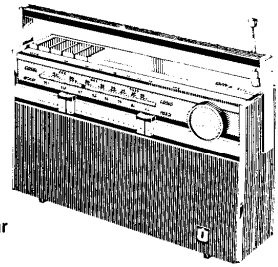


## Transistor Portable Radios

### MARCONIPHONE 4154

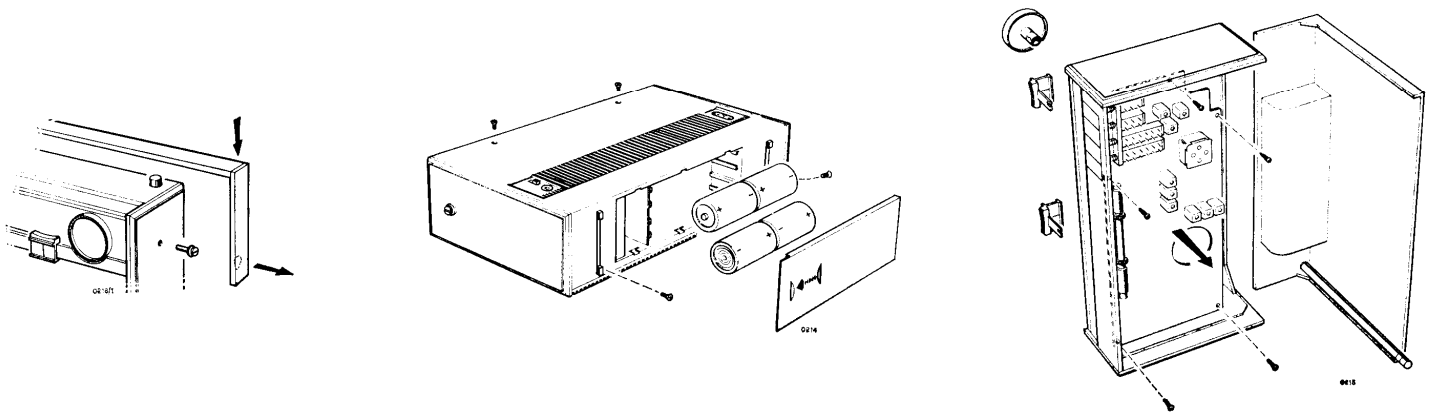
### ULTRA 6154

Model 6154  
4154 is similar

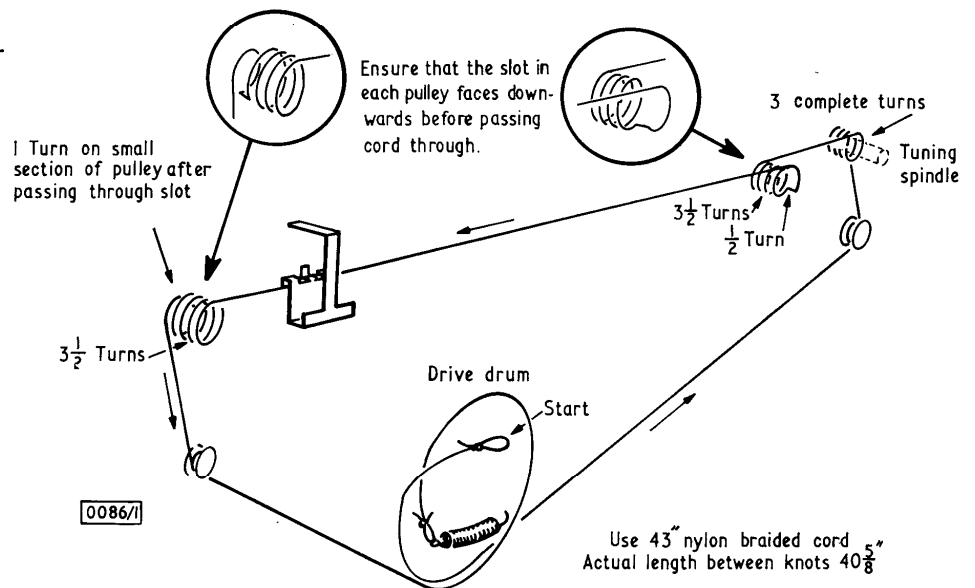


### ACCESS FOR SERVICE

Removal of handle, cabinet back and printed circuit board

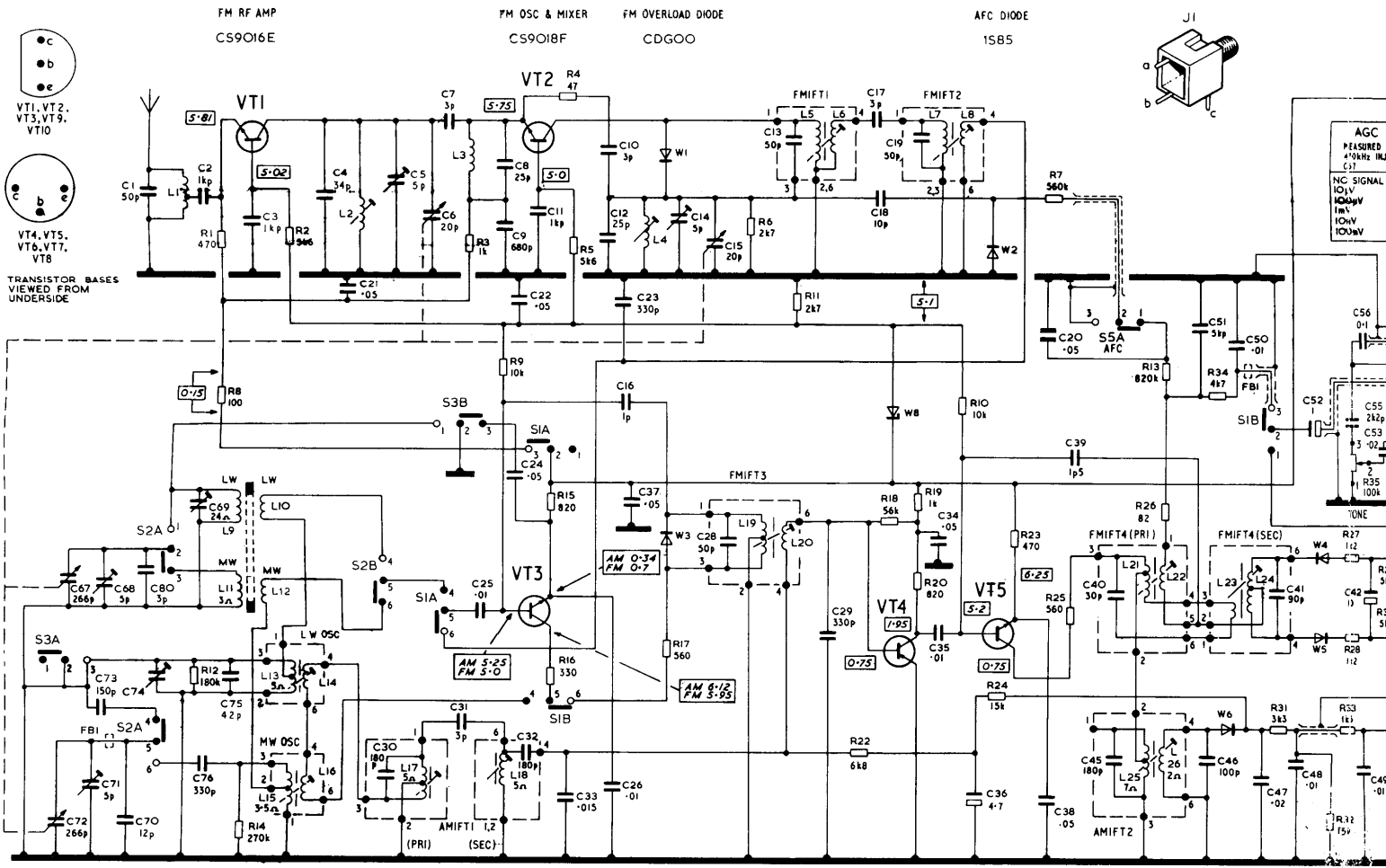


### DRIVE CORD ARRANGEMENT



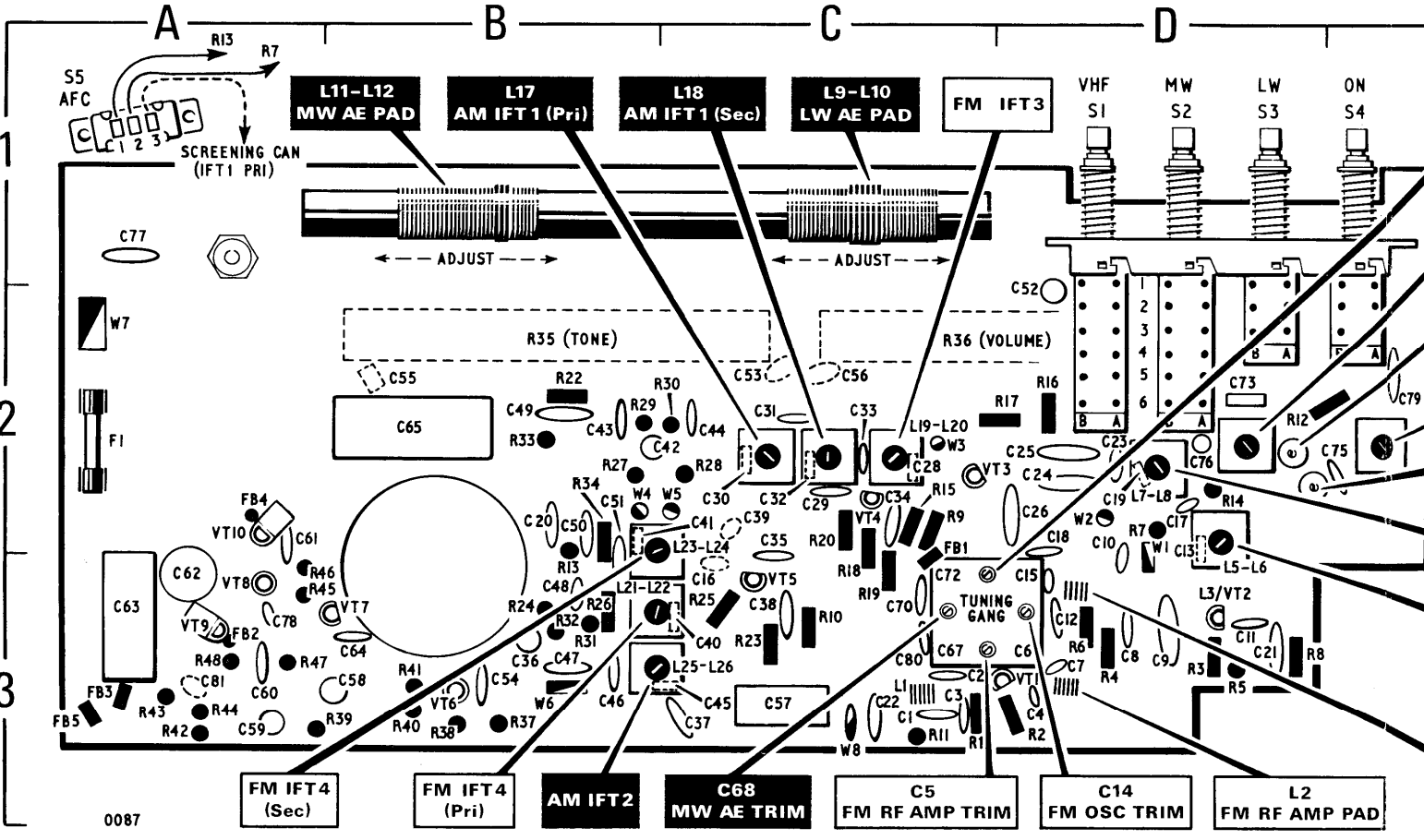
### THORN CONSUMER ELECTRONICS LIMITED—Service Depots

LONDON: P.O. Box 121, Lea Valley Trading Estate, Edmonton, N18 3BP; Tel. 01-807 3060. Spares ordering only: 01-807 0791, or Recordacall: 01-807 6332, Telex: 264905, Cablegrams: Britradco Edmonton. OLDHAM: Drury Lane, Chadderton, Oldham, OL9 7PT Tel. 061-682 8086. GLASGOW: 155 Shieldhall Road, Glasgow, G51 4DH; Tel. 041-882 4512.



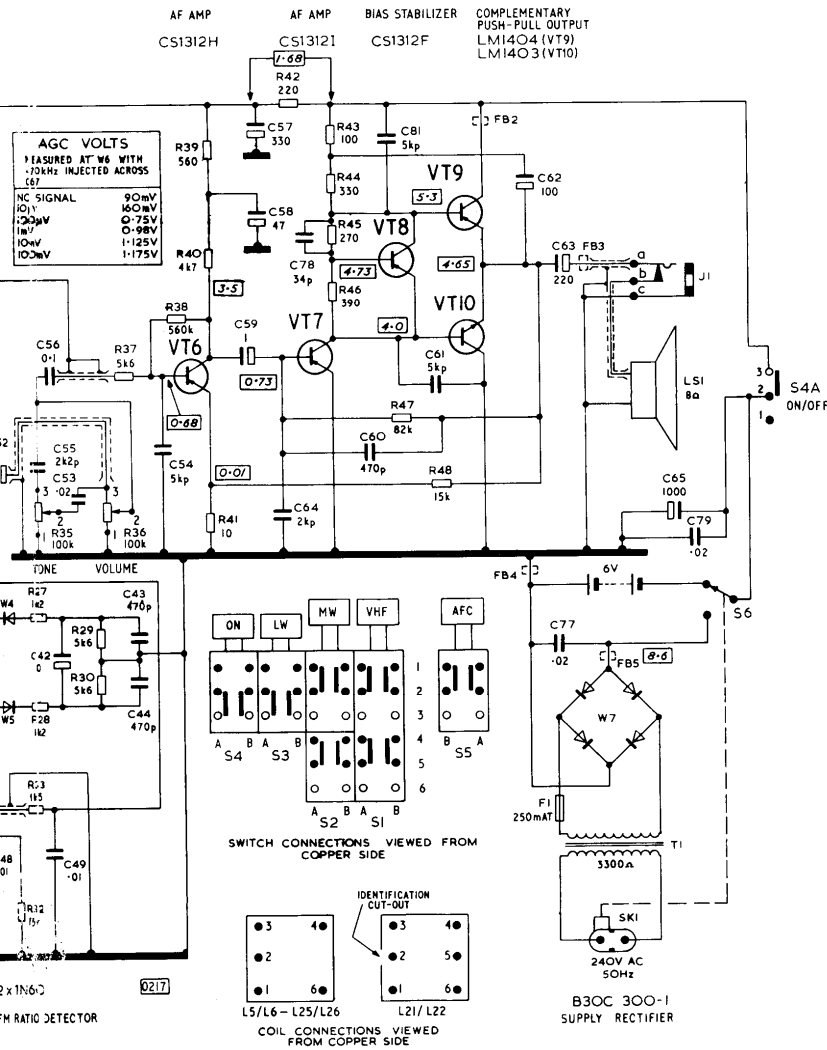
CS9016E CS9018F CDGOO FM OVERLOAD DIODE  
 CS9018F AM OSC & MIXER & FM IF AMP CDGOO FM OVERLOAD DIODE  
 CS1312G FM-AM IF AMP CS9018G FM-AM IF AMP  
 1N34 AM DETECTOR 2 x 1N60 FM RATIO DETECTOR

Printed panel-component locations and wiring

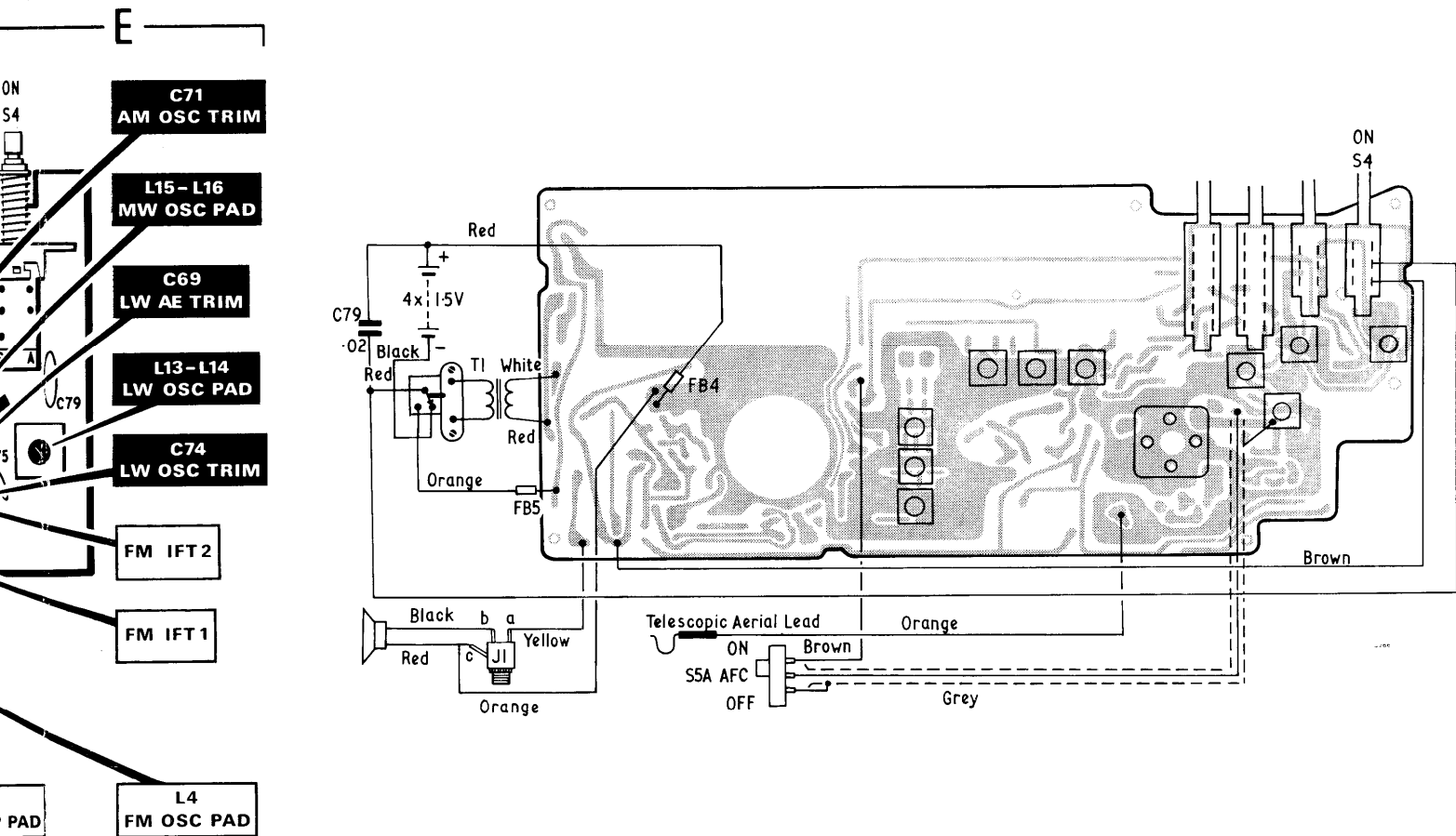


### Circuit Diagram

Voltage measurements, shown in rectangles, were taken with a 20,000Ω/volt meter and were measured relative to the positive chassis line unless otherwise indicated.



Wiring diagram (viewed from component side)



# COMPONENT DETAILS

When ordering replacement components, please quote Model number and component details as stated. References in the location column refer to the component location diagram on page 2.

## CAPACITORS

REF	DESCRIPTION	LOC
C1	50pF 10% 500V, FM aerial tuning	C3
C2	1000pF 10% 500V, VT1 emitter signal coupling	CD3
C3	1000pF 10% 500V, VT1 base decoupling	C3
C4	34pF 5% 500V, FM RF amplifier fixed trimmer	D3
C5*	5pF Preset, FM RF amplifier trimmer	C3
C6*	20pF Variable, FM RF amplifier tuning	D3
C7	3pF ± 1pF 500V, VT2 emitter coupling	D3
C8	25pF 5% 500V, Part 10.7 MHz rejector	D3
C9	680pF 10% 500V, Part 10.7 MHz rejector	D3
C10	3pF ± 1pF 500V, FM oscillator coupling	D2
C11	1000pF -20 +80% 50V, VT2 base decoupling	D3
C12†	25pF 5% 500V, FM oscillator fixed trimmer	D3
C13	50pF, L5 tuning (part FM IFT1)	D2,3
C14*	5pF Preset, FM oscillator trimmer	D3
C15*	20pF Variable, FM oscillator tuning	D3
C16	1pF ± 1pF 500V, VT3 neutralizing	C3
C17	3pF ± 1pF 500V, FM IFT1/FM IFT2 bandpass coupling	D2
C18	10pF 20% 500V, AFC feed	D2
C19	50pF, L7 tuning (part FM IFT2)	D2
C20	.05μF 20% 250V, AFC line decoupling	B2
C21	.05μF 20% 250V, VT1 emitter supply decoupling	D3
C22	.05μF 20% 250V, VT1/VT2 bias supply RF bypass	C3
C23	330pF 10% 500V, L8 tuning	D2
C24	.05μF 20% 250V, VT3 emitter bypass (FM)	D2
C25	.01μF -20 +80% 50V, VT3 base signal coupling	D2
C26	.01μF -20 +80% 50V, VT3 emitter bypass	D2
C28	50pF, L19 tuning (part FM IFT3)	C2
C29	330pF 10% 500V, VT4 base bias decoupling	C2
C30	180pF, L17 tuning (part AM IFT1 primary)	C2
C31	3pF ± 1pF 500V, AM IFT1 bandpass coupling	C2
C32	180pF, L18 tuning (part AM IFT1 secondary)	C2
C33	.015μF -20 +80% 50V, VT4 AGC line decoupling	C2
C34	.05μF 20% 250V, VT4 collector supply decoupling	C2
C35	.01μF -20 +80% 50V, VT5 base signal coupling	C2,3
C36	4.7μF Elec 10V, AGC reservoir	B3
C37	.05μF -20 +80% 50V, Supply line RF bypass	C3
C38	.05μF 20% 250V, VT5 emitter bypass	C3
C39	2.5pF ± 1pF 500V, Ratio detector frequency correction	C2
C40	30pF 5% 500V, FM IFT4 primary tuning	C3
C41	90pF 5% 500V, L24 tuning (part FM IFT4)	C2
C42	10μF Elec 6.3V, Ratio detector stabilizing	BC,2
C43	470pF 10% 500V, Ratio detector decoupling	B2
C44	470pF 10% 500V, Ratio detector decoupling	C2
C45	180pF, L25 tuning (part AM IFT2)	C3
C46	100pF 10% 500V, L26 tuning	B3
C47	.02μF -20 +80% 50V, Part AM IF filter	B3
C48	.01μF -20 +80% 50V, Part AM IF filter	B3
C49	.01μF -20 +80% 50V, AM/FM balance	B2
C50	.01μF -20 +80% 50V, Part de-emphasis	B2
C51	5000pF -20 +80% 50V, Part FM IF filter	B2
C52	1μF Elec 10V, VT6 audio coupling	D1,2
C53	.02μF -20 +80% 50V, Part tone control	C2
C54	5000pF -20 +80% 50V, Part signal input pot.	B3
C55	.022μF 10% 250V, Tone correction	B2
C56	0.1μF 20% 250V, Part signal input pot.	C2
C57	330μF Elec 6.3V, Supply line decoupling	C3
C58	47μF Elec 6.3V, VT6 collector decoupling	B3
C59	1μF Elec 10V, VT7 base coupling	A3
C60	470pF 10% 500V, Part VT7 base bias decoupling	A3
C61	5000pF 10% 500V, Tone correction	A2
C62	100μF Elec 10V, Part bootstrap	A3
C63	220μF Elec 10V, Loudspeaker coupling	A3
C64	2000pF 20% 500V, Tone correction	B3
C65	1000μF Elec 10V, Supply reservoir	B2
C67*	266pF, Variable AM aerial tuning	C3
C68*	5pF Preset, AM aerial trimmer	C3
C69	2-25pF Preset, LW aerial trimmer	E1,2
C70	12pF 5% 500V, AM oscillator fixed trimmer	C3
C71*	5pF Preset, MW oscillator trimmer	E1
C72*	266pF Variable, AM oscillator tuning	C3
C73	150pF 10% 250V, LW oscillator fixed padder	D2
C74	2-25pF Preset, LW oscillator trimmer	E2
C75	42pF 10% 250V, LW oscillator fixed trimmer	DE2
C76	330pF 10% 250V, MW oscillator padder	D2
C77†	.02μF 20% 250V, W7 RF bypass	A1
C78	34pF 5% 500V, VT8 phase correction	A3
C79	.02μF 10% 250V, Supply line RF bypass	E2
C80	3pF ± 1pF 500V, MW aerial fixed trimmer	C3
C81	5000pF -20 +80% 50V, Tone connection	A3

\* Part tuning gang assembly  
 † May comprise 21pF and 4pF in parallel.  
 ‡ Mounted on S6.

Continued overleaf

## RESISTORS

REF	DESCRIPTION	LOC
R1	470Ω 5% 1/5W, VT1 emitter stabilizing	CD3
R2	5.6kΩ 5% 1/5W, VT1 base bias feed	D3
R3	1kΩ 5% 1/5W, VT3 emitter stabilizing	D3
R4	47Ω 5% 1/5W, W2 limiter	D3
R5	5.6kΩ 5% 1/5W, VT2 base bias feed	D3
R6	2.7kΩ 5% 1/5W, FM oscillator damping	D3
R7	560kΩ 5% 1/5W, AFC feed	D2
R8	100Ω 5% 1/5W, VT1/VT2 emitter supply line decoupling	DE3
R9	10kΩ 5% 1/5W, VT3 base bias-feed	C2
R10	10kΩ 5% 1/5W, VT5 base bias feed	C3
R11	2.7kΩ 5% 1/5W, Part VT1-VT3 and VT5 base bias pot. divider	C3
R12	180kΩ 5% 1/5W, LW oscillator damping	D2
R13	820kΩ 5% 1/5W, AFC feed	B3
R14	270kΩ 5% 1/5W, MW oscillator damping	D2
R15	820Ω 5% 1/5W, VT3 emitter stabilizing	C2
R16	330Ω 5% 1/5W, Part VT3 collector load	D2
R17	560Ω 5% 1/5W, Part VT3 collector load (FM)	CD2
R18	56kΩ 5% 1/5W, VT4 bias feed	C3
R19	1kΩ 5% 1/5W, VT4 collector load	C2
R20	820Ω 5% 1/5W AM limiting	C3
R22	6.8kΩ 5% 1/5W Part AGC decoupling	B2
R23	470Ω 5% 1/5W, VT5 emitter stabilizing	C3
R24	15kΩ 5% 1/5W, AGC feed	B3
R25	560Ω 5% 1/5W, AM limiting	C3
R26	82Ω 5% 1/5W, Ratio detector tertiary series	B3
R27	1.2kΩ 5% 1/5W, Ratio detector equalizing	B2
R28	1.2kΩ 5% 1/5W, Ratio detector equalizing	C2
R29	5.6kΩ 5% 1/5W, W4 diode load	BC2
R30	5.6kΩ 5% 1/5W, W5 diode load	BC2
R31	3.3kΩ 5% 1/5W Part AM IF filter	B3
R32	15kΩ 5% 1/5W Part AM/FM audio balance	B3
R33	1.5kΩ 5% 1/5W Part AM/FM audio balance	B2
R34	4.7kΩ 5% 1/5W Part de-emphasis	B2
R35	100kΩ Log. pot., Tone control	B2
R36	100kΩ Log. pot., Volume control	C2
R37	5.6kΩ 5% 1/5W, VT6 RF stopper	B3
R38	560kΩ 5% 1/5W, VT6 bias feed	B3
R39	560Ω 5% 1/5W, VT6 supply decoupling	B3
R40	4.7kΩ 5% 1/5W, VT6 collector load	B3
R41	10Ω 5% 1/5W, VT6 emitter stabilizing	B3
R42	220Ω 5% 1/5W, Supply decoupling	A3
R43	100Ω 5% 1/5W, Part bootstrap	A3
R44	330Ω 5% 1/5W, Part bootstrap	A3
R45	270Ω 5% 1/5W, VT8 bias feed	AB3
R46	390Ω 5% 1/5W, VT7 collector load	AB3
R47	82kΩ 5% 1/5W, VT7 bias feed	AB3
R48	10kΩ 5% 1/5W, Negative feedback	A3

## INDUCTORS

REF	DESCRIPTION	LOC
L1	FM aerial coil	C3
L2	FM RF amplifier tuning	D3
L3	Part 10.7 MHz rejector	D3
L4	FM oscillator coil	E3
L5/L6	FM IFT1	D3
L7/L8	FM IFT2	D2
L9/L12	Ferrite rod aerial coils	C1-B1
L13/L14	LW oscillator coils	E2
L15/L16	MW oscillator coils	E1
L17	AM IFT1 primary	B1
L18	AM IFT1 secondary	C1
L19/L20	FM IFT3	C2
L21/L22	FM IFT4 primary	BC3
L23/L24	FM IFT4 secondary	C2,3
L25/L26	AM IFT2	C3
T1	Mains transformer	†

† Mounted in cabinet

## MISCELLANEOUS

REF	DESCRIPTION	LOC
F1	Fuse 250mA anti-surge	A2
FB1	Ferrite bead	C2
FB2,FB3	Ferrite beads	A3
FB4	Ferrite bead	A2
FB5	Ferrite bead	A3
J1	Earphone socket	†
LS	Loudspeaker 3 inch round, 8Ω impedance	†
S1-S4	On/Off and waveband switches	D1-E1
S5	AFC switch	A1
SKT1	AC mains input socket assembly (incl. S6)	†

† Mounted in cabinet.

# ALIGNMENT DATA

Tuning indication is best obtained either with an output meter having an impedance of 8 ohms and connected in place of the loudspeaker, or a Model 8 Avometer set to the 10V range connected in parallel with the loudspeaker. Throughout alignment the signal input level to the receiver should be adjusted to maintain an audio output at approximately 50mW, with the volume control set at maximum, in order to avoid alignment error due to AGC action.

## AM IF Circuits

Switch to MW and turn gang to maximum capacitance. Apply a 470 kHz (30% modulated) signal through a 0.1 $\mu$ F capacitor across C67 (AM aerial section of tuning gang) then adjust AM IFT2, AM IFT1 (secondary) and AM IFT1 (primary) for maximum output. Repeat in same order until no further improvement is obtainable.

## AM RF Circuits

Signal should be injected via a loop loosely coupled to the ferrite rod aerial. Adjust coils for maximum meter reading.

Range	Inject	Cursor Position	Adjust
MW	600 kHz	500 m	L15/L16, L11/L12*
	1500 kHz	200 m	C71, C68
LW	150 kHz	2000 m	L13/L14, L9/L10*
	300 kHz	1000 m	C74, C69

\* Adjust by sliding coil formers along ferrite rod

Repeat as necessary until no further improvement results.

## FM IF Circuits

Switch to VHF. Inject 10.7 MHz signal (25 kHz deviation) via a .01 $\mu$ F capacitor between VT2 emitter and chassis. Adjust FMIFT4 (primary), FMIFT3, FMIFT2 and FMIFT1 for maximum output.

Switch signal generator to 10.7 MHz AM (30% modulated) and adjust FMIFT4 (secondary) for minimum AM output. Repeat adjustments as necessary for optimum output, maximum AM rejection and accurate calibration.

## FM RF Circuits

FM signal (25 kHz deviation) should be injected between telescopic aerial lead and chassis.

Range	Inject	Cursor Position	Adjust
VHF	88 MHz	88 MHz	L4*, L2*
	100 MHz	100 MHz	C14, C5

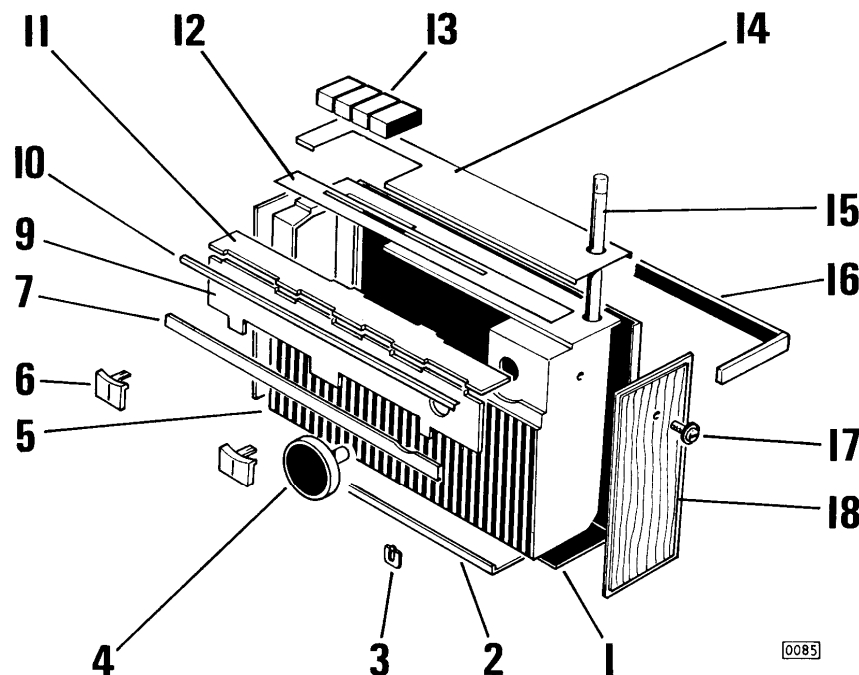
\* Adjust by opening or closing coil turns.

Repeat as necessary until no further improvement results.

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# REPLACEMENT PARTS

When ordering replacement parts, please quote Model number, description and item numbers as listed.



## Cabinet Assembly

Description	Item
Cabinet back moulding	1
Battery cover	2
Emblem	3
Tuning knob	4
Cabinet front moulding	5
Volume or Tone knob	6
Volume/Tone trim	7
Volume/Tone mask	*8
MW/LW scale	9
Scale trim	10
VHF scale	11
VHF scale backing	12
Push-button knob	13
Top trim	14
Telescopic aerial	15
Handle	16
Handle stud	17
End cheek—LH or RH	18
Countersunk screw (8 mm x 3 mm) securing item 1 to item 5 and item 15	*19
Pan head screw (No. 4 x 1/8 in.) securing printed board	*20
Pan head screw (No. 4 x 1/2 in.) securing Volume and Tone controls	*21

## Chassis Assembly

Tuning drive moulding assembly	*22
Screw securing item 22	*23
Drive drum	*24
Screw securing item 24	*25
Drive cord tension spring	*26
Scale pointer	*27
Drive cord pulley (on item 22)	*28
Circlip securing item 28	*29
Drive cord pulley (on printed board)	*30
Circlip securing item 30	*31

\* Not shown in cabinet exploded view diagram.

The manufacturers reserve the right to vary specifications or use alternative materials as may be deemed necessary or desirable at any time.