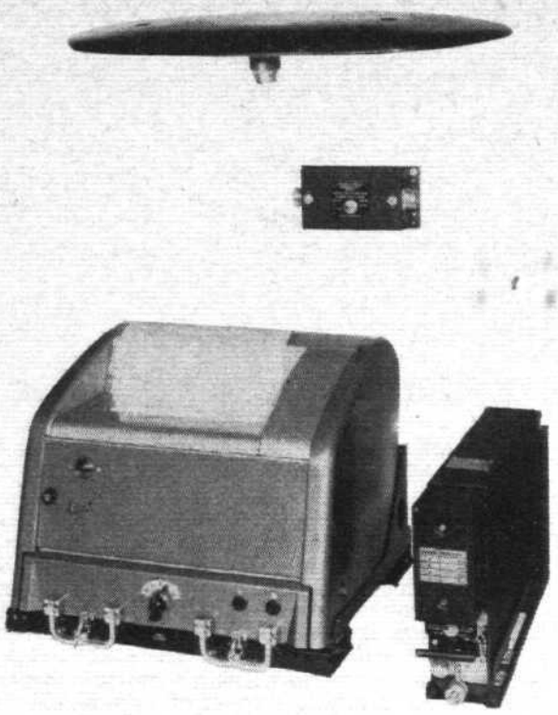

The Marconi AD.308 transistorized H.F. receiver and flush aerial with Creed airborne teleprinter for airline use

Round the Stands . . .

the Comet is known to perform very well in practice and has cleared up many of the troubles associated with the not easy business of making the cabin staff heard in an aeroplane interior.

The **Redifon** stand had a new transmitter to engage the attention of communications people responsible for providing the telegraph and telephone facilities of the aeronautical radio services. The new G.420 family is a 1.5 kW peak-power transmitter covering the band 1.5-30 Mc/s and providing for various transmission modes and modulation types. It permits single-sideband and independent sideband working, gives facilities for pre-set on up to eight frequencies and several drive units are available, e.g. for twinplex telegraph working, facsimile transmission, frequency-shift keying and radio-phone. It is designed in unit form to satisfy the diverse needs of the individual user and permits him to add or change as the needs of his service dictate.

Both Fleet Air Arm and R.A.F. are now well into their conversion from V.H.F. to U.H.F. communications radio. **McMichael Radio** produce the blade aerial, suitable for supersonic flight, and seen on many aircraft in the display. **W.S. Electronics** showed the D.120 U.H.F. transmitter/receiver which solves the twin problems of correct frequency correction and peak-performance tuning.

The noticeable revival in radio for light aircraft brought the **Plessey** PTR.161 lightweight, six-channel V.H.F. remote control radio and the Amalgamated Wireless (Australasia) Airmite 2 four-channel set with self-contained power supply and total weight of 14 lb. **Burndept** showed the new five-channel light aircraft 1W V.H.F. radio which includes a transistorized power supply for 6, 12 or 24V supplies. It has been designed for 50 kc/s channel-spacing but is produced with 100 kc/s spacing. It weighs 6½ lb. It costs about £90 and crystals can be changed in flight.

Navigation Equipment

The British industry is now fast catching up with the formidable American technological lead in inertial navigation equipment and systems. Last week *Flight* recorded the opening of **Ferranti's** new inertial gyro-production laboratory in which both Kearfott and Ferranti units are to be produced. The **English Electric Instrument Wing** exhibited at Farnborough, for the first time anywhere in the world, a working example of the Minneapolis Honeywell miniature stable platform incorporating the GG.49 miniature integrating gyros which the Wing is now producing under licence at Stevenage together with the pendulous current-balance accelerometer GG.56. These items are suitable for the so-called short-term inertial navigators in which various gyros could be combined. One might be two GG.49s stabilizing a larger azimuth gyro. Also on the stand was a simple Polar-axis test table to which an electronic chart recorder was coupled for general testing of mechanical characteristics of gyros. The Kearfott rate integrating floated gyro costs several thousand pounds and the American price of an M-H GG.49D miniature floated gyro is about $6,000. **Sperry** were exhibiting the Rotorace gyro, both in the C.11 compass system and the twin gyro fully manœuvrable platform. Costing about £1,000, the Rotorace has a specified random drift of 1 deg/hr and actually achieves ½ deg/hr. Inertial tolerances are, of course, much closer.

Elliott Bros. are producing the inertial guidance for the Avro stand-off bomb, but were only able to show a general illustration of the "mission profile" of this weapon. **Graseby Instruments** were exhibiting their Polar-axis test table for inertial gyros and also the G.I.390 Universal Gyro Tester in which a complete range of tests can be carried out without shifting or switching off the gyro. The mounting for the gyro itself was of a size appropriate to the Kearfott floated gyro. The Universal Gyro Tester can be used, without stopping or re-mounting the gyro, as a three-axis precision dividing head for closed-loop tests or, alternatively, by using the servo control of the gimbal it can be used to study the performance of the gyro while the latter is actually stabilizing a platform. During either test all three axes have 360 deg freedom of movement. A reading microscope and a photo-electric readout device are incorporated and, with a suitable timer, performance figures can be recorded directly on an electric typewriter to allow unattended testing over a period of hours.

Having achieved the technological capability to produce the extremely precise equipment needed for inertial systems, British companies are now undertaking the design of complete navigation systems and it is noteworthy that they are confident that the gyros they produce will be every bit as good, if not better, than their American equivalents. Having finally tackled this exceptionally difficult task, British manufacturers seem quite confident of being able to carry on successfully on their own initiative.

Special-purpose navigation computers are being produced for a variety of military applications. Already well known are the automatic plotting table produced by **Louis Newmark** and the automatic map plotter by **Kelvin Hughes.** Exhibited this year was the Sperry Radio Track Guide coupler system for automatic track-following using radio aids such as Decca, Dectra, Vortac, Gee and Loran C. Appropriate co-ordinates of departure and destination points can be set manually or by punched card and the device will then compute a virtually straight course between the two and provide heading error signals to an autopilot. Trials with coupling to Decca have been carried out and both military and civil applications are foreseen. The only new equipment required is the computer which weighs 50 lb and has a volume of 1 cu ft. In future it would be possible to control aircraft automatically in both time and space, thus making full use of the airspace available for civil operations. In this instance a computer on the ground would be needed to produce route programmes and to check flight clearances. The information could then be used to check progress of aircraft during flight.

Another relatively new navigation computer is the **Canadian Applied Research** Anadac. It incorporates a pictorial map display and control panels together with course and distance dial and wind velocity dial. Switches provide for operation as a plain D.R. computer or coupling with A.D.F., Tacan or Doppler. A further control allows the selection of automatic course and distance presentation to any one of five pre-set bases selected by push-button.

One of the computers offered for use with the Marconi AD.2300 Doppler radar