

LISSEN

SERVICE MANUAL FOR FOUR VALVE TWO-BAND BATTERY PORTABLE MODELS 8514 & 8515

Circuit Alignment Procedure for Receiver Type 8514 and 8515.

Intermediate Frequency Circuit Alignment.

(1) Short circuit the gang condenser across the oscillator section C.2 (rear section) and connect a resistance of 0.5 Megohms across pins of frame aerial plug going to green and yellow wires.

(2) Apply a signal of 452 Kc/s, modulated 30 per cent at 400 c.p.s. through a condenser of 0.1 uF capacity across the signal grid and chassis of the frequency changer valve DK1.

Trim each I.F. circuit in the following order:—2nd I.F.T. secondary trimmer (C.14), 2nd I.F.T. primary trimmer (C.13), 1st I.F.T. secondary trimmer (C.12), 1st I.F.T. primary trimmer (C.11). The circuits should be trimmed to a single peak.

(3) Check each circuit by going over the trimmers in the same order again.

(4) Remove short circuit from gang condenser and the 0.5 Megohm resistance from frame aerial plug.

NOTE.—As the circuits are brought into line the level of the 452 Kc/s signal should be reduced to prevent the A.V.C. from coming into action and giving misleading results.

Radio Frequency Circuit Alignment.

(1) It is important that the radio frequency circuits should be aligned with the frame aerial in position, this being done through the holes provided in the back. The two wave bands are not independent of each other and the medium wave band must be aligned first.

Medium Wave Band Alignment.

(1) See that the pointer registers with the 180 degrees line on the scale with the gang at maximum capacity.

(2) Set the medium wave padder (C.8) approximately two thirds in.

(3) Set the pointer to the 214m. mark on the scale.

(4) Supply a modulated signal of 214m. so that this can be picked up by the frame aerial.

(5) Adjust the M.W. Osc. trimmer (C.4) on gang condenser to receive this signal and then adjust M.W. aerial trimmer (C.3) for maximum output.

(6) Set the pointer to the 500 m. mark on the scale.

(7) Supply a signal of 500 m. and adjust the M.W. padder (C.8) to give maximum output on that signal.

(8) Reset the pointer to the 214 m. mark on the scale and readjust the M.W. Osc. and aerial trimmers (C.4, C.3) to give maximum output on the 214 m. signal.

(9) Check again at 500 m. and see that the pointer is at the 500 m. mark when receiving the 500 m. signal. If it is not make a slight adjustment to the M.W. padder (C.8).

Long Wave Band Alignment.

(1) See that the pointer registers with the 180 degrees line on the scale.

(2) Set the long wave padder (C.7) approximately two-thirds in.

(3) Set the pointer against the 1000 m. mark on the scale.

(4) Supply a signal of 1000 m.

(5) Adjust the L.W. Osc. trimmer (C.6) to receive this signal and then adjust the L.W. aerial trimmer (C.5) to give maximum output.

(6) Set the pointer to the 1700 m. mark on the scale.

(7) Supply a signal of 1700 m. and adjust the L.W. padder (C.7) to give maximum output on that signal.

(8) Reset the pointer to the 1000 m. mark on the scale and readjust the L.W. Osc. and aerial trimmers (C.6, C.5) to give maximum output on the 1000 m signal.

(9) Check again at 1700 m. and see that the pointer is at the 1700 m. mark when receiving the 1700 m signal. If it is not make slight adjustment to the L.W. padder (C.7).

SERVICE DATA FOR BATTERY PORTABLE MODELS 8514 and 8515.

CONDENSERS.

Code	Description..	Part No.	Values.
C.11	Gang Condenser	80,516	
C.2	Trimmers on Gang		
C.3			
C.4			
C.5	L.W. Aerial Trimmer (Double	82,506	100 mmF. Max.
C.6	L.W. Osc. Trimmer (Trimmer		100 mmF. Max.
C.7	L.W. Padder Variable (Double	82,507	600 mmF. Max. Part of
C.8	M.W. Padder Variable (Padder		600 mmF. Max. 77545
C.9	V.1. Screen Bypass	68,005	.01 mF. 1,500V. Test
C.10	A.V.C. Decoupling	68,014	.05 mF. 1,000V. Test
C.11			(Part of 77537)
C.12			(Part of 77538)
C.13	Trimmers on I.F.T. Assy. ...		
C.14			
C.15	Signal Diode Load Bypass	66,512	50 mmF. Mica
C.16	I.F. Filter	66,512	50 mmF. Mica
C.17	L.F. Coupling	68,000	.001 mF. 1,500V. Test.
C.18	V.3. Anode Bypass	66,513	100 mmF. Mica
C.19	L.F. Coupling	68,003	.005 mF. 1,500V. Test.
C.20	Tone Correction	25,656	.002 mF. 1,000V. Test
C.21	H.T. Bypass	67,011	8 mF. 150V. Peak Elec.
C.22	Oscillator Grid Coupling	66,513	100 mmF. Mica
C.23	Oscillator Trimmer Fixed	68,522 Or 71,264	20 mmF. Ceramic

SWITCHES.

Code	Description.	Part No.
S.1	Wavechange Switch	81,325
S.2		
S.3		
S.4	H.T. Switch (On/Off ganged	81,523
S.5	L.T. Switch (to Vol. Control	

VALVES.

Code	Description.	Part No.	
V.1	Frequency Changer	4115	Every-Ready D.K.1.
V.2	I.F. Amplifier	4116	
V.3	Detec. & L.F. Amplifier	4117	
V.4	Output	4118	

RESISTORS.

Code	Description	Part No.	Values.
R.1	V.1. Oscillator Grid Leak	71,945	260,000 ohms, $\frac{1}{2}$ watt.
R.2	V.1. Screen Feed	89,520	71,000 ohms, $\frac{1}{2}$ watt.
R.3	M.W. Het. Volts Modifier	71,963	11,000 ohms, $\frac{1}{2}$ watt.
R.4	L.W. Het. Volts Modifier	71,966	16,000 ohms, $\frac{1}{2}$ watt.
R.5	A.V.C. Potentiometer, part	89,519	11 Megohms, 1/10 watt.
R.6	A.V.C. Potentiometer, part	89,518	4.1 Megohms, 1/10 watt.
R.7	I.F. Filter	71,962	110,000 ohms, $\frac{1}{2}$ watt.
R.8	Volume Control	81,523	500,000 ohms, Variable.
R.9	V.3. Grid Leak	89,519	11 Megohms, 1/10 watt.
R.10	V.3. Anode Load	71,900	1.1 Megohms, $\frac{1}{2}$ watt.
R.11	V.4. Grid Leak	71,902	2.1 Megohms, $\frac{1}{2}$ watt.
R.12	Bias	89,523	850 ohms, $\frac{1}{2}$ watt.

INDUCTANCES.

Code	Description.	Part No.	
L.1	M.W. Frame Aerial ...	77,545	Part of Cabinet.
L.2	L. W. Frame Aerial ...		
L.3	M. W. Oscillator Grid		
L.4	L.W. " " " " " " " "		
L.5	M. W. Tickler		
L.6	L.W. " " " " " " " "		
L.7	1st I.F. Transformer ...	77,537	Part of Cabinet.
L.8			
L.9	2nd I.F. Transformer ...	77,538	
L.10			
L.11	Output Transformer ...	77,539	
L.12	Aerial Coupling		
L.13			

VOLTAGE AND CURRENT MEASUREMENTS.

Measurements made with a model 7 Avometer on the 1000v. range for voltages above 10v. and on the 10v. range for voltages below 10v. Measurements made with the receiver tuned to 300m. but no signal applied.

Frequency changer DK1. ...	Ea	82v.	Ia	0.4 mA.
	Es	34v.	Is	0.6 mA.
	Eoa	82v.	Ioa	0.9 mA.
I.F. Amplifier DF1.	Ea	82v.	Ia	1.1 mA.
	Es	82v.	Is	0.3 mA.
Det. & L.F. Amplifier DAC1	Ea	22v.	Ia	0.02 mA. approx.
Output DL2.	Ea	79v.	Ia	5.2 mA.
	Es	82v.	Is	1.0 mA.
	Eg	7.7v.		

Total H.T. current 9.5 mA.
Total L.T. current 0.25 Amp.

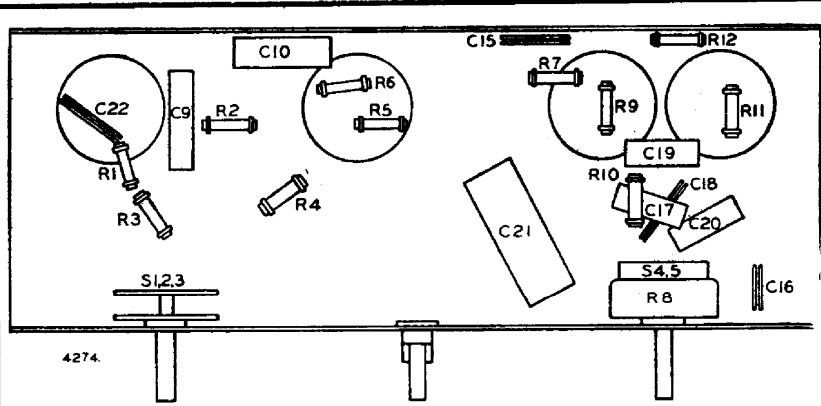


Fig. 5.

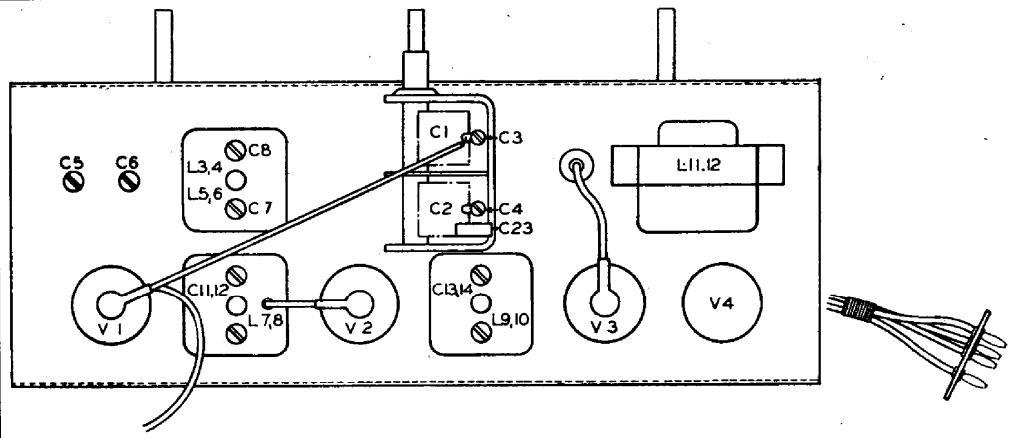


Fig. 6.

