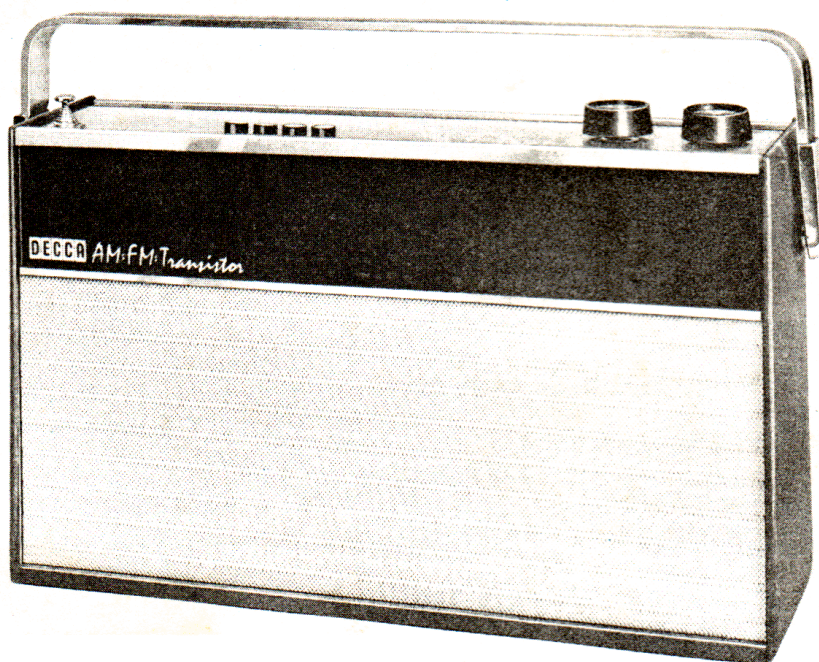


MODEL TP 90/A
TRANSISTOR PORTABLE
(V.H.F./MW.LW.)



SERVICE DATA

SPECIFICATION

AERIALS:

Internal aerial for medium and long wavebands with socket for external aerials. Telescopic aerials for F.M.

WAVEBANDS:

Medium Waves: 187.3-571 metres

Long Waves: 1150-2006 metres

A.M.I.F.: 472 kc/s.

VHF/FM: 87.5 mc/s-101 mc/s.

TRANSISTORS:

AF180	FM. RF. Amplifier.
AF115	FM. Mixer-Oscillator/FM. IF. Amplifier.
AF 114	AM. Mixer-Oscillator/AM. IF. Amplifier/FM. IF. Amplifier.
AF114	AM/FM. IF. Amplifier.
AF114	AM/FM. Amplifier.
OC71	Audio Pre-amplifier.
OC81/D	Driver.
OC81	Output.
OC81	Output.

LOUDSPEAKER:

5" round high flux density speaker—15 ohms.

CONTROLS:

Push Button: VHF; Long; Medium; On/Off.
Tuning; Volume.

BATTERY

Ever Ready PP9, Vidormax VT9 or equivalent.

CONTROLS:

Four push button controls are provided for waveband selection and On/Off.

When tuning on Medium and Long waves, the set can be rotated for best signal to noise ratio, especially on a weak signal. The telescopic aerial can be pulled out for VHF/FM listening and rotated and angled for best quality reception.

CAR AERIAL:

The receiver is provided with an aerial socket at the rear of the cabinet, which is suitable for plugging in the car aerial, using a standard banana jack plug Part No. 81/690. It is important that the outer portion of the coaxial plug is connected to a good car earth point.

This socket can be used also for permanent VHF/FM and AM external aerial installation. However, this should be necessary only in areas of excessively weak signal strength.

ADDITIONAL SOCKETS:

Earphone: An earphone socket is provided, the internal speaker being muted when the earphones are plugged in. This socket can be similarly used for plugging in a loudspeaker of 15 ohms impedance.

Tape: A tape socket is provided for feeding into a tape recorder.

BATTERY REPLACEMENT:

A general deterioration in performance indicates that the battery needs replacing. The back is easily removed after the plastic coin slotted screws have been rotated approximately a quarter turn, when the battery will be clearly visible.

AUDIO OUTPUT SOCKETS.

ADDITIONAL SOCKETS:

Earphone: This socket can be used for earphones. If a loudspeaker is plugged in, we recommend the impedance to be in the order of 15 ohms. In both cases, internal loudspeaker is automatically muted by external connection. The following plug is suitable for use with this socket.

Mc.Murdo TRP3 2 pin Din Plug Switch.

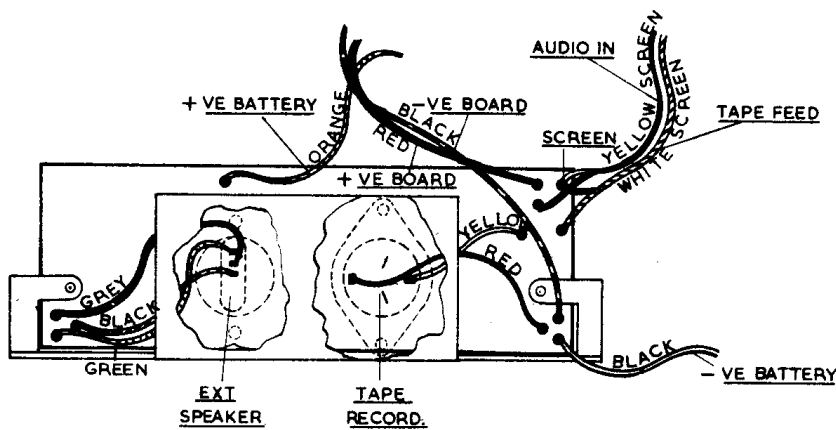
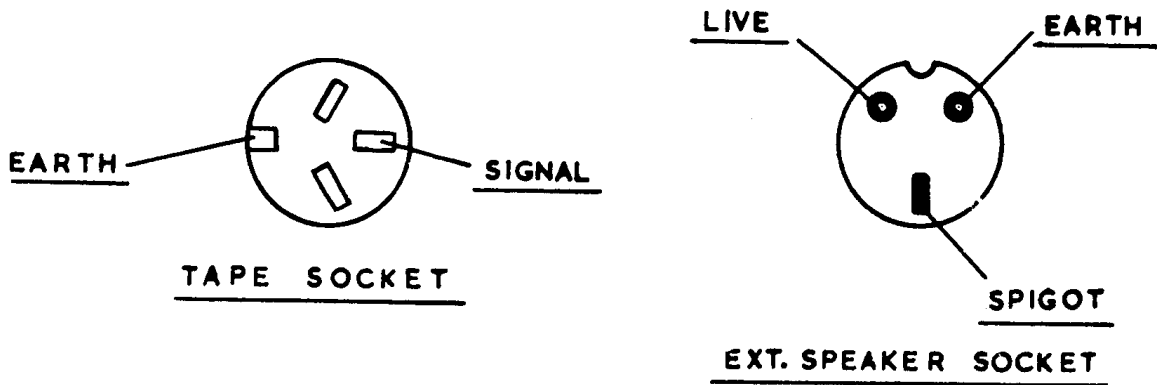
Tape: This tape socket is suitable for feeding to a tape recorder input. Any of the following plugs are suitable. The disposition of socket is shown below.

Arial Pressings type RA.2157.

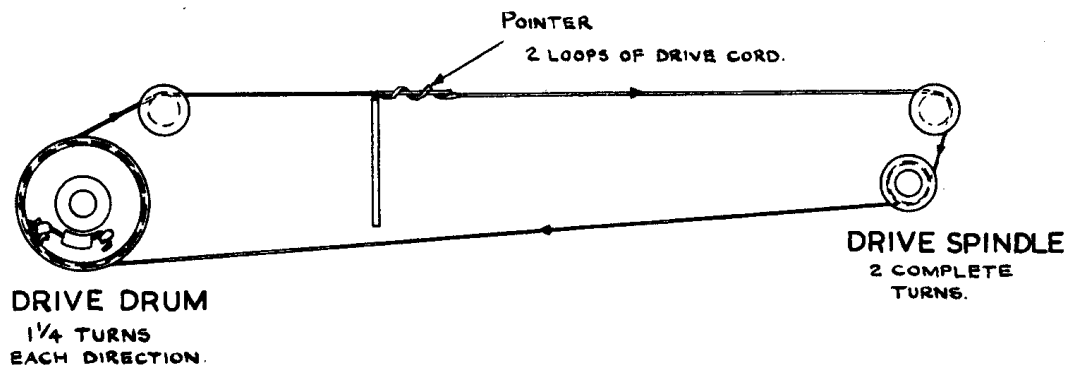
Hirschmann (Distributors: Neoflex Ltd.) MAS 3 or 30.

Preh (Distributors: G. E. Electronics Ltd.) 8-8407 or 8-8869.

Lumberg (Distributors: Super Electronics Ltd.) S31.



AUDIO SOCKET PANEL WIRING



DRIVE CORD DIAGRAM

TRANSISTOR REPLACEMENT

1) Take great care not to scratch or chip the paint covering on glass-cased transistors. If light is admitted, the transistors will act as a photo electric device (i.e. light will modulate the transistor current) and this may produce hum, etc.

2) When soldering transistor connections, it is essential to use a heat sink (preferably a reasonably sized pair of pliers). If excessive heat is transmitted to the transistors, it could easily cause serious damage and transistors should not be subjected to a temperature above 60°C. It is also important to realize that the electric soldering iron should be earthed, irons often have a very slight leak when hot and the resultant current can often damage a new transistor.

TR 1.	
TR 2. TR 3. TR 4. TR 5.	
TR 6. TR 7. TR 8. TR 9.	

TRANSISTOR BASE DIAGRAM

DECCA RADIO & TELEVISION
division of
THE DECCA RECORD COMPANY LTD.
Ingate Place,
Queenstown Road,
London, S.W.8
Telephone: MACaulay 6677 (15 lines)

PRINTED IN ENGLAND LITHOPRINT LTD.

ALIGNMENT INSTRUCTIONS.

(Correct alignment procedure can be followed only with chassis on test bench.)

Readings taken with meter across Loudspeaker coil on low A.C. range .3V.

VHF/FM ALIGNMENT

I.F. Alignment

1. Set F.M. signal generator to 10.7 mc/s and 22 Kc/s deviation.
2. Rotate main tuning condenser until gang is closed.
3. Switch to F.M. waveband.
4. Connect F.M. signal generator lead via C23 (.01 mfd.) to base of TR3 (AF.114); other lead should make contact with the earth on printed circuit board.
5. Feed in modulated signal to give low output indication.
6. Peak top and bottom cores of L9, L11, L12 (F.M.). Repeat until no further output is obtained.
7. Connect generator to aerial input terminals.
8. Increase signal and adjust L4 for max. output.
9. Switch F.M. signal generator to A.M. position for maximum A.M. rejection. Adjust VR33 for minimum output.
10. Repeat above operation.

R.F. Alignment

1. Set signal generator to 88 mc/s and 22 kc/s deviation.
2. Turn main tuning condenser to 88 mc/s as marked on scale.
3. Remain switched to F.M. waveband.
4. Connect F.M. signal generator between chassis and F.M. aerial socket.
5. Adjust cores of L2 and L3 for maximum output.
6. Set F.M. signal generator to 100 mc/s and 22 kc/s deviation.
7. Turn main tuning condenser to 100 mc/s as marked on scale.
8. Adjust trimmers C12 and C5 for maximum output.
9. Rotate tuning condenser until pointer is on 95 mc/s; then adjust core of L1 and L5 for maximum output.

A.M. ALIGNMENT (Medium and Long Waves)

1. Set A.M. signal generator to 472 kc/s.

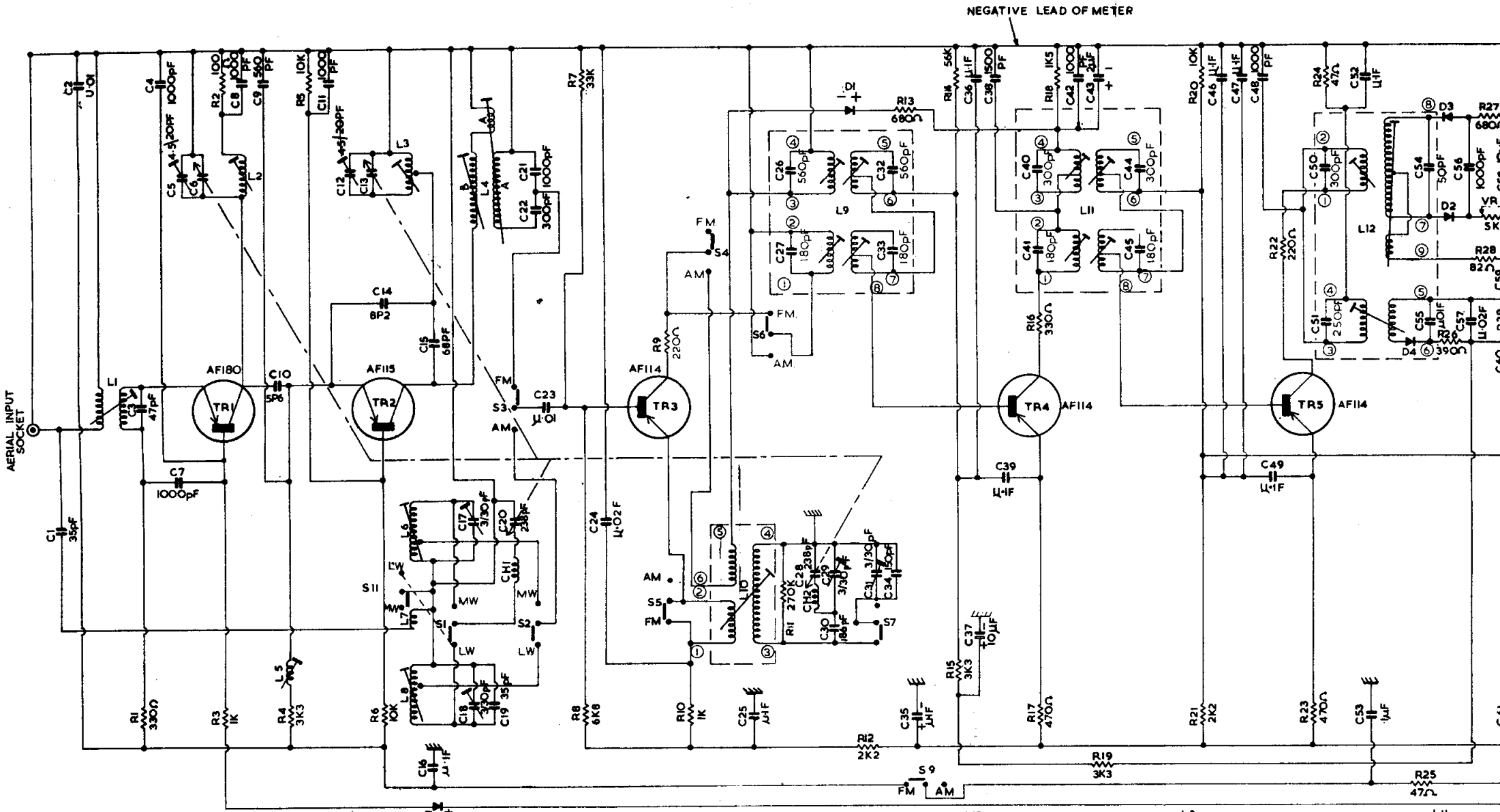
3. Switch to Medium waveband.
4. Disconnect tag lead connecting Medium wave aerial coil to TR3 base. Connect signal generator to free end of lead and to chassis.
5. Peak top and bottom cores of L9 (A.M.) and L11 (A.M.).
6. Peak L12 (one core only) for maximum output.
7. Adjust signal generator whenever necessary. Repeat above operation.

A.M. R.F. Alignment—Medium Wave

1. Re-connect lead to Medium wave aerial coil.
2. Turn tuning condenser to 500 metres as marked on scale.
3. Set A.M. signal generator to 600 kc/s.
4. Connect generator to A.M. aerial socket via 1K resistor (other lead makes contact with chassis).
5. Adjust one core of L10 (single core only) for maximum output.
6. Position Medium wave coil (L6) on ferrite rod for maximum output.
7. Turn main tuning condenser to 200 metres as marked on scale.
8. Re-set signal generator to 1500 kc/s.
9. Adjust oscillator trimmer (C29) and aerial trimmer (C17) for maximum output.
10. Repeat 5-9 until no further improvement is effected.

A.M. R.F. Alignment—Long Wave

1. Connect signal generator to A.M. aerial socket via 1K resistor (other lead makes contact with chassis).
2. Turn main tuning condenser to 1765 metres as marked on scale.
3. Re-set A.M. signal generator to 170 kc/s.
4. Adjust Long wave coil (L8) on ferrite rod for maximum output and adjust Long wave oscillator trimmer (C31) for maximum output.
5. Turn main tuning condenser to 1250 metres as marked on scale.
6. Set A.M. signal generator to 240 kc/s.
7. Adjust trimmer (C18) for maximum output.
8. Repeat 2-7 until no further improvement is effected.

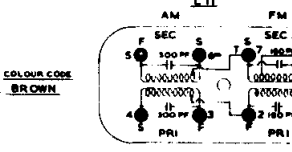
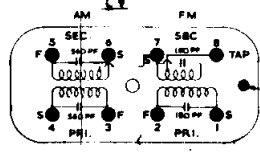
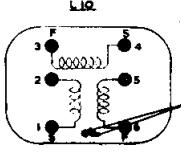
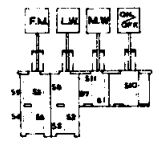


NEGATIVE LEAD OF METER

AERIAL INPUT SOCKET

	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉
B	4-5	2-3	4-0	5-5	5-5	6-7	7-3	4-4	6-9
E	5-2	3-0	4-5	6-0	5-9	7-3	7-7	4-6	9-0
C	1	/	1	1-5	5	3	1-2	/	4-6

MEASUREMENTS TAKEN ON AVO 8 MKII WITH RESPECT TO NEG. LINE

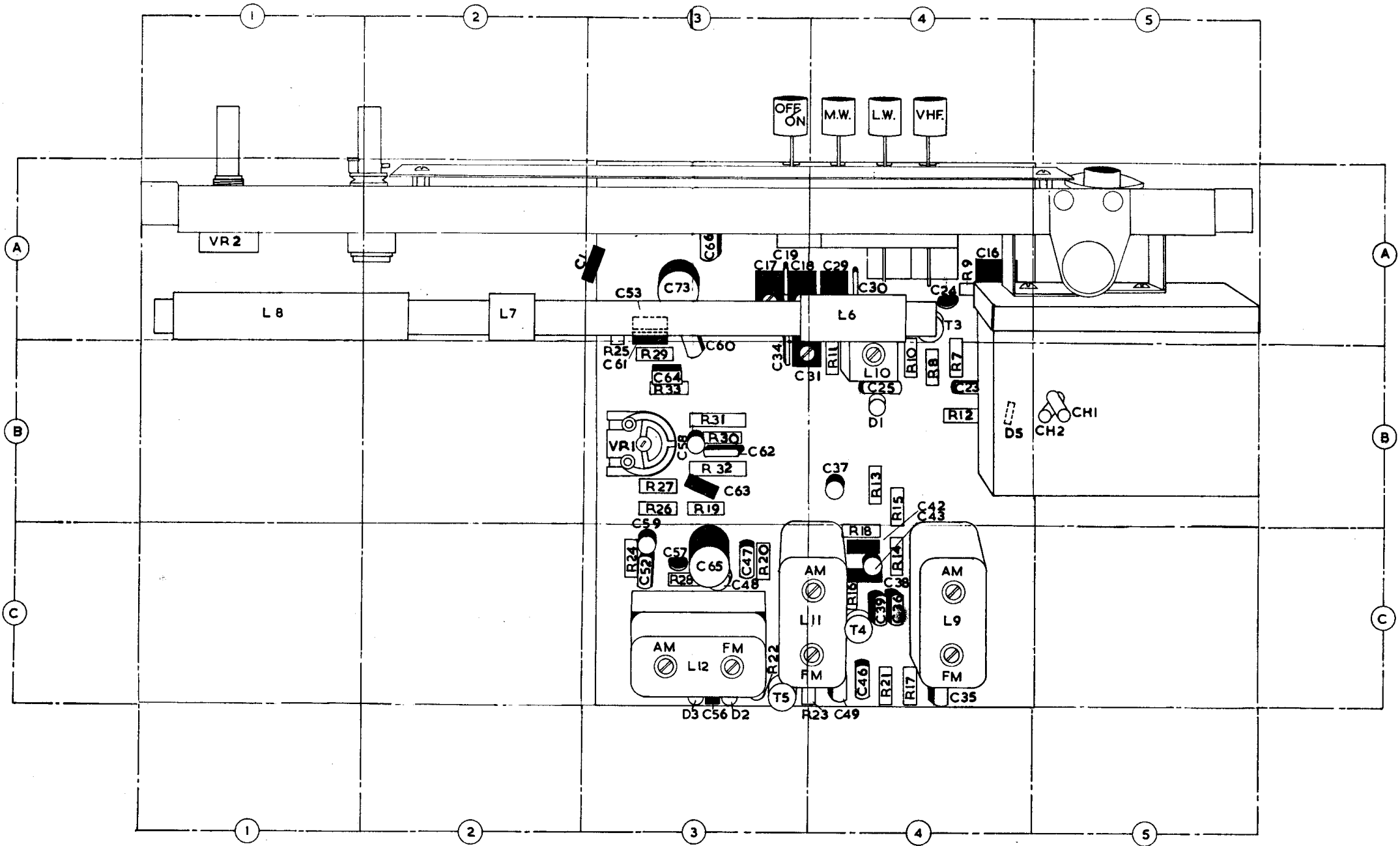


COLOR CODE BLUE/YELLOW

COLOR CODE BROWN

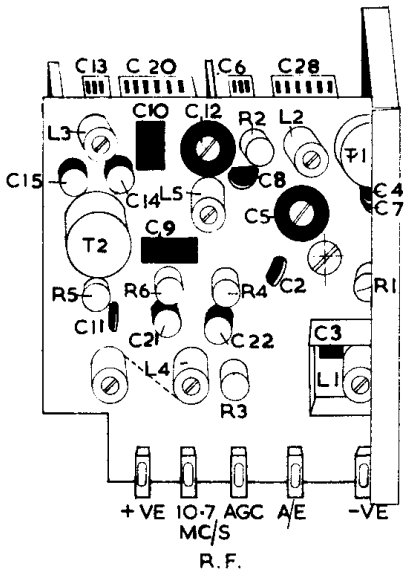
AS VIEWED FROM UNDERSIDE OF BASES.

CIRCUIT DIAGRAM

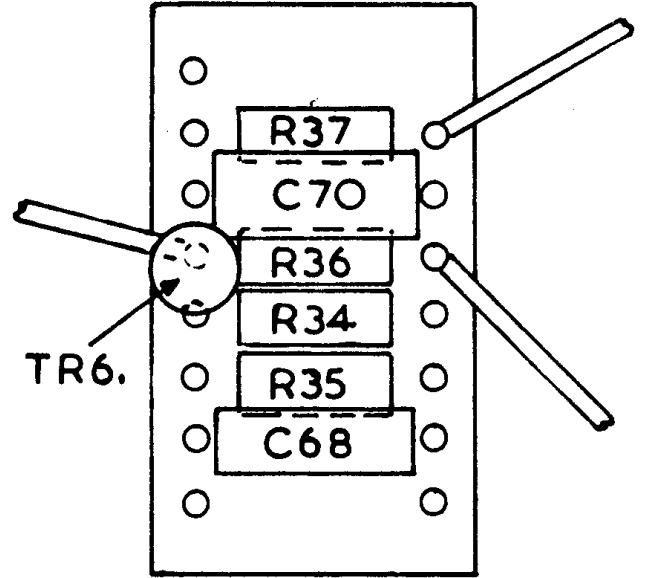


MAIN CHASSIS

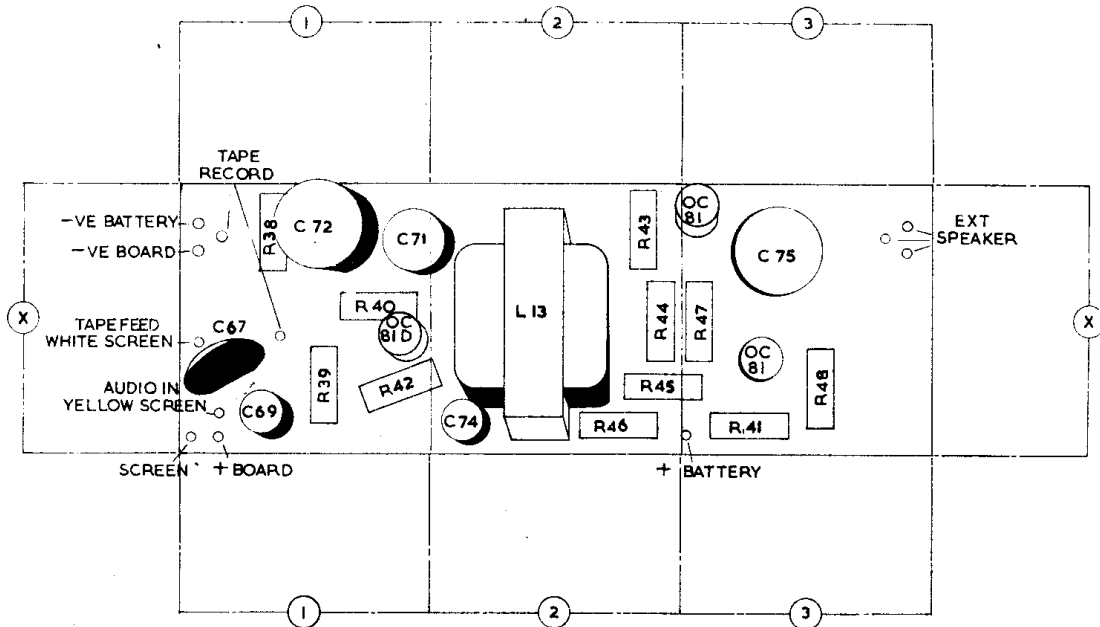
TP 90A F.M. TUNER



F.M. TUNER UNIT



PRE-AMP BOARD



AUDIO PANEL

CONDENSERS

1	35pf.	2 1/2% 125V. Suflex Polystyrene	A2
2	.01mfd.	12V. Erie 831/T/12	F.M. Tuner
3	47pf.	5% 125V. LCR Polystyrene	" "
4	1000pf.	+20% -50% LEM Type 07K	" "
5	—	See Variables	" "
6	—	See Variables	" "
7	1000pf.	+20% -50% LEM Type 07K	" "
8	1000pf.	+20% -50% LEM Type 07K	" "
9	560pf.	5% 30V. LCR Polystyrene	" "
10	5.6pf.	± 1/2 pf. LEM 310 P100	" "
11	1000pf.	+20% -50% LEM Type 07K	" "
12	—	See Variables	" "
13	—	See Variables	" "
14	8.2pf.	± 1/2 pf. LEM 310 P100	" "
15	68pf.	5% 125V. LCR Polystyrene	" "
16	.1mfd.	10% 250V. Mullard C281W	A4
17	—	See Variables	" "
18	—	See Variables	" "
19	35pf.	2% LEM S/M S/W 1106R	A3
20	—	See Variables	" "
21	1000pf.	5% 125V. LCR Polystyrene	F.M. Tuner
22	300pf.	5% 125V. LCR Polystyrene	" "
23	.01mfd.	20% 30V. Mullard C280 AA/P100K	B4
24	.02mfd.	12V. Erie 831/T/12	A4
25	.1mfd.	20% 30V. Mullard C280 AA/P100K	B4
26	—	See L9	" "
27	—	See L9	" "
28	—	See Variables	" "
29	—	See Variables	" "
30	186pf.	1% LEM S/M S/W 1510E	A4
31	—	See Variables	" "
32	—	See L9	" "
33	—	See L9	" "
34	150pf.	2 % LEM S/M S/W 1106R	B3
35	.1mfd.	20% 30V. Mullard C280 AA/P100K	C4
36	.1mfd.	20% 30V. Mullard C280 AA/P100K	C4
37	10mfd.	12V. SPS SPC-79-4	B4
38	1500pf.	5% 125V. LCR Polystyrene	C4
39	.1mfd.	20% 30V. Mullard C280 AA/P100K	C4
40	—	See L11	" "
41	—	See L11	" "
42	1000pf.	5% 125V. LCR Polystyrene	C4
43	2mf.	25V. SPS SPC 77-7	C4
44	—	See L11	" "
45	—	See L11	" "
46	.1mfd.	20% 30V. Mullard C280 AA/P100K	C4
47	.1mfd.	20% 30V. Mullard C280 A/P100K	C3
48	1000pf.	+20% -50% LEM 07K disc.	C3
49	.1mfd.	20% 30V. Mullard C280 AA/P100K	C4
50	—	See L12	" "
51	—	See L12	" "
52	.1mfd.	20% 30V. Mullard C280/P100K	C3
53	.1mfd.	20% 30V. Mullard C280/P100K	A3
54	—	See L12	" "
55	—	See L12	" "
56	1000pf.	5% 125V. LCR Polystyrene	C3
57	.02mfd.	12V. Erie 831/T/12	C3
58	10mfd.	12V. SPS SPC 79-4	B3
59	1000pf.	5% 125V. LCR Polystyrene	C3
60	.22mfd.	20% 30V. Mullard C280 AA/P220K	B3
61	.1mfd.	20% 30V. Mullard C280 AA/P100K	B3
62	.047mfd.	20% 30V. Mullard C280 AA/P47K	B3
63	1000pf.	5% 125V. LCR Polystyrene	B3
64	.022mfd.	10% 250V. Mullard 281W	B3

No.	DESCRIPTION	LOCATION
65	500mfd. 9V. SPS SPC 13-3	C3
66	.22mfd. 20% 30V. Mullard C280 AA/P220K	A3
67	.1mfd. 12V. Erie 811/T/12	X1
68	10mfd. 10V. SPS SPA 77-3	Pre-Amp Board
69	50mfd. 10V. SPS SPC 3-4	X1
70	100mfd. 12V. Daly E5.49-2	Pre-Amp Board
71	100mfd. 12V. SPS SPC 5-4/3	X1
72	500mfd. 9V. SPS SPC 13-3	3 B
73	500mfd. 9V. SPS SPC 13-3	A3
74	50mfd. 10V. SPS SPC 3-4	X1
75	500mfd. 9V. SPS SPC 13-3	X3

RESISTORS

No.	VALUE	DESCRIPTION	LOCATION
1	330 ohms	10% 1/2W Morganite Type S vert. SVP	F.M. Tuner
2	100 ohms	10% 1/2W Erie Type 15	" "
3	1K ohms	10% 1/2W Morganite type S vert SVP	" "
4	3.3K ohms	" " " " " " " " " "	" "
5	10K ohms	" " " " " " " " " "	" "
6	10K ohms	" " " " " " " " " "	" "
7	33K ohms	10% 1/2W Dubilier BTT Mark II pluggable	A3
8	6.8K ohms	" " " " " " " " " "	B4
9	220 ohms	" " " " " " " " " "	A4
10	1K ohms	" " " " " " " " " "	B4
11	270K ohms	" " " " " " " " " "	B4
12	2.2K ohms	" " " " " " " " " "	B4
13	680 ohms	" " " " " " " " " "	B4
14	56K ohms	" " " " " " " " " "	C4
15	3.3K ohms	" " " " " " " " " "	B4
16	330 ohms	" " " " " " " " " "	C4
17	470 ohms	" " " " " " " " " "	C4
18	1.5K ohms	" " " " " " " " " "	C4
19	3.3K ohms	" " " " " " " " " "	B3
20	10K ohms	" " " " " " " " " "	C3
21	2.2K ohms	" " " " " " " " " "	C4
22	220 ohms	10% 1/2W Morganite type S vert. SVP	C3
23	470 ohms	10% 1/2W Dubilier BTT Mark II pluggable	C4
24	47 ohms	" " " " " " " " " "	C3
25	47 ohms	" " " " " " " " " "	A3
26	390 ohms	" " " " " " " " " "	B3
27	680 ohms	" " " " " " " " " "	B3
28	82 ohms	" " " " " " " " " "	C3
29	6.8K ohms	" " " " " " " " " "	B3
30	2M2	" " " " " " " " " "	B3
31	6.8K ohms	10% 1/2W Erie 8AP2	B3
32	22K ohms	" " " " " " " " " "	B3
33	1K ohm	10% 1/2W Dubilier BTT Mark II pluggable	B3
34	180K	10% 1/2W Erie 7AD	Pre-Amp Board
35	10K	" " " " " " " " " "	" "
36	3.9K	" " " " " " " " " "	" "
37	1K	" " " " " " " " " "	" "
38	56K ohms	10% 1/2W Dubilier BTT Mark II pluggable	X1
39	18K ohms	" " " " " " " " " "	X1
40	1K ohms	" " " " " " " " " "	X1
41	100 ohms	5% 1/2W Dubilier BTT Mk. II pluggable	X3
42	47K ohms	10% 1/2W Erie 9AP2 pluggable	X1
43	2.2K ohms	5% 1/2W Dubilier BTT Mk. II pluggable	X2
44	100 ohms	" " " " " " " " " "	X2
45	2.2K ohms	" " " " " " " " " "	X2
46	100 ohms	10% " " " " " " " " " "	X2
47	2.2 ohms	5% " " " " " " " " " "	X3
48	2.2 ohms	" " " " " " " " " "	X3

POTENTIOMETERS.

CIR REF.	VALUE	DESCRIPTION	PART NO.
VR1	5K log.	A.M. Rejection	A590260
VR2	25K log.	Volume Control	A590223

TRIMMERS.

C5	4.5pf./20pf.	F.M./R.F. Trimmer	A58069
C6/13/20/28	—	Main Gang	B58096
C12	4.5pf./20pf.	F.M. Oscillator Trimmer	A58069
C17	3pf./30pf.	M.W. Aerial Trimmer	A58091
C18	3pf./30pf.	L.W. Aerial Trimmer	A58091
C29	3pf./30pf.	M.W. Oscillator Trimmer	A58091
C31	3pf./30pf.	L.W. Oscillator Trimmer	A58091

COILS, CHOKES AND TRANSFORMERS.

L1	—	F.M. Aerial Coil	A56818
L2	—	F.M. R.F. Collector Coil	A56819
L3	—	F.M. Oscillator Coil	A56820
L4	—	1st F.M. I.F. Coil	A56821
L5	—	F.M. I.F. Rejection Coil	A56817
L6/7/8	—	M.W./L.W. Aerial Rod	B56822
L9	—	1st A.M. 2nd F.M. Coil	C56796
L10	—	M.W./L.W. Oscillator Coil Pack	A56811
L11	—	2nd A.M. 3rd F.M. Coil	C56797
L12	—	Ratio Detector Coil-	C56798
L13	—	Output Transformer	A56529
CH1	—	R.F. Coil	A525007
CH2	—	R.F. Coil	A525007

MAIN PARTS LIST.

QTY.	DESCRIPTION	PART NO.
1	Volume Control Knob	B590325
1	Tuning Control Knob	B590325
1	Complete RF Panel and Gang Assembly	B550463/Assy.
1	Complete I.F. Panel and Chassis Ass.	D550462/Assy.
1	Complete A.F. Panel Assembly	B550461/Assy.
1	5" Round Speaker (15 ohms)	B590281
1	Speaker Gasket	B550494
1	Cabinet Handle	C590375
2	Handle Retaining Clips	A52078
1	Battery Connector (negative)	A550495
1	Battery Connector (positive)	A550496
2	Battery Connector Covers	A550497
1	Slow Motion Drive Unit	B550526
1	Drive Drum	B59959
1	Drive Drum Spring	A52198
1	Pointer	A590254
2	Pulley Wheels	A550303
2	Retaining Clips (pulley wheels)	A52120
1	Telescopic Aerial	A590255
1	Moulded Rear Grille	B550482