



# ECLIPSE RADIO PTY. LTD.

(A DIVISION OF ELECTRONIC INDUSTRIES LTD.)

11-21 STURT STREET, SOUTH MELBOURNE  
TECHNICAL BULLETIN

**BULLETIN FKM-1**

**File: RECEIVERS AC.**

**Date: 2/10/51**

**Page 1**

## **MODEL—FKM**

4 Tube Superheterodyne Broadcast Mantel Model Receiver.

### **For Operation From:**

200-250 Volt 50 Cycle AC. Mains Supply.

Power Consumption 40 Watts (approx.)

535 - 1640Kc. : 560.7 - 182.9 Metres.

1. Alignment Instructions.
2. Circuit Diagram.
3. Component Parts List.
4. Connections for IF. and RF. Transformers.
5. Dial Drive Cording Diagram.

## ALIGNMENT PROCEDURE

### Equipment :

Signal Generator:  
 Output Meter:  
 Mica Capacitor: 0.01MFD (for I.F. trans. alignment)  
 Dummy Antenna: 200MMFD Mica Capacitor.  
 Alignment Tools: Type M195 and PM581.

### Alignment Conditions:

Load Impedance: 5,000 Ohms.  
 Output Level: 50 Milliwatts.  
 Vol. Control: Max. Vol. fully clockwise.  
 Intermed. Freq.: 455Kc.  
 Input Voltage: 230 Volts 50 Cycle.  
 AC. input to trans.  
 230-250 Volt pri. tap.

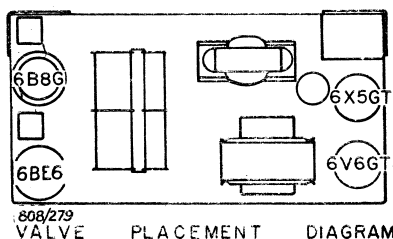
### Dummy Antenna

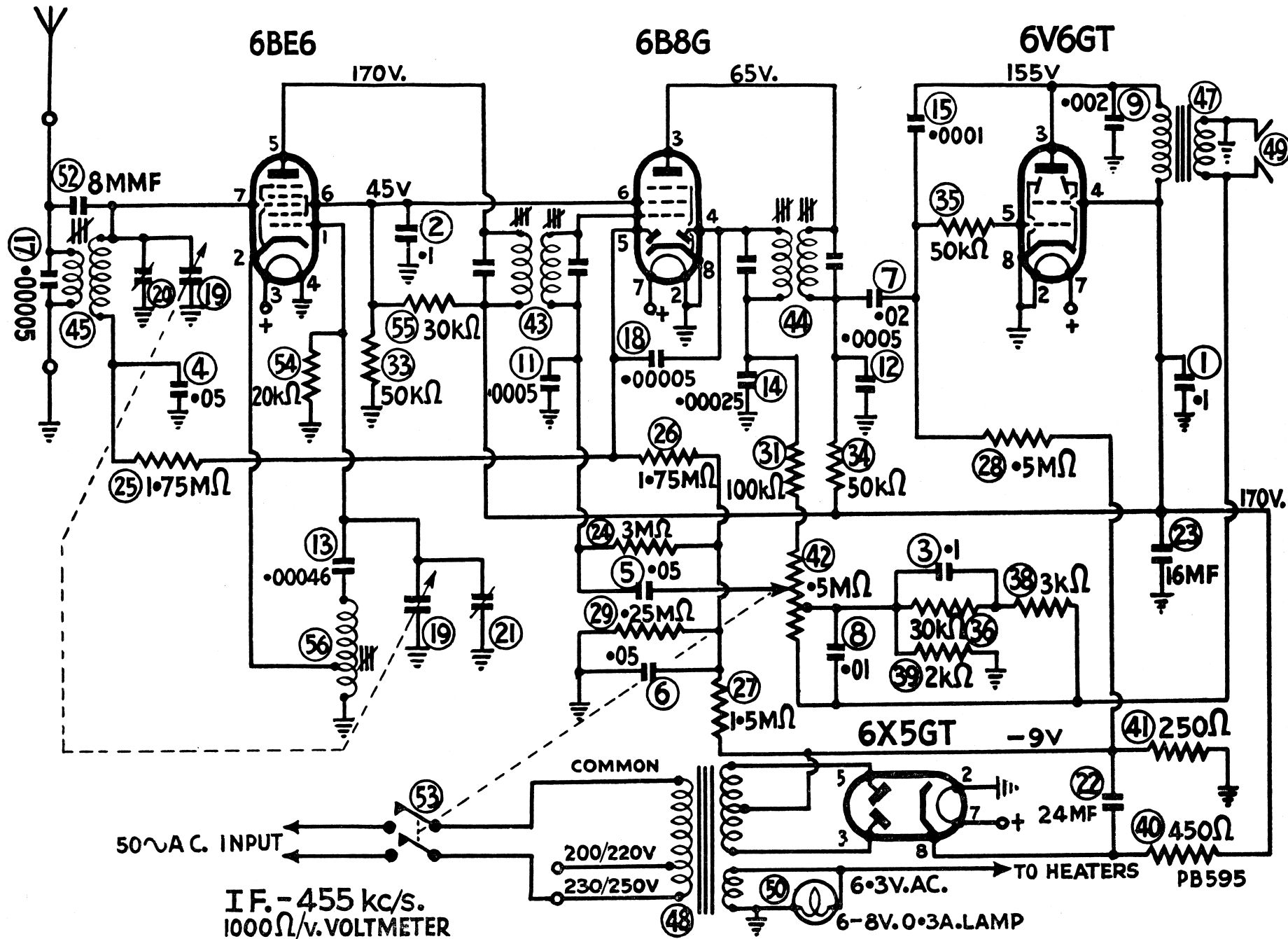
The 200MMFD dummy antenna must not be connected to the free end of the 25 ft. antenna during alignment, but must be connected to the antenna junction lug on the chassis. It is not necessary to have the 25 ft. antenna connected to the receiver during alignment, if it is connected it should be rolled up into a small hank.

Operation No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
1.	To control grid of 6B8G tube.	455Kc.	0.01MFD Mica capacitor in series with generator.	Remove chassis from cabinet, refit dial to dial shaft. Leave grid cap on tube. Peak 2nd IF. trans. pri. and sec. for max. output.
2.	To control grid of 6BE6 tube, pin No. 7.	455Kc.	0.01MFD mica capacitor in series with generator.	Turn cond. gang plates fully out of mesh. Leave grid wire attached to tube socket. Peak 1st IF. trans. pri. and sec. for max. output.
3.				Repeat operations No. 1 and 2.
4.				Fully mesh the cond. gang plates. Connect a piece of stiff wire to the chassis and fashion it into a horizontal position behind the dial and directly in line with the centre of the dial drive shaft to represent the dial pointer on the cabinet. Adjust the dial by moving the adjustable stop on the side of the cond. gang., until the centre of the pointer aligns with the centre of the end of travel spot on the dial reading near 540Kc.

Operation No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
5.	To antenna junction lug on chassis.	600Kc.	200MMFD mica capacitor in series with generator.	Turn cond. gang and dial until 600Kc. spot on dial aligns with centre of pointer. Leave the gang and dial set in this position and peak the oscl. coil inductance trim. (iron core) for max. output.
6.	To antenna junction lug on chassis.	1400Kc.	200MMFD mica capacitor in series with generator.	Turn cond. gang and dial until 1400Kc. spot on dial aligns with centre of pointer. Adjust oscl. coil trim. condenser for logging and peak antenna trans. trim. condenser for max. output.
7.	To antenna junction lug on chassis.	600Kc.	200MMFD mica capacitor in series with generator.	Turn cond. gang and dial until 600Kc. spot on dial aligns with centre of pointer. Leave the gang and dial set in this position. Repeak oscl. coil. ind. trim. (iron core) and then peak the antenna trans. ind. trim. (iron core) for max. output. Do not rock the gang or dial to and fro through the signal while adjusting or move them until after the inductance trimmer (iron core) of both of these transformers has been peaked for max. output.
8.	To antenna junction lug on chassis.	1400Kc.	200MMFD mica capacitor in series with generator.	Turn cond. gang and dial until 1400Kc. spot on dial aligns with centre of pointer. Adjust oscl. coil trim. condenser for logging and re-peak antenna trans. trim. condenser for max. output.

Tuning range after alignment: 535 - 1640Kc.





Circuit No.	Description	Tol ±	Rating	Part No.
1.	.1MFD Paper Condenser	20%	400V DCW	PC103
2.	.1MFD Paper Condenser	20%	400V DCW	PC103
3.	.1MFD Paper Condenser	20%	200V DCW	PC102
4.	.05MFD Paper Condenser	20%	200V DCW	PC102
5.	.05MFD Paper Condenser	20%	200V DCW	PC102
6.	.05MFD Paper Condenser	20%	200V DCW	PC102
7.	.02MFD Paper Condenser	20%	400V DCW	PC111
8.	.01MFD Paper Condenser	20%	600V DCW	PC140
9.	.002MFD Paper Condenser	20%	600V DCW	PC112
10.				
11.	.0005MFD Mica Condenser	10%	1000VT	PC144
12.	.0005MFD Mica Condenser	10%	1000VT	PC144
13.	.00046MFD Mica Condenser	2½%	1000VT	PC728
14.	.00025MFD Mica Condenser	10%	1000VT	PC126
15.	.0001MFD Mica Condenser	10%	1000VT	PC110
16.				
17.	.00005MFD Mica Condenser	10%	1000VT	PC141
18.	.00005MFD Mica Condenser	10%	1000VT	PC141
19.	2 Gang Variable Condenser with drive assembly attached			PC838
20.	1.5 - 18MMFD Trimmer Condenser			PC250
21.	0 - 30MMFD Trimmer Condenser (wire wound)			PC663
22.	24MFD Electrolytic Condenser	20%	350VP	PC276
23.	16MFD Electrolytic Condenser	20%	350VP	PC283
24.	3 Megohm Carbon Resistor	10%	½ watt	PR282
25.	1.75 Megohm Carbon Resistor	10%	½ watt	PR248
26.	1.75 Megohm Carbon Resistor	10%	½ watt	PR248
27.	1.5 Megohm Carbon Resistor	10%	½ watt	PR388
28.	.5 Megohm Carbon Resistor	10%	½ watt	PR245
29.	.25 Megohm Carbon Resistor	10%	½ watt	PR249
30.				
31.	100,000 Ohm Carbon Resistor	10%	½ watt	PR103
32.				
33.	50,000 Ohm Carbon Resistor	10%	1 watt	PR115
34.	50,000 Ohm Carbon Resistor	5%	1 watt	PR541
35.	50,000 Ohm Carbon Resistor	10%	½ watt	PR160
36.	30,000 Ohm Carbon Resistor	10%	½ watt	PR151
37.				
38.	3,000 Ohm Carbon Resistor	10%	½ watt	PR185
39.	2,000 Ohm Carbon Resistor	10%	½ watt	PR253
40.	450 Ohm Wire Wound Resistor	10%	1 watt	PR615
41.	250 Ohm Wire Wound Resistor	10%	½ watt	PR259
42.	.5 Megohm Carbon Potentiometer tapped at 40K Ohms and with DP.ST. Switch attached	20%		PR695
43.	No. 1 IF. Transformer			PT869
44.	No. 2 IF. Transformer			PT869
45.	Antenna Transformer			PT905
46.				
47.	Speaker Input Transformer 5,000 - 3.7 Ohms impd.			PT930
48.	{ Power Transformer 200 - 250 Volts 50 Cycle)			PT938
	{ Power Transformer 200 - 260 Volts 40 Cycle)			PT939

Circuit No.	Description	Tol±	Rating	Part No.
49.	Speaker 5" Permag. - less input trans.			K124
50.	Dial Lamp 6.3 Volt 0.3 Amp. Min. Screw Base G3½ Size Bulb			M236
51.	Tube Shield (6B8G)			PM217
52.	8MMFD Ceramicon Condenser (Part of Circuit No. 45)			PC830
53.	DP.ST Switch (Part of Circuit No. 42)			
54.	20,000 Ohm Carbon Resistor	10%	½ watt	PR166
55.	30,000 Ohm Carbon Resistor	10%	1 watt	PR156
56.	Oscillator Coil (Red Spot under Grid Lug)			PT859
	Socket, 8 Pin			PM532
	Socket, 7 Pin (6BE6)			A104/58

### Description

### Part No.

Terminal Strip - 3 Lug	A103/509
Terminal Strip - 5 Lug	A105/E243
Terminal Strip - 2 Lug	A107/30A
Clip - IF. Trans. Mount	7/670
Speaker Lead Clip and Bakelite Strip Assy.	A105/698
Earth Contact - for Valve Shield	22/30C
Rubber Band - for Valve Shield	1/564-8
Dial Drive and Drum Assy.	A103/753-1
Dial Drive Assy. Mount Screws (3)	4BA 25/415-2
Rubber Grommet - on Power Cord	40/30C
Mount Clip - for Speaker	20/698
Mount Clip - on Chassis Legs	86/E200
Volume Knob Spring	86/71
Mount Clip - Coil Mount	6/622
Antenna Wire	WM195
Dial Cord	7/282
Dial Cord Tension Spring	3/753
Dial Lamp Socket Assy.	A105/753-1
Dial Knob Spring	22/755
Dial - N.S.W.	A104/755-2
Dial - VIC. - TAS.	A104/755-3
Dial - QLD.	A104/755-4
Dial - W.A. - S.A.	A104/755-5

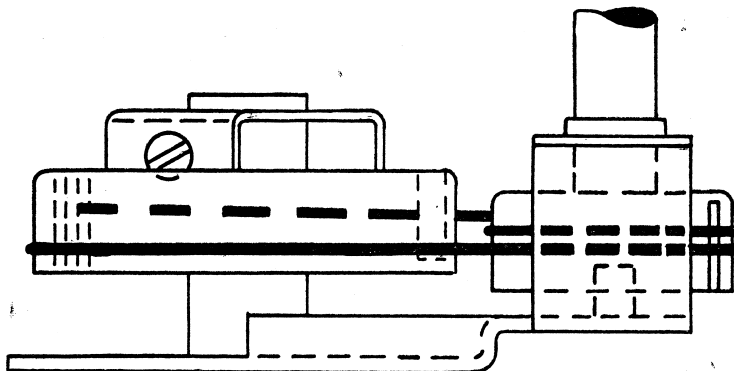
### STYLING LIST

	WALNUT CABINET	CREAM CABINET	GREEN CABINET
Cabinet Back	183/81-1	183/81-2	183/81-3
Cabinet	182/81-1	182/81-2	182/81-3
Knob - Volume	10/634-10	10/634-5	10/634-5

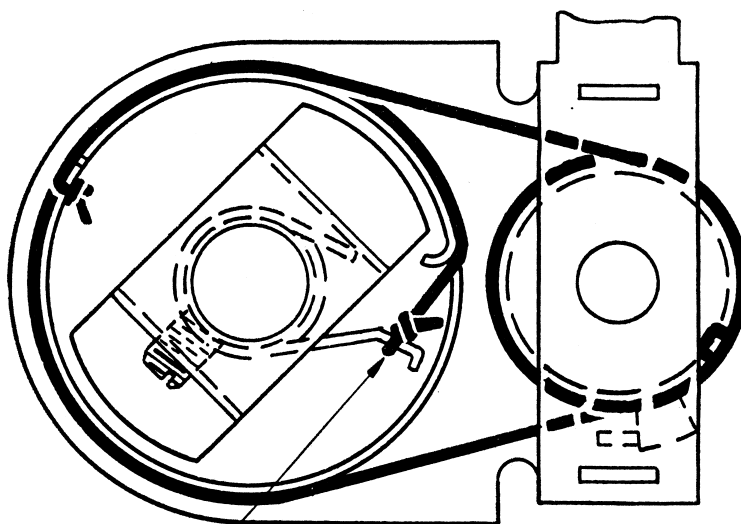
Length of cord required is 2 ft. which includes about 8" to spare for tying to tension spring.

Cord Part No. 7/282.

Tension Spring Part No. 3/753.



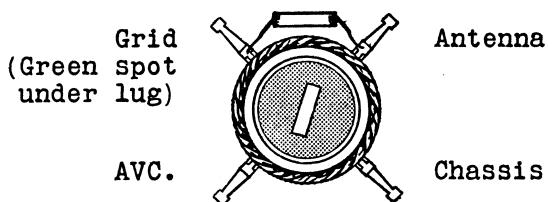
CONDENSER PLATES  
FULLY MESHED.



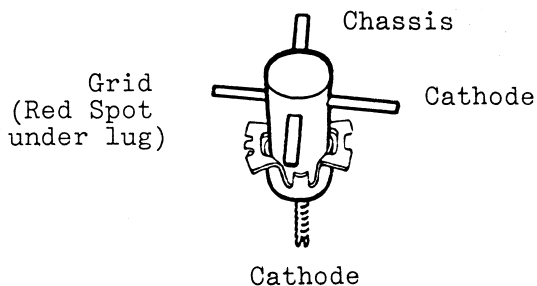
START CORDING HERE.



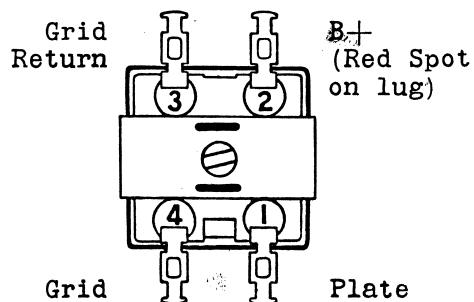
# ANTENNA TRANSFORMER.



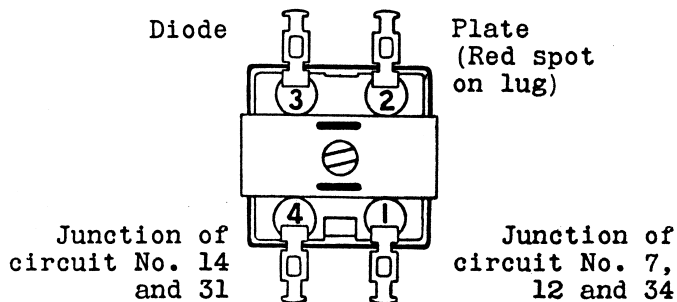
# OSCL. COIL



# No. 1 IF. TRANS.



# No. 2 IF. TRANS.





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**BULLETIN FKM 2.**

**File: RECEIVERS A.C.**

**Date: 11/3/52**

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### CIRCUIT COMPONENT CHANGE

To improve the power output on strong signals with current production 6B8G valves the following circuit components have been changed-

A. Circuit No. 24, a 3 Megohm resistor changed to a 1.5 Megohm carbon resistor, tol.  $\pm 10\%$ ,  $\frac{1}{2}$  Watt, Part No. PR388, new circuit No. 57.

B. Circuit No. 27, a 1.5 Megohm resistor changed to a 1 Megohm carbon resistor, tol.  $\pm 10\%$ ,  $\frac{1}{2}$  Watt, Part No. PR246, new circuit No. 58.

### CIRCUIT MODIFICATION

The end of the 1.75 Megohm AVC bias filter resistor circuit No. 25 which is connected to the 6B8G valve diode (pin No. 5) and the junction of the .00005 MFD. condenser Circuit No. 18 and the 1.75 Megohm filter resistor circuit No. 26 has been changed from this position and is connected to the junction of the volume control and the 100,000 Ohm. resistor circuit No. 31.

This change applies simple AVC to the converter valve instead of delayed AVC bias.

### DIAL-KNOB ASSEMBLY

Early production of the Model "FKM" receiver had the dial reading and the tuning knob as a complete moulding and which was a push-on fitting to the varb. cond. drive shaft. Part numbers for these dials are listed in Service Bulletin FKM-1.

This moulding has been changed so that the dial reading and the push-on tuning knob are separate parts. From the outside of the cabinet the dial reading position before being tightened to the bush on the drive spindle with screws can be varied for more accurate logging. Wobble when the dial reading is turned has been eliminated.

### NEW COMPONENTS USED WITH THE NEW DIAL ASSEMBLY

	Part No.
Variable condenser with different drive assembly	PC854
Drive spindle bush	29/755
Drive spindle bush grub screw (2) $\frac{1}{4}$ " x 5/32" Whit.	30/560-7
Dial reading N.S.W.	32/755-2
" " Vic. - Tas.	32/755-3
" " Q'land	32/755-4
" " S.A. - W.A.	32/755-5
Dial locating washer	30/755
Dial locating washer fastening screws (3) $\frac{1}{4}$ " x 3/32 Csk. Hd. Whit.	5/560-4
Paper washer-behind knob	6/449-4
Felt washer-between knob and paper washer	79/30C-1
Knob circlip	22/755
Knob	27/755



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**BULLETIN FKM 3.**

**File: RECEIVERS A.C.**

**Date: 12/3/52**

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### 6AD8 VALVE SUBSTITUTE FOR 6B8G VALVE

The next production run of the Model "FKM" Receiver will use a 6AD8 valve in place of the 6B8G valve. The change is due to 6B8G valves being in short supply. Modifications to the circuit and circuit components are as follows

1. The diode end of the 1.75 Megohm A.V.C. bias filter resistor circuit No. 25 is connected to the junction of the 100,000 Ohm. resistor circuit No. 31, the .00025 MFD. Cond. and the 2nd I. F. Transformer, circuit No. 44.
2. Circuit No. 31. a 100,000 Ohm. resistor is changed to a 50,000 Ohm. carbon resistor, tol.  $\pm 10\%$   $\frac{1}{2}$  watt, Part No. PR160, new circuit No. 59.

### NEW PARTS REQUIRED:

	PART NO.
9-Pin Valve Socket	279/250
Valve Socket Adaptor Plate	33/698
6AD8 Valve	6AD8
50,000 Ohm., $\frac{1}{2}$ Watt Resistor	PR160

A new circuit diagram which shows a 6AD8 valve is on page 2.

### VALVE SOCKET CONNECTIONS

Pin No.	6B8G	6AD8
1	Chassis	Screen Grid
" 2	Heater-	Signal Grid
" 3	Plate	Cathode-Chassis
" 4	Diode	Heater+
" 5	AVC Diode	Heater-
" 6	Screen	Plate
" 7	Heater+	AVC Diode
" 8	Cathode-Chassis	Diode
" 9	—	Suppressor Grid-Chassis