RADIO CORPORATION PTY. LTD.
DIVISION OF ELECTRONIC INDUSTRIES LTD.
126-130 GRANT STREET, SOUTH MELBOURNE, S.C.4.

TECHNICAL BULLETIN

SUBJECT-

MODEL "DK" CONSOLE

MODEL "DKM" MANTEL

6 TUBE DUAL WAVE SUPERHETERODYNE

RECEIVERS

For operation from:-

200-250 volt 50 Cycle AC. Mains.

This Bulletin Contains:-

1. Technical Specifications.
2. General Description.
3. Alignment Procedure.
4. Circuit Diagram.
5. Voltage Table.
6. Component Parts List.
7. Coil and IF. Transformer Connections.
8. Summary of Changes Made During Production.

These Receivers are NOT in Production

Information is for Service Purposes ONLY

SUBJECT-Technical Specifications-Models "DK" and "DKM"

Tube Complement:-

6U7G RF. Amplifier.
6J8G Converter.
6U7G IF. Amplifier.
6B6G Diode Detector, AVC. and 1st Audio.
6V6G Beam Power Output Amplifier.
5Y3G Full Wave Rectifier.

Intermediate Frequency:-

455 Kc.

Tuning Range:-

Broadcast 540-1640 Kc.
555-182.9 M.
Shortwave 7-22 Mc.
43-13.6 M.

Calibration:-

Straight Line Frequency.

Power Consumption:-

64 Watts (approx.).

General Description:-

The Models "DK" and "DKM" are 6 tube dual wave superheterodyne receivers designed as console and mantel respectively. Operation is from 200-250 volt 50 cycle AC. mains supply. The overall sensitivity is 5 microvolts on broadcast and 10 microvolts on shortwave for an output of 50 milliwatts with a 5,000 ohm load.

The circuit consists of tuned aerial and RF. stages with a type 6U7G tube as RF. amplifier, a triode heptode converter tube type 6J8G followed by an IF. amplifier stage using a 6U7G tube. A type 6B6G tube for diode detection, AVC. and 1st audio which is resistance coupled to a beam power output amplifier tube type 6V6G.

Full AVC. developed across the diode load resistor circuit No. 38 (1.75 megohms) is applied to the IF. and RF. tubes on both bands and to the converter tube on broadcast only.

Cathode bias is provided for the 6V6G output amplifier tube and for the 1st audio tube grid leak bias is obtained from the 3 megohm resistor circuit number 36.

Bias for the 6U7G IF. tube, 6J8G converter and 6U7G RF. amplifier tubes is supplied along the AVC. line and is obtained from the voltage drop across the 20 ohm resistor (circuit No. 59) in the high tension negative line. The converter tube has additional bias which is obtained from its cathode circuit.

SUBJECT-Technical Specifications-Models "DK" and "DKM"

General Description-Continued.

Inverse feedback is applied to the grid of the 6B6G tube from the speaker voice coil through a resistive capacitive network via the tap on the volume control. A three position switch is incorporated in the feedback circuit to switch the components, thus three distinct conditions of tone are provided.

The first position has the bass cut and the treble accentuated slightly to give maximum intelligibility while listening to plays or talks, etc. The second position provides a condition for listening to musical programmes. Both treble and bass notes are accentuated progressively as the volume control is turned to lower volume. The third position has the bass and treble notes reduced to provide maximum intelligibility on overseas or long distance stations.

High tension is supplied from full wave rectifier tube type 5Y3G and filtered by 8 and 16 MFD. electrolytic condensers in conjunction with the speaker field coil.

Shortwave Operation:-

The operation on the shortwave band is substantially the same as on broadcast with the exception that no AVC. is applied to the converter tube and the bias is reduced by virtue of the fact that the portion of the bias supplied along the AVC. line is eliminated.

SUBJECT-Alignment Procedure-Models "DK" and "DKM"

Equipment:- Signal Generator.
Output Meter.
Alignment Tool.
Dummy Antenna: .01MFD. Mica Capacitor.
200MMFD. Mica Capacitor.
400 Ohm Non-Inductive Resistor.

Alignment Conditions:-Load Impedance-5,000 Ohms.
Output Level-50 Milliwatts.
Volume Control-Maximum Volume (Fully Clockwise).
Tone Control-1st Postion (Fully Anti-clockwise).

Dial Pointer Setting:-

Fully mesh the gang plates and set the dial pointer on the end of travel mark at the low frequency end of the dial calibration.

Alignment:-

Operation	Generator Connection	Frequency	Dummy Antenna	Instructions
		TURN WAVE CHANGE SWITCH TO BROADCAST POSITION		
1.	To control grid of 6U7G IF. tube.	455 Kc.	.01MFD. mica capacitor in series with generator.	Leave grid cap on tube. Gang plates full out. Peak 2nd IF. trans. primary and secondary.
2.	To control grid of 6J8G tube.	455 Kc.	.01MFD. mica capacitor in series with generator.	Leave grid cap on tube. Gang plates full out. Peak 1st IF. trans. primary and secondary.
3.	To antenna terminal.	1400 Kc.	200MMFD. mica capacitor in series with generator.	Turn dial pointer and gang to 1400 Kc. Adjust B/cast. oscl. trimmer for logging and peak B/cast. aerial coil and RF. coil trimmers.
4.	To antenna terminal.	600 Kc.	200MMFD. mica capacitor in series with generator.	Turn dial pointer and gang to 600 Kc. Peak B/cast. series padder for maximum output rocking the gang to and fro through the signal while adjusting. Repeat operations No. 3 and 4.
		TURN WAVE CHANGE SWITCH TO SHORTWAVE POSITION		
6.	To antenna terminal.	18 Mc.	400 Ohm non-inductive resistor in series with generator.	Turn dial pointer and gang to 18 Mc. Adjust S/wave oscl. trimmer for logging and peak S/wave aerial and RF. coil trimmers.
7.	To antenna terminal.	10 Mc.	" " " " "	Turn gang and dial pointer to 10 Mc. and check tracking.

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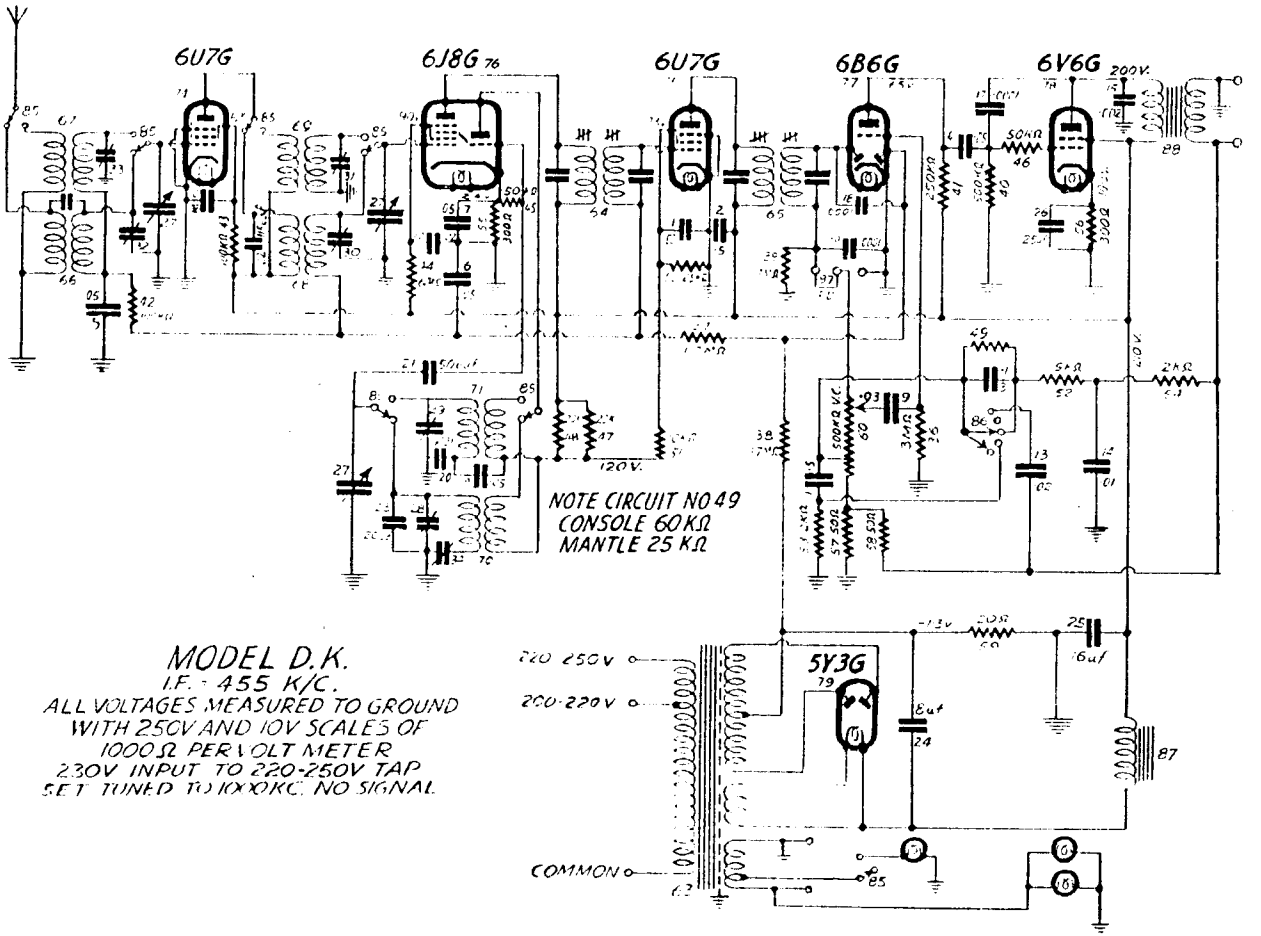
SUBJECT Schematic Circuit Diagram Models "DK" and "DKM"



SUBJECT-Voltage Table-Models "DK" and "DKM"

Equipment:-

D.C. Voltmeter: 1,000 ohm per volt meter with 0-10, 0-250 and 0-500 volt scales.

A.C. Voltmeter: 0-10, 0-250 and 0-500 volt scales.

Conditions of Test:-

230 volts 50 cycle AC. input to 220-250 volt primary tap. Set tuned to 1,000 Kc., volume control full on, no signal.

Filament voltages measured across heaters. All other voltages measured from tube contacts to chassis.

Tube		Fil.	Plate	Screen	Cathode	Grid	Oscl. Plate
(RF.)	6U7G	6.3V.	210V.	67V.	-	-1.3V.	-
	6J8G	6.3V.	210V.	90V.	2.4V.	-1.3V.	120V.
(IF.)	6U7G	6.3V.	210V.	73V.	-	-1.3V.	-
	6B6G	6.3V.	67V.	-	-	-	-
	6V6G	6.3V.	200V.	210V.	10.3V.	-	-
	5Y3G	5V.	330/330V. RMS.		The initial surge voltage across the first electrolytic circuit No. 24 is 440V. dropping to normal operating value of 330V. DC. voltage across field coil is 120V.		

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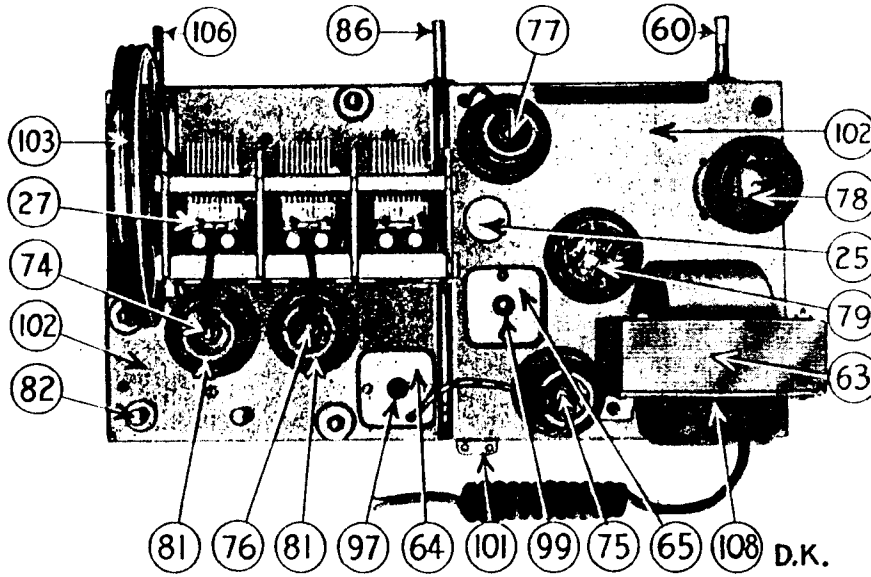
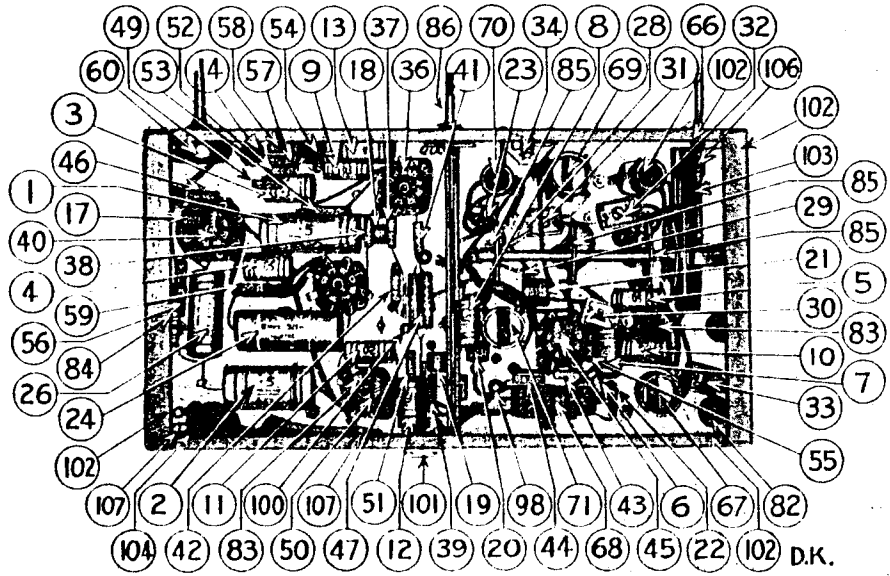
SUBJECT-Top and Bottom View of Chassis Models "DK" and "DKM"



Top View of Chassis.



Bottom View of Chassis.

SUBJECT-Component Parts List-Models "DK" and "DKM"

Circuit No.	Part Name	Tol.±	Rating	Part No.
1.	.5MFD. Paper Condenser	20%	200V. DCW	PC121
2.	.5MFD. Paper Condenser	20%	400V. DCW	PC115
3.	.1MFD. Paper Condenser	20%	200V. DCW	PC218
4.	.05MFD. Paper Condenser	20%	400V. DCW	PC109
5.	.05MFD. Paper Condenser	20%	200V. DCW	PC102
6.	.05MFD. Paper Condenser	20%	200V. DCW	PC102
7.	.05MFD. Paper Condenser	20%	200V. DCW	PC102
8.	.05MFD. Paper Condenser	20%	200V. DCW	PC102
9.	.03MFD. Paper Condenser	20%	200V. DCW	PC303
10.	.02MFD. Paper Condenser	20%	400V. DCW	PC111
11.	.02MFD. Paper Condenser	20%	400V. DCW	PC111
12.	.02MFD. Paper Condenser	20%	400V. DCW	PC111
13.	.02MFD. Paper Condenser	20%	400V. DCW	PC111
14.	.01MFD. Paper Condenser	20%	600V. DCW	PC140
15.	.002MFD. Paper Condenser	20%	600V. DCW	PC112
16.				
17.	.0001MFD. Mica Condenser	10%	1000VT.	PC110
18.	.0001MFD. Mica Condenser	10%	1000VT.	PC110
19.	.0001MFD. Mica Condenser	10%	1000VT.	PC110
20.	.0031MFD. Mica Condenser	5%	1000VT.	PC278
21.	.00005MFD. Mica Condenser	10%	1000VT.	PC141
22.	115MMFD. Silvered Mica Condenser	2½%	1000VT.	PC357
23.	20MMFD. Wire Wound Condenser	+0-2%	1000VT.	PC166
24.	8MFD. Electrolytic Condenser	20%	525PV.	PC262
25.	16MFD. Electrolytic Condenser	20%	525PV.	PC300
26.	25MFD. Electrolytic Condenser	20%	40PV.	PC269 changed to PC318
27.	3 Gang Variable Condenser			PC302
28.	Osc. Trimmer B/cast. (Wire Wound)			PC356
29.	Osc. Trimmer S/wave. (Wire Wound)			PC356
30.	RF. Trimmer B/cast. 1.5-18MMFD.			PC250
31.	RF. Trimmer S/wave. 1.5-18MMFD.			PC250
32.	Antenna Trimmer B/cast. 1.5-18MMFD.			PC250
33.	Antenna Trimmer S/wave. 3-55MMFD.			PC224
34.	Series Padder B/cast. 150-500MMFD.			PC164
35.				
36.	3 Megohm Carbon Resistor	10%	½ Watt	PR282
37.	1.75 Megohm Carbon Resistor	10%	½ Watt	PR248
38.	1.75 Megohm Carbon Resistor	10%	½ Watt	PR248
39.	1 Megohm Carbon Resistor	10%	½ Watt	PR246
40.	.5 Megohm Carbon Resistor	10%	½ Watt	PR245

SUBJECT Component Parts List-Models "DK" and "DKM"

Circuit No.	Part Name	Tol.±	Rating	Part No.
41.	.25 Megohm Carbon Resistor	10%	½ Watt	PR249 changed to 1 Watt PR496
42.	100,000 Ohm Carbon Resistor	10%	½ Watt	PR103
43.	100,000 Ohm Carbon Resistor	10%	½ Watt	PR103
44.	60,000 Ohm Carbon Resistor	10%	½ Watt	PR125
45.	50,000 Ohm Carbon Resistor	10%	½ Watt	PR160
46.	50,000 Ohm Carbon Resistor	10%	½ Watt	PR160
47.	20,000 Ohm Carbon Resistor	10%	1 Watt	PR171
48.	20,000 Ohm Cargon Resistor	10%	1 Watt	PR171
49.	60,000 Ohm Carbon Resistor	10%	½ Watt	PR125
	25,000 Ohm Carbon Resistor	10%	½ Watt	PR155
50.	25,000 Ohm Carbon Resistor	10%	½ Watt	PR155
51.	10,000 Ohm Carbon Resistor	10%	½ Watt	PR164
52.	5,000 Ohm Carbon Resistor	10%	½ Watt	PR250
53.	2,000 Ohm Carbon Resistor	10%	½ Watt	PR253
54.	2,000 Ohm Carbon Resistor	10%	½ Watt	PR253
55.	300 Ohm Wire Wound Resistor	10%	½ Watt	PR258
56.	300 Ohm Wire Wound Resistor	10%	1 Watt	PR122
57.	50 Ohm Wire Wound Resistor	10%	½ Watt	PR280
58.	50 Ohm Wire Wound Resistor	10%	½ Watt	PR280
59.	20 Ohm Wire Wound Resistor	10%	½ Watt	PR231
60.	500,000 Ohms Carbon Pot. Tapped at 40K. ohms	20%		PR356 changed to PR377
61.				
62.				
63.	Transformer-Power			PT177
64.	Transformer-1st IF.			PT386
65.	Transformer-2nd IF.			PT387
66.	Transformer-Antenna B/cast.			PT381
67.	Transformer-Antenna S/wave.			PT384
68.	Transformer-RF. B/cast.			PT382
69.	Transformer-RF. S/wave.			PT271
70.	Oscl. Coil B/cast.			PT383
71.	Oscl. Coil S/wave.			PT246
72.				
73.				
74.	6U7-G tube			
75.	6U7-G tube			
76.	6J8-G tube			
77.	6B6-G tube			
78.	6V6-G tube			

SUBJECT-Component Parts List-Models "DK" and "DKM"

Circuit No.	Part Name	Rating	Part No.
79.	5Y3-G tube		
80.			
81.	Valve Shield		PM217
82.	Terminal		PM306
83.	Socket-8 pin		PM532
84.	Socket-6 pin		PM145
85.	Switch-wave change		PM442
86.	Switch-tone control		PM580
87.	1,500 Ohm Field Coil		Part of 90
88.	5,000 Ohm Input		Part of 90
89.			
90.	12" Dynamic Speaker		PM447
	6" Dynamic Speaker		PM569
91.	Dial Lamps (2)	6-8V. 3CP	(DK) PM450
	Dial Lamps (1)	6-8V. 3CP	(DKM) PM450
92.	Dial Lamps (1)	6.3V. .3A	(DK) PM140
93.			
94.			
95.			
96.			
97.	1st IF. Pri. Adj. Screw		
98.	1st IF. Sec. Adj. Screw		
99.	2nd IF. Pri. Adj. Screw		
100.	2nd IF. Sec. Adj. Screw		
101.	Pick-up Shorting Bar		A101/513
102.	Metal Chassis		
103.	Dial Drum		A106/87
104.	Mains Tap. Board		A101/30A
105.	Mains Tap. Board Cover		39/244
106.	Dial Drive Ass'y.-console		A9/91-2 changed to 32/244
107.	One Pin Socket		-
	Top Plate		19/96
	Bottom P"ate		18/96
	Contact		15/58-2
108.	Power Trans. Cover		20/64
	Junction Strip Ass'y.		A103/509
	Dial Cord Pulley		17/87
	Dial Pulley Stud		18/87
	Dial Needle Ass'y.-Console (Type with felt pad)		A104/285
	Dial Needle Ass'y.-Console (Type without felt pad)		A107/285
	Dial Needle Ass'y.-Mantel		A103/244

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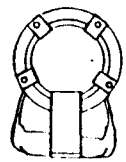
BULLETIN DK-1.
BULLETIN DKM-1.
File:-Receivers AC.
Date: 12/3/47.

SUBJECT-Component Parts List-Models "DK" and "DKM"

Circuit No.	Part Name	Tol.	Rating	Part No.
	Dial Track Bar-Console			22/244 changed to 22/285
	Dial Lamp Socket and Bracket Ass'y.-Console			A103/285
	Dial Lamp Socket and Bracket Ass'y.-Mantel			A102/281
	Dial Lamp Socket-small-Console			A102/231
	Dial Reading (glass)-Console			3/281
	Dial Reading (glass) Mantel			17/281
	Dial Diffuser Plate (glass)-Console			12/285
	Dial Diffuser Plate (glass)-Mantel			4/284
	Dial Frame Ass'y.-Console			A102/285
	Dial Frame Ass'y.-Mantel			A103/281
	Cabinet Mounting Screws-Mantel			17/79
	Chassis Mounting Feet-left-Console			A103/215-1
	Chassis Mounting Feet-right-Console			A103/215-2
	Rubber Grommet			40/30C
	Nerve Box Metal Chassis			4/280
	Valve Shield Earth Contacts			22/30C
	Nerve Box Grommets			64/30A
	Dial Drum Spring			37/87
	Control Knob-Tuning and Volume-Console			53/81
	Control Knob-Springs Console			17/81
	Control Extensions-Tone and Volume-Console			6/281
	Control Extensions-Wave Change-Console			12/44
	Wave Change Switch Extension-Console			30/280
	Knob-Wave Change-Console			59/244
	Wave Change Extension Coupling-Console			11/244
	Felt Washers			124/71
	Cabinet-Console			A41
	Mantel Control Extensions (3)			44/81
	Mantel Control Knobs (3) less Buttons and Springs			40/81
	Mantel Knob Button-Tuning			47/81-A
	Mantel Knob Button-Volume			47/81-B
	Mantel Knob Button-Acoustinator			50/81
	Mantel Knob Springs (3)			42/81
	Mantel Knob Wave Change			59/244
	Extension-Wave Change Knob-Mantel			10/244
	Cabinet-Mantel			49/81
	Manual Drive-Mantel			
	Shaft			32/244
	Shaft Bush			33/244
	Horseshoe "C" Washer			19/57
	IF. Aligning Tool			PM581

SUBJECT-Coil and IF. Transformer Connections-Models "DK" and "DKM"

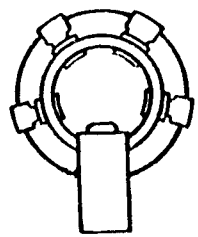
AVC. EARTH



(Outside secondary) GRID ANTENNA (Inside primary)

ANT. TRANS. B/CAST.

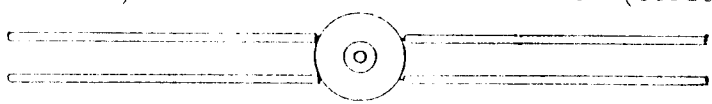
B+ PLATE (Inside primary)



(Outside secondary) GRID AVC.

RF. TRANS. B/CAST.

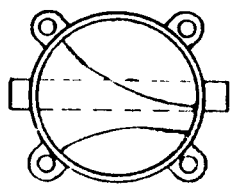
(Junction of circuit Nos. 47, 48 and 51) RED BLACK (Series pad)



(6J8G Osc. Plate) BLUE GREEN (Oscl. gang)

OSCL. COIL B/CAST.

GRID ANTENNA



AVC. EARTH

ANT. TRANS. S/WAVE.

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B+ GRID

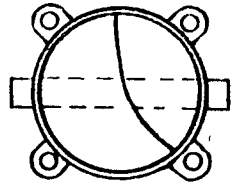
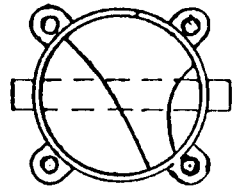


PLATE EARTH

RF. TRANS. S/WAVE.

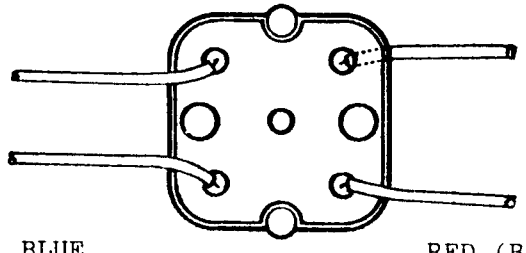
GRID PLATE



(Junction of circuit Nos. 47, 48, 51 and 8) SERIES PAD

OSCL. COIL S/WAVE.

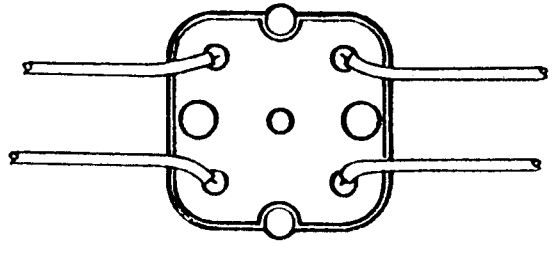
(AVC.) BLACK GREEN (Grid)



(Plate) BLUE RED (B+)

1ST. IF. TRANS.

(Diode Return) BLACK GREEN (Diode)



(Plate) BLUE RED (B+)

2ND. IF. TRANS.

SUBJECT-Summary of Changes made During the Production of these Receivers.

1. Circuit Nos. 28 and 29: Wire wound trimmer PC663 to be used as a replacement for PC356 or PC367.

2. Circuit Nos. 37 and 38: 1.5 megohm resistors were used in place of 1.75 megohm when 1.75 were not obtainable.

3. Circuit No. 63: Power transformer (part No. PT770) 200-250V. primary 50 cycle.
or
power transformer (part No. PT771) 200-260V. primary 40 cycle (Western Aust. sets) are to be used for replacing power transformer PT177.

4. Circuit No. 49: 25,000 ohm resistor changed to a ½ watt. 20,000 ohm resistor PR166 on mantel sets only.