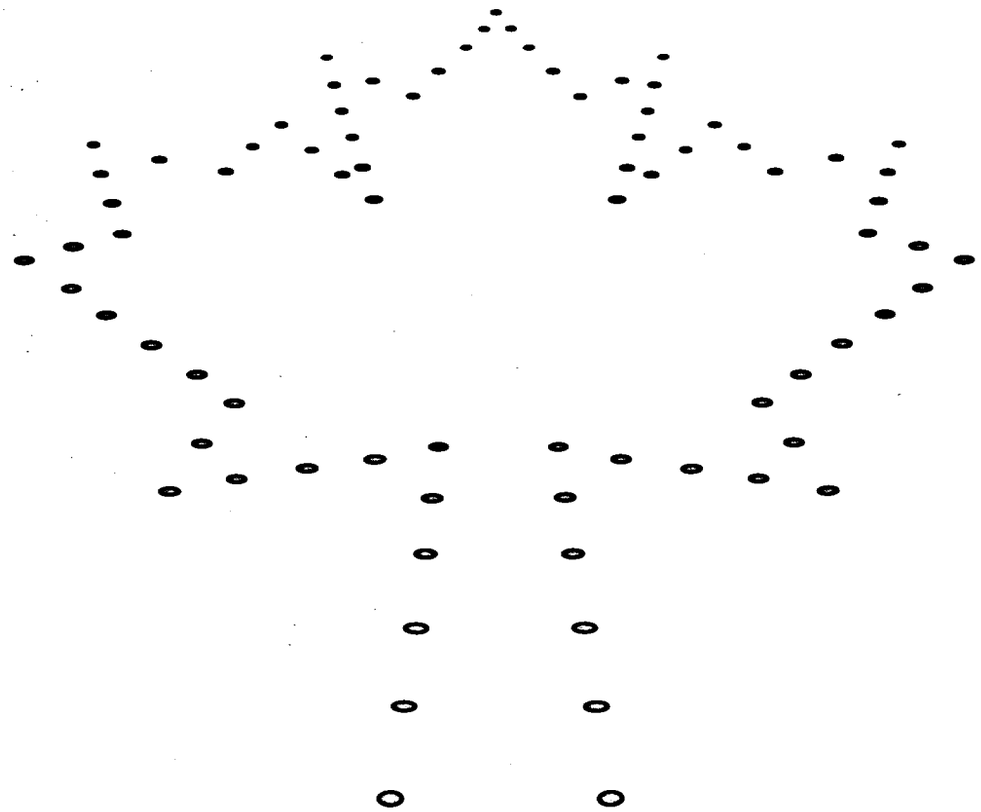
Canada

Canadian Airport Equipment and Services for World Markets

External Affairs Canada
Affaires extérieures Canada

Canadian Airport Equipment and Services for World Markets

Canada 1988



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Introduction

Air travel is increasing the world over. According to statistics produced by the International Civil Aviation Organization (ICAO), total world air passenger traffic has grown by about 5 per cent annually in recent years, and the trend continues. This means that by the year 2000, an estimated two billion passengers will be travelling annually, more than twice as many as at present. In the case of air cargo traffic, growth rates are even higher.

As a result of these increases, many major airports have already become saturated and their air traffic control facilities congested. In the United States, for example, landing and take-off slots must be allocated, while in Europe, air traffic control delays are common. In many less-developed areas of the world, basic airport facilities are lacking or inadequate to accommodate current or anticipated needs.

All these factors mean that the development of airports is a growth industry worldwide, as countries rush to build new facilities and expand and upgrade existing ones. Canada is actively involved in the trend and provides both technical assistance and airport equipment to customers throughout the world.

Canadian expertise in the aviation and airport industries is founded on the country's early reliance on air travel. Since the beginning of the 1930s, Canada has used air services to knit together its widely separated communities spread out over a land mass of 9 880 000 km^2 (3 800 000 square miles). The country's challenging climate — intense cold in winter, extreme heat in summer, snow, ice, fog, highly changeable weather — has spurred the development of new technology to ensure smooth operations in all conditions. And, because of its need to maintain travel links with all other countries, Canada has been in the forefront of the development of international air services.

This leadership role was recognized when, in 1950, Montreal became the location of the international aviation building, housing the International Air Transport Association (IATA) and the International Civil Aviation Organization (ICAO). Studies by IATA and ICAO identified a worldwide need for more aviation management training, which prompted the Government of Canada to create, in 1987, the International Aviation Management Training Institute, also located in Montreal. With these important institutions in their midst, Canadian industries have been able to stay abreast of the changes rapidly occurring in the field of aviation.

Today, Canada can offer other countries a wealth of technical expertise and high-quality products to meet the diverse needs of modern airports, wherever they are located. Canadian firms are knowledgeable about the latest aviation and airport technology, new regulations, and all other aspects of this dynamic sector. Modern facilities and state-of-the-art equipment, including computer-aided design and manufacturing (CAD/CAM), are prominent features of Canadian industry, enabling it to supply products and services that meet the most stringent standards. A strong commitment to research and development is also common among Canadian companies, and their efforts are supported by government-sponsored research and development programs, for example, those of the National Research Council and Transport Canada (the federal department of transport).

Canada's highly advanced aerospace, telecommunications and computer industries have helped promote the growth of a wide array of electronics firms specializing in aeronautical and airport equipment. These companies are world leaders in the development of sophisticated hardware and software in such fields as radar systems, navigation and landing aids, meteorological equipment, and control tower and communication equipment. Their precision instruments and innovative systems are improving safety, efficiency and cost-effectiveness of air transportation both in Canada and abroad.

The deregulation of the airline industry in Canada has put an emphasis on reduced operating costs, which in turn has promoted the development of more efficient and less expensive passenger and cargo processing equipment. Canadian know-how is producing the most up-to-date and well-designed apron and airport terminal equipment, including passenger transport vehicles, baggage handling systems, machine readable documents and flight information display systems. A few examples of ground support equipment offered includes hangars and hangar components, air conditioners and cabin heaters, aircraft inspection systems and fuel system test equipment.

Reliable visual landing aids are crucial to safe air travel. Canadian firms supply a wide range of sophisticated lighting systems, incorporating precision optics and solid state electronics for visibility in all weather. Other visual aids offered include signs, flags and windcones, designed for durability and reliability.

The increasing emphasis on safety and security at airports has stimulated the manufacture of numerous innovative Canadian products from highly sensitive metal and explosives detectors to surveillance systems and a variety of equipment for effective crash, fire and rescue operations.

Canadian companies produce a full range of environmental control machinery to keep aircraft flying and airports open in even the toughest weather conditions. Some examples of this equipment include snowblowers, snow ploughs, deicers and runway sweepers.

Not only do Canadian manufacturers supply high-quality airport products, many also provide excellent support services such as repair and maintenance contracts and equipment training. Some companies have international offices to serve their foreign clients; others rely on a network of distributors.

In the airport services field, Canadian firms can draw on a large pool of scientific and technological talent, including architects, engineers, financial analysts, economists and management consultants. Canadian service firms are as experienced and knowledgeable as any in the world. Some of the many services they offer include feasibility studies; inspection, testing and laboratory analysis; financial and economic analysis; facilities and operational planning; environmental impact analysis; technical assistance; facilities design; construction management and supervision; equipment procurement; equipment installation, operation and maintenance; operational training; and project monitoring and evaluation.

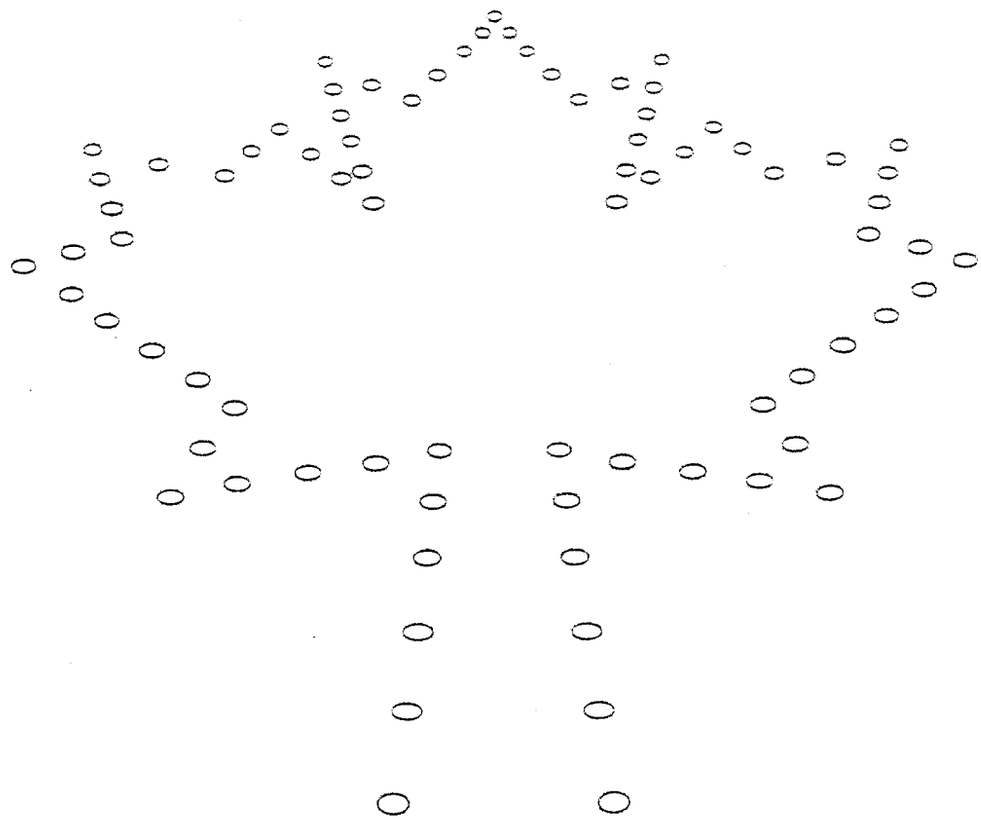
Canadian service firms have been involved in the planning, design and development of more than 1 500 airports in Canada, from world-class international airports, to remote airfields in isolated communities; from sensitive military installations, to offshore oil and gas exploration sites. They have tackled problems such as increasing air and ground traffic at large airports, air and noise pollution and other environmental disturbances, harsh climatic conditions, and the difficulty of moving construction equipment and personnel to remote sites.

The experience these firms have gained in Canada has enabled them to provide top-quality expertise to foreign clients. Priding themselves on delivering on time and within budget, Canadian companies have undertaken or assisted in major airport projects on every continent, from the Arctic to the Antarctic, from Asia to South America. They have worked on behalf of both public and private sector clients and international organizations such as ICAO and IATA. They have participated in numerous Canadian aid programs to developing countries and have assisted in technology transfer and training.

This publication was produced to introduce Canadian expertise and equipment to countries considering airport expansion and/or the purchase of specialized airport equipment. The more than 130 airport engineering consultants, contractors and equipment manufacturers described in the following pages are only a sample of what Canada has to offer. Its many dynamic, versatile companies can respond effectively and competitively to aviation requirements anywhere in the world.

Also included in this publication is a description of the services offered by the Canadian Export Development Corporation and the Canadian Commercial Corporation, which help finance and facilitate Canadian exports. For further information on the products or services discussed, contact the firm in question directly or your nearest Canadian government trade office.

Equipment Manufacturers



List of Categories and Products

The manufacturing and services companies involved in the airport equipment and services market are shown in the matrices of the Table of Manufacturers and Products and Table of Services. A list of the products which may be found in each of the categories in the Table of Manufacturers and Products is given below:

- **Radar Systems and Equipment**
  - Airfield surveillance radar
  - Secondary surveillance radar
  - Air route surveillance radar
  - Primary terminal area radar
  - Long-range surveillance radar
  - Radar displays and processing system
  - Air traffic control data handling system
  - Terminal air traffic control system
  - Others

- **Navigation and Electronic Landing Aids**
  - Omnidirectional beacon
  - Non-directional beacon
  - Microwave landing system
  - Instrument landing system
  - Approach and landing aid
  - TACAN system
  - Others

- **Visual Aids and Related Equipment**
  - Approach and taxiway lighting system
  - Visual landing aid
  - Airfield lighting
  - Aircraft docking system
  - Obstacle warning light and marker
  - Essential power supplies
  - Airport identification system

- **Control Tower and Communication Equipment**
  - Voice communication system
  - Message broadcasting system
  - Fixed and transportable control tower
  - Communication control system
  - Transceiver
  - Radiotelephone for airport ground services
  - Computerized aeronautical information data system
  - Others

- **Meteorological Equipment**
  - Cloud ceilometer
  - Automatic upper-air system
  - Automatic weather station
  - Airport meteorological system
  - Remote weather station
  - Weather radar
  - Windshear detection system
  - Temperature measurement system
  - Meteorological data display system
  - Weather satellite reception and data processing system
  - Runway visual range indicator
  - Meteorological data management system
  - Ice detection and protection system
  - Automatic thunderstorm sensor
  - Others

- **Training Equipment**
  - Radar simulators
  - Air traffic control simulators
  - Aircraft flight simulators
  - Others

- **Emergency Equipment**
  - Air-crash rescue vehicle
  - Aircraft-arresting system
  - Runway repair equipment
  - Airfield fire-fighting equipment
  - Others

- **Apron Equipment**
  - Catering vehicle
  - Passenger loading equipment
  - Aircraft tow-tractor
  - Mobile cargo conveyor system
  - Aircraft washing equipment
  - Aircraft anti-icing unit
  - Ground power supply system
  - Aircraft starting system
  - Terminal to aircraft transit bus
  - Others

- **Fuelling Equipment**
  - Fuelling equipment and installation
  - Filter/water separator
  - Fuel sampling and testing equipment
  - Others

- **Environmental Control Equipment**
  - Snowblower
  - Deicer
  - Snow-plough
  - Self-propelled snowblower
  - Airport runway sweeper
  - Airport noise monitoring system
  - Runway and airfield maintenance equipment
  - Runway snow and ice-clearance machine
  - Fog-clearance system
  - Runway surface condition monitoring system
  - Others

- **Security Equipment**
  - Baggage screening unit
  - Metal detection system
  - Explosive recovery system
  - Closed-circuit television surveillance system
  - Hand-held metal detector
  - Cargo surveillance system
  - Explosive detector
  - Doorway metal detector
  - Aircraft security unit
  - Others

- **Terminal Equipment**
  - Flight information display system
  - Baggage handling and sorting system
  - Airport information and management system
  - Communication system
  - Cargo handling equipment
  - Cargo weighing system
  - Airline ticket, boarding-pass and baggage-tag printer
  - Surveillance and security control system
  - Others

- **Maintenance Base Equipment**
  - Elevating maintenance platform
  - Aircraft maintenance dock and access equipment
  - Engine change equipment
  - Landing gear maintenance docks and access equipment
  - Outdoor service station
  - Ground cooling unit
  - Aircraft inspection equipment
  - Fuel system test equipment
  - Hangar power supplies aircraft test equipment
  - Operational aircraft shelter
  - Aircraft hangar and door
  - Engine test facility/cell
  - Others

Table of Manufacturers and Products

	Radar Systems and Equipment	Navigation and Electronics Landing Aids	Visual Aids and Related Equipment	Control Tower and Communication Equipment	Meteorological Equipment	Training Equipment	Emergency Equipment	Apron Equipment	Fuelling Equipment	Environmental Control Equipment	Security Equipment	Terminal Equipment	Maintenance Base Equipment
Advanced Information Technologies (AIT) Corporation											✓		
Aeronautical Training Systems Inc.			✓	✓		✓							
Amerace Ltd.			✓										
Amertek Inc.							✓						
Andrew Antenna Company Limited	✓	✓		✓									
Aquarian Enterprises			✓										
Audor Communications Inc.		✓		✓									
Bendix Avelex Inc.	✓												
Blue Giant Equipment of Canada Ltd.												✓	
Bombardier Inc.												✓	
Butler Manufacturing Company (Canada) Limited													✓
CAE Electronics Ltd.	✓					✓							
Canada Wire and Cable (International) Limited			✓										
Canadian Astronautics Limited		✓											✓
Canadian Marconi Company		✓											✓
Champion Road Machinery Ltd.													✓
Closed Circuit Television Corporation									✓		✓		
Computing Devices Company											✓		
Corrigan Instrumentation Ltd.											✓		
Crouse-Hinds Lighting				✓									
Electrohome Limited						✓						✓	
Foundation Instruments Inc.				✓									
Garrett Canada				✓									✓
G.C. Duke Equipment Ltd.													✓
GEC Canada Ltd.			✓										
Global Thermoelectric Power Systems Ltd.		✓											
Godfrey Howden Inc.								✓					✓
Henotex (1981) Inc.											✓		
Herbrand Tools Corporation													✓

continued

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Honeywell Limited, Sperry Aerospace Division				✿									
Hovey Industries Ltd.								✿		✿			
Indal Technologies Inc.		✿											
Industrial + Aviation													
Industrial Measurements Ltd.		✿											
Johnston Environmental Equipment Limited										✿			
Kennedy's Flags		✿											
Kenting Projects Limited		✿	✿	✿									
K-Mix Chemicals Ltd.							✿						
Kodon Controls Ltd.													
La Compagnie Normand Limitée												✿	
Leigh Instruments Limited		✿											
Litton Systems Canada Limited				✿									
LNS Systems Inc.			✿	✿		✿					✿		
MacPherson Manufacturing Ltd.													✿
Material Handling Services												✿	
Mathews Conveyer Company of Canada Ltd.												✿	
MDS Aero Support Corporation													✿
Metcan Fabricators Inc.								✿		✿		✿	✿
Micronav Ltd.		✿											
M. Letendre & Associates Inc.								✿		✿			
Moody S.I. (1986) Ltd.								✿				✿	
MPB Technologies Inc.				✿							✿		
Nautical Electronic Laboratories Limited (Nautel)		✿											
NEI Ferranti-Packard Electronics Ltd.								✿				✿	
Nordic Systems Inc.							✿						
Pelorus Navigation Systems		✿			✿								
Pole-Lite Ltd.			✿										
Presentey Engineering Products Limited					✿								

continued

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Price & Knott Manufacturing Company Limited													✓
P. Wedge Company Limited			✓										
Rantex Brushes Inc.										✓			
Rapistan Systems Limited												✓	
Raytheon Canada Limited	✓	✓											
R. Horvat Industries Limited			✓										
Richards-Wilcox Canada Inc.													✓
Robert Mitchell Inc.								✓		✓			
RPM Tech Inc.													
Sadler Inc.												✓	
Safeco Manufacturing Limited							✓						
SCIEX											✓		
Scintrex Limited											✓		
Securitex							✓						
Shelter Engineering and Marketing Services Ltd.													✓
Siemens Electric Limited			✓										
SMI Industries Canada Ltd.							✓	✓		✓			
Snap-On Tools of Canada Ltd.													✓
Spilsbury Communications Ltd.		✓		✓									
T.D. Communications Limited			✓		✓								
3M Canada Inc.					✓								✓
Trecan Combustion Limited										✓			
Tri-Star Industries Limited							✓						
Up-Right Scaffolds Ltd.													✓
Westank-Willock									✓				
Westinghouse Canada Inc.			✓									✓	
Wormald Cdn							✓						

Company Profiles

Advanced Information Technologies (AIT) Corporation

9 Auriga Drive
Nepean, Ontario
Canada, K2E 7T9
Tel: (613) 226-7800
Fax: (613) 226-3066
Telex: 053-3262
D. Smith, President
K. Blackhall, Director of Marketing

Secure machine readable documents

■ Advanced Information Technologies (AIT) Corporation specializes in the issuance and inspection of Machine Readable Passports (MRPs), Machine Readable Visas (MRVs) and Machine Readable ID Cards (MRIs). The International Civil Aviation Organization (ICAO) has developed a standard for MRPs that member countries are in the process of implementing. To date, all nations that have introduced MRPs and MRVs have used AIT equipment.

AIT Machine Readable Document Issuance Systems are designed for decentralized and centralized operations. They can be cost effectively employed for remote or central domestic issuance locations via modular growth. Each system is customized to the specific requirements of individual governments and handles all document issuance functions. Inspection products consist of secure machine readable document readers, physically packaged for inspection port requirements, and terminals to display the information that has been read.

Company Profile

AIT, established in 1973, has gained an international reputation as a leader in the development of turnkey, computer-based systems, aerospace technology and systems based on image reading and OCR technology. AIT is a wholly owned Canadian company with headquarters, research, design and manufacturing facilities located in Nepean, Ontario. The firm has facilities encompassing 2 790 m^2 (30 000 sq. ft) and a staff of approximately 90 employees.

Aeronautical Training Systems Inc.

3163 Harvey Street
St. Hubert, Quebec
Canada J3Y 3T7
Tel: (514) 676-1045
Fax: (514) 676-1384
Telex: 063666 .TO 21: XAE001
W.H. Friend, President

ATS System 80 mini-mobile control tower

■ The Aeronautical Training Systems Inc. (ATS) System 80 mini-mobile control tower was developed to meet all operational requirements for temporary air traffic control. The tower is 2.4 m by 3.0 m (8 ft. by 10 ft.) and over 2.4 m (8 ft.) high, and contains two fully equipped control positions. The system was designed for rapid deployment to meet emergencies at an operational airport. All-round and overhead visibility is provided by thermopane glass windows and overhead skylights. Considerable attention has been paid to operator comfort so that the system may be used for extended periods as a temporary tower. It may be operated from 110 or 220 V ac power, or from 12 V dc power, generated by the vehicle engine. Internal storage batteries provide up to 30 minutes of operation without external or engine power.

ATS 4/32 air traffic control radar simulator

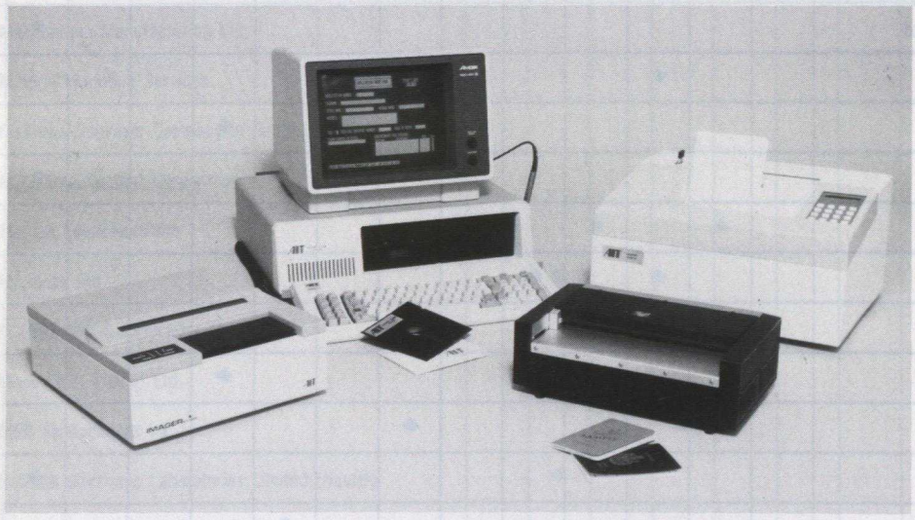
The ATS 4/32 is a state-of-the-art air traffic control (ATC) radar simulator for training students in both procedural and radar environments. The ATS 4/32 can be used to create realistic plan view displays for both en route and approach control, and is flexible enough to allow four separate simulations to occur at the same time. These simulations can be co-located, overlapping, or completely separate. The playing area for each sector can be as large as 1 000 nautical miles square, and can be located anywhere in the world. The ATC displays use raster scan technology to give a high resolution image. The image can correspond to primary radar returns, secondary surveillance radar (SSR) returns, or full digital data blocks. The software corresponds to the Canadian JETS (joint en route terminal system) display, but can be modified to meet other display formats. Extra pilot or student positions may be added by simply connecting the new units to the network.

ATS Model 851 air traffic control signal light gun

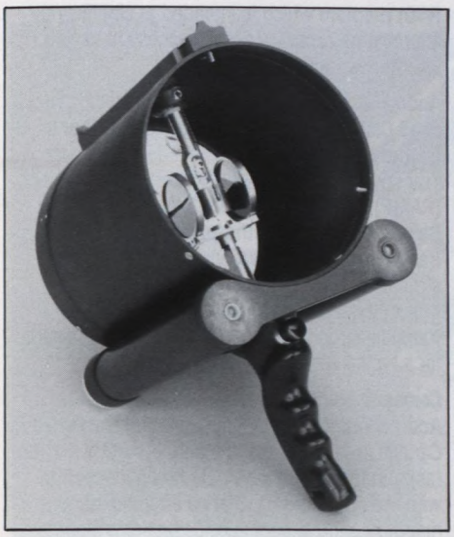
The ATS Model 851 air traffic control light gun is powered by internal 12 V Nicad batteries, has a 100 W quartz halogen lamp and flashes red, white and green colours. When the light is not in use, it is placed in the charge holder. When the batteries are fully charged, the charger automatically switches off to prevent overcharging.

Company Profile

ATS is a wholly owned subsidiary of Ballistech Systems Inc. (BSI) and is currently operating as a division of BSI. ATS designs and manufactures air traffic control equipment, including radar and procedural trainers, mobile air traffic control towers, light guns and associated peripherals. BSI and ATS are high-tech engineering companies with experience in aerospace, defence and related fields. The firm has undertaken numerous tasks for the Department of National Defence, Transport Canada, the Department of External Affairs, Spar Aerospace, Aviation Electric, the SNC Group, the International Civil Aviation Organization, and NATO governments.



Machine readable passport issuance system



◀ Air traffic control signal light gun

Amerace Ltd.

10 Esna Park Drive
Markham, Ontario
Canada L3R 1E1
Tel: (416) 475-6000
Fax: (416) 475-8626
Telex: 06-986807
P. Tyler, Product Manager, Lighting Products

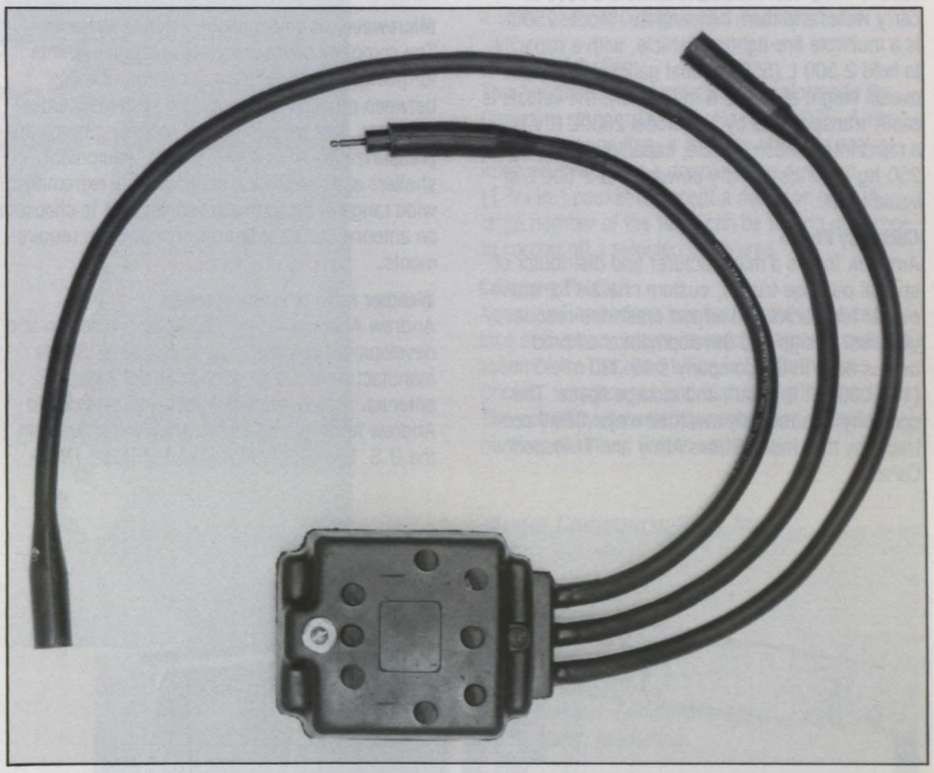
Lighting system equipment

■ Of special interest to airport authorities is Amerace's patented ELASTIMOLD® airfield lighting system equipment which consists of rubber or epoxy encapsulated isolating transformers, moulded waterproof cable sets and connector kits. First developed as components of new underground power distribution systems for runways and taxiways of military airfields, they are now specified by Transport Canada, the Canadian Air Force, and the United States Federal Aviation Administration. Amerace transformers are installed at airports in Burma, Canada, Ceylon, Dubai, Ecuador, the Federal Republic of Germany, Hong Kong, Iraq, Israel, Mexico, New Zealand, Saudi Arabia, Singapore, Trinidad and Tobago, the United Kingdom, the United States, Yugoslavia and other countries.

Company Profile

Amerace Ltd. is an electrical products company specializing in airfield lighting equipment for military and civil installation in several countries. This well-established company has modern facilities comprising design, engineering, manufacturing, sales and administration units. The company, through its 4 645 m^2 (50 000 sq. ft.) plant, markets its commercial electrical products and components, as well as its airfield lighting equipment, from coast to coast in Canada and worldwide.

◀ Mobile control tower



Polychloroprene encapsulated isolating transformer with earthing stud

Amertek Inc.

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Canada N4S 8A3
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Fax: (519) 539-7613
Telex: 064-7140
W.C. Thomas, Chairman and Chief Executive Officer
A.S. Burridge, Director of Marketing and Sales

Crash-fire-rescue vehicles

■ Amertek Inc. produces two basic models of crash-fire-rescue vehicles (CFRV). Both models include an Amertek designed and developed all-wheel drive 4 × 4 chassis with a forward-mounted crew cab. Engines, transmissions and drive axles are selectively matched to suit customer requirements. The truck cabs and bodies are constructed of aluminum to minimize weight and eliminate corrosion, while stainless steel tanks are used to carry water and foam concentrate. Model 2500L is a multirole fire-fighting vehicle, with a capacity to hold 2 500 L (550 imperial gallons). With an overall height of only 2.6 m (8.5 ft.), the vehicle is easily transportable by air. Model 2500L RIV is a rapid intervention vehicle, capable of carrying 250 kg (550 lbs.) of dry powder and 2 500 L of liquid foam.

Company Profile

Amertek Inc. is a manufacturer and distributor of special purpose trucks, custom chassis for municipal fire trucks and airport crash-fire-rescue vehicles. Design and development of all products is done in the company's 15 330 m^2 (165 000 sq. ft.) plant and storage space. The company was recently awarded major CFRV contracts by the United States Army and Transport Canada.

Andrew Antenna Company Limited

606 Beech Street
Whitby, Ontario
Canada L1N 5S2
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Telex: 06-981269
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H.J. Swain, President
J.J.D. Lawson, Business Development Manager, Government Products
G. Tong, Manager, Marketing

VHF omnidirectional range antenna systems

■ The standard and doppler VHF onmidirectional range (SVOR and DVOR) antenna systems supplied by Andrew Antenna Company Limited were designed to meet Transport Canada specifications. The antenna system includes the antennas, radomes, mountings, polarization suppression equipment, feed cables and associated connectors.

Microwave communications antenna systems

The company offers complete antenna systems for point-to-point microwave communications between or within airports. The system includes antennas, transmission lines, mounting hardware, pressurization equipment, towers, equipment shelters and installation services. The extremely wide range of designs allows the client to choose an antenna that is optimized to individual requirements.

Weather radar antenna systems

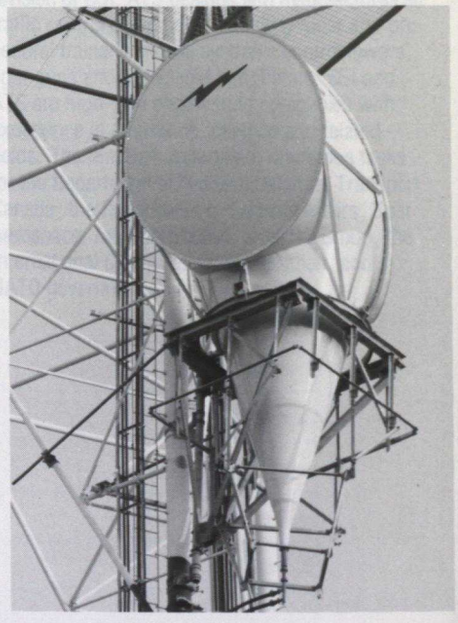
Andrew Antenna recently completed a design and development contract for a large United States manufacturer for a parabolic doppler radar antenna. A production contract was awarded to Andrew for these antennas. They will be used in the U.S. Next Generation Weather Radar (NEXRAD) program which is intended to significantly improve the accuracy and timeliness of severe weather warning capabilities.

Andrew Antenna also received a contract from a large Canadian manufacturer to design, manufacture and range test 24 L-band reflectors for Transport Canada's Radar Modernization Project (RAMP), and a further contract from Transport Canada for a study of the design requirements for frangible microwave landing system support structures to be used near airports. This latter project includes the design and fabrication of a frangible support tower and simulated enclosure for a typical azimuth antenna.

Company Profile

Andrew Antenna Company Limited, established in Canada in 1953, is a subsidiary of Andrew Corporation in the United States, a multinational firm with over 50 years of antenna engineering and manufacturing experience. Design and manufacturing efforts of the firm have focused on specialized antenna systems, transmission lines and related equipment. Andrew Antenna also has an established reputation as a designer and manufacturer of air traffic surveillance, weather, navigational, tactical and other special-purpose antenna systems built to meet government and military specifications. Recently introduced products include a complete line of transportable and fixed station high frequency (HF) antennas and devices for military and government communication needs. Approximately 8 036 m^2 (86 500 sq. ft.) are devoted to manufacturing operations at the main plant located in Whitby, Ontario. Andrew's field service department offers a comprehensive customer service package including program management, delivery, site civil works, tower erecton, antenna assembly and installation system testing, as well as warranties.

Crash-fire-rescue vehicle Model 2500L RIV



Microwave communications antenna system

◀ Parabolic doppler radar antenna

Aquarian Enterprises

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St. Catharines, Ontario
Canada L3K 1B7
Tel: (416) 934-6372
R. Coles, Marketing

Runway safety flag

■ The Aquarian runway flag is manufactured to Transport Canada standards (D.O.T. No. 8345-0713) and is currently in use at most major Canadian airports for marking runway lights and objects in and around runways and tarmacs. The product is particularly useful in areas which have large snowfalls. The triangular flag is orange waterproof vinyl, glued onto the rod and secured with clamp fasteners. The rod is made of fiberglass, .250 cm (1/4 in.) thick and sprayed with fluorescent orange for high visibility. A galvanized spring attachment enables the flag to sway with the wind and right itself to the original position. The tail is looped for wedging into the ground with a spike or for securing with a bolt into a unit.

Airport safety flag

The Aquarian airport safety flag conforms to the Canadian standard D.O.T. No. 8345-075. A rectangular orange flag, it is made of single coat reinforced nylon with a double sewn 4.45 cm (1 3/4 in.) pocket to accept a dowel or rope. A large number of the flags can be strung on a rope to cordon off a selected large area.

Company Profile

Aquarian Enterprises has two plants in the province of Quebec, where its safety flags are cut and assembled. The head office in St. Catharines, Ontario, warehouses and distributes the products. The company is currently negotiating sales to a number of United States airports.

Audor Communications Inc.

2700 Lancaster Road
Ottawa, Ontario
Canada K1B 4T7
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Fax: (613) 523-0242
Telex: 053-3172
R.P. Welland, General Manager
H.Z. Glanz, Marketing

Air traffic control, tower and area control centres

■ Audor Communications' (ACI) ATC Systems can accommodate up to 13 operator positions. The systems are designed and manufactured to customer requirements. Over 60 systems have been installed for both civil and military airports. A typical control tower console includes seven radio channel controls with backups, nine intercom lines with conferencing, two hot lines, a crash alarm, MET instrument displays, a digital clock, an airfield facilities status panel, and emergency lighting. The equipment room installation includes a radio central (expandable to 16 channels and

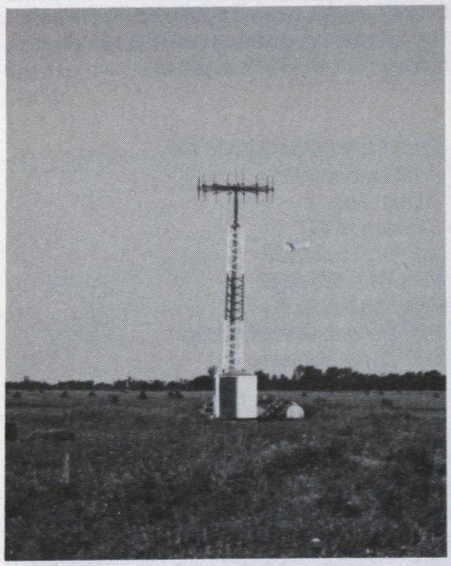
16 backups), a test and fuse panel, power supply, a dual battery backup for 12 hours, radios, transmitters/receivers, a tape recorder, and test equipment.

VHF direction finder system

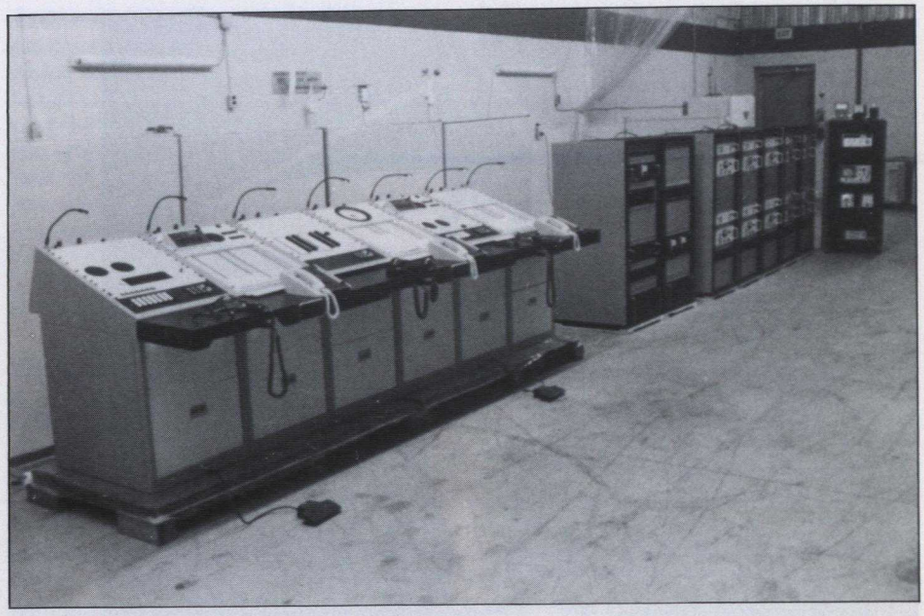
ACI's VHF direction finder system includes a central receiver processor and an operator display control unit. The antenna features a wide aperture quasi-doppler 16-element array, paired sequential communication and lightning protection. The central receiver processor is fully synthesized and consists of 10 programmable channels, a microprocessor-controlled bearing calculator, and a telephone line interface to the operator display control unit. The operator display control unit features full control capability of the system, digital and circular LED bearing display, as well as a voice communications link to the central receiver processor.

Company Profile

ACI, established in 1979, specializes in the manufacture and turnkey supply of customized communications control systems for air and marine traffic control. Products and systems are developed at the ACI plant in Ottawa by an engineering design staff using both manufacturing and test facilities. Most of the firm's business is in supplying custom VHF, UHF and HF communications systems to customers in the Caribbean, Malaysia, West Africa (Ghana, Togo, Ivory Coast, Guinea, Liberia, Sierra Leone), Mexico, Cuba, Algeria, the United States, the United Arab Emirates and Chile. ACI installs the system, conducts training in the client country, and trains foreign representatives to service the equipment.

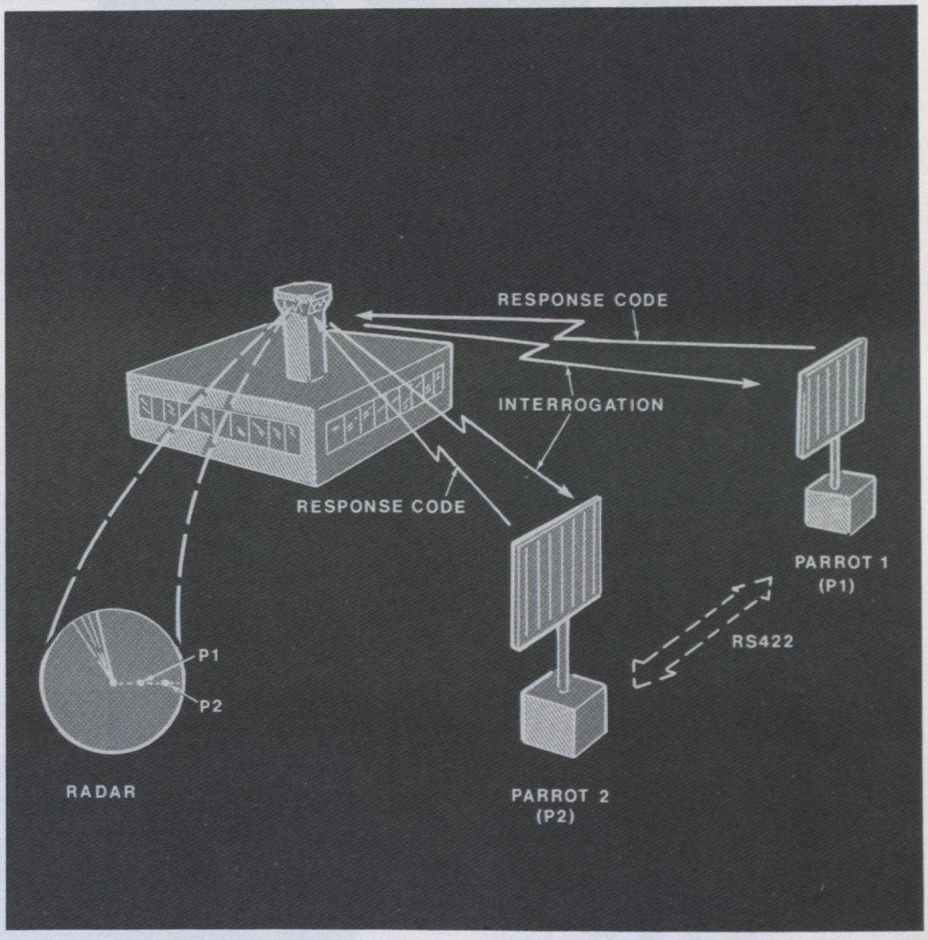


VHF direction finder



Air traffic control console

PARROT tests, calibrates and continuously monitors secondary surveillance radar ▶



Bendix Avelex Inc.

200 Laurentian Boulevard
Montreal, Quebec
Canada H4M 2L5
Tel: (514) 744-2811
Fax: (514) 342-3795
Telex: 05-826688
J. Beaven, Director of Marketing
T. Heaney, Marketing Manager

Position adjustable range reference orientation transponder

■ PARROT (a position adjustable range reference orientation transponder), developed by Bendix Avelex Inc. under contract to Transport Canada, has emerged as a critical innovation for secondary surveillance radar (SSR) and related systems. The PARROT system, a key element of Canada's Radar Modernization Program (RAMP), tests, calibrates and continuously monitors SSRs to ensure safety and reliable operation and to provide essential real-time information to the radar controller. The system, normally installed within 10 nautical miles of the SSR, provides programmable responses to Mode A, B and C interrogations, and incorporates range delays, simulates altitude, reports fault status and generates self-test functions.

Company Profile

A pioneer in Canadian aviation and a recognized leader in technological innovation and engineering design, Bendix Avelex Inc. is a major domestic and international supplier of aviation, defence and aerospace products. Bendix Avelex employs approximately 800 people including highly skilled technicians, machinists, mechanical and electronic assemblers, as well as trained professionals in all disciplines. The firm currently services more than 1 000 different aerospace products for over 300 customers in 55 countries.

Blue Giant Equipment of Canada Ltd.

85 Heart Lake Road S.
Brampton, Ontario
Canada L6N 3K2
Tel: (416) 457-3900
Fax: (416) 457-2313
Telex: BMTN 06907524
P. Dillon, Marketing Manager
C.S.K. Larsen, Vice-President

Pallet handling equipment

■ Blue Grass Equipment of Canada Ltd. manufactures a comprehensive range of pallet handling equipment used to transport and stock palletized loads. This equipment is designed and manufactured in various sizes and styles to satisfy numerous customer applications. The standard capacities of the pallet handling equipment range from 454 kg (1 000 lb.) to 3 630 kg (8 000 lb.) Blue Giant material handling equipment can be either manually or electrically driven.

Hydraulic lift tables

The company manufactures three basic models of hydraulic lift tables in many sizes with various lifting capacities up to 9 080 kg (20 000 lb.). Hydraulic lift tables have numerous applications including the positioning of materials, transfer of loads and the unloading of any type of material. Specific applications in the aviation industry include container handling as well as use in aircraft maintenance.

Dock levelers

Blue Giant also manufactures dock levelers that bridge the gap between a storage facility and a transport vehicle thereby increasing loading efficiency while at the same time ensuring safety. Dock levelers can be operated either hydraulically or mechanically and have a load capacity ranging from 11 360 kg (25 000 lb.) to 36 360 kg (80 000 lb.).

Company Profile

For over 20 years, Blue Giant Equipment has been manufacturing a broad range of material handling products. With its network of wholly and jointly owned manufacturing facilities, sub-assembly plants, licensees and distributors, all originating from Brampton, Ontario, the company supplies equipment to customers around the world. Blue Giant products are designed to operate at the highest standards of safety and efficiency in order to speed production and lower costs. The company has service networks throughout Canada, the United States and Great Britain. In other countries independent distributors co-ordinate the sales and service efforts. Blue Giant has sold products to Colombia, the United Kingdom and Singapore.

◀ Pallet handling equipment

Bombardier Inc.
Bombardier Mass Transit Division

1350 Nobel Street
Boucherville, Quebec
Canada J4B 1A1
Tel: (514) 655-3830
Fax: (514) 655-4257
Telex: 052-67427
J.G. Hallman, Vice-President of Marketing/TGI

WEDway PeopleMover vehicle

■ The Bombardier Inc. WEDway PeopleMover is a simple, proven and reliable technology that has been in use on a daily basis for over 13 years. The fully automated, linear-induction powered vehicle operates on a dedicated guideway and is designed for small-capacity applications. Currently in use at the Houston Intercontinental Airport and Walt Disney World in Florida, the system has demonstrated a cumulative 99.9 per cent reliability record. The vehicle can operate at-grade, elevated or underground as well as during freezing temperatures.

Monorail

The Bombardier/TGI Monorail is the result of an agreement that combines the Disney people-moving expertise and over 30 years of research, development and operation of monorail systems with Bombardier's strengths in mass-transit development and transit-vehicle construction. Designed for intermediate- to high-capacity people-moving applications, the Mark VI Monorail operates on a narrow 66 cm (26 in.) wide guideway. Available in single or dual lane configurations, the monorail is ideal for connecting remote parking areas to terminal buildings or other activity centres. Stations can be located at-grade, elevated or underground owing to the trains' capability of climbing 12 per cent gradients.

A larger version of the Mark VI is now available for ultra-high capacity applications (those in excess of 20 000 passengers per hour per lane). Running on an 84 cm (33 in.) wide guideway, the Mark XXI monorail vehicle is wider and longer than the Mark VI and able to carry more than 130 passengers per car in consists as small as two cars per train. Both the Mark VI and the Mark XXI are able to operate in freezing weather conditions by embedding heating coils in the surface of the guideway.

Company Profile

There are few companies that can match Bombardier's remarkable achievements, its growth, and the capabilities it now offers in the provision of mass transit vehicles and technology. Entering this arena in 1974, Bombardier embarked on a strategic plan so successful that the company has become one of the leading and largest North American manufacturers of rail passenger vehicles, with one of the most modern fabrication and assembly plants on the continent. The company's Mass Transit Division offers urban transit authorities a complete range of equipment and operating options from high-speed inter-city trains, subway and commuter vehicles for high-capacity applications, to medium- and lower-density transportation equipment and systems, such as articulated light rail vehicles, monorails and people-movers. With a management and skilled labour force totalling 1 350, the Mass Transit Division operates two manufacturing/assembly plants in North America. Monorail and PeopleMover systems marketing, design and system engineering are handled by The Transportation Group Inc. (TGI), a wholly owned Bombardier subsidiary created in 1985 and located in Orlando, Florida, U.S.

Mark VI Monorail at Walt Disney World Resort
(Photo: ©Walt Disney Company 1986)

WEDway PeopleMover at Houston Intercontinental Airport, U.S.

Butler Manufacturing Company (Canada) Limited

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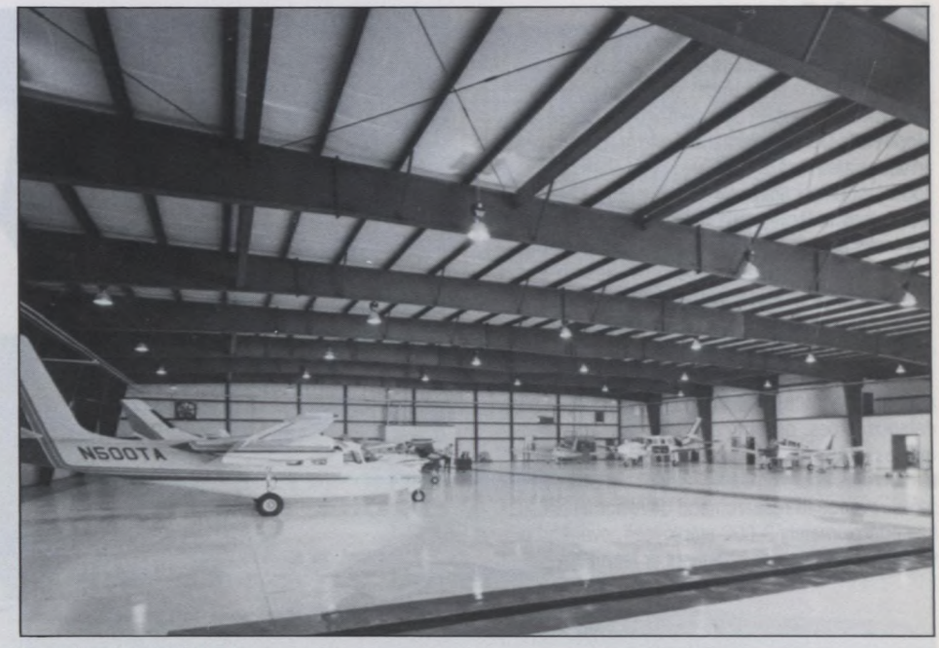
Canada L7R 3Z3
Tel: (416) 335-2000
Fax: (416) 336-8811
Telex: 061-8617
J. Naprawa, International Sales Manager

Pre-engineered aircraft hangars

■ Butler Manufacturing Company (Canada) Limited offers pre-engineered aircraft hangars. Butler buildings rely less on the skills of job site workmen and capitalize on the quality control and economies of mass factory production. The pre-engineered components can be assembled quickly into a precise integrated building, reducing interim financing charges and providing a quickly usable shelter.

Company Profile

Butler Manufacturing Company (Canada) Limited, a wholly owned subsidiary of Butler Manufacturing Company in the United States, was established in 1956 in Burlington, Ontario. A leading Canadian manufacturer of pre-engineered steel buildings, Butler has long been recognized as a world leader in the design, manufacture and distribution of building systems and components. Sustained investment in advanced technology for computer-aided design and manufacturing (CAD/CAM) has permitted Butler engineers and research scientists to continually challenge the industry with innovative product concepts. With manufacturing facilities located in the United States, Canada, the United Kingdom and Saudi Arabia, Butler Manufacturing has exported over 10 000 buildings throughout the world.



Pre-engineered aircraft hangar

CAE Electronics Ltd.

8585 Côte de Liesse Road
P.O. Box 1800
Saint-Laurent, Quebec
Canada H4L 4X4
Tel: (514) 341-6780
Telex: 05-82485
N.B. Cavadias, President
R.F. Kemerer, Vice-President,
International Affairs and Public Relations

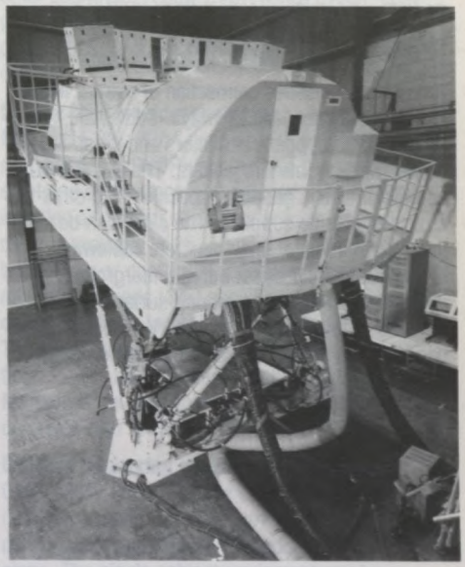
Flight simulators

■ CAE Electronics Ltd. is a major producer of civil aircraft flight simulators, with about a one-third share of the world market. CAE simulators are renowned for their realism and accuracy in reproducing all the characteristics of a specific aircraft, plus all the environmental effects encountered in actual flight. Every normal and abnormal operating parameter of an aircraft is simulated with precision and fidelity. The company can supply simulators capable of meeting the Federal Aviation Administration Phase II and III Advanced Simulation Regulations.

CAE also produces a wide variety of military full-mission simulators for both fixed and rotary wing aircraft. These range from today's most advanced fighters and helicopters, to heavy transports and patrol aircraft. CAE simulators incorporate all of the aircraft's latest avionics and systems, which include on-board computers, head-up displays (HUD), weapon guidance systems and electronic countermeasures.

Air traffic control system

The Joint En route Terminal System (JETS), operational in all seven of Canada's area control centres, was designed and built by CAE. The architecture of JETS, and the provision of both en route and terminal control functions, gives Canada a leading position in the effective use of automation of air traffic control. Current air traffic control developments incorporate the flexibility and proven reliability of the JETS architecture, providing the capability to configure systems for a variety of operational needs in the terminal, en route and oceanic environment.



Korean Airlines' MD-82 flight simulator

Company Profile
CAE Electronics, founded in 1947, is one of the world's leading advanced-technology companies and one of Canada's largest scientific systems and software houses. The company is based near Montreal's Dorval International Airport, and has an associated firm in Stolberg, West Germany. CAE applies sophisticated real-time computer-based technology to large, complex simulation and control tasks across a broad spectrum that includes commercial and military aviation, hydro and nuclear power generation and transmission, airspace management, marine applications, space exploration, and submarine detection systems. The company's customers include major airlines, aircraft manufacturers, many of the world's defence forces, government agencies, and power utilities. CAE exports 75 per cent of its products and invests approximately 22 per cent of its yearly sales revenue in research and development. CAE has approximately 3 000 employees, over half of whom are engineers, scientists or technicians.

Operators at the console of Montreal's JETS air traffic control centre.

Canada Wire and Cable (International) Limited

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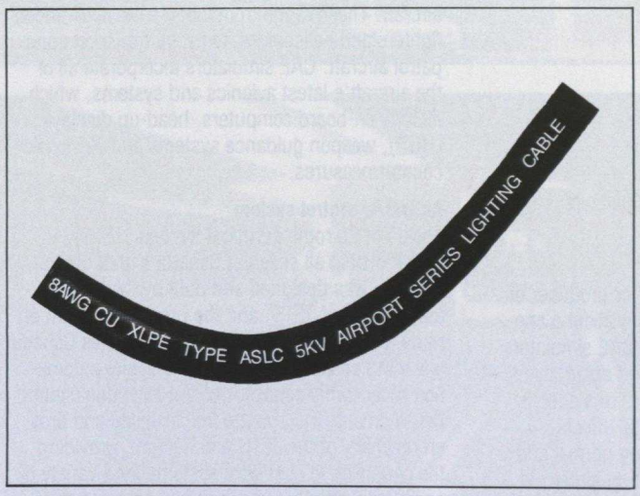
Don Mills, Ontario
Canada M3C 3J4
Tel: (416) 424-5000
Fax: (416) 424-1008
Telex: 065-24120
R. Gould, Vice-President, International Sales

Runway lighting cable

■ Canada Wire and Cable is a major supplier of FAA, Transport Canada and CSA approved runway lighting cable to civil and military airport authorities. The 5 000 V unshielded cable is used extensively for series connection of marker lighting along runways and taxiways. Cables are manufactured with copper conductors and cross-linked polyethylene insulation/jackets. The No. 8 AWG conductor size is generally specified, but other sizes can also be supplied. The cable can be installed in ducts or open concrete cableways. It is also suitable for direct burial underground, or it can be laid across the ground surface where physical protection is unnecessary. The cable has been used in major installations in varous parts of the world.

Company Profile
Canada Wire and Cable, established in 1911, is a manufacturer of electrical, electronic and communication wires and cables, magnetic wire, optical fibre cables and components, and other products. As one of the largest wire and cable companies in Canada, Canada Wire employs more than 5 000 people in North America and 9 000 in its overseas operations. The company has developed export markets in more than 50 countries. Its export operations are organized by regions and directed primarily towards markets in the Pacific Rim, the Middle East, Latin America, the Caribbean and the United States.



Series cable for airport runway lighting system

Canadian Astronautics Limited

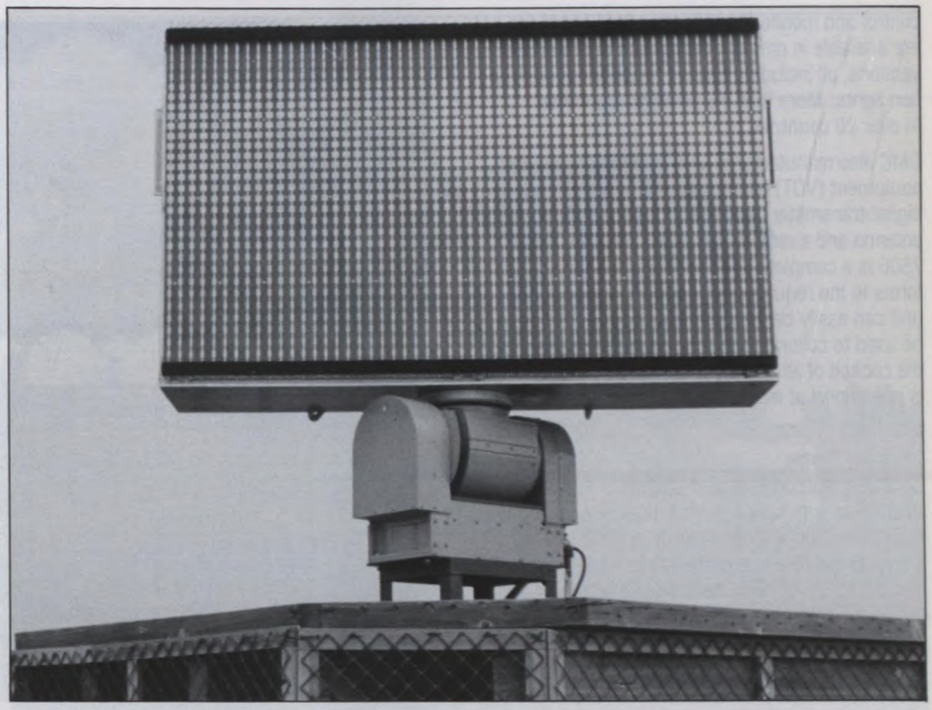
1050 Morrison Drive
Ottawa, Ontario
Canada K2H 8K7
Tel: (613) 820-8280
Fax: (613) 820-8314
Telex: 053-3937
J.H. Pocklington, Vice-President, Business Development
C. Thigpen, Director of Marketing

Microwave landing system azimuth antenna

■ Canadian Astronautics Limited (CAL) has developed and tested a unique Microstrip microwave landing system (MLS) azimuth antenna. Key advantages of CAL's microstrip antenna are that it is lightweight, frangible and more economical than conventional slotted waveguide antennas, and that it has been fully tested to meet all ICAO radio frequency (RF) specifications.

Microwave landing system signal analyzer

CAL has also developed an MLS signal analyzer to aid the validation of MLS system performance. This equipment, developed for Transport Canada, analyzes the MLS radiated signal, measures sidelobe performance and reduces expensive airborne flight testing.



◀ Azimuth MLS Microstrip antenna

Company Profile

CAL, established in 1974, is a diversified company that develops and manufactures a wide range of sophisticated and innovative high-technology products and provides quality systems and engineering services. CAL's focus is on the custom design of total radar, space, signal processing or electronic warfare systems. In over 200 contracts since the company started, CAL has served a wide range of customers including various departments of the Canadian government, NASA, the European Space Agency, the Government of Australia and the Government of Saudi Arabia.

Canadian Marconi Company (Navaids Group, Avionics Division)

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Kanata, Ontario
Canada K2K 2B2
Tel: (613) 592-6500, or (613) 592-6513
Fax: (613) 592-7427
Telex: (021) 053-4805
Cable: ARCON OTT
R.B. Beasley, Group Manager
J.T. Dale, Marketing Manager

Microwave landing system

■ The Canadian Marconi Company (CMC) microwave landing system (MLS) is a new all-weather precision approach and landing guidance system that uses solid-state and microprocessor technologies for greater reliability, easier maintenance and remote maintenance and control capabilities. The CMC Navaids MLS 2500, built under licence from Hazeltine Corporation, uses the patented COMPACT phased array network. In order to suit user requirements, different beamwidth and guidance coverage options are available. Installation is quick and simple, while the modular design, no-break-power-supply and the remote maintenance and monitoring system reduce the mean-time-to-repair to 15 minutes. The system is currently in production, with two systems delivered and installed in Alberta, Canada, and one on order for the United States. Similar systems, manufactured by Hazeltine, have been installed in the United States, the United Kingdom and Italy. CMC also manufactures the CMA-2000 microwave landing system receiver which can be installed in new or used aircraft.

Instrument landing system

The PHL 7404 precision approach instrument landing system (ILS) meets or exceeds ICAO specifications for category I and II, while the PHL 7801 ILS meets or exceeds ICAO specifications for category II and III. The equipment is of highly modular design and features module commonality between the localizer, the glide path and the marker. The equipment is in service at many civil and military airports in Canada and NATO. More than 100 systems have been installed in over 30 countries, including a category III system at Amsterdam's Schiphol Airport.

Standard VHF omnidirectional range beacon

Canadian Marconi Company's PHL 8303 standard VHF omnidirectional range beacon (SVOR) is a conventional VOR beacon that can be used for en route navigation as well as for terminal area use. The equipment is available in both single and dual channel configurations and CMC's VOR is of a highly modular design, with most modules common to both 8303 SVOR and 8304 doppler-VOR. The solid-state equipment, which can be easily interfaced and co-located with any DME system, is available in 25, 50 and 100 W versions and includes an electronic goniometer. The optional no-break-power-supply and remote maintenance monitoring system further enhances reliability and reduces the need for site visits. The system is operational in Canada as well as in numerous other countries. A new SVOR (CMA 8703), complete with remote maintenance and monitoring capabilities, is under development for Transport Canada.

Doppler VHF omnidirectional range beacon

Marconi's PHL 8304 doppler VHF omnidirectional range beacon (DVOR) is a state-of-the-art double sideband en route navigational aid, which is often installed at difficult sites. The solid-state equipment is available in 25, 50 and 100 W versions in both single or dual (redundant) configurations and meets or exceeds ICAO specifications. The beacon can be easily co-located with any kind of DME. The sytem is operational in many Canadian locations as well as in numerous other countries. Marconi is developing a new DVOR (CMA 8704), complete with RMMS, for Transport Canada.

Distance measuring equipment

CMC's PHL 7604 distance measuring equipment (DME) is available in single and dual equipment configuration in both 100 W and 1 000 W versions. The single cabinet equipment can be co-located with VOR, ILS and MLS equipment. Features include automatic changeover, dual monitors, built-in test equipment and a remote

control and monitoring unit. The DME antennas are available in omnidirectional and undirectional versions, all including deicing heaters and obstruction lights. More than 75 systems are in use in over 20 countries.

CMC also manufactures VHF omnidirectional test equipment (VOT) which consists of a VOR test signal transmitter, a monitor, a power supply, an antenna and a remote alarm unit. This VOT PHL 7606 is a complete VHF omni test facility and conforms to the requirements of ICAO Annex 10. The unit can easily be installed at any airfield and can be used to calibrate the omni-bearing selector in the cockpit of all aircraft on the field. The system is operational at many Canadian and foreign airports.

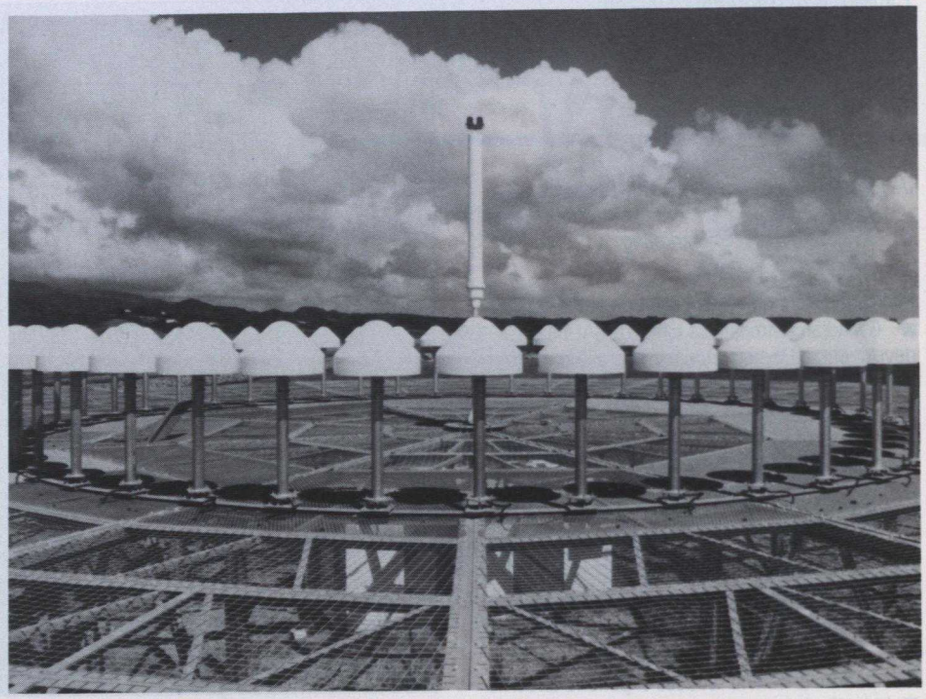
Company Profile

Canadian Marconi is one of Canada's leading electronics companies, with extensive experience in avionics. Since incorporation in 1903, the company has become one of the world's foremost manufacturers of high-technology electronics and communications equipment. General product categories encompass avionics, tactical communications systems, radar systems, specialized electronic components and telex systems.

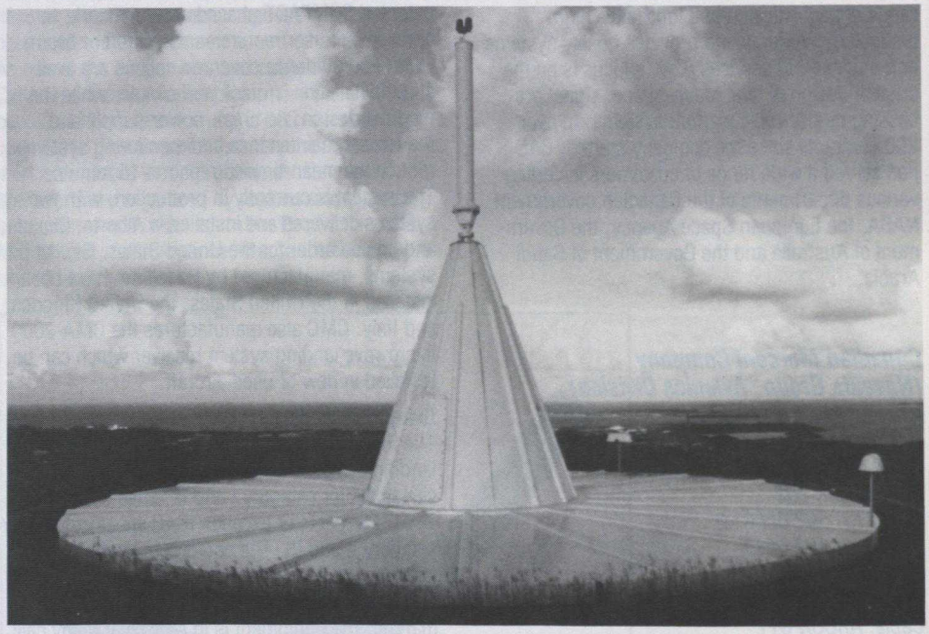
The company is divided into two major management groups: the Communications Group and the Electronics Group. The Communications Group includes the Defence Communications and Special Services divisions. The Electronics Group comprises the Avionics Components, Datacomm Products and Radar divisions.

Since 1903, CMC's executive offices and main manufacturing facilities have been located in Montreal; however, in 1982 a second Canadian facility was established in Kanata and now houses the Radar and Datacomm Products divisions. Also based at Kanata are selected avionics engineering and development programs as well as the production of ground-based navigation equipment such as the microwave and instrument landing systems.

The Canadian Marconi Navaids Group which is part of the Avionics Division was formed in 1985 as a separate unit, operating from the Kanata offices. Equipment manufactured and supported by CMC Navaids includes microwave landing systems (MLS), instrument landing systems (ILS), standard and doppler VHF omnidirectional range beacons (SVOR and DVOR), VHF omnidirectional test equipment (VOT), and distance measuring equipment (DME).



PHL 8304 DVOR and PHL 7604 DME installation in Grenada, West Indies



PHL 8303 SVOR and PHL 7604 DME installation in Antigua, West Indies

Champion Road Machinery Ltd.

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Goderich, Ontario
Canada N7A 4C8
Tel: (519) 524-2601
Fax: (519) 524-5175
Telex: 06955175 CHAMPARTS
M.A. Sully, Vice President, Marketing
B.F. Lapaine, Director of Sales

Road graders

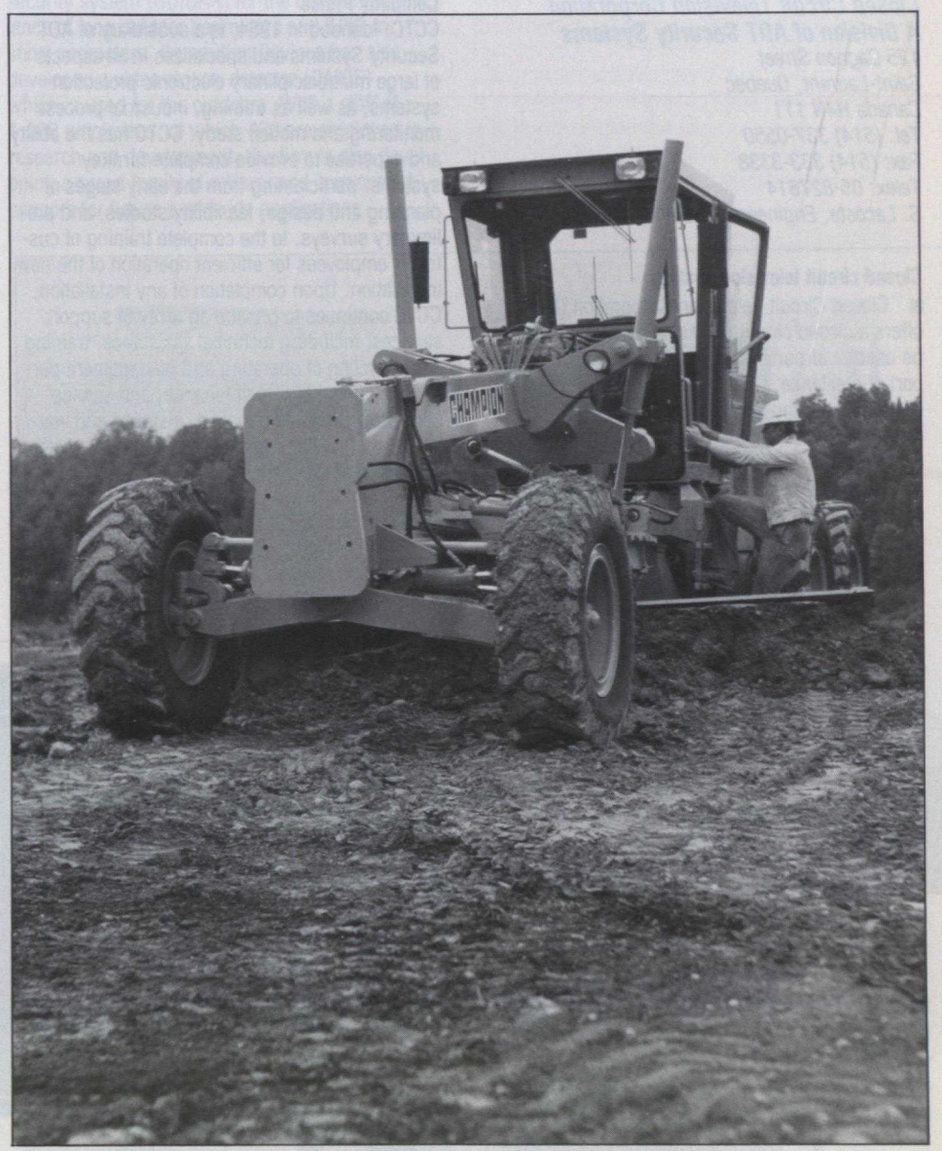
■ Champion Road Machinery Ltd. is Canada's only manufacturer of road graders and the world's second largest supplier of graders for commercial and military airports. Serving a variety of facilities, from gravel airstrips in Canada's High Arctic to major airport runways, Champion equipment is suitable for every grading and earth moving function. The machinery is fast, effective and efficient and is considered among the most comprehensive and technologically advanced in the industry.

Champion's 700 Series grader fleet comprises ten models, ranging from 101 kW to 157 kW (135 HP to 210 HP). Three models are available with an all-wheel-drive option.

To increase the versatility of its graders, the company also designs and manufactures its own attachments. These include scarifiers, rippers, snow plows and snow wings, all of which are well suited to airport maintenance.

Company Profile

Champion Road Machinery Ltd. services a worldwide commercial and government road grader market. The company is the dominant supplier of graders to Canada's Department of National Defence and a major supplier for U.S. military airports. Among the many countries that have invested in Champion motor graders are: Algeria, Argentina, Australia, Brazil, Chile, Ethiopia, France, Greece, Haiti, Iceland, Iraq, Jordan, Nepal, New Zealand, Nigeria, Pakistan, Portugal, Spain, Sri Lanka, Syria, Tunisia, Turkey, the United Kingdom, Yugoslavia and Zambia.



Champion road grader

Closed Circuit Television Corporation
A Division of ADT Security Systems

125 Gagnon Street
Saint-Laurent, Quebec
Canada H4N 1T1
Tel: (514) 337-0550
Fax: (514) 333-3338
Telex: 05-827614
S. Lacoste, Engineered Systems Sales Manager

Closed circuit television system

■ Closed Circuit Television Corporation (CCTC) offers a closed circuit television system which can be used at airports for passenger security and airport surveillance. Depending on the customer requirements and size of the airport, CCTC can provide a system that includes one camera and one screen, or a more complex network that comprises several cameras and screens. CCTC also offers a system with one video monitor and multiple cameras. Each camera can be monitored in a predetermined sequence varying from 1 to 45 seconds. Mobile camera systems are also available and are capable of horizontal and vertical movements and wide angle and telescopic views. Over 30 systems including more than 150 cameras have been installed in North America.

Fuel management system

CCTC can provide a fuel management system to accurately monitor costs of refuelling operations of different airline companies at large airports. A control unit, installed near a refuelling station, is interfaced with the central processor of the mainframe. Standard transaction reports show full details of every refuelling for every airline and aircraft. The unit is activated with magnetic-encoded or optical-punch access cards.

Card access systems

CCTC can also provide card access systems (cardkey) for control and security of personnel in a facility. The system gives access, in facilities protected by the system, only to authorized personnel having the access card and also records the time and attendance.

Company Profile

CCTC, founded in 1964, is a subsidiary of ADT Security Systems and specializes in all aspects of large multidisciplinary electronic protection systems, as well as training, industrial process monitoring and motion study. CCTC has the ability and expertise to provide complete turnkey systems, participating from the early stages of planning and design, feasibility studies, and preliminary surveys, to the complete training of customer employees for efficient operation of the new installation. Upon completion of any installation, CCTC continues to provide an array of support services, including technical assistance, training and recycling of operating and management personnel, consulting, maintenance, and service contracts. Products supplied, installed and warranted by CCTC are backed by ADT's worldwide reputation of excellence.

Closed circuit television system

Fuel management system

Computing Devices Company
A Division of Control Data Canada, Ltd.
P.O. Box 8508
Ottawa, Ontario
Canada K1G 3M9
Tel: (613) 596-7000
Fax: (613) 820-5081
Telex: 053-4139
F. Vandenberghe, Director, Security Systems Market Development
A.H. Brookbank, Market Development Director

GUIDAR and SPIR intrusion sensors

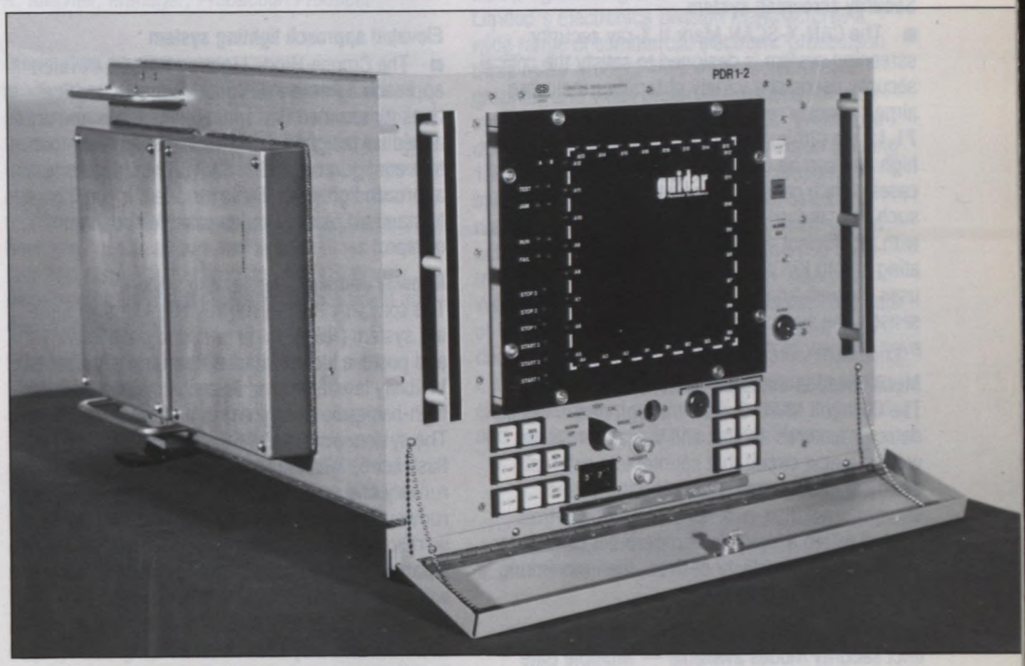
■ Computing Devices' GUIDAR and SPIR are state-of-the-art modular microprocessor-based, buried line intrusion sensors for detection and location of intruders over long and short perimeters. GUIDAR and SPIR create a detection zone between a pair of ''leaky'' coaxial cables buried around the protected area. The coupling between the cables produces a ''radar fence'' which, when interrupted by an intruder, creates an alarm condition. Using active guided radar techniques, GUIDAR and SPIR sense the physical characteristics of the intruder and effectively discriminates between valid targets and small animals or environmental disturbances. GUIDAR provides coverage for target detection and location for perimeters of up to 3 200 m (10 500 ft.) per system. Systems may be linked together for larger perimeters. SPIR-4 provides coverage over short perimeters up to 300 m (1 000 ft.) in length.

Digital automatic video intrusion detection system

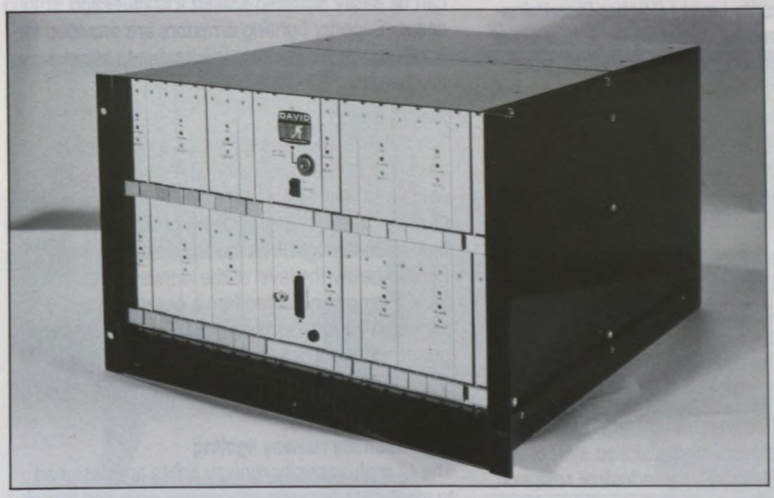
Computing Devices' DAVID (digital automatic video intrusion detection), a video motion detection system designed for the outdoor environment, is used as part of a closed-circuit television surveillance system. DAVID, like other motion detectors, identifies intruders by ''looking'' for small contrast changes in the video scene. Unlike other detectors, however, DAVID tracks the changes as potential targets, and subjects them to stringent validity tests before declaring an alarm condition. These highly effective tests filter out alarms from sources such as cloud shadows, wind motion, precipitation, small animals and video noise. This results in a high-detection probability and few false alarms. DAVID can be used with any video source or any camera.

Company Profile

Computing Devices Company, founded in 1948, produces sophisticated electronics equipment for military and commercial applications. The company, a division of Control Data Canada, Ltd., is currently involved in a number of specific areas of activity including tactical navigation, anti-submarine warfare acoustic signal processing, tactical fire control, security systems, aircraft engine thrust computing systems and digital displays. Of the total company sales, approximately 80 per cent is exported to large electronic prime contractors in countries such as the United States and the United Kingdom. In the field of security, Computing Devices has developed and produced a security system (GUIDAR) for the covert surveillance of long outdoor perimeters and SPIR for short perimeters. Computing Devices has also developed a video motion detector (DAVID) which is used for the outdoors. With a staff of 1 000 employees, of which 400 are employed in research and development, the firm is also developing a broad family of military and commercial sensors for future worldwide applications.



GUIDAR processor/display unit



DAVID processor unit

Corrigan Instrumentation Ltd.

275 Slater Street, 5th Floor
Ottawa, Ontario
Canada K1P 5H9
Tel: (613) 233-3326
Fax: (613) 233-2581
Telex: 06-97575
C.M.D. Corrigan, Managing Director

Security screening system

■ The CAN-X-SCAN Mark II X-ray security screening system is designed to satisfy the critical security needs of a variety of facilities including airport concourses. The unit's tunnel opening is 71.12 cm (28 in.) wide by 49.53 cm (19 1/4 in.) high and can be used to screen handbags, briefcases, lunch pails, etc., as well as larger items such as standard-size suitcases. It is equipped with an efficient 160 KVCP X-ray generator operating at 140 KVCP. Because the CAN-X-SCAN uses the well-known, patented silicon diode array sensor, the system is safe for photographic film, even the new high-speed films.

Metal/weapon detection system

The Corrigan MWD-3 walk-through metal/weapon detector features audible and visual alarms, as well as a new circuit that counteracts external electrical interference. Operating the unit is straightforward. It involves setting the controls located within a lockable, tamperproof console to the degree of sensitivity desired, then monitoring the audio and visual alarms.

Switch selectable programming makes three distinct security modes available — Multiple Gate Signal Processing, which allows multiple gates to be set up close together without interfering with one another; Security Level I (Higher Discrimination), which is used for detecting large masses of metal (such as guns) while screening out small items such as keys and coins; and Security Level II (Higher Sensitivity), which detects smaller metallic objects such as knives, as well as the larger items, while allowing coins, keys, belt buckles, etc. to pass.

Company Profile

Corrigan Instrumentation Ltd. is a dominant manufacturer of X-ray and metal detection security screening equipment in Canada. The company's products are widely used at Canadian airports and are also found in defence establishments, correctional facilities and other settings.

Committed to producing state-of-the-art technology, Corrigan employs a highly skilled staff of engineers and technicians, for industrial research and development. The company's leading-edge technology is produced either in-house or through industrial co-operation agreements with other organizations.

Crouse-Hinds Lighting

5130 Creekbank Road
Mississauga, Ontario
Canada L4W 2G2
Tel: (416) 625-2511
Telex: 06-961284
F. Sanger, Vice-President and General Manager
J. Dobson, Product Manager, Airport Lighting

Elevated approach lighting system

■ The Crouse-Hinds Lighting PAR 56 elevated approach lights are designed to meet specifications for elevated day and night beacons and are aimed up the glide path in various approach pattern configurations. The PAR 56 high-intensity approach light is available for direct mounting to standard 5 cm (2 in.) breakable couplings or pipe.

Runway end identifier lighting system

The company's CD-5 runway end identifier lighting system (REILS) is intended to provide early and positive identification of the runway threshold. Visibility is outstanding in such conditions as fog, high-background brightness and extraneous light. The system consists of two high-power xenon flash lamps located 46 m (150 ft.) beyond the runway end, one positioned on each side of the runway facing up the glide path and toed outwards slightly (normally 15°). The system incorporates all solid-state electronic components and will operate from 240 or 120 V, 60 or 50 Hz, single phase. An optional fail-safe feature shuts down the entire system when either or both of the flash lamps cease to flash. The REILS control incorporates pull-out circuit boards (cards) which can be easily replaced should a malfunction occur. Superior lighting arrestors are provided for each system to eliminate failure due to cloud discharges.

Inset lighting

The Crouse-Hinds inset lights are designed to guide aircraft to touchdown and rollout on runways and taxiways, particularly in adverse weather conditions. They provide narrow, low beams of high intensity light from quartz halogen lamps located below the level of the runway. The light from a lamp is collected into a narrow beam by precision optics and is refracted through a glass prism, exiting at an angle so as to be visible to pilots in the touchdown and centreline zones and taxiways.

High intensity runway lighting

The CI high intensity runway lights are designed to meet specifications for runway edge and threshold lighting. These bi-directional runway marker lights come complete with a one-piece clear, heat-resistant globe that directs light in two opposite main beams. Colours of yellow, red, green and blue are obtained by 180° or 360° plain glass filters.

Medium intensity lighting

The MI medium intensity marker lights are designed to meet specifications for taxiway edge lighting (blue); medium intensity runway lighting (clear); and heliport lighting (yellow). The heat resistant fresnal globes are available in clear, red, yellow, green, blue, and in 180° duel colour combinations such as red-green for runway end/threshold lighting.

Low intensity lighting

Crouse-Hinds offers low intensity approach, tower and obstruction marker lighting. The obstruction marker lights, with a red lens, mark navigational boundaries and obstructions up to 46 m (150 ft.) high. Obstruction marker lights are used with a yellow lens for low intensity approach patterns to delineate the extended centreline of the runway. Double units use blue lenses to identify high-speed taxiway turn-offs on some airfield installations.

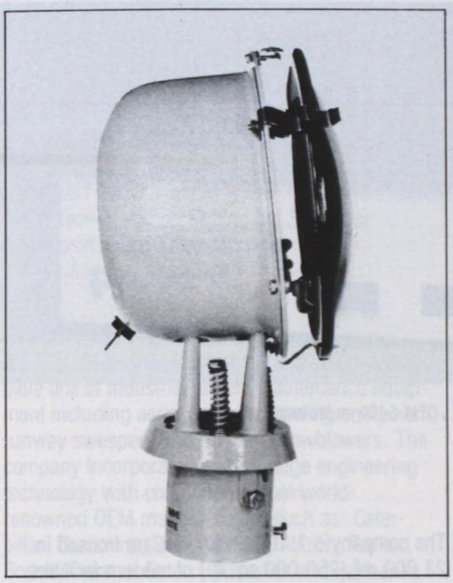
Holding position edge lighting

The Crouse-Hinds holding position edge light is equipped with an alternating flashing yellow beam indicator light to identify taxiway holding position lines to taxiing aircraft.

Crouse-Hinds also offers a visual approach slope indicator system (VASIS) and a precision approach path indicator system (PAPI). The VASIS is complete with four 200-W PAR 64 lamps, with red/white filters. Crouse-Hinds also manufactures a sequenced flashing approach lighting system which is complete with a master timer, 21 flasher heads, 21 flasher lamps, and 21 power supplies. Other Crouse-Hinds products include distance-to-go runway marker signs, illuminated wind cones, illuminated taxiway guidance signs, rotating beacons with single or double drums, and hazard beacons.

Company Profile

Crouse-Hinds Lighting, a member of the Cooper Lighting Group, is an industry leader in fluorescent, low-voltage and architectural lighting. With over 60 years of experience, Crouse-Hinds has supplied lighting products for many airports to guide aircraft and passengers to safe approaches and departures. Crouse-Hinds' airport lighting is distributed by Wesco, an electrical products distributor with over 40 locations across Canada. The company has production facilities located in Granby, Quebec, and Mississauga, Ontario. Crouse-Hinds can offer complete airport lighting including approach systems, runway threshold/end systems, runway and taxiway centreline and edge systems, runway and taxiway signs, and apron floodlights.



◀ Approach lights

◀ High intensity runway lights

Electrohome Limited

809 Wellington Street North
Kitchener, Ontario
Canada N2G 4J6
Tel: (519) 744-7111
Fax: (519) 749-3131
Telex: 069-55449
Cable: DEIL KTCH
W.M. Harrold, Manager, Display Systems
K. Mitchell, Manager, Production Products

Information monitors

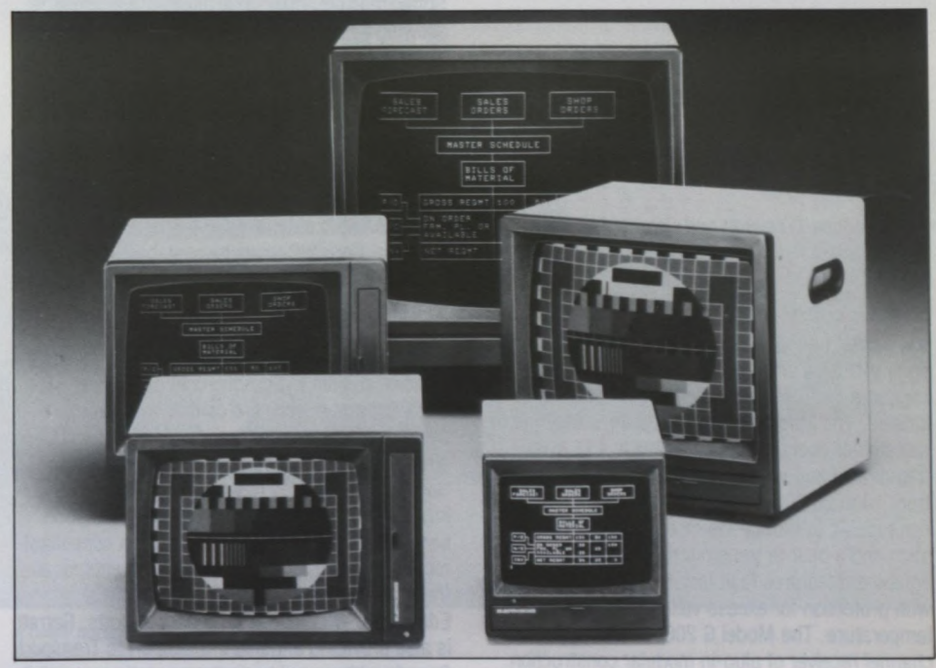
■ For a number of years, Electrohome Limited has provided 58 cm and 64 cm (23 in. and 25 in.) monochrome and colour monitors for use as information displays on arrivals/departures at airports around the world. In more recent years, colour monitors, as well as monochrome units, have been provided to airport and airline offices to interface and display with computer data. Similarily, small screen units are in use at various ticket and departure counters.

Information projection systems

Electrohome offers a complete line of data/graphics systems that can be used in boardrooms, teleconferences, training sessions, command and control centres and PIDS (Public Information Display Systems). The line includes the ECP 2 000 and ECP Graphics single lens colour system, the ECP 3 000 three lens colour system, and the EDP58XL monochrome system. The systems can provide large screen displays ranging from 1.5 m to 7.6 m (5 ft. to 25 ft.) to display data/graphics and video information. A major railway in the United States is using 150 ECP 2 000 colour projection systems in their control centre in Jacksonville, Florida.

Company Profile

Incorporated as Dominion Electrohome Industries Ltd. in 1933, Electrohome has origins that date back to 1907 when it began manufacturing the first hornless phonograph. Today, Electrohome is a highly diversified company operating in three major business areas: industrial electronics and motors; consumer furniture and electronics services; and radio/television broadcasting, television programming and advertising. Electrohome Limited's Electronics Division manufactures a wide range of commercial electronic products in three major product lines: large screen/data graphics and video projection systems; display systems; and printed circuit boards. With a production facility at the Electronics Division totalling 18 500 m^2 (200 000 sq. ft.), the company invests over 6 per cent of its annual sales in research and development. Electrohome's products have been exported to more than 30 countries including the United Kingdom, Australia, West Germany, Switzerland and Japan. The bulk of Electrohome's international sales is through dealers and distributors. The company maintains a sales office in England, which supports all its electronics group products in Europe, and sales and services offices in the United States.



Electrohome's EVM monitor series

Foundation Instruments Inc.

24 Colonnade Road
Nepean, Ontario
Canada K2E 7J6
Tel: (613) 226-4000
Fax: (613) 226-4602
Telex: 053-4153
R.H. Smith, President
J.P. Clermont, Marketing and Sales Manager

OTM-6400 multiplexer

■ The OTM-6400 Optical Transmission Multiplexer is a TDM multiplexer designed to concentrate both digital and analog signals from RS-232-C, RS-422-A, TTL levels, telephone 2 and 4 wire circuits, T-1 audio or any combination thereof. Each channel uses an independent plug-in card that provides flexibility in the type of interface used, as well as ease of maintenance and testing. Up to 90 channels can be mixed over 2 fibres for bi-directional use.

Company Profile

Foundation Instruments Inc., established in 1977, specializes in the research, design, development and manufacture of fibre-optic equipment for the communications industry. Products and systems include single-mode and multi-mode transmission systems for video, data and voice; an ''intelligent'' single-mode and multi-mode fusion splicer; a 20-channel asynchronous data multiplexer; a multi-mode portable fusion splicer; optical fibre cable; and optical attenuation test equipment; plus all supporting hardware components required in a system. The company also offers custom design and development. Foundation has supplied its products to many countries including France, Italy, Mexico, Norway, Spain, the United Kingdom and the United States.

OTM-6400 multiplexer

Garrett Canada
A Division of Allied-Signal Canada Inc.

255 Attwell Drive
Rexdale, Ontario
Canada M9W 5B8
Tel: (416) 675-1411
Telex: 06-989142
W. Tate, Vice-President and General Manager
C.F. Fauquier, Sales and Marketing Manager

Air traffic control radios

■ Garrett Canada manufactures a family of solid-state VHF/AM single-channel transmitters and receivers for fixed station ground-to-air communications. The Model G 2000T is a single-channel transmitter operating in the 117.5 to 137 MHz frequency band with an adjustable power output from 10 to 25 W. The unit incorporates an audio compressor to reduce the modulation depth variation and a built-in transmit/receive relay. The equipment features fault isolation and monitoring with protection for excess voltage, current and temperature. The Model G 2000R is a single-channel receiver of plug-in modular construction. An audio compressor is incorporated to ensure constant audio output. The unit is fitted with a front panel test matrix for fault isolation and protection for excess current. Both transmitter and receiver are equipped with an automatic changeover facility to 24-V dc stand-by power.

Instrument landing system test sets

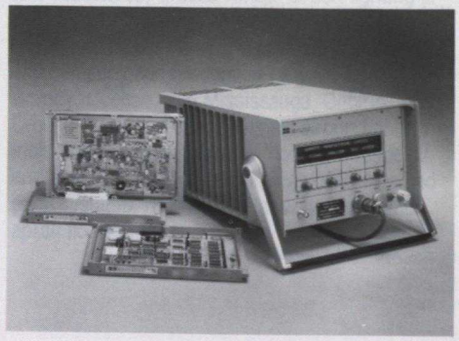
Garrett Canada is producing portable instrument landing system (ILS) test sets for ground checking, alignment, trouble-shooting and as a precision laboratory standard in measurement of ILS signals. The test set incorporates microprocessor control and digital signal processing. The high-performance receiver section, including a synthesizer, enables low-noise linear reception of all localizer and glide path channels. The detected ILS signal is digitized and processed by a fast Fourier transform. Output parameters are accessed via an alphanumeric front panel display or by means of an external RS-232 bus connector. Software is organized in a ''menu'' structure, allowing all functions to be controlled, while viewing the front panel display, by depressing one of four push buttons. The rugged modular construction and digital signal processing enable a reliable and maintainable operation.

Company Profile

With its diverse range of products and strong commitment to a dynamic and progressive industry, Garrett Canada has established a leading technology base. The company designs, develops and manufactures electronic environmental control systems; airport, emergency and military communications products; the peripheral-vision display system; custom hybrid microcircuits; display systems; and missile fire control and actuation systems. Drawing on its many years experience in airport and aircraft communications products, Garrett also provides manufacturing and engineering subcontract services and customer support services. The company has acted as a consultant regarding the R.F. shielding requirements for air traffic control centres at Toronto, Montreal, Edmonton, Winnipeg and Calgary airports. Garrett is also providing engineering support to Transport Canada with regard to electromagnetic compatibility requirements for visual display units.

The company's 1 100 employees are housed in 23 000 m^2 (250 000 sq. ft.) of modern facilities. Garrett Canada is supported by the corporation's engineering and sales offices around the world. Allied Signal Inc. has offices in Brazil, China, England, France, Germany, Japan, Malaysia, Spain, Sweden and the United States.

Operator using portable signal analyzer



G.C. Duke Equipment Ltd.

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Burlington, Ontario
Canada L7S 1W6
Tel: (416) 637-5216
(416) 827-7830
Fax: (416) 637-2009
Telex: 061-8858
S. McKeown, Airport Equipment Specialist
D. Raycroft, Field Sales Manager
R.N. Duke, Vice-President

Airfield maintenance equipment

■ G.C. Duke manufactures and markets a complete line of industrial airfield maintenance equipment including aerial devices, mowing equipment, runway sweepers and runway snowblowers. The company incorporates leading-edge engineering technology with components from world-renowned OEM manufacturers such as: Caterpillar, Cummins, Detroit Diesel, Allison, Parker, Bosch, Cessna, Eaton Hydraulics and Fairbanks Morris. The result — well-designed, functional equipment, that is also easy to operate, maintain and service.

User-friendly parts and service manuals are provided with the equipment. Where possible, OEM parts are listed under the part numbers used by the respective manufacturers, allowing customers to source as many parts as possible locally. The company maintains a full range of spare parts for all products manufactured at its Burlington, Ontario facility. Modern production facilities allow most of these items to be manufactured in-house. The plant's proximity to Lester B. Pearson Toronto International Airport and all ground transportation allows shipment of spares to any location with a minimum of delay.

Skilled personnel install equipment for the customer and are also available for operator training and in-depth maintenance and service inspection. These services are provided at locations both inside and outside Canada.

Company Profile

In recent years, G.C. Duke Equipment Ltd. has received much of the Government of Canada's snow removal equipment business. The firm is closely associated with North America's largest snowblower manufacturer and, with this combined expertise, is prepared to provide the proper equipment for snow removal tasks anywhere in the world. In conjunction with its customers, G.C. Duke continually develops and tests new components and designs for its equipment. The company has a wholly owned subsidiary, Turfco Inc., in Saint-Laurent, Quebec.

A Duke/Norland snowblower at Lester B. Pearson Toronto International Airport

GEC Canada Ltd.

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Mississauga, Ontario
Canada L4W 2S5
Tel: (416) 624-8300
Fax: (416) 624-8855
Telex: 06-961280
R,D. Merer, President
A.J. Orton, Manager, Airport Division

Visual guidance system

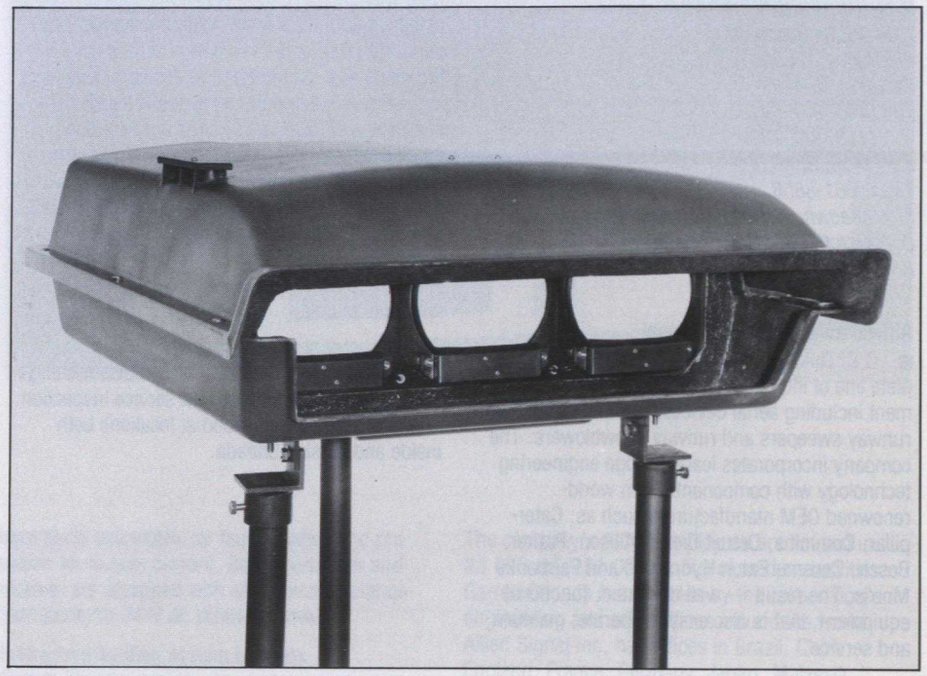
■ The GEC PAPI (Precision Approach Path Indicator) is among the world's best selling visual aids used to guide pilots in the approach to an airport. The PAPI is quickly replacing the long-standing VASI unit because of its greater accuracy and pronounced signal. It has been supplied to many airports worldwide and is used by the Royal Air Force and by NATO bases in Europe.

Transition of the PAPI is within two minutes of a degree. This means that the change from a red to a white signal is almost instantaneous, without a ''pink'' zone. Manufactured to ICAO specifications, the PAPI is designed for ease of maintenance. The cover need not be removed for sighting checks or lamp replacement. Moreover, a separate optical bench is not required for setting up the unit.

Company Profile

GEC Canada Ltd. is a subsidiary of GEC UK plc, which manufactures airport equipment throughout the world. While the Canadian company operates as a separate entity, it markets the complete range of airport lighting equipment manufactured by its British counterpart. This equipment has been sold to more than 300 airports in many different countries. Recent projects include the complete electrification of Colombo Airport, Sri Lanka, and STOL airport lighting at London City and Plymouth City Airports in the UK.

GEC Canada has production facilities in Mississauga, Ontario, and company branches in Montreal, Vancouver and Calgary. The company specializes in airport lighting, control and PCB equipment. Current personnel number approximately 240. A research and development program with a specialist engineering department is an important feature of the company.



GEC's ZA 737/2 three-lamp PAPI
(Precision Approach Path Indicator)

Global Thermoelectric Power Systems Ltd.

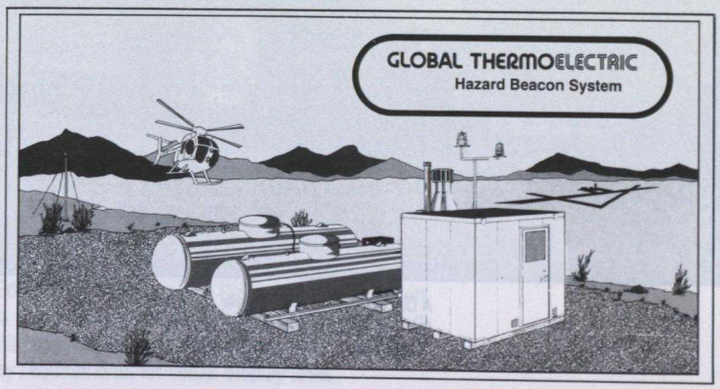
P.O. Box 400
Bassano, Alberta
Canada T0J 0B0
Tel: (403) 641-3512
Fax: (403) 641-3981
Telex: 03-824680
B. Beattie, Manager Sales and Marketing

Remote power generator systems

■ Global Thermoelectric Power Systems Ltd. manufactures generator systems for powering equipment in remote unattended locations. Global's generators convert the heat from combustion of fuel directly to electricity. Units are available for propane or liquid fuels. The ultra-reliable systems are used for powering radio repeaters, hazard beacon systems, navigational aids, etc.

Company Profile

Global Thermoelectric Power Systems Ltd. is a wholly owned Canadian manufacturer of remote power generator systems. With a staff including scientists, engineers and technicians, Global has been supplying quality generating systems for over a decade. Technical and manufacturing capabilities allow Global to design, manufacture, and install completely integrated power systems to meet demanding performance specifications. In many applications, over 4 000 of Global's units are operating in more than 40 countries from the equatorial jungles of South America and Southeast Asia and the arctic zones of North America to the deserts of the Middle East and North Africa.



Ultra-reliable Thermoelectric powered hazard beacon system

Godfrey Howden Inc.

400 Montreal-Toronto Boulevard
Lachine, Quebec
Canada H8S 1B8
Tel: (514) 637-1122
Fax: (514) 636-0273
Telex: 05-821568
A.D. Hunt, Executive Vice-President

Model ATE-10 ground cooling trailer

■ The Godfrey Howden Inc. Model ATE-10 ground cooling trailer is a unit specifically designed for executive and commercial aircraft with a capacity up to 40 passengers. It provides either ventilating or cooling air, delivered through one or both of the two discharge air ports, as required to maintain necessary ground cabin comfort levels. Its proven components and thoroughly service-tested refrigeration system, incorporating all relevant safety control features, are mounted in an attractive cabinet on a steerable, sturdy running gear. The ATE-10 is also an ideal source of cooling air for ground testing of military aircraft avionic systems and has been providing this service for Canadian Air Force combat aircraft for more than a decade.

Model PCG-3000 Mk.2 portable compressor

Compact and lightweight, the PCG-3000 Mk.2 portable compressor delivers filtered, oil-free air at regulated pressures from 0.7 to 210 kg/cm^2 (10 to 3 000 psi) for any service from inflating tires or charging landing gear struts to testing of aircraft pneumatic control systems. The four-stage air-cooled compressor may be powered by either a gasoline engine or electric motor and will deliver 12 m^3/hr (7 cfm) of clean air. Standard equipment in the compressor package includes a complete set of engine and pneumatic controls; pressure relief valves; three stages of air filtration; an automatic condensate drain system; intercoolers and aftercooler; a battery-powered electric start system; and a fail-safe pressure regulation system.

Model HSE-110 hydraulic servicing unit

The HSE-110 hydraulic servicing unit will fulfill maintenance test requirements of most modern military and commercial aircraft and is currently in service with the Canadian Armed Forces. Mounted on a lightweight but sturdy chassis, the low-profile HSE-110 facilitates safe and effortless handling in the hangar or on the production line. The control system is positive but uncomplicated and incorporates automatic safety features to prevent the development of hazardous operating conditions.

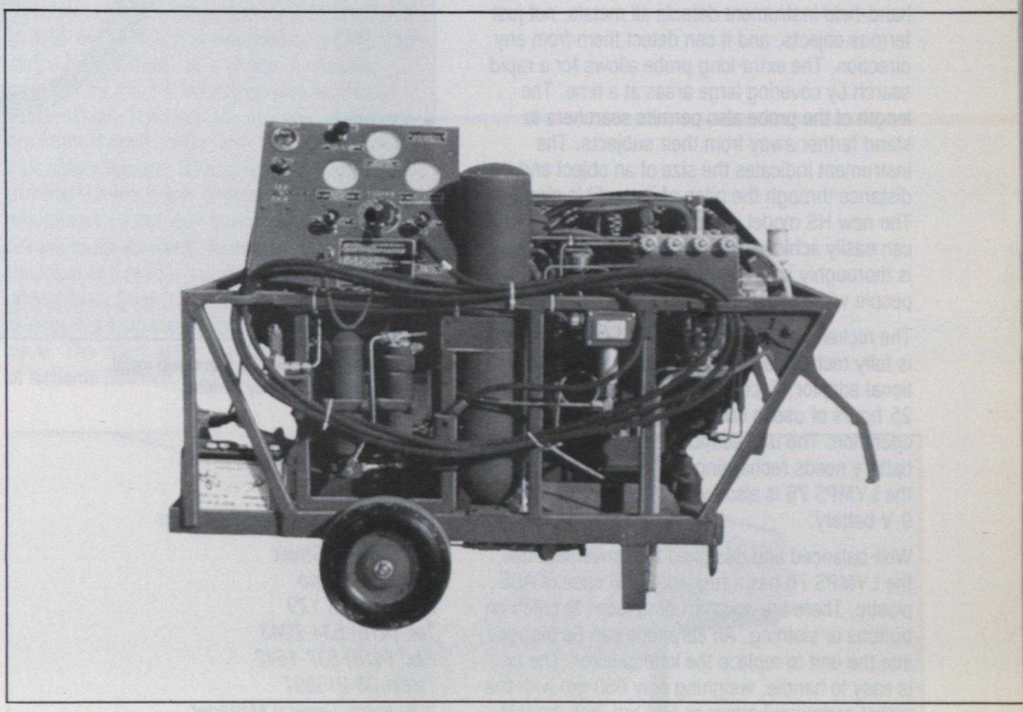
Mobile maintenance platform/small aircraft deicer

The elevated aerial platform permits manoeuverability and accessability to various fixed and rotary-wing aircraft. The unique upper and lower hoist sections mounted on a counter-balanced turntable and chassis allow the telescopic boom and rotating basket to situate crew in the most difficult-to-reach areas. A fully proportional control system ensures smooth, gradual boom movement, while an infinitely variable speed control facilitates precise speed monitoring to safeguard personnel and aircraft to the maximum extent.

Company Profile

A blend of knowledge and experience has established Godfrey Howden Inc. as a leader in the design, manufacture and service of sophisticated environmental control systems and specialized ground support equipment.

Additionally, GHI has a proven repair and overhaul capability for a diversified range of both civil and military land, sea and airborne equipment, including air-conditioners, compressors, cabin heaters and air/pneumatic/hydraulic test equipment and accessories.



Portable compressor

Henotex (1981) Inc.

1625 Chabanel Ouest, Suite 483
Montreal, Quebec
Canada H4N 2S7
Tel: (514) 382-6120
Fax: (514) 383-6523
Telex: 05-825626 Brobell Mtl
A. Henault, President

Metal detector

■ Originally commissioned by Transport Canada in the mid-1970s, the LYMPS 76 metal detector by Henotex is now used in Canadian airports. The hand-held instrument detects all metals, not just ferrous objects, and it can detect them from any direction. The extra-long probe allows for a rapid search by covering large areas at a time. The length of the probe also permits searchers to stand farther away from their subjects. The instrument indicates the size of an object and its distance through the pitch of its audible signal. The new HS model is particularly sensitive and can easily achieve maximum sensitivity. The unit is thoroughly safe for use on everyone including people with cardiac pacemakers.

The nickel-cadmimum 7.2 V, 600 ma-hr battery is fully rechargeable in six hours, using a conventional adaptor. Each charge supplies more than 25 hours of use in continuous moderate-to-heavy operation. The unit sounds continuously when the battery needs recharging. For added convenience, the LYMPS 76 is also available with a standard 9 V battery.

Well-balanced and designed for convenient use, the LYMPS 76 has a ruggedly built case of ABS plastic. There are no protruding loops to catch on buttons or clothing. An earphone can be plugged into the unit to replace the loudspeaker. The unit is easy to handle, weighing only 650 gm with the nickel-cadmium battery or 500 gm with the 9 V battery. It is 469 mm long, with a probe diameter of 22 mm and a probe length of 265 mm. The casing diameter is 44 mm.

Company Profile

Henotex's production and office facilities in Montreal cover 140 m^2. The company also has an office in the U.S. at 184 North Main Street, Champlain, N.Y., 12919. Both these facilities supply spare parts for the LYMPS 76, and electronic spare parts are generally available worldwide. The company conducts research and development in collaboration with the Quebec Industrial Research Centre and the National Research Council. The firm has customers in many countries including Switzerland, Hong Kong, Korea, Peru, Equador, the Caribbean, Sri Lanka, Pakistan, Rwanda and the United States.

◀ The LYMPS 76, Model HS, hand-held metal detector manufactured by Henotex

Herbrand Tools Corporation

340 Dufferin Street
Toronto, Ontario
Canada M6K 1Z9
Tel: (416) 534-7943
Fax: (416) 537-1642
Telex: 06-219897
J.B. Ryan, General Manager
E.D. Brooks, Marketing Manager

Tool sets

■ Herbrand Tools manufactures a wide series of tool sets including a starter set; an apprentice set; a general-maintenance set; a master body shop set; a heavy-equipment set; a master mechanics set; and a mobile tool shop set.

Company Profile

Herbrand Tools, a wholly owned Canadian company founded in 1930, manufactures tools that can be used in airport facilities such as maintenance and overhaul bases, garages, and terminal buildings for repair of aircraft and airport vehicles. Herbrand Tools' products include air blow guns; battery chargers and testers; bench grinders and vices; tool cabinets; grease guns; hydraulic jacks; analyzers and test equipment; mobile cranes; welding equipment; paint spray guns; pliers and pullers; crimpers and winding machines; specialized tools; and an assortment of hand tools.

Mobile tool shop set

Honeywell Limited, Sperry Aerospace Division

P.O. Box 1300
Rockland, Ontario
Canada K0A 3A0
Tel: (613) 446-6011
Fax: (613) 446-6011, ext. 301
Telex: 053-4806
R. Muir, General Manager
E. Price, Director of Marketing

Modular aeronautical communications switch (MACS)

■ MACS is a state-of-the-art signal and voice communications switching device, utilizing microprocessor control technology. The system interfaces with common carrier service and integrates telephone with radio and intercom communications. MACS satisfies the operational requirements of ATC towers, terminal radar centres, flight service stations, GCA facilities and airport advisory facilities.

MACS is a total communications system, using a distributed microprocessor architecture which communicates via a redundant network bus to a separate microprocessor at each communications console. In addition, separate identical microprocessors are provided for each radio and telephone channel. Radio, telephone and intercom voice switching is provided by a distributed audio bus structure that is accessed by the operator central processors and the radio telephone processors. Constant system self-checking is provided between major interfaces. The system also features unlimited intercom with optional override and monitoring.

Company Profile

Sperry Aerospace Division of Honeywell Limited provides full product support to its primary customer, Transport Canada. This includes spare parts, training, test equipment and logistic support from its facilities in Rockland, Ontario. Honeywell International's worldwide network is available to provide full support in offshore sales.

The company has complete design, development and production facilities in Rockland, Ontario, with a staff of 220. The production facility was constructed in 1981 and has recently been fully re-designed to meet the high-production levels required by current contracts. In addition to ATC communications equipment, the division manufactures electronic equipment for military applications, propulsion simulators for marine applications and multiplexing equipment for the telecommunications market.

Hovey Industries Ltd.

2378 Holly Lane
Ottawa, Ontario
Canada K1V 7P1
Tel: (613) 731-1200
Fax: (613) 731-0851
Telex: 053-4740
H. Goldfarb, Director of Marketing

Model ABS 150 aircraft boarding stair unit

■ The Hovey Industries Model ABS 150 is a truck-mounted, hydraulically operated aircraft boarding stair unit, with a platform that can be elevated to heights ranging from 2.32 m (7.7 ft.) to 3.96 m (13 ft.). It is mounted on a GMC 2500 series pickup truck, or a choice of chassis, powered by a 5.7-L V8 engine and automatic transmission. Hydraulically operated stabilizers are fitted at each corner with a transmission interlock safety feature. Sliding modesty panels are provided on the upper platform, and a pitch adjustment on the stair frame provides level access to the aircrarft. All controls are console-mounted and readily accessible to the driver, and all materials used in the construction are selected to ensure a long service and corrosion-free life cycle. The stairs are in service at the Department of National Defence, Canada.

Company Profile

Hovey Industries Ltd. is an engineering and manufacturing company that designs and develops a range of electromechanical and microelectronic systems, vehicle systems and other products such as aircraft ground support equipment. Hovey Industries occupies a modern facility totalling 3 720 m^2 (40 000 sq. ft.) which is used for offices, drafting, design, instrumentation and testing, manufacturing and assembling. The firm provides product support expertise for vehicle maintenance, as well as training and fleet management.

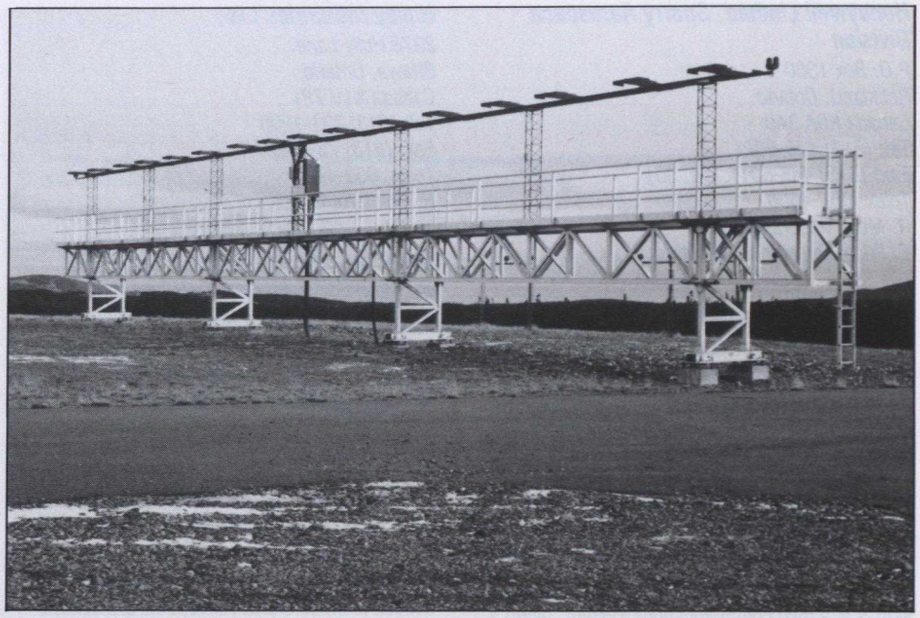
Aircraft boarding stairs

Indal Technologies Inc.

3570 Hawkestone Road
Mississauga, Ontario
Canada L5C 2V8
Tel: (416) 275-5300
Fax: (416) 273-7004
Telex: 06-961482
F. Davenport, Marketing
J.M. Dolan, Marketing

Antenna support structures

■ Indal Technologies Inc. has extensive experience in the design and development of frangible devices and holds a patent for those currently used on Transport Canada's instrument landing systems (ILS) antenna support structures. The aluminum structures were designed to meet the necessary criteria set out by Transport Canada and were developed in modular form for ease of erection, for frangibility (break-away on impact), and for replacement of section that might be damaged in service. Indal was recently awarded a contract by a Canadian manufacturer to develop a prototype of an enclosure to house the new azimuth microwave landing system (MLS) antennas.



Instrument landing system (ILS) antenna support structure

Company Profile

Indal Technologies Inc. (formerly DAF Indal Ltd.), a diversified Canadian company which engineers and manufactures a wide variety of mechanical, electromechanical, hydraulic and structural systems, has developed an impressive array of capabilities during its more than 30 years in business. The company's expertise in program management, its sophisticated manufacturing facilities and its innovative design techniques and skills in the areas of aeronautical, marine, mechanical and structural engineering have resulted in Indal Technologies undertaking major programs for government agencies of many countries, including Canada, the United States, Japan, Australia, India, Argentina and Spain.

Industrial + Aviation
A Division of Hayes-Dana Filters Inc.

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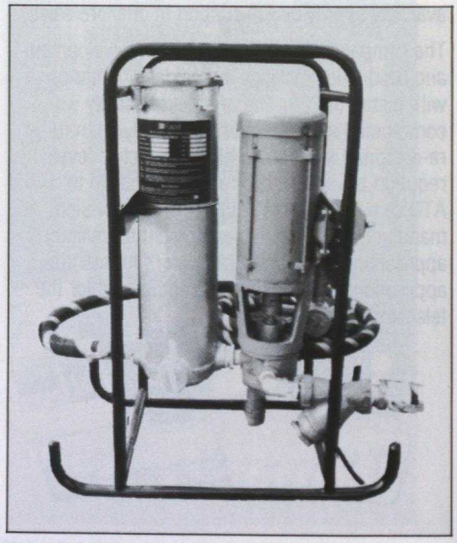
Canada L1W 2X9
Tel: (416) 839-1135
Fax: (416) 420-1965
Telex: 06-981279
W.R. Coulter, Manager, Industrial & Aviation Division

Fuel filters

■ Industrial & Aviation division of Hayes-Dana Filters Inc. produces fuel filters in several standard models and custom designed for individual application, especially in larger installations. I. & A. filter models which are commonly used at airports, include a vertical filter coalescer-separator (VFCS) for water and solids removal, a Series M filter for solids removal, a horizontal single-stage separator/filter for water and coarse solids removal, as well as various filter cartridges ranging in solids removal capacity from 0.5 up to 750 microns. I. & A. also produces refuelling systems for aviation or diesel fuel, and these are available with manual, dc, ac or gasoline-engine-driven pumps.

Company Profile

Industrial & Aviation division of Hayes-Dana Filters Inc., has over 50 years of design and manufacturing experience and offers a complete range of industrial filtration equipment for fluid or gas applications. Products include filters, water separators and fuel monitor gauges for filtering aviation fuels prior to dispensing into an aircraft. The filters are located on refuelling trucks, at bulk storage installations at the airport and in the fuel producer's distribution system. I. & A. filters have been supplied to the Canadian Forces overseas, to the Danish Air Force and to African governments.



Refuelling system

Industrial Measurements Ltd.

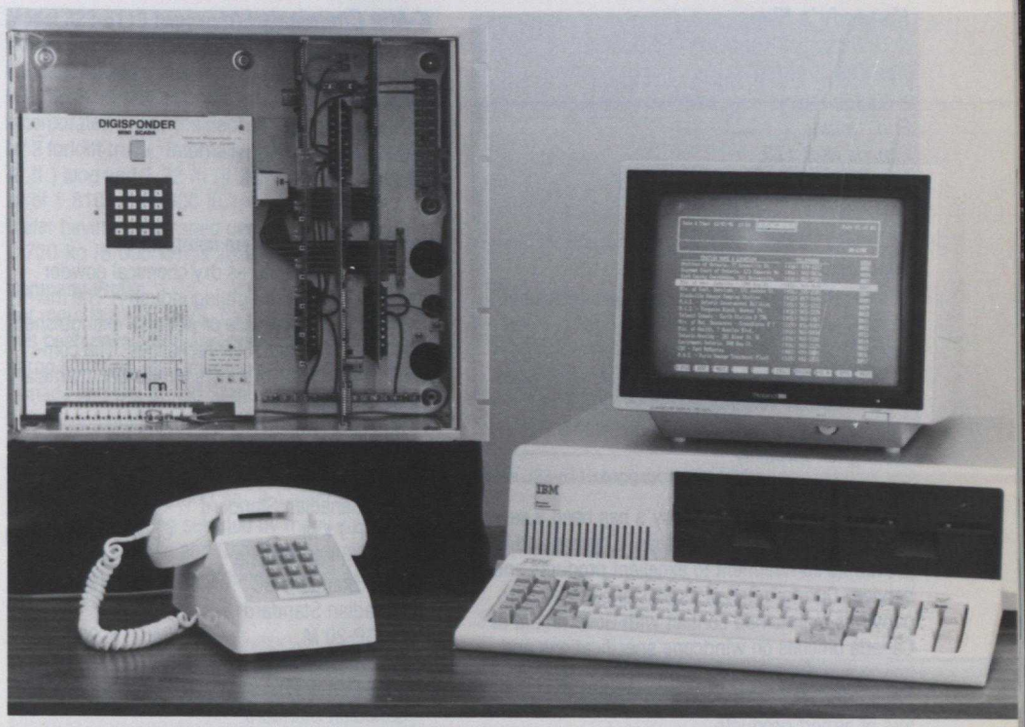
3160 Steeles Avenue E.
Markham, Ontario
Canada L3R 4G9
Tel: (416) 474-1246
Fax: (416) 666-3413
Telex: 06-981421
S. McKinnon, Manager
P. Tse, Technical Manager

Digisponder supervisory control and data acquisition system (SCADA)

■ The Industrial Measurements Ltd. Digisponder mini-SCADA system is particularly appropriate for supervisory control applications which require low equipment cost, simplicity of operation and the economy of dial-up or radio communication. It has a built-in auto-answer and auto-dial modem for communication with a computer, and up to 250 Digisponder remote terminal units may be connected to one central station. The Digisponder has proven most useful in applications such as the monitoring of navigational aids.

Company Profile

Industrial Measurements Ltd. (IML) was formed in 1961 and, since 1971, has specialized in the design and manufacture of data communication products. IML, a subsidiary of Newman Aerospace of Whitby, Ontario, is a Canadian manufacturer of industrial alarms and supervisory control and data acquisition systems. The principal product line is the Digisponder system consisting of remote terminal units (RTUs) and a central computer station. Present IML customers include Telesat Canada, the Canadian Broadcasting Corporation, Northern Canada Power Commission, Environment Canada, the Royal Canadian Mounted Police, Transport Canada, Ontario Hydro, GTE Spacenet, COMSAT General, American Satellite Co. and the Greek Navy.



The Digisponder remote terminal unit and central station computer

Johnston Environmental Equipment Limited

1197 Fewster Drive
Mississauga, Ontario
Canada L4W 1A2
Tel: (416) 624-1870
Telex: 06-960155
H.T. Brown, National Sales Manager

Model 450 RS airport sweeper

■ The Johnston Environmental Equipment Limited airport sweeper, specially developed to meet the operating and technical requirements of both civil and military airports, is proving very successful in countries with widely differing climates and operating conditions. In wet weather or dry the Johnston airport sweeper will reliably clean all areas of an airport complex such as main runways and aircraft taxi areas, car parks, internal and public service roads, as well as large hangars. The Johnston 450 RS sweeping system ensures efficient cleaning of all materials ranging from sand or stones through to bulky materials such as cans and paper litter. These sweepers are of rugged construction and require minimal maintenance to ensure that optimum sweeping schedules can be maintained. The sweepers are offered with a choice of chassis, including Ford, International, Mack and Volvo, so that customers can standardize their fleets. Each is equipped with a high-capacity refuse tank, a low-maintenance diesel engine, cab-mounted controls and a wanderhose.

Company Profile

Johnston Environmental Equipment Limited, a leader in the airport runway sweeper business, currently has dealers and agents in more than 70 countries. Thousands of Johnston sweepers are in operation in all types of climates, under a wide range of conditions, from Algeria to Venezuela. In the United States, under the auspices of Johnston of North America, Johnston sweepers are operational at numerous airports.

Johnston 450 RS airport sweeper

Kennedy's Flags
A Division of Kennedy's Specialty Sewing Limited

2 Guelph Road
Erin, Ontario
Canada N0B 1T0
Tel: (519) 833-9306
B. Broughton, Owner

Windcones

■ Kennedy's provides a complete line of lace-on or sewn-in hoop windcones for licenced and unlicenced airports. The company also produces small, wind direction cones for ultra light aircraft. Quantities may vary from one to 1 000. The material used is high quality nylon with a PVC coating for durability.

Company Profile

Established in 1947, Kennedy's has been a sewing specialty shop for more than 40 years and has proven its commitment to excellent products and service. During much of its existence, the company has maintained contact with Government of Canada officials on windcone specifications and improvements. The firm's windcones are sold to Transport Canada and various Canadian distributors of airport products.

Kenting Projects Limited
Technical Enterprise Division

703–19th Avenue
Nisku, Alberta
Mailing address:
P.O. Box 490
Leduc, Alberta
Canada T9E 2Y3
Tel: (403) 955-2981
Fax: (403) 955-6719
Telex: 037-42505
J. Swickis, Division Superintendent

Air traffic control equipment
Navigational and electronic landing aids
Visual aids and related equipment

■ The Technical Enterprise Division of Kenting Projects Limited supplies equipment in the above three categories. Its visual aids equipment includes illuminated windsock towers, rotating beacons, failsafe obstruction lights, medium and low intensity runway lights and receiver controllers.

Company Profile

Kenting Projects Limited is located in the Nisku Industrial Park in Alberta. The company has a 2 090 m^2 (22 500 sq. ft.) facility which is almost evenly divided between office space and shops and warehouses. Spare parts and training are readily available at the Nisku location. The company's equipment has been installed in airports across Canada.

K-Mix Chemicals Ltd.

2645 Diab Street
Saint Laurent, Quebec
Canada H4S 1E7
Tel: (514) 334-8051
Fax: (418) 692-4775
Gilles Lupien

Dry chemical fire system components

■ K-Mix manufactures dry chemical powder products for the fire-fighting industry. The mixtures are used in vehicle or portable extinguishers or as support material for recharges. The company's three basic products for the dry chemical fire systems are:

— Monoammonium Phosphate base multi-purpose ABC Canadian Standard 28-GP-71 M — Code: K-101 Pail / Code: K-102 Carton
— Sodium Bicarbonate base Standard BC Canadian Standard 28-GP-20 M. — Code: K-201 Pail / Code: K-202 Carton
— Potassium Bicarbonate base Purple-K Canadian Standard 28-GP-17 M. — Code: K-401 Pail

Company Profile

Based in Saint Laurent, Quebec, K-Mix chemicals has a 510 m^2 (5 500 sq. ft.) plant with a fully equipped laboratory and production facilities. One chemical engineer works full-time on the research and development of new products and better quality products. One of the firm's customers for dry chemical fire-fighting compounds is Air Canada, the country's national airline.

Kodon Controls Ltd.

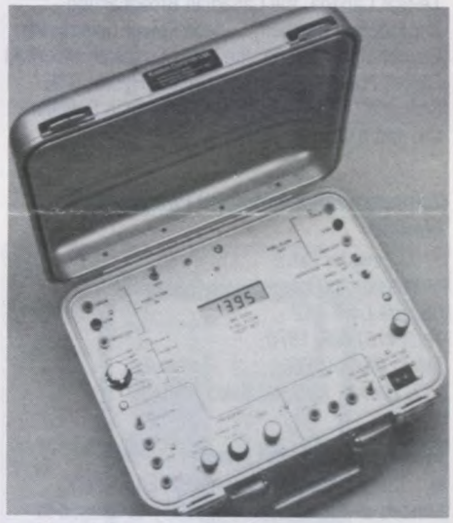
2750 Slough Street
Mississauga, Ontario
Canada L4T 1G3
Tel: (416) 676-1042
Telex: 06-968826
J. Kotsilidis, President

MK1000 fuel flow test set

■ The Kodon Controls Ltd. MK1000 fuel flow test set is a versatile unit designed to satisfy all the flight line and shop test needs of modern, angular displacement, fuel flow indicators and transmitters. The MK1000 is ideally suited for most turbine-powered aircraft. Low power, solid-state digital circuitry, a large, easy-to-read digital crystal display and a lightweight, rugged enclosure make the battery-powered MK1000 a reliable, cost-effective alternative to existing fuel flow test equipment. Clear, straightforward test procedures provide for quick, easy fault isolation on the aircraft or the bench. The result is fewer unnecessary removals of fuel flow system components with resultant improvements in aircraft availability, operating costs and spares requirements.

Company Profile

Kodon Controls Ltd., a wholly owned Canadian company, is an established manufacturer of liquid level gauging equipment and accessories for the industrial and marine markets. The company, established in 1983, has recently introduced a new product, the MK1000 fuel flow test set.



Fuel flow test set

La Compagnie Normand Limitée

340 Tache Street
St. Pascal (Kamouraska), Quebec
Canada G0L 3Y0
Tel: (418) 492-2712
Fax: (418) 492-9363
V. Normand, President and General Manger
L. Mignault, Sales Manager

Model 85 LD-3 container loading dolly

■ La Compagnie Normand Model 85 LD-3 is a double-sided container loading dolly, developed for the container handling requirements of Boeing 767 aircraft. The design incorporates three rows of casters, which, in the raised position, extend 28.5 mm (1.12 in.) above the height of the two rows of steel rollers. This permits orientation of the LD-3 container with the aircraft by allowing the container to rotate around a central pivot. In the lowered position, the casters are 6.35 mm (0.25 in.) below the level of the roller bed. A walking platform with a safety tread is situated between the two rows of rollers. The front wheels are steered through a linkage to the tow-bar while other features include a side locking device for the container and a front brake activated by the tow-bar.

Model 120-08-010 baggage/cargo trailer

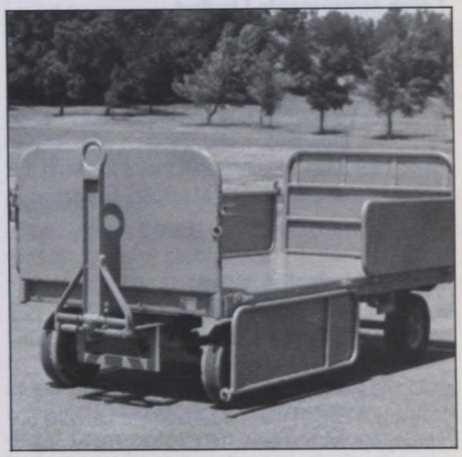
Normand Model 120-08-010 is a covered baggage/cargo trailer with fifth-wheel steering, trunnion-mounted front axle and front wheel brakes, which are activated by raising the tow-bar. Doors are fitted and include vinyl curtains combined with a chain net or side panels. The platform slopes in towards the centre at an angle of 5° to provide load stability. Internally, the trailer is 2.36 m (7.74 ft.) long, 1.24 m (4 ft.) wide, and 1.19 m (3.9 ft.) high with a capacity of 2 720 kg (6 000 lb.). A longer model is also available.

Model 322-6119 baggage/cargo trailer

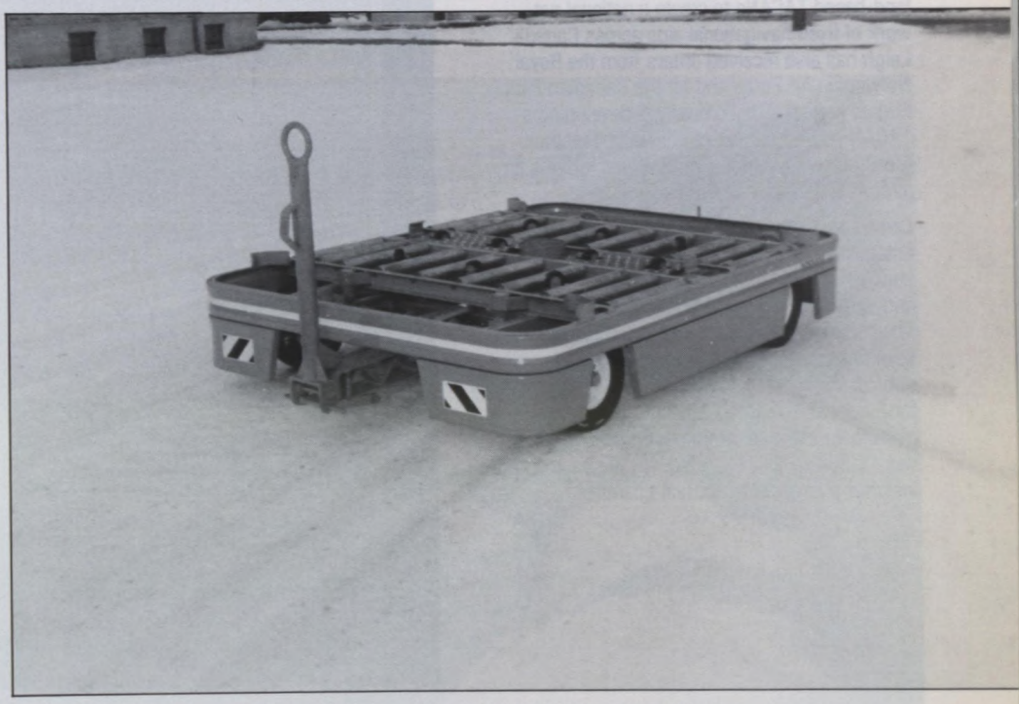
Normand also manufactures the Model 322-6119 baggage/cargo trailer which is composed of a flat floor deck as well as end gates. Tine recesses are incorporated under the deck to facilitate handling by a forklift truck. Internally, the trailer is 2.44 m (8 ft.) long and 1.22 m (4 ft.) wide with a capacity of 1 810 kg (4 000 lb.). A variation of this trailer having a V-shaped deck and a capacity of 2 720 kg (6 000 lb.) is also available.

Company Profile

For more than 25 years, La Compagnie Normand has been developing and manufacturing baggage cargo handling equipment for airline companies in Canada and the United States. The firm manufactures five models of trailers for transporting cargo and baggage between an aircraft and the terminal or cargo building. The company has 40 employees in its 3 720 m^2 (40 000 sq. ft.) plant. Normand's products have been selected by many air carriers such as Air Canada and Canadian Airlines International, as well as by ground support service companies.



Model 322-6119 baggage/cargo trailer



Model 85 LD-3 container dolly

Leigh Instruments Limited

260 Hearst Way
Kanata, Ontario
Canada K2L 3H1
Tel: (613) 591-3220
Fax: (613) 591-0945
Telex: 053-3554
Ramzi Hashem, Marketing Manager, Navigation Systems

Tactical air navigation system

■ Leigh Instruments' solid-state tactical air navigation (TACAN) beacon system provides navigation guidance to suitably equipped aircraft by providing azimuth and distance information. The company offers single or dual modular beacons or turnkey systems in fixed, mobile, shipboard and VORTAC configurations. Leigh's 3 and 5 kW TACAN will respond to up to 100 aircraft interrogations at one time with a plus or minus one degree accuracy. The range is up to 463 km (250 nautical miles). The system complies with MIL-STD 291-B and ICAO Annex 10. Leigh is supplying the Canadian air force with 60, dual, land-based TACANs to create a national network of fixed navigational aids across Canada. Leigh has also received orders from the Royal Norwegian Air Force and for the Canadian Patrol Frigate project. The company is developing a TACAN-related derivative known as Distance Measuring Equipment (DME) which informs an aircraft of its distance from a fixed base.

Company Profile

Established in 1962, Leigh is a well-established supplier of high-technology electronic products and systems for aerospace and defence markets. The company employs more than 750 people at several facilities located in Ontario, Canada. A subsidiary in the United Kingdom is responsible for European sales and service. Leigh's main manufacturing plant at Carleton Place, Ontario, has 11 330 m^2 (122 000 sq. ft.) of space and includes a large anechoic test chamber.

Tactical air navigation (TACAN) system

Litton Systems Canada Limited

25 Cityview Drive
Etobicoke, Ontario
Canada M9W 5A7
Tel: (416) 249-1231
Fax: (416) 245-0324
Telex: 06-989406
TWX: 610-492-2110
H. Sievert, Vice-President, Marketing
D. Hughes, Director, Marketing

Flight inspection systems

■ Litton Canada's expertise has produced the world's first automatic, self-contained flight inspection system capable of calibrating an airport's Category I, II and III Instrument Landing Systems. The Inertial Referenced Flight Inspection System (IRFIS) and its variants are able to calibrate all existing navigation aids such as ILS/MLS landing systems, as well as VOR, DME, TACAN and other en route navaids.

There are two basic systems: the IRFIS (Inertial Referenced Flight Inspection System) and the SAFIS (Semi-Automatic Flight Inspection System).

The IRFIS uses a rugged mini computer, a Litton inertial navigation system, a Litton-developed aircraft position sensor, and an advanced software program to permit calibration, correction and recalibration of the airport's various landing systems during the same inspection flight. Clear visibility is not necessary, and calibration flights can be made in all flying conditions. Nor does the system require ground personnel. Compact, lightweight and having minimal power needs, both the IRFIS and its operator can be carried in a twin engined light aircraft.

The SAFIS interfaces with a variety of ground-based tracking systems, including manual radio telemetry theodolites and automatic trackers, to provide navaid calibration to ICAO standards.

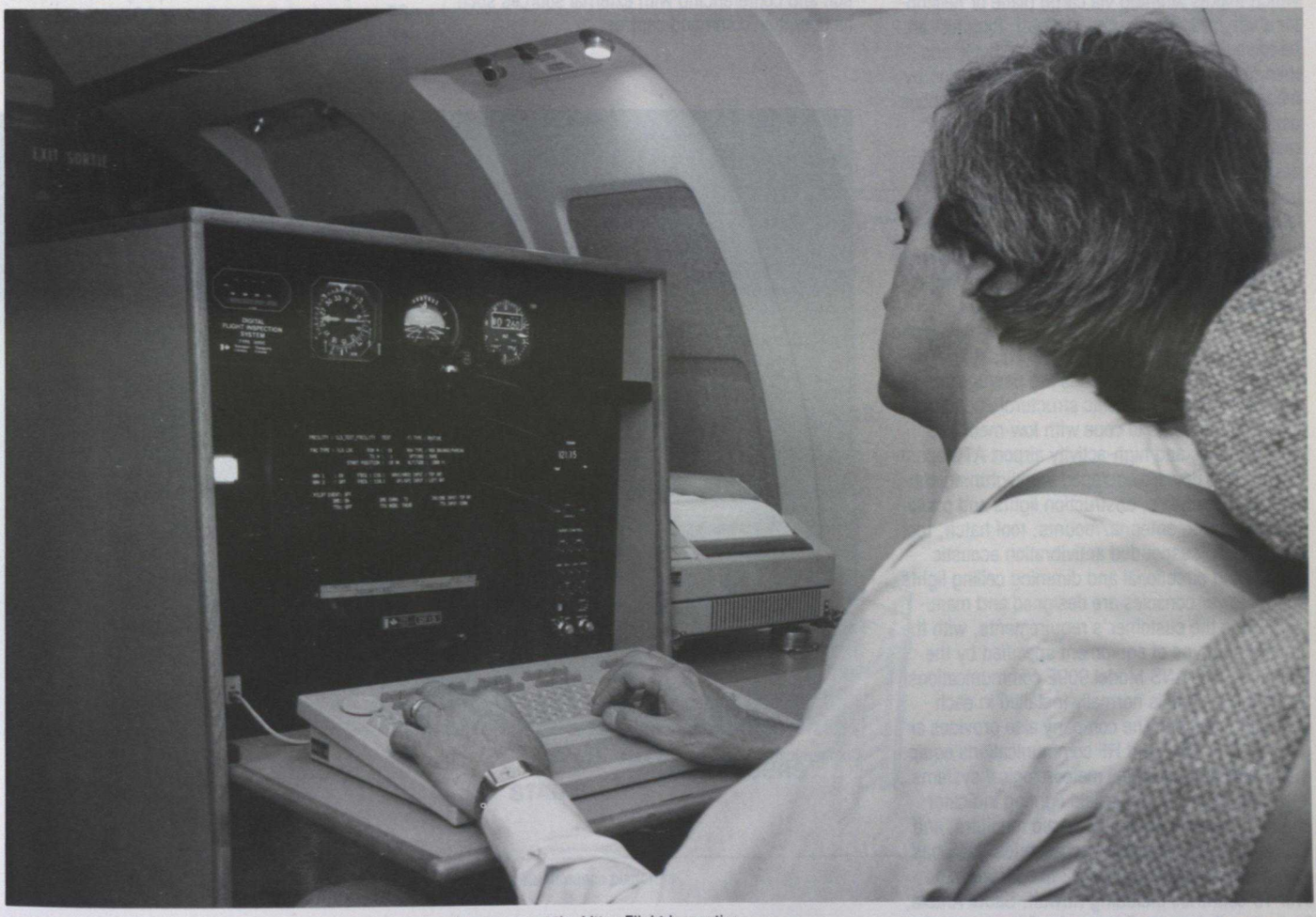
Litton flight inspection systems are used worldwide on board a variety of aircraft including the Challenger, Citation, King Air and Andover.

Other products

Other Litton products include inertial navigation systems; command, control and communications systems; airborne search radar; automated test equipment; cockpit displays; integrated security systems; large-scale system integration and project management; special-purpose computer-based systems; and integrated logistic support. The company has recently completed a turnkey security system installation at a Royal Saudi Air Force base in Saudi Arabia. Co-ordinated and controlled by dual redundant computers, the system provides a very high level of airport security.

Company Profile

Litton Systems Canada Limited is known worldwide for its highly sophisticated electronic equipment for airborne systems. A division of Litton Industries of Beverly Hills, California, the Canadian company has over 3 500 scientists, engineers, technologists and other specialists at its ten-plant facility in Etobicoke, Ontario. The company's flight inspection systems are in demand in many countries including Canada, the Netherlands, the United Kingdom, the People's Republic of China and Japan. Support services to customers include system design, installation, training and research and development facilities.



An operator at the Litton Flight Inspection console

LNS Systems Inc.

7 Bovis Avenue
Pointe Claire, Quebec
Canada H9R 4W3
Tel: (514) 695-8130
Fax: (514) 695-8135
Telex: 05-821-529
R.T. Prytula, President
G.R. Stockwell, Manager of Sales

ANT-57 mobile traffic control towers

■ LNS Systems' ANT-57 series of mobile air traffic control towers are manufactured in three configurations: a truck-mounted tower on a flat bed; a truck-mounted tower on a hi-lift; and a hi-lift tower on a trailer. The LNS mobile air traffic control (ATC) tower ANT-57MT is designed for rapid deployment missions to any operational area. It is built to withstand a range of natural and induced environmental conditions without loss of effectiveness or operational capability. It is a compact and self-contained unit, specifically designed to meet the needs of civil or military ATC requirements at secondary airports or to provide emergency or supplemental facilities at primary airfields. The mobility of the ANT-57MT control tower is facilitated by its relatively light weight, which makes airlifting via cargo plane or helicopter a very practical matter. On land, the unit can be towed around on its own castor wheels and then firmly positioned in the optimum location by means of four leveling jacks. Coupled to a mobile generator set, the ANT-57MT control tower is ready for instant operation. To date, LNS has designed, manufactured and sold 45 mobile air traffic control tower systems to 12 different air forces.

Fixed and transportable air traffic control towers

LNS produces fixed and transportable air traffic control towers. The ATC tower cab models CT-250, CT-350 and CT-450 have been developed in accordance with present and anticipated airport needs. These ATC tower cabs are pentagonal structures meeting specific structural and operational requirements to cope with low-medium, medium-high, and high-activity airport ATC operation levels. They are equipped with lightning conductor air terminals, obstruction lights and photoelectric control, antenna/mounts, roof hatch, roof exhaust fan, suspended antivibration acoustic ceiling, and directional and dimming ceiling lights. Control tower consoles are designed and manufactured to the customer's requirements, with the amount and type of equipment specified by the customer. The LNS Model 909E communications switching system is normally installed in each controller position. The company also provides air-ground VHF, UHF and HF communications equipment, analogue or digital meteorological systems, a logging recorder, an airfield lighting indicator and control panel, navigational aid monitors, and all essential ATC operating accessories. LNS has manufactured and supplied 22 fixed towers to over 15 countries including Kuwait, Saudi Arabia, Barbados, Bahamas, Guatemala, Canada and the United States.

Runway supervisory unit

The LNS runway supervisory unit is a standard mobile air traffic control tower, used in pilot training applications and in observing pilots in single placed aircraft. It can be placed on a concrete bed or left mobile to facilitate movement to the active runway. Normally the runway supervisory unit does not contain all the ancillary equipment of a standard control tower. Typically it contains air-to-ground communications, landline communications and weather readout equipment. Smaller models are also available.

Model 909E communications switch system

The LNS Model 909E communications switch system integrates radio, hot-line and landline communications so that all communications are available to a controller/operator in a headset or a hand-held microphone and speaker. Hands-off activation (keying) of the transmitter is also available by the use of a footswitch. The 909E is a modular, integrated, solid-state and highly flexible communications switch system, proven in applications where reliability and operational availability are critical. The 909E provides control of VLF, LF, MF, HF, VHF, UHF and SHF communications, hot-line communications, intercommunication and conferencing between operators, and communication and conferencing with external sources such as operation command centres.

LNS has also developed a mobile runway lighting system (RLS) to augment its present ATC product line. The RLS is designed to be transported in C-130 "Hercules" aircraft or slung by helicopter. The RLS can be used to light runways from 1 830 m to 3 350 m (6 000 ft. to 11 000 ft.). By using a specially designed deployment system the RLS can be installed in eight hours with a minimum number of personnel.

LNS has also been engaged in extensive research and development of a family of radio spectrum monitoring systems available in fixed, mobile and transportable configurations. These are used for security surveillance.

Company Profile

LNS, established in 1971, designs, manufactures, procures, integrates and installs air traffic control systems, communications systems and radio spectrum monitoring systems to customer specifications. Each LNS system is assembled, tested and operationally verified at LNS' 3 720 m^2 (40 000 sq. ft.) facility in Montreal, thereby removing system integration risk, ensuring a fully operational system and allowing the customer to take the equipment to the site for operation with minimum system commissioning delays. LNS is a wholly owned Canadian company with over 60 system installations in over 25 countries in the Middle East, South America, Southeast Asia and the United States.

Communications switching system

◀ Fixed control tower

MacPherson Manufacturing Ltd.

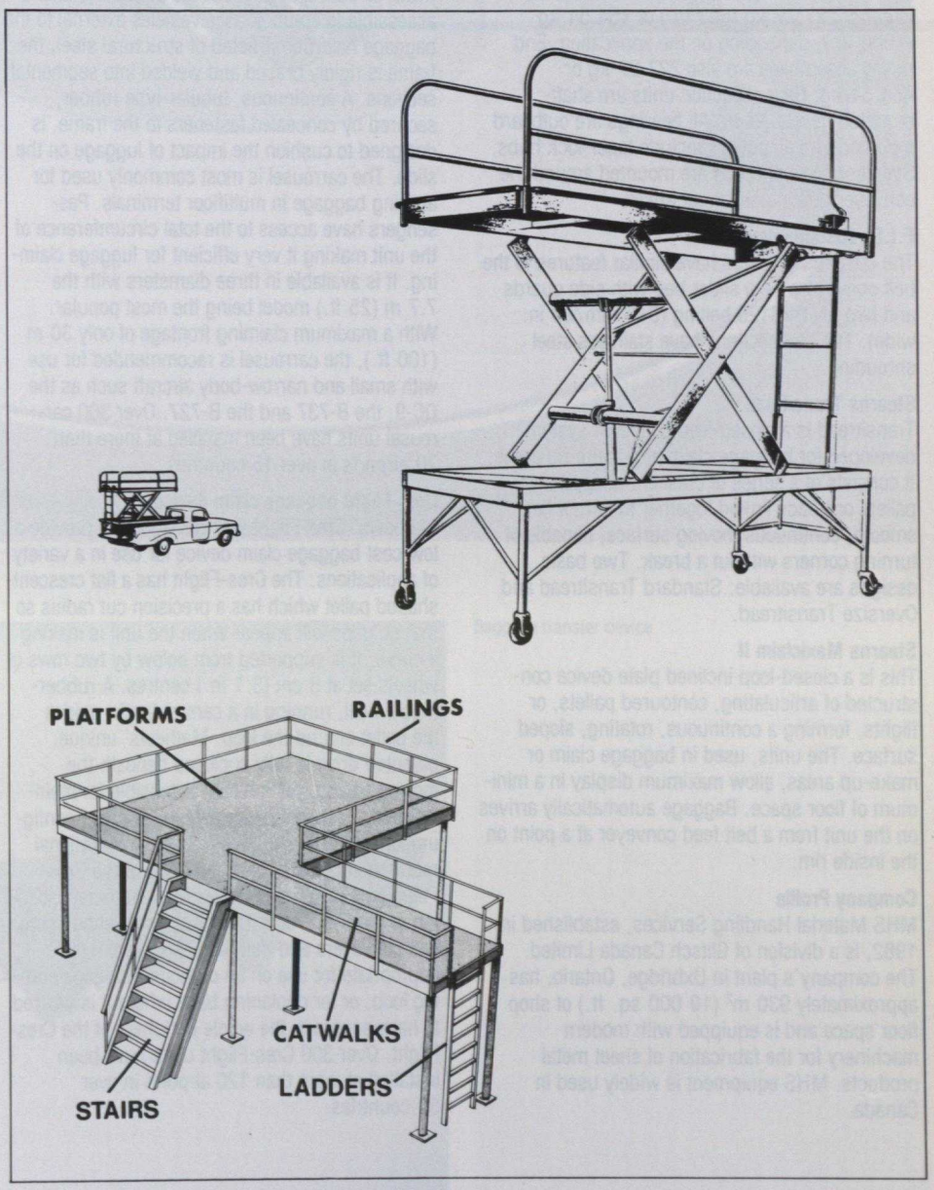
6 Antoni Plaza
Weston, Ontario
Canada M9N 3J9
Tel: (416) 247-0591
C. MacPherson, President

Hydraulic maintenance platforms

■ The MacPherson Manufacturing Ltd. hydraulic maintenance platforms are specifically designed for servicing aircraft. Mounted on large lockable swivel wheels for easy manoeuvring around aircraft, they feature sturdy welded aluminum construction with a plywood deck finished with "anti-skid paint." The platform can be adjusted to a convenient working height by a hand pump on the deck. Removable handrails are provided. A typical MacPherson platform is 1.4 m (4.6 ft.) wide, 3.2 m (10.5 ft.) long, has an adjustable height ranging from 1.5 m (4.9 ft.) to 2.6 m (8.5 ft.), weighs 172 kg (380 lb.) and has a carrying capacity of 227 kg (500 lb.). Platforms with different heights can be manufactured for specific applications including units with a double-scissor mechanism for extended reach.

Company Profile

MacPherson Manufacturing Ltd., established in 1959, has a staff of design specialists in material handling and processing equipmemt, and fabricating specialists in metalizing, general machine work and welding.



Hydraulic maintenance platforms

Material Handling Services A Division of Glitsch Canada Ltd.

18 Dallas Street
P.O. Box 880
Uxbridge, Ontario
Canada L0C 1K0
Tel: (416) 852-7176
Fax: (416) 852-7821
Telex: 06-986868
G.J. Dobson, Director of Marketing

Belt conveyers

■ The MHS 1000 belt conveyer system features a slider bed construction with 609.6 mm (24 in.) high side guards. The belting is 838.2 mm (33 in.) wide, two-ply PVC120, supplied in either smooth top or rough top. The drive assembly is either 227.27 kg (500 lb.) or 454.54 kg (1000 lb.), depending on the application. End pulley assemblies are also 227.27 kg or 454.54 kg. Gear reduction units are shaft-mounted helical gears. All bearings are outboard mounted and all pulleys include taper-lock hubs. Stainless steel shrouds are mounted around the conveyer belt in passenger areas.

F.I.S. customs counters

The customs counters have similar features to the belt conveyers — a slider bed with side guards and two-ply PVC120 belting (610 mm/24 in. wide). The bed sections have stainless steel shrouding.

Stearns Transitread

Transitread is a closed-loop conveyer system developed for baggage claim and make-up areas. It consists of a series of crescent-shaped steel pallets or treads linked together to form a flat, smooth, continuous moving surface, capable of turning corners without a break. Two basic designs are available: Standard Transitread and Oversize Transitread.

Stearns Maxiclaim II

This is a closed-loop inclined plate device constructed of articulating, contoured pallets, or flights, forming a continuous, rotating, sloped surface. The units, used in baggage claim or make-up areas, allow maximum display in a minimum of floor space. Baggage automatically arrives on the unit from a belt feed conveyer at a point on the inside rim.

Company Profile

MHS Material Handling Services, established in 1982, is a division of Glitsch Canada Limited. The company's plant in Uxbridge, Ontario, has approximately 930 m^2 (10 000 sq. ft.) of shop floor space and is equipped with modern machinery for the fabrication of sheet metal products. MHS equipment is widely used in Canada.

Mathews Conveyer Company of Canada Ltd.

P.O. Box 30, Highway No. 2 East
Port Hope, Ontario
Canada L1A 3W1
Tel: (416) 885-2491
Fax: (416) 885-5934
Telex: 06-981275
A.L. Procktor, Marketing Manager
R.G. Rennie, Field Sales Manager

Carrousel baggage dispensing unit

■ The Mathews Conveyer Company of Canada Ltd. carrousel baggage dispensing unit is a low-profile, inclined circular conveyer installed in the baggage claim area that is fed underground, overhead, or from a segment of the periphery, and is accessible to apron service vehicles external to the baggage hall. Constructed of structural steel, the frame is rigidly braced and welded into segmental sections. A continuous, tubular-type rubber, secured by concealed fasteners to the frame, is designed to cushion the impact of luggage on the slide. The carrousel is most commonly used for arriving baggage in multifloor terminals. Passengers have access to the total circumference of the unit making it very efficient for luggage claiming. It is available in three diameters with the 7.7 m (25 ft.) model being the most popular. With a maximum claiming frontage of only 30 m (100 ft.), the carrousel is recommended for use with small and narrow-body aircraft such as the DC-9, the B-737 and the B-727. Over 300 carrousel units have been installed at more than 70 airports in over 15 countries.

Cres-Flight baggage claim device

Mathews' Cres-Flight was developed to provide a low-cost baggage claim device for use in a variety of applications. The Cres-Flight has a flat crescent-shaped pallet which has a precision cut radius so that no gaps will appear when the unit is making a curve. It is supported from below by two rows of wheels set at 8 cm (3.1 in.) centres. A rubber-tired wheel, running in a central track, guides the pallet around the loop. Mathews' unique, patented drive is fully enclosed beneath the moving treads, yet is easily accessible for maintenance. It is available in a wide variety of configurations and lengths to suit specific operational requirements. An ideal application of the Cres-Flight is in a single-level terminal. Automatic loading of the Cres-Flight can be accomplished using belt conveyers and merges. This system is appropriate for use on an outbound luggage sorting loop, or for deplaning bags where it is desired to have access to the whole periphery of the Cres-Flight. Over 300 Cres-Flight units have been installed at more than 120 airports in over 30 countries.

VIP baggage dispenser

Due to the introduction of wide-body aircraft, many baggage claim devices became inadequate to handle the high volume of luggage associated with these flights. In response to this, Mathews developed the VIP baggage dispenser. The VIP is constructed from a series of overlapping slats or flights. Each flight is connected to a periphery chain and is supported top and bottom by precision wheel bearings. The flights are over 1.5 m (5 ft.) in length to allow the VIP to carry two rows of standard luggage. As with the carrousel, the VIP can be loaded by overhead or underground belt conveyers thus providing clear access to passengers. Bumpers are attached to each flight to absorb the impact of the baggage. The VIP is designed for applications where a large volume of luggage must be handled. The length of the VIP can be set to provide the necessary claim frontage required for a specific terminal operation.

Baggage transfer device

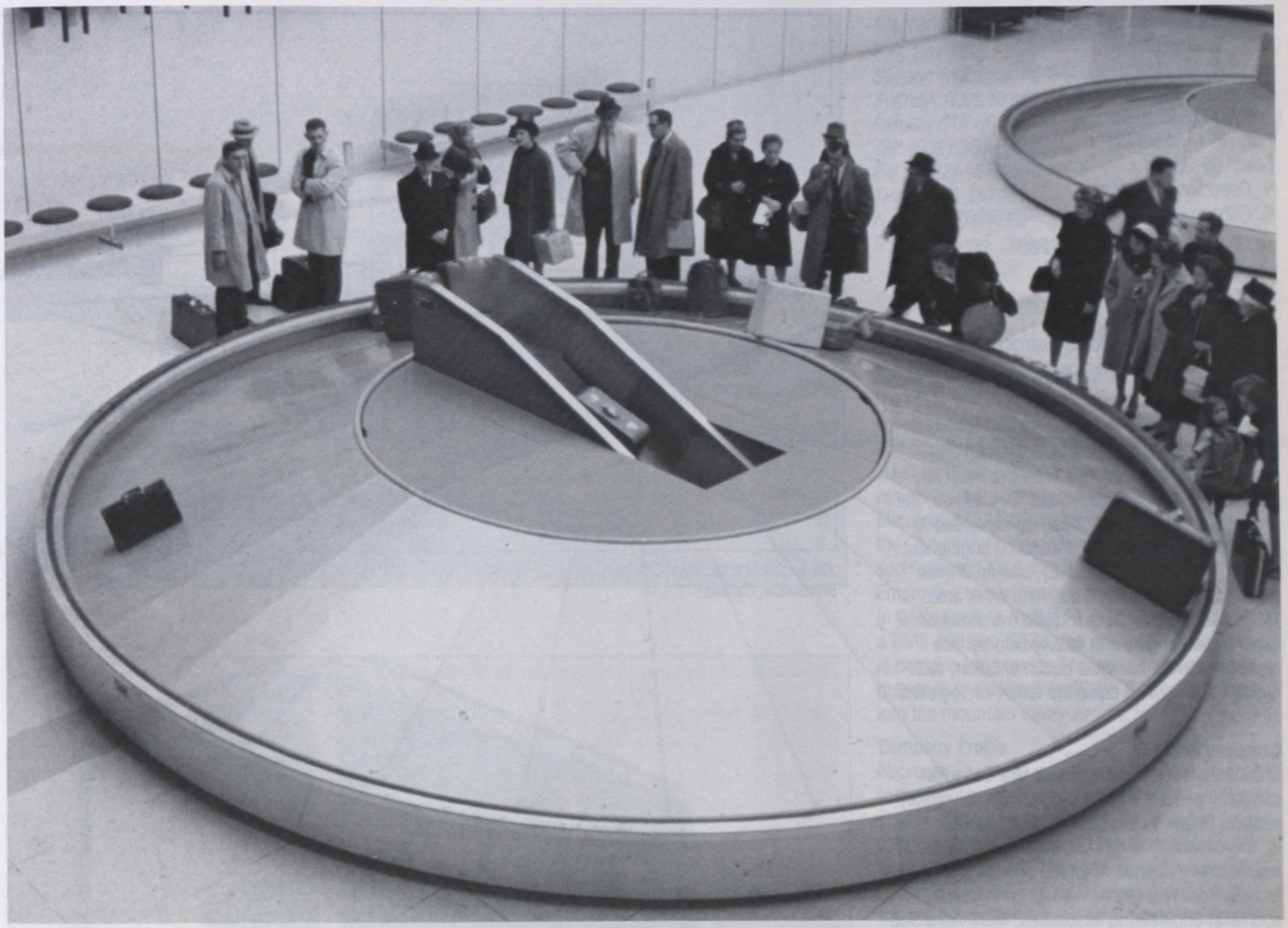
The Mathews' linear articulated pusher is a baggage transfer device, capable of diverting bags weighing 34 kg (75 lb.) off sorting conveyers at rates up to 75 bags per minute. The pusher framework and the non-moving components are made of steel, while the moving components are made from lightweight materials thus reducing sytem intertia. The removable covers, guards and panels provide for easy access to components requiring adjustment and maintenance.

Belt conveyers

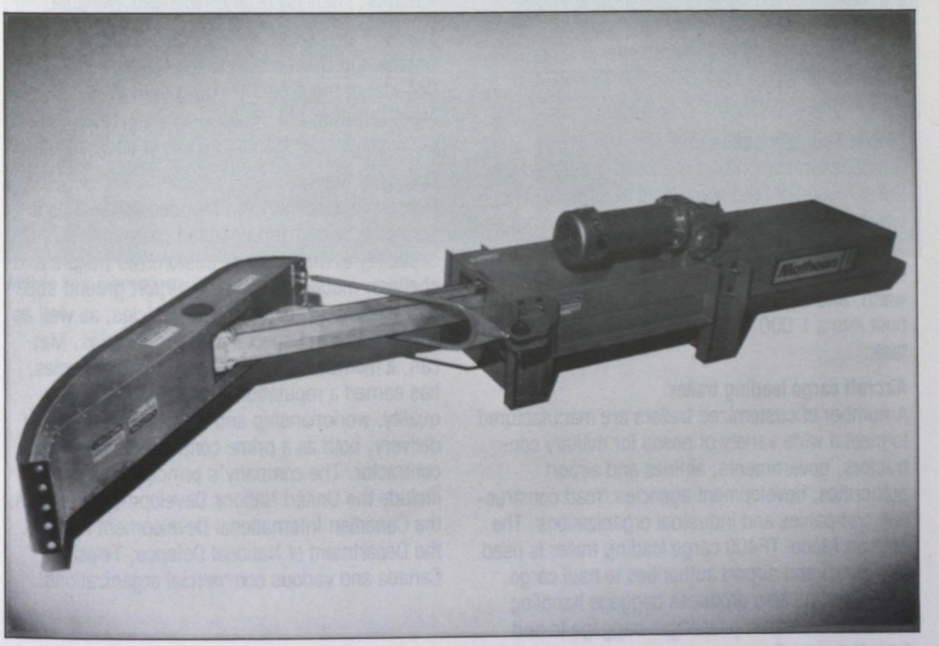
Mathews also manufactures a variety of belt conveyers for airport use. Scale and induction conveyers are used to ease the work load of check-in agents. When passengers place their baggage on the scale conveyer, the agent reads the weight and jogs the item forward for tagging, then presses a dispatch push button and the bag is moved on the induction conveyer. Belt conveyers are widely used in a variety of applications from behind the counter check-in conveyers to transportation and off-loading belts. With the addition of controls, belt conveyers can be used to store luggage for on-line sorting of outbound bags.

Company Profile

Mathews Conveyer Company, established in 1911, is one of the world's largest manufacturers of airport baggage handling equipment. There are three Mathews manufacturing plants in North America: one in Port Hope, Ontario; one in Chico, California; and one in Danville, Kentucky. Affiliated companies and agents throughout the world serve the international market. With a manufacturing area of 10 220 m^2 (110 000 sq. ft.) and 3 720 m^2 (40 000 sq. ft.) of office space, all located near Toronto, Mathews can service customer needs quickly and efficiently. The number of employees at the Port Hope facility averages 300, including shop, office and engineering personnel. Mathews' engineering personnel offer total expertise, from conceptualization through to installation and commissioning.



Carrousel baggage dispensing unit at
Winnipeg International Airport, Canada

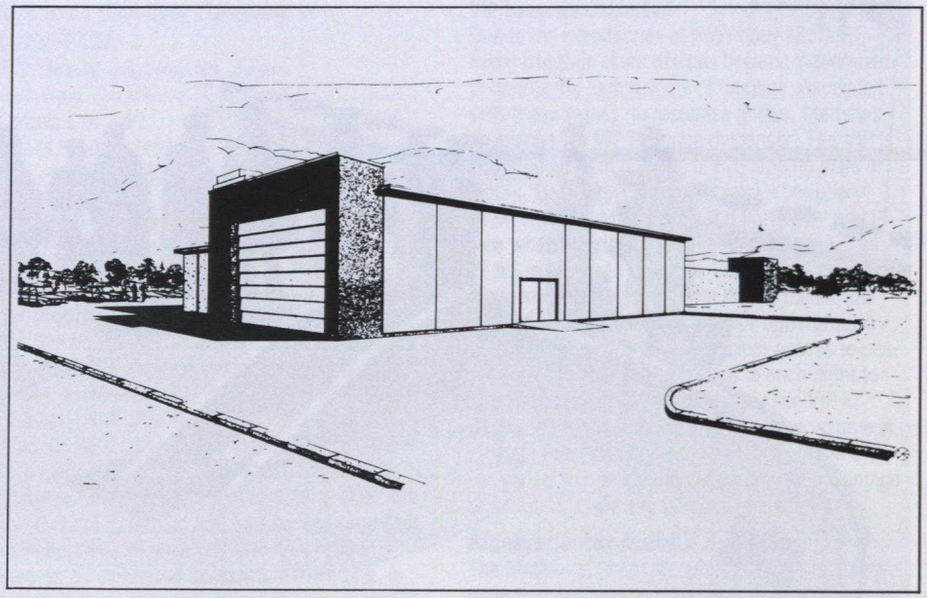


Baggage transfer device

MDS Aero Support Corporation

1351 Newton Street
Boucherville (Montreal), Quebec
Canada J4B 5H2
Tel: (514) 655-8295
Fax: (514) 655-3431
Telex: 05-25154
H. Odeorfer, President
K. Fitzgerald, Vice-President, Operations

1417-C Cyrville Road, Suite 202
Ottawa, Ontario
Tel: (613) 744-7257
Fax: (613) 744-8016
T.E. Miller, Vice-President Business Development
H.P. Eich, General Manager



J85-engine test facility at Chatham, New Brunswick, Canada

Engine test facility

■ The MDS Aero Support Corporation engine test facility designs can be scaled to meet any type of engine test requirement. In addition, the engine test facility design can be expanded to include both a suppressed installed engine test facility (i.e., a HUSH HOUSE), and an engine maintenance/repair and overhaul work area. MDS's support services include the provision of experienced engine test facility field service representatives, bilingual documentation, technician training, and complete follow-on logistics support.

Company Profile

MDS Aero Support Corporation is a Canadian company capable of providing complete turnkey support to gas turbine engine test facilities; that is, the capability to design, engineer, construct, maintain and operate any type of engine test facility. Today, together with its consortium of specialist engineering associates, MDS Aero Support Corporation is a leading Canadian engine test facility support contractor.

Metcan Fabricators Inc.

51 Bentley Avenue
Nepean, Ontario
Canada K2E 6T7
Tel: (613) 226-6674
Fax: (613) 226-7214
Telex: 05-821529
T. Butler, Marketing Representative

Electronic mobile workshops

■ The company produces electronic mobile workshops used for test, calibration and repair of electronic equipment including radios, voice and data recorders, radar, navigational aids, meteorological equipment, air traffic control equipment, power supplies and generators, air conditioning and heating, lighting and regulators.

Aircraft deicer

Metcan manufactures an aircraft deicing vehicle which can discharge up to 4 550 L (1 000 imperial gallons) of deicing fluid. The company also fabricates a trailer-mounted aircraft deicer which can also be used for washing aircraft.

Sewage removal trailers

Tank trailers for removal of sewage from aircraft are manufactured by Metcan. These are lightweight and transportable by helicopter, aircraft or ship. The company also manufactures a portable water trailer with a tank capacity of 1 136 L (250 imperial gallons).

Mobile field lubrication unit

A mobile lubrication unit has been developed for the servicing of field equipment at airports. The unit has features including a diesel engine driven air compressor, a work bench complete with tools, eight lubrication reels, six drums, a power wash, and a 400 L (88 imperial gallon) fuel tank built into a 1 000 L (220 imperial gallon) water tank.

Aircraft cargo loading trailer

A number of customized trailers are manufactured to meet a wide variety of needs for military contractors, governments, airlines and airport authorities, development agencies, road construction companies and industrial organizations. The Metcan Model TF400 cargo loading trailer is used by airlines and airport authorities to haul cargo. The company also produces baggage handling trailers to transport passenger baggage to and from the aircraft.

Aircraft boarding stairs, maintenance ladders and servicing platforms, aircraft tow-bars and engine transport skids and stands are also available.

Metcan Fabricators is the exclusive distributor in Ontario and Quebec and to the Government of Canada, of the products made by B.W.S. Manufacturing Ltd. B.W.S. manufactures trailers, snow plows, spreaders and dump bodies.

Company Profile

Metcan Fabricators Inc., founded in 1979, is a Canadian owned and operated company, with the capability to manufacture customized trailers and shelters, mobile workshops, airport ground support equipment, anti-terrorist vehicles, as well as a wide variety of special purpose vehicles. Metcan, a member of the LNS group of companies, has earned a reputation for advanced design, quality, workmanship and consistent on-time delivery, both as a prime contractor and subcontractor. The company's principle customers include the United Nations Development Program, the Canadian International Development Agency, the Department of National Defence, Telesat Canada and various commercial organizations.

◀ Aircraft deicer

◀ Mobile field lubrication unit

Micronav Ltd.

P.O. Box 1523
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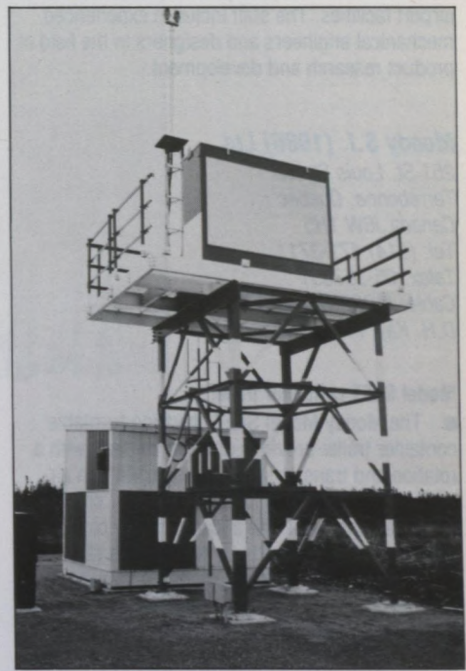
Sydney, Nova Scotia
Canada B1P 6R7
Tel: (902) 564-8833
Fax: (902) 564-0390
Telex: 019-35126
N. Coyle, President
D. Underwood, Director of Marketing

Model 400 microwave landing system

■ The Micronav Ltd. MLS-400 is designed to meet North American and European MLS specifications. Developed and built entirely in Canada, the MLS-400 is an advanced, microprocessor-controlled system combining ease of installation and maintenance (mean-time-to-repair is 45 minutes) with low cost of ownership. Full local and remote maintenance monitoring is provided. The Micronav MLS-400 installation at Pemberton, in the Canadian Rocky Mountains, is one of the most sophisticated MLS installations in the world. Employing two separate azimuth transmitters (one in back azimuth mode), a 7.7° elevation system, a DME and two NDBs, the advanced configuration is designed to provide approach and departure guidance to de Havilland Dash 7 aircraft operating into the mountain valley airport.

Company Profile

Micronav, a wholly owned subsidiary of Leigh Instruments, was formed in Sydney, Nova Scotia, shortly after the International Civil Aviation Organization's (ICAO) adoption of the time reference scanning beam microwave landing system (MLS) concept. Micronav manufactures ground transmitting equipment for the MLS which has been



MLS azimuth transmitter

adopted by ICAO to replace the current instrument landing system (ILS). The company's development activities are supported by a number of government agencies including Transport Canada's Transportation Development Centre and the National Research Council. Approximately 60 design, manufacturing and support staff are involved in the Micronav program.

M. Letendre & Associates Inc.

800 Montée de Liesse
Saint Laurent, Quebec
Canada H4T 1N8
Tel: (514) 737-3611
M. Letendre, President

Modulus 2000 maintenance vehicle

■ The Modulus 2000 multipurpose maintenance vehicle is designed to be used 12 months a year. Modular by nature, it makes it easy for the manufacturer to build the vehicle with the appropriate power train components, so that it can be ideally adapted to suit the user's needs. With front and rear quick attach type mechanisms, the user can install a plow to clear a runway, change the plow for a sweeper to remove runway debris, put on a dump body to move gravel, or attach an articulated boom and have an aircraft deicer. This new, all terrain four-wheel drive and four-wheel steering vehicle can also be used as a giant grass cutting apparatus, as a rescue unit and to tow small and medium size aircraft.

Company Profile

M. Letendre & Associates, established in 1978, is an engineering firm providing professional services in the design, development and prototype fabrication and testing of specialized equipment, both mobile and stationary, for the maintenance of airport facilities. The staff includes experienced mechanical engineers and designers in the field of product research and development.

Moody S.I. (1986) Ltd.

251 St. Louis Street
Terrebonne, Quebec
Canada J6W 1H5
Tel: (514) 471-3711
Telex: 05-267551
Cable: MOODISI MONTREAL
D.H. Kay, Product Manager

Model SLET container trailer

■ The Moody Model SLET elevating turntable container trailer provides ground handlers with a rotation and transfer system for use with an aircraft loader. Designed to carry one LD-1 or LD-3 container, the SLET has a load capacity of 1 600 kg (3 500 lb.) at speeds up to 40 km/h (25 m.p.h.). Containers are supported on two rows of 6.30 cm (2.5 in.) diameter rollers with the heavy-duty infeed roller set 0.635 cm (0.25 in.) lower for ease of container loading. The four-wheel automotive steering provides positive tracking and manoeuvrability. Precise positioning mechanical parking brakes are engaged by raising the tow-bar. The E-shaped rear hitch, with a spring-loaded pin and a 10 cm (4 in.) tow-bar ring, offers flexibility of use with other equipment. Moody has designed and built these units for simplicity, ease of operation and long-term durability.

Modulus 2000 maintenance vehicle

Towable passenger boarding stair unit

The towable passenger boarding stair unit has been designed to provide non-routine passenger access to and from passenger doors of Boeing 767 aircraft. It is self-supporting, lightweight and mounted on wheels to allow manual movement around the aircraft. The unit is equipped with an integral, rectractable tow-bar and ground locks. The stairway has been designed at one fixed height to minimize the possible distance between aircraft and platform. The platform at the top of the stairs has stationing side panels and all aircraft contact points incorporate rubber bumpers. This mdoel can be made available for different aircraft as required. Variable height models are also available, and one of these is the VR-66128 with a sill height range of 168 cm to 325 cm (66 in. to 128 in.).

Pallet storage racks

Moody's live pallet storage racks are available in several styles and capacities for handling both airline cargo pallets and containers. They are frequently used for short-term staging to liberate rolling stock or as components in air cargo warehouse systems. Construction is based on the proven design of Moody airline trailers, using heavy structural steel frame and deck components that are standard on omni and side-loading pallet carriers. The racks are available in three basic models or can be custom designed.

Model ODPC pallet/container trailer

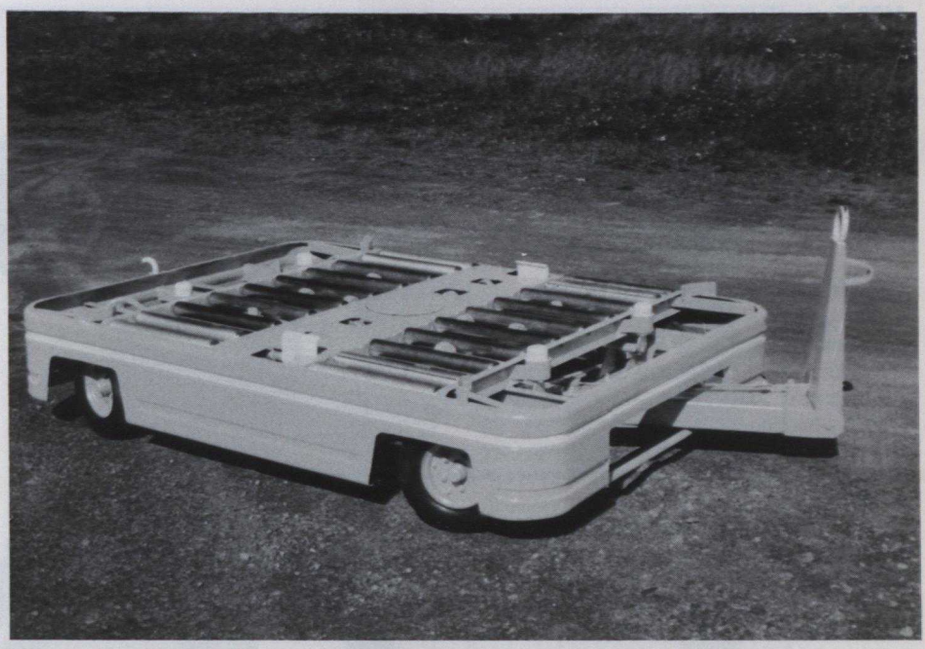
Moody's Model ODPC pallet/container trailer provides the airline industry with a proven high-speed system for moving pallets and containers. Designed to carry two LD-1 or LD-3 containers, one LD-7 or one LD-11 container, one igloo, or one pallet (up to 244 cm × 318 cm [96 in. × 125 in.]), the ODPC has a load capacity of 6 800 kg (15 000 lb.) at speeds up to 40 km/h (25 m.p.h.). There are 84 swivel casters mounted between the trailer walkways to facilitate handling in any direction. These casters are permanently lubricated and require no further lubrication during the life of the unit. A lever-activated combination guide and stop provides both vertical and lateral restraint of LD-1 and LD-3 containers, while allowing for positive side loading. Six

mechanical formed plate stops provide appropriate spacing for pallets and LD-3 containers, while four level action stops retain the LD-3 containers. The E-shaped rear hitch with a spring-loaded pin and a 10 cm (4 in.) tow-bar ring offers flexibility of use with other equipment.

Moody manufactures other products including covered trailers to transport baggage and trailers for conditioned air and ground power units, hand trucks to transport boxes, drum handling trucks, platform trucks, movable ladders and movable steps. The company also manufactures a broad range of conveyers and systems.

Company Profile

Moody, founded in 1845 as a manufacturer of agricultural implements, has been designing and manufacturing material-handling equipment for the past 45 years. The company produces various types of ground support equipment needed to handle aircraft and cargo at airports. More than 9 290 m^2 (100 000 sq. ft.) of space is dedicated to the manufacture of conveyers, manual and custom carts, and trailers for industrial and airline operations. Moody's technical department continually improves and develops new aircraft ground support equipment. The firm's products are backed by detailed service manuals and an extensive spare parts inventory. Many of the company's units have been sold throughout Canada and the United States to airlines such as Delta, KLM, British Airways, Swissair, Lufthansa and Air Canada.



Elevating turntable container trailer

Towable passenger boarding stairs

MPB Technologies Inc.

1725 North Service Road
Trans-Canada Highway
Dorval, Quebec
Canada H9P 1J1
Tel: (514) 683-1490
Telex: 05-823509
M.P. Bachynski, President
R. Lines, Laser and Laser Applications

Model MLC960 laser communication system

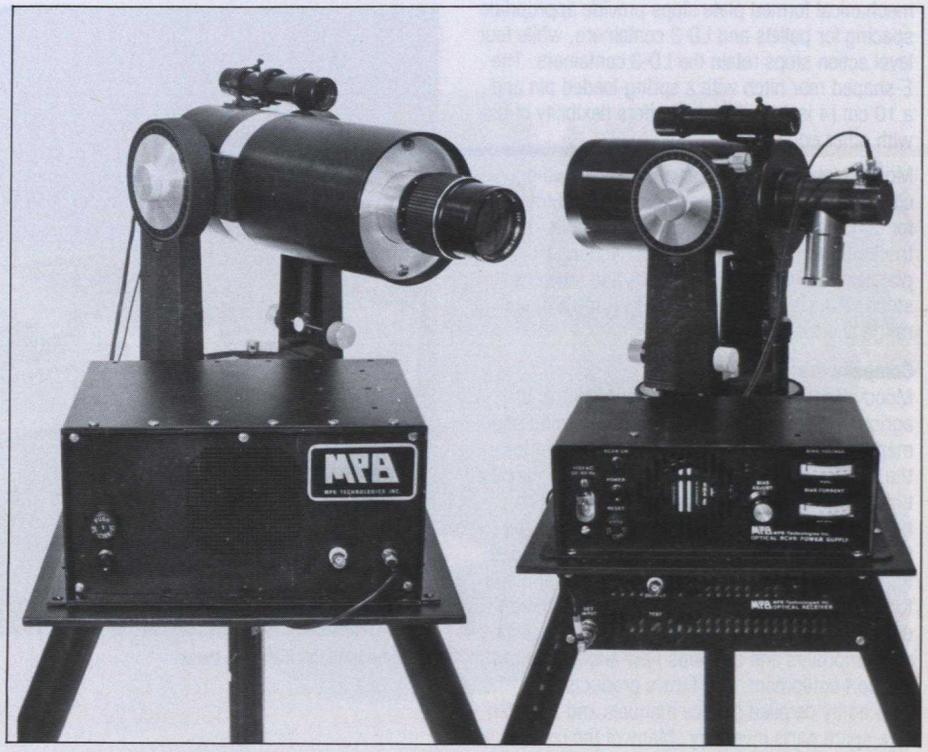
■ The MPB Technologies MLC960 atmospheric laser communication link is capable of video, multivoice channel, or high-rate data transmission to a distance of 2 km (1.2 m). The system may be used as a building-to-building communication link at airports without the trouble of R.F. interference or installation difficulties. It may also be used by airport security as an extremely secure communication link. The MLC960 laser communicator incorporates a laser diode at an invisible wavelength of 0.83 micrometres. The collimated laser output permits communication in noisy environments or where a high degree of security is required. Quick installation and optional battery operation allow for temporary links or links in areas of difficult access.

Graphic generators

The company offers two models of VISTA 90 single-channel graphic generators: the VISTA 90/SF with two (512K) flexible disk drives; and the VISTA 90/SH with one (20M) hard disk drive and one (512K) flexible disk drive. There are two models of VISTA 90 two-channel graphic generators: the VISTA 90/DF includes two (512K) flexible disk drives; and the VISTA 90/BH includes one (20M) hard disk drive and one (512K) flexible disk drive. Also offered are application software items and accessories — an on-air TV broadcast application program; TV broadcast font artwork sets; and an operators keyboard.

Company Profile

MPB Technologies Inc., established in 1976, specializes in the manufacture of high technology products, research and development, and consulting services. MPB's products include lasers and laser systems for industrial processes, scientific measurement and communications equipment; high definition graphics and character generator systems for television broadcast applications; radar, radiometers and scatterometers; and optical fibre isolators, coders, decoders and communications systems. MPB's products have been sold in many countries including Canada, Germany, Italy, Japan, Norway, Switzerland, the United Kingdom and the United States.



Laser communication receiver and transmitter

Nautical Electronic Laboratories Limited (Nautel)

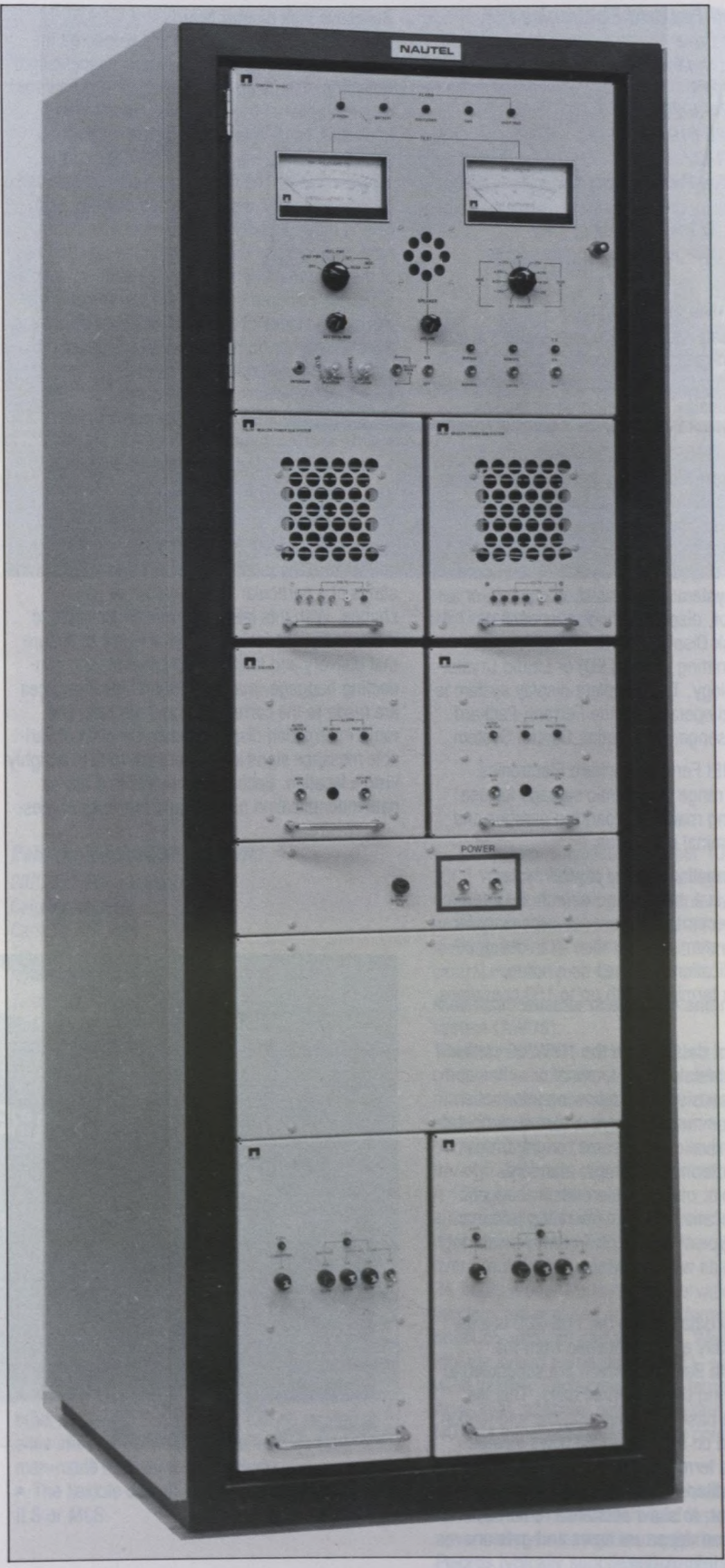
R.R. No. 1 Tantallon
Halifax County, Nova Scotia
Canada B0J 3J0
Tel: (902) 823-2233
Fax: (902) 823-3183
Telex: 019-22552
D.J. Grace, President
R.I. Perry, Technical Marketing Manager

Non-directional radio beacon transmitters — ND Series

■ Nautel has recently introduced the "ND" series of highly efficient radio beacon transmitters with outputs ranging from 25 W to 4 000 W, all fully solid state. These are available in single or dual configuration and are designed to operate with either a suitable automatically-tuned Polestar series antenna or a separate automatic antenna tuning unit adaptable to the operator's existing antenna system. All transmitters are designed to operate at remote unattended sites.

Company Profile

Nautel, a wholly owned Canadian company, was incorporated in 1969. A production facility, Nautel Maine Inc., has since been established in the United States to manufacture Nautel products for the U.S. market. Nautel specializes in the design and manufacture of totally solid-state, high-power transmitters with exceptionally high mean-time-to-failure. Aeronautical applications include all non-directional beacon (NDB) requirements for navigation, ranging from small transportable systems to large fixed systems. Over the past 10 years, as a world leader in the NDB market, Nautel has manufactured approximately 60 per cent of the NDBs installed throughout the world. More than 2 300 totally solid-state Nautel systems with output power levels ranging from 25 W to 4 000 W are operational in more than 60 countries worldwide. In order to maintain this competitive lead, approximately 20 per cent of Nautel's staff in Canada is directly employed in research and development.



ND Series non-directional radio beacon transmitter

NEI Ferranti-Packard Electronics Ltd.

6030 Ambler Drive
Mississauga, Ontario
Canada L4W 2P1
Tel: (416) 624-3020
Fax: (416) 625-6197
Telex: 06-961437
D.R. Oliver Vice-President and General Manager
K.G. Bentley, Manager, System Sales
R.A. Oliver, Manager, Transportation Sales

Flight information display systems

■ NEI Ferranti-Packard Electronics offers standard or custom-designed passenger information display systems for use in airports, train stations and bus terminals. These information display systems are used to provide the travelling public, as well as meeters and greeters, with arrival/departure information, baggage claim information and the status of delayed or cancelled flights, trains or buses. The information is usually displayed at check-in counters, concourses, gate counters and baggage claim areas. The information display system may consist of any one, or a combination of, display technologies such as Reflective Disk Display Boards, television monitors, Light Emitting Diode (LED) or Liquid Crystal (LCD) technology. The complete display system is controlled and operated by the Ferranti-Packard TDS-200 Passenger Information Control System.

In addition, NEI Ferranti-Packard Electronics offers a wide range of dynamic signage for use on approaching roadways, parking garages and ramp side terminal operations.

TDS 200 information display control system

The TDS-200 is a mini computer with the interface and display generator accessories necessary for a particular system configuration. It is designed for those applications in small- to medium-transportation terminals with up to 150 operations per day.

The permanent data base in the TDS-200 contains the weekly schedule of the terminal or airline and will normally consist of the following information: flight/train/bus number; days of the week operating; time of arrival or departures; origin or destination with intermediate stops; standard remarks; gate or platform information; baggage claim area allocation; system operating information such as type of aircraft, toil number, catering requirements, as well as passenger and fuel loads.

The temporary data base in the TDS-200 is a file of up to 150 daily entries obtained from the Permanent Data Base and which are scheduled to take place during the next three days. This file forms the data base for generating the information to be displayed on the various displays located throughout the terminal. This Temporary Data Base can be edited and updated by the regular system operator, to show additional remarks, actual arrival and departure times and gate or baggage claim information.

Reflective disk display boards

NEI Ferranti-Packard Electronics pioneered the design and development of electro-magnetic light reflecting disk display technology and is now the major supplier of this technology in the world. Each disk has a coloured and dark side with a small permanent magnet located in the centre between them. The disks are arranged in a matrix of 5 columns of 7 disks to form a module. Each disk is mounted between two reversible permanent magnets and depending on the polarization of these permanent magnets, the disk will display either the coloured or dark side and the arrangement of the sides of the disks will then determine the character or number displayed. The advantages of light reflecting disk technology are:

- highly visible even in bright sunlight
- power is required only to operate the disk
- wide viewing angle
- information is retained during power failures.

Ramp information signage

The Ferranti-Packard ramp information display system is designed to provide ramp service personnel with the most up-to-date information on the status of a particular flight, aircraft or gate change. With this latest information available to them, ramp service personnel are able to ensure that delivery and loading of originating and connecting baggage, mail, freight and meal services are made to the correct gate and aircraft. The ramp information display system consists of variable message signs located at each gate in a highly visible location. Each sign consists of a rear-lit gate indentification number and two lines of message text, using the patented, highly reliable Ferranti-Packard display reflective disk technology. The system has been installed for American Airlines at the following airports: Dallas/Fort Worth, Raleigh-Durham, Nashville; and Chicago (1988).

Company Profile

NEI Ferranti-Packard Electronics is a member of the NEI CANADA LTD. group of companies, which in turn is a subsidiary of NEI plc, a British electrical/mechanical engineering group.

NEI Ferranti-Packard Electronics is primarily engaged in the design and manufacture of electromagnetic Reflective Disk Display Components and Systems. It maintains an ongoing research and development program to tailor products to specific customer requirements and to benefit from the latest advances in electronics and display technology.

The company has offices in several North American cities, Zurich, Switzerland, and Bristol, United Kingdom. It markets its products worldwide through a network of direct sales personnel, distributors, representatives and agents. It also operates an International Service Group which installs and services the company's products worldwide.

NEI Ferranti-Packard Electronics Passenger Information Display Systems have been installed in the following locations: Cuenca, Ecuador; Buenos Aires, Argentina (Cordoba); Buenos Aires, Argentina (Jorge Newberg); Queen Alia, Amman, Jordan; Toronto International, Toronto, Canada; Mexico City, Mexico; Union Station, Toronto, Canada (1988); VIA Rail, Toronto (1988); GO Transit, Toronto (1988); Jose Marti, Havana, Cuba; Jose Marti II, Havana, Cuba (1988).

Departure board at Mexico City International Airport

Nordic Systems Inc.

1044 Rangeview Road
Mississauga, Ontario
Canada L5E 1H3
Tel: (416) 278-3331
Fax: (416) 278-5197
Telex: 06-961146
NORDIC MSGA
G.F. Hrubecky, President

Rescue and fire-fighting vehicles

■ Nordic's "Foam Boss" rescue and fire-fighting vehicles are used at airports and heliports to assist in the safe evacuation of passengers and crew and to control, extinguish and prevent fires. Each is a high-mobility vehicle on a custom chassis and can deliver large quantities of water and foam, as well as secondary extinguishing agents and rescue equipment to the site of a fire. All vehicles in the line meet or exceed the operational requirements of the International Civil Aviation Organization (ICAO), the National Fire Prevention Association (NFPA), the Federal Aviation Authority (FAA), Transport Canada and Canadian and United States military organizations.

The "Foam Boss" all terrain fire fighting vehicle (ATV) is used in adverse weather and soil conditions where high flotation and traction are required. The rapid intervention vehicle (RIV) is a rapid acceleration, high speed, cross country dual agent vehicle. It is designed to reach the scene of a fire quickly in order to secure an exit corridor for passengers and crew and contain the fire until the major vehicles arrive. RIVs carry rescue and life-saving equipment such as extraction devices, ladders, resuscitation apparatus, stretchers, first aid kits and up to 2 500 L of water.

Fire-fighting components

Nordic manufactures fire-fighting components and skid systems for original equipment manufacturers of airport rescue and fire-fighting vehicles. These components include tanks and pressure vessels, foam proportioning systems, turrets, nozzles and hose reels. The skid systems are self-contained fire-fighting units that can be mounted on a variety of vehicles or on fixed locations.

Company Profile

Over four decades, Nordic has developed into an industry leader in fire-fighting vehicles and systems, tank truck loading and unloading components for the petrochemical industry and hose and cable reels for a variety of applications. Now a part of the LNS Group of Companies, Nordic Systems Inc. has a 2 805 m^2 (30 200 sq. ft.) facility in Mississauga, near Toronto. The company has almost 50 employees, including engineers, marketing and sales personnel, administration staff and manufacturing and stores staff. In addition, the firm hires contract employees on a project basis.

The "Foam Boss" 1200 L/135 kg dual agent rapid intervention vehicle

Pelorus Navigation Systems

202, 575 Palmer Road N.E.
Calgary, Alberta
Canada T2E 7G4
Tel: (403) 250-9377
Fax: (403) 291-9123
Telex: 038-21557
E. Fitzhenry, President
Don Sinclair, Vice-President, Marketing
Tom Watt, Director, International Marketing

Distance Measuring Equipment (DME)

■ DME is a navigational system which continuously gives distance information between an aircraft and a given ground station. The main features of the Pelorus DME are:

- The system's solid-state design, fail-safe techniques and absence of moving parts give stable performance and long-term reliability.
- Exceptionally low power requirements enables the DME to be run off a 24 VDC battery, thermo-electric generators or solar energy cells.
- The Pelorus DME is twice as accurate as many other systems. This means it can be located at sites affected by multi-path reflections from man-made or natural obstructions.
- The flexible design permits colocation with VOR, ILS or MLS.
- The system is available in either 100 W or 1000 W and in single or dual configurations.
- Its remote monitoring and maintenance feature provides continuous monitoring of key parameters and cost-effective fault diagnosis from a remote central maintenance facility.

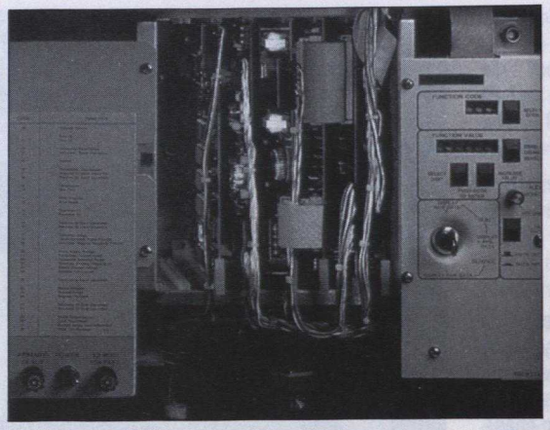
Automated weather observation and reporting system (AWOS)

The Pelorus AWOS series 8000 is a self-contained, automated surface weather system that retrieves and processes weather data from sensors. The system then distributes reports to airborne and ground users, either locally or remotely through voice and data communications channels. A 100 per cent solid state system, the AWOS automatically transmits weather and altimeter information (in the language of the client's choice) over any selected communication channel, 24 hours a day. No human observations or interventions are required and the information is continuously updated and available. Weather reports include airport name, time (GMT), wind direction, wind velocity (including gusts), temperature, dew-point, altimeter settings, ceiling, visibility and NOTAM information and runway condition.

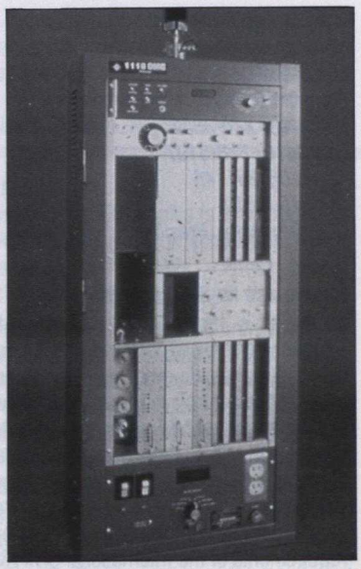
Company Profile

Pelorus Navigation Systems specializes in the development, manufacture and installation of advanced radio navigation equipment for airports. Pelorus typically supplies equipment on a turnkey

basis, which includes siting, civil works, equipment installation, regulatory approval/commissioning, training and preparation of approach plates. The company has a staff of fully qualified engineers and maintains a large inventory of replacement parts. Long-term maintenance contracts are offered. Manufacturing and testing facilities are located in Calgary, Alberta. Research and development efforts are focused on a microwave landing system (MLS) avionics receiver and guidance control system for aircraft landing.



The Pelorus AWOS 8000



The Pelorus Distance Measuring Equipment (DME)

Pole-Lite Ltd.

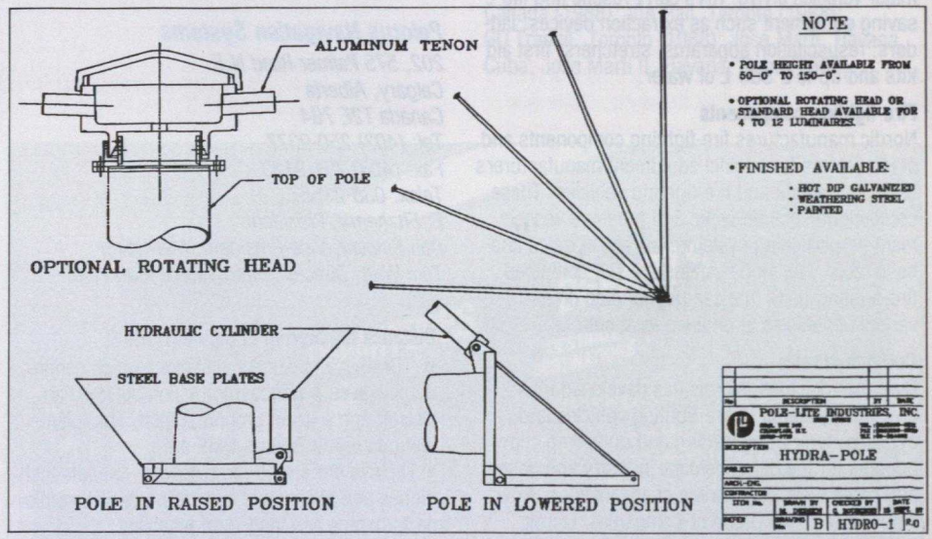
1 Edward VII Boulevard
St. Phillipe
Laprairie, Quebec
Canada J0L 2K0
Tel: (514) 659-8951
Fax: (514) 397-1338
Telex: 055-61010
G.F. Richer, Vice-President and Treasurer
M.C. Archambault, Sales-Export/Marketing

Airport lighting poles

■ Pole-Lite Ltd. produces steel and aluminum lighting poles, used to illuminate parking lots and general circulating areas of an airport. Built to meet the toughest requirements, the poles are made with quality steel and aluminum alloy, produced to AASHTO specifications, and designed to break-away from their base on impact. Pole-Lite also produces high-strength steel masts for illuminating large surfaces such as aircraft parking aprons. Equipped with a lowering device, the masts are available in heights ranging from 18.3 m to 38.1 m (60 ft. to 125 ft.) and can accommodate up to 12 lamps. Pole-Lite also produces aluminum overhead sign structures for use at large, multi-terminal airports to indicate directions to motorists. In addition, the firm produces a Hydro Pole, which is a high-mast raising and lowering pole, from 15 m to 46 m (50 ft. to 150 ft.), supplied with a portable trailer-mounted hydraulic power system.

Company Profile

Pole-Lite, established in 1958, is one of the leading Canadian producers of aluminum and steel products. Its products include lighting and flag poles, overhead structures, railings and fences, high mast assemblies, pallets, highway signs and coin collection carriages for parking meters. With four manufacturing facilities and 175 employees, Pole-Lite's equipment and production techniques are continuously updated by the research and development department. The company has sales offices throughout Canada, the United States, the Caribbean and the Middle East.



Hydra pole

Presentey Engineering Products Limited

2784 Fenton Road
P.O. Box 919, R.R. No. 5
Ottawa, Ontario
Canada K1G 3N3
Tel: (613) 822-1251
A. Presentey, President

Model PEP 8303 transmissometer

■ The Presentey Engineering Products (PEP) 8303 transmissometer provides continuous readings of air transmissivity for pollution, weather or visibility monitoring. In a completely solid-state package, the PEP 8303 is a highly accurate, efficient and adaptable solution to monitoring measurement needs. As the projector directs a light beam of constant intensity towards a photoelectric transducer, the amount of light actually reaching the transducer varies with the amount of solid or liquid matters in the air. The signal processing unit displays the transmissivity digitally and drives a computer and a graph plotter for continuous reading. The PEP 8303 is installed at many military and commercial airports throughout Canada to provide runway visual range data.

Company Profile

Presentey, established in 1958, is a fully independent Canadian engineering company specializing in telecommunications, electronics and environmental areas. The company has worked as a prime contractor in a wide spectrum of research, development, design, manufacturing and consulting activities for the private and military sectors.

PEP 8303 transmissometer

Price & Knott Manufacturing Company Limited

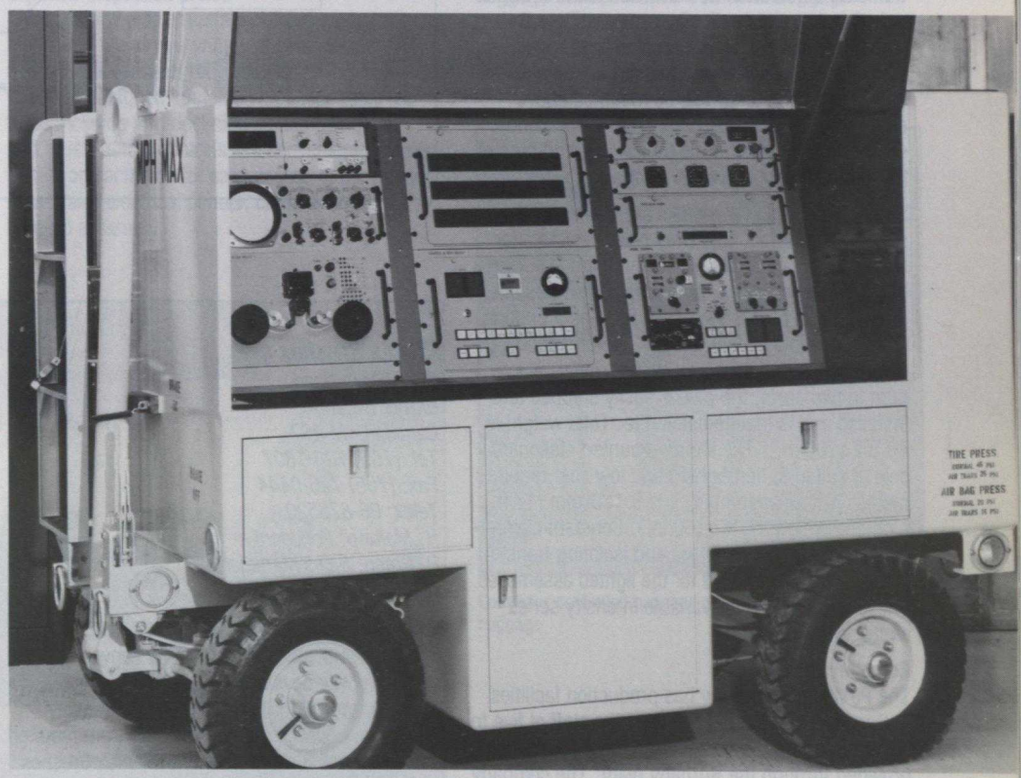
655 Finley Avenue
Ajax, Ontario
Canada L1S 3V3
Tel: (416) 683-7501
Fax: (416) 427-3038
Telex: 069-81352
B. Sztabinski, President
B. Wheeler, Vice-President, Sales and Marketing

Aircraft testing system

■ Price & Knott has custom manufactured, for a large Canadian company, a mobile aircraft testing system. The cart is used on the ground for testing aircraft engines. The company has also manufactured other products including cabinets, support structures, instrument and equipment cases and precision-machined components.

Company Profile

Established in 1954, Price & Knott is a custom manufacturer, specializing in precision sheet metal fabrication, welding and machining for the aerospace, defence and electronics industries. Since then, its facilities have expanded to 5 760 m^2 (62 000 sq. ft.) of production area with additional modern equipment, a complete machine shop, a tool room and a fully equipped inspection department. As a subcontractor for electronic and aircraft/aerospace companies such as Litton Systems, Garrett Canada, Spar Aerospace, Rockwell International and Bell Aerospace, the company participates in many defence-related programs in Canada and the United States. With its new facilities, Price & Knott can manufacture all types of components requiring sheet metal, machining, welding and special tooling operations. The company is also equipped to perform engraving, stencilling, chemical conversion, anodizing, passivation and assembly operations.



Mobile aircraft testing system

P. Wedge Company Limited

5843 Baffin Place
Burnaby, British Columbia
Canada V5H 3S7
Tel: (604) 437-9049
P. Wedge, L. Wedge, C. Sherwood,
Marketing Personnel

Wind cone equipment

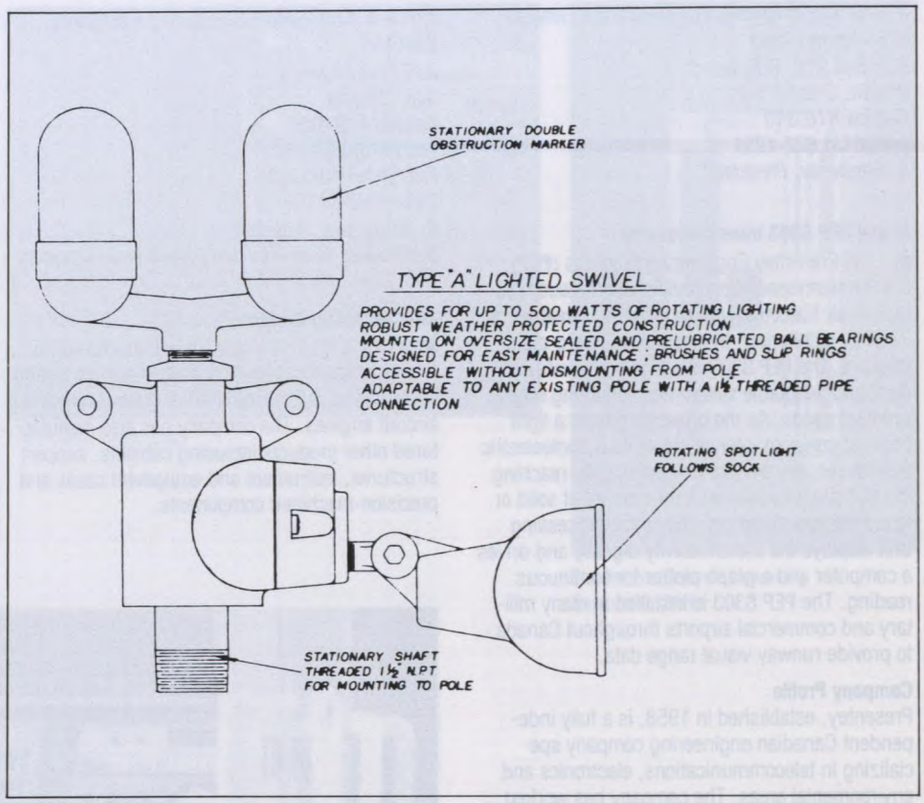
■ Wind cone equipment is a visual indicator of wind direction and speed and is required in all accredited airports worldwide. The equipment manufactured by P. Wedge Co. has withstood the test of time under the harshest operating conditions. A variety of models and parts are offered to suit the requirements of different airports.

The heart of the equipment is a robust, cast aluminum ball bearing swivel offered in two models. Type A has a rotary electric connection and is fitted with a spotlight to illuminate the interior of the fabric windsock. It can include dual lamps, electronically connected, so that when the first burns out, the other automatically turns on. Type B is non-rotary lighted. Stationary lighting, such as an obstruction marker and/or cluster lights to illuminate the general area, can be mounted above either swivel. The wind cone (with fabric windsock laced on) is bolted to the swivel, and both of these components come in a variety of sizes.

Several pole or tower models are available. The popular flange-mounted drop pole, desirable for lighted applications, is 5 715 mm high (18.75 ft.) to the centreline of the windsock. It features internal wiring, is counterweighted and has a braking system to allow simple, one-person operation. Constructed of lightweight, non-corrosive aluminum in two parts, the pole is easily shipped and installed and is maintenance free. Total weight is 40.8 kg (90 lb.). The flange-mounted stationary pole is suited to non-lighted and low cost requirements. Also of aluminum, it is 5 180 mm (17 ft.) high and weighs 27 kg (60 lb.). Constant current-constant voltage converters and isolating transformers can be supplied for the lighted assemblies. These are required for variable intensity series circuit installations.

Company Profile

The P. Wedge Company has production facilities in Burnaby, British Columbia, with a staff of five to eight personnel. Spare parts and sale support are provided through the Burnaby plant. The company is currently testing and patenting a new frangible tower to meet increasingly stringent airport safety standards. The unit will withstand the tension and compression loading from high wind pressures on the wind cone, but, due to its brittle design and low inertia, will allow an airplane wing to pass through it with minimal damage.



Type "A" lighted swivel

Rantex Brushes Inc.

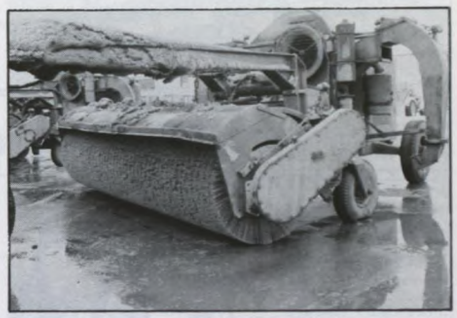
82 Welham Road
Barrie, Ontario
Canada L4M 4S7
Tel: (705) 726-1807
Fax: (705) 726-0444
Telex: 06-875529
H. Maltarp, President
D. Green, Sales Manager

Continuous wire brooms for runway sweepers

■ The continuous wire broom for runway sweepers was developed in 1963 by Rantex Brushes Inc. On most major makes of runway sweepers, approximately 100 sections are required to form a continuous broom. The Rantex brushes are designed and built to provide long, trouble-free performance. The runway brooms are supplied as original installation to all major manufacturers of runway sweepers including Sicard, SMI, ARA and Shorling.

Company Profile

Rantex Brushes Inc., founded in 1954, is a wholly owned Canadian company specializing in the manufacture of high-quality sweeper brooms. As a leading Canadian company in the supply of brushes, Rantex provides municipal street sweeper brushes in Canada and the United States, runway brooms for runway sweepers to Transport Canada and the Department of National Defence airbases, and industrial brushes for general use. The company employs 60 people in a 3 995 m^2 (43 000 sq. ft.) facility located in Barrie, Ontario.



Continuous wire broom

Rapistan Systems Limited

7300 Rapistan Court
Mississauga, Ontario
Canada L5N 5S1
Tel: (416) 567-7300
Fax: (416) 567-0585
Telex: 06-22338
B. Pegg, Systems Sales Manager
T. Wright, Systems Sales Manager

Airport baggage check-in equipment

■ From simple hand loading behind counters to automated baggage readout stations, Rapistan Systems Limited offers a full range of products for outbound check-in applications. The company produces a tray system that allows a high degree of automatic handling. Each tray is coded for a specific destination and monitored by scanners along the line. The tray is automatically merged and diverted to the proper destination. The company also offers a conveyer system that allows movement of baggage from the check-in counter to the sorting or baggage make-up area. The design of the turning devices and transfers helps baggage maintain its orientation during transportation, and the special sideguards and belt curves help prevent baggage hang-ups. Rapistan also manufactures an automatic vertical conveyer for areas where space is a problem and interfloor transport is required. Rapistan applies linear conveyers, recirculating devices or even computer-controlled sorting equipment to sort baggage on the outbound baggage make-up area according to terminal requirements. Linear conveyers provide quick release of baggage at airports where a small number of simultaneous destinations must be served. Recirculating devices in oval, triangular or L-shape accommodate a great number of carts for various destinations. Computerized sorting units may be applied for high-volume requirements.

Baggage claim units

Rapistan manufactures a variety of inbound claim devices including a Crescent unit, a Tri-Planar unit, a Jetclaim unit, a Mono-Planar unit, and a Mono-Claimar unit. The Crescent conveyer unit provides maximum claim frontage within a limited floor area. The construction of the Tri-Planar unit allows handling of a wide range of sizes and weights of baggage and an unlimited range of design configurations. The Jetclaim unit is one of the most versatile and flexible baggage dispensing systems available. Its modular design permits it to be reshaped, enlarged or relocated.

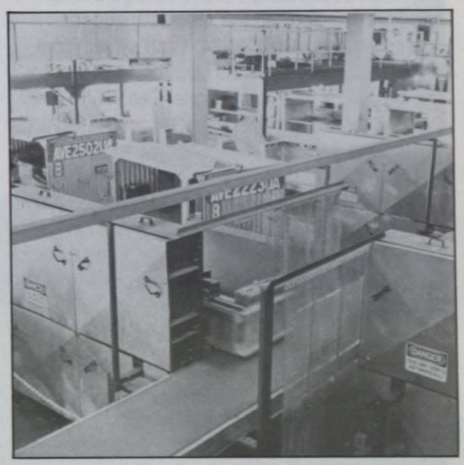
Customs inspection tables

The company also offers specialized customs inspection tables in a variety of configurations to suit specific terminal requirements. A typical Rapistan-designed customs inspection table features inclining and declining sections at either end, push-button controls and conveniently located panels on each side for easy access to the motor, drive train, electrical panels, controls and belt take-up assembly.

Company Profile

Rapistan, an organization with a broad international pool of material-handling knowledge and experience, has manufactured and installed conveyerized baggage handling systems at more than 150 airports in locations that include Algeria, Brazil, the Caribbean, Central America, Egypt, Europe, Indonesia, Japan, Jordan, Kenya, Nigeria, Saudi Arabia, the United Kingdom, the United States, the Soviet Union and Venezuela. Rapistan offers the following: advanced consulting services to clients contemplating major additions or reorganization of their baggage handling operations; design services to achieve efficent baggage handling systems; on-site implementation and installation to assure proper equipment performance; and equipment maintenance services. Rapistan, with a 7 430 m^2 (80 000 sq. ft.) modern manufacturing facility located in Mississauga, Ontario, has a staff of approximately 120 employees. Rapistan manufactures products for outbound check-in applications, outbound baggage transportation, outbound baggage make-up, inbound baggage unloading and transportation, inbound baggage claim, and customs inspection.

Mono-Planar conveyor unit



Computer-controlled baggage puller sorts baggage

Raytheon Canada Limited

400 Phillip Street
Waterloo, Ontario
Canada N2J 4K6
Tel: (519) 885-0110
Fax: (519) 885-8620
Telex: 069-55431
Twx: 610-365-3469
J.M. Stewart, President and General Manager
G.R. Beaumont, Director, Marketing

Ground controlled approach system

■ Raytheon Canada's ground controlled approach (GCA) system uses the most advanced, militarized radar and display equipment, which meets or exceeds operational requirements for the control and recovery of high-performance jet aircraft, even during severe weather conditions. Two separate radars make up the complete GCA system: the airport surveillance radar (ASR), which provides primary surveillance coverage for the control of aircraft to a range of approximately 110 km (60 nautical miles); and the precision approach radar (PAR), which displays all approaching aircraft and tracks as many as six targets on final approach, simultaneously. Raytheon's ASR comes in two configurations: fixed-site, designated the ASR-910; and the mobile version, AN/TPN-24. Each system consists entirely of solid-state electronics except for the thyratrons and magnetrons. The AN/GPN-22 PAR design is based on limited-scan phased-array technology pioneered by Raytheon. It is the only PAR specifically designed for the control of high-performance aircraft and today's increased traffic volumes. The system includes an operations centre which contains the radar displays and communications facilities required to perform airfield surveillance and final approach control functions. Raytheon's GCA has proven system availability of greater than 98 per cent. The technology was developed to meet the operational needs of the United States Air Force, and is available in either mobile or fixed-site versions.

Navigational aids

Raytheon Canada's navigational aid product line includes VHF omnidirectional range (VOR) (both standard and doppler) and distance measurement equipment (DME). The standard and doppler VOR equipment is available in both single and dual channel configurations complete with antenna and self-monitoring facilities. This equipment is entirely solid-state and has been engineered as modular units for ease of maintenance. The Raytheon Canada DME is a complete ground station consisting of a dual transponder, dual monitors and antenna. This all-solid-state equipment is designed to meet, as is the VOR, all applicable ICAO standards. If required, the VOR and DME can be supplied complete with shelter and stand-by power supplies. Both the VOR and DME equipment are in extensive use in Canada and throughout the world.

ASR-8000 Series surveillance radars

The Raytheon Canada ASR-8000 Series radar family comprises a number of advanced primary radars capable of detecting aircraft in the most adverse clutter and weather environments. The ASR-8000 System can operate in either L or S band by changing three modules in the transmitter and one in the receiver. Design flexibility also permits the system to be installed as either a terminal area radar, or an en route system. The state-of-the-art radars are equipped with a quadrature 3-pulse digital Moving Target Detector (MTD) incorporating a 65 536 cell adaptive clutter map.

ASR-9000 Series surveillance radars

As part of a nation-wide program to modernize Canada's air traffic control system, Raytheon's ASR-9000 Series radar family is being produced for the Government of Canada. The new L-band ASR-9000 Series primary surveillance radar is totally solid-state, and employs the most advanced digital processing techniques. This highly modular series of radars is available in two configurations. The basic model in the series provides approach control up to a 150 km (80 nautical miles) range and a 7 620 m (25 000 ft.) altitude. The other version provides coverage over approximately 220 km (120 nautical miles) and up to 15 240 m (50 000 ft.) altitude.

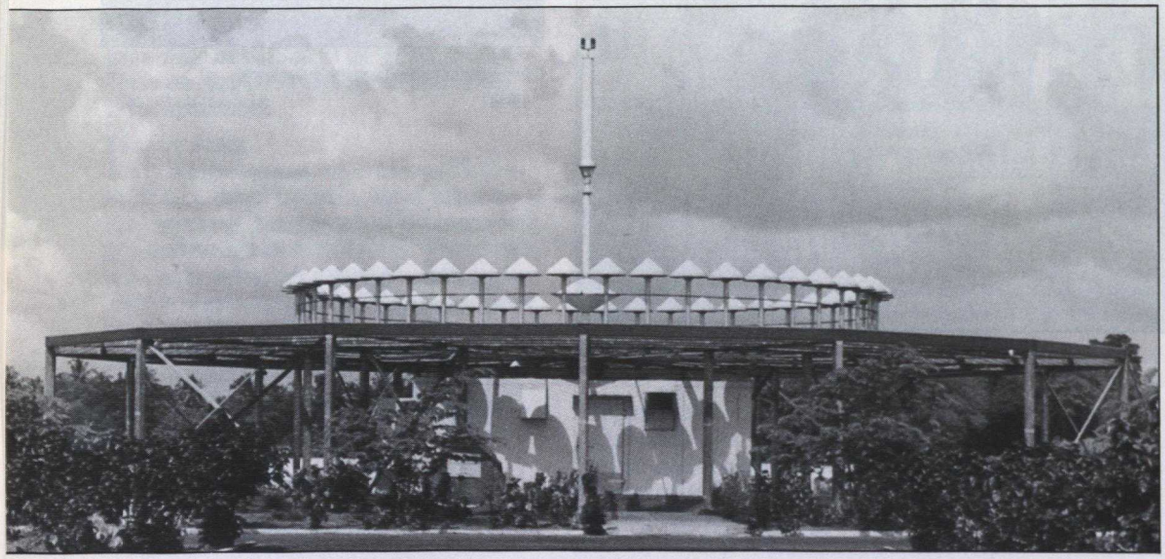
RAMP primary surveillance radar

Raytheon Canada is currently prime contractor to the Canadian government for radar site equipment in the Radar Modernization Project (RAMP), the largest air traffic control radar system update and expansion in the world. The new RAMP solid-state radar offers enhanced reliability and ease of maintenance, compared to previous generations of equipment, and is finding rapid acceptance in international markets.

Radar data processing and displays

Raytheon Canada is also prime contractor to the Canadian government for display site equipment in the RAMP program. The display system employs a distributed architecture, using Local Area Network (LAN) techniques and can readily be configured to address the needs of air traffic service centres, terminal control centres, local and remote tower displays and area control centres.

Raytheon also remains in the forefront in raster display technology for air traffic control and military applications. Its latest SC 2000 display system is capable of driving a 2048 line × 2048 pixel colour monitor at a non-interlace frame rate of 60Hz.



VOR installation

ASR-910 airport surveillance radar

Company Profile
Raytheon Canada Limited, a subsidiary of Raytheon Company of the United States, was incorporated in 1956 to undertake production and installation of the AASR-1 primary surveillance radar for Canada's Department of Transport in the creation of the world's first national civil air traffic control radar network. The company designs, develops and manufactures complete air traffic control systems and navigational aids for civil and military applications, for the world market. Based in Waterloo, Ontario, the company currently employs more than 600 people, over 40 per cent of whom are engineers or skilled technologists, with professional program management staff and manufacturing personnel making up the balance. Raytheon Canada occupies a 15 000 m^2 (156 000 sq. ft.) office and manufacturing facility. Raytheon provides complete turnkey services, including system design, testing, site planning, and construction supervision to deliver an operating system ready for use. Ongoing product support is offered to assure system availability.

R. Horvat Industries Limited

873 Nipissing Road
Milton, Ontario
Canada L9T 4Z4
Tel: (416) 878-4200
(416) 826-2662
R. Horvat, President

Light marker flags
■ The light marker flags produced by R. Horvat Industries are used to indicate runway lights in areas of heavy snowfall. The bright orange, fluorescent flags draw attention to the runway lights which may be obscured by the snow. The flags are of a durable plastic that can withstand extremely cold weather. They are mounted on fiberglass rods that come in three lengths — 61,91 or 122 cm (24, 36 or 48 in.). A solidly built spring and bracket holder for the rod is included in the kit. The entire unit is easy to assemble and install.

Company Profile
R. Horvat Industries has been in business for almost 15 years, and its owners draw on more than 30 years experience in light manufacturing. The company, located in Milton, Ontario, has production facilities of approximately 929 m^2 (10 000 sq. ft.) and up-to-date machinery for custom building a variety of equipment and machine parts. Horvat's light marker flags are widely-used across Canada and in the high North.

Richards-Wilcox Canada Inc.

409 Evans Avenue
Etobicoke, Ontario
Canada M8Z 1L1
Tel: (416) 252-5721
Fax: (416) 252-0063
D.A. Materick, Sales Manager
P. MacLennan, Engineering Manager

Hangar doors
■ The Richards-Wilcox hangar doors are bottom-supported, top-guided movable walls that allow aircraft or larger equipment access to storage and maintenance areas. The number of door blades, the method of blade storage when the door is open and the direction of blade travel vary according to the hangar design. The Richards-Wilcox hangar doors are engineered for durable, low-maintenance, safe and simple operation via one or more electric motors. The fully weatherproof design is adaptable to various insulating and cladding systems. Richards-Wilcox hangar doors are present at many locations including the de Havilland facility in Downsview, Ontario; Dorval International Airport in Montreal; Toronto International Airport; Vancouver International Airport; and many other locations with corporate aircraft hangars.

Company Profile
Richards-Wilcox Canada Inc., established in 1912, manufactures aircraft hangar doors of various configurations, custom-designed to suit specific requirements. While Richards-Wilcox has long been regarded as one of the largest and best-known manufacturers of industrial doors in Canada, the company's name is now being specified in Africa, Europe, the Middle East, South America, the United Kingdom and the United States.

▲ Hangar doors installed at an Air Canada maintenance facility

Robert Mitchell Inc.

350 Decarie Boulevard
Saint Laurent, Quebec
Canada H4L 4W5
Tel: (514) 747-2471
Fax: (514) 747-7712
Telex: 05-825854
G.H. Holland, President
P.E. Dostie, Vice-President, Sales

Passenger loading bridge

Passenger loading bridges

■ Robert Mitchell Inc. designs, manufactures and installs fixed-type passenger loading bridges as well as new universal bridges that are capable of accommodating all commercial aircraft. The universal-type bridges have a sill height ranging from 2 m to 5.4 m (6.5 ft. to 17.7 ft.) and offer a significant reduction in both capital and maintenance costs, while substantially improving major functional operations. Mitchell passenger loading bridges are installed at all major Canadian airports as well as in many United States airports.

Aircraft deicer

The company manufactures a deicer unit which consists of a truck-mounted boom-type aerial platform equipped with an aircraft deicing fluid spraying system and combustion heaters for deicing all exterior surfaces of wide-body and intermediate-size aircraft. The unit includes fluid tanks containing 5 448 L of water and 2 724 L of glycol. The deicer has a working height of 14.6 m (48 ft.) and a side reach of 6.7 m (22 ft.).

Model L-549F access work platform

The Model L-549F mobile access work platform provides ground personnel with a platform for all aircraft types having access points between 0.9 m and 4.3 m (3 ft. and 14 ft.) in height. The platform is designed to accommodate two men or a total of 230 kg (500 lb.). Operation of the lift and its controls is smooth and positive and the elevating mechanisms incorporate safety features to prevent sudden lowering of the platform. Built-in hydraulic jacks are utilized to maintain stability under varying conditions.

Model TB-561 aircraft tow-bar

The Robert Mitchell Model TB-561 aircraft tow-bar is designed to connect and disconnect quickly from a B-747 aircraft nose landing gear. While the entire tow-bar is completely self-contained and compact, it consists of an aluminum tube, lunette towing eye, tow-bar head and retractable undercarriage. The tow-bar is available in lengths of 305 cm and 406 cm (120 in. and 160 in.).

Model TLS-550 lavatory service truck

The company's TLS-550 lavatory service truck is designed to service all present-day aircraft including the B-747, the DC-10 and the L-1011. The stainless steel tanks are sized to service two B-747 aircraft before recharging of the truck is required. A 66 cm (26 in.) square lift platform is provided to raise an operator, water and waste hose 305 cm (120 in.) above the ground. Other models, including a smaller and more versatile version, are available.

Passenger loading stair

Robert Mitchell's truck-mounted passenger stair, manufactured under licence, is designed to facilitate the loading and unloading of passengers from all aircraft having doorsill heights ranging from 254 cm to 508 cm (100 in. to 200 in.). The stair consists of a main section (stationary unit), and an adjustable section (telescoping unit) to allow precise positioning of the top platform at the aircraft doorsill.

Potable water truck

The model 402 potable water truck is designed to accommodate all aircraft. Its sanitary, stainless steel tank has a capacity of 1 700 L. The company also manufactures a potable water cabinet, which can be free standing on a base platform, mounted on a terminal wall or mounted on a passenger loading bridge. It is designed for all-weather use and can accommodate hose lengths up to 76 m (250 ft.).

Commissary/cabin cleaning truck

Model CC-570 truck, designed for transport and delivery of supplies, galley modules, equipment and personnel, interfaces with aircraft doors having sill heights ranging from 218 cm to 554 cm (86 in. to 218 in.).

Other Mitchell products include a mobile baggage and cargo conveyor which handles all bulk loading up to 906 kg (2 000 lb.); and a scissor-actuated mobile air traffic control tower including the base and the staircase.

Company Profile

Robert Mitchell Inc. was established in 1851 as a company specializing in foundry work and railway equipment. Over the years, through the acquisition of three reputable firms and, in an endeavour to keep abreast with rapid technological advances, the company diversified and modified its manufacturing facilities. For nearly 21 years, Robert Mitchell has been manufacturing airport ground equipment. A capable staff of some 700 employees enabled the company to become the largest manufacturer of aircraft loading bridges in Canada and to build a solid reputation in the airport equipment field in Canada and abroad. In addition to manufacturing a complete range of standard airport equipment, including commissary trucks, lavatory and water trucks, high-lift platforms, container loaders and trailers, aircraft deicers, tow-bars and passenger stairs, Robert Mitchell has the capability to manufacture special equipment to meet customer specifications.

Aircraft deicer

RPM Tech Inc.

184 Route 138
Cap-Santé, Quebec
Canada G0A 1L0
Tel: (418) 185-1811
Fax: (418) 285-4289
Telex: 051-3524
M. Papillon, Président
R. Lavigne, P. Engineer

Snowblowers

■ Since 1957, RPM Tech Inc. manufactures parts of, and is the exclusive distributor of Vohl snowblowers. The Vohl DV-904 snowblower is equipped with a Ford diesel engine and can also be equipped with either a Detroit diesel, a John Deere diesel or a Cummins diesel blower power unit. The Vohl snowblower has a capacity of up to 2 500 t per hour. Due to its sturdiness, it is a market leader in regions subject to heavy snowfalls. In Canada, the Vohl snowblower has a 70 per cent market share and in the Northeastern and Northern United States, a 75 to 80 per cent market share.

Through its subsidiary, Équipement Nenuk Ltée, the firm has broadened its range of snowblowers and has established an excellent distribution network in the United States. Also available are Blanchet snowblowers ranging in capacity from 800 t to 3 500 t per hour. In addition, RPM Tech Inc. has developed its own SP-5000 snowblowers. Capable of handling up to 5 000 t per hour, it is designed mainly for airports.

Runway sweeper

The company has been manufacturing and distributing ARA runway sweepers (equipment originates from Finland-Trademark ARA) since 1983. The ARA HP-3 runway sweeper is designed for high-speed removal of snow, slush, dirt and debris from runways all year round. The sweeper can be used as a trailer or as a semi-trailer. The broom is hydraulically driven, with the speed adjustable from the cab. Dual caster wheels, properly damped, guarantee a perfect runway contact even at high sweeping speeds. RPM Tech Inc. has an approximately 50 per cent share of the Canadian market for runway sweepers and is currently developing a new and lighter sweeper, the PV-112.

Forced air blower "The Jet Air II"

Designed and developed by RPM Tech Inc. in collaboration with the Canadian Ministry of Transport, the Jet Air II forced air blower is used to sweep, clean and dry airport runways through an air jet, which can reach a velocity of 700 km/h (435 m.p.h.). Based on a Ford C7000 4×2 chassis, power is provided by a Ford diesel engine developing 127 kW (170 hp). Air-conditioning, automatic transmission, power steering are standard equipment. The air flow of 6.2 m^3/s (13 000 cfm) is created by a two-stage centrifugal fan mounted on the rear of the chassis. A second diesel engine, a Cummins VT903 of 261 kW (350 hp), drives the fan via a clutch and flexible coupling. The forced air is piped to the front of the unit and controlled hydraulically in direction, angle of attack and height by a remote-control nozzle.

The driver's cab can accommodate the driver/operator and one passenger. It has an optional dual steering for right hand operation. The cab is insulated to provide a maximum interior sound level of 85 dB(A) under all operating conditions.

Long reach brush cutters

Manufactured by Société Rousseau S.A. (France) this equipment is used by highways department and certain companies to cut the brush on the sides of public roads and utilities right-of-ways.

Aircraft deicing system

An aircraft deicing system, designed by Kallax in Sweden, with whom RPM Tech Inc. has reached a manufacturing and installation agreement under licence, represents a new approach to deicing of aircraft. In addition to deicing, the system can be used for anti-icing whenever desired. Before an aircraft that requires deicing taxies out to the runway, it passes through the fully automatic deicing system which incorporates a sophisticated computerized control. Parameters programmed into the system include aircraft shape and size as well as weather conditions. Since the deicing process takes approximately one minute, it substantially reduces delays attributable to manual procedures. Excess deicing fluid can be recycled by feeding it back to a pumping station, where it is filtered and

then condensed to the desired concentration. Since nearly 90 per cent of the fluid can be recycled, it reduces the environmental dangers from glycol, which enters the airport drainage system.

On-and-off highway carrier

Tor Truck Corporation (formerly Pettibone Canada Ltd.) located in Mississauga, Ontario, is the truck manufacturer for the 5 000 t/hr snowblower. It also produces special-purpose vehicles for: use in forestry operations, oil and mining drilling, hydro-electric companies and crane carriers.

Company Profile

RPM Tech Inc. specializes in the manufacture, distribution and servicing of heavy equipment including snowblowers, runway sweepers and forced air blowers. The company's activities, centralized in Canada and the United States, also extend to Europe and North Africa. Over 65 per cent of the company's sales are exported out of Quebec. RPM Tech Inc., with a 9 300 m^2 (100 000 sq. ft.) facility in Cap-Santé, Quebec, is a leading manufacturer and distributor of snow removal equipment in North America. Équipement Nenuk Ltée, a wholly owned subsidiary of RPM Tech Inc., is engaged in the leasing and sale of heavy equipment. Équipements Blanchet Ltée, majority-owned by Nenuk, is a manufacturer of snowblowers, with its head office in Drummondville, Quebec. Tor Truck Corporation Inc., owned by RPM Tech Inc., is one of the only Canadian manufacturers of specialized motor vehicles for both on-and-off highway uses. Trudel & Piché (Agricole) Inc., half owned by RPM Tech Inc., specializes in the distribution of farm equipment, (Trademark: Ford and New Holland). Finally, Richard Piché International Inc., specializes in worldwide distribution of heavy equipment and North American technologies.

RPM Tech Inc., offers all its customers parts and maintenance services 24 hours a day, seven days a week for all the products it manufactures and distributes.

Jet Air II

Vohl snowblower DV-904

Sadler Inc.

1845 William Street
Montreal, Quebec
Canada H3J 1R6
Tel: (514) 931-4271
Telex: 055-60595
S. Sadler, General Sales Manager

Model LS-Q50 conveyor system

■ The Sadler Inc. LS-Q50 conveyor system is designed to simplify planning and installation and to provide reliable and trouble-free operation. Every straight length portion of the system has a built-in device so that when baggage or cargo accumulates, the rollers are prevented from rotating. Loads up to 23 kg (50 lb.) are accepted. The system has a unique polyurethane belt that enables each specially grooved roller to be independently driven from a common line shaft. The belts have a very high resistance to wear, are self-tensioning and do not require any adjustment. Switches, spurs, "c" square, 90° and 45° curves are available to allow an efficient means of routing, merging and diverting baggage and cargo.

Company Profile

Sadler Inc. designs, manufactures, installs and services baggage and cargo handling conveyors to customer specification. With a staff of 45 employees and a facility in Montreal totalling 3 350 m^2 (36 000 sq. ft.), Sadler has developed cargo accumulation conveyors. These conveyor systems have been sold to a number of companies in many industries throughout North America.

Conveyor system

Safeco Manufacturing Limited

947 Warden Avenue,
Scarborough, Ontario
Canada M1L 4E3
Tel: (416) 752-6740
Fax: (416) 752-0839
Telex: 06-963823
W.R. Sparfel, Sales and Marketing Manager
K. Robinson, Marketing Assistant

Bomb disposal suit

■ The Safeco Body Armour Bomb Disposal Suit provides ballistic and impact protection to those dealing with explosive ordnance emergencies. The suit and components meet the test and evaluation criteria relative to E.O.D. operational criteria and offer comfortable fit and freedom of movement. Testing and evaluation were carried out in accordance with the NATOSTANAG-2929 Specification.

The following components make up the complete suit: jacket with attached collar, pants, breast panel, groin panel, helmet and visor assembly, carrying bag for suit, carrying bag for helmet, and instruction brochure for donning the suit components. The suit is offered in three sizes: small, regular and tall. Each suit will accommodate a wide range of body builds. The model E.O.D. V Helmet fits a variety of head sizes comfortably and is supplied with a set of foam fit pads and a powered ventilation system with built-in microphone and earphone for the addition of communications equipment. Four balaclavas are included for hygenic reasons. All ballistic inserts in the suit textile components are composed of multi-layered Kevlar material, totally enclosed within a vapour barrier. The outer shell is Nomex III Aramid, inherently flame-retardant material. The breast and groin armour panels consist of single units of preformed Lexan polycarbonate, combined with multi-layered quilted Kevlar, and enclosed in an envelope of Kevlar material and an additional outer case of PVC on nylon for moisture protection.

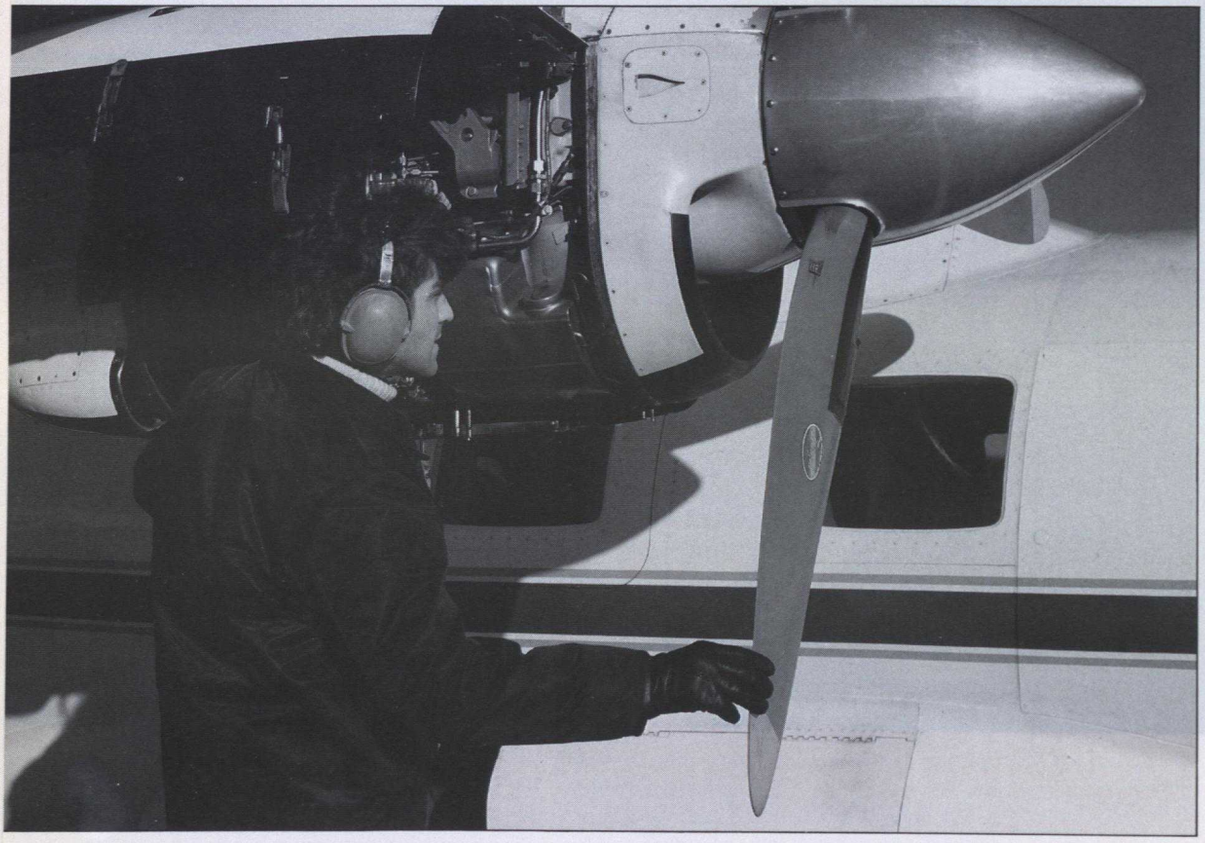
Model 258 Earguard

The Safeco Model 258 Earguard offers top-of-the-line hearing protection and is government-approved for high-noise level areas. The earguard has these built-in features:

- High-impact resistant styrafil earcups
- Excellent noise reduction liquid filled cushions
- Bright chrome-plated adjustable steel headband
- Lightweight padded nylon mesh headband cover.

Company Profile

Safeco Manufacturing Limited maintains a 9290 m^2 (100 000 sq. ft.) production facility in Scarborough, Ontario, where it manufactures some 2 000 different personal protective devices including Hearing Protection and Explosive Ordnance Disposal Protective Suits. These products are in service on every continent in the world. The company is seriously committed to an ongoing program of research and development.



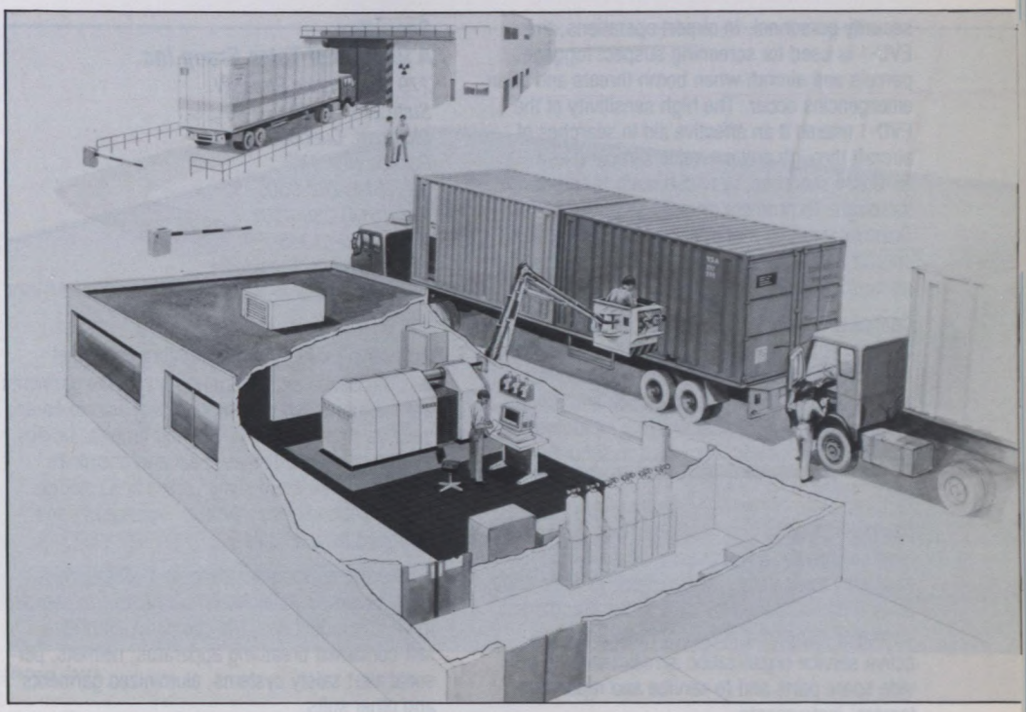
Safeco Earguard

SCIEX
A Division of MDS Health Group Limited

55 Glen Cameron Road
Thornhill, Ontario
Canada L3T 1P2
Tel: (416) 881-4646
Fax: (416) 881-9832
Telex: 06-964722
N.M. Reid, Vice-President, Marketing
P.T. Urwin, Product Manager, AROMIC/CONDOR

AROMIC® cargo examination system

■ In 1985, SCIEX introduced the AROMIC Cargo Examination System, a ''vapour detector'' used in surveillance systems. The AROMIC examination system is used to detect and identify, without manual inspection, minimal quantities of commonly smuggled substances such as explosives, drugs and alcohol. A continuous sampling inlet system obtains a sample for analysis by the computer-controlled mass spectrometer. Any chemical related to the contraband will activate an alarm. The AROMIC system is available in two configurations: the cargo surveillance that utilizes an AROMIC system combined with a high-energy X-ray technique to screen vehicles, containers and air pallets; and a stand-alone AROMIC system in a transportable platform, called CONDOR.



AROMIC cargo examination system

Cargo detection system

The CONDOR Cargo Detection System incorporates SCIEX's patented AROMIC system. It is mobile, simple to operate and performs rapid computerized identification of a broad range of explosives and hidden drugs in passenger baggage or large land, air or sea cargo containers.

Company Profile

SCIEX, incorporated in 1970, is a Canadian company involved in the design, development, manufacture and marketing of mass spectrometer based products used to sense minute traces of chemical compounds. A pioneer in ultra trace chemical analysis, SCIEX is a recognized leader in innovative detection systems based on over 15 years of proprietary technology and know-how. The company employs over 120 people, including research and development staff, as well as a full design and manufacturing group.

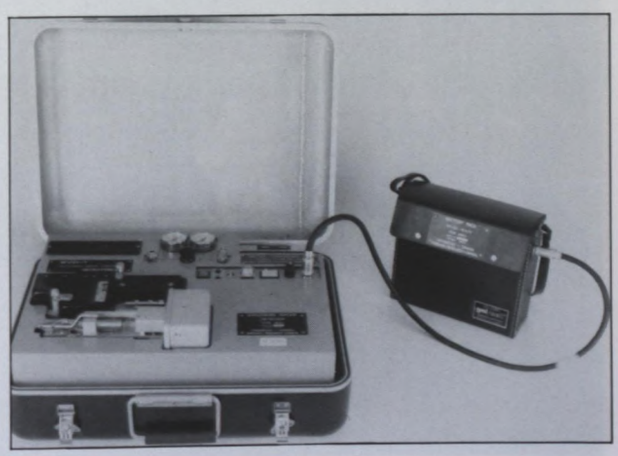
Scintrex Limited

222 Snidercroft Road
Concord, Ontario
Canada L4K 1B5
Tel: (416) 669-2280
Fax: (416) 669-5132
Telex: 06-964570
Cable: Geoscint Toronto
G. McCarthy, Product Sales Specialist
Dr. G. Rosenblatt, Director, Analytical Instrument Sales

Explosives vapour detector

■ The Scintrex EVD-1 Explosives Detector has an unparalleled record as the most sensitive and reliable explosives detector available anywhere. Its development was based on more than 10 years of research on the detection of explosives by Canada's National Research Council under the sponsorship of Transport Canada. Over the past three years, the EVD-1 has been used in routine operations at international airports in Canada and in a number of security applications around the world.

Some of its important features are: freedom from false alarms, ultra-high sensitivity for explosives detection (in the low parts-per-trillion level) and ruggedness and reliability. The EVD-1 is fully computerized to allow effective operation by



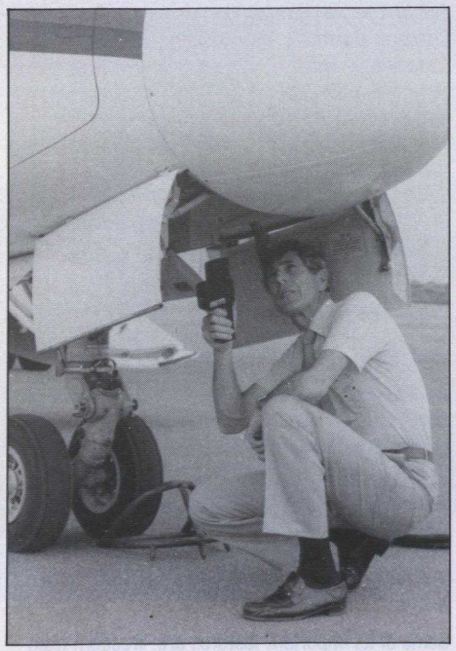
The Scintrex EVD-1, designed to detect vapours from concealed explosives

security personnel. In airport operations, the EVD-1 is used for screening suspect luggage, parcels and aircraft when bomb threats and other emergencies occur. The high sensitivity of the EVD-1 makes it an effective aid in searches of aircraft through outflow-valve sampling and on-board searches, provided such searches are thorough. To promote proper use of the EVD-1, Scintrex requires that operator training be taken on purchase of the instrument. Scintrex provides training at the customer site or at its plant.

Company Profile

Scintrex is a diversified high technology company engaged in the design, development and manufacture of precision instrumentation and equipment for use in a number of fields including the geophysical, nuclear, defence and security sectors. For over 25 years, Scintrex has manufactured state-of-the-art instrumentation which has been used in critical applications requiring high sensitivity, ruggedness, reliability and the capability to operate under extreme climatic conditions. The company provides a high standard of customer support and quality assurance. An active service organization is maintained to provide spare parts and to service and repair customers' instruments.

The company has an active research and development program. Work is currently underway on rapid explosives screening devices to be used in conjunction with airport security equipment such as metal screening gates and X-ray baggage inspection stations. As well, Scintrex is developing detectors for locating illicit narcotics such as cocaine, heroin and amphetamines.



The Scintrex Portable Analyzer and independent sampler unit

Securitex
A Division of Totec Group Inc.

279 Sherbrooke Street W.
Suite 211
Montreal, Quebec
Canada H2X 1Y2
Tel: (514) 282-0503
Fax: (514) 288-4101
Telex: 055-61366
M. Desrosiers, President
C. Barbeau, Marketing Manager

Protective clothing for fire-fighting personnel

■ The Securitex fire-fighting protective garments are manufactured with high-quality aramid fibres, such as Nomex, PBI, Kevlar and firowear fabrics, to protect against flames, heat and chemicals. Available in different styles, sizes and colours, the suits are very comfortable, lightweight and designed for user safety.

Furthermore, Securitex produces accessories such as gloves, balaclavas and hoods. To complement its product line, the company supplies a self-contained breathing apparatus, helmets, personal alert safety systems, aluminized garments and other suits.

Company Profile

Securitex, established in 1981, is one of Canada's leading design and manufacturing firms of specialized protective garments for fire fighters and industrial workers. With a 2 350 m^2 (25 000 sq. ft.) manufacturing facility, Securitex supplies protective garments to fire-fighting personnel at many Caribbean and Canadian airports.

Protective clothing for fire-fighting personnel

Shelter Engineering and Marketing Services Ltd.

764 Edistel Crescent
Mississauga, Ontario
Canada L5H 1T4
Tel: (416) 274-4134
Fax: (416) 274-0140
C.A. Roylance, President
D. Eberle, Vice-President, Administration

Hangar doors

■ Shelter Engineering's hangar door product range includes horizontal sliding type systems, vertical bi-fold systems and vertical/tilt panels. The horizontal type doors may be two-way systems, one-way systems or floating jumbo panels. The systems can be retrofitted into hangars to replace existing door systems or to add a larger one with the necessary supporting structural work for the larger door. Projects at the Sault Ste. Marie and Toronto airports were of the latter type. The power system on the horizontal sliding doors is either externally mounted to the inside surface of the lead panel or internally mounted within the thickness of the door panels. The vertical bi-fold type doors are powered by a bottom rotating shaft with the appropriate motors and controls. The complete support structure, mechanical and architectural sheeting and insulation can also be supplied for a hangar door system.

Company Profile

Shelter Engineering and Marketing Services Ltd., a wholly owned Canadian company established in 1978, supplies hangar door systems and multi-bay, single-span and multiple-span hangars to the aviation industry. The firm negotiates contracts, designs the system and subcontracts the construction of hangars on a specific basis to suit the exact requirements of a particular customer. Over 25 Shelter hangar door systems have been supplied, including installations in Val d'Or, Quebec; St. Anthony's, Newfoundland; Halifax International Airport; Cold Lake, Alberta; Quebec City, Quebec; Pearson International Airport, Toronto; and Dorval International Airport.

Hangar doors

Siemens Electric Limited

1180 Courtney Park Drive
Mississauga, Ontario
L5T 1P2
Tel: (416) 673-1995
Fax: (416) 673-5855
Telex: 06-968841
TTX: 5001010
F. Rang, Manager, Airport Technology

Airport lighting

■ Siemens manufactures a full range of airport lighting systems and associated power supply and electronic equipment. Through wide experience in many countries and over many years, the company has gained the know-how to produce reliable equipment that meets the most stringent standards. A worldwide service organization is part of the company's total commitment to quality.

Specific airport products supplied by Siemens in Canada include:

- field electric centres
- constant current regulators
- high intensity and medium intensity edge lights
- approach, threshold, and taxiway lights
- runway centre line inset lights
- runway touch-down zone inset lights
- runway turn-off inset lights
- runway threshold inset lights and taxiway inset lights
- isolating transformers
- 5 kV cable for airport lighting and 5 kV cable connectors
- cast from an alu fixture mounting
- breakable couplings for edge lights
- cable pull pits
- earth stakes for fixture mounting
- apron flood lights and poles
- windsocks and towers
- 5 kV transfer switches
- power distributions equipment — 120/208 V, 600 V and 5/15 kV
- airport control equipment
- PAPIs (precision approach path indicators)
- REIL (runway end identification lights)
- rotating beacons
- control panels
- stop bar ''wig wag'' lights.

Company Profile

The name Seimens has been connected with innovative technology since Werner von Siemens invented the first needle telegraph in 1847. Today, the Siemens group of companies is a world leader in electrical and electronic products, with facilities in 128 countries. The Canadian subsidiary, founded in 1912, has played a major role in Canada's development and now has four manufacturing plants in the country and 14 sales offices. Siemens provides field service for all its products, as well as consulting and project planning to help with the implementation of its

systems. Its staff of fully trained technicians are available to customers at every stage, from installation and supervision, to maintenance and repairs. Siemens' preventative maintenance programs rely on fixed cycles of inspection to minimize downtime and reduce service costs. Monitoring and feedback of field data by the Customer Service Department help in the repair and maintenance process.

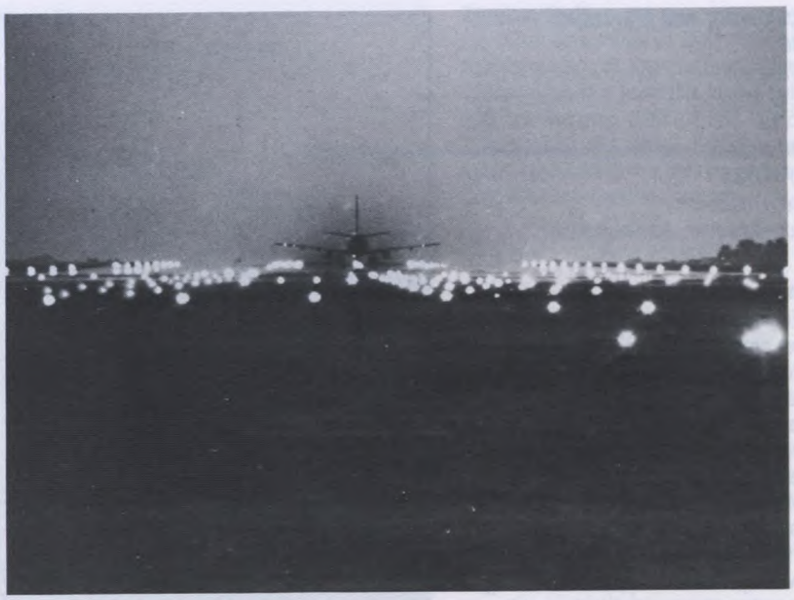
SMI Industries Canada Ltd.

2909 Kepler Street
Ste. Foy, Quebec
Canada G1X 3V4
Tel: (418) 658-0549
Telex: 051-31514
G. Boulet, Sales Manager
J. Martineau, Vice-President, Research and Development

Series 324D airport runway sweeper

■ The SMI Industries Canada Series 324D airport runway sweeper was designed to clear large areas, quickly and efficiently, all year round. Coupled to almost every size towing vehicle, the Series 324D sweeps a strip 3.7 m (12 ft.) wide on each pass, effectively, at speeds of up to 48 km/h (30 m.p.h.). The SMI Series 324D airport runway sweeper is equipped with a diesel power unit producing 200 kW (270 hp). The broom is 4.2 m (14 ft.) long with a diameter of 0.9 m (3 ft.), made of tufts fastened to rings mounted on a tubular arc. The broom is free to move up and down to follow irregularities of the runway and can be swung 30° to either side into the working position. For cleaning runway lights a selector valve on top of the engine cowling above the main control panel reverses the rotation of the nozzles relative to the broom. With the broom out of the way, the machine can be driven with one air nozzle close to the line of lights.

Other models with different power units and broom drives are available. SMI also offers a self-contained unit with a hydrostatic broom drive, a 200 kW (270 hp) power unit, and a blower capacity of 29 000 m^3/h (1 024 000 $ft.^3$/h). SMI sweepers have been sold to the United States Air Force and Navy for use at most of their overseas airports. More than 50 SMI sweepers are also present at airports in the United States, Iceland, Europe, Korea and Argentina, and over 60 units have been sold to the Canadian Department of National Defence, Transport Canada and a number of Canadian agencies.



Design aspects of modern airfield ground lighting systems

Model 7500 snowblower

SMI manufactures a complete line of self-propelled and detachable snowblowers with capacities ranging from 2 000 to 7 500 t/h. The SMI 7500 is a powerful self-contained all-diesel snowblower comprising an all-wheel-drive truck chassis with cab-over engine, right-hand drive for maximum visibility and easy operation. The independent diesel engine is mounted over the rear axle with appropriate gearing to power the snowblower. Use of a telescopic loading chute allows snow to be cast at accurately controlled distances. The four-wheeled vehicle, having a capacity of 2 600 t/h, is powered by a 160 kW (210 hp) Detroit diesel engine. The SMI 7500 snowblower is specially designed to clear runways at a speed of 50 km/h (31 m.p.h.). SMI snowblowers have been exported to countries including Argentina, the United Kingdom, the United States, Yugoslavia and Denmark.

SMI RBB 2000 snowblower

The SMI RBB 2000 is a unique multi-purpose vehicle using the single engine concept. The unit which is normally equipped with a powerful rear mounted air blower (29000 m^3/h) can alternately power a front mounted 2 700 t/h high speed blower, a sweeping broom head or a plow. Use of close-loop hydrostatic systems for carrier and attachments along with the single engine principle make this optimum design the best choice for medium size airports.

Firemaster Model CRV-4-1000 crash-fire-rescue vehicle

The SMI Firemaster Model CRV-4-1000 is a complete crash-fire-rescue vehicle consisting of a chassis and a fire-fighting, water and foam system. The unit is designed and constructed utilizing modern techniques and components and is in compliance with the latest standards and regulations put forth by the Federal Aviation Administration, the Federal Highway Administration Motor Carriers Safety Regulations, the National Fire Prevention Association and the Department of National Defence. The foam tender produced by SMI is based on a special vehicle 4X4 or 6X6 chassis with a two- or four-man cab. The vehicle is capable of achieving speeds up to 100 km/h (62 m.p.h.) and accelerating from 0 to 80 km/h (0 to 50 m.p.h.) in 34 seconds. The water and foam tanks have a capacity of 4 550 and 600 L (1 000 and 130 imperial gallons), respectively.

Aircraft tow tractors

SMI manufactures three models of aircraft tow tractors with draw-bar pulls of 2 720 kg (6 000 lb.), 6 580 kg (14 500 lb.) and 13 620 kg (30 000 lb.). The SMI model T-14500 tow tractor, having a draw-bar pull of 6 580 kg (14 500 lb.), is powered by a V8 Chrysler LH-318 engine with a power rating of 122 kW (164 hp) at 3 600 rpm.

Company Profile

SMI specializes in the manufacture of self-propelled rotary snowblowers, detachable snowblowers, airport runway sweepers, airfield crash and rescue vehicles and aircraft tow tractors. Formerly owned by Caelter Enterprises Ltd., SMI is now a wholly owned Canadian company with its head office in Ste. Foy, Quebec and a modern production facility located in Bathurst, New Brunswick. The 10 260 m^2 (110 400 sq. ft.) facility includes space for fabrication, material preparation, a paint booth, a machine shop, assembly, a prototype area, a testing room, and stores. With 70 employees working in the Bathurst facility, SMI also has a number of people employed in the research and development department in Ste. Foy. Marketing of SMI products is through a full network of distributors across Canada, the United States and in several other countries throughout the world.

Crash-fire-rescue vehicle

RBB 2000 snowblower

Snap-on Tools of Canada Ltd.

1069 Begin Street
Saint Laurent, Quebec
Canada H4R 1V8
Tel: (514) 335-0410
Telex: 055-60592
.TO 17207
D. McEvoy, Sales Manager
P. Senecal, Industrial Representative

Tool sets

■ Snap-on Tools of Canada Ltd. manufactures 14 different types of tool sets for transport, passenger and cargo aircraft including the B-747, the DC-10 and the A-300. The types of tool sets include a portable mechanic's set, an electronics set, a flight line mechanic's set, JT-9D and CF-6 engine sets, and radio and instrument shop sets. Snap-on also has seven tool sets for business and utility aircraft as well as three sets for helicopter maintenance. Thirteen tool sets are manufactured for military aircraft including the Lockheed C-130, General Dynamics F-16, Northrop F-5 and most of the Mirage models. Other types of hand tools are also available for aircraft maintenance.

Model WB 200AIR aircraft wheel balancer

A computerized aircraft wheel balancer, Model WB 200AIR, uses computer electronics and advanced sensing system displays. With precise solid-state technology, this unit provides balancing of aircraft wheels up to a 112 cm (44 in.) tire diameter.

TIF aircraft leak detector

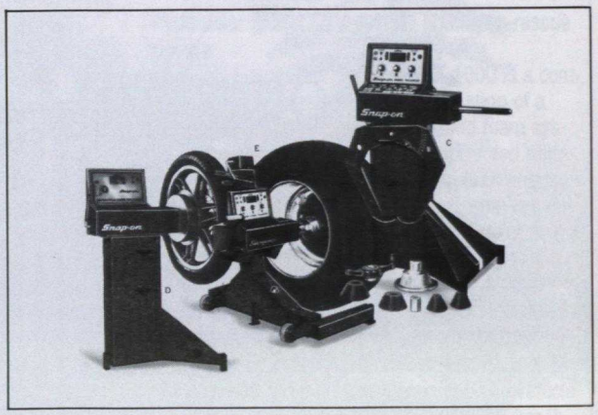
The TIF 5500 automatic halogen leak detector can detect leaks in aircraft through a computer-like beeping signal, which increases in both speed and frequency as the leak source is approached. It automatically recalibrates itself when it is turned off, and the two batteries provide for cordless operation.

Snap-on also markets a wide selection of spline hand tools to meet almost any spline wrenching need. The double-hex wrenches and sockets comply with the SAE aerospace standard AS-954C which states that wrenches shall not touch the upper 5 per cent of the fastener's corners. Spline fasteners are gaining greater acceptance on a worldwide basis, especially in the aerospace industry.

Company Profile

Snap-on Tools of Canada Ltd., with an 18 580 m^2 (200 000 sq. ft.) manufacturing plant in Concord, Ontario, offers professional mechanics one of the most complete lines of top-quality tools, from the simplest hand tools to the most advanced analysis systems. Experienced, highly trained field managers and an efficient distribution system enable Snap-on dealers to provide superior professional assistance. With more than 60 years of tool-manufacturing experience and more than 9 000 items in the current product line, Snap-on has produced over 15 000 special tools that have provided the aerospace and aircraft industries with solutions to a number of difficult problems. As examples, Hughes Aircraft Corporation uses a specially designed torque wrench for radar ground support equipment; Pratt & Whitney Aircraft Corporation uses a special T-handle wrench to service equipment on the F-100 jet engines used in F-16 aircraft; and Northwest Airlines has used a special tool to remove screws from the aircraft surfaces.

Tool sets



Wheel-balancing equipment

Spilsbury Communications Ltd.

120 East Cordova Street
Vancouver, British Columbia
Canada V6A 1L1
Tel: (604) 684-4131
Fax: (604) 689-8247
Telex: 04-55482
D. Carle, President
B. Tuyssuzian, Manager, Export Sales

Model LWX-100A non-directional radio beacon transmitter

■ The Spilsbury Communications Ltd. LWX-100A is a 100 W PEP low-frequency single-sideband crystal-controlled transmitter, designed for fixed or transportable non-directional radio beacon installations under various environmental conditions. Typical applications include airfields, helicopter pads, offshore oil rigs and support vessels. Two LWX-100A transmitters may be used with an AC-72A automatic switchover unit to provide double reliability in the event of failure of the primary transmitter. The equipment is normally powered by either a 115 V, 60 Hz or a 230 V, 50 Hz single-phase ac source. Alternatively, a 36 V dc battery supply can be used. The Spilsbury beacon system includes the LWR100 beacon monitor receiver and an antenna system, complete with an autotune antenna coupler.

Digital voice announcers

The company produces a range of digital voice announcers which are fully solid state, so that reliability is exceptionally high and maintenance requirements are exceptionally low. They employ a Z80 microprocessor based on Codec analogue/Digital converters to provide high-quality announcements, replacing many types of mechanical recording systems. The digital voice announcer's features and benefits include a clear, undistorted audio, a permanent E-PROM message feature (no lost message as a result of power failure), the capability to answer up to 16 independent telephone lines, and the capability of being remotely programmed from a DTMF telephone.

Company Profile

Spilsbury Communications Ltd. was established in Canada in 1941, and over the past four decades has earned a world reputation for excellence in two-way radio communications. Spilsbury's products are in use by governments and private agencies in more than 60 countries. Every day the company's equipment proves its superiority in hostile climatic conditions from the Arctic to the tropics. All Spilsbury equipment is researched, designed and tested to government-approved standards in the company's main plant and head office in Vancouver, British Columbia.

Digital voice announcer

Non-directional beacon transmitter

T.D. Communications Limited

Bay H, 1007 – 55th Avenue N.E.
Calgary, Alberta
Canada T2E 6W1
Tel: (403) 274-4663
T.D. Whittle, President

Weather information system

■ The T.D. Communications Weatherwatch is a fully automatic, microprocessor-controlled, weather information collection, reporting and display system. Utilizing sensors located at the airport, this automatic weatner observation system provides the airport operator, remote weather centre and pilot with accurate weather information. Weather data which can be obtained from the sensors includes current wind velocities, average and peak gusts, wind direction, temperature and dew point, precipitation and altimeter setting. Available as options are ceiling and visibility instrumentation that would enhance the total weather picture at airports. For airports not manned on a 24-hour basis, the Weatherwatch system can be equipped with a modem which will have both ''dial in'' and ''dial out'' capabilities. By the addition of a voice synthesizer and VHF radio to the Weatherwatch system, pilots of inbound aircraft will be able to automatically interrogate the system to obtain current weather conditions.

T.D. Communications also manufactures non-permanent, runway light sets for small remote airstrips between 760 m to 1 520 m (2 500 ft. to 5 000 ft.).

VHF radios

The firm is a supplier of non-directional beacons, with a range up to approximately 148 km (80 nautical miles), and VHF radios. Different types of VHF radios can be supplied including ICOM VHF multichannel, hand-held radios, ground-based VHF base stations for small airports, and hand-held VHF radios for remote airstrips, where conventional power is not available.

Company Profile

T.D. Communications, established in 1961, supplies, installs and maintains radio systems. Production, maintenance and research and development facilities are divided between two locations and employ engineers, technicians and support staff. T.D. Communications has supplied its products to a number of large Canadian companies, and is currently supplying radio systems to customers in Botswana, Nepal, Ghana, Greenland and the Canadian Arctic area. The company maintains a comprehensive spares inventory for product support.

Weatherwatch digital readout and processor unit

VHF radios

3M Canada Inc.

P.O. Box 5757
London, Ontario
Canada N6A 4T1
Tel: (519) 452-6146
Fax: (519) 452-6156
Telex: 064-5886
R. Creamer, L. Talbot, Marketing, Electrical
T. Lawson, Marketing, Stormscope
J. Citton, Marketing, Dynatel

Resources and supplies for electrical conductors and cable splicing, joining, termination and holding

■ 3M provides a full range of electrical supplies including: wire marker tape (epoxy non-smear film); wire marker dispensers; heat shrinkable products such as cable sleeves for installing and repairing electrical installations; vinyl plastic electrical tape (durable, all-weather use); linerless rubber splicing tape (excellent physical and electrical properties); quality terminals, connectors and cable ties.

Cable locators

Two models of locators to locate previously installed cable are available. The Dynatel 500 A/C Cable Locator accurately locates the path of all buried or underground and interior-run CATV cable — including PVC jacketed and continuously grounded armoured cable — without service interruptions, using any of three frequencies. Accurate cable depth measurements are made directly or by the 45° triangulation method. The Dynatel 573A/P Earth Return Fault and Cable Locator accurately locates the path and depth of all buried or underground and interior-run power cable — including lead sheath, armoured and unjacketed cable using any of three switch-selectable frequencies. The set pinpoints damage in cables including pinhole faults closely spaced along a cable section.

"Stormscope" weather mapping system

The 3M "Stormscope" WX-120 is an accurate, advance warning system that maps approaching thunder storms within a 352 km (220 m.) radius. Easy to install and use, the WX-120 receives electromagnetic radio frequency signals and plots them in the form of dots on a CRT. Thunderstorms are indicated by clusters of dots that reveal the severity of the storm. The system is both an excellent alternative and a valuable complement to radar because, locating electrical discharges rather than precipitation, it provides information that radar cannot. The WX-120 provides real-time information, is not dependent on outside power or telephone lines and is compact, portable and easy to read. An inbuilt alarm warns the operator when the rate of incoming data reaches a pre-set point. The unit also has an alarm relay for remote alarm or equipment shutdown systems.

Company Profile

3M Canada Inc. has production facilities in London, Perth and Toronto, Ontario, and in Morden, Manitoba. The company conducts ongoing research in many areas. It has a large volume of foreign business, especially to 3M subsidiaries.

The 3M "Stormscope" WX-120

Trecan Combustion Limited

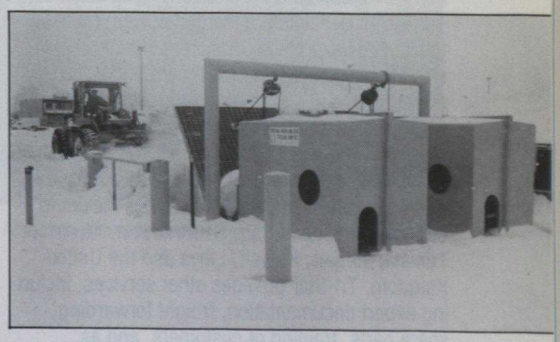
4540 Dixie Road
Mississauga, Ontario
Canada L4W 1N2
Tel: (416) 625-4030
Fax: (416) 625-5075
Telex: 09-961261
P. Miller, General Manager
F. Morrison, Technical Sales

Snow melting equipment

■ Whenever snow disposal by the usual trucking methods is either impractical or too costly, a Trecan Combustion Limited snow melter is a proven, efficient and simple solution. The equipment consists of a melting pit (or tank) built near the air terminal ramp into which snow is plowed continuously. The unique Trecan burner heats and agitates water in the snow melter pit. This hot water comes into contact with the snow that has been plowed into the pit and the resultant melted snow is emptied into the storm water drains. The unit shown is a stationary model; portable and mobile models are also available. At several of the world's busiest airports, such as those administered by the Port Authority of New York and New Jersey, Trecan snow melters are used in the ramp area in order to eliminate snow removal truck congestion and to maintain a bare pavement condition at all times.

Company Profile

Trecan Combustion Limited has been involved in the combustion/incineration systems business for 25 years. It's main product for the aviation industry is fired snow melting systems for airport aprons and parking garages. In its 25 years, Trecan has supplied over 100 snow melters to major airports in the Northern United States and in Canada. The first unit installed by Trecan, almost 25 years ago, is still operational. Trecan service and parts offices in the United States are located in Boston, Massachusetts; Buffalo, New York; and Chicago, Illinois.



Snow melting equipment

Tri-Star Industries Limited

P.O. Drawer 308
Yarmouth, Nova Scotia
Canada B5A 4B3
Tel: (902) 742-9254
Fax: (902) 742-7630
Telex: 019-38562
K. Condon, Managing Director
G. Brown, Assistant Manager

"Canadian" custom ambulance

■ The Tri-Star Industries Limited "Canadian" custom ambulance is designed to the specific requirements of the customer. The "Canadian," supplied with a Ford or General Motors chassis, incorporates over 10 years of design and problem solving in the medical field. The ambulance unit includes equipment such as electric aspirator-suction systems; first-grade plywood laminated cabinetry for storage of medical supplies; all-electrical equipment; lighting, siren and speaker systems, which are controlled by the Tri-Star command centre (strategically located for the driver); an emergency warning and public address system; and an oxygen system. The unit can accommodate two stretcher patients or three sitting patients.

Tri-Star also supplies a vehicle for physically disabled people. The van eases movement of the passengers from one airport complex to another and is equipped with three or more wheelchair tie-downs.

"Canadian" custom ambulance

Microcom 10 siren

Tri-Star's latest product, the Microcom 10 siren, has a state-of-the-art microprocessor using solid-state components. Its rugged design ensures that the siren is one of the most reliable audible warning systems in the industry. The Microcom 10 has an externally mounted fuse holder and pop-out chassis which allow rapid and easy servicing.

Microcom 10 siren

Company Profile

Tri-Star Industries Limited, established in 1973, manufactures ambulance vehicles and other types of emergency equipment to customer specifications. These include police cars, police vans, various types of buses, rescue vehicles, tow trucks, mobile hospitals and recreational vehicles. In addition to customizing and converting vehicles, Tri-Star manufactures emergency warning systems. The Electronics Division manufactures an electronic siren labelled Microcom 10 for the domestic and export markets. In addition, various types of sirens and lights are assembled under licence from a major North American manufacturer. Tri-Star's export operation has supplied many customers in over 15 countries including the governments of Iraq, Saudi Arabia, Morocco, Tunisia, Jordan, Kuwait, Libya and the United Kingdom. Tri-Star provides other services, including export documentation, freight forwarding, spare parts, training of customers, and as required, export financing packages.

Up-Right Scaffolds Ltd.

108 Industrial Drive
Whitby, Ontario
Canada L1N 5Z8
Tel: (416) 668-7701
Fax: (416) 668-0376
Telex: 06-981395
B. Kern, General Manager
J.T. Brooks, Sales Manager

Aircraft maintenance docks

■ Up-Right's custom-designed work platforms are engineered and manufactured to meet customer needs for non-standard heights or unique workplace requirements. The platforms are composed of high-strength, aluminum alloy tubing and other standard aluminum scaffold component parts and can be designed to withstand strong winds, when they are used outside a hangar.

Self-propelled scissor lifts

Up-Right fabricates a wide variety of self-propelled scissor lifts for maintaining and servicing aircraft. The lifts are battery powered and extend to a maximum working height of 14.3 m (47 ft.).

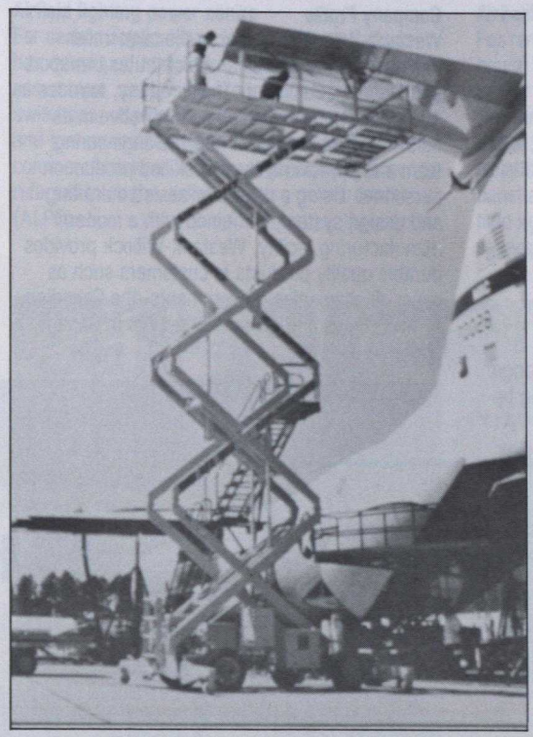
Telescopic personnel lifts

The company manufactures telescopic personnel lifts for general maintenance of buildings, exterior lighting and other requirements. There are 13 models available, allowing working heights of up to 13.4 m (44.ft.).

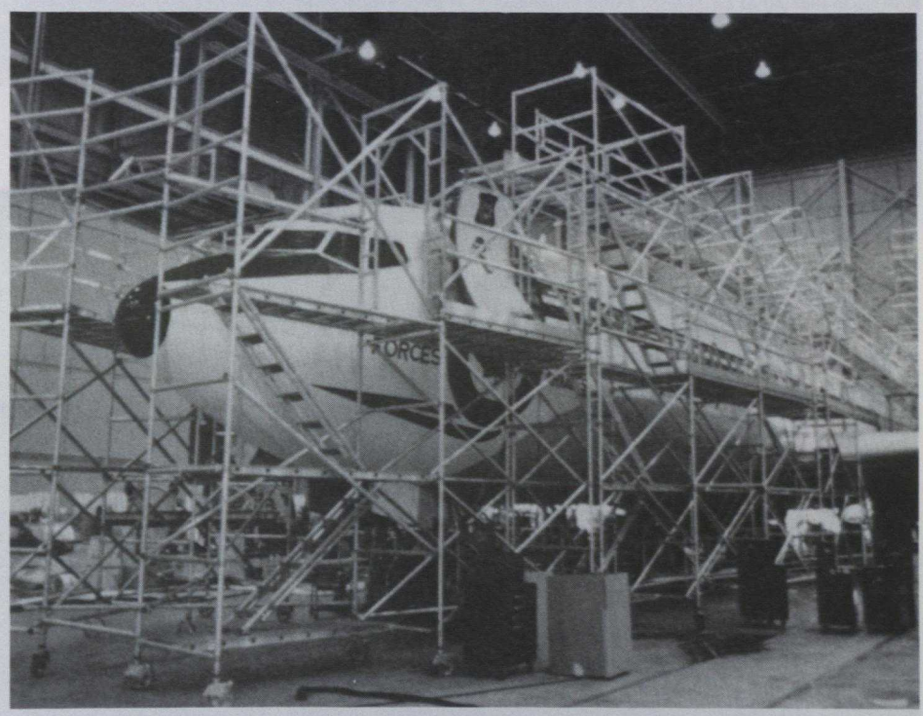
Up-Right produces a wide variety of portable aluminum scaffolds for general maintenance purposes, with working heights up to 23 m (75 ft.). The company can also produce towers for meteorology or radar systems with heights up to 150 m (500 ft.).

Company Profile

Up-Right Scaffolds Ltd, established in 1947, is a leader in the manufacturing and marketing of lightweight aluminum scaffolds, custom-designed aircraft maintenance docks and aircraft inspection equipment. The company also produces self-propelled scissor lifts, used for aircraft maintenance and inspection. The company's work platforms are designed to increase worker productivity by providing safe and quick access to overhead and hard-to-reach areas. Most of the work platforms marketed by Up-Right are designed, manufactured and tested at one of four company facilities, three of which are located in North America and one in Europe. The company's primary customers include Air Canada, the Department of National Defence, Canadair and de Havilland.



Self-propelled scissor lift



Aircraft maintenance dock

Westank-Willock
A Division of Willock Industries Ltd.

1155 Park Street
Regina, Saskatchewan
Canada S4N 4Y8
Tel: (306) 525-6741
Telex: 071-2728
Telecopier: (306) 569-8677
A.C. Jackson, President
K.E. Nugent, Vice-President, Sales and Marketing

Fuelling tenders

■ With its varied production of tank truck trailers, Westank-Willock offers a complete range of aviation fuelling tenders capable of carrying up to 75 000 L (16 500 imperial gallons) of Jet ''A1'' or Jet ''B'' fuel, and of pumping at a rate of over 2 730 L/min (600 imperial gallons per minute). These refuellers service today's aircraft with maximum safety, efficiency and reliability. The built-in quality of the automatically welded longitudinal tank seams, and the superior trailer design ensure durable and excellent handling trailer configurations. The trailers can be custom designed in steel, aluminum or stainless steel.

Westank-Willock has supplied its clients with many refuellers, including truck tank AVGAS refuellers with capacities up to 13 650 L (3 000 imperial gallons), truck tank JET A/B refuellers with capacities up to 22 750 L (5 000 imperial gallons), and trailer tank refuellers with capacities up to 75 000 L (16 500 imperial gallons), designed to fuel all jet aircraft including the DC-10, the L-1011 and the B-747.

Company Profile

Westank-Willock, a leader in the tank trailer industry, manufactures and distributes transport and storage equipment. The company, founded in 1969, is young, dynamic and innovative in its field. The firm employs a capable engineering team and approximately 150 skilled production personnel. Using a computer-assisted drafting and design system, combined with a modern manufacturing facility, Westank-Willock provides durable quality products to customers such as major oil companies, governments, the Canadian Armed Forces and general industries in Canada.

Jet ''A-1'' refueller — 13 650 L
(3 000 imperial gallons)

Jet aircraft refueller — 75 000 L
(16 500 imperial gallons)

Westinghouse Canada Inc.

3365 Harvester Road
P.O. Box 5040, Station A
Burlington, Ontario
Canada L7R 3Y8
Tel: (416) 528-8811
Fax: (416) 528-8811 ext. 4105
Telex: 061-8242
A.B. Fletcher, Power Systems Marketing
K. Peterson, Manager, Data Communications Products

Type RSS constant current regulator

■ The Westinghouse Canada Type RSS constant current regulator provides constant current output with high accuracy for a load of variable impedance from either a commercial ac power supply or a stand-by diesel generator. Constant current is required in series circuits for approach, runway, taxiway and VASIS lighting in order to maintain constant brightness to suit airport visibility conditions. The regulators are MOT, CAS and FAA approved. Each regulator can be set locally or remotely from the control tower to produce five different constant current outputs, corresponding to five steps of brightness. The RSS regulator employs solid-state devices in its power and control circuits which result in advantages, including high reliability of operation, high-performance operation due to fast response speed, and soft start, which conserves lamp life. The regulator is designed for minimal maintenance, light weight and compactness. Westinghouse manufactures seven RSS models with ratings ranging from 7.5 kW to 70 kW.

The Westinghouse Type RSSL constant current regulator is designed for small and medium-size airports which have low-voltage power distribution systems (480 V and less). Six RSSL models are available with ratings ranging from 4 to 30 kW. The firm also manufactures the Type SSRW constant current regulator, designed for small airports that have power distribution systems of less than 250 V. Two SSRW models, suitable for wall mounting, are available with ratings of 4 and 7.5 kW.

Airfield lighting control centre

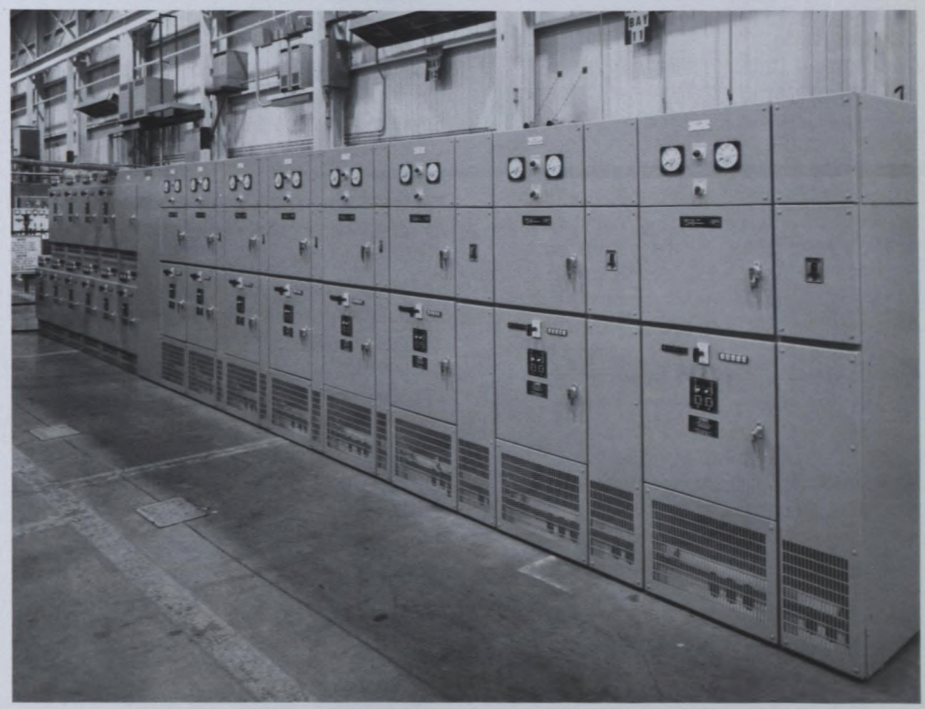
To meet the various airfield lighting control requirements, Westinghouse has developed a number of switchgear cells, each with a specific function. Each cell is designed to have the same height and depth dimensions, and identical bus and wireway openings so that they can be lined up in a co-ordinated switchgear assembly referred to as an airfield lighting control centre (ALCC). The most important cell is the constant current regulator for the series lighting circuits. The switchgear assembly provides complete flexibility for future expansion. It also eliminates the need for a distribution panel with feeds to individual constant current regulators, and for a termination board used for testing and isolating of field circuits.

Airfield lighting power centre

For certain applications, Westinghouse Canada has developed a modular, self-contained, factory-assembled, steel shelter to include the regulator switchgear assembly, the diesel generator set and the automatic means for transfer between commercial power and diesel generator power, referred to as the airfield lighting power centre (ALPC).

Airfield lighting power supply

For remote, mobile and tactical airfields, Westinghouse has developed a mobile airfield lighting power supply that includes a diesel generator, a fuel tank, batteries, automatic transfer from main power, up to four constant current regulators, isolating transformers and cable, a remote control panel and circuit selection relays. The mobile airfield lighting power supply is built to withstand severe weather and environmental conditions.



Airfield lighting control centre

Airfield lighting power centre

Display terminals
The company's Data Communication Products Division manufactures highly flexible and cost-effective multiprocessor-based, communication controllers that provide an interface between both the user computers and display terminals, and a communications network. The microprocessor-based display terminal incorporates features specifically for transportation and custom applications, including reservation systems, passenger check-in, load control, baggage tracing, cargo handling and ticketing.

Company Profile
Westinghouse Canada is a technology-based company competing globally with electrical and mechanical products, as well as services for industrial, construction, utility and defence applications. The company's products include data communications computer and message (telex) terminals, an optical line tracing control system, airfield lighting regulators, and antisubmarine warfare sonar systems. Over 5 400 people across Canada and abroad are employed by the company's 21 manufacturing plants, 45 service centres, and 46 sales locations. Westinghouse service centres provide after-sales service, installation and start-up supervision, testing and inspection, system verification, field repairs, alignment and balancing, as well as modification and rebuilding of their equipment. As a leading supplier of airport lighting systems, Westinghouse has airfield installations operating successfully in the Canadian Arctic as well as in tropical areas such as Burma, Trinidad, Panama and Brazil.

Wormald Cdn

2421 Holly Lane
Ottawa, Ontario
Canada K1V 7P2
Tel: (613) 526-0435
(819) 985-3222
Fax: (613) 526-0379
Telex: 053-3570
G. Cowan, General Manager

Fire-fighting foam liquid concentrates
■ Wormald Cdn manufactures Lorcon products — a complete line of foam liquid concentrates proven highly effective in fighting fires. Lorcon concentrates are manufactured to the Canadian Government Standard 28GP74M and that of Underwriters Laboratories Inc. All the products are useable in either fresh or salt water and many low temperature service grades are available. Each product has specific applications and is suited to particular kinds of fires or emergencies.

The Lorcon Protein Foam is used to cover an airport runway prior to an aircraft landing with unsafe undercarriage. A fluoroprotein product is designed for petrochemical plant fire fighting. The Lorcon AFFF is a fast extinguisher used in spill fires and aircraft crashes. The pyrosol foam is used against either polar flammable liquids (such as alcohol) or hydrocarbon liquids, depending on the strength of the concentrate. Other products include foaming and wetting agents to combat Class A or Class B fires.

Company Profile
Wormald Cdn has more than 25 years experience as a manufacturer of fire-fighting foam liquid concentrates. The company manufactures and supplies 90 per cent of the concentrates annually required by Canada's Department of National Defence and by Transport Canada for aircraft fire fighting and rescue activities. This includes products used at the Fire Fighting Academy at Canadian Forces Base, Borden, Ontario. International clients include a number of Caribbean airports that acquire Wormald products with the help of the Canadian International Development Agency. The United States Air Force is a regular purchaser of the runway foaming product. Strict quality control is maintained in every step of the Wormald manufacturing process. The company also prides itself on fast delivery and service.

Consulting Services Companies

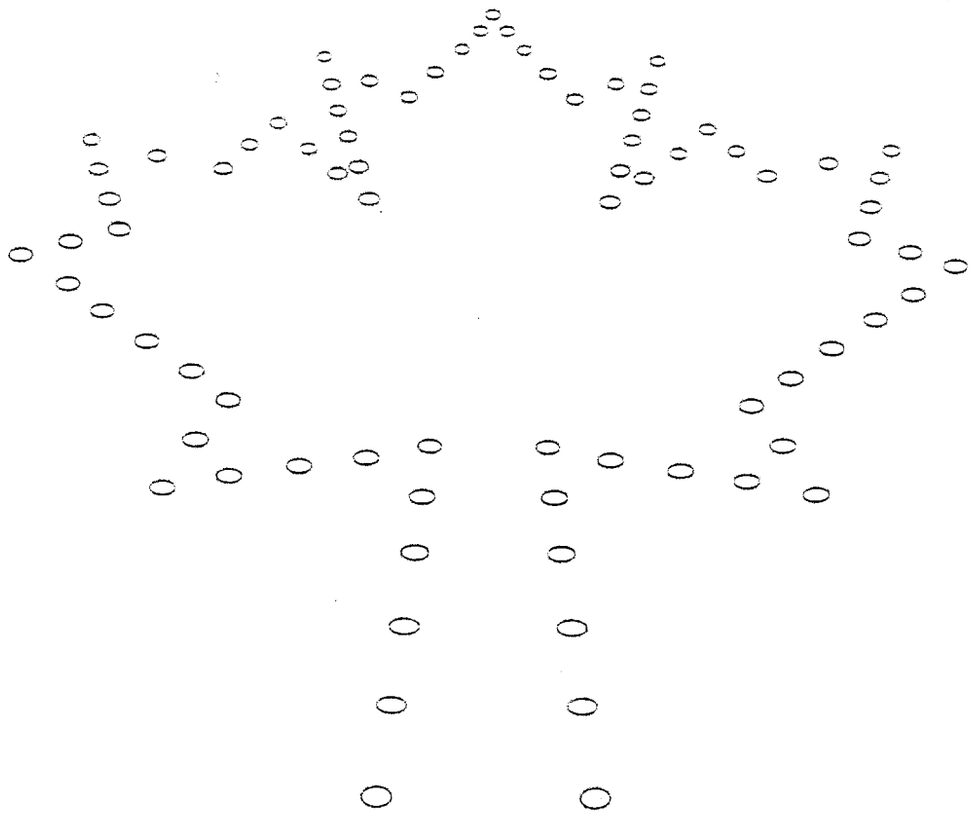


Table of Services

	Feasibility Studies	Insp/Test/Lab Analysis	Financial/ Economic Analysis	Planning	Technical Assistance	Design and Specs	Construction Management/ Supervision	Equipment Procurement	Installation, Operation & Maintenance	Operational Training	Project Monitoring/ Evaluation/Auditing
Acres International Limited	✓		✓	✓	✓	✓	✓		✓		
ADGA Group				✓	✓					✓	
ADI Limited				✓						✓	
Aerodevco Consultants Limited	✓		✓	✓	✓					✓	✓
AirBC									✓	✓	
Airplan/McNeely Engineering				✓		✓	✓				
APA Airport Planning Associates Inc.	✓		✓	✓							
(A.P.S.) Aviation Planning Services Ltd.	✓		✓	✓	✓	✓	✓	✓			✓
Ballistech Systems Incorporated	✓	✓			✓					✓	
Black & McDonald Limited				✓	✓	✓	✓	✓	✓	✓	✓
Bregman + Hamann Architects				✓		✓	✓				
Cansult Group Limited				✓		✓	✓				✓
Delcan International Corporation				✓		✓	✓				✓
DS-Lea Associates Ltd.				✓							
F.J. Reinders and Associates Canada Limited				✓		✓	✓				
George Sladek Ltd.	✓		✓	✓	✓	✓		✓			
Giffels Associates Limited				✓		✓	✓				
Heuchert Electric Limited					✓				✓		
Horton & Ball, Walter, Fedy, McCargar, Hachborn Architects and Engineers	✓		✓	✓	✓	✓	✓				
IBI Group	✓		✓	✓		✓					✓
I.D. Engineering Canada Inc.	✓			✓							✓
IMC Consulting Group Inc.	✓		✓	✓		✓					
Inspec-Sol Inc.		✓					✓				
Intelcan Technosystems Inc.	✓						✓	✓	✓	✓	✓
Interimco Machinery Corporation (IMC)											
International Aviation Management Training Institute (IAMTI)										✓	
International Training Division, Transport Canada										✓	
James F. Hickling Ltd. (JFH)	✓		✓	✓							✓

continued

Table of Services

	Feasibility Studies	Insp/Test/Lab Analysis	Financial/ Economic Analysis	Planning	Technical Assistance	Design and Specs	Construction Management/ Supervision	Equipment Procurement	Installation, Operation & Maintenance	Operational Training	Project Monitoring/ Evaluation/Auditing
J.L. Richards & Associates Limited						✓	✓				
J.P. Braaksma & Associates Ltd.				✓						✓	
Lamb McManus Associates Ltd.						✓					
Lavalin International Inc.				✓	✓	✓	✓		✓	✓	
Lawrence, Flemming and Associates Limited		✓									
MacDonald Dettwiler and Associates Ltd.	✓				✓	✓		✓	✓	✓	
Marshall Macklin Monaghan Limited			✓	✓		✓	✓				✓
McCormick Rankin				✓		✓	✓				
McGill University/Air Canada										✓	
McNeal & Associates Consultants Ltd.	✓		✓	✓	✓	✓			✓		✓
Monenco Consultants Limited				✓		✓	✓				
N.D. Lea International Ltd.	✓			✓		✓	✓				
NORR Airport Planning Associates Limited (NAPA)				✓		✓	✓				
Phillips Barratt Kaiser Engineering Ltd.				✓		✓	✓				
PRIOR Data Sciences Ltd.	✓				✓	✓		✓	✓	✓	✓
Robertson Nickerson Limited	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
R.S. Wallace & Associates Ltd.	✓		✓	✓							✓
Stanley Engineering Group Inc.				✓		✓	✓				
SYPHER:MUELLER International Inc.	✓		✓	✓	✓			✓	✓	✓	✓
T E S Limited	✓	✓		✓	✓	✓					
Trow Inc.		✓				✓					✓
Victor Engineering Limited	✓			✓	✓	✓	✓			✓	

Company Profiles

Acres International Limited

480 University Avenue
Toronto, Ontario
Canada M5G 1V2
Tel: (416) 595-2000
Fax: (416) 595-2127
Telex: 06-217815
Cable: ACRESAN TORONTO
H.C. Rynard, Chairman
J.M. Gardiner, President
D.B. Sampson, Vice-President, Transportation

International Branch Offices
Jakarta, Indonesia; Kathmandu, Nepal; New Delhi and Dalhousie, India; Maseru, Lesotho; Akosombo, Ghana; and London, England.

Acres International Limited is an employee-owned planning, engineering and management services company with over 60 years of experience and approximately 1 000 employees. Since 1964, Acres has provided planning and engineering consulting services in aviation and airport projects in Canada, the United States and in 27 countries overseas.

The company offers a complete range of multidisciplinary services for the aviation industry and for airports of all sizes. Services include aeronautical systems analysis, air transport planning, aviation impact assessment, site selection, financial analysis, master planning and land-use planning, detailed design, contract administration and construction management, and commissioning.

Typical International Airport Projects

- Planning, final design, cost estimating and preparation of tender documents for the terminal expansion at Bermuda International Airport.
- Planning, design, equipment procurement and construction supervision at 18 airports in the Caribbean.
- Preparation of land-use plans for seven airports in the Caribbean.
- Master planning, design, pre-contract services, supervision of construction and commissioning for airports in Lesotho and Nepal.
- Feasibility studies, preliminary designs and master planning at airports in Sri Lanka, Indonesia and Brazil.
- Air transportation requirements, development of a national aviation plan and master planning of four major airports in Malaysia.
- Economic study and cost estimating of an ICAO Funding Proposal for airport contracts in Nepal.

ADGA Group

116 Albert Street, Suite 400
Ottawa, Ontario
Canada K1P 5G3
Tel: (613) 237-3022
Telex: 053-4568
Cable: ADGA OTT
A.D. Gagnon, President
K.H. Simpson, Senior Vice-President

Established in 1969, ADGA is a Canadian-owned professional engineering and systems organization operating in Canada and abroad under certificates of authorization granted by the appropriate engineering organizations. Staffed by approximately 250 engineers, computer specialists, technical and support staff, the firm is currently engaged on projects in most Canadian provinces, in the United States and overseas, with staff assignments ranging from one or two consulting specialists for small programs to complete project responsibility for complex ones.

Major areas of company activity include systems engineering, all aspects of communications, navigation aids, air traffic control, satellite systems, computer applications/systems and software development. Project/program management and integrated logistics support consulting are also major features of the company's capabilities.

ADGA has worked extensively in the areas of total system management, airports, civil aviation, air traffic control, telecommunications and electronics. The group has also had considerable operational experience in air transportation activities through management of major operations and maintenance contracts.

Typical Airport Projects

- Flight information and display systems study including analysis of security at Pearson International Airport, Canada.
- Development of a computer-based air traffic control simulator and training facility for an integrated communications control system (ICCS) and joint en route air traffic control system (JETS).
- Planning and implementation of air traffic control and navigational aids system for the Canadian International Development Agency (CIDA).
- Study of communication and navigational aid requirements in 23 African countries for the International Civil Aviation Organization (ICAO).

ADI Limited

1133 Regent Street, Suite 407
P.O. Box 44, Station A
Fredericton, New Brunswick
Canada E3B 4Y2
Tel: (506) 452-9000
Telex: 014-46244
J.R. Dean, President
K.O. Bartlett, Vice-President

Air transport services offered by ADI's transportation group include airport master planning, site selection, economic analysis, demand forecasting, ground transportation systems analysis and design, functional planning and design, facility inventory and assessment, geotechnical investigations and testing, impact studies, preparation of tender packages and aircraft operating cost assessment.

Typical Airport Projects

- Passenger terminal surveys at selected Newfoundland and Nova Scotia airports in Canada.
- Air terminal surveys and preparation of edited data files at four airports in New Brunswick, Canada.
- Separate studies on analysis of ground transportation requirements at Hamilton, Ontario; Fort St. John, British Columbia; and Sydney, Nova Scotia, airports in Canada.
- Master plan for Sault Ste. Marie Airport, Canada.
- Development of gravel runway condition reporting procedures, surface stability test methods and airport pavement thermal cracking study.
- Assessment of operating costs for various aircraft types and route structures for third-level air service in Labrador, Canada.
- Development of self-teach course in signage design for Canadian airports.
- Site selection for nine airstrips in coastal Labrador, Canada.
- Multi-modal transportation study including air transport demand forecasts for Grand Manan, Canada.

Aerodevco Consultants Limited

130 Slater Street
Suite 1025
Ottawa, Ontario
Canada K1P 6EZ
Tel: (613) 234-3315
Fax: (613) 236-4850
Telex: 053-3198
W.M. McLeish, President

Aerodevco has extensive experience in airport feasibility studies, planning, technical assistance, project monitoring, and comprehensive audits and evaluation.

Client requests for feasibility studies are usually related to the potential growth of an airport or to changes in the management structure, such as the transfer of the operational authority from a government body to an airport authority. Planning services are provided to develop the strategic net worth of the airport to the region it serves. Technical assistance ensures that airport systems are managed and maintained in accordance with technological advances geared towards improved safety, security and capacity. Through project monitoring, Aerodevco helps clients stay within budgets and target dates of large expansion projects. Comprehensive audits and evaluations determine the effectiveness and efficiency of management systems and airport operational systems.

The company can provide multi-disciplinary teams with current knowledge in airworthiness, aircraft operation and maintenance, air traffic control, airport operations, simulation techniques, cost-benefit analyses and aviation financial planning.

The principal consultant, Walter McLeish, has extensive experience in aeronautical development, strategic planning, project management, conference management, international negotiations, executive advisory boards and report writing and editing.

Typical Airport Projects

- Task force studies into the concept of an airport authority for the Edmonton Air Services Authority.
- Review of the status of Toronto Buttonville Airport as the relief facility for Toronto International Airport.
- Evaluation of the technical improvements and assistance provided by Canadian International Development Agency (CIDA) to 22 airports in 13 Caribbean countries.
- Studies for various municipalities related to Transport Canada's airport devolution proposals.
- Numerous studies on issues such as crash fire rescue, communications and navigation aids, visual aids, security and operational safety. (In co-operation with other consultants or under subcontract.)

AirBC

4740 Agar Drive
Richmond, British Columbia
Canada V7B 1A6
Tel: (604) 273-2464
Fax: (604) 273-1016
Telex: 04-355612
J. Briggs, Director, Flight Operations

AirBC is a scheduled air carrier centred in British Columbia and operating a fleet that consists entirely of de Havilland of Canada aircraft. (One of de Havilland's major products is the Dash 8, a wide-bodied, Jet-Prop aircraft, which cruises at 500 km/hr and carries 37 passengers.) In support of its airline operations, AirBC has developed broad expertise in the repair and overhaul of de Havilland products, including engine hot sections and avionics equipment.

AirBC personnel are used by de Havilland to demonstrate its products. In addition, AirBC has supplied maintenance organization contract work to Royal Nepal Airlines for two years and to various charter airlines in British Columbia on an ongoing basis.

Another key service provided by AirBC is flight and ground training for pilots, maintenance engineers, flight attendants and customer service agents. Part of this training is conducted in a special company facility, which includes three classrooms, three offices, a lunch room and washrooms. Customers for AirBC's training services have included Transport Canada pilot inspectors and various overseas clients.

Commencement dates and other details about specific courses may be obtained from one of the following training managers:

Jeff Briggs, Director, Flight Operations
Walt Borodula, Manager, Flight Training and Standards
Ray Myles, Manager, Aircraft Systems Training
Marisa Nichini, Manager, Flight Attendant Training
Al Graham, Manager, Customer Services/ Computer Training
Diane Fransbergen, Manager, Public Relations Training

Airplan/McNeely Engineering

70 Collins Cres.
Toronto, Ontario
Canada L4G 2W2
Tel: (416) 727-4860
R.P. Killaire, Engineer
E.D. Vickers, Engineer

Airplan/McNeely Engineering offers a full range of aviation services that include airport site selection, master planning, design, construction supervision and administration, as well as expertise in airport operations and management. The firm has an established Canadian reputation and is currently expanding into the international marketplace.

Typical Airport Projects

- Airport master planning manual for Transport Canada.
- Operations and management study at Sarnia Airport, Canada.
- Site evaluation and master plan at Owen Sound, Canada.
- Environmental evaluation of Cornwall Regional Airport, Canada.
- Design and contract supervision of Cornwall Regional Airport, Canada.
- Airport operation and management study at Kincardine, Canada.
- Preliminary design of service roads at Pearson International Airport, Canada.
- Master plan for South Renfrew Municipal Airport, Canada.
- Detailed design of initial development of South Renfrew Municipal Airport, Canada.
- Airport operations and management study for Stratford, Canada.
- Master plan of Flin Flon, Canada.

APA Airport Planning Associates Inc.

133 Brock Avenue North
Montreal West, Quebec
Canada H4X 2G1
Tel: (514) 482-1290
Telex: 055-66129
S.J. Stein, President
M.B. Vicanek, Vice-President

The firm provides a range of services for the planning, development and marketing of airports and airport facilities. Fields of expertise include air traffic analysis, determination of demand, airport economics, airport master planning, airport environmental planning and airport marketing and commercial development.

Typical Airport Projects

- Strategic plan for the development of the potential of St. Hubert Airport, Canada.
- Marketing campaign to attract new airline services at Mirabel International Airport, Canada.
- Feasibility study of the development of three regional airports in Ivory Coast, Africa.
- Passenger survey for planning purposes of the Montreal Airports System, Canada.
- Integrated development plan for an air cargo complex, aircraft maintenance base and airport service installations in St. John's, Canada.
- Development of policy for the funding of airport development projects in Canada.
- Review, evaluation and presentation of airport development plan for funding projects in Djibouti, Africa.
- Determination of facility requirements and cost estimates of Punta Delgada Airport, the Azores, Portugal.

(A.P.S.) Aviation Planning Services Ltd.

800 Dorchester Boulevard West
Suite 1420
Montreal, Quebec
Canada H3B 1X9
Tel: (514) 878-4388
Fax: (514) 871-8772
Telex: 055-60725
Cable: AVAPLAN MTL
C.E.B. McConachie, President and Director
R. Drabinsky, Vice-President, Facilities and Airport Planning

(A.P.S.) Aviation Planning Services Ltd. was formed in 1967 with the objective of providing professional consulting services to all sectors of the aviation industry. The major activities of the firm are concerned with commercial air transportation, airport planning, general aviation analyses, product analyses for aerospace manufacturers, aircraft and engine maintenance and overhaul facility planning, equipment procurement, as well as aviation systems planning and development programs for all levels of government.

The multidisciplinary staff includes specialists in airline engineering, flight operations, transportation economics, aircraft maintenance, airport planning and aviation products marketing. Over the past 20 years, A.P.S. has completed more than 350 projects worldwide. A recent study for Transport Canada examined airspace interaction in the Toronto terminal area to determine the feasibility of using Downsview as a reliever to Pearson International Airport.

Typical International Airport Projects

- Full civil aviation systems plan covering airport master planning; airspace analysis; navigation and landing aids; telecommunications; crash, fire and rescue; and financial and economic planning for the Government of Pakistan, the Republic of Indonesia and the Government of Thailand (total of more than 50 airports).
- Site selection and economic feasibility analysis for a new airport for Islamabad, Pakistan.
- Master planning and preliminary design for new international airports in Jakarta, Indonesia and Fujairah, United Arab Emirates.
- Development plans for six regional airports in Peru.
- Facility and operations study for a new international airport near Rio de Janeiro, Brazil.
- Aviation sectoral study for the Dominican Republic and Guinea-Bissau.
- Master plan for aircraft maintenance bases for a major African airline, a Southeast Asian carrier and a South Pacific operator.
- Feasibility study and master plan for a new international airport at Madeira, Portugal.
- Cost/benefit analysis of a microwave landing system (MLS) for the Government of Thailand.
- Feasibility of building and operating a new passenger terminal facility in Piarco for the Airport Authority of Trinidad and Tobago through private investment.
- Economic evaluation and traffic forecasts for all international routes in Africa.

Ballistech Systems Incorporated

3163 Harvey Street
Saint Hubert, Quebec
Canada J3Y 3T7
Tel: (514) 676-6259
Fax: (514) 676-1384
Telex: 06-3666 CNCP EOS TOR
.TO 21:XAE001
W.H. Friend, President

BSI specializes in engineering, research and development services which include the design, prototyping and manufacture of products used by Transport Canada and the Canadian Department of National Defence (DND).

The company's main development facilities, with considerable computer aided design equipment, are located in Saint Hubert, near Montreal. The facilities have been inspected and cleared by the Canadian government security services. BSI also maintains an office in Medicine Hat, Alberta, where a group of engineering staff is under contract to DND — Defence Research Establishment Suffield (DRES).

BSI services and products are currently being used by several NATO countries. Examples of these services include extensive fielding activities for a number of international agencies, using BSI-designed multi-channel digital recorders and Beta densitometer blast gauges to study large scale blasts. Other products include transonic/supersonic radar targets and remotely piloted surveillance aircraft.

The company's research interests include aeronautical design, wind tunnel and shock tube studies.

Black & McDonald Limited

557 Cambridge Street South
Ottawa, Ontario
Canada K1S 4J4
Tel: (613) 238-1226
Fax: (613) 238-3960
Telex: 053-4484
M.A. Sharp, Marketing

Black & McDonald is a construction, service and maintenance company with offices across Canada and a staff of 1 500. The company employs engineers, technicians, tradespeople and maintenance work forces who keep abreast of new technology and represent, among themselves, more than 200 years of supervisory experience. A wholly Canadian-owned company, Black & McDonald was founded in 1920 and has been involved in airport construction and maintenance in diverse locations, from the Canadian Arctic to the Caribbean.

The company offers the following construction services:

- Airfield lighting and landing aids.
- Airfield electrical power and distribution.
- Airport mechanical and HVAC services.
- Facilities inspection and reporting.
- Maintenance manuals, training and planning.
- Spare parts.

Clients are offered custom maintenance plans to suit individual needs. They include:

- Facilities inspection and reporting.
- Maintenance manuals, training and planning.
- Standby emergency service and repairs.
- Planned preventive maintenance programs.

Inspection and reporting includes reviewing facilities, identifying and reporting on areas requiring attention and returning twice yearly or yearly for re-inspection. Maintenance and reporting involves determining frequency of maintenance required, providing labour and materials (at competitive prices) to perform the work and providing reports and recommendations upon completion of the work. The standby service provides technicians, tradespeople and labour to respond to emergency service and/or maintenance needs. A training manuals and spare parts contract involves providing a competitive price list, a spare parts list for a site inventory, comprehensive maintenance and operations manuals and maintenance training.

Bregman + Hamann Architects

481 University Avenue
Toronto, Ontario
Canada M5G 2H4
Tel: (416) 596-2299
Fax: (416) 586-0599
Telex: 06-218548
J.L. King, Partner

Bregman + Hamann Architects, founded in 1953, has been responsible for the design of many highly successful and innovative Canadian projects. The firm draws on the talents of 100 personnel, directed by nine partners, to offer a wide range of architectural design services. Building site evaluation, master planning, feasibility studies, environmental impact studies and detailed planning and design are just a few of the services provided.

Expert project management is one of the firm's specialties. Projects are run by a partner-in-charge with the assistance of a project architect, often an associate of the firm, and a job captain. Bregman + Hamann's staff of architectural technologists and production assistants complete the team.

As one of the first Canadian architectural firms to seriously explore computer applications, Bregman + Hamann has developed computer and electronic capabilities augmenting every phase of its work. Benefits to clients include time and cost savings, versatility of design options, clarity of documentation and storage of information for future facility management. Some of these automated capabilities are: computer aided design (on in-house workstations), computer aided drafting, computer generated perspectives, building area analysis, automated specifications, contract administration, inventory of furniture and word processing.

Cansult Group Limited

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Markham, Ontario
Canada L3R 8B8
Tel: (416) 445-9431
Fax: (416) 447-9750
Telex: 06-966783
Cable: CANSULT TOR
J.A. Metcalfe, President and Chief Executive Officer
A.L. Atkinson, Senior Vice-President
H. Eimers, Vice-President
D. Field, Vice-President

International Branch Offices
Nicosia, Cyprus; Muscat, Oman; Al Ain, Abu Dhabi and Dubai in the United Arab Emirates; Jeddah, Medinah and Riyadh in Saudi Arabia.

Cansult Group Limited is structured to meet the specific needs of international assignments. The firm was established in 1961 by a group of prominent Canadian consulting engineering and planning firms for the purpose of undertaking projects abroad. Through its own staff and those of its member firm, Beauchemin Beaton Lapointe (BBL), Cansult is engaged in the planning, design, construction supervision and administration of engineering works having a total value of approximately $500 million per year.

Staff resources total about 400, with almost 150 professional and technical personnel stationed abroad on current assignments. In addition to its eight permanent Middle East offices, Cansult also works out of project offices in Jordan, Sri Lanka and Kuwait.

In Canada, Cansult's member firm has a long and successful record in the development of major airport and infrastructure projects. BBL has provided consulting services for airports in several major Canadian cities, such as Edmonton and Montreal, as well as numerous small Canadian assignments and extensive international work.

Typical International Airport Projects
- Design and construction supervision of complete airport facilities for Abu Dhabi International Airport, United Arab Emirates.
- Runway resurfacing, extension of aprons, construction of two new hangars for Abu Dhabi International Airport, United Arab Emirates.
- Design and construction supervision for the upgrading of a military airbase in Oman and Fujairah, United Arab Emirates.
- Defence airport extensions in Oman.
- Quality control of construction work for King Khalid International Airport in Riyadh, Saudi Arabia.

Delcan International Corporation

133 Wynford Drive
North York, Ontario
Canada M3C 1K1
Tel: (416) 441-4111
Fax: (416) 441-4131
Telex: 06-9666-89
Cable: DELCAN TORONTO
D.A. Duggan, President
J. De Chiara, Manager, Airports and Aviation

International Branches and Associated Offices
La Paz, Bolivia; Lima, Peru; Asuncion, Paraguay; Santo Domingo, Dominican Republic; Bridgetown, Barbados; Dar es Salaam, Tanzania; Nairobi, Kenya; Taipei, Taiwan; London and Manchester in the United Kingdom; and Dublin, Ireland.

Delcan offers comprehensive consulting services in most aspects of airport development and aviation planning. Services range from site selection studies to the master planning, design and construction of an entire new airport. The firm has a staff of aviation planners, architects, economists; civil, structural, mechanical and electrical engineers; and specialists in navigational aids, telecommunications and airfield lighting.

Typical International Airport Projects
- Design of Godi Airport, Ethiopia.
- Airport terminal study for Grand Cayman Airport, Cayman.
- Planning, design and construction supervision of the new Maseru International Airport, Lesotho.
- Apron and taxiway design for Air Zimbabwe, Zimbabwe.
- Feasibility study of Santiago Airport, Dominican Republic.
- Supervision of improvements to 22 Caribbean airports.

DS-Lea Associates Ltd.

93 Lombard Avenue, Suite 111
Winnipeg, Manitoba
Canada R3B 3B1
Tel: (204) 943-3178
Fax: (204) 943-4948
P. Washchyshyn, President
D.C. Hicks, Secretary, Project Manager

DS-Lea Associates Ltd. was established in 1984 by the principals of Damas & Smith Ltd. and N.D. Lea & Associates Ltd. The firm is entirely owned and managed by senior employees and provides engineering, planning and project management services through its seven offices across Canada. DS-Lea Associates has a staff of 75 employees, including 15 professionals, while the LEA Group of Companies has 200 employees in Canada and on international assignments.

Professional services offered by the firm and related to the aviation industry include airport planning and design, air traffic forecasting, airport management and operations, economic and financial analysis, hydrology and drainage, lighting and electrical distribution, navigational aids, land-use and master planning, pavement evaluation and design, and telecommunications.

Typical Airport Projects
- Land-use plan of Vancouver International Airport, Canada.
- Runway construction for Repulse Bay, Baker Lake and Nanisivik in the Northwest Territories, Canada.
- Master plan for Watson Lake and Whitehorse in Yukon, Canada.
- Master plan for Regina Airport, Canada.
- General Aviation access roads design for Pearson International Airport, Canada.
- Area development design for London Airport, Canada.
- Air cargo study for the provinces of Manitoba and Saskatchewan, Canada.
- Apron and access roads design and construction for Winnipeg International Airport, Canada.

F.J. Reinders and Associates Canada Limited

P.O. Box 278
Brampton, Ontario
Canada L6V 2L1
Tel: (416) 457-1618
Fax: (416) 457-8852
Telex: 06-97830
F.J. Reinders, President

F.J. Reinders and Associates Canada Limited is a private company providing architectural and engineering consulting, design and project management services to Canadian and international clients. The firm offers a full range of consulting services, including feasibility and preliminary engineering studies, detailed design and specification preparation, full project management, construction supervision, as well as material and equipment procurement. Total staff consists of 100 employees including 30 professional engineers and 4 architects, supplemented by designers, draftspersons, field personnel and administrative staff.

The firm has completed a number of aviation projects for airports in Toronto, Hamilton and Vancouver, Canada. Services provided for these projects included planning, design and supervision of construction for terminals, aircraft and maintenance facilities and for airfreight terminal facilities. Typical clients include Wardair Canada, Worldways Canada, Bradley Air Services, Transport Canada, Nationair Canada and Pratt & Whitney Canada.

George Sladek Ltd.

165 John Street
Toronto, Ontario
Canada M5T 1X3
Tel: (416) 979-2913
Fax: (416) 977-1339
G. Sladek, President

Incorporated in 1974, George Sladek Ltd. was a founding partner of the IBI group. In 1986, it became an independent consultancy specializing in aviation planning. The firm's president, George Sladek, has an excellent reputation in aviation both in Canada and internationally. Overseas, he has directed the planning and appraisal of more than 20 airports in nine countries. In Canada, he has advised on more than 30 aviation projects.

The firm provides the following professional services: strategic planning, feasibility assessments and policy advice; aviation system analysis and applied research; route analysis and airline costing; airspace planning and design; passenger terminal analysis and functional planning; airport land use and master planning; airport support facilities planning.

Typical Airport Projects
(In association with other consulting organizations, George Sladek played a key professional role in the following projects:)

- Airport master plans and feasibility studies for 26 airports including ones in the Caribbean, China, United Kingdom and Afghanistan.
- Development of an analytical model for determining the relative burden placed on Canadian airports by the transoceanic air traffic sector.
- Feasibility research on developing a computerized mobile air terminal for air commuter operations to replace fixed facilities at airports.
- Evaluation of alternative guideway systems for passenger transportation in developed urban communities.
- Passenger terminal planning for airports in Canada, Afghanistan, Jamaica, St. Kitt's and China.
- Air traffic control and navigation facilities planning for numerous airports.
- Air cargo facilities planning for several airports.

Giffels Associates Limited Consulting Engineers and Architects

30 International Boulevard
Toronto, Ontario
Canada M9W 5P3
Tel: (416) 675-5950
Fax: (416) 675-4620
Telex: 06.989215
J.P. Wanko, Chairman
J.M. Walker, President and C.E.O.
D.S. Servage, Senior Vice-President

Giffels Associates Limited is a consulting engineering and architectural firm established in 1949, with a total staff of approximately 250 engineers, architects, professional specialists and support staff. A full range of services are provided including design of airside and groundside facilities including runways, taxiways, aprons, lighting, drainage, fuelling systems, terminal buildings, hangars, flight-training centres, access roadways, parking structures and all related infrastructure.

Typical Airport Projects

- Master plan of a new airport at Kasane, Botswana.
- Assistance in master plan of a new maintenance base for Garuda Indonesian Airways at Cengkareng International Airport, Indonesia.
- Project management and design of a 45 360 kg (100 000 lb.) thrust jet engine test facility at Dorval International Airport, Canada.
- Project management of the construction of Gate 80 Extension at Terminal 2 at Pearson International Airport, Canada.
- Site supervision and contract administration for the apron extension at Terminal 2, Pearson International Airport, Canada.
- Design of Air Canada's flight training centre at Pearson International Airport, Toronto, Canada.
- Architectural programming, space planning, master plan and preliminary design of four aircraft production hangars, apron extensions, machine shops and utilities for the de Havilland Dash 8 program at Downsview Airport, Canada.
- Design and supervision of Airside Road from Terminal 2 to Whiskey Taxiway, Pearson International Airport, Toronto, Canada.
- Master plan of airport facilities for Frobisher Bay, North West Territories; Fort Churchill, Manitoba; Cold Lake, Alberta and Namao, Alberta.

Heuchert Electric Limited

40 Rayborn Crescent
P.O. Box 208
St. Albert, Alberta
Canada T8N 1E3
Tel: (403) 458-1613
Fax: (403) 459-8003
V. Heuchert, President

Incorporated in 1976, Heuchert Electric specializes in the installation of airfield lighting visual aids and navigational aid systems. Major clients to date have been Transport Canada and Canada's Department of National Defence.

Many of the company's assignments have been in the far North, where there has been considerable challenge in sending personnel and material to remote regions. The experience the company has gained in the logistics of recruiting and dispatching would be a great asset in assignments abroad.

Heuchert Electric is also an approved manufacturer of Transport Canada C-703 airport visual aid control panels.

Horton & Ball, Walter, Fedy, McCargar, Hachborn Architects and Engineers

546 Belmont Avenue West
P.O. Box 368
Kitchener, Ontario
Canada N2G 3Y9
Tel: (519) 743-4109
Fax: (519) 576-5499
R. Farwell, Marketing

In business since 1951, this architectural and engineering consulting firm offers comprehensive services to government and industry. It specializes in the design and construction of industrial, commercial, institutional and municipal projects, providing total responsibility from inception to turnover. The company is owned and managed by its practitioners who are committed to producing quality work on time, within budget. The majority of the staff have been with the company for many years, demonstrating the stability of the firm and its considerable experience.

The firm maintains the following departments: architectural, structural, mechanical, electrical, process, pollution control, municipal, and cost control and financial planning. Each project is undertaken by a project manager guiding a team of experienced personnel. The Project Management Division has grown and matured over the last 15 years. Its purpose is to provide owners with a vehicle to professionally manage and construct their facilities, meet their time constraints and strategic plans and accomplish all this cost effectively.

Typical Airport Projects

- Design, development and construction of Air Traffic Control Tower and Operations Building, Hamilton Civic Airport, Hamilton, Ontario. Associated administrative, telecommunications and mechanical/electrical services, landlines and support provisions were incorporated.
- Design and construction (ongoing) of combined ANS facility at Ottawa International Airport, Ottawa, Ontario. Involves refinement of the prototype control tower as constructed in Hamilton and an active Terminal Control Unit. Also includes facilities dedicated to research in air traffic control, access roadways and security installations. Entire project spans approximately 8 500 m².

IBI Group

240 Richmond Street West, 5th Floor
Toronto, Ontario
Canada M5V 1W1
Tel: (416) 596-1930
Fax: (416) 596-0644
E.S. Fisher, Director
P.H. Beinhaker, Managing Director
N.A. Irwin, Managing Director

Founded in 1974, IBI Group is a multidisciplinary consulting and design firm with offices in four Canadian cities and one in the United States. Together with its affiliate, Beinhaker/Irwin Associates, Architects and Engineers, the firm offers professional services to both domestic and international clients. The company currently has some 125 employees.

Areas of expertise in aviation include: passenger and aircraft movement forecasting; air cargo forecasting; planning standards research; general aviation forecasting; airport costing and charging; economic impact and budget cost studies; public participation; environmental assessment; vehicle and aircraft traffic management; marking studies; multi-modal transportation modelling; evaluation of subsidies and incentives; airport and airspace planning; equipment and staff procurement; risk analysis; delay analysis; corporate planning; operating manual development; passenger terminal design and airside/groundside facilities design.

Typical Airport Projects

- Land use, agricultural and landscape plan and associated work for Point Saline Airport, Grenada.
- Master plan for expanded Ben Gurion Airport, Tel Aviv, Israel.
- Comprehensive standards for design and operation of STOL airports in Canada.
- Feasibility research on mobile passenger lounges for use in Canada.
- Research into aviation services for offshore resource development sites in Eastern Canada.
- Calgary International Airport master plan.

I.D. Engineering Canada Inc.

905 Waverly Street
Winnipeg, Manitoba
Canada R3T 5P4
Tel: (204) 489-5900
Telex: 07-587870
Fax: (204) 453-9012
D.A. Farlinger, Chief Executive Officer
K.A. Adam, Principal
M. Kostelnyk, Principal

I.D. Engineering Canada Inc. (IDE), a member of the I.D. Group of Companies, offers a broad range of engineering services for airport projects. These services include feasibility studies; site evaluation and selection; and conceptual, preliminary and detailed engineering designs for both airside and groundside civil facilities. The firm also specializes in on-site contract administration, the provision of field services during construction and overall project management. IDE's personnel are experienced in airport maintenance management systems and facility condition evaluations with associated rehabilitation program designs.

IDE, as a western Canada-based consulting firm, has provided these services throughout central and western Canada as well as in the Canadian Arctic. IDE has also completed a site evaluation, a feasibility study and preliminary design of a runway at Rothera Point, Adelaide Island, Antarctica.

IMC Consulting Group Inc.

10160 – 112 Street, Suite 700
Edmonton, Alberta
Canada T5K 2L6
Tel: (403) 424-2002
Fax: (403) 421-4300
Telex: 037-41432
A.P. Franceschini, President
R.G. Gilbertson, Principal
D. Drackley, Principal

IMC Consulting Group Inc., a multidisciplinary firm, has more than 75 professional and technical staff with expertise in the aviation, airline and airport industries. As a member of the Stanley Group of Companies, IMC serves private and public sector clients from 15 offices across Canada, as well as from international offices in Korea, Zambia, Malawi and the Caribbean.

During the past five years, IMC has become one of Canada's leading aviation consulting firms, gaining experience through assignments at more than 40 locations, from major international airports to small airstrips. The firm specializes in airline industry analysis, air service and market development, airport planning, airport management, marketing and development, and environmental and economic impact studies.

IMC has prepared design and master plans for more than 20 airports. These studies have involved: passenger and aircraft activity forecasts and airside and groundside facility planning.

Where appropriate, these plans have included an evaluation of environment and other off-airport issues. In addition the firm has conducted numerous planning studies for terminal-related services including space and facility programming, conceptual terminal design and preliminary and detailed terminal building design.

Airport management, marketing and development assignments have included studies in: alternative forms of airport management; airport maintenance management systems; specific airport development and management options; marketing of airports and regions to carriers; and marketing of a variety of commercial and retail services in passenger terminal buildings. To assist airport management and planning functions, the firm has developed special tools. These include a comprehensive approach to analyzing airport development and maintenance problems and options and computer software for analyzing terminal building pedestrian flows.

IMC has conducted environmental impact studies in fields such as noise policy and measurement. The firm has also undertaken comprehensive economic impact studies for major airports. Its approach and methodology have been adopted as the prototype for such studies by Transport Canada.

Inspec-Sol Inc.

4600 Côte Vertu
Suite 200
Montreal, Quebec
Canada H4S 1C7
Tel: (514) 333-5151
Fax: (514) 333-4674
N. Agensky, President
H.N. Brosseau, Vice-President

Inspec-Sol, founded in 1972, offers inspection and testing services in the broad field of construction, including soils, concrete and asphalt. The firm's engineers, geologists and technologists are supported by modern fully equipped soil mechanics, concrete and asphalt laboratories. Using the latest field testing equipment, Inspec-Sol can carry out geotechnical engineering including investigations, testing, engineering analyses, and supervision and inspection of installations; hydrogeology and environmental studies; construction and material inspection and testing; contract management; pavement design; structural steel inspection and testing; roofing evaluation; construction surveying; and quality assurance audits and inspections.

Typical Projects

- Supervision of earthwork, piling, asphalt and concrete operations during construction of Bell Helicopter/Textron helicopter assembly plant, Mirabel, Canada.
- Surveying, supervision of earthwork and concrete operations, and erection of structural steel during construction of various refinery process units and/or fuel tanks for a number of Canadian firms.
- Foundation investigations; quantity estimates; parking lot designs; supervision of earthwork, asphalt, and concrete operations; and erection of structural steel for construction of shopping centres across Canada and the United States.
- Subsoil study, analysis of sanitary landfill, pavement design and settlement analysis for pilot STOLport project, Montreal, Canada.
- Inspection and testing of earthwork, concrete and asphalt operations during rehabilitation and reconstruction of runways and taxiways for the Canadian Forces Base in Trenton, Canada.

Intelcan Technosystems Inc.

130 Albert Street
Suite 1600
Ottawa, Ontario
Canada K1P 5G4
Tel: (613) 234-2491
Fax: (613) 234-6201
Telex: 053-3833 TECHNOSYST OTT
P. Whittall, President
R. Weissberger, Vice-President

International Branch Offices
Limassol, Cyprus.

Intelcan Technosystems Inc. commenced operations in 1973 as a turnkey contractor in the electronics, telecommunications and civil aviation fields. Originally an operating division of another firm, Intelcan became an independent company in 1980.

Intelcan is a multifunctional company involved in the overseas sale and implementation of multidisciplinary projects in telecommunications, electrical power, civil aviation and transportation. Over the past 14 years Intelcan has been active in more than 60 countries.

With access to Canadian industrial capability, Intelcan undertakes civil aviation infrastructure projects on a fixed-price turnkey basis, including feasibility studies, civil works and construction, equipment and systems design, procurement, system integration, assembly and installation, maintenance and technical assistance. In the civil aviation field, such comprehensive involvement by Intelcan is available in the design and construction of airport terminal facilities, navigational systems, air traffic control facilities and en route communications networks.

Typical International Airport Projects

- Renovation of Jose Marti Airport at Havana, Cuba.
- Turnkey construction of an integrated air traffic control system and en route communications network for the Roberts flight information region covering Liberia, Guinea and Sierra Leone in West Africa.
- Design and supply on a modified turnkey basis of an air traffic control centre, en route communications system and secondary control centres for the Havana flight information region, Cuba.
- Turnkey construction of an integrated air traffic control system and en route communications network for the Accra flight information region covering Ghana, Togo and Benin in West Africa.
- Design and supply of navigational systems, runway lighting and airport terminal facilities for a number of Cuban airports.
- Design of a new international airport at Varadero, Cuba.

Interimco Machinery Corporation (IMC)

Carling Square 1
560 Rochester Street
Ottawa, Ontario
Canada K1S 4M2
Tel: (613) 238-1561
Fax: (613) 238-8584
Telex: 053-4425
Cable: INTERIMCO OTT
K.G. Stoodley, Director of Operations
D.A. Ennes, Director of Marketing

International Branch Offices
Rio de Janeiro, Brazil; Bogota, Colombia; Singapore; Algiers, Algeria.

Interimco Machinery Corporation (IMC) has operated since 1973 as an international contracting and trading company specializing in the supply of equipment, services and technology. IMC has successfully implemented supply contracts in Asia, Africa and Latin America.

IMC has open access to high-quality equipment and technology, spares and consumables. Under the direction of IMC's project managers, engineers and procurement specialists, equipment is installed by highly trained technicians.

Consolidation of products, services, transportation and financing into a single procurement package, provides the client with attractive economies of scale.

Typical International Airport Projects

- Supply of equipment and materials for the modernization of Jose Marti International Airport, Havana, Cuba.
- Technical assistance during equipment installation at Jose Marti International Airport, Havana, Cuba, as well as training of equipment operators and maintenance personnel in Canada.

International Aviation Management Training Institute (IAMTI)

2001 University Street
20th Floor
Montreal, Quebec
Canada H3A 2A8
Tel: (514) 843-6116
Telex: 055-60360
J.J. Eden, Vice-President, Liaison and Services

Studies by several international organizations, such as the International Civil Aviation Organization (ICAO) and the International Air Transport Association (IATA), identified a need for increased management training throughout the world. With this in mind, the Government of Canada created, in February 1987, the International Aviation Management Training Institute as a private, non-profit Canadian organization. The Institute, with its modern training facilities, including a computer training room and state-of-the-art equipment, is located in Montreal near university campuses, libraries and ICAO and IATA headquarters.

The primary goal of the institute is to provide practical management-training courses, thereby contributing to a more efficient, safe and economical air transportation system throughout the world. The institute offers programs to executives, senior and middle managers and supervisors in all fields of civil aviation. These intensive, in-depth programs are designed for practising professionals in airlines, airports, civil aviation administrations, and for manufacturing, aviation consulting and service organizations worldwide. The course methodology encompasses group work, case studies, computer applications, lectures and discussions with aviation and management experts. Aviation expertise is provided by the institute's staff and experienced professionals from the Canadian and international aviation industry.

Typical Courses

- The senior airline management course includes topics in airline organization, strategic planning, airline economics, marketing strategies, fleet and route planning, operations management and aviation law.
- The senior airport management course includes topics in airport organization, demand analysis, airport master planning, airport development, airport system planning, airport financing, airport services and aviation law.
- The training technology for aviation managers course includes topics in training needs identification, communication of information and management of a training facility.

International Training Division Transport Canada

21st Floor, Tower C
Place de Ville
Ottawa, Ontario
Canada K1A 0N5
Tel: (613) 990-5582
Fax: (613) 996-9439
Telex: 053-3130
J.H. Froese, Chief, International Training

This division of Transport Canada (the federal department of transport) offers a variety of training services in air traffic control and airport maintenance and management. Specific subjects covered include:

- all phases of air traffic control;
- telecommunications and electronics maintenance;
- RAMP training;
- management and supervisor training; and
- instructor development.

Through consultation, division staff can assess their clients' training needs and design courses tailor-made for them. Qualified professionals provide instruction at the Transport Canada Training Institute, a world-class facility, located in Cornwall, Ontario. The Institute is designed primarily to meet the nation-wide training requirements of Transport Canada, but can accommodate other organizations as long as space and staff are available. Lecture-type courses, not requiring laboratory equipment, may be held in other countries on demand.

The International Training Division has provided training to clients from 17 Caribbean countries, Nigeria, Iceland, Thailand, Hong Kong, Saudi Arabia, and The People's Republic of China.

James F. Hickling Ltd. (JFH) Airport Planning and Finance Practice

350 Sparks Street
Suite 605
Ottawa, Ontario
Canada K1R 7S8
Tel: (613) 237-2220
Fax: (613) 237-7347
Telex: 053-4238 JFH OTT
D. Deziel, President
D. Lewis, Partner
V. Chant, Partner

James F. Hickling Ltd. (JFH) offers a full range of airport, ground control and air traffic control services including capacity analysis and adequacy studies, master planning, land banking facility design and financial planning.

In addition to providing technical analysis, the company helps clients arrange financing through the world's private capital markets. The firm prepares financing and pricing studies and ensures the financial feasibility of all its recommendations. Accordingly, JFH's staff includes economists and business experts as well as engineering and other technical specialists. Among the firm's clients are major Canadian, United States and overseas airports.

Typical Airport Projects

- Minneapolis/St. Paul Airport adequacy study. Currently in preparation for the Metropolitan Council of the Twin Cities Area.
- Airport adequacy and reorganization study for Transport Canada in support of the Airports Privatization Task Force.
- Study on financing U.S. airports in the 1980s for the U.S. Congressional Budget Office.
- Assessment of all facets of Canadian airport pricing practices, investment and financial planning and cost-recovery policy for the Auditor General of Canada.
- Assessment of the credit risk of major Canadian airports in the municipal bond market. (Clients: Morgan Stanley Investment Bank, New York, and Wood Gundy Ltd., Canada.)
- Assessment of Transport Canada's terminal building planning and investment techniques for the Auditor General of Canada.
- Airport operational efficiency study for the Canadian Air Transportation Administration.
- Strategy for development of a target setting and performance measurement system for Canadian airports. Prepared for the Airports Task Force Working Group.

J.L. Richards & Associates Limited

864 Lady Ellen Place
Ottawa, Ontario
Canada K1Z 5M2
Tel: (613) 728-3571
Telex: 0534800
Cable: RICHARDS OTT
M.E. Dugas, Director
J.M. Paul, Director

J.L. Richards & Associates Limited, established in 1955, is an employee-owned Canadian firm with a staff of 120 persons. The head office is in Ottawa and branch offices are in Kingston and Sudbury, Ontario. In the province of Quebec, engineering and planning services are provided by J.L. Richards et Associés.

The firm offers multidisciplinary engineering services in airport infrastructure. These include design and supervision of construction of roads, runways, aprons, electrical facilities, bridges, parking, drainage and stormwater management, water supply, and sewage treatment and disposal. The firm also offers structural, mechanical and electrical engineering services for air terminal buildings and other airport structures.

The experience of the firm includes projects at Canadian airports in Ottawa, Toronto, Montreal, Thunder Bay, Halifax, Edmonton, Vancouver, Moncton, Quebec City and North Bay.

J.P. Braaksma & Associates Ltd.

15 Tighe Street
P.O. Box 795
Manotick, Ontario
Canada K0A 2N0
Tel: (613) 692-2758
J.P. Braaksma, President
I. Lockwood, Engineer

J.P. Braaksma & Associates Ltd., specializing in transportation planning and engineering, has expertise in terminal design, pedestrian circulation analysis, traffic engineering, and education and training. The firm provides services including traffic surveys, evaluation of existing facilities and testing of new concepts through computer simulation.

Typical International Airport Projects

- Concept development of the air terminal expansion at Orlando International Airport, Orlando, Florida.
- Concept development for expansion of Robert Mueller Municipal Airport, Austin, Texas.
- Capacity analysis and modifications of air terminal buildings at Queen Alia International Airport, Amman, Jordan.
- Seminar on bilateral air transport agreements, St. Lucia, West Indies.
- Functional design of the Varadero air terminal building, Havana, Cuba.
- Airport terminal planning course, Rio de Janeiro, Brazil.
- Airport planning course, Singapore.
- Evaluation of the Barbados International Airport terminal building, Barbados, West Indies.
- Air traffic forecasts for Grenada, West Indies.
- Preliminary master plan for Kimpo International Airport, Seoul, South Korea.
- Pedestrian traffic survey at Sacramento Airport terminal building, Sacramento, California.

Lamb McManus Associates Ltd.

10214–112 Street
Edmonton, Alberta
Canada T5K 1M5
Tel: (403) 426-0516
Fax: (403) 428-1624
R.M. Morison, President
J.K. Williams, Manager, Edmonton Office

Lamb McManus Associates Ltd. (LMA), a multidisciplinary engineering firm, has served clients in western and northern Canada for over 30 years. The firm provides engineering services as a prime consultant and/or as a sub-consultant to a wide variety of clients, including architects, contractors, individuals and corporations, as well as to all levels of government. LMA is a progressive company and the experienced staff takes pride in its reputation for competence and quality of services. In-house computer facilities as well as expertise in the latest computer methods complement these services.

Designs directly related to airports include buildings, overpasses, heavy civil works, refrigeration, heating, ventilation and air-conditioning, pipework and plumbing, high-and low-voltage power distribution, indoor and outdoor lighting and communications facilities.

Typical Airport Projects

- Electrical and structural engineering services for the terminal complex and elevated roadway at Calgary International Airport, Canada.
- Structural engineering services for the terminal at Edmonton International Airport, Canada.

Lavalin International Inc.

1100 Dorchester Boulevard West
Montreal, Quebec
Canada H3B 4P3
Tel: (514) 876-4455
Telex: 055-61250
Cable: LAVALIN MTL
M. Dufour, President
B.G. Côté, President of Transport Division

International Branches
Algiers, Algeria; Yaounde, Cameroon; Abidjan, Ivory Coast; Nairobi, Kenya; Lagos, Nigeria; Beijing, China; Jakarta, Indonesia; Kuala Lumpur, Malaysia; Manila, Philippines; Bangkok, Thailand; Bogota, Colombia; Lima, Peru; Washington, D.C., the United States; and Paris, France.

Lavalin is a wholly Canadian-owned corporation and one of the world's leading engineering, procurement, construction and construction management (EPC/EPCM) firms. It has completed projects in more than 100 countries and has earned a worldwide reputation for excellence in its field. Established in 1936, the company now employs more than 6000 engineers, professionals, technicians and support personnel. Offices are located throughout Canada, the United States, Africa, Asia, Latin America and Europe.

In the air transportation sector, through its subsidiary, Aeronautics Canada Inc., Lavalin provides engineering, project management and planning services for the construction of airport facilities. In addition, Lavalin provides planning and installation of communication facilities, navigational aids and air traffic control radars. Lavalin also provides planning, systems design, management, operation, maintenance and technical support services.

Typical International Airport Projects

- Engineering studies for the expansion of Constantine Airport, Algeria.
- Site studies for the construction of a new airport at Batna, Algeria.
- Training of maintenance technicians of Air Algérie, Algeria.
- Studies for the construction of maintenance hangars and workshops for Lina-Congo in Brazzaville, Congo.
- Technical assistance for Air Guinée in the purchase of airplanes and assistance in an operations, development, maintenance and training program in Guinea.
- Planning study and engineering for the construction of Sao Miguel Airport in the Azores, Portugal.
- Technical assistance for improvement of the management, maintenance and training techniques of Air Rwanda. Economic analyses and business planning for this national airline.
- Planning study for the air transportation system in Ghana.
- Planning study for the air transportation system in Uganda.

Lawrence, Flemming and Associates Limited

365 Evans Avenue
Suite 604
Toronto, Ontario
Canada M8Z 1K2
Tel: (416) 252-5831
P.B. Lawrence, President
R.E. Flemming, Vice-President

Lawrence, Flemming and Associates Limited (formerly Paul Lawrence Associated Limited) is a wholly Canadian employee-owned company incorporated in 1973. Since that time the firm has been engaged in many projects in North America and overseas.

The firm provides consulting engineering services related to site investigations and analysis of geotechnical problems including highway and airport design.

Typical International Airport Projects

- Complete geotechnical engineering study including airside and landside pavement design for Viru Viru International Airport, Bolivia.
- Assessment of the existing pavements, particularly the quality, subgrade, drainage and the suitability for increased air traffic for 19 airports as part of a long-range development plan for civil aviation in Pakistan.
- Complete inventory and design review of Port Salines Airport, Grenada.

MacDonald Dettwiler and Associates Ltd.

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Canada V6X 2Z9
Tel: (604) 278-3411
Fax: (604) 278-1285
Telex: 04-355599
SITA: YVROWSR (Swissair)
M. Weddle, Aviation Group Manager
I. Laverty, Aviation Marketing Manager

International Branch Offices
Vienna, Virginia, United States; London, England; Kuala Lumpur, Malaysia.

MacDonald Dettwiler is a world leader in computer-based systems for aerospace, resource management and electronics manufacturing applications. Founded in 1969, the company has become a major supplier of turnkey remote-sensing satellite ground stations and has branched out into a number of other areas. The firm's Aviation Systems Group specializes in developing advanced technology computer systems for flight operations and air traffic control. Systems and services are provided in airspace management, flight plan filing and validation, flight progress tracking, conflict detection and resolution, aeronautical data communications, simulation and training, radar data processing, flight data processing and weather data processing.

Since incorporation, the company has grown to more than 600 employees, most of whom have university degrees in relevant sciences. The firm exports 80 per cent of its products and maintains a network of sales and service offices throughout the world. Major clients include the United States Air Force, the European Space Agency, Transport Canada and a number of international airlines.

In 1977, MacDonald Dettwiler launched its series of flight operations and air traffic control systems. The Flight Operations Computer System (FOCUS) was introduced in 1979 with contracts from Swissair, SABENA and Texas International Airlines. The system integrates large amounts of data — including weather, flight path, radar and airport information — from various sources into co-ordinated plans for the movement of large numbers of aircraft. Visual monitoring is provided by colour graphics displays that maintain up-to-the-minute information on flights in progress.

Marshall Macklin Monaghan Limited

275 Duncan Mill Road
Don Mills, Ontario
Canada H3B 4P3
Tel: (416) 449-2500
Fax: (416) 449-6076
Telex: 06-966695
P.A. Monaghan, Chairman and President
D.E. Jull, Vice-President, Transportation Engineering

Established in 1952 as Marshall Macklin and Monaghan, the firm was incorporated in 1957 as Marshall Macklin Monaghan Limited (MMM) to provide comprehensive consulting services to government and private organizations across Canada and abroad. Traditional disciplinary skills and fields of activity include engineering, planning and surveying. Interdisciplinary skills include project management, environmental assessment, market and economic analysis, and computer services.

Principal areas of expertise related to airport planning and engineering range from master planning to detailed civil, electrical and mechanical/structural design of major airport infrastructure. MMM also provides complete contract administration services during construction.

MMM has a staff of approximately 300 employees, of whom 120 are professionals who are assisted by technical, field support and administrative personnel.

Typical Airport Projects

- Runway extension at St. Lucia Airport in the Caribbean.
- Runway extension and improvements at Coolidge Airport, Antigua.
- Aircraft parking apron extensions at Abu Dhabi International Airport, United Arab Emirates.
- Major projects at Grantley Adams International Airport in Barbados and at 12 other airports in the Caribbean.
- Master plans for numerous municipal regional airports in Canada.
- Land-use plans for 21 airports in the Ontario region, Canada.
- Passenger transfer vehicle study at Mirabel Airport, Canada.
- Air cargo and Runway 24L safety area study at Pearson International Airport, Canada.
- Site civil works for the Radar Modernization Project (RAMP) in Canada.
- Contract administration services during construction of runway, taxiway and apron at Pearson International Airport, Canada.

McCormick Rankin

60 Briarwood Avenue
Mississauga, Ontario
Canada L5G 3N6
Tel: (416) 274-3477
Fax: (416) 274-7965
R.D. Nairn, President
R.C. McCormick, Principal

McCormick Rankin, established in 1957, is a consulting firm specializing in transportation engineering. Initially, areas of expertise involved roads and bridges, but as the company expanded to meet the needs of its clients, assignments involving other transportation disciplines were undertaken including the planning, design and construction supervision of a number of major and minor airports.

A full range of services is currently provided including planning, design, construction administration services, construction supervision and quality control. The firm has applied these services to airfield facilities, electrical and lighting systems as well as groundside facilities.

Over the past 15 years, McCormick Rankin has been involved in numerous Canadian airport projects at both major airports and local airfields. Its professional staff of 45 engineers has accumulated considerable experience in the design, construction and rehabilitation of airport facilities where it has been essential to minimize disruptions to air traffic, and where safety and security have been major considerations.

Typical Airport Projects

- Plan of a major taxiway extension to improve operations at Pearson International Airport, Canada.
- Master plan for road system at Ottawa International Airport, Canada.
- Functional plan of international access road system at Pearson International Airport, Canada.

- Detailed design of Terminal 1 and Terminal 2 access road system at Pearson International Airport, Canada.
- Rehabilitation of Runway 15/33 at Pearson International Airport, Canada.
- Design of electrical facilities at various locations within Ontario's remote airfield system.
- Supervision of construction of taxiways at Pearson International Airport, Canada.
- Supervision of construction of airside and groundside facilities at Hamilton Civic Airport, Canada.

McGill University/Air Canada

3461 McTavish Street
Room 201
Montreal, Quebec
Canada H3A 1Y1
Tel: (514) 398-6166
Fax: (514) 398-3594
Telex: 5268510 MCGILLUNIVMTL
E. Burnett, Course Executive

McGill University and Air Canada have collaborated to develop a unique course in professional aviation management. This course, now in its seventh successful year, is designed to meet the increasingly sophisticated demands of airlines and civil aviation organizations around the world.

Montreal is home to both McGill and Air Canada and is itself a major centre of international aviation. Aviation companies could not choose a more appropriate place to further develop their high potential, fast-track managers. For four weeks, students will have an unparalleled view of the total aviation industry and the opportunity to discuss with others how the world aviation system operates and impacts on their own organizations. The course is designed to make course attendees vitally aware of the benefits, responsibilities and challenges of aviation and be ready to meet them with action.

McNeal & Associates Consultants Ltd.

331 Rabbit Lane
West Vancouver, British Columbia
Canada V7S 1J1
Tel: (604) 926-4509
(604) 270-8310
Fax: (604) 273-1016
W. McNeal, President

McNeal and Associates provides a wide variety of specialized consulting services for airport and airspace planning. These include airport site selection, aeronautical and land-use zoning, runway/taxiway systems, air terminal and apron systems, airport operational and support services, air traffic flow and control procedures, and enroute and terminal navigation aids. In addition to flight operations and airport planning qualifications, the company has in-depth experience in aviation-related economics and marketing.

Through its liaisons with other specialized consulting firms, McNeal and Associates can undertake and co-ordinate multidisciplinary assignments. The company's associates include civil, electrical, geological, mechanical and structural engineers; and environment sciences, telecommunications, computer science and architectural service firms.

McNeal and Associates is committed to meeting client needs in the most professional and cost-effective way possible. The company keeps up with the rapid pace of change in the aviation industry through, among other things, its extensive aviation library and on-line aviation data bases. All assignments are based on the best available information and reflect the latest developments in the field.

Most of the company's assignments have been in Western Canada on behalf of Transport Canada, several provincial and territorial governments and various municipalities and regional districts. The firm has also served clients in Indonesia, Thailand and the United States.

Typical assignments have included area airport and air navigation plans, economic impact studies, new airport site selections, airport master plans, airport planning manuals, public enquiry investigations, airport policy and standards, airport demand forecast, air navigation equipment studies, airport marketing concepts, and operational/economic studies of airport facility developments. The company is currently co-ordinating a project to test the AirBC DHC-7 and the use of microwave landing system equipment at Pemberton, British Columbia.

Monenco Consultants Limited

2045 Stanley Street
Montreal, Quebec
Canada H3A 2V4
Tel: (514) 499-3001
Fax: (514) 499-3223
Telex: 055-60735
A. Skinner, President
H.S. Watson, Vice-President

International Branch Offices
Miami, Florida; Bristol, England; Lagos, Nigeria; Singapore; Jakarta, Indonesia; New York, Clearwater and Miami in the United States.

Monenco Consultants Limited started its operations over 75 years ago as Montreal Engineering Company Limited. Today it is one of Canada's largest engineering and management consulting firms. The company provides comprehensive aviation consulting services relating to master planning, design and project management for air terminals, surface structures, hangars, air traffic control facilities, communication, navaids and utilities. The firm also provides CADD mapping and modelling, construction management, as well as special studies. Monenco has provided these services for a number of projects in Canada.

The staff of Monenco Consultants numbers approximately 1 000 of whom more than 700 are professional engineers, engineering analysts, economists, management system consultants, systems analysts, agronomists, biologists, geologists, environmentalists, communications specialists, mining experts, geotechnical experts, planners, inspectors and other highly trained technical staff.

Typical International Airport Projects

- Master planning and implementation of Manley and Montego Bay airports in Jamaica.
- Master plan of Kabul International Airport, Afghanistan.
- Air traffic control centre project in Afghanistan.
- Air terminal building projects in Miami in the United States and St. Kitts in the Caribbean.
- Aircraft hangar projects for a number of locations in the United States.
- Projects for Point Saline International Airport, Grenada.

N.D. Lea International Ltd.

1455 West Georgia Street
Vancouver, British Columbia
Canada V6G 2T3
Tel: (604) 685-9381
Fax: (604) 683-8655
Telex: 04-55144
(Outside Canada) 21-455144
J.B. Cox, President
M.S. Tanton, Vice-President

International Branch Offices
Jakarta, Indonesia; Kathmandu, Nepal; Christ Church, Barbados; Maputo, Mozambique; and Rangoon, Burma.

N.D. Lea International Ltd., a member firm of the Lea Associates group, is a Canadian company owned by its principals who are active as consulting engineers. The firm's primary objective is to provide high-quality planning and engineering services for air, land and sea transportation systems; it has been working overseas since 1966, providing services to over 20 countries.

N.D. Lea International offers a broad range of airport services including feasibility studies, site selection, master planning, engineering design, preparation of tender documents, evaluation of tenders, construction supervision, contract administration and project management.

N.D. Lea International Ltd. endeavours to enter into joint ventures with local consultants in order to be fully responsive to the unique needs of the client. The firm maintains a core group of airport planning and design specialists and draws upon other Lea Associates companies for additional engineering expertise as required.

Typical Airport Projects
- Project management of 22 airports in 13 Commonwealth Caribbean countries.
- Design and expansion feasibility of the air terminal building at Kathmandu International Airport, Nepal.
- Ground access studies for passenger terminals at Vancouver and Regina airports, and the Winnipeg International Airport, Canada.
- Analysis of new local air services in southern Ontario, Canada.
- Master planning and feasibility studies for Katunayake International Airport, Sri Lanka and Piarco and Crown Point International Airports in Trinidad and Tobago.
- Airport design and construction supervision at Kathmandu International Airport, Nepal, and Vancouver International Airport, Canada.

NORR Airport Planning Associates Limited (NAPA)
A Subsidiary of NORR Partnership Limited

40 University Avenue
Toronto, Ontario
Canada M5J 2G3
Tel: (416) 977-1266
Fax: (416) 977-1733
Telex: 06-23255
H.E.H. Roy, Chairman
T. Carnahoff, President

NORR Airport Planning Associates Limited (NAPA), a wholly owned subsidiary of NORR Partnership Limited, is a leading Canadian engineering and architectural consulting organization. NAPA was formed in 1979 to concentrate on airport planning and design work, which had been a major part of NORR's activities for 25 years. NAPA's airport consulting expertise includes airport systems analysis, comprehensive airport planning and airport facilities design.

Typical International Airport Projects
- Master planning and preliminary design of a new airport for Copenhagen, Denmark.
- Planning and design for a terminal expansion project at Bermuda International Airport.
- Terminal area planning study for Kingsford Smith Airport in Sydney, Australia.
- Planning, design and construction supervision of an airport for Kathmandu, Nepal.
- Preliminary design of all terminal area buildings at Maseru International Airport, Lesotho.
- Planning and process design of a flight kitchen for Singapore Airlines at the new Changi International Airport, Singapore.
- Design of an aircraft maintenance hangar for Air Lanka in Colombo, Sri Lanka.

Phillips Barratt Kaiser Engineering Ltd.

2150 West Broadway, Suite 200
Vancouver, British Columbia
Canada V6E 4L9

1100 Walker's Line
Burlington, Ontario
Canada L7N 2G3
Tel: (604) 736-5421
Fax: (604) 736-1519
Telex: 04508660
Cable: PHILBAR VCR
R.P. Ott, President and Chief Executive Officer
J. Akerley, Vice-President

International Branch Offices
Kinshasa, Zaire.

Phillips Barratt Kaiser Engineering Ltd. (PBK), one of the larger firms of independent transportation consultants practising internationally from a base in western Canada, provides comprehensive planning, design and project management services to airport authorities, operators and airline companies. The company, with a permanent staff of 225 employees, was established in 1937 and is majority Canadian-owned by its senior employees. The firm has complete access to the expertise and facilities of Kaiser Engineering Inc. on a worldwide basis.

Services range from preliminary demand and utilization studies, through the preparation of conceptual designs and preliminary cost estimates for approval purposes, to the preparation of detailed designs, contract documents, construction supervision and the provision of project management services for major international airports. Recent assignments have included the redevelopment and expansion of existing passenger-handling facilities as an economic alternative to the development of new airports.

The company's expertise includes the analysis and design of cargo-handling installations and airside vehicle control. Passenger and public access, parking and security arrangements are integral aspects of PBK's comprehensive approach to airport planning and development. Phillips Barratt Kaiser is also actively involved in the planning, design and project management of airline operation centres and aircraft maintenance and overhaul facilities. Several major installations have been completed for international airlines.

In addition to its extensive work in Canada, the company has ongoing or recently completed projects in Algeria, Botswana, Burma, Ethiopia, the Philippines, Senegal, Tunisia, Turkey and Zaire.

PRIOR Data Sciences Ltd.

240 Michael Cowpland Drive
Kanata, Ontario
Canada K2M 1P6
Tel: (613) 591-7235
Fax: (613) 591-0343
Telex: 053-3356
K. Hamilton, Vice-President, Marketing
L. Northway, Marketing

PRIOR Data Sciences specializes in turnkey real-time computer systems and software engineering. The company offers expertise in the following areas:

- integrated navigation systems;
- automated air traffic systems;
- radar data processing;
- flight plan data processing; and
- computer simulation.

Other specialty areas are:

- computer graphics products and simulation (InterMAPhics, GKS/C, GKS/Ada, graphics tools);
- speech recognition; and
- distributed fault tolerant operating systems.

The firm is Canada's leading Ada technology company. It has provided system design and development to Canada's Department of National Defence and Transport Canada.

Robertson Nickerson Limited

75 Albert Street, Suite 610
Ottawa, Ontario
Canada K1P 5E7
Tel: (613) 238-4625
Fax: (613) 563-1992
Telex: 053-3198
CANADA BIZ OTT
M.L. Nickerson, Partner

Established in 1971, Robertson Nickerson Limited is a firm of consulting engineers and management consultants that specializes in airport telecommunications, navigational aids and visual aids.

Typical International Airport Projects

- Design of telecommunications and navigational aids systems for 15 airports in the Caribbean (part of the Caribbean Airports Project). Included project planning, site selection, cost estimates, design and specifications, tender documents, purchasing, inspection, installation, training and flight inspection.
- Planning, design and technical assistance in the development of a regional maintenance organization for the Organization of Eastern Caribbean States, based in Antigua. Included development and outfitting of a base workshop, technical assistance to the organization in the maintenance and installation of telecommunications and navigational aids.
- Design of navigational aids and communications systems for 20 airfields and remote sites throughout Burma. Included inspection report, site selection, range coverage, design, specifications, tender documents, selection of equipment, training and supervision of installation and commissioning.
- Inspection and quality assurance of navigational aids and communications equipment manufactured for the Burma Department of Civil Aviation.
- Technical and economic study of airports and air routes in Burma; recommendations on a new fleet of aircraft for the Burma Airways Corporation; and recommendations on a network of navigational aids for supporting the proposed new route structures.
- Design of electrification and visual aids for 17 airports in Burma. Included inspection report; establishing facility requirements; integrating requirements and systems with the Navigational Aids and Communications Systems Project; design of electrical power systems, new field electrical centre, all visual aid systems and all electrical control systems; administration and contracting details; supervision and inspection; and a training program in Canada and in Burma.
- Requirements analysis and design and procurement of equipment for a new base workshop and regional centres for maintenance of the airfield equipment installed in Burma, including a spare parts system, logistics and preventive maintenance organization and systems.

R.S. Wallace & Associates Ltd.

P.O. Box 749
5 Main Street
Manotick, Ontario
Canada K0A 2N0
Tel: (613) 692-2501
Fax: (613) 692-4471
R.S. Wallace, President
J.B. Wallace, Corporate Secretary

R.S. Wallace & Associates Ltd., established in 1975, provides specialist transportation consulting services to government, industry and other consulting firms. The company has a broad range of expertise in the transportation field, combined with management, engineering and systems analysis skills. Its area of specialization is intercity transportation, particularly airport and air transportation systems planning and design. A growing area of involvement is in departmental program evaluation auditing that has a transportation component.

Senior, intermediate and junior professionals as well as support personnel make up the permanent staff. This core group is augmented by a large number of associates, each offering a particular specialty or area of expertise. In airport planning and design, the associates include recognized experts in the areas of pavement design, passenger terminals, mobile equipment, airport electrical systems, power supply and navigational aids.

Typical International Airport Projects

- Evaluation of the delivery process used in the design and construction of five international air terminal buildings in the Windward and Leeward Islands in the Caribbean.
- Assistance in the rehabilitation and completion of Point Saline International Airport, Grenada.
- Functional design of passenger and baggage flows of Varadero air terminal building, Cuba.
- Technical review of the planning and design of El Cibao International Airport, Dominican Republic.
- Economic review of site development plans of El Cibao International Airport, Dominican Republic.
- Apron and taxiway design followed by preparation of tender documents for the Government of Trinidad and Tobago.
- Feasibility study for the expansion of Kimpo International Airport in Seoul, South Korea.

Stanley Engineering Group Inc.

Mayfield Business Centre
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Edmonton, Alberta
Canada T5P 3X6
Tel: (403) 483-4777
Fax: (403) 489-8852 (G2, G1)
Telex: 037-41432
R.P. Triffo, President, Stanley Group
D.D. Mears, Vice-President, Stanley Group
A.P. Franceschini, President, IMC Consulting Group

International Branch Offices
Seoul, South Korea; Lusaka, Zambia; Lilongwe, Malawi; and St. Lucia in the Caribbean.

The Stanley Engineering Group, with approximately 500 professional and technical support staff, provides a full range of consulting services to the airport and aviation industries. The major areas of expertise include management consulting, airport and aviation planning, as well as engineering design and construction management.

The Stanley Group offers management consulting services essential to the management and development of airports, the airline industry and the general aviation sector. Specific expertise includes management organization, systems development, marketing, forecasting, economic and financial evaluations and industry analyses. The firm has

also undertaken a number of important related assignments including the preparation of forecasts of passenger traffic, study of the development of the first independent airport authority in Canada, the preparation of a major airport system marketing program and economic impact studies for major international airports. Airline industry assignments have involved investigations of pricing structures, computerized reservation systems and passenger travel patterns.

The Stanley Group has been responsible for preparing the airport master plans and design of 20 airports ranging in size from small local airstrips to regional and major international airports. Assignments have involved the preparation of passenger and aircraft activity forecasts, complete airside planning, terminal area development and groundside facilities. Comprehensive land-use plans have been prepared for a full range of airstrips and airports.

The firm offers expertise in the design and construction management of virtually all the components of an airport infrastructure. The Stanley Group has been responsible for the design and reconstruction of taxiways and aprons at a number of international airports as well as the installation of airport electrical systems. The firm has also established expertise in the development of advanced airport maintenance systems and noise monitoring systems.

SYPHER:MUELLER International Inc.

130 Slater Street
Suite 1025
Ottawa, Ontario
Canada K1P 6E2
Tel: (613) 236-4318
Fax: (613) 236-4850
Telex: 053-3198
G.B. Hamilton, President
R.L. Monroe, Principal
J.C. Spacek, Principal

Founded in 1981, SYPHER:MUELLER has built a solid reputation as a management consulting firm specializing in the aviation field. Its staff of 22 represent a wide range of professional and technical experts, using sophisticated, in-house software, hardware and databases to support their work.

Company services include airport management and operations, airport master plans, airside/terminal systems modelling, airline/commuter service studies, heliports/helicopter operations, revenue development/cost control, traffic forecasting, aircraft acquisition, route development, market development, air service development, forecasting, applications software development, advanced air navigation technology assessment, aviation systems plans, general aviation analysis, environmental studies, airline operations, aviation safety/airworthiness, regulatory economics, rate analysis/negotiation and regulatory/licensing analysis.

Typical Airport Projects

- Financing, operations and security plans for Terminal 3 at Toronto's international airport.
- Financial module for Thunder Bay Airport master plan.
- Airport investment analysis program for Government of Brazil.
- Project evaluation for five-year project to upgrade Commonwealth Caribbean airports.
- Study to identify future transportation requirements of coastal Labrador.
- Development of computer-supported operations research technique for analyzing capacity and levels of service of airports.
- Market analysis for Canada-Japan air services 1974-1983.
- Assessment of the benefits and costs of Head Up Displays (HUD) in commercial aircraft.
- Evaluation of crash/fire rescue services at Transport Canada airports.
- Development of policy for the provision of emergency airstrips in Yukon.
- Development of an ergonomically suitable training workstation for air traffic control trainees.

T E S Limited

P.O. Box 9372
2548 Sheffield Road
Ottawa, Ontario
Canada K1G 3V1
Tel: (613) 741-9402
Fax: (613) 741-6209
Telex: 053-4741
L.A. Garland, President

TES Limited is a multi-disciplinary electronics and mechanical engineering firm, which, over the past decade, has completed a wide range of projects, including many in the air transportation field. The company has served government, military and industrial clients in Canada, the United States, the Caribbean and Europe. TES's proven capabilities include: **research**, encompassing feasibility studies, performance testing and data collection; **development**, covering instrumentation design and fabrication, mechanical systems design, prototype fabrication and testing; and **production** of varying quantities of specialized items.

The firm's staff of more than 60 engineers and specialist support personnel are committed to functional, cost-effective solutions to client problems. Projects are initiated through intensive consultation with clients, carefully planned and organized throughout and include comprehensive, logical and thorough documentation.

Typical Airport Projects

- Worldwide survey of state-of-the-art airport emergency services vehicles.
- Analysis of airport snow removal team performance.
- Study to determine amount of standby mobile snow removal equipment required at Canadian airports.
- Development of testing standards to measure performance of airport vehicles.
- Measurements of runway coefficient of friction at 14 major Canadian airports.
- Evaluation of instruments used to measure runway friction.
- Feasibility study on bulk use of urea to control ice on runways.
- Design of Electronic Recording Decelerometer to measure runway friction.
- Design of ultrasonic system to measure onboard weights and balances of aircraft loads.
- Study to evaluate accessibility of Canadian airport terminals to the handicapped.
- Study on air transportation of wheelchair batteries to improve accessibility of air travel for wheelchair users.
- Detailed assessment of mechanical devices used to assist wheelchair passengers in boarding aircraft.

Trow Inc.

1595 Clark Boulevard
Brampton, Ontario
Canada L6T 4V1
Tel: (416) 793-9800
Fax: (416) 793-0641
Telex: 06-97802
W.A. Trow, President
C.D. Thompson, Secretary, Vice-President

International Branch Offices
Longwood, Florida, the United States.

Trow Inc. was founded in 1957 to provide consulting services in geotechnical engineering, building science, concrete technology, pavement technology, hydrogeology and environmental engineering.

Trow has provided consulting and design services, materials testing and construction monitoring for a large number of airport projects. Activities range from preliminary site selection to complete construction control audit including search for materials from borrow pits, subsoil investigation, pavement design and materials testing.

Trow Inc. and its affiliates have a staff of more than 300 including engineers, geologists, hydrogeologists and technologists and backup consulting staff. The company has completed more than 30 000 projects since 1957.

Typical Airport Projects

- Construction control services at Pearson International Airport, Canada.
- Subsoil investigation at Mirabel International Airport, Canada.

- Evaluation of runway pavement performance at Tampa Bay International Airport, the United States.
- Complete construction control audit for the new Riyadh International Airport, Saudi Arabia.
- Pavement design of Ujung Pandang International Airport, Indonesia.
- Analysis and rehabilitation of existing pavement at Khamis Mushayt Military Airport, Saudi Arabia.
- Groundwater and drainage study for Halifax International Airport, Canada.
- Pavement rehabilitation study for Abu Dhabi International Airport, United Arab Emirates.
- Pavement evaluation and materials testing of runways, taxiways, etc., for airports at North Bay, Timmins, Elliot Lake, Earlton and Kapuskasing, Ontario.

Victor Engineering Limited

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Nepean, Ontario
Canada K2H 7J5
Tel: (613) 596-0649
Fax: (613) 828-2163
Telex: 053-3854 MALLORN OTT

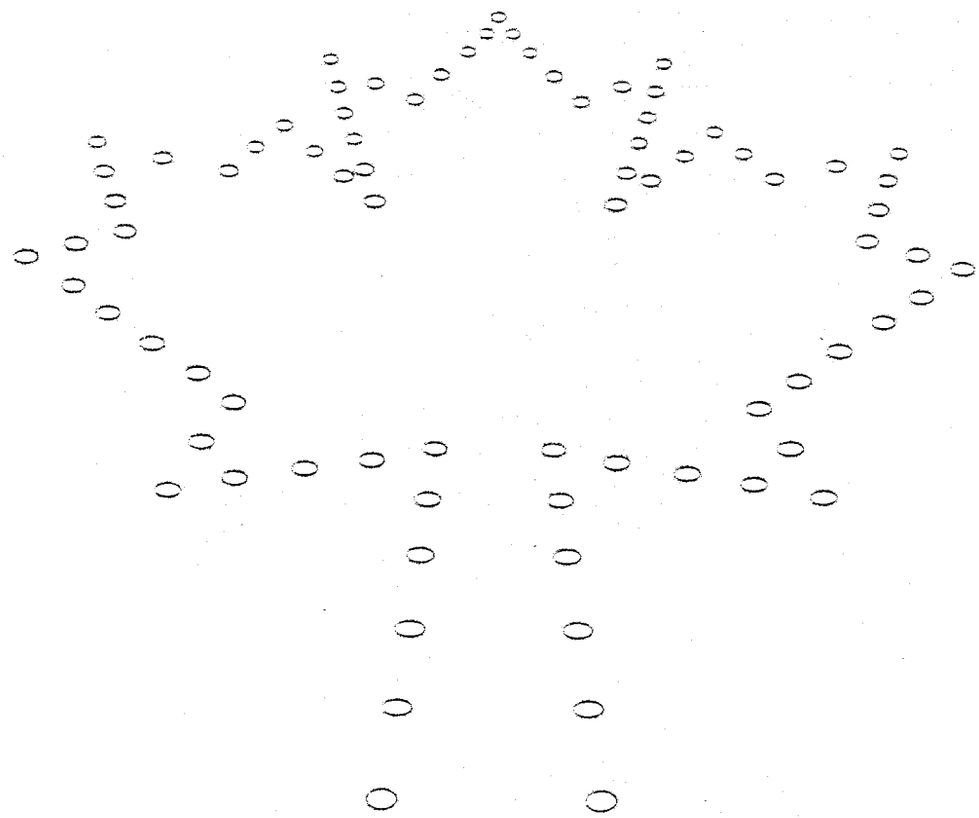
International Office
301–3210 Gulf Blvd.
Bellair Beach
Florida, U.S.A. 34635
Tel: (813) 595-1173
V.E. Worobey, President

■ Victor Engineering Ltd. provides engineering consulting services for Building Environmental Control Systems (EMCS), including energy management; pneumatic, electric and electronic controls; computerized central monitoring systems; and direct digital control.

The firm's capabilities include feasibility studies (with project costing and payback, based on energy and human resource savings); system design, plans and specifications; installation inspection and monitoring; fine tuning and commissioning; operator training; and troubleshooting.

The company has undertaken projects for the Air Control Centre, Winnipeg; the Air Control Tower, Thunder Bay; the Aviation Navigational Services, Ottawa; RAMP Ottawa; and for airports in Saskatoon, Regina, Victoria, Moncton and Windsor.

Government Services



Canada's Trade Offices

Canadian government trade offices are located in many Canadian embassies and consulates in more than 60 countries. As promoters of Canadian exports, they also assist foreign companies, industrial organizations or government agencies interested in doing business with Canada, whether as purchasers of Canadian goods or services, or as participants in joint ventures involving the development, manufacture, marketing or licencing of aerospace products.

The offices abroad are equipped to deal with preliminary enquiries relating to the financing of large-scale capital projects which may ultimately involve the Export Development Corporation, the Canadian Commercial Corporation or the Canadian International Development Agency.

Airports Authority Group, Transport Canada

Tower 'C', Place de Ville
Ottawa, Ontario
Canada K1A 0N8
Tel: (613) 990-3001
D.C. McAree, Executive Director

The Airports Authority Group (AAG), which operates Canada's national airports system, is the second largest centralized airport administration in the world. It had approximately 5 000 employees and a budget of $740 million in 1985-86. The AAG wholly owns 136 of the country's 1 300 licensed airports and operates 107 of them, including the nation's eight international airports. The value of this investment, excluding land, is $7.5 billion. All scheduled international traffic and approximately 85 per cent of all domestic traffic flows through AAG operated airports.

The AAG has hundreds of highly qualified specialists employed in airport development, operations and maintenance. Their areas of expertise include airport planning, requirements identification, forecasting, cost estimating, design, contract administration, construction supervision, project management, vehicle fleet management, airport management, snow and ice control, environmental management, bird and wildlife control, airport security, crash, fire and rescue, commercial development, marketing research and strategy, promotion and training.

The AAG also carries out specialized studies, testing and audits relating to operational efficiency of airports; airport maintenance procedures; compliance with international standards and requirements; capacity studies of airport facilities; runway, taxiway and apron pavement design, maintenance and repair; power reliability; modifications and extensions to airport facilities and airport planning; processing of passengers, luggage and cargo through airports; and public relations.

Typical International Airport Projects
At the request of foreign governments, either directly or through the Canadian International Development Agency (CIDA), External Affairs or the Canadian private sector, Transport Canada has assisted many countries in Asia, Africa, South America and the Caribbean with planning, design and construction of projects related to air transportation.

Canadian Commercial Corporation

Export Supply Centre
Ottawa, Ontario
Canada K1A 0S6
Tel: (613) 996-0034
Telex: 053-3703

The Canadian Commercial Corporation (CCC) is a Crown corporation controlled by the Government of Canada. It was established in 1946 by Act of Parliament "to assist in the development of trade between Canada and other nations."

CCC's principal function is to act as the contracting agency when foreign governments and international agencies wish to purchase goods or services from Canada on a government-to-government basis. Contracting for the corporation is carried out by Supply and Services Canada, the central procurement agency for the Government of Canada. The customer is assured that the Canadian supplier is considered by the Government of Canada to be financially and technically capable of conforming with bid specifications, contract terms and supplier warranties.

The availability of CCC's services does not prevent foreign governments or international agencies from contracting directly with Canadian manufacturers if they so desire. However, the corporation can provide foreign buyers with the same level of purchasing services as enjoyed by the Government of Canada when it purchases for its own account. Using the services of the government's own purchasing experts, CCC can identify competent sources and assure customers that prices and terms from Canadian suppliers are equitable. In addition, the financial aspects of transactions are simplified, approved customers receive open-account privileges and CCC assumes responsibility for paying suppliers' invoices and performing contract audits where required.

Enquiries concerning CCC should be addressed to the Canadian embassy, high commission or consulate in the various countries, or directed to the address above.

Export Development Corporation

P.O. Box 655
Ottawa, Ontario
Canada K1P 5T9
Tel: (613) 598-2500
Fax: (613) 237-2690
Telex: 053-4136
Cable: EXCREDCORP

The Export Development Corporation (EDC) is a Crown corporation whose purpose is to facilitate and develop Canada's export trade. EDC is the successor to the Export Credits Insurance Corporation (ECIC) which was established by an Act of Parliament in 1944.

EDC provides insurance, guarantee and financing services which, combined with advice and the organization of financial service packages, help firms selling Canadian goods and services to compete effectively abroad. It attempts to provide services that are internationally competitive so that, in the context of requirements for specific transactions, firms that are competitive in terms of price, quality, delivery and service are also effectively competitive in terms of the availability of financial services.

EDC works for the smaller exporter as well as the larger ones. There is no minimum value of export business required to qualify for support. The corporation continually reviews its programs and attempts to meet the specific needs of exporters with high potential for growth and competitiveness.

EDC provides export financing for up to 85 per cent of the contract value, at both fixed and floating rates of interest, to foreign buyers of Canadian capital goods, equipment and services. Funds are disbursed directly by EDC to Canadian exporters on behalf of the borrower, in effect providing the exporter with a cash sale.

Enquiries concerning EDC should be addressed to the Canadian embassy, high commission or consulate in the various countries, or directed to the address above.