'TRADER' SERVICE SHEET 179

VIDOR 258

3-VALVE A.C. SUPERHET

IN their 258 receiver Vidor fit a 3-valve (plus rectifier) A.C. superhet chassis employing an octode frequency changer, a variable-mu pentode I.F. amplifier and a double-diode output pentode. The set is suitable for mains of 200-260 V, 50-100 C/S, and has provision for using the mains as an aerial.

CIRCUIT DESCRIPTION

Aerial input via M.W. coupling coil **L1** and L.W. tap to inductively coupled band-pass filter. Primary **L2, L3** is tuned by **C20**; secondary **L8, L9** is tuned by **C23**; coupling coils **L4, L5, L6, L7.**

First valve (**V1, Mullard metallised FC4**) is an octode operating as electron coupled frequency changer. Oscillator grid coils **L10, L11** are tuned by **C26**; parallel trimming by **C25** (M.W.) and **C27** (L.W.); series tracking by **C28** (L.W.) and **C29** (M.W.); oscillator anode reaction coils **L12, L13.**

Second valve, a variable-mu H.F. pentode (**V2, Mullard metallised VP4B**) operates as intermediate frequency amplifier with tuned-primary tuned-secondary transformer couplings **C30, L14, L15, C31** and **C32, L16, L17, C33.**

Intermediate frequency 130 KC/S.

Diode second detector is part of double diode output pentode (**V3, Mazda AC2/PenDD**). Audio-frequency component in rectified output is developed across manual volume control **R9** and passed via I.F. filter **C9, R10, C10,** coupling condenser **C12,** and I.F. stopper **R12** to C.G. of pentode section. Fixed tone correction by **C15.**

Second diode of **V3,** fed from **V2** anode via **C14,** provides D.C. potential which is developed across load resistances **R15, R16** and fed back through decoupling circuits as G.B. to F.C. and I.F. valves giving automatic volume control. Delay voltage is obtained from drop along cathode resistance **R13.**

H.T. current is supplied by I.H.C. full-wave rectifying valve (**V4, Brimar R2**). Smoothing by speaker field coil **L20,** and dry electrolytic condensers **C16, C17.** Mains aerial coupling by **C18.**

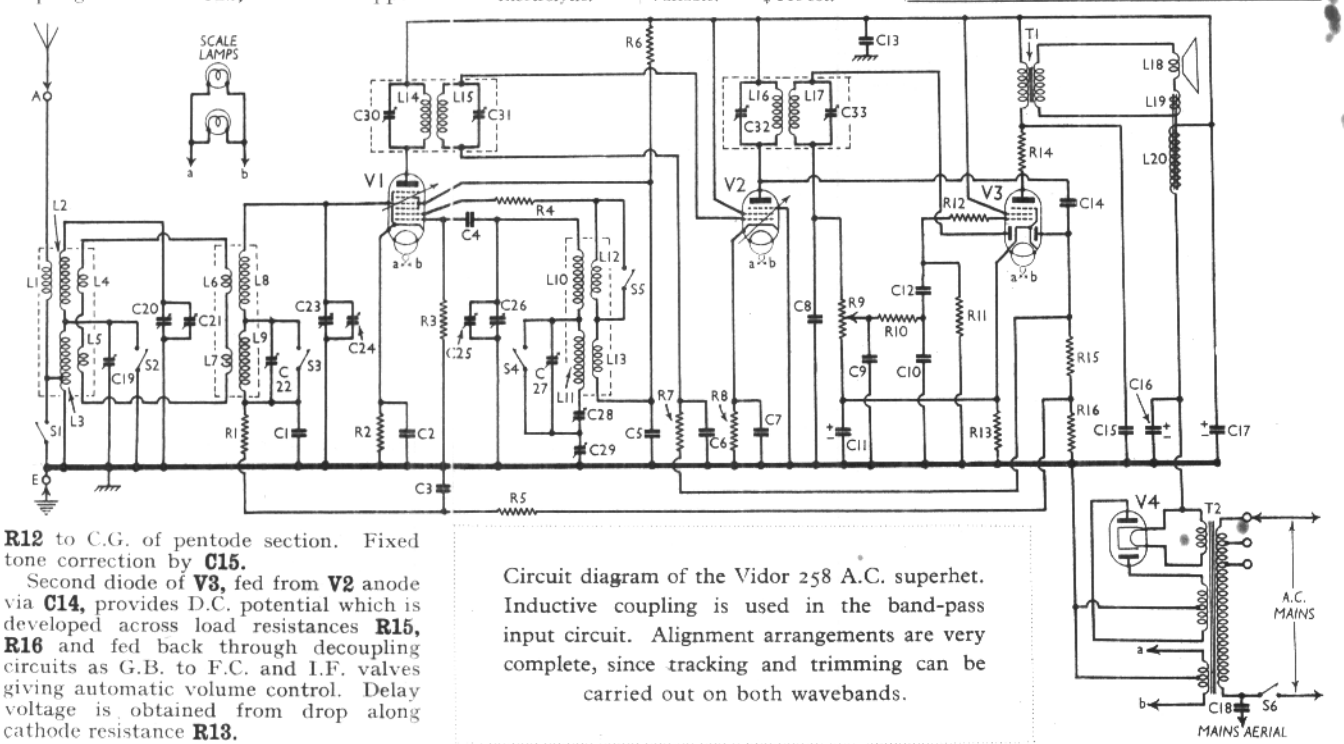
COMPONENTS AND VALUES

	CONDENSERS	Values (μF)
C1	V1 pentode C.G. decoupling	0·1
C2	V1 cathode by-pass	0·1
C3	V1 A.V.C. line decoupling	0·01
C4	V1 osc. C.G. condenser	0·001
C5	V1 S.G.'s and osc. A decoupling	0·1
C6	V2 C.G. decoupling	0·1
C7	V2 cathode by-pass	0·1
C8	I.F. by-passes	0·0002
C9		0·0001
C10		0·0001
C11*	V3 cathode by-pass	50·0
C12	L.F. coupling to V3	0·01
C13	H.T. supply H.F. by-pass	0·1
C14	V3 A.V.C. diode coupling	0·0001
C15	Fixed tone corrector	0·001
C16*	H.T. smoothing	8·0
C17*		16·0
C18	Mains aerial coupling	0·0001
C19‡	Band-pass pri. L.W. trimmer	—
C20†	Band-pass pri. tuning	—
C21‡	Band-pass pri. M.W. trimmer	—
C22‡	Band-pass sec. L.W. trimmer	—
C23†	Band-pass sec. tuning	—
C24‡	Band-pass sec. M.W. trimmer	—
C25‡	Oscillator M.W. trimmer	—
C26†	Oscillator tuning	—
C27‡	Oscillator L.W. trimmer	—
C28‡	Oscillator L.W. tracker	—
C29‡	Oscillator M.W. tracker	—
C30‡	1st I.F. trans. pri. tuning	—
C31‡	1st I.F. trans. sec. tuning	—
C32‡	2nd I.F. trans. pri. tuning	—
C33‡	2nd I.F. trans. sec. tuning	—

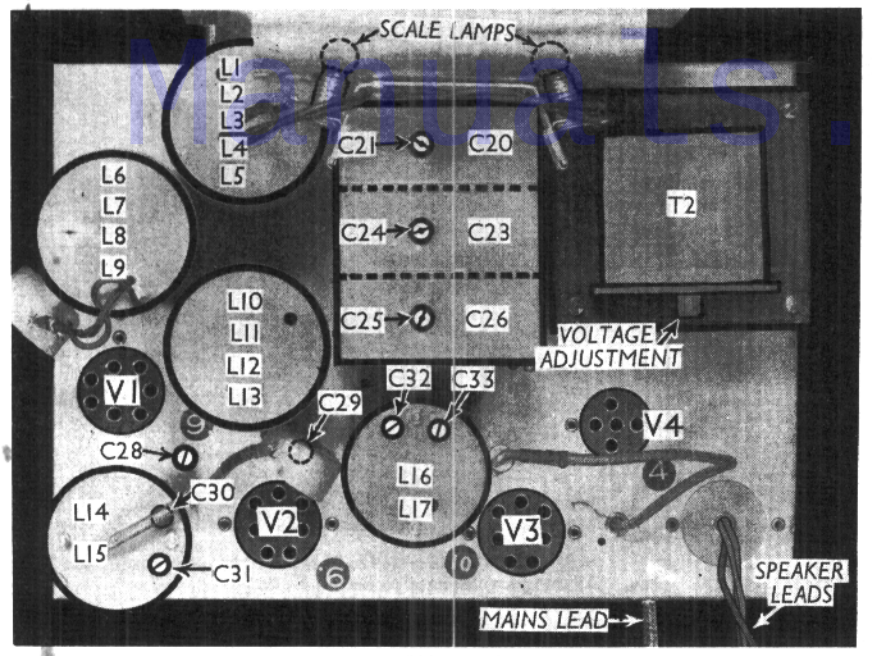
* Electrolytic. † Variable. ‡ Pre-set.

	RESISTANCES	Values (ohms)
R1	V1 pentode C.G. decoupling	500,000
R2	V1 fixed G.B. resistance	200
R3	V1 osc. C.G. resistance	50,000
R4	V1 osc. anode stabiliser	200
R5	V1 A.V.C. line decoupling	500,000
R6	V1 S.G.'s and osc. A decoupling	30,000
R7	V2 C.G. decoupling	500,000
R8	V2 fixed G.B. resistance	150
R9	Manual volume control	500,000
R10	I.F. stopper	25,000
R11	V3 C.G. resistance	500,000
R12	V3 C.G. I.F. stopper	100,000
R13	V3 G.B. resistance	150
R14	V3 anode circuit stabiliser	50
R15	V3 A.V.C. diode load	500,000
R16		500,000

	OTHER COMPONENTS	Approx. Values (ohms)
L1	M.W. aerial coupling coil	4·2
L2	Band-pass primary coils	5·5
L3		9·0
L4	Band-pass coupling coils	0·4
L5		
L6	Band-pass coupling coils	0·4
L7		
L8	Band-pass secondary coils	5·0
L9		9·0
L10	Oscillator tuning coils	4·5
L11		5·7
L12	Oscillator reaction coils	4·3
L13		1·2
L14	1st I.F. trans. Pri.	30·0
L15	1st I.F. trans. Sec.	30·0
L16	2nd I.F. trans. Pri.	30·0
L17	2nd I.F. trans. Sec.	30·0
L18	Speaker speech coil	2·7
L19	Hum neutralising coil	0·1
L20	Speaker field coil	2,000·0
T1	Speaker input trans. Pri.	570·0
	Sec.	0·45



Circuit diagram of the Vidor 258 A.C. superhet. Inductive coupling is used in the band-pass input circuit. Alignment arrangements are very complete, since tracking and trimming can be carried out on both wavebands.



Plan view of the chassis. **C28** and **C29** are adjustable trackers.

OTHER COMPONENTS (*Continued*)			Approx. Values (ohms)
T2	Mains trans.	Pri. total ..	25·0
		Heater sec. ..	0·03
		Rect. heat sec.	0·05
		H.T. sec. total	430·0
S1-S5	Waveband switches		—
S6	Mains switch, ganged R9 ..		—

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 FC4* ..	240	1·2	80	3·8
V2 VP4B ..	240	14·0	240	5·0
V3 AC/2Pen/DD	225	29·0	240	6·1
V4 R2 ..	315†	—	—	—

* Oscillator anode (G2) 80 V, 1.7 mA.
† Each anode A.C.

DISMANTLING THE SET

A detachable bottom is fitted to the cabinet and upon removal (four countersunk-head wood screws) gives access to most of the under-chassis components.

Removing Chassis.—Remove the three control knobs (recessed grub screws) and the four bolts (with washers) holding the chassis. The chassis can now be withdrawn to the extent of the speaker leads, which should be just sufficient for normal purposes. *When replacing*, see that the blue dot on the wave-change switch knob is uppermost when the receiver is switched to the medium band.

To free the chassis entirely, unsolder the speaker leads and *when replacing*, connect them as follows:—F, red; 3, blue; 1 and F joined together, black.

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 front of the cabinet. *When replacing*, see that the transformer is pointing to the top right-hand corner of the cabinet (viewed from the back).

VALVE ANALYSIS

Valve voltages and currents given in the table (col. 2) are those measured in our receiver when it was operating on mains of 225 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 there was no signal input.

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

GENERAL NOTES

Switches.—**S1-S5** are the wavechange switches, in a single unit beneath the chassis. Note that three of the switches in the unit are blank. All the switches that are used are *closed* on the M.W. band and *open* on the L.W. band.

S6 is the Q.M.B. mains switch, ganged with the volume control **R9.**

Coils.—**L1-L5, L6-L9** and **L10-L13** are in three screened units on the chassis deck, while the I.F. transformers, **L14, L15** and **L16, L17** are in two further screened units.

Scale Lamps.—These are two M.E.S. types, both rated at 6V, 0·3 A.

Condensers C16, C17.—These are two dry electrolytics in a single unit beneath the chassis, with a common negative (black) lead. The yellow lead is the positive of **C16** (8μF) and the red the positive of **C17** (16μF).

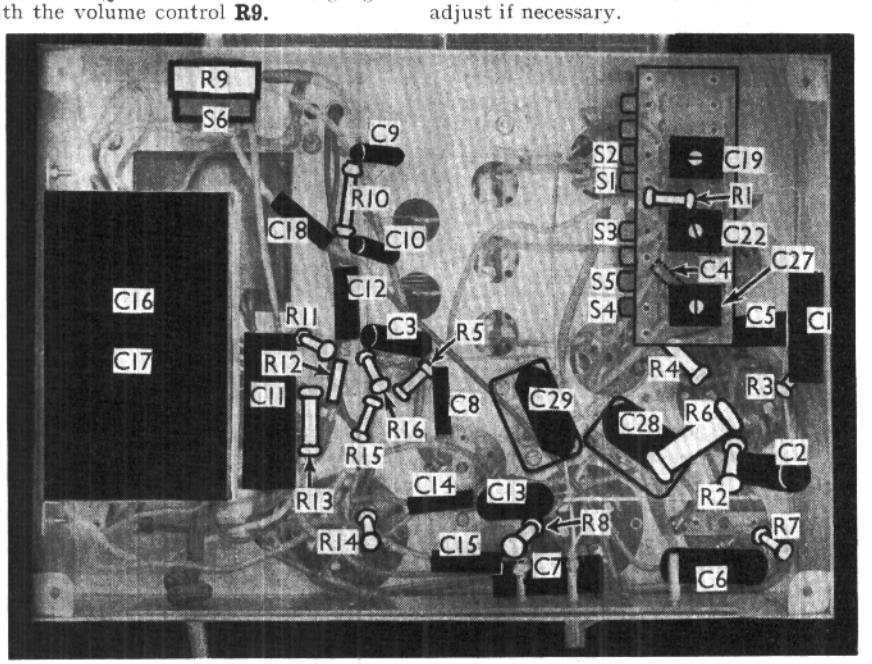
CIRCUIT ALIGNMENT

I.F. Stages.—Short out oscillator grid coils by means of a wire connected between oscillator grid (pin 2) of **V1** and chassis. Connect a 0·25 MO resistance between control grid (top cap) of **V1** and chassis. Inject a 130 KC/S signal between top cap of **V1** and chassis. Adjust **C33, C32, C31** and **C30** for maximum output, in that order. Re-check these adjustments, then remove the 0·25 MO resistance and the oscillator short circuit.

H.F. Stages.—Inject a 210 m. signal between **A** and **E** sockets, with a dummy aerial in series. Switch set to M.W. The pointer should be parallel to the bottom of the scale at maximum and minimum of the gang condenser. Tune set to 210 m. on the scale, then adjust **C25, C24** and **C21** for maximum output.

Feed in a 500 m. signal, and tune it in, irrespective of pointer indication. Adjust **C29** for maximum output, rocking the gang for optimum results. Return to a 210 m. signal, and see whether the calibration still holds. If not, set pointer to 210 m. again, and re-adjust **C25, C24** and **C21.** Return again to 500 m. and re-adjust **C29** if necessary.

Switch set to L.W., inject a 1,000 m. signal, set pointer to 1,000 m. on scale, and adjust **C19, C22** and **C27.** Inject a 2,000 m. signal, tune it in, and adjust **C28,** rocking the gang for optimum results. Return to 1,000 m., and re-adjust if necessary.



Under-chassis view. Three of the switches in the unit are blank.