Cossor Electronics Ltd produce these precision bench signal generators.

Creed & Co Ltd, Hollingbury, Brighton, BN1 8AL. Brighton 507111. Creed Model 75 teleprinter for airborne or ground use—speeds up to 100 w.p.m.; Model 444 teleprinter, a heavy-duty machine designed for use in Air Traffic System communications—speeds up to 100 w.p.m. Envoy Dataprinter, an eight-bit machine designed for ground use as an on-line terminal set and off-line for a tape preparation set.

Davall & Sons Ltd, S., Wadsworth Road, Greenford, Middx. 01-998 1011. Second-generation recycling wire recorder, fully crash protected to IEC 60910 with ARB approval, meeting TSO/C61(a). Type 1190 (55hr duration); Type 1191 (36hr duration); Type 1192 (23hr duration); Type 1193 (30min eight-channel voice).

Type 1089 quick-access cassette-loaded magnetic maintenance recorder. Type 1200 miniature cassette-loaded voice recorder (up to 90min duration), multi-track versions available.

Decca Navigator Co Ltd, 9 Albert Embankment, London SE1. 01-735 8111. The Decca Navigator System: permanent chains of Decca Navigator transmitting stations serve over 17,000 users (ship and aircraft) and cover the United Kingdom, most of Western Europe and Scandinavia, the East Canadian seaboard and New York area, California, South Africa, the Persian Gulf and coastal waters of Bombay and Calcutta, the Hokkaido and Kyushu regions of Japan and the Port Hedland (Western Australia) area.

Airborne Decca Navigator Equipment: Mk 15, 16, 17 and 19 solid-state systems. Mk 15 and Mk 19 operate with computer Type 710 and display head Type 961. The Mk 19 can drive an in-line decimal meter readout in place of the lane identification meter and decimeters, and simultaneously provide the same outputs associated with the Mk 15. The Mk 16 and 17 receivers drive the Mk 6A self-setting flight log through the Decca Omnitrac computer which accepts inputs from hyperbolic, rho/theta and self-contained aids.

Omnitrac: this is a lightweight airborne digital computer which will process information received from VOR/DME and other navigational inputs and feed the result to a self-setting display head. The incorporation of the computer into the system enables flexible area-coverage procedures to be adopted. Direct routes can be flown between airports with discrete offset tracks to provide twin-track airways. The Omnitrac computer also provides full autopilot coupling.

Danac (Decca Area Navigation Airborne Computer): a highly-automated navigation system with pictorial display in a one-shot action after which operation is virtually automatic. Chart distortion is reduced to a barely detectable level. The system comprises Danac computer, Mk 15 receiver, control box and self-setting display head; a data link output is an available option.

Haro: an advanced system to meet Eurocontrol specifications, also uses the Omnitrac computer providing autopilot coupling and ancillary equipment to give virtually automatic navigation from take-off to touchdown. Data Link: non-synchronous air-to-ground digital data link, incorporates automatic coded two-way pilot/ATC communication facility.

Decra: the North Atlantic air routes are covered by Decra 2—a long-range system with two transmitting stations in Newfoundland, two in the UK, one in Iceland and one in Ireland. Loran C: ADL.23 is specifically designed and built for use in any aircraft requiring the world-wide coverage of the Loran C and A systems. The ADL.23 employs advanced micro-circuitry and is cycle-matching, which is essential if the full accuracy and range of Loran C is to be realised.

Airborne Doppler: Types 71 and 72 compact solid-state systems with no moving components, resulting in high reliability and simple installation. Type 71 is for helicopters. Type 72 for fixed-wing aircraft with speed range up to 1,000kt. The basic system comprises antenna/electronics unit, groundspeed and drift indicator and hover meter (Type 71). In addition, Doppler Type 71 and 72 can be supplied with computers Type 1770 and 1771 to drive an along-and-across track display, roller maps (Mk 4 and 5) and Flight Log Type 961. Computer Type 1771 provides additional outputs for military applications. Doppler 62, a general-purpose equipment is in use by airlines and the RAF. Doppler Type 67M is a very-high-accuracy system for military and survey applications.

Roller Maps: these pictorial displays use standard aeronautical charts and are designed for operation with self-contained aids. They comprise Mk 1 Type 9033 for use with Doppler input; Mk 2 Type 9073, which operates from internally generated data and runs from 28V supply; Mk 3 Type 9063 for use with military Doppler; Mk 4 Type 9273 for Doppler or inertial inputs or manually set groundspeed, which has chart angle setting facility; Mk 4 Type 1640 also used with military Doppler equipment; Mk 4 Type 1644 which accepts ground distance-time charts, along and across the chart angle, transmitted by synchro-rotation from military Doppler equipment; Mk 5 Type 1649 as Mk 4 with automatic area coverage.

Important Developments: for VTOL and STOL aircraft vertical guidance can be programmed in the Omnitrac computer for display on the flight director. Information is displayed in one of two modes—"En Route" which gives commands for climb or descent until the programmed altitude is attained, and "Approach" which indicates the difference in altitude and distance between two successive waypoints along the flight path and glide-slope.

Current R&D: Decca's main R&D project has been the evolution of the Danac computer which, together with associated components, provides a highly automatic navigation system with pictorial display for medium-sized or light aircraft in both the civil and military fields. Salient features of Danac are the "one-shot" setting-up procedure and minimal chart distortion.

Development of airborne receivers has concentrated on the Mk 15, 16 and 17 series which exploit the improved reliability, low weight and compact construction made previously possible.

Derrioton Electronics Ltd, Hastings, Sussex. Hastings 51372. Electro-magnetic vibration test equipment (2lb-15,000lb thrust) and instrumentation for swept斜, swept ran-