

7B6

SERVICE BULLETIN

SERVICE BULLETIN No. 16

MODEL 7B6 : 7-VALVE DUAL-WAVE BATTERY RECEIVER

WITH 6-VOLT FILAMENT SUPPLY.

PROPERTY OF
J.W. STOKES

RADIO CORPORATION OF NEW ZEALAND LTD

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MODEL 7B6 · 7-VALVE DUAL-WAVE BATTERY RECEIVER WITH 6-VOLT FILAMENT SUPPLY.

1. **GENERAL:** This is a dual-wave receiver having two stages of intermediate frequency amplification, diode detection and automatic control, while the output stage is a twin triode operating in Class "B" and driven by a suitable triode through an audio transformer. A special feature of this receiver is that its filaments are only 2 volts. The circuit shows the system of operating the filaments in series groups so that each valve automatically receives its correct grid bias. The only exception is the audio driver valve, which requires more grid bias than is available by this means, and a 4.5 volt bias battery is provided for this stage.

At the back of the receiver is a switch marked "Old battery—New battery." With new batteries the operation of this switch makes no noticeable difference to the receiver output, but actually has the effect of increasing the drain from the high-tension batteries. As the voltage of these batteries falls with use, the sensitivity and quality will become impaired owing to excessive grid bias on the audio stages. Moving the switch to the "Old battery" position will reduce the value of this bias and enable satisfactory results to be obtained for a much longer period. In fact, a 7B6 has been operated with the high tension voltage down to the order of 80 volts. It is only natural to expect, however, that the sensitivity and power output will be rather lower than with new batteries.

2. ELECTRICAL SPECIFICATIONS:

Filament supply	6 volts, approx. 650 ma.
High tension supply	135 volts, approx. 14-22 ma.
Bias supply (external)	4.5 volts.
Undistorted power output	2 watts.
Valves used	Radio-frequency amplifier 1A4
	Frequency changer 1C6
	1st Intermed. frequency amp. 1A4
	2nd Intermed. frequency amp. 1A4
	Detector-amplifier 1B5
	Audio frequency driver 30
	Class B triode output 19
Intermediate frequency	456 kc/sec.
Broadcast band	550-1500 kc/sec.
Short-wave band	5.5-16 mc/sec.
Line-up frequencies	Intermediate frequency 456 kc/sec.
	Broadcast band 600 and 1400 kc/sec.
	Short-wave band 6 and 15 mc/sec.

3. VOLTAGE TESTS:

Total high-tension voltage	135 volts D.C.
Filament battery voltage	6 volts D.C.
Voltage across each filament	Approx. 2 volts D.C.

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

Valve.	Function.	Plate.	Osc. Plate.*	Screen.*	Control Grid.†
1A4	R.F. amp.	135	—	50	—
1C6	Freq. changer	135	90	50	—
1A4	1st I.F. amp.	135	—	50	—
1A4	2nd I.F. amp.	135	—	50	—
1B5	Det.-audio	65	—	—	—
30	Audio driver	135	—	—	—
19	Output Class B	135	—	—	—3

*100 volt range.

†10 volt range, "New battery" position.

4. RESISTANCE TESTS:

Coil.	Where Measured.	Resistance in Ohms.
Speaker input tran.	Speaker Socket	Approx. 525 (total)
1st I.F. primary	See Circuit.	Approx. 11
1st I.F. secondary	See Circuit	Approx. 9.5

2nd I.F. primary	See Circuit	Approx. 11
2nd I.F. secondary	See Circuit	Approx. 10
3rd I.F. primary	See Circuit	Approx. 9.5
3rd I.F. secondary	See Circuit	Approx. 9.5
Broadcast ant. primary	7 to 5 of Coil R 60	Approx. 1.5
Broadcast ant. secondary	1 to 3 of Coil R 60	Approx. 6
Short-wave ant. primary	7 to 6 of Coil R 60	Approx. 4
Short-wave ant. secondary	2 to 3 of Coil R 60	(Short Circuit)
Broadcast R.F. primary	7 to 5 of Coil R 61	Approx. 36
Broadcast R.F. secondary	1 to 3 of Coil R 61	Approx. 6
Short-wave R.F. primary	7 to 6 of Coil R 61	Approx. 1
Short-wave R.F. secondary	2 to 3 of Coil R 61	(Short Circuit)
Broadcast osc. primary	4 to 5 of Coil R 62	Approx. 3
Broadcast osc. secondary	7 to 1 of Coil R 62	Approx. 4
Short-wave osc. primary	4 to 6 of Coil R 62	Approx. .6
Short-wave osc. secondary	2 to 3 of Coil R 62	(Short Circuit)
Audio tran. primary	See Circuit.	Approx. 400
Audio tran. secondary	See Circuit	Approx. 100 (total)

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.

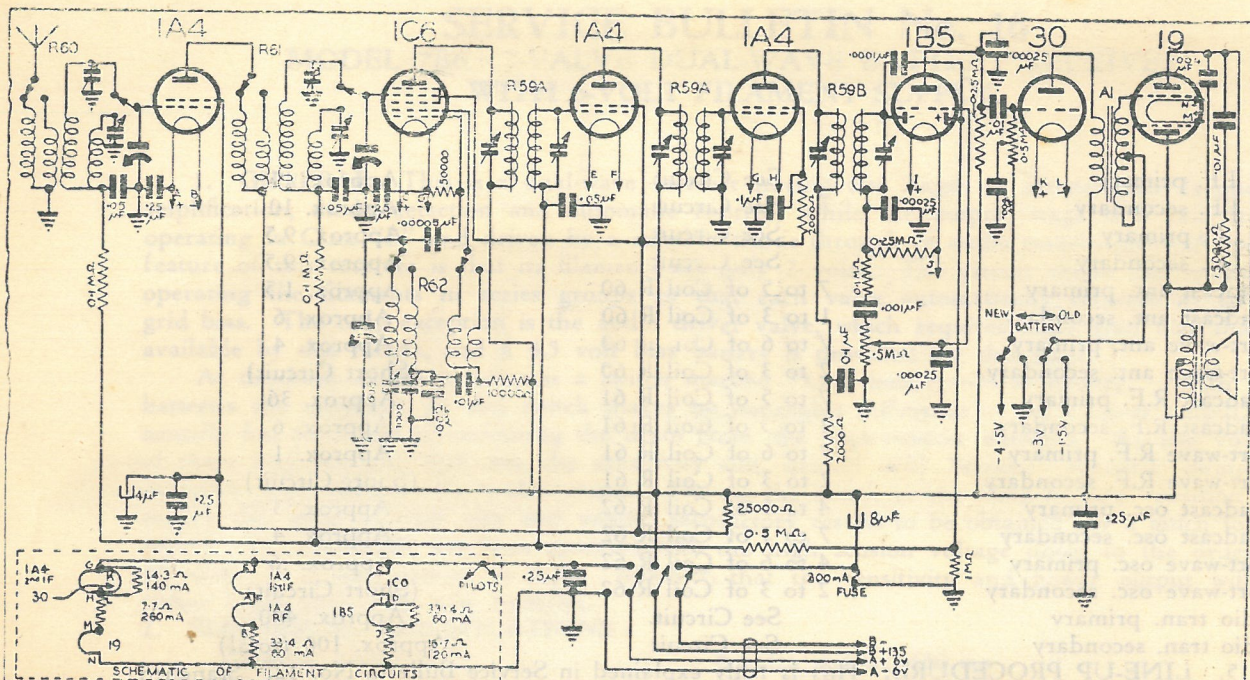
6. **SENSITIVITY TESTS:** (Microvolts input to give standard output of 50 milliwatts):

Frequency.	Applied to	Microvolts.
456 kc/sec.	Grid of 1A4 1st I.F. amp.	50,000
456 kc/sec.	Grid of 1A4 2nd I.F. amp.	1,500
456 kc/sec.	Grid of 1C6 frequency chgr.	100
1400 kc/sec.	Antenna through standard "dummy"	2
1000 kc/sec.	Antenna through standard "dummy"	2
600 kc/sec.	Antenna through standard "dummy"	2
15 mc/sec.	Antenna through standard "dummy"	1
12 mc/sec.	Antenna through standard "dummy"	2
6 mc/sec.	Antenna through standard "dummy"	5
9 mc/sec.	Antenna through standard "dummy"	6

Note: It may be found that there are considerable divergences between valves of the same type, even if they are all of the same make. If difficulty is experienced in attaining any of the above sensitivity figures, it is suggested that other valves be tried.

7. **GRAMOPHONE CONNECTION:** Under some circumstances, it may be desired to attach a gramophone pick-up to this receiver. Owing to the limited demand for this arrangement, however, it is not standard practice to include it 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."

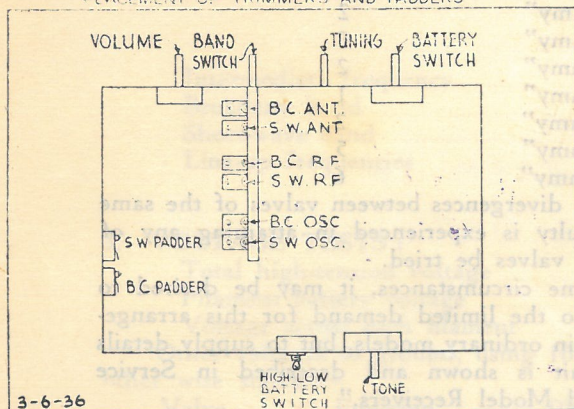
The only parts required are one D.P.D.T. switch, one pick-up jack (or two terminals), and the requisite length of twin shielded wire. This bulletin is obtainable on application to the Engineering Department, and the factory can, if necessary, supply the above parts already wired for connection to the receiver, at a nominal charge.



DESIGN LAB	D 237	7 VALVE DUAL-WAVE	AMENDMENTS	CHECKED	DATE
DRAWN <i>DB</i>		BATTERY RECEIVER			
CHECKED <i>S</i>	MODEL 7B6	RADIO CORPORATION OF NEW ZEALAND LTD			
DATE 29-7-36					

MODEL 7B6

PLACEMENT OF TRIMMERS AND PADDERS



MODEL 7B6

