

"TRADER" SERVICE SHEET

1052

EVER READY Model N

Suitcase Battery Portable

FASHIONED on very slim lines, the Ever Ready Type N portable is a 4-valve 2-band superhet operating from self-contained all-dry batteries. The waveband ranges are 192-535 m and 950-1,850 m. Accessibility for service work is achieved by mounting the chassis, which is of open construction, on the underside of a hinged control panel, secured by two screws.

Release date and original price: September, 1951; £9 15s, plus batteries. Purchase tax extra.

CIRCUIT DESCRIPTION

Tuned frame aerial input **L1**, **C19** (M.W.) or **L1**, **L2**, **C19** (L.W.) precedes heptode valve (**V1**, Ever Ready **DK91**) operating as frequency changer with electron coupling.

Oscillator grid coils **L3** (M.W.) and **L3**, **L4** (L.W.) are tuned by **C20**. Parallel trimming by **C21** (M.W.), and **C6**, **C21**, **C22** (L.W.); series tracking by **C7**, **C23** (M.W.) and **C7**, **C8**, **C23**, **C24** (L.W.). Inductive reaction coupling from oscillator anode via **L5** (M.W.) and **L6** (L.W.). Second valve (**V2**, Ever Ready **DF91**) is a variable- μ R.F. pentode operating as intermediate frequency amplifier with tuned transformer couplings **C2**, **L7**, **L8**, **C3** and **C10**, **L9**, **L10**, **C11**.

Intermediate frequency 470 kc/s

Diode signal detector is part of diode pentode valve (**V3**, Ever Ready **DAF91**). A.F. component in rectified output is developed across volume control **R6**, which acts as diode load, and passed via **C13**

to control grid of pentode section, which operates as A.F. amplifier. I.F. filtering by **C12**. G.B. for pentode section of **V3** is obtained from "Contact" potential resulting from the use of a very high value for grid resistor **R7**. D.C. potential developed across **R6** is fed back as bias via decoupling circuit **R5**, **C5** to **V1** and **V2** grid circuits, giving automatic gain control.

Resistance-capacitance coupling via **R8**, **C15** and **R11** between **V3** pentode and pentode output valve (**V4**, Ever Ready **DL92**). Grid bias for **V4** is obtained from the voltage drop across **R10**, which is in series with the H.T. negative lead to chassis. **C16** by-passes the H.T. battery.



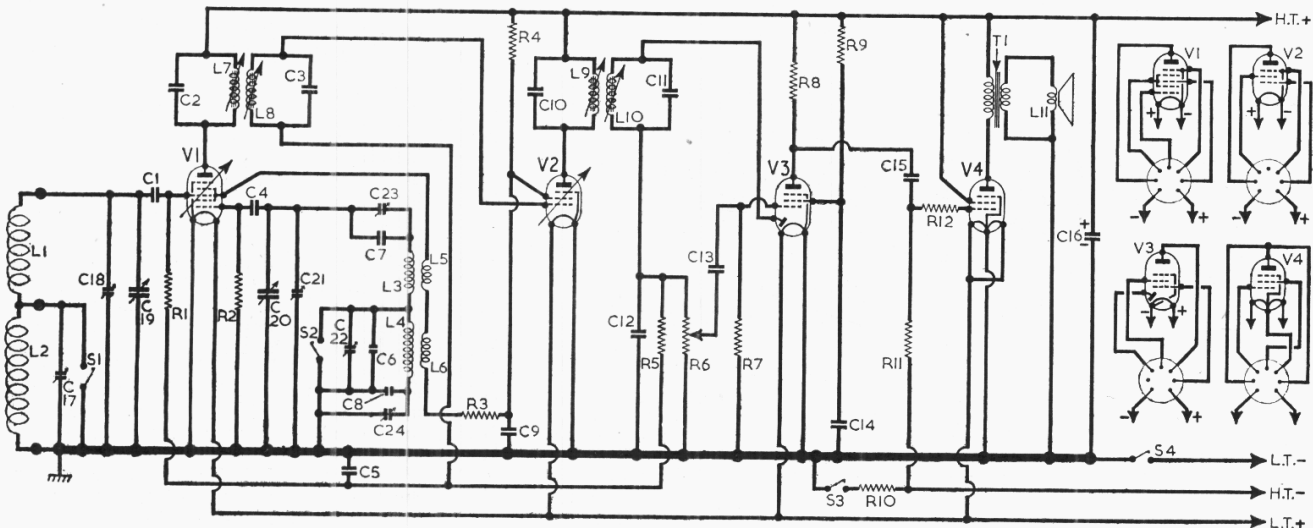
COMPONENTS AND VALUES

CAPACITORS		Values	Locations
C1	V1 C.G. ...	200pF	D2
C2	1st I.F. trans. tun- ing ...	100pF	A1
C3		100pF	A1
C4	V1 osc. C.G. ...	100pF	E2
C5	A.G.C. decoupling	0.01 μ F	D2
C6	L.W. osc. trim. ...	50pF	E2
C7	M.W. osc. tracker ...	450pF	F3
C8	L.W. osc. tracker ...	50pF	F3
C9	S.G. decoupling ...	0.1 μ F	E2
C10	2nd I.F. trans. tun- ing ...	100pF	B1
C11		100pF	B1
C12	I.F. by-pass ...	100pF	F2
C13	A.F. coupling ...	0.01 μ F	F2
C14	V3 S.G. decoupling ...	0.01 μ F	G2
C15	A.F. coupling ...	0.01 μ F	G2
C16*	H.T. reservoir ...	8 μ F	F2
C17†	L.W. aerial trim. ...	120pF	F3
C18†	M.W. aerial trim. ...	35pF	E3
C19†	Aerial tuning ...	§528pF	E2
C20†	Osc. tuning ...	§528pF	E2
C21†	M.W. osc. trim. ...	35pF	E3
C22†	L.W. osc. trim. ...	120pF	F3
C23†	M.W. osc. tracker ...	200pF	F3
C24†	L.W. osc. tracker ...	200pF	F3

* Electrolytic. † Variable. ‡ Pre-set.
§ "Swing" value, min. to max.

If the component numbers given in the accompanying tables are used when ordering replacement parts, dealers are advised to mention the fact on the order, as these numbers may differ from those used in the manufacturers' diagram.

RESISTORS		Values	Locations
R1	V1 C.G. ...	2.2M Ω	E2
R2	V1 osc. C.G. ...	100k Ω	D2
R3	Osc. anode feed ...	820k Ω	E2
R4	S.G. feed ...	10k Ω	E2
R5	A.G.C. decoupling	2.2M Ω	E2
R6	Volume control ...	500k Ω	F2
R7	V3 C.G. ...	4.7M Ω	F2
R8	V3 anode load ...	1.5M Ω	F2
R9	V3 S.G. feed ...	6.8M Ω	F2
R10	V4 G.B. ...	820 Ω	D3
R11	V4 C.G. ...	4.7M Ω	G2
R12	V4 C.G. stopper ...	2.2M Ω	G2



Circuit diagram of the Ever Ready Model N portable superhet. Battery switches **S3**, **S4** are lid operated.

OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	Frame aerial coils	3.5	—
L2		14.0	—
L3	Oscillator tuning coils	2.0	F2
L4		5.9	F2
L5	Oscillator Reaction coils, total	8.3	F2
L6		9.0	A1
L7	1st I.F. trans.	9.0	A1
L8		9.0	B1
L9	2nd I.F. trans.	9.0	B1
L10		9.0	B1
L11	Speech coil	2.5	C1
T1	O.P. trans.	450.0	G2
S1, S2		0.25	F2
S3, S4	Battery switches	—	D3

VALVE ANALYSIS

Valve voltages and currents given in the table below, are those derived from the manufacturers' information and are the average figures obtained from a number of receivers which were operated from new batteries.

Voltage readings, except where otherwise indicated, were measured on the 100 V range of a 1,000 ohms-per-volt multi-range meter, chassis being the negative connection. The anode and screen voltage of V3 were measured with an electronic voltmeter because of the high value resistors used in these circuits.

Valve	Anode		Screen	
	V	mA	V	mA
V1 DK91	80	0.5	40	1.5
V2 DF91	80	2.3	47	1.0
V3 DAF91	24*	0.06	17.5*	0.015
V4 DL92	80	5.5	80	1.6

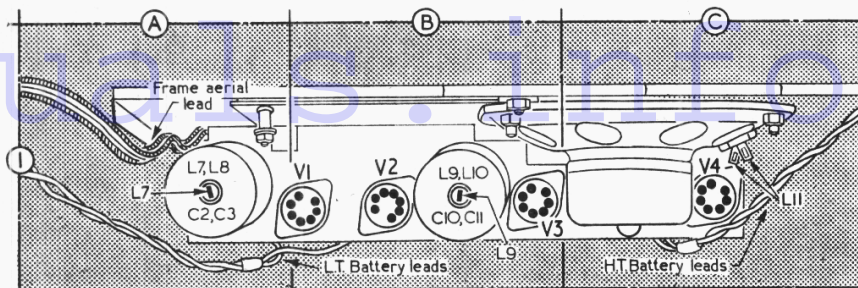
*Measured with electronic voltmeter.

GENERAL NOTES

Switches.—The waveband switches S1, S2 are in a slider-type unit near the centre of the chassis pressing. They both close on M.W. and open on L.W.

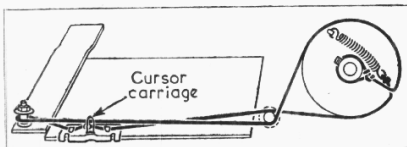
The battery "on-off" switch is of a similar type, comprising S3 and S4, but it is spring-loaded to remain closed while free. When its plunger is depressed upon closing the lid, S3 and S4 open and switch off the receiver. A small angle bracket is fitted in the lid to contact the plunger.

Batteries.—The L.T. unit is an Ever Ready Aldry 14, rated at 1.5 V, with a 2-pin non-reversible connecting plug. The H.T. unit is an Ever Ready "Batrymax", type B107, rated at 90 V, with a 3-pin non-reversible connecting plug. A printed plan in the base of the receiver shows exactly where the batteries should stand, indicating the positions of the connecting plugs.



Plan view of the chassis. The speaker is bolted to the escutcheon and not to the chassis. The battery switch S3, S4 is also bolted independently to the escutcheon.

Drive Cord Replacement.—The cursor drive cord requires about 20in of high-grade flax fishing line, plaited and waxed, and it should be run as shown in the accompanying sketch, where it is drawn as seen from the end of an inverted chassis after removing the control knob. The fixed end of the cord is looped round the boss of the drive drum.



Sketch showing the tuning scale cursor drive cord, drawn as seen when viewed from the tuning knob end of an inverted chassis after removing the knob. The gang is at maximum.

securing the chassis and the battery switch to the escutcheon, and withdraw chassis with frame aerial attached. When replacing, set the waveband switch and control knob to L.W., and check that they engage correctly. The escutcheon raising ring is secured by the Phillips screw below the volume control knob.

CIRCUIT ALIGNMENT

It is advisable to carry out the following adjustments with the receiver completely assembled and with the batteries and frame aerials in their normal positions.

I.F. Stages.—Position the receiver with its lid lying horizontally on the bench and its base standing upright. Hinge the chassis and escutcheon down to rest horizontally on the lid. Turn volume control to maximum and connect output of signal generator to the junction of C1, C19 and to chassis. Feed in a 470 kc/s (638.3 m) signal and adjust the cores of L10, L9, L8 and L7 (location references E2, B1, D2, A1) for maximum output. Repeat these adjustments.

R.F. and Oscillator Stages.—Stand the receiver in its normal operating position on the bench with the lid open. In order to make the trimmers accessible, the panel and chassis should be hinged up slightly, care being taken that it is not raised more than absolutely necessary in order that it should be kept well away from the frame aerials in the lid. Check that with the gang at maximum capacitance the cursor coincides with the horizontal mark at the high wavelength end of the scale. Transfer signal generator leads to a suitable loop of wire placed parallel to and 12 inches from the receiver frame aerials.

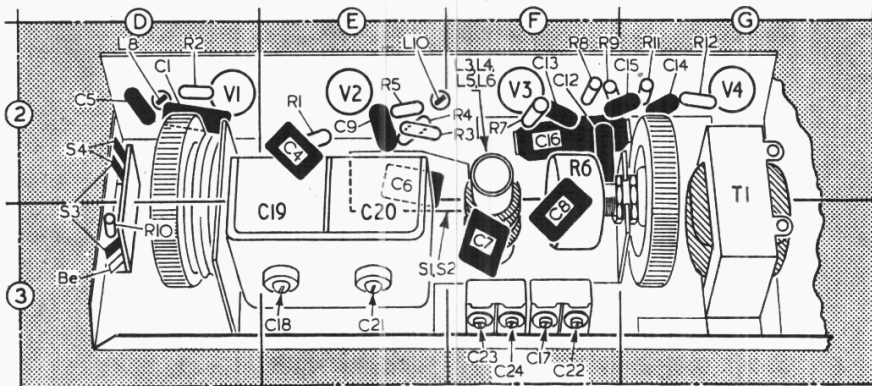
M.W.—Switch receiver to M.W., tune to the calibration mark between the 200 m and 250 m marks feed in a 200 m (1,500 kc/s) signal and adjust C21 (E3) and C18 (E3) for maximum output. Tune receiver to 500 m feed in a 500 m (600 kc/s) signal and adjust C23 (F3) for maximum output while rocking the gang for optimum results. Repeat these adjustments.

L.W.—Switch receiver to L.W., tune to 1,700 m, feed in a 1,700 m (176.5 kc/s) signal and adjust C24 (F3) for maximum output while rocking the gang for optimum results. Tune receiver to 1,000 m, feed in a 1,000 m (300 kc/s) signal and adjust C22 and C17 (F3) for maximum output. Repeat these adjustments until no improvement can be obtained.

DISMANTLING

The valves, alignment adjustments and majority of under-chassis components can be made accessible by simply removing the two knurled head screws from the front corners of the escutcheon and hinging the escutcheon and chassis upwards.

Removing Chassis.—Hinge up the escutcheon as described above and unsolder the two black leads and the bare copper earthing lead from the speaker speech coil tags; unplug battery leads and, releasing lid stay from lid, prise up the lower edge of the frame aerial card, sliding it downwards out of the lid; remove the 4BA nut and bolt securing the tuning scale bracket and the corner of the speaker baffle to the escutcheon; remove the five Phillips type self-tapping screws



Underside view of chassis, which is made accessible simply by raising the escutcheon. The contacts of waveband switches S1, S2 are not identified but they form simple shorting switches.