

SERVICE MANUAL

FOR

Marconiphone

ERRATUM.**Service Manual for Model 66.**

Your attention is directed to an error in the above manual in the note following Fig. 2 on Page 4.

This note should read as follows:—

A resistance R.12 has been added in parallel with the secondary of T.1. In addition, a fixed condenser of .002 MFD. is now placed across the Loud Speaker.

Attach this slip to your Model 66 Manual.

MODEL 66 PORTABLE.**THE SUPER TUNED
PORTABLE FOUR.**

**The First and Foremost
Name in Radio.**

GENERAL NOTES.

Model 66 is a 4-valve instrument having one screen grid stage, coupled by the tuned anode method to a leaky grid detector. Resistance and transformer coupling precedes the first and second L.F. stages respectively, the output being by a new high efficiency pentode.

VALVES AND EQUIPMENT.—The high frequency valve, Marconi S21, is followed by an HL2 detector; an HL2 and PT2 are used in the first and second L.F. stages. All valves, with the exception of PT2, are metallised. The standard equipment comprises a Marconiphone 108-volt H.T. battery, a 9-volt G.B. battery, and a 2-volt 28 A.H. unspillable accumulator.

INSTALLATION.—**Aerial and Earth.** Care should be taken, when installing, to provide for any of the standard external connections which may be desirable. An outside aerial of 40-50 ft. total length may be used, in conjunction with an ordinary earth connection. Remember that this addition practically eliminates the directional properties of the frame aerial—this is sometimes an advantage. **Gramophone Pick-up.** Model 66, in conjunction with the Marconiphone pick-up, provides excellent gramophone reproduction; the pick-up must be fitted with the usual potentiometer control (15,000-25,000 ohms), and must be completely disconnected from the set for radio reception. **External Speaker.** If an additional speaker is connected, it must be of the high resistance type.

REMOVAL AND EXAMINATION OF CHASSIS.

Model 66 is designed so that the whole frame and chassis is removable in one unit from the cabinet for test and examination. After removing the complete unit, it is possible to examine external connections, speaker, etc. By a subsequent partial removal of the chassis from the frame, the remaining components are made available.

Procedure.—Remove firstly the valves, H.T. and G.B. batteries, and the L.T. accumulator.

Note that the valve holders have strong spring contacts, and the valves must be carefully eased from their sockets ; grip each by the base, and not by the bulb.

REMOVAL OF CHASSIS (complete with frame).

This renders the following components accessible :—

Flex lead joints.

Aerial winding soldering lugs.

Loudspeaker unit and C. 11.

C. 7 (H.T. reservoir condenser).

S. 4 (control switch).

- (1) Gently lever off knobs.
- (2) Remove wood screws, one under accumulator, one under H.T. battery, one on left hand side of loudspeaker cone, the other from the right hand of rear of front of cabinet, visible just level with the pentode holder.
- (3) Carefully withdraw entire chassis, loudspeaker and frame in one unit.
- (4) Disconnect screened loudspeaker lead from clips on right of interior of unit (viewed from the back).
- (5) Slacken grub screw, and remove wave change switch dial.
- (6) Remove loudspeaker baffle board and loudspeaker complete by removing the four wood screws. The soldered joints of flexible battery leads and aerial windings are now exposed. Note that the paxolin panel is suitably marked for re-assembly of leads.

TO EXAMINE CHASSIS.

- (1) Unsolder 3 aerial wires on right if windings are to be tested, otherwise there is no need to unsolder to examine chassis.
- (2) There are two large round head screws on either side of case. Remove the top screws only.
- (3) Slack off bottom strap screws and tilt chassis forward, thus rendering all parts of the chassis accessible, at the same time leaving it conveniently supported by frame.
- (4) Remove 3 knurled head nuts securing back metal screen. This will reveal the rest of the components. Certain continuity tests may now be made from the cord ends to check for disconnections.

BATTERY LEAD CODE.

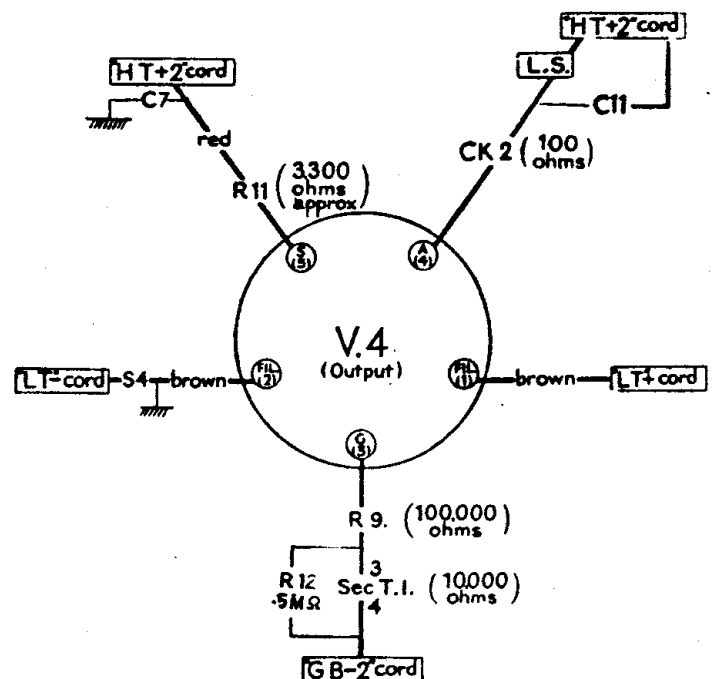
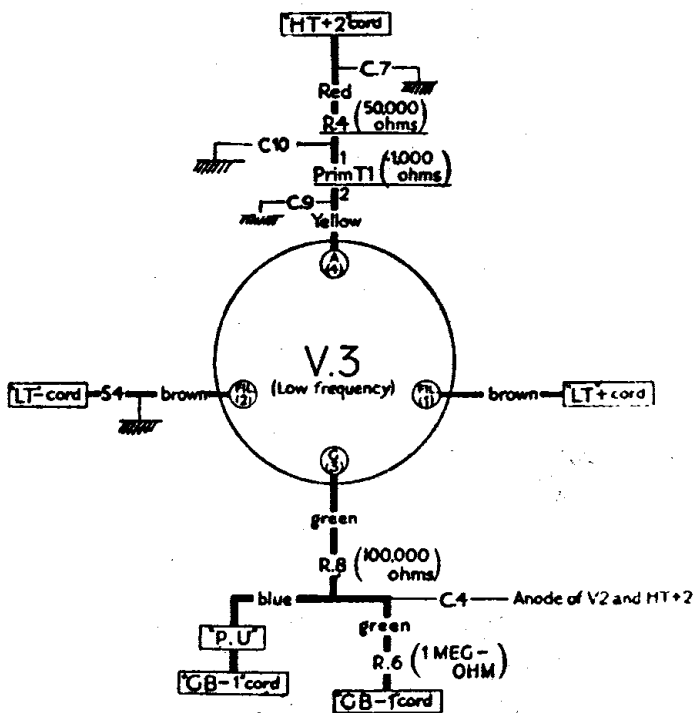
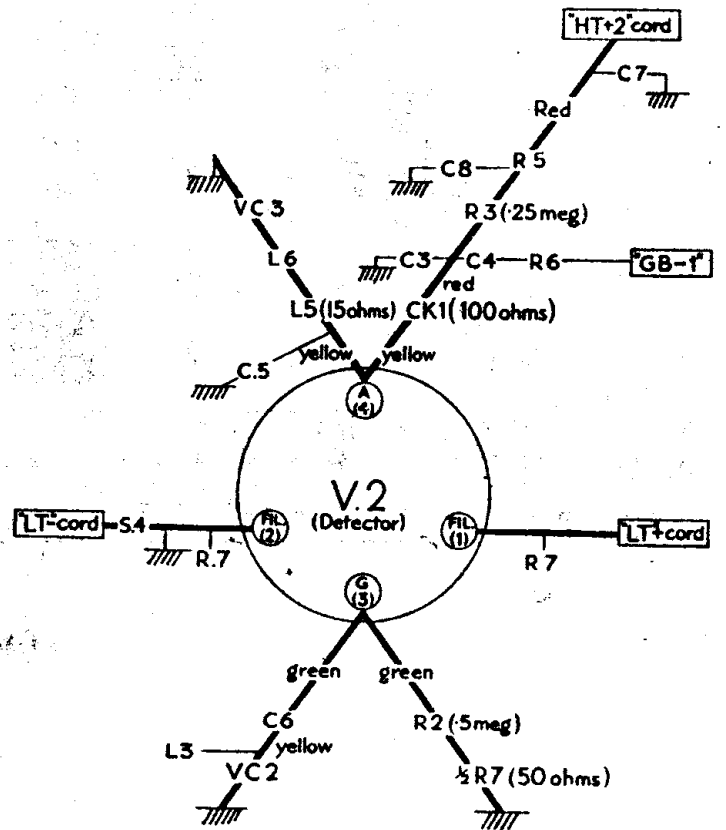
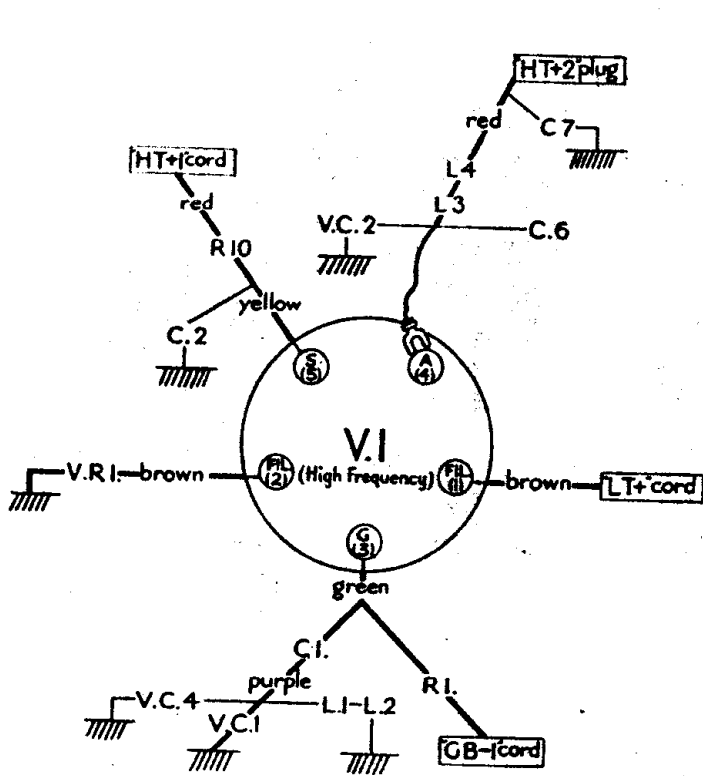
(See "Star" Chart and Fig. 2.)

Ref. Letter.	Colour.	Ref. Letter.	Colour.
q	Black with White tracer.	u	Green with Yellow tracer.
s	Brown with Red tracer.	v	Red with Black tracer.
t	Brown with Black tracer.	w	Red.
		z	Green.

THE MARCONIPHONE "STAR" CHARTS.

These charts indicate immediately and conveniently all components associated with supplies to the valve holders.

- (a) Continuity, such as chokes (CK 1, etc.), transformer windings (sec T1, etc.), and resistances (R 1, 2, 4, etc.)
- (b) Any condensers the breakdown of which may affect the supplies to the holder sockets such as C 7, C 10, etc.
- (c) In many cases the colours of the actual wires are indicated (Pickup—blue, Grid circuit—green, etc.).



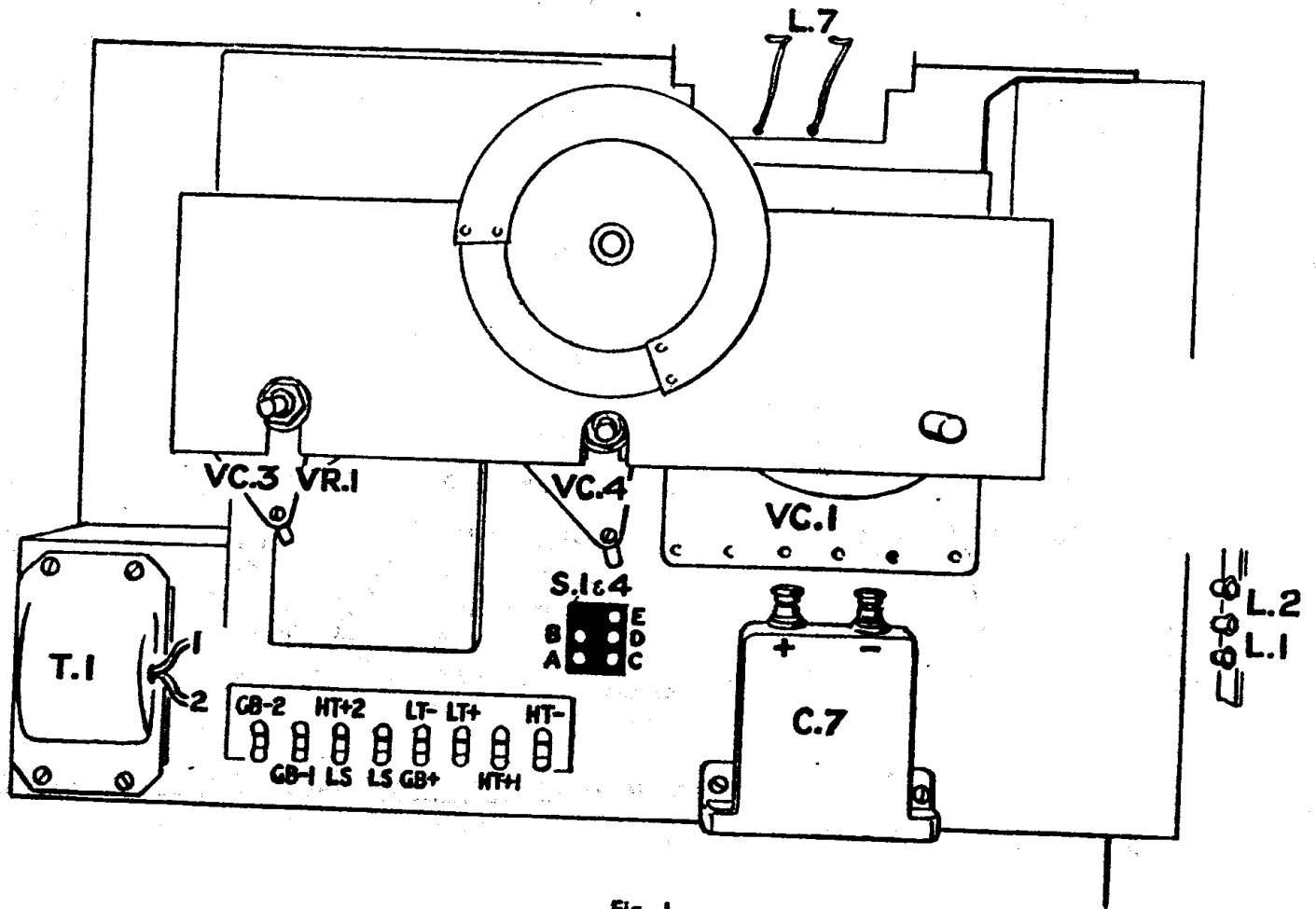


Fig. 1.

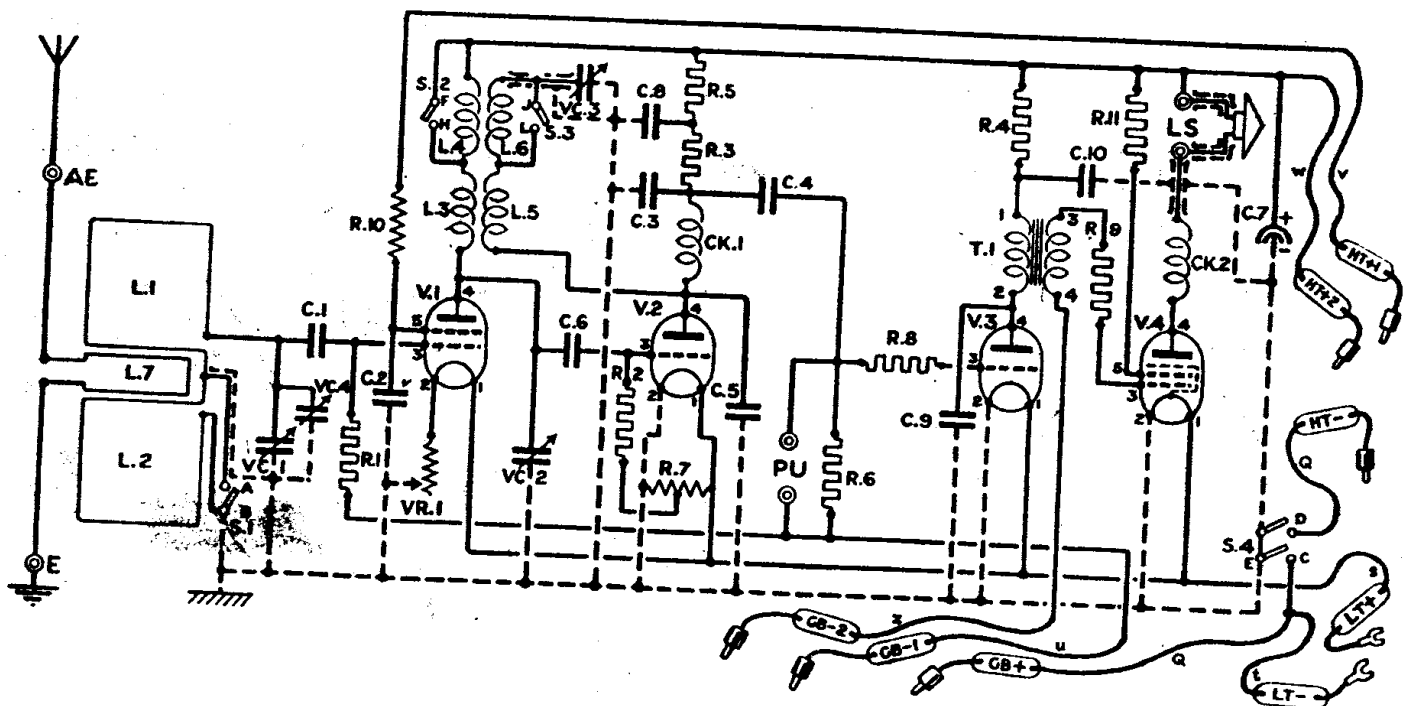


Fig. 2.

NOTE.—A resistance R. 12 has since been added in parallel with the secondary of T 1. In addition, a corrector circuit, consisting of a 25,000 ohm vacuum resistance in series with a .005 mfd. condenser, is now placed across the speaker.

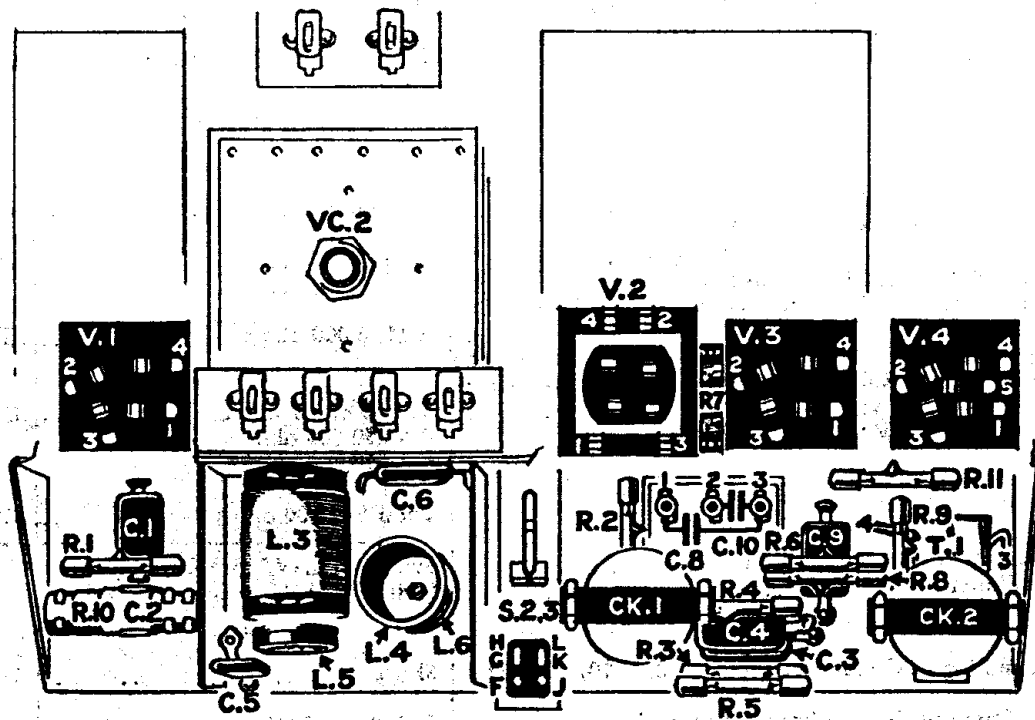


Fig. 3.

NOTE.—The resistance R₁₂ will be found together with R₃, R₅, etc. The additional .005 mfd. condenser and 25,000 ohm resistance are mounted on the loud speaker baffle board.

VALVE TABLE.

* All readings taken with volume control full on. All readings taken on avometer scale indicated (± 10 per cent.). All readings taken with valves in position.

NOTE.—Do not switch on the set unless the loud speaker is connected up or the output valve will be damaged.

Valves.	Location.	Appearance.	Temperature.	Function.	Anode Feed D.C.M.A.	Avo Scale.	Anode/Frame Volts D.C.	Avo Scale.	Screen Feed Milli-amps. D.C.	Avo Scale.	Screen/Frame Volts D.C.	Avo Scale.	G.B. Volts.	Avo Scale.	Fil. or Heater Volts.	NOTES.
S.21	Left Hand Valve		Cool	(S.G.) H.F. Amplifier	1.0	.012 Amp.	108V	120	.6	.012	55	120			2.0	Screen current taken at HT+1. Screen volts taken from valve pin.
H.L.2.	2nd from Left		Cool	Leaky Grid Detector	0.1	.012 Amp.	20	1200								
H.L.2.	3rd from Left		Cool	1st L.F.	0.6	.012 Amp.	30	120								
P.T.2.	4th from Left		Just Warm	Output Valve	6.0	.012 Amp.	90V	120V			95V	120V				

The above readings are not necessarily actual, but can be regarded as more or less indicative.

CONTINUITY TESTS FROM CORD ENDS.

Refer to circuit diagram (Fig. 2) and remember that all batteries must be DISCONNECTED and valves taken out WHILE TESTING.

Cord.	Test Point.	D.C. Resistance.	Headphone and Battery Test.
H.T.+1	Screen socket 4 of V 1 via R 10 (C 2 is in former of R 10) (Fig. 2)	600 ohms	Loud click.
H.T.+2	Left hand terminal C 7 (red wire) (Fig. 1)	Short	Loud click.
"	Red wire of screened loudspeaker lead	"	"
"	V 4 socket (5) via R 11 (in some models three 10,000 ohm units in parallel)	R 11, 3,300 ohms	Click.
"	Anode socket 4 of V 3 via primary of T 1 (yellow wires to front of unit) and R 4 (50,000 ohms). Resistance across tags 1 & 2 of T 1 is approx. 1,000 w.	51,000 ohms	Click
"	Anode socket 4 of V 2 via R 5, R 3, CK 1	R 5 250,000 ohms R 3 250,000 ohms CK 1 100 ohms Total 500,100 ohms	Click.
"	Anode tag V 1 via L 4 (20 ohms) L 3 (1½ ohms) S 2	Switch in L.W. position, 21½ ohms Switch in M.W. position, 1½ ohms).	Click.
H.T.—cord (or chassis)	Right hand lug of Condenser Block (C 8, C 10) (Fig. 3)	Short	Loud click.
"	Bottom frame wiring lug (front of chassis)	Switch in M.W. position, 1 ohm	" "
"	L.W. frame coil 4 ohms	Switch in L.W. position, 5 ohms	" "
"	S.W. " " 1 ohm		" "
"	G.B.—cord	Short (Switch M.W. or L.W.)	" "
"	L.T.—	"	" "
"	Fixed plates VC 1	1 ohm (Switch M.W.)	" "
"	V 1 fil. socket 2 (Vol. control, VR 1 max. position)	½ ohm	Click.
"	(Vol. control min. position)	20 ohms	"
"	Other Valve sockets (2)	Short	"
"	Right hand fil. sockets (1)	100 ohms (R 7)	"
G.B.—1	Left hand PU clip	Short	"
"	V 1 socket 3	R 1 1 meg.	"
"	V 3 socket 3 (via R 6, R 8)	R 6 1 meg. R 8 .1 meg.	"
G.B.—2	V 4 socket 3 (via T 1, R 12 & R 9)	Total 1.1 meg. Sec. T 1 10,000 ohms R 12 (.5 meg.) is in parallel with Sec. T 1. R 9 .1 meg. Total 110,000 ohms	"

RESISTANCE OF COMPONENTS.

Component.	Where Measured.	Value.
R 1	Across ends	1.0 meg.
R 2	" "	.5 meg.
R 3	" "	.25 meg.
R 4	" "	50,000 ohms
R 5	" "	.25 meg.
R 6	" "	1 meg.
R 7	Across L.T.+ and L.T.—cords (Switch M.W. or L.W.) (Valves out)	100 ohms (centre tapped)
R 8	Across ends	.1 meg.
R 9	" "	.1 meg.
R 10	Yellow and red lugs	600 ohms
R 11	Across ends of resistances	3,000 ohms
R 12	" "	.5 meg.
CK 1	Across lugs	100 ohms
CK 2	" "	100 ohms
T 1 primary	Between anode socket V 3 and right hand end of R 4 (yellow)	1,000 ohms
T 1 secondary and R 12	Between G.B.—2 and bottom end of R 9	10,000 ohms

TO TEST COILS.

Coil.	Function.	Where tested.	D.C. Resistance.	Notes.
L 1 ..	S.W. frame coil (white wire)	Joint between enamel and white wire.	1 ohm	Check through from centre frame soldering lug to purple lug C 1 (1 ohm), purple lug VC 1 (1 ohm).
L 2 ..	L.W. frame coil	Centre frame soldering lug and to frame lug.	4 ohms	Check through from centre soldering lug to chassis metal work (switch in L.W. position) 4 ohms.
L 3 ..	M.W. anode coil	Across lugs ..	2 ohms	Check right through from anode tag of H.F. valve to bottom lug of coil (2 ohms) or H.T.+2 plug to top lug of coil (2 ohms, switch in M.W. position).
L 4 ..	L.W. anode coil	Bottom lug L 3 Red lug on L 4 former.	20 ohms	Check right through top lug of former and H.T.+2 cord (switch in L.W. position, 20 ohms).
L 5 ..	M.W. Reaction coil (inside L 3 former)	Between top lug of C5 and bottom Yellow lug of L 4 former.	15 ohms	Check through between anode socket V 2 (left hand lug CK 1) and bottom yellow lug of L 4 former.
L 6 ..	L.W. Reaction coil	Between 2 bottom yellow lugs on L 4 former.	30 ohms	Check through between bottom yellow lug on coil and bottom contact VC 3 (screened wire) 30 ohms in L.W. switch position.
L 7 ..	A, E, Coupling coil	A and E clips ..	One turn of wire..	

Marconiphone Colour Code.

Grey	...	...	...	...	...	...	...	...	Frame.
Black	...	...	...	...	...	...	...	...	True Earth Circuit.
White	...	...	...	...	...	...	...	...	Cathodes when not at Earth Potential.
Red	...	...	...	...	...	...	...	...	High Tension D.C. Circuit.
Yellow	...	...	...	...	...	...	...	...	Plate Circuit.
Green	...	...	...	...	...	...	...	...	Grid Circuit.
Brown	...	...	...	...	...	...	...	...	Filaments.
Blue	...	...	...	...	...	...	...	...	Pick-up Circuit.
Light Blue	...	...	...	...	...	...	...	...	Pick-up Circuit Low Potential Side.
Pink	...	...	...	...	...	...	...	...	L.S. Output after Condenser or Transformer.
Violet	...	...	...	...	...	...	...	...	Aerial Circuit.
Orange	...	...	...	...	...	...	...	...	Mains.
Yellow (Red Tracer)	...	...	...	...	...	...	...	...	Screen Grid Circuit.
Yellow (Black Tracer)	...	...	...	...	...	...	...	...	Pentode (Screen Grid Circuit).

SPECIAL NOTE.

Please address all service communications respecting Model 66 to :—

THE SERVICE DEPARTMENT,
THE MARCONIPHONE COMPANY, LTD.,

Telephone : Seven Kings 2801.

DAGENHAM, ESSEX.

Always quote the type and serial number of the instrument.

