

SERVICE BULLETIN

SERVICE BULLETIN No. 19

MODEL 31: 7-VALVE DUAL-WAVE

Nov. 1936

Has sensitivity switch
marked "LOW" - "HIGH"
on rear of chassis.

Courtesy
Stella No 64002

Model 31

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MODEL 31 : 7-VALVE DUAL-WAVE RECEIVER.

December, 1936.

1. GENERAL: This is a dual-wave receiver using glass valves and incorporating two stages of intermediate frequency amplification. An unusual feature is the grounding of the tuning coils. Automatic control voltage is fed through a decoupling resistor to the grid of the particular valve to which the actual tuning circuits are condenser-coupled. The circuit is arranged to develop a high radio-frequency gain and a corresponding low intermediate-frequency gain, the overall result giving very satisfactory sensitivity with a good selectivity and a high ratio of signal to noise background. For the broadcast band a sensitivity switch is fitted at the back of the chassis. This is a two-position switch which considerably reduces the receiver sensitivity in its "low" position, as indicated by the table of sensitivity measurements. Where the receiver is used mainly on local stations this switch is of considerable advantage in reducing noise while tuning. On the short-wave band the sensitivity of the intermediate-frequency channel is automatically adjusted to maintain the same order of overall sensitivity. Static bias is fed along the A.V.C. line from a resistor in the lead from the transformer centre-tap to ground. Although the associated electrolytic condenser is insulated, its can is thus only 3 volts above chassis potential. To avoid undue cutting of side-bands with resultant loss of high notes, the first two intermediate-frequency transformers are wound with solid wire and have tapped secondaries. The diode transformer is litz-wound on iron cores to develop a high signal and A.V.C. voltage. It will be noted that no paddler is provided for the short-wave band, which is lined up at one frequency only.

2. ELECTRICAL SPECIFICATIONS:

Power supply	225-250 volts A.C.	50 cycles
Power consumption	Approx. 65 watts	
Valves used	Radio-frequency amplifier	6D6
	Frequency changer	6A7
	1st I. F. amplifier	6D6
	2nd I. F. amplifier	6D6
	Detector-amplifier	6B7
	Output pentode	42
	Rectifier	80
Intermediate frequency		456 kc/sec.
Broadcast band		550-1500 kc/sec.
High-frequency band		6-16 mc/sec.
Line-up frequencies	Intermediate frequency	456 kc/sec.
	Broadcast band	600 and 1400 kc/sec
	High-frequency band	16 mc/sec.

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

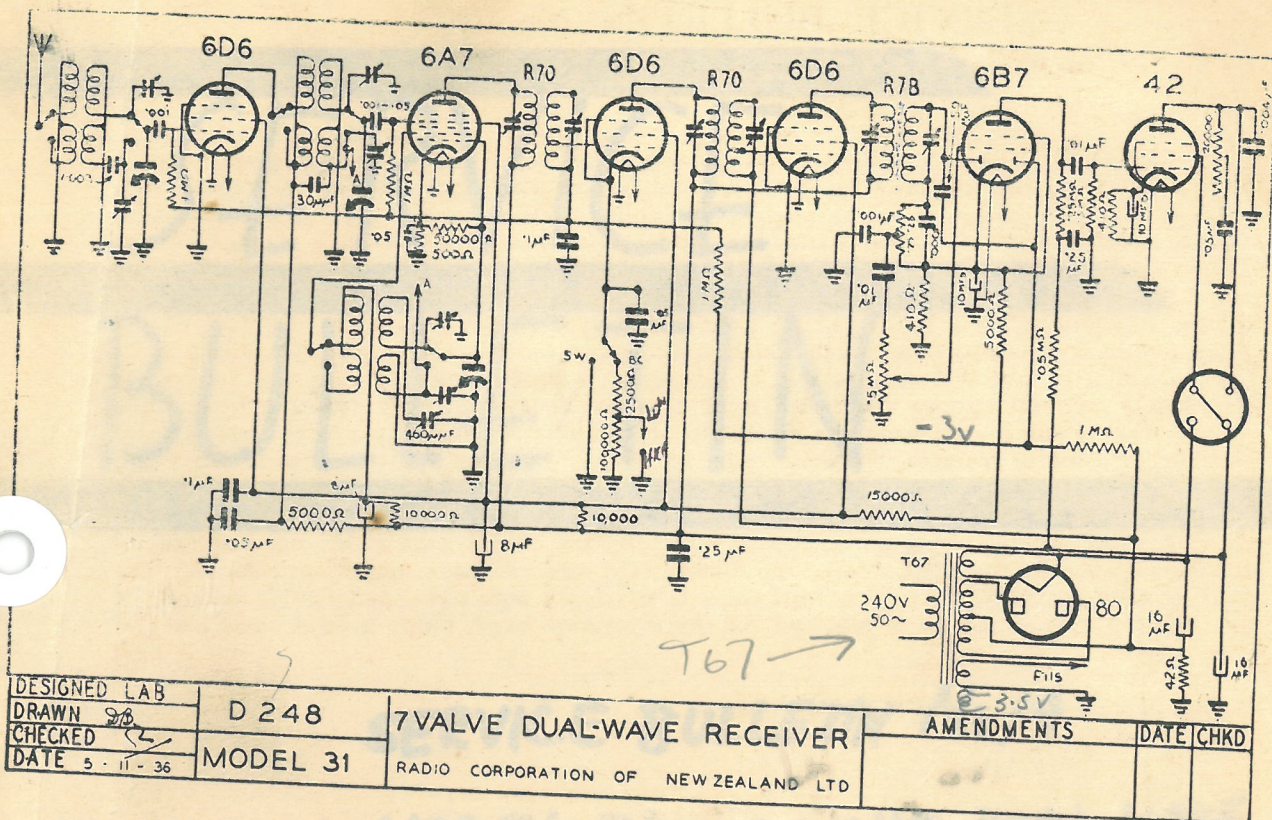
D.C.:

Unfiltered voltage, rectifier heater to ground	320 volts
Filtered voltage, speaker field to ground	220 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	165	—	85	—
6A7	Freqy. changer	210	150	85	4†
6D6	1st I.F. amp.	210	—	85	6† Broadcast
					0 Shortwave
6D6	2nd I.F. amp.	210	—	85	—
6B7	Detector-amp.	40	—	25	2†
42	Output pentode	200	—	200	14*

*100 Volt Range.

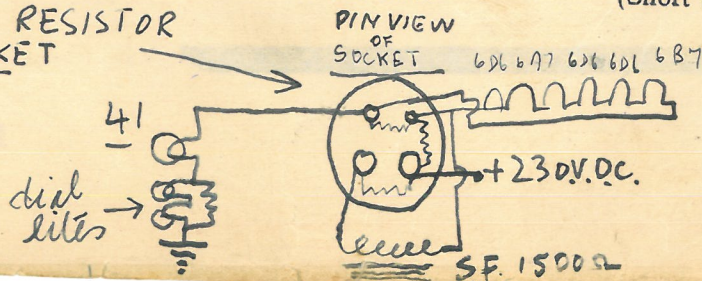
†10 Volt Range.



4. RESISTANCE TESTS:

Coil.	Where Measured.	Resistance in Ohms.
Power tran. primary	Across power cord	Approx. 40
H.T. secondary	Each rectifier plate to ground	Approx. 350
Speaker field	"Fil" of speaker socket	Approx. 1500
Speaker input transformer	"P" to "G" of speaker socket	Approx. 500
1st I.F. primary	See circuit	Approx. 18
1st I.F. secondary total	See circuit	Approx. 18
1st I.F. secondary tap to bottom	See circuit	Approx. 3
2nd I.F. primary	See circuit	Approx. 18
2nd I.F. secondary, total	See circuit	Approx. 18
2nd I.F. secondary tap to bottom	See circuit	Approx. 3
3rd I.F. primary	See circuit	Approx. 6
3rd I.F. secondary	See circuit	Approx. 6
Broadcast ant. primary	7 to 5 of coil R 71	Approx. 22
Broadcast ant. secondary	3 to 1 of coil R 71	Approx. 7
Broadcast R.F. primary	7 to 5 of coil R 72	Approx. 57
Broadcast R.F. secondary	3 to 1 of coil R 72	Approx. 7
Broadcast osc. primary	5 to 4 of coil R 73	Approx. 2
Broadcast osc. secondary	7 to 1 of coil R 73	Approx. 4
High-frequency ant. primary	7 to 6 of coil R 71	Approx. 2
High-frequency ant. secondary	2 to 3 of coil R 71	Short Circuit)
High-frequency R.F. primary	7 to 6 of coil R 72	Approx. 2
High-frequency R.F. secondary	2 to 3 of coil R 72	Short Circuit)
High-frequency osc. primary	4 to 6 of coil R 73	Approx. 1
High-frequency osc. secondary	2 to 3 of coil R 73	(Short circuit)

PLUG-IN RESISTOR
SOCKET



model 31 DC
230V. DC.
Filament
wiring