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SERVICE MANUAL

RADIO CHASSIS

TYPE

R.C.3.

A DIVISION OF **STC**

Issued FEBRUARY 1965

COMBINED RADIO AND TELEVISION SERVICE LTD

REGENT WORKS, SIDCUP, KENT. Tel: FOOTscray 3333

SERVICE ORGANISATION FOR K.B. · REGENTONE · R.G.D. · ACE · ARGOSY

ALSO PROVINCIAL DEPOT AT

COLLEGE MILTON

EAST KILBRIDE

GLASGOW

EAST KILBRIDE 25101

**RADIO CHASSIS
TYPE R.C.3.**

GENERAL DESCRIPTION

Radios fitted with this chassis are suitable for the reception of Long, Medium and Short wavebands and bandspread on the Medium waveband between 195-215 metres. Car aerial and earpiece sockets are provided. An earpiece having an impedance of 25-250 ohms, or an extension speaker of 10 ohms impedance may be connected to the earpiece socket.

TECHNICAL SPECIFICATION

Power Supply : PP.9 (9 volt battery)
 Battery Life : 400-450 hours.
 Power Consumption :
 Standing Current : 16 mA.
 50 mW output : 48 mA.
 400 mW output : 110 mA.
 Power Output : 400 mW at onset of clipping.

WAVEBAND COVERAGE :

Long Waveband :	150 - 280 Kc/s.	1071 - 2000 Metres
Medium Waveband :	540 - 1610 Kc/s.	186 - 555 Metres
Short Waveband :	6 - 16 Mc/s.	18 - 50 Metres
Bandspread :	1395 - 1538 Kc/s.	195 - 215 Metres

TRANSISTOR COMPLEMENT :

AF115	— Mixer Oscillator.
Y159	— Overload Protection Diode.
AF117	— I.F. Amplifier.
OC70	— Detector.
OC75	— Pre-Driver.
CC81D	— Driver.
OC81 (PNP)	— Push-Pull Output.
AC127 (NPN)	

ALIGNMENT INSTRUCTIONS FOR RC3

The following equipment will be required :—

1. A.M. signal generator covering the range 140 Kc/s. to 16 Mc/s.
2. Output power meter (10 ohms).
3. Shielded test coil (85 turns of enamel-covered wire on 2" diameter former).
4. Oscilloscope.
5. A.F. generator (1 Kc/s.).

Procedure :

1. All R.F. and I.F. measurements to be made with signal modulated 30% at 1 Kc/s.
2. Progressively reduce signal input as the sensitivity increases with alignment maintaining approximately 50 mW output.

Audio :

Set the slider of R31 to the centre of its travel. Apply a 1 Kc/s. audio signal from a generator via 100 K. to the volume control slider at maximum volume. Adjust signal level to obtain 400 mW. output Adjust R31 for equal clipping.

I.F. Alignment :

1. Set generator to 470 Kc/s. and connect via an 0.1 μ F. capacitor to base winding of mixer transistor, set switch to S.W.
2. Set gang to maximum capacity.
3. Trim for maximum gain by adjusting coils in the following order :—
L13, L6, L5 and then readjust if required.

R.F. Alignment :

Medium Wave, Long Wave and Band-spread.

Connect signal generator to test coil positioned co-axially with centre 5" from M.W. end of ferrite rod.

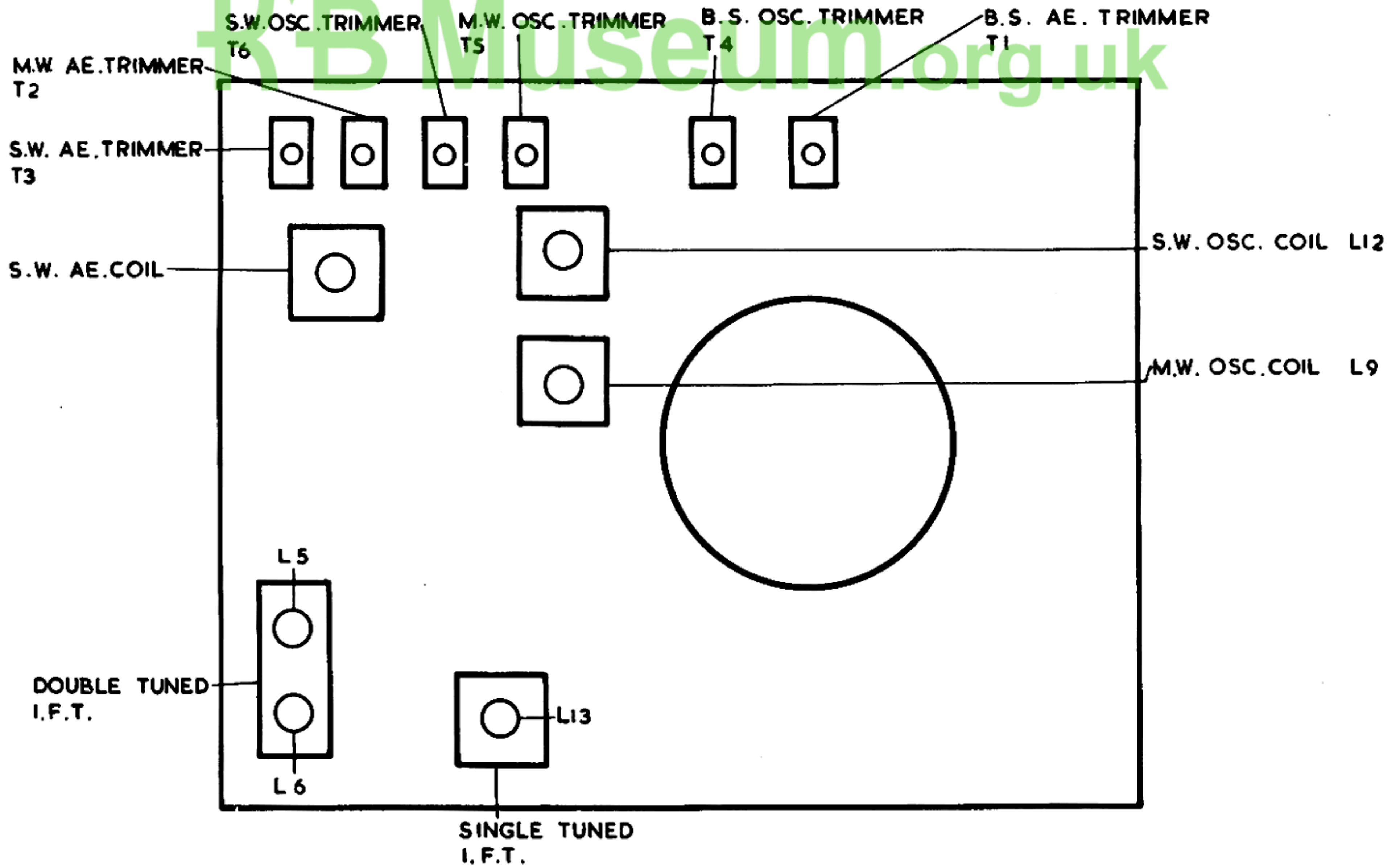
Short Wave.

Disconnect aerial coil lead from extendable S.W. aerial. Connect signal generator via 12 pF. to S.W. aerial coil.

PROCEDURE :

The following operations should be carried out in the order indicated, being repeated until maximum sensitivity is attained.

Operation	Input Frequency	Wave-band	Gang Position	Adjustments
1	540 Kc/s.	M.W.	180° (max. c.)	Osc. Coil L9.
2	1610 Kc/s.	M.W.	0° (min. c.)	Osc. Trimmer T5.
3	Check operations 1 and 2.			
4	600 Kc/s.	M.W.	—	Move M.W. aerial coil L1 for maximum gain.
5	1430 Kc/s.	M.W.	—	Adjust aerial trimmer T2 for maximum gain.
6	1530 Kc/s.	B.S.	0° (min. c.)	Adjust B.S. osc. trimmer T4.
7	1430 Kc/s.	B.S.	—	Adjust B.S. aerial trimmer T1 for maximum gain.
8	225 Kc/s.	L.W.	—	Adjust L.W. aerial coil L2 for maximum gain.
9	5.8 Mc/s.	S.W.	180° (max. c.)	Osc. coil L12.
10	16 Mc/s.	S.W.	0° (min. c.)	Osc. trimmer T6.
11	Check operations 9 and 10.			
12	6 Mc/s.	S.W.	—	Aerial coil L3, for maximum gain at lower tuning position of core.
13	15 Mc/s.	S.W.	—	Aerial trimmer T3 for maximum gain.
14	Check operation 12.			



ALIGNMENT DATA LAYOUT



PRINTED CIRCUIT BOARD SCHEMATIC

TX1
AF115

TX2
Y159

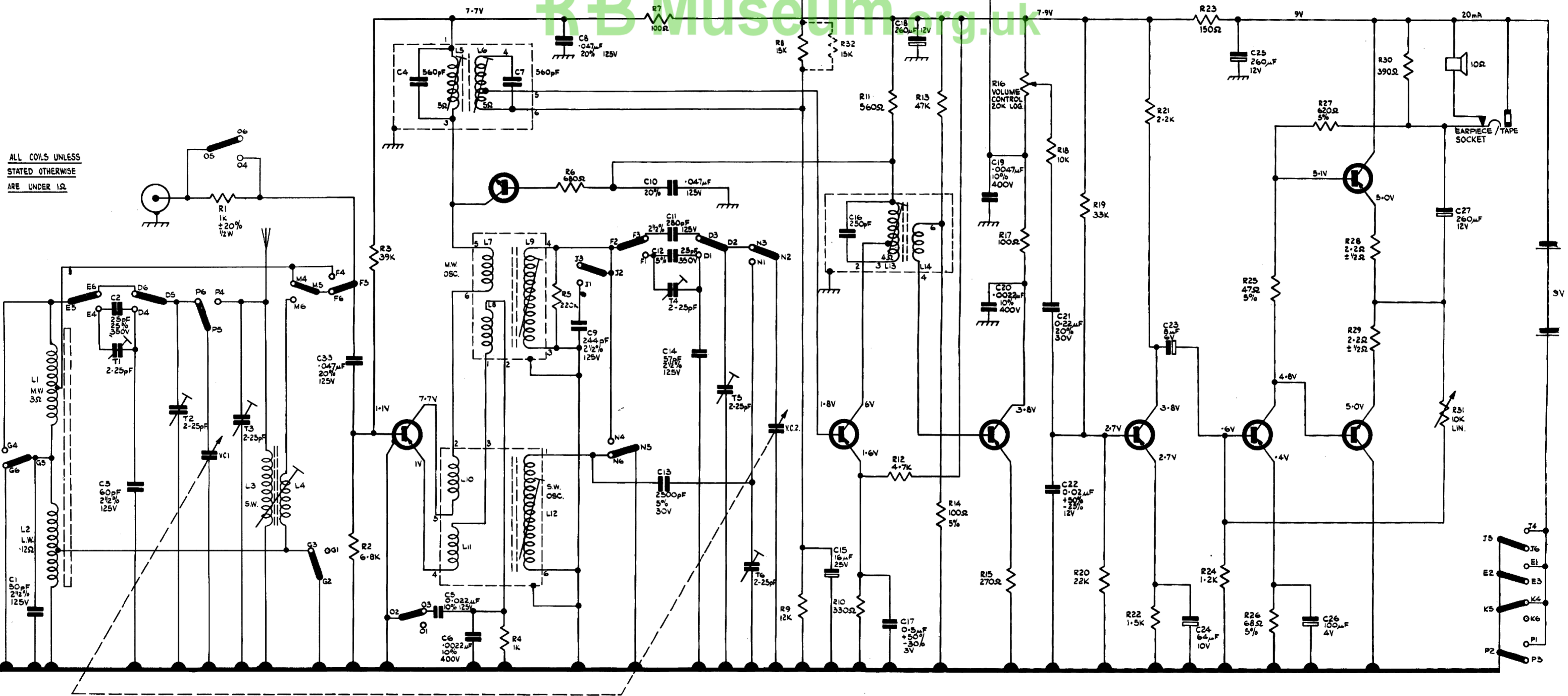
TX3
2G417

TX4
OC70

TX5
2G374B

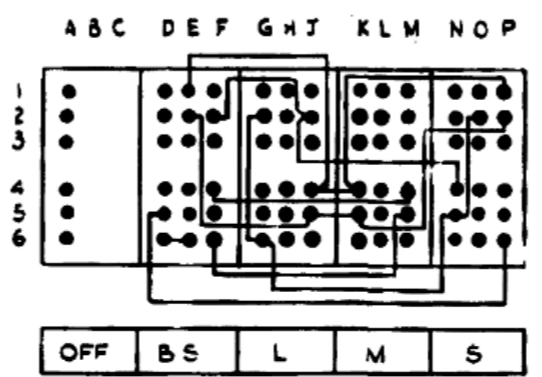
TX6
2G374B

TX7
2G381A
TX8
2G339A



ALL COILS UNLESS STATED OTHERWISE ARE UNDER 1Ω.

ALL RESISTORS 10% 1/4W UNLESS OTHERWISE STATED.
SWITCHES SHOWN IN M.N. POSITION.



COMPONENT	CIRCUIT REF.	PART/LOC. No.
CAPACITORS :		
Trimmer	T1 - 6	38/64/18134
Ganged Capacitor	VC1, VC2	38/61/18150
8 μ F 6V	C23	KEM/193/S/08508
16 μ F 25V	C15	KEM/194/S/08515
64 μ F 10V	C24	KEM/199/S/08111
100 μ F 4V	C26	KEM/163/S/08607
260 μ F 12V	C18, C25, C27	KEM/197/S/08645
244 pF $\pm 2\frac{1}{2}\%$ 125V	C9	KST/297/08177
INDUCTORS :		
M.W. Aerial Coil	L1	32/92/06203
L.W. Aerial Coil	L2	32/93/06374
Double Tuned I.F.	L5, L6	32/29/05151
Single Tuned I.F.	L13, L14	32/30/05152
M.W. Oscillator Coil	L7, L8, L9	32/31/06370
S.W. Oscillator Coil	L10, L11, L12	32/140/06115
S.W. Aerial Coil	L3, L4	32/171/06001
MISCELLANEOUS :		
Preset Pot. 10K Lin	R31	9/100/02146
Jack Socket		13/211/1/25248
Ferrite Rod		43/32/06383
Rod Aerial Sleeve		29/65/1/06440
Switch P.B. Wavechange		13/346/10207
Volume Pot. 20K Log	R16	9/95/02514
Gang Drive Spindle		36/161/20496