G.E.C.
Radio

SERVICE BULLETIN No. 50

FOR

FIDELITY ALL-WAVE 8 RECEIVERS

MADE IN ENGLAND

TABLE MODELS
Cat. Nos. BC. 3880 and BC. 3882
(100/150 and 200/250 volts, 40/80 cycles)

RECORD-CHANGER RADIOGRAMS
Cat. Nos. BC. 3888 and BC. 3889
(100/130 and 200/250 volts, 50/60 cycles)

Manufacturers, Wholesale Only

THE GENERAL ELECTRIC CO., LTD.,

Head Office: **Magnet House, Kingsway, London, W.C. 2**

Telephone—TEMple Bar 8000 (90 lines). Telegrams—"Electricity, Westcent, London."
Cablegrams—"Polyphase, London."

Branches throughout Great Britain and in all the principal markets of the world.

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Cat. No. BC. 3888	100/130 and 200/250 Volts.	50/60 cycles.
Cat. No. BC. 3889	108/130 and 200/250 Volts.	50/60 cycles.

This Service Bulletin should be used in conjunction with Nos. 23 and 39.
See Notes on pages 14 and 15.

DESCRIPTION OF SET.

The G.E.C. Fidelity All-Wave 8 Receiver is a superheterodyne instrument with four wavebands, designed for A.C. mains operation, and has been issued in Table and Record-changer Radiogram Models. The receiver utilises eight valves, including rectifier, and incorporates a G.E.C. 10 in. energised moving coil loudspeaker. An internal speaker silencing key is fitted, and provision made for connecting an external loudspeaker having an impedance of 2-4 ohms. Additional aerial sockets are provided for operation from a di-pole aerial, and the built-in adjustable wave-trap can be brought into the aerial circuit by a connecting link as required. Pick-up sockets are also provided on the table model.

Circuit.—Refer to Fig. 2, page 4.

Variable-mu S.G. H.F. amplifier (VMS4), triode-hexode frequency changer (X41 Met.), variable-mu screen pentode, I.F. amplifiers (2—VMP4G Met.) double-diode-triode 2nd detector, A.V.C. valve and L.F. amplifier (MHD4), pentode power output valves (2—MPT4), and full wave rectifier (U14).

The aerial is loosely coupled to the tuned grid circuit of the screened grid H.F. amplifying valve. A wave-trap is provided for connection into the aerial circuit when required, by the insertion of a " U " link in the sockets on the back of the chassis. A tuned H.F. transformer couples the VMS4, signal frequency stage to the X41 frequency changer. Independent coils are switched into circuit for the various wave ranges. Local oscillations are generated by the triode section of the X41 and mixing takes place electronically, by the mixer grid, connected internally to the oscillator grid, modulating the hexode cathode stream. The aerial, H.F. and oscillator circuits are tuned by a three-gang condenser, separate coils, trimmers, and, in the case of the oscillator, pad condensers being provided for each waveband, and on the higher frequency ranges the unwanted coils are short circuited. I.F. amplification is effected by two stages of H.F. screen pentodes coupled by bandpass filters tuned to 445 Kc/s. One diode of the MHD4 rectifies part of the I.F. signal for A.V.C. purposes, the A.V.C. voltage being developed across resistances R25, R17 and

R40. This is fed through de-coupling circuits to control the VMS4, X41 and 1st VMP4G valves. Signal rectification is effected by the remaining diode, the audio voltages being developed across the load resistance, R27. The audio signal is then fed via C32 to the volume control, and in turn to the grid of the MHD4 triode section. C37 couples the anode to the primary of the push-pull input transformer, the secondary of which feeds the grids of the two output pentodes. These are coupled to a low impedance energised moving coil loudspeaker by a suitable output transformer mounted on the speaker frame. R38 and C41 act as the tone control.

The silencing key is a make-before-break type switch which connects R39 in parallel with the speech coil winding of the output transformer, and prevents the output circuit being left unloaded when the internal speaker is silenced.

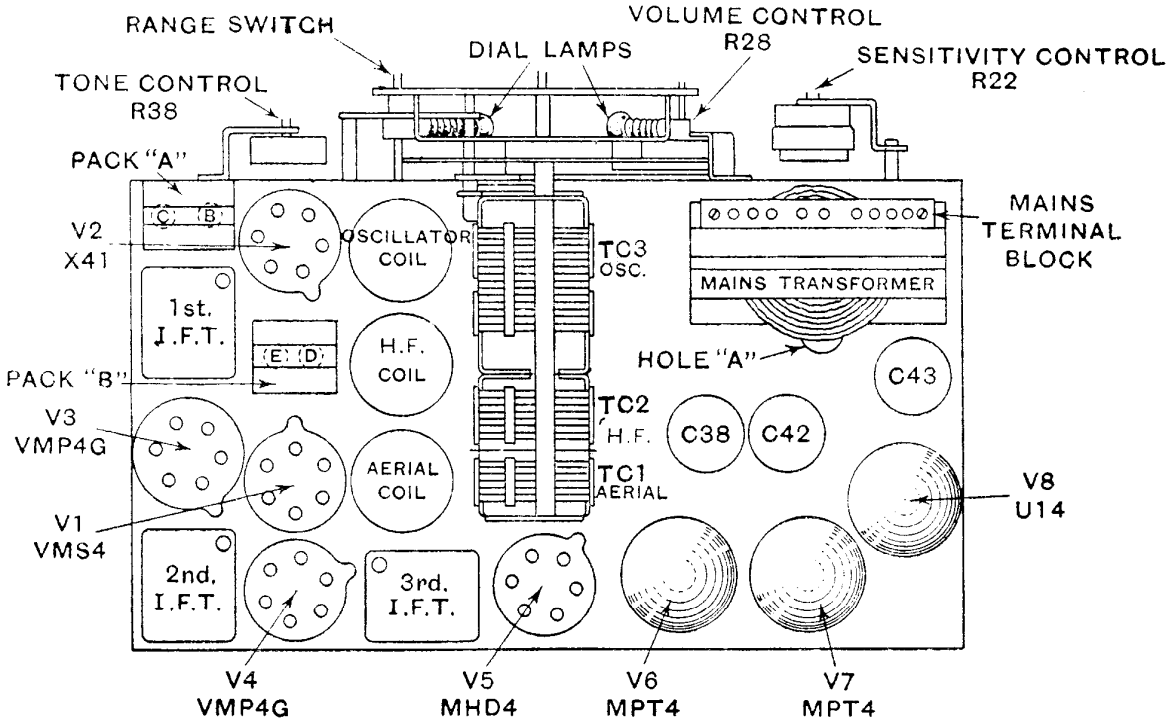


FIG. 1. PLAN VIEW OF CHASSIS. (TABLE MODEL.)

DISMANTLING RECEIVER

(i) Table Model.

(a) Chassis. Remove back and release loudspeaker cable where taped to the bracing batten across back of cabinet. Withdraw plug on end of cable from socket attached to side of cabinet. Remove all control knobs by slackening the cheese-head fixing screw on the tuning knob and pulling the remaining ones straight off the spindles. Remove the four cheese-head bolts from beneath the cabinet to release the chassis which can now be withdrawn completely. Access to the underside of the chassis is obtained by removing the perforated metal cover which is held in place by four screws at the ends.
(b) Speaker. Detach sub-baffle by removing the four cheese-head bolts which secure it to the cabinet. The loudspeaker unit may then be completely freed by unscrewing the three nuts round the periphery of the bowl. This operation may be facilitated by first heating the bolts with a soldering iron to soften the sealing coating. To detach speaker completely, the eight leads must first be unsoldered from the tag strip mounted on the transformer. For particulars of reconnecting refer to Fig. 12, page 21. The dust cover must on no account

be removed or the lead seal disturbed. In the event of a defect occurring in the speaker, this should be removed complete and returned to the nearest G.E.C. Service Depot for attention.

(ii) Radiogram Model.

(a) **Chassis.** Remove all control knobs by slackening the cheese-head fixing screw on the tuning knob, and pulling the remaining ones straight off their spindles. Pull off volume control knob on side of cabinet. Remove the nine half round head screws around the edge of panel above chassis. This panel can now be lifted out, giving access to controls and tuning mechanism. Disconnect record changer mains lead and earth wire from the terminal block underneath the turntable and pull out the pick-up plugs and mains socket from the underside of the chassis and the speaker cable plug from the socket on the sub-baffle. Release volume control bracket by removing the two round head wood screws securing it to the cabinet. Remove the two cheese-head bolts fixing chassis brackets to side of cabinet. The two similar bolts may now be removed from top end of these brackets and the chassis withdrawn from cabinet.

(b) **Speaker.** Unsolder the eight connections from the tag strip mounted on the speaker transformer. Undo the three cheese-head fixing screws located round the periphery of the bowl when the speaker may be released. For re-connecting refer to Fig. 12 page 21. The dust cover must on no account be removed or the lead seal disturbed. In the event of a defect occurring in the speaker, this should be removed complete and returned to the nearest G.E.C. Service Depot for attention.

(c) **Record Changer.** Disconnect record changer end of pick-up lead by taking off the terminal nuts. Remove mains lead and earth wire from the terminal block underneath the turntable. Remove the eight record changer fixing screws. The unit may then be removed completely.

VALVE COMBINATION

V1	Screen Grid H.F. amplifier		VMS4
V2	Triode-hexode frequency changer		X41 (Met.)
V3	I.F. amplifier		VMP4G (Met.)
V4	I.F. amplifier		VMP4G (Met,)
V5	Double-diode-triode combined 2nd detector, A.V.C. valve and L.F. amplifier		MHD4
V6	Output power pentode) Push Pull (...		MPT4
V7	Output power pentode) Push Pull (...		MPT4
V8	Full wave rectifier		U14

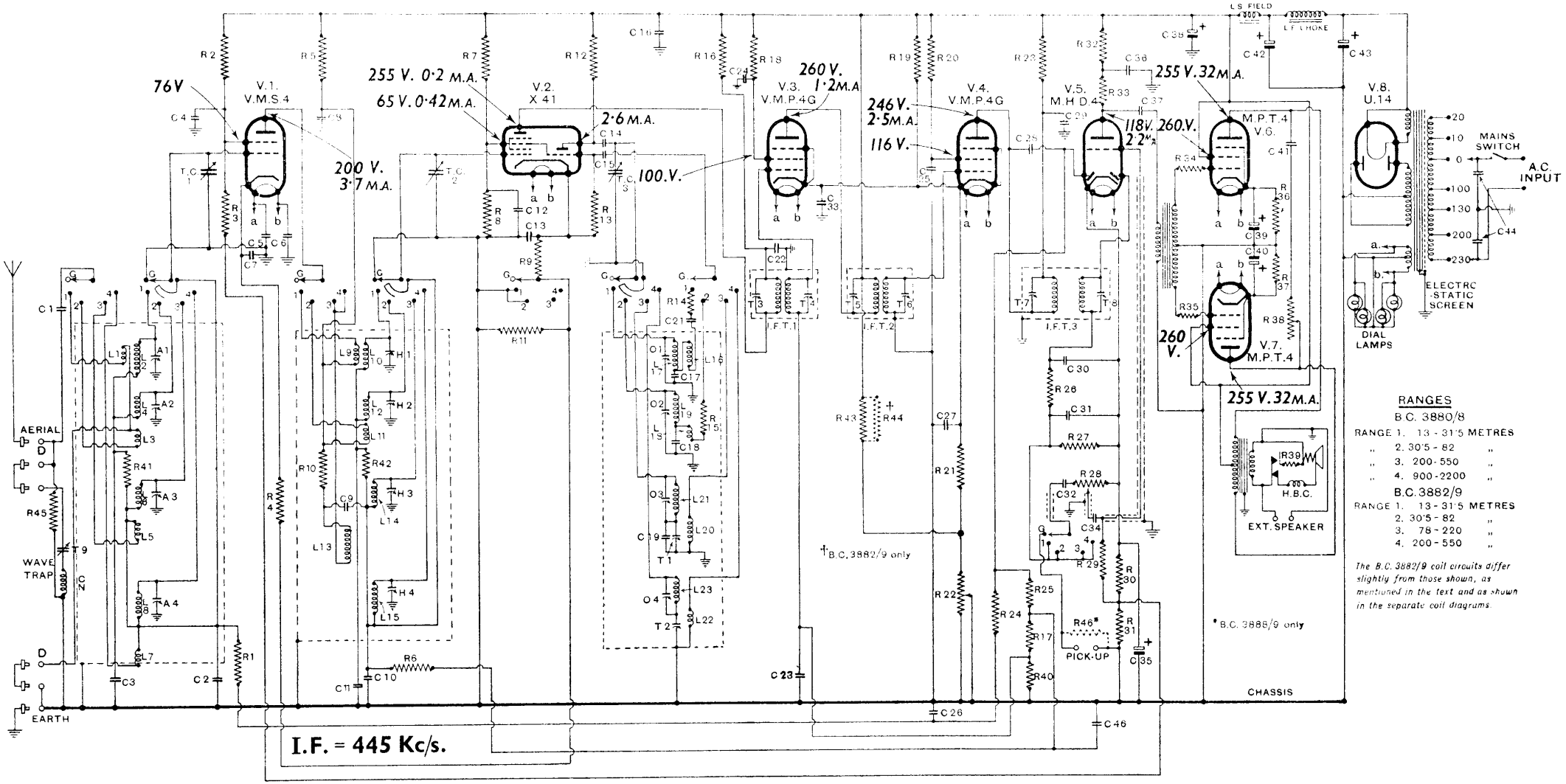
NOTE.—The set is designed for the valves mentioned above and other types must not be substituted. If a new valve is required for replacement purposes, care should be taken to order it exactly as specified.

OSRAM VALVES are supplied for British Empire Markets and GECoVALVES for other territories. Both types are identical, except for the trade mark stamping, and are produced for the General Electric Co. Ltd., at the M.O. Valve Works, Hammersmith, London. Replacements should always be made with the appropriate type.

DIAL LAMPS

6 OSRAM-G.E.C. 3.5 volt, 0.3 amp., M.E.S.
12 mm. dia., clear round lamps.
(4 — Dial, 2 — spare.)

Other types should not be substituted as they may give an unduly short life or fail to provide sufficient illumination.



IN CONNECTION WITH VOLTAGE AND CURRENT READINGS, SEE NOTE ON PAGE 7.

FIG. 2. CIRCUIT DIAGRAM OF G.E.C. FIDELITY ALL-WAVE 8 TABLE RECEIVERS AND RECORD CHANGER RADIOGRAMOPHONES

NOTE.—All switches in the diagram above are shown in the Gram. position.

CAT. NOS. BC.3880, BC.3882 AND BC.3888, BC.3889.

CONDENSER VALUES and TRIMMER FUNCTIONS

C1	0.005 mfd.	Tubular 500 V. Wkg.
C2	0.0044 mfd.	Mica Type 691
C3	0.05 mfd.	Tubular 250 V. Wkg.
C4	0.1 mfd.	Pack B, 500 V. Wkg.
C5	0.25 mfd.	Pack B, 150 V. Wkg.
C6	0.25 mfd.	Pack B, 150 V. Wkg.
C7	0.25 mfd.	Pack B, 150 V. Wkg.
C8	0.1 mfd.	Pack B, 150 V. Wkg.
*C9	0.0005 mfd.	Mica Type 675
C10	0.0046 mfd.	Mica Type 691
C11	0.05 mfd.	Tubular 250 V. Wkg.
C12	0.1 mfd.	Pack A, 150 V. Wkg.
C13	0.25 mfd.	Pack A, 150 V. Wkg.
C14	0.0005 mfd.	Mica Type 675
C15	0.0005 mfd.	Mica Type 675
C16	0.1 mfd.	Pack A, 500 V. Wkg.
C17	0.0037 mfd.	Mica Type 691
C18	0.0027 mfd.	Mica Type 691
‡C19	0.0002 mfd.	Mica Type 675
†C20	0.0002 mfd.	Mica Type 675
C21	0.0001 mfd.	Mica Type 675.
C22	0.02 mfd.	Pack A, 500 V. Wkg.
C23	0.02 mfd.	Tubular 500 V. Wkg.
C24	0.1 mfd.	Pack A, 500 V. Wkg.
C25	0.05 mfd.	Tubular 500 V. Wkg.
C26	0.05 mfd.	Tubular 500 V. Wkg.
C27	0.25 mfd.	Pack B, 150 V. Wkg.
C28	0.0001 mfd.	Mica Type 675
C29	0.05 mfd.	Tubular 500 V. Wkg.
C30	0.0001 mfd.	Mica Type 675
C31	0.0001 mfd.	Mica Type 675
C32	0.02 mfd.	Tubular 500 V. Wkg.
C33	0.005 mfd.	Tubular 500 V. Wkg.
C34	0.02 mfd.	Tubular 500 V. Wkg.
C35	10 mfd.	Electrolytic 50 V. Peak
C36	0.1 mfd.	Tubular 500 V. Wkg.
C37	0.02 mfd.	Tubular 500 V. Wkg.
C38	8 mfd.	Electrolytic 500 V. Peak
C39	10 mfd.	Electrolytic 50 V. Peak
C40	10 mfd.	Electrolytic 50 V. Peak
C41	0.04 mfd.	Tubular 500 V. Wkg.
C42	8 mfd.	Electrolytic 500 V. Peak
C43	8 mfd.	Electrolytic 500 V. Peak
C44	0.01+0.01 mfd.	Tubular 750 V. Wkg.
C46	0.05 mfd.	Tubular 250 V. Wkg.

A1	Aerial Coil Trimmer, Range 1
A2	,, ,, ,, ,, 2
A3	,, ,, ,, ,, 3
A4	,, ,, ,, ,, 4
H1	H.F. Coil Trimmer, Range 1
H2	,, ,, ,, 2
H3	,, ,, ,, ,, 3
H4	,, ,, ,, ,, 4
O1	Oscillator Coil Trimmer, Range 1
O2	,, ,, ,, ,, 2
O3	,, ,, ,, ,, 3
O4	,, ,, ,, ,, 4
T1	,, Pad ,, ,, 3
T2	,, ,, ,, ,, 4
T3, T4	I.F.T.1. Trimmers
T5, T6	I.F.T.2 Trimmers
T7, T8	I.F.T.3 Trimmers.
T9	Aerial Wave Trap Trimmer
TC1, TC2, TC3	Aerial, H.F., Oscillator — Sections of Gang Condenser

*B.C. 3880/8 only. †B.C. 3882/9 only. ‡0.00065 mfd. in B.C. 3882/9.

RESISTANCE VALUES.

R1	440,000 ohms.	⅓Watt Type BT.	R24	440,000 ohms.	⅓Watt Type BT.
R2	30,000 ohms.	2Watt ,, F.	R25	440,000 ohms.	⅓Watt ,, BT.
R3	15,000 ohms.	1Watt ,, BT.	R26	55,000 ohms.	⅓Watt ,, BT.
R4	200 ohms.	⅓Watt ,, BT.	R27	220,000 ohms.	⅓Watt ,, BT.
R5	4,000 ohms.	1Watt ,, BT.	R28	500,000 ohms.	Volume Control
R6	440,000 ohms.	⅓Watt ,, BT.	R29	1 megohm	⅓Watt Type BT.
R7	55,000 ohms.	1Watt ,, BT.	R30	990 ohms.	⅓Watt ,, BT.
R8	22,000 ohms.	½Watt ,, BT.	R31	990 ohms.	⅓Watt ,, BT.
R9	600 ohms.	⅓Watt ,, BT.	R32	9,900 ohms.	⅓Watt ,, BT.
*R10	7,700 ohms.	1Watt ,, BT.	R33	55,000 ohms.	½Watt ,, BT.
R11	600 ohms.	⅓Watt ,, BT.	R34	99,000 ohms.	½Watt ,, BT.
R12	55,000 ohms.	1Watt ,, BT.	R35	99,000 ohms.	⅓Watt ,, BT.
R13	55,000 ohms.	⅓Watt ,, BT.	R36	390 ohms.	Wire wound.
R14	16 ohms.	Wire wound	R37	390 ohms.	,,
R15	200 ohms.	⅓Watt Type BT.	R38	50,000 ohms.	Tone Control.
R16	4,400 ohms.	½Watt ,, BT.	R39	8 ohms.	Wirewound.
R17	220,000 ohms.	⅓Watt ,, BT.	R40	220,000 ohms.	⅓Watt Type BT.
R18	220,000 ohms.	½Watt ,, BT.	R41	9,900 ohms.	⅓Watt ,, BT.
R19	55,000 ohms.	2Watt ,, F.	R42	9,900 ohms.	⅓Watt ,, BT.
R20	99,000 ohms.	½Watt ,, BT.	R43	77,000 ohms.	1Watt ,, BT.
R21	990 ohms.	⅓Watt ,, BT.	†R44	77,000 ohms.	1Watt ,, BT.
R22	1,000 ohms.	Sensitivity Con'l	R45	9,900 ohms.	⅓Watt ,, BT.
R23	4,400 ohms.	½Watt Type BT.	‡R46	9,900 ohms.	⅓Watt ,, BT.

*B.C. 3880/8 only. †B.C. 3882/9 only. ‡B.C. 3888/9 only.

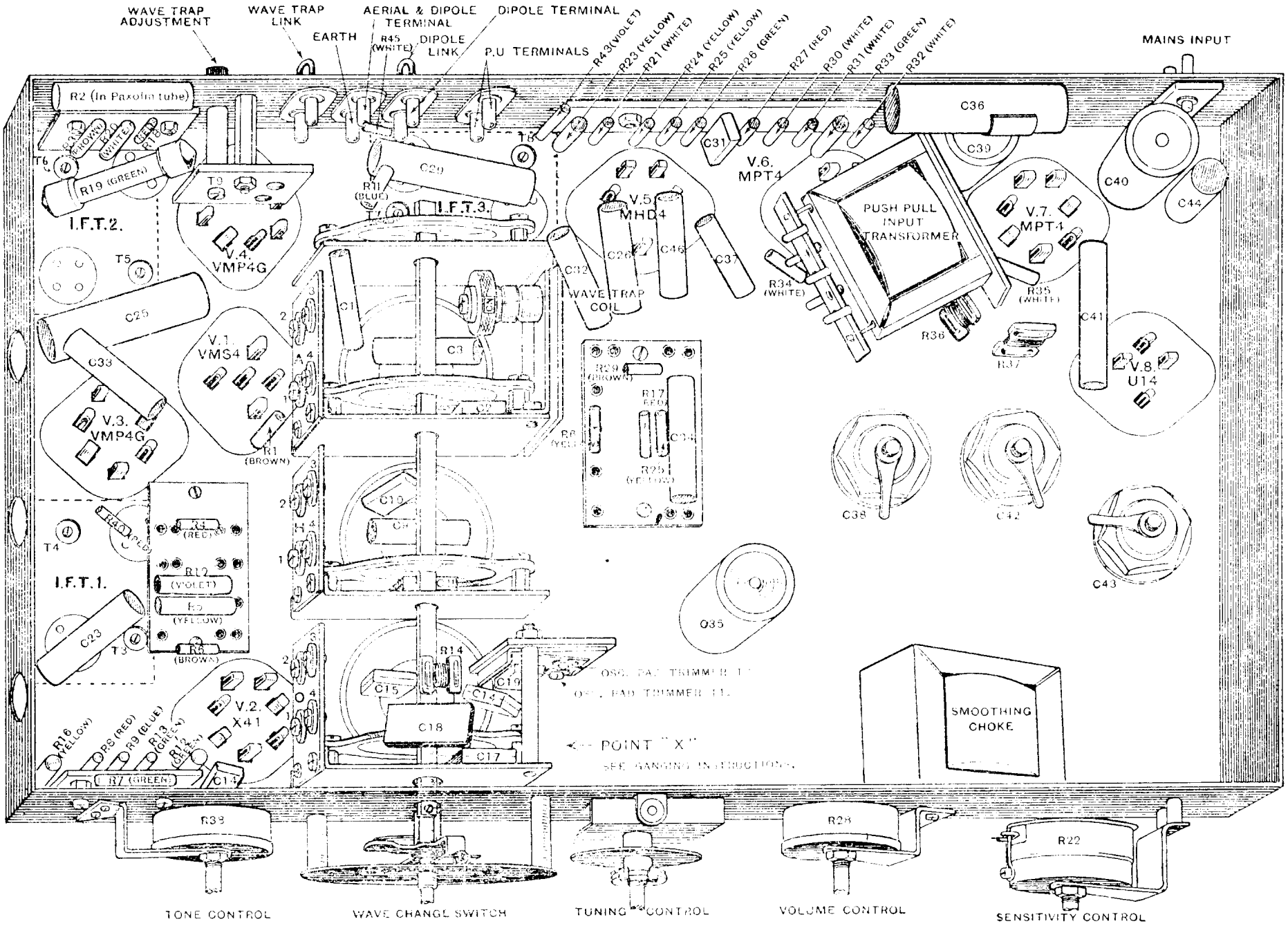
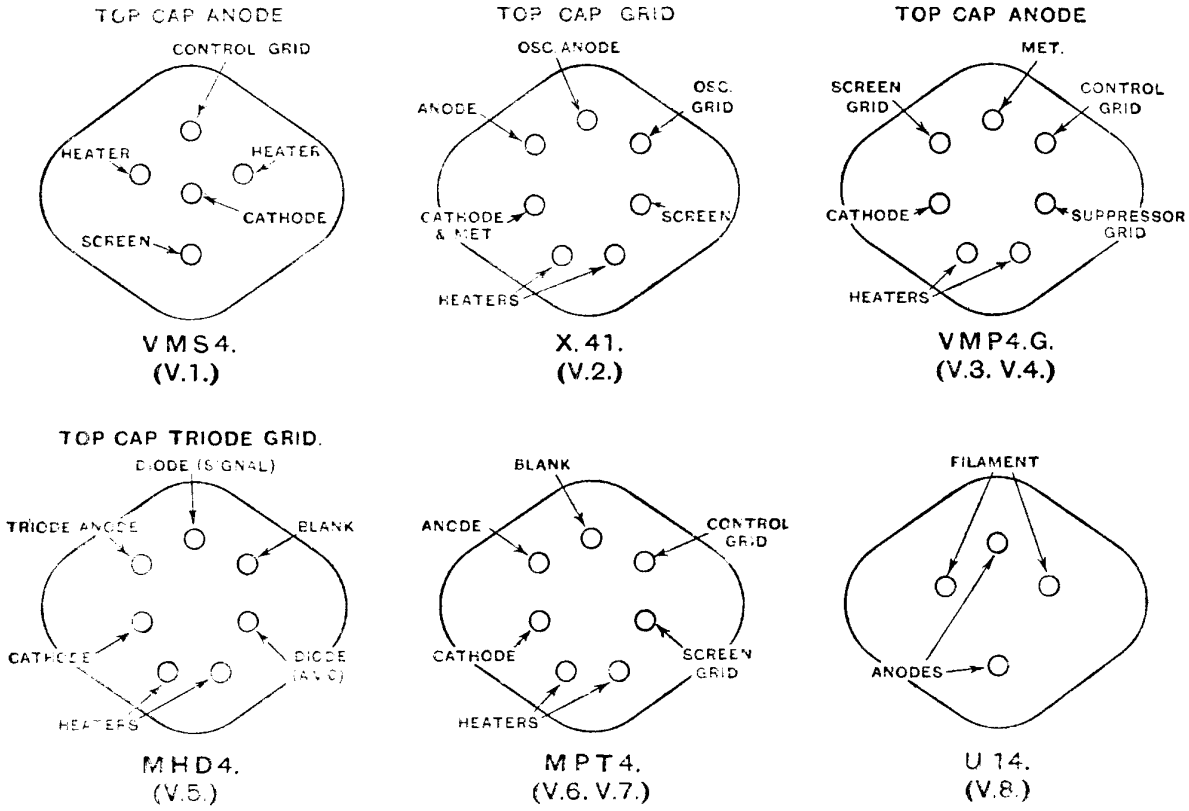


FIG. 3. UNDERNEATH VIEW OF CHASSIS (TABLE MODEL).

The Gram. chassis has an extension of the left hand side upon which is mounted T9, together with the aerial, earth and dipole sockets.



UNDERNEATH CHASSIS VIEW OF VALVE SOCKET CONNECTIONS.

FIG. 4. DETAILS OF VALVE HOLDER CONNECTIONS.

VOLTAGE AND CURRENT VALUES

The more important of these are also included on the circuit diagram (Fig. 2, page 4). Measurements are approximate only, and are average values taken with no signal input, the receiver switched to medium waves, the tuning condenser set at mid-band position, and sensitivity control at maximum. Measurements which are not taken on the decoupled side of a circuit may give rise to false readings caused by instability of the circuit to which the meter is connected. Voltage measurements are taken from chassis with an 0—1,200 voltmeter having a total resistance of 200,000 ohms. Readings taken with other meters may vary considerably from the accompanying figures which are obtained with the mains transformer correctly adjusted to the mains input.

Valve.		Electrode.	Voltage.	Current.
V1	VMS4	Anode	200	3.7 m.a.
	VMS4	Screen	76	1.4 m.a.
V2	X41	Anode	255	0.2 m.a.
	X41	Screen	65	0.42 m.a.
	X41	Osc. Anode	—	2.6 m.a.
V3	VMP4G	Anode	260	1.2 m.a.
	VMP4G	Screen	100	0.6 m.a.
V4	VMP4G	Anode	246	2.5 m.a.
	VMP4G	Screen	116	1.1 ma.
V5	MHD4	Anode	118	2.2 m.a.
V6 and 7	MPT4	Anode	255	32 m.a.
	MPT4	Screen	260	6 m.a.

H.T. Voltage (Unsmoothed)	312 volts.
H.T. Voltage (Smoothed)	260 volts.
Total H.T. Current	105 m/a.
A.C. H.T. secondary volts...	310—0—310

FOR MODELS BC.3880 AND BC.3888 ONLY.

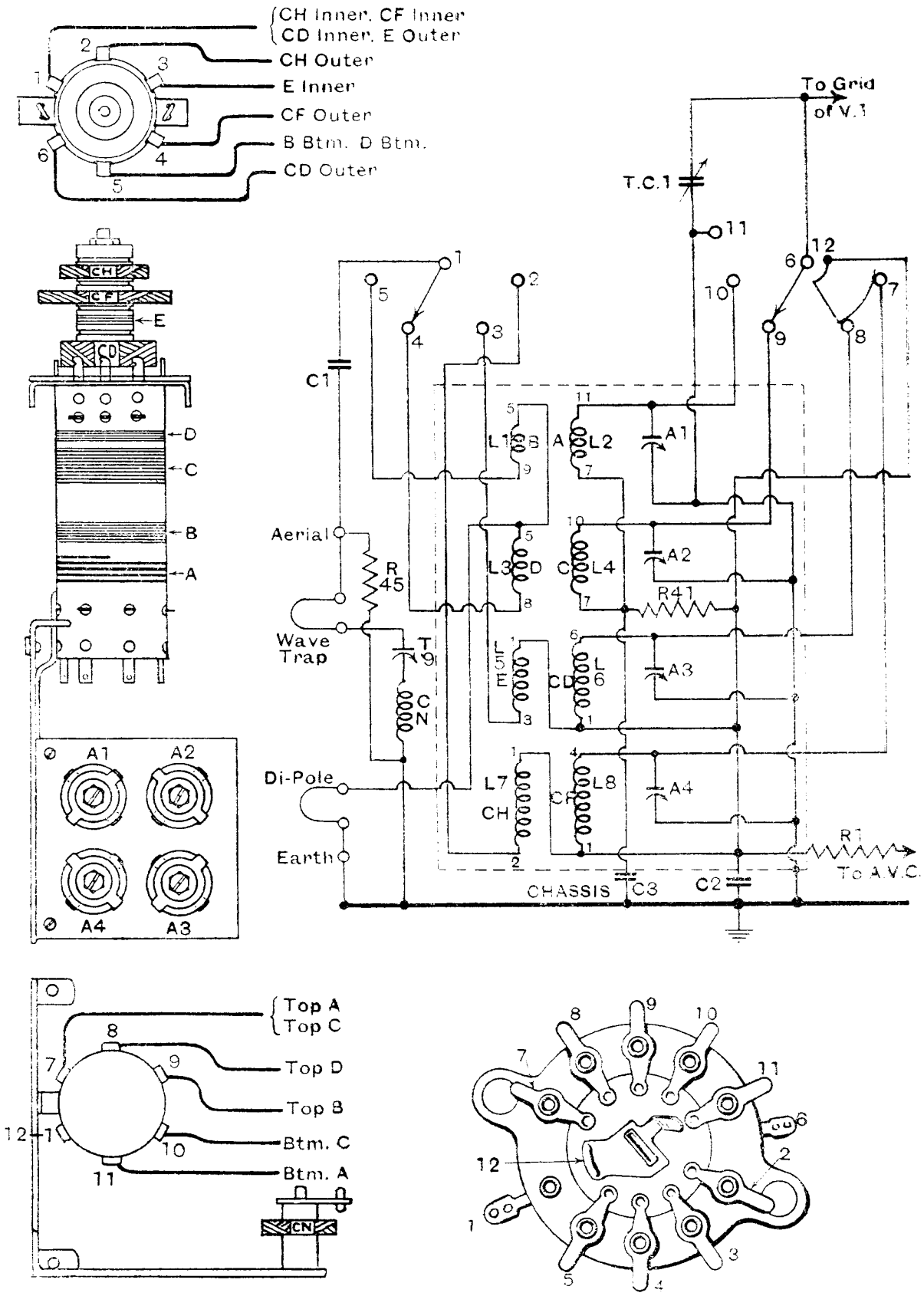


FIG. 5. DETAILS OF AERIAL COIL ASSEMBLY FOR BC.3880 AND BC.3888 RECEIVERS.

FOR MODELS BC.3882 AND BC.3889 ONLY.

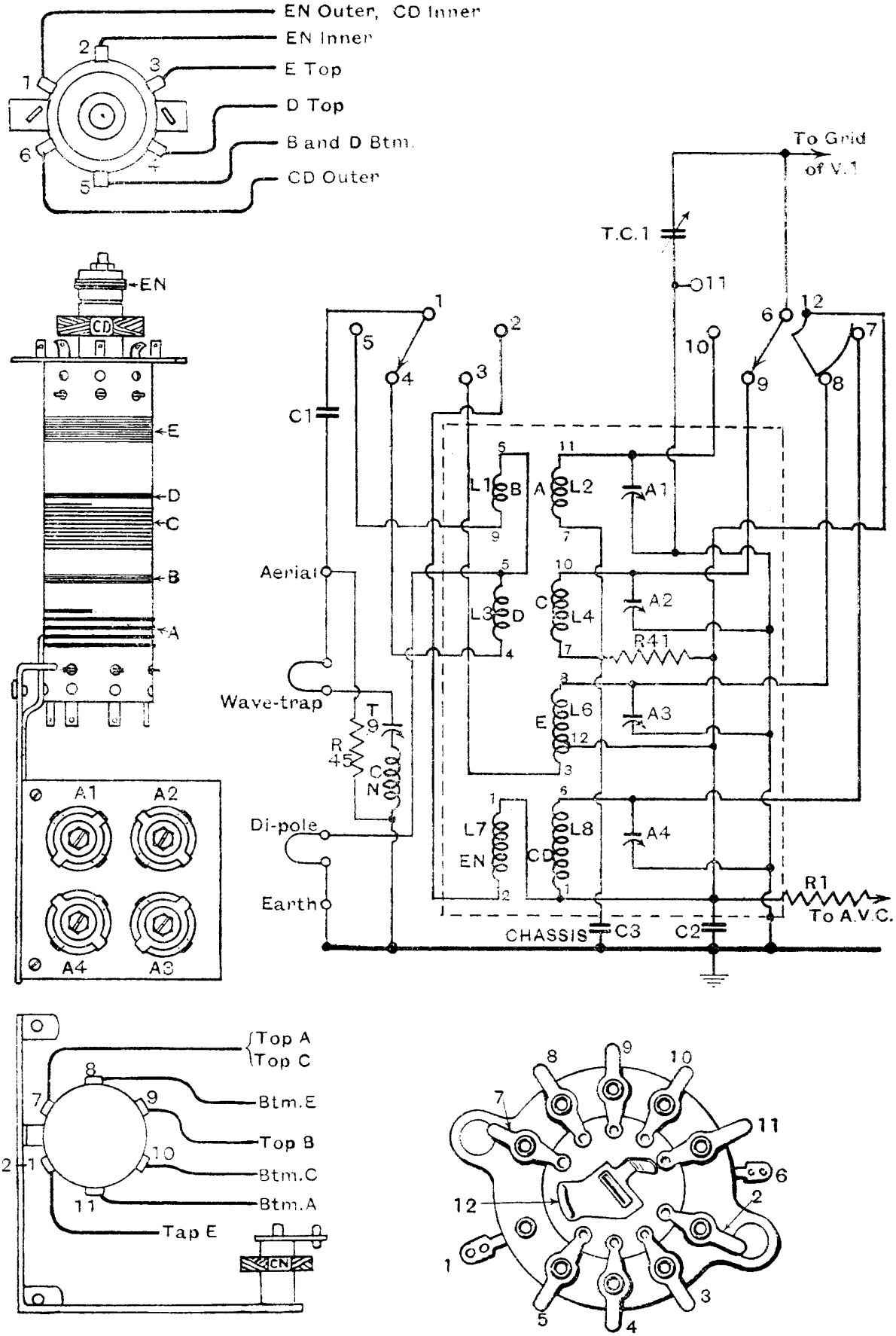


FIG. 6. DETAILS OF AERIAL COIL ASSEMBLY FOR BC.3882 AND BC.3889 RECEIVERS.

FOR MODELS BC.3880 AND BC.3888 ONLY.

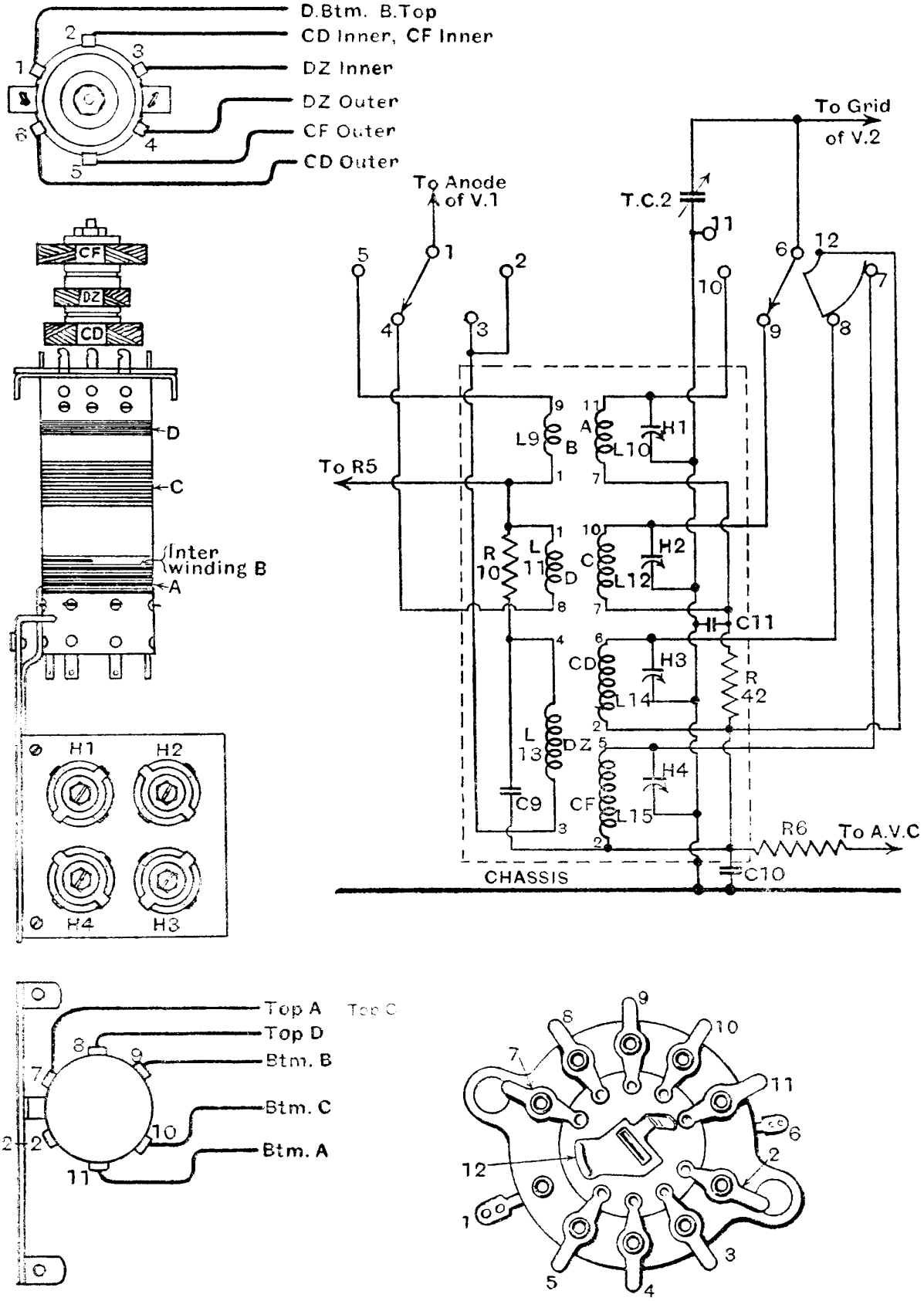


FIG. 7. DETAILS OF H.F. COIL ASSEMBLY FOR BC.3880 AND BC.3888 RECEIVERS.

FOR MODELS BC.3882 AND BC.3889 ONLY.

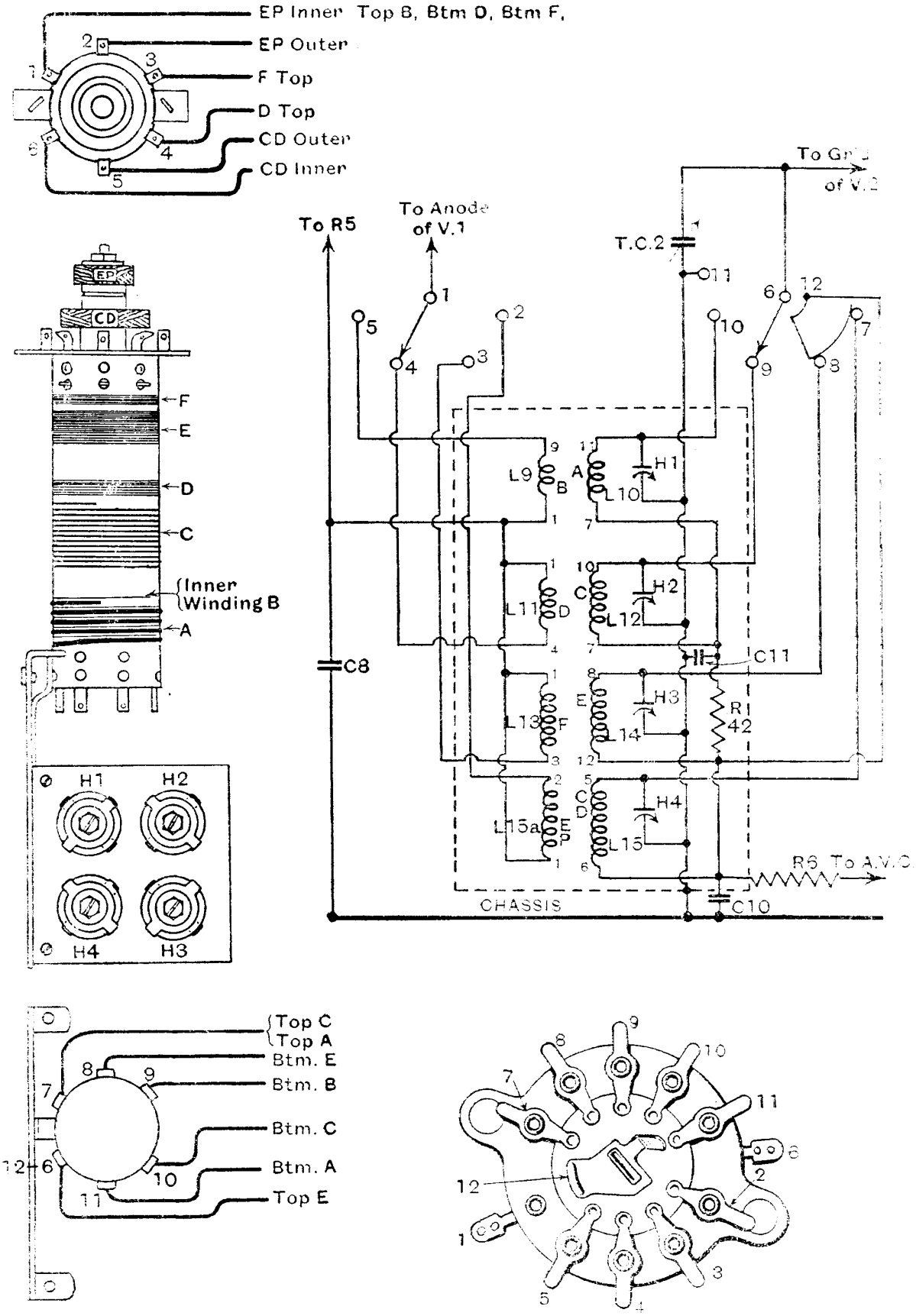


FIG. 8. DETAILS OF H.F. COIL ASSEMBLY FOR BC.3882 AND BC.3889 RECEIVERS.

FOR MODELS BC.3880 AND BC.3888 ONLY

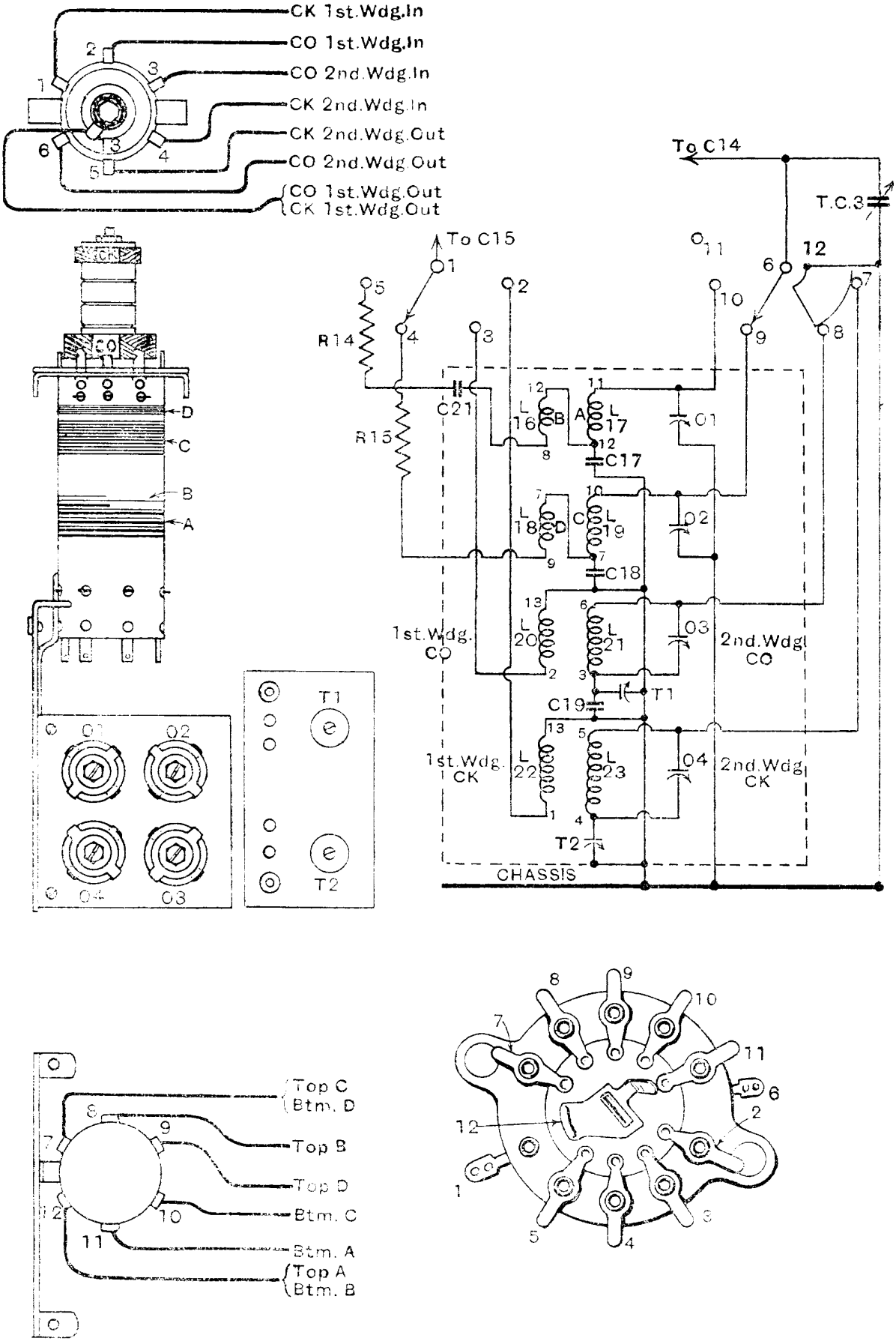
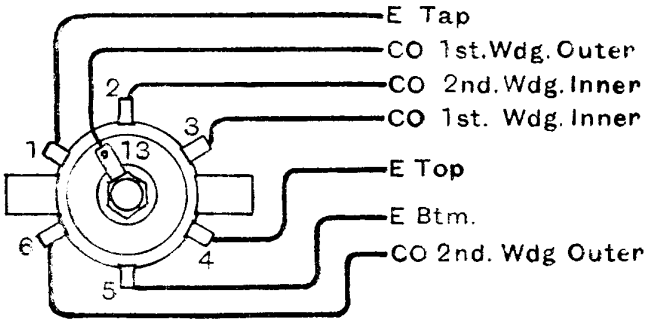
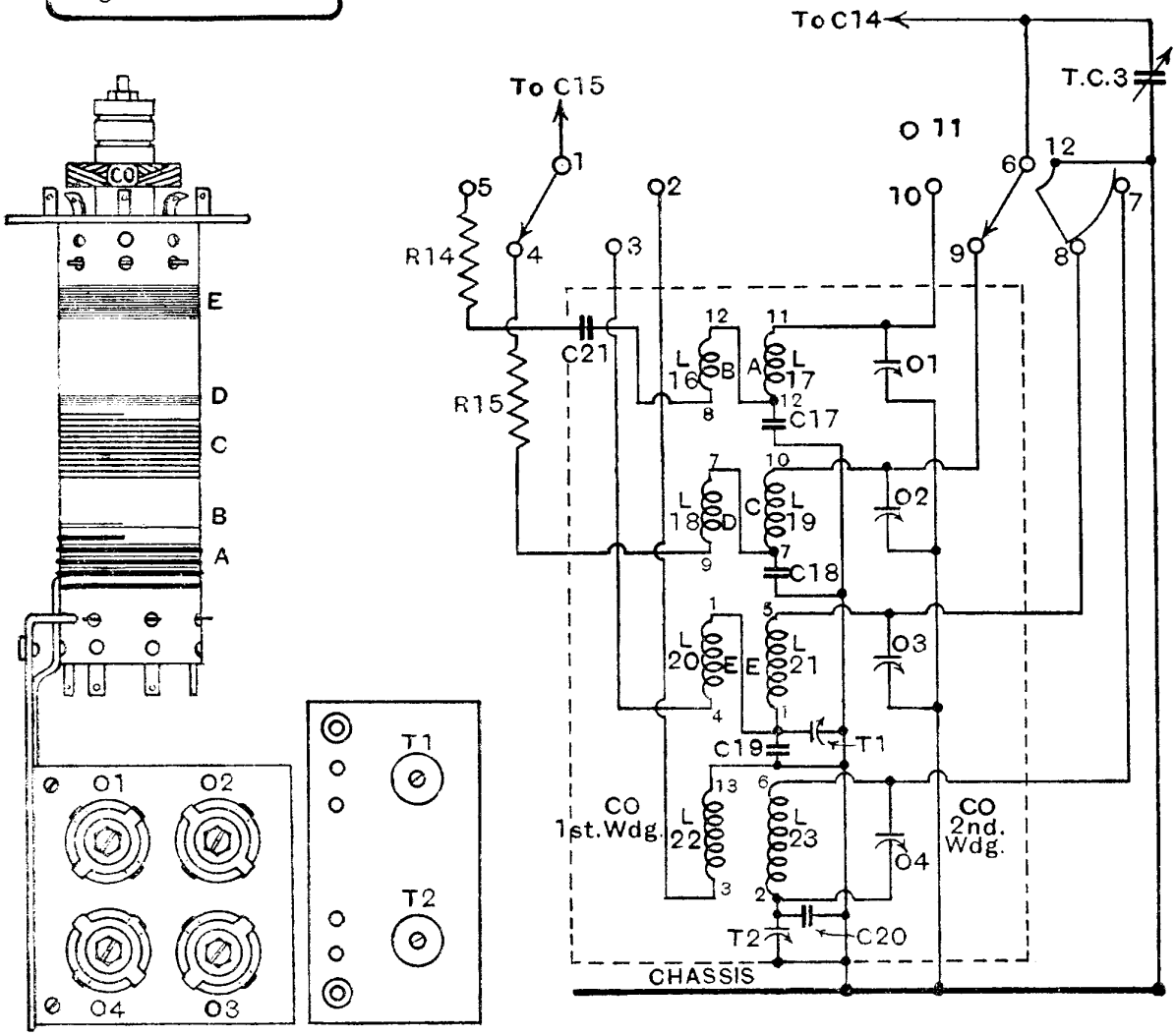


FIG. 9. DETAILS OF OSCILLATOR COIL ASSEMBLY FOR BC.3880 AND BC.3888 RECEIVERS.

FOR MODELS BC.3882 AND BC.3889 ONLY.





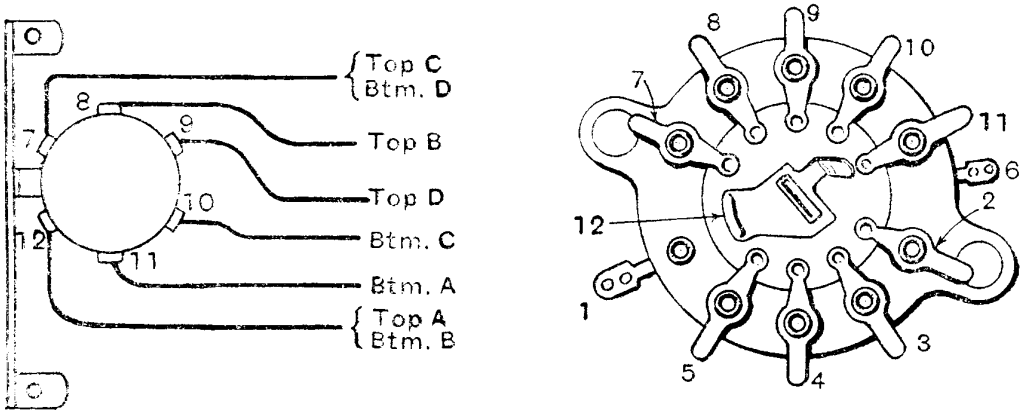


FIG. 10. DETAILS OF OSCILLATOR COIL ASSEMBLY FOR BC.3882 AND BC.3889 RECEIVERS.

APPROXIMATE D.C. RESISTANCE OF MISCELLANEOUS COMPONENTS

Tuning Coils.

			ohms
	BC. 3880 and BC.3888		
L5	Aerial Primary	Range 3	1.45
L6	Aerial Secondary	Range 3	4.0
L7	Aerial Primary	Range 4	14.5
L8	Aerial Secondary	Range 4	32.0
L13	H.F. Primary	Ranges 3 & 4	3.55
L14	H.F. Secondary	Range 3	4.0
L15	H.F. Secondary	Range 4	32.0
L20	Osc. Grid	Range 3	1.4
L21	Osc. Anode	Range 3	2.7
L22	Osc. Grid	Range 4	2.8
L23	Osc. Anode	Range 4	15.5
	BC.3882 and BC.3889		
L5	Aerial Primary	Range 3	0.2
L6	Aerial Secondary	Range 3	1.6
L7	Aerial Primary	Range 4	1.45
L8	Aerial Secondary	Range 4	4.0
L13	H.F. Primary	Range 3	1.2
L14	H.F. Secondary	Range 3	1.6
L15a	H.F. Primary	Range 4	3.55
L15	H.F. Secondary	Range 4	3.55
L20	Osc. Grid	Range 3	0.2
L21	Osc. Anode	Range 3	1.2
L22	Osc. Grid	Range 4	1.4
L23	Osc. Anode	Range 4	2.7
	BC.3880/82 and BC.3888/89		
L1	Aerial Primary	Range 1	0.95
L2	Aerial Secondary	Range 1	0.0055
L3	Aerial Primary	Range 2	0.72
L4	Aerial Secondary	Range 2	0.16
L9	H.F. Primary	Range 1	0.26
L10	H.F. Secondary	Range 1	0.0055
L11	H.F. Primary	Range 2	1.11
L12	H.F. Secondary	Range 2	0.16
L16	Osc. Grid	Range 1	0.57
L17	Osc. Anode	Range 1	0.0056
L18	Osc. Grid	Range 2	1.11
L19	Osc. Anode	Range 2	0.15

	ohms
I.F. Transformers.	
Primary or Secondary	10.6
L.F. Transformer	
Primary	800—1250
Secondary	2500—3000
Output Transformer.	
Primary	156—180
Secondary	0.35
Loud Speaker.	
Speech Coil	1.9
Hum Bucking Coil	0.05
Field Coil	350
Smoothing Choke	145
Wave Trap Coil (CN)	5.2
Mains Transformer.	
Primary 0— 10V.	0.25
0— 20V.	0.5
0—100V.	3.5
0—130V.	4.75
0—200V.	9.5
0—230V.	11.75
H.T. Secondary	105—95
Rectifier Filament Secondary	0.1
Heater Secondary	0.05

WIRING AND RESISTANCE COLOUR CODE

The receiver is wired up according to a standard colour code, brief details of which are given below, and is fitted with resistances which also conform to a standard code. Full particulars will be found in Service Bulletin No. 39.

White.—Indicates high potential connections to aerial circuit, first section of bandpass circuits and non-earthy side of speech coil connections.

Green.—Indicates grid connections and high potential ends of signal circuits.

Blue.—Indicates connection to screen grid of a valve.

Pink.—Indicates connection to cathode of a valve.

Orange.—Indicates connection to anode of a valve.

Black.—Indicates connection to earth or chassis.

Slate. Indicates connection to H.T. negative where H.T. negative is not directly connected to earth.

Red.—Indicates connection to H.T. positive (smoothed).

Red-White.—Indicates connection to H.T. positive (unsmoothed) where the smoothing choke is in the positive leg.

Green-White.—Indicates grid circuit decoupling and A.V.C. circuit.

The addition of white to the above colours indicates a decoupling connection for the respective circuit. Heaters and filament wiring will be indicated by **Black Red** and **Black White** and Battery receivers will have the L.T. positive connection indicated by **Black Red.**

INSTRUCTIONS FOR GANGING RECEIVERS

None of the trimmers must be disturbed unless suitable apparatus is available for re-aligning the various circuits. The ganging procedure is dealt with in detail in Service Bulletin No. 23. Unless the operator has already had considerable previous experience in ganging G.E.C. receivers, this should be carefully studied before the operation is undertaken.

NOTE.—The receiver must be run for at least five minutes before ganging adjustments are undertaken.

Section (1) below gives the tabular summary on the lines indicated in Service Bulletin No. 23.

Section (2) gives the procedure in detail to facilitate the operation for an operator who has not previously performed it on this particular receiver, or who has not Service Bulletin No. 23 available. The layout and numbers of the trimmers are given in Fig. 3, page 6. The following recommendations should be closely adhered to in order that the optimum performance may be obtained.

(1) Set both the sensitivity control and the volume control to maximum.

(2) Set the tone control to the mellow position.

(3) Remove link to disconnect aerial wave trap circuit, and insert the further link so that the normal aerial connection (not the di-pole) is used. For location see back of the receiver.

(4) When adjusting the oscillator parallel trimmers (Adjustment No. 2 in Service Bulletin No. 23), care must be taken that the LOWER CAPACITY setting is used in the event of two settings being possible.

(5) If any major change in the setting of any trimmer is required when ganging any range, it is necessary to repeat the complete procedure for that range to ensure accurate results. This is especially important on 900—2,200 metre range, where a very small padding condenser is used and it is necessary to gang at 1,000 metres and 1,818 metres, to repeat at 1,000 metres and 1,818 metres and, finally, to re-check at 1,000 metres.

(6) The I.F.T.'s require very careful adjustment, and after each trimmer has been correctly adjusted for maximum response, the operation should be repeated on the whole group giving each trimmer a final adjustment.

(1) TABULAR SUMMARY

(1) Short circuit oscillator tuning condenser by temporarily connecting fixed vanes to chassis.

(2) Align I.F. amplifier at 445 Kc/s, according to Adjustment No. 1 in Service Bulletin No. 23.

(3) Mechanical check on scale and pointer.

(*a*) Check that pointer is straight.

(*b*) Set the gang condenser to minimum capacity. The pointer should now be vertical and in line with the two marks provided at top and bottom of the scale. Adjust scale in frame if necessary.

(*c*) Rotate the gang condenser through 90°. The pointer should now be in line with the two marks at 90° and 270°. Adjust scale if necessary. This ensures that the centre of the scale coincides with the centre line of condenser shaft.

(4) Align the various wavebands in the order described in the table on the following page. Trimmers should be adjusted in the order given and any one range may be adjusted independently if desired.

FOR BC. 3880 and BC. 3888 RECEIVERS ONLY.

Range.	Alignment Frequency.	Adjustment.	Trimmers.
L.W. 990 to 2,200 metres	300 Kc/s (1,000 metres)	2	O4, H4 and A4
	165 Kc/s (1,818 metres)	3	T2
	300 Kc/s (1,000 metres)	Check Adj. 2	O4, H4 and A4
	165 Kc/s (1,818 metres)	3	T2
	300 Kc/s (1,000 metres)	Finally Check Adj.2	O4, H4 and A4
M.W. 200 to 550 metres	1,400 Kc/s (214 metres)	2	O3, H3 and A3
	560 Kc/s (536 metres)	3	T1
	1,400 Kc/s (214 metres)	Check Adj. 2	O3, H3 and A3
S.W.2 30.5 to 82 metres	9.5 Mc/s (31.6 metres)	2 Rock gang slightly if pulling is experienced	O2, H2 and A2 Adjust O2 for lowest capacity peak.
S.W.1 13 to 31.5 metres	20 Mc/s (15 metres)	2 Rock gang slightly if pulling is experienced	O1, H1 and A1 Adjust O1 for lowest capacity peak.

For positions of trimmers referred to above, see Fig. 3 and numbering on end plate of chassis.

FOR BC. 3882 and BC. 3889 RECEIVERS ONLY.

Range.	Alignment Frequency.	Adjustment.	Trimmers.
M.W. 200 to 550 metres	1,400 Kc/s (214 metres)	2	O4, H4 and A4
	560 Kc/s (536 metres)	3	T2
	1,400 Kc/s (214 metres)	Check Adj. 2	O4, H4 and A4
S.W.3 78 to 220 metres.	3.6 Mc/s (83 metres)	2	O3, H3 and A3
	1,400 Kc/s (214 metres)	3	T1
	3.6 Mc/s (83 metres)	Check Adj. 2	O3, H3 and A3
S.W.2 30.5 to 82 metres	9.5 Mc/s (31.6 metres)	2 Rock gang slightly if pulling is experienced	O2, H2 and A2 Adjust O2 for lowest capacity peak.
S.W.1 13 to 31.5 metres	20 Mc/s (15 metres)	2 Rock gang slightly if pulling is experienced	O1, H1 and A1 Adjust O1 for lowest capacity peak.

For positions of trimmers referred to above, see Fig. 3 and numbering on end plate of chassis.

(2) DETAILED PROCEDURE.

NOTE.—The receiver must be run for at least five minutes before any ganging adjustments are undertaken.

For BC.3880, BC.3888, BC.3882 and BC.3889 Receivers.

(*a*) *Intermediate Frequency Amplifier. Ganging Frequency* 445 *Kc/s.*

(i) Set range switch to medium waveband, and tuning control to maximum capacity setting of gang condenser.

(ii) Set receiver volume and sensitivity controls to maximum.

(iii) Short circuit oscillator tuning condenser (T.C.3) by connecting fixed vanes temporarily to chassis. Use soldering tag at point " X " in Fig. 3, page 6.

(iv) Connect modulated oscillator to top cap (grid) of X41 valve after removing grid clip. The output of the oscillator should be such as to provide a D.C. conductive path between the grid of the X41 and chassis to which the screening of the output lead should be connected.

If available, use G.E.C. dummy aerial assembly illustrated in Fig. 11. Connect terminal 1 to chassis, 2 to grid of X41, and unmarked one to output of oscillator.

(v) Connect output meter across primary of output transformer (two tags to which orange wires are connected, see Fig. 12).

If a multi-range meter is used, set this to the 100 *or* 120 *volt A.C. range.*

(vi) Tune modulated oscillator to 445 Kc/s and adjust attenuator to give a reading of about 20 volts* on the output meter.

(vii) Adjust trimmers T3, T4, T5, T6, T7 and T8 to give a maximum peak reading on the output meter, progressively reducing the oscillator output by means of the attenuator to maintain the output meter reading at about 20 volts.*

(viii) Repeat adjustment as in (vii) above for final setting of trimmers.

***These readings are to be taken with the meter set to the 100 or 120 volt A.C. range. Provided a high impedance type, high grade meter is used, the reading of 20 volts specified above will indicate that the standard output of 50 milliwatts is being used.**

For BC.3880 and BC.3888 Receivers only.

LONG WAVES. RANGE 4. (990—2,200 METRES)

(*b*) 300 *Kc/s* (1,000 *metres*).

(i) Check position of scale and pointer (See note in Tabular Summary on Page 15).

(ii) Set the tuning pointer to 1,000 metres.

(iii) Connect modulated oscillator to aerial and earth sockets of set via M.W. dummy aerial (see Fig. 11).

(iv) Adjust modulated oscillator to 300 Kc/s.

(v) Adjust trimmers O4, H4 and A4 in this order to give a maximum reading as in (*a*) (vi and vii).

(*c*) 165 *Kc/s* (1,818 *metres*).

(i) Disconnect oscillator tuning condenser TC3 by unsoldering lead from tag on range switch underneath chassis at point " X " in Fig. 3.

(ii) Connect external variable condenser between the disconnected tag and chassis.

(iii) Adjust modulated oscillator to 165 Kc/s.

(iv) Adjust receiver tuning control and external variable condenser simultaneously to give a maximum reading as in (*a*) (vi and vii).

(v) Disconnect external variable condenser.

(vi) Re-connect oscillator tuning condenser (TC3).

(vii) *Without altering tuning control setting,* adjust long wave oscillator pad trimmer T2, to give a maximum reading as in (*a*) (vi and vii).

(*d*) 300 *Kc/s* (1,000 *metres*).
Repeat the procedure given in Section (*b*) (ii to v) above to check alignment at 300 Kc/s.

(*e*) 165 *Kc/s* (1,818 *metres*).
Repeat the procedure given in Section (*c*) (i to vii) above to check setting of T2.

(*f*) 300 *Kc/s* (1,000 *metres*).
Repeat the procedure given in Section (*b*) (ii to v) above to finally check alignment at 300 Kc/s.

MEDIUM WAVES. RANGE 3 (200-550 METRES)

(*g*) 1,400 *Kc/s* (214 *metres*).
(i) Set the tuning pointer to 214 metres.
(ii) Adjust modulated oscillator to 1,400 Kc/s and couple via M.W. dummy aerial (see Fig. 11) to aerial and earth sockets of receiver.
(iii) Adjust trimmers O3, H3 and A3 in this order to give a maximum reading as in (*a*) (vi and vii).

(*h*) 560 *Kc/s* (536 *metres*).
(i) Disconnect oscillator tuning condenser TC3 by unsoldering its lead from tag on range switch at point "X" in Fig. 3.
(ii) Connect external variable condenser between the disconnected tag and chassis.
(iii) Adjust modulated oscillator to 560 Kc/s.
(iv) Adjust receiver tuning control and external variable condenser simultaneously to give a maximum reading as in (*a*) (vi and vii).
(v) Disconnect external variable condenser.
(vi) Re-connect oscillator tuning condenser TC3.
(vii) *Without altering tuning control setting*, adjust medium wave oscillator pad trimmer T1, to give a maximum reading as in (*a*) (vi and vii).

(*j*) 1,400 *Kc/s* (214 *metres*).
Repeat the procedure given in Section (*g*) above to check alignment at 1400 Kc/s.

Resolder lead from oscillator section of gang condenser to disconnected tag on range switch.

For BC.3882 and BC.3889 Receivers only.

MEDIUM WAVES. RANGE 4 (200-550 METRES)

(*k*) 1,400 *Kc/s* (214 *metres*).
(i) Set the tuning pointer to 214 metres.
(ii) Adjust modulated oscillator to 1,400 Kc/s and couple via M.W. dummy aerial (see Fig. 11) to aerial and earth sockets of receiver.
(iii) Adjust trimmers O4, H4 and A4 in this order to give a maximum reading as in (*a*) (vi and vii).

(*l*) 560 *Kc/s* (536 *metres*).
(i) Disconnect oscillator tuning condenser TC3 by unsoldering its lead from tag on range switch at point "X" in Fig. 3.
(ii) Connect external variable condenser between disconnected tag and chassis.
(iii) Adjust modulated oscillator to 560 Kc/s.
(iv) Adjust receiver tuning control and external variable condenser simultaneously to give a maximum reading as in (*a*) (vi and vii).
(v) Disconnect external variable condenser.
(vi) Re-connect oscillator tuning condenser TC3.
(vii) *Without altering tuning control setting*, adjust medium wave oscillator pad trimmer T2, to give a maximum reading as in (*a*) (vi and vii).

(*m*) 1,400 *Kc/s* (214 *metres*).

Repeat procedure given in Section (*k*) above to check alignment at 1400 Kc/s.

SHORT WAVES. RANGE 3 (78-220 METRES)

(*n*) 3.6 *Mc/s* (83 *metres*).

(i) Set the tuning pointer to 83 metres.

(ii) Adjust modulated oscillator to 3.6 Mc/s and couple via short wave dummy aerial (see Fig. 11) to aerial and earth sockets of receiver.

(iii) Adjust trimmers O3, H3 and A3 in this order to give a maximum reading as in (*a*) (vi and vii), taking care that the LOWER CAPACITY setting of O3 is used.

(*p*) 1,400 *Kc/s* (214 *metres*).

(i) Disconnect oscillator tuning condenser TC3 by unsoldering its lead from tag on range switch at point "X" in Fig. 3.

(ii) Connect external variable condenser between disconnected tag and chassis.

(iii) Adjust modulated oscillator to 1,400 Kc/s and couple via M.W. dummy aerial (see Fig. 11) to aerial and earth sockets of receiver.

(iv) Adjust receiver tuning control and external variable condenser simultaneously to give a maximum reading as in (*a*) (vi and vii).

(v) Disconnect external variable condenser.

(vi) Re-connect oscillator tuning condenser TC3.

(vii) *Without altering tuning control setting,* adjust S.W. 3 oscillator pad trimmer T1, to give a maximum reading as in (*a*) (vi and vii).

(*q*) 3.6 *Mc/s* (83 *metres*).

Repeat the procedure given in section (*n*) above to check the alignment at 3.6 Mc/s.

Resolder lead from oscillator section of gang condenser to disconnected tag on range switch.

For BC.3880, BC.3888, BC.3882 and BC.3889 Receivers.

SHORT WAVES. RANGE 2. (30.5—82 METRES)

(*r*) 9.5 *Mc/s* (31.6 *metres*).

(i) Set the tuning pointer to 31.6 metres.

(ii) Adjust modulated oscillator to 9.5 Mc/s and couple via S.W. dummy aerial (see Fig. 11) to aerial and earth sockets of receiver.

(iii) Adjust trimmers O2, H2 and A2 in this order to give a maximum reading as in (*a*) (vi and vii) taking care that the LOWER CAPACITY setting of O2 is used.

When making final adjustments to the two trimmers H2 and A2, the gang condenser should be rocked slightly backwards and forwards about the tuning point, as there may be slight pulling between the circuits.

SHORT WAVES. RANGE 1 (13—31.5 METRES)

(*s*) 20 *Mc/s* (15 *metres*).

(i) Set the tuning pointer to 15 metres.

(ii) Adjust modulated oscillator to 20 Mc/s and couple via S.W. dummy aerial (see Fig. 11), to aerial and earth sockets of receiver.

(iii) Adjust trimmers O1, H1 and A1 in this order to give a maximum reading as in (*a*) (vi and vii), taking care that the LOWER CAPACITY setting of O1 is used.

When making final adjustments to the two trimmers H1 and A1, the gang condenser should be rocked slightly backwards and forwards about the tuning point as there may be slight pulling between the circuits.

Finally seal the trimmers with a suitable cellulose adhesive, taking care that the sealing does not run between the plates and the mica di-electric.

APPARATUS REQUIRED FOR GANGING

Should SERVICE BULLETIN No. 23, which deals with the standard method of ganging G.E.C. Superheterodyne receivers, not be available, details are given below of the apparatus which is required to carry out the operation correctly. These are referred to as required under **Section (2)** Detailed Procedure.

(a) Calibrated Modulated Oscillator.

This should have the following characteristics :—

Frequency accuracy, $\pm 1\%$

Modulation, 30% to 50% at a frequency of approximately 400 c.p.s.

Frequency range to cover I.F. and tuning ranges.

Continuously Variable Output.

Screened output leads.

Dummy aerial. If this is not incorporated in the oscillator, see Fig. 11.

(b) Output Meter.

This should consist of a high resistance rectifier type A.C. voltmeter having a range of approximately 0-100 volts with a suitable isolating condenser. A high grade multiple measuring instrument may be utilised for the purpose.

(c) Variable Condenser.

This should be similar to one section of the receiver tuning condenser and have two leads fitted with crocodile clips for connecting purposes.

(d) Insulated Adjusting Tool for Trimmers.

For G.E.C. receivers of the season 1934/5 and later this takes the form of an insulated screwdriver. For receivers previous to this an insulated hexagonal box spanner is required as well. Both types of tool may be procured from the nearest G.E.C. Service Depot.

(e) Adhesive for sealing Trimmers.

Either Necol or Durofix is recommended. If neither is available a high grade cellulose adhesive should be utilised.

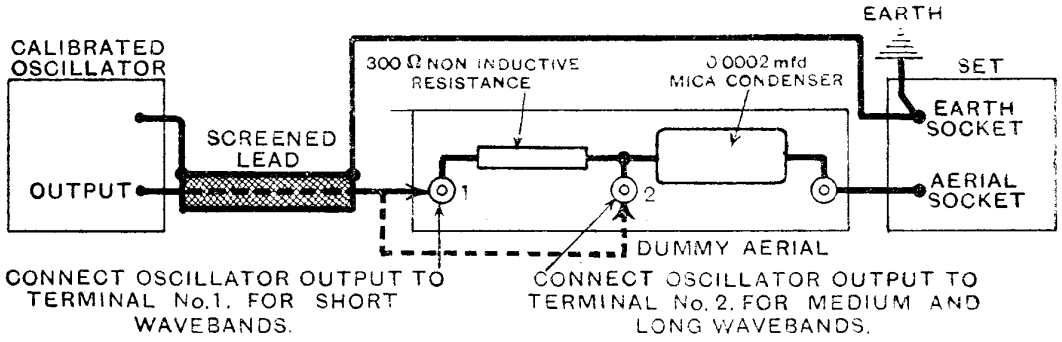


FIG. 11.

The object of a dummy aerial is to load the aerial circuit in a manner equivalent to the connection of an average outdoor aerial. This is effected by connecting between the oscillator and the set a combination of inductance, resistance and capacity.

A useful approximation, the accuracy of which is quite adequate for service purposes, is illustrated in Fig. 11. This consists of a 300 ohm non-inductive resistance and a 0.0002 mfd. mica condenser.

For the medium and long wavebands the condenser only is connected in series with the oscillator output lead by connecting the latter to terminal No. 2 on the dummy aerial. For the short wavebands the resistance and condenser are both utilised in series with the oscillator output by connecting this lead to terminal No. 1 on the dummy aerial. Both cases are illustrated in Fig. 11.

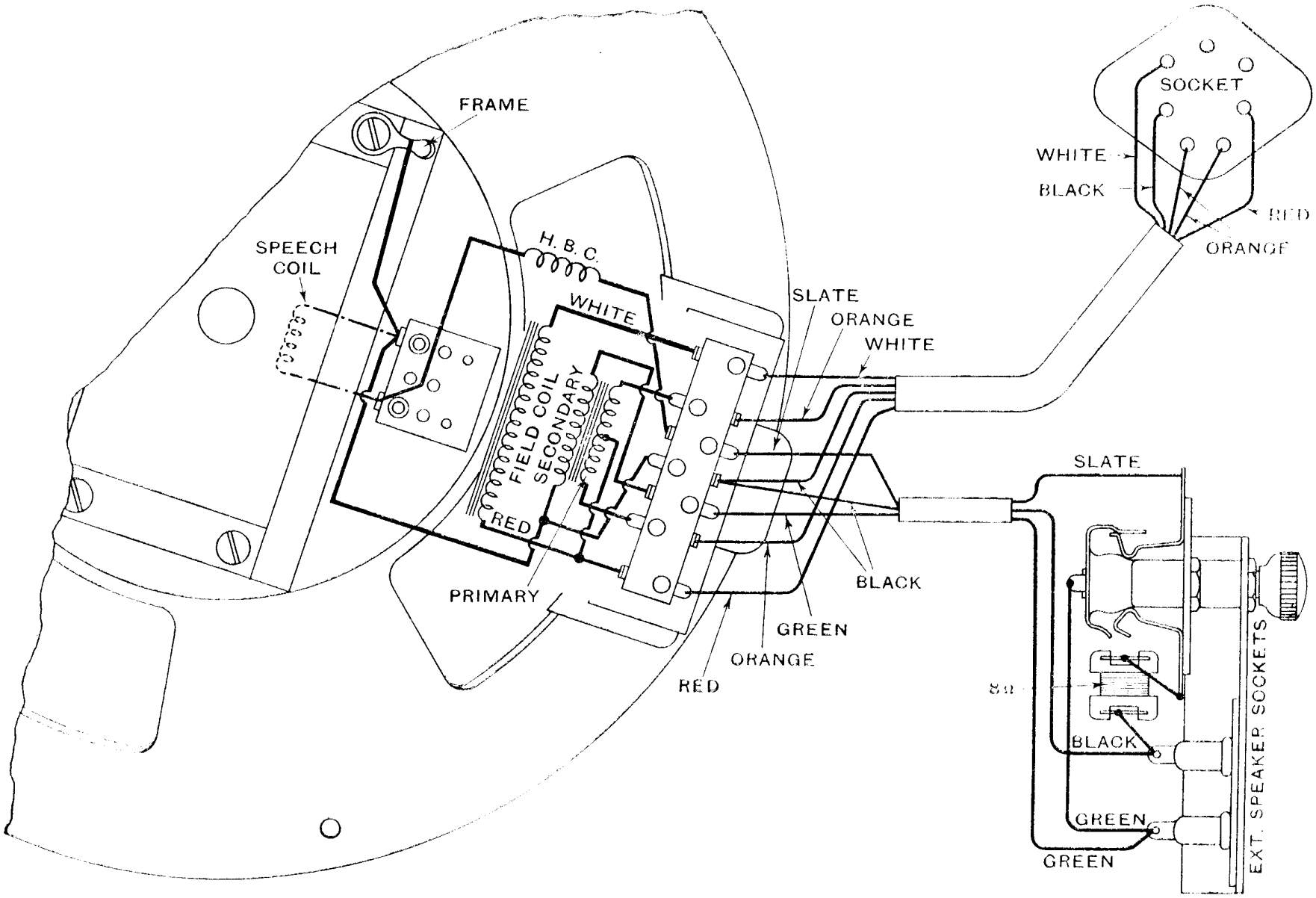
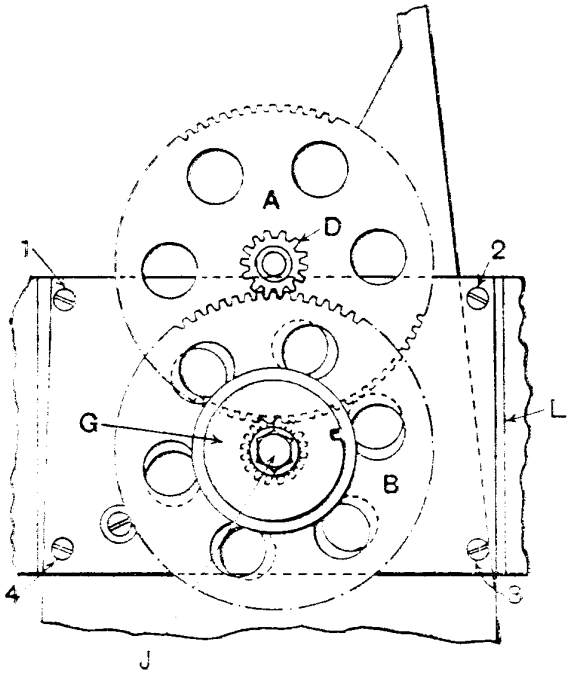
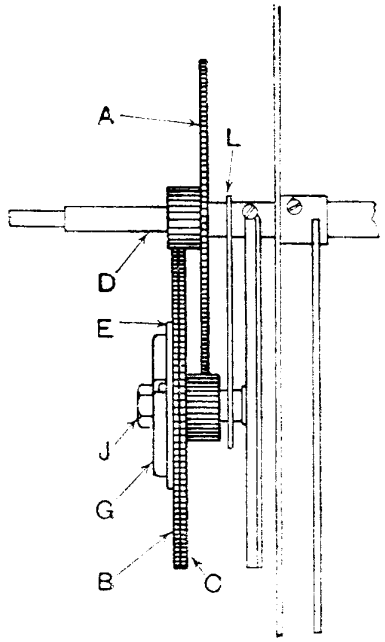


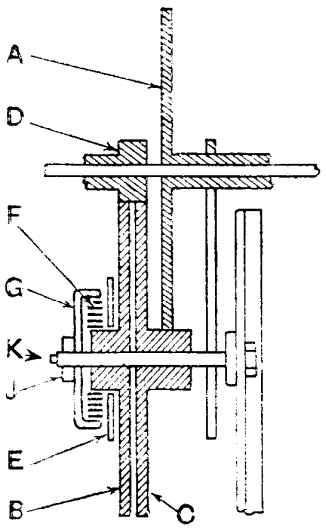
FIG. 12. COMBINED THEORETICAL AND PICTORIAL VIEW OF L.S. CONNECTIONS.



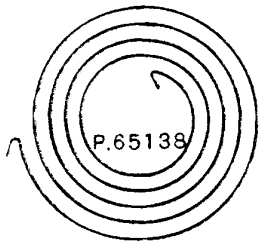
FRONT ELEVATION



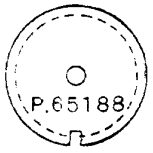
SIDE ELEVATION



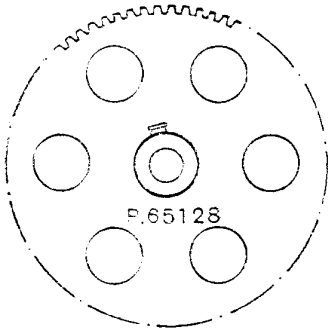
SECTION THROUGH COMPLETED ASSEMBLY.



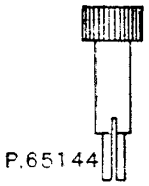
TENSION SPRING F.



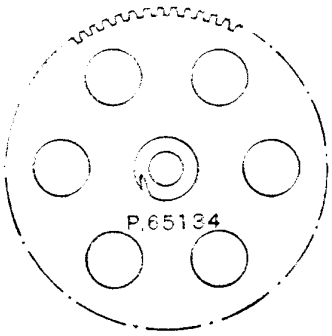
SPRING BOX G.



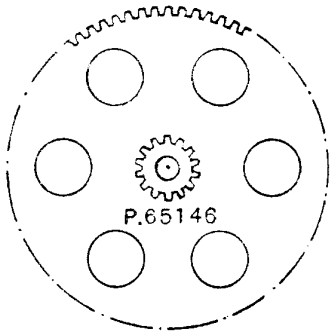
GEAR WHEEL A.



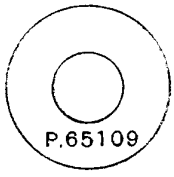
PINION AND SHAFT D.



GEAR WHEEL B.



GEAR WHEEL C.



WASHER E.

FIG. 13. THE MICRO-TUNING INDICATOR ASSEMBLY.

INSTRUCTIONS FOR REPLACEMENT AND ADJUSTMENT OF TENSION SPRING ON MICRO-TUNING INDICATOR

Reference letters of component parts and general method of assembly is shown on Fig. 13 opposite.

Note.—Whenever the micro-pointer is taken from the shaft D on a completed assembly care should be taken that D is held in position when the pointer is withdrawn as otherwise the spring may be released, necessitating entire dismantling in order to rewind.

To reassemble.—Take wheel B and spring F together with washer E, and put E over the boss on B. Now insert the inner crooked end of the spring F into the slot of the boss on wheel B and holding B between the thumb and second finger of the left hand, coil the spring so that it will fit in box G. Then take G in the right hand, clip the outer end of the spring into the slot in G and place over the spring. Now place this spring and wheel sub-assembly over the stem K directly on top of wheel C and secure the spring box in position with nut J and a small spring washer, taking care that the periphery does not foul wheel B. With the gang condenser at maximum capacity rotate B in an anti-clockwise direction until the spring is fully wound and then slacken off $2\frac{1}{2}$ turns and slip the bush and pinion D over the condenser shaft so that the teeth of the pinion engage the teeth of wheels B and C, thus holding B in this wound up position. If back-lash is apparent in the micro-pointer operation the amount of wind of the spring should be increased slightly and conversely if the action appears stiff the spring should be unwound a turn or so. Should the action appear rough as a result of the teeth of wheels B, C, and D meshing too deeply it may be adjusted by moving plate L secured by screws 1, 2, 3 and 4.

GENERAL NOTES ON THE ADJUSTMENT OF THE "GARRARD" R.C.6 AUTOMATIC RECORD CHANGER

The following notes have been compiled to enable any competent individual to make any adjustments which may be found necessary to the Record Changer after a period of service.

To ensure satisfactory operation, the following points should always be borne in mind.

(1). The instrument should be installed on a level surface.
(2). Warped or damaged records should never be used.
(3). Only use records with a " spiral " or " eccentric " run off groove.
(4). Long playing needles of the semi-permanent type are essential if good quality of reproduction is to be maintained.

A brief description follows giving details of the operation of various parts of the mechanism, together with particulars of the method of carrying out any adjustment which may be required.

THE AUTOMATIC TRIP MECHANISM

The trip mechanism will only operate on records having a " run off " groove of either eccentric or spiral form, and in the event of trouble being experienced with the pickup remaining at the end of a record and the mechanism not changing, it is advisable to check this point before attempting to make any adjustments.

Details of the automatic trip are given in Fig. 14, and the method of operation is as follows :—

The trip lever, which is connected to the pickup arm through a series of levers, is moved forward towards the main spindle by a distance proportional to the

advance made by the pickup head. A striker is fitted upon the main spindle in order to push back the trip lever and prevent the changer mechanism from operating whilst the record is being played. When the pickup head leaves

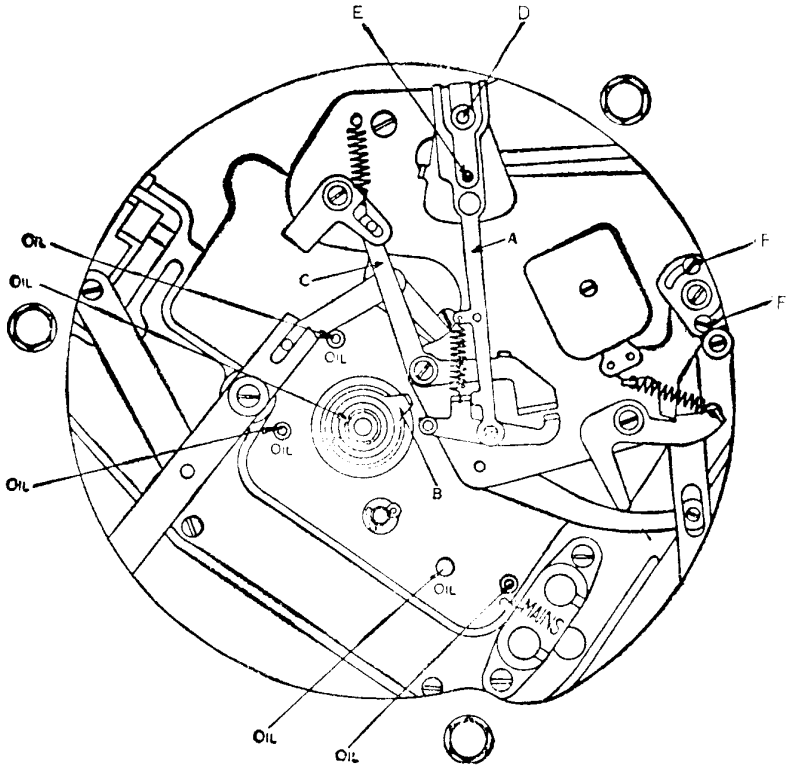


FIG. 14. DETAILS OF TRIP MECHANISM.

the end of the playing grooves and is moved into the " eccentric " or " spiral " run off groove, the increased movement transmitted to the trip lever is too much to allow of its being pushed back by the striker, which then strikes the metal trip lever itself, and by moving it, starts the changing mechanism.

The correct functioning of the trip mechanism which should be silent in operation, depends on the rubber bush on the trip lever. Should this bush become badly worn a tapping sound will become apparent, and the mechanism may operate before the end of the record. This fault may be rectified by turning the rubber bush round in order to present a new surface to the striker.

A friction adjusting screw is provided, the setting of which may be altered should the mechanism operate before the end of the record, or if the mechanism should fail to operate at the end of a record which has run off grooves, as previously described. This adjusting screw is readily accessible when the turntable has been removed and is marked " E " in Fig. 14. Before adjusting this screw, however, it is advisable to ascertain that the main trip lever "A" is clear of the baseplate and is not setting up additional friction by rubbing on the unit plate. Should the changer fail to operate at the end of a record, the adjusting screw " E " should be given a small turn in an anti-clockwise direction to increase the friction. Should the changer operate before the pick-up has reached the end of the record, or if a thumping noise is heard from the loudspeaker, the screw " E " should be turned in a clockwise direction to decrease the friction.

As this adjustment is very sensitive, the screw " E " should be turned by not more than a quarter of a turn at a time.

RECORD CHANGING

The record platform is normally set to the correct position for all average records, but if records are encountered, the size of which are outside the normal

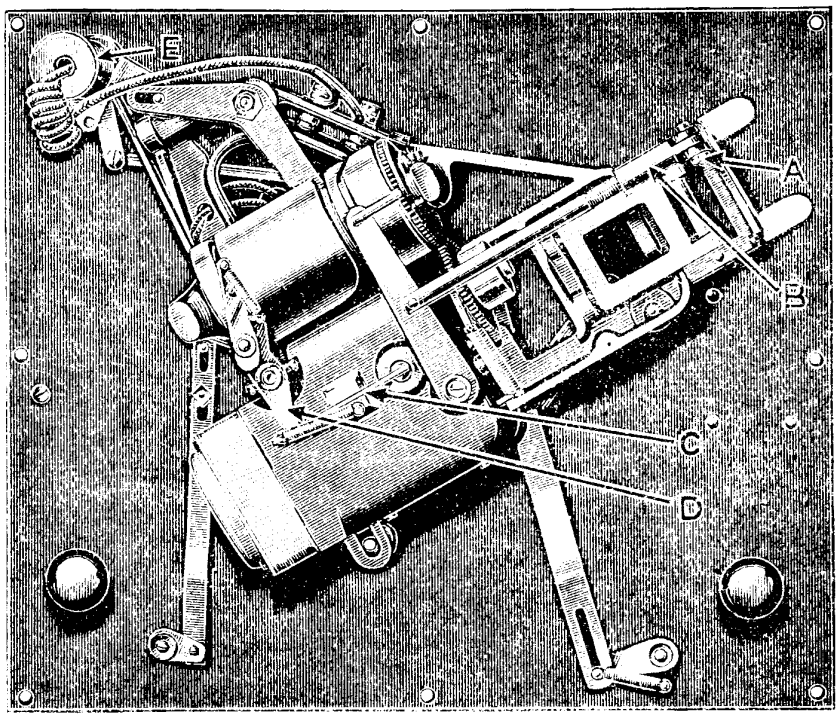


FIG. 15. UNDERNEATH VIEW OF CHANGER MECHANISM.

tolerance limits, it may be necessary to make a slight adjustment to the platform position in order to accommodate them.

This may be carried out by removing the nut, washer, and screw " A," shown in Fig. 15, the underneath chassis view of the Record Changer, and turning the bush " B " clockwise, to accommodate large records, and anti-clockwise for smaller records. Replace the screw, washer, and nut, and check the platform position by placing the record on the spindle, and if the adjustment has been made correctly, the record edge should rest on the platform just clear of the studs, when the changer is in the playing position.

If the first record does not drop when the mechanism is switched on, this will be due to the leather brake pad having become worn, and not braking the turntable sufficiently. To make the necessary adjustment, loosen the two screws marked " F " in Fig. 14 and turn the brake lever slightly to bring the leather pad nearer the turntable rim, and tighten up the screws. After making these adjustments see that the switch breaks contact before the leather pad touches the turntable rim.

PICKUP ARM ADJUSTMENT

The pickup arm has been carefully adjusted so that the needle comes on to a 10″ record on a $9\frac{5}{8}$″ diameter circle, and on to a 12″ record on an $11\frac{5}{8}$″ diameter circle. These distances were decided upon after checking over a very wide selection of various makes of records.

Should the dropping position of the needle require adjustment, the turntable should be first turned by hand to bring the pickup from the loading position to the point where the needle has dropped to within $\frac{1}{16}$″ of the record. The screw marked " D " in Fig. 17, which is accessible through a hole in the unit plate should then be turned either to the right or left, according to requirements. A quarter of a turn in either direction will give the maximum adjustment obtainable.

When making any adjustments to the pickup arm it should never on any account be forced into position, and when the turntable is turned by hand it should never be turned backwards.

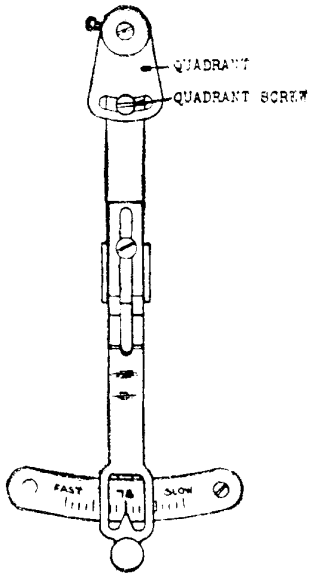


FIG. 16. SPEED REGULATOR DETAILS.

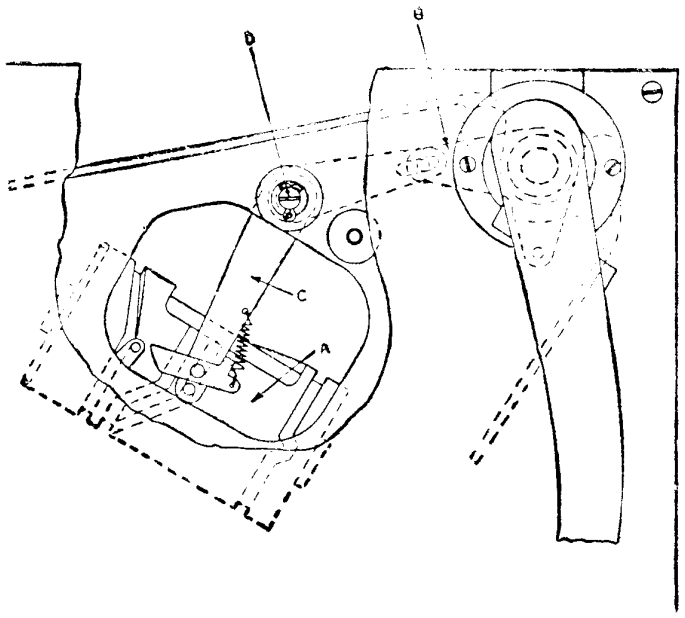


FIG. 17. OPERATION OF PICKUP ARM.

If the pickup needle does not run smoothly into the first groove of the record after the mechanism has lowered the needle on to the plain edge of the record, check that :—

(*a*). The record changer has been mounted in a level position, by placing a spirit level on a record on the turntable.

(*b*). The flex connecting the pickup is not twisted or held in such a way as to prevent free movement of the arm.

(*c*). The levers " B " and " C " in Fig. 17, are free to move, and that the pin at the end of lever " C " is not rubbing on the bottom of the cam grooves.

If required the pickup height may be adjusted by loosening the grub screw in the pickup counter weight marked " E " in Fig. 15, and turning the weight whilst holding the spindle.

AUTOMATIC SWITCH

The Record changer has been designed to stop automatically after the last record has been played, and this is achieved by means of the centre spindle. The weight of a record on the centre spindle moves lever " C " in Fig. 15, which interrupts the movement of the switch lever " D " (same diagram) from the cam, thus preventing the switch from operating. When the record is removed from the centre spindle, this lifts and allows the lever " C " to move so that it does not prevent the switch lever " D " from operating the switch.

Should trouble be experienced with the automatic switch, see that all levers are free and that the springs are fixed correctly. Also check that the centre spindle is free in its socket, as it should move approximately $\frac{1}{8}$" when pressed down, and should rise the same amount when released. This test should be made with the mechanism in the playing position.

If required, an adjustment may be carried out by means of the small quadrant found on the top of the spindle operated by the switch lever " D."

SPEED SETTING

Due to the wide voltage range of the motor it may be necessary on some voltages to make a slight re-adjustment to the speed indicator lever, illustrated in Fig. 16, to make the speed correct. To make this adjustment, first set the speed of the turntable at 78 R.P.M. while playing, by means of a standard stroboscopic speed indicator. Next remove the turntable and carefully loosen the quadrant screw on the speed indicator lever, and whilst holding the quadrant stationary, move the lever so that it points to 78 on the indicator plate. Tighten up quadrant screw when the speed should be correct as indicated.

(*continued on page 28*).

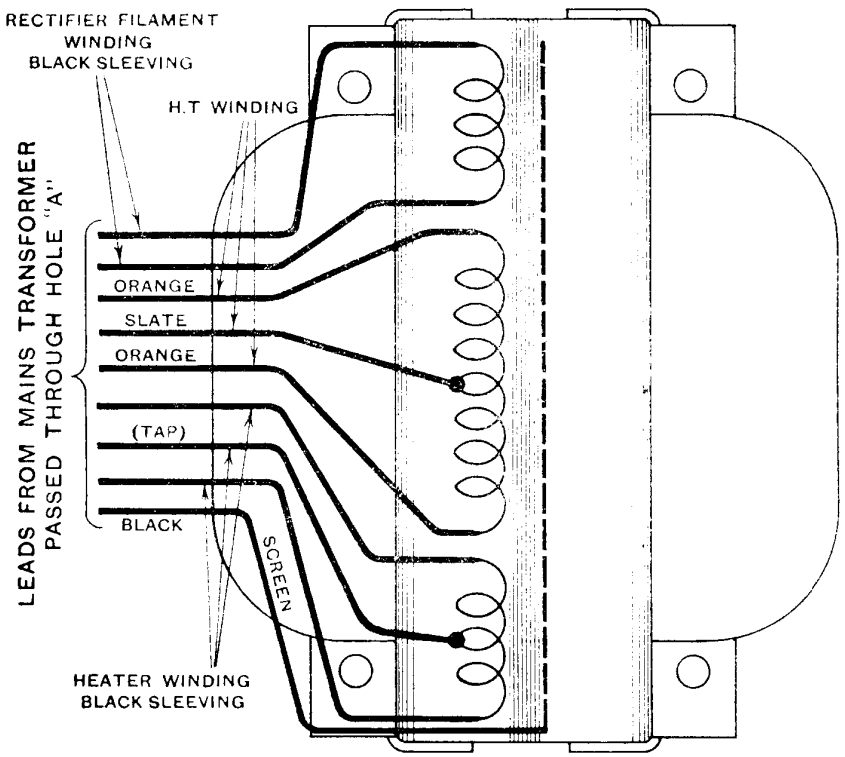
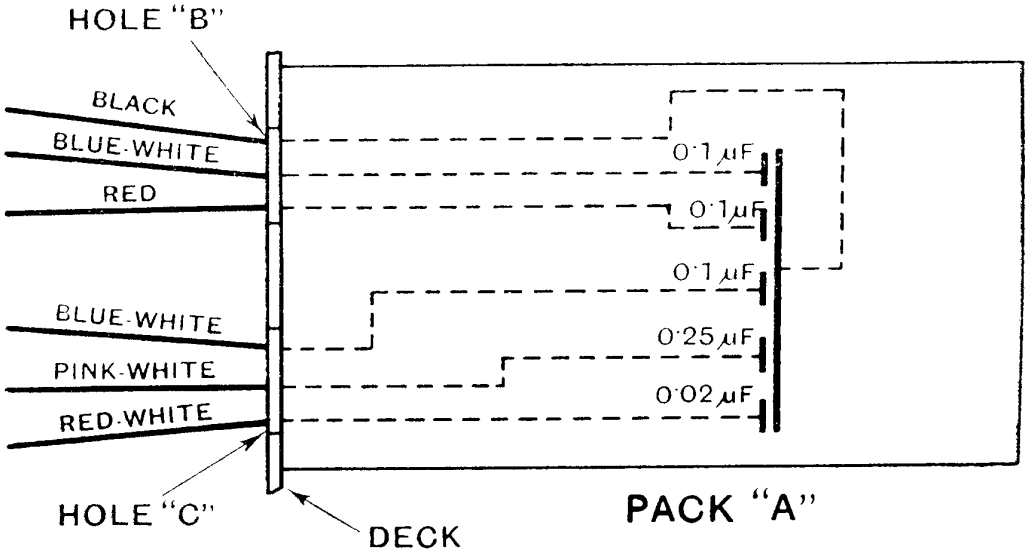
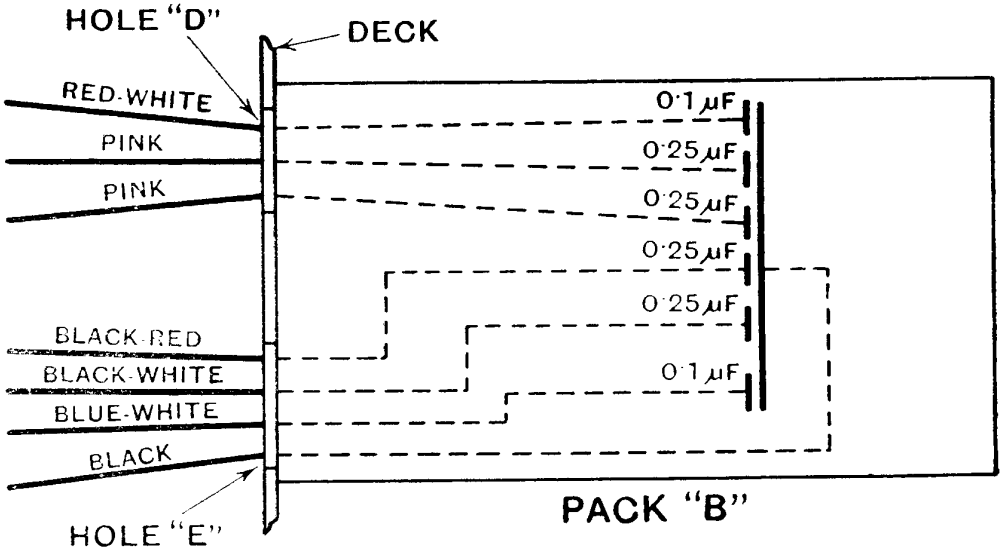


FIG. 18. MAINS TRANSFORMER AND CONDENSER PACKS.

The illustrations above show particulars of the colour coding of the various lead out wires. The positions of these components on the chassis and the holes through which the leads pass will be found in Fig. 1 on page 2.





(continued from page 26).

LUBRICATION

It is essential to see that the motor is well lubricated, for if the bearings are allowed to run dry, noise or intermittent operation will ensue. The motor may be lubricated by means of the oil holes shown in Fig. 14. These are readily accessible upon removing the turntable and a few drops of a good quality light machine oil should be inserted in each hole.

ELECTRICAL INTERFERENCE

In order to improve the signal to noise ratio, and to obtain the maximum signal on the short wave band, a good outside aerial should always be used.
The effects of electrical interference may be greatly reduced and, in many cases, virtually eliminated by the use of the G.E.C. BC.636 Anti-interference All Wave aerial which is efficient on all wave bands from 10 to 2,000 metres and has good noise reducing properties. Full particulars will be supplied upon request.

SPARE PART LIST

Material.	Catalogue No.	List Price. U.K. & N.I. only.
Loud Speaker Chassis, complete	Drg. 85458	**40**/- each
Mains Transformer (BC. 3880/2)	Drg. 85533	**35**/- each
Mains Transformer (BC. 3888/9)	Drg. 86117	**35**/- each
Ganged Condenser with Drive	Drg. 35888	**30**/- each
Aerial Coil and Switch Assembly (BC. 3880/8)	Drg. 85924	**18**/**6** each
H.F. Coil and Switch Assembly (BC. 3880/8)	Drg. 85923	**17**/**6** each
Oscillator Coil & Switch Assembly (BC. 3880/8)	Drg. 85922	**20**/- each
Aerial Coil and Switch Assembly (BC. 3882/9)	Drg. 85893	**18**/**6** each
H.F. Coil and Switch Assembly (BC. 3882/9)	Drg. 85892	**18**/**6** each
Oscillator Coil & Switch Assembly (BC.3882/9)	Drg. 85891	**25**/- each
L.F. Transformer (Push-pull input)	C.P. 63898	**12**/**6** each
Smoothing Choke	C.P. 63936	**7**/**6** each
I.F. Transformer (All positions)	Drg. 85539 Ass. 1	**6**/**6** each
Sensitivity Control with Mains Switch	Drg. 85558	**6**/- each
Condenser Pack " A "	Drg. 85535	**5**/**6** each
Condenser Pack " B "	Drg. 85537	**5**/**6** each
Volume Control (BC. 3880/2)	KS. 8012....	**4**/**6** each
Volume Control w/mains switch (BC. 3888/9)	KS. 8309....	**6**/- each
Tone Control	KS. 8018....	**4**/**6** each
Electrolytic Condensers, 8 mfd., 500V. Peak	KS. 7444....	**5**/**6** each
Electrolytic Condensers, 10 mfd., 50V., Peak	KS. 7637....	**2**/**6** each
Register for BC. 3880	P. 65548	**3**/- each
Register for BC. 3882	P. 65441	**3**/- each
Register for BC. 3888	P. 66198	**4**/**6** each
Register for BC. 3889	P. 66200	**5**/- each
Tuning Control Knob	CP. 65260	**1**/- each
Small Control Knobs	CP. 64212	**6**d. each
Plugs (A & E, Pickup, Extn. L.S., etc.)	CP. 63949	**4**/**6** doz.
Mains lead with S 8301B Adaptor	—	**4**/**6** each

Condensers—Tubular : Up to 0.02 mfd., **1**/- each ; 0.05 mfd., **1**/**3** each ; 0.1 mfd., **1**/**6** each ; 0.25 mfd., **2**/- each. Mica : Type 675, **6**d. each ; Type 691, **1**/**3** each.

Resistances : Type BT., $\frac{1}{3}$ watt, **6**d. each ; $\frac{1}{2}$ watt, **6**d. each ; 1 watt, **1**/- each. Type F, 2 watt, **2**/- each ; G.E.C. Wire Wound, **1**/- each.

NOTE.—The prices shown above are those ruling at the time of going to press, but are subject to alteration without notice.