

Britain's Contribution to the Paris Show...

The Fairey Rotodyne vertical take-off airliner is bound to create exceptional interest



addition, improved types of Flexitwist silicone rubber and glass fabric hot air hose which provides both flexing and twisting motion. In addition, a new stainless-steel wire-mesh fire seal is being exhibited.

Bell's Asbestos & Engineering Ltd., Bestobell Works, Slough, Bucks.

Blackburn Aircraft Ltd. (Stand No. 107H) The Blackburn NA.39 naval strike aircraft will be presented in the flying display, and its demonstration of manoeuvrability at low and high speed will include a typical "toss-bomb" manoeuvre.

This two-seat, low-level, strike aircraft is powered by two de Havilland Gyron Junior turbojets. Dimensions are: length, 62ft 4in; span, 42ft 6in; height, 16ft. A recent statement by the makers reads: "Boundary-layer control over the total span enables the NA.39 wing to attain the highest lift coefficient yet achieved on this class of wing. In the take-off and landing configurations the performance is well in advance of any comparable aircraft, the control being good down to the stall. Area rule minimizes the drag of the NA.39 because it allows the airflow gradually to contract and expand over the total cross-section of the aircraft. This has special virtues for high-speed, low-level flying as it ensures good control response and a smoother ride for the crew.

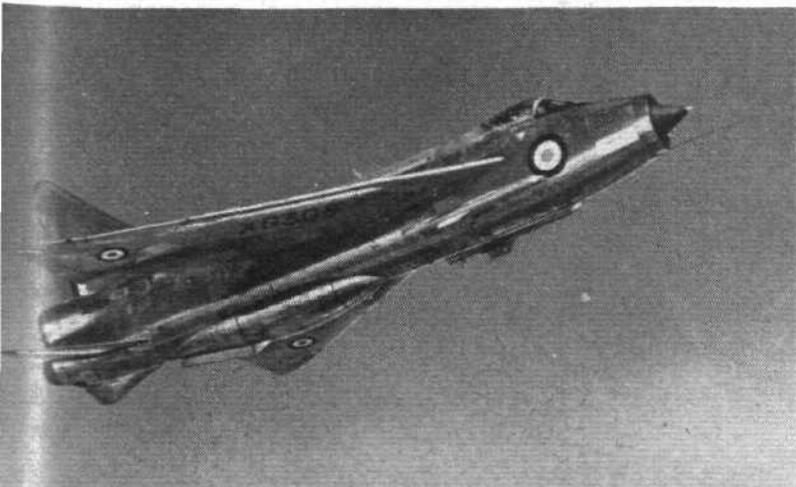
"For high-speed, low-level operations, great strength and stiffness combined with a long operating life are vital. Integral construction based on sculptural milling ensures the stiffness of the NA.39, and Blackburn engineers have built in the necessary long-life factor. . . ."

An NA.39 will be in the static park at Le Bourget on June 19 and will be flying on June 20 and 21.

The following gas turbines will be exhibited: *Starter Truck*: A compact, self-propelled version of the low-pressure, air starting trolley. A Palouste air-bleed gas turbine is installed in the truck and 4,000 aircraft engine starts are possible between overhauls. Mounted on a 15 cwt Commer vehicle, this unit has not only started the NA.39 but has been in daily use with Pan American Boeing 707s at London Airport. *Starter Trolley*: Trolleys incorporating the Palouste air-bleed gas turbine have been supplied to the Royal Navy and the R.A.F. For carriage on aircraft a starter pod is available and this fits existing weapon pylons. *A.129*: This is a free-turbine, shaft-drive engine having an increased overall pressure ratio compared with the Turmo 600. A two-stage axial flow compressor is embodied in the gas generator, which also incorporates the standard combustion chamber and an axial-flow two-stage turbine. A third stage or free turbine, which is mechanically independent of the gas generator constitutes the power output turbine. This design is claimed to attain a high power/weight ratio with reduced fuel consumption and is the first of a new range of gas turbines in the 970 s.h.p. category. *Turmo 600*: The Turmo, a free-turbine, shaft drive unit, is installed in the Saunders-Roe P.531 helicopter. Since the power output turbine is mechanically independent of the gas generator, this engine possesses great flexibility and low-speed torque. In its standard form, the power turbine drives through a two-stage reduction gearbox at the rear of the engine. Two noteworthy applications are as a prime mover for rotary wing aircraft and as the power unit of a lightweight, emergency generating set. *A.A.P.U.*: Basically, the airborne auxiliary power unit is a gas turbine which will provide both shaft power and compressed air. It comprises a standard Palouste air-bleed engine with the rotating assembly shaft extended forward to an output gearbox.

Blackburn Aircraft Ltd., Brough, Yorks.

English Electric will be demonstrating the twin-Avon, Firestreak-armed Lightning interceptor, seen below with auxiliary tank



Bristol Aerojet (Stand No. 29H) There will be on this stand a selection of rocket-motor cases and high pressure storage vessels for use on guided missiles and aircraft. Bristol Aerojet is manufacturing many types of rocket-motor cases—ranging in length from 24in to 18ft, and in diameter from 6in to 18in. Among the exhibits is the motor case manufactured by the Company for the Raven solid-propellant rocket motor, power unit of the Skylark which was used on upper atmosphere research during the International Geophysical Year. The company has also developed a wide range of high-pressure gas-storage vessels—a number of which will be on exhibition—for use in guided missiles and aircraft. These vary in shape from the spherical to the cylindrical and annular.

Bristol Aerojet Ltd., Banwell, Weston-super-Mare, Somerset.

Bristol Aircraft Ltd. (Stand No. 14A) This company will be represented by transport aircraft, helicopters and guided weapons. Making its first public appearance will be a Britannia 253 of Royal Air Force Transport Command. This, together with the Bristol 192 turbine-powered helicopter, will be taking part in the flying display. In the guided weapons park the company will be exhibiting a Bloodhound guided missile together with ancillary equipment including launcher, limber, loading trolley and a launch control post. Missile handling demonstrations will be staged by a team of R.A.F. personnel. A stand in the exhibition hall will show 1/24th scale models of the Bristol 192, the Britannia 253 and a Britannia in the livery of Air Charter Ltd. Models of a Bloodhound launching site will be on display, and a continuous sound film will illustrate the capabilities of the missile in action against target aircraft.

Twenty Britannia 253s are being built for Transport Command and deliveries have already begun. The 253 is a long-range troop transport aircraft, easily convertible for use as a freighter. A specially strengthened floor and large loading door permit the carriage of army vehicles and other items of bulky military equipment. Gross weight, 180,000 lb; max. payload, 34,450 lb; max. still-air range, 6,400 miles; mean cruising speed, 398 m.p.h.; powerplants, 4 Bristol Siddeley Proteus 765.

The Type 192 is primarily a military helicopter. It has been designed to meet Service requirements for troop and freight transport, search and rescue, ambulance, paratrooping and supply dropping duties. It is a twin-gas turbine engine helicopter with tandem rotors, a particular feature of which is the ability in an emergency to maintain cruising flight on one engine. Single-engine performance of the 192 will be demonstrated in the flying display. Up to 25 fully armed troops can be carried, or in the ambulance rôle the helicopter can accommodate 12 stretcher cases and two "sitting wounded." Gross weight, 18,000 lb; max. payload, 6,000 lb (2,722 kg); max. still-air range, 450 n.m. (835 km); mean cruising speed, 138 m.p.h.; powerplants, 2 Napier Gazelles.

The Bristol/Ferranti Bloodhound surface-to-air guided weapon system, already in service with the R.A.F., will assume a key rôle in the air defence of the United Kingdom. The system has also been ordered by the Royal Swedish Air Board for the defence of Sweden. Powered by two Bristol Siddeley Thor ramjet engines, Bloodhound is claimed to have a larger range than any semi-active homing missile in the Western world.

Bristol Aircraft Ltd., Filton House, Bristol.

Bristol Siddeley (Stand No. 6H) Bristol Siddeley exhibits will include the Olympus Mk 201, Sapphire Sa 7R, Orpheus Mk 803 and Viper ASV.11 turbojets; the Mk 765 Proteus and P.182 turboprops; the P.181 turboshaft engine for helicopters; the Thor BT-2 ramjet; the Gamma and PR-23 rocket motors; the gas turbine compressor unit; ball screws and splines.

Olympus engines of the Mk 200 series are in production for the Avro Vulcan B.2, and a developed version of the Olympus has been specified for the TSR.2, the new tactical support/reconnaissance aircraft for the R.A.F. The latest version of which details may be released, the Olympus Mk 201 (BOL.7), completed an official type test at a rating of 17,000 lb thrust in June 1958, and is believed to have the highest thrust/weight ratio of any type-tested high-thrust turbojet in the world today. With Bristol Siddeley Solar fully-variable reheat this engine has produced 24,000 lb of thrust.

The Sapphire Sa 7R is fitted with a limited reheat system which gives a 12½ per cent increase in thrust; it is fitted to the Javelin FAW.8 This engine, a Series 200, has been developed to produce 11,000 lb thrust dry and 12,230 lb thrust with limited reheat.

The Orpheus 803 turbojet is the powerplant for the Fiat G.91, which has been chosen as the standard lightweight strike fighter for NATO