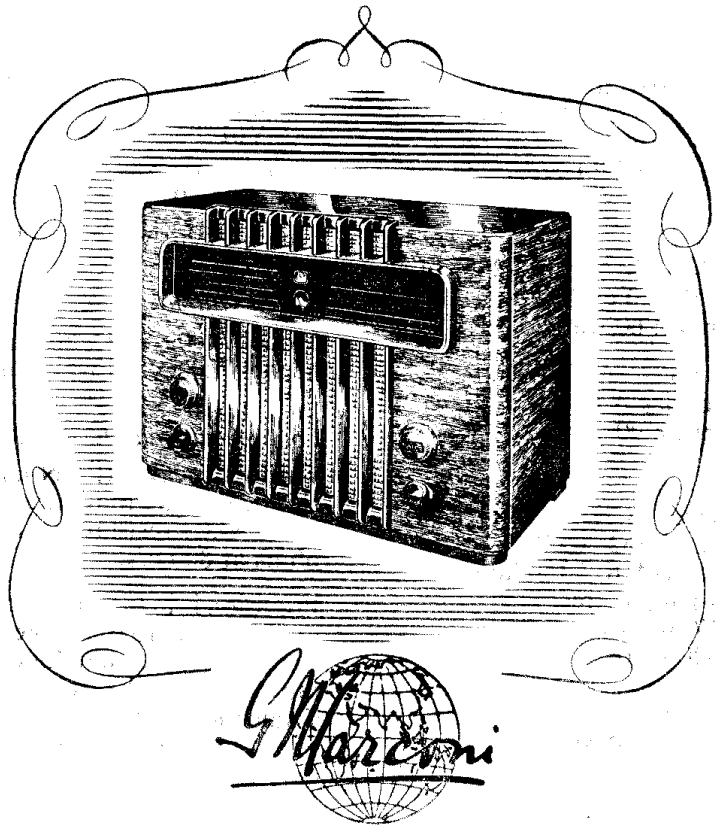
7100
7200

MARCONIPHONE



SERVICE MANUAL

Model 7100 for A.C. Mains
Model 7200 for A.C./D.C. Mains
6-valve Bandspread Table Receiver

MADE IN ENGLAND

CONTENTS

Part No. 40226

AUGUST, 1946

MODELS 7100 and 7200

In view of similarities and for convenience of description, this Manual deals with the above two models. Unless otherwise stated, all details given apply to both the A.C. (Model 7100) and A.C./D.C. (Model 7200) versions.

SPECIFICATION

Physical.

Height	14 inches (35·6 cm.)	Overall.
Width	19½ ,, (49·5 cm.)	Overall.
Depth	10⅞ ,, (27·6 cm.)	Overall.
Net Weight	29 lb. (13·1 kg.)	

Mains Supply and Consumption.

Model 7100	100-130, 140-160 and 195-255 volts A.C. 50-100 cycles. Consumption 60 watts.
Model 7200	195-255 volts A.C./D.C. 25-60 cycles A.C. Consumption 90 watts.

Wave Ranges.

S.W.	34·2-93·4 metres (8,777·7-3,211 kc/s).
M.W.	192-570 metres (1,562·5-526·3 kc/s).
L.W.	720-2,000 metres (416·7-150 kc/s).
Bandspread	(13m.) 13·7-14·05 metres.
	(16m.) 16·7-17 metres.
	(19m.) 19·55-20 metres.
	(25m.) 25-26 metres.
	(31m.) 30·5-31·6 metres.
Intermediate frequency	465 kc/s.

Valves, Lamps and Fuses.

Model 7100.	Model 7200.	
Marconi :		
X61M	X61M	Frequency Changer.
KTW61M	KTW61M	I.F. Amplifier.
DH63	DH63	Detector, A.V.C. and L.F. Amplifier.
Marconi :		
KT61	KT33C	Output.
U10	U31	Rectifier.
Y61	Y61	Visual Tuning Indicator.

Scale Lamps : 7·0 v. 0·3A 4·5 v. 0·25A

Fuse : 150mA 0·5A Cartridge Tvpe.

Rated Output.

Model 7100—4·0 watts maximum.
Model 7200—5·0 watts maximum.

Loudspeaker and Extra Loudspeaker.

The loudspeaker (Pt. No. 24460AF) is a permanent magnet elliptical cone, moving coil loudspeaker. The speech coil has a D.C. resistance of 4 ohms and an impedance of 5 ohms at 800 c/s.

Provision is made for the connection of extra low resistance loudspeakers to the sockets at the back of the receiver. To silence the internal loudspeaker the plug should be removed from the top socket on the extra loudspeaker connection panel. The receiver must not be operated with this plug removed unless an extra loudspeaker is connected.

Connection of Pick-up.

A high resistance pick-up or a record player may be connected to the sockets provided. A combined local/distant and gramophone switch is fitted at the back of the receiver. The receiver volume and tone controls are operative on gramophone.

CIRCUIT DESCRIPTION

Frequency Changer.

The aerial is capacity coupled to tuned transformers feeding V1, a triode-hexode frequency changer. These transformers are iron-dust cored for medium and long waves, and have their secondaries tuned by one section (VC1) of the two gang condenser. For the band spread ranges VC1 is disconnected and fixed tuning is provided by either of two tapped coils (L6 for 13 and 16m, and L8 for 19, 25 and 31m) ; in this case aerial coupling is by capacity only.

The triode portion of V1 (the local oscillator) has a grid circuit tuned by the other section of the gang condenser. Separate coils are provided for all waveranges (including the bandspread ranges, L9-13m, L11-16m, L14-25m, L15-31m) and anode coupling coils in all cases except L.W. and the 19, 25 and 31m bandspread ranges. In these cases oscillations are maintained by the coupling given by the padding condensers C11 and C6. The variable condenser VC2 has a system of series/parallel capacitances (C7, 8 and 9) switched so as to alter its capacity change ratio to suit the limited coverage requirements of the bandspread ranges.

I.F. Amplifier.

An iron-dust cored I.F. transformer with adjustable inductors and fixed capacitors couples the hexode anode of V1 to V2, the I.F. amplifying stage. A further transformer couples the anode of V2 to the detector diode. The intermediate frequency is 465 kc/s.

Detector and L.F. Amplifier.

The double-diode-triode, V3, provides demodulation and A.G.C. voltage from one of its diodes. The L.F. load of the diode is tapped (R25, R26) and a switch S4 selects the

voltage across the whole load or across a part of it only (R26) for application to the volume control and thus provides the " local/distant " feature. In the third position of the switch the gramophone pick-up sockets are connected to the volume control and the radio output is earthed. Automatic gain control voltage is applied via a filter R13, C20 to V1, V2, and the visual tuning indicator.

Output Stage.

The triode portion of V3 provides L.F. amplification and is resistance-capacity (R18, C25) coupled to the beam tetrode output valve V4. This valve is self-biassed and has a negative feed-back tone control circuit VR2, C27, and feeds the loudspeaker through the coupling transformer T1.

H.T. and L.T. Supplies.

The H.T. supply for Model 7100 consists of a conventional full-wave rectifier circuit with electrolytic reservoir and smoothing condensers and a smoothing choke. In Model 7200 a half-wave rectifier is employed, and adequate H.F. filtering is provided in the mains input leads in addition to the usual L.F. smoothing.

The L.T. supply for Model 7100 is taken from a separate winding on the mains transformer. Two pilot lamps (L.P.1 and L.P.2) are connected across this winding. In Model 7200 the heaters of all valves are in series with the dropper resistances, R35, R36 and R37. Two pilot lamps (L.P.1 and L.P.2) are provided with shunt resistances, R33 and R34.

INSTALLING

The Aerial and Earth.

This receiver was particularly designed to give a new standard of short wave reception. Unless it is connected to an adequate aerial and earth installation, however, the advantages of the design will be minimised or lost, and although the receiver will work on an inside aerial, a high outside aerial is essential for the best reception. Erect 60 to 80 feet of copper wire (including lead-in) as high as possible and as far as possible from buildings and trees.

A lightning arrestor or switch should be provided and the aerial must be well insulated at all points of contact with grounded objects.

A copper plate or earth rod buried in moist ground or a rising main water pipe forms an efficient earth. Do not use a telephone earth or a hot water or gas pipe.

Important.

The mains voltage is best ascertained by direct measurement at the customers premises.

The voltages covered by the terminals are :—

Model 7100.		Model 7200.	
Terminal.	Voltage.	Terminal.	Voltage.
110	100-117	205	195-215
125	118-130	225	216-235
150	140-160	245	236-255
205	195-215		
225	216-235		
245	236-255		

DISMANTLING

1. Disconnect the receiver entirely from the mains. Remove the aerial and earth plugs.
2. Remove the card back (two screws).
3. Remove the four knobs (screw fixing).
4. Remove the four fixing screws from the underside of the cabinet. (On Model 7200 these screws are covered by four insulator caps).
5. Withdraw the chassis.

H.F. TESTS AND MEASUREMENTS

General.

If I.F. circuits have been disturbed, complete I.F. and R.F. alignment must follow. Either S.W., M.W. or L.W. bands can be reganged without affecting the other bands but in the case of the spread bands 13m and 16m are interdependent, and so are 19m, 25m and 31m.

The oscillator tracks at a higher frequency than the signal on all three manual bands but lower on the spread wavebands.

Whilst ganging, 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 (1·5V across speech coil).

An A.C. voltmeter connected across the loudspeaker speech coil, may be used as an output meter.

Intermediate Frequency (465 kc/s, 645·2 m.).

Set wavechange switch to S.W., local/distant switch to " distant," volume control fully clockwise, the tone control fully anti-clockwise, and the gang condenser to maximum.

1. Inject a modulated signal at 465 kc/s, via a 0·005 mfd. condenser, into grid of V1 and chassis.
2. Adjust cores L24, L23, L22 and L21 in that order for maximum output.

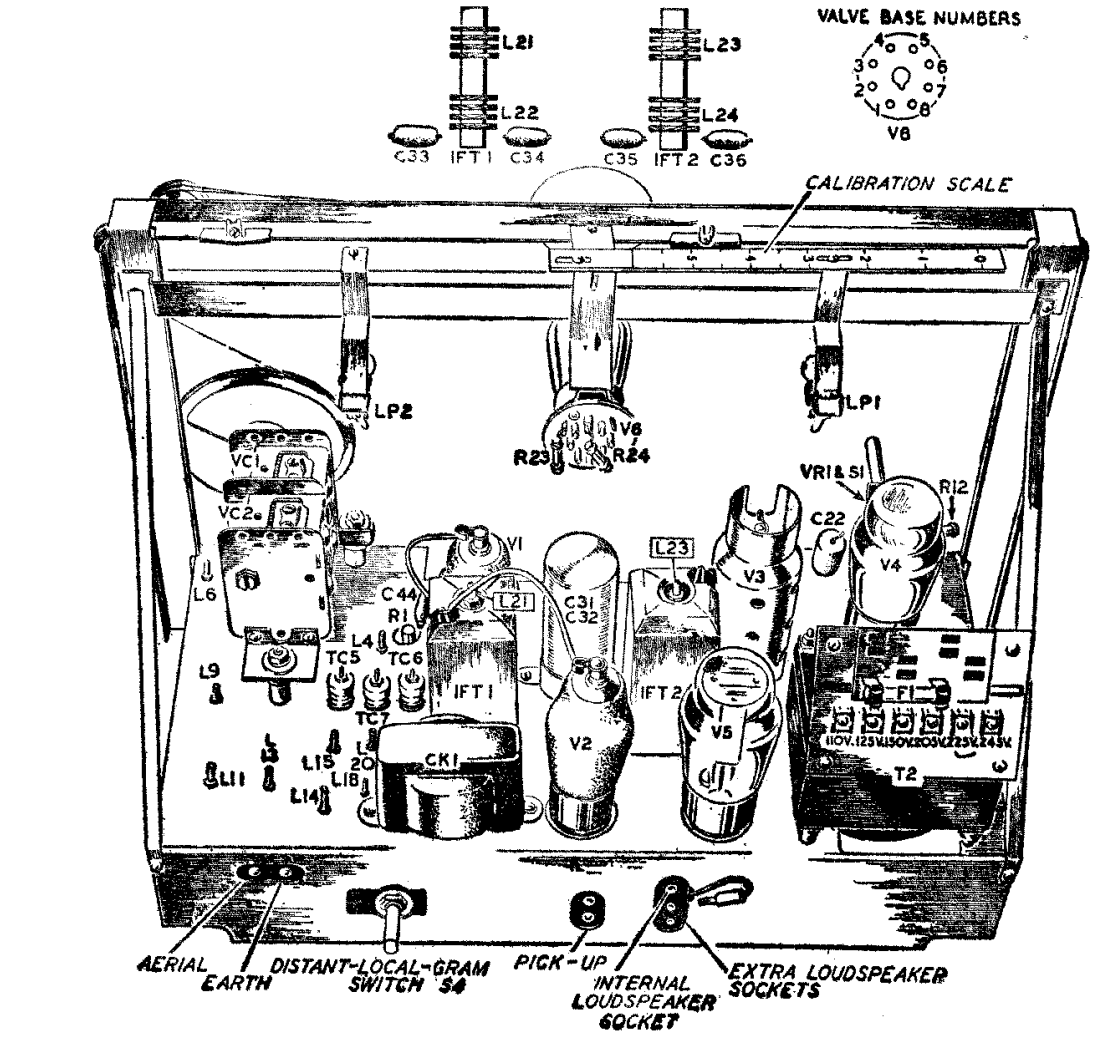
Setting up Calibration Scale.

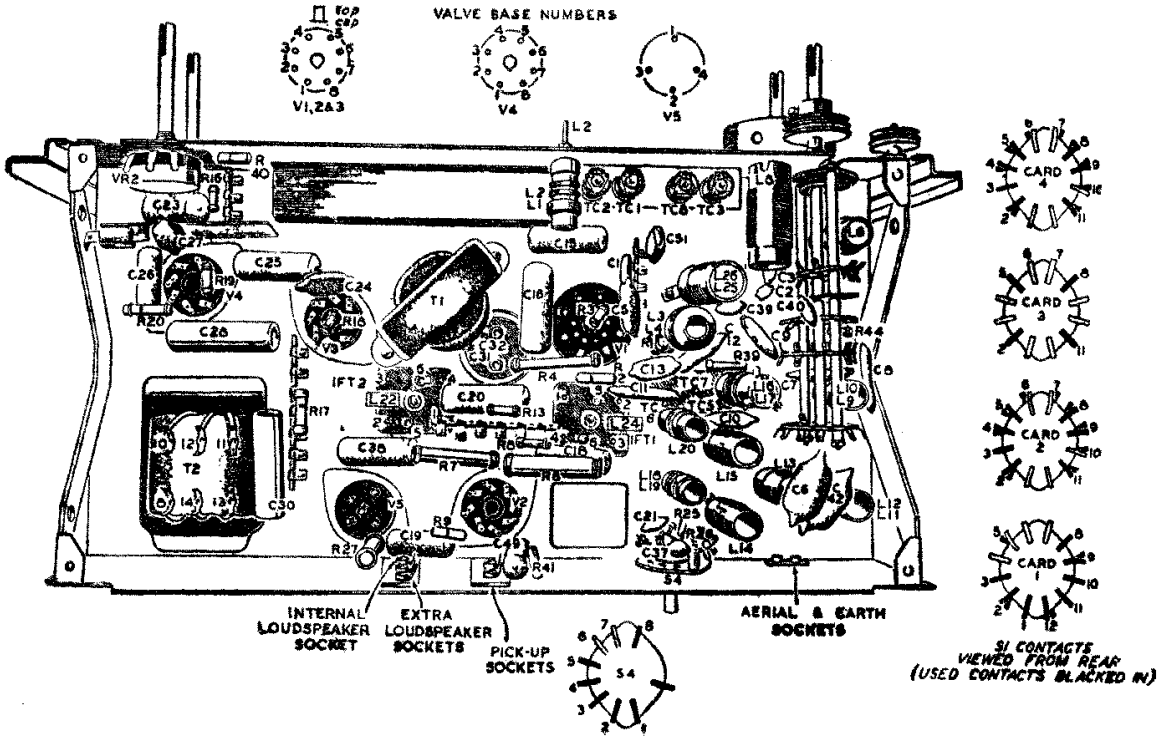
As the wavescale is not assembled to the chassis, a calibration scale is fitted on the chassis and is to be used for R.F. ganging purposes. This scale is calibrated in inches and sixteenths of an inch which correspond to frequencies as given in the ganging tables, and is read against the calibration pointer fitted to the left-hand cursor (looking at front of receiver).

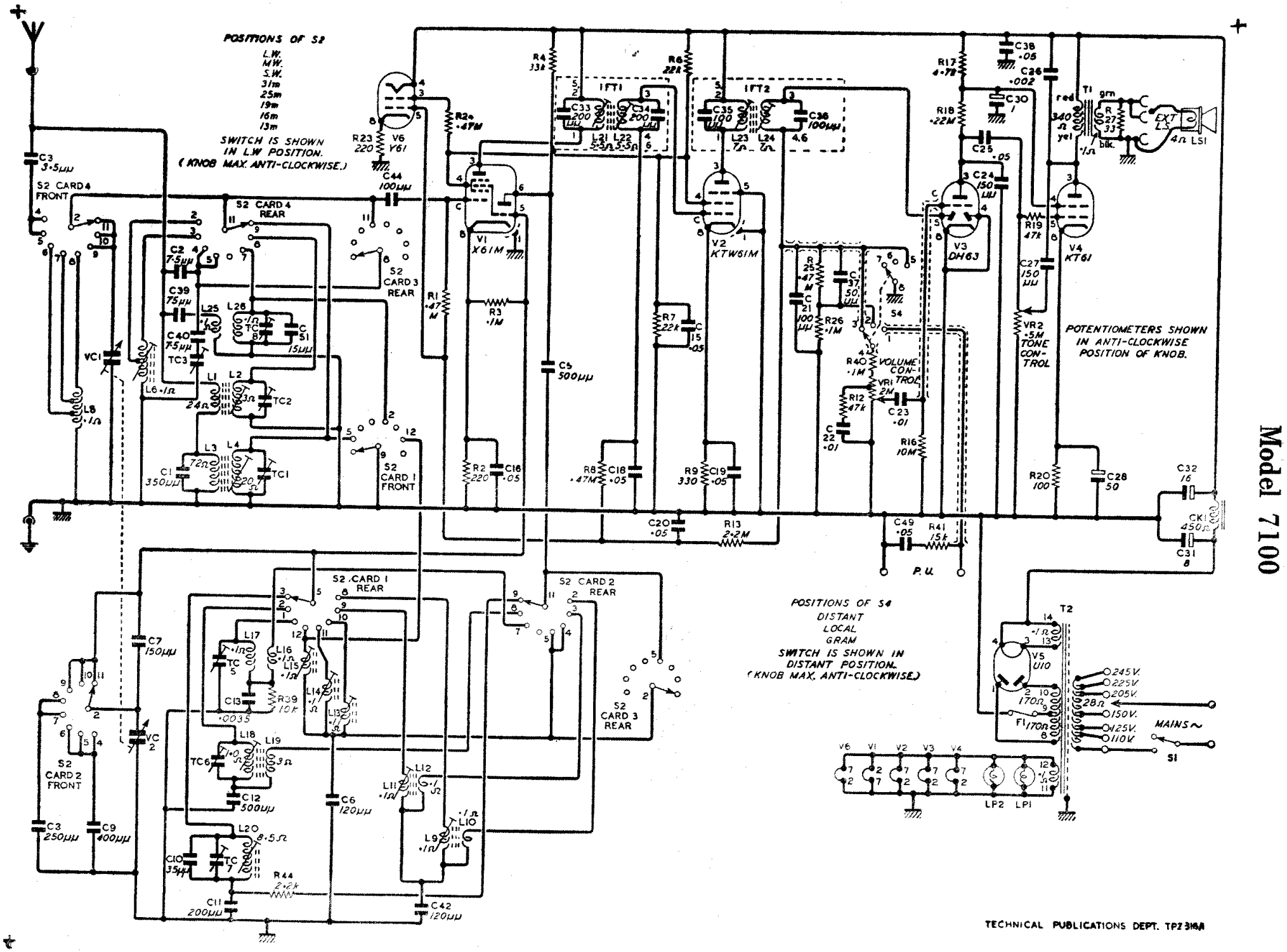
Before commencing R.F. ganging operations it is essential to check the position of the calibration scale and pointer in relation to the gang condenser.

1. Turn gang condenser to maximum.
2. See that the calibration pointer coincides with 5½ inches on the calibration scale.
3. If adjustment is necessary, slacken the two screws securing the scale and adjust ; then tighten securely the two screws.

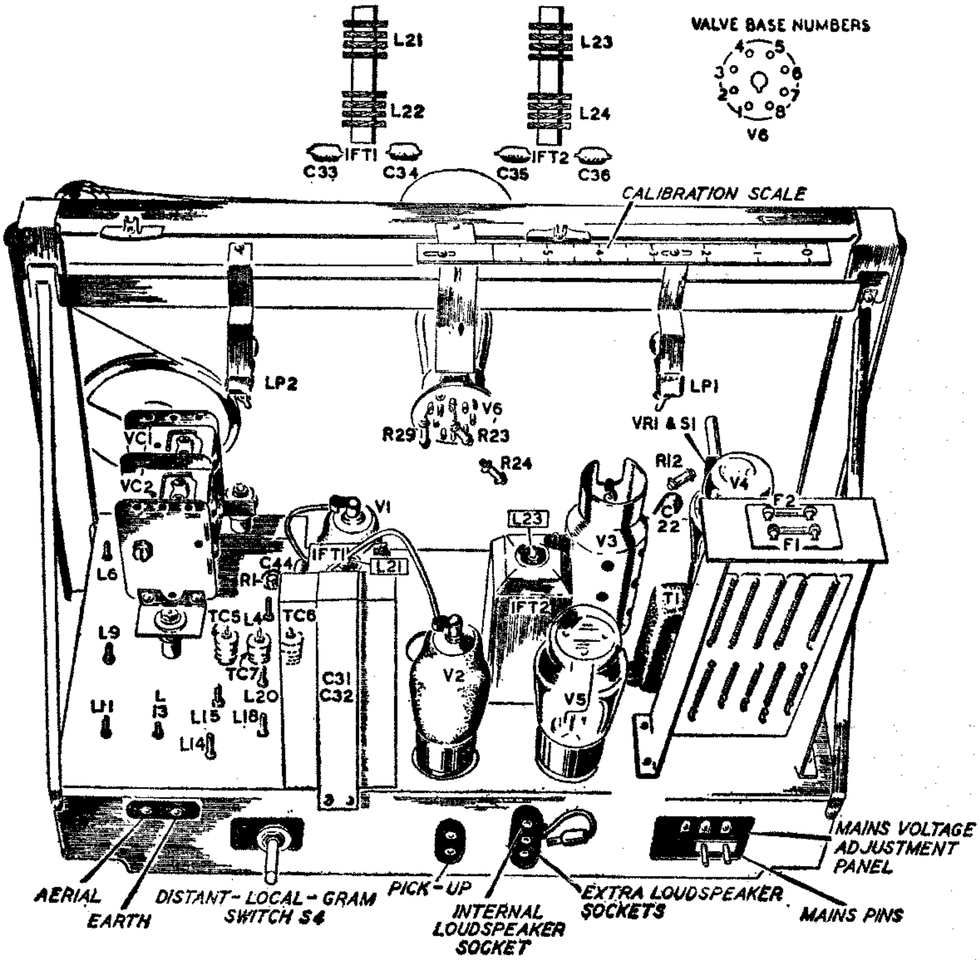
Model 7100

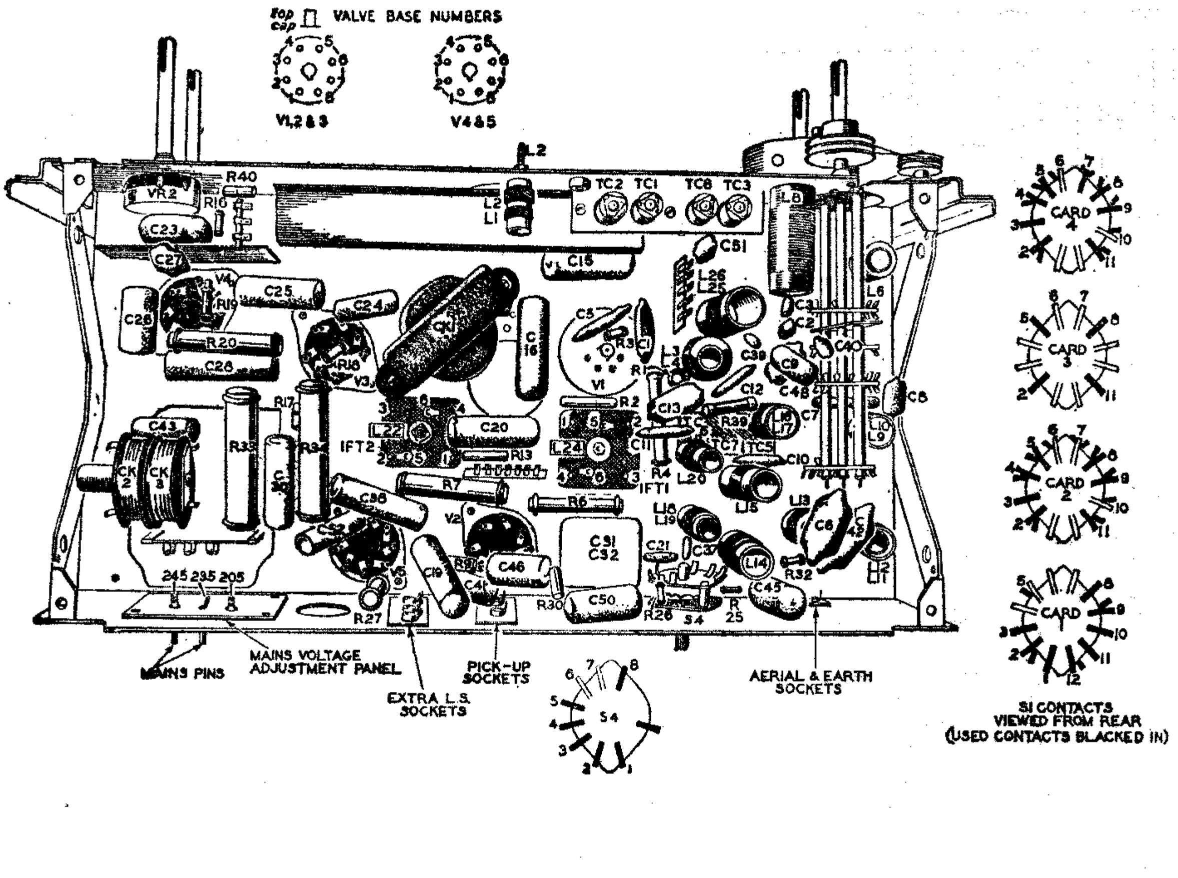

L21
L22
C33
IFT1
C34
L23
L24
C35
IFT2
C36
VALVE BASE NUMBERS
V8
CALIBRATION SCALE
LP2
LP1
V6
R23
R24
VC1
VC2
VR1 & S1
R12
C22
V4
V1
V3
L23
L6
C44
R1
L21
C31
C32
L4
TC5
TC6
TC7
IFT1
IFT2
F1
L9
L15
L20
L18
L11
L14
CK1
V2
V5
T2
AERIAL
EARTH
DISTANT-LOCAL-GRAM SWITCH S4
PICK-UP
INTERNAL LOUDSPEAKER SOCKET
EXTRA LOUDSPEAKER SOCKETS

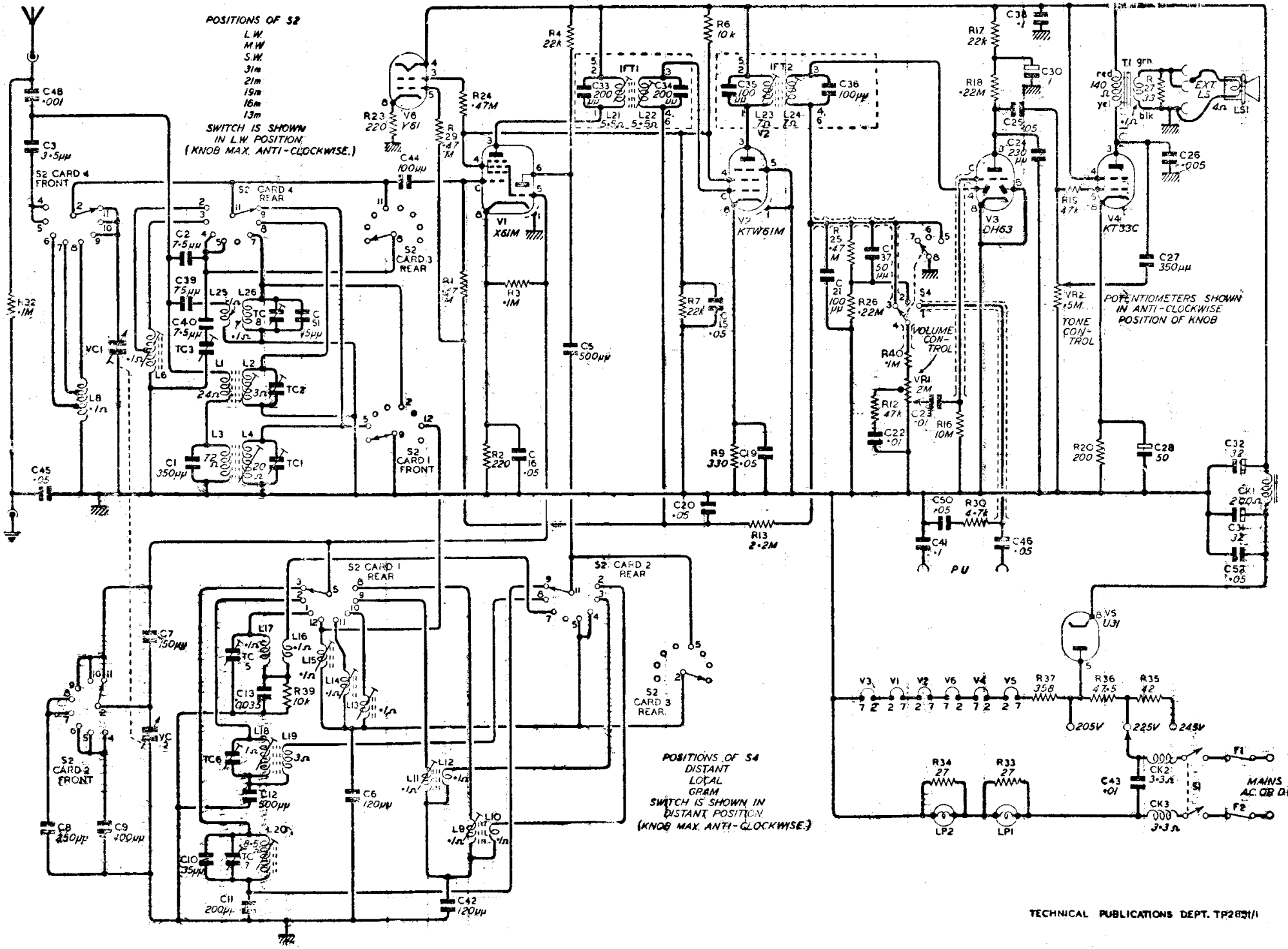

VALVE BASE NUMBERS
V1,2&3
V4
V5
CARD 4
CARD 3
CARD 2
CARD 1
S1 CONTACTS VIEWED FROM REAR (USED CONTACTS BLACKED IN)
INTERNAL LOUDSPEAKER SOCKET
EXTRA LOUDSPEAKER SOCKETS
PICK-UP SOCKETS
AERIAL & EARTH SOCKETS
S4


POSITIONS OF S2
L.W.
M.W.
S.W.
31m
25m
19m
16m
13m
SWITCH IS SHOWN IN L.W. POSITION. (KNOB MAX. ANTI-CLOCKWISE.)
S2 CARD 4 FRONT
S2 CARD 4 REAR
S2 CARD 3 REAR
S2 CARD 1 FRONT
S2 CARD 1 REAR
S2 CARD 2 REAR
S2 CARD 2 FRONT
S2 CARD 3 REAR
IFT1
IFT2
V1 X61M
V2 KTW61M
V3 DH63
V4 KT61
V5 U10
V6 Y61
S4
VOLUME CONTROL
TONE CONTROL
P.U.
EXT LS
4Ω LSI
POTENTIOMETERS SHOWN IN ANTI-CLOCKWISE POSITION OF KNOB.
POSITIONS OF S4
DISTANT
LOCAL
GRAM
SWITCH IS SHOWN IN DISTANT POSITION. (KNOB MAX. ANTI-CLOCKWISE.)
245V.
225V.
205V.
170Ω
150V.
125V.
110V.
MAINS~
S1
LP2 LP1
Model 7100
TECHNICAL PUBLICATIONS DEPT. TP2316/1

Model 7200


VALVE BASE NUMBERS
V6
L21
L22
L23
L24
IFT1
IFT2
C33
C34
C35
C36
CALIBRATION SCALE
LP2
LP1
V6
R29
R23
R24
VR1 & S1
R12
V4
F2
F1
VC1
VC2
V1
L23
V3
C22
C44
IFT1
L21
R1
L6
TC5
L4
TC6
IFT2
T1
L9
TC7
V2
V5
C31
C32
L20
L11
L13
L15
L18
L14
MAINS VOLTAGE ADJUSTMENT PANEL
AERIAL
EARTH
DISTANT-LOCAL-GRAM SWITCH S4
PICK-UP
INTERNAL LOUDSPEAKER SOCKET
EXTRA LOUDSPEAKER SOCKETS
MAINS PINS


Top Cap
VALVE BASE NUMBERS
V1,2 & 3
V4 & 5
L2
R40
VR2
R16
C23
C27
L2
L1
TC2
TC1
TC8
TC3
L8
C51
C15
V4
C25
C24
R19
C28
R20
C26
CK1
C16
C5
R3
C1
V1
R18
V3
L26
L25
C39
C12
C9
C48
C40
C3
C2
L6
L10
L9
C8
R17
R2
C13
R39
L7
C7
C43
R33
C30
R34
L22
IFT2
C20
R13
L24
C11
R4
IFT1
TC7
TC5
C10
CK2
CK3
R7
R6
L20
L15
L13
C36
V2
C31
C32
C21
C37
L18
L19
L14
C6
C42
R32
L11
C52
V5
C19
C46
C41
C45
R27
R30
C50
R26
S4
R25
245 235 205
MAINS PINS
MAINS VOLTAGE ADJUSTMENT PANEL
EXTRA L.S. SOCKETS
PICK-UP SOCKETS
AERIAL & EARTH SOCKETS
S4
CARD 4
CARD 3
CARD 2
CARD 1
S1 CONTACTS VIEWED FROM REAR (USED CONTACTS BLACKED IN)


POSITIONS OF S2
L.W.
M.W.
S.W.
31m
21m
19m
16m
13m
SWITCH IS SHOWN IN L.W. POSITION (KNOB MAX. ANTI-CLOCKWISE.)
S2 CARD 4 FRONT
S2 CARD 4 REAR
S2 CARD 3 REAR
S2 CARD 1 FRONT
S2 CARD 1 REAR
S2 CARD 2 REAR
S2 CARD 2 FRONT
S2 CARD 3 REAR.
V6 Y61
V1 X61M
V2 KTW61M
V3 DH63
V4 KT33C
V5 U31
IFT1
IFT2
VOLUME CONTROL
TONE CONTROL
POTENTIOMETERS SHOWN IN ANTI-CLOCKWISE POSITION OF KNOB
EXT. LS
LS1
P.U
POSITIONS OF S4
DISTANT
LOCAL
GRAM
SWITCH IS SHOWN IN DISTANT POSITION (KNOB MAX. ANTI-CLOCKWISE.)
205V
225V
245V
MAINS A.C. OR D.C.
LP1
LP2

Radio Frequency—Long Waves.

Set the volume control fully clockwise, the tone control fully anti-clockwise; wavechange switch to L.W.; and local/distant switch to "distant." Inject test signal into aerial and earth sockets via a L.W. dummy aerial.

Op. No.	Gang condenser or calibration scale setting.	Tune test oscillator to m.	kc/s.	Operation.
1	Set to 5″	1,900	157·9	Adjust L20, L4 cores for maximum output.
2	Set to $\frac{1}{4}$″	750	400	Adjust TC7 for maximum output.
3	Tune-in	850	352·9	Adjust TC1 for maximum output.
4	—	—	—	Repeat operations 1, 2 and 3.

Medium Waves.

Controls as before, but with wavechange switch set to M.W. M.W. dummy aerial to be used.

Op. No.	Gang condenser or calibration scale setting.	Tune test oscillator to m.	kc/s.	Operation.
1	Set to 4$\frac{13}{16}$″	530	566	Adjust L18, L2 cores for maximum output.
2	Set to $\frac{1}{4}$″	198	1,515	Adjust TC6 for maximum output.
3	Tune-in	210	1,428·6	Adjust TC2 for maximum output
4	—	—	—	Repeat operations 1, 2 and 3.

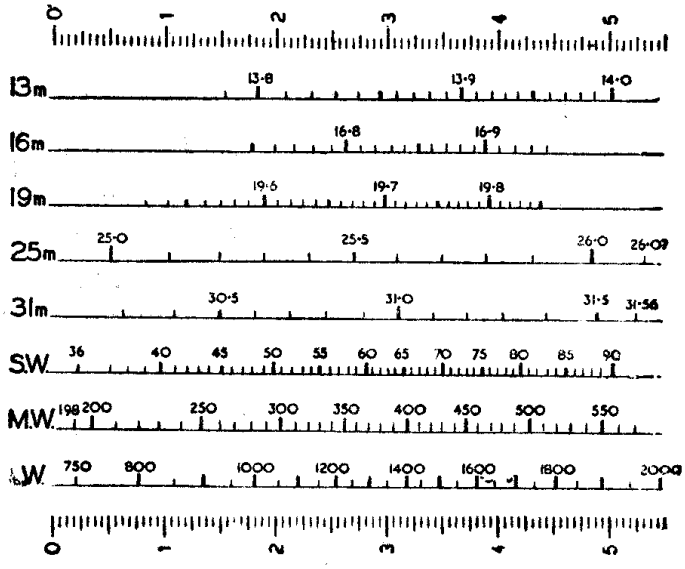
Short Waves.

Controls as before, but with wavechange switch set to S.W. S.W. dummy aerial to be used.

Op. No.	Gang condenser or calibration scale setting.	Tune test oscillator to m.	kc/s.	Operation.
1	Set to $\frac{1}{4}$″	36	8,333	Adjust TC5 for maximum output.
2	Tune-in and "rock" gang . .	50	6,000	Adjust TC8 for maximum output.
3	—	—	—	Repeat operations 1 and 2.

Bandspread Ranges.

Unless the signal generator to be used for aligning is known to have an extremely high order of accuracy it is essential to check the calibration of these ranges on a transmission of known frequency either during or after ganging. The oscillator circuit inductances may be re-adjusted to bring the tuning to the correct pointer reading on the scale. The receiver should have been switched on for at least a quarter of an hour before making adjustments. A reproduction of the scales relative to the inch calibrating scale is given below so that wavelengths can be interpreted into calibration scale readings for this purpose.



13 *and* 16 *Metres.*

Controls as before, but with wavechange switch set as required. S.W. dummy aerial to be used.

Op. No.	Wavechange switch.	Gang condenser or calibration scale setting.	Tune test oscillator to m.	Mc/s.	Operation.
1	13 m.	Set to $3\frac{7}{16}$"	13·88	21·6	Adjust core L9 for maximum output.
2	13 m.	" Rock " gang	13·88	21·6	Adjust core L6 for maximum output.
3	13 m.	—	—	—	Repeat operation 1.
4	16 m.	Set to $3\frac{1}{4}$"	16·85	17	Adjust core of L11 for maximum output.

19, 25 *and* 31 *Metres.*

Controls as before, but with wavechange switch set as required. S.W. dummy aerial to be used.

Op. No.	Wavechange switch.	Gang condenser or calibration scale setting.	Tune test oscillator to m.	Mc/s.	Operation.
1	19 m.	Set to $3\frac{1}{4}$"	19·72	15·2	Adjust L13 for maximum output.
2	19 m.	" Rock " gang	19·72	15·2	Adjust TC3 for maximum output.
3	19 m.	Set to $3\frac{1}{4}$"	19·72	15·2	Adjust L13 again for maximum output.
4	25 m.	Set to $3\frac{1}{4}$"	25·62	11·7	Adjust core of L14 for maximum output.
5	31 m.	Set to $2\frac{7}{8}$"	30·95	9·7	Adjust core of L15 for maximum output.

Ganging Tools.

A 4BA non-metallic box-spanner is required for adjusting the trimmer condensers. This spanner, together with a small non-metallic screwdriver inserted through the spanner, should be used for adjusting coil cores.

Use of Tuning Wand.

The use of a " tuning wand " will facilitate all ganging operations. The wand should be used as follows :—

(*a*) Insert the ferrocart end of the wand into the can of the coil of the circuit being aligned. If the output reading falls, leave trimmer set, but if reading increases, increase capacity by screwing down trimmer until a peak reading is obtained.

(*b*) Insert brass end of wand, and if reading falls leave the trimmer set, but if the reading increases, decrease trimmer capacity until a peak reading is obtained.

CALIBRATION

Replace chassis in the cabinet. It is important to check that the scale pointers register with the station names given on the wavescale. Proceed as follows :—

1. With gang set at maximum, adjust the right-hand pointer (looking at front of receiver) by slackening the clamp screw holding the cursor to the drive wire, and sliding cursor along wire. Set pointer at a point $\frac{1}{32}$" (*i.e.*, thickness of pointer) to the right-hand side of the 2,000 metre mark on the wavescale.

2. By the same method, set the left-hand pointer at a distance of 8 inches from the right-hand pointer.

CONDENSER AND POINTER DRIVE

Use only correct wire (S2447) and high grade fishing line (S515).

Approximately 52 inches of wire and 18 inches of cord are required.

1. Form a loop with an opening about $\frac{1}{8}$" in diameter at one end of the wire. It will be found that the twisted part of the wire can be readily soldered.

2. Pass loop through hole in periphery of drum and assemble on anchor pin as shown in diagram.

3. Wind wire nearly half a turn round drum and take over pulley marked " D." Arrows show direction.

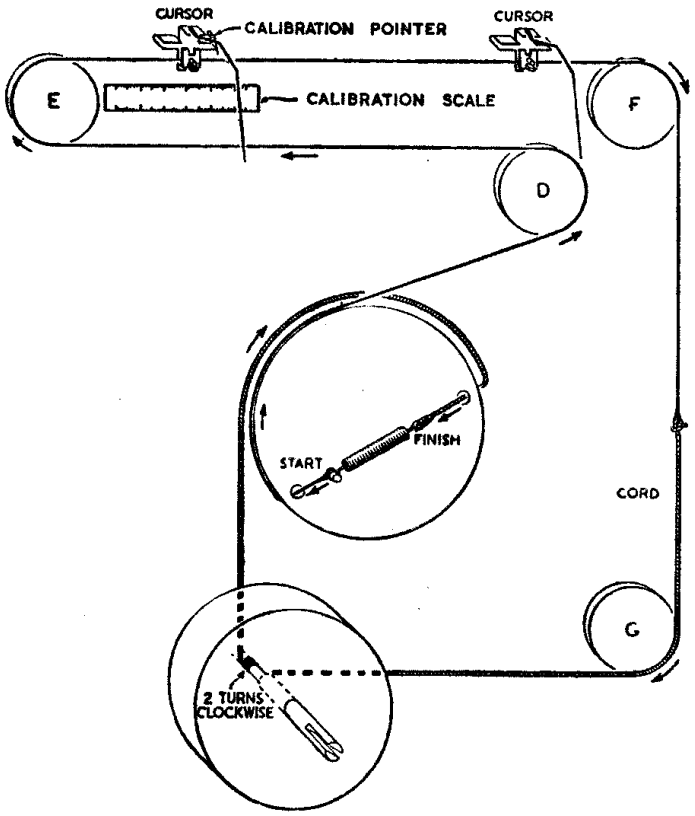
4. Take round pulley marked " E," and over pulley marked " F."

5. Attach one end of cord to loose end of the wire—tie a knot and stick with Shellac.

6. Pass cord round pulley marked " G " and wind two complete turns clockwise round tuning spindle.

7. Take cord almost a complete turn round drum and in through hole in periphery of drum. Assemble tension spring as shown. Tie a knot and shellac end of cord.

8. Assemble cursors to wire.



WAVECHANGE DRIVE

Use only correct wire (S2447).

Approximately 60 inches of wire is required.

1. Form a loop with an opening about $\frac{1}{8}$" in diameter at one end of the wire. It will be found that the twisted part of the wire can be readily soldered.

2. Fix end to one side of spring, the other end of the spring can be temporarily fixed by any means to the chassis.

3. Take wire up and over the *front* pulley marked " A " and wind $1\frac{3}{4}$ turns round *front* pulley marked " B " (DIAL) making sure that " L.W. " on the wavechange dial is at the bottom. Arrows show direction.

4. Take wire into *rear* pulley " B " and wind $1\frac{1}{2}$ turns.

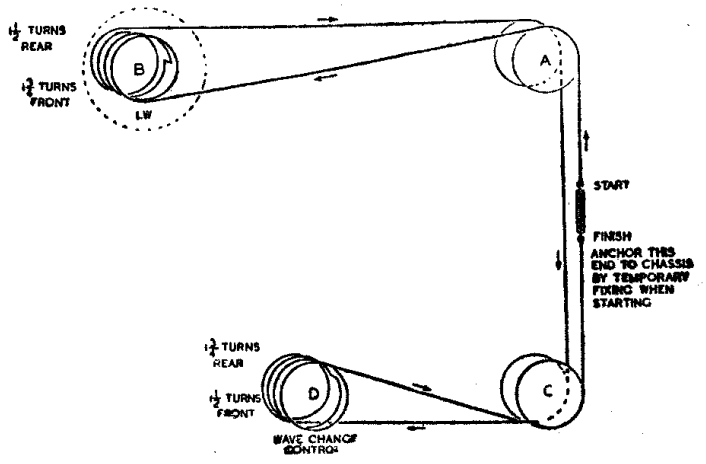
5. Pass wire back over *rear* pulley " A " and down to pulley marked " C."

6. Take wire under *rear* pulley " C " and wind $1\frac{3}{4}$ turns round *rear* pulley marked " D."

7. Take wire into *front* pulley " D " and wind $1\frac{1}{2}$ turns.

8. Pass wire back under *front* pulley " C " and fix to end of the spring.

9. Disconnect temporary fixing of spring to chassis as carried out in Operation 2.



VALVE TABLE

The following tables indicate the approximate voltage and current readings obtained on each valve when the receiver is connected to a 220 volt 50~ mains supply. Variations of ± 15% may be anticipated between models. Higher or lower mains voltage will naturally produce a corresponding variation in meter readings in approximate proportion to the change in mains supply.

A high resistance voltmeter should be used to measure voltages. Values stated below were obtained using a meter with a resistance of 500 ohms per volt.

MODEL 7100

Valves.	Anode.		Screen.		Cathode.	
	Volts to Chassis.	Current mA.	Volts to Chassis.	Current mA.	Volts to Chassis.	Current mA.
V1 (X61M)	Mx. 270 | Osc. 145	Mx. 1·9 | Osc. 3·2	75	2·6	1·7	7·7
V2 (KTW61M)	270	5·9	75	1·8	2·5	7·7
V3 (DH63M)	70	0·5	—	—	Nil	0·5
V4 (KT61)	250	43	225	6	4·9	49
V5 (U10)	300 (A.C.)	49 (A.C.)	—	—	—	—
			Target.			
V6 (Y61)	10	0·1	270	2·0	0·45	2·1

Total H.T. current (measured at fuse F1), 71mA (D.C.). Current through screen potentiometer (R6, R7), 35mA (D.C.).

MODEL 7200.

Valves.	Anode.		Screen.		Cathode.	
	Volts to Chassis.	Current mA.	Volts to Chassis.	Current mA.	Volts to Chassis.	Current mA.
V1 (X61M)	Mx. 170 | Osc. 105	Mx. 1·1 | Osc. 2·8	83	3·1	1·6	7·0
V2 (KTW61M)	170	5·7	83	1·8	2·5	7·5
V3 (DH63M)	50	0·5	—	—	Nil	0·5
V4 (KT33C)	158	41	170	9	10	50
V5 (U31)	182 (A.C.)	60 (A.C.)	—	—	175	70
			Target			
V6 (Y61)	15	0·1	170	1·7	0·4	1·8

Total H.T. current, 58mA. (D.C.). Current through screen potentiometer (R6, R7), 3·7mA (D.C.).

SPARE PARTS LIST

MODEL 7100

Ref.	Description.	Part No.
	INDUCTANCES.	
L1	M.W. aerial coil	27389AR
L2	M.W. grid coil	
L3	L.W. aerial coil	27389F
L4	L.W. grid coil	
L6	13 and 16 metres coil	33222C
L8	19, 25 and 31 metres coil	33257B
L9, L10	13 metre oscillator coils	33150C
L11, L12	16 metre oscillator coils	33223D
L13	19 metre oscillator coil	33223C
L14	25 metre oscillator coil	33223B
L15	31 metre oscillator coil	33222B
L16, L17	S.W. oscillator coils	33224A
L18, L19	M.W. oscillator coils	27389AH
L20	L.W. oscillator coil	27389G
L21	IFT1 primary coil	See IFT1
L22	IFT1 secondary coil	
L23	IFT2 primary coil	See IFT2
L24	IFT2 secondary coil	
L25	S.W. aerial coil	33259B
L26	S.W. grid coil	
	CONDENSERS.	
C1	350 mmfd.	22001AE
C2	7·5 mmfd.	22164B
C3	3·5 mmfd.	22164G
C5	500 mmfd.	22001E
C6	120 mmfd. ± 2%	117904AA
C7	150 mmfd. ± 2%	117904AB
C8	250 mmfd. ± 2%	117904AD
C9	400 mmfd. ± 2%	117904AH
C10	35 mmfd. ± 5%	117903BA
C11	200 mmfd. ± 2%	117904AC
C12	500 mmfd. ± 2%	117904AF
C13	0·0035 mfd. ± 2%	117906AJ
C15	0·05 mfd.	36355F
C16	0·05 mfd.	36355F
C18	0·05 mfd.	36355F
C19	0·05 mfd.	36355F
C20	0·05 mfd.	36355F
C21	100 mmfd.	22164L
C22	0·01 mfd.	36355D
C23	0·01 mfd.	36355D
C24	150 mmfd.	22001AC
C25	0·05 mfd.	36355F
C26	0·002 mfd.	31840E
C27	150 mmfd.	31933AC
C28	50 mfd.	53470A
C30	1 mfd.	53470T
C31	8 mfd.	32303A
C32	16 mfd.	
C33	200 mmfd. ± 2%	See IFT1
C34	200 mmfd. ± 2%	
C35	100 mmfd. ± 2%	See IFT2
C36	100 mmfd. ± 2%	
C37	50 mmfd.	22164J
C38	0·05 mfd.	36355F
C39	75 mmfd.	22164K
C40	7·5 mmfd.	22164B
C42	120 mmfd. ± 2%	117904AA
C44	100 mmfd.	22164L
C49	0·05 mfd.	36355F
C51	15 mmfd.	117901CE
VC1, VC2	Gang condenser	18712Y
TC1	3-30 mmfd.	30480A
TC2	3-30 mmfd.	30480A
TC3	3-30 mmfd.	30480A
TC5	3-30 mmfd.	30480A
TC6	3-30 mmfd.	30480A
TC7	3-30 mmfd.	30480A
TC8	3-30 mmfd.	30480A
	RESISTANCES.	
R1	0·47 megohms, $\frac{1}{10}$ w.	105574EE
R2	220 ohms, ± 5%, $\frac{1}{2}$ w.	33368J
R3	0·1 megohms, $\frac{1}{10}$ w.	105574EA
R4	33,000 ohms, 1 w.	33373DX
R6	22,000 ohms, ± 5%, 2 w.	33377W
R7	22,000 ohms, ± 5%, 1 w.	33373W
R8	0·47 megohms, $\frac{1}{10}$ w.	105574EE
R9	330 ohms, ± 5%, $\frac{1}{2}$ w.	33368K
R12	47,000 ohms, $\frac{1}{10}$ w.	105574DY
R13	2·2 megohms, $\frac{1}{10}$ w.	105574EJ
R16	10 megohms, $\frac{1}{10}$ w.	105574EN
R17	4,700 ohms, $\frac{1}{2}$ w.	33368DS
R18	0·22 megohms, $\frac{1}{4}$ w.	33362EC
R19	47,000 ohms, $\frac{1}{10}$ w.	105574DY
R20	100 ohms, ± 5%, $\frac{1}{2}$ w.	33368G
R23	220 ohms, $\frac{1}{4}$ w.	33362DJ
R24	0·47 megohms, $\frac{1}{4}$ w.	33362EE
R25	0·47 megohms, $\frac{1}{10}$ w.	105574EE
R26	0·1 megohms, $\frac{1}{10}$ w.	105574EA
R27	33 ohms, ± 5%, 1 w.	33373D
R39	10,000 ohms, $\frac{1}{10}$ w.	105574DU
R40	0·1 megohms, $\frac{1}{10}$ w.	105574EA
R41	15,000 ohms, $\frac{1}{10}$ w.	105574DV
R44	2,200 ohms, $\frac{1}{10}$ w.	105574DQ
VR1	2 megohms, volume control	18300FZ
VR2	0·5 megohms, tone control	123892G
	VALVES.	
V1	X61M	
V2	KTW61M	
V3	DH63	
V4	KT61	
V5	U10	
V6	Y61	
	TRANSFORMERS AND CHOKES.	
IFT1	1st I.F. transformer	30123V
IFT2	2nd I.F. transformer	30123AB
T1	Output transformer	32365A
T2	Mains transformer	35266D
CK1	L.F. choke	22628AL
	MISCELLANEOUS.	
S1	Mains switch	See VR1
S2	Wavechange switch	33280A
S4	Local-dist-gram switch	35410A
LP1, LP2	Pilot lamp, 7·0 v., 0·3 amp.	35420A
LS1	Loudspeaker	24460AF
F1	Fuse 150mA (red spot)	19850H
	Cabinet	RA107

MODEL 7200

Ref.	Description.	Part No.
	INDUCTANCES.	
L1	M.W. aerial coil	27389AR
L2	M.W. grid coil	27389AR
L3	L.W. aerial coil	27389F
L4	L.W. grid coil	27389F
L6	13 and 16 metres grid coil	33222C
L8	19, 25 and 31 metres grid coil	33257B
L9, L10	13 metre oscillator coils	33150C
L11, L12	16 metre oscillator coils	33223D
L13	19 metre oscillator coil	33223C
L14	25 metre oscillator coil	33223B
L15	31 metre oscillator coil	33222B
L16, L17	S.W. oscillator coils	33224A
L18, L19	M.W. oscillator coils	27389AH
L20	L.W. oscillator coil	27389G
L21	IFT1 primary coil	See IFT1
L22	IFT1 secondary coil	See IFT1
L23	IFT2 primary coil	See IFT2
L24	IFT2 secondary coil	See IFT2
L25	S.W. aerial coil	33259B
L26	S.W. grid coil	33259B
	CONDENSERS	
C1	350 mmfd.	22001AE
C2	7·5 mmfd.	22164B
C3	3·5 mmfd.	22164G
C5	500 mmfd.	22001E
C6	120 mmfd. ± 2%	117904AA
C7	150 mmfd. ± 2%	117904AB
C8	250 mmfd. ± 2%	117904AD
C9	400 mmfd. ± 2%	117904AH
C10	35 mmfd. ± 5%	117903BA
C11	200 mmfd. ± 2%	117904AC
C12	500 mmfd. ± 2%	117904AF
C13	0·0035 mfd. ± 2%	117906AJ
C15	0·05 mfd.	36355F
C16	0·05 mfd.	36355F
C19	0·05 mfd.	36355F
C20	0·05 mfd.	36355F
C21	100 mfd.	22164L
C22	0·01 mfd.	36355D
C23	0·01 mfd.	36355D
C24	230 mmfd.	22001AD
C25	0·05 mfd	36355F
C26	0·005 mfd.	31840J
C27	350 mmfd.	31933AE
C28	50 mfd.	53470A
C30	1 mfd.	53470T
C31	32 mfd.	35236A
C32	32 mfd.	35236A
C33	200 mmfd. ± 2%	See IFT1
C34	200 mmfd. ± 2%	See IFT1
C35	100 mmfd. ± 2%	See IFT2
C36	100 mmfd. ± 2%	See IFT2
C37	50 mmfd.	22164J
C38	0·1 mfd.	36355H
C39	75 mmfd.	22164K
C40	7·5 mmfd.	22164B
C41	0·1 mfd.	36355H
C42	120 mmfd. ± 2%	117904AA
C43	0·01 mfd.	31840N
C44	100 mmfd.	22164L
C45	0·05 mfd.	36355F
C46	0·05 mfd.	36355F
C48	0·001 mfd.	22001F
C50	0·05 mfd.	36355F
C51	15 mmfd.	117901CE
C52	0·05 mfd.	36355F
VC1, VC2	Gang condenser	18712Y
TC1	3-30 mmfd.	30480A
TC2	3-30 mmfd.	30480A
TC3	3-30 mmfd.	30480A
TC5	3-30 mmfd.	30480A
TC6	3-30 mmfd.	30480A
TC7	3-30 mmfd.	30480A
TC8	3-30 mmfd.	30480A
	RESISTANCES.	
R1	0·47 megohms, $\frac{1}{10}$ w.	105574EE
R2	220 ohms, ± 5%, $\frac{1}{2}$ w.	33368J
R3	0·1 megohms, $\frac{1}{10}$ w.	105574EA
R4	22,000 ohms, 1 w.	33373DW
R6	10,000 ohms, ± 5%, 2 w.	33377U
R7	22,000 ohms, ± 5%, 1 w.	33373W
R9	330 ohms, ± 5%, $\frac{1}{2}$ w.	33368K
R12	47,000 ohms, $\frac{1}{10}$ w.	105574DY
R13	2·2 megohms, $\frac{1}{10}$ w.	105574EJ
R16	10 megohms, $\frac{1}{10}$ w.	105574EN
R17	22,000 ohms, $\frac{1}{2}$ w.	33368DW
R18	0·22 megohms, $\frac{1}{4}$ w.	33362EC
R19	47,000 ohms, $\frac{1}{10}$ w.	105574DY
R20	200 ohms, 2 w.	33377AW
R23	220 ohms, $\frac{1}{4}$ w.	33362DJ
R24	0·47 megohms, $\frac{1}{4}$ w.	33362EE
R25	0·47 megohms, $\frac{1}{10}$ w.	105574EE
R26	0·22 megohms, $\frac{1}{10}$ w.	105574EC
R27	33 ohms, ± 5%, 1 w.	33373D
R29	0·47 megohms, $\frac{1}{10}$ w.	105574EE
R30	4,700 ohms, $\frac{1}{10}$ w.	105574DS
R32	0·1 megohms, $\frac{1}{10}$ w.	105574EA
R33	27 ohms ± 5%, 5 w.	33381RK
R34	27 ohms ± 5%, 5 w.	33381RK
R35	42 ohms	32852C
R36	47·5 ohms	32852C
R37	358 ohms	32852C
R39	10,000 ohms, $\frac{1}{10}$ w.	105574DU
R40	0·1 megohms, $\frac{1}{10}$ w.	105574EA
VR1	2 megohms, volume control	27655KV
VR2	0·5 megohms, tone control	123892G
	VALVES.	
V1	X61M	
V2	KTW61M	
V3	DH63	
V4	KT33C	
V5	U31	
V6	Y61	
	TRANSFORMERS AND CHOKES.	
IFT1	1st I.F. transformer	30123V
IFT2	2nd I.F. transformer	30123AB
T1	Output transformer	35515C
CK1	L.F. choke	22628AN
CK2	Mains choke	16840K
CK3	Mains choke	16840K
	MISCELLANEOUS.	
S1	Mains switch	19214D
S2	Wavechange switch	33280A
S4	Local dist.-gram. switch	35410A
LP1, LP2	Pilot lamp, 4·5 v., 0·25 amp.	35420B
LS1	Loudspeaker	24460AF
F1, F2	Fuse 0·5A	19850A
	Cabinet	RA107

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