



United Aircraft of Canada PT6A-20 free-turbine turboshaft. Three-stage axial plus single-stage centrifugal compressor. Annular reverse-flow combustion system. Single-stage axial h-p compressor-turbine. Single-stage axial l-p power turbine. Rating, 550 s.h.p. Weight, 275lb. Diameter, 19in

AERO ENGINES . . .

AUSTRALIA

COMMONWEALTH AIRCRAFT CORPORATION Port Melbourne.

As the prime source of aero engine manufacture in Australasia, CAC is engaged in licensed production of the Snecma Atar 9C turbojet and spares for Australian-built GAM Dassault Mirage III-O fighters for the Royal Australian Air Force. Licensed manufacture is also getting underway of the Bristol Siddeley Viper turbojet to power RAAF Macchi MB.326 trainers. The initial requirement is for around 150 Vipers.

HAWKER DE HAVILLAND

Sydney, NSW.

This company is contributing to CAC's licensed manufacture of the Bristol Siddeley Viper, and in September last year was appointed to handle sales and service of the T63 turboshaft and turboprop engines in the South Pacific for Allison.

BELGIUM

FABRIQUE NATIONALE

Herstal-lez-Liège.

Major aero engine activity at FN today is licensed manufacture of components for the Rolls-Royce Tyne turboprop. This work is on behalf of the European consortium to supply Tynes for the Breguet Atlantic and the Transall C-160. FN also provides manufacturing and overhaul facilities for Boeing turbines in conjunction with its associate company, FN Boeing.

FN BOEING TURBINES

Herstal-lez-Liège.

Jointly owned by FN and Boeing, this company is responsible for the sales of Boeing turbines throughout Europe and the Near East. It is also responsible for the manufacture and maintenance of Boeing turbines and their future adaptation for new applications in these areas.

CANADA

ORENDA Malton, Ontario.

Newly formed from the previous Orenda Division of Hawker Siddeley Canada, Orenda Ltd is owned 60 per cent by HSC and 40 per cent by the United Aircraft Corporation. Established to produce aero and industrial turbines, the new company has as its prime activity the manufacture of parts for P&W civil and military aero engines. Hitherto, the Orenda Division has been occupied with licensed manufacture of GE turbojets.

UNITED AIRCRAFT OF CANADA

Longueuil, Quebec.

As a subsidiary of the United Aircraft Corporation, this company has been outstandingly successful in marketing its single major product, the PT6/T74 turboshaft and turboprop engine. Nearly a quarter of a million flying hours have now been completed in

close on 300 aircraft, the majority of them being executive twins. The PT6 is FAA certificated in 13 different installations, and is specified for 21 designs of aircraft from 17 manufacturers—an impressive achievement. Maximum t.b.o. now exceeds 1,000hr. Among the more important applications of the engine are the Beech King Air, NU8F and Model 99, de Havilland Aircraft of Canada Twin Otter and Turbo Beaver, Potez 841, Fairchild/Pilatus Turbo Porter, Helio Stallion, Lockheed XH-51 and Model 286, Swearingen Merlin II, and the North American OV-10A COIN aircraft in which it has recently made its first flight.

Engine ratings range from 500 s.h.p. to a projected 800 s.h.p., with the PT6A-20 turboprop of 579 e.h.p., flat-rated to 70°F, as the present main production version. Latest growth version of the engine, rated at 750 s.h.p. has completed its preliminary flight rating test (PFRT), and is being considered for installation in the OV-10A. New applications under consideration include the Helio Twin Stallion, a turboprop version of the Piper PA-31 Navajo, and the Pilatus/Mitsubishi MU-2B. Boeing-Vertol has also undertaken project studies of the Aero Commander airframe modified for V/STOL operation using the Vertol Rotafix lifting rotor system and powered by PT6s.

During 1966 UAC has been discussing with light aircraft manufacturers a follow-on engine to the PT6. No decision has been announced as to whether this will be a small turbofan or another turboprop/turboshaft unit.

CZECHOSLOVAKIA

OMNIPOL Prague.

Omnipol is the export agency for the Motorlet Works (nationalised successor to the former Walter engine company) and all other sectors of the Czech aircraft industry. Major turbine product is the M-701 centrifugal turbojet of 1,960lb thrust. The engine powers the L-29 Delphin trainer of which more than 1,000 are in service with the air forces of the USSR, Bulgaria, Hungary, Rumania, East Germany, Indonesia, and Syria as well as Czechoslovakia. A second

application of the M-701 is the new twin-engine L-39 advanced trainer/strike aircraft. The only other turbine of which mention has been made is the M-601 turboprop, two of which are specified for the new Czech feederliner project the C-410. The M-601 is under development at present and is rated in the vicinity of 700 s.h.p.

Motorlet also manufactures a series of light piston engines, including the Walter M332, Minor 6-III, M108H and M110H covering a power bracket of 120 to 270 h.p. These power light private aircraft and helicopters.

FRANCE

ARDEM Paris.

The Ardem 4 CO2 four-cylinder horizontally-opposed piston engine of 31 h.p. is the main product of this small company. Derived from the standard Volkswagen car engine, the 4 CO2 powers the Druine Turbulent, for which it is manufactured in Britain by Rollason Aircraft and Engines, of Croydon, Surrey.

HISPANO-SUIZA

Bois-Colombes (Seine).

Hispano-Suiza is the senior partner in the European consortium to license-manufacture the Rolls-Royce Tyne turboprop for the Breguet Atlantic and the Transall C-160. The other companies in the consortium are Fabrique Nationale, MAN Turbo, and Rolls-Royce. The engines are the Tyne RTy.20 Mks 21 and 22 for the Atlantic and C-160 respectively. Both are rated at 5,955 e.h.p. Around a half of 180 engines for the Atlantic have now been delivered, while the majority of 470 engines for the C-160 have yet to be built.

The company's other engine activities include after-sales support in Europe for the General Electric CJ610 and CF700 turbines, and manufacture of the engine flexible shafts and angled drives for the Breguet 941 and Nord 500.

NORD-AVIATION Paris.

Nord has undertaken a series of studies on behalf of the USAF, on turboramjet propulsion at Mach 4.5 and upwards. Various combinations of turbofans and ramjets were investigated, including one incorporating the SNECMA TF106 turbofan. In associated experimental work on ramjet air and turbofan exhaust mixers and combustion devices, the company worked in conjunction with the CEP at Saclay.

SNECMA (Société Nationale d'Etude et de Construction de Moteurs d'Aviation) Paris.

As notably the largest aero engine concern in Continental Europe, SNECMA is entering a phase of diminishing reliance on the

Snecma/BSE M45F twin-spool turbofan. Three-stage axial fan plus two-stage axial i-p compressor. Seven-stage axial h-p compressor. Annular straight-through-flow combustion system. Single-stage axial h-p turbine. Two-stage axial l-p turbine. Air mass flow, 154lb/sec. Pressure ratio 14:1 and b.p.r. 1.2:1. Rating, 6,500lb

