'TRADER' SERVICE SHEET

275

VIDOR 279 AND 283

SUITABLE for A.C. mains of 200-260 V, 50-100 C/S, the Vidor 279 is a 3-valve (plus rectifier) 3-band receiver covering a short-wave range of 16-52 m. Two alternative aerial sockets are provided. For H.T. supply the mains transformer primary winding is used as an auto-transformer.

An identical chassis is fitted in the Vidor 283, which, however, has a larger cabinet. This *Service Sheet* was prepared on a 279.

CIRCUIT DESCRIPTION

Aerial input from socket **A2** is via blocking condenser **C2** and coupling coils **L1** (S.W.) and **L2** (M.W.) plus **L3** (L.W.), to single tuned circuits **L4, C19** (S.W.) and **L5** (M.W.) plus **L6** (L.W.), tuned by **C19,** which precede variable-mu pentode valve (**V1, Mazda metallised AC/VP1**), operating as R.F. amplifier with gain control by potentiometer **R4,** which forms part of potential divider **R2, R3, R4** and **R5.** Socket **A1** introduces an additional series condenser **C1.**

Tuned anode coupling by **L10, C22** (S.W.), **L11** (M.W.) plus **L12** (L.W.), tuned by **C22,** between **V1** and triode detector valve (**V2, Mazda metallised AC/HL**) which operates on grid leak system with **C8** and **R7.** R.F. filtering in anode circuit by **C6** and **C10.** Reaction is applied from **V2** anode by coils **L7** (S.W.) and **L8, L9** (M.W. and L.W.).

Resistance-capacity coupling by **R9, C11** and **R10** via stopper **R11,** between **V2** and pentode output valve (**V3, Mullard PenA4**). Fixed tone correction in anode circuit by **C14.**

H.T. current is supplied by I.H.C. valve (**V4, Brimar R2**) with anodes strapped to operate as half-wave rectifier and auto-transformer fed from highest voltage tapping on primary of mains transformer **T1,** which has no separate H.T. secondary winding. Smoothing by speaker field **L16** and dry electrolytic condensers **C16, C17.** R.F. filtering by chokes **L17, L18** and condenser **C12** in mains circuit and **C15** in **V4** cathode circuit.

COMPONENTS AND VALUES

	RESISTANCES	Values (ohms)
R1	V1 C.G. stabiliser	50
R2	V1 anode and S.G. H.T. feed, fixed G.B. and gain control potentiometer	5,000
R3		50,000
R4		10,000
R5		150
R6	Reaction circuit stabiliser	50
R7	V2 grid leak	1,000,000
R8	V2 anode decoupling	100,000
R9	V2 anode load	50,000
R10	V3 C.G. resistance	250,000
R11	V3 C.G. stopper	100,000
R12	V3 G.B. resistance	150

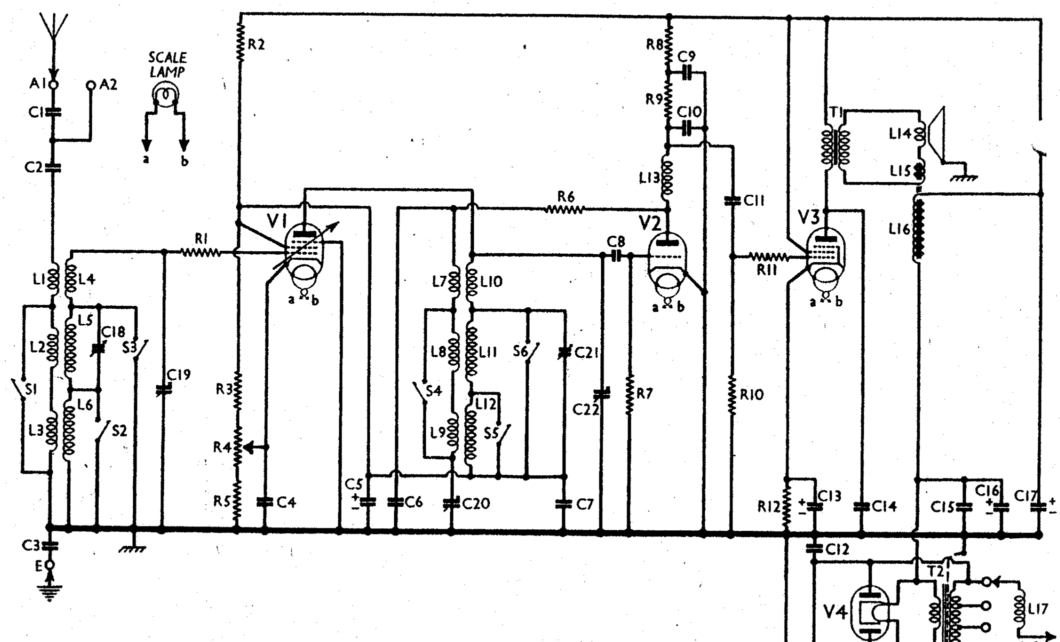
	CONDENSERS	Values (μF)
C1	A1 aerial series condenser	0·0001
C2	Aerial blocking condenser	0·0005
C3	Earth blocking condenser	0·01
C4	V1 cathode by-pass	0·1
C5*	V1 anode and S.G. decoupling	4·0
C6	V2 anode R.F. by-pass	0·0001
C7	V1 anode and S.G. R.F. by-pass	0·25
C8	V2 C.G. condenser	0·00005
C9	V2 anode decoupling	0·25
C10	V2 anode R.F. by-pass	0·0002
C11	V2 to V3 A.F. coupling	0·01
C12	Mains R.F. by-pass	0·01
C13*	V3 cathode by-pass	50·0
C14	Fixed tone corrector	0·002
C15	V4 cathode R.F. by-pass	0·1
C16*	H.T. smoothing	8·0
C17*		16·0
C18‡	Aerial M.W. trimmer	0·00003
C19†	Aerial circuit tuning	—
C20†	Reaction control	0·0005
C21‡	V1 anode M.W. trimmer	0·00003
C22†	V1 anode circuit tuning	—

* Electrolytic. † Variable. ‡ Pre-set.

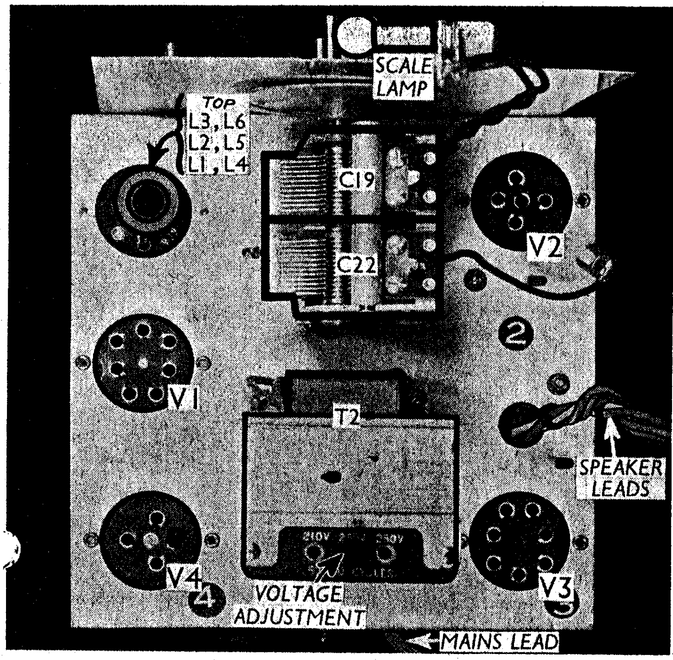
	OTHER COMPONENTS	Approx. Values (ohms)
L1	Aerial S.W. coupling coil	0·6
L2	Aerial M.W. and L.W. coupling coils	3·1
L3		
L4	Aerial S.W. tuning coil	Very low
L5	Aerial M.W. tuning coil	2·5
L6	Aerial L.W. tuning coil	18·0
L7	S.W. reaction coil	0·5
L8	M.W. and L.W. reaction coils	7·0
L9		
L10	V1 anode S.W. tuning	0·05
L11	V1 anode M.W. tuning	2·5
L12	V1 anode L.W. tuning	18·5
L13	V2 anode R.F. choke	170·0
L14	Speaker speech coil	2·0
L15	Hum neutralising coil	0·1
L16	Speaker field coil	820·0
L17	Mains filter chokes	6·0
L18		6·0
T1	Speaker input trans. Pri.	460·0
	Sec.	0·4
T2	Mains trans. Pri. and auto-H.T. sec., total	850·0
	Heater sec.	0·1
	Rect. heat. sec.	0·3
S1-S6	Waveband switches	—
S7	Mains switch, ganged R4	—

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 it to the bottom of the cabinet. By lifting the back upwards, the chassis can now be withdrawn to the



Circuit diagram of the Vidor 279 and 283 receivers. Note the unusual mains transformer connections, no separate H.T. secondary being used.



Plan view of the chassis. The aerial coils are in pairs on an unscreened tubular former. There are no trimmers on the gang condenser.

extent of the speaker leads, which should be sufficient for normal purposes. *When replacing*, note that the knob with the white dot goes on the spindle of the wave-change switch.

To free the chassis entirely, unsolder the speaker leads and *when replacing*, connect them as follows :—F, yellow ; 1, blue ; 2, green ; 3 and F, joined together, red. The black lead goes to the earthing tag on the top left-hand speaker fixing screw.

Removing Speaker.—Before the speaker can be removed both the electrolytic condenser block and the strap holding it must be removed (two round-head wood screws). Then unsolder the leads to the speaker and remove the nuts and lock washers from the four screws holding the speaker to the sub-baffle.

When replacing, see that the transformer is on the left and do not forget the earthing tag on the top left-hand screw. Connect the leads from the chassis as above and the leads from the electrolytic as follows :—F, yellow ; 2, green ; 3 and 4 joined together, red. The black lead goes to the earthing tag on one of the speaker fixing screws.

VALVE ANALYSIS

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 AC/VP1	160	7·3	160	1·8
V2 AC/HL	39	1·2	—	—
V3 PenA4	205	31·0	220	5·0
V4 R2	234 (A.C.)	—	—	—

Valve voltages and currents given in the table above are those measured in our receiver when it was operating on mains of 221 V, using the 230 V tapping on the mains transformer. 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 Universal Avometer, chassis being negative.

GENERAL NOTES

Switches.—**S1-S6** are the waveband switches, ganged in a unit beneath the chassis. The individual switches are indicated in our under-chassis view.

The table below gives the switch positions for the three control settings, starting from fully anti-clockwise. A dash indicates open, and **C** closed.

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

S7 is the Q.M.B. mains switch, ganged with the gain control **R4.**

Coils.—**L1-L6** are in pairs in an unscreened unit on the chassis deck, while **L7-L12** form a similar unit beneath the chassis. **L13** is an R.F. choke, and **L17, L18** are mains filter chokes, all beneath the chassis.

Scale Lamp.—This is an M.E.S. type, rated at 6·0 V, 0·3 A.

External Speaker.—No provision is made for this, but a low impedance type could be connected across the speech coil of the internal speaker, using the tags to which the speech coil leads are connected.

Condensers C5, C16, C17.—These are three dry electrolytics in a single carton

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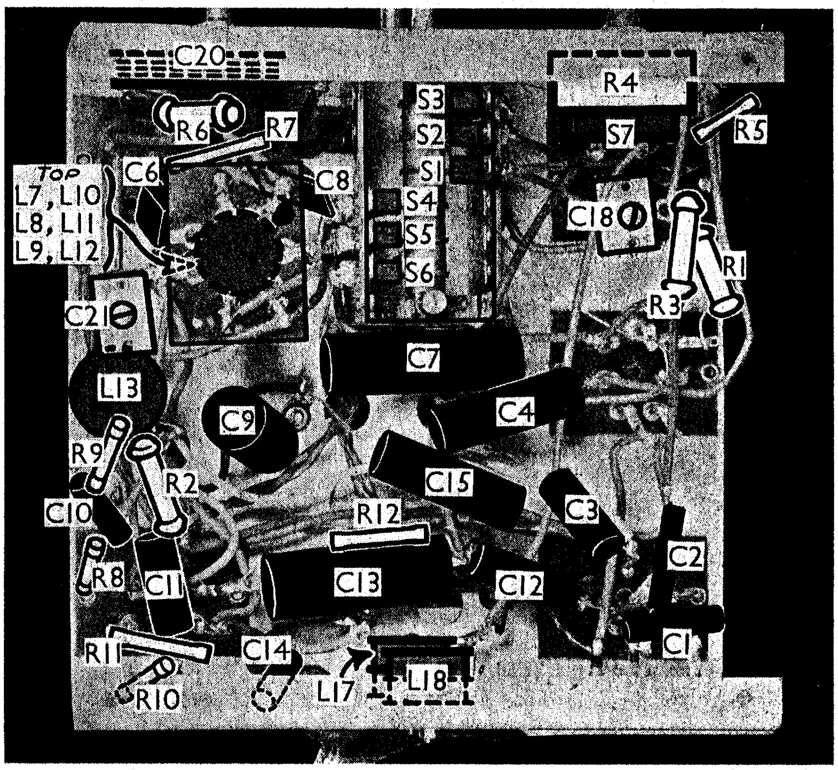

Under-chassis view. The switches are clearly marked. **L13, L17** and **L18** are small chokes.

RADIO SERVICE CENTRE, 194?

(Continued from page I)

units for each bench takes care of power-supply problems, eliminating mains-borne noises, even between one cubicle and the next. The big steel mast on the top of the toadstool carries the twenty-five television receiving aerial arrays, and also the business ends of the hundred-foot radial aerials which serve each individual bench for sound reception.

On the rack-and-panel assembly in the central office is the centralised common-feed test equipment. There is, for instance, the spot-frequency generator feeding R.F., I.F. and A.F. signals to each cubicle. I look at the I.F. section of that equipment sometimes and smile, thinking of the bad old days of 1937 when I started to build one of those things and gave up in despair after hunting through every service manual and visualising the multitudinous intermediate frequencies that would be necessary to take care of every receiver we might handle.

Standardised I.F.

In those days a separate signal generator on each bench was the most effective solution of the problem. Nowadays, though, with manufacturers standardised on but two I.F.s, one for sound and one for vision channels, things are much easier.

The same thoughts hit me, too, when I look at the central valve store, with its neatly stacked piles of a paltry fifty valve types, and recollect how back in 1937 I used to have two hundred and twenty-five valves and still have to hold up many jobs a day to await delivery of some special type or freak base.

In the central office, too, is the common 25 frame 405 line time base feeding the benches for television tube tests, while the stairs lead up to the flat roof of the toadstool, where we can check out public address systems and portable receivers.

Communication System

Beneath the plate-glass top of my desk is the large-scale map of the service area we cover. Celluloid discs of various colours show me at a glance which area any particular van is covering. The vans are covering servicing for me and sales for the shop in whose area they are working, but there is close co-operation between us, with sales taking first place in the natural scheme of things.

This co-operation is aided materially by the 100 MC/S transmitter here at the radio service centre, and the small transceivers carried on each van. (We are conducting field strength experiments on ultra-high-frequency by special permission of the Post Office, who are realising its potential utility in national emergency.)

If any shop has an urgent sales job on hand, they can call me on the telephone so that I can pick up the van working in the nearest vicinity of the shop, telling him to drop all service and report to the shop for an urgent sale or delivery.

We certainly are progressing in radio service at long last. But we haven't reached finality yet. I hear, for instance, that the autogyros are complaining that they cannot land safely on our flat roof because of the risk of fouling our aerial arrays. We'll have to look into that. They say there'll be big money soon in while-you-wait service on airplane radio equipment !—J.P.

VIDOR 279—*Continued*

mounted inside the cabinet. The black lead is the common negative connection ; the green lead (to bearer tag 2 on **T1**) is the positive of **C5** (4μF) ; the yellow lead (to lower F tag on **T1**) is the positive of **C16** (8μF) ; and the red lead (to tag 3 on **T1**) is the positive of **C17** (16 μF).

Trimmers.—The only two trimmers, **C18** and **C21** are beneath the chassis.

CIRCUIT ALIGNMENT

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

Switch set to M.W., tune to 200 m. on scale, connect signal generator to **A1** and **E** sockets, and feed in a 200 m. (1,500 KC/S) signal. Adjust **C21** for maximum output, keeping reaction advanced to a point just short of oscillation. Then adjust **C18** similarly.

Switch set to L.W., and check calibration. If this is widely out, a compromise should be made by re-adjusting **C21** slightly. After this, **C18** should be re-adjusted on the M.W. band.

There are no S.W. adjustments to be made.

CHRISTMAS GREETINGS
To all readers
from
THE TRADER STAFF

MAINTENANCE PROBLEMS

Believe it or not !

THE trouble was in a Philco 269 radiogram, and the customer complained that all she could get on the radio was a lot of crackling and banging ; the gram. was O.K. Upon switching on set I found this was exactly as stated. Valves were changed but the trouble persisted.

As I was changing the 6A7 frequency changer I noticed that I received a shock from the top cap. This indicated an H.T. short to the aerial coils, so I removed the chassis. I could detect no short in the wiring in the vicinity of the components in question and turned my attention to the other end of the chassis, where the cause of the trouble revealed itself.

Closely entangled in between a bunch of H.T. feed wires was a dead mouse It had apparently got under the chassis through a hole near the smoothing condenser and travelled the entire length of chassis, got jammed in the wires and met its doom when the set was switched on.—J. H. DENNIS, WOODFORD GREEN.

Fault in Gang Condenser

A CUSTOMER of ours who owned a 4-valve superhet receiver, complained that the gain was very intermittent at the top end of both wave-bands.

After spending a great deal of time checking up all coils, we discovered that straining the chassis often made the receiver function quite well for a short time.

Closer investigation revealed that the cause of the trouble was in the oscillator section of the three-gang tuning condenser, and when this was checked it was found that there was a high resistance contact between three of the stator vanes and the soldering tag.

This was caused by defective welding, which after some months allowed the vanes to become loose and make poor contact to the main assembly.—L. SEARLE, WORTHING.

Electrolyte Leakage

I RECENTLY had to service an H.M.V. 467A, the sensitivity of which was very poor. Voltages and valves were checked and were O.K. Reganging was next tried, and it was found impossible to obtain a peak on the primary and secondary of the first I.F. transformer.

This component was dismantled and I found that electrolyte had leaked from one of the electrolytic condensers, found its way through the trimmer hole in the chassis into the I.F. coil can, saturating the windings and trimmer condensers.

I would point out that in this model the electrolytic condensers are mounted above the chassis and the I.F. coils underneath, the trimmers being accessible through holes in the chassis.

The I.F. coil and the condenser were replaced and the set reganged and tested O.K.—J. APLIN, WHIMPLE.