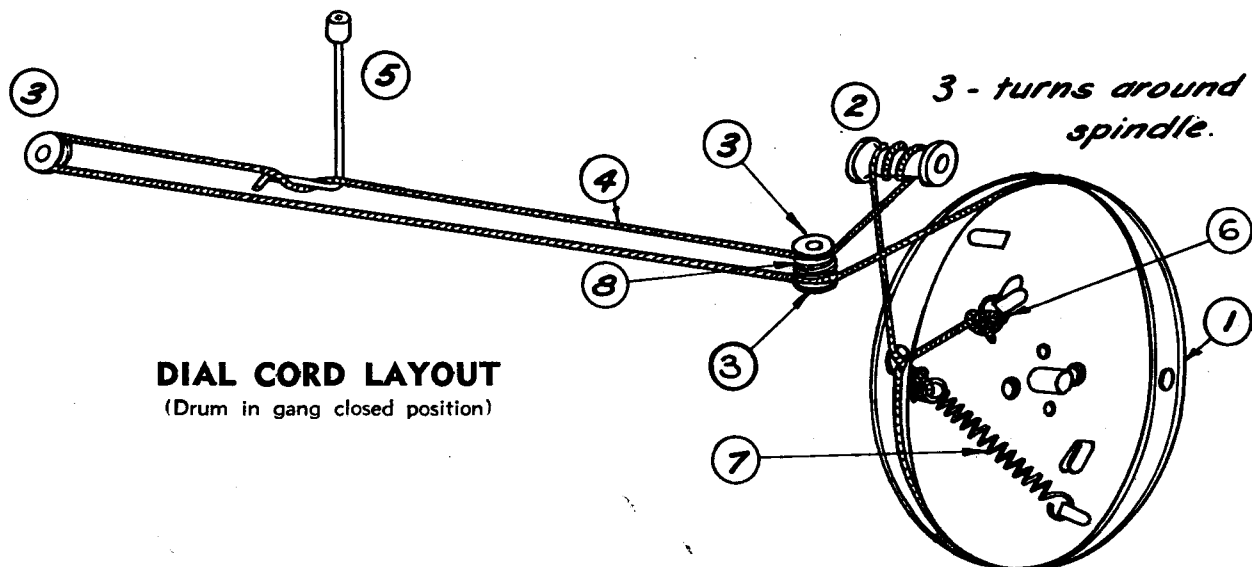


MISCELLANEOUS COMPONENTS

No. on Dial Parts Diagram	Description	Code No.	No. on Dial Parts Diagram	Description	Code No.
—	Assembly, bracket, handle support	CR.226.405	—	Plate, speaker mtg.	CR.280.804
—	Assembly, bracket, pulley (L.H.)	CR.265.218	—	Plate, battery	CS.241.839
—	Assembly, bracket, pulley (R.H.)	CR.265.219	—	Plug, battery, 2 pin	CZ.365.108
—	Assembly, carrying handle	CR.523.415	—	Plug, battery, 3 pin (x2)	CZ.365.204
—	Assembly, case end (R.H.)	CR.248.023	3	Pulley	CS.359.617
—	Case end (L.H.)	CS.217.025	—	Ring, "C", tuning spindle (x2)	CS.281.802
—	Assembly, chassis shield	CR.572.132	6	Ring, dial cord	CS.281.807
—	Assembly, cover, front	CR.577.016	—	Rollers (x2)	CS.381.415
—	Assembly, cover, rear	CR.577.015	—	Roller, switch arm	CS.213.092
5	Assembly, cursor	CR.480.665	—	Scale, dial	CS.412.398
—	Assembly, shutter	CR.577.011	—	Screw, battery plt. mtg. (x2)	CH.496.631
—	Assembly, shutter switch complete	CZ.200.064	—	Screw, chassis to bk. plt. mtg. (x2)	CH.054.020
—	Assembly, switch arm—shutter switch	CR.526.010	—	Screw, chassis to c. end mtg. (x2)	CH.104.020
2	Assembly, tuning spindle	CR.371.228	—	Screw, front cover to c. end (R.Hd.) (x2)	CH.016.020
—	Assembly, switch, A.C./battery	CZ.222.014	—	Screw, front cover to c. end (C.H.) (x2)	CH.012.010
—	Assembly, pin panel, switch, A.C./battery	CZ.375.077	—	Screw, shutter spring anchor	CS.250.010
—	Assembly, power plug	CZ.365.124	—	Screw, shutter, sw. arm, (x2)	CS.258.855
—	Badge	CR.531.422	—	Screw, rear cover fastening	CS.258.853
—	Baffle speaker	CS.424.149	—	Socket, 7 pin (1R5)	CZ.369.328
—	Bar link, handle (x2)	CS.365.269	—	Socket, tuning indicator	CZ.369.721
—	Bank, shutter switch (battery)	CZ.200.076	—	Spacer, insulating (shutter sw. arm)	CS.116.406
—	Bracket, battery stop	CS.229.843	—	Spindle, shutter sw. arm roller	CS.250.018
—	Bracket, dial support	CS.232.074	—	Spring, flat (x2), rollers	CS.211.843
—	Bush, switch arm (shutter sw.)	CS.381.669	—	Spring, I.F.T. to chassis (x2)	A3.652.58
—	Clamp, battery lead to chassis (x2)	CH.777.077	—	Spring, carrying handle	CS.211.844
—	Cloth, grille	CE.081.97	7	Spring, dial cord	CS.210.029
—	Collar, 1R5 socket (anti-micro)	CS.424.101	—	Spring, tension, shutter switch	CS.210.048
4	Cord, dial drive (56")	06.606.28	—	Spring, tension, shutter to case end	CS.210.044
—	Cover, handle link (x2)	CS.462.648	—	Strap, cover, rear	CS.400.430
1	Drum, dial	CS.360.014	—	Switch, shutter, A.C. only	CZ.200.077
—	Grommet, gang mtg. (x3)	CS.422.483	—	Tip-phone (A. & E.)	CH.776.100
—	Lever, shutter switch assy.	CS.432.840	8	Washer, thrust	CS.467.147
—	Nut, battery plate mtg. (x2)	CH.621.600	—	Window, dial	CS.030.014
—	Pad, sponge rubber (gang mtg.)	CS.242.083	—	Selenium rectifier (type LT7P)	CZ.038.207
—	Pad, speaker	CS.424.149			
—	Pin, case hinge	CS.280.212			



DIAL CORD LAYOUT
(Drum in gang closed position)

Published by Philips Electrical Industries Pty. Ltd.

Sydney — Melbourne — Brisbane — Adelaide — Perth — Hobart

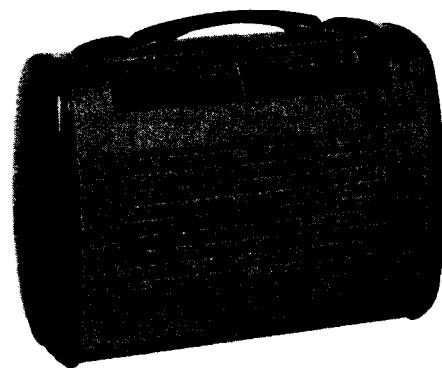
PHILIPS RADIOPLAYER

MODEL 168

SPECIFICATIONS

(Subject to alteration without notice)

Tuning Range	530-1620 Kc/s.
Intermediate Frequency	455 Kc/s.
Power Supply	
Batteries	Types: { A—One type 745, 1.5v.
Mains	B—Two type 482, 45v.
Battery Consumption	200-250v, 40-50 c/s.
	13 mA.



VALVE EQUIPMENT AND VOLTAGE ANALYSIS

Valve Functions	Valve No.	Valve Type	Plate Volts (valve socket to chassis)		Screen Volts (valve socket to chassis)		Filament Volts (at valve socket)	
			Batt.	Mains	Batt.	Mains	Batt.	Mains
R. F. Amplifier	V1	1T4	85	91	28	30	1.5	1.3
Frequency Changer	V2	1R5	85	91	40	44	1.5	1.3
I.F. Amplifier	V3	1T4	85	91	28	30	1.5	1.3
Demodulator, A.V.C. and 1st Audio	V4	1S5	34	37	24	25	1.5	1.3
Power Amplifier	V5	3V4	82	115	85	118	1.5	1.3
Tuning Indicator	V6	DM71	85	91	—	—	1.5	1.3
Rectifier	V7	6V4	—	137/ 137 A.C.	—	—	—	6.4 A.C.

Unfiltered A+ (across C29): 2.9V.
Unfiltered B+ (across C28): 135V.
Bias (across C26): 5.0V. Batt., 7.9V. Mains

NOTE: 1S5 plate and screen voltages are measured with a V.T.V.M.. All other D.C. voltages are 1,000 ohm/V meter readings. Voltages which may vary $\pm 10\%$ apply to receiver in a "no signal" condition.

TO REMOVE CHASSIS FROM CASE

Remove receiver power cord and close dial shutter. Open rear case cover (the fastening screws are captive and the holes in cover are slotted) and lay receiver face downwards on a suitable protective surface.

Remove battery pack and unsolder the two leads (at case end) connecting ferroxcube rod aerial assembly to chassis. Withdraw the two 3/16" Whit. chassis supporting screws through case ends and remove cover retaining strap from chassis. The chassis (power transformer end first), complete with dial scale assembly and loudspeaker, may now be lifted clear of the case.

Refitting is the reverse of the removal procedure, but the process may be simplified if chassis is almost inverted so that rollers touch surface of front cover before receiver is located in final fitted position. Care should be taken to ensure that dial drum and A.C./batt. change-over switch are not damaged during the operation.

REPLACEMENT OF TUNING SPINDLE AND ASSOCIATED ROLLER

The tuning spindle may be withdrawn following removal of spindle retaining clip. Temporarily hold roller in position while extracting spindle.

In fitted position, the roller edge should clear dial window by 1/32".

REPLACEMENT OF VOLUME CONTROL AND ASSOCIATED ROLLER

Roller is friction fitted and may be directly withdrawn from spindle. To remove potentiometer, unscrew securing nut and rotate unit until lead connections are accessible. Unsolder leads and withdraw spindle from

mounting bracket by sliding potentiometer between speaker transformer and back plate.

In fitted position the potentiometer spindle must rotate freely in mounting bracket guide hole and edge of roller set to 1/32" from dial window.

CHASSIS AND SHUTTER POSITION ADJUSTMENT

Locate chassis as far forward as possible and check that surface of shutter is just clear of window and rollers.

The position of scale assembly and speaker mounting plate relative to chassis and case is controlled by the two metal thread screws into speaker mounting plate immediately beneath chassis shield, and also by the two screws at base of "on/off" switch mounting bracket. Chassis holes in each case are slotted to provide for height adjustment.

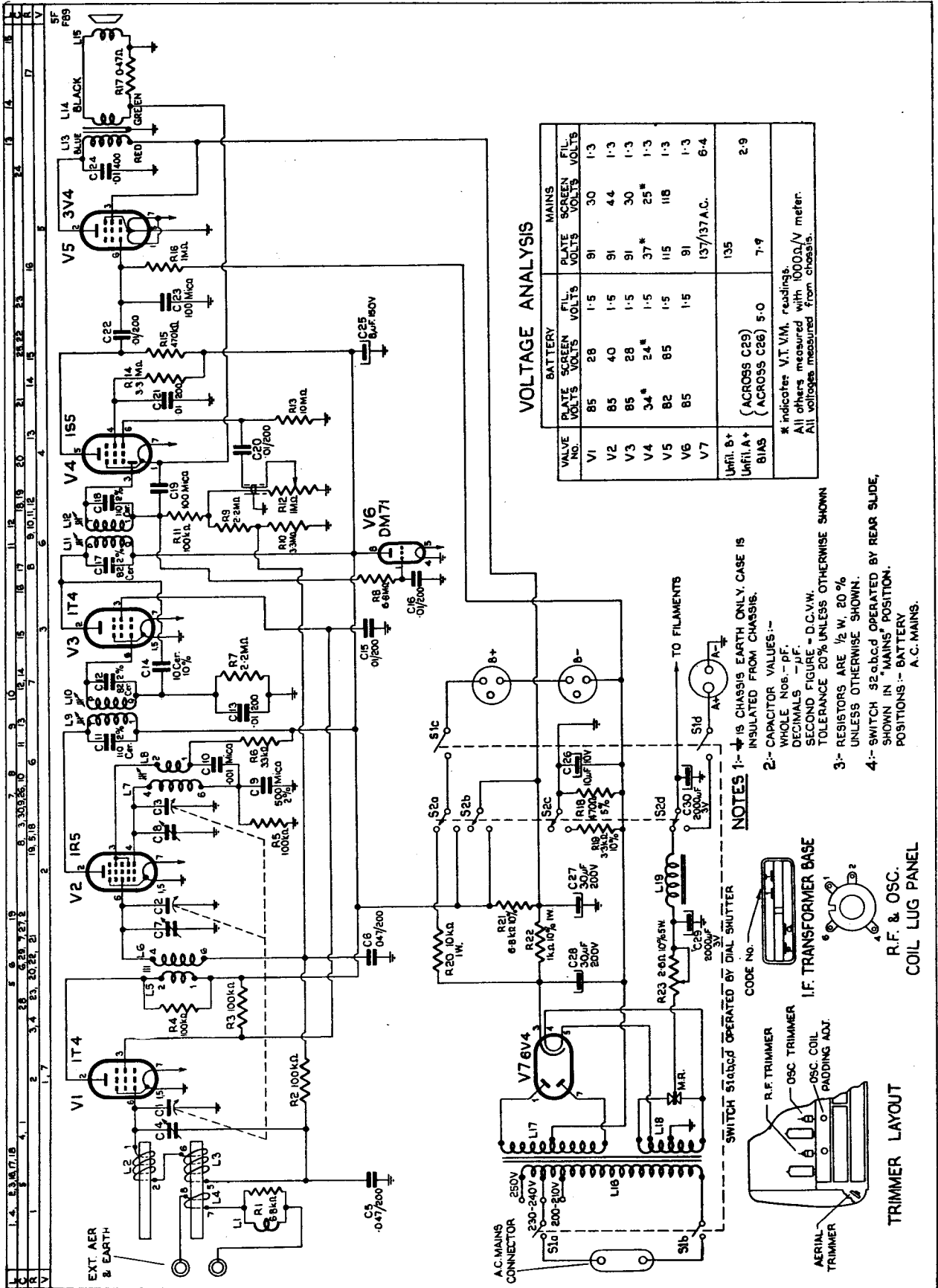
The setting of shutter switch arm is correct when the "on" position of switch corresponds with an $\frac{1}{8}$ " gap between top of case opening and shutter lip. Adjustment is provided on switch spindle.

MAINS VOLTAGE ADJUSTMENT

The power transformer is provided with three primary winding tappings—200/210, 230/240, and 250 volts (accessible when chassis bottom shield is removed) to suit the supply voltage at the point of installation. The receiver is adjusted at the factory to the 230/240 volts tapping.

DIAL CALIBRATION ADJUSTMENT

If dial calibrations are incorrect by an equal amount of error over the band, the condition may be corrected by moving the cursor on the dial driving cord. This



VOLTAGE ANALYSIS

VALVE NO.	BATTERY		MAINS	
	PLATE VOLTS	SCREEN VOLTS	PLATE VOLTS	SCREEN VOLTS
V1	85	28	91	30
V2	85	40	91	44
V3	85	28	91	30
V4	34*	24*	37*	25*
V5	82	85	115	118
V6	85	85	91	1-3
V7			137/137 A.C.	6-4
Unfil. B+			135	
Unfil. A+			(ACROSS C29)	5-0
BIAS			(ACROSS C26)	7-9

* indicates V.T. VM. readings.
 All others measured with 1000Ω/V meter.
 All voltages measured from chassis.

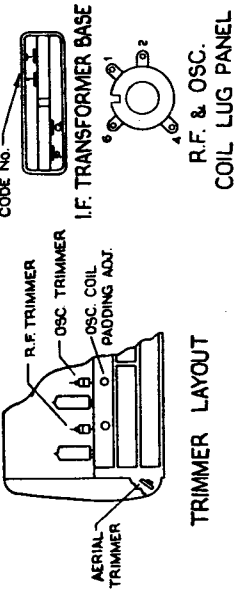
NOTES 1:- IS CHASSIS, EARTH ONLY. CASE IS INSULATED FROM CHASSIS.

2:- CAPACITOR VALUES :- WHOLE NOS. - PF. DECIMALS - μF. SECOND FIGURE - D.C.V.M. TOLERANCE 20% UNLESS OTHERWISE SHOWN UNLESS OTHERWISE SHOWN.

3:- RESISTORS ARE 1/2 W. 20 % UNLESS OTHERWISE SHOWN.

4:- SWITCH S2, b, c, d OPERATED BY REAR SLIDE, SHOWN IN "MAINS" POSITION. POSITIONS - BATTERY A.C. MAINS.

SWITCH S1, a, b, c, d OPERATED BY DIAL SHUTTER



TRIMMER LAYOUT

PARTS LISTS

CAPACITORS

No.	Description	Code No.
C1, 2, 3	Tuning capacitor	CZ.108.209
C4	55 pF mica trimmer	
C5, 6	0.047 μ F 200V paper	
C7	30 pF air trimmer	CZ.113.700
C8	60 pF air trimmer	49.005.58
C9	500 pF \pm 2% mica	
C10	0.001 μ F mica	
C11, 12	Part of 1st I.F. transformer	
C13	0.01 μ F 200V paper	
C14	10 pF \pm 10% ceramic	
C15, 16	0.01 μ F 200V paper	
C17, 18	Part of 2nd I.F. transformer	
C19, 23	100 pF mica	
C20, 21, 22	0.01 μ F 200V paper	
C24	0.01 μ F 400V paper	
C25	8 μ F 150VW electrolytic	CZ.099.301
C26	10 μ F 10VW electrolytic	CZ.099.203
C27, 28	30 μ F 200VW electrolytic	CZ.099.910
C29, 30	2,000 μ F 3VW electrolytic	CZ.100.111

may be effected through a specially provided slot in the rear of the dial assembly with chassis in case.

EXTERNAL AERIAL AND EARTH

External aerial (upper) and earth terminals are provided at the rear of R.H. case end to improve reception in low signal strength areas.

ALIGNMENT

All iron core slugs, and trimming capacitors requiring adjustment for purposes of alignment are accessible from above the chassis. Receiver should operate from the battery pack with chassis bottom shield in position and associated mounting screws (particularly the screw adjacent to valve socket V1) fully tightened. The I.F. and R.F. alignment procedures may be carried out with chassis fitted in case if a suitable non-metallic alignment tool is available. If chassis is removed for purposes of I.F. and R.F. alignment, follow chassis removal procedure and connect a 150K Ω resistor across rod aerial leads from chassis tag strip to compensate for aerial loop.

I.F. Alignment

The core adjustment for both primary (rear of chassis) and secondary windings of I.F. transformers are situated at the top of the cans.

RESISTORS

No.	Description	Code No.
R1	6,800 ohms $\frac{1}{2}$ W	
R2, 3, 4, 5, 11	0.1 megohm $\frac{1}{2}$ W	
R6	33,000 ohms $\frac{1}{2}$ W	
R7, 9	2.2 megohm $\frac{1}{2}$ W	
R8	6.8 megohm $\frac{1}{2}$ W	
R10, 14	3.3 megohm $\frac{1}{2}$ W	
R12	1 megohm potentiometer taper "C"	CZ.029.317
R13	10 megohm $\frac{1}{2}$ W	
R15	0.47 megohm $\frac{1}{2}$ W	
R16	1 megohm $\frac{1}{2}$ W	
R17	0.47 ohms $\frac{1}{2}$ W W/W	CZ.008.470
R18	470 ohms \pm 5% $\frac{1}{2}$ W	CZ.001.219
R19	3,300 ohms \pm 10% $\frac{1}{2}$ W	
R20	10,000 ohms 1W	
R21	6,800 ohms \pm 10% $\frac{1}{2}$ W	
R22	1,000 ohms \pm 10% 1W	
R23	2.6 ohms \pm 10% 5W W/W	CZ.008.520

Screw out all I.F. cores one full turn as a precautionary measure against adjustment to a false peak. Set tuning gang to the fully closed position, volume control at maximum, and apply a 455 kc modulated signal through I.F. dummy aerial to control grid of V2 (1R5).

Peak cores in sequence, 2nd I.F.T. secondary, 2nd I.F.T. primary, 1st I.F.T. secondary and 1st I.F.T. primary while keeping signal at a minimum consistent with adequate output.

R.F. Alignment

Adjust position of pointer (through slot in dial back plate if chassis is in case) so that a fully closed gang corresponds with a cursor setting over centre of left-hand dividing line separating state designations and station characters.

Location of trimmers is shown as an inset to the circuit diagram.

Set volume control at maximum and apply modulated signal through an I.F. dummy aerial to signal grid of V1 (1T4).

Alignment frequencies are:—
600 kc/s (7ZL), peak oscillator coil (L7, L8) core whistler rocking gang.

COILS

No.	Ohms	Description	Code No.
L1	18.2	Loading coil	CZ.321.292
L2	<0.5	Loop "A"	CZ.323.035
L3	<0.5	Loop "B"	CZ.323.036
L4	<0.5	Loop "B"	
L5	9.5-10.5	R.F. coil	CZ.323.285
L6	2.6-3.2		
L7	<0.5	Oscillator coil	CZ.330.616
L8	4-5		
L9	8-9		
L10	9.8-11.2	1st I.F.T.	CZ.320.443
L11	9.8-11.2	2nd I.F.T.	
L12	8-9		
L13	330	Output transformer	CZ.345.046
L14	<0.5		
L15	—	Speaker—Rola 5F/F89	CZ.161.145
L16	250		
L17	600-630	Power transformer	CZ.344.093
L18	<0.5		
L19	5.1	Filament choke	CZ.341.009

1,420 kc/s (3XY), peak oscillator trimmer C8 and then R.F. trimmer C7.

No attempt should be made to adjust the core of the R.F. coil.

Loop Alignment

Both chassis and batteries must be in position and rear cover almost closed during alignment procedure.

Connect signal generator (1,420 kc/s) through a standard R.M.A. dummy to external aerial-earth terminals, tune receiver and peak rod aerial trimmer C4 while holding rear cover open the minimum amount consistent with trimmer accessibility. Where necessary for purposes of improved control, the receiver may be desensitized by adjustment of volume potentiometer.

IMPORTANT! In ordering spare parts, quote CODE NUMBER of part and MODEL NUMBER of Receiver. In claiming free replacement under GUARANTEE, return defective part PROMPTLY and quote MODEL and SERIAL NUMBER of Receiver and DATE OF PURCHASE.