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Review of
COMMUNI-RECEIVERS

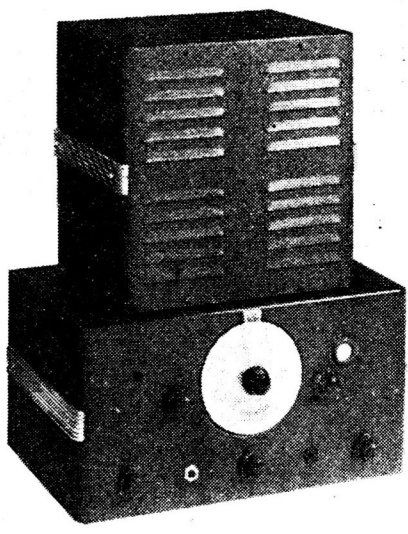
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AMATEUR transmitters who take their work seriously employ for reception purposes a multi-valve receiver which is built on lines rather different from those taken in a standard broadcast receiver. One of the first requirements of this type of receiver is a high degree of sensitivity, but it must also offer a very high degree of selectivity. But these two factors alone are not sufficient. Selectivity should be capable of variation over a fairly wide band; some means must be provided for the reception of C.W. signals; it is desirable that



This is the Premier Model 5V5, a 5-valve model costing £8 8s. complete with speaker.

A.V.C. should be incorporated to counteract fading, but means must be provided to cut out the A.V.C. action when searching for weak signals and when using the special circuit called for in a superhet for receiving C.W. There are also other factors which are called for in this type of receiver and consequently it is a specialised product which generally is not inexpensive. The American market has catered for this particular type of receiver for a considerable time, and many amateurs are using American apparatus owing to the failure of English manufacturers to produce similar equipment. The gap has now, however, been bridged, and receivers of this type, comparable with the original American models, are now available from such firms as Eddystone, Peto-Scott, Premier, etc. In our issue dated November 26th last we commenced constructional details of one of these receivers, employing nine valves, and this is available for those who wish to make their own apparatus.

A REVIEW OF CON

Eddystone Model E.C.R.

One of the best examples of the English receivers in this class is illustrated below, removed from its cabinet, and the external view may be seen at the top of the opposite page. This is the Eddystone model E.C.R., an A.C. mains model, incorporating ten valves (including rectifier) and designed with self-contained coils to tune from 9.5 to 190 metres. The cabinet measures 21in. long by 10in. high and is 10 $\frac{3}{4}$ in. from front to back, the total weight being 50lb. There is an H.F. stage preceding the mixer, and a separate oscillator stage is provided. The three tuned circuits are ganged and provided with electrical bandspread tuning, the control knob for the latter also operating a pointer on the large horizontal tuning scale which is provided. Both the main tuning and the bandspread tuning controls are in the form of weighted flywheels which greatly simplifies rapid and accurate tuning.

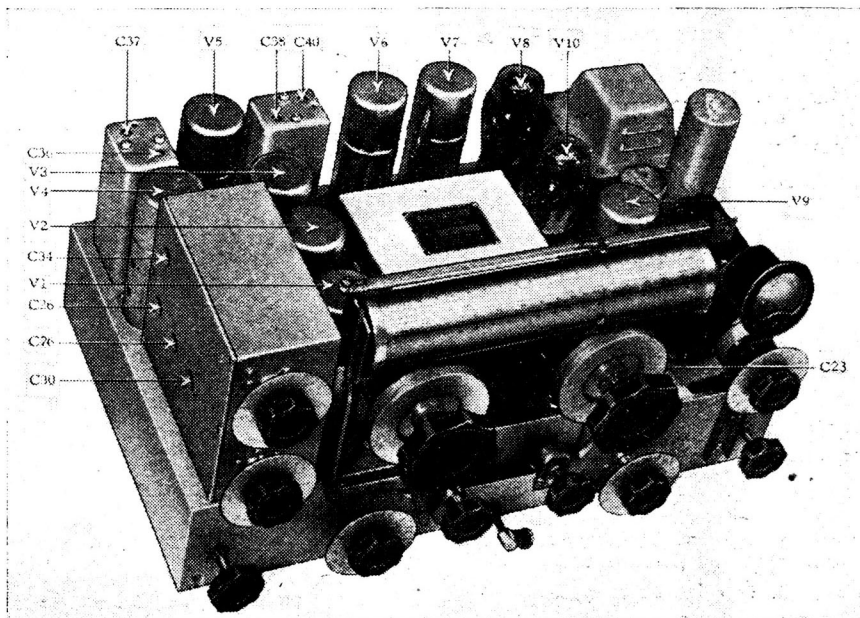
Following the mixer there are two I.F. stages operating at 465 kc/s, and these two stages utilise three I.F. transformers, a special crystal filter unit following the first transformer. This filter is provided with phasing and selectivity controls brought out to the panel and a switch to enable the crystal to be cut out when the

A Description of Some Well-Received of Specialised, I Apparatus of this Type, which will be Described in

highest selectivity is not required. Following the last I.F. is a double-diode, one diode providing demodulation (second detector) and the other giving A.V.C. when the A.V.C. switch is used to bring it into circuit. This switch also brings into action an H.F. manual volume control so that overloading of the H.F. and I.F. stages may be avoided. A triode amplifier follows this stage and an L.F. gain control in the form of a potentiometer feed to the grid is included to enable the signal strength passed to the output stage to be regulated. The output valve follows and a 'phone jack is included in the coupling between these stages, and insertion of the 'phone plug automatically silences the output valve. A separate beat-frequency oscillator stage is coupled back to the demodulator stage in the usual way, and this stage is silenced by means of a switch in the H.T. lead.

Signal Strength Meter

A useful addition to the panel is the



An inside view of the elaborate Eddystone Model E.C.R. This is a 10-valve receiver which costs £45 complete. The cabinet and controls may be seen at the top of the facing page.

COMMUNI-RECEIVERS

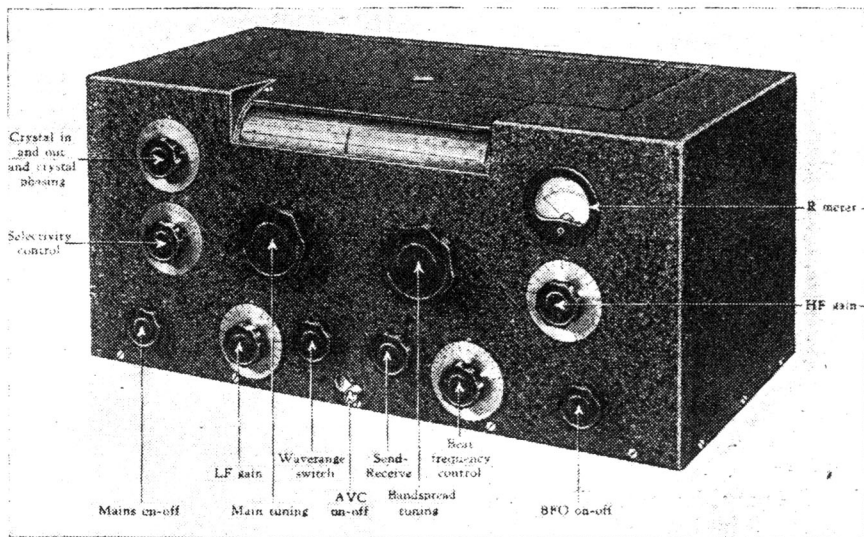
Well-known English Commercial Design. Popular American which is Available in England, in Next Week's Issue

quency oscillator, I.F. and output tetrode stages, with a full-wave rectifier. The I.F. transformers are of the iron-cored type, and the coils are of the litz-wound high "Q" type. A special aerial matching control is provided, with the usual 'phone jack, A.V.C. switch and send-receive

"R" meter, and this is only in action when the A.V.C. circuit is in operation. Signal strength is read by switching off the B.F.O. circuit and switching in the A.V.C. circuit. A refinement which is often found of the greatest value is a noise-limiting circuit, brought into operation by means of a switch at the back of the receiver. This noise-limiter produces no losses when in circuit and therefore it may be left in action. This model costs £45, including the speaker, which is a separate unit.

Another Eddystone model is the L.P.C., an 8-valve battery model. This incorporates an H.F. stage, mixer with separate oscillator, two stages of I.F. amplification at 465 kc/s, double-diode-triode for A.V.C. and demodulation, L.F. amplifier and a beam power tetrode, with the usual B.F. oscillator. Tuning in this re-

alloy chassis. The H.T. current consumption of this model is 16 mA at 135 volts, and the L.T. consumption



The controls of the Eddystone E.C.R. Two pointers are provided on the dial so that band-spreading may be accurately carried out.

ceiver is .9 amps. at 2 volts. The dial is calibrated in kilocycles for five ranges and also in degrees. The price is also £45 complete.

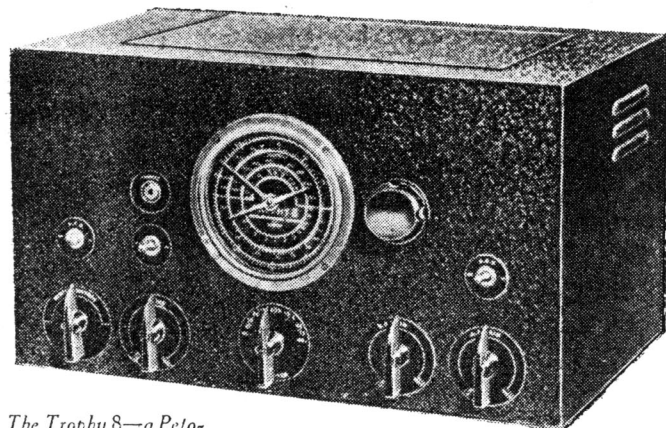
In the 1939 edition of the Eddystone Short-wave Manual, which costs 1s., constructional details of a mains-operated 9-valve receiver of similar type will be found, complete with coil-winding data. In this receiver an I.F. of 1,600 kc/s is employed.

switch. The latter, which is incorporated in most modern receivers of this type, merely breaks the H.T. supply (a simple on/off switch in the H.T. negative lead) so that the set may be switched off when going over to the transmitter, and it may then be brought into use instantly by operating this switch, thus avoiding the need of waiting whilst the valves heat up.

In many receivers the speaker is included as part of the complete layout, although this may give rise to troubles from feed-back effects. To avoid this, a number of the models are made as complete receiver units only, and the speaker is included as a separate unit. In this Premier model the speaker is housed in a separate steel case, designed to match the receiver cabinet, and this is included in the price of £8 8s. The speaker may be seen in the illustration standing on the receiver.

Peto-Scott

The most popular receivers of this type in the Peto-Scott range are known as the Trophy models, available in a 5, 6 and 8 valve combination. The Trophy V utilises a triode-hexode as frequency changer, a triode-pentode as I.F. and B.F.O., a double-diode-triode as demodulator, A.V.C. and



The Trophy 8—a Peto-Scott product. This has a mechanical band spread dial, and costs 12 gns. A suitable speaker may be obtained to match for 2 gns.

ceiver is also provided by means of a flywheel control, and interchangeable coil blocks in die-cast screening boxes are provided for each waverange. There are five such blocks covering from 13.6 to 665 metres. Controls are for tuning, oscillator vernier, H.F. gain, L.F. gain and beat frequency control. Telephone terminals and a telephone jack are provided with an on-off switch on the side of the die-cast aluminium-silicon

The receiver in the first column is produced by the Premier Supply Stores, and is a 5-valve A.C. model covering from 12 to 2,000 metres, with individual coils for each of 5 bands. A separate band-spread condenser is provided, with a 2-speed drive giving direct and a 100-1 reduction. American valves are used in a combination incorporating a triode-hexode frequency changer, I.F. amplifier, demodulator, beat-fre-

Premier Model

5V5