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AVRO ARROW

FACTS

AVRO AIRCRAFT LIMITE

For Release: After 3 p.m.
October 4.

Some conception of the major problems which were met and overcome in the design and manufacture of the Avro Arrow can be obtained from the following:

- The aircraft required control mechanisms sufficiently powerful to lift the equivalent of six elephants standing on the elevator.

- Wiring in the Arrow extends 11 miles and there are enough tubes to take care of 200 TV sets.

- There are 800 separate relays, fuses, switches, terminals and other pieces of electrical hardware in the aircraft.

- At 1200 mph, air friction raises the temperature of an aircraft's skin by 300°F. Even - at high altitudes with the outside air temperature at around 50°F. below zero, the skin temperature is still 40°F. above boiling point of water.

- At a speed of 1200 miles an hour, at high altitudes, the perspex canopy enclosing the pilot and radar-navigator would start to blow out like bubble gum - because of high temperature caused by skin friction, plus the fact that the inside of the canopy is pressurized. This was overcome by installing tempered glass windshields about an inch thick.

- Air conditioning system in the Arrow must be capable of handling temperature changes of 100°F. a minute. The refrigeration capacity of the system would be equivalent to 50 domestic room air conditioners and could produce as much as 23 tons of ice per day. The system could also change the air in a room 20 ft x 12 ft with a 10 ft ceiling 10 times per minute.

- There are 13,000 parts in the CF-100. In the Avro Arrow there are 38,000.

- Some 17,000 engineering drawings were released for the Arrow 1.

- When design began on the Arrow, many of the special metals and materials required had not even reached the research stage.

- On servicing alone, an Avro-RCAF maintenance group had to design some 200 pieces of equipment. These include the engine starter truck which is itself a gas turbine engine mounted on a jeep. The power-and-air-conditioning truck must maintain a constant flow of air at 55°F. to the weapons, electronic and other sensitive equipment under all ground temperature conditions.

- To achieve its supersonic speeds, the Arrow uses about twice as much power as that required to drive the Queen Mary.

- This power is almost sufficient to lift the aircraft vertically off the ground.

- Though the Arrow is a fighter, it had to be designed with an armament bay as large as the bomb bay of a Boeing B-29 bomber.

- During design, literally millions of calculations were made by mathematicians working with the latest computing equipment.

- The hundreds of items of mechanical, hydraulic, electrical and electronic equipment in the Arrow are all required to operate in a severe high-temperature, high-altitude environment with the utmost reliability.

- Some 650 outside suppliers were established for the

present Arrow program. As the program progressed, over 5,000 people were employed in companies outside Avro in the manufacture of Arrow parts and tools.

Original Document Released : October 4th, 1957

Internet Document Released : Pre-Release

Corrections

Notes

If you have any comments, corrections, or suggestions regarding this or other Aerospace Foundation of Canada pages, please contact Kemp Watson (kemp@watson.com) or call the A.H.F.C. in Toronto, Canada at (416)-xxx-xxxx.