



RADIO CORPORATION PTY. LTD.

DIVISION OF ELECTRONIC INDUSTRIES LTD.

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

TECHNICAL BULLETIN

BULLETIN CQM-1
File:—Receivers
Vibrator
Date: 20/2/46.
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SUBJECT—Model "CQM" 4 tube Superhetrodyne

Broadcast Mantel Receiver

For operation from

A 6 volt accumulator

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



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SUBJECT-Technical Specifications-Receiver Type "CQM"

Tube Complement:

Type 1C7G Converter
Type 1M5G IF. Amplifier
Type 1K7G 1st Audio, AVC and Detector
Type 1L5G Power Output Amplifier

Intermediate Frequency: 455Kc.

Broadcast Coverage: 1640Kc. (Kilocycles) to 540 Kc.
182.9M. (Meters) to 555M.

Battery Supply: 6 volt Accumulator

Battery Consumption: 1.1 Amps.

Power Output: .5 Watt (undistorted)

Vibrator: Self Rectifying, Synchronous Type.

General Description:

The model CQM is a 4 tube Broadcast 6 volt vibrator receiver designed as a mantel receiver. The circuit consists of a Pentagrid converter followed by an IF. amplifier. Rectification is effected in one diode circuit of the 1K7G duo-diode pentode. The other diode is used for AVC. which is developed across resistors 38 and 43.

Full AVC. is applied to the converter and approximately half AVC. to the IF. tube. Bias for the tubes is provided by virtue of their positions in the filament circuit, thus the 1L5G has 4 volt bias, the 1K7G 2 volt bias and the remaining two tubes are operated at zero bias. Tone control is incorporated with the battery switch. A straight synchronous vibrator has been adopted in preference to the split reed type because of its greater reliability and for the same reason the 120M/a fil. type tubes were used rather than the less robust 60M/a series. The filament string is so arranged that if the filament of one tube becomes open the rise in voltage across the others is slight and no damage to tubes will result.

SUBJECT-Alignment Instructions-Receiver Type "CQM"

Equipment:-

Signal Generator
 Dummy capacitor .01MFD
 Dummy capacitor 200MMFD
 Output Meter
 Alignment Tool

Alignment Conditions :-

Load Impedance - 15,000 Ohms
 Output Level - 15 Milliwatts (voice coil connected)
 Battery Supply - 6 Volt accumulator
 Volume Control - Full on (Clockwise)
 Tone Control - High tone position

Alignment:-

Intermediate Frequency 455Kc.
 Tuning Range 1640-540Kc.

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

Do not use a screwdriver or alignment tool with an iron point for aligning IF. transformers. A special tool, part No. PM581 is obtainable from the factory or failing this an insulated rod with a small brass blade may be used.

Operation	Generator Connection	Frequency	Dummy Capacity	Instructions
1.	To grid of 1M5G tube	455Kc.	.01MFD mica capacitor in series with generator.	Leave grid cap on. Peak 2nd IF. transformer primary and secondary.
2.	To grid of 1C7G tube.	455Kc.	.01MFD mica capacitor in series with generator.	Gang plates full out. Leave grid cap on. Peak 1st IF. transformer primary and secondary.
3.	To antenna terminal.	1400Kc.	200MMFD mica capacitor in series with generator.	Set dial pointer on 1400 Kc. Adjust oscillator and aerial trimmers.
4.	To antenna terminal.	600Kc.	200MMFD mica capacitor in series in generator.	Set dial pointer on 600 Kc. Peak series padder rocking gang to and fro while adjusting for maximum output.



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SUBJECT- Voltage Table-Receiver Type "CQM"

Equipment:-

1,000 Ohm per volt meter with 0-250 volt and 0-10 volt scales.
0-2 Amp. Meter.

Conditions of Test:-

All voltages measured from tube socket contacts to chassis. Receiver tuned to 1000Kc. Volume control full on (clockwise) no signal. Accumulator voltage 6 volts.

<u>Tube</u>	<u>Plate</u>	<u>Screen</u>	<u>Grid</u>	<u>Oscillator Plate</u>
1C7G	157V.	62V.	-	65V.
1M5G	157V.	62V.	-	-
1K7G	30V.	30V.	2V.	-
1L5G	147V.	157V.	4V.	-

Note:-Grid voltages derived from voltage drop across filaments.

Battery Consumption:-

1.1 Amps (does not include dial lamps).

SUBJECT—Component Parts List—Electrical—Receiver Type "CQM"

Circuit No.	Part Name	Rating	Tol.±	Radio Corp. Part No.
1.	1 mfd Paper Condenser	200V	20%	PC182
2.	1 mfd Paper Condenser	200V	20%	PC182
3.	.5 mfd Paper Condenser	400V	20%	PC115
4.	.5 mfd Paper Condenser	200V	20%	PC121
5.	.1 mfd Paper Condenser	400V	20%	PC103
6.	.1 mfd Paper Condenser	200V	20%	PC218
7.	.05 mfd Paper Condenser	200V	20%	PC102
8.	.05 mfd Paper Condenser	200V	20%	PC102
9.	.02 mfd Paper Condenser	400V	20%	PC111
10.	.02 mfd Paper Condenser	400V	20%	PC111
11.	.01 mfd Paper Condenser	600V	20%	PC140
12.	.01 mfd Paper Condenser	600V	20%	PC140
13.	.004 mfd Paper Condenser	600V	20%	PC221
14.	.006 mfd Paper Condenser	600V	20%	PC217
15.				
16.	.004 mfd Mica Condenser	2000V	10%	PC143
17.	.001 mfd Mica Condenser	1000V	10%	PC108
18.	.0003 mfd Mica Condenser	1000V	10%	PC212
19.	.00025 mfd Mica Condenser	1000V	10%	PC126
20.	.0001 mfd Mica Condenser	1000V	10%	PC110
21.	.0001 mfd Mica Condenser	1000V	10%	PC110
22.	.00005 mfd Mica Condenser	1000V	10%	PC141
23.	.00005 mfd Mica Condenser	1000V	10%	PC141
24.				
25.	500 mfd Electrolytic Condenser	12PV	20%	PC295
26.	500 mfd Electrolytic Condenser	12PV	20%	PC295
27.	12 mfd Electrolytic Condenser	350PV	20%	PC281
28.	8 mfd Electrolytic Condenser	350PV	20%	PC280
29.				
30.	2 Gang Variable Condenser			PC636
31.	Series Padding Condenser (Variable)			PC164
32.	Trimmer Condenser (Ant. Trans.)			PC250
33.	Trimmer Cond. W.W. (Osc. Trans.)			PC663
34.				
35.	Hash Plate Condenser			PC214
	Mica Strip			29/216
	Hash Plate			19A/47
	Holding Down Plate			19B/47
36.				
37.	1.7 Megohm Carbon Resistor	$\frac{1}{2}$ watt	10%	PR248
38.	1.7 Megohm Carbon Resistor	$\frac{1}{2}$ watt	10%	PR248



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SUBJECT—Component Parts List—Electrical—Receiver Type “CQM”

Circuit No.	Part Name	Rating	Tol.±	Radio Corp. Part No.
39.	500,000 ohm Carbon Resistor	$\frac{1}{2}$ watt	10%	PR245
40.	500,000 ohm Carbon Resistor	$\frac{1}{2}$ watt	10%	PR245
41.	500,000 ohm Carbon Resistor	$\frac{1}{2}$ watt	10%	PR245
42.	250,000 ohm Carbon Resistor	1 watt	10%	PR496
43.	750,000 ohm Carbon Resistor	$\frac{1}{2}$ watt	10%	PR267
44.	50,000 ohm Carbon Resistor	$\frac{1}{2}$ watt	10%	PR160
45.	50,000 ohm Carbon Resistor	$\frac{1}{2}$ watt	10%	PR160
46.	50,000 ohm Carbon Resistor	$\frac{1}{2}$ watt	10%	PR160
47.	25,000 ohm Carbon Resistor	$\frac{1}{2}$ watt	10%	PR155
48.	16.6 ohm W. W. Resistor	1 watt	5%	PR374
49.	1 Megohm Volume Control			PR383
50.				
51.	Oscillator Transformer			PT414
52.	Antenna Transformer			PT381
53.	1st IF Transformer			PT386
54.	2nd IF Transformer			PT387
55.	Power Transformer			PT455
56.	Filament Filter Choke			PT112
57.	B + Filter Choke			PT108
58.	B + R.F. Filter Choke			PT109
59.	B + R.F. Filter Choke			PT109
60.	Small Hash Choke			PT111
61.	Midget Hash Choke			PT439
62.				
63.				
64.	Permæg Speaker, 15,000 ohm input			PM631
65.	Sub Midget Octal Sockets (4)			PM532
66.	1K7-G Tube			
67.	1M5-G Tube			
68.	1C7-G Tube			
69.	1L5-G Tube			
70.	Battery and Tone Control Switch			PM279
71.	Aerial Terminal			PM306
72.	Earth Terminal			PM306
73.				
74.				
75.	Push Button Switch			PM395
76.	6 Volt Synchronous Vibrator			PM413
77.	Dial Lamp (2)	6.2V	.25A	PM678
78.				

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

Part Name	Radio Corp. Part No.
Chassis	A101/621
Vibrator Cover	21/47
Valve Shield (2)	162/30A
Valve Clamp (2)	161/30A
Dial Drum Assembly	A136/87
Manual Drive Assembly	A102/612
Single Pin Socket Bottom (3)	18/96
" " " Top (3)	19/96
" " " Contact (3)	15/58-2
Negative Battery Clips	3/245-2
Positive " "	3/245-1
Dial Frame	A103/616
Lamp Socket Assy.	A108/246
Dial Pointer	A104/616
Diffuser Glass	8/616
Dial Glass	2/621
Cabinet	24/216-5
Control Knob (1)	40/81-1
Control Knob (2)	57/81
Dial Springs	27/87
Knob Adaptor	44/81
Knob Springs (3)	42/81
Valve Shield Earth Contact	22/30C.
Cabinet Feet (4)	96/47
Speed Nuts (6)	227/250



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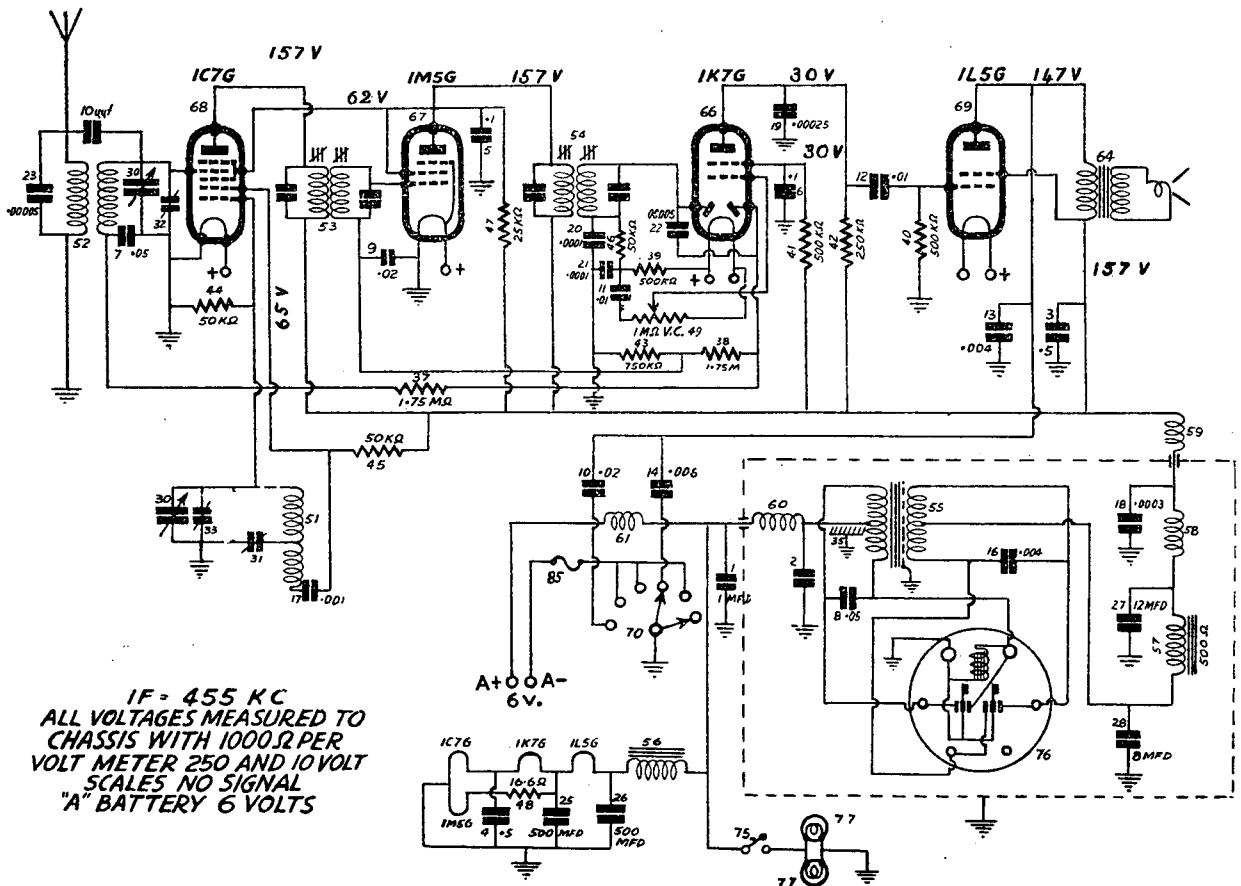
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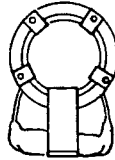
SUBJECT—Schematic Circuit Diagram—Receiver Type—"CQM"



SUBJECT-Coil Connections-Receiver Type "CQM"

A.V.C.

Earth



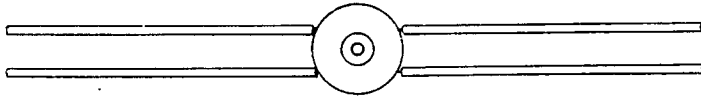
(Outside secondary) Grid

Antenna. (Inside Primary)

_____ Aerial Coil

(padder cond.) Red

Black (padder cond.)



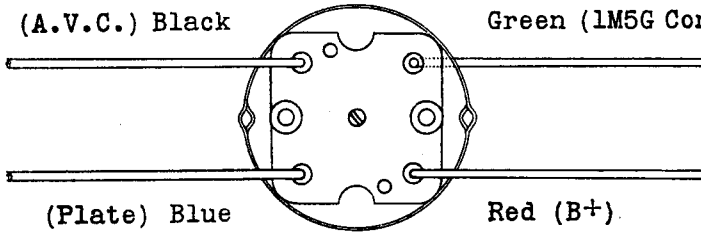
(1C7G Osc. plate cond.) Blue

Green (1C7G Oscl. grid)

_____ Oscl. Coil

(A.V.C.) Black

Green (1M5G Control Grid)



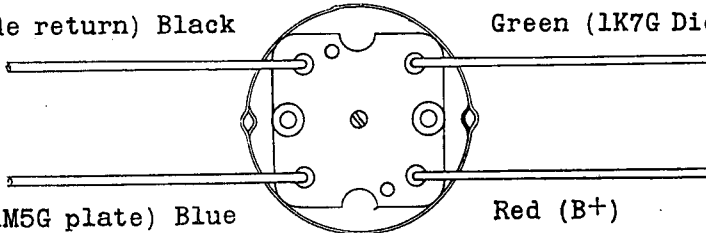
(Plate) Blue

Red (B+)

_____ 1st IF. Trans.

(Diode return) Black

Green (1K7G Diode)



(1M5G plate) Blue

Red (B+)

_____ 2nd IF. Trans.