

TRACE ELLIOT

SERVICE MANUAL NO. SM00080

ISSUE 1

Date: July 13th, 2000
Product Code : T0136
Model No : V8
Technical File No : TE00080

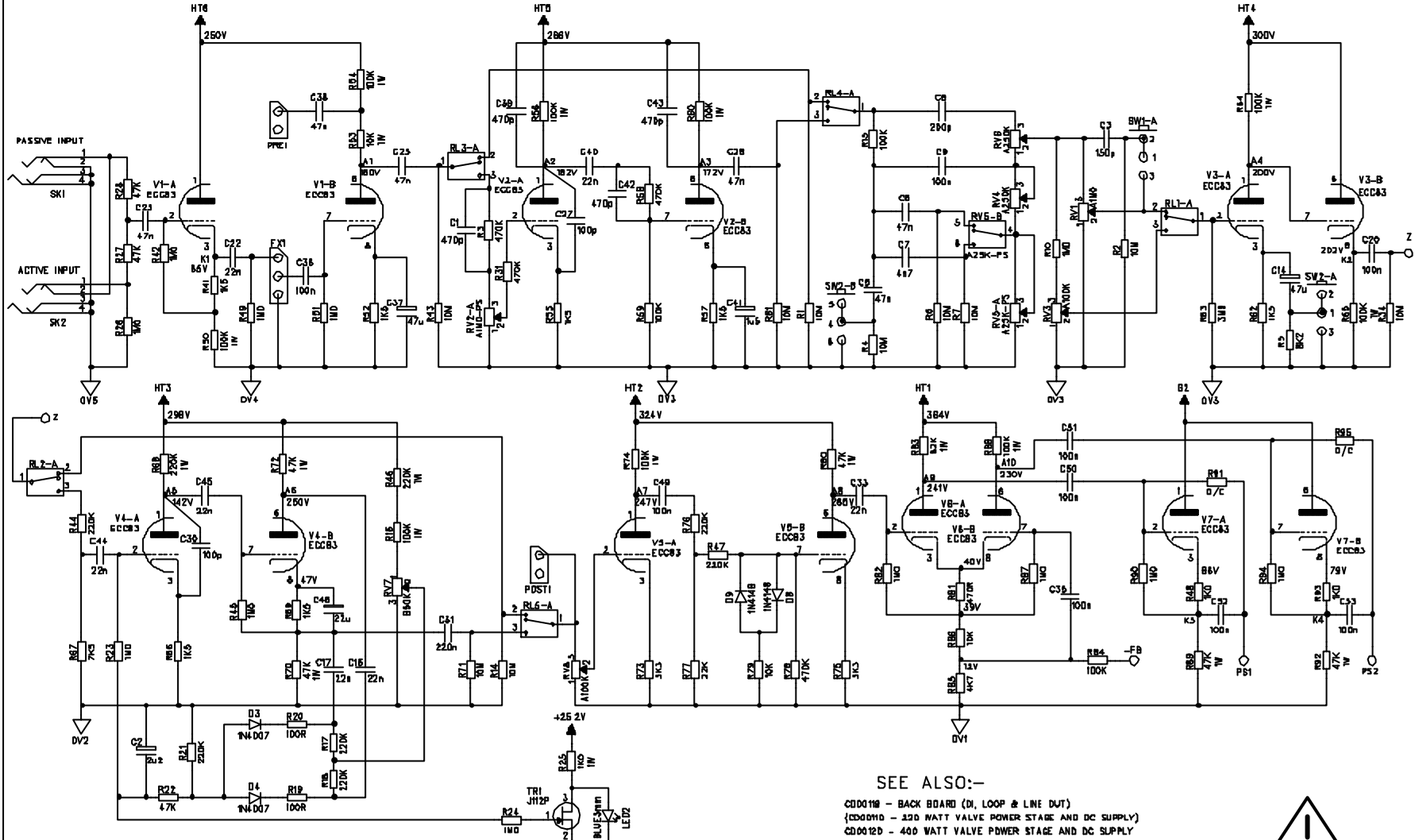
Issued by:

**Trace Elliot Limited.
Blackwater Trading Estate
The Causeway, Maldon
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ISSUE CHANGE NOTE DATE	ISSUE CHANGE NOTE DATE	ISSUE CHANGE NOTE DATE
ISSUE CHANGE NOTE DATE	ISSUE CHANGE NOTE DATE	ISSUE CHANGE NOTE DATE

V-TYPE V8 BASS AMPLIFIER - MAIN PREAMP PCB

FOR USE ON ALL MODELS



SEE ALSO:-

- CD00118 - BACK BOARD (DI, LOOP & LINE OUT)
- CD00119 - 220 WATT VALVE POWER STAGE AND DC SUPPLY
- CD00120 - 400 WATT VALVE POWER STAGE AND DC SUPPLY

TITLE VALVE PREAMP SECTION
 PROJECT V-TYPE V8 BASS AMP
 DRAWING No. CD00109
 ISSUE DATE 4 MAY 2000
 DRAWN BY PAUL STEVENS

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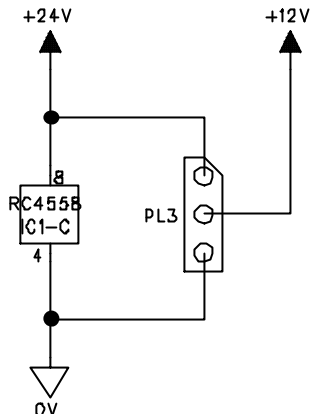
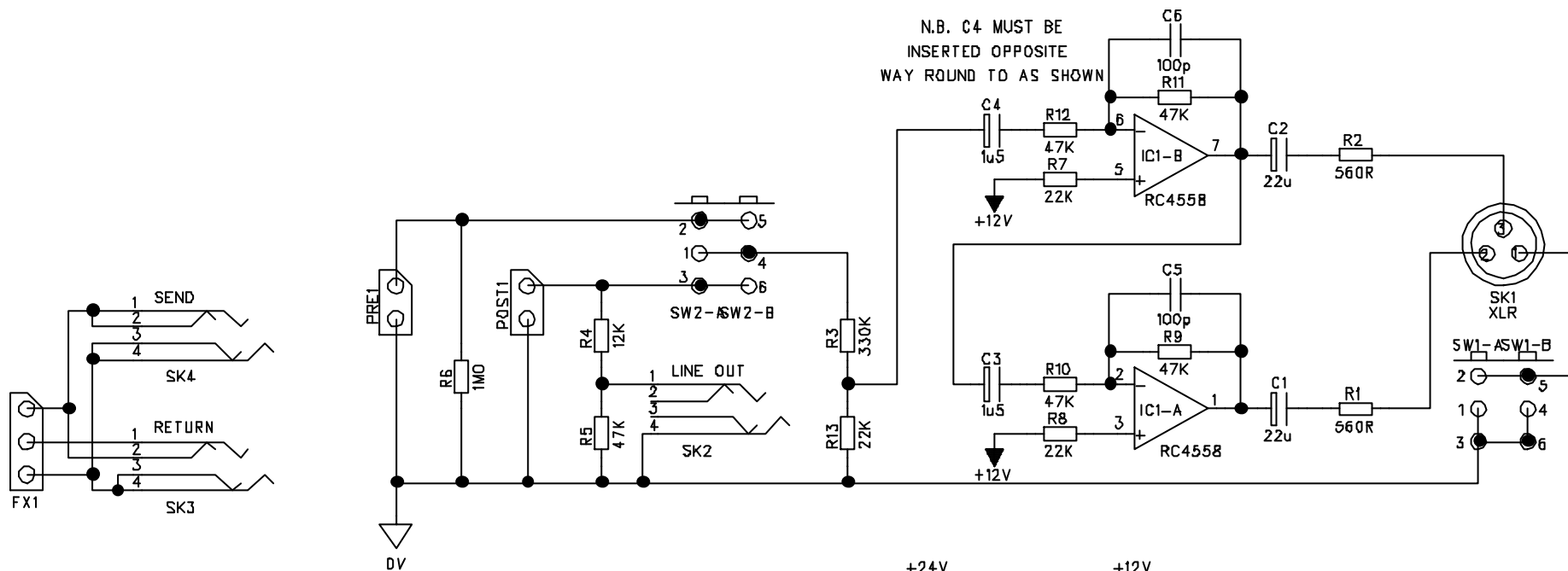
SHEET 1/2
 FOR USE WITH PC00120



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V-TYPE V8 BASS AMPLIFIER – BACK PCB

D.I., EFFECTS LOOP & LINE OUT



COMPONENTS USED ARE OF AN APPROVED TYPE AND MUST BE REPLACED ACCORDINGLY

TITLE BACK BOARD (DI, LOOP & LINE OUT)
 PROJECT V-TYPE V8 BASS AMPLIFIER
 DRAWING No CDD0119
 ISSUE 1
 DATE 6 JUNE 2000
 DRAWN BY PAUL STEVENS

TRACE ELLIOT LTD
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FOR USE WITH PC00121

C12-PCB-PC00121x2

PARTS LIST FOR V-TYPE V8 BACK BOARD

ISSUE 2 5/5/00 PS

Description	Part Code	Qty	Where Used
PCB	PC000121 issue B	1	
RESISTORS			
560R 1W	72-RM560R	2	R1 R2
12K 1/4W	72-RM12K	1	R4
22K 1/4W	72-RM22K	2	R7 R8 R13
47K 1/4W	72-RM47K	5	R5 R9 R10 R11 R12
330K 1/4W	72-RM330K	1	R3
1M0 1/4W	72-RM1M	1	R6
CAPACITORS			
100p 100V axial	72-C100P-100VCA	2	C5 C6
1u5 35V tant	72-C1.5-35VT	2	C3 C4 (Insert C4 opposite way round to normal)
22u 63V elect rad	72-C22-63VER	2	C1 C2
SEMICONDUCTORS			
RC4558	72-IC-RC4558P	1	IC1
CONNECTORS			
3 way 0.1"	72-HEAD-3W-2	1	FX1
SOCKETS			
1/4 Mono Jack SKT	72-SKT-JCKBNBG	3	SK2 SK3 SK4
XLR Plug Neutrik	73-XLR-PCB-M-N	1	SK1
SWITCH	73-SWT-F2UEE	2	SW1 SW2

C12-PCB-PC00123xC

PARTS LIST FOR V8 400W VALVE POWER BOARD

ISSUE C 2/3/00 PS

Description	Part Code	Qty	Where Used
PCB	PC000123 issue 1	1	
RESISTORS			
1R0 1/4W	72-RM1R	1	R53
2R2 1W	72-RM2R2-1WATT	2	R54 R55
10R 1/4W	72-RM10R	1	R59
47R 1/4W	72-RM47R	1	R43
100R 1/4W	72-RM100R	1	R50
680R 1/4W	72-RM680R	1	R1
1K0 1/4W	72-RM1K	2	R48 R49
1K5 1/4W	72-RM1K5	8	R14 R17 R20 R23 R35 R36 R37 R38
3K3 1/4W	72-RM3K3	1	R2
10K 1/4W	72-RM10K	2	R33 R34
10K 1W	72-RM10K-1WATT	5	R44 R45 R46 R47 R58
15K 1/4W	72-RM15K	1	R51
22K 1/4W	72-RM22K	3	R3 R41 R42
27K 1/4W	72-RM27K	1	R52
47K 1/4W	72-RM47K	4	R4 R5 R6 R7
47K 1W	72-RM47K-1WATT	2	R8 R11
100K 1/4W	72-RM100K	3	R9 R10 R12
220K 1W	72-RM220K-1WATT	3	R39 R40 R56
10R 4W	72-RWW10R-4W	8	R13 R16 R19 R22 R25 R27 R29 R31
2K2 4W	72-RWW2K2-4W	9	R15 R18 R21 R24 R26 R28 R30 R32 R57
			Insert wire wound resistors away from surface of PCB, with formed leads
PCB MOUNT FUSE	72-FUS-125MA-F	1	FS5
DIODES			
15V ZENER	72-D-BZX55C15V	1	Z1
GP02-40	72-D-GP02-40	2	D6 D7
1N4002	72-D-IN4002	4	D14 D15 D18 D19
1N4007	72-D-IN4007	5	D1 D9 D11 D13 D17
1N5408	72-D-IN5408	4	D8 D10 D12 D16
CAPACITORS			
100n 100V axial	72-C100N-100VCA	2	C3 C4
330n 50V axial	72-C330N-50VCA	1	C30
100p 1KV ceramic	72-C100P-1KVCD	2	C5 C25
10n 400V poly box	72-C10N-400VP	4	C9 C19 C27 C28
22u 160V elect radial	72-C22-100VER	2	C1 C2
47u 63V elect radial	72-C47-63VER	4	C16 C17 C24 C32
1000u 35V elect radial	72-C1000-35VER	2	C22 C23

2200u 35V elect radial	72-C2200-35VER	4	C14 C15 C33 C34
22u 450V elect radial	72-C22-450VER	5	C11 C12 C13 C20 C21
220u 400V elect radial	72-CAP-220400V2	2	C10 C29
470u 400V elect radial	72-CAP-470400V	2	C8 C26 (PHILIPS 157 46471)
SEMICONDUCTORS			
2N3904	72-T2N3904	3	TR1 TR4 TR5
2N3906	72-T2N3906	2	TR2 TR3
BD647	72-TBD647	1	TR6 (see below for heat sink)
3mm RED LED	72-LED-RED-3MM	4	D2 D3 D4 D5 (Bottom of PCB)
CONNECTORS			
3 way 0.1"	72-HEAD-3W-2	2	PL3 PL4
3 way 0.2"	72-HEAD-3W-3	1	FAN1
10 way 0.1"	72-HEAD-10W	2	PL1 PL2
SOCKETS			
¼ MONO	72-SKT-JCKBNBG	1	SK2
¼ STEREO	72-SKT-JCKBBBG	1	SK3
XLR FEMALE PCB	73-XLR-PCB-F-N	1	SK1 (301-190 VDC)
SWITCHES			
	73-SWT-SLIDER-DP	2	SW1 SW2
POTENTIOMETERS			
	72-PRESET-47K-V	2	RV1 RV2
FUSE HOLDERS			
PCB panel access	72-FUS-HLD-PCB	4	FS1 FS2 FS3 FS4
32mm PCB fuse clip	72-FUS-HLD-PDB-2	2	FS6 FS7
Small PCB fuse clip	72-FUS-HLD-PCB-4	2	FS8 (check insertion)
CRIMP CONNECTORS			
	72-CRIMP-PCB-TAB	22	TX1-17 STBY1-4 EARTH
BIAS TEST POINTS			
	73-TERM-SCREW-M3	3	BIAS0 BIAS1 BIAS2
0V TEST POINT PIN			
	73-TERM-PIN	1	TP0
HEATER WIRING			
	C00-LEAD-V8-HTR	2	H1-H20
OCTAL VALVE BASES			
	73-VAL-SOCKET-2	8	V1-V8
TO220 HEATSINK			
	G13-HS-TO220-14H	1	TR6
M3 SCREW	71-SCR-M3X12PPB	1	Part of heat sink assembly
M3 WASHER	71-WAS-M3INTSP	1	"
M3 WASHER	71-WAS-M3ABLK	1	"
M3 NUT	71-NUT-M3ZINC	1	"
INSULATING KIT	72-MOS-PAD-TO220	1	"
Heat sink compound			Between TR6, heat sink & chassis

2nd STAGE				
82R	4W	72-RWW82R-4W	1	R37
100p	1KV ceramic	72-C100P-1KVCD	2	C27 C30
150p	630V poly	72-C150P-630VPS	1	C3
200p	630V poly	72-C200P-630VPA	1	C8
470p	630V poly	72-C470P-630VPA	4	C1 C39 C42 C43 NEW PART
4n7	400V poly box	72-C4N7-400VP	1	C7
22n	400V poly box	72-C22N-400VP	8	C16 C17 C22 C33 C40 C44 C45 C47
47n	400V poly box	72-C47N-400VP2	5	C5 C6 C25 C28 C38
100n	400V poly box	72-C100N-400VP	7	C9 C20 C49 C50 C51 C52 C53
220n	250V poly box	72-C220N-250VP	1	C31
1u5	35V tant	72-C1.5-35VT	1	C41
2u2	63V elect rad	72-C2.2-63VER	1	C2
15u	63V elect axl	72-C15-40VEA***	13	C4 C12 C13 C15 C18 C19 C21 C24 C26 C29 C32 C34 C46 (72-C22-63VER)
47u	63V elect rad	72-C47-63VER	2	C14 C37
22u	450V axial	72-C22-450VEA	1	C11
SEMICONDUCTORS				
J112 FET (selected)		72-FET-J-112P	1	TR1
Blue 3mm	LED	72-LED-BLU-3MM	1	LED2
Red 3mm	LED	72-LED-RED-3MM	1	LED1
CONNECTORS				
3 way 0.1"		72-HEAD-3W	1	HTR1
10 way 0.1"		72-HEAD-10W	2	PL1 PL2
¼ Mono Jack SKT		72-SKT-JCKBNBG	2	SK1 SK2
SWITCH		73-SWT-F2UEE	3	SW1 SW2 SW3
POTENTIOMETERS				
1M0 Log		73-POT-A1M	1	RV1
1M0 Log Pull Switch		73-POT-A1M-PS	1	RV2
100K Log		73-POT-A100K	2	RV3 RV8
250K Log		73-POT-A250K	2	RV4 RV6
25K Log Pull Switch		73-POT-A25K-PS	1	RV5
50K Lin		73-POT-B50K	1	RV7
RELAY Omron G5V-1		73-RELAY-5V-SPCO	5	RL1 RL2 RL3 RL4 RL5
B9A PCB base gold		73-VAL-SOCKET-G	8	V1 – V8 (on underside of PCB)
2 track modifications				

V-TYPE V8 TEST PROCEDURE

ISSUE A PS 2/3/2000

Initial Checks

- 1) Check the polarity of all electrolytic capacitors and diodes on power board.
- 2) Install all fuses and valves (see accompanying sheet).
- 3) Set all rotary controls to midway position, all push switches out. (front and rear)
Set to **FULL POWER** and turn both **BIAS ADJUST** pots fully clockwise.
Set rear panel mains switch to **OFF** and front panel toggle to **STANDBY**.
Connect unit to (4Ω) load station. Connect mains socket to variac set at minimum.
- 4) Switch unit to standby mode. Gradually turn up the variac to the appropriate voltage.
Green lamp and front and green mains switch will light up.

Voltage Tests

- 5) Check following Test Points (TP):- (all DC TP's are w.r.t. TP0 0V)

TP1/TP2	6.3vac ±0.6vac
TP3	24V ±1V
TP4	12V ±0.5V
TP5	-60V ±3V
TP6	-60V ±3V




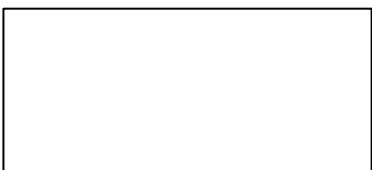

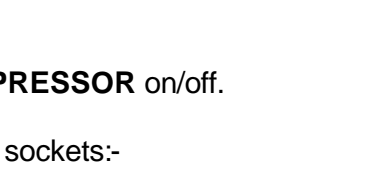
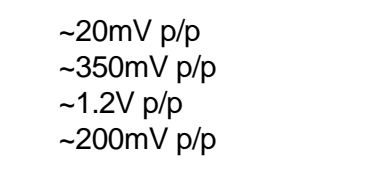
- 6) Turn variac to minimum. Switch from **STANDBY** to **ON**, return variac to correct voltage.
- 7) Set bias as follows:-
Insert black DMM probe (-) into **0V** hole, red (+) into **V1** on rear panel.
Slowly turn left hand **ADJUST** control to give a reading of **0.300V ±0.03V**.
Insert black probe into **V2**, carefully rotate the right hand **ADJUST** to give **0mV ±0.01V**.
Repeat above procedure as appropriate until settings are correct.
(The setting of the two ADJUST pots interact)
- 8) Check biasing of other valves, if necessary adjust bias again to bring all valves within the 0.270 – 0.330V range.

V1 - TP15	V3 - TP17	V5 - TP19	V7 - TP21
V2 - TP16	V4 - TP18	V6 - TP20	V8 - TP22

- 9) Check the following Test Points:-

TP7 (CT)	690V ±15V
TP8 (G2)	360V ±15V
TP9 (HT1)	330V ±15V
TP10 (HT2)	295V ±15V
TP11 (HT3)	270V ±12V
TP12 (HT4)	270V ±12V
TP13 (HT5)	240V ±10V
TP14 (HT6)	225V ±10V

Sine wave tests

- 10) Insert **1Khz, -20dBu (77mVrms)** sine wave into the **PASSIVE INPUT**.
Turn up **GAIN I** fully then adjust **MASTER** until the output starts to clip.
Check the power is **>400W (40vrms @ 4W)** and the **EM84** display valve is fully lit.
Using screwdriver handle gently tap each valve and check for microphony and instability.
- 11) Switch to **HALF POWER** mode. (on rear panel)
Check there is a reduction in output power (**~25vrms @ 4W**). Return to **FULL POWER**.
- 12) Turn **GAIN I** back to half way. Insert sig. gen. lead into **ACTIVE INPUT** and then back into **PASSIVE**. Check that when in **ACTIVE** the output level approximately halves.
- 13) Press **BRIGHT**, signal should increase slightly. 
- 14) Pull out **GAIN II**. Check signal on scope is as shown:-
Adjust **GAIN II & LEVEL** controls to check smooth operation.
Return to half way. 
- 15) Push **DEEP**. Signal should increase slightly. Push out again. 
- 16) Turn **TREBLE, MIDDLE & BASS** to minimum.
Turn **BASS** to maximum, check signal on scope:-
Return to minimum. 
- 17) Turn **MIDDLE** to maximum, check signal on scope:-
Return to minimum. 
- 18) Turn **TREBLE** to maximum, check signal on scope:-
Return controls back to half way.
Push in **GAIN II**. Signal should be clean again. 
- 19) Switch on **COMPRESSOR**, signal should increase slightly.
Turn up **LEVEL**, the blue LED should be lit just before full.
Turn off **COMPRESSOR**, blue LED should fade out. 

Rear Panel

- 20) Check that none of the rear LED's are lit.
Using a screwdriver remove each fuse, one at a time. Check each LED lights up.
- 21) Check correct functionality of 2 way foot switch socket.
Tip should switch from **GAIN I** to **GAIN II**, ring switches **COMPRESSOR** on/off.
- 22) Check there is an output at the correct level from the following sockets:-

DI OUT – (POST/GROUND)	~20mV p/p
DI OUT – (PRE/GROUND)	~350mV p/p
LINE OUT	~1.2V p/p
SEND	~200mV p/p

- 23) Turn **MASTER** control to minimum and switch unit to **STANDBY**.
Connect output to appropriate speaker cabinet and bass guitar
Aurally test main features of each channel and check for any excessive hum or noise.
- 24) Connect to load & sig. gen., set up for full power and soak test for approx. 30 minutes.
End of test.