



# RADIO CORPORATION PTY. LTD.

DIVISION OF ELECTRONIC INDUSTRIES LTD.

126-130 GRANT STREET, SOUTH MELBOURNE, S.C.4.

## TECHNICAL BULLETIN

BULLETIN DJ-1.

File:-Receivers

A/c.

Date: 16/5/46.

Page 1.

SUBJECT-

Type "DJ" Table Model

6 Tube Dual Wave Superheterodyne

Receiver

For operation from:-

200-250 Volt 50 Cycle A/c. 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.

SUBJECT-Technical Specifications-Receiver Type "DJ"

Tube Complement:-

Type 6U7G RF. Amplifier.  
Type 6J8G Converter.  
Type 6U7G IF. Amplifier.  
Type 6B6G Detector, AVC. and Driver.  
Type 6V6G Output Amplifier.  
Type 5Y3G Full Wave Rectifier.

Intermediate Frequency-455 Kcs.

Broadcast Coverage:-

540 Kcs. (Kilocycles) to 1650 Kcs.  
555 M. (Meters) to 182 M.

Shortwave Coverage:-

7 Mcs. (Megacycles) to 22 Mcs.  
43 M. (Meters) to 13.6 M.

Calibration:-Straight Line Frequency.

Power Consumption:-64 Watts (approx.).

General Description:-

The type "DJ" Table Model is a 6 tube dual wave receiver having a sensitivity of 5 micro-volts on broadcast and 10 micro-volts on shortwave for an output of 50 milliwatts with a 4,000 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.

Bias for the 6U7G IF. tube, 6J8G converter and 6U7G RF. tube is supplied along the AVC. line and is obtained from the voltage drop across the 20 ohm resistor (circuit number 58) in the high tension negative line. The converter tube has additional bias which is obtained from its cathode circuit.



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SUBJECT-Technical Specifications--Receiver Type "DJ"

### General Description:-

Cathode bias is provided for the 6V6G output amplifier and for the 1st audio stage bias is obtained from the voltage drop across the 3 megohm resistor (circuit number 34) in the grid circuit.

Full AVC. developed across the 1.75 megohm diode load resistor circuit number 35 is applied to the IF. and RF. stages on both hands and to the converter stage on broadcast only.

Three distinct conditions of tone have been provided in the design of the circuit. The 1st position bass and treble boost is obtained from inverse feedback which is applied to the grid of the 6B6G tube from the voice coil through the resistors circuit numbers 61, 52, 51 and 46, treble boost condenser 2 and bass boost condenser 3 to the tap on the volume control. The 2nd position switches out of circuit resistor 46 and condenser 2 removing the bass boost.

On these two positions the circuit operates from very low to maximum volume but the boost is progressively reduced as maximum is approached. For position 3 bass and treble boost are cut to provide a condition of maximum intelligibility on 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:-

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 Instructions-Receiver Type "DJ"

EQUIPMENT:-

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

ALIGNMENT CONDITIONS:-

Load Impedance-4,000 Ohms.  
Output Level -50 Milliwatts.  
Volume Control-Maximum Volume (Fully Clockwise).  
Tone Control -Fully Anti-Clockwise (Music position).  
Wave Change Switch-Tuned to Broadcast Band.

ALIGNMENT:-

Intermediate Frequency-455 Kcs.

Do not use a screwdriver or alignment tool with an iron point for aligning IF. transformers. A special tool part number PM581 is available from the factory, or failing this an insulated rod with a small brass blade may be used.

Tuning Range:-

Broadcast Band 540-1650 Kcs.  
Shortwave Band 7-22 Mcs.

Set the dial pointer on the end of travel mark on the dial calibration near 550 Kcs. (condenser gang plates fully meshed).



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SUBJECT-Alignment Instructions-Receiver Type "DJ"

Operation No.	Generator Connection	Frequency	Dummy Antenna	Instructions
<u>TURN WAVE CHANGE SWITCH TO B/CAST. POSITION.</u>				
1.	To grid of 6U7G IF. tube (circuit No. 73).	455 Kcs.	.01MFD. Mica capacitor in series with generator.	Leave grid cap on tube. Gang Plates full out. Peak 2nd IF. transformer primary and secondary.
2.	To grid of 6J8G tube (circuit No. 74).	455 Kcs.	.01MFD. Mica capacitor in series with generator.	Leave grid cap on tube. Gang plates full out. Peak 1st IF. transformer primary and secondary.
3.	To antenna terminal.	1400 Kcs.	200MMFD. Mica capacitor in series with generator.	Turn dial pointer to 1400 Kcs. Adjust B/cast. oscl. trimmer for logging and peak B/cast. aerial and RF. trimmers.
4.	To antenna terminal.	600 Kcs.	200MMFD. Mica capacitor in series with generator.	Turn dial pointer to 600 Kcs. Peak B/cast series padder rocking gang to and fro while adjusting.
<u>TURN WAVE CHANGE SWITCH TO S/WAVE. POSITION.</u>				
5.	To antenna terminal.	18 Mcs.	400 ohm non inductive resistor in series with generator.	Turn dial pointer to 18 Mcs. Adjust S/wave oscl. trimmer for logging and peak S/wave aerial and RF. trimmers.
6.	To antenna terminal.	10 Mcs.	400 ohm non inductive resistor in series with generator.	Turn dial pointer to 10 Mcs. and check tracking.





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SUBJECT-Voltage Table Receiver Type "DJ"

### EQUIPMENT:-

Volt Meter:-

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

Conditions of test:-

All voltages measured from tube socket contacts to chassis.  
230 volt 50 cycle A/c. input. Volume control at maximum  
(clockwise) no signal. Receiver tuned to 1,000 Kc. except when  
S/wave is specified.

<u>Tube</u>	<u>Plate</u>	<u>Screen</u>	<u>Cathode</u>	<u>Grid</u>	<u>Oscl. Plate</u>
6U7G	218V.	67V.	-	-1.4V.	-
6J8G B/c.	218V.	95V.	2.4V.	-1.4V.	135V.
S/w.	218V.	85V.	2.4V.	-	135V.
6U7G	218V.	77V.	-	-1.4V.	-
6B6G	65V.	-	-	-	-
6V6G	210V.	218V.	10.5V.	-	-
5Y3G	320/320V. RMS. The initial surge voltage across the first electrolytic (circuit number 18) is 410 volts dropping to normal operating value of 315 volts. DC. voltage across field coil is 97 volts.				

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SUBJECT-Component Parts List-Electrical-Receiver Type "DJ"

Circuit No.	Part Name	Tol. %	Rating	Radio Corp. Part No.
1.	.5MFD. Paper Condenser	20%	400V. DCW.	PC115
2.	.1MFD. Paper Condenser	20%	200V. DCW.	PC218
3.	.03MFD. Paper Condenser	20%	200V. DCW.	PC303
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.	.05MFD. Paper Condenser	20%	200V. DCW.	PC102
10.	.03MFD. Paper Condenser	20%	200V. DCW.	PC303
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.	.002MFD. Paper Condenser	20%	600V. DCW.	PC112
15.				
16.	25MFD. Electrolytic Condenser	20%	40PV.	PC269
17.	16MFD. Electrolytic Condenser	20%	525PV.	PC300
18.	8MFD. Electrolytic Condenser	20%	525PV.	PC301
19.	.0001MFD. Mica Condenser	10%	1000VT.	PC110
20.	.0001MFD. Mica Condenser	10%	1000VT.	PC110
21.	115MMFD. Silver Mica Condenser	2½%	1000VT.	PC357
22.	.0001MFD. Mica Condenser	10%	1000VT.	PC110
23.	.00005MFD. Mica Condenser	10%	1000VT.	PC141
24.	Trimmer Condenser (3-55MMFD.)			PC224
25.	Trimmer Condenser (1.5-18MMFD.)			PC250
26.	Trimmer Condenser (1.5-18MMFD.)			PC250
27.	Trimmer Condenser (1.5-18MMFD.)			PC250
28.	20MMFD. Wire Wound Condenser			PC166
29.	Trimmer Condenser Wire Wound (S/w. Oscl.)			PC356
30.	Trimmer Condenser Wire Wound (B/c. Oscl.)			PC356
31.	3 Gang Tuning Condenser			PC302
32.	Padder Condenser 150-500MMFD. (B/c.)			PC164
33.	.0031MFD. Mica Condenser	5%	1000VT.	PC278
34.	3 Megohm Carbon Resistor	10%	½ Watt	PR282
35.	1.75 Megohm Carbon Resistor	10%	½ Watt	PR248
36.	1.75 Megohm Carbon Resistor	10%	½ Watt	PR248
37.	.5 Megohm Carbon Resistor	10%	½ Watt	PR245
38.	.25 Megohm Carbon Resistor	10%	½ Watt	PR249
39.	1 Megohm Carbon Resistor	10%	½ Watt	PR246
40.				
41.	100,000 Ohm Carbon Resistor	10%	½ Watt	PR103
42.	100,000 Ohm Carbon Resistor	10%	½ Watt	PR103
43.	60,000 Ohm Carbon Resistor	10%	½ Watt	PR125
44.	50,000 Ohm Carbon Resistor	10%	½ Watt	PR160
45.	50,000 Ohm Carbon Resistor	10%	½ Watt	PR160
46.	30,000 Ohm Carbon Resistor	10%	½ Watt	PR151
47.	20,000 Ohm Carbon Resistor	10%	1 Watt	PR171
48.	20,000 Ohm Carbon Resistor	10%	1 Watt	PR171





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## TECHNICAL BULLETIN

SUBJECT-Component Parts List-Electrical-Receiver Type "DJ"

Circuit No.	Part Name	Tol.±	Rating	Radio Corp. Part No.
49.	25,000 Ohm Carbon Resistor	10%	$\frac{1}{2}$ Watt	PR155
50.	10,000 Ohm Carbon Resistor	10%	$\frac{1}{2}$ Watt	PR164
51.	4,000 Ohm Carbon	10%	$\frac{1}{2}$ Watt	PR288
52.	7,000 Ohm Carbon	10%	$\frac{1}{2}$ Watt	PR247
53.	2,000 Ohm Carbon	10%	$\frac{1}{2}$ Watt	PR253
54.	300 Ohm Wire Wound	10%	$\frac{1}{2}$ Watt	PR258
55.	300 Ohm Wire Wound	10%	1 Watt	PR122
56.	50 Ohm Wire Wound	10%	$\frac{1}{2}$ Watt	PR280
57.	50 Ohm Wire Wound	10%	$\frac{1}{2}$ Watt	PR280
58.	20 Ohm Wire Wound	10%	$\frac{1}{2}$ Watt	PR231
59.	2 Ohm Wire Wound	5%	$\frac{1}{2}$ Watt	PR195
60.	.5 Megohm Carbon Potentiometer Tapped at 40,000 Ohms.			PR357
61.	1,000 Ohm Carbon Resistor	10%	$\frac{1}{2}$ Watt	FR252
62.	B/cast. Antenna Transformer.			PT381
63.	B/cast. RF. Transformer			PT382
64.	B/cast. Oscillator Coil			PT383
65.	S/wave. Antenna Transformer			PT384
66.	S/wave. RF. Transformer			PT271
67.	S/wave. Oscillator Transformer.			PT246
68.	1st IF. Transformer			PT386
69.	2nd IF. Transformer			PT387
70.	Power Transformer			PT177
71.				
72.	Tube type 6U7G			
73.	Tube type 6U7G			
74.	Tube type 6J8G			
75.	Tube type 6B6G			
76.	Tube type 6V6G			
77.	Tube type 5Y3G			
78.	Dial Lamp 6-8V. 3CP.			PM450
79.	Dial Lamp 6-8V. 3CP.			PM450
80.	Valve Shield (4)			PM217
81.				
82.	Speaker 1,500 Ohm Field Coil			PM545
83.	4,000 Ohm Input Transformer }			
84.	Terminals (2)			PM306
85.	8 Pin Sockets (6)			PM532
86.	Wave Change Switch			PM442
87.	Tone Control Switch			PM548
88.	6 Pin Socket			PM145
89.				
90.				
91.	1st IF. Primary Adjusting Screw			
92.	1st IF. Secondary Adjusting Screw			
93.	2nd IF. Primary Adjusting Screw			
94.	2nd IF. Secondary Adjusting Screw			
95.	Series Pad Adjusting Screw			

SUBJECT-Component Parts List-Mechanical-Receiver Type "DJ"

Circuit No.	Part Name	Part No.
96.	Metal Chassis (Nerve Box)	4/280
97.	Metal Chassis	A101/280
98.	Dial Drum	A106/87
99.	Dial Cord Pulley	17/87
100.	Power Transformer Cover	20/64
101.	Volume Control Bracket	A103/280
102.	Pick-up Shorting Bar	A101/513
103.	Dial Frame Assembly	A111/280
104.	One Pin Sockets (4)	19/96
	Top Plate	18/96
	Bottom Plate	15/58-2
	Contact	
105.	Junction Strip Assemblies (7)	A103/509
106.	Mains Tap Board	A101/30A
107.	Vernier Drive	A9/91-1
108.	Pilot Lamp Mount Bracket (2)	A105/280
109.	Gang Mount Platform	A104/280
110.	Chassis Mounting Bracket (Left)	A103/215-1
111.	Chassis Mounting Bracket (Right)	A103/215-2
112.	Washer Mounting Bracket	45/60
113.	Cond. Support Bracket	A110/280
114.	Dial Reading Glass	37/280
	Diffuser Spacers-Rubber	31/280
	Diffuser Glass	38/280
115.	Dial Pointer Assembly	A116/280
116.	Dial Pointer Slider Bar	22/285
	Dial Cord Spring	27/87
	Dial Frame Spacer	23/280
	Dial Pulley Stud	18/87
	Dial Track Spacers	44/244
	Dial Lamp Socket	11/504
	Bracket Speaker Front	14/280
	Bracket Speaker Rear	15/280
	Control Knobs (2) (Tuning and Volume)	A112/280
	Control Knobs (2)	59/244
	Wave Change and Acoustinator	
	Control Extensions (2)	45/280



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BULLETIN DJ-1.

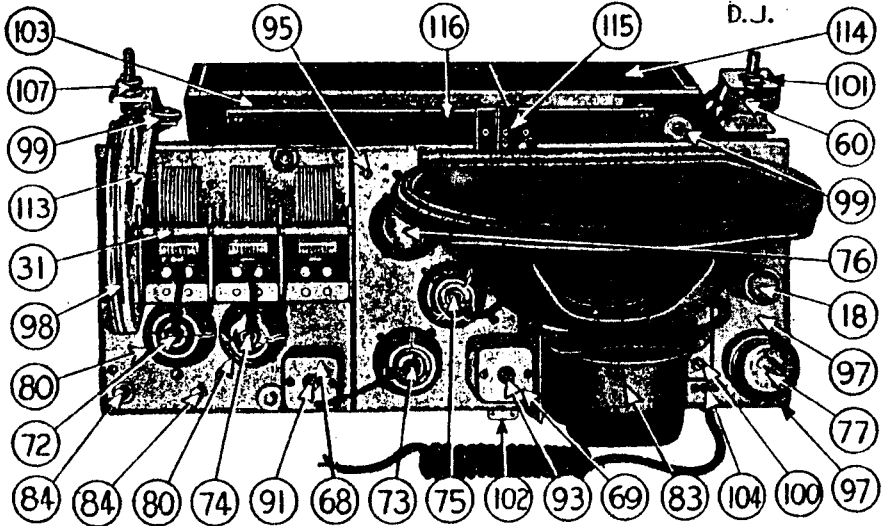
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Date: 16/5/46.

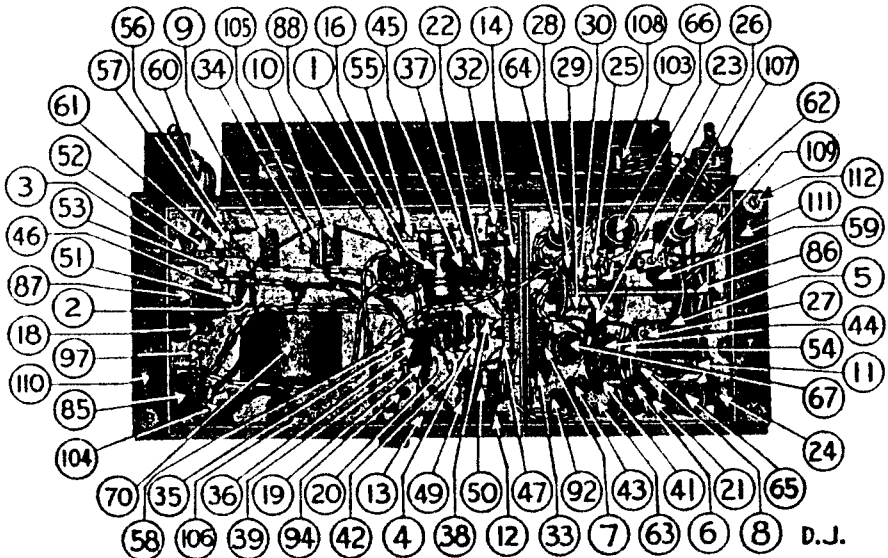
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A/c

SUBJECT-Chassis Top and Bottom Views-Receiver Type "DJ"



Model DJ Chassis top view.



Model DJ Chassis bottom view

BULLETIN-DJ-1.

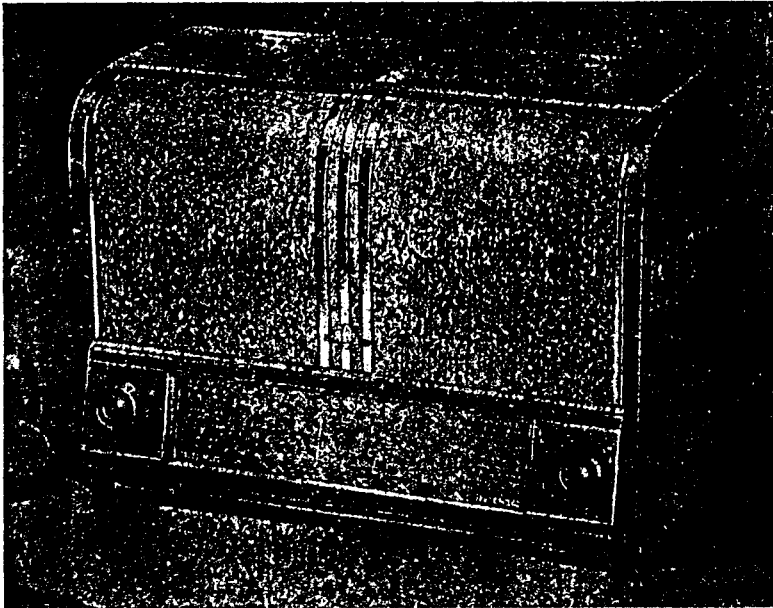
File: Receivers

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SUBJECT-Illustrated View of Cabinet for Receiver Type "DJ"





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A/c.

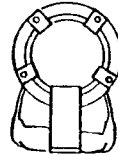
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SUBJECT-Coil and IF. Transformer Connections-Receiver Type "DJ"

A.V.C.

(Outside secondary) Grid



Earth

Antenna (Inside primary)

ANT. TRANS. B/CAST.

B1

(Outside secondary) Grid

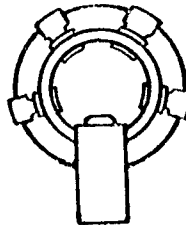


Plate (Inside primary)

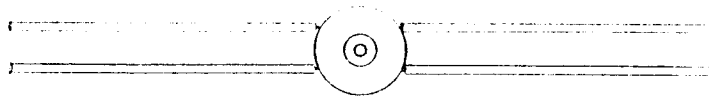
A.V.C.

RF. TRANS. B/CAST.

(Junction of circuit numbers  
47, 48, and 50)

Red

Black (Series pad)



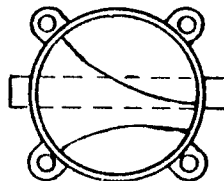
(6J8G Osci. Plate) Blue

Green (Osci. gang)

OSCL. COIL B/CAST.

Grid

A.V.C.

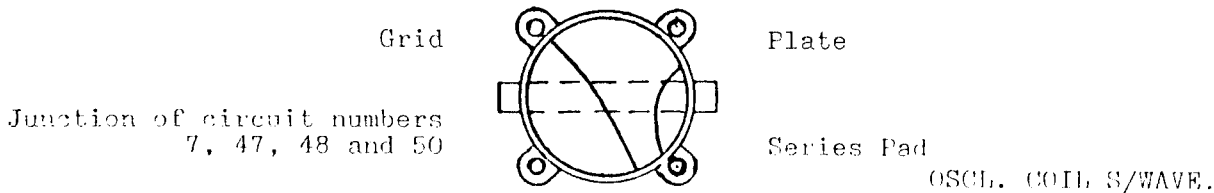
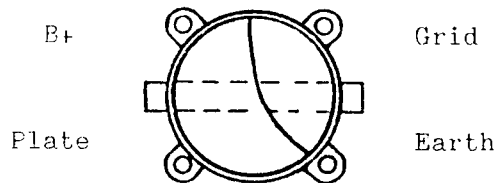


Antenna

Earth

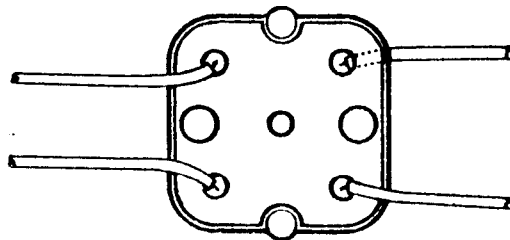
ANT. TRANS. S/WAVE.

SUBJECT-Coil and IF. Transformer Connections-Receiver Type "DJ"



(A.V.C.) Black

Green (Grid)



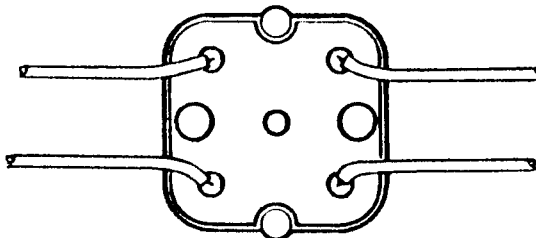
(Plate) Blue

Red (B+)

1ST. IF. TRANS.

(Diode return) Black

Green (Diode)



(Plate) Blue

Red (B+)

2ND IF. TRANS.



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BULLETIN DJ-2.

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SUBJECT-

Summary of Circuit

and

Circuit Component Changes

Since Beginning of Production to 16/5/1946.

1. Circuit No. 28. 20MMFD. Wire Wound condenser FC166 and  
Circuit No. 29. Wire Wound trimmer condenser FC356 have both  
been deleted and replaced with one new and  
improved type wire wound trimmer condenser,  
capacity 0-30MMFD., part number FC663.
2. Circuit No. 30. Wire wound condenser FC356 changed to FC663.
3. Circuit No. 35 and 36. 1.75 Megohm resistors have been replaced with  
1.5 Megohm resistors when 1.75 Megohm were not  
available.
4. Circuit No. 59. 2 Ohm wire wound resistor PR195 not being  
available, dial lamps were wired direct to  
6U7G (RF. tube) fil.
5. Circuit No. 60. .5 Megohm volume control PR357 changed to .5  
Megohm volume control tapped at 40,000 ohms  
part number PR389 made by Radio Corp.
6. Circuit No. 70. Power transformer part number PT177 has been  
changed to an improved type part number  
PT770 (200-250 volt 50 cycle) or PT771  
(200-260 volt 40 cycle).