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

TECHNICAL BULLETIN

SUBJECT-Mantel Model "GJ"

4 Tube Broadcast Superheterodyne Receiver.

For operation from
200-250 Volt 50 Cycle AC. Mains.

This Bulletin contains:-

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

SUBJECT-Technical Specifications-Model "GJ".

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

Intermediate Freq.:-455 Kc/s. Tuning Range:- 535-1,640 Kc/s. 560·7-182·9 Metres.

Calibration:- Straight Line Frequency. Power Consumption:-50 Watts approx.

General Description:-This receiver is a 4 tube reflexed superheterodyne. The usual disadvantages of reflexed receivers, i.e., low volume distortion and failure of the volume control to cut off, are overcome. The circuit consists of a 6A8G pentagrid converter followed by a type 6B8G diode pentode used as a combined IF. amp., 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. The audio output from this tube is fed directly to the 6V6G output tube. Degenerative feedback is taken from the secondary of the output trans. and applied to the bottom of the vol. control. A second circuit providing bass boost is connected to the tap on the vol. control. High tension is supplied from full wave rectifier 5Y3GT and filtered by two 16MF. electrolytic condensers in conjunction with the 520 ohm filter choke.

ALIGNMENT INSTRUCTIONS:

Equipment:-
- Signal Generator:
- Mica Capacitor: ·01 MF.
- Dummy Antenna: 200 MF.
- Output Meter:
- Alignment Tool: Part No. MI95.

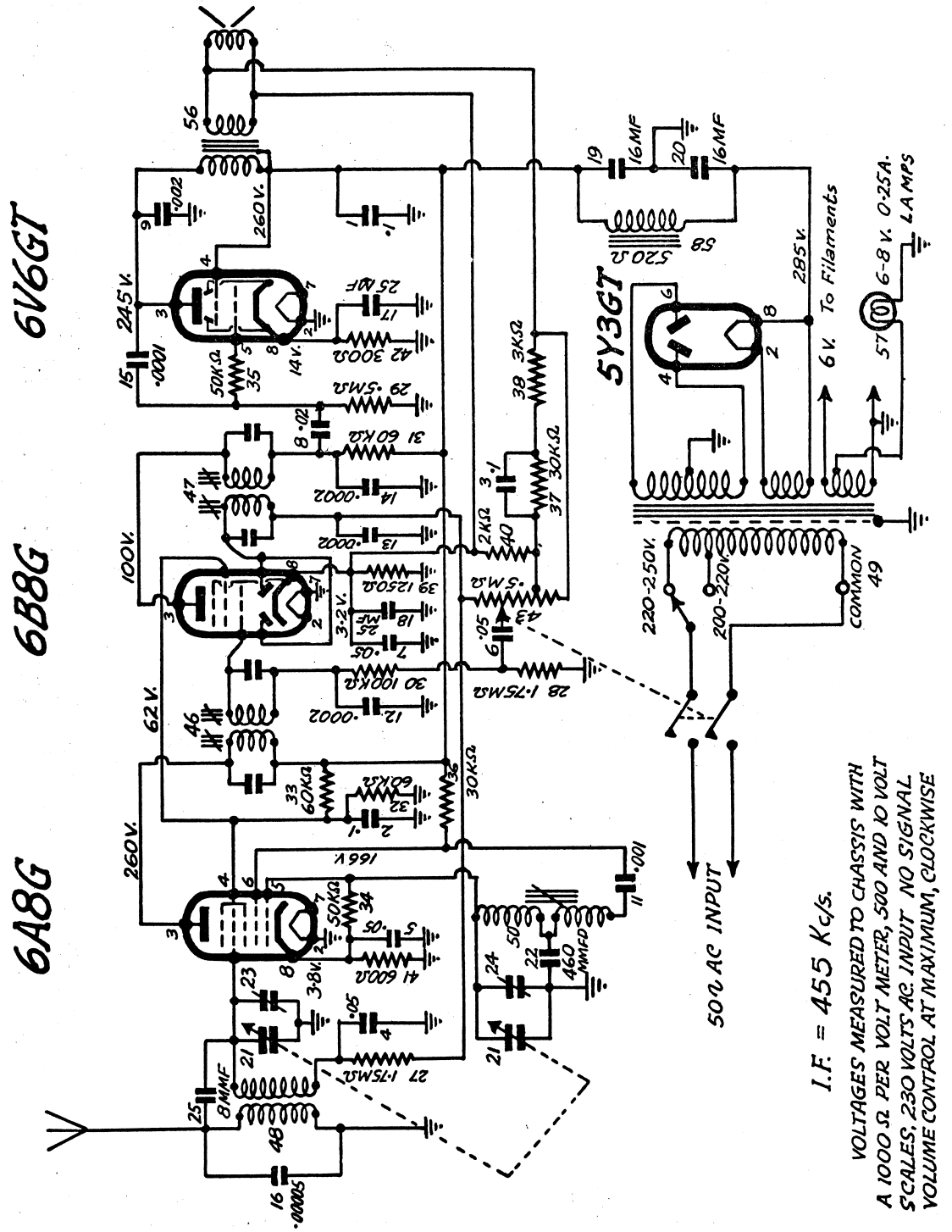
Alignment Conditions:-
- Load Impedance: 5,000 ohms.
- Output Level: 50 Milliwatts.
- Volume Control: Fully Clockwise.
- Intermediate Freq.: 455 Kc/s.

Do not use a screwdriver or alignment tool with an iron point for aligning IF. transformers. A special tool, Part No. MI95 is obtainable from the factory or failing this an insulated rod with a chisel-shaped end may be used.

Set dial pointer on end of travel mark on the dial calibration near 550 Kc/s. (Condenser plates fully meshed.)

Operation	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
1.	To grid of 6B8G	455 Kc/s.	·01MF. mica capacitor in series with generator	Leave grid cap on tube. Peak 2nd IF. trans. pri. and sec. for max. output.
2.	To grid of 6A8G	455 Kc/s.	·01MF. mica capacitor in series with generator	Gang plates full out. Leave grid cap on tube. Peak 1st IF. Trans. pri. and sec. for max. output.
3.	To ant. lead	600 Kc/s.	200MF. in series with generator	Turn gang and dial pointer to 600 Kc/s. Adjust oscl. coil ind. trim. (iron core) for max. output. Rock gang to and fro through the signal while adjusting.
4.	To ant. lead	1400 Kc/s.	200MF. in series with generator	Turn gang and dial pointer to 1400 Kc/s. Adjust oscl. trim. for logging and peak ant. trans. trim. for max. output.
5.	Repeat operations Nos. 3 and 4.			

SUBJECT-Schematic Circuit Diagram-Model "GJ".



SUBJECT-Component Parts List-Model "GJ".

Circuit No.	Part Name	Rating	Tol.±	Part No.
1.	·1MF Paper Condenser	400V. DCW	20%	PC103
2.	·1MF Paper Condenser	400V. DCW	20%	PC103
3.	·1MF Paper Condenser	200V. DCW	20%	PC218
4.	·05MF Paper Condenser	200V. DCW	20%	PC102
5.	·05MF Paper Condenser	200V. DCW	20%	PC102
6.	·05MF Paper Condenser	200V. DCW	20%	PC102
7.	·05MF Paper Condenser	200V. DCW	20%	PC102
8.	·02MF Paper Condenser	400V. DCW	20%	PC111
9.	·002MF Paper Condenser	600V. DCW	20%	PC112
10.				
11.	·001MF Mica Condenser	1000VT.	10%	PC570
12.	·0002MF Mica Condenser	1000VT.	10%	PC563
13.	·0002MF Mica Condenser	1000VT.	10%	PC563
14.	·0002MF Mica Condenser	1000VT.	10%	PC563
15.	·0001MF Mica Condenser	1000VT.	10%	PC571
16.	·00005MF Mica Condenser	1000VT.	10%	PC572
17.	25MF Electrolytic Condenser	40VP.	20%	PC660
18.	25MF Electrolytic Condenser	40VP.	20%	PC660
19.	16MF Electrolytic Condenser	525VP.	20%	PC300
20.	16MF Electrolytic Condenser	525VP.	20%	PC300
21.	2 Gang Var. Condenser with gears			PC749
22.	·00046MF Mica Condenser	1000VT.	2½%	PC728
23.	3-55MMF Trimmer			PC224
24.	0-30MMF Trimmer (W.W.)			PC663
25.	8MMF Mica Condenser-part of circuit No. 48			
26.				
27.	1·75 Megohm Carbon Resistor	½ watt	10%	PR248
28.	1·75 Megohm Carbon Resistor	½ watt	10%	PR248
29.	500,000 Ohm Carbon Resistor	½ watt	10%	PR245
30.	100,000 Ohm Carbon Resistor	½ watt	10%	PR103
31.	60,000 Ohm Carbon Resistor	1 watt	5%	PR535
32.	60,000 Ohm Carbon Resistor	1 watt	10%	PR415
33.	60,000 Ohm Carbon Resistor	1 watt	10%	PR415
34.	50,000 Ohm Carbon Resistor	½ watt	10%	PR160
35.	50,000 Ohm Carbon Resistor	½ watt	10%	PR160
36.	30,000 Ohm Carbon Resistor	1 watt	10%	PR156
37.	30,000 Ohm Carbon Resistor	½ watt	10%	PR151
38.	3,000 Ohm Carbon Resistor	½ watt	10%	PR185
39.	{2,500 Ohm Carbon Resistor	½ watt	10%	PR300
	{2,500 Ohm Carbon Resistor	½ watt	10%	PR300
	(2 in parallel to make 1,250 Ohms)			
40.	2,000 Ohm Carbon Resistor	½ watt	10%	PR253
41.	600 Ohm Carbon Resistor	½ watt	10%	PR338
42.	300 Ohm W.W. Resistor	1 watt	10%	PR122
43.	·5 Megohm Carbon Pot. tapped at 40K. Ohms DP.ST. switch on rear of control			PR662
44.				
45.				
46.	1st IF. Transformer (455 Kc/s.)			PT869
47.	2nd IF. Transformer (455 Kc/s.)			PT869
48.	Antenna Transformer			PT381
49.	{Power Trans. 200-250V. 50 cycle operation			PT807
	{Power Trans. 200-260V. 40 cycle operation			PT809
50.	Oscillator Coil			PT860
51.	Tube Type 6A8G			
52.	Tube Type 6B8G			
53.	Tube Type 6V6GT			
54.	Tube Type 5Y3GT			
55.	Socket 8 pin (4)			PM532
56.	Speaker 6" permag with 5,000 Ohm imped. input trans. attached			K128
57.	Dial Lamp Min. Screw Base. T3¼ Size Bulb 6-8V. 0·25A.			PM678
58.	Choke 520 Ohm 14H. 60Ma.			PT806

SUBJECT-Component Parts List-Model "GJ".

Part Name	Part No.	Part Name	Part No.
Terminal Strip 3 lug	A103/509	Cabinet Back	16/620-2
Control Knob less insert	61/81	Terminal Strip 2 lug	A107/30C
Control Knob Insert	17/81	Valve Shield Earth Clips	22/30C
Speaker Wire Clip	9/669	Valve Shield	PM217
Terminal Strip Assy. 1 lug	A107/30A	Terminal Strip Assy. 1 lug	A113/30C
Mains Contact Strip	A105/E243	Bush-Worm spindle	4/685
Tuning Spindle	7/669	Spring-dial cord	73/239-1
Cond. Mtg. Bush (2)	93/53-1	Pointer	17/669
Spacer Pulley Mtg. ⅝"	14/218A-8	Stud-Pulley Mtg. (2)	18/87
Lamp Socket Assy. (2)	A105/661	Pulley (2)	17/87
Valve Shield Band-rubber	1/564-8	Grid Clips (2)	873/495
Cabinet Plaque M2A	154/81	Gaskets-baffle ¾" (4)	16/669-5
Cabinet	59/81-6	Speed Nuts-plaque mtg.	227/250
Cabinet feet (4)	96/47	Clips-back mtg.	17/620
Dial Bar-centre, Vic. and Tas.	6/669-3	Dial Bar-centre-N.S.W.	6/669-2
Dial Bar-centre, S.A.	6/669-5	Dial Bar-centre-Q'ld.	6/669-4
Dial Bar-Top	5/669-1	Dial Bar-centre-W.A.	6/669-6
Eyelet-Dial Cord-Type Y169	45/291	Dial bar-Bottom	5/669-2
Shields-Dial Ends	19/669	Spring Clips-I.F. Trans.	7/670
		Gaskets-Baffle	16/669-6

SUBJECT-Voltage Table-Model "GJ".

Equipment:-

DC. Voltmeter:-1,000 Ohm per voltmeter with 0-10, 0-250 and 0-500 volt scales.

AC. Voltmeter:-0-10, 0-25 and 0-500 volt scales.

Conditions of test:-

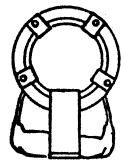
Heater voltages measured across heater contacts of tube sockets. All other voltages measured from tube socket contacts to chassis. 230 volts 50 cycle AC. input to transformer 220-250 volt pri. tap. Receiver tuned to 1,000 Kc/s. volume control full on (clockwise) no signal.

Tube	Heater	Plate	Screen	Cathode	Oscl. Plate
6A8G	6·3V	260V.	62V.	3·8V.	166V.
6B8G	6·3V.	100V.	62V.	3·2V.	-
6V6GT	6.3V.	245V.	260V.	14V.	-
5Y3GT	5V.	280/280V. RMS. The initial surge voltage across the first electrolytic (circuit No. 20) is 370 volts dropping to normal operating value of 285 volts. DC voltage across filter choke is 25 volts.			

SUBJECT-Coil Connections-Model "GJ".

A.V.C.

Earth



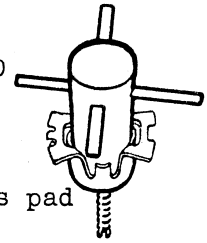
Grid

Antenna

ANTENNA TRANS.

Oscl. plate cond.

GRID



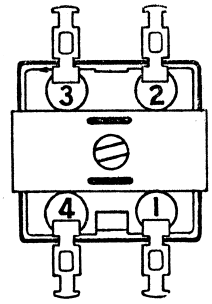
Series pad

Series pad

OSCL. COIL

Plate

Grid



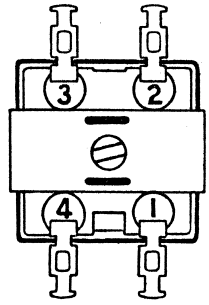
B+

Grid return

1st IF. TRANS.

Plate

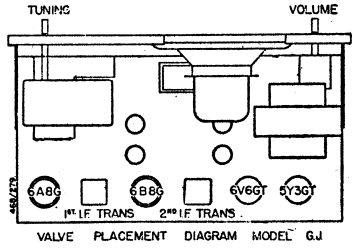
Diode



Junction of
circuits No. 8, 14, 31

Diode return

2nd IF. TRANS.



VALVE PLACEMENT DIAGRAM MODEL GJ