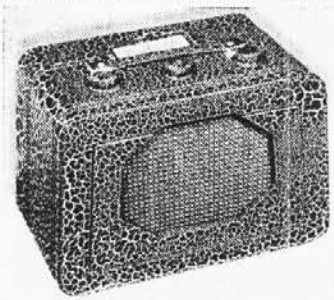
"TRADER" SERVICE SHEET

450

EVER READY 5214

(AND 5215, 5216, 5218)



The Ever Ready 5214, 5215 and 5216.

THE Ever Ready model 5214 is an all-dry battery superhet portable covering the MW and LW bands, and employing four valves.

Actually there are three models, differing only in the cabinet finish. Model 5214 has a red/black finish; model 5215 a gold/black finish and model 5216 a blue/black finish. In addition, the table model 5218 is similar, except that it has a larger cabinet, larger frame aerials, and a larger speaker.

Release dates: 5214, 5, 6, June, 1939; 5218, Sept., 1939.

CIRCUIT DESCRIPTION

Tuned frame aerial input **L2** (MW), plus **L3** (LW) and **C12** to octode valve **(V1, Ever Ready metallised DK1)** which operates as frequency changer with electron coupling.

Provision for connection of external aerial and earth via coupling winding **L1.**

V1 oscillator grid coils **L4** (MW), plus **L5** (LW), are tuned by **C14**; parallel trimming by **C15** (MW) and **C16** (LW); series tracking by **C18** (MW) and **C17** (LW). Reaction by coils **L6** (MW) and **L7** (LW).

Second valve **(V2, Ever Ready metallised DF1)** is an RF pentode operating as IF amplifier with transformer couplings **C19, L8, L9, C20,** and **C21, L10, L11, C22.**

Intermediate frequency 452KC/S.

Diode second detector is part of single-diode triode valve **(V3, Ever Ready metallised DAC1).** Audio frequency component in rectified output is developed across manual volume control **R8,** which also operates as load resistance, and passed via **C7** to CG of triode section. IF filtering by **C5, R7, C6.**

DC potential across **R7, R8** appears also across **R5, R6,** and is tapped off at their junction and fed back as GB to FC and IF valves, giving AVC.

Resistance-caacity coupling by **R10, C9** and **R11** between **V3** triode and pentode output valve **(V4, Ever Ready DL2).** Fixed tone correction by **C10** in anode circuit.

COMPONENTS AND VALUES

	CONDENSERS	Values (μF)
C1	AVC line decoupling ...	0·05
C2	V1 osc. CG condenser ...	0·0001
C3*	HT reservoir condenser ...	8·0
C4	V1 SG decoupling	0·01
C5	IF by-pass condensers ...	0·00005
C6		0·00005
C7	AF coupling to V3 triode ...	0·001
C8	IF by-pass	0·0001
C9	V3 triode to V4 AF coupling	0·005
C10	Fixed tone corrector ...	0·002
C11‡	Frame aerial LW trimmer	0·0001
C12†	Frame aerial tuning... ...	—
C13‡	Frame aerial MW trimmer	—
C14†	Oscillator circuit tuning ...	—
C15‡	Osc. circuit MW trimmer ...	—
C16‡	Osc. circuit LW trimmer ...	0·0001
C17‡	Osc. circuit LW tracker ...	0·0006
C18‡	Osc. circuit MW tracker ...	0·0006
C19‡	1st IF trans. pri. tuning ...	—
C20‡	1st IF trans. sec. tuning ...	—
C21‡	2nd IF trans. pri. tuning ...	—
C22‡	2nd IF trans. sec. tuning ...	—

* Electrolytic. † Variable. ‡ Pre-set.

	RESISTANCES	Values (ohms)
R1	V1 osc. CG resistance ...	260,000
R2	Oscillator reaction circuit	10,000
R3	damping resistances ...	16,000
R4	V1 SG HT feed	71,000
R5	AVC feed potential divider	11,000,000
R6		4,100,000
R7	IF stopper	110,000
R8	Manual volume control; V3 diode load	500,000
R9	V3 triode CG resistance ...	11,000,000
R10	V3 triode anode load ...	1,100,000
R11	V4 CG resistance	2,100,000
R12	V4 auto GB resistance ...	850

	OTHER COMPONENTS	Approx. Values (ohms)
L1	Ext. aerial coupling coil ...	Very low
L2	Frame aerial windings	0·8
L3		4·0
L4	Osc. circuit MW tuning coil...	1·8
L5	Osc. circuit LW tuning coil...	6·2
L6	Oscillator MW reaction ...	3·6
L7	Oscillator LW reaction ...	9·5
L8	1st IF trans. Pri.	27·0
L9	Sec.	27·0
L10	2nd IF trans. Pri.	27·0
L11	Sec.	27·0
L12	Speaker speech coil	1·8
T1	Output trans. Pri.	520·0
	Sec.	0·2
S1-S3	Waveband switches	—
S4	HT circuit switch Ganged	—
S5	LT circuit switch R8	—

DISMANTLING THE SET

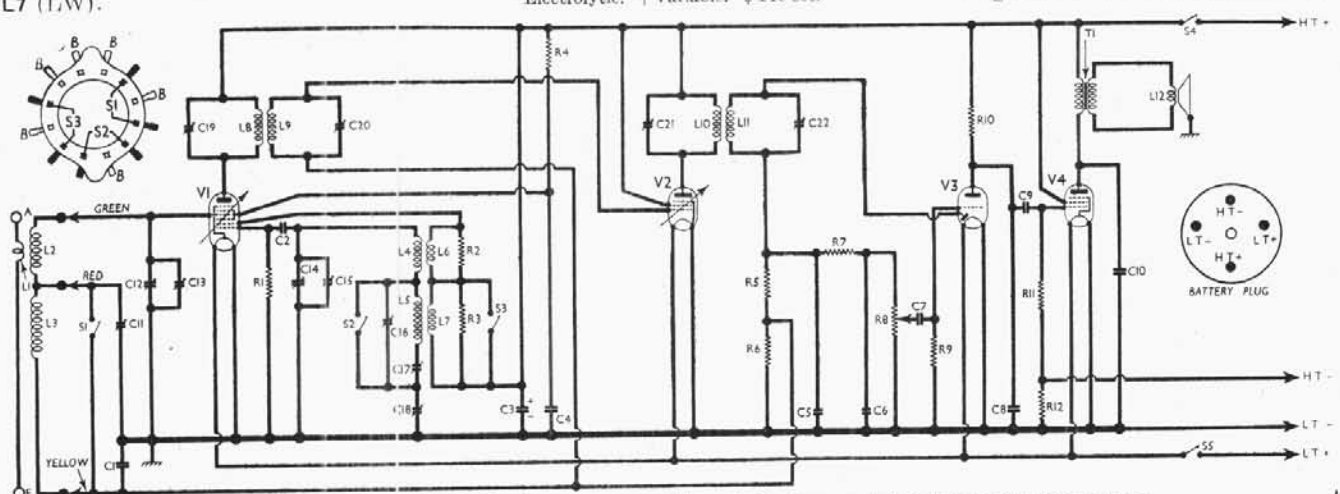
Removing Chassis.—Remove the three control knobs (pull off);

Remove the carrying case back, on which is mounted the MW frame;

Withdraw the connecting plug from the battery;

Unsolder the three leads from the two tags on the LW frame on left side of case;

Remove four round-head wood screws holding chassis to battens in the case.



Circuit diagram of the Ever Ready 5214, etc. The switch diagram is inset at the top left corner. ★

EVER READY 5214—*Contd.*

when chassis may be withdrawn to the extent of the speaker leads, which is sufficient for normal purposes.

When replacing, connect yellow lead from chassis to upper tag on LW frame;

Connect brown lead from chassis and red lead from MW frame to lower tag on LW frame;

Connect green lead from chassis to second tag on MW frame.

To free chassis entirely, unsolder the three leads from the tags on the speaker.

When replacing, connect the two brown leads to the speech coil tags; connect the black lead to the earthing tag.

Removing Speaker.—Remove chassis as indicated above;

Remove the four nuts holding the speaker to the sub-baffle.

When replacing, the connecting panel should be on the right.

Do not forget to fit the earthing tag under the lower right-hand fixing nut.

Connect leads as detailed above.

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating with a new 90V HT battery reading 97V on load. The receiver was tuned to the lowest wavelength on the MW band and the volume control was at maximum. The frame aerial leads were joined together.

Voltages were measured on the 400 V scale of a model 7 Universal Avometer, chassis being negative.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 DK1	88 Oscillator 88	0·6 1·0	40	0·7
V2 DF1	88	1·25	88	0·3
V3 DAC1	12	0·03	—	—
V4 DL2	85	5·2	88	1·2

GENERAL NOTES

Switches.—S1-S3 are the waveband switches, in a single rotary unit beneath the chassis. This is indicated in our under-chassis view, and shown in detail in the diagram inset at the top left-hand corner of the circuit diagram, where it is drawn as seen looking from the rear of the underside of the chassis. All the switches are *closed* on MW, and *open* on LW.

S4, S5 are the HT and LT circuit switches, ganged with the volume control **R8.** Their tags are indicated in our under-chassis view.

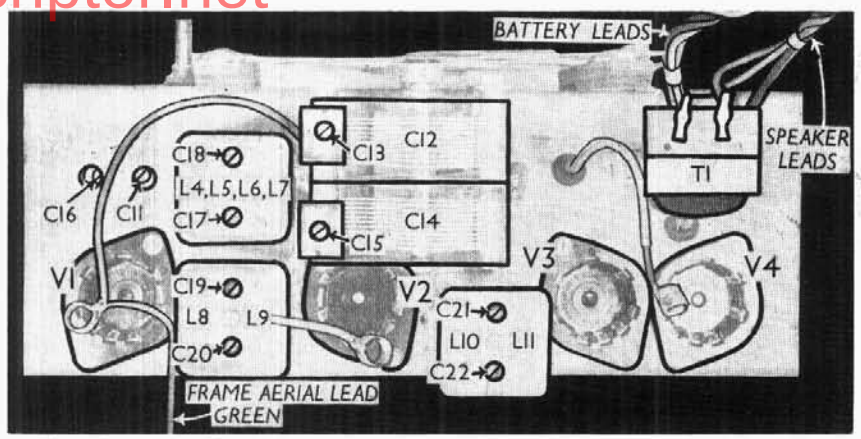
Coils.—L1 is the single-turn external aerial coupling coil, on the MW frame; **L2** is the MW frame winding on the inside of the back of the cabinet; and **L3** is the LW frame winding fitted inside the cabinet, on the left. **L4-L7** and the IF transformers **L8, L9** and **L10, L11** are in three screened units on the chassis deck. Each unit contains two trimmers.

Trimmers C11, C16.—These are adjusted through two holes in the chassis deck.

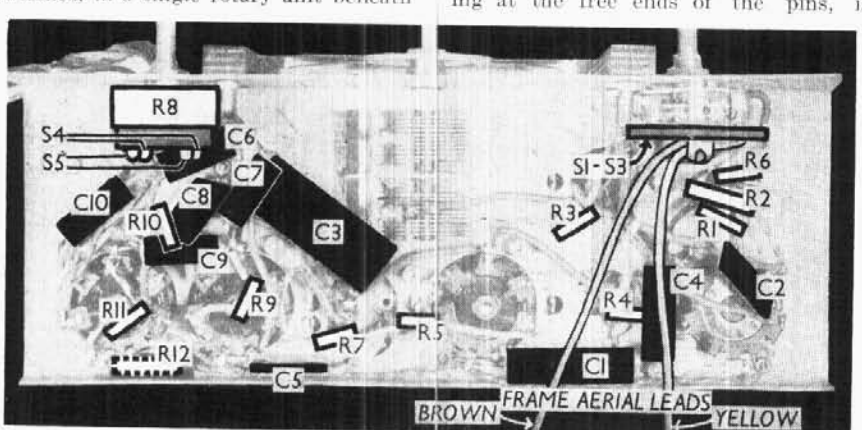
Battery.—This is an Ever-Ready All-Dry No. 3 combined 1·5V LT and 90V HT battery, fitted with a 4-pin socket for connection to the receiver.

Battery Connector.—The four battery leads from the chassis terminate in a 4-pin plug fitting the socket in the battery. A diagram of the plug, looking at the free ends of the pins, is inset on the right of the circuit diagram. The coding of the leads to the plug is: LT negative, black; LT positive, brown; HT negative, yellow; HT positive, red.

Chassis Divergencies.—Resistance **R2** may be 11,000Ω. Some models may have a somewhat different gang condenser, in which case there will be an additional 20μF fixed condenser wired across **C15. C11** is returned to chassis in our model, but is shown directly across **L3** in the makers' diagram.



Plan view of the Ever Ready 5214 chassis. One of the frame aerial leads is shown, the other two being seen in the under-chassis view.



Underneath view of the Ever Ready 5214. The **S1-S3** diagram is inset in the circuit diagram.

CIRCUIT ALIGNMENT

IF Stages.—Short-circuit **C14** and connect a 0·5 MO resistor across tags on the frame aerials to which the green and yellow wires are connected. Connect signal generator via a 0·1μF condenser to control grid (top cap) of **V1** and to chassis.

Feed in a 452 KC/S signal, and adjust **C22, C21, C20** and **C19,** in that order, for maximum output. Re-check these settings, then remove the 0·5 MO resistor and the short from **C14.**

RF and Oscillator Stages.—These must be aligned with the frame aerials and chassis in position, through holes provided in the back of the cabinet. The two wavebands are not independent, and the MW band must be aligned first. With gang at maximum, pointer should cover the horizontal markings at the upper wavelength ends of the scales. Connect signal generator to external **A** and **E** sockets.

MW.—Switch set to MW, and tune to 214m mark on scale. Set **C18** about two-thirds in. Feed in a 214m (1,400 KC/S) signal, and adjust **C15,** then **C13,** for maximum output. Feed in a 500m (600 KC/S) signal, tune it in, and adjust **C18** for maximum output, while rocking the gang for optimum results. Readjust **C15** at 214m if necessary.

LW.—Switch set to LW, tune to 1,000m on scale, and set **C17** about two-thirds in. Feed in a 1,000m (300 KC/S) signal, and adjust **C16,** then **C11,** for maximum output. Feed in a 1,700m (176·4 KC/S) signal, tune it in, and adjust **C17** for maximum output, while rocking the gang for optimum results. Readjust **C16** at 500m if necessary.