

of the EAR-MIKE for North America, the company was so successful they were approached by the manufacturer to enter into a joint venture agreement. The joint venture has been completed and Magnum is now responsible for the manufacture and distribution of the EAR-MIKE on an international basis.

**CAPABILITY:** Magnum Distribution is primarily involved in the design, manufacture and distribution of EAR-MIKES and HEADSETS, which are the key accessories for two-way portable radio equipment. Magnum has also designed a vehicular intercom system for use in emergency rescue vehicles, fire trucks or any vehicle which operates in environments where there is a high ambient noise level where maintenance of two-way communication is critical. Magnum capabilities include engineering (encompassing R&D), production, quality control and training. There is a dealer network established throughout North America for product support and service. The dealer network in the US is operated by our associate company Magnum Distribution Inc which is located in Blaine, Washington. Additional, Magnum sells EAR-MIKES internationally and can provide product support and service in the following countries - West Germany, Norway, Sweden, Belgium, Denmark, France, the UK, Australia, Singapore, Japan, Hong Kong, Taiwan, Brunei, Indonesia, Malaysia, the Philippines, Thailand, Saudi Arabia, Bahrain, Yemen, Kuwait, United Arab Emirates, Oman, and Qatar.

**AVERAGE WORK FORCE:** Engineers - 2  
Production Mgr - 1  
Technicians - 5

**GROSS SALES:** 1986 - \$.0M  
1987 - \$.08M

**PLANT SIZE:** 1,800 Sq Ft

**EQUIPMENT:** EM-200 Ear-Microphone, EM-200A Ear-Microphone Airline Version, EM-200W Hardwired Intercom System, HS-600 Light Noise Attenuation Headset, HS-700 Medium Noise Attenuation Headset, HS-800 High Noise Attenuation Headset, and Vehicular Intercom System.

**EXPERIENCE:** Magnum's present Government customers include - the Department of Supply & Services, the RCMP, the Coast Guard, and the Department of Fisheries, and Parks and Recreation. Additionally, other customers include many municipal fire and policing agencies as well as general industry.

**KEYWORDS:** Ear-Microphone; Handsfree Radio Communications; Headsets; Vehicular Intercom Systems; Communications Design.

**REVISED:** January 88

## MAGNUS AEROSPACE CORPORATION

**ADDRESS:** 237 Metcalfe Street  
P. O. Box 599, Sta B  
Ottawa, Ontario, Canada  
K1P 5P7

**CONTACT:** Mr Frederick D Ferguson, President - (613) 236-4798

**HISTORY:** Founded in 1981 by Mr Ferguson, Mr F Y McCutcheon (Toronto), Mr C Bosch (Bermuda), to develop a Heavy-Lift, Lighter-than-Air Craft industry based upon Mr Ferguson's invention of the Rotating Sphere (Magnus effect) airship. The company built scaled prototypes and has extensively analyzed the "LTA 20-1". In 1987, Magnus was awarded a prime contract with the Strategic Defense Initiative Office (SDIO), US Military. US Contact is Mr P Stockton at (617) 523-5630.

**CAPABILITY:** Magnus is primarily involved in the start-up and manufacturing of low level, VTOL, heavy-lift, lighter-than-air-craft. Payloads up to 400 tons can be lifted with helicopter-like precision hover and placement. The LTA 20-1 design is a twin tilt rotor design encompassing a helium filled sphere which provides neutral buoyancy without payload. The sphere provides additional lift by rotating (magnus effect) as the craft translates to forward velocity. The craft is analogous to a large weightless tilt-rotor aircraft. Magnus is explor-

ing the possibility of operating the LTA 20-1 at high altitudes for station-keeping missions. The SDIO contract resulted in aircraft definition for three high altitude roles and one heavy lift specification. Magnus envisages co-production with existing manufacturers.

**AVERAGE WORK FORCE:** (Est'd 1988)  
Technical - 40  
Others - 10

**GROSS SALES:** 1988 - \$5.0M (Est'd)  
1981/1987 - \$17.0M (Gross Investment Income)

**PLANT SIZE:** 10,000 Sq Ft

**EXPERIENCE:** SDIO US Military, definitions contract, extensive R&D analysis including computer analysis and wind tunnel (Institute for Aerospace Studies, University of Toronto).

**KEYWORDS:** Lighter-Than-Air; LTA Systems; Airships; Heavy-Lift Systems; Vertical Take-Off and Landing; Spherical Airships; Magnus Effect; Aerodynamic Research; High Altitude Airships; Aerial Crane; Blimp Systems.

**REVISED:** February 88

## MBB HELICOPTER CANADA Ltd

**ADDRESS:** 130 Albert St, Suite #910  
Ottawa, Ontario, Canada  
K1P 5G4

**CONTACT:** Mr D P Chambers, Manager, Government Programs - (613) 232-5454

**HISTORY:** MBB Helicopter Canada Ltd began operation as Canada's first helicopter manufacturer in April 1984. The company was established as a result of a contract with the Federal and Ontario Governments, and is 95% owned by Messerschmitt-Boelkow-Blohm GmbH of West Germany and 5% owned by Fleet Aerospace of St Catharines, Ontario.

In 1986, MBB Helicopter Canada Ltd opened an 85,000 sq ft manufacturing plant in Fort Erie, Ontario. MBB Helicopter Canada Ltd has the world product mandate for the manufacture of the BO 105 LS helicopter, the latest in MBB's series of light twin engine helicopters. The BO 105 LS is especially designed for operations in areas of hot temperatures and high altitudes.

**CAPABILITY:** The capabilities at the Fort Erie, Ontario facility range from research and development, systems integration and flight testing, to full scale product support. The production facility will provide for up to 38 helicopters at various stages of completion at any one time and a Quality Assurance section monitors this production at each assembly stage through to final approval of the flight-tested helicopter.

The Product Development Group's capabilities include preliminary design and development schemes, detailed electrical and mechanical design, specifications for materials and processes, final preparation of drawings, and load and stress analysis. There is a writing services department that produces technical publications including maintenance, overhaul and repair manuals, and flight manuals.

The company's Marketing Department is located in Ottawa, Ontario, and is responsible for the promotion and sale of all MBB helicopters, including the BO 105 CBS and the larger BK 117.

**AVERAGE WORK FORCE:** Corporate - 5  
Marketing - 7  
Finance - 16  
Engineering - 42  
Operations - 68  
Quality Assurance - 8

**GROSS SALES:** 1987 - \$20.0M

**PLANT SIZE:** 85,000 Sq Ft