



MARCONIPHONE

Service Manual for All-Wave Superhet Six Model 299

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TECHNICAL SPECIFICATION

VOLTAGE RANGE.

95 to 260 volts.
50 to 100 cycles.

CONSUMPTION.

92 watts.

FUSES.

It is recommended that this instrument is connected only to supply points protected with 2 ampere fuses.

SPEECH OUTPUT.

Approximately 3 watts (undistorted).

WAVELENGTH RANGE.

Range X	...	750 to 2,100	metres.
" A	...	175 to 560	"
" B	...	55 to 175	"
" C	...	16.5 to 55	"

DIMENSIONS.

Height.	Width.	Depth.
14 $\frac{1}{4}$ inches.	20 $\frac{1}{2}$ inches.	13 $\frac{3}{4}$ inches.
36.2 cm.	52.0 cm.	35.0 cm.

WEIGHT.

45.5 lb. 20.5 kg. net.
70 lb. 31.5 kg. gross.

LOUDSPEAKER.

No. 19800E.

This loudspeaker incorporates the output transformer T1, and its field winding acts as a smoothing choke (CK1).

D.C. resistance of speech coil, 4 ohms.

Impedance at 800 cycles, 5 ohms.

D.C. resistance of field, 1,200 ohms.

VALVES.

6D6, 6A7, 6D6, 6B7, 42, 80.

CIRCUIT DESCRIPTION. Fig. 3.

The general circuit arrangement of this superhet is as follows:—

Aerial aperiodically coupled to the H.F. amplifying valve 6D6, which is a variable μ H.F. pentode with A.V.C. bias control. This valve is H.F. transformer coupled (secondary tuned) to the frequency changer 6A7. This valve is of the pentagrid or hexode type,

and has four complete tuned grid oscillator circuits. The first I.F. transformer couples the frequency changer to the I.F. amplifier 6D6 (V3) a variable μ H.F. pentode. Both this valve and the frequency changer are A.V.C. controlled. The second I.F. transformer feeds the 6B7, a double diode pentode, which operates as second detector and L.F. amplifier and supplies the A.V.C. bias voltage. Resistance capacity coupling is employed between the pentode portion of the 6B7 and the 42 output pentode valve, which feeds the moving coil speaker through the coupling transformer T1. All H.T. current is supplied by the full-wave rectifier 80, and is smoothed by the loudspeaker field winding (CK2) in conjunction with high capacity electrolytic condensers (C67, C68).

WAVEBAND SWITCHING.

It will be seen from the circuit diagram that an individual coil and trimming condenser is used for each waveband. These coils are connected across the main tuning condensers in turn by the wavechange switch. It is also necessary to short circuit certain of the coils when they are not in use to avoid absorption of a desired wavelength brought about by an "idle" coil resonating in conjunction with its own self capacity at that wavelength. Thus it will be seen that while coil L6 (range B) is connected by contacts G, B, of S4, coil L4 is at the same time short circuited by contacts F, B, of S3.

A.V.C.

The rectified I.F. signal appears across the load resistance VR1 of the strapped diodes of V4. The D.C. voltage is utilized to supply controlling bias to V1, via R15 and R2, and a lower voltage to V2 and V3 from the tapping on VR1 via R16 and R7. The A.C. portion of the rectified signal is taken via the slider of the volume control VR1 and C63 to the grid of the pentode portion of V4.

TONE CONTROLS.

The bass tone control is operated by S15 which varies the coupling condenser between V4 and V5 by adding C82 and C83 in parallel with C81, the larger capacity passing more low frequencies on to the output valve. The treble tone control is operated by S14 applying capacity (C74, 75, 76, 77) across the primary of the output transformer T1. See also Fig. 7.

THE RADIO-GRAM SWITCH.

The double-pole switch S16 connects the pick-up sockets to the volume control VR1, at the same time disconnecting the radio output, and removing the voltage from the screen of V2.

PRELIMINARY TESTS

The following tests should be made :—

1. H.T.+ (terminal 4 on loudspeaker panel) to chassis, 360 to 400 volts.
If voltage is low, try replacing V6 (80), check mains voltage, C68, and transformer adjustment. Do tests 2 and 3.
2. Smoothed H.T. (terminal 2 of loudspeaker panel) to chassis, 256 volts.
If there is no voltage L.S. field is defective, if the voltage is low check C67 and do test 3.
3. Output Pentode current (between terminals 1 and 2 on loudspeaker panel), 19 volts.
If this voltage is high or low, the pentode valve (42) should be replaced.
4. Switch the receiver to "Gram" position, and having removed the earth lead and turned the volume control fully up, touch the finger on the top pick-up socket. A loud hum denotes that the L.F. side of the receiver is O.K., and valves V1, V2, V3, or possibly V4, may need replacement. If no hum is heard the fault is probably between V4 and the output stage.
5. Check all valves for filament continuity and freedom from inter-electrode contacts.
6. If the fault is still undiscovered remove chassis and loudspeaker from cabinet and compare voltages with Valve Table below, and do Continuity Checks on page 5.

DISMANTLING

REMOVAL OF CHASSIS.

1. Remove back and knobs.
2. Disconnect leads from loudspeaker panel, terminals B, C, and chassis on mains transformer panel, and loosen cleats holding mains and loudspeaker leads. For re-connexion of loudspeaker leads, see below.
3. Remove four fixing bolts from underside of cabinet. The chassis is now free.

WIRE CONNECTIONS TO L.S. PANEL.

- No. 1. Red/yellow wire.
- No. 2. Red/black wire.
- No. 3. Yellow wire.
- No. 4. Red wire.

REMOVAL OF LOUDSPEAKER.

1. Disconnect wires to speaker panel.
2. Remove four nuts holding speaker chassis and remove speaker.

IMPORTANT.

It is extremely important when servicing to make sure that all four leads are connected to the loudspeaker terminal panel before the receiver is switched on, otherwise the electrolytic condensers C68 and C67 may be seriously damaged.

VALVE TABLE

Values given are ± 10 per cent. and are taken on 235 volt mains. Receiver tuned to a point of no reception unless otherwise stated.

	V1 (6D6)	V2 (6A7)		V3 (6D6)	V4 (6B7)	V5 (42)	V6 (80)
Anode/Frame Volts	235	Osc. 190	Mixer 240	240	40	237	—
Screen/Frame Volts	100	100		100	55	256	—
Cathode/Frame Volts	6.0 (2.0*)	5.5		5.0 (2.0*)	3.0	16	380
Filament Voltage	6.3 A.C.	6.3 A.C.		6.3 A.C.	6.3 A.C.	6.3 A.C.	5.0 A.C.

*On a strong local station.

Total H.T. current measured at terminal 4	95 mA.
6A7 Oscillator anode current measured at terminal 3	5 mA.
V1 to V4 anode and screen current measured at terminal 2	59 mA.
Pentode (42) anode current measured at terminal 1	31 mA.

H.F. TESTS AND ADJUSTMENTS

Instability, insensitivity or poor selectivity indicate that the alignment of the tuned circuits is not correct. If a coil or other component associated with the H.F. or I.F. side of the receiver has been replaced or repaired, or if wiring has been disarranged, all circuits must be re-aligned.

To do this the following apparatus is required. An oscillator or signal generator capable of tuning to 18, 58, 175, 500, 750 and 1,700 metres and to 460 kc., (653 metres) suitably screened, and with an attenuator, and an output meter—an 0 to 2 A.C. voltmeter is most suitable for this purpose.

I.F. ganging should always precede H.F. alignment, and even if only one coil or range of coils has been serviced the whole of the re-alignment should be done in the order given, i.e., LW range X, MW range A, SW range B, SW range C.

In carrying out the following operations it is important that the input to the receiver from the oscillator should be kept low, and progressively reduced as the circuits are brought into line, so that the reading on the output meter does not exceed 1.0 volt.

For all ganging operations, the output meter should be connected across the outers of the three soldering tags on the small panel mounted on the loudspeaker chassis.

I.F. GANGING.

Set bass tone control to minimum cut, treble tone control to maximum cut, volume control to maximum, waveband switch to A, and fully engage the vanes of the ganged condenser. See that the radio-gram switch is in the downward position. Connect the oscillator output leads to the top grid of V2 (6A7) and chassis.

1. Tune oscillator to exactly 460 kc.
2. Adjust trimmers TC32, TC33, TC35, and TC36, in that order for maximum deflection on the output meter.
3. Check carefully over the adjustments, still in the same order to ascertain if the correct resonance point has been obtained on all trimmers.
4. Do H.F. ganging as described below.

H.F. GANGING.

Set tone and volume controls as for I.F. ganging, and connect oscillator output leads to aerial and earth sockets. Ascertain that the setting of the tuning pointer is correct by fully engaging the vanes of the ganged condenser. The left hand end of the pointer should now register accurately on the horizontal line just to the left of the word "metres."

Where tuning points for the receiver are given, these should be carefully obtained by the readings on the tuning scale, and not by tuning in the oscillator signal unless otherwise stated.

Long Waves. Range X.

1. Adjust receiver and oscillator to 750 metres.
2. Adjust trimmers TC22, TC9, TC1, in that order for maximum meter deflection.
3. Set oscillator to 1,700 metres and tune in signal on receiver.
4. Adjust trimmer TC21 for maximum, irrespective of receiver calibration, at the same time "rocking" the ganged condenser.
5. Re-check operations 1 to 4.

Medium Waves. Range A.

1. Adjust receiver and oscillator to 175 metres.
2. Adjust TC23 carefully for maximum.
3. Set oscillator to 195 metres and tune in signal on receiver.
4. Adjust TC10 and TC2 for maximum.
5. Set oscillator to 500 metres and tune in signal on receiver.
6. Adjust TC25 for maximum, irrespective of receiver calibration, at the same time "rocking" the ganged condenser.
7. Repeat operations 1 to 6 to check correctness of settings.

Short Wave. Range B.

1. Set tuning controls of oscillator and receiver to 58 metres.
2. Adjust trimmers in the following order for maximum meter deflection.
TC26, TC11, TC3.
3. Check the foregoing adjustments, to ensure that the correct resonance point has been obtained on all trimmers.

Short Wave. Range C.

1. Switch to range C and alter tuning controls of both oscillator and receiver to 18 metres.
2. Adjust TC28 for maximum meter deflection. There will be found to be two resonance points for TC28, and it is essential to select that which requires the less capacity.
3. Adjust TC12, and then TC4 for maximum meter deflection, at the same time rocking the ganged condenser to obtain correct resonance point. The adjustment of TC12 must be done very carefully, constantly readjusting the ganged condenser in order to obtain an absolute maximum reading.
4. Check the foregoing adjustments, to ensure that the correct resonance point has been obtained on all trimmers.

CONTINUITY CHECKS

Remove valves and pilot lamps. Readings \pm 20 per cent.

Components.	Measured.	Switch.	Resistance.
L1, L3, L5, L7	Aerial and earth terminals	X A B C	145 ohms. 55 " 16 " 2.5 "
L2, L4, L6, L8, R1	Top grid 6D6 (V1) and contact F S3	X A B C	130 ohms. 5.5 " 0.75 " 0.1 "
L9, L11, L13, L15	Anode 6D6 (V1) and R6	X A B C	145 ohms. 110 " 27 " 4 "
L10, L12, L14, L16, R4	Top grid 6A7 (V2) and contact H S6	X A B C	125 ohms. 5.5 " 0.75 " 0.1 "
L17, L19, L21, L23	Across ends	—	L17, 11 ohms. L19, 4.75 " L21, 0.5 " L23, 0.1 "
L18, L20, L22, L24	Oscillator anode 6A7 (V2) and contact M S10	X A B C	3.75 ohms. 1.75 " 1.5 " 0.4 "
L25	Across ends	—	12 ohms
L26	Top grid 6D6 (V3) and junction R7, R16	—	8 ohms
L27	Across ends	—	12 ohms.
L28, R14	Diode 6B7 (V4) and Contact 1. S16	— —	50,000 ohms. (L28, 12 ohms.)
R2, R15	Contact F. S3 and Contact 1. S16	—	2.4 megohms.
R7, R16, VR1	Contact H. S6 and Contact 2. S16	—	1.25 megohms.
R50	Grid 6B7 (V4) and chassis	—	1.5 megohms.
R48, R49	Grid 42 (V5) and chassis	—	0.55 megohms.
CK2 (L.S. Field)	Terminals 2 and 3 on loudspeaker panel	—	1,200 ohms.
L.S. Speech coil	Across ends	—	4 ohms.
L.S. Hum Bucking coil	Across ends	—	0.5 ohms.
T1. Primary	Terminals 1 and 2 on loudspeaker panel	—	580 ohms.
Secondary	Disconnect speech coil	—	0.5 ohms.
T2. Primary	Terminals 1-2	—	0.4 ohms.
	" 2-3	—	0.4 "
	" 3-4	—	0.4 "
	" 4-5	—	3.0 "
	" 5-6	—	0.3 "
	" 6-7	—	5.5 "
	" 1-7	—	10.0 "
Secondaries	Tags 14-15	—	0.1 "
	" 9-10	—	150 "
	" 10-11	—	150 "
	" 12-13	—	0.1 "

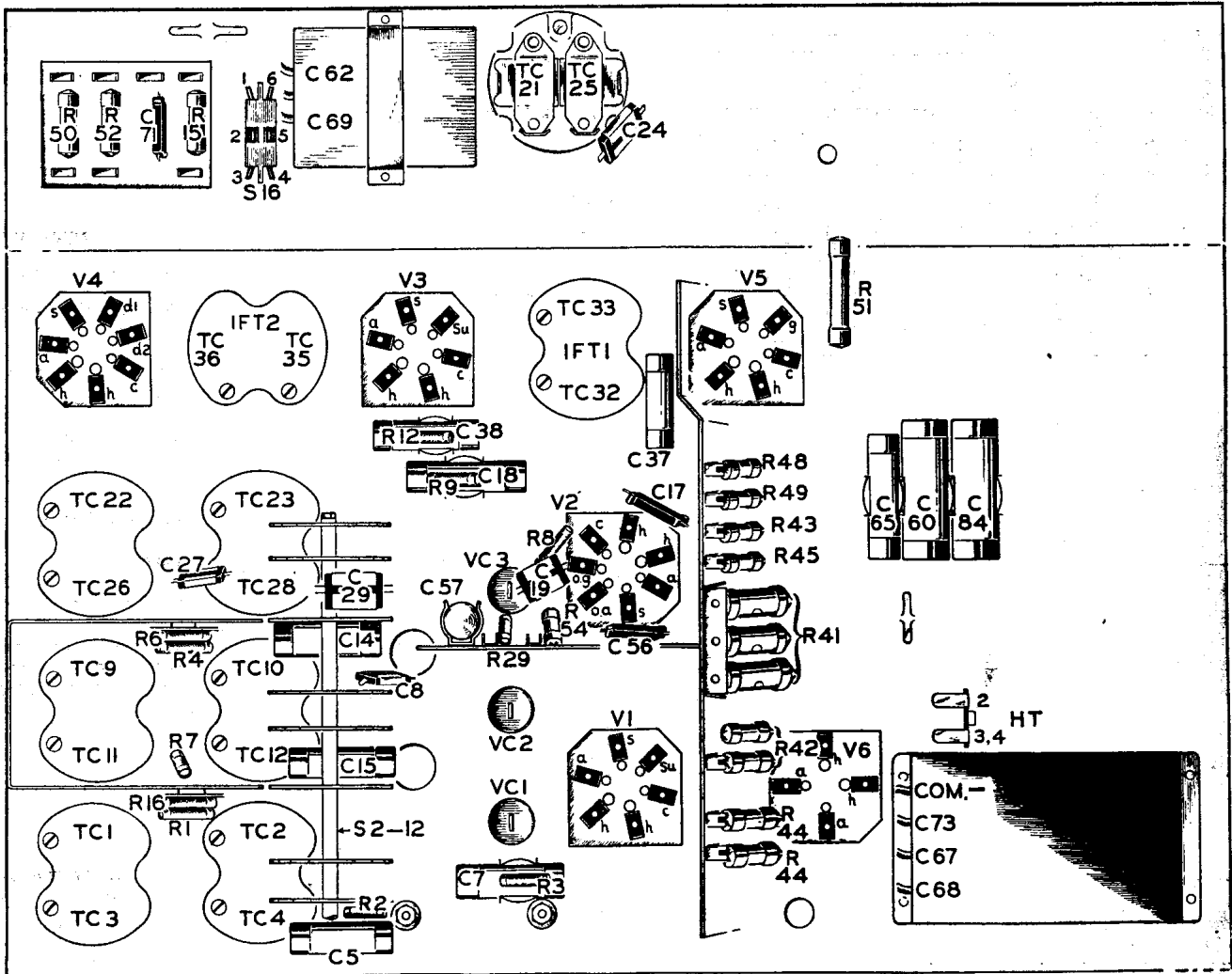


Fig. 1

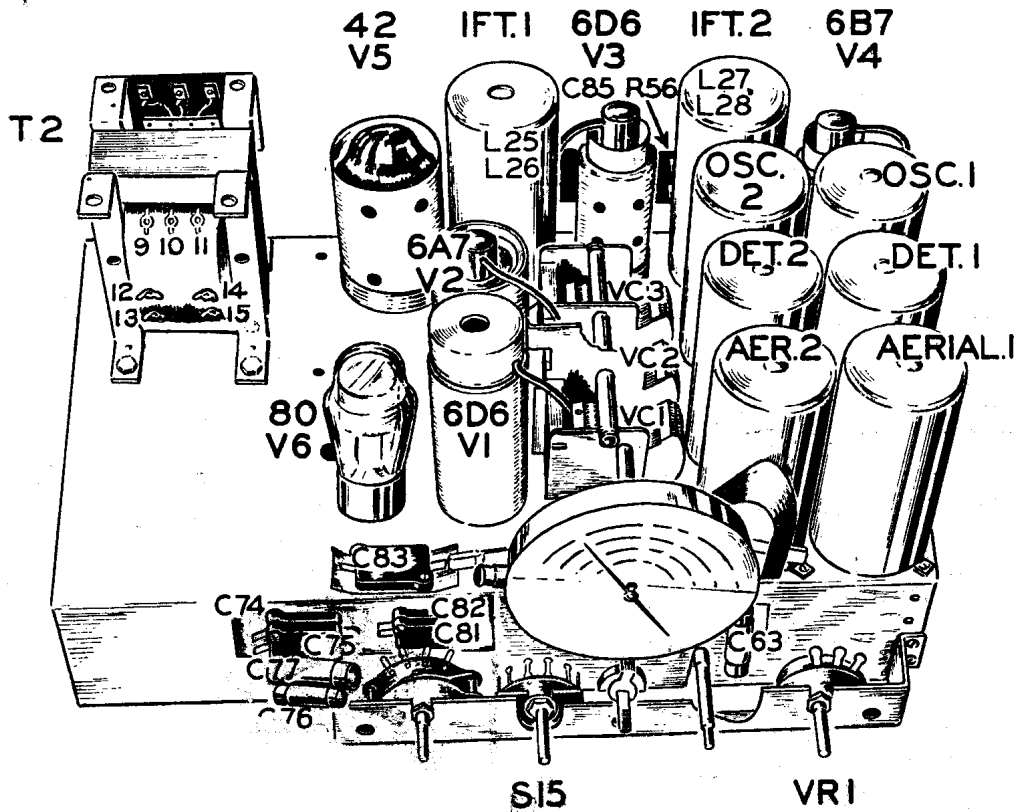


Fig. 2

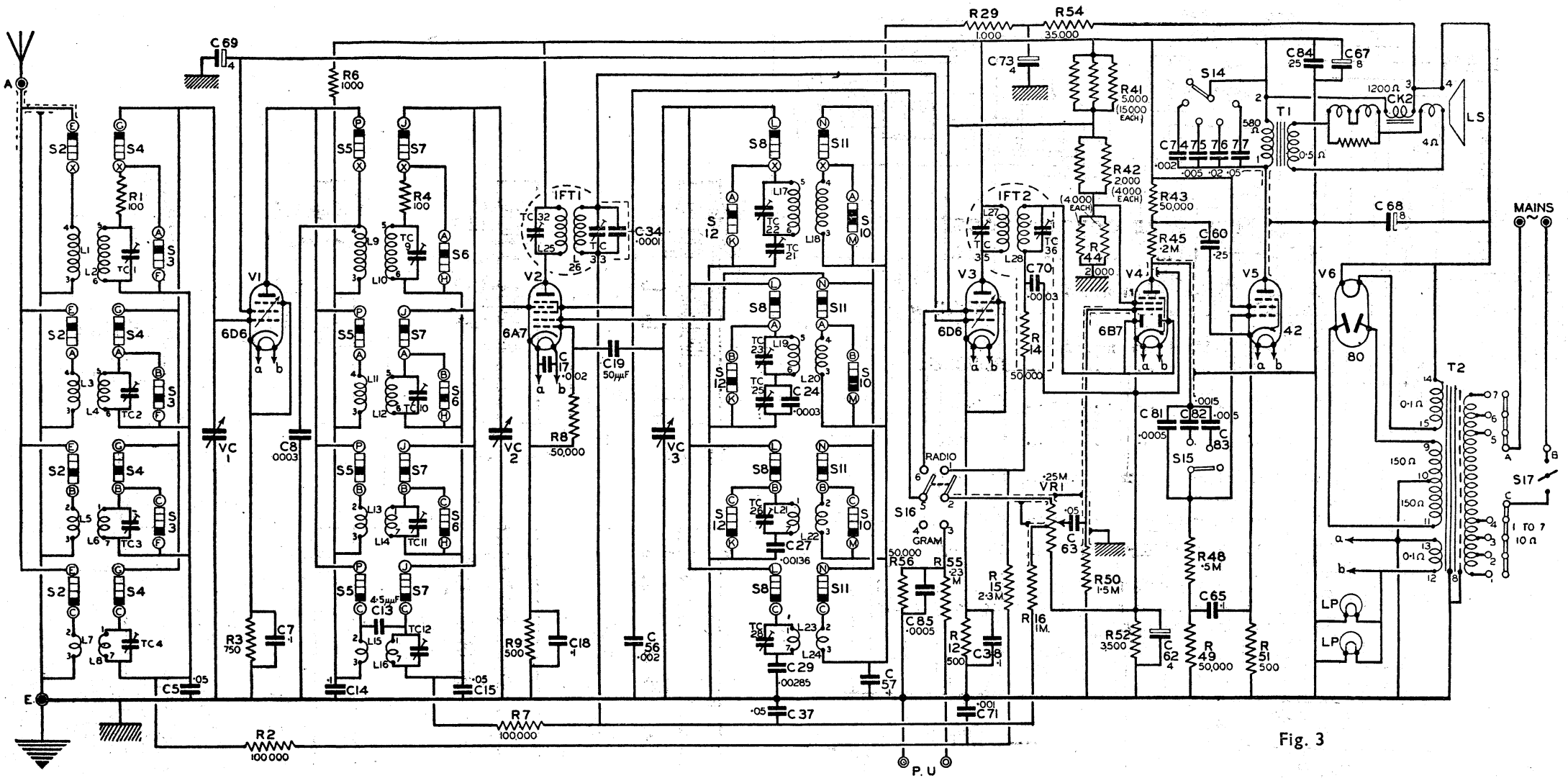
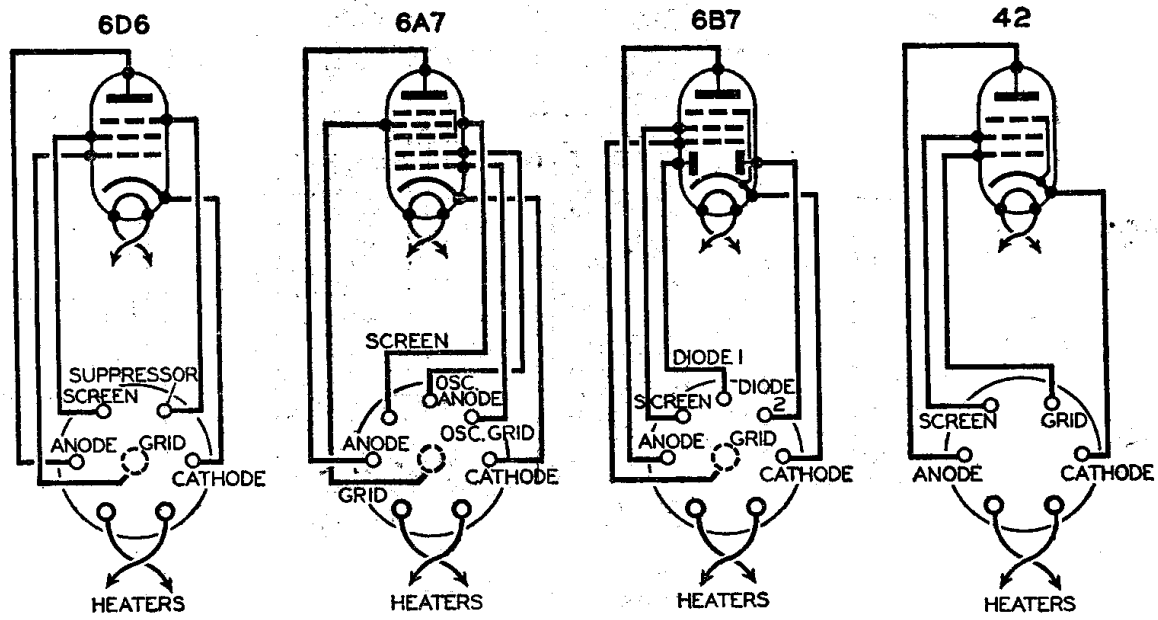
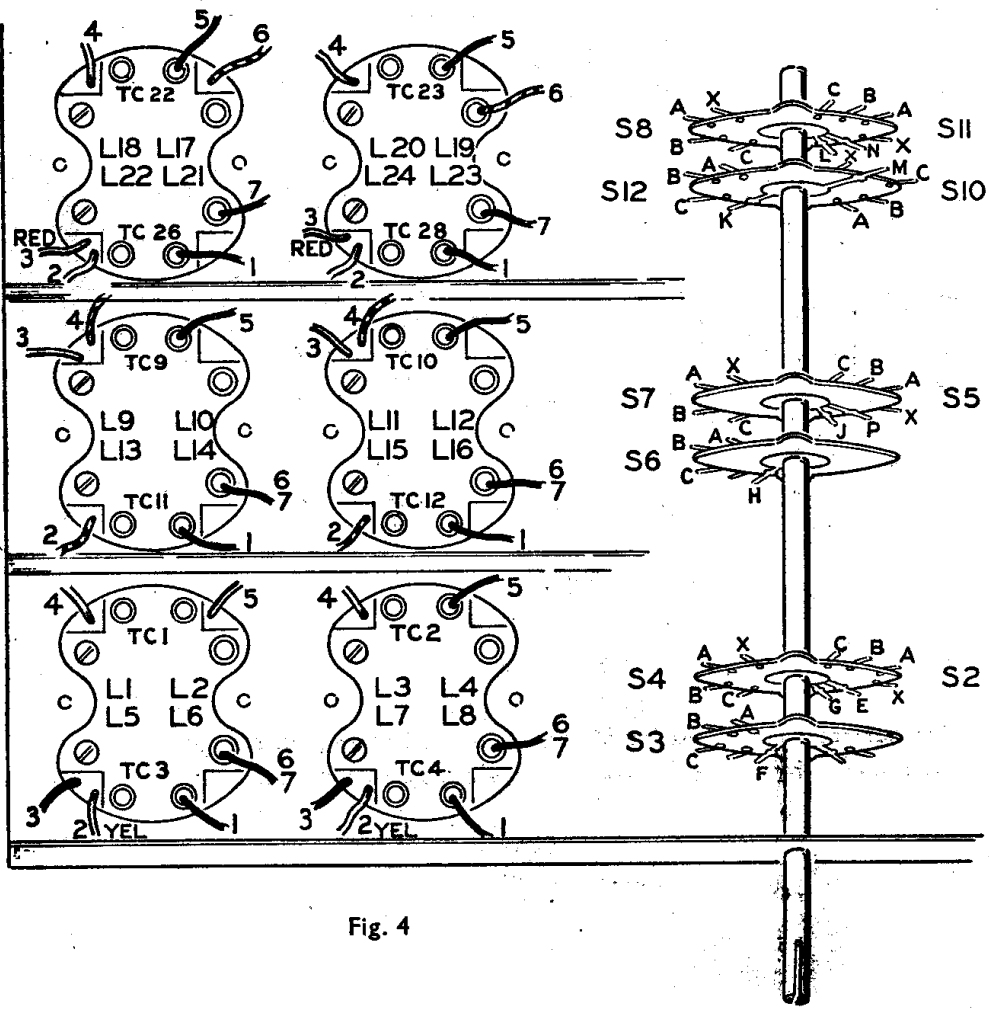


Fig. 3



MODEL 299

NEW WIRE COLOUR CODE.

H.T. positive (+)	Red.
Anodes of valves when not direct to H.T.+	Red/Yellow.
Screening grids when not direct to H.T.+	Red/Black.
Grid circuits	Green.
Mains	Orange.
Heaters, filaments and cathodes ...	Brown.
Earth	Black
General purpose colour	Yellow.

Yellow will be used for leads not falling in the general code, and when stocks of any colour are temporarily exhausted in the factory.

RESISTANCE COLOUR CODE.

BODY and END

Colours.

SPOT Colours.

BODY and END

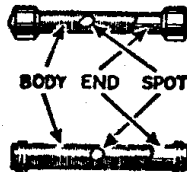
Colours.

SPOT Colours.

(1st and 2nd figures).

(Additional 0's.)

0 Black.	.0 Black.
1 Brown.	0. Brown
2 Red.	00. Red.
3 Orange.	000. Orange.
4 Yellow.	0,000. Yellow.
5 Green.	00,000. Green.
6 Blue.	
7 Violet.	
8 Grey.	
9 White	



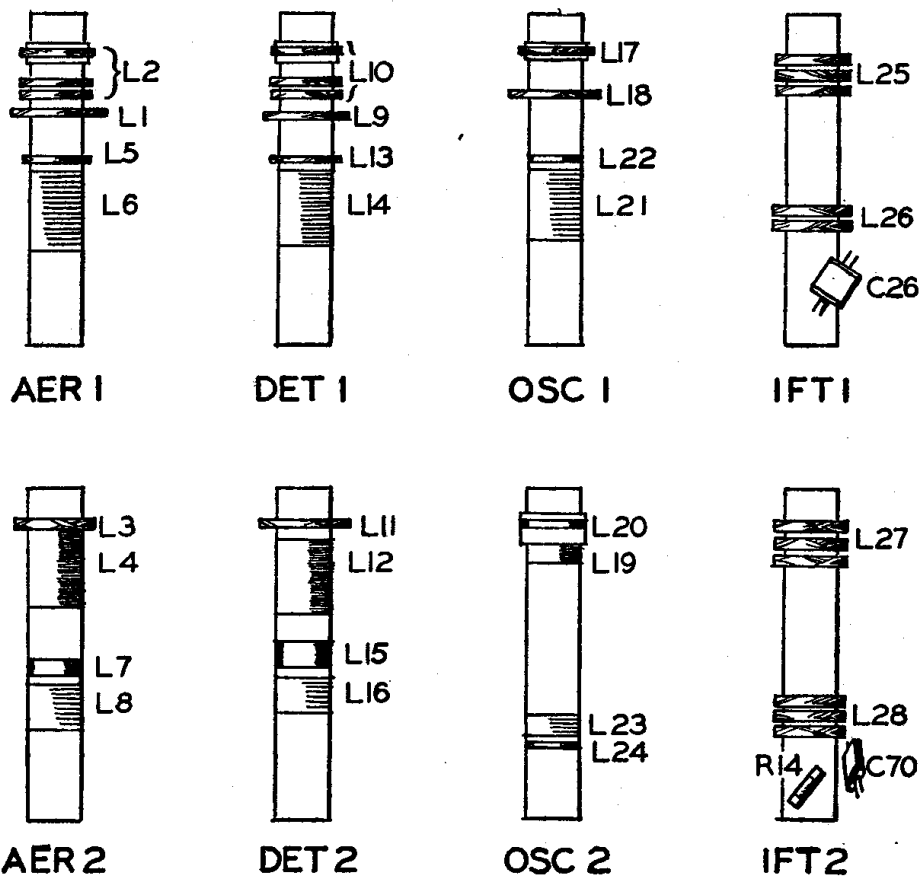


Fig. 6

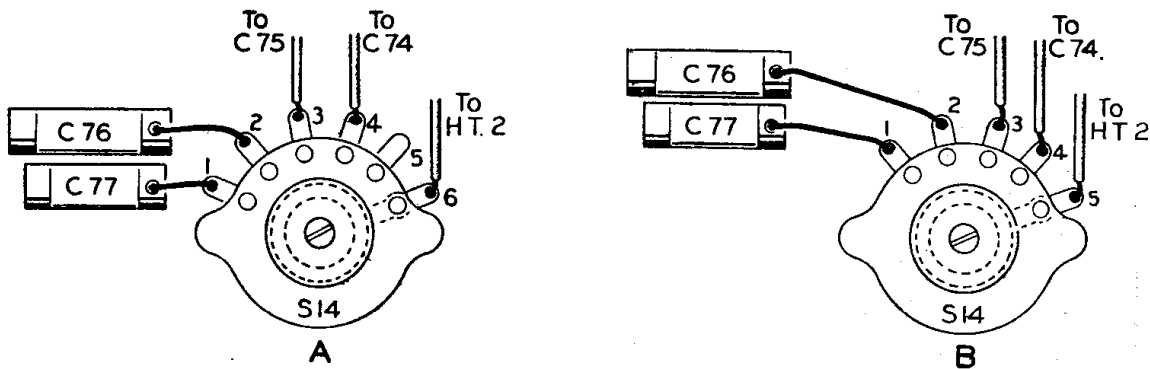


Fig. 7

The normal connections for S14 are shown in B above, but certain instruments have an extra contact in which case connect as in A.

SPARE PART LIST

"FINISH" CODE.

BN	...	Black Nickel	ParB	...	Parkerised Black
Bzp	...	Bronze Polish	Pol	...	Polished
BzSp	...	Bronze Spray	Std	...	Standard
CdP	...	Cadmium Plate	WN	...	White Nickel

Part No.	Description.	Parts per Inst.	Finish.	Retail List Price.	Per
				£ s. d.	
	Instructions.				
21476	Model and warning label	1	—	0 0 1½	Each.
21477	Instruction card	1	—	0 0 6	"
21479	Valve position label	1	—	0 0 1½	"
21331	Knob chart	1	—	0 0 1½	"
17577	Voltage adjustment label	1	—	0 0 1½	"
	CABINET PARTS AND FITTINGS.				
F9017C	Cabinet, polished	1	Pol	4 10 0	Each
21330A	Cabinet back (printed)	1	—	0 1 9	"
19896	Screw } securing back to brackets	6	ParB	0 0 1	"
19895	Washer }	6	ParB	0 0 4	Doz.
13268	Bracket for back	6	CdP	0 0 1	Each.
8602	Screw, securing brackets	12	WN	0 0 2	Doz.
or 2418	Screw, securing back (when brackets, 13268 are not fitted)	6	ParB	0 0 3	"
8195	Rubber feet	4	—	0 0 8	"
—	Baffle board, with silk and insert nuts for speaker	1	Std	0 2 9	Each.
21226	Silk	1	—	0 0 9	"
12775	Insert Nuts	4	BN	0 0 1	"
16020	Ornamental bolt	4	BzP	0 0 1	"
14761	Ornamental washer } securing baffle board	4	BzP	0 0 7	Doz.
14120	Washer }	4	WN	0 0 2	"
11627	Nut }	4	WN	0 0 6	"
9525	Screw, No. 6 × ¾ FHl }	4	WN	0 0 2	"
21488	Loudspeaker fret	1	—	0 1 6	Each.
15817	Button } securing fret	4	—	0 0 1	"
9548	Screw }	4	WN	0 0 3	Doz.
21322	Tuning escutcheon	1	—	0 1 0	Each.
21271	Glass window	1	—	0 0 6	"
21278	Clip } securing tuning escutcheon	3	BzP	0 0 6	Doz.
14791	Screw ¼ } and window	3	WN	0 0 4	"
or 11220	Screw ¼ }	3	WN	0 0 2	"
	CONTROLS.				
21281	Knob	4	—	0 0 7	Each.
11805	Screw, PK, securing knobs	4	—	0 0 6	Doz.
21492	Knob—large (outer)	1	—	0 0 7	Each.
21335A	Clutch sleeve and claw	1	WN	0 0 4½	"
21495	Knob (inner)	1	—	0 0 7	"
11773	Screw, securing inner knob	1	WN	0 0 5	Doz.
19214E	Mains On/Off switch	1	—	0 1 9	Each.
14697	Switch nut	1	WN	0 0 11	Doz.
19875	Switch escutcheon	1	BzSP	0 0 6	Each.

SPARE PART LIST—continued.

Part No.	Description.	Parts per Inst.	Finish.	Retail List Price.	Per
LOUDSPEAKER.					
19800E	Loudspeaker, complete with output transformer T1	1	—	£ 1 10 0	Each
19459D	Field coil (CK2)	1	—	0 6 0	"
21255A	Hum coil	1	—	0 0 7	"
19455E	Cone chassis	1	CdP	0 2 6	"
13455C	Panel with three tags	1	—	0 0 2	"
8777	Screw, PK, securing panel	2	—	0 0 6	Doz.
21256A	Speech coil and cone	1	—	0 3 0	Each
19456	Clamping ring	2	—	0 0 3	Doz.
19457	Felt ring	1	—	0 0 1	Each.
19687	Nut	2	—	0 0 2	Doz.
1092	Washer	2	—	0 0 2	"
17476	"D" Washer } securing spider of cone to studs on cone chassis	2	—	0 0 1	"
19585	Card washer }	2	—	0 0 1	"
12040Y	Output transformer T1	1	—	0 7 6	Each.
10606	Screw, PK, securing output transformer	2	—	0 0 7	Doz.
14220	Stud } securing L.S. to insert nuts in baffle board	4	WN	0 0 1½	Each.
1022	Washer }	4	WN	0 0 2	Doz.
3168	Washer, SP }	4	—	0 0 2	"
11626	Nut }	4	WN	0 0 9	"
RADIO UNIT					
21300B	Radio Unit	1	—	14 0 0	Each.
11207	Screw, 0BA × 1½, round head } securing radio unit	4	WN	0 0 3	Doz.
21328	Washer, 1½-in. dia. }	4	CdP	0 0 3	"
21235	Rubber bush }	8	—	0 0 5	"
21284	Spacing tube }	4	CdP	0 0 1	Each.
21229	Washer, 1½-in. dia. }	4	CdP	0 0 2	Doz.
11205	Transit screw, red head	2	WN	0 0 2	"
21229	Washer	2	CdP	0 0 2	"
INDUCTANCES.					
21252A	L1 and L2—Aerial coil "X" band	1	—	0 5 6	Each.
21248A	L5 and L6—Aerial coil "B" band	1	—	0 4 0	"
	L3 and L4—Aerial coil "A" band				
21250A	L7 and L8—Aerial coil "C" band	1	—	0 5 6	"
	L9 and L10—Detector coil "X" band				
21249A	L13 and L14—Detector coil "B" band	1	—	0 4 0	"
	L11 and L12—Detector coil "A" band				
21251A	L15 and L16—Detector coil "C" band	1	—	0 4 0	"
	L17 and L18—Oscillator coil "X" band				
21253A	L21 and L22—Oscillator coil "B" band	1	—	0 4 0	"
	L19 and L20—Oscillator coil "A" band				
21254A	L23 and L24—Oscillator coil "C" band	1	—	0 4 0	"
	L25—1st IFT, primary				
21254C	L26—1st IFT, secondary	1	—	0 3 3	"
	L27—2nd IFT, primary				
—	L28—2nd IFT, secondary	1	—	0 3 6	—
	CK2—Field coil—See Loudspeaker spares.				
—	T1—Output transformer—See Loudspeaker Spares.	1	—	1 10 0	Each
14584X	T2—Mains transformer	1	—	1 10 0	Each
11202	Screw	4	WN	0 0 2	Doz.
3168	Washer, SP } securing T2	4	—	0 0 2	"
11626	Nut }	4	WN	0 0 9	"

SPARE PART LIST—continued.

Part No.	Description.	Parts per Inst.	Finish.	Retail List Price.	Per
RESISTANCES.					
19202AA	R1 — 100 ohms. $\frac{1}{4}$ watt	1	—	£ s. d. 0 0 9	Each.
19202L	R2 — 100,000 ohms. $\frac{1}{4}$ watt	1	—	0 0 9	"
19202AE	R3 — 750 ohms. $\frac{1}{4}$ watt	1	—	0 0 9	"
19202AA	R4 — 100 ohms. $\frac{1}{4}$ watt	1	—	0 0 9	"
19202B	R6 — 1,000 ohms. $\frac{1}{4}$ watt	1	—	0 0 9	"
19202L	R7 — 100,000 ohms. $\frac{1}{4}$ watt	1	—	0 0 9	"
19202J	R8 — 50,000 ohms. $\frac{1}{4}$ watt	1	—	0 0 9	"
19202A	R9 — 500 ohms. $\frac{1}{4}$ watt	1	—	0 0 9	"
19202A	R12 — 500 ohms. $\frac{1}{4}$ watt	1	—	0 0 9	"
19202J	R14 — 50,000 ohms. $\frac{1}{4}$ watt	1	—	0 0 9	"
19202AM	R15 — 2.3 megohms. $\frac{1}{4}$ watt	1	—	0 0 9	"
19202P	R16 — 1 megohm. $\frac{1}{4}$ watt	1	—	0 0 9	"
19202B	R29 — 1,000 ohms. $\frac{1}{4}$ watt	1	—	0 0 9	"
21405A	R41 — 15,000 ohms. 3 watt S.L.	3	—	0 3 6	"
19104CG	R42 — 4,000 ohms. 1 watt S.L.	2	—	0 1 3	"
17140P	R43 50,000 ohms. $\frac{1}{4}$ watt.	1	—	0 0 9	"
19104CG	R44 — 4,000 ohms. 1 watt S.L.	2	—	0 1 3	"
17140D	R45 — 200,000 ohms. $\frac{1}{4}$ watt	1	—	0 0 9	"
17140C	R48 — $\frac{1}{4}$ megohm. $\frac{1}{4}$ watt	1	—	0 0 9	"
19202J	R49 — 50,000 ohms. $\frac{1}{4}$ watt	1	—	0 0 9	"
19202Q	R50 — $1\frac{1}{2}$ megohms. $\frac{1}{4}$ watt.	1	—	0 0 9	"
5786AF	R51 — 500 ohms. 1 watt	1	—	0 1 1	"
19202AG	R52 — 3500 ohms. $\frac{1}{4}$ watt	1	—	0 0 9	"
17141G	R54 — 35,000 ohms. 1 watt	1	—	0 1 1	"
19202M	R55 — 230,000 ohms. $\frac{1}{4}$ watt	1	—	0 0 9	"
19202J	R56 — 50,000 ohms. $\frac{1}{4}$ watt	1	—	0 0 9	"
18300BW	VR1—Volume control—250,000 ohms complete with fixing nut and washer	1	—	0 5 0	"
CONDENSERS.					
16316C	C5 — 0.05 mfd.	1	—	0 0 9	Each.
16316D	C7 — 0.1 mfd.	1	—	0 0 9	"
21275Q	C8 — 300 mmfd.	1	—	0 0 9	"
21290A	C13 — 4.5 mmfd.	1	—	0 0 9	"
18146B	C14 — 0.1 mfd.	1	—	0 1 6	"
16316C	C15 — 0.05 mfd.	1	—	0 0 9	"
15719G	C17 — 0.002 mfd.	1	—	0 1 1	"
16316D	C18 — 0.1 mfd.	1	—	0 0 9	"
21275AH	C19 — 50 mmfd.	1	—	0 0 9	"
21275Q	C24 — 300 mmfd.	1	—	0 0 9	"
21275AU	C27 — 1,360 mmfd.	1	—	0 0 9	"
21275AT	C29 — 2,850 mmfd.	1	—	0 1 0	"
21275AA	C34 — 100 mmfd.	1	—	0 0 9	"
16316C	C37 — 0.05 mfd.	1	—	0 0 9	"
16316D	C38 — 0.1 mfd.	1	—	0 0 9	"
15719G	C56 — 0.002 mfd.	1	—	0 1 1	"
18146B	C57 — 0.1 mfd.	1	—	0 1 6	"
18146F	C60 — 0.25 mfd.	1	—	0 1 9	"
21279A	C62 — 4.0 mfd. } electrolytic	1	—	0 4 3	"
	C69 — 4.0 mfd. }				
16316C	C63 — 0.05 mfd.	1	—	0 0 9	"
16316D	C65 — 0.1 mfd.	1	—	0 0 9	"
18478A	C67 — 8.0 mfd. } electrolytic	1	—	0 8 0	"
	C68 — 8.0 mfd. }				
	C73 — 4.0 mfd. }				
8777	Screw, PK, securing condenser block	4	—	0 0 6	Doz.
21275D	C70 — 300 mmfd.	1	—	0 0 9	Each.
15719F	C71 — 0.001 mfd.	1	—	0 0 9	"
15754C	C74 — 0.002 mfd.	1	—	0 1 7	"
15754H	C75 — 0.005 mfd.	1	—	0 1 6	"
18146G	C76 — 0.02 mfd.	1	—	0 1 0	"
18146D	C77 — 0.05 mfd.	1	—	0 1 3	"
15719E	C81 — 0.0005 mfd.	1	—	0 1 3	"

SPARE PART LIST—continued.

Part No.	Description.	Parts Per Inst.	Finish.	Retail List Price.	Per
CONDENSERS—continued.					
				£ s. d.	
15719U	C82—0.0015 mfd. ...	1	—	0 1 0	Each
15746A	C83—0.005 mfd. ...	1	—	0 0 9	"
18146F	C84—0.25 mfd. ...	1	—	0 1 9	"
15719E	C85—0.0005 mfd. ...	1	—	0 1 3	"
12640D	TC1 and TC3, Twin pre-set condensers, blue spot ...	1	—	0 2 0	"
12640D	TC2 and TC4, Twin pre-set condensers, blue spot ...	1	—	0 2 0	"
12640D	TC9 and TC11, Twin pre-set condensers, blue spot ...	1	—	0 2 0	"
12640D	TC10 and TC12, Twin pre-set condensers, blue spot ...	1	—	0 2 0	"
12640B	TC21 and TC25, Twin pre-set condensers, yellow spot ...	1	—	0 2 1	"
12540C	TC22 and TC26, Twin pre-set condensers, red spot ...	1	—	0 2 0	"
12540D	TC23 and TC28, Twin pre-set condensers, blue spot ...	1	—	0 2 0	"
12540A	TC32 and TC33, Twin pre-set condensers, green spot ...	1	—	0 3 6	"
12540A	TC35 and TC36, Twin pre-set condensers, green spot ...	1	—	0 3 6	"
11221	Screw	2	WN	0 0 1	Doz.
13325	Washer	2	—	0 0 1	"
3166	Washer, SP	2	WN	0 0 2	"
11628	Nut	2	WN	0 0 4	"
11230	Screw	16	WN	0 0 3	"
11720	Washer	16	—	0 0 1	"
3165	Washer, SP	16	—	0 0 2	"
21280A	VC1, VC2 and VC3—three gang condenser complete with fixing screws, nuts and washers, but not rubber bushes ...	1	—	1 16 0	Each.
21236	Rubber bush ...	3	—	0 0 1	"
CONDENSER DRIVE AND TUNING DETAILS.					
21485A	Condenser drive mechanism with lampholders ...	1	—	0 18 3	"
21314A	Lampholder ...	2	—	0 1 3	"
21316A	Lamp ...	2	—	0 0 9	"
Clutch sleeve and claw—See under Controls (not part of radio unit).					
21489A	Tuning scale (printed) ...	1	—	0 2 6	"
21265B	Wave range indicator assembly ...	1	—	0 0 7	"
21269	Spring ...	1	—	0 0 10	Doz.
4875	Washer	1	WN	0 0 4	"
21233A	Split pin	1	WN	0 0 1	"
11773	Grub screw, securing indicator assembly to switch spindle ...	1	WN	0 0 5	"
SWITCHES.					
21285A	S2-S12—Wave change switch, complete with fixing nuts and S.P. washers...	1	—	0 14 6	Each.
21491A	S14—Top cut switch, complete with fixing nut and S.P. washers ...	1	—	0 2 6	"
21490A	S15—Bass cut switch, complete with fixing nut and S.P. washer ...	1	—	0 2 6	"
21283	Mounting panel ...	1	—	0 0 6	Doz.
13810	Rivet, securing mounting panel ...	2	—	0 0 3	"
21890	Washer, 3/4-in. dia. ext. ...	2	—	0 0 1 1/2	"
18817B	S16—Radio-Gram switch ...	1	BzP loc.	0 2 6	Each.
14697	Nut, securing S16 ...	2	WN	0 0 11	Doz.
—	S17—On/Off switch—See under Controls.				
Valve holders, valve screens, coil screens, panels, etc.					
21301A	Valve holder, 4-pin ...	1	—	0 0 7	Each.
21302A	Valve holder, 6-pin ...	3	—	0 0 9	"
21303A	Valve holder, 7-pin ...	2	—	0 0 10	"
21304	Insulator for 4-and 6-pin valve holders ...	4	—	0 0 1	"
21305	Insulator for V2 valve holder ...	1	—	0 0 1	"
21334	Insulator for V4 valve holder ...	1	—	0 0 1	"
21356	Rivet, securing valve holders and insulators and valve screen base ...	12	—	0 0 1	Doz.
21308	Valve screen base, V1 and V3 ...	2	—	0 0 2	Each.
21320A	Valve screen, V1 and V3 ...	2	—	0 0 9	"
21321	Valve screen top, V1 ...	1	—	0 0 2	"
21309	Valve screen base, V2 and V4 ...	2	—	0 0 2	"

SPARE PART LIST—continued.

Part No.	Description.	Parts per Inst.	Finish.	Retail List Price.	Per
21320B	Valve screen V2 and V4	2	—	£ s. d. 0 0 9	Each.
21326	Valve screen base, V5	1	—	0 0 1½	”
21327	Valve screen, V5	1	—	0 0 9	Doz.
19897	Valve clip	4	WN	0 0 1	Each.
19898	Screw, securing clip to lead	4	WN	0 0 3	Doz.
PANELS, PLUGS, LEADS, &c.					
21244A	Aerial, earth and gram connection panel, with 4 sockets and 4 tags ...	1	—	0 0 8	Each.
8777	Screw, PK, securing panel to brackets	2	—	0 0 6	Doz.
21260A	Resistance panel with two resistance clips and 13 tags	1	—	0 1 2	Each.
8777	Screw, PK, securing panel	3	—	0 0 6	Doz.
21231A	Condenser and resistance panel, with 7 tags (next to S16)	1	—	0 0 5	Each.
8777	Screw, PK, securing panel	2	—	0 0 6	Doz.
21324A	Resistance panel with four tags	2	—	0 0 2	Each
21324B	Resistance panel with four tags and one long tag	1	—	0 0 3	”
13802	Rivet, securing above three panels to screens	3	—	0 0 2	Doz.
18802B	Small insulating strip, with bracket and two long tags	1	—	0 3 0	Each.
12619	Screw, PK, securing bracket to chassis	1	—	0 0 6	Doz.
7240	Clip for tubular condensers, large	3	—	0 0 6	”
13801	Rivet, securing clips	3	—	0 0 1	”
21325	Clip for tubular condensers, small	4	—	0 0 8	”
18282	Rivet, securing clips,	4	—	0 0 1	”
21232	Clip for tubular condenser, next to VR 1	1	—	0 0 1	Each
211	Screw, PK, securing clip	2	—	0 0 6	Doz.
7155	Cleat, securing aerial lead	1	—	0 0 1	Each.
12613	Cleat, securing loudspeaker lead	1	—	0 0 1	”
11220	Screw	2	WN	0 0 2	Doz.
3168	Washer, S.P. } securing cleats	2	—	0 0 2	”
11628	Nut	2	WN	0 0 4	”
21298A	Strap with 0BA tapped holes	2	CdP	0 1 0	Each.
11210	Screw	8	WN	0 0 1	Doz.
3167	Washer, S.P. } securing straps across ends of Chassis	8	—	0 0 2	”
Plugs, leads, etc.					
16289J	Plug—yellow	2	—	0 0 2	Each.
16289B	Plug—black	2	—	0 0 2	”
21294A	Switch lead with three tags	1	—	0 0 6	”
11802	Tag	3	—	0 0 3	Doz.
12599A	Mains lead with two tags	1	—	0 0 2	Each.
11802	Tag	2	—	0 0 3	Doz.
18889A	Carton for mains lead, etc.	1	—	0 0 1	Each.
7155	Cleat, small	1	WN	0 0 1	”
16578	Cleat, large	2	—	0 0 6	Doz.
8602	Screw, securing cleats	3	WN	0 0 2	”

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

1. Model number and serial number.
2. Spare part number and description as given in the above list.
3. Quantity required.

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

The Company reserves the right to make any modifications without notice.

ELECTRICAL INTERFERENCE

Before attributing disturbing noises to a fault within the instrument the following simple tests should be made :—
Switch on the receiver and, having tuned to a point where signals are not being received, make and break the aerial lead. If the aerial is picking up disturbances a decrease in noise will be noticed when aerial is disconnected. On the other hand, the interference may be due to high frequency (H.F.) brought to the instrument via the current supply, or to a fault in the receiver. Carefully check the whole receiver for loose or dirty contacts or joints.

Electrical machinery or flashing signs will invariably give rise to the type of interference known as “ H.F.” and will cause crackling or “ frying ” noises in the speaker.

If the interference is entering the instrument via the supply mains an improvement may often be effected by fitting a condenser (of about 0.01 mfd capacity) between each mains supply lead and earth, and if this is not sufficient an H.F. choke of suitable specification in series with each mains lead.

Static and interference picked up on the aerial is best dealt with by fitting a static-reducing aerial, some types of which are specially designed to favour short wave reception and thus obtain a better signal to noise ratio.

In general see that a really good earth is provided and that aerial and earth leads are as short as possible, of adequate cross section and insulation, and kept as far as possible away from any potential source of interference.



THE MARCONIPHONE COMPANY, LIMITED,
HAYES, MIDDLESEX, ENGLAND.