Plasma spray coating – Combustion liners, fan and stator casings, miscellaneous parts.

Repair and overhaul of jet engine components:

VAC-AERO is approved by Transport Canada and various aerospace companies for a variety of repairs using plasma spray, vacuum brazing, tungsten arc and electron beam welding.

Specific components repaired include – compressor stators, turbine vanes and nozzles, combustion chambers, shafts and miscellaneous components.

Manufacture of new parts to print:

VAC-AERO can also manufacture brazed and electron beam welded assemblies to customer specifications and drawings. They specialize in components such as aluminum vacuum brazed heat sinks and cold wall assemblies for radar and avionics equipment.

VAC-AERO offers a complete line of cold wall vacuum furnaces ranging from small laboratory models to large bottom loading production units. They have supplied these furnaces to a wide variety of customers in the aerospace, nuclear and other high technology industries.

In addition, they can supply ancilliary furnace equipment such as high temperature molybdenum fixtures, water recirculating units, and work handling systems. They also offer complete turnkey installation services, extensive operator training programs and post sale preventive maintenance service.

Average Work Force: Engineers – 6

Gross Sales: 1980 – $3.5M
1981 – $3.8M
1982 – $3.9M
1983 – $3.6M

Plant Size: 17,740 sq ft (Oakville Division)
9,250 sq ft (Montreal Division)

Equipment: VAC-AERO employs the following equipment:

Vacuum oil quenching furnaces capable of hardening part sizes to 72 in. dia. x 84 in. high, vacuum brazing and heat treating furnaces suitable for temperatures to 2700°F and ultra high vacuum levels to $1x10^{-6}$ torr.

Electron beam welding chamber size of 36 in. deep x 36 in. high x 52 in. wide can be extended to accommodate shafts and similar parts to 72 in. long.

Plasma coating equipment including Metco 3M, 45kW and Metco 7M, 80kW plasma guns.

In-house facilities for repair and overhaul including lathes, vertical mills, grinders, and EDM equipment for machining.

Complete metallurgical laboratory in addition to normal dimensional checking equipment, complements quality control capabilities.

Experience: Present customers include numerous companies in the aircraft, avionics, electronics and nuclear power generation industries. VAC-AERO holdscurrent processing approvals from the following companies – Canadian Forces; Boeing Aircraft Co; Canadair; The deHavilland Aircraft of Canada Ltd; McDonnell Douglas Aircraft Co; General Dynamics; Grumman Aircraft; Pratt & Whitney Aircraft, Hartford, CT; Pratt & Whitney Canada; General Electric, Burlington, VT and Lynn, MA; Garrett Airsearch Mfg; Litton Systems (Canada); Litton Systems (USA); Hawker Siddeley Canada, Orenda Division; Menasco Canada Ltee; Menasco, Burbank, CA; Spar Aerospace; Bristol Aerospace Ltd; McDonnell Douglas; Cleveland Pneumatic; Bell Aerospace, Fort Worth, TX; Sikorsky Aircraft, Stratford, CT; DAF Indal Ltd; Fleet Industries; Kaman Aerospace, Bloomfield, CT; and Avco Lycoming, Stratford, CT.

Keywords: 1 = Aircraft; 3 = Avionics; 7 = Electronics, 8 = Energy, 12 = Machining; 15 = Radar; 20 = Miscellaneous; Vacuum Brazing = 1, 3, 15; Vacuum Heat Treating = 1, 3, 7, 8; Repair & Overhaul = 1, 12; Electron Beam Welding = 1, 3, 7, 8, 20; Plasma Spray Coating = 1, 8, 20; Vacuum Furnaces = 1, 3, 7, 8, 20; Brazed Aluminum Heat Sinks = 3, 7, 15.

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VALCOM Ltd

Code: VAL

Address: P. O. Box 603
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History: Valcom is a Canadian company founded in 1957. It custom designs, manufactures and markets electronic communication systems and components. By attracting skilled radio frequency (RF), digital and software engineers, they have developed the expertise to compete successfully in both the military and commercial segments of the international marketplace.

Capability: In addition to the above, Valcom extended its services to include a repair and overhaul facility to refurbish land tactical and shipboard communications equipment for the Canadian Department of National Defense (DND) in 1972. This facility was expanded in 1980 with the signing of a contract with Atmospheric Environment Service of Canada (AES) to overhaul meteorological test gear. Valcom's diversification into areas which utilize the firm's assembly and engineering skills continued in 1982 when it became the Canadian licensee for Radiosonde Meteorological instruments.

Valcom's general areas of expertise are categorized below:

- *Systems Engineering* – Valcom's management believes that the firm's distinctive competence lies in its ability to design complex equipment that will withstand the rigors of military use for many years. As an example, their engineers have designed one and ten kilowatt coupler control units which in combination with their whip antennas, interface efficiently with various transmitters. Valcom's 1 kW coupler system is fully automatic. It operates in the 2 to 30 MHz frequency range and features a non volatile amorphous memory. A military configuration of this system is now in service with the the Canadian Navy. Valcom's 10 kW coupler is designed for high power transmission applications such as maritime control and ground to air stations. This system, when interfaced with a 10 kW transmitter and Valcom's 54 ft whip antenna, can be controlled manually or automatically. It is capable of storing up to 20 preselected channels and is the only automatic coupler designed to handle output power to 10 kW. Seven of these systems have been in operation in Canada since 1978. They are currently upgrading their 1 and 10 kW couplers in order to provide frequency hopping capability.

- *Repair and Overhaul* – Valcom's technicians have through ongoing training programs, developed the ability to service LF, MF, HF, and VHF couplers, coupler control units, transmitter/receivers and a variety of other military equipment.