

SERVICE BULLETIN

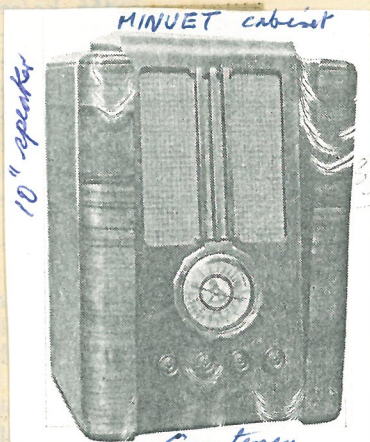
SERVICE BULLETIN No. 14 MODEL 33 : ALL-WAVE METAL VALVE RECEIVER.

*Allen 61521
Cooney 61542*

First Edition : May, 1936.

*SEMPER FIDELIS
(power excitation)
Crown?*

*Schemata dated 8.4.36
D200*



Model 33 8-valve AW 1936

PROPERTY OF
J.W.S. OKES

RADIO CORPORATION OF NEW ZEALAND LTD

SERVICE BULLETIN No. 14

First Edition : May, 1936.

MODEL 33 : ALL-WAVE METAL VALVE RECEIVER.

1. **GENERAL:** This 8-valve model has been designed to give maximum sensitivity and selectivity, using metal valves throughout. Improved selectivity with smooth automatic volume control is obtained by the use of two stages of intermediate frequency amplification.

A sensitivity control, operating simultaneously with the manual volume control, assists in reducing interstation noise to a minimum. Half-wave diode detection is provided by a 6H6 valve, and a divided audio load circuit feeds the grid of a 6F5 high-gain triode audio amplifier.

The oscillator and screen circuits are stabilised with 8 microfarad electrolytic condensers to avoid signal drift due to variation of oscillator plate voltage, and to minimise audio-frequency distortion due to feed-back in the screen circuits.

Individual coils are provided for the broadcast band, while dual short-wave coils occupy the second can for each stage.

2. ELECTRICAL SPECIFICATIONS :

Power supply	225-250 volts A.C., 50 cycles
Power consumption	Approx. 70 watts
Valves used	Radio-frequency amplifier 6K7
	Frequency changer 6A8
	1st I.F. amplifier 6K7
	2nd I.F. amplifier 6K7
	Detector-A.V.C. 6H6
	Audio amplifier 6F5
	Output pentode 6F6
	Rectifier 5Z4
Intermediate frequency	456 kc/sec.
Broadcast band	550-1500 kc/sec.
Intermediate high frequency band	2.8-8.4 mc/sec.
High frequency band	7.8-22 mc/sec.
Line-up frequencies	Intermediate frequency 456 kc/sec.
	Broadcast band 600 and 1400 kc/sec.
	Intermediate H.F. band 3 & 7 mc/sec.
	High frequency band 8 and 20 mc/sec.

3. VOLTAGE TESTS—A.C.:

High-tension secondary of power transformer, from each rectifier plate to ground	290 volts
Heater of rectifier	5 volts
All other heaters	6 volts

D.C.:

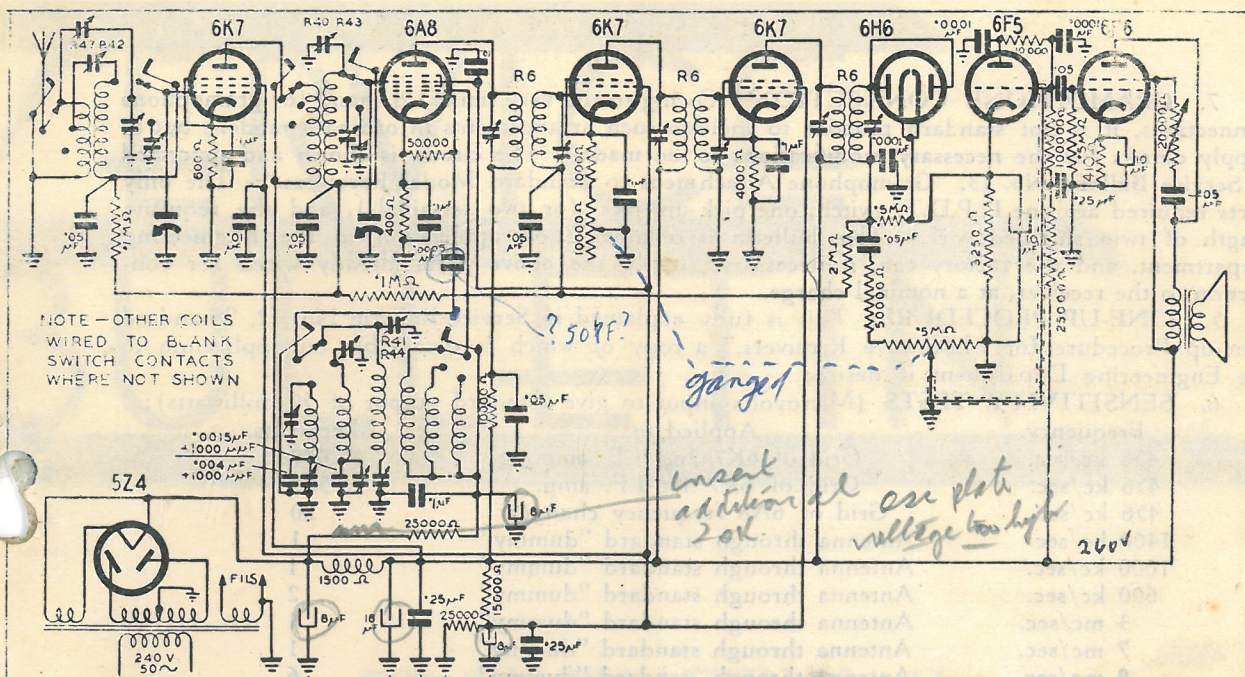
Unfiltered voltage, rectifier heater to ground	360 volts
Filtered voltage, speaker field to ground	260 volts

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

Valve	Function.	Plate.	Osc. Plate.	Screen.	Cathode.
6K7	R.F. amplifier	260	—	100	4*
6A8	Freqy Changer	240	180 <i>too high</i>	100	4.5*
6K7	1st I.F. amp.	260	—	100	4*
6K7	2nd I.F. amp.	260	—	100	4.3*
6H6	Detector-AVC	—	—	—	—
6F5	Audio amp.	85	—	—	1*
6F6	Output pentode	240	—	260	14†

*100 volt range. †10 volt range.

(Note: All voltage measurements taken on broadcast band.)

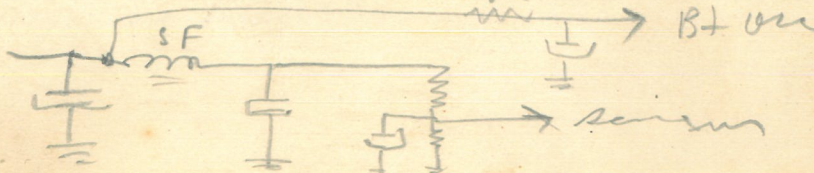


DESIGNED LAB	D 200	8 VALVE ALL-WAVE RECEIVER	AMENDMENTS	CHKD	DATE
DRAWN			FIRST		
CHECKED			EDITION		
DATE 8-4-36	MODEL 33	RADIO CORPORATION OF NEW ZEALAND LTD			

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. 250-300
Speaker field	"Fil" of speaker socket	Approx. 1500
1st I.F. primary	See Circuit	Approx. 17
1st I.F. secondary	See Circuit	Approx. 17
2nd I.F. primary	See Circuit	Approx. 17
2nd I.F. secondary	See Circuit	Approx. 17
3rd I.F. primary	See Circuit	Approx. 10
3rd I.F. secondary	See Circuit	Approx. 10
Broadcast ant. primary	7 to 5 of Coil R 47	Approx. 42
Broadcast ant. secondary	1 to 3 of Coil R 47	Approx. 5
Broadcast R.F. primary	7 to 5 of Coil R 40	Approx. 58
Broadcast R.F. secondary	1 to 3 of Coil R 40	Approx. 5
Broadcast osc. primary	5 to 7 of Coil R 41	Approx. 2
Broadcast osc. secondary	1 to 3 of Coil R 41	Approx. 3
Inter H.F. band primary	7 to 5 of Coil R 42	Approx. 8.5
Inter H.F. band secondary	1 to 3 of Coil R 42	(Short Circuit)
Inter H.F. R.F. primary	7 to 5 of Coil R 43	(Short Circuit)
Inter H.F. R.F. secondary	1 to 3 of Coil R 43	(Short Circuit)
Inter H.F. osc. primary	5 to 8 of Coil R 44	Approx. 1
Inter H.F. osc. secondary	1 to 7 of Coil R 44	(Short Circuit)
High-frequency ant. primary	7 to 6 of Coil R 42	Approx. 2
High-frequency ant. secondary	2 to 3 of Coil R 42	(Short Circuit)
High-frequency R.F. primary	7 to 6 of Coil R 43	(Short Circuit)
High-frequency R.F. secondary	2 to 3 of Coil R 43	(Short Circuit)
High-frequency osc. primary	8 to 6 of Coil R 44	(Short Circuit)
High-frequency osc. secondary	2 to 3 of Coil R 44	(Short Circuit)
Speaker input trans.	"p" to "G" of spkr. socket	Approx. 500

First Edit
Vzickel on 1st IF



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 Engineering Department, and the factory can, if necessary, supply the above parts already wired for connection to the receiver, at a nominal charge.

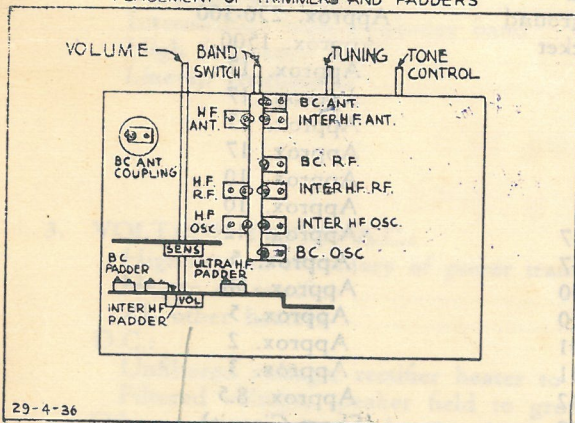
5. **LINE-UP PROCEDURE:** This is fully explained in Service Bulletin No. 12, "Standard Line-up Procedure for Multi-wave Receivers," a copy of which is obtainable on application to the Engineering Department if desired.

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

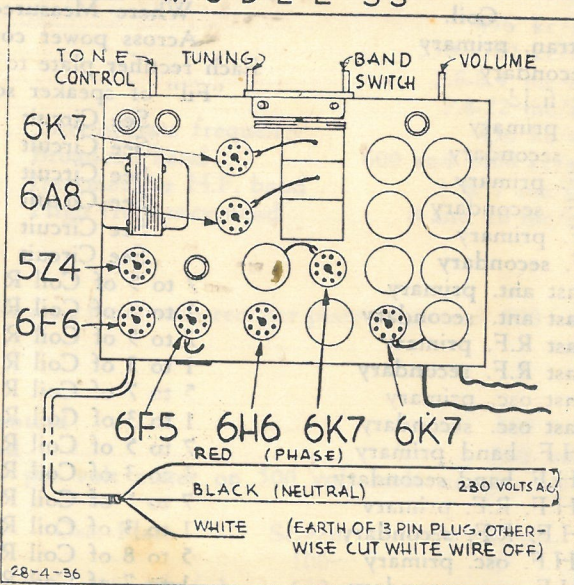
Frequency.	Applied to	Microvolts.
456 kc/sec.	Grid of 6K7 2nd I.F. amp.	35,000
456 kc/sec.	Grid of 6K7 1st I.F. amp.	500
456 kc/sec.	Grid of 6A8 frequency changer	20
1400 kc/sec.	Antenna through standard "dummy"	1
1000 kc/sec.	Antenna through standard "dummy"	1
600 kc/sec.	Antenna through standard "dummy"	2
3 mc/sec.	Antenna through standard "dummy"	1
7 mc/sec.	Antenna through standard "dummy"	1
8 mc/sec.	Antenna through standard "dummy"	6
12 mc/sec.	Antenna through standard "dummy"	2
15 mc/sec.	Antenna through standard "dummy"	2
20 mc/sec.	Antenna through standard "dummy"	2

MODEL 33

PLACEMENT OF TRIMMERS AND PADDERS



MODEL 33



Note ganged volume & sensitivity