



Construction

A Big Saving

The use of Avro Orendas in the F-86A Sabres being built in Canada by Canadair Limited would save this country \$25,000,000 (U.S.), according to an article by Norm Currey appearing in a recent issue of the "Avro News". Since this article was written at a time when the F-86A order still stood at 100, the saving should now be substantially greater.

According to Writer Currey: "This installation would mean a certain amount of redesign on the fuselage, as the diameter of the Orenda is more than that of the J-47A. However, as the USAF has already enlarged it to fit the P & W J-48 . . . (this model of the aircraft being known as the F-86D), this problem should be overcome without much difficulty."

Chipmunks Compete

Complete details of the participation of two RCAF owned de Havilland Chipmunks in USAF trainer evaluation trials, as reported in last month's issue of *AIRCRAFT*, have since been released by the Department of National Defence. The evaluation, rather than being a competition between the aircraft actually taking part, is apparently designed eventually to supply the participating countries (U.S., Canada, and the U.K.) with a set of specifications for the ideal type of trainer.

According to the official announcement . . . "the evaluation program is regarded by air force officials of the three countries concerned as a step towards future standardization of pilot training procedures, by training student pilots on aircraft with similar characteristics. The program is designed to develop ideal specifications for a standard primary trainer, and it is not expected that a production contract will be awarded to any of the manufacturers represented. Once the ideal specifications have been determined, they will be made available to the three nations concerned, in order that each may develop the best primary trainer for its own use."

Other aircraft taking part, besides the Chipmunk, are the Fairchild T-31, the Beechcraft T-34, the Temco T-35,

the North American T-6 (Harvard), and the Boulton Paul Balliol T.2. The latter two have considerably more power at their disposal than the other aircraft . . . the T-6 being powered with a P & W "H" Wasp, and the Balliol T.2 having a Merlin 35 (the T.1 has an Armstrong Siddeley Mamba turbo-prop and the P.108, a Bristol Mercury radial engine).

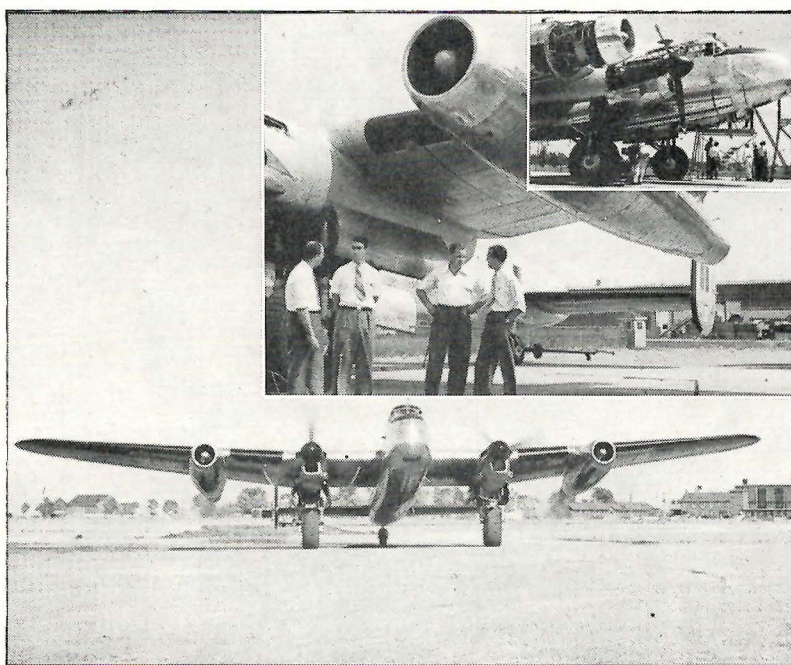
It is expected that the USAF and the USN will train about five students on each of the aircraft being evaluated.

craft designers. Fairey is asking for experienced aircraft structural designers, capable of preparing detail stress analysis.

A Jewel

Claimed to be the newest and most powerful jet engine in the world now flying, the Armstrong Siddeley Sapphire first took to the air last January in an Avro Lancastrian. Since that time two more Sapphires have been installed and flown in a Meteor.

The new turbojet has successfully run the 150 hour Service Type Test at 7,200 lbs. thrust . . . 1,000 lbs. more than any previously announced type test figure for any engine. In spite of its great power, the Sapphire is said to



ORENDA/LANCASTER: More views of the Avro Orenda/Lancaster are shown here. The practice on flights is to take off on Merlins only and then cut Orendas in after take-off. Shown in the centre inset are those chiefly responsible for the development of the Orenda. Left to right, they are: D. W. Knowles, chief test engineer; D. H. Parker, senior project engineer; Winnett Boyd, chief designer and assistant chief engineer, gas turbines; P. B. Dilworth, chief engineer, gas turbines.

The Air Force phase of the program, which began September 20, will last six months. The USN will then conduct a similar program at the Naval Air Station, Pensacola, Florida. The Air Force phase is being carried out at Randolph Field in Texas.

More Canadian Designs?

The possibility that there may be more Canadian designed aircraft forthcoming in the future is indicated by the fact that The Fairey Aviation Company of Canada has been advertising for air-

represent a long step in countering the high fuel consumption problem which has so far greatly limited the range and endurance of all jet aircraft.

In the announcement of the Sapphire is contained the statement that ". . . future applications of the Sapphire to jet fighters, jet bombers and civil air transports may be appreciated when it is understood that one Sapphire engine has about the same power as the four engines in a Super Fortress or a Stratocruiser."

Armstrong Siddeley developed and

built the Sapphire from an original design by Metropolitan Vickers . . . a company which has left the jet engine field.

Technically, the Sapphire is a straight jet engine with a sea level static thrust rating of 7,200 lb. for a specific fuel consumption of 0.907 lb./hr./lb. thrust. It has an axial flow compressor and an annular combustion chamber. Its net dry weight is 2,500 lb. Dimensions are as follows: diameter over bare engine, 32.25 in.; diameter over trunnion mounting, 37.3 in.; length overall from front of nose

distance being covered in 48 minutes. The aircraft, flown by S/L W. A. Waterton, and navigated by F/L Bruce Warren, was taken to Boston for the annual meeting of the U.S. Air Force Association. The fastest officially revealed speed at which the CF-100 has been flown is 638 mph, but S/L Waterton says that he has not yet flown it at its top speed.

Mach Chart

A Mach Number Chart, recently prepared by the Square D Company's Kollsman Instrument Division, is be-

tacting the Square D Company's Kollsman Instrument Division, 80-08 45th Avenue, Elmhurst, New York.

Another Meteor

Yet another version of the versatile Gloster Meteor has been announced, this one being a Tactical Ground Attack Fighter. Developed by Gloster as a private venture, the aircraft is said to fill an urgent need, emphasized by the action in Korea, for a jet fighter capable of immediate operation in close support of ground forces.

Provision is made for the carrying of either four 1,000 lb. bombs, sixteen 95 lb. RP's, 580 gallons of additional fuel in wing tip, underwing, and ventral drop tanks, or a combination of these in addition to the standard complement of four 20 mm cannon and the necessary ammunition.

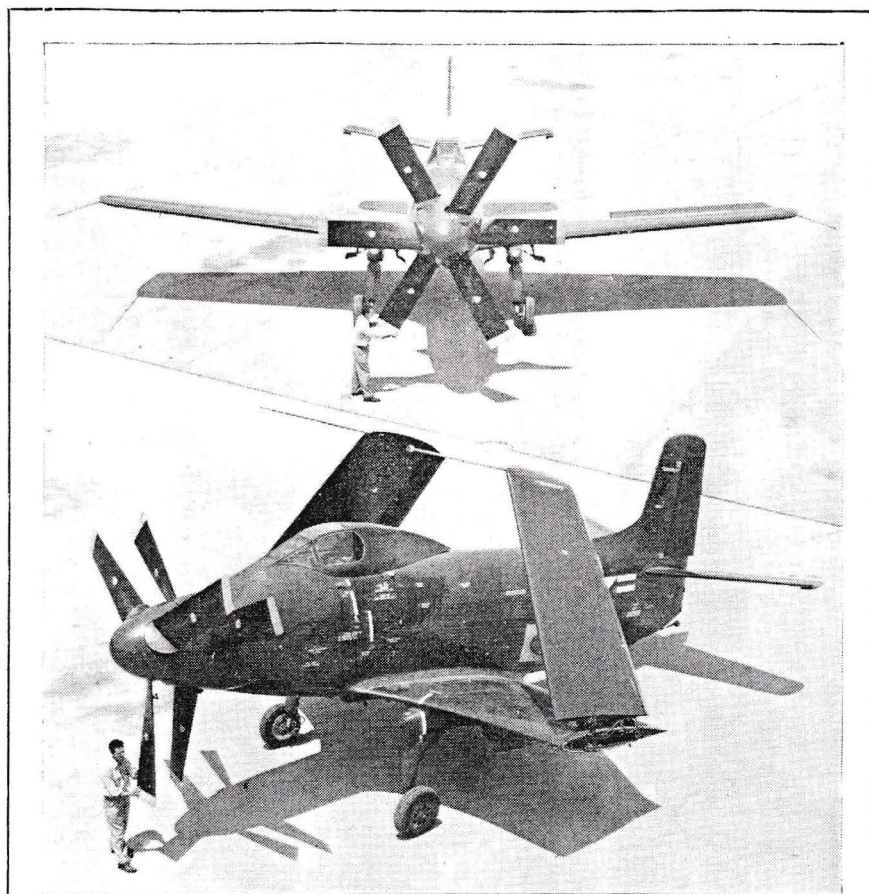
With the assistance of RATOG, for which full provision is made, the normally short take-off run of the Meteor is sufficiently decreased to permit practical operation from advanced or improvised airfields. Provision is also made for the inclusion of an arrester hook for use with suitable ground arrester gear.

At the same time, details of the Armstrong Whitworth Meteor NF-11 night fighter have been released. The NF-11 differs from the standard Meteor in that it is somewhat longer, because of the installation of a radar scanner in the nose. An extra seat is provided for a radar operator in the pressurized and heated crew cabin. This aircraft is said to have an exceptionally short landing run, a feature of importance in night operations.

Differing from the armament on the standard Meteor in their location, the four electrically fired 20 mm Hispano cannon carried by the NF-11 are located outboard of the engine nacelle, instead of at the side of the fuselage. A cine camera gun to record results is situated in the starboard mainplane. The aircraft has been specially designed for long range and endurance. It has an exceptionally large fuel load, carried in main, ventral, and droppable wing tanks.

Briefly

•The Hawker P.1081 is to be built in Australia. The P.1081 is a swept wing development of the P.1052 and was flown for the first time during June. It is thought to be the fastest



SKYSHARK: The Douglas XA2D Skyshark is the first postwar tactical aircraft in the U.S. to utilize a turbo-prop installation. The Skyshark has been designed as an attack bomber for the USN and is powered by the Allison T-40 twin turbo-prop engine driving two counter-rotating Aero products propellers. The new aircraft can carry a variety of rockets, bombs, aerial torpedoes, or other weapons.

fairings to exhaust cone rear flange, 133.85 in.; jet pipe diameter over head shroud, 24.5 in.; frontal area, 6.8 sq. ft.; thrust per square foot of frontal area, 1,100 lb.

Details of the Sapphire Meteor performance are still classified.

Fast Time

The Avro Canada CF-100 recently flew from Toronto to Boston at an average speed of 555 mph, the 444 mile

ing offered free of charge to the engineering departments of organizations in aviation and allied fields.

The chart gives the standard values for measurement of high speeds in terms of Mach number, indicated air speed, differential pressure, altitude and absolute pressure. Pressure ratios, differential pressures and stagnation pressures for various Mach numbers are provided in tabular form.

The Chart may be obtained by con-