

NUMBER 105

TRADER SERVICE SHEETS

VIDOR 216 3-Valve A.C. Model

(and 217 RADIOGRAM)

A SIMPLE 3-valve (plus rectifier) chassis for A.C. mains operation is employed in the Vidor 216 receiver. It is suitable for mains of 195-260 V, 40-100 c.p.s., and is provided with an aerial trimmer which is used as a selectivity control. The receiver has a horizontal cabinet with the chassis on the left and the speaker on the right.

A very similar chassis is fitted in the 217 radio-gramophone.

CIRCUIT DESCRIPTION

Aerial input via pre-set condenser C11 (selectivity control) to coupling coils L1, L2. Single tuned circuit L3, L4, C12, precedes variable-mu pentode H.F. amplifier (V1, Mullard metallised VP4A). Gain control by variable cathode resistance R4 which varies G.B. applied.

Tuned-anode coupling by L6, L7, C15 to triode detector (V2, Mullard metallised 354V) which operates on grid leak system with C4 and R6. Reaction is applied from anode by coil L5 and controlled by variable condenser C14. H.F. by-passing by condenser C5. No provision for connection of gramophone pick-up in table model.

Resistance-capacity coupling by R7,

COMPONENTS AND VALUES

Resistances		Values (ohms)
R1	V1 S.G. potential divider	20,000
R2	V1 fixed G.B. resistance	15,000
R3	V1 anode decoupling	300
R4	V1 gain control	10,000
R5	V1 anode decoupling	20,000
R6	V2 grid leak	1,000,000
R7	V2 anode load	100,000
R8	V3 C.G. resistance	500,000
R9	V3 C.G. H.F. stopper	250,000
R10	V3 G.B. resistance	150

Condensers		Values (µF)
C1	V1 S.G. by-pass	0.05
C2*	V1 cathode by-pass	25.0
C3	V1 anode decoupling	0.1
C4	V2 grid condenser	0.0001
C5	V2 anode H.F. by-pass	0.0002
C6	V2 to V3 L.F. coupling	0.01
C7*	V3 cathode by-pass	25.0
C8	Tone corrector	0.001
C9*	H.T. smoothing	6.0
C10*	H.T. smoothing	6.0
C11†	Selectivity control	0.000175
C12†	Aerial circuit tuning	0.0005
C13†	Aerial circuit trimmer	—
C14†	Reaction control	0.0005
C15†	V1 anode circuit tuning	0.0005
C16†	V1 anode circuit trimmer	—
C17	Mains H.F. by-pass	0.05

\* Electrolytic. † Variable. ‡ Pre-set.

Other Components		Approx. Values (ohms)
L1	Aerial coupling coils	1.5
L2		3.25
L3	Aerial tuning coils	5.5
L4		9.5
L5	Reaction coil	3.0
L6	V1 anode tuning coils	5.75
L7		11.5
L8	Speaker speech coil	1.7
L9	Hum neutralising coil	0.1
L10	Speaker field coil	2,000.0
T1	Speaker input trans. (Pri. Sec.)	730.0 0.3
T2	Mains trans. (Pri. total. Heater sec. Rect. heat. sec. H.T. sec. total)	38.0
		0.05
		0.1
Sr-S3	Waveband switches	—
S4	Mains switch, ganged R4	—

DISMANTLING THE SET

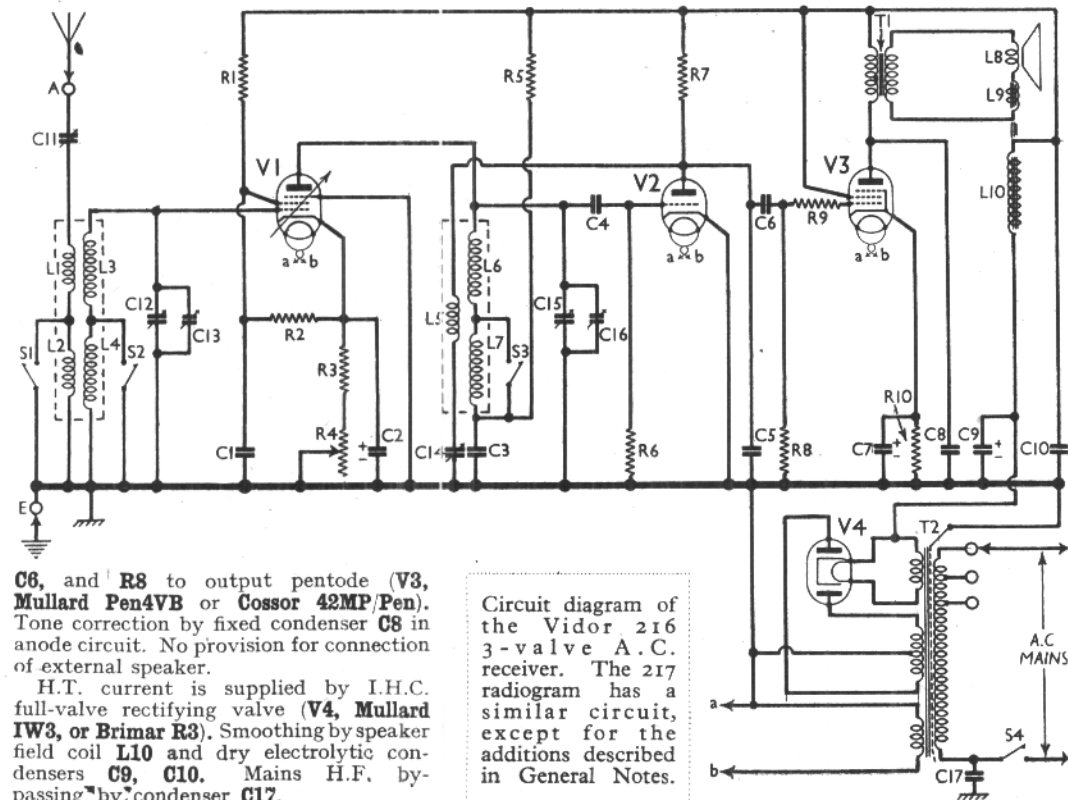
**Removing Chassis.**—In order to remove the chassis from the cabinet it is necessary first to remove the back (four counter-sunk-head wood screws with washers), the four control knobs (recessed grub screws) and the four bolts (with washers) holding the chassis to the bottom of the cabinet. Now unsolder the earthing lead to the speaker frame, when the chassis can be withdrawn to the extent of the speaker leads, which is just sufficient for normal purposes. When carrying out tests take care that the speaker earthing lead does not cause a short. It will be safer to tape it.

To free the chassis entirely, unsolder the speaker leads. When replacing chassis connect the speaker leads as follows, numbering the tags from bottom to top:—1 and 2 joined together, blue; 3, black; 4, red. The green lead goes to the speaker frame. Also replace the switch knob so that the white dot is on the left when the receiver is operating on the medium waveband.

**Removing Speaker.**—To remove the speaker, remove the nuts and lockwashers from the four ornamentally-headed bolts holding it to the front of the cabinet. When replacing, see that the transformer is on the left, do not forget to replace the earthing tag on the top right-hand screw, and connect as above.

VALVE ANALYSIS

Valve voltages and currents given in the table on page III are those measured in



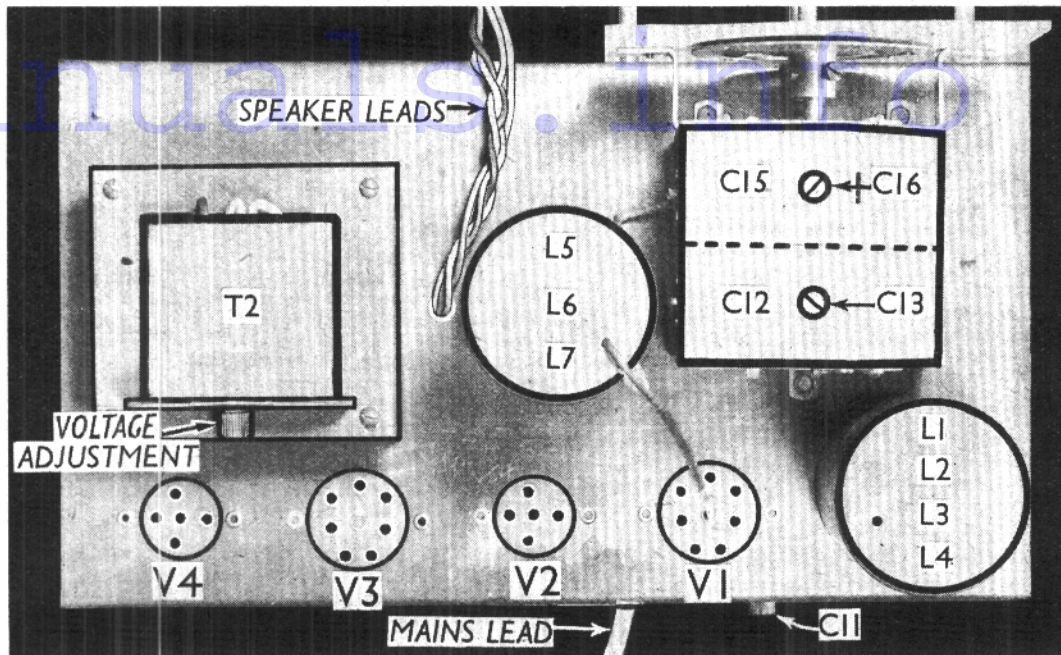
Circuit diagram of the Vidor 216 3-valve A.C. receiver. The 217 radiogram has a similar circuit, except for the additions described in General Notes.

C6, and R8 to output pentode (V3, Mullard Pen4VB or Cossor 42MP/Pen). Tone correction by fixed condenser C8 in anode circuit. No provision for connection of external speaker.

H.T. current is supplied by I.H.C. full-valve rectifying valve (V4, Mullard IW3, or Brimar R3). Smoothing by speaker field coil L10 and dry electrolytic condensers C9, C10. Mains H.F. by-passing by condenser C17.

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Plan view of the chassis. The knob of C11, the pre-set selectivity control, is indicated.



our receiver when it was operating on mains of 225 V, using the 230 V tapping on the mains transformer. The volume control was at maximum but the reaction control was at minimum, and there was no signal input.

Voltages were measured on the 1,200V scale of an Avometer, with chassis as

on the L.W. band. In the radiogram model there is an extra switch in the unit, which then has three positions, M.W., L.W. and Gram. The extra switch is open on M.W. and L.W., and closed on gram.

S4 is the Q.M.B. mains switch, ganged with the gain control R4.

Coils.—The tuning coils are in two screened units on the chassis deck.

External Speaker.—There is no provision for this in the chassis, but a high resistance type could be connected across the primary of T1 if necessary. (Two inner tags on terminal strip.)

Condensers C9, C10.—These are two 6 μF dry electrolytics in a single unit, with a common negative (black) lead.

The two positives are red, and that connecting to the V4 valve-holder belongs to C9.

Condenser C11.—This is a pre-set type, adjustable by a small knob at the rear of the chassis.

Radiogram Modifications.—In the radiogram model the control switch unit has three positions, M.W., L.W. and gram. One pick-up connection goes to chassis, and the other to the tag of R4 which is free in the table model. From this tag a lead also goes to one side of an extra switch, ganged with the wavechange switches. The other side of the switch goes to the grid of V2.

The cathode of V2, instead of being taken to chassis, goes to one end of a 1,000 Ω cathode resistance, the other end of which goes to chassis. Across this resistance is a 25 μF 25 V working electrolytic condenser. R6 is returned to cathode of V2 instead of chassis.

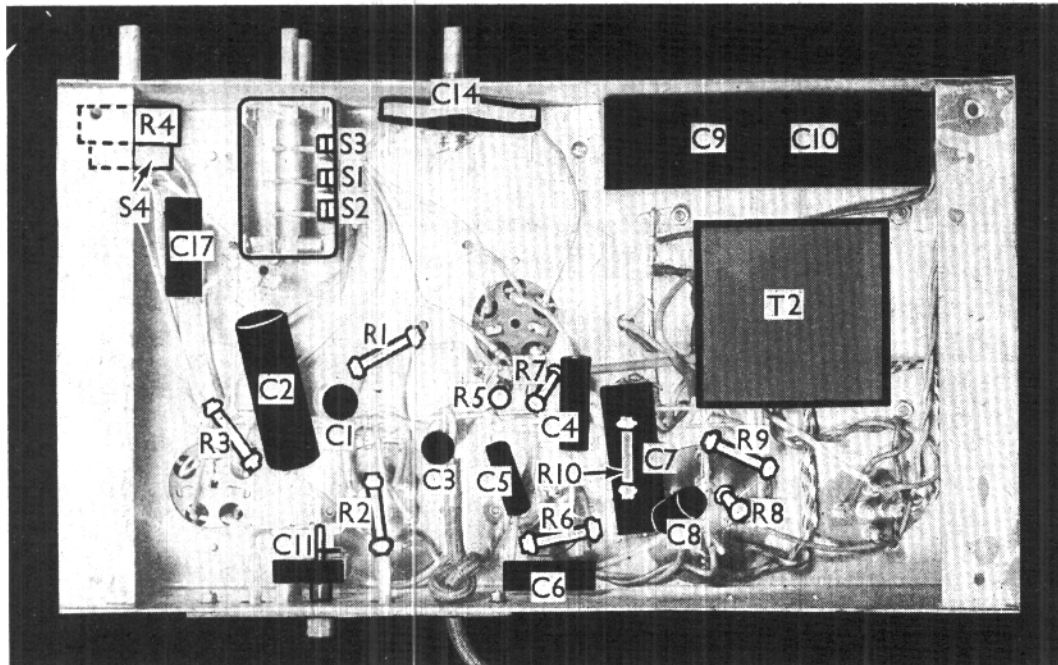
Transformer Hum.—A little trouble occurred in early models due to buzzing of the laminations of T2. This, if experienced, can be cured by loosening the core bolts, dopping the laminations with shellac varnish, and re-tightening.

Valve	Anode Volts	Anode Current (mA)	Screen Volts	Screen Current (mA)
V1 VP4A	205	2.0	110	1.0
V2 354V	67	2.1	—	—
V3 Pen4VB	232	34.0	260	4.2
V4 R3	318†	—	—	—

† Each anode, A.C.

### GENERAL NOTES

Switches.—S1-S3, the waveband switches, are in a single unit, seen in the under-chassis view. All the switches are closed on the M.W. band and open



Under-chassis view. The radiogram model has a similar layout, but with an extra resistance, condenser and switch.