

FOR THE SERVICEMAN: COLUMBUS MODEL 42

5 Valve Broadcast Battery Receiver

1. General Description:

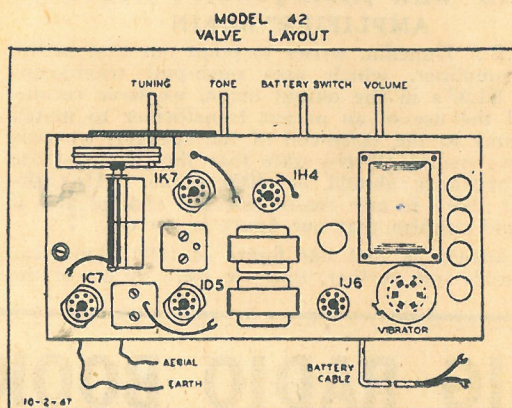
This is a 5 valve battery broadcast receiver designed to provide the maximum battery economy consistent with reasonable sensitivity and power output. The current drain of this receiver, with the dial lamp switched off is .9 amps.

In certain cases, however, greater sensitivity and power output may be required, and if the greater battery drain can be tolerated, this may be achieved by the bridging of the 2.4 ohm resistor which will be found in series with the input line to the vibrator transformer primary. If this is done the current drain will increase to 1.4 amps. Voltage tests are given below for both methods of operation.

The valve filaments are connected in a series-parallel arrangement so that filament drain may be kept at a minimum. It is important, however, that no valve (with the exception of the 1J6) be removed from its socket while the set is on.

The following valve types are used:

- 1C7 Frequency Converter
- 1D5 I.F. Amplifier
- 1K7 2nd Detector, A.V.C., & Audio
- 1H4 Audio Driver
- 1J6 Class "B" Output.



2. Alignment Procedure:

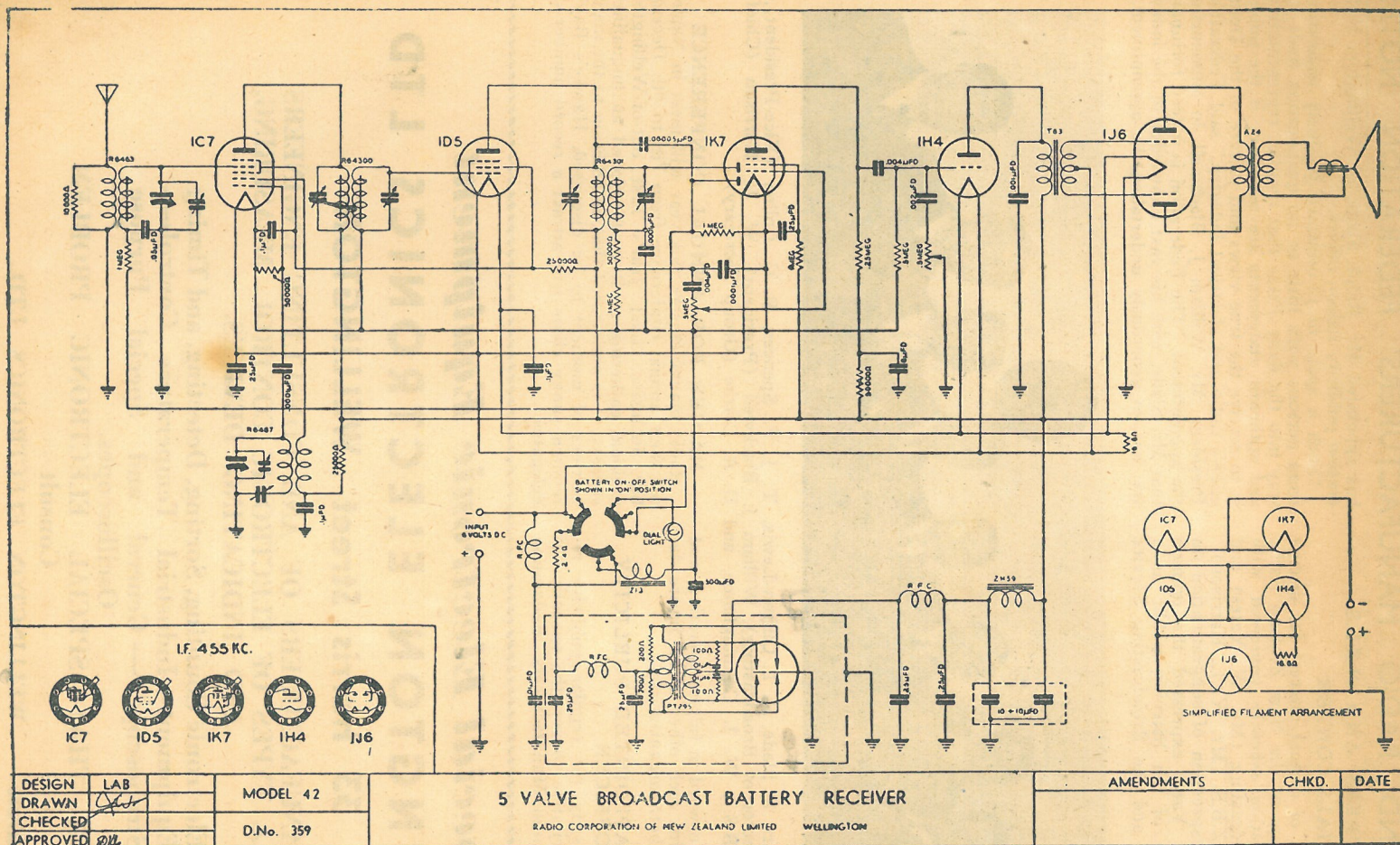
This is fully covered in Service Bulletin No 72 "Standard Line-up Procedure for Multi-Band Receivers," a copy of which is obtainable on application to the Engineering Department. The intermediate frequency is 455 Kc., and line-up points are 1400 and 600 Kc.

3. Voltage Tests:

'A' with 2.4 ohm resistance in circuit and 'B' with the 2.4 ohm resistance shorted out.

| | A. | B. |
|--|--------|--------|
| First 10 mfd electrolytic condenser | 94v. | 130v. |
| Second 10 mfd electrolytic condenser | 93v. | 128v. |
| Screens of 1C7 and 1D5 | 35v. | 50v. |
| Screen of 1K7 | 8v. | 10v. |
| Plate of 1K7 | 10v. | 20v. |
| Oscillator plate of 1C7 | 50v. | 75v. |
| Across each valve filament | 2v. | 2v. |
| Grid of 1J6 with respect to chassis | -3.5v. | -3.5v. |
| Grid of 1H4 with respect to chassis | -.6v. | -.6v. |
| Grid of 1K7 with respect to chassis | -6v. | -6v. |
| (with volume control off) | | |
| Grid of 1C7 with respect to chassis | -2.1v. | -2.1v. |
| Grid of 1D5 with respect to chassis | -6v. | -6v. |

All the above measurements should be made with the receiver tuned to approximately 1000 Kc. and with no signal input. The meter used should have a sensitivity of 1000 ohms/volt.



NOTES ON MAIN COMPONENTS

Vibrator Transformer: PT295
 Class B Input Transformer: T83
 Output Transformer: A24
 Chokes: H.T.—ZN59
 L.T.—Z13

Tuning Gang: 2 Gang Plessey K.1852/22
 Dial Light: 1 only 6.3v. .25a Min. screw base
 Dial Scale: O.E.32
 Battery Switch: 3.Q.C.D.

SERVICE BULLETIN

MODEL 42

FEBRUARY, 1947

MODEL 42

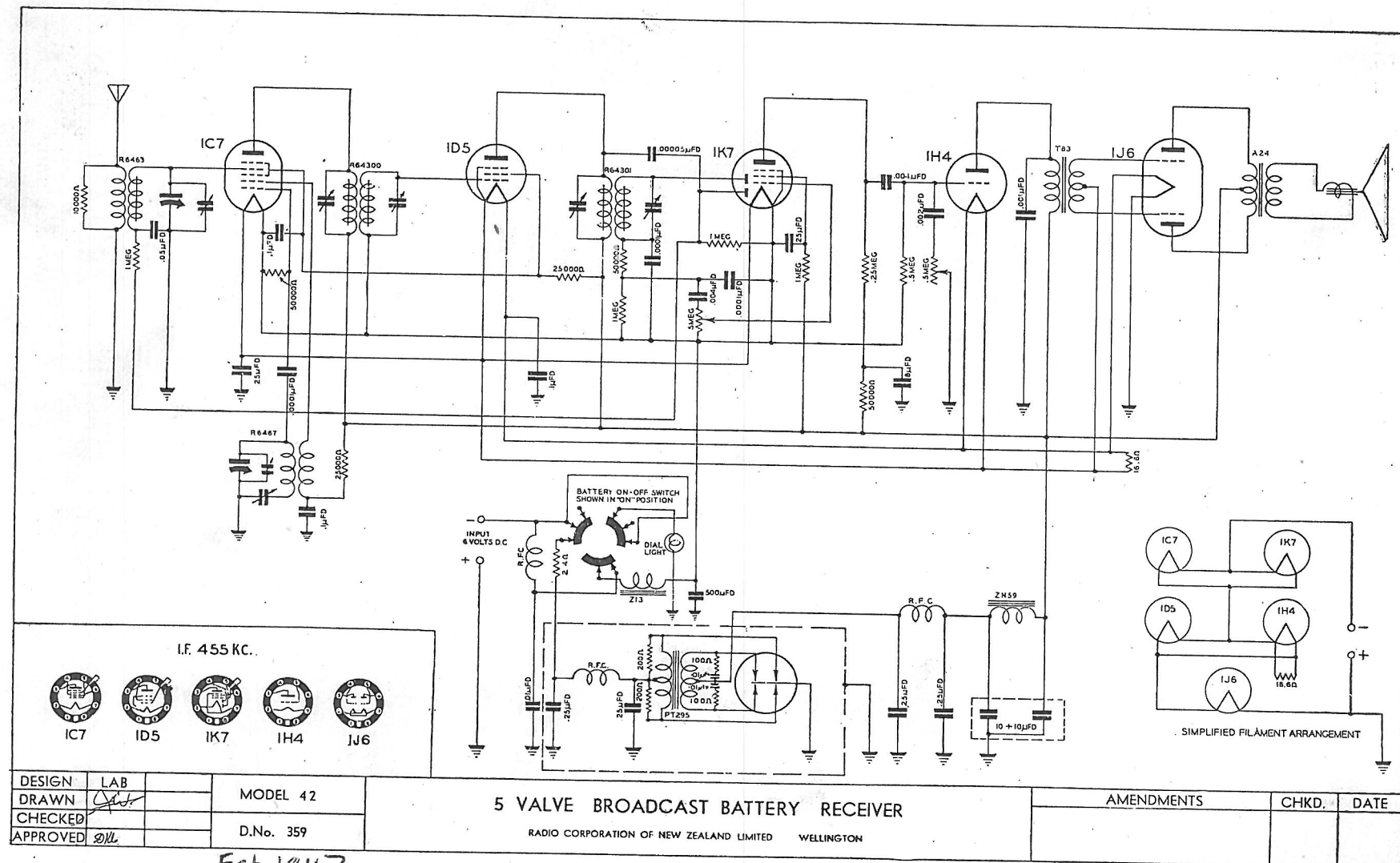
Five Valve Broadcast Battery Receiver *Feb. 1947*

RADIO CORPORATION OF NEW ZEALAND LTD.

80 Courtenay Place, Wellington, C3., New Zealand.

3-18

5 Valve Broadcast Battery Receiver



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Class B Input Transformer: T83
Output Transformer: A
Chokes: H.T.—ZN
L.T.—Z13

Tuning Gang: 2 Gang Plessey K.1852/22
Dial Light: 1 only 6.3v. 25a Min. screw base
Dial Scale: O.E.32
Battery Switch: 3.Q.C.I

MODEL 42

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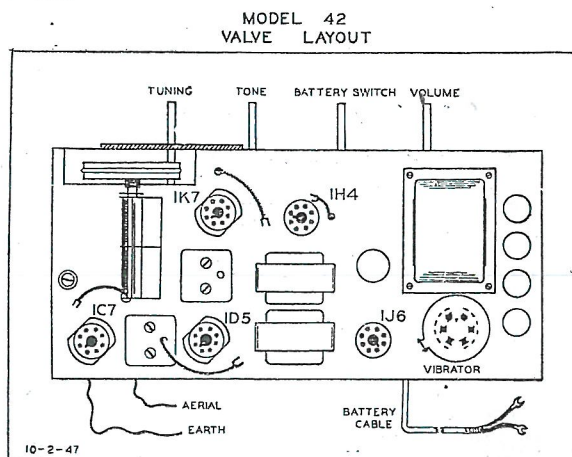
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4. Resistance Tests:

| | | |
|---|------|------|
| Across battery leads (2.4 ohm resistance in circuit and with dial lamp off) | 5 | ohms |
| Across battery leads (with 2.4 ohm res. shorted out and with dial lamp off) | 4.5 | " |
| Across H.T. filter choke | 35 | " |
| I. F. Transformer Coils | 6.5 | " |
| Speaker transformer primary | 1000 | " |
| Antenna Coil Primary | 20 | " |
| Antenna Coil Secondary | 3.5 | " |
| Oscillator Coil Primary | 1.8 | " |
| Oscillator Coil Secondary | 2.5 | " |
| Vibrator Transformer Primary | 2.5 | " |
| Vibrator Transformer Secondary | 900 | " |
| R.F. "Hash" Choke | 100 | " |

5. Sensitivity Tests:

(Microvolts input to give standard output of 50 milliwatts)

| Frequency | Input to | Microvolts | |
|-----------|--|------------|----------|
| | | A | B |
| 455 Kc. | Grid of 1D5 | 3300 uv. | 1300 uv. |
| 455 Kc. | Grid of 1C7 | 180 | 65 |
| 1400 Kc. | Aerial lead through standard dummy antenna | 40 | 10 |
| 1000 Kc. | Aerial lead through standard dummy antenna | 50 | 12 |
| 600 Kc. | Aerial lead through standard dummy antenna | 50 | 15 |

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