

BUSH | MURPHY

SERVICE INFORMATION

BUSH MODEL VTR173 MURPHY MODEL B844 RADIO RECEIVERS

SPECIFICATION

GENERAL

Models VTR173 and B844 are battery operated A.M.-F.M. radio receivers designed to cover the long wave, medium wave and the VHF bands.

WAVEBANDS

L.W. band : 280 kHz to 158 kHz (1070 to 1900 metres).
M.W. band : 1605 kHz to 525 kHz (187 to 570 metres).
V.H.F. band : 87.5 MHz to 108 MHz.

BATTERY AND CONSUMPTION

Six 1½ volt cells, SP11 type or any other sealed equivalent type. Battery consumption on the a.m. and f.m. bands is 23 ± 2mA quiescent (35 mA average listening level).

INTERMEDIATE FREQUENCY

A.M. bands : 470 kHz.
F.M. band : 10.7 MHz.
Oscillator is high with respect to signal frequency on all bands.

AUTOMATIC GAIN CONTROL

One controlled stage on all bands.

AUTOMATIC FREQUENCY CONTROL

Provided for the V.H.F. band only. Operation controlled by a push-button operated switch.

AUDIO OUTPUT

1 watt at 1000 Hz.

LOUDSPEAKER

152 mm × 100 mm (6 by 4 inches) elliptical. Flux density 700 mT. (7000 lines per square centimetre). Impedance 8 ohms.

PHONE SOCKET

A socket is provided at the left hand side of the receiver into which may be plugged an earpiece with an impedance of 20 to 1000 ohms. It may also be used for connecting an external loudspeaker of 8 ohms impedance or for tape recording purposes.

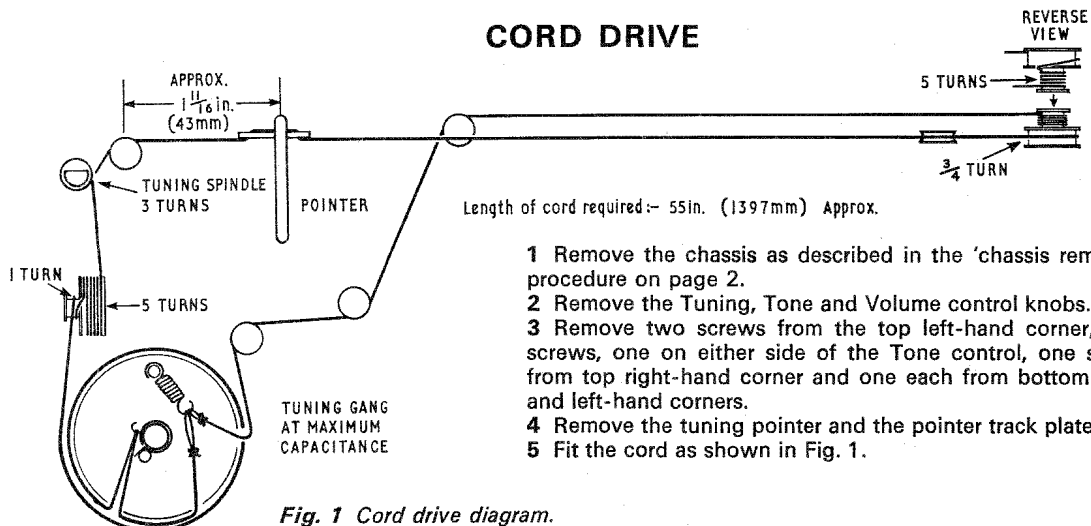


Fig. 1 Cord drive diagram.

DISMANTLING

CHASSIS REMOVAL

- 1 Detach the battery access cover from the base of cabinet and remove battery.
- 2 Disengage the two spring clips from the cabinet lugs, located at either side of the cabinet base interior, by inserting a screw driver into the spring clip slot and levering it away from the lugs.

- 3 Carefully withdraw the chassis, together with the tuning scale surround from the cabinet to the extent of leads. This will permit most servicing operations to be carried out.
- 4 For complete removal note the connections and then disconnect the leads from the chassis.
- 5 For reassembly reverse the above procedure.

ALIGNMENT PROCEDURE

PRELIMINARY NOTES

- 1 Equipment required :
 - (a) A suitable Signal Generator to cover 214 kHz to 1500 kHz and 10.7 MHz to 108 MHz, with provisions for a.m. and f.m. modulated and unmodulated signals as required.
 - (b) A Power Output meter with ranges to cover up to 1 watt, with 8 ohms impedance.
 - (c) A 20,000 ohms per voltmeter (0 to 10 volts range), or a D.C. voltmeter.
 - (d) A microammeter, 25.0-25 μ A (Balance meter).
 - (e) 0.1 μ F capacitor.
 - (f) Suitable trimming tools for adjusting the iron dust cores and r.f. trimmers.
- 2 9 volt power supply.
- 3 Set Volume and Tone controls to maximum (fully clockwise) unless otherwise stated.
- 4 If a Power Output meter is connected whilst the loudspeaker is in circuit, do not exceed an output of more than 100 mW as it may damage the output transistors.
- 5 The signal generator should be switched on about 15 minutes before commencing alignment.

I.F. ALIGNMENT A.M. CIRCUITS

- Notes: (a) See preliminary notes 2 to 5.
 (b) The output of the receiver should be maintained at a level of 50 mW by reducing the i.f. input signal as necessary.
- 1 Switch the receiver to M.W. and set the tuning pointer to approximately 1000 kHz (300 metres).
 - 2 Set the signal generator to 470 kHz modulated at 30% 400 Hz. Inject signal to pin 2 of the L.W. switch via a 0.1 μ F capacitor.
 - 3 Align IFT7, IFT5, IFT2 Sec. and IFT2 Pri. in that order for maximum audio output. Align each IFT once only.

R.F. ALIGNMENT A.M. CIRCUITS

- Notes: (a) See preliminary notes 2 to 5 and ensure that the tuning pointer is in line with the datum dots on the right hand side of the tuning scale with the tuning gang fully meshed.
 (b) Inject signal via a 0.1 μ F capacitor at the car aerial socket, and follow the procedure below.

Operation	Wave-band	Sig. Freq. (mod 30% 400 Hz)	Gen. Tuning Pointer Setting	Adjust for Max. Output
1	M.W.	600 kHz	500 metres	Osc. coil (L14/15/16)
2	M.W.	1500 kHz	200 metres	CT4
3	L.W.	214 kHz	1400 metres	CT6

Repeat operations 1 to 3 until calibration is correct.

AERIAL

4	M.W.	600 kHz	500 metres	L10
5	M.W.	1500 kHz	200 metres	CT3
*6	L.W.	214 kHz	1400 metres	L12/CT5

Repeat operations 4 to 6 until calibration is correct.

*During manufacture the L.W. ferrite aerial coil is set to have an inductance of 2.39 mH and should not require further adjustments. If the setting is disturbed follow operation 6.

I.F. ALIGNMENT F.M. CIRCUITS

- Notes: (a) See preliminary notes 2 to 5.
 (b) Connect the D.C. voltmeter and the Balance meter into the circuit as shown in Fig. 2.
 (c) The signal level should be maintained to produce an output between 0.5 to 1 volt d.c. on the D.C. voltmeter connected across TP2 and TP3 see Fig. 2.

- 1 Switch the receiver to the V.H.F. band and set the tuning pointer to approximately 94 MHz and set the Volume control to minimum. Adjust the Balance control RV1 to its mid position.
 - 2 Set the signal generator to 10.7 MHz amplitude modulated 30% at 400 Hz. Inject the output to the base of VT3 via a 0.1 μ F capacitor.
 - 3 Align IFT6 Pri. for maximum d.c. output and then IFT6 Sec. for zero reading on the Balance meter.
 - 4 Align IFT4, IFT3 Sec. and IFT3 Pri. in that order for maximum d.c. output. Realign IFT6 Pri. for maximum d.c. output and IFT6 Sec. for zero reading on the Balance meter and then disconnect both meters.
 - 5 With Volume control re-set to maximum, set signal input level to 50 μ V and adjust RV1 for minimum audio output.
- NOTE: To align IFT1 see V.H.F. Tuner Alignment.

F.M. CIRCUITS (V.H.F. Tuner Alignment)

- Notes: (a) During manufacture adjustments are made to the V.H.F. tuner using special equipment and further adjustments should not be made unless components are known to have been disturbed. If this is the case follow the procedure for realignment.

- (b) See preliminary notes 2 to 5 and ensure that the tuning pointer is in line with the datum dots on the right hand side of the tuning scale with the tuning gang fully meshed.
 (c) Connect the D.C. voltmeter and the Balance meter into the circuit as shown in Fig. 2.
 (d) Signal level should be maintained to produce an output between 0.5 to 1 volt d.c. on the D.C. voltmeter connected across TP2 and TP3 see Fig. 2.

- 1 Switch the receiver to V.H.F. band and set the tuning pointer to approximately 94 MHz. Inject 10.7 MHz unmodulated signal to the telescopic rod aerial connection via a 0.1 μ F capacitor.
- 2 Adjust the secondary and then the primary of IFT1 for maximum output on the D.C. voltmeter, maintaining the input level of the signal to produce between 0.5 to 1 volt d.c. on the Voltmeter. The outer alignment peaks are the correct ones.
- 3 For calibration of the V.H.F. band follow the procedure below:

Operation	Sig. Freq. (Unmodulated)	Tuner Pointer Setting	Adjust for Max. d.c. Output
1	94 MHz	94 MHz	L6
2	108 MHz	108 MHz	CT2
Repeat operations 1 and 2 until calibration is correct.			
3	92 MHz	92 MHz	L4
4	104 MHz	104 MHz	CT1
Repeat operations 3 and 4 until tracking is correct.			

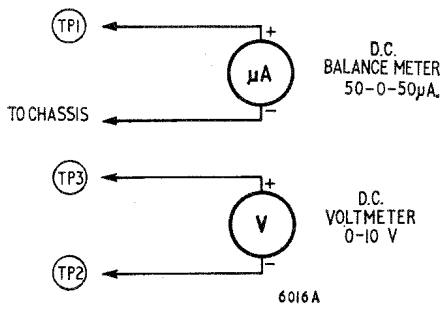
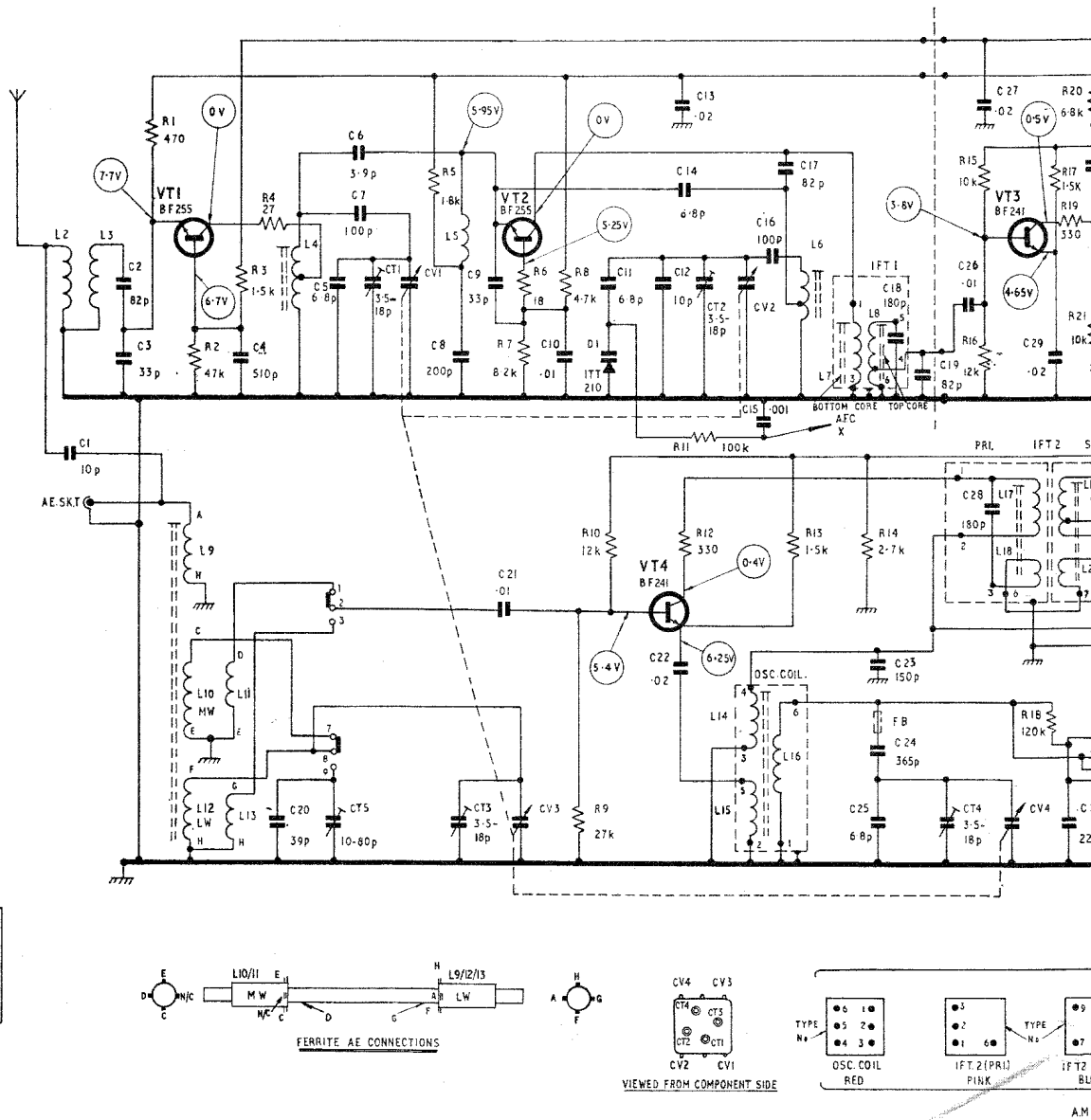
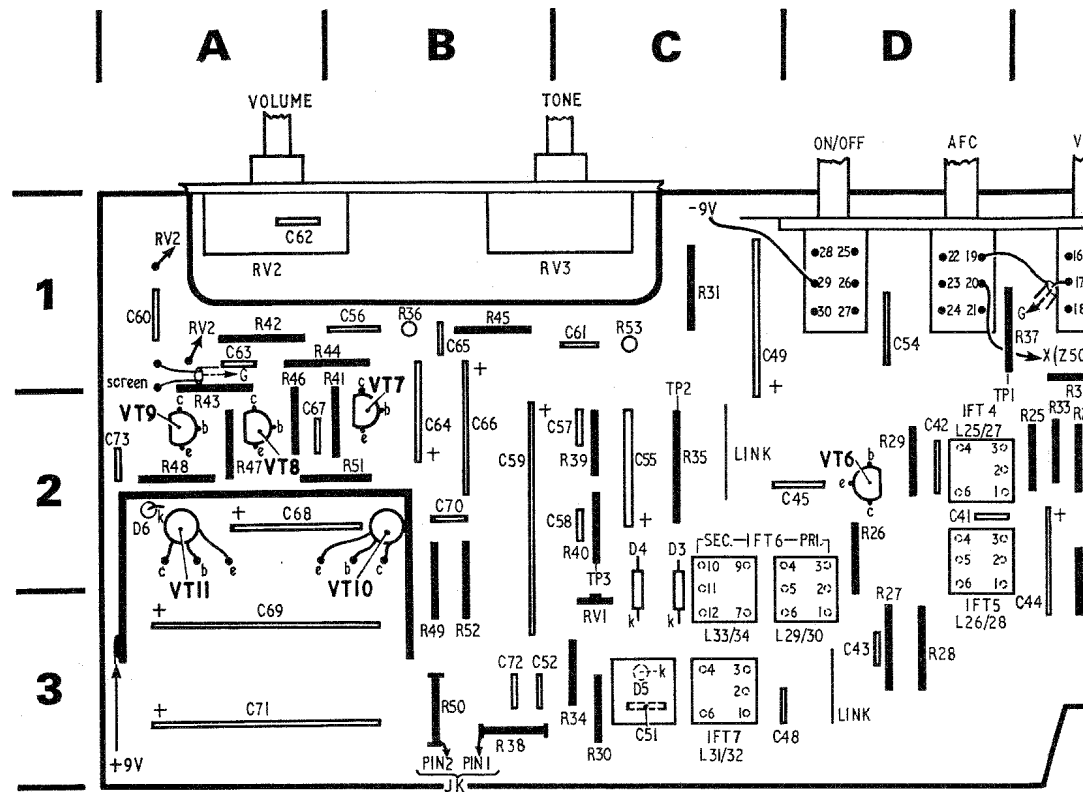


Fig. 2 Meter connections.

NOTE:
For component locations,
see Parts list on pages 5 & 6.

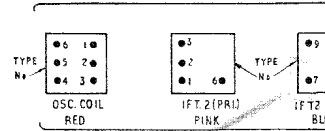
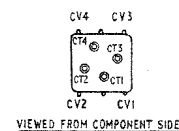
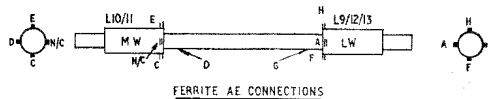


LW	MW	VHF	AFC	ON/OFF
●1 7 ●		●13 16 ●	●19 22 ●	●25 28 ●
●2 8 ●		●14 17 ●	●20 23 ●	●26 29 ●
●3 9 ●		●15 18 ●	●21 24 ●	●27 30 ●
●4 10 ●				
●5 11 ●				
●6 12 ●				

VIEWED FROM FOIL SIDE OF PRINTED PANEL

ON/OFF	AFC	VHF	MW	LW
●28 25 ●	●22 19 ●	●16 13 ●		●7 1 ●
●29 26 ●	●23 20 ●	●17 14 ●		●8 2 ●
●30 27 ●	●24 21 ●	●18 15 ●		●9 3 ●
				●10 4 ●
				●11 5 ●
				●12 6 ●

VIEWED FROM COMPONENT SIDE OF PANEL



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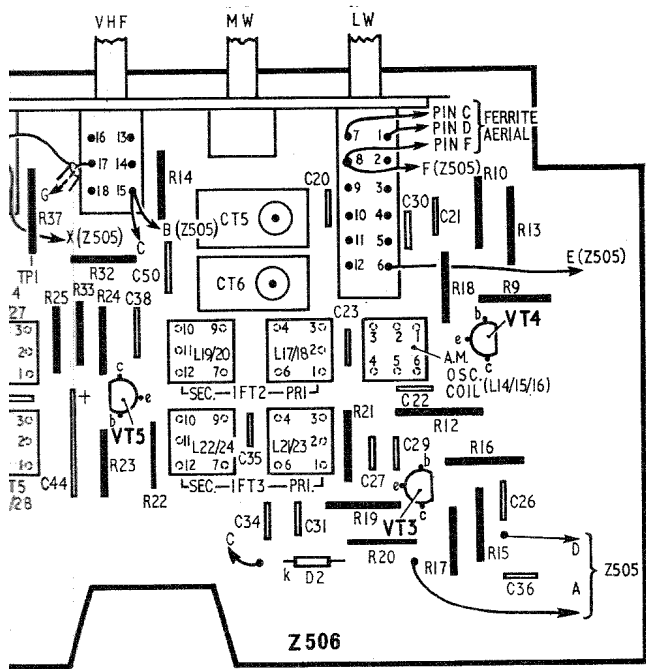
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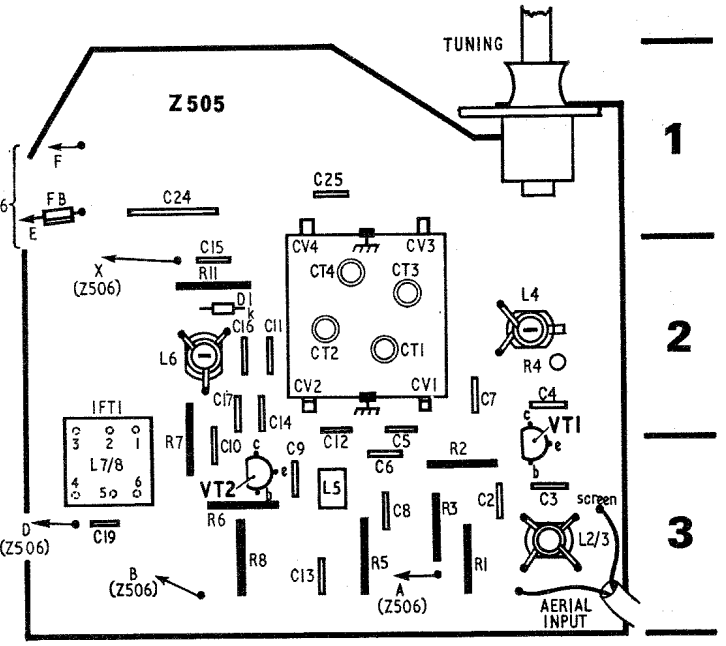
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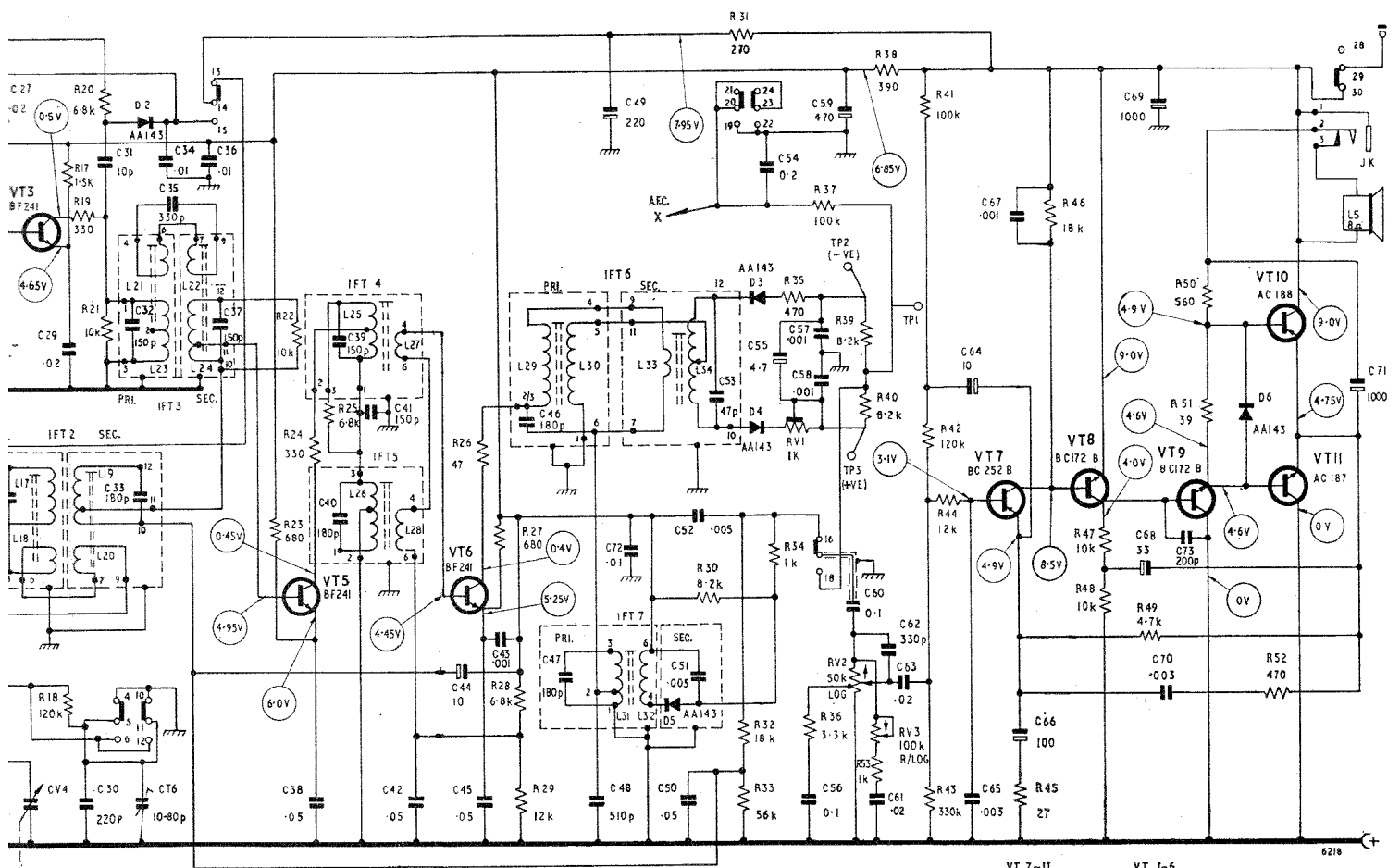


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Fig. 3 Component layout

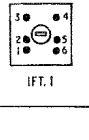
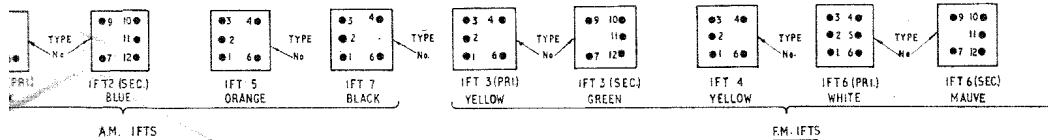


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VIEWED FROM UNDERSIDE

VIEWED FROM REAR



NOTES:-

- ALL VALUES OF RESISTANCE IN OHMS & ALL VALUES OF CAPACITANCE IN μ F UNLESS OTHERWISE STATED.
- SWITCHES SHOWN IN M.W. POSITION.
- VOLTAGES INDICATED ARE APPROX. & NEGATIVE WITH RESPECT TO CHASSIS MEASURED WITH AVO Mx 8, 10V RANGE UNDER NO SIGNAL CONDITIONS WITH VOLUME CONTROL SET TO ZERO.

PARTS LIST

CAPACITORS

Ref.	*Location	Value (μ F) (pF)	Tolerance (\pm %)	Rating (volts)	Part Number
C1	Under aerial socket.	10	5	750	2503 0632
C2	J3	82	5	350	2556 0128
C3	J3	33	5	350	2556 0116
C4	J2	510	10	750	2566 0299
C5	I3	6.8	\pm 25 pF	350	2556 0086
C6	I3	3.9	\pm 25 pF	350	2556 0062
C7	J2	100	5	350	2556 0141
C8	I3	200	5	350	2556 0025
C9	I3	33	5	350	2556 0116
C10	I3	0.01	20	50	2611 0052
C11	I2	6.8	\pm 25 pF	350	2556 0086
C12	I3	10	5	350	2556 0092
C13	I3	0.02	20	50	2611 0064
C14	I2	6.8	\pm 25 pF	350	2556 0086
C15	I2	0.001	20	50	2611 0015
C16	I2	100	5	350	2556 0141
C17	I2	82	5	350	2556 0128
C18	Part of IFT1				
C19	H3	82	5	750	2503 0632
C20	F1	39	\pm 1 pF	125	2651 0765
C21	F1	0.01	20	50	2611 0052
C22	F2	0.02	20	50	2611 0064
C23	F2	150	10	750	2566 0275
C24	I1	365	2.5	125	2651 1071
C25	I1	6.8	\pm 25 pF	350	2556 0086
C26	G3	0.01	20	50	2611 0052
C27	F3	0.02	20	50	2611 0064
C28	Part of IFT2 (PRI.)				
C29	F2	0.02	20	50	2611 0064
C30	F1	220	2.5	125	2651 0728
C31	F3	10	5	350	2556 0098
C32	Part of IFT3 (PRI.)				
C33	Part of IFT2 (SEC.)				
C34	E3	0.01	20	50	2611 0052
C35	E2	330	10	750	2566 0287
C36	G3	0.01	20	50	2611 0052
C37	Part of IFT3 (SEC.)				
C38	E2	0.05	20	50	2611 0106
C39	Part of IFT4				
C40	Part of IFT5				
C41	D2	150	10	750	2566 0275
C42	D2	0.05	20	50	2611 0106
C43	D3	0.001	20	50	2611 0015
C44	E3	10	+100-10	10	2767 2268
C45	D2	0.05	20	50	2611 0106
C46	Part of IFT6 (PRI.)				
C47	Part of IFT7				
C48	D3	510	10	750	2566 0299
C49	C1	220	+100-10	10	2767 2232
C50	E2	0.05	20	50	2611 0106
C51	C3	0.0005	20	50	2611 0040
C52	B3	0.0005	20	50	2611 0040
C53	Part of IFT 6 (SEC.)				
C54	D1	0.02	20	50	2612 0100
C55	C2	4.7	+100-10	25	2767 2207
C56	B1	0.1	20	50	2611 0131
C57	C2	0.001	20	50	2611 0015
C58	C2	0.001	20	50	2611 0015
C59	B2	470	+100-10	10	2767 2244
C60	A1	0.1	20	50	2611 0131
C61	C1	0.02	20	50	2611 0064
C62	A1	330	10	750	2566 0287
C63	A1	0.02	20	50	2611 0064
C64	B2	10	+100-10	10	2759 1128
C65	B1	0.003	20	50	2611 0039
C66	B2	100	+100-10	6.3	2767 2220
C67	A2	0.001	20	50	2611 0015
C68	A2	33	+100-10	10	2767 2219
C69	A3	1000	+100-10	10	2767 2256
C70	B2	0.003	20	50	2611 0039
C71	A3	1000	+100-10	10	2767 2219
C72	B3	0.01	20	50	2611 0052
C73	A2	200	5	350	2556 0025

VARIABLE CAPACITORS

Ref.	*Location	Value (pF)	Function	Part Number
CT1	J2	3.5 to 18	V.H.F. r.f. trimmer	Part of CV1/4
CT2	I2	3.5 to 18	V.H.F. Osc. trimmer	
CT3	J2	3.5 to 18	M.W. Aerial trimmer	
CT4	I2	3.5 to 18	M.W. Osc. trimmer	
CT5	E1	10 to 80	L.W. Aerial trimmer	
CT6	E2	10 to 80	L.W. Osc. trimmer	2911 0178
CV1	J2	4 to 24	Tuning capacitor ganged	2913 0414
CV2	I2	4 to 24		
CV3	J2	5 to 340		
CV4	I2	5 to 340		

RESISTORS

Ref.	*Location	Value (ohms)	Tolerance (\pm %)	Rating (watts)	Part Number
R1	J3	470	5	0.25	2061 1638
R2	J3	47k	5	0.25	2061 2175
R3	J3	1.5k	5	0.25	2061 1766
R4	J2	27	5	0.25	2061 1304
R5	I3	1.8k	5	0.25	2061 1791
R6	I3	18	5	0.25	2061 1262
R7	H3	8.2k	5	0.25	2061 1973
R8	I3	4.7k	5	0.25	2061 1900
R9	G2	27k	5	0.25	2061 2102
R10	G1	12k	5	0.25	2061 2023
R11	I2	100k	5	0.25	2061 2242
R12	F2	330	5	0.25	2061 1596
R13	G1	1.5k	5	0.25	2061 1766
R14	E1	2.7k	5	0.25	2061 1845
R15	F3	10k	5	0.25	2061 1997
R16	F2	12k	5	0.25	2061 2023
R17	F3	1.5k	5	0.25	2061 1766
R18	F2	120k	5	0.25	2061 2266
R19	F3	330	5	0.25	2061 1596
R20	F3	6.8k	5	0.25	2061 1948
R21	F2	10k	5	0.25	2061 1997
R22	E3	10k	5	0.25	2061 1997
R23	E2	680	5	0.25	2061 1687
R24	E2	330	5	0.25	2061 1596
R25	E2	6.8k	5	0.25	2061 1948
R26	D2	47	5	0.25	2061 1377
R27	D3	680	5	0.25	2061 1687
R28	D3	6.8k	5	0.25	2061 1948
R29	D2	12k	5	0.25	2061 2023
R30	C3	8.2k	5	0.25	2061 1973
R31	C1	27	5	0.25	2061 1572
R32	E2	18k	5	0.25	2061 2060
R33	E2	56k	5	0.25	2061 2199
R34	C3	1k	5	0.25	2061 1729
R35	C2	470	5	0.25	2061 1638
R36	B1	3.3k	5	0.25	2061 1869
R37	E1	100k	2	0.25	2070 0015
R38	B3	390	10	0.25	2003 0642
R39	C2	8.2k	5	0.25	2061 1973
R40	C2	8.2k	5	0.25	2061 1973
R41	B1	100k	2	0.25	2061 2242
R42	A1	120k	2	0.25	2070 0003
R43	A2	330k	2	0.25	2070 0027
R44	B1	12k	5	0.25	2061 2023
R45	B1	27	5	0.25	2061 1304
R46	A1	18k	5	0.25	2061 2060
R47	A2	10k	5	0.25	2061 1997
R48	A2	10k	5	0.25	2061 1997
R49	B3	4.7k	5	0.25	2061 1900
R50	B3	560	10	0.25	2003 0666
R51	B2	39	5	0.25	2061 1353
R52	B3	470	5	0.25	2061 1638
R53	C1	1k	5	0.25	2061 1729

VARIABLE RESISTORS

Ref.	*Location	Value (ohms)	Function	Part Number
RV1	C3	1k	Discriminator balance	2355 0247
RV2	A1	50k	Volume	2353 0674
RV3	B1	100k	Tone	2353 0686

TRANSISTORS AND DIODES

Ref.	*Location	Type	Function	Part Number
VT1	J2	BF255	R.F. amplifier (F.M.)	3632 3986
VT2	I3	BF255	Mixer oscillator (F.M.)	3632 3986
VT3	F3	BF241	I.F. amplifier (F.M.)	3632 4048
VT4	G2	BF241	Mixer oscillator (A.M.)	3632 4048
VT5	E2	BF241	Common I.F. amplifier	3632 4048
VT6	D2	BF241	Common I.F. amplifier	3632 4048
VT7	B1	BC252B	Audio pre-amplifier	3632 3792
VT8	A2	BC172B	Compound pair, Driver stage	3632 3834
VT9	A2	BC172B		
VT10	B3	AC188	Complementary pair output stage	3635 1027
VT11	A3	AC187		
D1	I2	ITT210	A.F.C. diode	3645 0030
D2	F3	AA143	A.G.C. diode	3641 1607
D3	C2	AA143	Detector diodes (F.M.)	3641 1607
D4	C2	AA143		
D5	C3	AA143		
D6	A2	AA143	Detector diode (A.M.)	3641 1607
			Stabilising diode	3641 1607

* Use this column in conjunction with Fig. 3 on pages 3 & 4.

INDUCTORS AND TRANSFORMERS

Ref.	Location	Function	D. C. Resistance (ohms)	Part Number	Title	Description	Part Number	
L1	—	—	—	—	Cabinet, assembly (B844)	less loudspeaker and		
L2	J3	Input transformer	less than 0.5	7100 4506	Cabinet, assembly (VTR173)	telescopic aerial	AS59005	
L3		F.M. r.f. coil	less than 0.5			less loudspeaker and		
L4	J2	F.M. r.f. coil	less than 0.5	6811 0479	Clip, retaining (2)	telescopic aerial	AS59006	
L5	I3	I.F. rejector	less than 0.5	6811 0054		retain top moulding and		
L6	H2	F.M. oscillator	less than 0.5	6811 0406	Fix, push-on	chassis to cabinet	6540 0094	
L7	H3	IFT1	Pins 1 & 3 less than 0.5	7100 4518		Handle, complete	for aerial socket	4720 1551
L8		(1st F.M.)	Pins 5 & 6 less than 0.5		with fittings	AS59003		
L9		Aerial coupling	Pins A & H less than 1		7100 4488	Jack socket	miniature, snap-in	3422 0690
L10	—	M.W. Aerial	Pins C & E less than 1	complete	Knob, moulded (2) (B844)	Volume and Tone	6130 0056	
L11		L.W. Aerial	Pins D & E less than 0.5			with Ferrite Rod.	Volume and Tone	6130 0093
L12			Pins F & H 15				Knob, moulded (B844)	Tuning
L13	G2	A.M. Oscillator coil.	Pins G & H less than 1	3232 0632	Knob, moulded (VTR173)	Tuning	6130 0081	
L14			Pins 3 & 4 2			Knob, P/B moulded	On/Off, AFC, VHF, M.W., L.W.	6130 0068
L15	F2	IFT2 (PRI.) (1st A.M.)	Pins 2 & 5 less than 0.5	3221 1272	Ring, compression	on Tuning knob	4768 0027	
L16			Pins 1 & 6 less than 0.5			Ring, compression	on Volume & Tone knobs	4768 0064
L17	E2	IFT2 (SEC.)	Pins 1 & 2 2	3221 1315	Scale, printed (B844)	Scale, printed (VTR173)	6451 0633	
L18			Pins 3 & 6 4			Scale, printed (VTR173)	6451 0645	
L19	F2	IFT3 (PRI.) (2nd F.M.)	Pins 10 & 12 6	3222 1253	Socket, aerial	Speaker, P.M. oval	3424 1218	
L20			Pins 7 & 9 less than 0.5			Trim, decorative (2)	8 ohms cabinet	3123 0362
L21	E2	IFT3 (SEC.)	Pins 4 & 6 less than 0.5	3222 1241	Trim, decorative (B844)	cabinet top moulding	6401 1653	
L22			Pins 1 & 3 less than 0.5			Tube, battery (2)	6184 0002	
L23	D2	IFT4 (PRI.) (2nd F.M.) (SEC.)	Pins 7 & 9 less than 0.5	3222 1253	Washer felt	for Volume and Tone control shafts	5001 0694	
L24			Pins 10 & 12 less than 0.5					
L25	D3	IFT5 (PRI.) (2nd A.M.) (SEC.)	Pins 1 & 3 less than 0.5	3221 1326				
L26			Pins 4 & 6 less than 0.5					
L27	D3	IFT6 (PRI.) (F.M. Discr.)	Pins 1 & 3 7	3222 1265				
L28			Pins 4 & 6 less than 0.5					
L29	C3	IFT7 (A.M. Discr.)	Pins 3 & 4 less than 0.5	3221 1302				
L30			Pins 1 & 5 less than 0.5					
L31	C3	IFT6 (SEC.) (F.M. Discr.)	Pins 1 & 3 5	3222 1228				
L32			Pins 4 & 6 less than 1					
L33	C3	IFT6 (SEC.) (F.M. Discr.)	Pins 7 & 9 less than 0.5	3222 1228				
L34			Pins 10 & 12 less than 1					

* Use this column in conjunction with Fig 3. on pages 3 and 4.

CABINET

Title	Description	Part Number
Aerial	telescopic	3191 1237
Base, cabinet (B844)	riveted, complete	7400 3962
Base, cabinet (VTR173)	riveted, complete	7400 3963
Cabinet top, moulded	less scale, trim and clips	6154 0857
Cabinet top, moulded (B844)	complete assembly	AS59004
Cabinet top, moulded (VTR173)	complete assembly	AS59007

CHASSIS

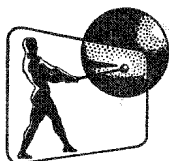
Title	Description	Part Number
'C' Clip (2)	on large double pulleys	4774 0036
Chassis (Z506)	complete with components	7300 3657
Drive cord assembly	Terylene type M405, with spring	7601 0764
Drum, moulded	Fitted on printed side of Z505	6168 0230
Grommet (2)	Fixing ferrite aerial to chassis	4860 0155
Heat sink (double)	for output transistors	3639 0033
Nylon line, 450 mm	holding pointer in position	1341 0076
Pointer	scale	5231 0395
Printed cct. board (Z505)	complete with components	7200 1446
Printed cct. board (Z506)	complete with components	7200 1434
Pulley, moulded (4)	mounted on headed pins	6168 0059
Pulley, moulded (2)	large (double)	6168 0229
Spindle, pulley, knurled (2)	holding large pulleys	5816 0474
Spindle, pulley (tapped)	holding small pulley on cct. board	5844 0033
Spring, torsion	centre of tuning drum	6510 0323

MODIFICATIONS

VT1 and VT2 (BF255) were BF121, part number 3632 3639 in earlier models.
 VT3 to VT6 (BF241) were BF125, part number 3632 3895 in earlier models.
 VT7 (BC252B) was BC262B, part number 3632 3603 in earlier models.
 VT8 and VT9 (BC172B) was BC108B, part number 3632 3767 in earlier models.
 Coil L4 (part number 6811 0479) was part number 6811 0273 in earlier models.

C14 (6.8 pF) was 4.7 pF, part number 2556 0074 in earlier models.
 C64 (10µF) was 4.7 µF, part number 2767 2207 in earlier models.
 C73 (200 pF) is not used in earlier models.
 R6 (18 ohms) was 47 ohms, part number 2061 1377 in earlier models.
 R35 (470 ohms) was 330 ohms, part number 2061 1596 in earlier models.

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A DIVISION OF THE RANK ORGANISATION

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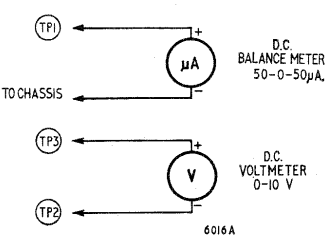


Fig. 2 Meter connections.

NOTE:
For component locations,
see Parts list on pages 5 & 6.

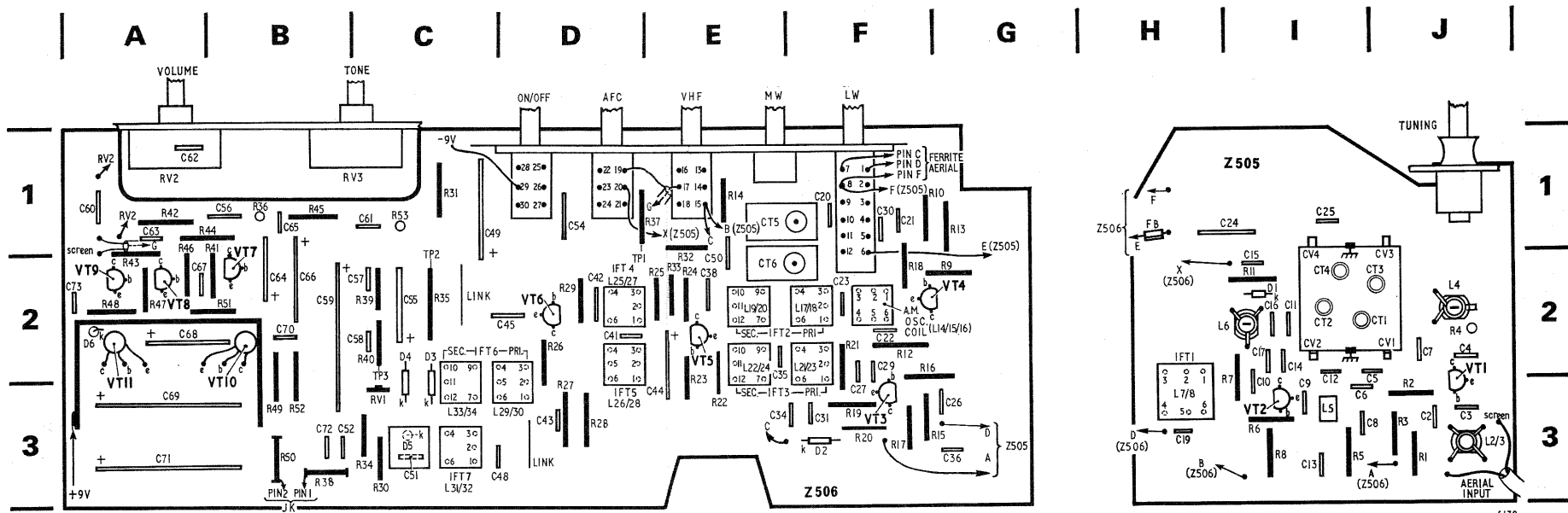


Fig. 3 Component layout

6178

6179

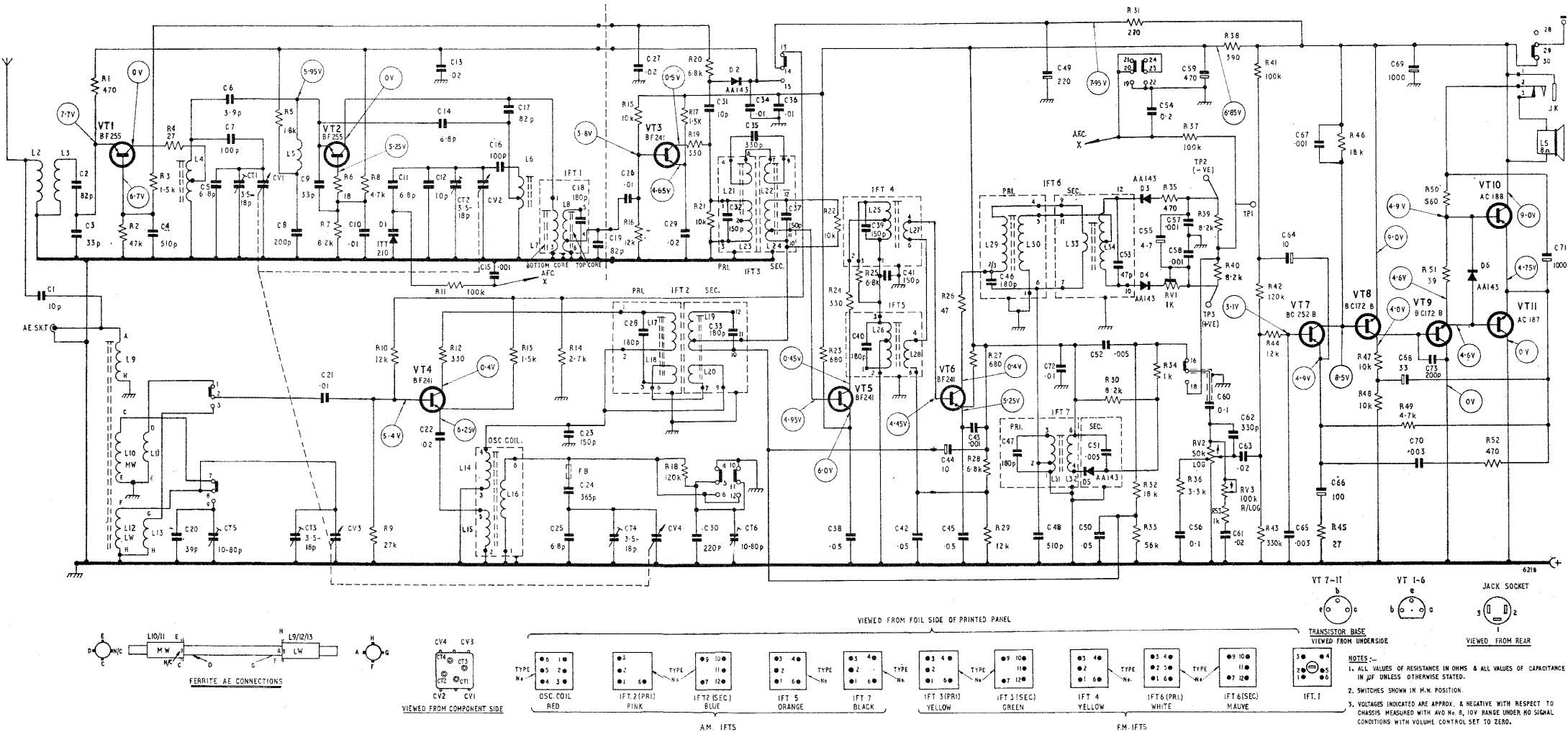


Fig. 4 Circuit diagram VTR173 & B844.

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SERVICE INFORMATION

MODELS

VTR273 (BUSH)

B944 (MURPHY)

BATTERY OPERATED RADIO RECEIVER, FOR L.W., M.W. & V.H.F.

Use this publication in conjunction with the Service Information TP1805 for models VTR173 and B844. The information in TP1805 applies to receivers VTR273 and B944 with the exceptions and corrections listed below.

SPECIFICATION

Details as page 1 of TP1805, with the following addition.

EXTERNAL POWER SUPPLY

A socket is provided for the connection of an external power supply. The supply shall have a current capability of 200mA at 9 volts d.c. The internal battery is disconnected when the external supply is connected. A suitable mains operated power supply P.U. 90, is available from the Service Department.

CORD DRIVE

Details as Fig. 1, TP1805.

DISMANTLING

Details as page 2, TP1805.

ALIGNMENT PROCEDURE

Details as page 2, TP1805.

COMPONENT LAYOUT Z505, Z506 & CIRCUIT DIAGRAM

Details as Figs. 2, 3 and 4, pages 3 and 4 TP1805, with the following additions.

- 1 Resistor R54. 2-2Ω, (Z506) added, in series with the emitter of the output transistor VT10, reference A2 on layout.
- 2 Resistor R55. 2-2Ω, (Z506) added, in series with the emitter of the output transistor VT11, reference A2 on layout.
- 3 Resistor R56, 47Ω, (Z506) added, in series with the primary of I.F.T.6, between pin 1 and chassis, it is fitted in place of the link adjacent to capacitor C43, reference D3 on layout.
- 4 Circuit diagram Fig. 3, external power supply jack added, see scrap view Fig. 1, adjacent.

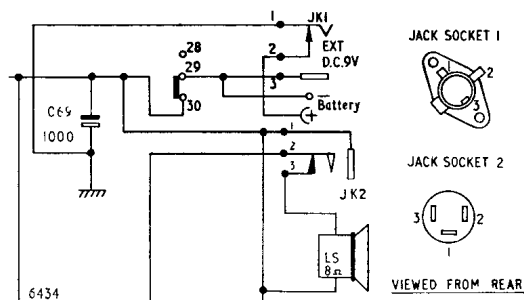


Fig. 1. Circuit modification showing external power supply Jack JK1.

PARTS LIST (Electrical)

Details as pages 5 and 6, TP1805, with the following corrections and additions to the various sections.

CAPACITORS

Details as page 5.

RESISTORS VARIABLE

Details as page 5.

RESISTORS FIXED

Details as page 5, plus the following.

Ref.	Loc.	Value (ohms)	Tolerance (±%)	Rating (watts)	Part Number
R54	A2	2-2	±0-5Ω	0-25	2061 2862
R55	A2	2-2	±0-5Ω	0-25	2061 2862
R56	A3	47	5	0-25	2061 1377

TRANSISTORS AND DIODES

Details as page 5.

INDUCTORS AND TRANSISTORS

Details as page 6.

Parts List—continued

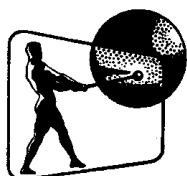
CABINET (Mechanical)

Title and Description	Part Number	Title and Description	Part Number
Aerial, telescopic	3191 1237	Socket, aerial	3424 1218
Base cabinet, riveted complete	B944 7400 3962	Speaker, 8 ohms	3212 0660
Base cabinet, riveted complete	VTR273 7400 3963	Trim, decorative (2) for cabinet	6401 1653
Cabinet top moulded, less scale trims and clips	VTR273 6154 0857	Trim, decorative for cabinet top moulding	B944 6401 1665
Cabinet top moulded, complete assembly	B944 AS92775	Tube, battery (2)	6184 0002
Cabinet top moulded, complete assembly	VTR273 AS91970	Washer, felt, for volume and tone controls	5001 0694
Cabinet assembly, less L/S and telescopic aerial:—			
Red	B944 AS92201		
White	B944 AS92199		
W/G	B944 AS92200		
Cabinet assembly, less L/S and telescopic aerial	VTR273 AS91969		
Clip retaining (2), retain top of moulding and chassis to cabinet	6540 0094		
Fix, push-on for aerial socket.	4720 1551		
Handle complete, with fittings	AS59003		
Jack socket phones, miniature snap in	3422 0690		
Jack socket, external 9 volt supply JK1	3422 2005		
Knob, (2) volume and tone	B944 6130 0056		
Knob, (2) volume and tone	VTR273 6130 0093		
Knob, (1) tuning	B944 6111 1181		
Knob, (1) tuning	VTR273 6130 0081		
Knob, P.B. on/off, A.F.C., V.H.F., M.W., L.W.	6130 0068		
Ring compression, for tuning knob	4768 0027		
Ring compression, for volume and tone knobs	4768 0064		
Scale, printed	B944 6451 0633		
Scale, printed	VTR273 6451 0645		
		CHASSIS	
		C. Clip 2, for large double pulleys	4774 0036
		Chassis Z506, complete with components	7300 3657
		Drive cord assembly, with spring	7601 0764
		Drum, fitted on print side of Z505	6169 0230
		Grommet (2), mounting ferrite Ae. to chassis	4860 0155
		Heat sink, for output transistors	3639 0033
		Nylon line, to hold pointer in position (450 mm)	1341 0075
		Pointer, for scale	VTR273 5231 0395
		Pointer, for scale	B944 6178 0273
		Printed cct. board Z505 complete with components	7200 1446
		Printed cct. board Z506 complete with components	7200 1434
		Pulley moulded (4), mounted on leader pins	6168 0059
		Pulley moulded (2), large double	6168 0229
		Spindle, pulley knurled (2), holding large pulleys	5816 0474
		Spindle, pulley (tapped), holding small pulley	5844 0033
		Spring, tension, centre of tuning drum	6510 0323

MODIFICATIONS

Details on page 6 of TP1805 do not apply to the VTR273 and B944 receivers.

THE SERVICE DEPARTMENT



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