



"His Master's Voice"

SERVICE MANUAL

"His Master's Voice" products are made to a standard of design and quality approved by The Gramophone Co. Ltd., registered proprietor of the trade mark

TABLE RADIO MODELS 1379 & 1381

SPECIFICATION



Model 1379

Description

Printed circuit AM/FM, table model receiver designed for AC-DC operation. The superheterodyne circuit employs six valves (including tuning indicator) and a metal rectifier for HT supply. The receiver covers Medium, Long and VHF waveranges with rotary type wavechange switching and capacitance tuning on all waveranges. Internal aerials are fitted and sockets are provided for external aerials to be connected if required. The on/off switch is combined with a continuously variable tone control.

Mains Supply

AC or DC mains, 200-250 volts (50-60 cycles per second AC).

Power consumption is approximately 50 watts.

Waverange Coverage

Medium : 187—550 Metres
 Long : 1130—1935 Metres
 VHF/FM : 87.2—101 Mc/s

Output Power

2 Watts.

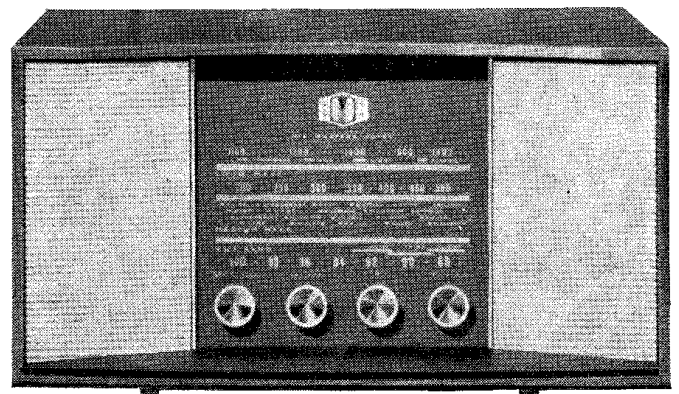
Valves

- V1 **UCC85**—FM RF amplifier and self oscillating mixer
- V2 **UCH81** { FM IF amplifier and FM audio amplifier
 { AM frequency changer
- V3 **UF89**—AM/FM IF amplifier
- V4 **UABC80**—AM/FM detector, AGC and audio amplifier
- V5 **UL84**—Audio output
- V6 **UM80**—Tuning indicator

Loudspeaker

Two permanent magnet type, 7 in. x 4 in. elliptical speech coil impedance 6Ω each parallel connected.

An extension speaker should have a speech coil impedance of 3Ω .



Model 1381

Cabinet Dimensions

Model 1379—18½" wide x 9½" high x 6½" deep.

Model 1381—19½" wide x 10½" high x 5¾" deep

BRITISH RADIO CORPORATION LIMITED (SERVICE DIVISION)

SERVICE DEPOTS :

LONDON : Eleys Estate, Angel Road, N.18 - Edmonton 3060
 BIRMINGHAM : 24 Sheepcote Street, 15 - Midland 5291

MANCHESTER : Derby Street, Cheetham 8 - Deansgate 8484
 GLASGOW : 160-162 Battlefield Rd., S.2 - Langside 9251

PRICE 1/-

ALIGNMENT DATA

The chassis is directly connected to one side of the mains supply. When connecting a signal generator into circuit, isolating capacitors of adequate working voltage must be used

CURSOR ZERO

PAD

91 Mc/s

CALIBRATION CHECK

TRIM

AM CIRCUITS

IF Alignment

Switch the receiver to MW, turn tuning gang to minimum capacitance position and volume control to maximum. Inject a 470 Kc/s modulated signal through a 0.1 uF capacitor at the grid of V2 (tags 7 and 8 on printed board, see Fig. 3) and adjust L17, L16, L15 and L14 for maximum output.

RF Alignment

MW must be aligned first. Remove the chassis from its cabinet. Use the alignment template at the side of this manual to mark the Pad and Trim points, as well as the cursor zero and calibration check points, on the scale backing plate. Set cursor to zero with the tuning gang at maximum capacitance. Inject signals via a loop loosely coupled to the ferrite-rod aerial.

Range	Frequency	Cursor Position	Adjust
MW	580 Kc/s	Pad Marker	L10, L8*
	1460 Kc/s	Trim Marker	C32, C19

*Adjust by sliding RING along aerial rod

LW	220 Kc/s	Calibration check	C88, L9†
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†Adjust by sliding COIL FORMER along aerial rod

FM CIRCUITS

IF Alignment

The following procedure is based on the use of a signal generator providing Band II coverage, also 10.7 Mc/s AM (30% modulated) and 10.7 Mc/s FM (25 Kc/s deviation) signals, at an output impedance of 75Ω. Throughout alignment the signal input to the receiver should be adjusted to maintain an audio output of about 100mW.

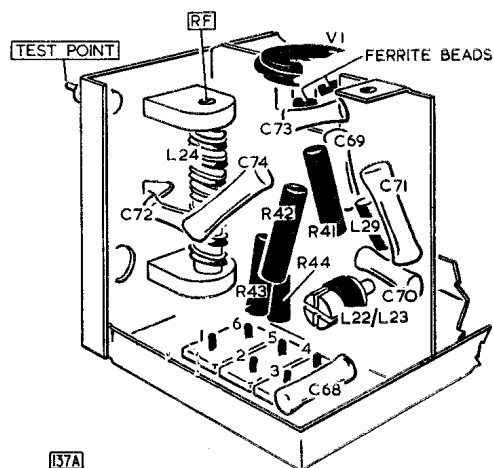
- Switch the receiver to VHF and allow to warm up for at least ten minutes. Set the Volume control 90° back from maximum and the Tone control to maximum treble.
- Inject 10.7 Mc/s FM signal via 400pF capacitor to V2 grid (Tags 7 and 8 on printed board) and adjust L18, L19, L13 and L12 for maximum output.
- AM Rejection Check
 - Switch generator to 10.7 Mc/s AM and tune L19 for minimum output.
 - Switch generator to 10.7 Mc/s FM and check that FM output has been retained.

Note: If maximum AM rejection does not coincide with maximum FM output, L19 should be tuned for maximum rejection at the expense of a slight reduction in FM output.
- Unscrew the core of L28 in the VHF tuner unit so that it protrudes from the former by approximately 3/8 in. This can be seen with unit cover in position.
- Inject 10.7 Mc/s FM signal to the tuner TEST POINT (see Fig. 1). Adjust L27 for maximum output and then peak L28.

RF Alignment

Check that the cursor coincides with the right-hand end of the scale lining with the tuning gang at maximum capacitance position.

- Adjust tuning control to set cursor to 91 Mc/s on scale.
- Inject 91 Mc/s FM signal at the aerial sockets and tune in signal by adjusting L26. If two peaks occur within the tuning range, that obtained with the core nearest the coupling winding L25 at the top end of the former must be chosen.
- Adjust L24 for maximum audio output with core towards bottom of coil former.
- Check calibration over range.



137A

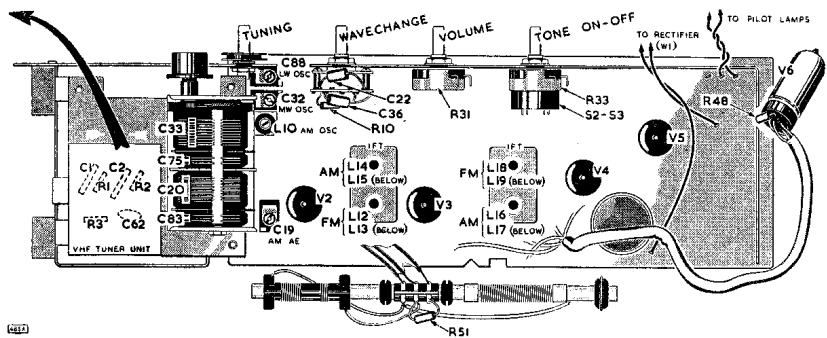
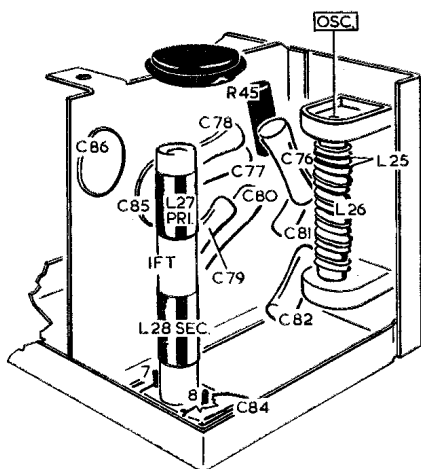
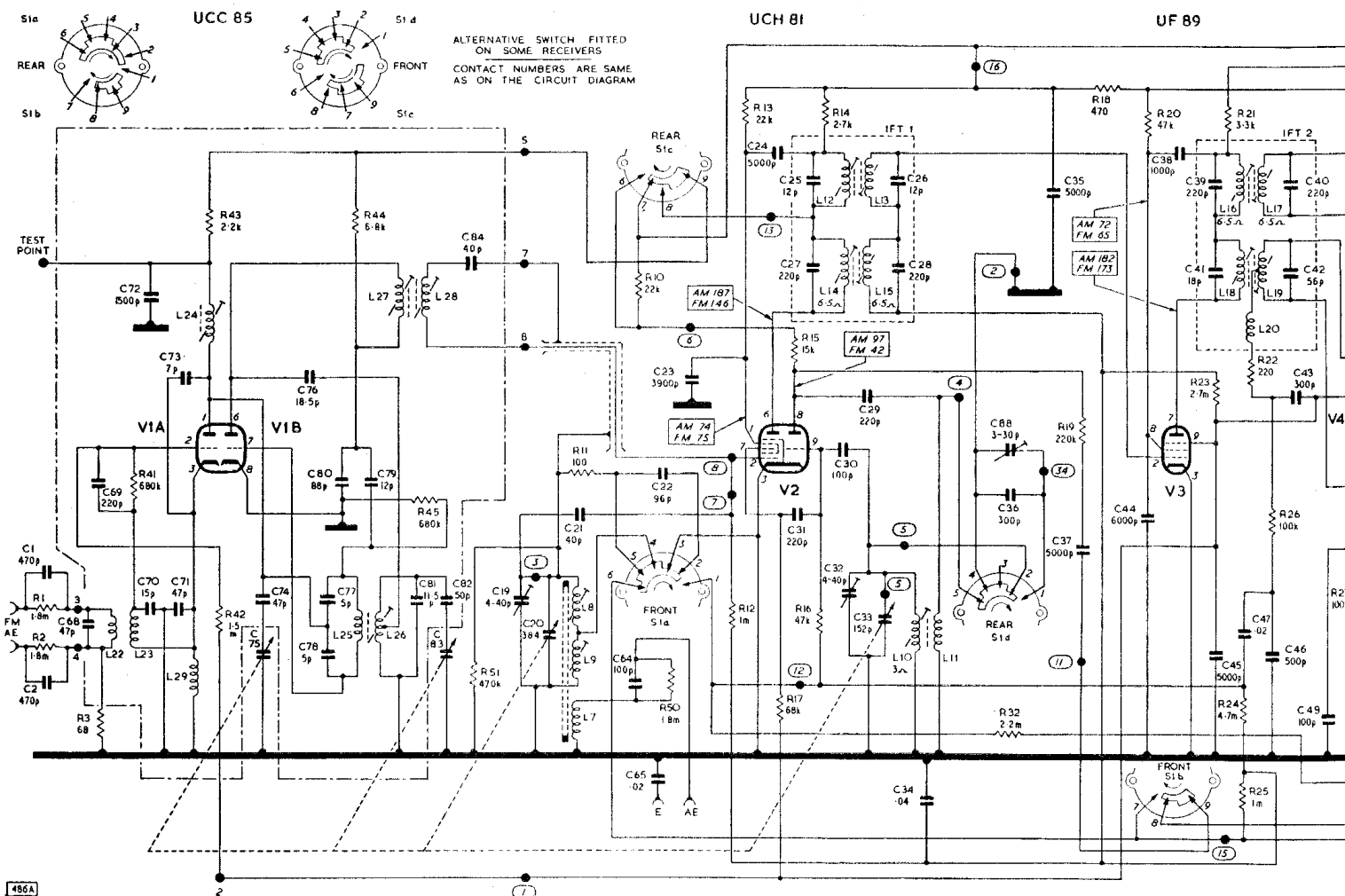


Fig. 1. VHF Tuner Unit and Main Chassis, showing trimming adjustments, etc., required for Alignment. Where practicable, components not shown in Fig. 3 are also indicated.



CIRCUIT DIAGRAM OF MODEL 1379 and 1381.—Figures adjacent to valve electrodes denote valve pin connect points (See Fig. 3). Figures in rectangles indicate voltages measured with a 20,000/Ω volt meter. DC resistances are 1Ω or greater.

CIRCUIT NOTES

V2 TRIODE SECTION

FM, operating as audio amplifier: FM audio feed from C47 through R16 to triode grid. C29 in anode circuit is earthed, short circuiting oscillator feedback coil L11 through S1d (Contacts 5 and 4), and functions as an RF bypass. The audio voltage developed across R10 in series with R15, which comprise the anode load, is applied through R19, C37, S1b (Contacts 9 and 8) to volume control R31.

AM, operating as a tuned grid oscillator: Oscillator grid leak R16 is earthed through S1a (Contacts 1 and 3). R10 is shorted out by S1c (Contacts 7 and 6) and HT is fed through R15 to oscillator anode. As S1d (Contacts 4 and 5) are open circuited, feedback coil L11 is coupled to the oscillator anode by C29. C37 is disconnected from R31 (volume control) by S1b (Contacts 9 and 8) and R31

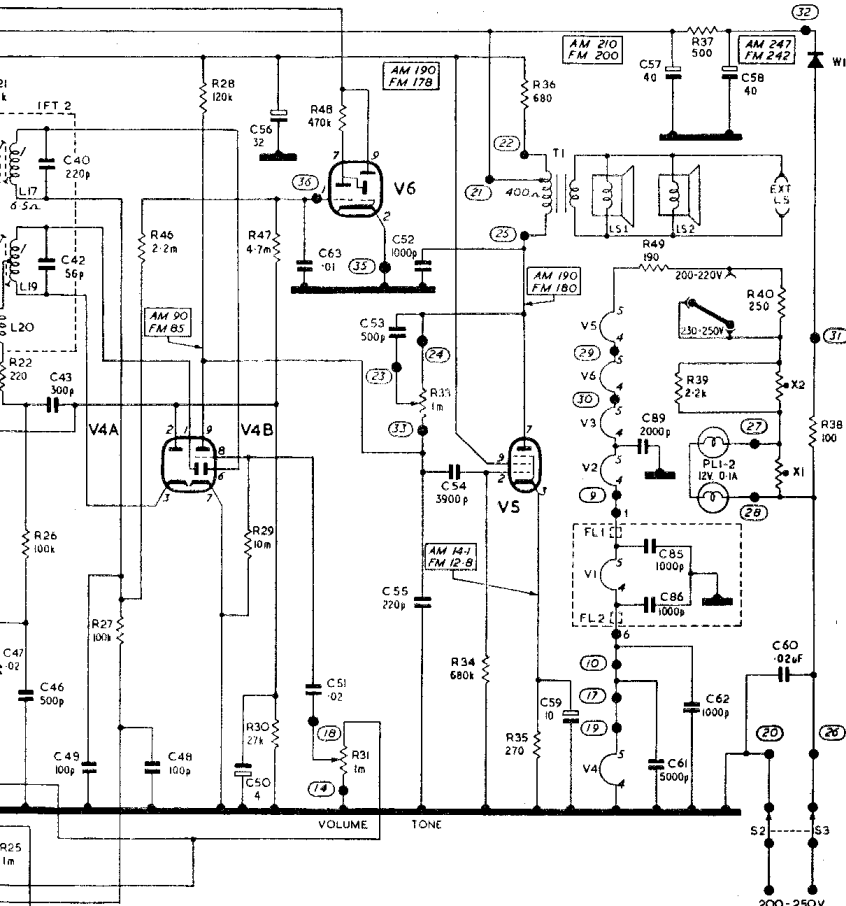
connected through S1b (Contacts 7 and 8) into the AM detector circuit.

AUTOMATIC GAIN CONTROL

FM—AM AGC line is shorted out by S1a (Contacts 6 and 3) connecting R25 to earth in parallel with C34. This provides grid current bias to V2 and V3 control grids. To improve control, the voltage across stabilizing capacitor C50 of the ratio detector circuit is also applied to V1a via R42, V2 injector grid (pin 7) through R17 and direct to V3 suppressor grid (pin 9). A fraction of this voltage is also applied to V2 and V3 control grids by R23.

AM—Conventional system from diode load R31 (volume control) through R25, R12.

UABC 80 UM 80 UL 84



WAVECHANGE SWITCHES ARE SHOWN IN FM POSITION
SWITCHES VIEWED FROM REAR

connections. Ringed figures show printed board connecting
DC resistance readings are shown against inductances where

PRINTED BOARD COMPONENT LOCATIONS

CAPACITORS		RESISTORS		TAGS	
C19	A2	R12	A2	1	A1
C21	A2	R13	A2	2	A1
C23	A2	R14	A2	3	A2
C24	A2	R15	A1	4	A1
C25	A2	R16	A2	5	A1
C26	A2	R17	A1	6	A1
C27	A1	R18	B2	7	A2
C28	A1	R19	A1	8	A2
C29	A2	R20	B2	9	A2
C30	A1	R21	B2	10	A2
C31	A2	R22	B1	11	A1
C32	A1	R23	A1	12	A1
C34	B1	R24	A1	13	A1
C35	B2	R25	A1	14	B1
C37	A1	R26	B1	15	B1
C38	B2	R27	B1	16	A2
C39	B2	R28	C1	17	B2
C40	B2	R29	C2	18	B1
C41	B1	R30	B1	19	B2
C42	B1	R34	C1	20	C1
C43	B1	R35	C2	21	B2
C44	B1	R36	B2	22	B2
C45	B1	R37	B2	23	B2
C46	B1	R38	C1	24	C1
C47	B1	R39	C2	25	C1
C48	B1	R40	C2	26	C1
C49	B2	R46	B1	27	C1
C50	B1	R47	B1	28	C1
C51	B1	R49	C1	29	C1
C52	C1			30	B2
C53	C1			31	C1
C54	C1			32	C2
C55	C2			33	B1
C56	C2			34	A1
C57	C2			35	B1
C58	C2			36	B1
C59	C2				
C60	C1				
C61	A2				
C63	B1				
C88	A1				
C89	A2				

INDUCTORS		VALVES	
L10	A1	V2	A2
L11	A1	V3	B2
L12	A2	V4	B2
L13	A2	V5	C1
L14	A1		
L15	A1		
L16	A1		
L17	A1		
L18	A1		
L19	B1		
L20	B2		

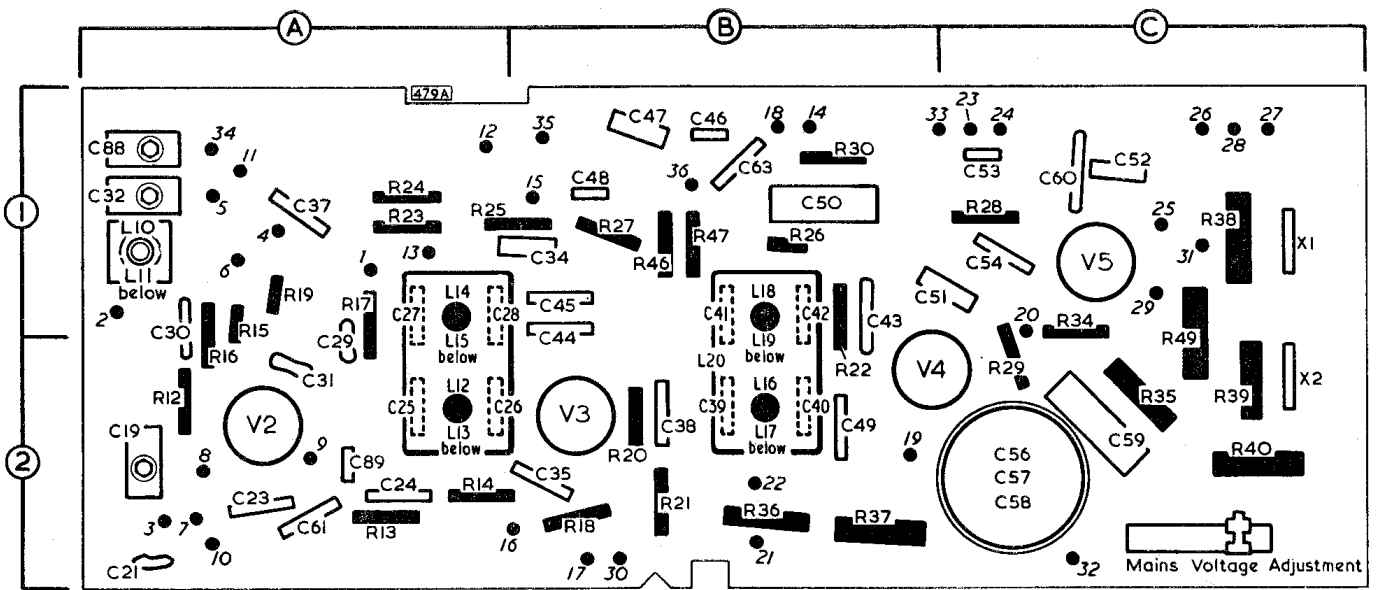


Fig. 3. Printed Board Component Locations.

SERVICE NOTES

Chassis Removal

- (1) Pull off control knobs and remove cabinet back (six self tapping screws).
- (2) Remove aerial/earth panel (two screws), FM aerial and speaker earthing lead to panel (on speaker retaining bolt).
- (3) Release chassis fixings as shown in Fig. 4.
- (4) Remove ferrite aerial bracket (two screws) and tuning indicator valve.
- (5) Unplug three leads to output transformer (note order for refitting).
- (6) The chassis is now free to be removed. When replacing, the mains lead should be arranged as indicated in Fig. 4 to ensure flush fitting of the cabinet back.

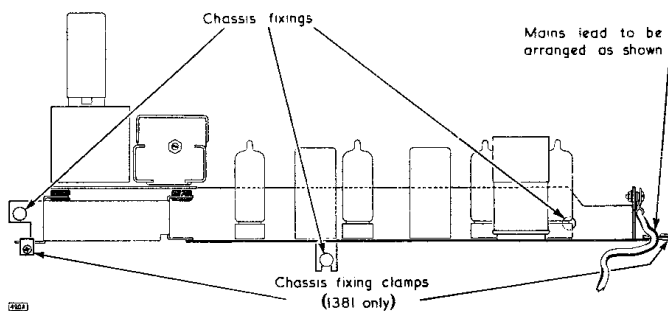


Fig. 4. Chassis Fixing

Printed Panel Servicing

When servicing the printed circuit panel, it must be remembered that excessive heat can loosen the bond between the copper conducting circuits and the insulating board. Special care must be exercised when soldering connections to the "wiring" side of the panel. When replacing a resistor or capacitor, cut out the faulty component so that as much as possible of the original lead-out wires remain so that these may be used as connections to the new component, thus avoiding whenever possible, soldering to the printed conductors. Use a small low-consumption iron and do not apply the bit for longer than is necessary to produce a sound joint.

The electrolytic C56/C57/C58 is secured on the panel by means of clip lugs which also make electrical connections to the printed circuit. Use a heavier type iron to remove this component, applying heat and pressure to the lugs and not to the printed circuit so that when the solder melts, the lugs are pressed clear of their connecting points. A small stiff-haired brush will sometimes assist in breaking these connections.

If a section of the printed conductor becomes damaged or fused, scrape off the damaged portion and restore the connection with a jumper wire on the component side of the panel. Whenever the necessity arises, however, to solder directly to a printed conductor, use a 60:40 resin-cored solder and make the joint as quickly as possible to avoid overheating. **Do not use a corrosive type flux.**

DRIVE CORD ARRANGEMENT Viewed from front of chassis. Tuning gang in fully closed position.

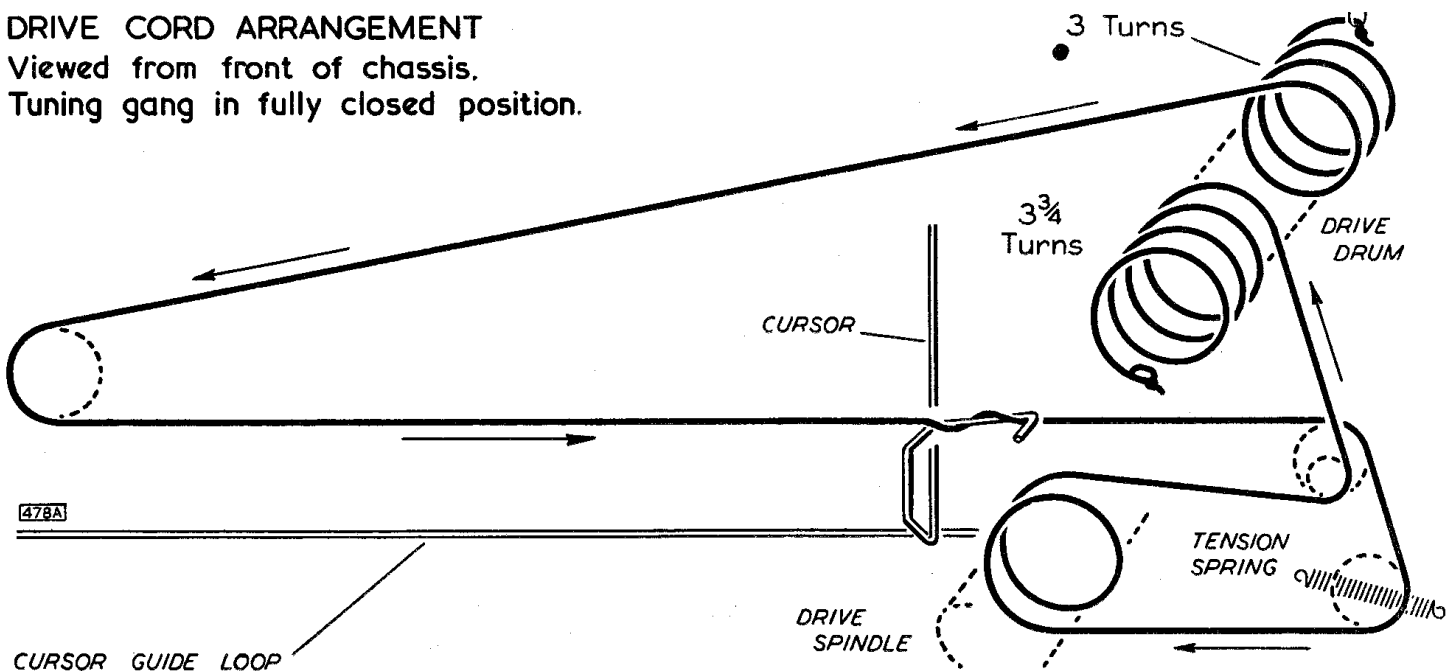


Fig. 5. The arrangement of the Tuning Drive Cord. Approximately 72 inches of nylon braided cord are required

CAPACITORS

All 20% 350V DC working unless otherwise stated

Ref.	Value	Remarks	Function and Part No.	
C 1	470pF	400V AC } 400V AC }	Aerial isolating (FM)	
C 2	470pF			
C19	4.40pF	Trimmer	MW aerial tuning 25547	
C20	384pF	Variable	Aerial tuning 32687	
C21	40pF	5%	Part L28 tuning	
C22	140pF*	2%	LW aerial tuning	
C23	3900pF	}	V2 heptode neutralizing	
C24	5000pF			
C25	12pF	}	L12 tuning	
C26	12pF		L13 tuning	
C27	220pF		L14 tuning	
C28	220pF		L15 tuning	
C29	220pF		V2 anode oscillator coupling	
C30	100pF	}	V2 oscillator grid coupling	
C31	220pF		V2 oscillator output coupling	
C32	4.40pF	Trimmer	MW oscillator trimmer 25547	
C33	152pF	Variable	AM oscillator tuning 32687	
C34	.04uF	}	AM AGC decoupling—FM limiting	
C35	5000pF		V1, V2 HT decoupling	
C36	300pF	2%	LW oscillator tuning	
C37	5000pF		V2 triode output coupling	
C38	10000pF	}	V3 neutralizing	
C39	220pF		L16 tuning	
C40	220pF	}	L17 tuning	
C41	18pF		L18 tuning	
C42	56pF	}	L19 tuning	
C43	300pF		FM IF bypass	
C44	6000pF	5%	V3 neutralizing	
C45	5000pF		V3 suppressor grid decoupling	
C46	500pF	}	FM IF bypass and de-emphasis	
C47	.02uF		Audio coupling to V2 (FM)	
C48	100pF	}	AM IF Filter	
C49	100pF		Elec. 100V	Ratio detector stabilizing
C50	4uF	V4B grid coupling		
C51	.02uF	}	Tone correction and RF bypass	
C52	1000pF		Part tone control	
C53	500pF	}	V5 grip coupling	
C54	3900pF		Part tone control	
C55	220pF	Elec. 275V }	HT smoothing	
C56	32uF			275V }
C57	40uF	Elec. 275V }	HT reservoir	
C58	40uF			25V }
C59	10uF	Elec. 350V AC }	V5 cathode bypass	
C60	.02uF		Mains RF bypass	
C61	5000pF	}	Heater RF bypass	
C62	1000pF		V6 grid decoupling	
C63	.01uF	3KV	Aerial isolating (AM)	
C64	100pF		Earth isolating	
C65	.02uF	}	L22 tuning	
C68	47pF		5%	V1A grid coupling
C69	220pF	}	L23 tuning and part V1 neutralizing	
C70	15pF		5%	V1A HT decoupling
C71	47pF	5%	V1A neutralizing	
C72	1500pF	}	VHF amplifier padder	
C73	7pF		±1/2pF	VHF amplifier tuning 32687
C74	47pF	5%	Oscillator feedback coupling	
C75	Variable	}	Oscillator/mixer signal injection	
C76	18.5pF		±2 1/2pF	V1B IF/Mixer feedback
C77	5pF	±1/2pF	}	Part oscillator tuning
C78	5pF	±1/2pF		Oscillator padder
C79	12pF	2 1/2%	}	Oscillator tuning 32687
C80	88pF	2 1/2%		Part L28 tuning
C81	12pF	2 1/2%	}	V1 heater decoupling
C82	50pF	5%		LW oscillator trimmer
C83	Variable	}	Heater RF bypass	
C84	40pF		5%	
C85	1000pF	}		
C86	1000pF		Trimmer	
C88	4.40pF	}		
C89	2000pF			

*C22 96pF in schedule A production.

MISCELLANEOUS

Ref.	Description	Part No.
FL1	} Ferrite beads	34759
FL2		
LS1	} Elliptical 7" x 4" 6Ω speech coil	16031/2
LS2		
PL1	} Pilot lamps 12V 0.1A	33774
PL2		
Sl1a	} Wavechange switch	29422/3
Sl1b		
Sl1c		
Sl1d		
S2	} Mains on/off	13162/1
S3		
W1	} Metal rectifier E250 C85	25420
X1		
X2	} Thermistor V1010	4558/7

The manufacturers reserve the right to vary specifications or use alternative materials as may be deemed necessary or desirable at any time

RESISTORS

All 20% 1/4W carbon unless otherwise stated

Ref.	Value	Remarks	Function and Part No.
R 1	1.8MΩ	}	Aerial discharge (FM)
R 2	1.8MΩ		
R 3	68Ω		
R10	22KΩ	10%	1W FM aerial load
R11	100Ω	}	Part V2 triode anode load
R12	1MΩ		RF damping
R13	22KΩ	10%	V2 heptode grid leak
R14	2.7KΩ	10%	V2 screen grid feed
R15	15KΩ	10%	V2 heptode anode feed
R16	47KΩ	10%	Part V2 triode anode load
R17	68KΩ	10%	Oscillator grid leak (AM) and grid stopper (FM)
R18	470Ω	}	V2 heptode AGC feed (FM)
R19	220KΩ		V1, V2 HT feed
R20	47KΩ	10%	V2 triode audio coupling
R21	3.3KΩ	}	V3 screen grid feed
R22	220Ω		V3 anode feed
R23	2.7MΩ	10%	Ratio detector tertiary series
R24	4.7MΩ	}	V3 FM AGC feed
R25	1MΩ		Part FM AGC
R26	100KΩ	}	AM AGC feed
R27	100KΩ		FM IF filter
R28	120KΩ	10%	AM IF filter
R29	10MΩ	}	V4B triode anode load
R30	27KΩ		V4B grid leak
R31	1MΩ	10%	Ratio detector load
R32	2.2MΩ	Log. Pot.	Volume control 13162
R33	1MΩ	Inv. Log. Pot.	V2 triode section negative feedback 13162/1
R34	680KΩ	}	Tone control
R35	270Ω		V5 grid leak
R36	680Ω	10%	V5 cathode bias
R37	500Ω	10%	} HT smoothing
R38	100Ω	5%	
R39	2.2KΩ	5%	3W HT surge limiter
R40	250Ω	10%	3W X2 shunt
R41	680KΩ	5%	3W Mains dropper
R42	1MΩ	}	V1A grid leak
R43	2.2KΩ		V1A AGC feed
R44	6.8KΩ	}	V1A HT feed
R45	680KΩ		V1B HT feed
R46	2.2MΩ	}	V1B grid leak
R47	4.7MΩ		Tuning indicator feed (AM)
R48	470KΩ	}	Tuning indicator feed (FM)
R49	190Ω		5%
R50	1.8MΩ	}	Mains dropper
R51	470KΩ		10%
			Ferrite rod aerial damping

INDUCTORS AND TRANSFORMERS

Ref.	Description	Part No.
L 7	AE coupling coil	} Ferrite rod Model 1379—33721
L 8	MW winding	
L 9	LW winding	} aerial Model 1381—33721/1
L10	MW LW oscillator tuning	
L11	MW LW oscillator feedback	} 25829
L12		
L13	2nd FM IFT	} 25834
L14		
L15	1st AM IFT	} 25810
L16	2nd AM IFT	
L17		} 25810
L18		
L19	Ratio detector transformer	}
L20		
L22	VHF AE input transformer	29232
L23		} 25835
L24	VHF amplifier tuning	
L25	VHF oscillator feedback	} 29230
L26	VHF oscillator tuning	
L27		} 29233
L28	1st FM IFT	
L29	RF choke	29280
T 1	Audio output transformer	25486

SPARE PARTS LIST

Description	Part No.
Cabinet :	
Model 1379	32397
Model 1381	33278
Cabinet back :	
Model 1379	32574
Model 1381	33268
Control knobs :	
Tone, Tuning	} 32916
Volume	
Wavechange	32916/1
Spring Clip	47409
Cursor	32817
Drive Drum (Spring Clip 37309)	32596
Lampholder	13308
Mains Voltage Selector	29343
Scale :	
Model 1379	32578
Model 1381	33279
Scale Reflector	32595