

CANADA

AVIAN

AVIAN AIRCRAFT LTD.

HEAD OFFICE:
Georgetown, Ontario.

This company was formed in February, 1959, with a Dominion Charter, to develop an autogyro-type aircraft known as the Avian 2/180 Gyroplane.

Soon after the prototype began its flight test programme, in the Spring of 1960, it was badly damaged in accident that was not due to any deficiency in its design. A second prototype has been built, incorporating a number of design changes. This aircraft made its first controlled flight on February 16, 1961. Limited production is planned to begin late in 1961.

THE AVIAN 2/180 GYROPLANE

The Avian 2/180 is a two/three-seat wingless gyroplane, of which two versions have been announced, as follows:—

Model 2/180A. Later production version, with compressed-air nozzles at rotor-blade tips for "jump-starts." Development shelved temporarily.

Model 2/180B. Prototype, with mechanical drive to rotor. Initial production models will be of this type.

The following details apply to the initial production version.

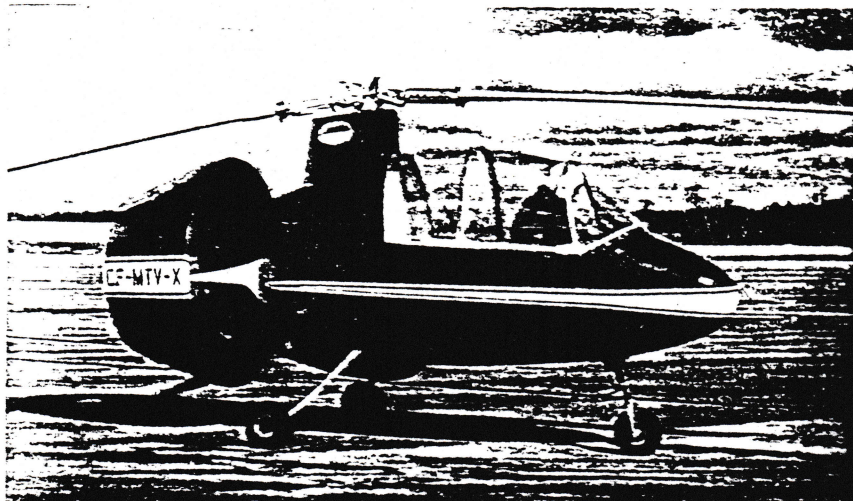
TYPE.—Two/three-seat wingless autogyro.

ROTOR SYSTEM.—Three-blade rotor, with conventional control system. Blades have steel-tube main and leading-edge spars, wood core and glass-fibre covering. Blade section NACA 0015. Solidity .0598. Blade chord 12.4 in. (31.5 cm.) constant. Disc area 855.3 sq. ft. (79.46 m.²)

ROTOR DRIVE.—Shaft-drive to rotor, with belt-drive from engine and at the rotor hub.

FUSELAGE.—Central keel member of welded chrome-molybdenum steel, supporting aluminium secondary structure and carrying rotor pylon at rear. Metal covering. Rudder inside propeller duct, area 4.88 sq. ft. (0.45 m.²)

LANDING GEAR.—Non-retractable tricycle type. All-steel cantilever legs, each carrying a single wheel, with Goodyear 13 in.



Avian 2/180B Gyroplane (180 h.p. Lycoming O-360-A engine)

nylon-reinforced tubeless tyres. Tyre pressure 28 lb./sq. in. (1.97 kg./cm.²). Steerable nose-wheel. Goodyear hydraulic disc brakes. Wheel track 5 ft. 5 in. (1.65 m.). Wheelbase 7 ft. 11.8 in. (2.43 m.)

POWER PLANT.—One 180 h.p. Lycoming O-360-A four-cylinder horizontally-opposed air-cooled engine, driving an Avian four-blade fixed-pitch wood pusher propeller. Propeller is enclosed in an aluminium-alloy duct, with glass-fibre leading-edge, forming efficient ducted fan unit and improving engine cooling. Fuel tank aft of cabin, with capacity of 26 Imp. gallons (118 litres). Provision for auxiliary tankage in place of passenger. Oil capacity 2 Imp. gallons (9 litres).

ACCOMMODATION.—Normally two glass-fibre seats in tandem in enclosed cabin, but provision for third seat. Canopy hinged on port side. Cabin heating by exhaust muff. Radio optional.

DIMENSIONS.—Rotor diameter 33 ft. (10.06 m.)

Length overall 16 ft. 2 in. (4.93 m.)
Height overall 8 ft. 7 in. (2.62 m.)

WEIGHTS.—

Weight empty, equipped 1,090 lb. (495 kg.)
Normal loaded and max. landing weight 1,720 lb. (780 kg.)
Max. permissible weight 2,200 lb. (998 kg.)
Max. zero-fuel weight 1,540 lb. (698 kg.)
Normal disc loading 2.01 lb./sq. ft. (9.81 kg./m.²)
Normal power loading 9.55 lb./h.p. (4.33 kg./h.p.)

PERFORMANCE (estimated).—

Max. speed 140 m.p.h. (225 km.h.)
Max. cruising speed 130 m.p.h. (209 km.h.)
Econ. cruising speed 110 m.p.h. (177 km.h.)
Stalling speed 25 m.p.h. (40 km.h.)
Vertical rate of climb at S/L 1,000 ft./min. (305 m./min.)
Service ceiling 14,000 ft. (4,265 m.)
Normal range at 110 m.p.h. (177 km.h.) 400 miles (645 km.)
Ferry range with auxiliary tankage 1,600 miles (2,575 km.)

AVRO

AVRO AIRCRAFT LIMITED (MEMBER
COMPANY OF HAWKER SIDDELEY
GROUP)

HEAD OFFICE AND WORKS:
Malton, near Toronto, Ont.

POST OFFICE ADDRESS:
Box 4004, Terminal "A", Toronto, Ont.

CHAIRMAN AND PRESIDENT:
H. R. Smith.

GENERAL MANAGER:
F. P. Mitchell.

VICE-PRESIDENT:
J. Turner (Finance).

Avro Aircraft Ltd. is one of five companies forming the Aeronautical Division of A. V. Roe Canada Ltd., a member of the Hawker Siddeley Group since January 2, 1955.

The company is currently engaged on a repair and overhaul contract for its CF-100 twin-jet long-range all-weather fighter, a full description of which has appeared in previous editions of *All the World's Aircraft*.

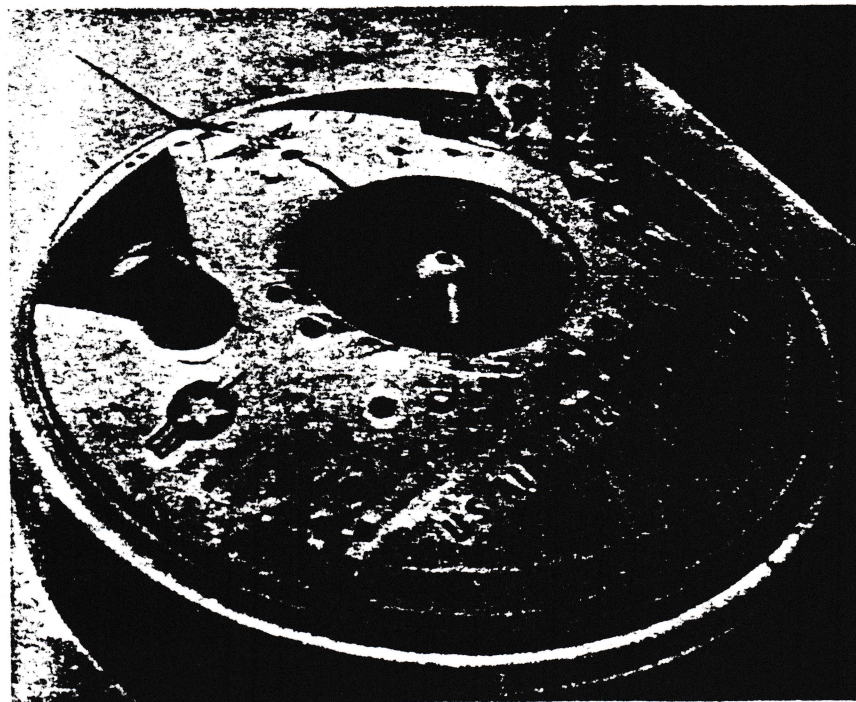
Avro Aircraft is also producing air intakes and ducts and wingtip tanks for the Canadair CF-104 programme.

THE AVRO AVROCAR

U.S. Army designation: VZ-9V

The Avrocar is a VTOL aircraft which has been under development for the U.S. Department of Defense since 1955. It is a "saucer" shaped vehicle powered by three Continental J69 turbojet engines. These drive the central fan which provides a peripheral air curtain and ground cushion for VTOL operation. In forward flight the body of the Avrocar develops aerodynamic lift and it is intended to have a maximum speed of 300 m.p.h. (480 km.h.) at high altitude and range of 1,000 miles (1,600 km.)

The prototype began its tethered flight trials on December 5, 1959 and was subsequently taken to California for development testing. It was returned to Toronto for its first tests in forward flight, which began on



VTOL research aircraft in its original configuration.