



section covering. When the centre section is in place on the fuselage a fillet covers not only the angle between fuselage and wing top surface, but also the bolted joints which secure the two together. A.G.S. parts supplied by Lindley and Co. are extensively used in the machine.

There is a great deal more in the structure of the Fairey Battle which deserves mention, but as something must also be said of the equipment of the machine we must content ourselves with this outline of the primary structure.

Comprehensive Equipment

The Battle is well worth studying, not only because it is a fine example of a modern stressed-skin metal monoplane but for its mass of intriguing detail which goes to complete it as a flying machine and a military weapon.

Medium-range bombing, of the precision (horizontal) or diving variety, by day or by night, are the principal duties of the Battle as supplied to the Royal Air Force.

The bomb load, the precise nature of which may not be divulged, is normally stowed internally. Defensive armament takes the form of two machine guns (in view of the marked agility of the machine these could undoubtedly be very profitably employed); an automatic pilot is fitted (this should be very welcome as the Battle may frequently be called upon to fly for a thousand miles non-stop), and provision is made for radio, photographic, night-flying and oxygen equipment.

In the first instance let us consider the machine without reference to its Service equipment. The secondary features—if one may so describe them—include the semi-retractable undercarriage, split trailing-edge flaps and the installation of the Rolls-Royce Merlin engine with its attendant gear.

When the undercarriage is retracted (the movement is a simple rearward one) about half the diameter of the wheels is left projecting below the wing, appropriate tail fairing being provided, so that it should be possible to put the Battle down quickly in an emergency at the expense of a bent airscrew. Each Dunlop wheel is carried on a single semi-cantilever strut and is provided with a mud-guard and scraper. Raising and lowering is effected by

two jacks, mechanical locks retaining the gear in its raised position. As an alternative to the Lockheed hydraulic system, which has an emergency hand pump, the wheels may be lowered mechanically and, accordingly, the hydraulic lock has an automatic release valve.

Thorough precautions are taken to ensure that the wheels are safely locked down for landing. As the Merlin is throttled back the word "wheels" appears in lights on the dashboard and an electric horn is sounded. Immediately the pilot releases the undercarriage the horn ceases to blow and the word disappears, being replaced by a red light which changes to green when the gear is locked in the landing position. After the take-off a red light appears to warn the pilot if the undercarriage is not completely raised. Teleflex controls are specified in the Battle.

The split trailing-edge flaps are not continuous beneath the fuselage, but extend out to the ailerons. These are operated hydraulically by four Lockheed jacks and, like the undercarriage, may be worked from either the engine-driven pump or the emergency hand pump.

The initial batches of Battles to be delivered to the Service are fitted with the Rolls-Royce Merlin I vee-twelve, fully supercharged glycol-cooled engine rated at 950-990 h.p. at 12,250ft. Thus powered, the machine is designated Battle I.

The Merlin is carried on a substantial structure of steel tubes, the ducted radiators for the glycol and oil being situated beneath the fuselage with the intake for the carburettor air located directly ahead. A cooling control flap is hinged at the rear of the radiator cowling. Engine-driven accessories include a Lockheed hydraulic pump, B.T.H. and R.A.E. air compressors and a 500-watt generator.

An interesting form of exhaust manifold is fitted, this being of more or less streamline shape. It is superseding the ramshorn or kidney type familiar on a number of Kestrel installations and has silencing and flame-damping qualities.

The airscrew, a three-bladed, two-position de Havilland, is not provided with a spinner. A small gap is left be-

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