



MODULAR EQUIPMENT

RADIO + AMPLIFIER	MSM16-38
RECORD PLAYER + AMPLIFIER	MSM12-37
AMPLIFIER	MSM12-36

Service Information & Parts List

MSM16-38

MSM12-37

MSM12-36

SM16-38

SM12-37

SM12-36

EXTERNAL PARTS SPARES LIST

SM12-36 AMPLIFIER

Cabinet Amplifier 12-36	CP16049/	Murphy Label	DP20091
12-36 Front Panel	EA14540	Knob with indicator mark	EA14537
F & P Badge	EA20090/1	Knob—plain	EA14545
A.W.A. Badge	EA20089/1	Spire fix chassis front panel	XP2159
Radiola Label	DP20092	Spire fix, back retaining	XP2161

EXTERNAL PARTS SPARES LIST

SM12-37

Cabinet, for use with B.S.R. UA70	XP16050/-	Control panel	EA14540
for use with Garrard SP25	XP16052	Badge (F & P)	EA20090/1
Base for cabinet	XA16232	Badge (A.W.A.)	EA20089/1
SP25 Player (Garrard)	XP20601	Label (Murphy)	DP20091
9TAHC cartridge (with stylus)	XP20604	Label (Radiola)	DP20092
S/D stylus for 9TAHC	XP20605	Safety cover	EP14218
UA70 Changer (B.S.R.)	XP20518	Tone control Knob	EA14537
C1 cartridge (with stylus)	XP20519	Volume/Balance Knob	EA14545
Stylus for C1 cartridge Diamond/sap.	XP20520	Spire fix, chassis to front panel	XP2159
Stylus for C1 cartridge Sap/Sap.	XP20525		

EXTERNAL PARTS SPARES LIST

SM16-38 Tuner & Amplifier

Cabinet	CP16051/-	Dial Scale	EA14541
Cabinet Back	XA16233	Tuning Knob	EA14546
Badge A.W.A.	EA20089/1	Tone control Knob	EA14537
Badge F & P	EA20089/1	Volume/Balance Knob	EA14545
Radiola Label	DP20092	Spire fix, chassis to control panel	XP2159
Murphy Label	DP20091	Spire fix, chassis to cabinet	XP2161
Control Panel (Aluminium)	EA14539		

CHASSIS SERVICE INFORMATION

BROADCAST RADIO & AMPLIFIER —
SERIES 8 HIGH POWER

DISSEMBLY

TO REMOVE CHASSIS

1. Undo 3 screws underneath unit.
2. Slide chassis forward.

TO REMOVE CONTROL PANEL FROM CHASSIS

1. Pull knobs off.

2. Undo 3 nuts holding top of control panel. (Note! Take care not to turn heads under the metalcal).
3. Undo 2 spire clips holding bottom of control panel.
4. Undo headphone socket nut.

RADIO TUNER SPECIFICATION

BANDWIDTH

Narrow 18 c.p.s.—2.5 Kc+1db—3db.
Broad 450/metre for 60mV/R.M.S. output.
Tune on narrow then switch to broad.

SENSITIVITY

Narrow 30uV/metre for 60mV R.M.S. output.
Broad 450V/metre for 60mV/R.M.S. output.

SIGNAL NOISE

20db at 100uV/metre (narrow)

DISTORTION

2% at 90% modulation (2% at 30% Mod) at 400 c.p.s.
This applies to signals of up to .25 volts.
Maximum signal acceptance 3V R.M.S.

STEREO AMPLIFIERS

Series 8 High Power Amplifier Data

POWER OUTPUT:

Greater than 15 watts R.M.S. Music Power in each channel at 1 Kc. into 8 ohms (E.I.A. Specification RS234B).
Equivalent to 10W+10W R.M.S.—continuous.
Peak music power 60 watts.

RESPONSE RANGE:

18 c.p.s. to 25 Kc + or — 1db. See curves.

BASS RANGE:

+11db,—9db at 30 c.p.s. 2/3 volume setting.

TREBLE RANGE:

+8db,—17db at 10K c.p.s. 2/3 volume setting.

SCRATCH FILTER:

—3db at 5 Kc.
—6db at 10 Kc.
—11db at 20 Kc.

INPUTS:

PICK-UP Ceramic

100mV R.M.S. (+2db) for 10 watts R.M.S. output. Input impedance 2.5 megohms.
Hum and noise 70db below 10 watts with 1000pt cartridge, using B.S. 3489 weighing curve 'A'.
Measured at full volume, with bass and treble controls set to flat frequency response.

Optional Magnetic

2.1mV R.M.S. (+ or — 3db) for 10 watts R.M.S. output.
Input impedance 100 Kilohms.
Hum and noise 75db below 10 watts with 1000 ohms 200 mH cartridge, using B.S. 3489 weighing curve 'A'.

RADIO Sensitivity

200mV (+ or — 2db) for 10 watts R.M.S. output
Input impedance 500 Kilohms.
Hum and noise 70db below 10 watts Measured as for pick-up.

TAPE & AUXILIARY:

Sensitivity 200mV (+ or — 2db) for 10 watts R.M.S. output.
Input Impedance 500 Kilohms.
Hum and noise 70db below 10 watts. Measured as for pick-up.

CONTROLS:

Input switch : 4 push buttons, on of which is a "mute" position.
Treble : Continuous, boost and cut.
Bass : Continuous, boost and cut.
Balance : Continuous, complete fade at each end.
Volume : Continuous.
Scratch Filter : Two-position, rocker switch.
On/Off : Two-position, rocker switch.
Contour : Two-position, rocker switch.
(On amplifier-only models).

OUTPUTS:

- A low impedance replica of the input signal is available for tape recorders, etc. This is unaffected by the controls and is isolated from the amplifier. Output is approximately 100mV R.M.S. with a source impedance of 100 kilohms.
- Main output, suitable for 5 to 15 ohms.
- Headphone socket for 8—400 ohm headphones.

FEATURES:

TRANSIENT OVERLOAD

CAPABILITY:

When playing very loudly an amplifier is occasionally overloaded and clips, this amplifier is not subject to thumps or other undesirable effects, on clipping, thus giving it a clean sound at high levels.

RUMBLE FILTER:

The response is designed to fall very rapidly below 20 c.p.s. to attenuate rumble.

AUTOMATIC LOUDNESS

COMPENSATION:

As the volume control is turned down bass boost is introduced in just the right amount to give balanced listening; on amplifier only versions this is optional, switch-controlled.

LOW OUTPUT IMPEDANCE:

This is extremely low, less than 0.5 ohm. This gives any speaker a better transient response.

GROSS TALK:

On gramophone input, better than 30db, 50 c.p.s. to 10K c.p.s.
better than 25db, 20 c.p.s. to 20K c.p.s.
Between different inputs, inaudible and unmeasurable.

RADIO PLAY THROUGH:

Inaudible and unmeasurable.

RESPONSE AND BASS:

The bass control action is specifically designed to enable the amplifier to compensate small speaker systems. Bookshelf enclosures particularly require bass compensation at low frequencies and bass boosting at 500 c.p.s. is not suitable. The amplifier is designed to give bass extending an octave below comparable systems.

NOTE:

1. Colour of wiring is indicated on the circuit and circuit boards.

B Blue	Bk Black
Bn Brown	G Green
Gy Grey	Or Orange
V Violet	W White
Y Yellow	R Red

S — indicates a screened wire. E.g. S Bk. screened black wire. S Bk R. Black screened wire, red inner.
2. Preamp and radio H.T.—ve is signal return.
3. The amplifier of the high power series 8 product range is identical to the amplifier section of the Radio Receiver.

SERIES 8 HIGH POWER

TUNER ALIGNMENT PROCEDURE

Align on narrow bandwidth.
I.F. alignment—Frequency 455 KHz.
R.F. alignment—Set pointer 0.2" to the left of the

end of horizontal lines on dial scale—gang fully closed.
Frequencies 600 KHz
1.5 MHz
Oscillator coil—Green/White.
R.F. coil—Yellow/White.

SERIES 8 HIGH POWER CHASSIS SPARE PARTS— BROADCAST RADIO AND AMPLIFIER

CIR.	REF.	DESCRIPTION	PART NO.
		Tuning Capacitor	360pf
		Capacitor	3 Gang with Trimmers
C1			EP 3457
C2			XP10094
C3			XP10102
C4			XP10102
C5			XP10093
C6			XP10087
C7			XP10087
C8			XP10088
C9			XP10102
C10			XP10038
C11			XP10102
C12			XP10125
C13			XP10102
C14			XP10101
C15			XP10112
C16			XP10203
C17			XP 2446
C18			XP10102
C19			XP10081
C20			XP10114
C21			XP10089
C22			XP10201
C23			XP10204
C24			XP10206
C25			XP10100
C26			XP10100
C27			XP10100
C28			XP10176
C29			XP10112
C30			XP10112
C31			XP10051
C32			XP10051
C33			XP10177
C34			XP10177
C35			XP10110
C36			XP10110
C37			XP10093
C38			XP10093
C39			XP10114
C40			XP10114
C41			XP10176
C42			XP10176
C43			XP10179
C44			XP10179
C45			XP10177
C46			XP10177
C47			XP10177
C48			XP10177
C49			XP10177
C50			XP10177
C51			XP10084
C52			XP10084
C53			XP10177
C54			XP10177
C55			XP10209
C56			XP10208
C57			XP10062
C58			XP10251
C59			XP10251
C60			XP10205
C61			XP10205
C62			XP21073
C63			XP21059
C64			XP21063

CIR.	REF.	DESCRIPTION	PART NO.
R4		10K	XP21049
R6		6.8K	XP21047
R9		68K	XP21059
R10		1.5K	XP21039
R11		27	XP21018
R12		10	XP21013
R16		22K	XP21053
R17		33K	XP21055
R18		2.2K	XP21041
R19		150K	XP21063
R21		150	XP21027
R22		150K	XP21525
R26		33K	XP21055
R27		22K	XP21053
R28		2.2K	XP21041
R29		1.5K	XP21039
R30		15K	XP21051
R31		15K	XP21051
R32		33K	XP21509
R33		330K	XP21533
R34		6.8K	XP21493
R99		Fusible	XP 3274
R101		8.2K	XP21495
R103		1.5	XP21039
R104		470	XP21033
R105		270K	XP21531
R106		270K	XP21531
R107		270K	XP21531
R108		270K	XP21531
R109		270K	XP21531
R110		270K	XP21531
R111		330K	XP21067
R112		330K	XP21067
R113		10M	XP21085
R114		10M	XP21085
R115		100K	XP21061
R116		100K	XP21061
R117		10M	XP21085
R118		10M	XP21085
R119		68K	XP21517
R120		68K	XP21517
R121		150K	XP21525
R122		150K	XP21525
R123		270K	XP21531
R124		270K	XP21531
R125		12K	XP21499
R126		12K	XP21499
R127		15K	XP21501
R128		15K	XP21501
R129		3.3K	XP21043
R130		3.3K	XP21043
R131		6.8K	XP21493
R132		6.8K	XP21493
R133		6.8K	XP21493
R134		6.8K	XP21493
R135		5.6K	XP21491
R136		5.6K	XP21491
R137		10K	XP21049
R138		10K	XP21049
R139		3.3K	XP21043
R140		330K	XP21067
R161		330K	XP21067
R162		330K	XP21067
R163		100K	XP21061
R164		100K	XP21061
R165		120K	XP21062
R166		120K	XP21062
R167		12	XP21427
R168		12	XP21427
R169		1.5K	XP21039
R170		1.5K	XP21039
R171		6.8K	XP21047

CIR.	REF.	DESCRIPTION			PAR T NO.
			OHM		
R172	..	6.3K	..	10%	.5W
R173	..	15K	..	5%	.5W
R174	..	15K	..	5%	.5W
R175	..	15K	..	5%	.5W
R176	..	15K	..	5%	.5W
R177	..	39K	..	10%	.5W
R178	..	39K	..	10%	.5W
R179	..	82K	..	5%	.5W
R180	..	82K	..	5%	.5W
R181	..	3.3K	..	5%	.5W
R182	..	3.3K	..	5%	.5W
R183	..	1.0M	..	10%	.5W
R184	..	1.0M	..	10%	.5W
R185	..	220K	..	10%	.2W
R186	..	220K	..	10%	.2W
R187	..	150	..	10%	1W
R188	..	150	..	10%	1W
R189	..	150	..	10%	.5W
R190	..	150	..	10%	.5W
R191	..	27	..	10%	.5W
R192	..	27	..	10%	.5W
R193	..	6.8	..	10%	.5W
R194	..	6.8	..	10%	.5W
R195	..	.82	..	10%	.5W
R196	..	.82	..	10%	.5W
R197	..	47	..	10%	.5W
R198	..	47	..	10%	.5W
R199	..	330	..	5%	.5W
R200	..	330	..	5%	.5W

INDUCTORS

	Aerial Rod, Broadcast 160m.m	EA15461
T1	Assembly R.F. Coil	EA15436
T2	Assembly Osc. Coil	EA15471
T3	Assembly 1st I.F. Transformer	EA15430
T4	Assembly 2nd I.F. Transformer	EA15431
T5	Assembly 3rd I.F. Transformer	EA15432
T6	Assembly Power Transformer	EA15717

DIODES

MR2	Diode AA138	XP22505
MR3	.. Silicon 40266	XP22501
MR4 40266	XP22501
MR9	.. AN6601	XP22513
MR10	.. AN6601	XP22513

VARIABLE RESISTORS

RV1	Potentiometer 100K 20% P.C.B. Mounting.	DP22030
RV2	Potentiometer 2x50K 20% P.C.B. Mounting.	DP22031
RV3	Potentiometer 2x100K 20% P.C.B. Mounting	DP22032
RV4	Potentiometer 2x50K 20% 2 Taps.	DP22033

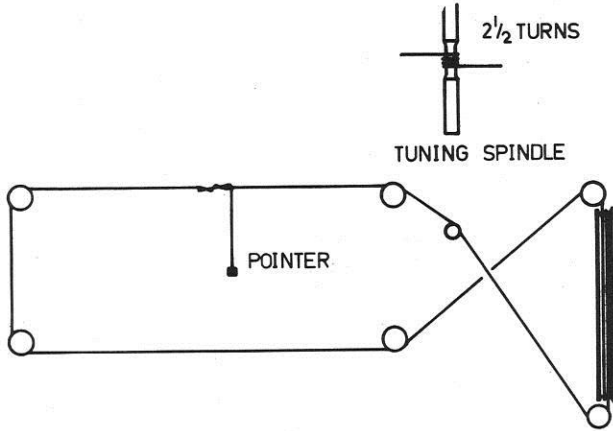
TRANSISTORS

T1	Transistor	BF254	XP22713
T2	..	BC148C	XP22703
T3	..	BF254	XP22713
T4	..	BF254	XP22713
T15	..	BC149C	XP22708
H16	..	BC149C	XP22708
T19	..	BC148C	XP22703
T20	..	BC148C	XP22703
T21	..	BC177C	XP22711
T22	..	BC177C	XP22711
T23	..	2N4074	XP22710
T24	..	2N4074	XP22710
T25	..	40050	XP 2379
T26	..	40050	XP 2379
T27	..	2N5293	XP22709
T28	..	2N5293	XP22709

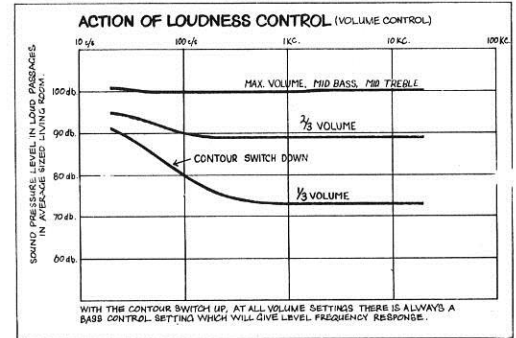
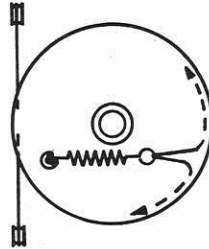
SUNDRY ITEMS

Rocker Switch 2 pole 2 Position (Black Knob)	EP 3932
Push Button, Switch 4 Button	EP 3933
Lamp Holder M.E.S.	XP 1387
5 Pin Din Socket, Chassis Mtg.	XP 4043
3 Pin Din Socket, Chassis Mtg.	XP 4042
2 Pin Din Socket, Chassis Mtg.	XP 4041
5 Pin Plug (Cord) Din.	XP 4023
3 Pin Plug (Cord) Din.	XP 4022
2 Pin Plug Cord	XP 4021
Tuning Meter	EP 5452
Dial Cord.	XP 1029
Insulating Washer for 40050	XP 5458
.. Bush for 40050	XP 5459

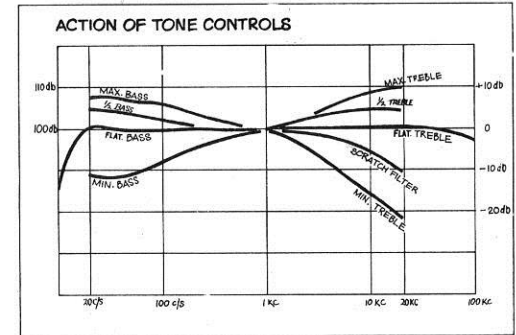
SERIES 8 HIGH POWER EQUIPMENT



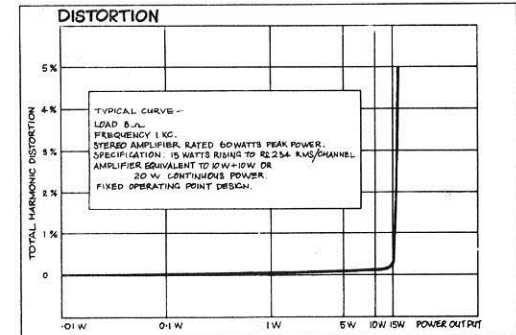
TUNING CORD ARRANGEMENT



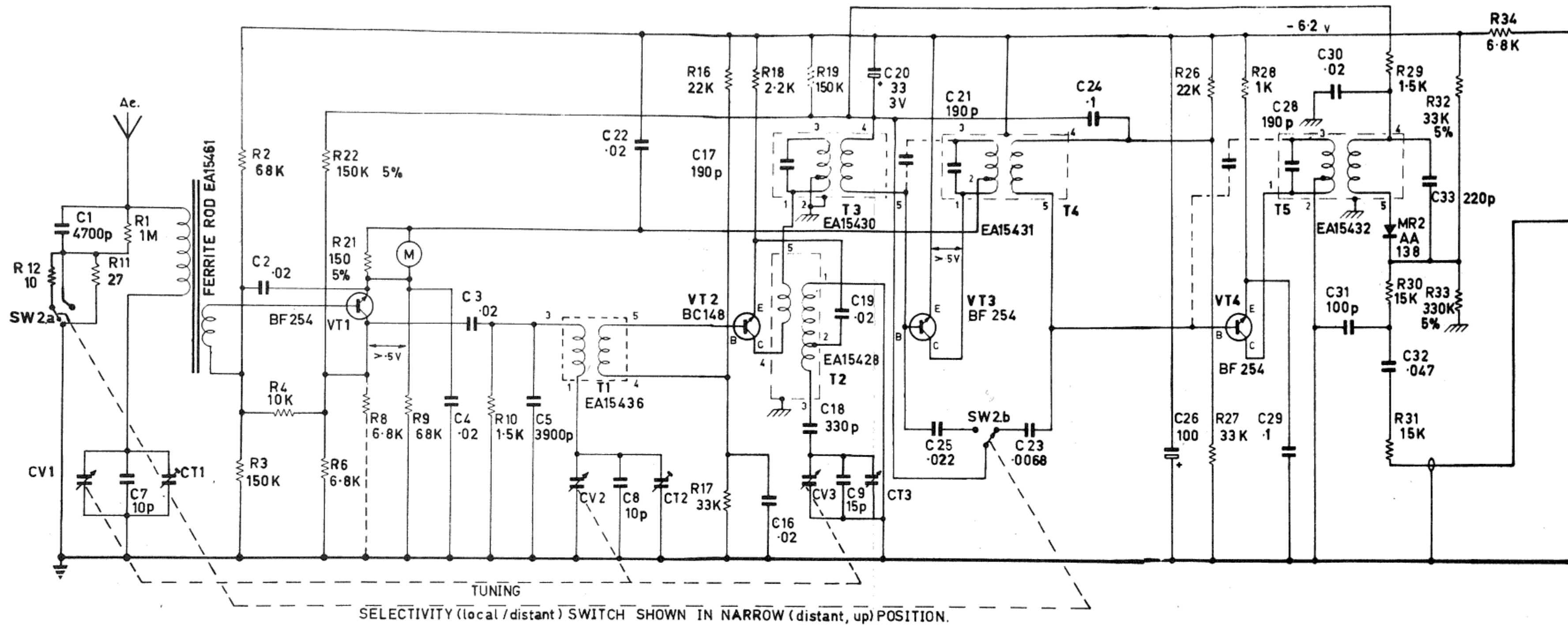
(1)



(2)



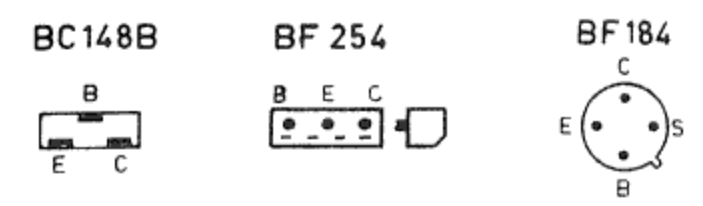
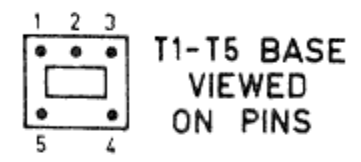
(3)



1. ALL VALUES OF RESISTANCE IN OHMS & ALL VALUES OF CAPACITANCE IN MICROFARADS UNLESS OTHERWISE STATED.

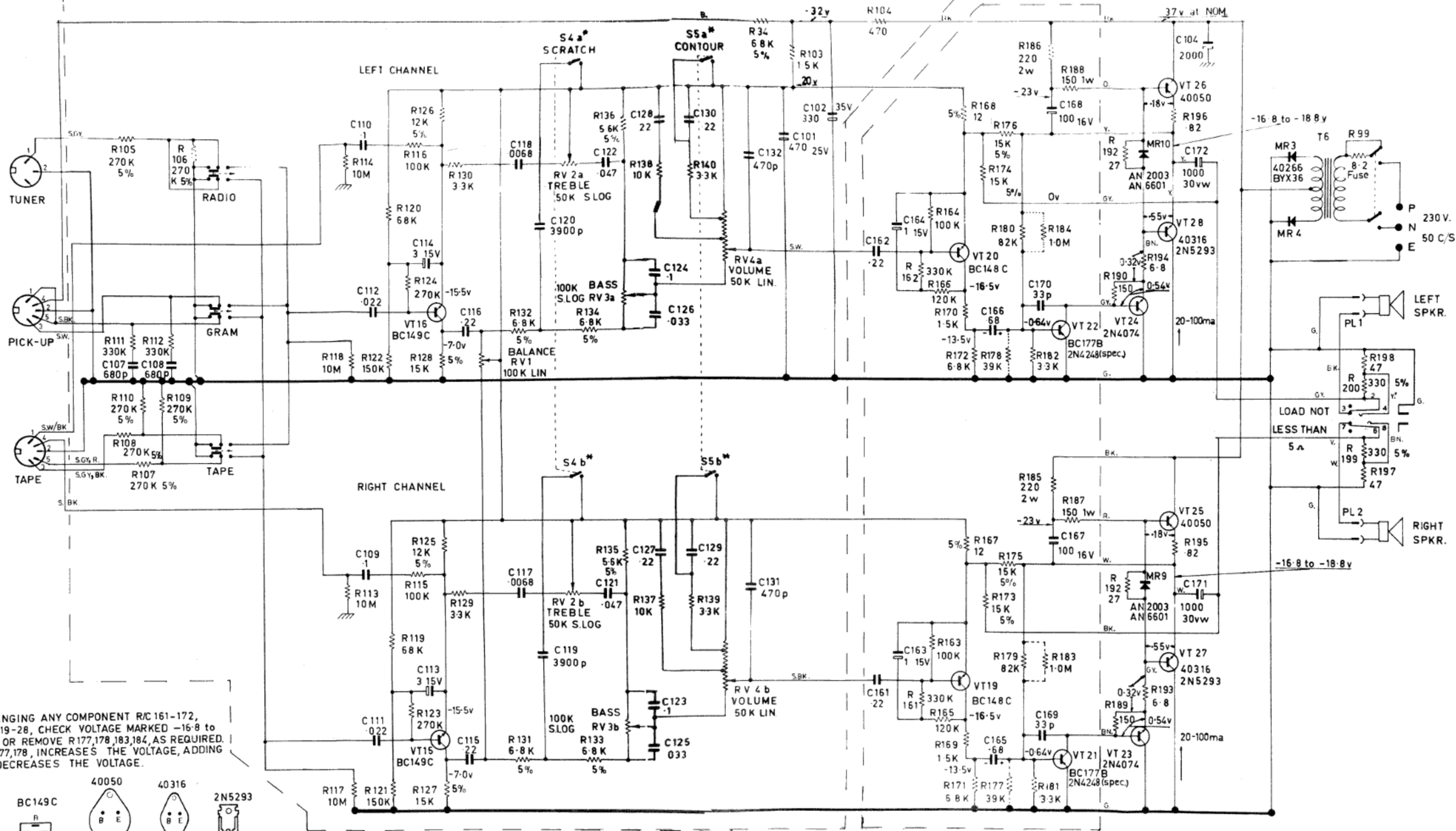
2. VOLTAGES STATED ARE NEGATIVE WITH RESPECT TO CHASSIS & MEASURED WITH AVO N° 8 UNDER NO SIGNAL WITH VOLUME CONTROL SET TO ZERO.

3. REFER TO PARTS LIST FOR N° & COMPLETE DESCRIPTIONS OF ELECTRICAL COMPONENTS. ORDER ALL REPLACEMENTS BY PT N° & LIST DESCRIPTION.



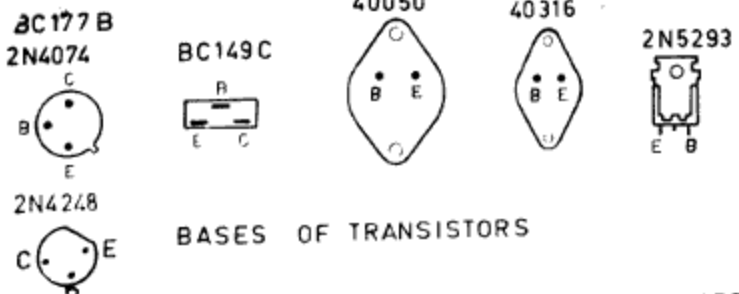
BASES OF TRANSISTORS.

CIRCUIT DIAGRAM OF M.W. TUNER SECTION



CIRCUIT DIAGRAM SERIES 8 HIGH-POWER AMPLIFIER

* SWITCH NOT ON PCB



1. ALL VALUES OF RESISTANCE IN OHMS & ALL VALUES OF CAPACITANCE IN MICROFARADS UNLESS OTHERWISE STATED.

2. VOLTAGES STATED ARE NEGATIVE WITH RESPECT TO CHASSIS & MEASURED WITH AVO N° 8 UNDER NO SIGNAL WITH VOLUME CONTROL SET TO ZERO

3. REFER TO PARTS LIST FOR N° & COMPLETE DESCRIPTIONS OF ELECTRICAL COMPONENTS ORDER ALL REPLACEMENTS BY P' N° & LIST DESCRIPTION.