

HISTORY: Rolls-Royce Canada was founded in 1952 for the production and support of Nene engines powering the Canadian Armed Forces' T-33 trainer aircraft built by Canadair. From that specialized beginning, Rolls-Royce Canada has continually grown and diversified. Still expanding today, Rolls-Royce Canada is a modern broadly based aero and industrial engine facility. The company is a wholly owned subsidiary of Rolls-Royce PLC.

CAPABILITY: Repair and overhaul has always been and will continue to be the backbone of Rolls-Royce Canada's business. The company has the ability to repair and overhaul the following engines:

- Military – Nene; GE T64; R 1820; Adour (F405-RR-400).
- Civil – Spey; Dart; Viper; RB211 535E4, Tay.
- Industrial – Avon; RB211; Spey. These engines cover the medium to high power range, i.e., 3000 to 4000 lbs thrust, 1500 to 3500 SHP (capability to 9000 SHP) and up to 3500 GHP.

A repair engineering group works closely with prime manufacturers and the repair industry to develop and apply new repair techniques and processes. Repairs are carried out in accordance with the original manufacturer's specifications. In addition, Rolls-Royce Canada has developed more than 3000 repair schemes on its own in an effort to increase component lives and to reduce overhaul costs.

Rolls-Royce Canada is the world source for the Industrial Spey and Industrial RB211 gas generators. These aero derivative gas turbines are manufactured to aerospace standards. The company has developed and manufactures the off-engine support systems for both industrial gas turbines.

AVERAGE WORK FORCE: Salaried – 227
Hourly – 458
Management – 43

GROSS SALES: 1986 – \$122.0M
1987 – \$113.0M

PLANT SIZE: 38,000 Sq Ft (Engine Assembly)
120,000 Sq Ft (Engine Overhaul and Common Support Shops)
35,000 Sq Ft (Test Beds)
170,000 Sq Ft (Offices & Warehouses)

EQUIPMENT: The repair shop contains a wide range of general purpose machine tools to enable turning, milling, jig boring, grinding, and electrical discharge machining to be carried out on a wide range of materials. Welding capabilities include Hobart Dabber Automatic Pulse Weld System, TIG weld, metallic arc resistance, needle arc, torch brazing and vacuum, or inert gas high temperature brazing. Heat treatment includes argon or hydrogen controlled atmosphere, low and high temperature vacuum heat and aluminizing. Metal spray capabilities are thermal spray (powder and wire) including 6P gun and plasma spray; erosion or wear resistant hard coatings; abrasible coatings; thermal barrier (ceramic) coatings and anti-corrosion coatings. Processing capabilities include non-metallic coatings-rubber wear away and PL95, nickel, chrome, silver, cadmium, copper, SerMetal processing, tin, lead-tin and Tribomet wear resistant coatings; soft anodizing, alodine dichromate surface treatment and phosphating; vapor blasting, dry blasting and shot peening; electroless nickel plating; and aerofoil surface superfinish. Balance includes static/vertical and dynamic/horizontal.

Rolls-Royce Canada operates five diverse engine test facilities capable of testing a wide range of equipment encompassing piston engines, turboprops and turbofans. A new state-of-the-art test bed was inaugurated in November 1986, which can accommodate engines of up to 100,000 lbs thrust. The company designs and engineers all supporting systems (starting, fuel, lubrication, cooling), equipment (cradles, carts, tooling), safety controls (interlocks, alarms, trips) and instrumentation.

The laboratory presently holds DND approval number 020-2/56 to act as a chemical, metallurgical and mechanical test establishment and offers a wide range of services encompassing tensile testing, hardness testing, metallography, electronic and instrumentation testing and, radiographic and ultrasonic testing.

EXPERIENCE: Rolls-Royce Canada is highly export-oriented – over 70% of the company's business is with non-Canadian customers. Although 80% of the customer base is within the continental Americas, Rolls-Royce Canada customers now originate in the Middle and Far East, Europe and Africa.

Rolls-Royce Canada has over 35 years experience in heavy maintenance support of aero engines for Military and Civil Operators around the world. A specialist repair engineering group develops new repair technology for economic piece part repair.

The sheet metal and welding shop carries out complex repairs on sheet metal fabricated components as well as repairing main casings by weld build-up prior to re-machining. Sheet metal components made from high temperature resistant alloys of nickel and chromium such as combustion liners, turbine entry ducts, seal fins and jet pipes are repaired by direct welding or the fabrication of locally formed patches welded into the structures. Resistance weld certification in accordance with MIL W6858 and MIL STD 1595A and fusion weld approvals can be carried out in accordance with D49-001-24/SF-001.

Quality approval conforms with the following specifications: MIL-Q-9858A, MIL-I-45208, MIL-C-45667, DAR 7-103-S; DOT Approval No. 1/58, DND 1015/16/17/19; and CAA A1/2423/47.

KEYWORDS: Aluminum Components; Calibration; Combustion Research; Components (Engines); Corrosion Control; Engine Components; Engine Systems; Engines; Gas Turbine Engines; Heat Treating; Life Cycle Support; Magnesium; Metal Plating; Non-Destructive Testing; R&O (Engines); Tool Fabrication; Turbine Blade Inspection; Turbine Engines; Welding.

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HISTORY: Sanders Canada Inc (SCI) is a wholly owned subsidiary of Sanders Associates Inc, a Lockheed Company. SCI was established in 1985 in response to the Industrial Benefits clause of the Canadian Forces AN/ALQ 126B contract to provide Canadian EW depot support, and the capability to design, test and produce EW products.

CAPABILITY: Sanders Canada Inc is primarily involved in the design, manufacture and depot support of electronic warfare (EW) products. Depot support is provided for the Sanders AN/ALQ 126B Defensive ECM System, the AN/ALT 502/503 Noise Jammer, the OL-5002 Acoustic Data Processor, and the Lockheed On-Board Structural Computer (OBSC). SCI has a resident DND QA Inspector in-plant. Manufacturing includes the production of state-of-the-art power supplies, circuit cards, and wire harnesses to MIL-Q-9858A standards. The facility is cleared to SECRET and the company operates a large TEMPEST facility, and has extensive EW simulation and modeling capabilities. On-going engineering work includes systems integration and design of airborne EW Support and Training (EST) platforms, EW Software Support, Test Program Set (TPS) development, EW Technique Studies, and development/production of portable Flight Line EW Reprogramming systems.

AVERAGE WORK FORCE: PhD – 1
Engineers – 14
Others – 110

GROSS SALES: 1987 – \$3.5M
1988 – \$9.0M (Est'd)

PLANT SIZE: 60,000 Sq Ft

EQUIPMENT: Sanders Canada Inc's equipment includes:

- In-house computing equipment including a VAX 11/785 and a Micro-VAX II computer.