



P.111.

lower pair of bolts and permit upward folding. The two spars are of 33 per cent and 70 per cent chord, the portion between the spars forming a rigid torsion box. Ailerons are interchangeable from port to starboard. The fuselage is a circular-section light-alloy monocoque, with a light-alloy and steel-tube structure forward of the engine bulkhead forming part of the detachable powerplant. The cockpit section incorporates a stiff tubular crash pylon behind the seats. The tail fin is identical with, and interchangeable with, either half of the tailplane, and the port and starboard elevators are likewise interchangeable. Also transferable port to starboard are the oleo-pneumatic shock-absorber legs, with 11.6in travel. The non-retracting tailwheel is steerable, but the steering connection can be disengaged at will. Retraction and the lowering of the main undercarriage, and operation of the wheel brakes, flaps, air brakes, radiator flap, hot-air intake flap, and filter screens (for simulating night-flying conditions) are effected pneumatically from a main air cylinder, the pressure of which is maintained at 1,000 lb/sq in by an engine-driven compressor. Equipment can include gyro gunsights and a 0.303in Browning gun fixed in the port wing, and four rocket projectiles or eight light bombs can be carried, if required.

In service the Balliol has shown itself to be a durable, easily maintained aircraft, and highly manoeuvrable. Current particu-

lars are: Span 39ft 4in; length, 35ft 1½in; wing area, 250 sq ft; weight empty, with fixed equipment, 6,730 lb; gross weight, 8,410 lb; wing loading, 33.64 lb/sq ft; top speed at 9,000ft, 288 m.p.h.; max. continuous cruising speed (rich mixture) at 8,000ft, 266 m.p.h.; stalling speed, 83 m.p.h.; climb to 10,000ft, 6 min; take-off distance to clear 50ft, 450 yd; landing distance from 50ft, 650 yd; endurance at 220 m.p.h. at 10,000ft, 3 hr; max. rate of roll, 105 deg/sec.

During 1952 Balliols were used experimentally in the night ground-attack role.

P.108 Sea Balliol T.21 This is a version of the Balliol T.2 for the Royal Navy, with which Service it is now operating in some quantity. Features include a new type of undercarriage, capable of absorbing a vertical velocity of 14ft/sec, and an arrester hook, the extra weight of which (and of the stiffened tail cone structure) is offset by moving the accumulators forward to positions in the inner wings. The tailwheel unit incorporates a double-extension oleo-pneumatic shock-absorber. In conformity with naval requirements, an external air-speed indicator is introduced for deck landing, and the layout of the cockpit is altered in several respects. A four-blade airscrew, of smaller diameter than that of the Balliol T.2's three-blader, is fitted.

DELTAS FOR RESEARCH

P.111 On October 10th, 1950, the first flight of this delta-wing single-seater, built for high-speed research, was made at Boscombe Down. A mid-wing monoplane, it was characterized by a short fuselage, very broad at its forward end, and having an elliptical nose intake for the Rolls-Royce Nene turbojet, of some 5,000 lb static thrust. Control was effected by means of powered, wing-mounted elevons, and by a rudder inset into the tail triangular fin. A braking parachute was carried in a fairing on the port side of the rear fuselage. Detachable wing-tips enabled comparative tests to be made with blunted and pointed configurations. When demonstrated at Farnborough in 1951, the P.111 displayed an extremely high rate of roll. The span was 33ft 6in, and length 26ft 1in.

P.111A A modified version of the P.111, this has fuselage-mounted air brakes, a revised control system and other internal modifications. It was first flown on July 2nd, 1953.

P.120 Generally similar to the P.111, the P.120 was fitted with an all-moving tailplane mounted on the low-aspect-ratio fin. The machine first flew on August 6th, 1952, but was destroyed (after having flown for several hours) on the 29th of the same month, when it developed an obscure form of flutter which resulted in structural failure. Although A. E. "Ben" Gunn, Boulton Paul's chief test pilot, stayed with the machine for over half an hour in attempting to bring it down safely, he was finally obliged to abandon the aircraft by parachute, after finding it impossible to maintain an even keel at speeds below 300 m.p.h.

P.111A.



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