

NUMBER 155

'TRADER' SERVICE SHEETS

VIDOR 254 AND BURNDEPT 252

THE Vidor 254 is a 3-valve (plus rectifier) A.C./D.C. all-wave receiver with two short-wave bands covering from 13.5 to 48.5 metres (S.W.1) and from 48 to 145 metres (S.W.2). A resistance enables the receiver to be adjusted for mains of 200-250 V and on A.C. the periodicity is from 50-100 c.p.s.

An identical chassis is fitted in the Burndept 252 receiver.

CIRCUIT DESCRIPTION

Two alternative aerial input connections **A1** and **A2** (with pre-set series condenser **C21**) via fixed series condenser **C1** and coupling coil **L1** to inductively coupled band-pass filter (M.W. and L.W.). Primary **L2, L3** tuned by **C22**; secondary **L4, L5** tuned by **C24**.

First valve (**V1, Mazda metallised VP1321**) is a variable-mu pentode operating as H.F. amplifier on M.W. and L.W. Gain control by variable potentiometer **R5** which varies G.B. applied.

Tuned-anode coupling by **L11, L12, C28** to H.F. 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 variable condenser **C26**. H.F. filtering in anode circuit by **R10** and by-pass condensers **C10, C11**.

On short-wave bands, **V1** is not used for amplification but merely as coupling between aerial and the S.W. tuning coils **L6, L7**. Switch **S4** is open while **S3** is closed to connect aerial to C.G. of **V1**. **S9** is also open to

action coil **L10** with resistance **R6**, leaving the S.W. coils **L8, L9** in circuit.

Resistance-capacity coupling by **R9, C12** and **R13** between detector and output pentode valve (**V3, Mullard Pen36C**). H.F. filtering in C.G. circuit by stoppers **R11, R12** and by-pass **C14**. Tone correction in anode circuit by condenser **C16**.

When the receiver is used with A.C. mains supplies, H.T. current is derived from a half-wave rectifying valve (**V4, Brimar 1D5**) which, with D.C. supplies, behaves as a low resistance. Smoothing by speaker field coil **L15** and dry electrolytic condensers **C17, C18**.

Valve heaters are connected in series together with scale lamps and tapped ballast resistance **R15** across mains input circuit. Chokes **L16, L17**, and condenser **C20** form a filter for the suppression of mains-borne interference.

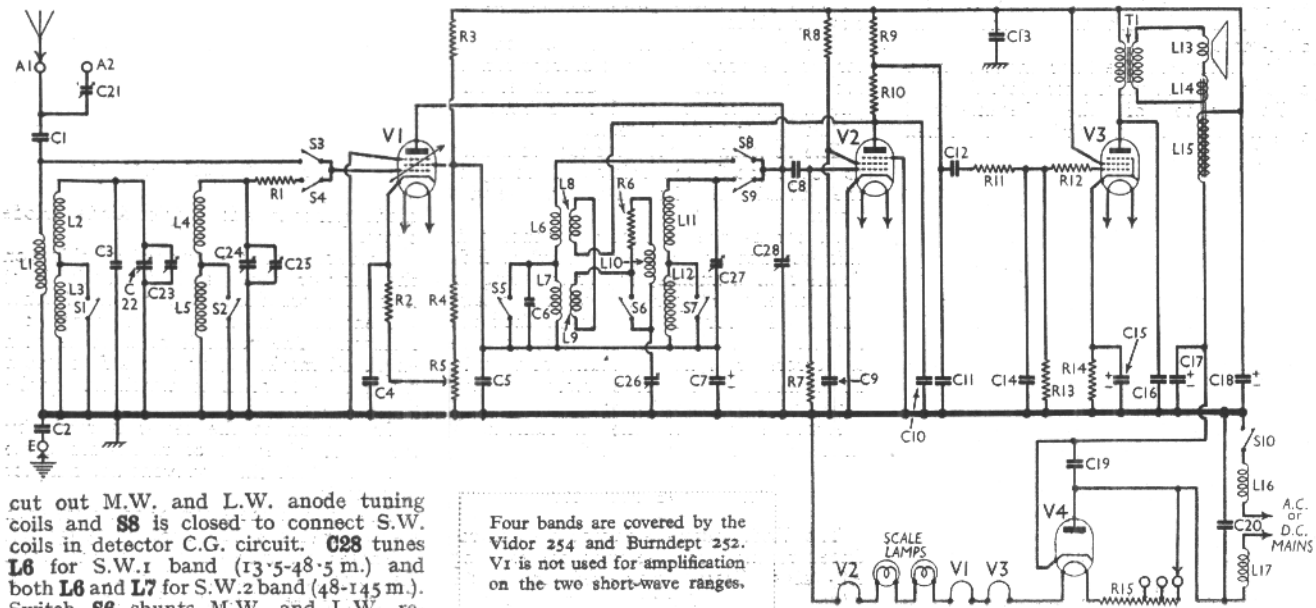
COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	V1 C.G. series resistance	500
R2	V1 fixed G.B. resistance	150
R3	V1 S.G. H.T. potential divider	5,000
R4	V1 gain control	50,000
R5	Reaction circuit stabiliser	10,000
R6	V2 grid leak	500
R7	V2 S.G. H.T. feed	1,000,000
R8	V2 anode load	750,000
R9	V2 anode H.F. stopper	250,000
R10	V2 anode H.F. stopper	50,000
R11	V3 C.G. H.F. stoppers	250,000
R12	V3 C.G. H.F. stoppers	250,000
R13	V3 C.G. resistance	250,000
R14	V3 G.B. resistance	150
R15	Heater circuit ballast, total	700

CONDENSERS		Values (μF)
C1	Aerial series condenser	0.0005
C2	Earth blocking condenser	0.02
C3	Band-pass primary trimmer	Very low
C4	V1 cathode by-pass	0.1
C5	V1 S.G. and anode decoupling	0.25
C6	S.W.2 trimmer	Very low
C7*	V1 S.G. and anode decoupling	8.0
C8	V2 C.G. condenser	0.0001
C9	V2 S.G. by-pass	0.1
C10	V2 anode H.F. by-passes	0.00005
C11	V2 to V3 L.F. coupling	0.0005
C12	H.T. supply H.F. by-pass	0.01
C13	V3 C.G. H.F. by-pass	0.5
C14	V3 cathode by-pass	0.0002
C15*	V3 cathode by-pass	25.0
C16	Tone corrector	0.005
C17*	H.T. smoothing	16.0
C18*	H.T. smoothing	24.0
C19	V4 anode-cathode by-pass	0.02
C20	Mains H.F. by-pass	0.01
C21†	Pre-set aerial condenser	—
C22†	Band-pass primary tuning	—
C23†	Band-pass primary trimmer	—
C24†	Band-pass secondary tuning	—
C25†	Band-pass secondary trimmer	—
C26†	Reaction control	—
C27†	V1 anode circuit trimmer	—
C28†	V1 anode circuit tuning	—

* Electrolytic. † Variable. ‡ Pre-set.

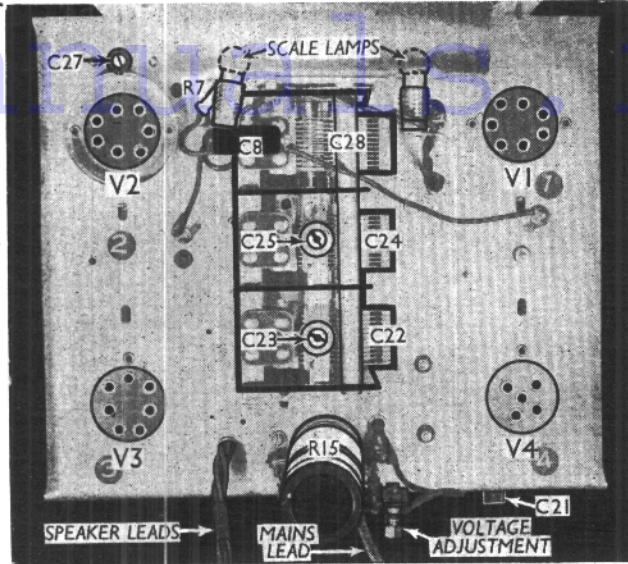
OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial coupling, coil (M.W., L.W.)	1.5
L2	Band-pass primary coils	4.5
L3		9.0
L4	Band-pass secondary coils	4.5
L5		9.0
L6	S.W.1 and S.W.2 tuning coils	Very low
L7		0.4
L8	S.W.1 and S.W.2 reaction coils	0.45
L9		0.8
L10	M.W. and L.W. reaction coil	1.4
L11	V1 anode circuit tuning coils (M.W., L.W.)	5.2
L12	Speaker speech coil	2.5
L13	Hum neutralising coil	0.15
L14	Speaker field coil	820.0
L15	Mains filter chokes	6.3
L16	Mains filter chokes	6.3
L17		650.0
T1	Speaker input trans. (Pri. Sec.)	0.6
S1-S9	Waveband switches	—
S10	Mains switch, ganged R5	—



cut out M.W. and L.W. anode tuning coils and **S8** is closed to connect S.W. coils in detector C.G. circuit. **C28** tunes **L6** for S.W.1 band (13.5-48.5 m.) and both **L6** and **L7** for S.W.2 band (48-145 m.). Switch **S6** shunts M.W. and L.W. re-

Four bands are covered by the Vidor 254 and Burndept 252. V1 is not used for amplification on the two short-wave ranges.

Components on the top of the chassis are very few, as this plan view shows.



DISMANTLING THE SET

The cabinet is fitted with a detachable bottom which can be removed by withdrawing four countersunk-head wood screws. Access can then be gained to most of the components underneath the chassis.

Removing Chassis.

If it is necessary to remove the chassis from the cabinet, remove the four control knobs (recessed grub screws) and the four bolts (with washers) holding the chassis to the bottom of the cabinet. The chassis can then be withdrawn to the extent of the leads.

When replacing, note that the knobs for the volume and reaction controls are marked with white dots, and as the wave-change switch spindle has no flat, take care that its knob is positioned correctly. The green dot should be uppermost on the medium waveband.

To free the chassis entirely, unsolder the leads to the speaker transformer. When replacing, connect the leads as follow:—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.—To remove the speaker from the cabinet, remove the nuts and lock washers from the four bolts with ornamental heads holding it to the cabinet front. When replacing, see that the transformer is pointing to the top left-hand corner of the cabinet (when viewed from the back).

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on A.C. mains of 220 V, using the 220-240 V tapping on the mains resistance. 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 6X4	150	6.7	150	1.8
V2 6X4	25	0.6	35	0.3
V3 6X4	180	42.0	210	5.4
V4 6X4	—	—	—	—

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 various control settings, O indicating open, and C, closed.

Switch	S.W.1 (Black)	S.W.2 (Blue)	M.W. (Green)	L.W. (Red)
S1	O	O	C	O
S2	O	O	C	O
S3	O	O	C	O
S4	O	O	C	O
S5	C	O	O	O
S6	C	O	O	O
S7	C	O	O	O
S8	C	O	O	O
S9	O	O	C	C

S10 is the Q.M.B. mains switch, ganged with the gain control R5.

Coils.—All the coils are beneath the chassis, in unscreened units. They are 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 M.E.S. types, rated at 6.2 V, 0.3 A.

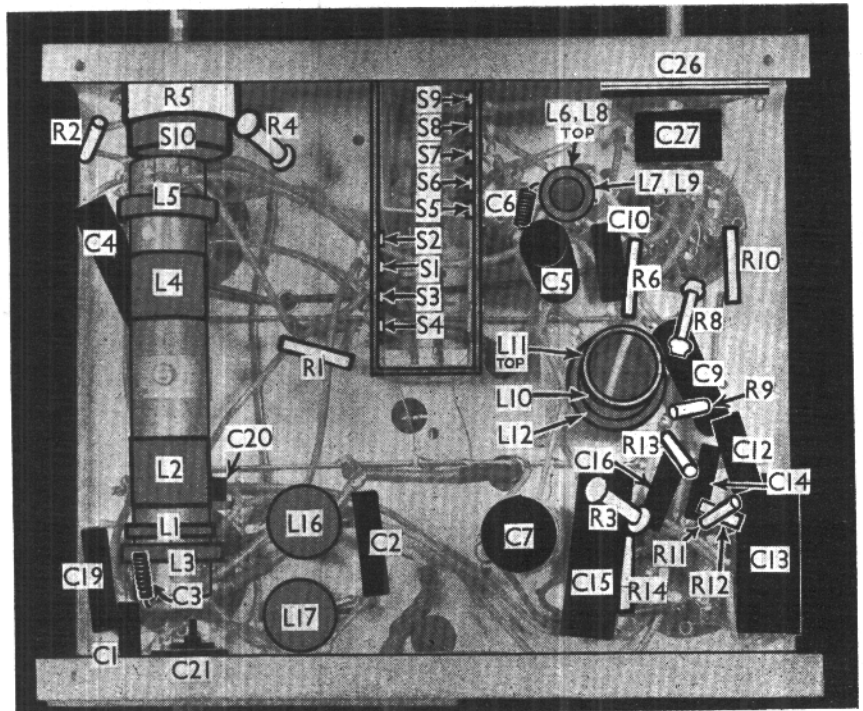
External Speaker.—There is no provision made for this, but a low resistance type could be connected across the speech coil tags of the internal speaker. Do not connect an external speaker across the primary of T1, since the set is of the universal type.

Condensers 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). The condenser unit is a B.I., 400 V peak.

Trimmers C21, C27.—The pre-set aerial condenser 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.

CIRCUIT ALIGNMENT

The receiver, not being fitted with separate trimmers for the various wavebands, can only be adjusted on one band. It is probably best to choose a wavelength towards the bottom of the M.W. band. Feed a signal of, say, 250 m. into the A1 and E sockets. Turn the tuning knob until the pointer registers exactly 250 m., then adjust C23, C25 and C27 for maximum output.



Under-chassis view. C3 and C6 are small fixed trimmers formed of wiring-up wire.