

# Accessory Manufacturers' Twelvemonth

THE WORK OF THE INDUSTRY IN 1959



Indicative of the interest that is being displayed in the accessory industry is this recent picture of the Prime Minister, Mr. Harold Macmillan, during a visit to Teleflex Products. He is sampling the new inertia-lock shoulder harness and combined lap belt, which may be adopted by B.E.A.

**Aero Controls Ltd.** The AC-Flex flexible couplings produced under licence by Aero Controls have been further developed during the past 12 months. These couplings are installed after the tubes to which they are fitted are in place, so that structural apertures need to be no larger than the standard bead on the tube. The advantages claimed for these fittings are that they accommodate  $\pm 4$  deg tube flexure and that tubes on mating assemblies may be malaligned by as much as  $\frac{1}{8}$  in yet still allow movement of each coupling. Little more than hand tightening is required to achieve pressure tightness over a wide temperature range. The couplings embody the Wig-o-flex design.

**Aircraft Furnishing Ltd.** New airline chairs called Lonsdale Flyweight have recently been developed. They are tourist-class units which weigh 48 lb for the triple and 30 lb for the single. This is claimed to represent the "greatest weight reduction in aircraft seating ever achieved." Double seats of this type are being installed in the prototype Fairey Rotodyne and in the Avro 748 mock-up. The chair has been tested and A.R.B.-approved and is stressed for B.C.A.R. 9g forward- and aft-facing conditions. Special features are a shin



Aircraft Furnishing's Lonsdale Flyweight triple seat unit

clearance of between 14 and 15 in, and a tip-up seat. What is described as "a combination of unique geometry of design and the transmission of forces by torque tube" is said to make the structure particularly safe when the seat is exposed to high deceleration forces.

**The Airscrew Company and Jicwood Ltd.** Undoubtedly the most noteworthy project recently undertaken by the company has been the static blades and 7ft diameter fan for the Saunders-Roe Hovercraft. The fan blades were laminated from aerograde mahogany glued with waterproof synthetic resin and covered with special plastic and there is a metal sheath over the leading edge. The pre-rotational vanes were constructed from resin bonded Birch veneers built into a rigid central blanking which carries the nose fairing. The entire assembly was finished with aluminium bituminous paint.

The company's more conventional aircraft work has continued, and it is announced that Dragonair heater fans are being supplied for the Westland Wessex. Another single-stage/rotor unit cast in aluminium alloy is used for cooling the rotor gear box on the same helicopter.

**Sir W. G. Armstrong Whitworth Aircraft Ltd.** Aircraft accessories marketed by A.W.A. are the products of the Armstrong Whitworth Equipment Division, formed recently by amalgamation of A.W.A.'s commercial electronic department and Gloster Technical Developments division.

One of the units originally developed by Gloster and now under the wing of the Equipment Division is a true mass-flow meter, which is quite insensitive to fluid density and viscosity and the accuracy of which is not affected by the rate of flow. Produced in prototype form last year, the unit is now being manufactured in its definitive version. It operates by adding angular momentum to the fluid and then removing this momentum by a restrained turbine so that the torque exerted on the

*THIS annual "Flight" review is concerned with products of the British aircraft accessory industry that have appeared for the first time within the past year, or those that have been extensively developed during this time. Within the compass of this and the following seven pages we hope to assist aircraft manufacturers' design, engineering and purchasing departments to keep abreast of the industry's new ideas and to appraise or remind the component industry of developments in other or competitive fields.*

*The conclusion to be drawn from this compilation is that prognostications of a major recession within the aircraft accessory industry during 1959 have proved unjustified. While it is true that the activities of some firms have been curtailed by dwindling demand, inventive capability has proved its effervescent quality by blossoming in other directions. The process of diversification has continued; and "new" concerns have appeared on the aeronautical scene. The work of 48 firms is reviewed below, all of them manufacturing airborne equipment—which must thus be judged to some extent by the manufacturers' success in saving weight. Aircraft ground equipment—a growing and competitive field—is another story about which we shall have much to say in the weeks that follow.*

turbine is proportional to mass flow. This is arranged by driving an impeller by a constant-speed motor, so that a constant angular velocity is imported to the fluid, and then measuring the amount by which the turbine deflects a spring in balancing the torque—this is proportional to the rate of mass flow. The motor is internal and drives the impeller through a train of gears and a magnetic coupling; its rotational speed is held constant (irrespective of voltage fluctuations in the 115V 400 c/s supply) by means of a velodyne velocity feedback. An induction pick-off converts the angular deflection of the restrained turbine into a voltage which is taken via a rectifier to the rate meter and through a second velodyne-controlled motor to operate the integrating counter.

Another development of the Gloucester factory is a force transducer system.

*Guide vanes and ring for the Saunders-Roe Hovercraft were made by the Airscrew Company and Jicwood*

