

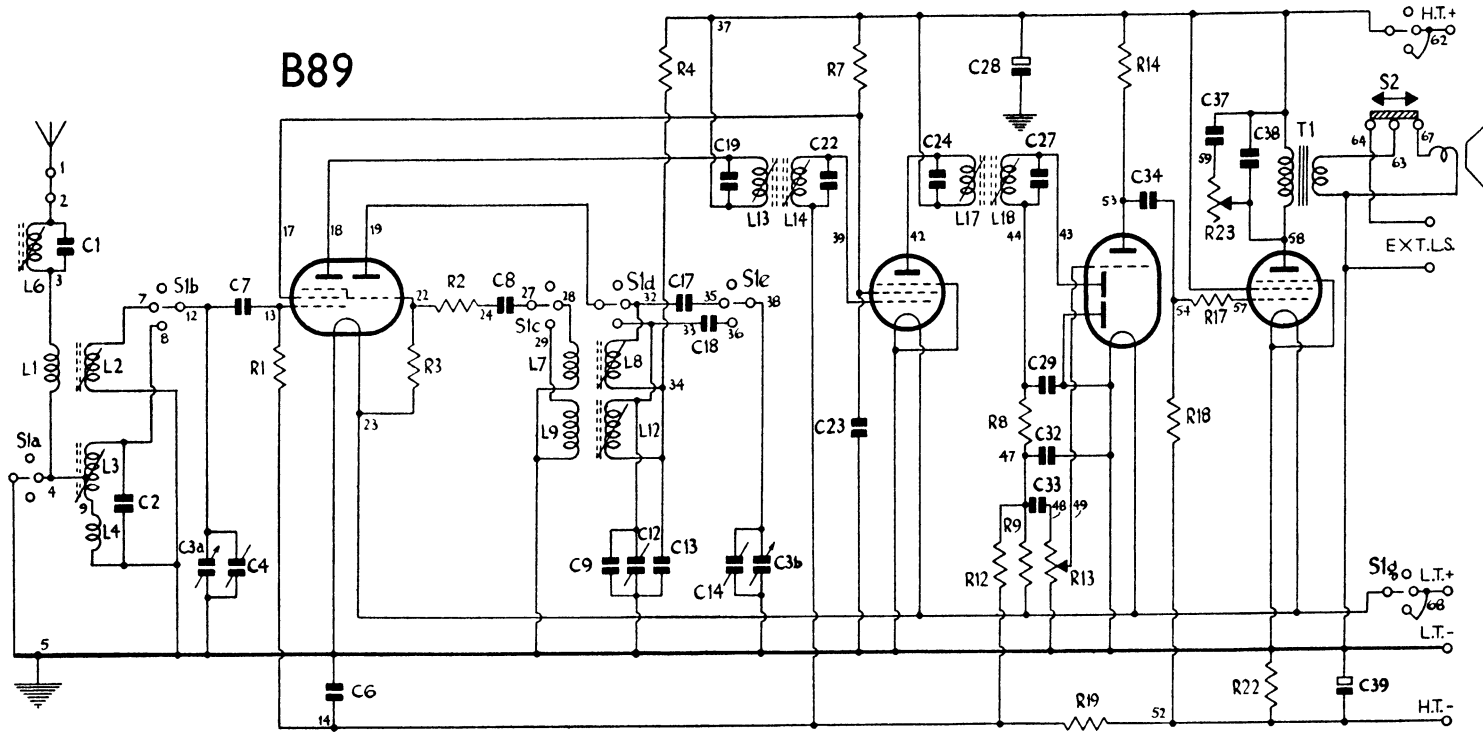
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MURPHY RADIO SERVICE INSTRUCTIONS

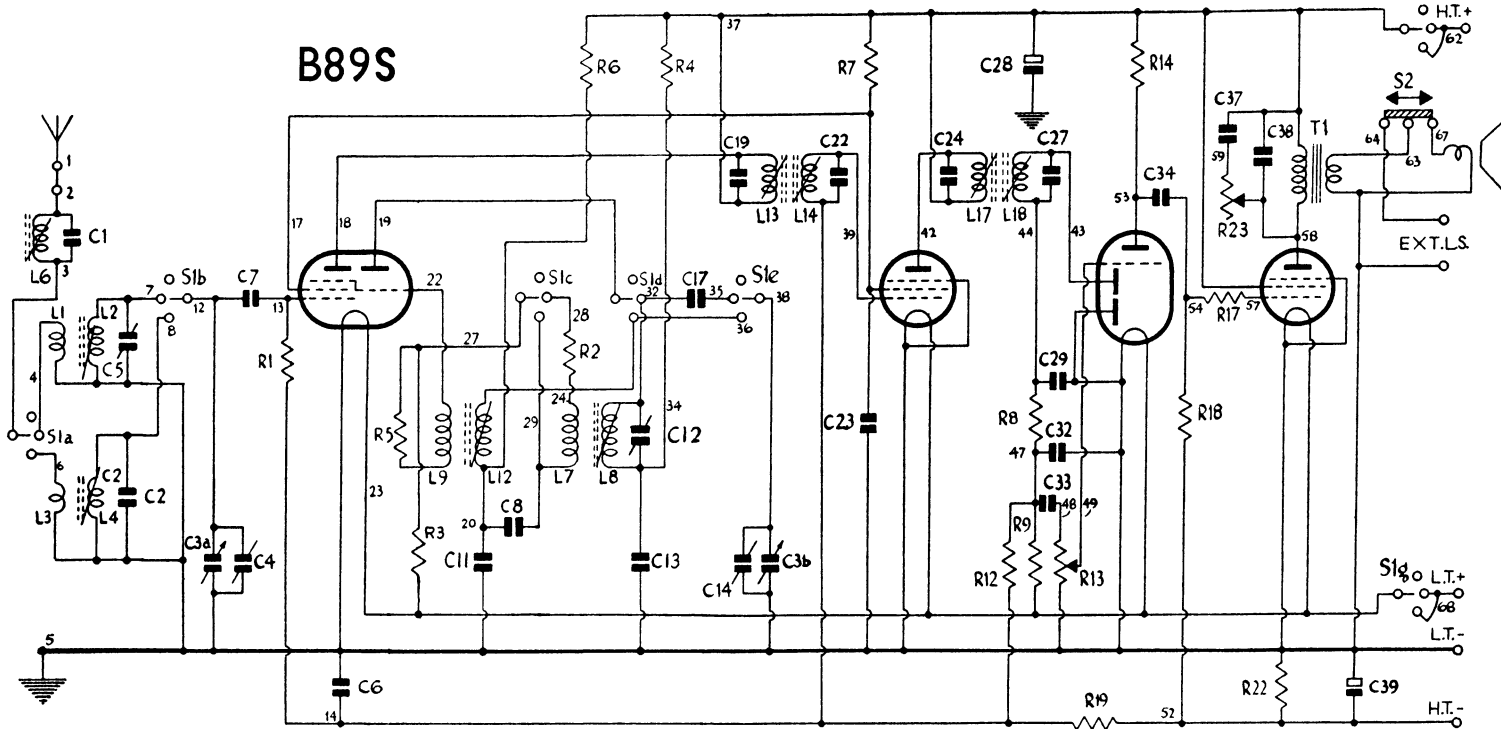
INTERMEDIATE FREQUENCY	465 Kc/s.
WAVE RANGES	B89: 200 to 550 metres. 970 to 2000 metres. B89S 16.7 to 50 metres. 200 to 550 metres.
VALVES	Mazda TP25, VP23, HL23DD, PEN25.
SPEECH COIL IMPEDANCE	4 ohms.
TOTAL WEIGHT	18 lb. (without batteries).
OVERALL DIMENSIONS	18 $\frac{1}{4}$ " \times 11 $\frac{3}{4}$ " \times 8 $\frac{1}{4}$ ".
CONSUMPTION	B89 H.T. 10 mA. B89S 11 mA. on short waves. L.T. .45 amp.
RECEIVERS RELEASED	B89 February 1940.

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



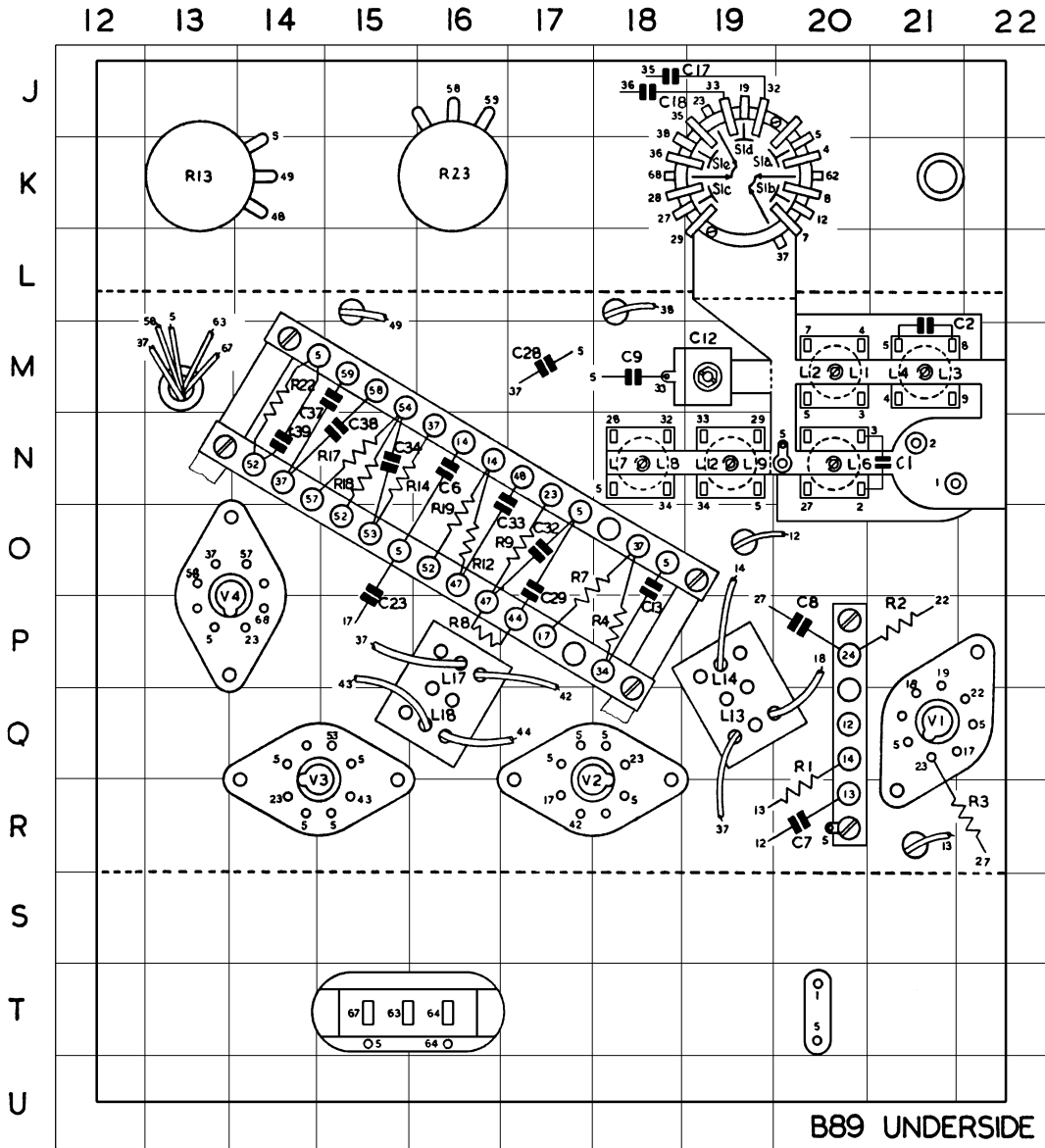
B89					TABLE OF COMPONENTS					B89				
Code	Value	Test	Pts	Square	Code	Value	Test	Pts	Square					
C1	500 pf.	2	3	21 N	R4	47,000	34	37	18 P					
C2	80 pf.	8	5	21 M	R5 S	27	25	27						
S	20 pf.				R6 S	4,700	20	37						
C3a	Variable	12	5	5 C	R7	39,000	17	37	18-O					
C3b	Variable	38	5	5 B	R8	47,000	44	47	16-P					
C4	Trimmer	12	5	6 C	R9	1 Meg.	47	23	17-O					
C6	.025	5	14	16 N	R12	2.2 Meg.	14	47	16-O					
C7	500 pf.	12	13	20 R	R13	2 Meg.	48	5	13 K					
C8	200 pf.	24	27	20 P	R14	68,000	37	53	15 N					
S	200 pf.	20	29		R17	.27 Meg.	54	57	15 N					
C9	200 pf.	33	5	18 M	R18	2.2 Meg.	54	52	15 N					
S					R19	3.9 Meg.	52	14	16-O					
C11 S	.006	20	5		R22	330	52	5	14 M					
C12	Trimmer	33	5	19 M	R23	100,000	58	59	16 K					
S	do.	32	34											
C13	.05	34	5	18-O	L1	*	3	4	20 M					
C14	Trimmer	38	5	6 B	L2	2	7	5	20 M					
C17	662 pf.	32	35	18 J	L3	13	8	9	21 M					
S	700 pf.	32	35		S	*	6	5						
C18	414 pf.	33	36	18 J	L4	1	9	5	21 M					
S					S	*	8	5						
C19	92 pf.	18	37	4 E	L6	3	2	3	20 N					
C22	92 pf.	39	14	4 D	L7	*	28	5	18 N					
C23	.05	17	5	15 P	S	*	24	29						
C24	92 pf.	37	42	7 D	L8	1.5	32	34	18 N					
C27	92 pf.	43	44	8 E	L9	1.3	29	5	19 N					
C28	8	37	5	17 M	S	*	22	25						
C29	100 pf.	44	5	17-O	L12	2.0	33	34	19 N					
C32	100 pf.	47	5	17-O	S	*	20	36						
C33	.002	47	48	17 N	L13	8.0	18	37	4 E					
C34	.003	53	54	15 N	L14	8	14	39	4 E					
C37	.01	37	59	15 M	L17	8	37	42	7 E					
C38	.003	37	58	15 N	L18	8	43	44	7 E					
C39	50	52	5	14 N										
R1	.47 Meg.	13	14	20 R	T1	prim.	700	37	58	9 B				
R2	330	22	24	21 P	sec.	*	63	5						
S	330	28	24		L.S.									
R3	22,000	22	23	22 R	Sp. coil	4	67	5						
S	22,000	27	23											

* Less than 1 ohm

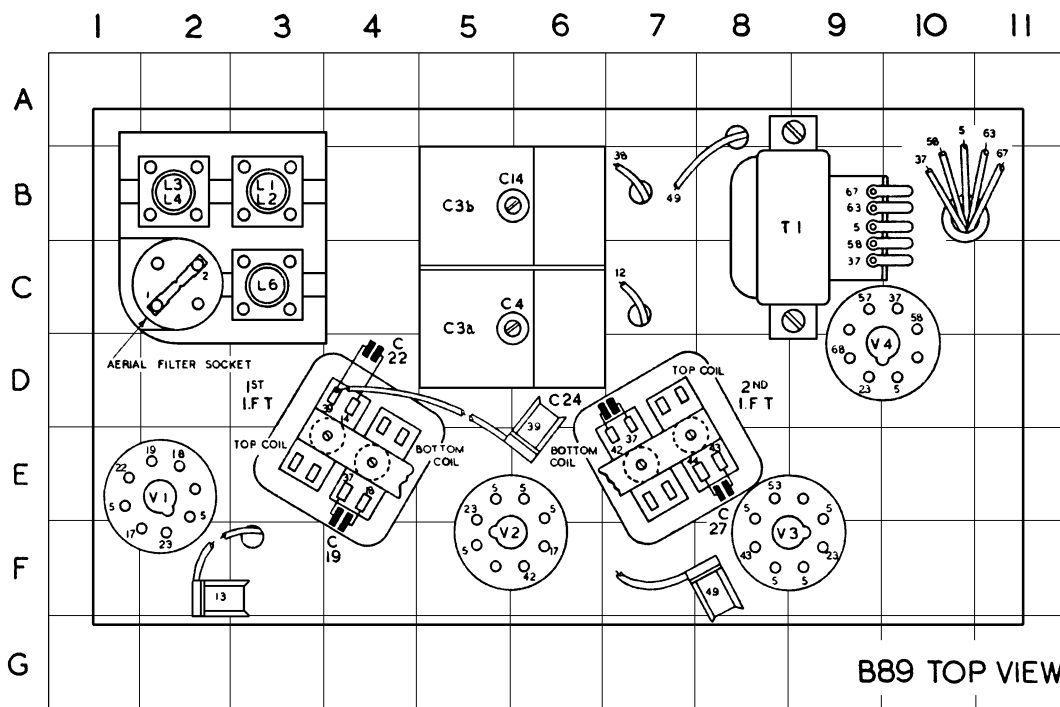


B89					TABLE OF VOLTAGES					B89				
Valve	Type	Electrode	Test Point	Square	Voltage									
V1	Mazda TP25	Pentode Anode	18	21 Q	120									
		Pentode Screen	17	21 Q	55									
		Triode Anode	19	21 P	40 L.W. (B89) 40 M.W. 90 S.W. (B89S)									
V2	Mazda VP23	Anode	42	17 R	120									
		Screen	17	17 R	55									
V3	Mazda HL23DD	Anode	53	15 Q	54									
V4	Mazda Pen25	Anode	58	14-O	115									
		Screen	37	13-O	120									

The above readings were taken with a meter having a resistance of 1000 ohms per volts, on the 500 volt range.



Separate Top and Underside Views of the B89S receiver are not included, as the majority of the components can be located by reference to the B89 diagrams. The short wave coils on the B89S occupy the same positions as the long wave coils of the B89, and there should be no difficulty in trimming the B89S, using the Top and Underside Views of the B89.



Trimming

THE trimming of the B89 should be carried out in the following order:

- (a) I.F. 465 Kc/s.
- (b) M.W.
- (c) L.W.

Re-trimming of the I.F. transformers should not normally be required, except after a long interval of service, as the adjustment of the iron cores is very stable. The usual damping unit need not be used, provided a fairly large input is applied, so as to bring the A.V.C. into operation. The volume control should be turned down to keep the output below .5 volt.

A 0-3 volt rectifier instrument, placed across the extension speaker sockets, is suggested as an output meter.

For I.F. alignment, tune the set to 500 metres,

and adjust the signal generator to exactly 465 Kc/s. Feed in a modulated signal via a .1 μ F fixed condenser to the grid cap of V2 (test point 39) connecting the shielded lead to chassis.

Adjust L18 and L17 (square 7E), in turn for maximum reading on the output meter.

Transfer the input and .1 μ F condenser to the grid of V1 (test point 13, square 2E), and adjust the cores of L14 and L13 (square 4E) in turn for maximum output.

M.W. TRIMMING

Connect the signal generator to the aerial and earth sockets via a dummy aerial, and set the generator to 220 metres. See that the pointer coincides with the end scale marks when the gang condenser is at maximum. Tune the re-

B89 AND B89S TABLE MODELS

ceiver to 220 metres and turn the volume control to maximum. Adjust C14 (square 6B) and C4 (square 6C) in turn for maximum output.

Tune the generator and the receiver to 500 metres and adjust the cores of L8 (square 18N) and L2 (square 20M) for maximum reading on the output meter. If much alteration has to be made, return to 220 metres and re-adjust the trimmers.

L.W. ALIGNMENT

Set the signal generator and receiver to 1,000 metres and adjust C12 (square 19M) for maximum output.

Tune the generator and receiver to 1900 metres and adjust the cores of L12 (square 19N) and L3 (square 21M) for maximum reading. If much adjustment of these cores is needed, return to 1000 metres and re-adjust the trimmer C12.

I.F. FILTER L6

Leave the generator connected to the aerial and earth terminals and feed in a 465 Kc/s signal. Adjust the core of L6 (square 20N) for *minimum* output, increasing the signal generator output as necessary to obtain a noticeable reading on the meter.

THE B89S

The I.F. trimming is carried out in the same way as the B89, but the R.F. alignment is carried out in the following order:

S.W. 16.7-50 metres.

M.W. 200-550 metres.

S.W. ALIGNMENT

Plug in the output meter, set volume control to maximum, and see that the pointer is opposite the end scale mark when the gang condenser is at maximum.

Tune the signal generator and receiver to 20 metres using a 400 ohms resistance as dummy aerial, and trim C14 (square 6B) for maximum output. Readings should be obtained at two settings of this trimmer, and the one requiring minimum capacity is the correct one. Trim C4 (square 6C), also for maximum reading.

Tune the generator and receiver to 49 metres and adjust the cores of L12 (square 19N) and L4 (square 21M) in turn for maximum output. If much adjustment is needed, return to 20 metres and re-adjust the trimmers.

M.W. TRIMMING

Tune the signal generator and receiver to 220 metres and trim C12 and C5 (square 19M) for maximum reading, having replaced the usual dummy aerial.

Set the generator and receiver to 500 metres and adjust the cores of L8 (square 18N) and L2 (square 20M) in turn for maximum output. If much adjustment is required, return to 220 metres and retrim.

