

HMV 1106 and 1504

Four-valve, plus rectifier, three-waveband, superhets, incorporating manual and press-button tuning. Model 1106 is the table model with provision for a pickup and extra loudspeaker. Model 1504 is the radiogram. Suitable for operation from AC mains supplies 195-255v, 50-100 cycles (1106), 50-60 cycles (1504).

APERIODIC coupling coils L1, L3, L5, transfer the aerial signal to the tuned grid coils L2 (SW), L4 (MW), and L6 (LW). For manual tuning these coils are connected across VC1 section of the ganged condenser, but for press-button

station selection the medium and low wave coils are connected across trimmers T1-T6, these trimmers being adjustable by the user of the receiver.

The signals are transferred via C4 to the control grid of V1 frequency changer, the grid being connected to the AVC line via R1. R2 decoupled by C5 provides standing bias.

The screen potential for V1 and V2 is obtained from the screen potential divider network R3 and R5 with decoupling effected by C7 and C14.

The oscillator section of V1 incorporates tuned grid coils L8, L10, L11, which are tuned by VC2 section of the ganged condenser with anode feed-back coils L7, L9, with additional coupling by C11.

For press-button tuning variable iron-cored inductances L12-L16 are brought into circuit by the various press-buttons.

The IF signal from V1 is transferred to V2 by a transformer incorporating variable iron-cored inductances L17, L18, with fixed capacities C15, C16. The grid of V2 is returned to the AVC line and standing bias for the valve is derived from R7 decoupled by C17. A second

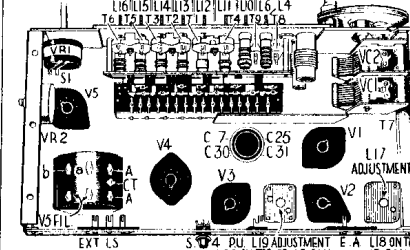
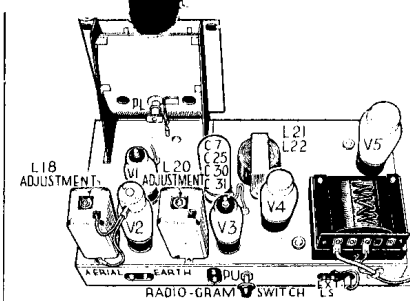
transformer passes on the signal to V3, the double-diode-triode.

LF signal is filtered by R8 and C20, the load resistance being R9, and passes via C21 to the volume control VR1. By means of a two-way switch a pickup may be connected across the volume control. Earlier chassis did not incorporate this switch, but the upper pickup socket was permanently connected to VR1 and a split socket type of connection was employed for the lower sockets. One half of the split socket was connected to earth and the other half via a .05 mfd condenser to the anode of V2.

When PU plugs were inserted the two halves of the lower socket were connected together by the plug and the HF signals from V2 were shorted to earth via the .05 mfd condenser.

The AVC diode of V3 is fed from the anode circuit of V2 via C22, the load resistance being R11. The AVC line goes to V1 and V2 through the filter circuit comprising R12 and C23.

V3 is biased by R10 decoupled by C24 and the LF signals resistance capacity coupled by R14, C26 and R16 to the grid



Circuit of the models 1106 and 1504. Early chassis did not have the radiogram switch. Modifications in 1504 are in the text.

CONDENSERS

C	Mfds
1	.50 mmfds
2	.0005
3	2.3 mmfds
4	.0001
5	.05
6	.05
7	4
8	75 mmfds
9	50 mmfds
10	.005
11	.00035
12	.00023
13	.0005
14	.05
15	.0002
16	.0002
17	.05
18	.0002
19	.0002
20	.0001
21	.05
22	.0001
23	.05
24	50
25	4
26	.05
27	.00023
28	.00023
29	.05
30	16
31	8

RESISTANCES

R	Ohms	R	Ohms
1	500,000	11	750,000
2	230	12	750,000
3	15,000	13	75,000
4	50,000	14	100,000
5	15,000	15	10,000
6	23,000	16	350,000
7	350	17	23,000
8	350,000	18	100
9	350,000	VR1	2 meg.
10	2,300	VR2	50,000

WINDINGS

L	Ohms	L	Ohms
1	7	16	10
2	Very low	17	5
3	24	18	5
4	2.25	19	5
5	59	20	5
6	17.5	21	370
7	.8	22	.5
8	Very low	23	—
9	1.75	24	4
10	3	25	950
11	7.5	26	Very low
12	3.5	27	315+315
13	5.5	28	Very low
14	5.5	29	30 (total)
15	10	PU (1504)	7500

VALVE READINGS

V	Type	Electrode	Volts	Mas
1	X61M	Anode	260	3.3
		Osc anode	95	5
		Screen	85	3.7
2	KTW61M	Cathode	2.7	—
		Cathode	8	—
		Screen	85	2.5
3	DH63M	Cathode	3.5	—
		Anode	105	.5
		Cathode	1.1	—
4	KT61	Anode	245	42
		Screen	260	8
		Cathode	5	—
5	U50	Cathode	350	80
Pilot lamp 6v, .3 amp, MES.				
Readings taken on MW with aerial disconnected.				

of the output pentode, V4. R15 is a voltage dropper for the anode of V3 and also, with R6, for the anode of the oscillator section of V1. Decoupling is effected by C25.

In the grid circuit of V4 is a grid stopper R17 and an HF by-pass C27. V4 is biased by R18, which has no decoupling condenser across it, this arrangement bringing about a certain amount of negative feed-back. A permanent degree of tone correction is effected by C28, while a variable tone control across the primary, L21, of the output transformer is effected by VR2 and C29.

L22 is the secondary of the output transformer which connects to the speech coil of the energised loudspeaker via the switch-plug arrangement, by means of which the internal speaker may be silenced when only the external speaker is required.

HT is derived from the full-wave rectifying valve V5, with C30, the reservoir condenser, and L25, which is the field winding for smoothing with C31.

Model 1504.—The radiogram version has only slight modifications. The pickup is taken to the volume control via a radiogram switch which has additional contacts which open up the screened grid circuit of V1. A filter comprising .05 mfd condenser in series with a 15,000 ohm resistance is connected across the pickup input. These components are mounted on the radiogram switch.

Internal and external speakers are controlled by a switch and not by plug and socket.

GANGING

IF Circuits.—Set receiver to MW, tone control fully clockwise, volume control and gang condenser to maximum.

Inject signal to V2 top cap (via a 0.1 mfd condenser) leaving grid connexion in position. Damp L19 by means of a 35,000 ohm resistance and a 0.05 mfd condenser in series. This may be connected either directly across the coil or from the "hot" side of the coil to chassis.

Tune oscillator exactly to 465 kc (645.2 m) and adjust L20 for maximum output. Damp L20 as above and adjust L19 for maximum output.

Inject signal to V1 top cap (via 0.1 mfd) and chassis leaving grid connexion made. Damp L17 and trim L18 for maximum output. Damp L18 and trim L17.

Do not make any further adjustments to the trimmers of L19 and L20, except to repeat the whole procedure again if necessary.

Calibrating Pointer.—Before commencing RF ganging check the position

Continued on page vi

HMV 1106, 1504

Continued from page iv.

of the wave-scale and pointer. Turn gang to minimum and see that the pointer registers accurately on the 192m mark.

If adjustment is necessary, pointer can be slid up or down the drive wire.

SW Band.—Connect oscillator to A and E sockets *via* a SW dummy aerial device. Set receiver to SW, volume fully up and tone fully clockwise.

Inject signal of 50m (6mc), set tuning pointer to 50m, and adjust loops in L8 and L2 for maximum output. Repeat several times if necessary until no further increase in output can be obtained.

Check that receiver will tune in 16.8m (17.86mc).

MW Band.—Set gang to minimum, and tube oscillator to exactly 192m (1562.5kc). Adjust T8 for maximum output.

Set oscillator and receiver (by scale) to 210m (1,429kc) and adjust T7 for maximum output.

Set oscillator and receiver (by scale) to 510m (588kc) and adjust the cores of L10 and L4 for maximum. Unless either of these coils has been changed very little adjustment should be necessary.

Repeat above operations if necessary.

LW Band.—Set oscillator and receiver to 1,000m (300kc) and adjust T9 and T4 for maximum output.

Set oscillator and receiver to 1,850m (162.2kc) and adjust L11 and L6 for maximum output.
