

EVER READY 5028

3-VALVE BATTERY RECEIVER

OF the battery-operated type, the Ever Ready 5028 receiver has a 3-valve chassis employing a variable-mu pentode R.F. amplifier, a triode detector and a pentode output valve. Provision is made for connecting an extension speaker, which can be used alone, if desired. A plug and socket arrangement allows a Droitwich rejector to be brought into circuit, when required.

CIRCUIT DESCRIPTION

Two alternative aerial input connections to coupling coil **L2**, **A1** via condenser **C2**, and **A2** via additional series condenser **C1**. A socketed plug on a flying lead, when plugged into the **A1** socket connects **L1** across **C2**, forming a Droitwich rejector circuit. The aerial is then plugged into the socketed plug.

Single tuned circuit **L3**, **L4**, **C9** precedes variable-mu pentode R.F. amplifier (**V1**, Ever Ready metallised **K50M**). Gain control by variable G.B. potentiometer **R6**.

Choke-fed tuned grid coupling by **L5**, **C4**, **L7**, **L8** and **C12** between **V1** and triode detector valve (**V2**, Ever Ready metallised **K30D**), which operates on grid leak system with **C5** and **R2**. Reaction is applied from anode by coil **L6**, and controlled by variable condenser **C11**. Anode R.F. by-pass by **C6**.

Parallel-fed transformer coupling by **R3**, **C7** and **T1** between detector and pentode output valve (**V3**, Ever Ready **K70B**).

Fixed tone correction in anode circuit by condenser **C14**, and R.C. filter **C8**, **R7**; two-point tone control by plug

and socket device, which enables **R7** to be short-circuited. **V3** bias obtained from fixed potentiometer **R4**, **R5**.

Primary of output transformer has leads terminating in socketed plugs, which plug into sockets at the rear of the chassis. External high resistance speaker can be plugged either into the sockets on the chassis, or into the socketed plugs.

S3 breaks G.B. potentiometer circuit when set is switched off, **S4** breaking the L.T. positive circuit at the same time.

DISMANTLING THE SET

Removing Chassis.—If it is desired to remove the chassis from the cabinet, remove the four control knobs (pull off) and the two bolts (with washers) holding the chassis to the bottom of the cabinet. The chassis can now be withdrawn to the extent of the speaker leads, which is sufficient for normal purposes.

To free the chassis entirely, unplug the speaker leads from the sockets at the rear of the chassis.

Removing Speaker.—To remove the speaker from the cabinet, remove the four screws (with spring washers) holding it to the sub-baffle. When replacing, see that the transformer is at the bottom.

COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	V1 C.G. decoupling	110,000
R2	V2 grid leak	2,100,000
R3	V2 anode load	30,000
R4	G.B. potential divider	800
R5		1,400
R6	V1 gain control	3,000
R7	Part of T.C. filter	30,000

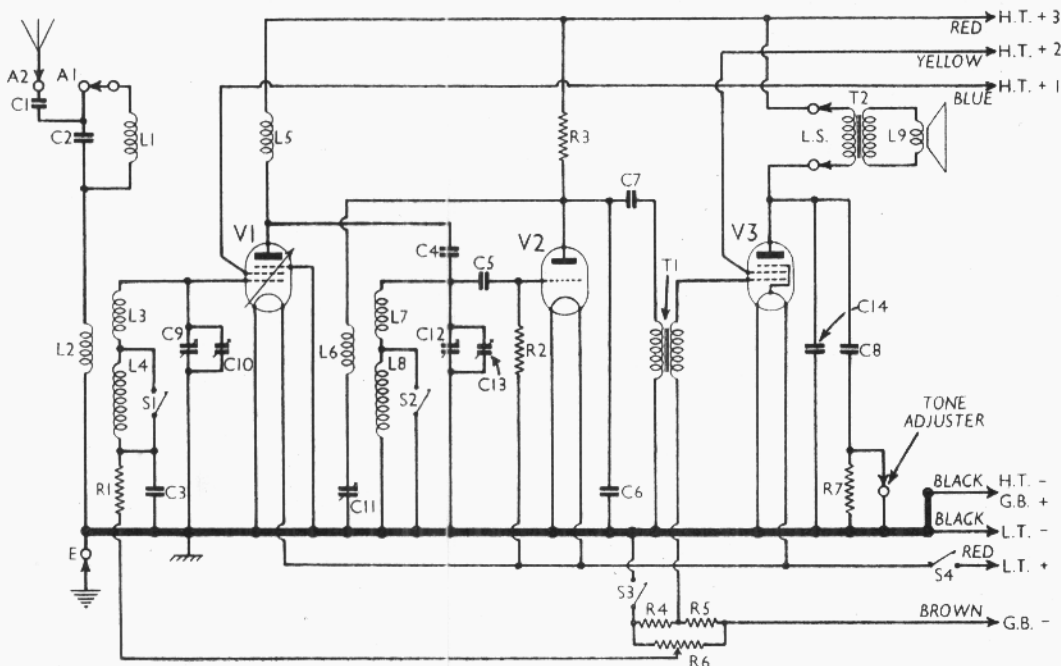
CONDENSERS		Values (μF)
C1	A2 series condenser	Very low
C2	Droitwich rejector tuning	0.0003
C3	V1 C.G. decoupling	0.1
C4	V1 to V2 R.F. coupling	0.00005
C5	V2 C.G. condenser	0.00005
C6	V2 anode R.F. by-pass	0.0002
C7	L.F. coupling to T1	0.1
C8	Part of T.C. filter	0.01
C9†	Aerial circuit tuning	—
C10†	Aerial circuit trimmer	—
C11†	Reaction control	0.0005
C12†	V2 C.G. circuit tuning	—
C13†	V2 C.G. circuit trimmer	—
C14	Fixed tone compensator	0.01

†Variable. ‡ Pre-set.

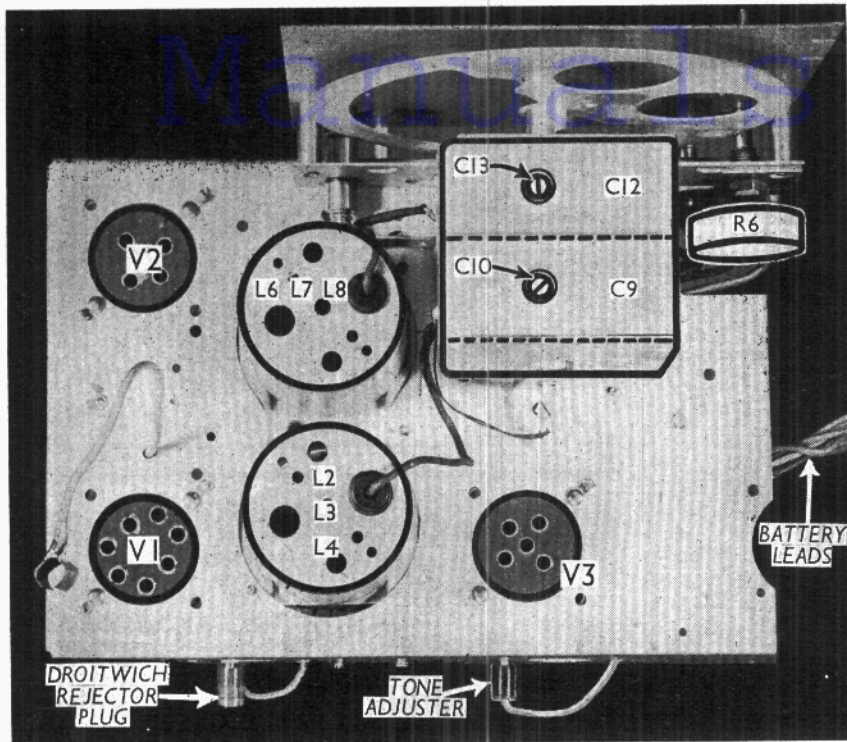
OTHER COMPONENTS		Approx. Values (ohms)
L1	Droitwich rejector coil	20.0
L2	Aerial coupling coil	42.0
L3	Aerial tuning coils	3.0
L4		11.0
L5	V1 anode H.F. choke	500.0
L6	Reaction coil	8.7
L7	V2 grid tuning coils	3.0
L8		15.0
L9	Speaker speech coil	1.7
T1	Intervalve trans.	Pri. 1,250.0 Sec. 8,000.0
T2	Output trans.	Pri. 700.0 Sec. 0.3
S1, S2	Waveband switches	—
S3	G.B. circuit switch	—
S4	L.T. circuit switch	—

VALVE ANALYSIS

Valve voltages and currents given in the table (p. III) are those measured in our receiver when it was operating with



Circuit diagram of the Ever Ready 5028 3-valve battery receiver. Note the arrangements for connecting the Droitwich rejector, **L1**, **C2**. **R4**, **R5** and **R6** supply grid bias to **V1** and **V3**. **C14** does not appear in the makers' diagram.



Plain view of the chassis. Note the tone adjuster and Droitwich rejector plugs.

a new H.T. battery reading 132 V on load. The receiver was tuned to the lowest wavelength on the medium band and the volume control was at maximum, but the reaction control was at minimum. There was no signal input.

Voltagages were measured on the 1,200 V scale of an Avometer, with chassis as negative.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 K50M	121	0.8	68	0.2
V2 K30D	52	2.3	—	—
V3 K70B‡	120	4.8	112	0.8

‡ The valve in our chassis was marked with a B.

GENERAL NOTES

Switches.—S1 and S2 are the wave-change switches, both closed on M.W. and open on L.W. S3 and S4 are the G.B. and L.T. circuit switches, both closed when the set is on, and open when it is off. The switches are identified in our under-chassis view. S1 is beneath L1.

Coils.—L1 is in two sections on a tubular former beneath the chassis; L2-L4, and L6-L8 are in two screened units on the chassis deck. L5 is an H.F. choke, mounted beneath the chassis.

External Speaker.—A high resistance external speaker may be connected to the socketed plugs of the internal speaker input transformer primary. If desired, the internal speaker plugs can be withdrawn, and the external speaker only may be plugged into the speaker sockets.

Tone Adjuster.—When the green plug is plugged into its socket on the chassis, R7 is shorted, and the upper register is reduced. By removing the plug, the tone is raised.

Aerial Inputs.—When the red socketed

plug is inserted in the A1 socket, and the aerial plugged into its socket, the Droitwich rejector is in circuit. By letting the red plug hang loose, and using the A1 socket normally, the rejector is cut out, though C2 is in series. The A2 socket brings the very small extra series condenser C1 into use, and reduces the

signal input. The Droitwich rejector is not adjustable.

Condenser C1.—This is a small capacity, and is formed of twisted insulated wires.

Batteries.—L.T., Ever Ready 2 V 45 AH (intermittent) glass cell, type GS45. H.T. and G.B., Ever Ready Winner 126 V, type 126 G.B. This is tapped in 1.5 V steps up to 12 V at the negative end, for G.B. supply.

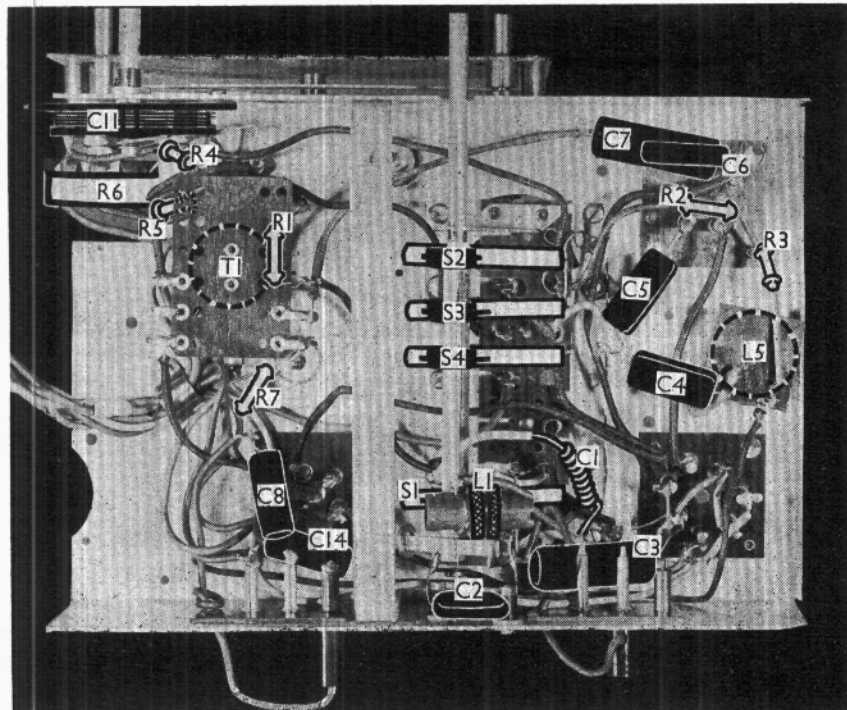
Battery Leads and Voltages.—Black lead, spade tag, L.T. negative; red lead, spade tag, L.T. positive 2 V; black lead and plug, H.T. negative, in +9 V socket of battery; brown lead and plug, G.B. negative, in negative socket of battery; blue lead and plug, H.T. positive 1, 72 V socket; yellow plug and socket, H.T. positive 2, socket depending on letter marked on V3 (A, 124.5 V; B, 117 V; C, 108 V; D, 99 V); red lead and plug, H.T. positive 3, 126 V socket.

Chassis Divergencies.—In the makers' diagram, C7 is between the primary of T1 and chassis, and not between anode of V2 and primary of T1. C14, the fixed tone compensator is not shown in the makers' diagram.

CIRCUIT ALIGNMENT

Rotate gang until pointer is at higher wavelength end of scale. Push a flat-ended rod through hole in side of gang cover and against the vanes. Rock gang until rotors can be felt to be fully in mesh. If pointer does not coincide with horizontal lines at end of scale, release centre fixing screw and adjust pointer suitably.

Rotate gang until pointer is at lower wavelength end of scale and switch set to M.W. Connect signal generator to A1 and E sockets, feed in a 202 m. signal, and adjust C10 and C13 for maximum output.



Under-chassis view. C1 is a small condenser. L5 is an H.F. choke, and T1 the A.F. coupling transformer.