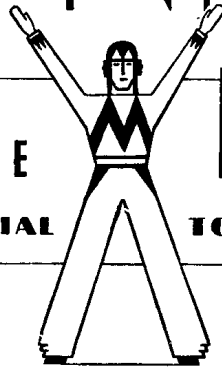


MARCONI PHONE

SERVICE MANUAL

PRIVATE AND CONFIDENTIAL

TO THE TRADE ONLY



MODELS 237, 238 AND 245A A.C. MAINS T.R.F. RECEIVERS AND RADIOGRAM

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MAR.
1 9 3 6
1936 SERIES
NUMBER SEVEN
PART No. 22378

GENERAL DESCRIPTION

Models 237, 238 and 245A follow similar lines to Models 235 and 245, but with the addition of automatic regeneration and a Droitwich rejector circuit. Consult Service Manuals for Models 235 and 245 (Parts Nos. 21222 and 22367) for General Specification, Dismantling, and H.F. Tests and Adjustments.

CIRCUIT

AERIAL COUPLING

Aperiodic transformer coupling to the first tuned circuit (L2, L3, VC1) with a second aerial tapping, (AE2) which includes a rejector wave-trap (L8, TC2, C22) tuned to Droitwich wavelength (1,500 metres).

H.F. AMPLIFIER

Marconi VMS4B has a variable bias control VR1 which is now the only volume control, and tuned anode-capacity coupling to the detector.

DETECTOR

Marconi MH41—a high slope triode operating as a grid detector with reaction coils L6 and L7 controlled by the preset trimmer and resistance TC3, VR4—H.F. filtration is provided by CK1 and C6. The detector is resistance capacity coupled (R5, C7) to the pentode output valve.

OUTPUT STAGE

Marconi N41—a high efficiency pentode which feeds the moving coil speaker via the output transformer T2.

RECTIFIER

Marconi U12 supplies H.T. current for all valves ; smoothing is by means of the loudspeaker field and high capacity electrolytic condensers C17 and C18.

THE RADIOGRAM

The pick-up output is fed directly to the grid of the output valve V3 via the gramophone volume control VR3. Radio signals are completely suppressed whilst the instrument is operating as a gramophone by eliminating the tuned anode coils of V1 (switch contacts E and N of S1) and by disconnecting the coupling condenser C7 (contacts J and K, S1). An additional smoothing condenser C19 is included in the radiogram chassis.

H.F. TESTS AND ADJUSTMENTS

If at any time it is necessary to replace the MH41 valve it may be necessary to reset the automatic regeneration controls TC3 and VR4. Proceed as follows :—

1. Switch receiver on and turn volume control fully up. Connect an aerial and earth, preferably those on which the receiver will normally operate.
2. Adjust TC3 just short of oscillation point on wavelengths between 200 and 300 metres.
3. Adjust VR4 just short of oscillation point on all wavelengths over 300 metres, including long waves.
4. Check adjustments 2 and 3.

IMPORTANT.—If the receiver is re-ganged it is necessary to do so in conjunction with the resetting of the automatic regeneration as given above. First gang roughly, then set the regeneration controls as detailed. Now gang more carefully and it may be found necessary to put a finishing touch to TC3 and VR4.

ADJUSTMENT OF DROITWICH REJECTOR

1. Connect aerial to AE2 tapping.
2. Tune in accurately to the long-wave National transmitter, 1,500 metres.
3. Adjust TC2 for minimum volume on this station.

PRELIMINARY TESTS

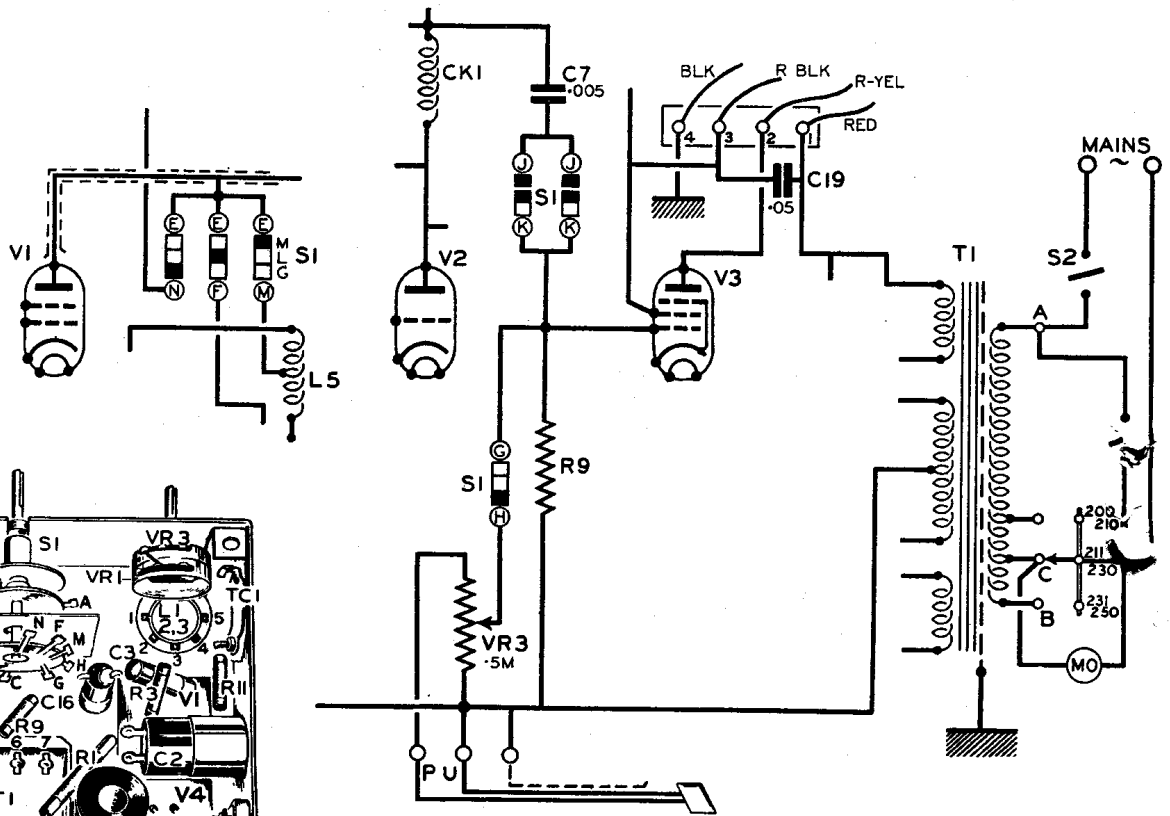
The following voltage and current tests can be made without removing the chassis from the cabinet :—

1. Maximum H.T. voltage measured between terminals 1 and 4, 360 volts.
If this voltage is low or absent, try renewing U12 valve, and check mains transformer T1 and switch S2. See that mains voltage is reaching the instrument. If voltage is high do Test 2.
2. Smoothed H.T. voltage measured between terminals 3 and 4, 235 volts.
If voltage here is low or absent suspect the loudspeaker field, or C17, C18. If voltage is high do Test 3.
3. Pentode check measured between terminals 2 and 3, 27 volts.
This voltage indicates that the correct current is being taken by the pentode. If the value is more than a few volts high or low, the N4I should be replaced. Check also R10, C8 and primary of speech transformer T2.
4. Bias of H.F. valve measured between metallising of VMS4B and chassis, 1·0–30·0 volts, according to the position of the volume control. If this voltage is abnormal suspect the valve VMS4B, R1, R2, R3, R11, L4, L5 or VR1.
5. Check all valves for filament continuity and freedom from inter-electrode contacts, and examine leads connecting receiver and loudspeaker chassis.
6. Contact the aerial lead (via a small condenser) on to the anode of V1 (VMS4B). If signals are now heard, but with tuning very flat and not true to the scale calibration, the fault is somewhere in the HF stage, i.e., the valve V1 and its associated components.

CONTINUITY CHECKS

Remove valves and pilot lamp. Values ± 20 per cent.

Component.	Where Measured.	Resistance.
L1	AEI and E sockets	12 ohms.
L2 and L3	Grid socket V1 and chassis— L2 (switch MW) L2 + L3 (switch LW)... ..	3 ohms. 21 „
L4	Across ends	18 ohms.
L5	Across ends	5 ohms.
L6 + L7	Across ends	1·5 ohms.
L8	Across ends	15 ohms.
CK1	Anode V2 to R5	90 ohms.
CK2	Anode V2 to C20	1–5 ohms.
T1 Primary	Terminal A to 200–210 200–210 to 211–230 211–230 to 231–250	24 ohms. 2·5 ohms. 2·5 ohms.
Secondaries	Tags 10 to 11 Tags 5 to 6 Tags 6 to 7 Tags 8 to 9	0·1 ohm. 340 ohms. 340 ohms. 0·1 ohm.
T2 Primary	Terminals 2 to 3	750 ohms.
Secondary	Terminals 4 to 6 (Disconnect speech coil)	0·2 ohm.
LS Speech coil	1·75 ohms.
Hum-bucking coil	0·5 ohm.
Field coil	2,000 ohms.



MODEL 245A
Showing additions to circuit for Radiogram

VALVE TABLE

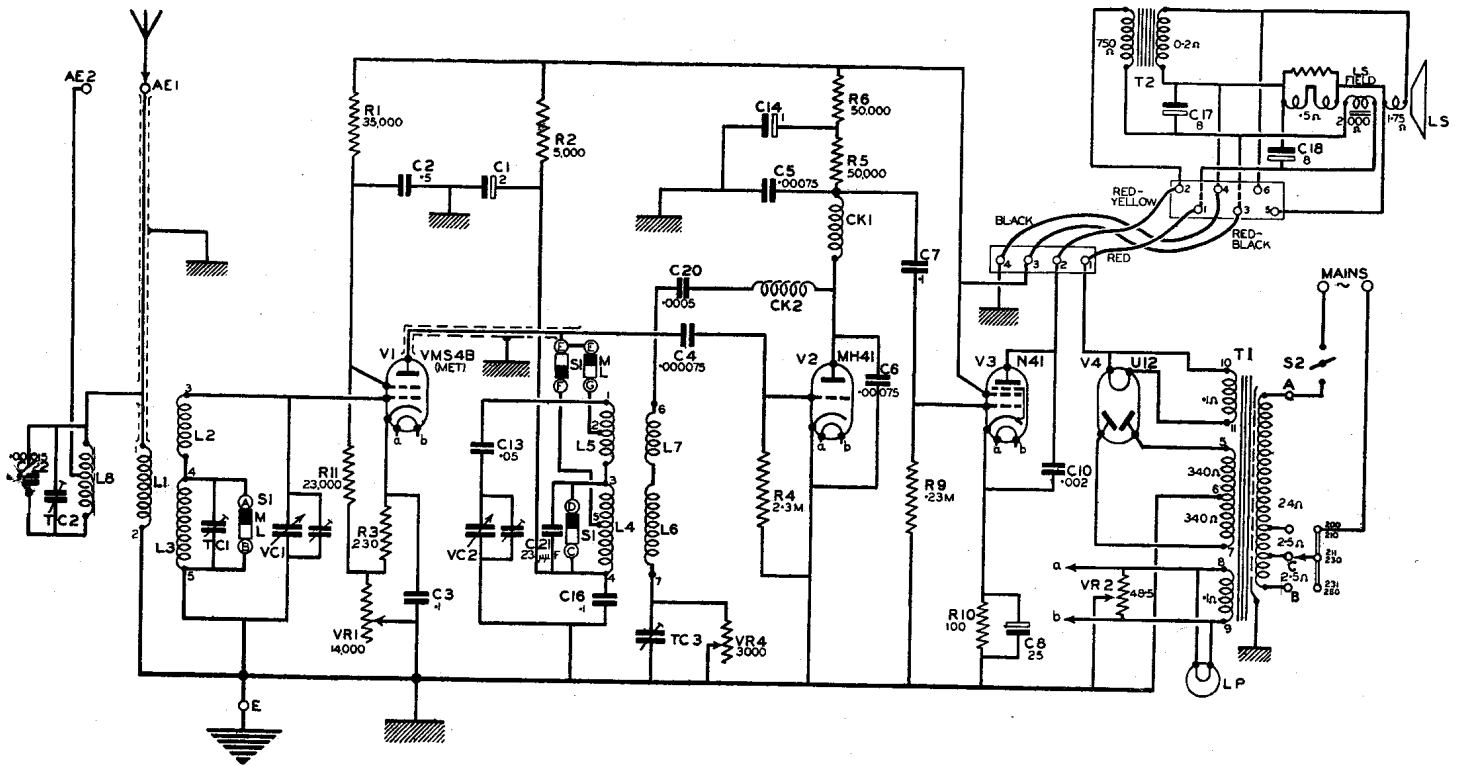
This Table was taken with the Volume Control set to maximum (except where otherwise stated).
Readings ± 20 per cent.

	V1 (VMS4B)	V2 (MH41)	V3 (N41)	V5 (U12)
Anode frame, volts	235—210*	80	205	A.C.
Anode feed, mA	0—0.5*	1.4	37	—
Screen frame, volts	110—70*	—	235	—
Screen feed, mA	0—0.5*	—	7.5	—
Cathode frame, volts	30—1.0*	—	4.5	360

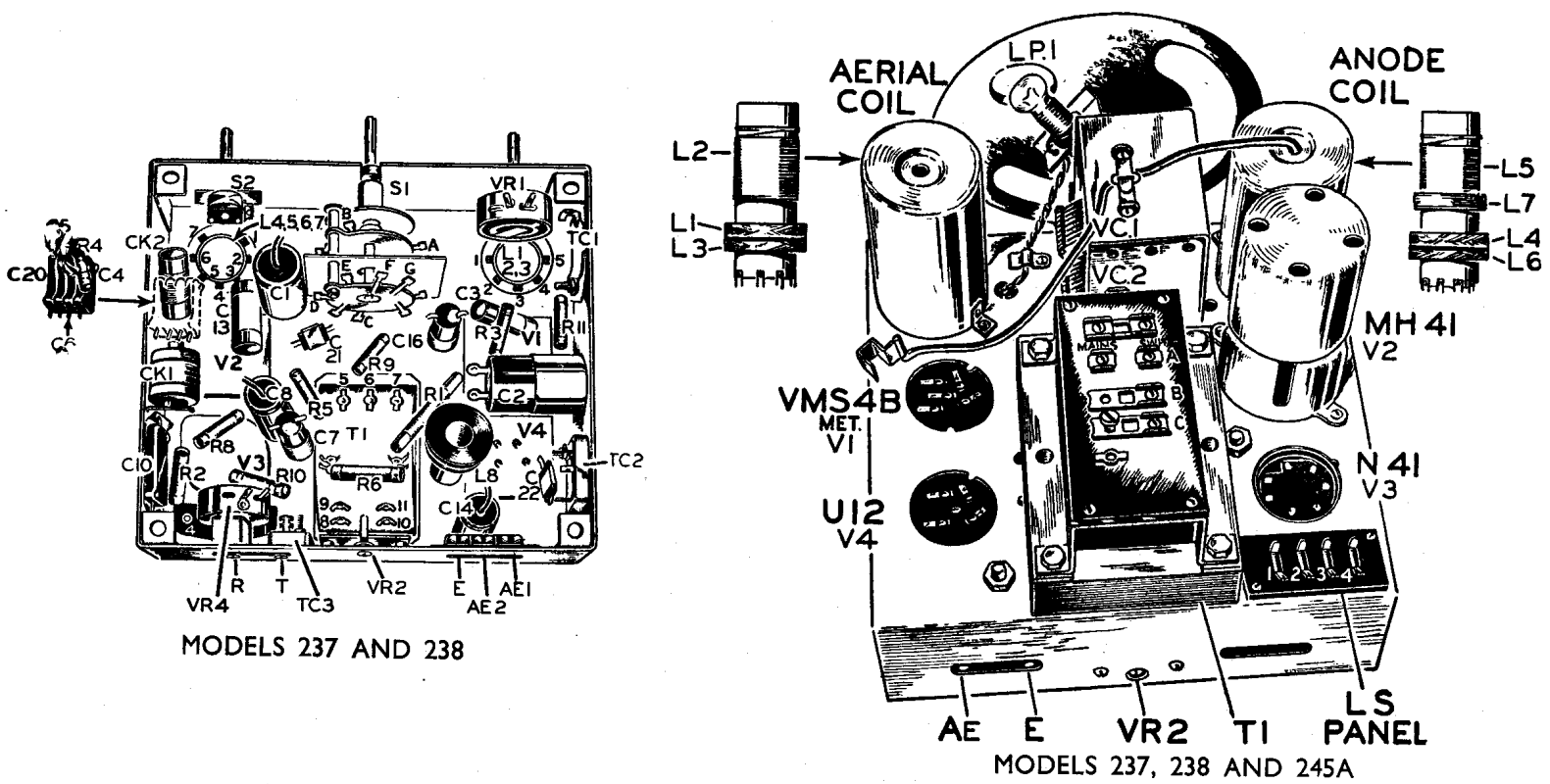
* According to position of volume control—first reading for minimum.

Total H.T. current measured at terminal I 53 mA.
Current through potentiometer R1, R11 and VR1... .. 3 mA.

Marconi Valves have been selected for this instrument because of their high performance and special electrical characteristics. Inferior performance or actual damage may result if valves other than the specified Marconi Valves are employed.



MODELS 237 AND 238



MODELS 237 AND 238

MODELS 237, 238 AND 245A

SPARE PART LIST

MODEL 237

Part No.	Description.	Parts per Inst.	Finish.	Retail List Price.	Per
22495	Instructions. Instruction Card	1	—	£ s. d. 0 0 3	Each.
22188	Warning, patents and valve label	1	—	0 0 6	Doz.
CABINET PARTS AND FITTINGS					
F9076C	Cabinet (covered)...	1	—	1 7 6	Each.
8195	Rubber feet	4	—	0 0 8	Doz.
18709	Pin, securing feet	4	—	0 0 3	Gross.
—	Baffle, with silk	1	—	0 1 6	Each.
21812	Silk	1	—	0 0 9	"
9545	Screw, securing, baffle	4	—	0 0 3	Doz.
21896	Loudspeaker escutcheon	1	ChP	0 5 0	Each.
21826	Screw } securing escutcheon	4	ChP	0 0 9	Doz.
21893	Washer }	4	WN	0 0 1	"
21825	Nut, slotted	4	WN	0 0 6	"
22643A	Ornament (at front corners)	2	ChP	0 1 0	Each.
21897A	Tuning escutcheon	1	Local BME _n	0 3 6	"
21889	Window	2	ChP	0 0 4	"
21892C	Scale (printed)	1	—	0 2 6	"
21901	Scale, backing	1	—	0 0 2	"
21810	Screw } securing tuning escutcheon	3	ChP	0 0 7	Doz.
21811	Clip }	3	—	0 0 6	"
21825	Nut, slotted }	3	WN	0 0 6	"
22492C	Cabinet back (printed)	1	—	0 1 6	Each.
8602	Screw, securing back	4	ParBE _n	0 0 2	Doz.
CONTROLS					
21827A	Knob—Tune	1	ChP	0 0 8	Each.
21827C	Knob—(S) On/Off switch	1	ChP	0 0 8	"
21827D	Knob—(Green and Red spot)—LW—MW	1	ChP	0 0 8	"
21827B	Knob—(V) volume	1	ChP	0 0 8	"
16564	Screw, PK, securing, knobs	4	—	0 0 7	Doz.
VALVES					
—	V1—VMS4B—Met H.F.	1	—	—	—
—	V2—MH41—Clear Det.	1	—	—	—
—	V3—N41—Clear Output	1	—	—	—
—	V4—U12—Clear Rectifier	1	—	—	—
LEADS, PLUGS, CLEATS, ETC.					
21819A	Mains lead, with two tags	1	—	0 1 0	Each.
11802	Tag	2	—	0 0 3	Doz.
21816A	Loudspeaker lead	1	—	0 1 0	Each.
7155	Cleat for leads	2	CdP	0 0 1	"
8692	Screw, securing cleats	2	—	0 0 3	Doz.
16289J	Plug, yellow	1	—	0 0 2	Each.
16289B	Plug, black	1	—	0 0 2	"
18889A	Carton, for mains lead and plugs	1	—	0 0 1	"
LOUDSPEAKER					
21880C	Loudspeaker, complete with T2, C17 and C18	1	—	1 12 9	"
21256C	Speech coil and cone	1	—	0 4 0	"
17476	"D" washer } securing spider of cone to studs on cone chassis }	2	CdP	0 0 1	Doz.
1092	Washer }	2	—	0 0 2	"
19585	Card washer }	2	—	0 0 1	"
19687	Nut }	2	—	0 0 2	"

SPARE PART LIST—continued.

Part No.	Description	Parts per Inst.	Finish.	Retail List Price.	Per
				£ s. d.	
Loudspeakers—continued.					
19456	Mounting ring for cone	2	—	0 0 3	Doz.
19457	Felt ring	1	—	0 0 1	Each.
19455A	Cone chassis, with six studs	1	—	0 2 3	"
11635	Nut, securing cone chassis to top plate of magnet assembly	4	WN	0 0 6	Doz.
21882A	Hum coil	1	—	0 0 7	Each.
19459E	CK3—Field coil... ..	1	—	0 5 6	Doz.
19458	Washer, 2 $\frac{1}{8}$ -in. ext. diam.	2	—	0 0 6	Doz.
17422	Washer, 2 $\frac{1}{8}$ -in. ext. diam.	1	—	0 0 3	"
11311	Screw, securing top plate	4	WN	0 0 2	"
21884	L.S. mounting bracket	1	CdP	0 0 9	Each.
21885	Transformer bracket	1	CdP	0 0 6	"
11310	Screw, securing brackets	3	WN	0 0 2	Doz.
21803A	Terminal panel, with six tags	1	—	0 0 4	Each.
11727	Tag	6	—	0 0 2	Doz.
8777	Screw, P.K., securing panel	2	—	0 0 6	"
12045Y	T2—Output transformer	1	—	0 7 6	Each.
10606	Screw, P.K., securing T2	2	—	0 0 7	Doz.
21862A	C17 and C18. 8 + 8 mfd. Electrolytic condenser block	1	—	0 8 6	Each.
8777	Screw, P.K., securing condenser block	2	—	0 0 6	Doz.
21855	Screw, 2BA \times $\frac{1}{8}$ -in. hex. hd.	4	WN	0 0 6	"
12094	Washer	4	WN	0 0 4	"
3167	Washer, S.P.	4	—	0 0 2	"
11627	Nut	4	WN	0 0 6	"
	securing Loudspeaker				
RADIO UNIT					
23100B	Radio Unit	1	—	5 0 0	Each.
21854	Screw, O.BA by $\frac{1}{4}$ -in.	4	WN	0 0 6	Doz.
3531	Washer	4	WN	0 0 2	"
3168	Washer, S.P.	4	—	0 0 2	"
	securing radio unit				
INDUCTANCES					
18925L	{ L1—Aerial coil L2—HF grid coil, MW L3—HF grid coil, LW } Aerial coil unit	1	—	0 3 9	Each.
18925M	Aerial coil unit, complete with screen	1	—	0 4 9	"
18925N	{ L4—HF anode coil, LW L5—HF anode coil, LW L6—Reaction coil, LW L7—Reaction coil, MW } Anode coil unit	1	—	0 5 0	"
18925P	Anode coil unit, complete with screen	1	—	0 6 0	"
18432C	Screen, on above coil units	2	—	0 0 9	"
18431	Spacer	2	—	0 0 2	"
11272	Screw	2	WN	0 0 5	Doz.
3166	Washer, SP	2	—	0 0 2	"
11636	Nut	2	WN	0 0 4	"
8777	Screw, securing screen to chassis	4	—	0 0 6	"
23092A	L8—Droitwich trap coil	1	—	0 2 6	Each.
23093	Spacer bush	1	WN	0 0 2	"
11229	Screw	1	WN	0 0 3	Doz.
3165	Washer, SP	1	—	0 0 2	"
	securing L8 to bush				
12116A	CK1—HF choke	1	—	0 2 0	Each.
11275	Screw	1	—	0 0 7	Doz.
6461	Washer	1	WN	0 0 1	"
3166	Washer, SP	1	—	0 0 2	"
11628	Nut	1	WN	0 0 4	"
23087A	CK2—Choke	1	—	0 0 6	Each.
	securing CK1 to bracket				
21586A	CK3—Loudspeaker field coil—see under "Loudspeaker."	1	—	1 1 0	"
21834A	T1—Mains transformer	1	—	0 1 0	"
	Terminal panel with tags				

SPARE PART LIST—continued.

Part No.	Description.	Parts per Inst.	Finish.	Retail List Price.			Per
				£	s.	d.	
Inductances—continued.							
8777	Screw, PK, securing panel	4	—	0	0	6	Doz.
11228	Terminal screw	6	WN	0	0	4	Each.
12179	Voltage adjusting screw	1	WN	0	0	1	Each.
11627	Nut	4	WN	0	0	6	Doz.
3167	Washer, SP } securing T1	4	—	0	0	2	Doz.
	T2—Output transformer—see under “Loudspeaker.”						
RESISTANCES							
5786BS	R1 — 35,000 ohms (SL)	1	—	0	1	3	Each.
17541F	R2 — 5,000 ohms	1	—	0	0	9	Doz.
19202AC	R3 — 230 ohms	1	—	0	0	9	Doz.
17140AL	R4 — 2.3 megohms	1	—	0	0	9	Doz.
19202J	R5 — 50,000 ohms	1	—	0	0	9	Doz.
17541P	R6 — 50,000 ohms	1	—	0	0	9	Doz.
19202M	R9 —230,000 ohms	1	—	0	0	9	Doz.
17541BU	R10— 100 ohms (SL)	1	—	0	1	0	Doz.
19202BJ	R11— 23,000 ohms (SL)	1	—	0	1	0	Doz.
6000CH	VR1— 14,000 ohms volume control	1	—	0	5	0	Doz.
17493	Spacing collar } securing VR1	1	CdP	0	0	1½	Doz.
12874	Washer }	1	CdP	0	0	1	Doz.
4400	Nut }	1	WN	0	0	2	Doz.
14567D	VR2—hum control	1	—	0	1	0	Doz.
23081	Insulation	1	—	0	0	3	Doz.
11231	Screw } securing VR2	2	WN	0	0	2	Doz.
18547	Spacing collar }	2	CdP	0	0	3	Doz.
3165	Washer SP }	2	—	0	0	2	Doz.
11629	Nut }	2	WN	0	0	6	Doz.
23083	Bracket	1	CdP	0	0	1½	Doz.
8777	Screw, PK, securing bracket	2	—	0	0	6	Doz.
CONDENSERS.							
21553D	C1—2 mfd., electrolytic, complete with nut and S.P. washer	1	—	0	2	9	Each.
18319L	C2—0.5 mfd.	1	—	0	1	0	Doz.
18382	Holder for C2	1	—	0	0	2	Doz.
16316D	C3—0.1 mfd.	1	—	0	0	9	Doz.
15719AB	C4—0.00075 mfd.	1	—	0	0	9	Doz.
15719AF	C5—0.00075 mfd.	1	—	0	0	9	Doz.
15719AF	C6—0.00075 mfd.	1	—	0	0	9	Doz.
21496	Insulation	1	—	0	0	4	Doz.
11234	Screw } securing C4, C5, C6 and C20	1	WN	0	0	1	Doz.
3165	Washer, SP }	1	—	0	0	2	Doz.
11629	Nut }	1	WN	0	0	6	Doz.
18318C	C7—0.1 mfd.	1	—	0	0	9	Doz.
18381	Holder for C7	1	—	0	0	3	Doz.
21553B	C8—25 mfd., electrolytic, complete with nut and SP washer	1	—	0	2	6	Doz.
15754C	C10—0.002 mfd.	1	—	0	1	7	Doz.
21497	Insulation	1	—	0	0	4	Doz.
22063	Bracket for CK1	1	—	0	0	1½	Doz.
18285	Rivet, securing C10 and bracket	2	—	0	0	2	Doz.
16316C	C13—0.05 mfd.	1	—	0	0	9	Each.
21553C	C14—1.0 mfd. electrolytic, complete with nut and SP washer	1	—	0	2	6	Doz.
18318C	C16—0.1 mfd.	1	—	0	0	9	Doz.
18381	Holder for C16	1	—	0	0	3	Doz.
	C17—8.0 mfd., see under “Loudspeaker.”						
	C18—8.0 mfd., see under “Loudspeaker.”						
15719E	C20—0.0005 mfd.	1	—	0	1	3	Doz.
22164E	C21—0.000023 mfd.	1	—	0	0	9	Doz.
22001AC	C22—0.00015 mfd.	1	—	0	0	9	Doz.

SPARE PART LIST—continued.

Part No.	Description.	Parts per Inst.	Finish.	Retail List Price.	Per
Condensers—continued.					
TC1—Parts as follows :—					
11738A	Trimmer plate	1	—	0 0 1	Each.
21829	Mica for trimmer	1	—	0 0 1½	Doz.
1530	Leatheroid washer	1	—	0 0 1	"
19907	Insulating bush	2	—	0 0 2	Each.
11744	Eyelet	1	—	0 0 3	Doz.
13325	Washer	1	—	0 0 1	"
11320	Adjusting screw	1	—	0 0 1½	"
16240A	TC2—Trimmer condenser	1	—	0 1 4	Each.
11229	Screw	2	WN	0 0 3	Doz.
3165	Washer, SP } securing TC2	2	—	0 0 2	"
11629	Nut	2	WN	0 0 6	"
16240D	TC3—Trimmer condenser	1	—	0 1 2	Each.
11229	Screw	2	WN	0 0 3	Doz.
3165	Washer, SP } securing TC3	2	—	0 0 2	"
11629	Nut	2	WN	0 0 6	"
18712J	VC1 and VC2—Two-gang condenser with two trimmers, complete with supporting brackets and screen	1	—	0 8 6	Each.
17357	Mica for trimmer	2	—	0 0 9	Doz.
17356	Trimmer plate	2	—	0 0 6	"
11317	Adjusting screw	2	WN	0 0 2	"
17362	Insulating washer	2	—	0 0 1	"
17359	Earth spring	2	—	0 0 6	"
21912	Cleat for anode lead	1	—	0 0 4	"
21765	Screw	2	WN	0 0 1½	"
12442	Washer, SP } securing screen	2	—	0 0 2	"
10606	Screw, PK, securing brackets	3	—	0 0 7	"
8777	Screw, PK, securing brackets to chassis	4	—	0 0 6	"
Note.—Condenser is "ganged" after assembly of screen and brackets.					
CONDENSER DRIVE AND TUNING DETAILS.					
21820	Condenser drive spindle	1	WN	0 0 2	Each.
21823A	Disc drive assembly	1	—	0 0 3	"
16564	Screw, PK, securing disc drive assembly to spindle	1	—	0 0 7	Doz.
11996	Spring washer, securing rear end of drive spindle	1	—	0 0 2	"
21813A	Condenser drive disc, with pointer wire	1	—	0 1 6	Each.
13387	Screw, securing drive disc to spindle of two-gang condenser	2	—	0 0 3	Doz.
21822A	Lamp holder and bracket	1	—	0 0 9	Each.
16359	Rivet, securing lamp bracket to drive disc	2	—	0 0 2	Doz.
18810A	LP2—Lamp, frosted	1	—	0 1 0	Each.
SWITCHES					
21863A	S1—Wave change switch complete with fixing nut and washer	1	—	0 8 6	Each.
12619	Screw, PK, securing support bracket of switch to chassis	1	—	0 0 6	Doz.
22304D	S2—Mains On/Off switch, complete with fixing nuts and SP washer	1	—	0 2 0	Each.
23091	Tab washer	1	WN	0 0 3	Doz.
23082	Insulation	1	—	0 0 4	"
VALVE HOLDERS, PANELS, ETC.					
10545	Valve panel, 5-pin	3	—	0 0 2	Each.
13703	Valve panel cover, 5 pin	3	—	0 0 2	"
10547	Valve panel cover, upper (red spot)	3	—	0 0 2	"
10546	Valve leg clip	14	—	0 0 7	Doz.
13804	Rivet securing 5-pin valve holders	12	—	0 0 3	"
18182	Valve panel, 7-pin	1	—	0 0 4	Each.
18183	Valve panel cover, 7-pin	1	—	0 0 4	"
17503	Valve leg clip	7	—	0 0 1	"
16357	Rivet securing 7-pin valve holder	2	—	0 0 2	Doz.
21802	Valve screen, top, for V2	1	AISp	0 2 3	Each.
21801	Valve screen, base, for V2	1	CdP	0 0 6	"

SPARE PART LIST—continued

Part No.	Description.	Parts per Inst.	Finish.	Retail List Price.	Per
				£ s. d.	
Valve holders, panels, etc.—continued.					
8777	Screw, PK, securing base	2	—	0 0 6	Doz.
19897	Anode clip for VI	1	—	0 0 1	Each.
19898	Screw, securing clip to anode lead	1	WN	0 0 3	Doz.
23098A	Anode lead, for VI	1	—	0 0 9	Each.
	Cleat for anode lead—see under "Two-gang Condenser."				
21852A	Aerial and earth connecting panel, with three tags	1	—	0 0 7	"
21853	Tag	3	—	0 0 6	Doz.
14566	Rivet, securing panel	2	—	0 0 2	"
21848A	Loudspeaker connecting panel, with four tags	1	—	0 0 3	Each.
11727	Tag	4	—	0 0 2	Doz.
7229	Earthing tag, under T1 fixing nut	1	—	0 0 4	"
17243	Earthing tag, under VR2 fixing nuts	2	—	0 0 5	"
5820	Cleat, securing lamp wiring	1	CdP	0 0 1	Each.
12619	Screw, PK, securing cleat	1	—	0 0 6	Doz.
16755	Insulating bush for leads	1	—	0 0 1	Each.
16756	Insulating bush for leads (larger)	1	—	0 0 1	"
MODEL 238					
Instructions.					
22891	Instruction card	1	—	0 0 6	Each.
22494	Warning, patents and valve label	1	—	0 0 6	Doz.
CABINET PARTS AND FITTINGS					
—	Cabinet	1	Pol	2 10 0	Each.
8195	Rubber feet	4	—	0 0 8	Doz.
—	Baffle with silk	1	—	0 1 9	Each.
22892	Silk	1	—	0 0 9	"
8602	Screw securing baffle	4	—	0 0 2	Doz.
21896	Loudspeaker escutcheon	1	BzP	0 5 0	Each.
21826	Screw	4	BzP	0 0 9	Doz.
21893	Washer } securing escutcheon	4	WN	0 0 1	"
21825	Nut, slotted }	4	WN	0 0 6	"
22881	Corner bracket	2	WN	0 0 1½	Each.
8685	Screw, securing bracket to side	4	—	0 0 2	Doz.
8640	Screw, securing bracket to back top rail	4	—	0 0 2	"
21897A	Tuning escutcheon	1	BzP	0 3 6	Each.
21913C	Scale (printed)	1	—	0 2 6	"
21810	Screw	3	BzP	0 0 7	Doz.
22890C	Cabinet back (printed)	1	—	0 1 6	Each.
CONTROLS					
10691B	Knob—"Tune"	1	ChF	0 0 7	Each.
10691G	Knob—"Switch"	1	ChF	0 0 7	"
10691F	Knob—"L.M."	1	ChF	0 0 7	"
10691C	Knob—"Vol."	1	ChF	0 0 7	"
All other parts as for Model 237.					
MODEL 245A					
Instructions.					
22186	Warning label	1	—	0 0 6	Doz.
22578	Instruction card	1	—	0 0 6	Each.
21915	Transfers A, E and HC	1	—	0 0 9	Doz.
22602	Transfer, T R	1	—	0 0 9	"

SPARE PART LIST—continued

Part No.	Description.	Parts per Inst.	Finish.	Retail List Price.	Per
				£ s. d.	
CABINET PARTS AND FITTINGS					
F9108C	Cabinet	1	Pol	5 0 0	Each.
	Lid for cabinet	1	Pol	1 4 0	"
22110A	Lid hinge	2	BzP	0 0 3	"
9559	Lid hinge screw	8	BzP	0 0 4	Doz.
22866	Lid felt, front, top and back	1	—	0 2 0	Each.
22867	Lid felt, side	2	—	0 0 4	"
21923	Felt for top of body, side	2	—	0 0 1	"
21924	Felt for top of body, back or front	2	—	0 0 1½	"
21925	Felt for motor board bearer, front	1	—	0 0 1	"
21926	Felt for motor board bearer, side, front	2	—	0 0 6	Doz.
21927	Felt for motor board bearer, side, back	2	—	0 0 4	"
	Motor board	1	Pol.	0 7 0	Each.
8684	Motor board screw	4	BzP	0 0 6	Doz.
14670	Motor board lifting knob	1	BzP	0 0 6	Each.
11411	Motor board lifting knob screw	1	WN	0 0 2	Doz.
12775	Insert nut in shelf	8	ParB	0 0 1	Each.
	Baffle board, with silk	1	—	0 2 6	"
21943	Silk only	1	—	0 0 9	"
22334	Baffle board felt, top	1	—	0 0 3	Doz.
9639	Baffle board screw	6	—	0 0 1½	"
22335	Baffle board felt, bottom	1	—	0 0 4	"
22336	Baffle board felt, side	2	—	0 0 3	"
6526	Dome for legs	4	—	0 0 6	"
21897A	Tuning escutcheon	1	BzP	0 3 6	Each.
21889	Window	2	—	0 0 4	"
21913C	Scale	1	—	0 2 6	"
21811	Clip	3	—	0 0 6	Doz.
21810	Screw } securing tuning escutcheon	3	BzP	0 0 7	"
21825	Nut }	3	WN	0 0 6	"
18899	Needle box clip	1	BzP	0 0 6	Each.
8602	Screw, securing clip in cabinet lid	2	BzP	0 0 2	Doz.
MOTOR BOARD FITTINGS					
22900A	Motor, including fixing screws	1	—	1 15 0	Each.
21940B	Turntable	1	BzP	0 5 6	"
3569	Felt	1	—	0 0 6	"
282	Spring clip	1	—	0 0 2	"
13869	Spring ring	1	—	0 0 6	Doz.
1002	Turntable clip	1	NG	0 0 6	"
21911A	Regulator	1	BzP	0 0 6	Each.
13387	Screw, securing regulator to motor	1	WN	0 0 3	Doz.
6255	Regulator plate	1	BzP	0 0 4	Each.
2418	Screw, securing regulator plate	2	BzP	0 0 3	Doz.
230E	Auto brake	1	BzP	0 7 3	Each.
2418	Screw, securing auto brake	3	WN	0 0 3	Doz.
246	Indicator plate	1	BzP	0 0 4	Each.
8602	Screw, securing indicator plate	2	BzP	0 0 2	Doz.
9430	Waste needle bowl	1	AcD	0 0 4	Each.
4369	Waste needle bowl, lid	1	AcD	0 0 9	"
3484	Waste needle bowl, support	1	CdP	0 0 2	"
9932	Waste needle bowl support, screw	3	WN	0 0 2	Doz.
21904B	Pick-up rest, with felt	1	BzP	0 1 0	Each.
21906	Felt	1	—	0 0 2	Doz.
2418	Screw, securing rest	2	BzP	0 0 3	"
PICK-UP					
17670L	Pick-up	1	—	1 12 0	Each.
17495	Trade mark insert	1	—	0 1 6	"
17670	Pick-up arm	1	—	0 10 0	"
21920A	Pick-up head assembly... ..	1	—	0 10 0	"

SPARE PART LIST—continued

Part No.	Description.	Parts per Inst.	Finish.	Retail List Price.	Per
Pick-up—continued.					
21920	Pick-up head moulding	1	—	£ s. d.	Each.
16101	Pole piece	2	WN	0 0 9	Each.
16113	Pole piece screw	4	WN	0 1 9	Doz.
16111C	Coil	1	—	0 0 8	Doz.
16109	Armature	1	CdP	0 2 0	Each.
16103	Armature pivot	1	—	0 0 6	Doz.
21921	Damping rubber	2	—	0 0 6	Doz.
16104	Damping rubber clamp	1	—	0 0 1	Each.
16126	Damping rubber clamp screw	1	—	0 0 5	Doz.
19132	Needle screw	2	WN	0 0 4	Doz.
21907	Magnet	1	BzSp	0 0 1½	Each.
			Local		
			BzSp	0 3 0	Doz.
			Local		
21908	Clip	1	—	0 0 4	Doz.
16118	Bracket for lead cover	1	CB	0 0 1	Each.
11238	Screw	1	BzP	0 0 2	Doz.
21036	Washer	1	—	0 0 2	Doz.
11630	Nut	1	WN	0 0 6	Doz.
16119	Sleeve, covering coil connections to lead	1	—	0 0 10	Doz.
16112	Screw	2	WN	0 0 1	Each.
21909	Retaining rubber	2	—	0 0 4	Doz.
3820	Washer	2	WN	0 0 2	Doz.
19156A	Pick-up lead	1	—	0 1 3	Each.
16700	Lead cover	1	—	0 0 3	Doz.
18769	Bracket	1	BME	0 0 1½	Each.
11237	Screw	1	BzP	0 0 5	Doz.
16121	Fixing base	1	—	0 0 8	Each.
16122	Support pillar	1	—	0 0 11	Doz.
16114	Pivot screw, securing P.U. arm to support pillar	1	BzP	0 0 1½	Doz.
16107A	Spring, with anchor rings	1	OB	0 0 2	Doz.
16108	Spring anchor	1	WN	0 0 6	Doz.
17001	Spacer for balls	1	WN	0 0 3	Each.
3519	Ball	8	—	0 0 1½	Doz.
16128	Locking screw	1	BzP	0 0 8	Each.
16127A	Brake arm and pin	1	BzP	0 0 11	Doz.
11228	Screw, securing brake arm	3	BzP	0 0 4	Doz.
17611	Dust washer	1	—	0 0 1	Doz.
17693	Pin	1	—	0 0 2	Gross
9547	Screw, securing pick-up	3	BzP	0 0 4	Doz.
LEADS, PLUGS, CLEATS, ETC.					
21947A	Motor lead, with three tags	1	—	0 0 7	Each.
21945A	Mains lead, with two tags	1	—	0 1 6	Doz.
11802	Tag, on above leads	7	SP	0 4 0	Doz.
21816A	Loudspeaker lead	1	—	0 1 0	Each.
	P.U. lead. See under "Pick-up."				
21903A	Mains plug	1	—	0 0 9	Doz.
16289J	Plug, yellow	2	—	0 0 2	Doz.
16289B	Plug, black	3	—	0 0 2	Doz.
18888A	Carton, for mains lead	1	—	0 0 1	Doz.
7155	Cleat, for leads and for securing valve packing	4	CdP	0 0 1	Doz.
8602	Screw, for cleats	4	WN	0 0 2	Doz.
LOUDSPEAKER					
21880C	Loudspeaker	1	—	1 12 9	Each.
21854	Screw	4	WN	0 0 6	Doz.
3168	Washer, SP	4	—	0 0 2	Doz.

SPARE PART LIST—continued.

Part No.	Description.	Parts per Inst.	Finish.	Retail List Price.	Per
RADIO UNIT					
				£ s. d.	
23100C	Radio unit ...	1	—	5 0 0	Each.
11303	Screw	4	WN	0 0 2	Doz.
2005	Washer	4	CdP	0 0 1½	"
3460	Spring washer	4	—	0 0 3	"
11303	Screw	4	—	0 0 2	"
1038	Washer	4	—	0 0 6	"
3168	Washer, S.P.	4	—	0 0 2	"
	} securing radio unit to baseboard ... }				
	} securing baseboard to insert nuts (12775) in shelf in cabinet }				
All spares for radio unit as for 23100B (radio unit used on Models 237 and 238) with the following exceptions :—					
18300CC	VR1 and VR3—volume control, with nut and washer	1	—	0 5 0	Each.
21919	Indicator plate	1	—	0 0 7	Doz.
13802	Rivet, securing indicator plate to chassis	2	—	0 0 2	"
21918A	Indicator and bush	1	—	0 0 3	Each.
16564	Screw, P.K. securing bush to spindle of volume control	1	—	0 0 7	Doz.
21910	Metal panel for VR2 and A.E. panel	1	BzP	0 0 9	Each.
11805	Screw, P.K.	4	BzP	0 0 6	Doz.
4396	Washer	4	BzP	0 0 2	"
14567D	VR2 hum control	1	—	0 1 0	Each.
11017	Spacer	2	—	0 0 3	Doz.
18305	Rivet	2	—	0 0 3	"
21852A	A. and E. panel with three socket tags	1	—	0 0 7	Each.
21853	A. and E. socket tag	3	—	0 0 6	Doz.
14566	Rivet, securing A and E panel to metal panel	2	—	0 0 2	"
16316H	C7, 0.005 mfd.	1	—	0 0 9	Each.
16316C	C19—0.05 mfd.	1	—	0 0 9	"
21866A	S1 change-over switch, with nut and washer	1	—	0 9 0	"
CONTROLS					
10691B	Knob—Tune	1	ChF	0 0 7	"
10691G	Knob—Switch	1	ChF	0 0 7	"
10691D	Knob—Change-over	1	ChF	0 0 7	"
10691C	Knob—Volume	1	ChF	0 0 7	"
16564	Screw, P.K., securing knobs	4	—	0 0 7	Doz.

" FINISH " CODE

AcD	Acid Dip	ChP.	Chromium Plate
AlSp	Aluminium Spray	NG	Nickel Gloss
BMEEn	Black Matt Enamel	ParB	Parkerised Black
BzP	Bronze Polish	OB	Oil Black
BzSp	Bronze Spray	ParBEn	Parkerised Black Enamel
CB	Camera Black	Pol	Polished
CdP	Cadmium Plate	SP	Silver Plate
ChF	Chrome Filled	Std	Standard
		WN	White Nickel

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

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

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

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