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

TECHNICAL BULLETIN

SUBJECT- Model "KM"

4 Tube Broadcast Reflexed

Superheterodyne Mantel Receiver

For operation from:

200-250 Volt 50 cycle A.C. Mains.

This Bulletin Contains:

1. Technical Specifications.
2. General Description.
3. Instructions for Changing Dial Reading.
4. Alignment Procedure.
5. Circuit Diagram.
6. Voltage Table.
7. Component Parts List.
8. Coil and IF. Transformer Connections.

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SUBJECT- Instructions for Removing and Refitting Dial Reading to Model "KM" Receiver.

The receiver does not have to be removed from the cabinet to change the dial reading. The dial reading is held in position at both ends by a spring clip attached to the dial back-ground plate.

To remove the dial reading the following procedure is to be adopted.

1. Place the receiver on a table so that the front of the cabinet faces the operator.
2. Place the left hand on top of the cabinet.
3. With the thumb and index fingers of the right hand catch hold of the right hand end of the centre bar of the dial reading.
4. Press this end down and then slide the dial reading to the right about a quarter of an inch, this operation will automatically cause the left hand end of the dial reading to free itself from the clip.
5. While retaining the fingers in the same position on the dial bar slide the dial reading to the left and at the same time gradually drawing the left hand end of the dial reading towards the operator.

To refit the dial reading.

6. Catch hold of the dial reading as in para. 3 and place dial reading about one inch from the front of the cabinet.
7. Twist the left hand end of the dail reading downward about 45 degrees, then lead the bottom right hand corner of the dial reading through the aperture in the right hand side of the edge of the dial back-ground plate. At the same time pressing downwards, sliding to the right and bringing dial reading to a horizontal position.
8. Slide dial reading to the left locating it into the aperture in the left hand edge of the dial back-ground plate.

SUBJECT-Technical Specifications-Model "KM".

Tube Complement:

6A8G Converter.
6B8G IF. Amplifier, AVC., Detector, 1st Audio.
6V6GT Beam Power Amplifier.
5Y3GT Full Wave Rectifier.

Intermediate Frequency: 455 Kcs.

Tuning Range: 540 Kcs. (Kilocycles) to 1640 Kcs.
555 M. (Meters) to 182.9 M.

Calibration: Straight Line Frequency.

Power Consumption: 40 Watts (approx.).

General Description:

The Model "KM" is a 4 tube reflexed superheterodyne receiver having a sensitivity of 30 microvolts for an output of 50 milliwatts with a load impedance of 5,000 ohms.

The circuit consists of a 6A8G pentagrid converter tube followed by a type 6B8G diode pentode tube used as a combined IF. amplifier, diode detector and AVC. bias source and 1st audio amplifier.

AVC. is applied to the 6A8G only. Volume is controlled by varying the reflexed audio signal applied to the 6B8G tube. The audio output of this tube is fed directly to the 6V6GT output tube. Degenerative feedback is taken from the secondary of the output transformer and applied to the bottom of the volume control. A second circuit providing bass boost is connected to the tap on the volume control.

Bias (back bias) for the 6V6GT output tube is obtained from the voltage drop across the 250 ohm resistor circuit number 43.

High tension is supplied from full wave rectifier 5Y3GT and filtered by resistance capacitive filter comprising 24MFD. electrolytic 450 ohm resistor and 16MFD. electrolytic condenser circuit numbers 20, 42 and 19.

SUBJECT-Alignment Procedure-Model "KM".

Equipment: Signal Generator.
Dummy Antenna:
·01MFD. Mica Capacitor.
200MMFD. Mica Capacitor.
Output Meter.
Alignment Tool.

Alignment Conditions:

Load Impedance-5,000 ohms.
Output Level-50 Milliwatts.
Volume Control-Full On (Clockwise).

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.

Operation No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
1.	To grid of 6B8G tube	455 Kcs.	·01MFD. mica capacitor in series with generator.	Gang plates full out. Leave grid cap on tube. Peak 2nd IF. transformer primary and secondary.
2.	To grid of 6A8G tube.	455 Kcs.	·01MFD. mica capacitor in series with generator.	Gang plates full out. Leave grid cap on tube. Peak 1st IF. transformer primary and secondary.
3.	Set the dial pointer on the end of travel mark near 550 Kcs. (located at right hand top edge of dial reading) condenser gang plates fully meshed.			
4.	To antenna lead	600 Kcs.	200MMFD. mica capacitor in series with generator.	Turn dial pointer and gang to 600 Kcs. dial mark. Peak oscillator coil inductance trimmer (iron core) for maximum output rocking gang to and fro while adjusting.
5.	To antenna lead	1400 Kcs.	200MMFD. mica capacitor in series with generator	Turn dial pointer and gang to 1400 Kcs. dial mark. Adjust oscillator trimmer for logging and peak aerial coil trimmer.
6.	Repeat operations Nos. 4 and 5.			

Tuning Range 540-1640 Kcs.

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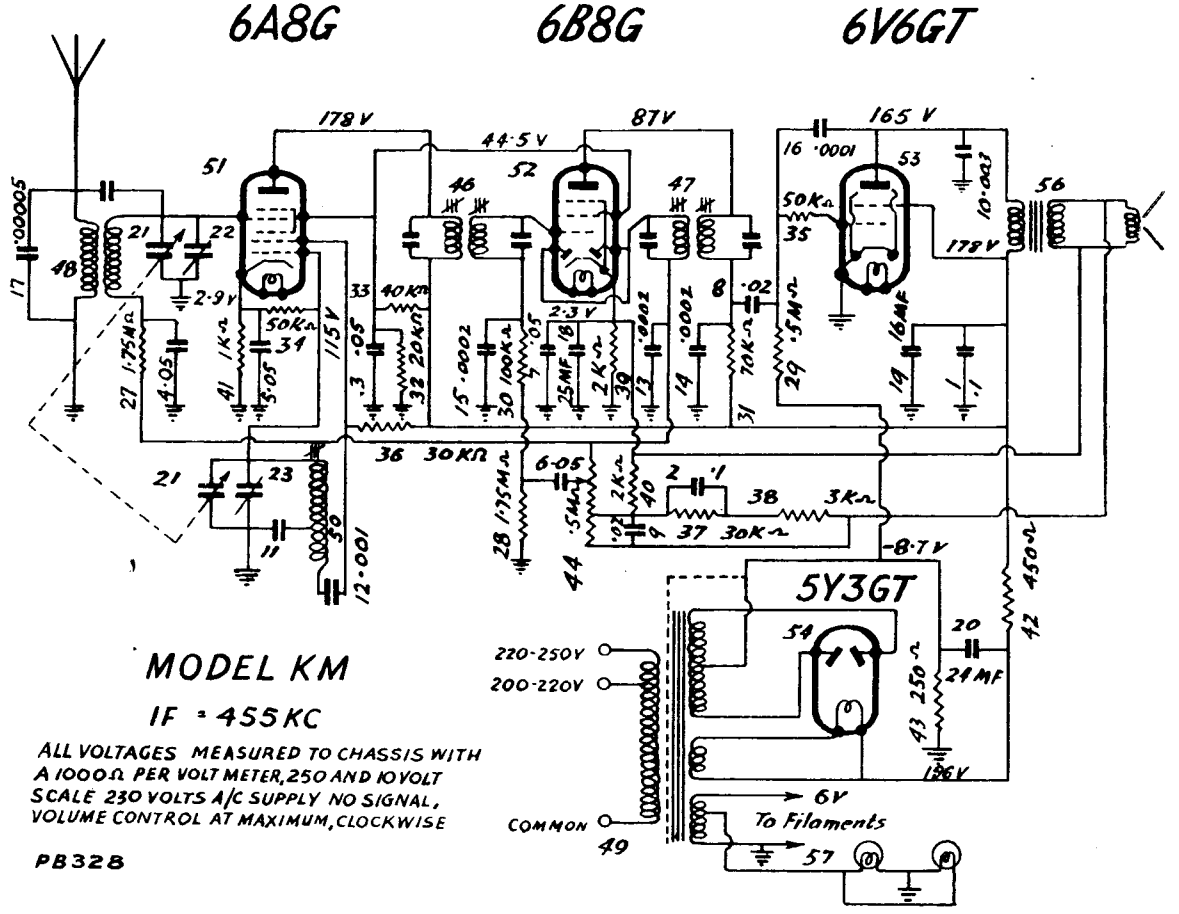
SUBJECT—Schematic Circuit Diagram—Model "KM".



SUBJECT-Component Parts List-Model "KM".

Circuit No.	Part Name	Tol. ±	Rating	Part No.
1.	·1MFD. Paper Condenser	20%	400V.DCW	PC103
2.	·1MFD. Paper Condenser	20%	200V.DCW	PC218
3.	·05MFD. Paper Condenser	20%	400V.DCW	PC109
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.	·05MFD. Paper Condenser	20%	200V.DCW	PC102
8.	·02MFD. Paper Condenser	20%	400V.DCW	PC111
9.	·02MFD. Paper Condenser	20%	400V.DCW	PC111
10.	·003MFD. Paper Condenser	20%	600V.DCW	PC274
11.	·00046MFD. Silver Mica Condenser	2½%	1000VT.	PC684
12.	·001MFD. Mica Condenser	10%	1000VT.	PC108
13.	·0002MFD. Mica Condenser	10%	1000VT.	PC124
14.	·0002MFD. Mica Condenser	10%	1000VT.	PC124
15.	·0002MFD. Mica Condenser	10%	1000VT.	PC124
16.	·0001MFD. Mica Condenser	10%	1000VT.	PC110
17.	·00005MFD. Mica Condenser	10%	1000VT.	PC141
18.	25MFD. Electrolytic Condenser	20%	40VP.	PC660
19.	16MFD. Electrolytic Condenser	20%	350VP.	PC283
20.	24MFD. Electrolytic Condenser	20%	350VP.	PC686
21.	2 Gang Condenser			PC715
22.	1·5-18MMFD. Trimmer Condenser			PC250
23.	0-30MMFD. Trimmer Condenser (Oscl. stage)			PC663
24.				
25.				
26.				
27.	1·75 Megohm Carbon Resistor	10%	½ Watt	PR248
28.	1·75 Megohm Carbon Resistor	10%	½ Watt	PR248
29.	500,000 Ohm Carbon Resistor	10%	½ Watt	PR245
30.	100.000 Ohm Carbon Resistor	10%	½ Watt	PR103
31.	70,000 Ohm Carbon Resistor	10%	1 Watt	PR617
32.	20,000 Ohm Carbon Resistor	10%	½ Watt	PR166
33.	40,000 Ohm Carbon Resistor	10%	1 Watt	PR198
34.	50,000 Ohm Carbon Resistor	10%	½ Watt	PR160
35.	50,000 Ohm Carbon Resistor	10%	½ Watt	PR160
36.	30,000 Ohm Carbon Resistor	10%	½ Watt	PR151
37.	30,000 Ohm Carbon Resistor	10%	½ Watt	PR151
38.	3,000 Ohm Carbon Resistor	10%	½ Watt	PR185
39.	2,000 Ohm Carbon Resistor	10%	½ Watt	PR253
40.	2,000 Ohm Carbon Resistor	10%	½ Watt	PR253
41.	1,000 Ohm Carbon Resistor	10%	½ Watt	PR252
42.	450 Ohm Wire Wound Resistor	10%	1 Watt	PR615
43.	250 Ohm Wire Wound Resistor	10%	½ Watt	PR259
44.	·5 Megohm Carbon Potentiometer tapped at 40,000 Ohms			PR377
45.				
46.	1st IF. Transformer			PT753

SUBJECT-Voltage Table-Model "KM".

Equipment:

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

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

Conditions of test:

All voltages measured from tube socket contacts to chassis. 230 volts 50 cycle A.C. input to 220-250 volt primary mains tap. Set tuned to 1000 Kc. Volume control full on (clockwise) no signal.

Tube	Fil.	Plate	Screen	Grid	Cathode	Oscl. Plate
6A8G	6·3V.	178V.	44·5V.	–	2·9V.	115V.
6B8G	6·3V.	87V.	44·5V.	–	2·3V.	–
6V6GT	6·3V.	165V.	178V.	-8·7V.	–	–
5Y3GT	5V.	198V./198V. RMS. The initial surge voltage across the first electrolytic condenser (circuit No. 20) is 255 volts dropping to normal operating value of 196 volts. D.C. voltage across 450 ohm filter resistor is 18 volts.				

SUBJECT-Component Parts List-Model "KM".

Circuit No.	Part Name	Tol. ±	Rating	Part No.
47.	2nd IF. Transformer			PT387
48.	Antenna Transformer			PT381
49.	Power Transformer (200-250 volt 50 cycle)			PT794
	Power Transformer (200-260 volt 40 cycle)			PT795
50.	Oscillator Coil			PT793
51.	Tube Type 6A8G			
52.	Tube Type 6B8G			
53.	Tube Type 6V6GT			
54.	Tube Type 5Y3GT			
55.	Socket 8 Pin			PM532
56.	Speaker Permag, 5,000 Ohm input			K109
57.	Lamp, Min. Screw Base. T3¼ Bulb.		6.2V., ·25A.	PM678
	P/Lamp Socket Ass'y (2)			A140/30C
	P/Lamp Shield (2)			6/640
	Dial Idler Pulleys-Wood (2)			13/613
	Guide Pulleys-Brass (2)			23/71
	Dial Pulley Spring			8/613
	Dial Pulley Spacer			12/516
	Jockey Pulley Arm			9/589
	Dial Pulley Studs-long (2)			18/87
	Dial Pulley Studs-short			18/87-4
	Earth Contact-Valve Shield			22/30C
	Pointer Assembly			4/460
	Dial Reading-New South Wales			12/640-2
	Dial Reading-Victoria			12/640-3
	Dial Reading-Queensland			12/640-4
	Dial Reading-South Australia			12/640-5
	Dial Reading-Western Australia			12/640-6
	Dial Reading-Tasmania			12/640-7

Details of Cabinet Fittings.

CABINET Colour	Part No.	KNOBS Colour	Part No.	FELT WASHERS Colour	Part No.
Walnut	15/640-1	Walnut	22/81-4	Brown	66/30C
Green	15/640-2	Green	22/81-3	White	66/30C-1
Blue	15/640-3	Blue	22/81-7	White	66/30C-1
Champagne	15/640-4	Champagne	22/81-6	White	66/30C-1
Ivory	15/640-5	Champagne	22/81-6	White	66/30C-1
Chinese Red	15/640-6	Walnut	22/81-4	Brown	66/30C
Mahogany	15/640-7	Walnut	22/81-4	Brown	66/30C
Marble Champ.	15/640-8	Champ.	22/81-6	White	66/30C-1
Marble Ivory	15/640-9	Champ.	22/81-6	White	66/30C-1
Amber	15/640-10	Amber	22/81-8	White	66/30C-1
Aust. White	15/640-11	White	22/81-5	White	66/30C-1

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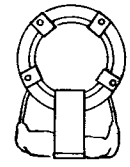
SUBJECT—Coil and IF. Transformer Connections—Model "KM"

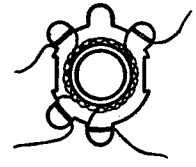
AVC. EARTH



(Outside secondary) GRID ANTENNA (Inside primary)

Ant. Trans.

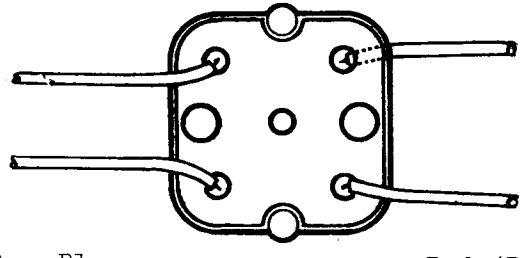
Grid 6A8G Oscl. Plate Cond.



Series Pad Series Pad

Oscl. Coil

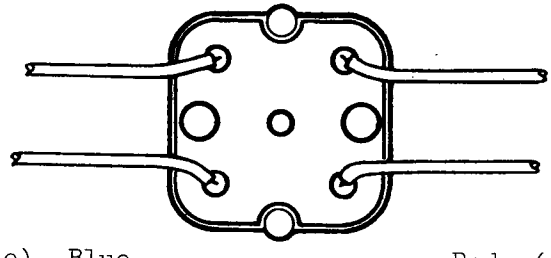
(Junction of circuit Nos. 15 and 30) Black Green (6B8G Grid)



(6A8G Plate) Blue Red (B +)

1st IF. Trans.

(Junction of circuit Nos. 13, 27 and 44 Black Green (6B8G Diode)



(6B8G Plate) Blue Red (Junction of circuit Nos. 8, 14 and 31)

2nd IF. Trans.

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SUBJECT-Substitute Rectifier Tube-Model "KM".

The first production run of the Model "KM" receiver will be modified to use a 6X5GT rectifier tube in place of the type 5Y3GT tube.

The modification is due to the present acute shortage of 5Y3GT tubes and lamination steel.

Two conditions have been provided with this modification, which are as follows:-

1. Model "KM" receivers assembled with power transformers part number PT794 (200-250 volt 50 cycle operation) or PT795 (200-260 volt 40 cycle operation) which have 5 and 6 volt windings.

   On these receivers a 6X5GT tube may be used in lieu of a 5Y3GT tube, providing the following wiring alterations are made:

   (a) Disconnect and bind up each lead of the 5 volt filament winding.
   (b) Connect the filament of the 6X5GT tube (pin numbers 2 and 7) across the 6·3 volt filament winding.
   (c) High tension is obtained from the 6X5GT cathode, pin number 8.
   (d) Bridge rectifier socket contacts number 3 and 4 also number 5 and 6.

2. Model "KM" receivers assembled with power transformer part number PT814 (200-250 volt 50 cycle operation) must use a type 6X5GT tube.

   Transformer PT814 has a smaller type lamination, only one 6 volt filament winding, and is designed especially for the 6X5GT tube.

Voltage Table for receiver type "KM" with 6X5GT tube and Power Transformer PT794, PT795 or PT814.

Tube	Fil.	Plate	Screen	Grid	Cathode	Oscl. Plate
6A8G	6·3V.	185V.	44.5V.	-	3V.	126V.
6B8G	6·3V.	102V.	44·5V.	-	2·25V.	-
6V6GT	6·3V.	175V.	185V.	-9·4V.	-	-
6X5GT	6·3V.	186V/186V.				

Voltages measured from tube socket contacts to chassis 230 volt 50 cycle A.C. input to 220-250 volt primary tap. 1000 ohm/volt meter 10 and 250 volt scales.