

SERVICE INSTRUCTIONS

Murphy

MODEL B861

RADIO

RECEIVER

SPECIFICATION

GENERAL

The B861 is a battery operated personal portable radio receiver designed to operate on the L.W. and M.W. bands and incorporates 7 transistors and 2 crystal diodes. The receiver is provided with an internal ferrite rod aerial serving both bands.

CABINET

Height: 90 mm ($3\frac{5}{8}$ ins)
 Width: 159 mm ($6\frac{1}{2}$ ins)
 Depth: 40 mm ($1\frac{5}{8}$ ins)

WAVEBANDS

L.W. 1000 to 2000 metres (300 kHz to 150 kHz)
 M.W. 187 to 583 metres (1604 kHz to 515 kHz)

AUTOMATIC GAIN CONTROL

Two controlled stages (including auxiliary a.g.c. stage).

INTERMEDIATE FREQUENCY

470 kHz

OSCILLATOR

The oscillator is high with respect to the signal.

OUTPUT

160 mW

LOUDSPEAKER

70 mm ($2\frac{3}{4}$ ins) circular. Impedance 8 ohms.

PHONE SOCKET

Impedance 20-1000 ohms.

WEIGHT

0.37 Kg (13 oz)

ALIGNMENT PROCEDURE

NOTES:

- 1 Allow the test equipment to warm up for at least 15 minutes before commencing alignment.
- 2 Couple the signal generator to the receiver by a loop of insulated wire placed about 2 feet from the cabinet and with its plane at right angles to the ferrite aerial.
- 3 Connect the output meter across the loudspeaker and set the volume control to maximum.

I.F. ALIGNMENT

- 1 Switch the receiver to M.W. and set the pointer to the L.F. end of the scale.
- 2 Set the signal generator to 470 kHz, modulated 30% at 400 Hz.
- 3 Align the i.f. transformers T1, T2 and T3 in that order for maximum audio output.

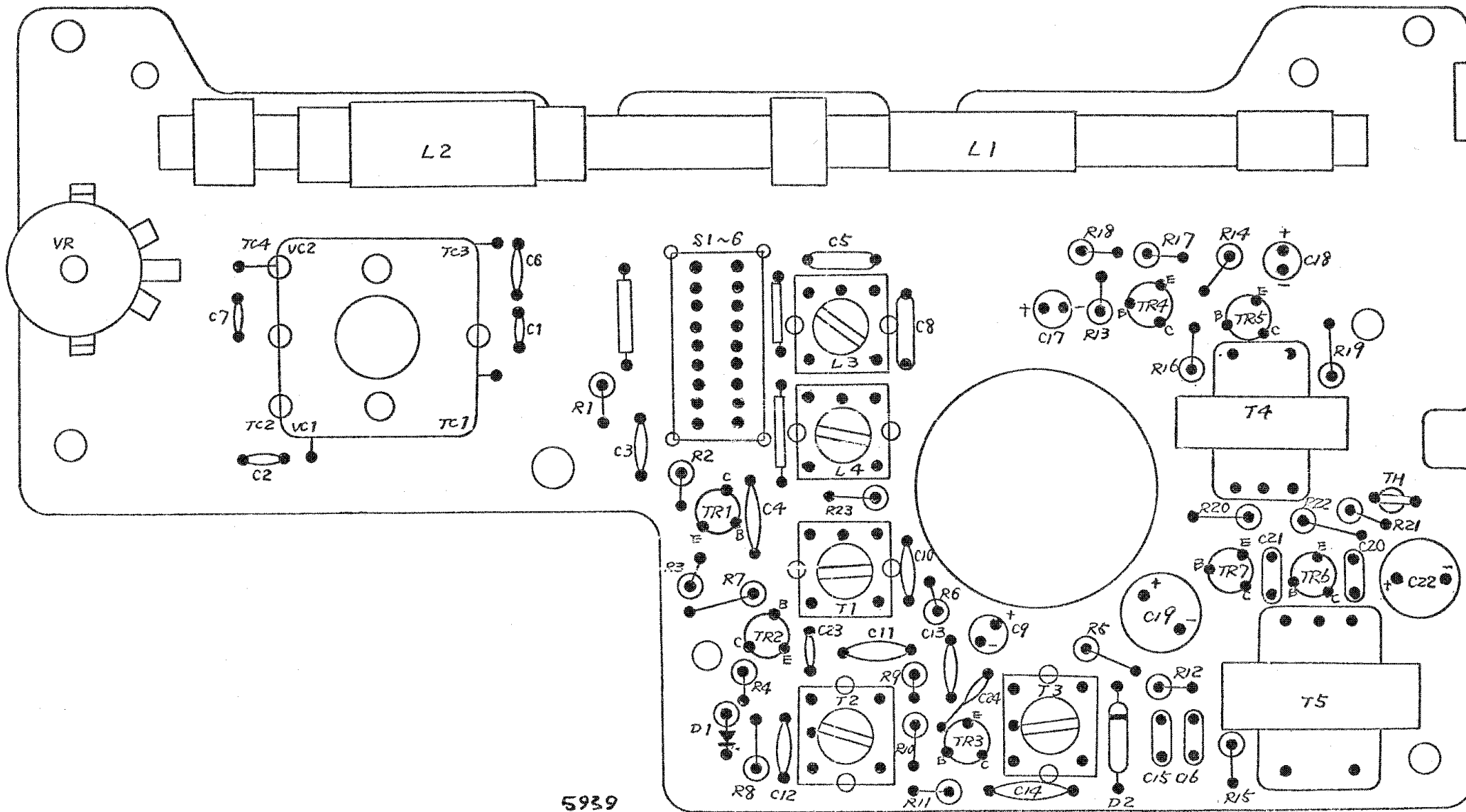
R.F. ALIGNMENT M.W.

Operation	Sig. gen. frequency	Tuning Setting	Adjust for Max. output
1	505 kHz	L.F. end	L3
2	1650 kHz	H.F. end	TC3
Repeat operation 1 and 2 until frequency range is correct.			
3	600 kHz	500 m	*L1
4	1400 kHz	214 m	TC1
Repeat operation 3 and 4 until calibration is correct.			

R.F. ALIGNMENT L.W.

Operation	Sig. gen. frequency	Tuning Setting	Adjust for Max. output
1	140 kHz	L.F. end	L4
2	310 kHz	H.F. end	TC4
Repeat operation 1 and 2 until frequency range is correct.			
3	175 kHz	1715 m	*L2
4	250 kHz	1200 m	TC2
Repeat operation 3 and 4 until calibration is correct.			

* Adjust for maximum output by moving coil along ferrite rod.



5939

Component layout

PARTS LIST

CAPACITORS

Ref.	Value	Type	Part Number
C1	4pF	Cer.	9500 1852
C2	40pF	Cer.	9500 1864
C3	0.01μF	Cer.	9500 1876
C4	0.01μF	Cer.	9500 1876
C5	260pF	Mica.	9500 1888
C6	10pF	Cer.	9500 1906
C7	65pF	Cer.	9500 1918
C8	100pF	Cer.	9500 1931
C9	4.7μF	6.3V Elec.	9500 1943
C10	0.02μF	Cer.	9500 1955
C11	0.04μF	Cer.	9500 1967
C12	0.02μF	Cer.	9500 1955
C13	0.02μF	Cer.	9500 1955
C14	0.04μF	Cer.	9500 1967
C15	0.01μF	MYL.	9500 1979
C16	0.01μF	MYL.	9500 1979
C17	1μF	6.3V Elec.	9500 1980
C18	10μF	6.3V Elec.	9500 1992
C19	220μF	6.3V Elec.	9500 2005
C20	0.01μF	MYL.	9500 1979
C21	0.01μF	MYL.	9500 1979
C22	100μF	6.3V Elec.	9500 2017
C23	3pF	Cer.	9500 2029
C24	3pF	Cer.	9500 2029
VC 1 & 2	Gang		9500 1694

RESISTORS All ±20% 0.25W

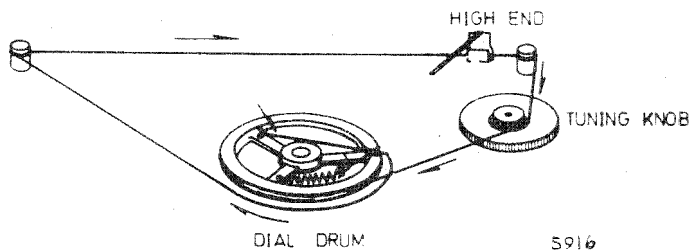
Ref.	Value	Part Number
R1	15kΩ	9500 2030
R2	5.6kΩ	9500 2042
R3	2.2kΩ	9500 2054
R4	3.9kΩ	9500 2066
R5	5.6kΩ	9500 2042
R6	56kΩ	9500 2078
R7	560	9500 2091
R8	1kΩ	9500 2108
R9	47kΩ	9500 2121
R10	10kΩ	9500 2133
R11	680	9500 2145
R12	6.8kΩ	9500 2157
R13	4.7kΩ	9500 2169
R14	330	9500 2170
R15	100kΩ	9500 2182
R16	3.9kΩ	9500 2066
R17	470	9500 2194
R18	390	9500 2200
R19	120	9500 2212
R20	4.7kΩ	9500 2169
R21	330	9500 2170
R22	5.6	9500 2224
R23	270kΩ	9500 2236
R24	820kΩ	9500 2248
VR	Volume Control	9500 1212
TH	Thermistor	9500 1840

COILS AND TRANSFORMERS

Ref.	Description	Part Number
L1 & 2	M.W. & L.W. Aerial Coils on Ferrite Rod	9500 1621
L3	Osc. Coil, M.W.	9500 1633
L4	Osc. Coil, L.W.	9500 1645
T1	I.F.T. 1	9500 1657
T2	I.F.T. 2	9500 1657
T3	I.F.T. 3	9500 1669
T4	A.F. Driver	9500 1670
T5	A.F. Output	9500 1682

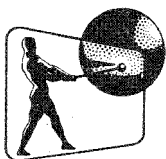
MECHANICAL COMPONENTS

Description	Part Number
Battery Case Complete	9500 2686
Cabinet Front assembly	AP56194
Cabinet Rear assembly	AP56195
Cursor M.W.	9500 2479
Cursor L.W.	9500 2480
Knob, Tuning	9500 2492
Knob, Volume	9500 2509
Scale	9500 2465
Strap, Carrying	9500 2510
Switch, Wavechange	9500 1700
Switch Knob	9500 2583



Cord drive

THE SERVICE DEPARTMENT



RANK BUSH MURPHY

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