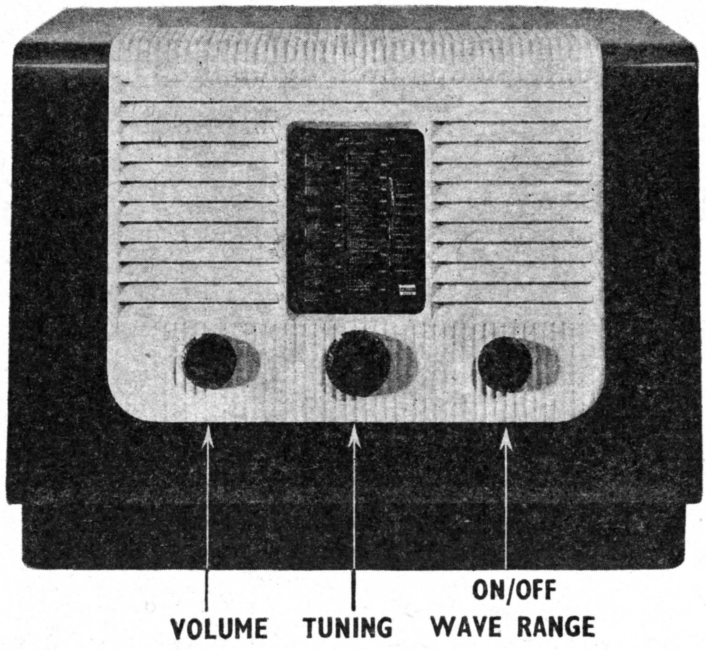
MURPHY RADIO SERVICE INSTRUCTIONS



Wave Ranges:	17 to 51 metres 190 to 550 metres 970 to 2000 metres
Intermediate Frequency:	465 Kc/s
Valves:	Mazda, TP25, VP23, HL23DD, PEN25
Pilot Lamp:	3·5 volt, 0·15 amp. M.E.S.
Speech Coil Impedance:	3 ohms
Total Weight:	34 lb. (with accumulator and H.T. battery).
Cabinet Dimensions:	17¾″ wide, 14″ high, 11¾″ deep
Supply:	120 volt H.T. battery (8¾″ × 7⅜″ × 3″ max.) 2 volt accumulator (3½″ × 5″ × 8½″ high)
Consumption:	H.T. 10·5 m/a approximately L.T. 0·55 amps.

Issued by

MURPHY RADIO LTD · WELWYN GARDEN CITY
HERTS · ENGLAND **TEL: WELWYN GARDEN 800**

MECHANICAL NOTES AND CORD DRIVES

To remove chassis, unscrew battery retaining bar, and lift out the wooden accumulator shelf. When the fixing nuts and the knobs have been removed, the chassis can be withdrawn.

In order to reduce wear, thicker drive cord is now used on the main drive, whilst the original thin cord is used on the pointer drive. The following notes will help when replacing these cords. If both cord drives are faulty, first replace the main drive and then the pointer drive.

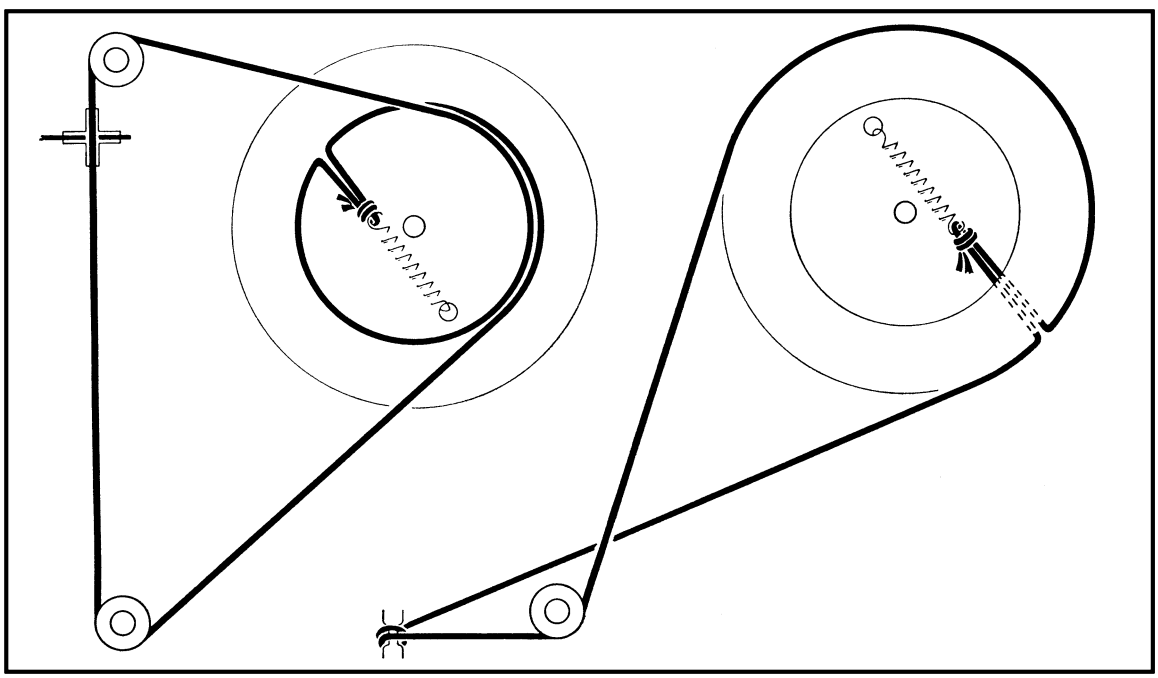
MAIN DRIVE

If the main drive only is being replaced, unhook the pointer drive spring, and remove pointer cord out of the way.

1. Place chassis on a bench, dial uppermost, with gang capacitor at maximum, and drive drum as shown in diagram.
2. Obtain length of about 30 in. of thick woven and waxed Italian hemp cord (as supplied by Murphy Radio Ltd).
3. Pass end of cord twice round control spindle, as shown in diagram.
4. Hold rear (underneath) cord in left hand near drive drum slot.
5. Pass front (upper) cord round lower pulley, then round drive drum to meet other end near drive drum slot.
6. Hold both cords tightly to drum and pass ends through slot until they show behind hole on the inside edge of drive drum.
7. Hook the ends through to the front of the drive drum, with small screwdriver or pliers.
8. Knot the ends about $\frac{1}{2}$ in. from inside edge of drive drum.
9. Hook spring into position behind knot, and ease other end of spring into fixing hole with small pair of pliers or screwdriver.
10. Check that the spring is extended to $1\frac{1}{16}$ in., and see that there is no tendency to slip.

REFITTING POINTER DRIVE CORD

1. Set gang capacitor to maximum and drive drum as shown in diagram.
2. Slide pointer under dial, with felt pad towards dial, and place cord on pulleys so that the pointer is in line with the top of the dial aperture.
3. Hold lower cord in left hand near drive drum and pass upper cord $1\frac{1}{2}$ times round pointer drum in direction shown. It will be found that the spring takes up a position near to the slot in the drive drum.
4. Bring knot with spring over to the slot, using left hand to keep the cords in the groove.
5. Place cords in slot, and ease spring into fixing hole with pliers.



6. Check that the pointer is still in line with edge of scale; if not, slacken locking screws on drive drum, and rotate slightly to correct any error, then tighten screws.

FITTING NEW POINTER DRIVE CORD

1. Remove dial as shown in picture (page 5).

2. Set gang capacitor to maximum, with drive drum as shown in diagram.

3. Obtain length of about 30 in. of thin woven and waxed Italian hemp cord (as supplied by Murphy Radio Ltd), also pointer and felt pad.

4. Place centre of cord over the two pointer pulleys, and pass the ends round the pointer drive drum, as shown in diagram, so that the two ends meet near the slot in the drum.

5. Knot the ends together so that the knot will lie about $\frac{3}{4}$ in. from the inside edge.

6. Hook the spring through the knot and ease other end of spring into fixing hole with small pliers. Check that the spring is extended to $\frac{15}{16}$ in., if necessary, adjust the position of the knot.

7. Place pointer on cord, so that at maximum gang capacity it will be aligned with the end of the scale, and clamp into position. Glue the felt pad on to the pointer so that it will rest against the dial.

8. Replace dial in dial clamp, and finally check that the pointer is in alignment with the top end of the scale; if not, slacken fixing screws on drive drum and rotate slightly to correct any error, then tighten screws.

AERIAL FILTERS

In receivers operating close to transmitters, an aerial filter for this receiver, as supplied by Murphy Radio, may be necessary if tuneable whistles occur on stations. The actual area affected is usually within a radius of three to four miles of the transmitter, though it may be modified by such local conditions as the nature of the country, the transmitter aerial power, and the type of receiving aerial in use. The object of the filter is to reduce the interfering signal to the receiver and it may be a single or double unit according to the number of local stations. Install filter as described below.

Remove the screw holding the battery support bar to the left-hand chassis strap, and using the same screw, with another 4 B.A. screw, securely fix the filter unit as shown.

Note that when in the correct position, both adjusting screws (if a twin filter is being used) can be easily adjusted with a screwdriver.

Insert the plug from the filter unit into the aerial socket, and connect the aerial to the socket on the filter.

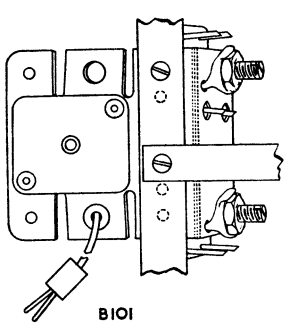
There are three standard filter coils, each tuning through a different range of frequencies, and the units can be provided as desired with a suitable arrangement to suit local conditions.

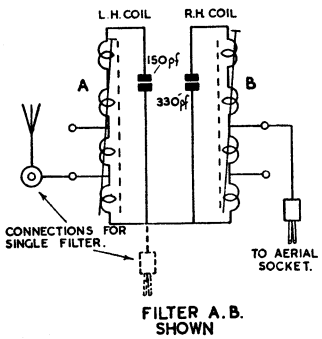
Filter A Wavelength Range 200-300 metres (1500-1000 Kc/s)

„ B „ „ 300-428 metres (1000-700 Kc/s)

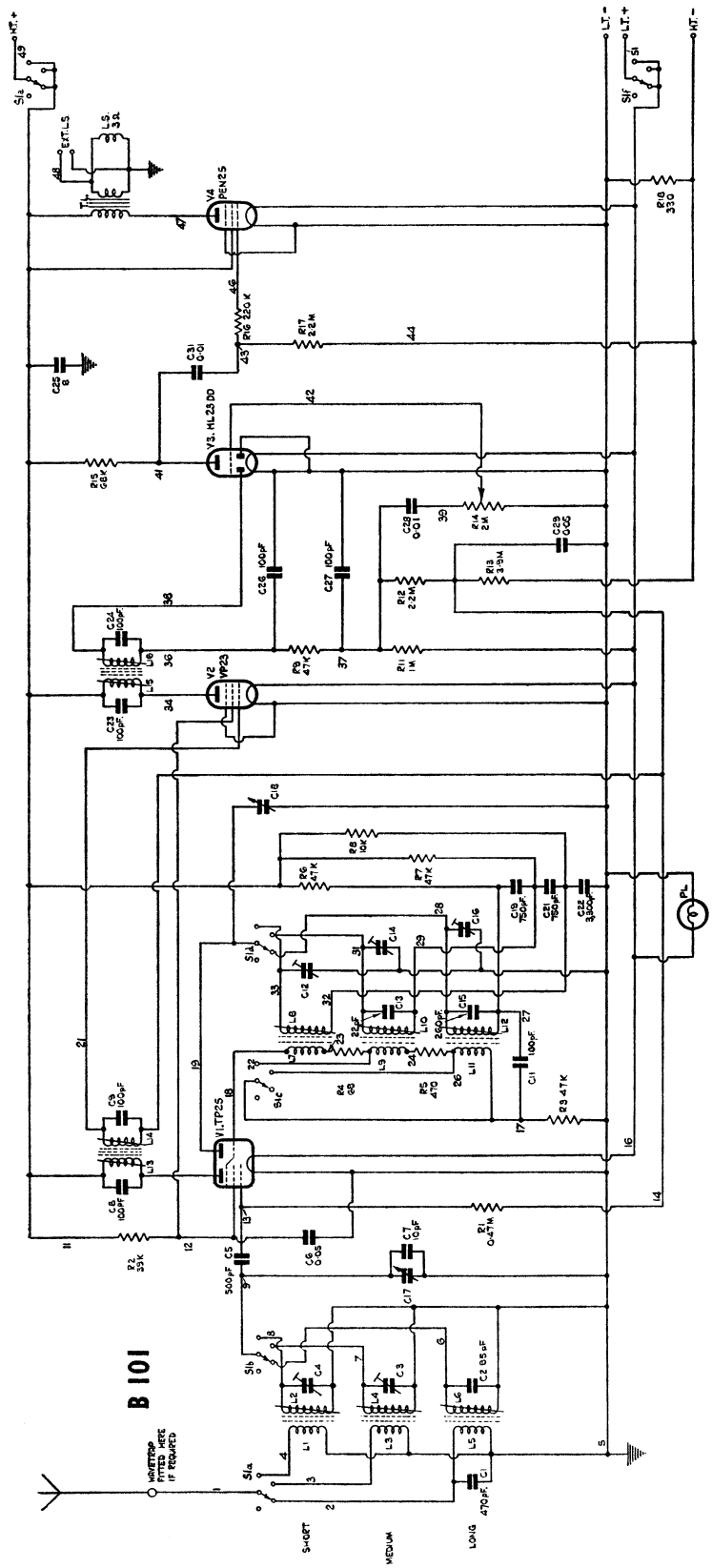
„ C „ „ 428-600 metres (700-500 Kc/s)

In order to adjust the filter when fitted, connect an output meter to the Ext. L.S. sockets, and a Service Signal Generator through "dummy aerial", to the Aerial Socket. Set the Signal Generator carefully to the same frequency as the local transmitter and adjust the coil core for minimum output. If the filter is a double unit the same procedure must be followed for each section.





FILTER A.B. SHOWN



COIL RESISTANCES

Coil	L1	L2	L3	L4	L5	L6	L7	L8	L9
Ohms	—	—	·5	2	23	13	—	—	·5

Coil	L10	L11	L12	L13	L14	L15	L16	T1 Prim.	T1 Sec.
Ohms	1	·5	2	7	7	7	7	750	—

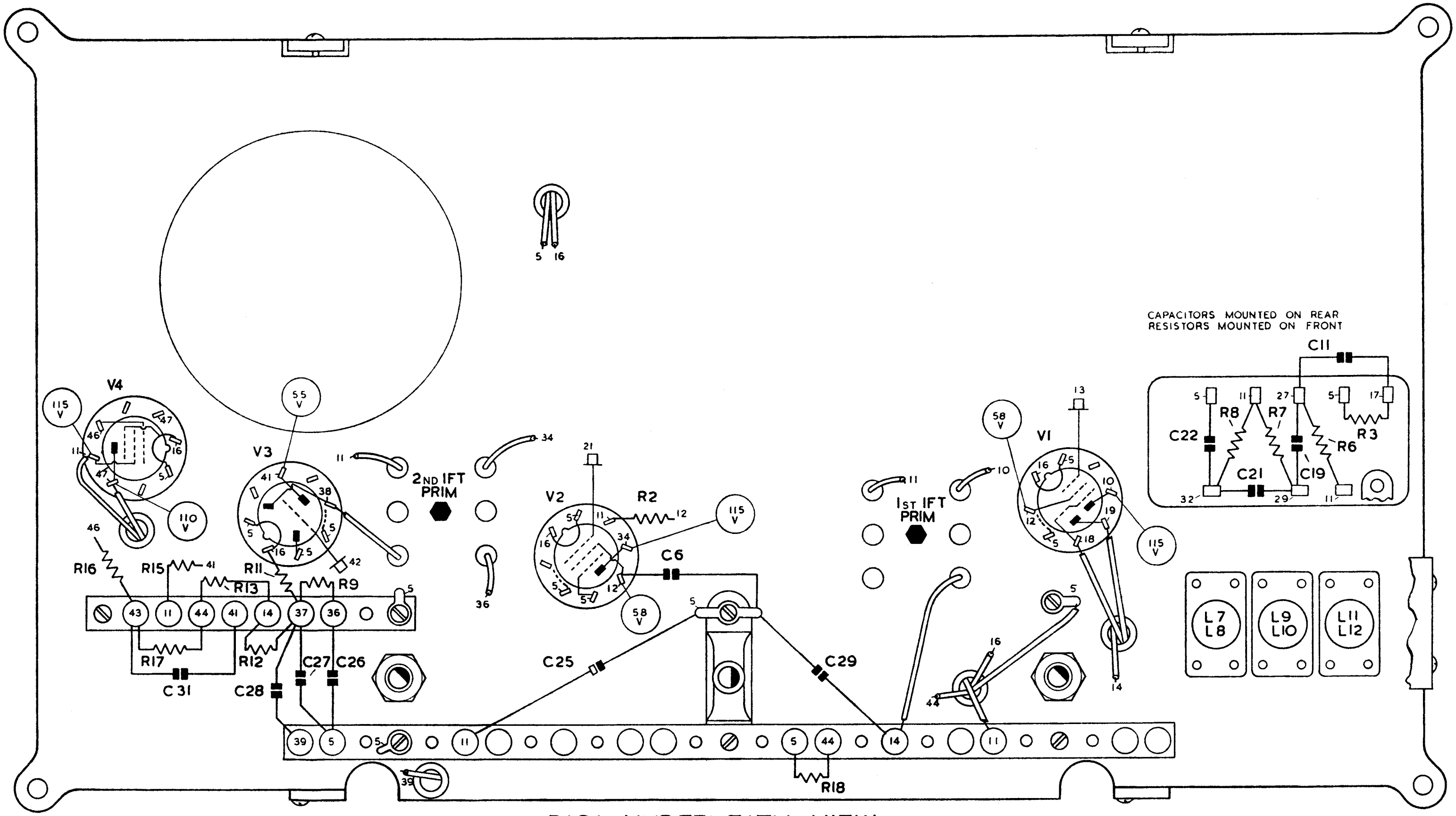
MODIFICATIONS

The component values shown may vary up to 20 per cent, due to the present shortage.
In some receivers C11 (now 100 pf) was 180 pf
" " " R3 (now 22 KΩ) was 47KΩ.

Some of the earlier receivers were fitted with thin drive cord for the main drive, but the standard thick drive cord is now used. The later receivers are also fitted with a modified drive spindle in order to reduce any tendency to slip.

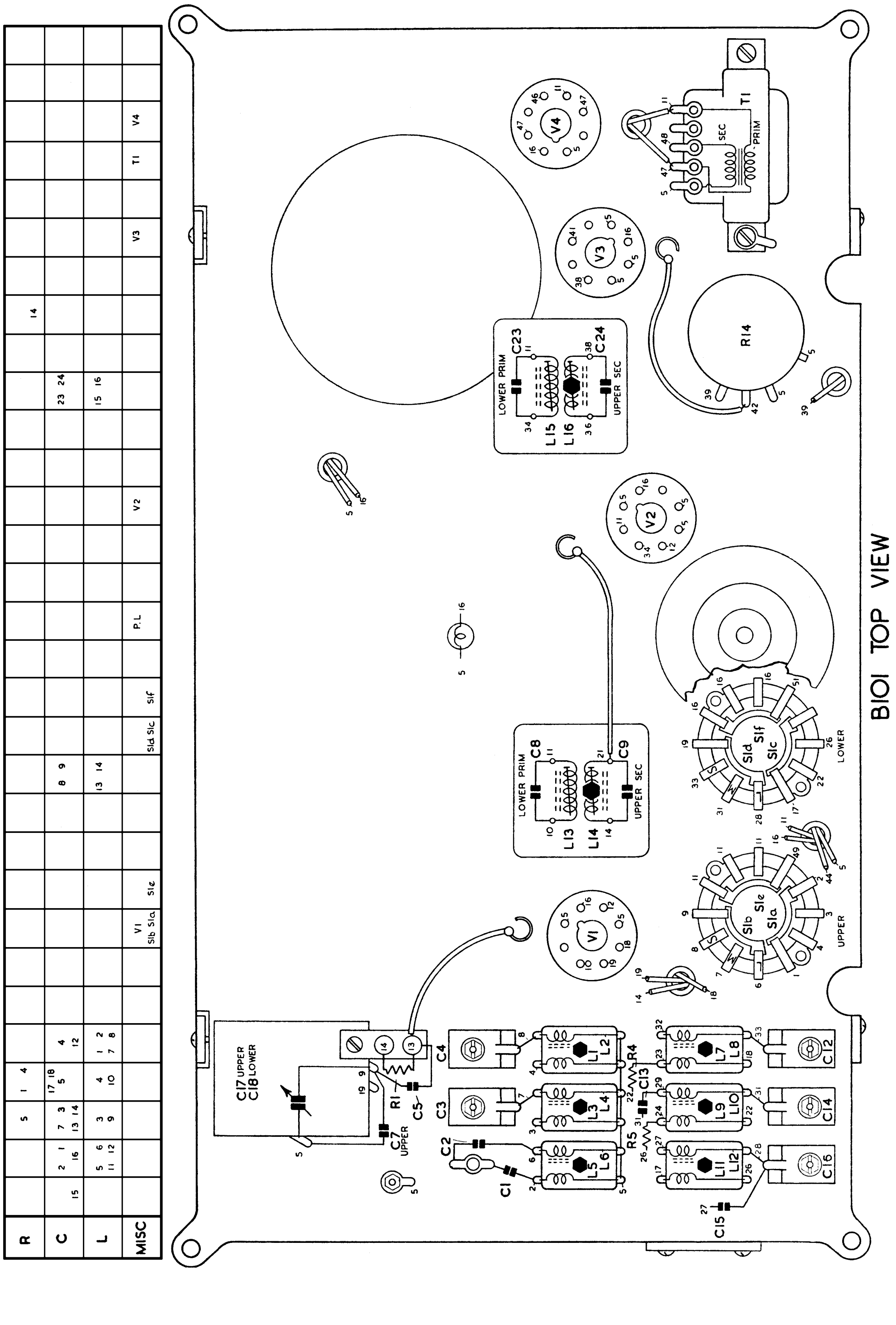
Later recievers have the earth lead from the oscillator component panel connected to tag 6 on V1 valveholder, instead of to the chassis tag on the panel mounting screw.

R		16	15 17	13	11 12	9								2				18									8	7	6	3	
C			31		28	27	26						25	6				29									22 21	19		11	
L																											7 8	9 10		11 12	
MISC		V4				V3						V2											V1								



B101 UNDERNEATH VIEW

Voltages are typical figures measured between test points and chassis, using an Avometer type 7, with the receiver switched to M.W. under no signal conditions.



CONNECTIONS FOR MAJOR COMPONENTS

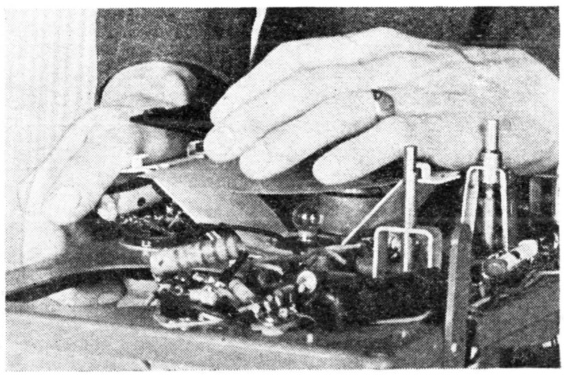
In replacing faulty components, the system of numbering employed in the circuit and layout diagrams, and the list of connections also given provides an almost complete guide for wiring, although minor differences will occur.

COMPONENT	CIRCUIT NO.	TEST POINT	CONNECTION TO
WAVERANGE SWITCH (Rear wafer)	S1a	1	AE socket
		2	L5 and C1
		3	L3
		4	L1
	S1b	9	Gang (C17)
		6	C2 and L6
		7	C3 and L4
		8	C4 and L2
	S1e	11	Linked to 12th tag on long tag strip
		11	
		11	
		49	H.T. Battery lead
(Front wafer)	S1c	17	L11 and small R/C panel
		26	L9 and R4
		22	L11 and R5
		—	not used
	S1d	19	V1 and Gang (C18)
		28	L12 and C15 and C16
		31	L10 and C14 and C13
		33	L8 and C12
	S1f	51	L.T.+ Accumulator lead
		16	Linked to V1 heater
		16	
		16	
GANGED CAPACITOR	C17	9	S1b also C5 and C7
	C18	19	S1d then V1
	(Rotor)	5	Chassis tag
VOLUME CONTROL	(Case)	5	Chassis tag on T1
	R14	5	Case of R14
		42	Top cap of V3
		39	End tag on R/C strip

REMOVING THE TUNING SCALE

The B101 scale is held in place by a sheet metal clamp, and it may easily be removed by pressing the top and bottom of the clamp and lifting it out, as shown in the photograph.

The scale is marked at the edges for locating the rubber buffers which fit into the clamps.



TRIMMING INSTRUCTIONS

All adjustments are made for maximum reading on an output meter connected to L.S. sockets, with V/C at maximum and the Service Signal Generator output adjusted to produce the lowest convenient meter reading. Before starting R.F. adjustments, see that the tuning pointer is just under the end of the dial at the L.F. ends of the bands when the ganged capacitor is at maximum capacity.

NOTES. To trim the I.F. transformers it will be necessary to remove the dial, by springing the dial frame. A 7 B.A. box spanner or a screwdriver should be used to adjust the variable inductances.

CIRCUIT	NOTES	SERVICE SIG. GEN. SETTING	SERVICE SIG. GEN. TERMIN'TN	CONNECT SIG. GEN. TO	RECEIVER DIAL SETTING	RECEIVER RANGE	ADJUSTMENTS
I.F.	Unscrew 2nd I.F. Pri. and Sec. cores to fullest extent	465 Kc/s	Direct via ·1 mfd.	V2 Control Grid	550 m	M.W.	2nd I.F. Pri. (L15) front of chassis 2nd I.F. Sec. (L16) back of chassis. DO NOT READJUST
	Unscrew 1st I.F. Pri. and Sec. cores to fullest extent	465 Kc/s	Direct via ·1 mfd.	V1 Control Grid	550 m	M.W.	1st I.F. Pri. (L13) front of chassis 1st I.F. Sec. (L14) back of chassis. DO NOT READJUST
S.W.	Repeat these adjustments until there is no further improvement	7·14 Mc/s (42 m)	Dummy Aerial	Aerial Socket	42 m	S.W.	S.W. Osc. coil (L8) S.W. Grid coil (L2)
		15·25 Mc/s (19·7 m)	Dummy Aerial	Aerial Socket	19·7 m	S.W.	S.W. Osc. trimmer (C12) S.W. Grid trimmer (C4)
M.W.	Repeat these adjustments until there is no further improvement	600 Kc/s (500 m)	Dummy Aerial	Aerial Socket	500 m	M.W.	M.W. Osc. coil (L10) M.W. Grid coil (L4)
		1363 Kc/s (220 m)	Dummy Aerial	Aerial Socket	220 m	M.W.	M.W. Osc. trimmer (C14) M.W. Grid trimmer (C3)
L.W.	Repeat these adjustments until there is no further improvement	158 Kc/s (1900 m)	Dummy Aerial	Aerial Socket	1900 m	L.W.	L.W. Osc. coil (L12) L.W. Grid coil (L6)
		300 Kc/s (1000 m)	Dummy Aerial	Aerial Socket	1000 m	L.W.	L.W. Osc. trimmer (C6)

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