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SERVICE BULLETIN

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MODEL 63

6 Valve Band-Spread Receiver.

R.N.Z

RADIO CORPORATION OF NEW ZEALAND LTD.

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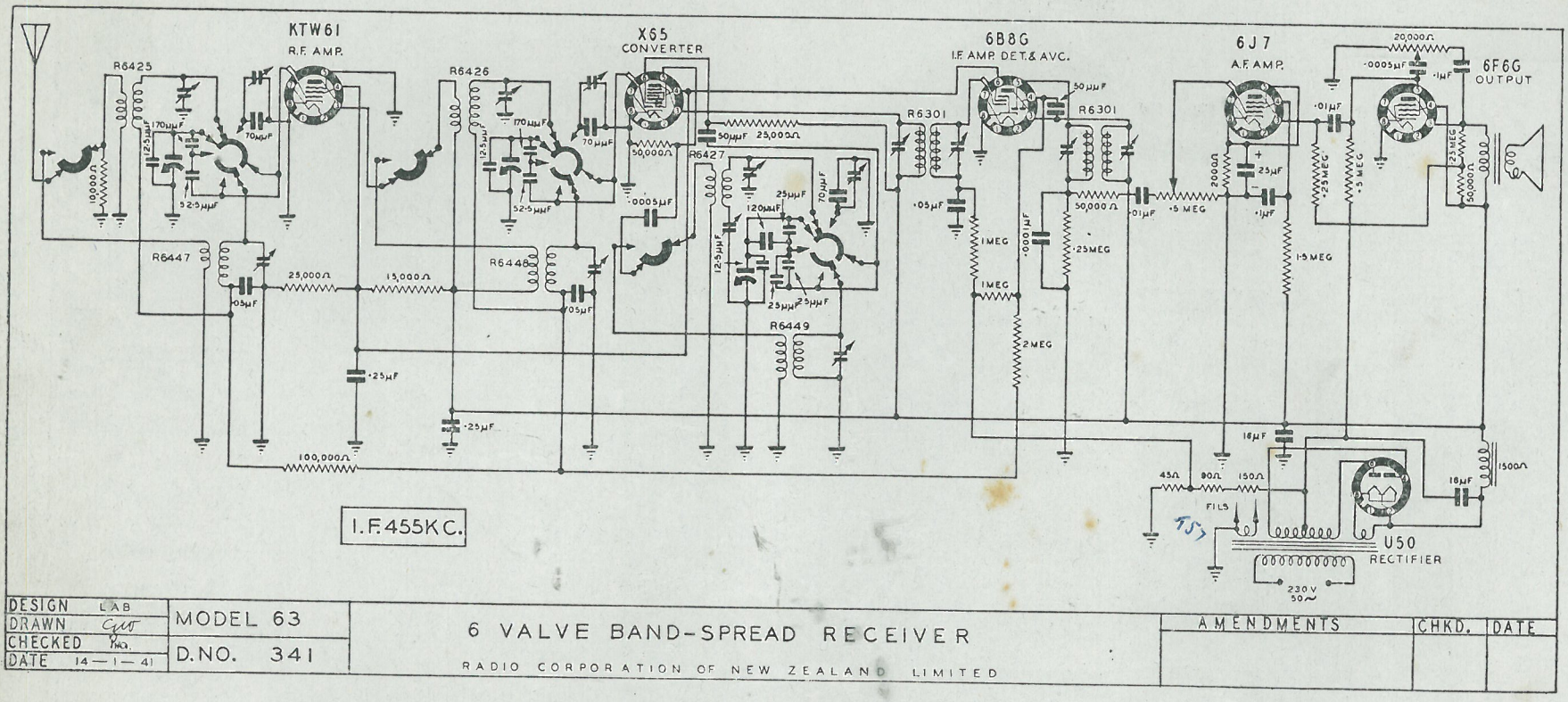
MODEL 63: 6 Valve Band-Spread Receiver.



NOTE: Osram valves KTW61 and X65 can be replaced by their equivalents 6K7G and 6J8G respectively, without any alteration to the circuit.
Although not shown on the circuit diagram above an 8.5 mmf negative temperature coefficient condenser is connected across the short wave oscillator coil (R6449).

1. General Description.

This is a six valve three band receiver incorporating expanded short wave tuning. This model is notable for high sensitivity on both broadcast and short wave bands and, due to the use of a high mutual conductance RF amplifier valve and special triode-hexode converter, signal-to-noise ratio is extremely good.

There are two short wave ranges covering from 9,400 to 12,000 k.c. and from 15,000 to 18,000 k.c. These ranges include the four short wave bands at 16, 19, 25 and 31 metres, which occupy six times the length of dial scale that would be taken up if the band spread principle were not incorporated. This results in much greater ease of tuning and means that short wave stations that would normally be passed over may be tuned in without difficulty.

A special oscillator circuit ensures that the oscillator frequency is unaffected by changes in A.V.C. voltage. This greatly reduces the effects of fading on short wave. To ensure constancy of calibration and alignment silvered-mica fixed condensers and high quality trimmers are used in all tuned circuits.

The tone control operates on the selective negative feedback principle, giving a wide range of control. A fixed amount of negative feedback is also incorporated to improve the fidelity of reproduction.

The valves used are as follows:—

KTW61 or 6K7G	R.F. Amplifier
X65 or 6J8G	Converter
6B8G	I.F. Amplifier, Detector and A.V.C.
67J	Audio Amplifier
6F6G	Output Pentode
U50	Rectifier

2. Alignment Procedure.

This is fully covered in Service Bulletin No. 72, "Standard Line-up Procedure for Multi-band Receivers," a copy of which is obtainable on application to the Engineering Department. The intermediate frequency is 455 k.c. and the line-up points are 1400 and 600 k.c. on broadcast and 17,800 and 11,800 k.c. on the short wave bands. It is essential that the 15,000-18,000 k.c. band should be aligned first as the trimmer adjustments for this band influence the settings of the trimmers for the 9400-12,000 k.c. band.

3. Voltage Tests.

A.C. High Voltage secondary of power transformer, from each rectifier plate to centre tap	335V.
Heater of Rectifier	5V.
All other Heaters	6V.
Dial Lamps	5V.
D.C. (Measured between point indicated and chassis)	
First 16 mfd. electrolytic condenser	340V.
Second 16 mfd. electrolytic condenser	230V.
Screens of KTW61, X65 and 6B8G	75V.
Plate of 6J7	50V.
Cathode of 6J7	1V.
Junction of 45 and 90 ohm resistors	3V.
Negative terminal of first 16 mfd. condenser	16V.

All measurements should be made with the receiver tuned to approximately 1000 k.c. and with no signal input.

4. Resistance Tests.

Where measured.	Approx. resistance in ohms.
Across power cord	45
Each rectifier plate to centre tap of power transformer secondary	300
Across speaker field	1500
Speaker transformer primary	500
I.F. transformer coils	7
B/C Aerial Primary	20
B/C Aerial Secondary	4
B/C R.F. Primary	70
B/C R.F. Secondary	4
B/C Osc. Primary	2
B/C Osc. Secondary	3
S.W. Aerial, R.F. and Osc. Primary	0
S/W Aerial, R.F. and Osc. Secondary	0
Between negative terminal of first 16 mfd electrolytic condenser and chassis	285
Between Cathode of 6J7 and chassis	2000

5. Sensitivity Tests.

(Microvolts input to give standard output of 50 milliwatts.)

Frequency:	Input to	Microvolts:
455 k.c.	Grid of 6B8G	5000
455 k.c.	Grid of X65	175
1400 k.c.	Aerial lead through standard dummy antenna	Under 1
1000 k.c.	Aerial lead through standard dummy antenna	Under 1
600 k.c.	Aerial lead through standard dummy antenna	Under 1
17800 k.c.	Aerial lead through standard dummy antenna	Under 1
15200 k.c.	Aerial lead through standard dummy antenna	Under 1
11800 k.c.	Aerial lead through standard dummy antenna	1
9600 k.c.	Aerial lead through standard dummy antenna	2