

NUMBER SEVENTY-ONE

# TRADER SERVICE SHEETS

## EVER READY 5017

### 3-VALVE (PLUS RECTIFIER) A.C./D.C. RECEIVER

**I**N their model 5017 receiver Ever Ready incorporate a 3-valve (plus rectifier) chassis using a variable-mu pentode H.F. amplifier, a triode detector and a pentode output valve. It can be operated from A.C. or D.C. mains of 200-250 V.

Provision is made for an extension speaker which can be used simultaneously with, or independently of, the internal speaker, and there is a plug and socket tone control device at the back of the chassis.

#### CIRCUIT DESCRIPTION

Aerial input via fixed series condenser **C1** to coil **L1** which is coupled to aerial tuning circuit, **L2, L3, C18**, inductively, and also capacitatively by small fixed condenser **C2**.

First valve (**V1, Mazda metallised VP1321**) is a variable-mu pentode operating as H.F. amplifier with gain control by cathode resistance **R4**.

Choke-capacity fed tuned-grid coupling by **L4, C5, L5, L6** and **C21** to triode detector valve (**V2, Mazda metallised HL1320**) operating on grid leak system with **C6** and **R5**. Reaction is applied from anode by coil **L7** and controlled by variable condenser **C20**. H.F. filtering by anode choke **L8** and by-pass condenser **C9**.

Parallel-fed transformer coupling by **R7, C8** and **T1** to output pentode (**V3, Mazda Pen 3520**). Tone compensation in anode circuit by impedance-limiting filter **R8, C10**; two-point tone control by fixed condenser **C11** and plug and socket device.

When the receiver is used with A.C. mains, H.T. current is supplied by a half-wave rectifying valve (**V4, Mazda U4020**), which, with D.C. supplies, behaves as a resistance of low value. Smoothing by speaker field winding **L11** and electrolytic condensers **C13, C14**.

The valve heaters are connected in series together with scale lamp and tapped ballast resistance **R11** across mains supply. Chokes **L12, L13** and condensers **C15, C16, C17** form a filter for the suppression of mains - borne interference.

#### COMPONENTS AND VALUES

Resistances		Values (ohms)
R1	H.T. ballast resistances	31,000
R2		31,000
R3	V1 fixed G.B. resistance	300
R4	V1 gain control	10,000
R5	V2 grid leak	510,000
R6	V2 anode decoupling	11,000
R7	V2 anode load	50,000
R8	Part of tone comp. filter	11,000
R9	V3 grid H.F. stopper	26,000
R10	V3 G.B. resistance	150
R11	Heater circuit ballast (total)	725

Condensers		Values (μF)
C1	Aerial series condenser	0.0001
C2	Capacitative aerial coupling	0.000005
C3	V1 S.G. by-pass	0.1
C4	V1 cathode by-pass	0.1
C5	H.F. coupling to L5, L6	0.00005
C6	V2 grid condenser	0.00005
C7*	V2 anode decoupling	2.0
C8	L.F. coupling to T1	0.1
C9	V2 anode H.F. by-pass	0.0005
C10	Part of tone comp. filter	0.01
C11	Extra tone control condenser	0.01
C12*	V3 cathode by-pass	50.0
C13*	H.T. smoothing	8.0
C14*		16.0
C15		0.1
C16	Parts of mains disturbance filter	0.1
C17		0.1
C18	Aerial circuit tuning	—
C19†	Aerial circuit trimmer	—
C20	Reaction condenser	—
C21	H.F. circuit tuning	—
C22†	H.F. circuit trimmer	—

\* Electrolytic. † Pre-set.

Other Components		Values (ohms)
L1	Aerial coupling coil	24.0
L2	Aerial tuning coils	2.6
L3		15.4
L4	V1 anode H.F. choke	400.0
L5	H.F. tuning coils	2.2
L6		16.8
L7	Reaction coil	1.6
L8	V2 anode H.F. choke	310.0
L9	Speaker speech coil	1.6
L10	Hum neutralising coil	0.2
L11	Speaker field winding	600.0
L12	Mains filter chokes	1.0
L13		1.0
T1	Intervalve trans. { Pri. . . . . 770.0 Sec. . . . . 1,900.0	
T2	Output trans. { Pri. . . . . 750.0 Sec. . . . . 0.36	
S1, S2	Waveband switches	—
S3, S4	Mains switches	—
F1, F2	Mains circuit fuses	—

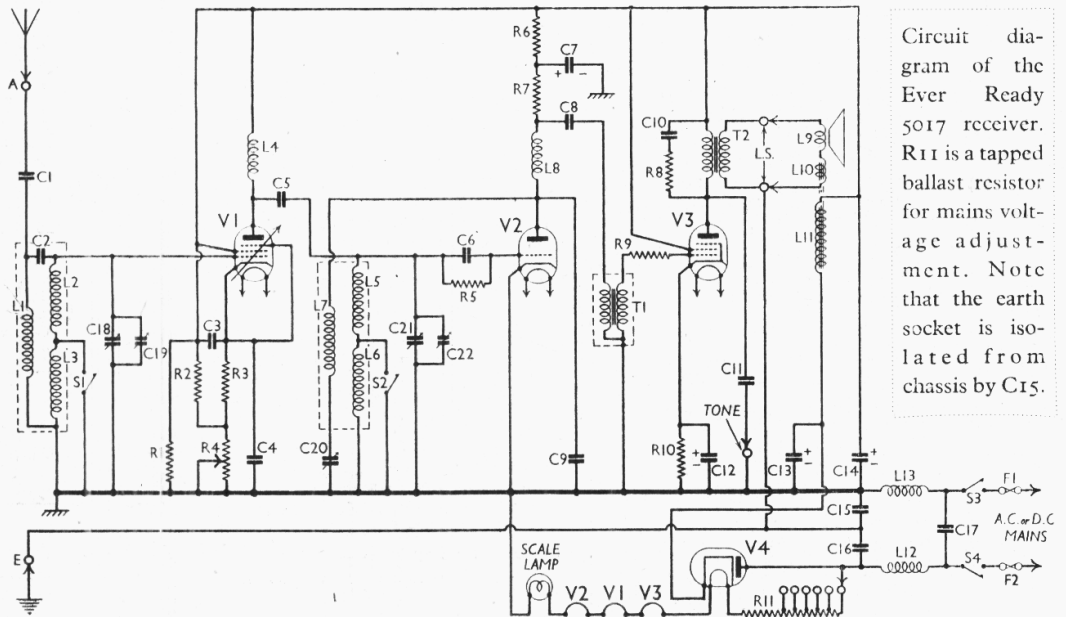
#### DISMANTLING THE SET

A detachable bottom is fitted to the cabinet and can be removed by removing the four round-head wood screws, when access can be gained to most of the components under the chassis.

**Removing Chassis.**—If it should be necessary to remove the chassis from the cabinet, remove the four control knobs (pull off) and the two clips holding the switch leads to the side of the cabinet (two round-head wood screws), and free the speaker speech coil leads from the clip. Remove the mains switch from the side of the cabinet (two round-head wood screws), and the four bolts (with large metal washers) holding chassis. The heads of these are covered by cardboard washers.

It is now possible to withdraw the chassis to the extent of the speaker leads, which is sufficient for normal purposes.

To free the chassis entirely, remove the speaker plugs from the chassis and the speaker field coil leads from the screw terminals on the speaker.



Circuit diagram of the Ever Ready 5017 receiver. R11 is a tapped ballast resistor for mains voltage adjustment. Note that the earth socket is isolated from chassis by C15.



**Removing Speaker.**—Four bolts hold the speaker to the sub-baffle and it can be freed by removing the nuts, spring washers and washers from them.

**VALVE ANALYSIS**

Valve voltages and currents given in the table below were measured with the receiver operating on A.C. mains of 225 V, and with the volume control at maximum and the reaction control at minimum. No aerial was connected. Voltages were measured on the 1,200 V scale of an Avometer.

Valve	Anode Volts	Anode Current (mA)	Screen Volts	Screen Current (mA)
V1 VP1321	190	6.6	195	2.0
V2 HL1320	60	2.4	—	—
V3 Pen3520	165	38.0	195	9.4
V4 U1020*	—	—	—	—

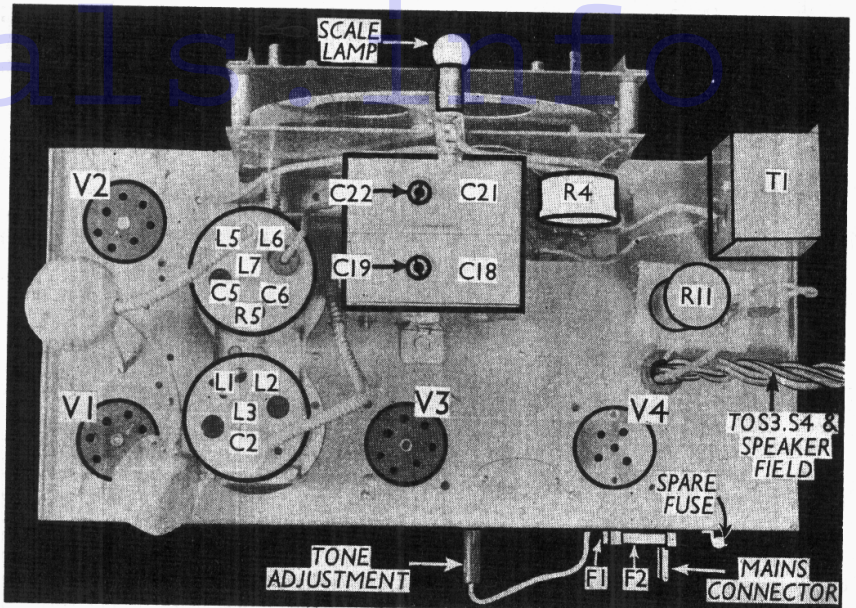
\* 240 V, cathode to chassis.

**GENERAL NOTES**

**Switches.**—There are only two wave-band switches in this set, **S1** and **S2**, seen in the under-chassis view. Both are closed on the M.W. band, and open on the L.W. band.

**S3** and **S4** are the Q.M.B. mains switches in a moulded unit fitted at the side of the cabinet. The contacts can be cleaned or adjusted, if necessary, by removing the paxolin cover plate at the back of the unit (three screws, two with nuts) having previously detached the unit from the cabinet.

**Coils.**—The tuning coils **L1-L3** and **L5-L7** are in two screened units on the chassis deck. The first unit also contains **C2**, while the second contains **C5, C6** and **R5**. **L4** and **L8** are two H.F. chokes, mounted beneath the chassis. **L12** and **L13** are two mains filter chokes, in one unit, also beneath the chassis.



Plan view of the chassis. The cable leading to S3, S4 and the speaker field is indicated. The first coil unit also includes C2, and the second, C5, C6 and R5.

**Scale Lamp.**—This, in our chassis, is an Osram M.E.S. type, rated at 6.2 V 0.3 A. Actually, a 6.0 V, 0.2 A bulb is recommended.

**Fuses F1, F2.**—These are two standard 1 1/4 in. 1A glass types, and a spare is also fitted.

**Condensers C13, C14.**—These are two dry electrolytic types, in one unit, with a common negative (black) lead. The yellow lead is the positive of **C13** (8 μF) and the red is the positive of **C14** (16 μF).

**Resistance R11.**—This is a ballast resistor, on a tubular former, mounted

on the chassis deck. It is tapped for mains voltage adjustment, from 200 to 250 V in 10 V steps.

**External Speaker.**—This should be of the low resistance (1.5 to 2.5 Ω) type.

**CIRCUIT ALIGNMENT**

**Adjusting Scale Pointer.**—Rotate gang condenser until pointer is at the higher wavelength end of scale. Push a flat ended rod through the hole in the side of the condenser screen and against the vanes. Rock the moving vanes by means of the tuning knob until it is felt that the vanes are fully in mesh.

If the pointer does not lie between the two horizontal lines at the higher wavelength end of the scale, release the centre fixing screw and move the pointer to this position.

**Adjusting Tuning Circuits.**—Switch receiver to M.W. and rotate tuning condensers until pointer lies between the two horizontal lines at the lower wavelength end of the scale.

Apply a modulated signal of 202 m. to the aerial terminal, and adjust first **C19** and then **C22** for maximum output.

Under - chassis view. Note the four resistances (dotted) beneath C7, C8, C12. There are only two wavechange switches, S1 and S2.

