



Left : Plessey Type PTR61, v.h.f. transmitter-receiver fitted with remote control attachment. The equipment provides 6 channels send and receive, for immediate operation. Right : Redifon Type A145 airborne passenger announcement system showing pilot's control (left), amplifier unit, steward's control and microphone and one of the 13 loudspeakers.

over a band of 50 Mc/s and it operates at a mean carrier frequency of 1,630 Mc/s. Slot aerials are used and mounted in weatherproof boxes designed for fitting flush with the skin of the aircraft.

The most up-to-date types of v.h.f. airborne radio-telephone equipment can be divided into two main categories. In the one are those sets capable of providing, at the turn of a switch, any one of the full number of radio channels available in the 118- to 132-Mc/s band and in the other sets which provide immediate selection of a limited number of channels and facilities for changing to any of the others by fitting the appropriate crystals.

Two firms, Marconi and Standard Telephones, have multi-channel sets of the first kind and both provide a complete coverage of the available channels with 24 crystals only and this includes both send and receive.

Basically, the principle of operation is the same in both sets but there are many differences in carrying out the idea. Two oscillators are used in the Marconi AD115 equipment, one, the major oscillator, has 14 switchable crystals whose frequencies are adjusted so that after a pre-determined multiplication a carrier output on each of the whole numbers of the working frequencies is obtained; e.g., 118, 119, 120 and so on to 132 Mc/s.

The other, or minor, oscillator is also crystal controlled and provides an output which when mixed with the major oscillator's output adds the required decimal portion of the frequency, for example, 0.1, 0.2, 0.3 Mc/s and so on.

At present the band 118 to 132 Mc/s is operated with 200-kc/s channel spacing and so 70 channels only are usable but future requirements will be for 100-kc/s spacing and then the 140 channels will be required. This equipment gives 15-20 watts output, has full remote control and operates on telephony or m.c.w.

In the Standard Telephones STR12C equipment 70 channels with 200-kc/s spacing are provided, but it is a simple matter to double this number when the need arises. A small remote control unit contains 24 miniature crystals and three oscillators, but two only are in use at any one time. It carries also two frequency selecting switches, one for whole numbers the other for the decimals, on-off switch and telephony or m.c.w. telegraphy switch. The carrier output is 15 watts.

Typical of the sets in the second category are the

two Ekco models CE40, 11 channels, and CE58, 22 channels; Murphy MR60 and MR80, 5 and 23 channels respectively and Plessey PTR61 with six channels. The majority of the equipments in this category are low power sets being intended mainly for privately owned and light aircraft, where the requirements are a limited number of channels immediately available and facilities for changing to others, if necessary, in the air.

Some of the larger passenger aircraft now have several cabins, each seating 12 or more people and, although interconnected, dividing bulkheads isolate them to some extent. In these aircraft are now being fitted passenger announcement loudspeaker systems, generally under the control of the steward or stewardess but with over-riding control from the pilot's or navigator's positions.

An amplifier for an installation of this kind is made by Redifon; it is the Type A145, gives 15 to 20 watts audio output and is capable of operating 13 loudspeakers distributed throughout the aircraft. It fits the standard aircraft racking and has all cabling brought in at the back via plugs and sockets to simplify servicing.

Wide-band aerial amplifiers designed to do away with the forest of aerials which distinguish most ground stations working long-distance point-to-point and ground-to-air communication services were seen at the S.B.A.C. show. Plessey has developed one, the Type PV14, covering 2-25 Mc/s and which will operate up to ten communications receivers from a single aerial without mutual interference. The amplifier consists of two identical sections each having two EF91 valves in parallel and feeding five ECC91 valves operated as cathode followers. Each supplies a separate receiver. A modification of this amplifier is available for dual diversity reception, each half operating up to five receivers from two separate aerials.

Another example of a wide-band amplifier is the Redifon Type MCU1. It is designed to operate up to eight receivers from a single aerial. The input from the aerial is taken through a band-pass filter which accepts all signals within the band 2-20 Mc/s but heavily attenuates those outside this band. Following the filter are eight EC91 triodes operating as cathode followers and each feeding into a separate output for the eight receivers.

One of the latest secondary radar nav aids, the interrogator-responder system known as DME (Dis-