SERVICE BULLETIN

No. 24

MODEL 38: 7-Valve All-Wave Receiver, Including Magic Eye.
First Edition: July, 193

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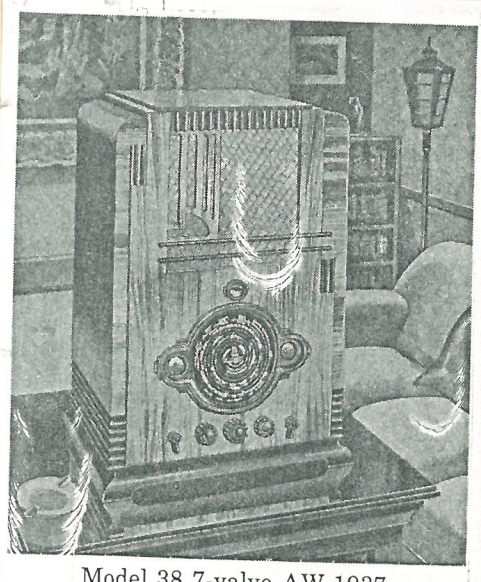


Model 38 7-valve AW 1937
COLUMBUS

RADIO CORPORATION OF NEW ZEALAND LTD.

Printed by R.N.Z.—

Model 38

2/17

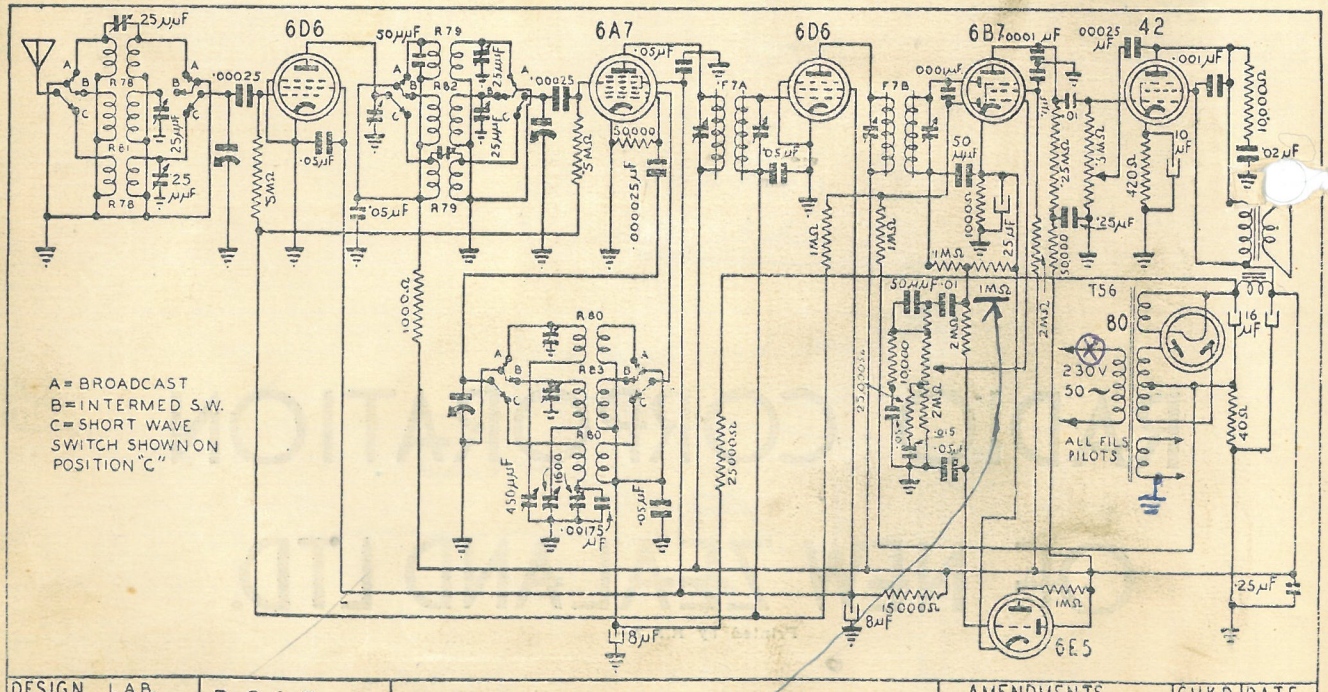
1. **GENERAL:** This is a 7-valve all-wave receiver, including a "magic eye" tuning indicator, all valves being of the glass type. The sensitivity on all three bands is of a high order, giving excellent overall performance. Automatic low-level bass compensation is provided by means of a specially tapped audio volume control with auxiliary resistance-capacity networks. The tuning circuits are grounded, automatic volume control voltage being fed to the radio-frequency grids through high resistances. Capacity coupling is employed between the tuning circuits and the controlled grids.

The intermediate frequency transformers are iron-cored, with "Litz" windings. Special attention has been paid to stability, particularly with respect to oscillator and screen circuits. A grid circuit tone control operating on the "Miller" system is provided.

The exclusive triple-spiral glass dial, etched and distinctively coloured, with the associated mechanical "eyes" indicating tone and volume settings, is an important feature of this model. The high degree of illumination required is provided by motor-car type general purpose lamps, giving long service life. A separate Service Bulletin will shortly be issued covering maintenance of this type of dial.

2. ELECTRICAL SPECIFICATIONS:

Power supply		225-250 volts A.C., 50 cycles
Power consumption		approx. 60 watts
Undistorted power output		3 watts
Valves used	Radio-frequency amplifier	6D6
	Frequency changer	6A7
	Intermed. frequency amplifier	6D6
	Detector-amplifier	6B7
	Output Pentode	42
	Rectifier	80
	Tuning Indicator	6E5
Intermediate Frequency		456 kc/sec.
Broadcast Band		550-1500 kc/sec.
Intermediate H.F. band	2.1–6 mc/sec.	
High frequency band	6–18 mc/sec.	
Line-up Frequencies	Intermediate Frequency	456 kc/sec.
	Broadcast Band	600 and 1400 kc/sec.
	Intermediate H.F. band	2.5 and 6 mc/sec.
	High frequency band	6 and 15 mc/sec.



DESIGN LAB.	D 267	6 VALVE GLASS ALL WAVE	AMENDMENTS	CHKD	DATE
DRAWN					
CHECKED					
DATE 2-7-37	MODEL 38	RADIO CORPORATION OF NEW ZEALAND LTD.			

note- change this resistor to ½meg- (diode load resistor) it is only 100,000 ohm in some chassis

Power switch Not shown

3. VOLTAGE TESTS, A.C.:

High-tension secondary of power transformer, from each rectifier plate to ground ..... 320 volts
Heater of rectifier ..... 5 volts
All other heaters ..... 6 volts

D.C.:

Unfiltered D.C. voltage, rectifier heater to ground ..... 370 volts
Filtered D.C. voltage, speaker field to ground ..... 230 volts

Other voltages to ground, using 1000 ohm per volt meter on 500 volt range except where otherwise stated:—

Valve.	Function.	Plate.	Osc. Plate.	Screen.	Cathode.
6D6	R.F. Amplifier	230	—	100	—
6A7	Freq'y changer	230	150	100	—
6D6	I.F. Amplifier	230	—	100	—
6B7	Detector-amp.	60	—	12†	1.4*
42	Output pentode	220	—	250	13.5†
6E5	Tun'g Indicator	25	—	250	1.4*

†100 Volt Range. * 10 volt range.

(Note.—All voltage measurements taken on broadcast band with volume control at maximum.)

4. RESISTANCE TESTS:

Coil.	Where measured.	Resistance in Ohms.
Power tran. primary	Across power cord.	Approx. 43
H.T. secondary	Each rectifier plate to ground.	Approx. 275
Speaker field	"Fil." of speaker socket.	1500
1st I.F. primary	(See Circuit)	Approx. 5
1st I.F. secondary	(See Circuit)	Approx. 5
2nd I.F. primary	(See Circuit)	Approx. 5
2nd I.F. secondary	(See Circuit)	Approx. 5
Broadcast ant. primary	5 to 7 of Coil R 78	Approx. 30
Broadcast ant. secondary	1 to 3 of Coil R 78	Approx. 5
Broadcast R.F. primary	5 to 7 of Coil R 79	Approx. 30
Broadcast R.F. secondary	1 to 3 of Coil R 79	Approx. 7
Broadcast osc. primary	4 to 5 of Coil R 80	Approx. .5
Intermed. H.F. ant. primary	5 to 7 of Coil R 81	Approx. 8
Intermed. H.F. ant. secondary	1 to 3 of Coil R 81	(Short circuit)
Intermed. H.F. osc. primary	5 to 7 of Coil R 83	(Short circuit)
Intermed. H.F. osc. secondary	1 to 3 of Coil R 83	(Short circuit)
Intermed. H.F. R.F. primary	5 to 7 of Coil R 82	Approx. 15
Intermed. H.F. R.F. secondary	1 to 3 of Coil R 82	(Short circuit)
High-freq'y ant. primary	6 to 7 of Coil R 78	Approx. 2
High-freq'y ant. secondary	2 to 3 of Coil R 78	(Short circuit)
High-freq'y R.F. primary	6 to 7 of Coil R 79	Approx. 4
High-freq'y R.F. secondary	2 to 3 of Coil R 79	(Short circuit)
High-freq'y osc. primary	4 to 6 of Coil R 80	Approx. 6
High-freq'y osc. secondary	2 to 3 of Coil R 80	(Short circuit)
Broadcast osc. secondary	1 to 7 of Coil R 80	Approx. 4

5. **LINE-UP PROCEDURE:** This is fully explained in Service Bulletin No. 12, "Standard Line-up Procedure for Multi-wave Receivers," a copy of which is obtainable on application to the Engineering Department if desired.

6. **SENSITIVITY TESTS:** (Microvolts input to give standard output of 50 milliwatts):

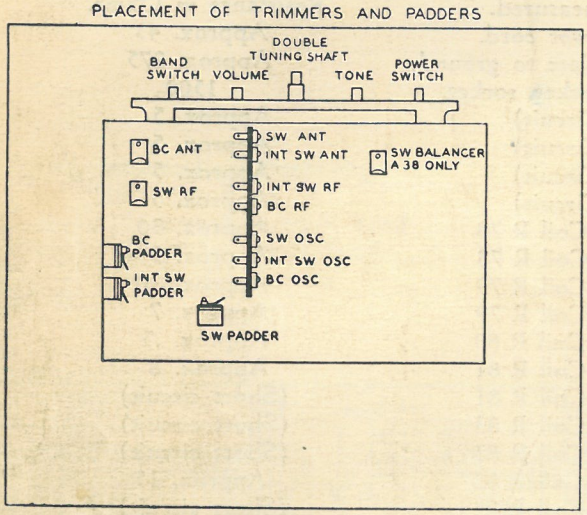
Frequency.	Applied to.	Microvolts.
456 kc/sec.	Grid of 6D6 I.F. amplifier	6000
456 kc/sec.	Grid of 6A7 freqy. changer	90
1400 kc/sec.	Antenna through standard "dummy"	1
1000 kc/sec.	Antenna through standard "dummy"	1
600 kc/sec.	Antenna through standard "dummy"	1
2.5 mc/sec.	Antenna through standard "dummy"	5
6 mc/sec.*	Antenna through standard "dummy"	5
6 mc/sec.†	Antenna through standard "dummy"	2
15 mc/sec.	Antenna through standard "dummy"	6

* Middle band. † High-frequency band.

7. GRAMOPHONE CONNECTION: Owing to the very limited demand for gramophone connections, it is not standard practice to include such arrangements in ordinary models, but to supply details for the necessary modifications to be made. The circuit is shown and described in Service Bulletin No. 13," Gramophone Attachment to Standard Model Receivers." The only parts required are one D.P.D.T. switch, one pick-up jack (or two terminals), and the requisite length of twin shielded wire. This bulletin is obtainable on application to the factory, who can, if necessary, supply the above parts already wired for connection to the receiver, at a nominal charge.

MODEL 38

PLACEMENT OF TRIMMERS AND PADDERS



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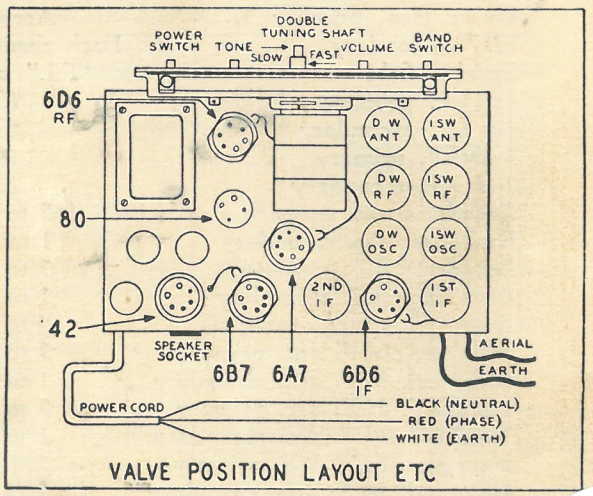

VALVE POSITION LAYOUT ETC

model 38 dial looking down with chassis inverted