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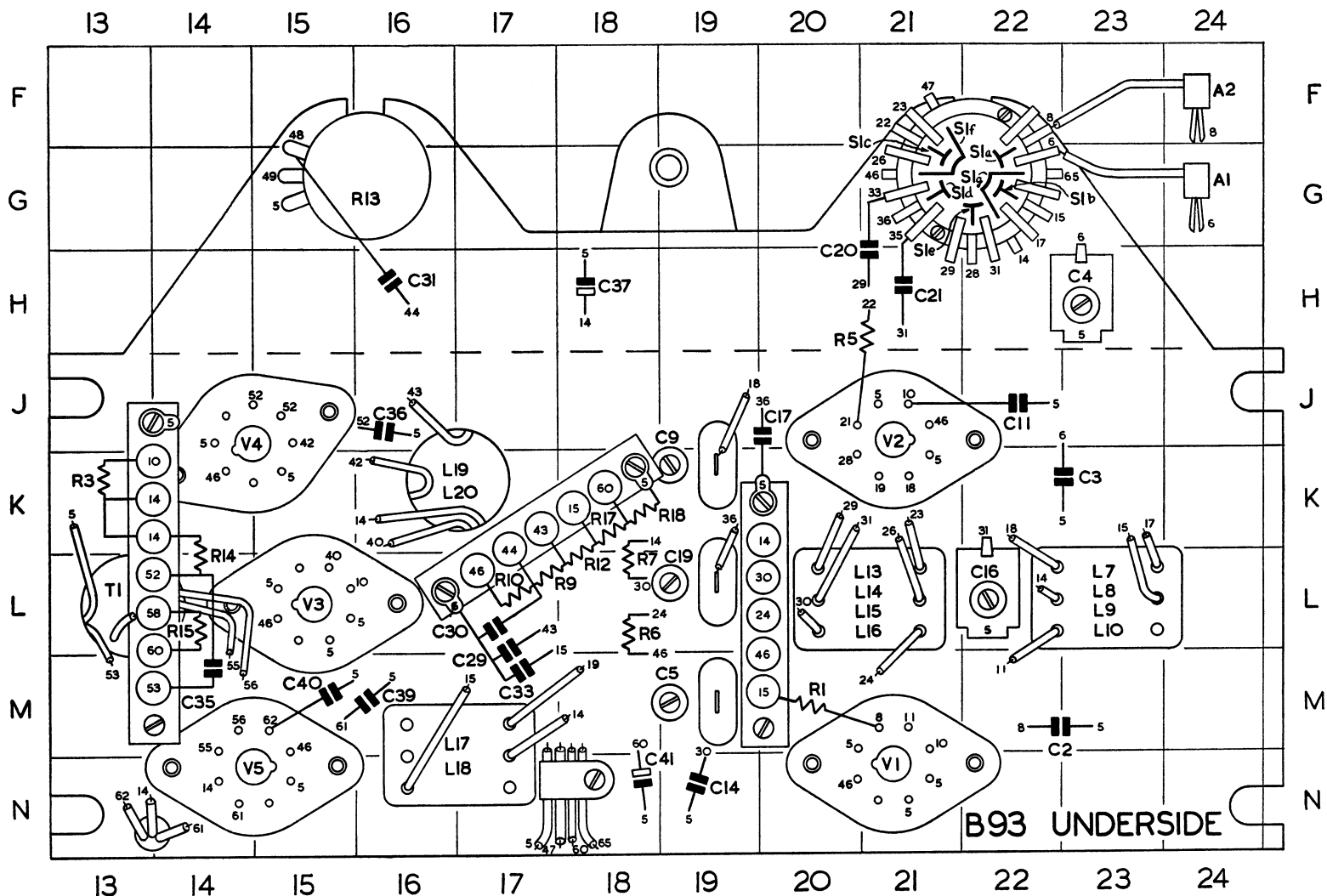
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# MURPHY RADIO SERVICE INSTRUCTIONS

INTERMEDIATE FREQUENCY:	465 kc/s.
WAVE RANGES:	200-550 metres 1000-2000 „
VALVES:	Mazda VP23, TP25, VP23, HL23DD, and QP25.
SPEECH COIL IMPEDANCE:	4 ohms.
WEIGHT:	16 lbs (without batteries). Batteries vary from 9 lbs to 14 lbs according to size.
OVERALL DIMENSIONS:	$13\frac{3}{4}'' \times 13\frac{1}{2}'' \times 7\frac{1}{2}''$ .
CONSUMPTION:	H.T. 10 m.A. (Quiescent). L.T. 0.55 Amp.
RECEIVER RELEASED:	July 1940.

ISSUED BY  
MURPHY RADIO LTD, WELWYN GARDEN CITY  
TELEPHONE: WELWYN GARDEN 800





B93		TABLE OF VOLTAGES			B93	
Valve	Type	Electrode	Test Point	Square	Voltage	
V1	V.P.23 Mazda	Anode Screen	11	21M	113	
			10	21M	55	
V2	T.P.25	Pentode Anode " Screen Triode Anode	19	21K	113	
			10	21J	55	
			28	21K	50	
V3	V.P.23	Anode Screen	40	15L	113	
			10	15L	55	
V4	HL23DD	Triode Anode	52	15J	50	
V5	Q.P.25	Anode 1 Anode 2 Screen	61	14N	112	
			62	15M	112	
			14	14N	113	

The above readings were taken to chassis with no signal input, and with an H.T. battery reading 120 volts on load, using a 1000 ohms-per-volt meter on 0-500 volt range.

# Trimming

THE trimming of this receiver, although critical, should remain constant in normal use. Unless a fault develops in any of the tuned circuits necessitating the replacement of a component, only very small re-adjustments need be made from time to time to maintain the optimum performance of the receiver.

## APPARATUS REQUIRED

The following equipment is required for carrying out trimming adjustments:

1. Service Signal Generator, with modulated output with accurately calibrated scales on I.F., L.W., and M.W. ranges.
2. Output Meter. A rectifier type A.C. voltmeter, with a range of 0 to 3 or 0 to 5 volts is suitable for this purpose.
3. Trimming Screwdriver.

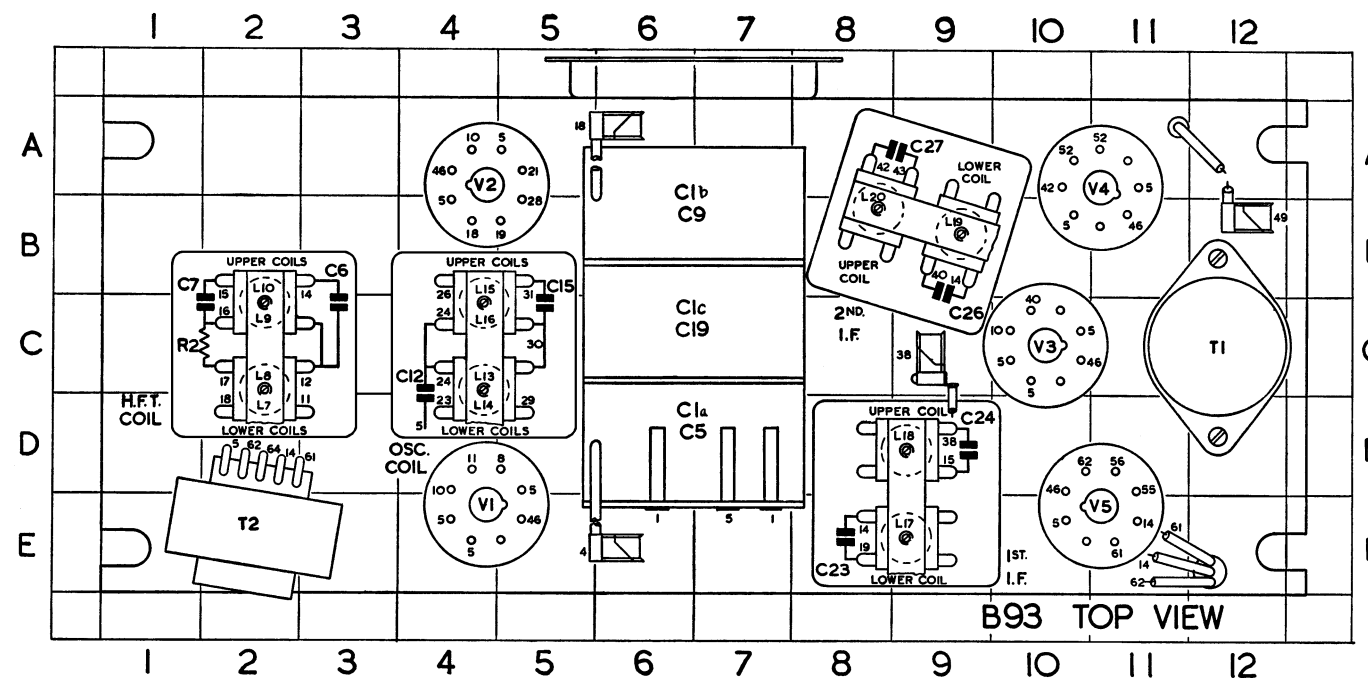
The receiver should be aligned in the following order: I.F. circuits, Oscillator circuits (V1 must be removed to gain access to the oscillator trimmers), R.F. trimming (replacing V1).

The receiver and batteries should then be replaced in the case, and the trimming of the frame aerials can be carried out.

To prevent damage to the R.F. valve when the frame aerial is not connected to the receiver, a resistance of approximately 1 megohm should be connected from the top cap of V1 (test point 4, square 4 E) to the chassis.

## I.F. TRIMMING

1. Connect the output meter across T2 secondary.
2. Set volume control to maximum.
3. Switch the set on and tune to 500 metres. Connect the signal generator between the control grid of V3 (test point 38, square 10 C) through a .1 mfd. condenser and to chassis.
4. Tune signal generator to exactly 465 kc/s, and switch on internal modulation.



5. Adjust L 19 (square 9 B) and L 20 (square 8 B) for maximum output.

6. Transfer the signal generator connections to the grid cap of V2 (test point 18, square 4 A).

7. Adjust L 17 (square 9 E) and L 18 (square 9 D) for maximum output.

If large adjustments to the inductances have been made, it is advisable to repeat the whole procedure.

## THE OSCILLATOR CIRCUITS

Since the R.F. valve (V1) has to be removed to obtain access to the oscillator coil adjusting screws, the trimming of the oscillator and R.F. circuits must be done separately.

1. Remove V1 (V.P.23, square 4 E).
2. Connect signal generator between grid of frequency changer valve V2 (test point 18, square 4 A) via a .1 mfd. condenser and chassis.
3. See that the scale pointer is opposite the end of the tuning scale when the gang condenser is at maximum.
4. Tune both signal generator and receiver

to 500 metres and trim L14 (square 4 C) for maximum gain.

5. Tune the generator and receiver to 200 metres and adjust C19 (square 19 L) for maximum reading.

The above adjustments should be repeated until an optimum setting is found for L14 and C19.

6. Tune both receiver and signal generator to 1900 metres and adjust L16 (square 4 C) for maximum gain.

7. Set the generator and receiver to 1000 metres and trim C16 (square 22 L) for maximum output.

Repeat adjustments 6 and 7 until an optimum setting is found for L16 and C10.

8. Replace V1 and re-connect the 1 megohm resistor between control grid and chassis to prevent damage to the valve.

## THE R.F. CIRCUITS

1. Connect the signal generator between grid of V1 (test point 4, square 4 E) and chassis.

2. Set both signal generator and receiver to 500 metres and adjust L8 (square 2 C) for maximum output.

3. Tune generator and receiver to 200 metres and trim C9 (square 19 K) for maximum reading. Repeat the adjustments 2 and 3 until an optimum setting is found for L8 and C9.

4. Tune the generator and receiver to 1900 metres and adjust L10 (square 2 C) for maximum gain.

## THE FRAME AERIAL CIRCUITS

The characteristics of the frame aerial are changed slightly when the chassis and batteries are fitted into place, so the trimming of the aerial circuits must be done when everything is in position in the cabinet. The leads from the signal generator are placed near the frame aerials.

Tune the generator and receiver to 200 metres and adjust C5 for maximum reading. This trimmer (square 19 M) is accessible if a short screwdriver is used.

Tune both the generator and receiver to 1000 metres and trim C4 (square 23 H) for maximum output. A fairly long screwdriver will be needed here.

