

TRADER SERVICE SHEET  
**253**

# VIDOR 278

## 3-BAND BATTERY RECEIVER

**T**HE Vidor 278 receiver is a simple 3-valve battery model covering three wavebands, including 16-52 m.

It has a pentode R.F. amplifier, a triode detector and a pentode output valve. A special independent switch is used for the scale lamp to economise in L.T. consumption, operated by a push-pull action of the wavechange switch knob.

### CIRCUIT DESCRIPTION

Aerial input from **A1** via series condenser **C1**, or from **A2** direct, to coupling coils **L1** (S.W.) and **L2, L3** (M.W. and L.W.) to single-tuned circuits **L4, C10** (S.W.), **L5, C10** (M.W.) and **L6, C10** (L.W.).

First valve (**V1**, Mullard metallised **VP2**), is a variable-mu pentode operating as R.F. amplifier with gain control by potentiometer **R2** which varies G.B. applied.

Tuned anode coupling by **L10** (S.W.), **L11** (M.W.) and **L12** (L.W.), tuned by **C13**, to triode detector valve (**V2**, Mazda metallised **HL2**) which operates on grid leak system with **C5** and **R4**. Reaction is applied from anode by coils **L7** (S.W.) and **L8, L9** (M.W. and L.W.) and is controlled by variable condenser **C11**. R.F. filtering in anode circuit by choke **L13** and condensers **C3** and **C6**.

Resistance-capacity coupling by **R7, C7** and **R8** between **V2** and pentode output valve (**V3**, Mullard **PM22D**), fixed tone correction in anode circuit by condenser **C8**. No provision is made for connection of extension speaker but high impedance connections are available on primary tags of internal speaker transformer **T1**.

### COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	V1 fixed G.B. resistance ..	500
R2	V1 gain control ..	15,000
R3	Reaction circuit damping ..	50
R4	V2 grid leak ..	1,000,000
R5	V2 filament potentiometer	200
R6		200
R7	V2 anode load ..	10,000
R8	V3 C.G. resistance ..	500,000

CONDENSERS		Values (μF)
C1	Aerial series condenser ..	0.0001
C2	V1 C.G. decoupling ..	0.1
C3	V2 anode R.F. by-pass ..	0.00005
C4	V1 anode R.F. by-pass ..	0.25
C5	V2 C.G. condenser ..	0.0002
C6	V2 anode R.F. by-pass ..	0.0002
C7	V2 to V3 A.F. coupling ..	0.01
C8	V3 anode fixed tone corrector ..	0.002
C9†	Aerial circuit M.W. trimmer ..	0.00003
C10†	Aerial circuit tuning ..	—
C11†	Reaction control ..	0.0005
C12†	V1 anode circuit M.W. trimmer ..	0.00003
C13†	V1 anode circuit tuning ..	—

† Variable. ‡ Pre-set.

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial S.W. coupling coil ..	0.8
L2	Aerial M.W. and L.W. coup-	3.0
L3	ling coils ..	3.0
L4	Aerial circuit S.W. tuning coil ..	0.05
L5	Aerial circuit M.W. tuning coil ..	3.0
L6	Aerial circuit L.W. tuning coil ..	18.0
L7	S.W. reaction coil ..	0.6
L8	M.W. and L.W. reaction coils, ..	—
L9	total ..	7.0
L10	V1 anode S.W. tuning coil ..	0.05

OTHER COMPONENTS (Continued)		Approx. Values (ohms)
L11	V1 anode M.W. tuning coil ..	2.5
L12	V1 anode L.W. tuning coil ..	18.5
L13	V2 anode R.F. choke ..	170.0
L14	Speaker speech coil ..	2.3
T1	Speaker input trans. { Pri. ..	700.0
	{ Sec. ..	0.3
S1-S6	Waveband switches ..	—
S7	G.B. and H.T. circuits switch } Ganged ..	—
	{ R2 ..	—
S8	L.T. circuit switch ..	—
S9	Scale lamp switch ..	—

### DISMANTLING THE SET

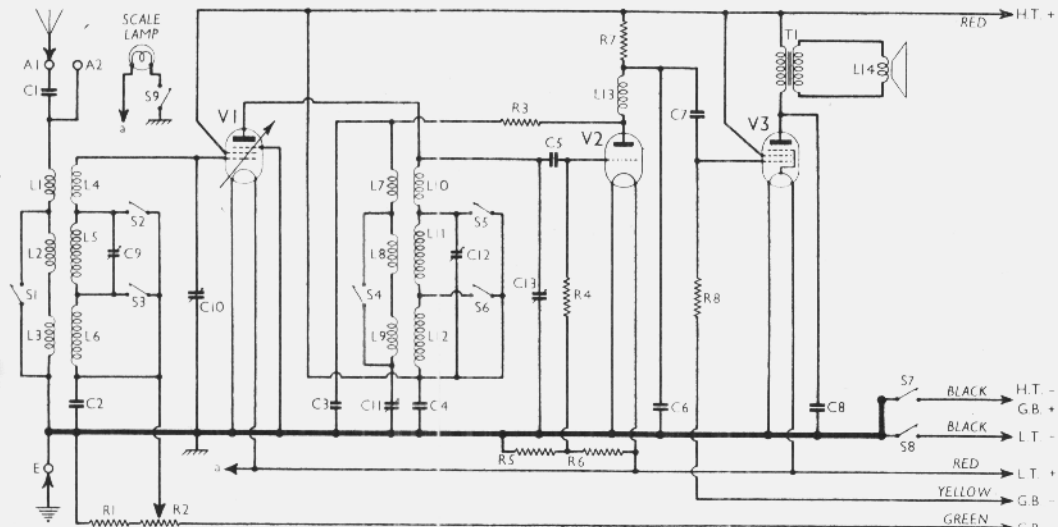
**Removing Chassis.**—If it is desired to remove the chassis from the cabinet, remove the four control knobs (recessed grub screws) and the four bolts (with washers) holding the chassis to the bottom of the cabinet. Now free the battery leads from the cleats holding them to the top of the cabinet, when the chassis can be withdrawn to the extent of the speaker leads, which is sufficient for normal purposes. *When replacing*, note that the knob with a white spot is fitted to wave-change switch spindle.

To free the chassis entirely, unsolder speaker leads.

**Removing Speaker.**—If it is necessary to remove the speaker from the cabinet, remove the nuts (with lock washers) from the four screws holding it to the sub-baffle. *When replacing*, see that the transformer is on the left.

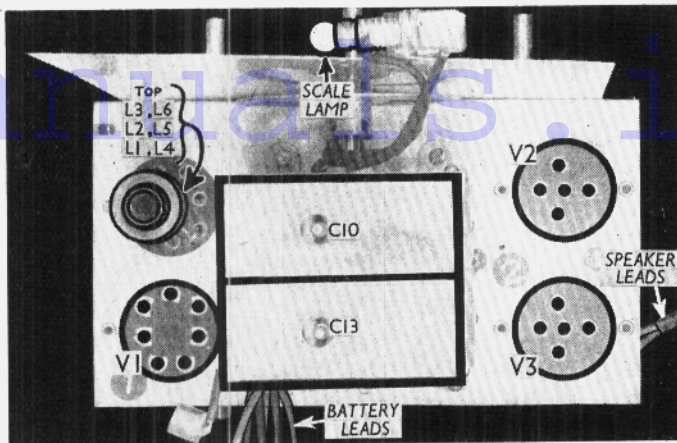
### VALVE ANALYSIS

Valve voltages and currents given in the table (p. III) are those measured in our



Circuit diagram of the Vidor 278 3-band battery receiver. **S9** is operated by pulling or pushing the wavechange switch knob.

Plan view of the Vidor 278 chassis. Note the un-screened aerial coil unit, L1-L6.



receiver when it was operating on a battery reading 111 V on the H.T. section, on load. The H.T. + lead was plugged into 111 V, G.B. - r lead was plugged into the 1.5 V socket of the G.B. section and G.B. - 2 into the 9 V socket.

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.

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

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 VP2	111	1.5	111	0.5
V2 HL2	88	2.0	—	—
V3 PM2D	106	5.6	111	0.9

**GENERAL NOTES**

**Switches.**—S1-S6 are the waveband switches, ganged in a single unit beneath the chassis, and indicated in our under-chassis view. The table (col. 2) gives the

switch positions for the three control settings, a dash indicating open, and C closed.

Switch	S.W.	M.W.	L.W.
S1	C	—	—
S2	C	—	—
S3	C	C	—
S4	C	C	—
S5	C	—	—
S6	C	C	—

S7 and S8 are the battery circuit switches, ganged with the gain control R2. The upper two tags, looking from the underside of the chassis, belong to S8, and the lower two to S7.

S9 is the scale lamp switch, operated by a push-pull action of the wavechange switch knob. The spindle of this switch forms one contact of S9, and a leaf spring the other contact.

**Coils.**—L1-L6 are in an un-screened unit on the chassis deck, and L7-L12 in a similar unit beneath the chassis. The choke L13 is also beneath the chassis.

**Scale Lamp.**—This is an M.E.S. type,

rated at 2.6 V, 0.3 A. It can be switched on or off by pushing or pulling the wave-change switch knob, thus operating S9.

**External Speaker.** No provision is made for this, but a high impedance type could be connected across the two tags on T1, to which the speaker leads from the chassis are connected.

**Batteries.**—L.T., 2 V accumulator cell H.T. and G.B., Vidor combined 111 V H.T. plus 9 V G.B. battery, type 16480.

**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 and G.B. positive; red lead and plug, H.T. positive, +111 V; yellow lead and plug, G.B. negative 1, -1.5 V; green lead and plug, G.B. negative 2, -9 V.

**CIRCUIT ALIGNMENT**

With gang at maximum, pointer should be horizontal, in line with bottom of scale.

Switch set to M.W., tune to 200 m. on scale, feed a 200 m. (1,500 KC/S) signal into A1 and E sockets, and adjust C12 for maximum output, keeping reaction advanced to a point just short of oscillation. Then adjust C9 similarly.

Switch set to L.W. and check calibration. If this is widely out, a compromise should be made by re-adjusting C12 slightly. After this, C9 must be re-adjusted on the M.W. band.

**POCKET TROUBLE SHOOTERS**

THOSE who wish to obtain the pocket "trouble shooters," described on page 1 last week, will be interested to know that they are available in this country from Holiday & Hemmerdinger, Ltd., of Holmer Works, 74-78 Hardman Street, Deansgate, Manchester. The price is 3s. 2d. each, post free.

This firm can also supply other publications by the same company, including the well-known Modern Radio Servicing (18s. post free) and Radio Physics Course (21s. post free).

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Under-chassis view. C2 is below the gain control R2. S7, S8 are Q.M.B. battery circuit switches. The switches are all indicated, S9 being operated by a push-pull action of the wavechange switch knob. C9 and C12 are the only trimmers.

