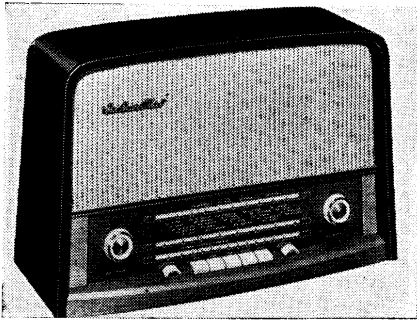


"TRADER" SERVICE SHEET  
**1383**

# H.M.V. 1372

## A.M./F.M. Table Radio Receiver



Appearance of the H.M.V. 1372.

### CIRCUIT DESCRIPTION

Tuned A.M. aerial circuits L9, C18, C19 (M.W.) and L8, L9, C18, C19, C20 (L.W.) precede triode-heptode frequency changer V2. M.W. aerial coil L9 is mounted on a ferrite rod to form an internal aerial. Provision is made for the connection of an external aerial via C14, R5, R6 and bottom coupling capacitor C16.

Triode section a of V2 operates as a tuned grid local oscillator with reaction coupling by C30, L11. Grid coil L10 is tuned by C24, C25 (M.W.) and in addition by C27, C28 (L.W.). Tracking is achieved by C29 and the adjustable inductance of L10.

Variable-mu R.F. amplifier V3 is employed as intermediate frequency amplifier with tuned A.M. transformer couplings C33, L14, L15, C34; C41, L19, L20, C42.

**A.M. intermediate frequency 470kc/s**  
Diode A.M. detector is section c of triple-

diode-triode valve V4. The audio frequency component in its rectified output is filtered by C43, R15, and fed via S5Y, S2Z to volume control R21, which also operates as diode load.

The D.C. component of the rectified signal developed across R21 is fed back as bias via decoupling components R16, C15 to V2 and V3, giving automatic gain control.

Double-triode F.M. R.F. amplifier/mixer V1 is rendered inoperative on A.M. by disconnecting the H.T. supply to its anodes via S5d.

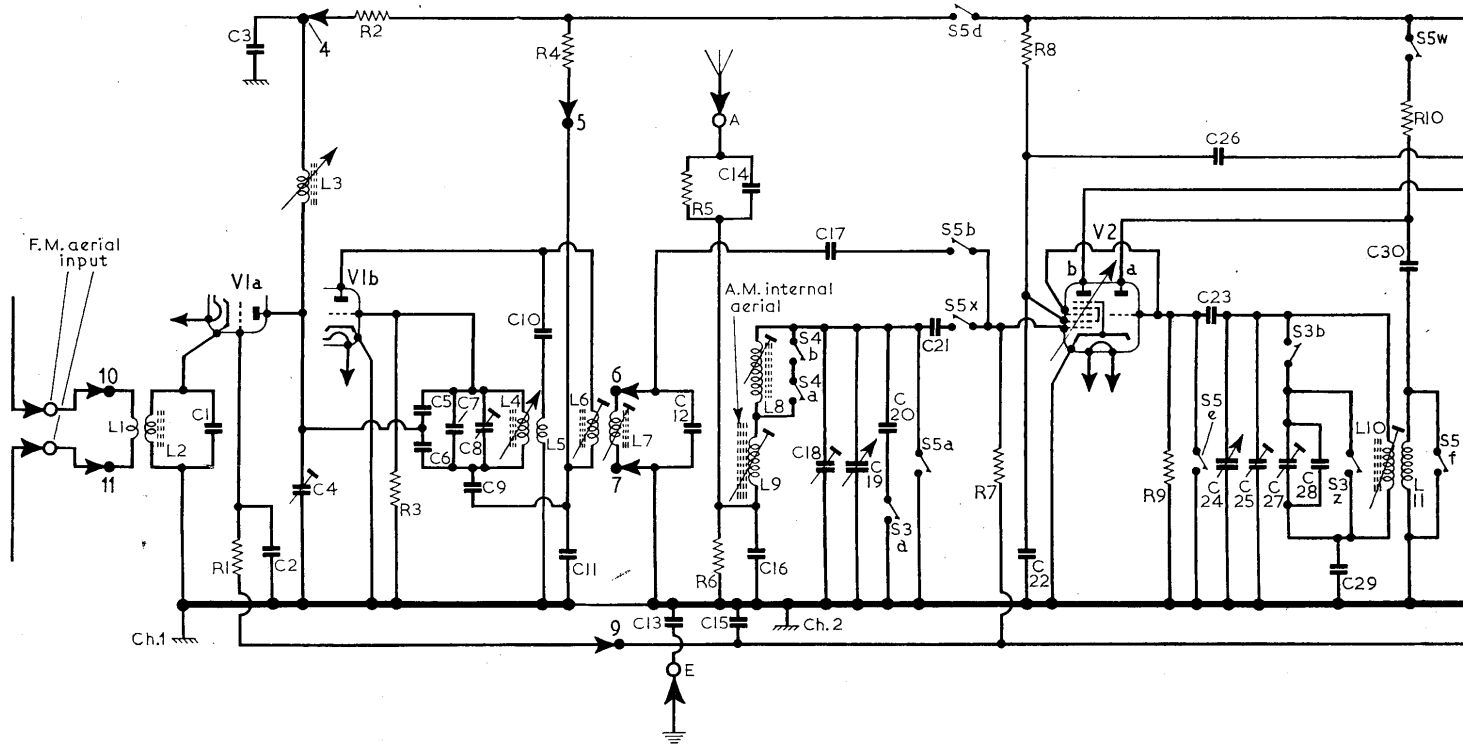
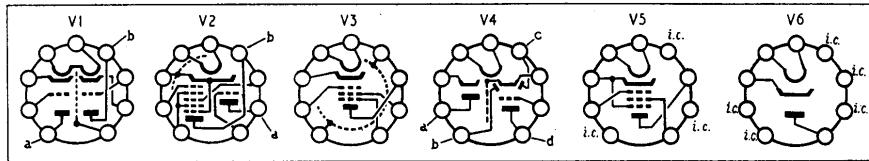
Triode section d of V4 operates as A.F. amplifier valve with resistance-capacitance coupling by C51, R24 to the control grid of pentode output valve V5. Tone correction by C54, and tone control by C52, R25.

Provision is made for the connection of a gramophone pick-up via S2a, R20, C48 and C49.

H.T. voltage is supplied by half-wave

**T**HE H.M.V. model 1372 is a five valve (plus rectifier) A.M./F.M. table model superhet receiver designed to operate from A.C. or D.C. mains of 200-250V, 50-60c/s in the case of A.C. Waveband ranges are 88-101Mc/s (F.M.); 188-545m (M.W.) and 1,160-1,940m (L.W.). It is fitted with a ferrite rod internal aerial for A.M. reception and an internal F.M. dipole aerial is fixed to the back cover. Provision is made for the connection of external aerials, an external speaker and a gramophone pick-up. Total mains consumption is approximately 50W.

Release date and original price: August 1958, £18 3s 11d. Purchase tax extra.



Circuit diagram of the H.M.V. 1372, and above it the valve base diagrams, drawn as seen from the free ends of the pins. In early

rectifying valve V6. Smoothing by C56, R29 and C57.

**Operation on F.M.**

Input from internal aerial or from an 80Ω external dipole aerial is fed via coupling transformer L1, L2 to the earthed-grid R.F. amplifier valve, section a of V1.

V1b is employed as a self-oscillating mixer with reaction coupling by C10, L5 to the oscillator tuned grid circuit comprising C5-C8 and L4. Permeability tuning is employed in the R.F. and oscillator stages, the cores of L3 and L4 being ganged and connected via a drive cord and pulley assembly to the spindle of a separate F.M. tuning control.

V2b and V3 are employed as F.M. intermediate frequency amplifiers with transformer couplings L6, L7; L12, L13; and L16, L17, L18.

**F.M. intermediate frequency 10.7Mc/s**

Diode sections a and b of V4 are employed in a ratio detector circuit. A.F. output is developed across capacitive load C40, and fed via C45, de-emphasis circuit R18, C47 and S5c, S2z to volume control R21. From R21 the audio signal route is the same as described for A.M. operation.

**CIRCUIT ALIGNMENT**

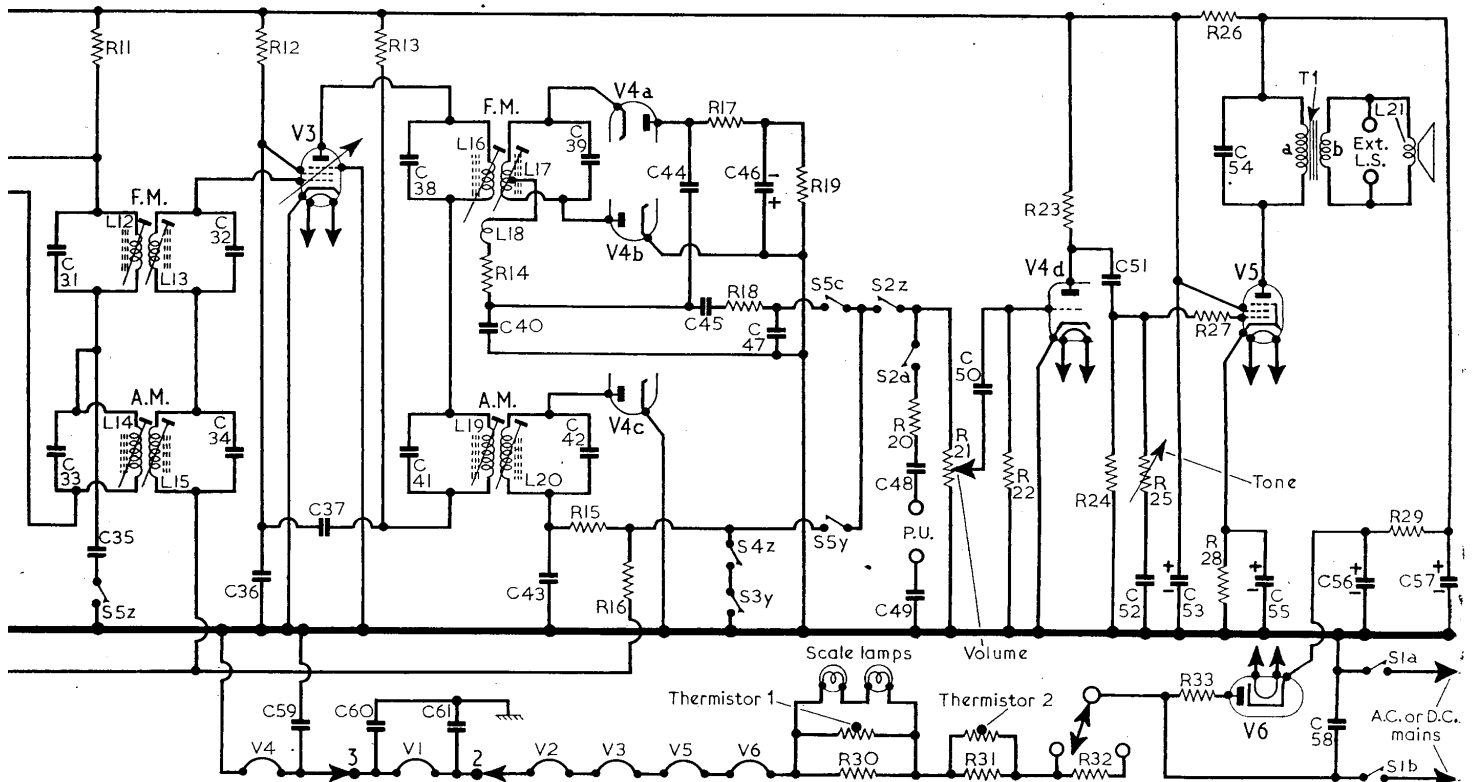
**Equipment Required.**—An A.M. signal generator modulated 30 per cent at 400c/s; an F.M. signal generator, deviated by 25kc/s; an output meter; a slotted trimming tool and a non-metallic, screwdriver-type trimming tool.

Throughout the A.M. alignment procedure, adjust the signal generator output to maintain a reading of 50mW on the output meter. Before commencing the F.M. alignment

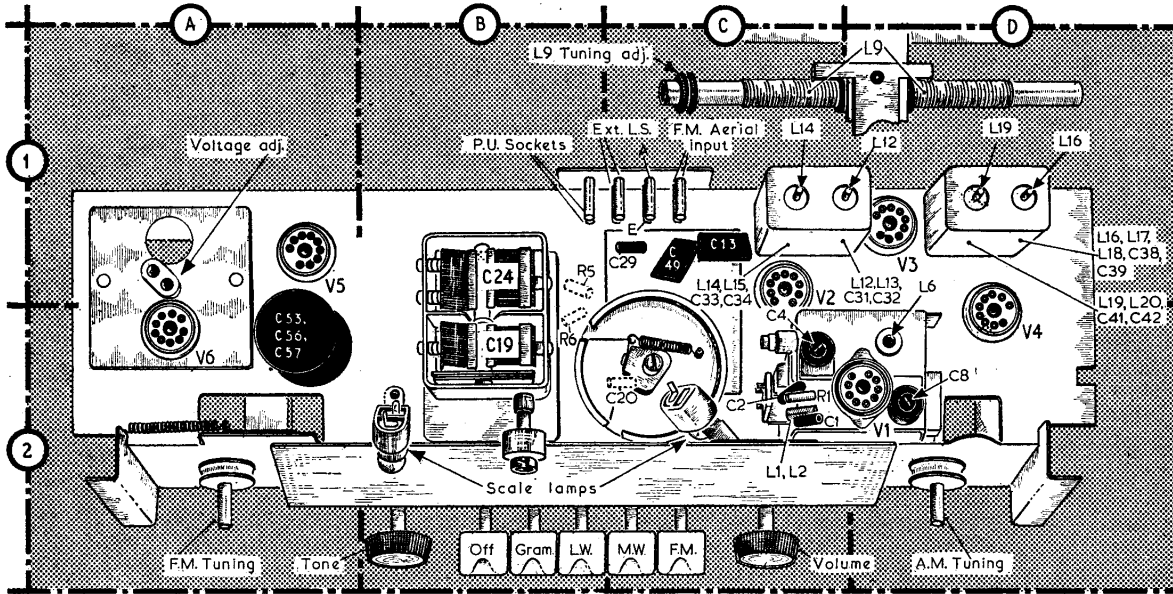
(Continued overleaf, col. 1)

**COMPONENT VALUES AND LOCATIONS**

Resistors		Capacitors		Coils*		Miscellaneous*	
R1	680kΩ	C1	20pF	L1	—	T1	{ a 150.0 } E3
R2	10kΩ	C2	220pF	L2	—	Thermistor 1	—
R3	680kΩ	C3	1,500pF	L3	—	Varite V1010	E3
R4	15kΩ	C4	10pF	L4	—	Thermistor 2	—
R5	1MΩ	C5	10pF	L5	—	Varite V1010	E3
R6	3.3kΩ	C6	10pF	L6	—	S1-S5	— F4
R7	2.2MΩ	C7	18.7pF†	L7	—		
R8	47kΩ	C8	10pF	L8	15.0		
R9	47kΩ	C9	10pF	L9	—		
R10	15kΩ	C10	25pF	L10	2.0		
R11	3.3kΩ	C11	85pF	L11	—		
R12	47kΩ	C12	20pF	L12	—		
R13	3.3kΩ	C13	0.02μF	L13	—		
R14	68Ω	C14	500pF	L14	5.5		
R15	100kΩ	C15	0.02μF	L15	5.5		
R16	2.2MΩ	C16	0.003μF	L16	—		
R17	330Ω	C17	220pF	L17	—		
R18	100kΩ	C18	40pF	L18	—		
R19	27kΩ	C19	528pF	L19	5.5		
R20	120kΩ	C20	165pF	L20	5.5		
R21	1MΩ	C21	220pF	L21	3.0		
R22	6.8MΩ	C22	0.005μF				
R23	220kΩ	C23	100pF				
R24	470kΩ	C24	528pF				
R25	500kΩ	C25	40pF				
R26	1.5kΩ	C26	0.005μF				
R27	4.7kΩ	C27	40pF				
R28	270Ω	C28	375pF				
R29	500Ω	C29	390pF				
R30	4.7kΩ	C30	220pF				
R31	2.7kΩ	C31	12pF				
R32	250Ω	C32	15pF				
R33	100Ω	C33	220pF				
		C34	220pF				
		C35	500pF				
		C36	0.005μF				
		C37	0.005μF				
		C38	12pF				
		C39	47pF				
		C40	400pF				
		C41	220pF				
		C42	220pF				
		C43	100pF				
		C44	400pF				
		C45	0.02μF				
		C46	4μF				
		C47	500pF				
		C48	1,800pF				
		C49	0.02μF				
		C50	0.02μF				
		C51	0.01μF				
		C52	0.005μF				
		C53	32μF				
		C54	0.004μF				
		C55	50μF				
		C56	40μF				
		C47	40μF				
		C58	0.02μF				



versions of this receiver R25 is connected as a potentiometer, R27 being connected to its slider. C52 then becomes 330pF.



Plan view of the chassis, not including the tuning drive systems, which are shown at the foot of this page. Ferrite rod internal aerial L9 is fixed to a bracket on the inside of the cabinet, and may be rotated by means of a control which protrudes through a slot in the back cover of the cabinet.

**Circuit Alignment—continued**

procedure, allow the receiver to warm up for at least 10 minutes. Adjust the F.M. signal generator output to maintain a reading of approximately 100mW on the output meter.

**A.M. Alignment**

- 1.—Switch receiver to M.W. and turn gang to minimum and volume control to maximum. Connect output meter across T1 secondary winding. Connect signal generator via 0.1µF isolating capacitors to the control grid (pin 2) of V3 and chassis.
- 2.—Feed in a modulated 470kc/s signal and adjust the cores of L20 (H4) and L19 (D1) for maximum output.
- 3.—Connect signal output between the control grid of V2b and chassis. Feed in a 470kc/s modulated signal and adjust the cores of L15 (G4) and L14 (C1) for maximum output. Do not readjust L20 and L19.
- 4.—With the gang at maximum capacitance check that the cursor coincides with the dots at the extreme right-hand ends of the M.W. and L.W. tuning scales.
- 5.—Loosely couple signal generator to receiver via a loop placed near to the ferrite rod aerial coil L9 (D1). Switch receiver to M.W. and tune it to the dot near the 200m calibration point. Feed in a 1,400kc/s modulated signal and adjust C25 (G4) and C18 (G4) for maximum output.

- 6.—Tune the receiver to the dot near to the 500m calibration point. Feed in a 580kc/s modulated signal and adjust L10 (G4) and the slide L9 adjusting ring along the ferrite rod aerial for maximum output.
- 7.—Repeat operations 5 and 6 until no further improvement can be obtained.
- 8.—Switch receiver to L.W. and tune it to the dot near the 1,300m calibration point. Feed in a 223kc/s signal and adjust C27 (F4) and the core of L8 (G4) for maximum output.

**F.M. Alignment**

- 1.—Switch receiver to F.M. and turn volume control to maximum. Connect output meter across T1 secondary winding. Connect F.M. signal generator via 0.01µF capacitors to V3 control grid (pin 2) and chassis. Feed in a 10.7Mc/s signal, deviated by 25kc/s, and adjust the cores of L17 (H4) and L16 (D1) for maximum output.
- 2.—Transfer signal generator via a 0.01µF capacitor to V2b control grid (pin 2) and chassis. Feed in a 10.7Mc/s signal, deviated by 25kc/s, and adjust the cores of L13 (G4) and L12 (D1) for maximum output.
- 4.—Connect signal generator via a 500pF capacitor to the junction of L3, R2 (G4). Feed in a 10.7Mc/s signal and adjust the cores of L7 (H4) and L6 (D2) for maximum output, reducing the signal generator output as necessary.

- 5.—Rotate tuning control to bring cursor to the left-hand end of the tuning scale and check that the cursor coincides with the dot on the F.M. tuning scale.
- 6.—Tune the receiver to 91Mc/s. Slacken off the locking screw on the F.M. drive drum and, without altering the position of the cursor, rotate the drum spindle in an anti-clockwise direction until the internal stop in the tuner prevents any further rotation. Tighten the drum locking screw.
- 7.—Connect F.M. signal generator to the receiver aerial sockets. Tune to 99Mc/s on scale, feed in a 91Mc/s signal, and adjust C8 (D2) for maximum output.
- 8.—Slacken off the locking screw on the F.M. drive drum and, while holding the drum spindle to keep the tuner on 91Mc/s, rotate the tuning control to bring the cursor to 91Mc/s on the tuning scale. Tighten the drum locking screw.
- 9.—Feed in a 91Mc/s signal and adjust C4 (C2) for maximum output.
- 10.—Check calibration over the band and if necessary repeat operations 5, 6 and 7.

**GENERAL NOTES**

**Switches.**—All waveband and A.M./F.M. change-over switches are ganged in a five-way slide-type switch unit actuated by "piano-key" press-buttons designated S1-S5. Switches associated with each press-button bear a suffix letter to indicate their function when the appropriate button is pressed. When a given button is pressed, those with letters a-f close, and those with w-z open. The mains "off" switch S1 is coupled with the other press-button switches by means of a trigger mechanism. On pressing button S4, for instance, S4a and S4b close, and S4z opens. Upon releasing this button by pressing another, the positions are reversed. Individual switch groups are identified in the diagram of the unit shown in cols. 4 and 5.

**A.M. Drive Cord Replacement.**—About 51 inches of nylon cord is required for a new A.M. tuning drive cord, which should be run as shown in the sketch in cols. 1 and 2, where it is drawn as seen from the front of the receiver with the gang at minimum capacitance.

To replace the tuning drive cord, turn the gang to minimum. Tie a knot in one end of the cord and anchor it in the slot provided in the gang drive drum at the end nearer to the tuning gang. Wind 2½ turns in a clockwise direction round the drum, then pass the cord over the A.M. pulleys and the control spindle as shown in the sketch. Finally wind 6½ turns in a clockwise direction round the gang drive drum, securing the end of the cord

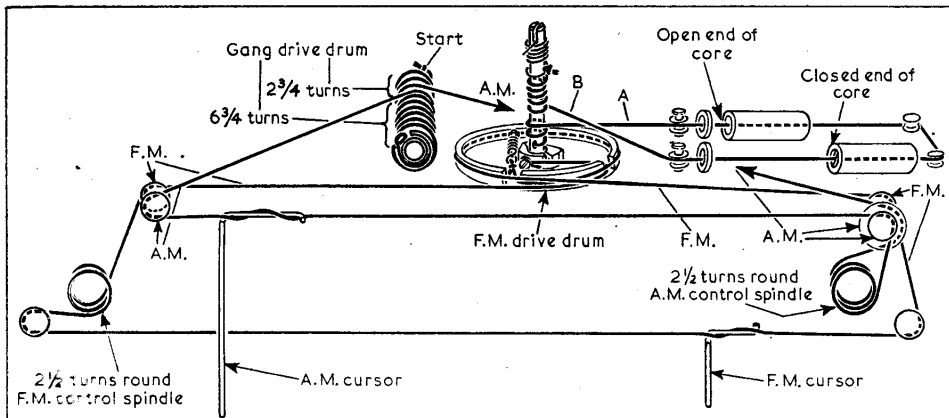
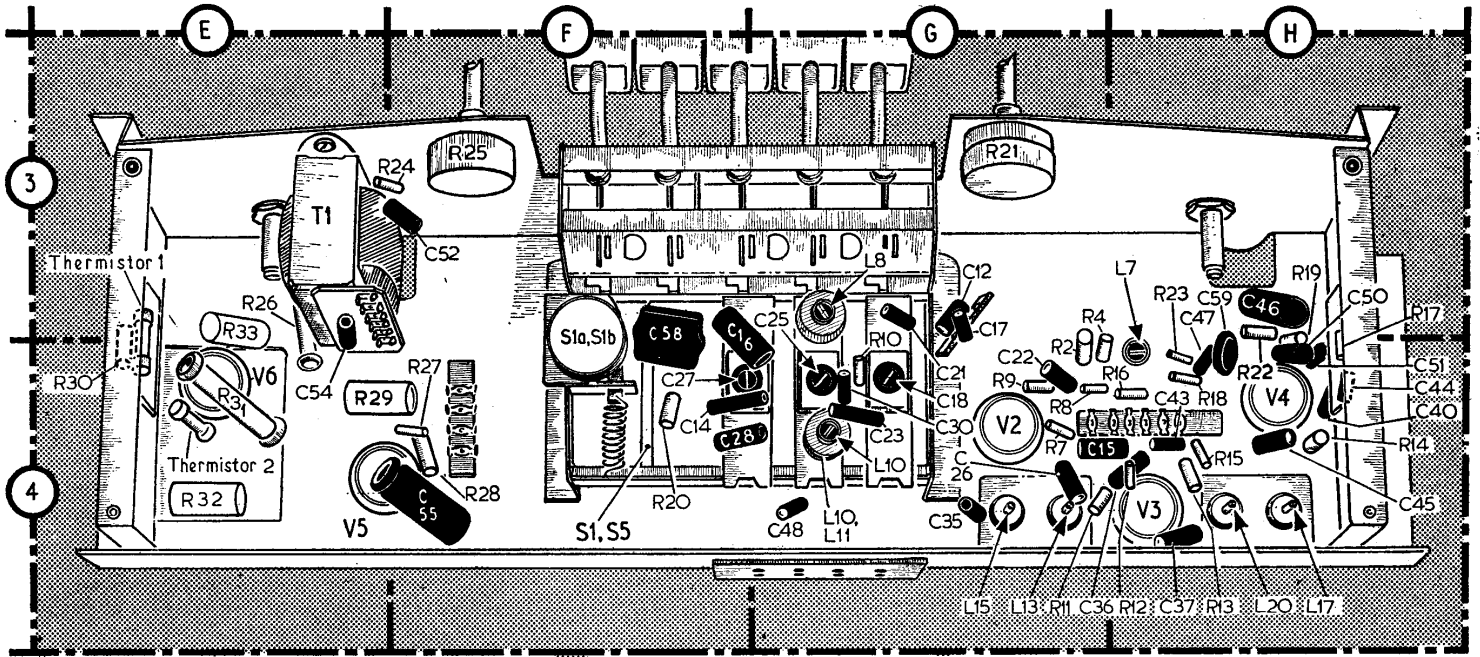


Diagram of the A.M. and F.M. tuning drive systems. To avoid confusion, the section of A.M. cord passing in front of the F.M. drive drum has been broken, and is indicated by arrows.



Underside view of the chassis. The switch unit and its contacts are situated beneath the tuning coils and trimmers in the centre of the chassis.

round the moulded peg at the front of the drum and tucking it into the groove provided. Apply a cellulose adhesive to the turn round the peg.

Fit the cursor so that, with the gang at maximum capacitance, the cursor is aligned with the marker dots at the right-hand ends of the M.W. and L.W. tuning scales. The tip of the cursor should ride on the outside of the guide loop.

**F.M. Cursor Drive Cord Replacement.**—About 51 inches of nylon cord is required for a new F.M. cursor drive cord, which should be run as shown in the sketch in cols. 1 and 2.

Turn the F.M. drive drum fully clockwise. Tie one end of the cord to the drum locking screw and pass the free end of the cord through the right-hand aperture in the drum. Then pass the cord over the F.M. pulleys and 2½ turns clockwise round the F.M. control spindle as shown in the sketch. Finally wind one complete turn in a clockwise direction round the F.M. drive drum. Attach the free end of the cord to the tension spring and anchor the spring to the moulded peg in the drum. Check that there is sufficient tension in the cord to ensure freedom from backlash.

**F.M. Tuner Drive Cord.**—Should a breakage occur in the F.M. tuner drive cord, the manufacturers recommend that the complete drive cord assembly (Part Number Z17223) should be replaced.

Thread the new cord assembly through the formers of L3 and L4, ensuring that the

tuning cores are inserted with their open and closed ends as indicated in the sketch. Pull cord "B" out to its limit and then pass cord "A" through the hole in the F.M. drive spindle. Tie a loose knot in cord "A" 1 inch beyond the drive spindle, then pull the knot up against the hole in the spindle. Slacken off the F.M. drive drum locking screw so that the spindle may be rotated separately, and turn the spindle clockwise to take up any slack in the cord.

Attach the tension spring to cord "B" at approximately 4 inches from the tuner unit pulley. Tighten the drive drum locking screw and rotate the tuning control one turn clockwise. Cord "B" may then be wound round the drive spindle in an anti-clockwise direction and the tension spring anchored in the slot at the top of the spindle as shown in the sketch. The cord must be under sufficient tension to ensure freedom from backlash.

The unit should then be realigned as described in "Circuit Alignment" (F.M.), operations 5-10. After alignment, check that with the cursor at the extreme ends of its travel, at least one turn of the cord remains round the drive spindle.

**Scale Lamps.**—These are two 12V, 0.1A lamps with a clear spherical bulb and an M.E.S. base.

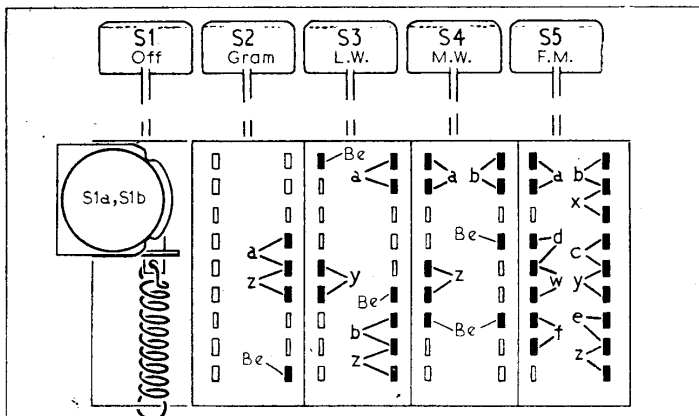
**VALVE ANALYSIS**

Valve voltages given in the table below are derived from the manufacturers' information. Voltages were measured with a model 8

Avometer, chassis being the negative connection in every case. The receiver was operating from A.C. mains of 240V with the voltage adjustment tapping set to 230-250V.

Valve	Anode (V)	Screen (V)	Cath. (V)
V1a UCC85	110	—	—
V1b UCC85	115 <sup>1</sup>	—	—
V2a UCH81	94	—	—
V2b UCH81	170	50	—
V3 UF89	160	62	—
V4d UABC80	160	70	—
V5 UL84	150	65	—
V6 UY85	74	—	—
	70	—	—
	210	180	14.0
	210	170	13.3
	—	—	250.0 <sup>2</sup>

\*Set switched to A.M.  
†Set switched to F.M.  
<sup>1</sup>Measured on 100V range with 2MΩ resistor in series with positive lead. Multiply scale reading by two.  
<sup>2</sup>Cathode current A.M., 74mA; F.M., 76mA.



Right: Two views of the F.M. tuner unit with the screening cover removed.

Left: Diagram of switches S1-S5. The coding and operation are described under "General Notes."

