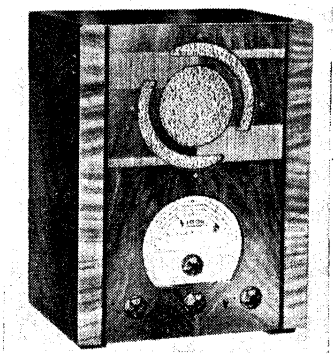
"TRADER" SERVICE SHEET

760

REVISED ISSUE OF SERVICE SHEET No. 155

VIDOR 254 & BURNDEPT 252



The appearance of the Vidor 254.

FOUR wavebands are covered in a TRF circuit in the Vidor 254, a 3-valve (plus rectifier) receiver designed for AC or DC operation on mains of 200-250 V, 50-100 c/s in the case of AC. The SW ranges are 13.5-48.5 m (SW1) and 48-145 m (SW2).

On the SW bands the first valve does not act as an amplifier, but only as a buffer to isolate the aerial from the tuned circuits.

An identical chassis is employed in the Burndept 252 receiver, but this *Service Sheet* was prepared from a Vidor 254.

Release date and original price, both models: 1936; £9 9*s*.

CIRCUIT DESCRIPTION

Two alternative aerial sockets are provided, **A1** and **A2**. Input from **A1** on MW and LW is via **C1** and coupling coil **L1** to inductively coupled band-pass filter. Primary coils **L2, L3** are tuned by **C22;** secondaries **L4, L5** by **C24.** From **A2** input is via **C21** to **A1.**

First valve **(V1, Mazda metallised VP1321)** is a variable-mu pentode operating as RF amplifier on MW and LW only. Gain control by variable potentiometer **R5** which varies GB applied.

Tuned-anode coupling by **L11, L12, C28** to RF pentode detector **(V2, Mullard metallised SP13C)** which operates on grid leak system with **C8** and **R7.** Reaction is applied from anode by coil **L10** and controlled by **C26.** RF filtering in anode circuit by **R10, C10** and **C11.**

On short-wave bands, **V1** is not used for amplification but merely as coupling between aerial and the SW tuning coils, **L6, L7.** Switch **S4** is open while **S3** is closed to connect aerial to CG of **V1. S9** is also open to cut out MW and LW anode tuning coils and **S8** is closed to connect SW coils in detector CG circuit. **C28** tunes **L6** for SW1 band and both **L6** and **L7** for SW2.

S6 closes and by-passes **L10,** shunting **R6** across it, so that the SW reaction coils **L8, L9** only are in circuit with **C26.**

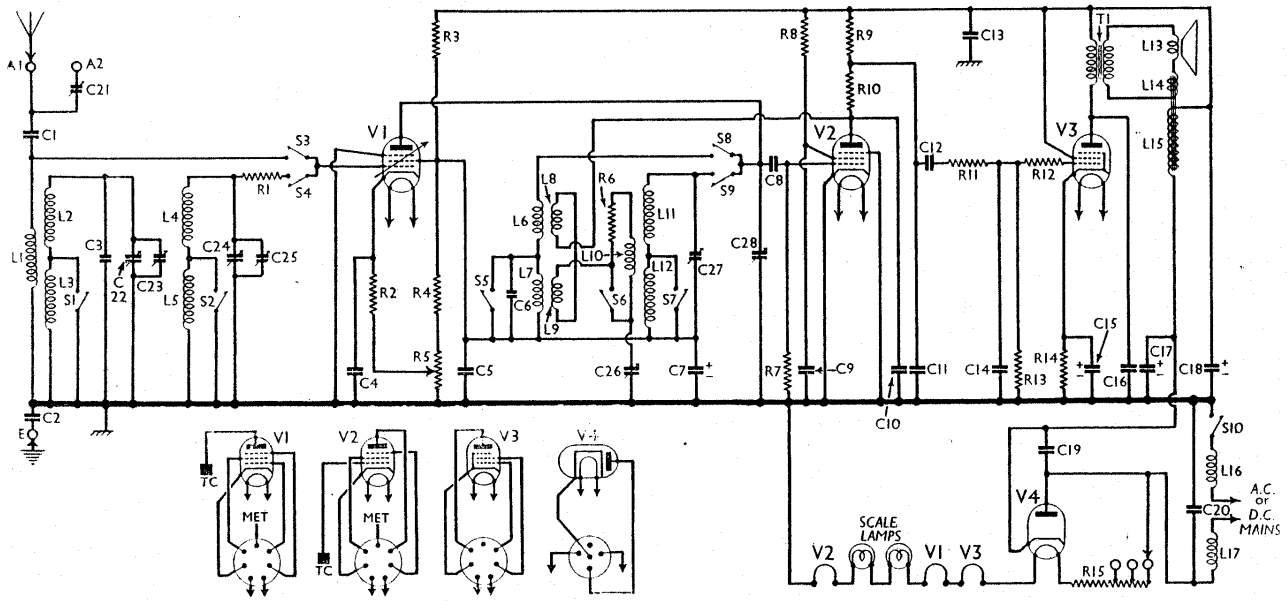
Resistance-capacitance coupling by **R9, C12, R13** between **V2** and pentode output valve **(V3, Mullard Pen36C).** RF filtering in CG circuit by stoppers **R11, R12** and by-pass **C14.** Fixed tone correction in anode circuit by **C16.**

When the receiver is used with AC mains supplies, HT current is supplied by half-wave rectifying valve **(V4, Brimar 1D5)** which, with DC supplies, behaves as a low resistance. Smoothing by speaker field **L15** and dry electrolytic capacitors **C17, C18.**

Valve heaters are connected in series, together with scale lamps and tapped ballast resistor **R15,** across mains input circuit. Mains RF filtering by **L16, L17, C20.**

COMPONENTS AND VALUES

	RESISTORS	Values (ohms)
R1	V1 CG stabiliser	500
R2	V1 fixed GB resistor ...	150
R3	V1 SG HT potential divider	5,000
R4		50,000
R5	V1 gain control	10,000
R6	Reaction stabiliser ...	500
R7	V2 grid leak	1,000,000
R8	V2 SG HT feed	750,000
R9	V2 anode load	250,000
R10	V2 anode RF stopper ...	50,000
R11	V3 CG RF stoppers ...	250,000
R12		250,000
R13	V3 CG resistor	250,000
R14	V3 GB resistor	150
R15	Heater circuit ballast, total	700



Circuit diagram of the Vidor 254 4-band receiver. **V1** operates on MW and LW bands as an RF amplifier, with gain control by **R5.** On the SW bands it serves only to isolate the aerial from the tuned circuits, eliminating "Blind spots." The circuit of the Burndept 252 is identical. Note that **V1** has an anode top cap connector, while **V2** top cap is its control grid connection.

	CAPACITORS	Values (μF)
C1	Aerial series coupling ...	0·0005
C2	Earth isolator	0·02
C3	B-P pri. trimmer ...	Very low
C4	V1 cathode by-pass ...	0·1
C5	V1 HT feed decoupling ...	0·25
C6	SW trimmer	Very low
C7*	V1 HT feed decoupling ...	8·0
C8	V2 CG capacitor	0·0001
C9	V2 SG decoupling ...	0·1
C10	RF filter capacitors ...	0·00005
C11	RF filter capacitors ...	0·0005
C12	V2 to V3 RF coupling ...	0·01
C13	HT circuit RF by-pass ...	0·5
C14	RF filter capacitor ...	0·0002
C15*	V3 cathode by-pass ...	25·0
C16	Fixed tone corrector ...	0·005
C17*	HT smoothing capacitors	16·0
C18*	HT smoothing capacitors	24·0
C19	V4 RF by-pass	0·02
C20	Mains RF by-pass ...	0·01
C21‡	A2 series coupling ...	—
C22†	Band-pass pri. tuning ...	—
C23‡	B-P pri. MW trimmer ...	—
C24†	Band-pass sec. tuning ...	—
C25‡	B-P sec. MW trimmer ...	—
C26†	Reaction control	—
C27‡	V1 anode MW trimmer ...	—
C28†	V1 anode circ. tuning ...	—

* Electrolytic. † Variable. ‡ Pre-set.

	OTHER COMPONENTS	Approx. Values (ohms)
L1	Aerial coupling coil ...	1·5
L2	Band-pass primary coils ...	4·5
L3	Band-pass primary coils ...	9·0
L4	Band-pass secondary coils	4·5
L5	Band-pass secondary coils	9·0
L6	SW1 and SW2 tuning coils	Very low
L7	SW1 and SW2 tuning coils	0·4
L8	SW1 and SW2 reaction coils	0·45
L9	SW1 and SW2 reaction coils	0·8
L10	MW and LW reaction coil	1·4
L11	V1 anode circuit tuning coils (MW, LW)... ...	5·2
L12	V1 anode circuit tuning coils (MW, LW)... ...	9·5
L13	Speaker speech coil ...	2·5
L14	Hum neutralising coil ...	0·15
L15	Speaker field coil	820·0
L16	Mains filter chokes ...	6·3
L17	Mains filter chokes ...	6·3
T1	Speaker input trans. Pri. ...	650·0
T1	Speaker input trans. Sec. ...	0·6
S1-S9	Waveband switches ...	—
S10	Mains switch, ganged R5...	—

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on AC mains of 220 V, using the 220-240 V tapping on the mains resistor. The volume control was at maximum but the reaction control was at minimum, and there was no signal input.

Voltages were measured on the 1,200 V scale of an Avometer, chassis being negative.

Valve		Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1	VP1321	150	6·7	150	1·8
V2	SP13C	25	0·6	35	0·3
V3	Pen36C	180	42·0	210	5·4
V4	1D5 †	—	—	—	—

† Cathode to chassis 257 V, DC

DISMANTLING THE SET

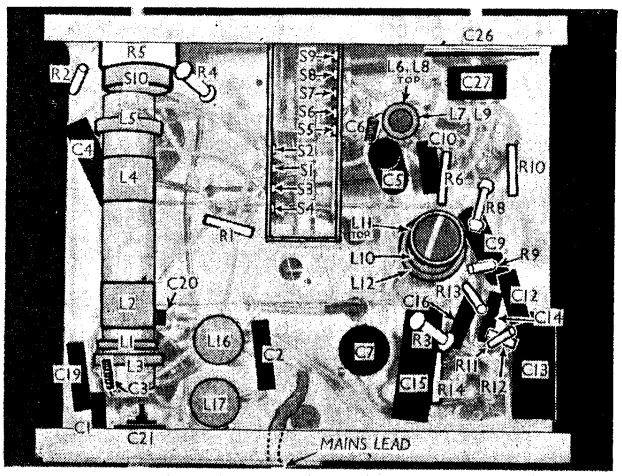
A detachable bottom cover is fitted, giving access to the under-chassis compartment.

Removing chassis.—Remove the four control knobs (recessed grub screws); remove the four bolts (with washers) holding chassis to bottom of cabinet. Chassis may now be withdrawn, but to free it entirely, unsolder the leads from the speaker transformer.

When replacing, connect the speaker leads as follows, numbering the connections from bottom upwards according to the markings on the panel: F, red and yellow lead from electrolytic block; 1, blue; 2, green and black lead from electrolytic; 3 and F (joined together), black and red lead from electrolytic.

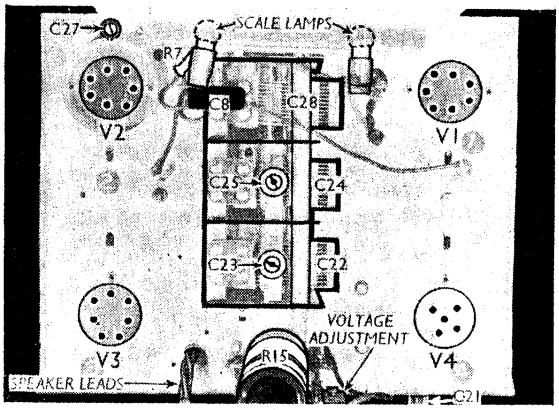
Removing Speaker.—Remove the nuts (with lock-washers) from the four ornamental-headed bolts holding speaker to front of cabinet.

When replacing, the transformer should point towards the top left-hand corner of the cabinet, and the leads should be connected as described previously.



Under-chassis view. The switches are all identified. **C3** and **C6** are wire-wound capacitors very small values.

Plan view of the chassis. **C27** is reached for adjustment through a hole in the chassis deck. **C8** has an anode top-cap lead attached to one side of it, and a grid top cap lead to the other.



GENERAL NOTES

Switches.—**S1-S9** are the waveband switches, in a single 4-position rotary unit beneath the chassis. The individual switches are clearly marked in our under-chassis view. The table below gives the switch positions for the four control settings, a dash indicating open, and **C**, closed.

S10 is the QMB mains switch, ganged with the gain control **R5.**

Coils.—All the coils are beneath the chassis, in unscreened units, as indicated in our under-chassis view. In the case of the **L6-L9** unit, **L6** is at the top, with **L8**, consisting of about three turns of wire, wound between the turns of **L8** at one end, **L7** is at the bottom, with **L9** wound over it at the lower end. In the **L10-L12** unit, **L11** is at the top, **L10** in the centre, and **L12** at the bottom. **L16** and **L17** are mains filter chokes.

Scale Lamps.—These are two Osram MES types, rated at 6.2 V, 0.3 A.

Capacitors C17, C18.—These are two dry electrolytics in a single unit mounted inside the cabinet. The black lead is the common negative, and is connected to tag 2 on **T1.** The yellow lead is the positive of **C17** (16 μF), connected to the lower field tag (next to tag 1), while the red lead is the positive of **C18** (24 μF), connected to the upper field tag (next to tag 3). In our sample, this unit was a B.I., 400 V peak.

Trimmers C21, C27.—The pre-set aerial capacitor **C21** is in circuit when the **A2** socket is in use, and is adjusted by the small knob at the rear of the chassis. **C27,** the **V1** anode circuit trimmer, is adjusted through a hole in the chassis deck, near the **V2** valveholder.

Switch Table

Switch	SW1 (Black)	SW2 (Blue)	MW (Green)	LW (Red)
S1	—	—	C	—
S2	—	—	C	—
S3	C	C	—	—
S4	—	—	C	C
S5	C	—	—	—
S6	C	C	—	—
S7	—	—	C	—
S8	C	C	—	—
S9	—	—	C	C

CIRCUIT ALIGNMENT

Since variable trimmers are provided only for MW adjustments, alignment is a fairly simple process.

Connect signal generator leads via a dummy aerial to **A1** and **E** sockets, switch set to MW, turn the gain control to maximum, and tune to 250 m on scale. Feed in a 250 m (1,200 kc/s) signal, and adjust **C27** and the reaction control **C26** in turn for maximum output. Then adjust **C25** and **C23** to maximum output, readjusting **C26** if necessary.

Finally, readjust **C27** and **C26** for maximum output, and check calibration and sensitivity on the remaining three bands.

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