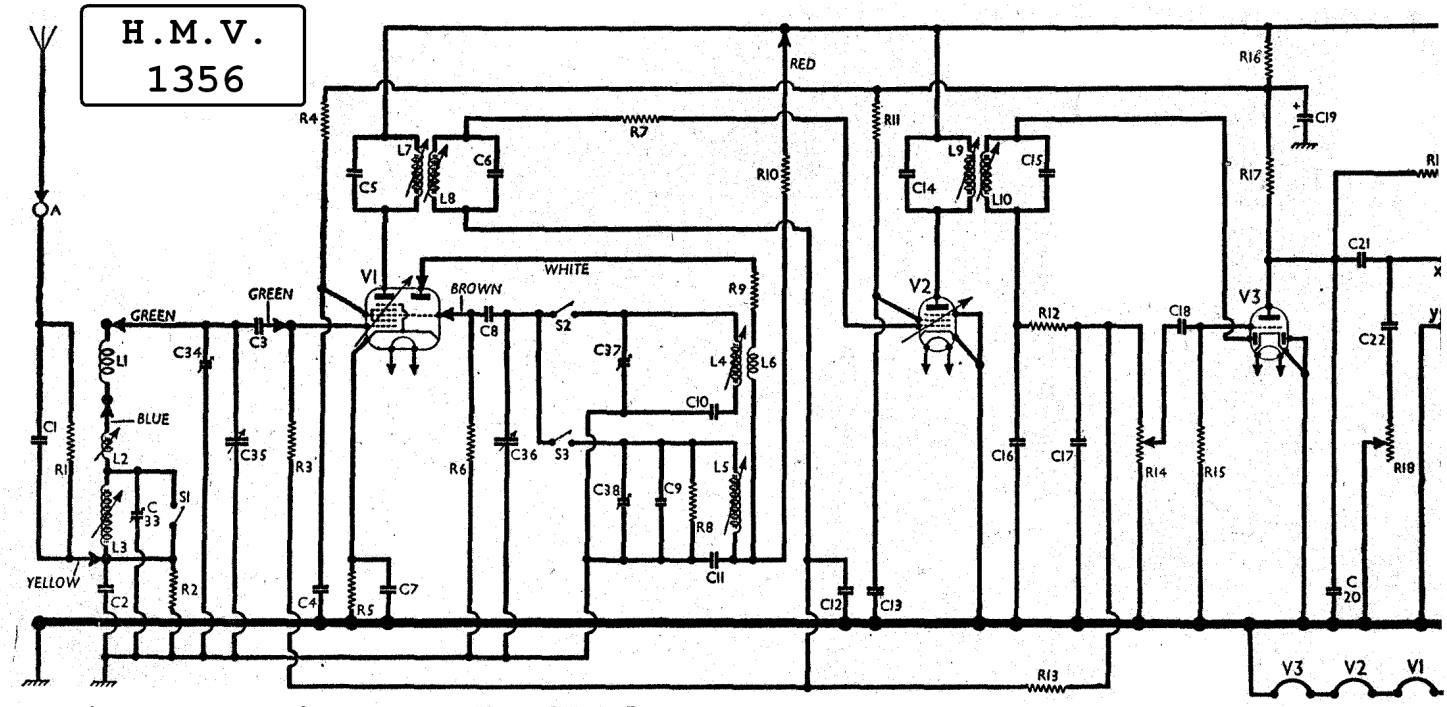
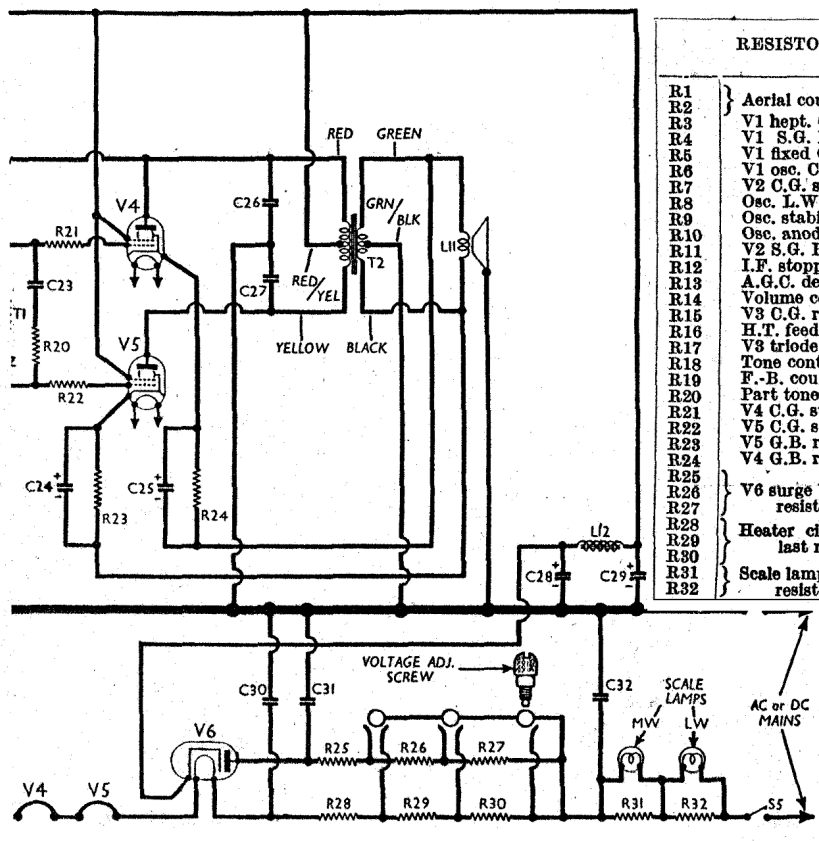
H.M.V. 1356





RESISTORS		Values (ohms)
R1	Aerial coupling ...	1,000,000
R2	Aerial coupling ...	22,000
R3	V1 hept. C.G. ...	470,000
R4	V1 S.G. H.T. feed	15,000
R5	V1 fixed G.B. ...	150
R6	V1 osc. C.G. ...	47,000
R7	V2 C.G. stabilizer	10,000
R8	Osc. L.W. shunt ...	47,000
R9	Osc. stabilizer ...	3,900
R10	Osc. anode load ...	22,000
R11	V2 S.G. H.T. feed	33,000
R12	I.F. stopper ...	100,000
R13	A.G.C. decoup. ...	1,500,000
R14	Volume control ...	500,000
R15	V3 C.G. resistor ...	3,300,000
R16	H.T. feed decoup.	2,200
R17	V3 triode load ...	47,000
R18	Tone control ...	500,000
R19	F.-B. coupling ...	330,000
R20	Part tone corrector	12,000
R21	V4 C.G. stopper ...	10,000
R22	V5 C.G. stopper ...	10,000
R23	V5 G.B. resistor	330
R24	V4 G.B. resistor	330
R25	V6 surge limiting resistors ...	85
R26		85
R27		130
R28	Heater circuit ballast resistors...	250
R29		200
R30		200
R31	Scale lamp shunt resistors ...	35
R32		35

CAPACITORS		Values (μF)	Locations
C1	Aerial coupling ...	0·001	A4
C2	Aerial coupling ...	0·0033	M5
C3	V1 hept. C.G. ...	0·0001	L6
C4	V1 S.G. decoup.	0·1	M7
C5	1st I.F. transformer tuning	0·0001	B3
C6		0·0001	B3
C7	V1 cath. by-pass ...	0·047	N7
C8	V1 osc. C.G. ...	0·0001	M5
C9	Osc. L.W. trim. ...	0·000082	A2
C10	Osc. M.W. tracker	0·00039	L6
C11	Osc. L.W. tracker	0·00018	M6
C12	A.G.C. decoupling	0·047	L7
C13	V2S.G. decoup. ...	0·1	L7
C14	2nd I.F. transformer tuning ...	0·0001	C2
C15		0·0001	C2
C16	I.F. by-passes ...	0·0001	K6
C17		0·0001	L7
C18	A.F. coupling ...	0·01	K7
C19*	H.T. feed decoup.	8·0	K6
C20	I.F. by-pass ...	0·00018	K6
C21	A.F. coupling ...	0·1	J6
C22	Part tone control...	0·022	J5
C23	Part tone corrector	0·0022	J5
C24*	V5 cath. by-pass ...	20·0	H7
C25*	V4 cath. by-pass ...	20·0	K7
C26	Tone correctors ...	0·01	J7
C27		0·01	H7
C28*	H.T. smoothing ...	24·0	G6
C29*		32·0§	H6
C30	Heater R.F. by-pass	0·0022	G7
C31	V6 R.F. by-pass ...	0·05	G7
C32	Mains R.F. by-pass	0·0022	L7
C33‡	Aerial L.W. trim....	0·00003	M6
C34‡	Aerial M.W. trim.	0·00003	L6
C35†	Aerial tuning ...	—	B2
C36†	Oscillator tuning ...	—	B2
C37‡	Osc. M.W. trim. ...	0·00003	N6
C38‡	Osc. L.W. trim. ...	0·00003	N6

* Electrolytic † Variable ‡ Pre-set.
§ Two 16μF units in parallel.

OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	Frame aerial ...	1.4	B4
L2	M.W. loading coil	1.7	A2
L3	L.W. loading coil	14.5	M6
L4	Oscillator tuning coils	4.0	A2
L5		6.7	A2
L6	Osc. react. coil ...	3.5	A2
L7	1st I.F. trans Pri. ...	10.0	B3
L8	Sec. ...	10.0	B3
L9	2nd I.F. trans Pri. ...	10.0	C3
L10	Sec. ...	10.0	C2
L11	Speech coil ...	3.0	—
L12	Smoothing choke...	190.0	D2
T1	Intervalve trans x-y	294.0	J5
	y-z	294.0	
T2	Output trans Pri., total	252.0	E2
	Sec., total	0.2	
S1-S3	W/band switches	—	N5
S4, S5	Mains sw. g'd R14	—	H5

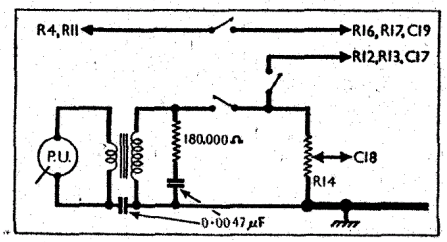
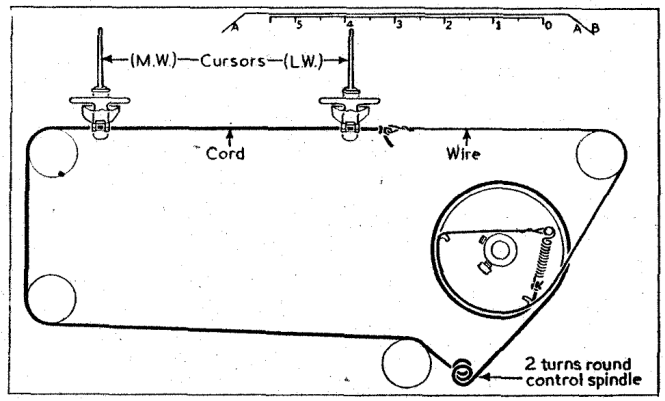


Diagram showing the circuit additions in the 1607 autoradiogram.

Valve		Anode V	Anode mA	Screen V	Screen mA	Cath V
V1	X145	180	2.0	80	5.0	1.5
		Oscillator				
		80	5.0			
V2	W145	180	8.2	80	2.5	—
V3	DL145	50	2.5	—	—	—
V4	N145	175	22.0	180	5.0	8.2
V5	N145	175	22.0	180	5.0	8.2
V6	U145	195†	—	—	—	195

† A.C.



Sketch showing the tuning drive cord system, drawn as seen from the front of the chassis with the gang at *minimum*. When the gang is at maximum, the cursors should cover the nought- and five-inch marks on the alignment scale.

DRIVE CORD REPLACEMENT

The drive cord consists partly of cord and partly of wire, as indicated in our sketch in which the tuning drive system is shown as seen from the front of the set, neglecting such obstructions as obscure it from time to time, with the gang at minimum.

Supplies of suitable material can be obtained from E.M.I. Sales & Service, Ltd., Sheraton Works, Wadsworth Road, Greenford, Middlesex, and the makers emphasize that only the correct type of wire (S2447) and high-grade flax fishing line (S515) should be used. 36 inches of cord and 15 inches of wire provide ample length.

First make up the wire by making a loop about $\frac{1}{8}$in diameter in each end, the overall length being $13\frac{3}{4}$ inches. Solder is the best method of tying off the ends.

Tie one end of the cord to the loop at one end of the wire, using a dab of shellac to hold the knot firm. Pass the other end of the wire through the appropriate hole in the gang drum groove and slip its loop over the anchor pin as shown in our sketch. Then run the wire anticlockwise for half a turn round the drum, pulling against the gang stop, and run the cord as shown in the sketch, finally tying off to the tension spring so as to open it to about one and a half times its length when hooked to the anchor pin, again dabbing the knot with shellac.

Finally, turn the gang to maximum, slide the two cursors along to register with the calibration markings of 0 and 5 respectively on the alignment scale, slip the cord into the clamps beneath the cursors and tighten up the screws.

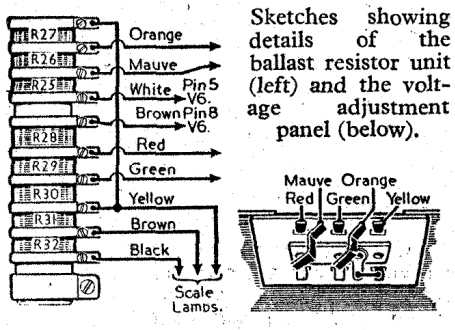
CIRCUIT ALIGNMENT

I.F. Stages.—Switch set to M.W., turn volume control to maximum and gang to minimum capacitance, and connect signal generator (via an 0.1 μF capacitor in each lead) to control grid (pin 6) of **V1** and chassis. Feed in a 465 kc/s (645.16 m) signal, and adjust the cores of **L10, L9, L8, L7** (location references C2, L6, B2, M7) for maximum output. Repeat these operations until no improvement results.

R.F. and Oscillator Stages.—Since the calibrated glass scale is mounted in the cabinet and alignment adjustments are carried out with the chassis on the bench, a substitute scale, divided into inches and sixteenths of an inch, is fixed to the front of the scale backing plate. Linear measurements on this scale correspond to frequencies given in the alignment adjustments, readings being made against the right-hand (L.W.) cursor.

With the gang at maximum capacitance the right-hand cursor should coincide with 0 in, and the left-hand cursor (M.W.) with 5in, on the scale. The cursors may be adjusted in position by sliding their carriages along the drive cord, after slackening their clamping screws. Transfer "live" signal generator lead and isolating capacitor, via a suitable dummy aerial, to **A** socket.

M.W.—With set still switched to M.W., tune to $3\frac{7}{32}$in on scale, feed in a 210 m (1,429 kc/s) signal, and adjust **C37** (N6) and **C34** (L6) for maximum output. Tune to $\frac{19}{32}$in on scale, feed in a 510 m (588 kc/s) signal, and adjust the cores of **L4** (N6) and **L2** (N6) for maximum output. Repeat these operations until no improvement results.



Sketches showing details of the ballast resistor unit (left) and the voltage adjustment panel (below).

L.W.—Switch set to L.W., tune to $2\frac{7}{8}$in on scale, feed in a 1,000 m (300 kc/s) signal, and adjust **C38** (N6) and **C33** (M6) for maximum output. Tune to $\frac{17}{32}$in on scale, feed in a 1,850 m (162 kc/s) signal, and adjust the cores of **L5** (N5) and **L3** (B2) for maximum output. Repeat these operations until no improvement results.

RADIOGRAM 1607

In the radiogram model 1607 a modified version of the 1356 chassis is employed. The front of the chassis is bolted to the underside of the horizontal control panel, and the scale is between the two. The frame aerial is suspended vertically below the chassis.

The mains voltage adjustment panel and the associated ballast resistor **R25-R32** are removed from the chassis and mounted on the floor of the cabinet, while the speaker, which is a 10$\frac{1}{2}$in elliptical model with a permanent magnet, is mounted on the front of the cabinet.

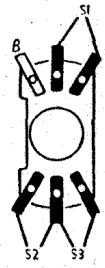


Diagram of the waveband switch unit, drawn as seen from the rear of an inverted chassis.

Small changes occur in the circuit. **C26** and **C27** become 0.0022 μF each, **C23** is 0.001 μF, and the high-potential side of **C32** goes to the junction of **R32** and **S5**; that is, it goes to the opposite of **R31, R32** to that shown in our diagram. In early models, as in the 1356, **R18** may be 500,000 Ω, and **C27** may be omitted, but **C22** remains at 0.047 μF.

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The pick-up circuit is inserted across **R14,** with a special matching unit and a radio/gram change-over switch. The complete pick-up circuit is shown in the diagram in col. 6 overleaf, with its connections to points in our 1356 circuit diagram indicated.

The matching unit is mounted on the side of the cabinet, near the base, and above it, under the motorboard, are the change-over switch unit and pick-up connecting panel. The pick-up is a type No. 13, with a D.C. resistance of 1.3 Ω.

The auto-changer motor in models bearing a serial number below C/11 14901 was of the hysteresis type, but from then on, a No. 2 rim drive type is used. The auto-changer is type 35000T. An aerial/earth panel at the rear of the cabinet carries the earthing wire from the metalwork on the motorboard only. No earth connection is used from the receiver.