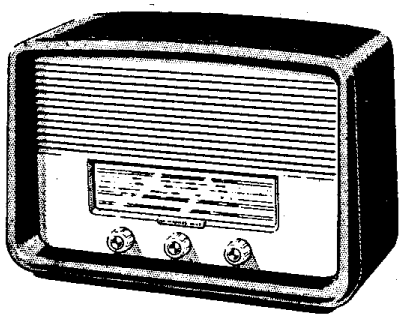
"HIS MASTER'S VOICE"

SERVICE MANUAL

5 VALVE SUPERHET TABLE RECEIVER FOR D.C./A.C. MAINS



MODEL 1360

MADE IN ENGLAND

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MODEL 1360

SPECIFICATION

Physical

Height	$11\frac{1}{2}$ inches	Approx. Overall.
Depth	8 inches	
Length	$16\frac{3}{4}$ inches	
Weight	$14\frac{1}{2}$ lb.	

Mains Supply

190—255 volts D.C. or A.C. 40 to 100 cycles.

Consumption

45 watts approximately.

Rated Output

2 watts maximum.

Intermediate Frequency

470 kc/s.

Wave Ranges

S.W.	16·3—51·7 metres (18·4—5·8 Mc/s).
M.W.	187—575 metres (1,602—522 kc/s).
L.W.	900—2,000 metres (333—150 kc/s).

Scale Lamps and Fuses

Two 5-volt, 0·15 amp. scale lamps.

Two 500 mA, Cartridge type fuses.

Valves

V1	X142	Frequency changer
V2	W142	I.F. amplifier
V3	DH142	Detector, A.G.C. Rectifier and A.F. amplifier
V4	N142	Output Amplifier
V5	U142	H.T. Rectifier
V6	101	Barretter (later models only)

Loudspeaker

7-inch permanent magnet elliptical cone loudspeaker. The speech coil has a D.C. resistance of 4 ohms and an impedance of 5 ohms at 1,000 cycles.

INSTALLATION

Aerial

Frame and plate internal aerials are provided for reception of local stations on the Long, Medium and Short wavebands.

If improved Short Wave reception is desired or in difficult reception circumstances, i.e., in areas of strong electrical interference, or in a steel framed building and wherever maximum sensitivity is required an external aerial must be used.

Erect a high outside aerial 60 to 80 feet total length (including down lead) as far as possible from buildings and trees and point the aerial towards any potential source of interference. A lightning arrester or switch should be fitted and the aerial must be well insulated from all grounded objects.

Signal Earth

A good earth connection should be provided to increase the efficiency of the aerial circuit. A copper plate or rod buried about three feet deep in moist ground provides the best earth. Alternatively, connection can be made to a rising water main. Do not use a gas pipe, telephone earth or a hot water pipe as an earth.

Mains Supply

The receiver will operate on D.C. or A.C. mains supplies of 190 to 255 volts, 40 to 100 cycles.

On early production models the voltage range is covered in three stages, i.e., 190—215, 216—235 and 236—255 volts, and it is important that the Voltage Adjustment Screw at the rear of the instrument is inserted in the correct position.

On later production a Barretter is employed and in this case no voltage adjustment is required.

DISMANTLING

Disconnect the instrument entirely from the mains supply.

Complete access to the chassis can be gained by removing the card back and underside cover (4 screws).

The chassis complete with baffle board and escutcheon may be withdrawn by removing the tone control knob and the six bolts securing the baffle board to the cabinet moulding.

I.F. AND R.F. ALIGNMENT

General

If the I.F. circuits have been disturbed, complete I.F. and R.F. alignment must follow.

The oscillator tracks at a higher frequency than the signal on all wavebands.

Whilst aligning, the input to the receiver must be progressively reduced as the circuits are brought into line so that the output does not exceed 500 mW (approx. 1·58 volt across the speech coil). An A.C. voltmeter (rectifier type) connected across the speech coil may be used as an output meter.

If it is found that the iron-dust core in the R.F. and I.F. coils have become locked and are unadjustable, they should be freed by the very careful application of one or two drops of high grade penetrating oil. The use of a small pointed brush to direct the oil on to the core will prevent the oil from spreading.

I.F. Alignment

Set the Waveband Switch to M.W., the Gang Capacitor to minimum capacity (anti-clockwise), the Volume Control to maximum (clockwise) and the Tone Control to minimum (anti-clockwise).

1. Inject a modulated signal of 470 kc/s. via a 0·1 μF capacitor into the grid of V1 (pin 6) and signal earth socket.

2. Adjust cores of L14, L13, L12 and L11 in that order for maximum output.

3. Repeat operation 2 until no further improvement can be obtained.

R.F. Alignment

Medium Waves

Set Volume Control fully clockwise, Tone Control fully anti-clockwise and Waveband Switch to M.W. Inject test signal into the aerial and signal earth sockets via M.W. dummy aerial.

Op. No.	Set Test Oscillator to kc/s.	Metres.	Set Gang Capacitor.	Operation.
1	522	575	Almost maximum	Adjust L7 for maximum output.
2	1,602	187	Almost minimum	Adjust TC5 for maximum output.
3	588	510	Tune in	Adjust L3 for maximum output.
4	1,427	210	Tune in	Adjust TC3 for maximum output.
5	—	—	—	Repeat operations 1 to 4.

Long Waves

Controls as before but with Waveband Switch to L.W. Long Wave dummy aerial to be used.

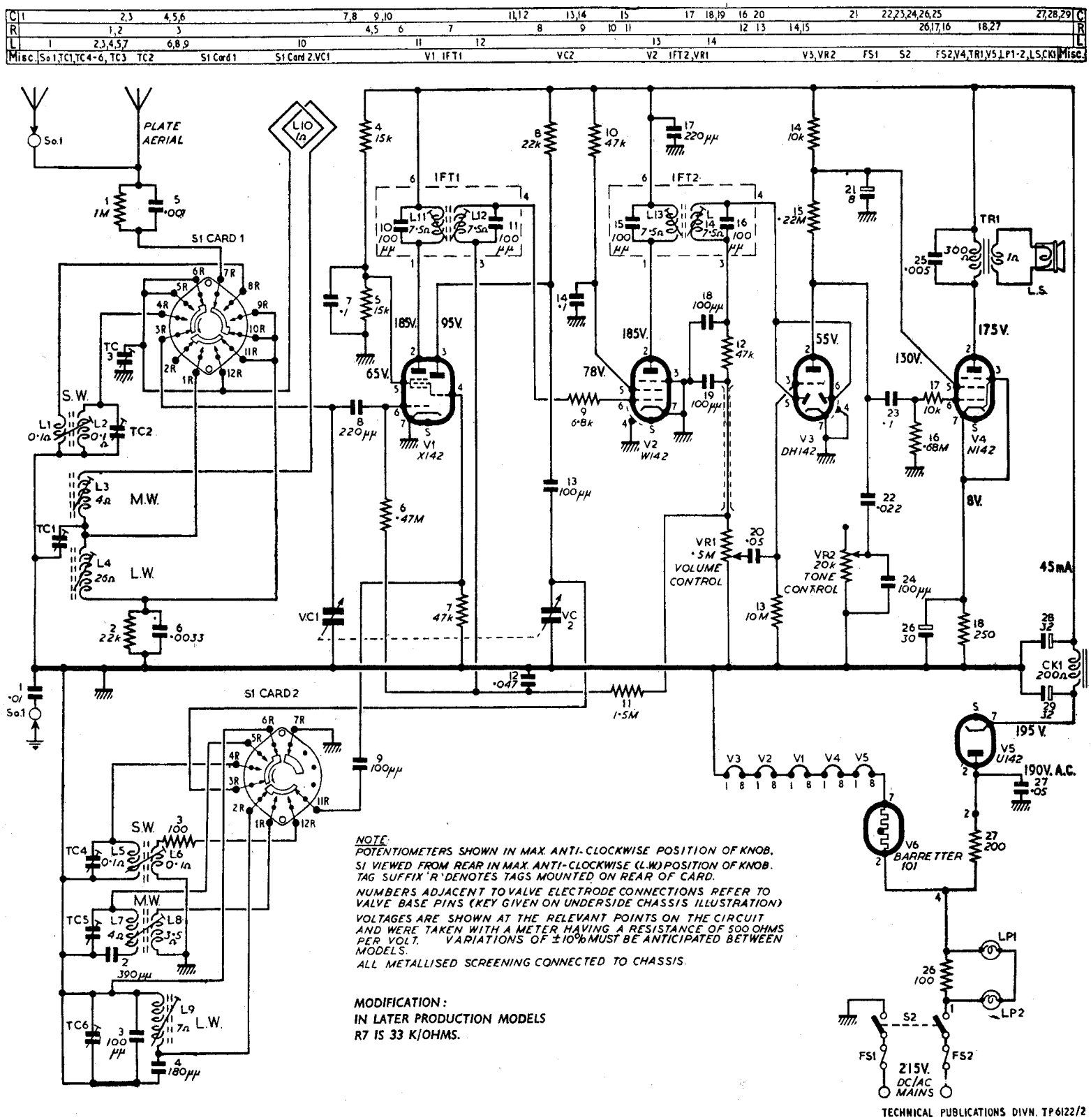
Op. No.	Set Test Oscillator to kc/s.	Metres.	Set Gang Capacitor.	Operation.
1	150	2,000	Almost maximum	Adjust L9 for maximum output.
2	333	900	Almost minimum	Adjust TC6 for maximum output.
3	162	1,852	Tune in	Adjust L4 for maximum output.
4	300	1,000	Tune in	Adjust TC1 for maximum output.
5	—	—	—	Repeat operations 1 to 4.

Short Waves

Controls as before but with Waveband Switch to S.W. Short Wave dummy aerial to be used.

Op. No.	Set Test Oscillator to Mc/s.	Metres.	Set Gang Capacitor.	Operation.
1	5·8	51·7	Almost maximum	Adjust L5 for maximum output.
2	18·4	16·3	Almost minimum	Adjust TC4 for maximum output.
3	6·0	50·0	Tune in	Adjust L2 for maximum output.
4	17·8	16·85	Tune in	Adjust TC2 for maximum output.
5	—	—	—	Repeat operations 1 to 4

Note.—When adjusting TC4 take care to avoid the image channel, i.e., when TC4 is adjusted from the underside of the chassis the first peak from the fully "screwed in" position should be taken as being the correct one.



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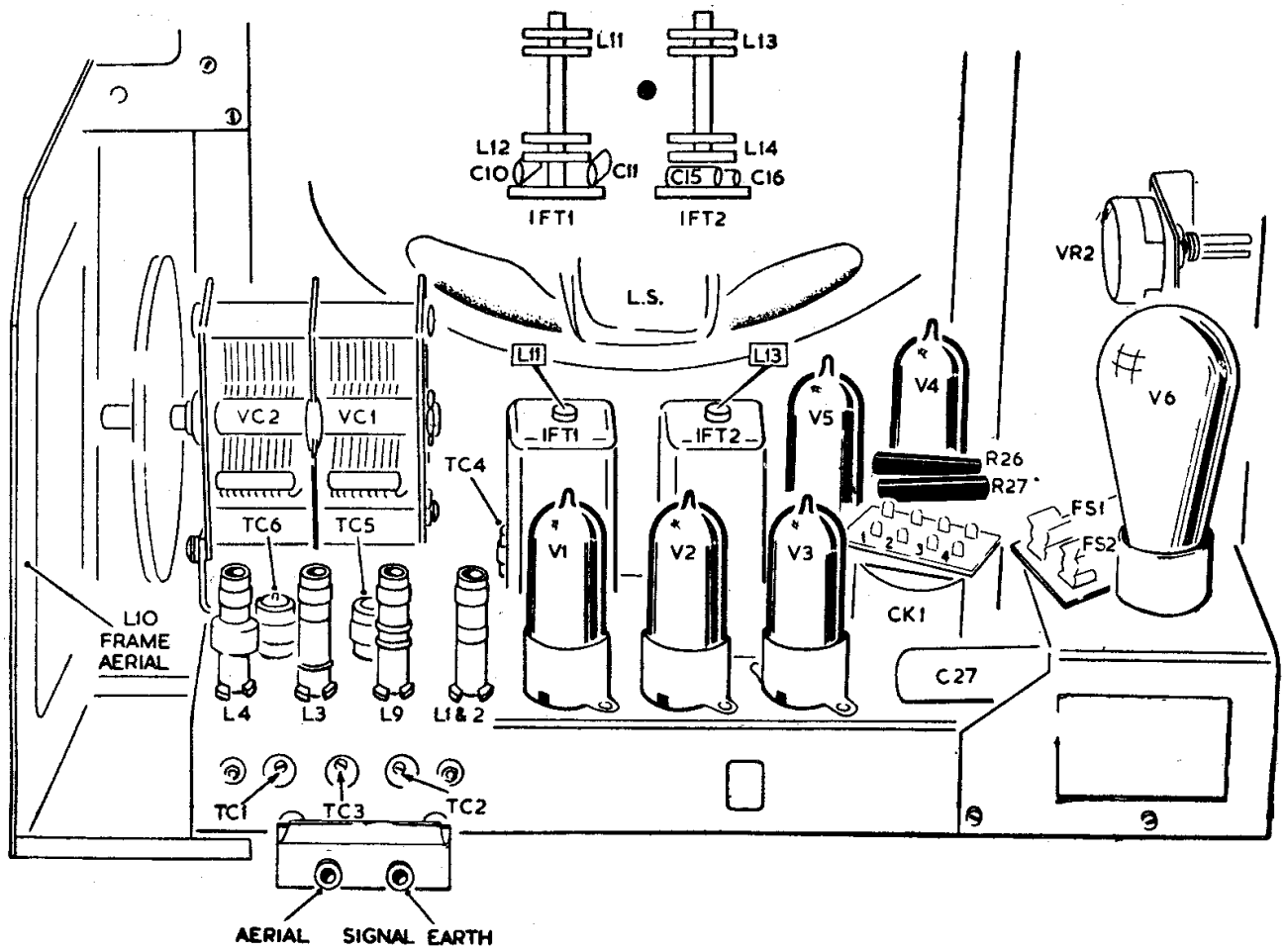
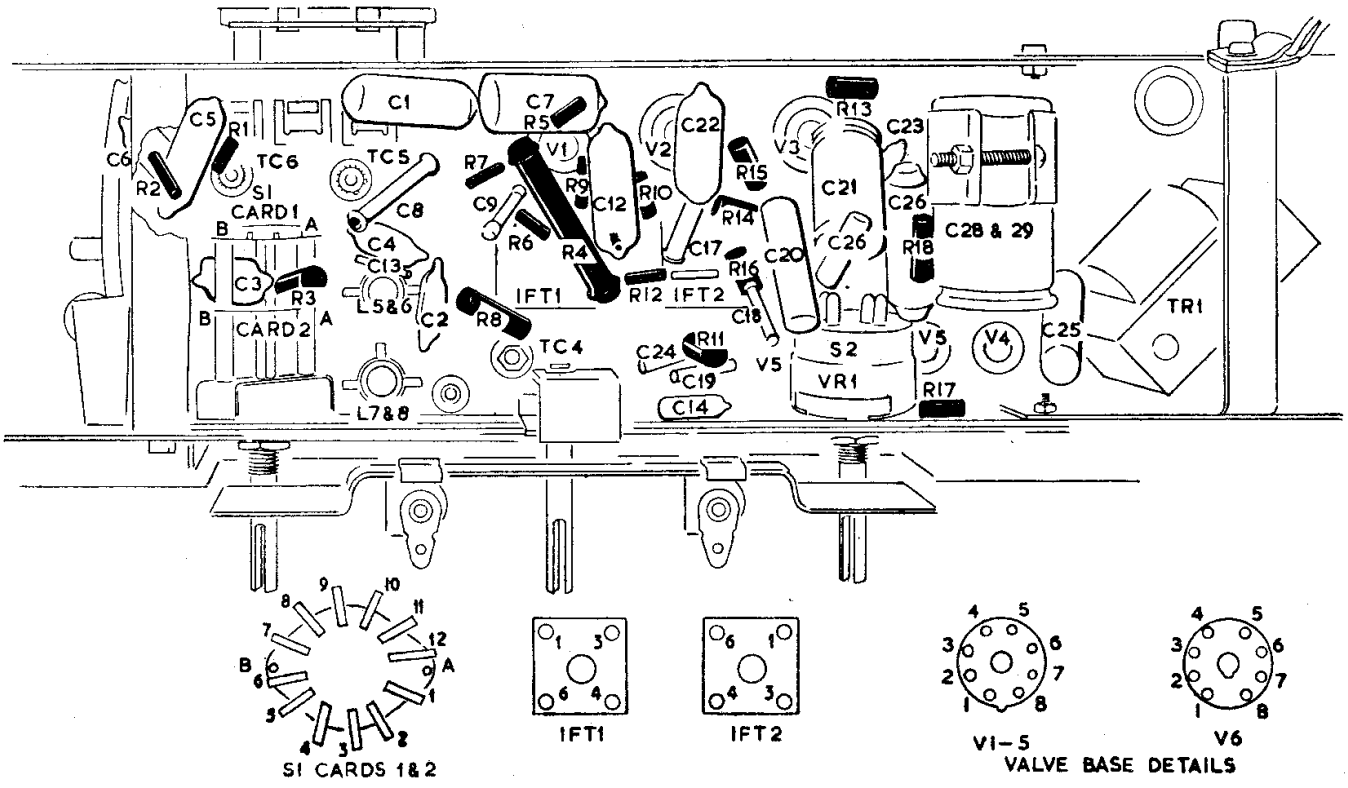


CHASSIS TOPSIDE VIEW



CHASSIS UNDERSIDE VIEW

CALIBRATION

Before replacing the chassis in the cabinet, check the calibration at about the centre of the wave scale on each waveband. Adjust pointer to provide a compromise if necessary.

TUNING CAPACITOR CORD DRIVE

Use only the specified nylon cord 6370 x 0012. Approximately 67 inches of cord is used.

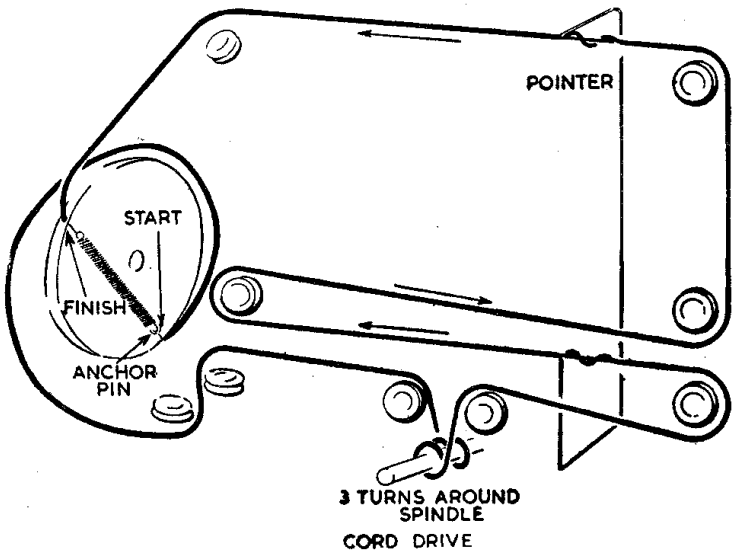
1. Form a loop at one end of the cord and pass the loop through the hole (nearest the anchor pin) in the periphery of the drum.

2. Fix the loop on to the anchor pin.

3. Wind the cord on to the pulleys as shown in the illustration and pass the end of the cord through the other hole in the drum periphery.

4. Attach this end of the cord to one end of the spring and fix the free end of the spring on to the anchor pin.

5. The knots, to prevent slipping, should be sealed with shellac.



EARLY VERSIONS

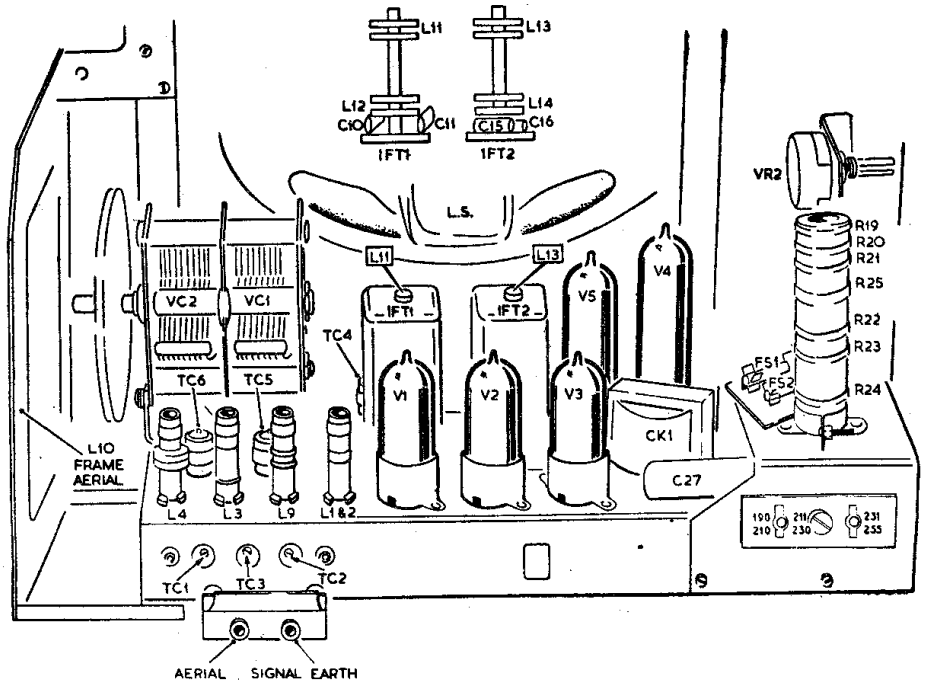


FIG. A.

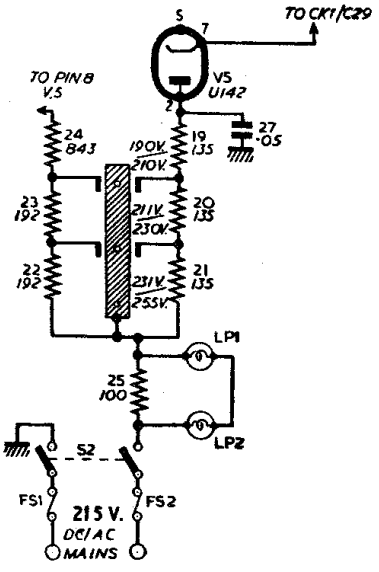


FIG. B

On some early production models a mains dropping resistor was used in place of the barretter (V6). Figs. A and B above show the topside chassis view and the circuit arrangement respectively. The components of the underside chassis view (page 5) will not be affected.

SPARE PARTS LIST

Part No.	Description of Part	No. per Inst.
	INSTRUCTIONS	
49590	Instruction Card	1
49591	Cabinet Label	1
49615	Knob Identification Label	1
	CABINET FITTINGS	
92093D	Cabinet Shell with insert nuts, feet and transfer	1
92321	Rubber Feet only	4
1950	Transfer (Trade Mark) only	1
92319	Clips for holding cabinet back	4
92327B	Cabinet Back	1
44027	P.K. Screws } securing back to clips	4
1016	Washers } securing back to clips	4
92092C	Front Louvred Escutcheon	1
200042N	Screws—securing	4
201304	Plain Washers } Escutcheon to vertical bearers	8
201804	S.P. Washers } Escutcheon to vertical bearers	4
200404	Nuts } Escutcheon to vertical bearers	4
92322A	R.H. Vertical bearer (with felt)	1
92322B	L.H. Vertical bearer (with felt)	1
44043	Screws—securing bearers to baffle board	4
420301A	Baffle Board with insert nuts and aluminium faced paper	1
40689	Insert nuts only	4
420398	Aluminium faced paper only	1
200045M	Screws } securing baffle board to cabinet	6
201304	Plain washers } securing baffle board to cabinet	6
201504	Spring washers } securing baffle board to cabinet	6
92303	Studs } securing baffle board to chassis and upright	4
201304	Plain washers } securing baffle board to chassis and upright	4
201504	Spring washers } securing baffle board to chassis and upright	4
200404	Nuts } securing baffle board to chassis and upright	6
201804	S.P. Washers } securing baffle board to chassis and upright	2
200504	Locknut } securing baffle board to chassis and upright	1
901344	Cotton Bag (for mains lead, etc.)	1
	CHASSIS ASSEMBLY	
92300N	Chassis complete with valves, components, etc. Early models only. (Fitted with mains dropper resistor)	1
92300F	Chassis—complete, with valves, components, etc. Later models only. (Fitted with a barretter)	1
	For studs, screws, etc., securing chassis to baffle board, see Baffle Board, under "CABINET FITTINGS"	
91245	Chassis Straps—under end of chassis	2
200040D	Screws—Round Head } Securing straps to chassis	3
200048D	Screws—Cheese Head } Securing straps to chassis	2
201804	S.P. Washers } Securing straps to chassis	5
92303	Stud } Securing straps to chassis	1
	CONTROL KNOBS	
92258C	Knob—"VOLUME—ON/OFF"	1
92258C	Knob—"TUNE"	1
92258D	Knob—"WAVECHANGE"	1
92318	Knob—"TONE"	1
11805	P.K. Screws—securing knobs	4

Part No.	Description of Part	No. per Inst.
	TUNING DETAILS	
92326A	Tuning Scale	1
7642 x 0327	Rubber strips (in bulk)	30in.
91327	Clips } securing scale to escutcheon	4
200040F	Screws } securing scale to escutcheon	4
92296	Diffuser	1
92323	Clamp Plates } securing diffuser	4
12619	P.K. Screws } securing diffuser	4
92310	Pointer	1
6370 x 0012	Drive Cord (in bulk)	67in.
92304B	L.H. Upright with two pulleys and Post for third pulley	1
4505	Third pulley to fit on above upright	1
2756	Circlip—securing pulley	1
200040G	Screws } Securing L.H. upright to chassis and baffle board	1
201804	S.P. Washers } Securing L.H. upright to chassis and baffle board	2
92303	Studs } Securing L.H. upright to chassis and baffle board	2
200504	Locknuts } Securing L.H. upright to chassis and baffle board	2
200404	Fullnuts } Securing L.H. upright to chassis and baffle board	3
201504	Spring Washers } Securing L.H. upright to chassis and baffle board	2
92305A	R.H. Upright with post for pulley	1
4505	Pulley for above upright	1
2856	Circlip—securing pulley	1
92308A	Top R.H. Pulley and Bracket assy.	1
12619	P.K. Screws securing assy. to R.H. Upright	2
91253A	Lower R.H. Bracket with two pulleys	1
12619	P.K. Screws securing assy. to R.H. Upright	2
200040F	Screws } securing above upright and parts to chassis and baffle board	1
92303	Studs } securing above upright and parts to chassis and baffle board	2
201804	S.P. Washers } securing above upright and parts to chassis and baffle board	2
201504	Spring Washers } securing above upright and parts to chassis and baffle board	2
200404	Nuts } securing above upright and parts to chassis and baffle board	3
201304	Plain Washers } securing above upright and parts to chassis and baffle board	2
92314B	Bracket with two pulleys and Drive spindle	1
92313	Drive Spindle only	1
20954	Circlip securing spindle	1
12619	P.K. Screws—securing assy.	2
28441J	Drive Drum (on gang)	1
13387	Screws—securing drum to gang	2
46954	Spring—tensioning drive cord	1
91257B	Twin Gang Tuning Capacitor—for full details see under "CAPACITORS"	1
	VALVES, VALVEHOLDERS, ETC.	
X142	V1—Frequency Changer	1
W142	V2—I.F. Amplifier	1
DH142	V3—A.F. Amplifier—Detector and A.G.C. Diodes	1
N142	V4—Output	1
U142	V5—H.T. Rectifier	1
91556A	V6—Barretter 101 (Later Models only)	1
40049B	Valveholders for all valves	5
59119AA	Rivets—securing valveholders	10
92301	Small Deck Plate for V4 and V5 (less valveholders)	1
47816	Spacers } securing deck plate	2
13517	P.K. Screws } securing deck plate	2

Part No.	Description of Part	No. per Inst.
40486A	Octal valveholder for barretter ..	1
200040G	Screws } securing valveholder	2
201804	S.P. Washers } securing valveholder	2
200404	Nuts } securing valveholder	2

LAMPS AND FUSES (With Holders, etc.)

35421C	LP1 } Pilot Lamps, 5 v., 0·15 m/A	1
35421C	LP2 } Pilot Lamps, 5 v., 0·15 m/A	1
44615A	Lampholders	2
92324	Bracket for lampholders	1
8692	Screws—securing bracket	2
38825B	F1 } Fuses 500 m/A	1
38825B	F2 } Fuses 500 m/A	1
47974A	Fuse Panel	1
201306	Washers } Securing panel	2
8777	P.K. Screws } Securing panel	2

INDUCTORS

40970T	L1 and L2—S.W. Aerial Coil	1
40970S	L3—M.W. Aerial Coil	1
40970AR	L4—L.W. Aerial Coil	1
40970W	L5 and L6—S.W. Oscillator Coil ..	1
40970AJ	L7 and L8—M.W. Oscillator Coil ..	1
40970AU	L9—LW Oscillator Coil	1
46553	Dust iron cores for above coils ..	6
92306A	L10—Frame Aerial on support ..	1
92307	Lower Brackets supporting aerial ..	2
201304	Washers } Securing aerial	3
8777	P.K. Screws } Securing aerial	3
200048D	Screws } Securing brackets	2
201804	S.P. Washers } Securing brackets	2
	L11 and L12—See I.F.T.1	—
	L13 and L14—See I.F.T.2	—
46551J	I.F.T.1—1st I.F. Transformer complete	1
46551J	I.F.T.2—2nd I.F. Transformer complete	1
13517	P.K. Screws—securing I.F.T.'s ..	4
46553	Dust Iron cores only	4
38006TF	Capacitors only in I.F.T.'s	4
22628BS	TR1—Output Transformer	1
10606	P.K. Screws—securing T1	2
34680CJ	CK1—H.T. Smoothing Choke ..	1
15159	Earthing Tag } securing CK1	1
12619	P.K. Screws } securing CK1	2
46723B	Tag panel on CK1 } only on later models	1
46724	Insulation } only on later models	1
211	P.K. Screws } only on later models	2

RESISTORS

33360EG	R1—1 M/ohm, ¼ w., 20%	1
33360DW	R2—22 K/ohms, ¼ w., 20%	1
37811G	R3—100 ohms, ¼ w., 5%	1
33373V	R4—15 K/ohms, 1 w., 5%	1
33360V	R5—15 K/ohms, ¼ w., 5%	1
33360EE	R6—470 K/ohms, ¼ w., 20%	1
33360DX	R7—33 K/ohms, ¼ w., 20%	1
33363DW	R8—22 K/ohms, ½ w., 20%	1
33360DT	R9—6·8 K/ohms, ¼ w., 20%	1
33360Y	R10—47 K/ohms, ¼ w., 5%	1
33360EH	R11—1·5 M/ohms, ¼ w., 20% ..	1
33360DY	R12—47 K/ohms, ¼ w., 20%	1
33360EN	R13—10 M/ohms, ¼ w., 20%	1
33363DU	R14—10 K/ohms, ½ w., 20%	1
33363AC	R15—220 K/ohms, ½ w., 5%	1
33360EF	R16—680 K/ohms, ¼ w., 20% ..	1
33360DU	R17—10 K/ohms, ¼ w., 20%	1
33360EW	R18—250 ohms, ¼ w., 5%	1
44516C	R19—135 ohms—5 % } Mains dropper Early Models only	
44516C	R20—135 ohms—5 % } Mains dropper Early Models only	
44516C	R21—135 ohms—5 % } Mains dropper Early Models only	
44516C	R22—192 ohms—2½ % } Mains dropper Early Models only	
44516C	R23—192 ohms—2½ % } Mains dropper Early Models only	
44516C	R24—843 ohms—2 % } Mains dropper Early Models only	
44516C	R25—100 ohms—5 % } Mains dropper Early Models only	
38190D	Clip for mains dropper	1
200040K	Screw } Securing clip to dropper	1
201304	Washer } Securing clip to dropper	1
200404	Nut } Securing clip to dropper	1
10606	P.K. Screws—securing clip to chassis	2
37870G	R26—100 ohms, 6 w., 5% } On later Models only	1
37870AW	R27—200 ohms, 6 w., 5% } On later Models only	1
46723B	Tag panel for R26 and R27 } On later Models only	1
46724	Insulators .. .. } On later Models only	1
211	P.K. Screws .. .. } On later Models only	2
37940FJ	VR1—500 K/ohms Volume control and ON/OFF Switch	1
37962K	VR2—20 K/ohms tone Control ..	1
91819	Bracket for VR2	1
8692	Screws—securing bracket	2

CAPACITORS

38214F	C1—0·01 mfd., 1000 v., 25% ..	1
38000VM	C2—390 pfs., 350 v., 2%	1
38004TF	C3—100 pfs., 350 v., 2%	1
38000VE	C4—180 pfs., 350 v., 2%	1
38213DN	C5—0·001 mfd., 750 v., 20%	1
38216DR	C6—0·0033 mfd., 350 v., 20% ..	1
38210EA	C7—0·1 mfd., 150 v., 20%	1
38111DJ	C8—220 pfs., 750 v., 20%	1
38111DG	C9—100 pfs., 750 v., 20%	1
38006TF	C10—100 pfs., 350 v., 2%	1
38006TF	C11—100 pfs., 350 v., 2%	1
38210DY	C12—0·047 mfd., 150 v., 20% ..	1
38111DG	C13—100 pfs., 750 v., 20%	1
38210EA	C14—0·1 mfd., 150 v., 20%	1
38006TF	C15—100 pfs., 350 v., 2%	1
38006TF	C16—100 pfs., 350 v., 2%	1
38117DJ	C17—220 pfs., 750 v., 20%	1
38111DG	C18—100 pfs., 750 v., 20%	1
38111DG	C19—100 pfs., 750 v., 20%	1
38267A	C20—0·05 mfd., 200 v., 20%	1
38199A	C21—8 mfd., 200 v., Electrolytic ..	1
38216DW	C22—0·022 mfd., 350 v., 20% ..	1
38210EA	C23—0·1 mfd., 150 v., 20%	1
38111DG	C24—100 pfs., 750 v., 20%	1
38214E	C25—0·005 mfd., 1,000 v., 25% ..	1
38175C	C26—30 mfd., 15 v., Electrolytic ..	1
36355F	C27—0·05 mfd., 500 v., 20%	1
38186A	C28 and C29—32 + 32 mfd., 275 v., Electrolytic	1
38190A	Clip for C28/29	1
91790	Insulation	1
200040Q	Screws } securing clip to C28/29	1
201804	S.P. Washer } securing clip to C28/29	1
200404	Nut } securing clip to C28/29	1
201804	S.P. Washer } securing clip to chassis	2
91310	Nut Plate } securing clip to chassis	1
36003	Washer } securing clip to chassis	1
200040D	Screws } securing clip to chassis	2

Part No.	Description of Part	No. per Inst.
91257B	VC1 and VC2 Twin Gang Tuning Capacitor with end brackets ..	1
46958	Rubber Bushes } Securing gang	4
6250	Washers } Securing gang	4
2856	Circlips } Securing gang	4
31486A	TC1-2-3 4-30 pfs. Triple trimmer assy.	1
91259	Spacers (insulating) } Securing TC1-2-3	2
17362	Washers (insulating) } Securing TC1-2-3	2
201306	Plain Washers } Securing TC1-2-3	2
201806	S.P. Washers } Securing TC1-2-3	2
200406	Nuts } Securing TC1-2-3	2
15159	Solder Tags } Securing TC1-2-3	2
35480B	TC4—3-30 pfs., Trimmer	1
35480B	TC5—3-30 pfs., Trimmer	1
35480B	TC6—3-30 pfs., Trimmer	1
201802	S.P. Washers only for TC4-5-6 ..	3

SWITCHES

92299A	S1—Wavechange Switch complete ..	1
	S2—Mains On/Off switch part of VR1	—

LOUDSPEAKER

47785P	Loudspeaker complete	1
27907K	Speech coil and spider only	1
47789A	Cone only	1
47790	P.V.C. Dust Cover	1
47153A	Tag Panel only	1
12619	P.K. Screws—securing panel ..	2
46985	Card Ring only	1
200040H	Screws } securing L/S to baffle	4
201304	Washers } securing L/S to baffle	4

TAGS AND TAG PANELS

40032G	Mains adjustment panel (Early Models only)	1
91288A	Adjustment screw for above panel ..	1
8777	P.K. Screws—securing panel ..	2
37095EA	7 Way tag strip under mains dropper (Early Models only)	1
12619	P.K. Screws—securing strip ..	2
46723B	4 Way tag strip on CK1 (Later Models only)	1
46724	Insulation under above strip	1
211	P.K. Screws—securing strip ..	2
47153A	Tag panel on loudspeaker	1
12619	P.K. Screws—securing panel ..	2
37095EF	7 Way tag strip under chassis	1
37095BB	4 Way tag strip under chassis	1
37095AA	3 Way tag strips under chassis ..	1
12619	P.K. Screws securing strips	4
15159	Solder tags for TC1-2-3 and CK1 fixings	3
15140	Solder tag on plate aerial lead ..	1
8692	Screw securing tag to baffle	1
47974A	Fuse Panel	1
201306	Washers } securing panel	2
8777	P.K. Screws } securing panel	2

PLUGS AND SOCKETS

92316A	Aerial/Earth socket panel	1
47816	Spacers } Securing panel	2
201306	Washers } Securing panel	2
91903	P.K. Screws } Securing panel	2
92377	Insulating cover for above panel ..	1
	Mains adjustment panel—see under "TAGS AND TAG PANELS"	
16289B	Earth Plug—Black	1
16289J	Aerial Plug—Yellow	1

RUBBER GROMMETS, ETC.

32487	Rubber Grommets for $\frac{1}{4}$in. chassis hole	5
16755	Rubber Grommet for $\frac{5}{16}$in. chassis hole	1
56147	Rubber Grommet for $\frac{3}{8}$in. chassis hole	1
46958	Rubber Bushes for gang mounting ..	4
6250	Washers } Securing bushes	4
2856	Circlips } Securing bushes	4
39799B	Red Rubber sleeve on mains lead and mains dropper wiring	2
36892G	Black Rubber sleeve on chassis wiring	1

WIRES AND LEADS

20852B	Mains Lead	1
4201 x 2300	Mains lead in bulk	6ft.
39799B	Red rubber sleeve only	1
40764A	Cleat for mains lead	1
200040F	Screw } securing cleat	1
201304	Washers } securing cleat	1
4020 x 2300 to 4020 x 2309	P.V.C. Covered connecting wire 1/·024in. Black to White. Change last figure as per standard colour code	As reqd.
4120 x 1600 to 4120 x 1609	P.V.C. Covered Flexible connecting wire 14/·0076. Colours as per note above	As reqd.
4848 x 1600	P.V.C. Covered screened flex 14/·0076	3-in.

In order to expedite delivery of spare part orders, please quote:—

1. **Model and serial number (on plate underside of cabinet).**
2. **Spare part number and description.**
3. **Quantity required.**

Unless full particulars are quoted, delay in execution of orders must inevitably result.

Order Spare Parts from :
E.M.I. SALES & SERVICE LTD., SPARE PARTS DIVISION,
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