

# TRACE ELLIOT

## SERVICE MANUAL

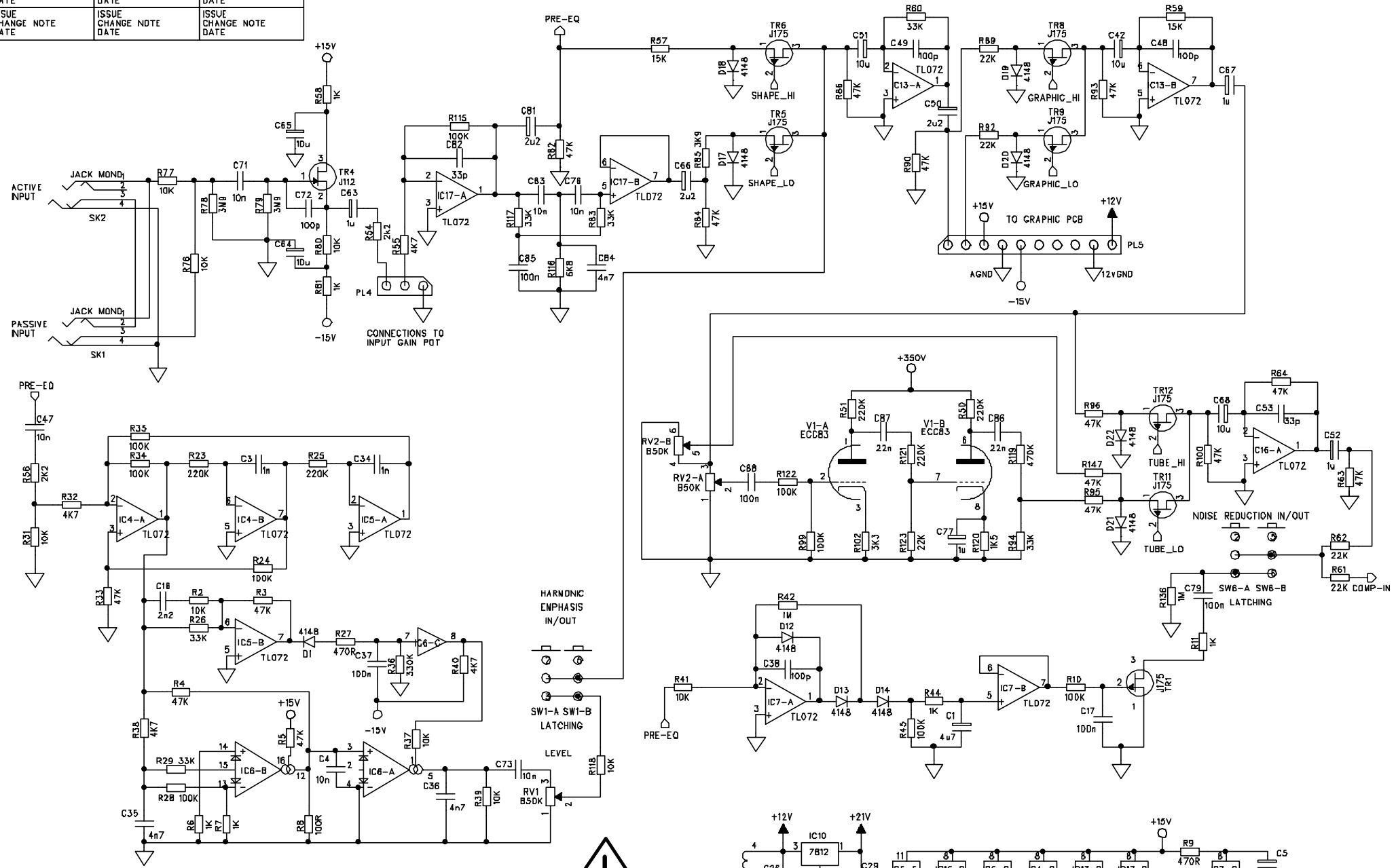
**DATE :** December 29, 1999

**Product Code:** T0601

**Model Number :** GP12X Pre-Amp

Issued by:  
**Trace Elliot Limited**  
**Blackwater Trading Estate**  
**The Causeway**  
**Maldon**  
**Essex**  
**England**  
**CM4 4GG**

ISSUE CHANGE NOTE DATE	ISSUE CHANGE NOTE DATE	ISSUE CHANGE NOTE DATE
ISSUE CHANGE NOTE DATE	ISSUE CHANGE NOTE DATE	ISSUE CHANGE NOTE DATE



PCB = PCD099

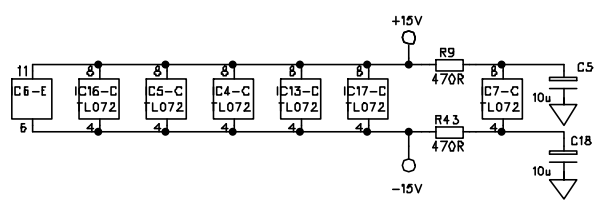
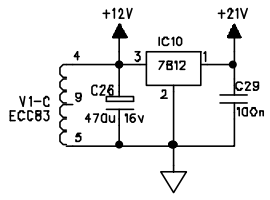
TITLE PREAMP  
 PROJECT CP12\_98  
 DRAWING No CD0098 SHEET 1 of 3  
 ISSUE 2  
 DATE 15/1/99  
 DRAWN BY CLIVE BUTTON

**TRACE ELLIOT**  
 TRACE ELLIOT LIMITED  
 WALDON ESSEX CM9 7GG  
 ENGLAND  
 TEL (01621) 855266  
 FAX (01621) 851975

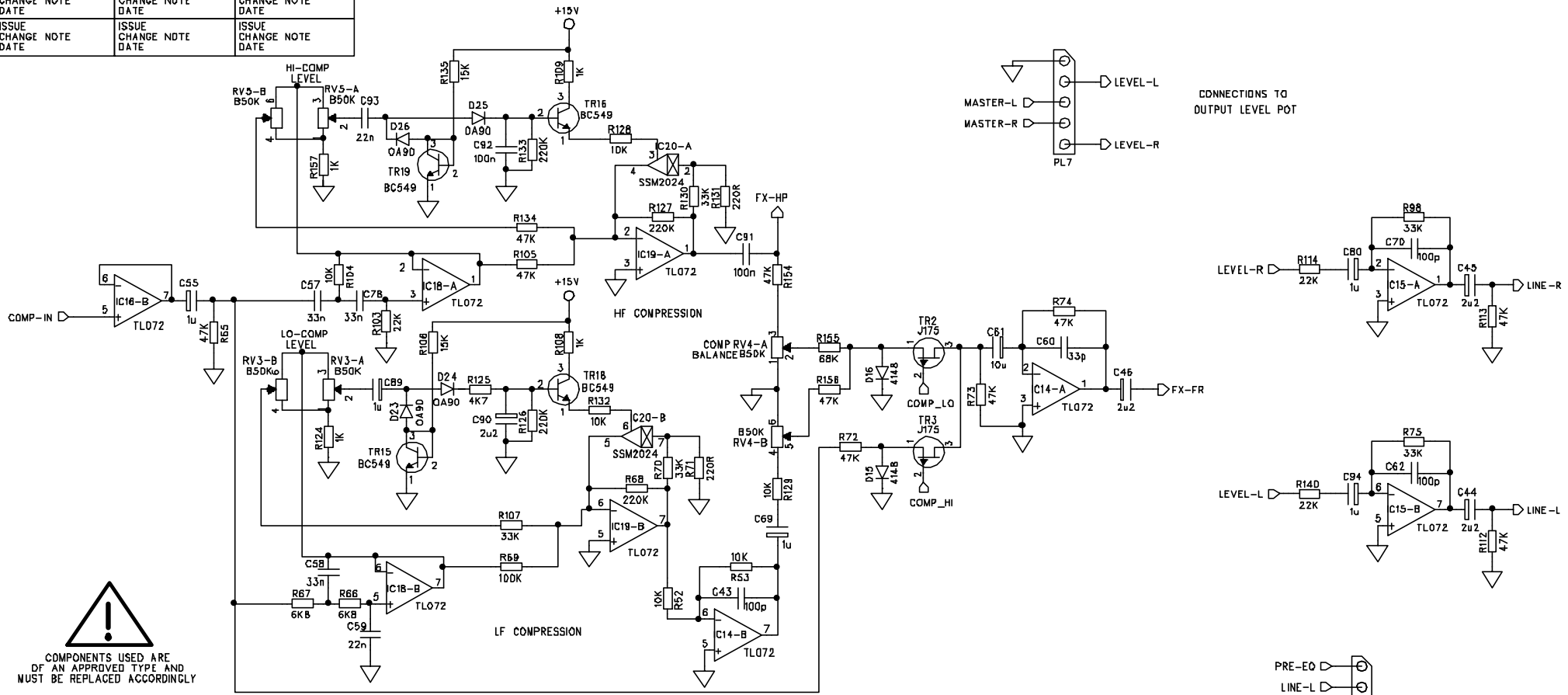
NOT USED

IC6-D

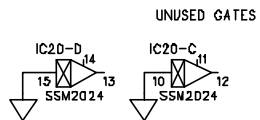
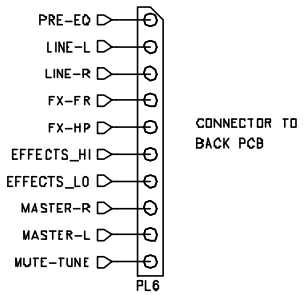
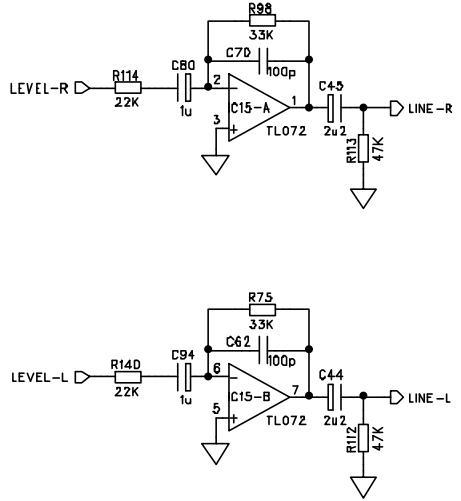
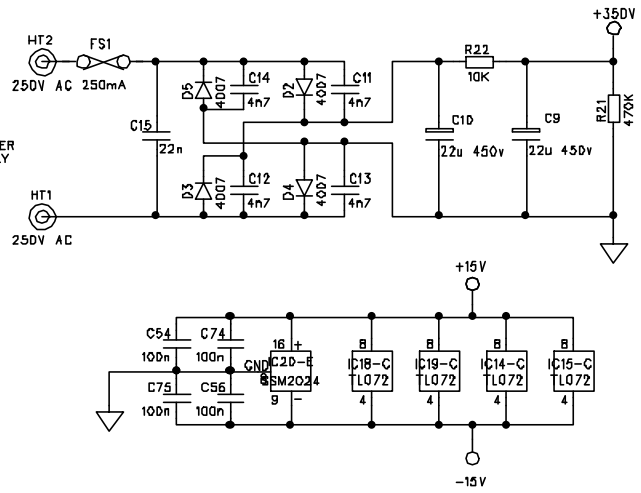
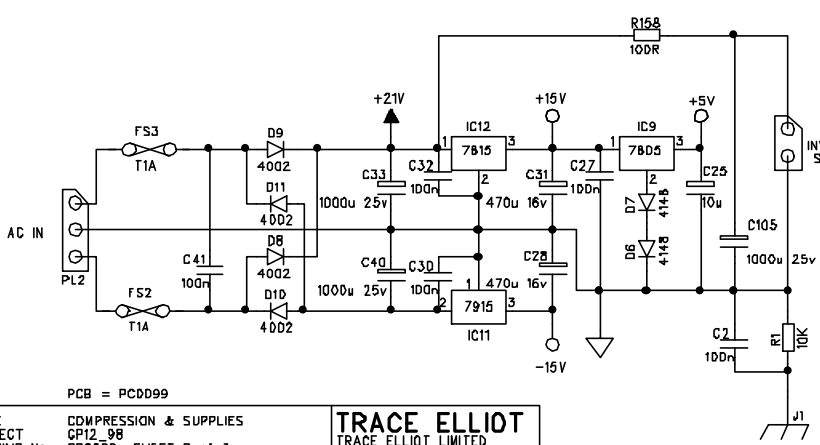
COMPONENTS USED ARE OF AN APPROVED TYPE AND MUST BE REPLACED ACCORDINGLY



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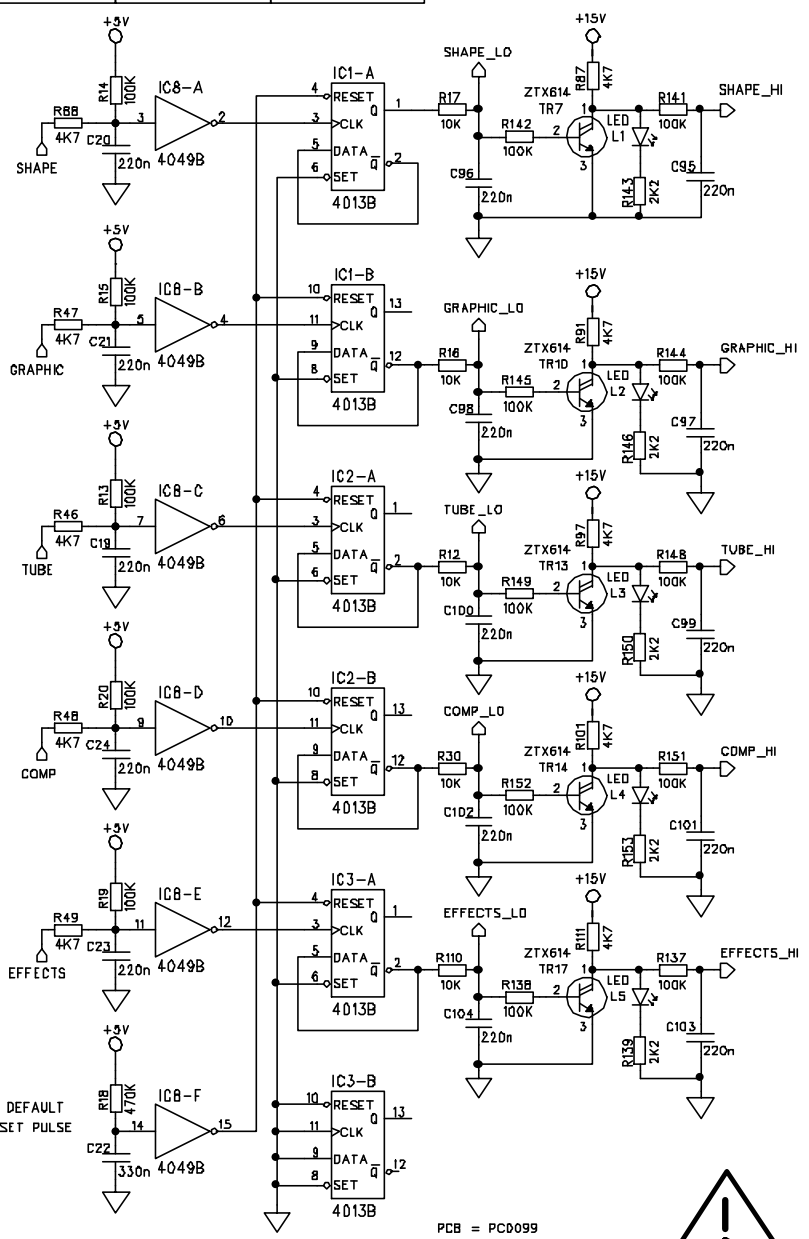
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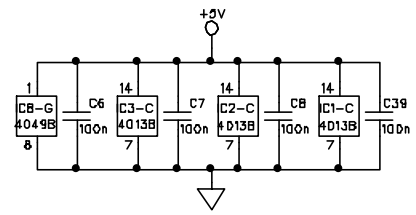
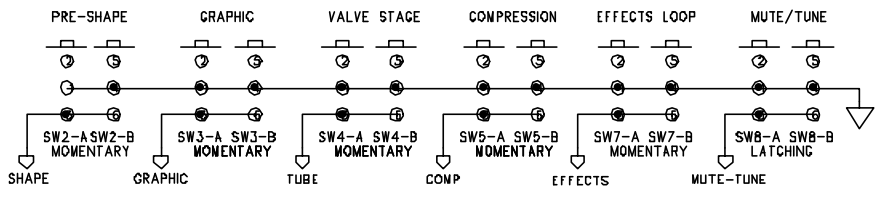
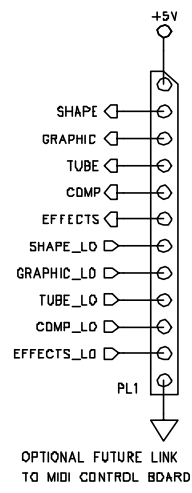
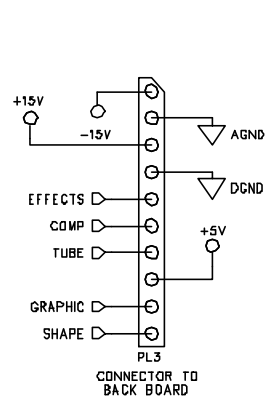
PCB = PCDD99  
 TITLE  
 PROJECT GP12\_98  
 DRAWING No CDD099 SHEET 2 of 3  
 ISSUE 2  
 DATE 15/1/99  
 DRAWN BY CLIVE BUTTON

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PCB = PCD099



TITLE  
PROJECT  
DRAWING No  
ISSUE  
DATE  
DRAWN BY

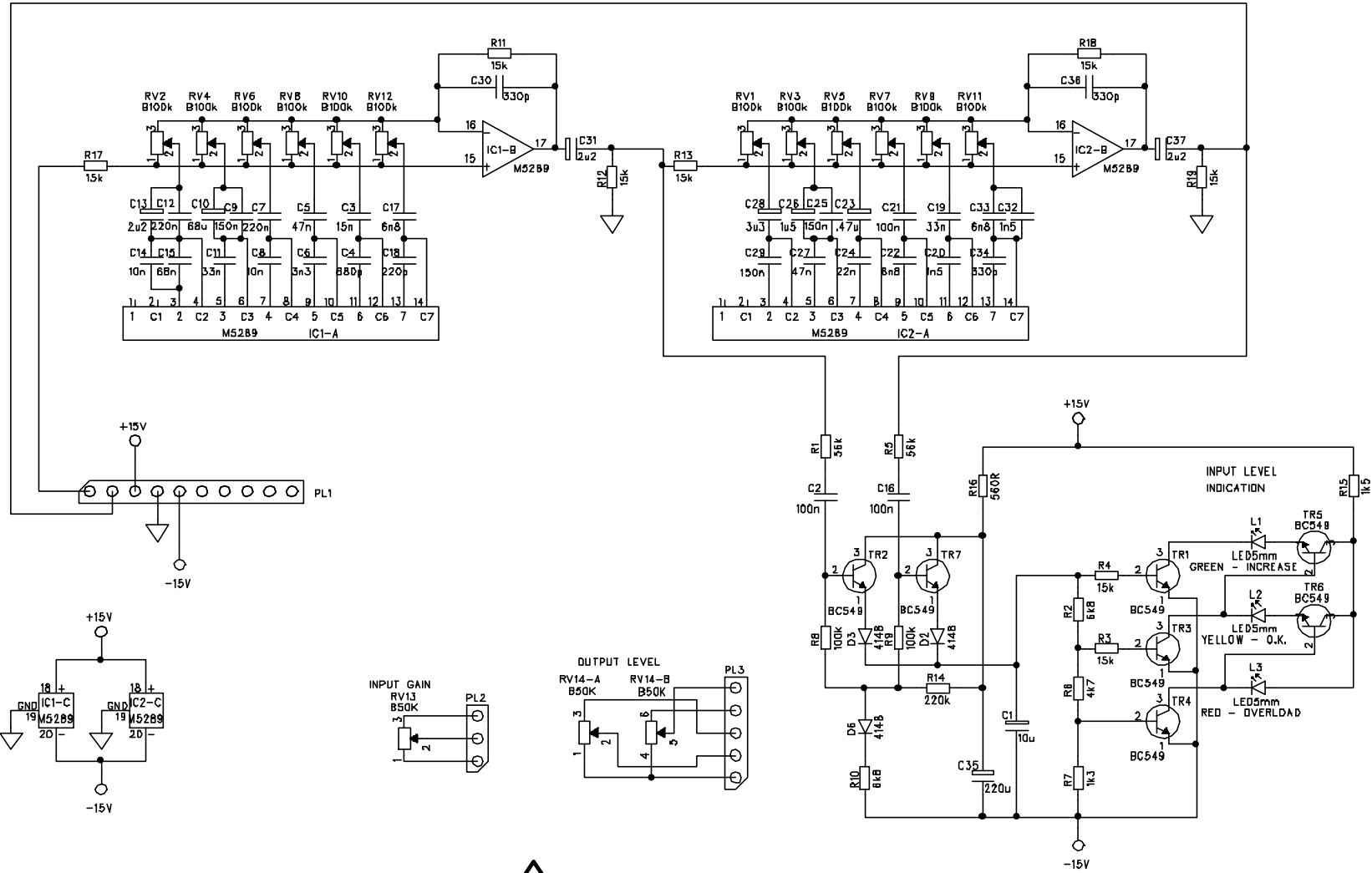
SWITCHING  
GP12\_98  
CDD099 SHEET 3 of 3  
2  
15/1/99  
CLIVE BUTTON

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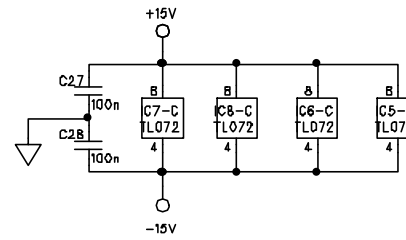
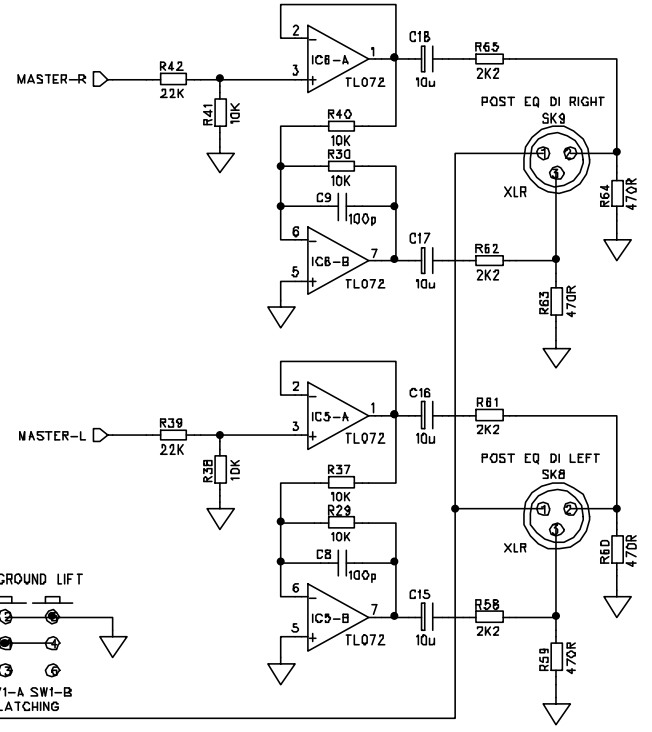
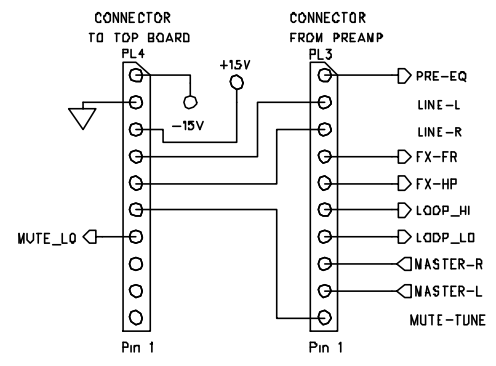
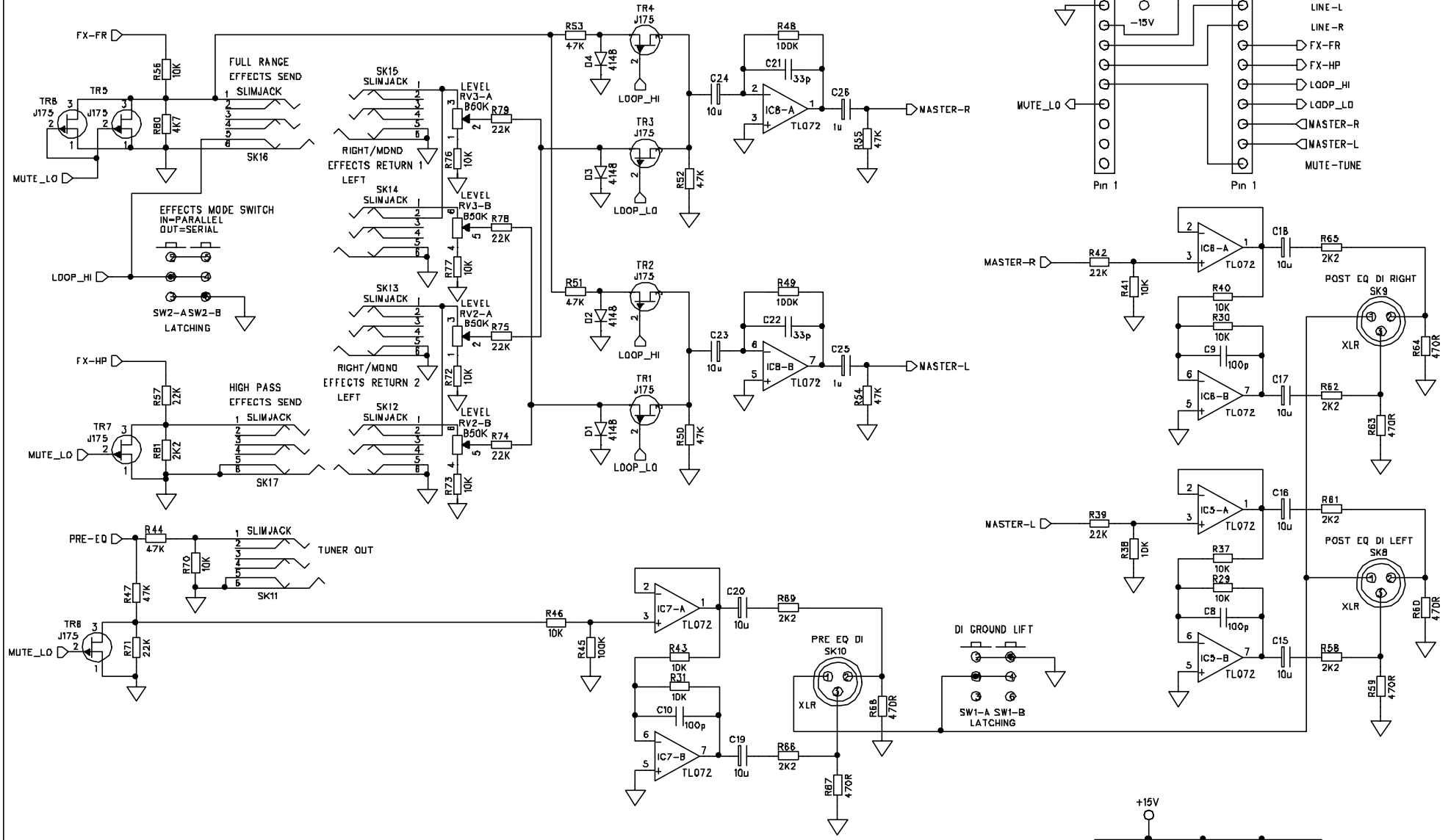
PCB = PC0100

TITLE GRAPHIC & LEVEL INDICATION  
 PROJECT CP12SMX MK 2  
 DRAWING No CD0100  
 ISSUE 1  
 DATE 15/1/93  
 DRAWN BY CLIVE BUTTON

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PCB = PC00102

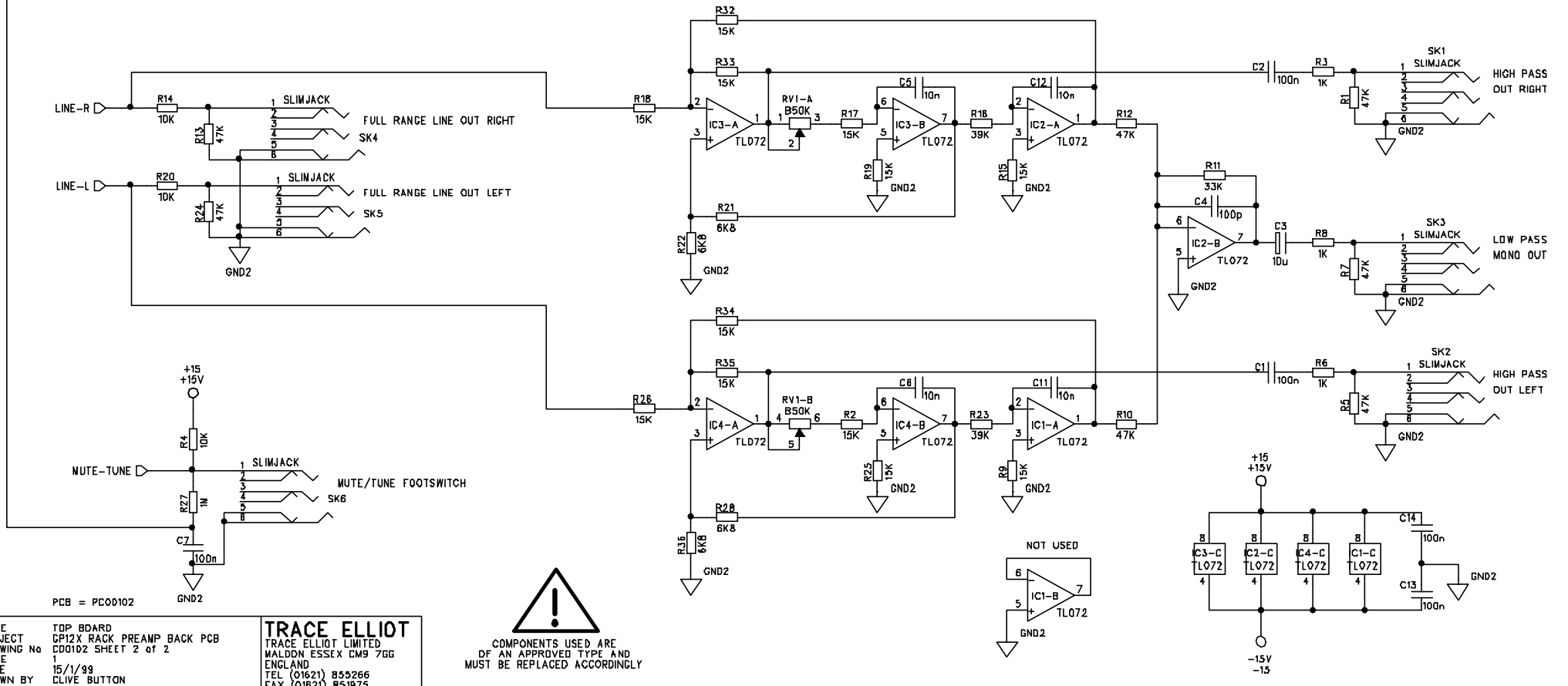
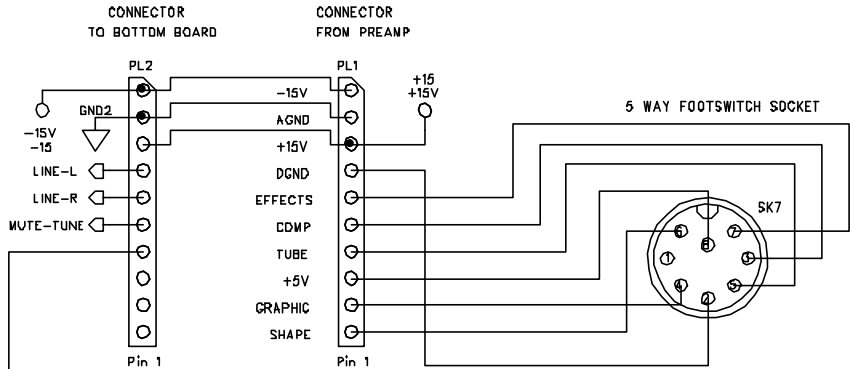


COMPONENTS USED ARE OF AN APPROVED TYPE AND MUST BE REPLACED ACCORDINGLY

TITLE BOTTOM BOARD  
 PROJECT CP12X RACK PREAMP BACK PCB  
 DRAWING No CD0102 SHEET 1 of 2  
 ISSUE 1  
 DATE 15/1/93  
 DRAWN BY CLIVE BUTTON

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PCB = PC00102



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

TITLE TOP BOARD  
 PROJECT GP12X RACK PREAMP BACK PCB  
 DRAWING No CD0102 SHEET 2 of 2  
 ISSUE 1  
 DATE 15/1/93  
 DRAWN BY CLIVE BUTTON

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**C12-PC00100x2. GP12\_98 FRONT PCB - PC0100x1**  
**CLIVE BUTTON – 18/2/99**

VERSION 2 (LED SPACERS)

Description	Part Code	Qty	Where Used
IN4148	72-D-IN4148	3	D2-3 D6
R1/4W,100k	72-RM100K	2	R8-9
R1/4W,15k	72-RM15K	8	R3-4 R11-13 R17-19
R1/4W,1k3	72-RM1K3	1	R7
R1/4W,1k5	72-RM1K5	1	R15
R1/4W,220k	72-RM220K	1	R14
R1/4W,4k7	72-RM4K7	1	R6
R1/4W,560R	72-RM560R	1	R16
R1/4W,56k	72-RM56K	2	R1 R5
R1/4W,6k8	72-RM6K8	2	R2 R10
CAPCA,100n	72-C100N-100VCA	3	C2 C16 C21
CAPCA,10n	72-C10N-100VCA	2	C8 C14
CAPCA,150n	72-C150N-100VCA	3	C9 C25 C29
CAPCA,15n	72-C15N-100VCA	1	C3
CAPCA,1n5	72-C1N5-100VCA	2	C20 C32
CAPCA,220n	72-C220N-50VCA	2	C7 C12
CAPCA,220p	72-C220P-100VCA	1	C18
CAPCA,22n	72-C22N-100VCA	1	C24
CAPCA,330p	72-C330P-100VCA	3	C30 C34 C36
CAPCA,33n	72-C33N-100VCA	2	C11 C19
CAPCA,3n3	72-C3N3-100VCA	1	C6
CAPCA,47n	72-47N-100VCA	2	C5 C27
CAPCA,680p	72-680P-100VCA	1	C4 NEW PART
CAPCA,68n	72-68N-100VCA	1	C15 NEW PART
CAPCA,6n8	72-6N8-100VCA	3	C17 C22 C33
CAPE2,10u	72-C10-35VEA	1	C1
CAPE3,220u	72-C220-35VEA	1	C35
CAPTANT,.47u	72-C0.47-35VT	1	C23
CAPTANT,.68u	72-C0.68-35VT	1	C10
CAPTANT,1u5	72-C1.5-35VT	1	C26
CAPTANT,2u2	72-C2.2-35VT	3	C13 C31 C37
CAPTANT,3u3	72-C3.3-35VT	1	C28
M5289P	72-IC-M5289P	2	IC1-2
BC549	72-TBC549C	7	TR1-7
150mm 10WAY JUMPER LINK	72-LK-10W150TEG	1	PL1 FIT TO BACK OF PCB
LED SPACERS	71-SPA-PCB-3.2MM	3	FOR L1-L3
LED5mm RED	72-LED-RED	1	L3 FIT WITH 3mm

			<b>SPACING FROM PCB</b>
<b>LED5mm GREEN</b>	<b>72-LED-GREEN</b>	<b>1</b>	<b>L1 FIT WITH 3mm SPACING FROM PCB</b>
<b>LED5mm YELLOW</b>	<b>72-LED-YELLOW</b>	<b>1</b>	<b>L2 FIT WITH 3mm SPACING FROM PCB</b>
<b>SLIDER 30MM</b>	<b>73-SLIDER-B100KC</b>	<b>12</b>	<b>RV1-12</b>
<b>3 WAY 100mm LONG JUMPER LINK TO BACK PCB</b>	<b>TO SOCKET 72-SKT-IDC-3W</b>	<b>1</b>	<b>PL2</b>
<b>5 WAY 100mm LONG JUMPER LINK TO BACK PCB</b>	<b>TO SOCKET 72-SKT-IDC-5W</b>	<b>1</b>	<b>PL3</b>
<b>16MM B50K POT VERTICAL MOUNT WITH 21 CLICKS</b>	<b>73-POT-B50K21</b>	<b>1</b>	<b>RV13</b>
<b>16MM B50K DUAL POT VERTICAL MOUNT WITH 21 CLICKS</b>	<b>73-POT-B50K21-DG</b>	<b>1</b>	<b>RV14</b>
<b>SPACERS FOR MOUNTING FRONT PANEL</b>	<b>71-SPA-SRS4-5</b>	<b>4</b>	<b>SELF RETAINING SPACERS CLIP INTO FRONT PANEL</b>

**N.B. C4 & C15 are items not currently stocked by TRACE ELLIOT.**

## ISSUE 3 INSERTION LIST. DONE ON 4/1/00 (R46-49 &amp; R88 FROM 4K7 TO 1K)

Part Name	Part Code	Qty	Reference
PCB	73-PCB-PC00099	1	ISSUE 2
DIODE 1N4002	72-D-IN4002	4	D8-11
DIODE 1N4007	72-D-IN4007	4	D2-5
DIODE 1N4148	72-D-IN4148	14	D1 D6-7 D12-22
DIODE OA90	72-D-OA90-05	4	D23-26
R1/4W,100K	72-RM100K	25	R10 R13-15 R19-20 R24 R28 R34-35 R45 R69 R99 R115 R122 R137- 138 R141-142 R144-145 R148-149 R151-152
R1/4W,100R	72-RM100R	1	R8
R1/4W,10K	72-RM10K	24	R1-2 R12 R16-17 R22 R30-31 R37 R39 R41 R52-53 R76-77 R80 R104 R110 R114 R118 R128-129 R132 R140
R1/4W,15K	72-RM15K	4	R57 R59 R106 R135
R1/4W,1K	72-RM1K	15	R6-7 R11 R44 R46-R49 R58 R81 R88 R108-109 R124 R157
R1/4W,1K5	72-RM1K5	1	R120
R1/4W,1M	72-RM1M	2	R42 R136
R1/4W,220K	72-RM220K	9	R23 R25 R50-51 R68 R121 R126-127 R133
R1/4W,220R	72-RM220R	2	R71 R131
R1/4W,22K	72-RM22K	6	R61-62 R89 R92 R103 R123
R1/4W,2K2	72-RM2K2	7	R54 R56 R139 R143 R146 R150 R153
R1/4W,330K	72-RM330K	1	R36
R1/4W,33K	72-RM33K	11	R26 R29 R60 R70 R75 R83 R94 R98 R107 R117 R130
R1/4W,3K3	72-RM3K3	1	R102
R1/4W,3K9	72-RM3K9	1	R85
R1/4W,3M9	72-RM3M9	2	R78-79
R1/4W,470K	72-RM470K	3	R18 R21 R119
R1/4W,470R	72-RM470R	3	R9 R27 R43
R1/4W,47K	72-RM47K	25	R3-5 R33 R63-65 R72-74 R82 R84 R86 R90 R93 R95-96 R100 R105 R112-113 R134 R147

			R154 R156
R1/4W,4K7	72-RM4K7	10	R32 R38 R40 R55 R87 R91 R97 R101 R111 R125
R1/4W,68K	72-RM68K	1	R155
R1/4W,6K8	72-RM6K8	3	R66-67 R116
R1W,100R	72-RM100R-1WATT	1	R158
CAPCA,100n	72-C100N-100VCA	21	C2 C6-8 C17 C27 C29- 30 C32 C37 C39 C41 C54 C56 C74-75 C79 C85 C88 C91-92
CAPCA,100p	72-C100P-100VCA	7	C38 C43 C48-49 C62 C70 C72
CAPCA,10n	72-C10N-100VCA	6	C4 C47 C71 C73 C76 C83
CAPCA,1n	72-C1N-100VCA	2	C3 C34
CAPCA,220n	72-C220N-50VCA	15	C19-21 C23-24 C95-104
CAPCA,22n	72-C22N-100VCA	2	C59 C93
CAPCA,2n2	72-C2N2-100VCA	1	C16
CAPCA,330n	72-C330N-50VCA	1	C22
CAPCA,33n	72-C33N-100VCA	3	C57-58 C78
CAPCA,33p	72-C33P-100VCA	3	C53 C60 C82
CAPCA,4n7	72-C4N7-100VCA	3	C35-36 C84
CAPTANT,1u	72-C1-35VT	9	C52 C55 C63 C67 C69 C77 C80 C89 C94
CAPTANT,2u2	72-C2.2-35VT	7	C44-46 C50 C66 C81 C90
CAPCER,4n7	72-C4N7-400VP	4	C11-14
CAPE1,4u7 63V	72-C4.7-63VER	1	C1
CAPE1,10u 63V	72-C10-63VER	9	C5 C18 C25 C42 C51 C61 C64-65 C68
CAPE3,1000u 25v	72-C1000-25VER	3	C33 C40 C105
CAPE3,470u 16v	72-C470-16VER	3	C26 C28 C31
CAPE4,22u 450v	72-C22-450VER	2	C9-10
CAPP4,22n 250V	72-C22N-400VP	3	C15 C86-87
4013B	72-IC-4013B	3	IC1-3
4049B	72-IC-4049B	1	IC8
SSM2024	72-IC-SSM2024	1	IC20
TL072	72-IC-TL072	10	IC4-5 IC7 IC13-16 IC18 IC19
LM13700	72-IC-LM13700	1	IC6
LM833	72-IC-LM833	1	IC17
BC549	72-TBC549C	4	TR15-16 TR18-19
J112	72-FET-J-112	1	TR4
J175	72-FET-J-175	9	TR1-3 TR5-6 TR8-9 TR11-12

ZTX614	72-TZTX614	5	TR7 TR10 TR13-14 TR17
0.1" 2 WAY HEADER	72-HEAD-2W	1	PL8
0.1" 3 WAY HEADER	72-HEAD-3W-2	2	PL2 PL4 N.B. FOR ISSUE 2 PCBs PLEASE FIT PL4 THE WRONG WAY ROUND FOR USE WITH THE SCREENED CABLES FROM NC98
0.1" 5 WAY HEADER	72-HEAD-5W-2	1	PL7
2mm 10 WAY HEADER	72-HEAD-10W-TEG	3	PL3 PL5-6
0.1" 12 WAY HEADER	72-HEAD-12W	1	PL1
LED 3mm ORANGE	72-LED-ORG-3MM	1	L1
LED 3mm YELLOW	72-LED-YEL-3MM	1	L5
LED 3mm GREEN	72-LED-GRN-3MM	1	L2
LED 3mm BLUE	72-LED-BLU-3MM	1	L4
LED 3mm RED	72-LED-RED-3MM	1	L3
7805	72-IC-7805-REG	1	IC9
7812	72-IC-7812-REG	1	IC10
7815	72-IC-7815-REG	1	IC12
7915	72-IC-7915-REG	1	IC11
SMALL HEATSINK	71-HS-TEG	4	IC9-12
M3 X 12 SCREW	71-SCR-M3X12PPB	4	FOR HEATSINKS
M3 NUT	71-NUT-M3ZINC	4	FOR HEATSINKS
M3 SP WASHER	71-WAS-M3INTSP	4	FOR HEATSINKS
B9A VALVE BASE	73-VAL-SOCKET	1	V1
ECC83	73-VAL-ECC83	1	V1
PCBFUSECLIP	72-FUS-HLD-PCB-4	6	FS1-3
20mm T1A FUSE	72-FUS-1A-T-UK	2	FS2-3
20mm T250Ma FUSE	72-FUS-250MA-T	1	FS1
PCB SPADE	72-CRIMP-PCB-TAB	2	HT1-2 N.B. do not fit the GND1 spade.
PUSH SW LATCHING	73-SWT-F2UEE	3	SW1 SW6 SW8
PUSH SW MOMENTARY	73-SWT-F2UEE-MOM	5	SW2-5 SW7
JACKMONO BNBG	72-SKT-JCKBNBG	2	SK1-2
POTDUAL,B50K	73-POT-50K-DG	2	RV2 RV4
POTDUAL,B5K	73-POT-B5K-DG	2	RV3 RV5
POTSINGLE,B50K	73-POT-50KB	1	RV1

LED LEGS BENT AT RT ANGLES 6MM FROM BODY AND MOUNTED OVER  
EDGE OF PCB FROM UNDERSIDE.

# GP12

## C12-PC00118x5.

### PARTS INSERTION LIST FOR PC00118 ISSUE 2 GP12 EL PANEL AC SUPPLY CURRENT LIMITER PCB

Part Name	Part Code	Qty	Reference
DIODE 1N4148	72-D-IN4148	1	D1
ZENER1,6V2	72-D-BZX55C6V2	1	Z1
R1/4W,100K	72-RM100K	1	R9
R1/4W,10K	72-RM10K	2	R2 R5
R1/4W,680R	72-RM680R	1	R3
R1/4W,220R	72-RM220R	1	R8
R1/4W,470K	72-RM470K	2	R6 R10
R1/4W,47K	72-RM47K	1	R7
R1/4W,4K7	72-RM4K7	1	R1
R2.5W,10K	72-RWW10K-2.5W	1	R4
4013B	72-IC-4013B	1	IC2
CA3059	72-IC-CA3059	1	IC1
TRIAC,Z0103DA	72-TRIAC-Z0103DA	1	SC1
CAPP1,100n 100V	72-C100N-100VP	1	C4
CAPP1,10n 100V	72-C10N-100VP	2	C2 C5
CAPP1,220n 100V	72-C220N-100VP	1	C6
CAPTANT,1u 35V	72-C1-35VT	1	C3
0.1" 2 WAY HEADER	72-HEAD-2W	1	PL1
CONNECTION TO FRONT PANEL FOR GP12	Screened cable 300mm long hard wired to PCB with 72-HEAD-2W on other end.	1	PL2
PCBFUSECLIP	72-FUS-HLD-PCB-4	2	F1
20MM FUSE F100mA	72-FUS-100MA-SW	1	F1
CAPE2,100u 16V	72-C100-16VER	1	C1
	NOT USED		PL3

**C12-PC00117x2. PC0117x1 GP12\_98 INVERTER PCB**  
**CLIVE BUTTON – 3/3/99**

ISSUE 2 INSERTION LIST (R1 CHANGED TO 22K)

Part Name	Part Code	Qty	Reference
R1/4W,47K	72-RM22K	1	R1
			R2 NOT FITTED
CAPE1,10u 63V	72-C10-63VER	1	C1
CAPE1,1u 63V	72-C1-63VER	1	C2
0.1" 2 WAY HEADER	72-HEAD-2W-2	1	PL2
	Screened cable 300mm long hard wired to PCB	1	PL1 Screen to go to bottom pin on overlay to reduce hum
2 X 7/02 WIRES TO 2 WAY IDC SOCKET	72-SKT-IDC-2W	1	PL3 Length = 150mm
3 PIN INVERTER 600Hz 100V	73-INVERTER-12V	1	EL1
ZTX614	72-TZTX614	1	TR1
PCB PC00117x1	73-PC00117	1	

**C12-PC00110x2.                      PC00110x1**  
**GP12\_98 SOFT START BOARD**  
**CLIVE BUTTON 15/1/99**  
**ANDY EWEN 19/10/99 (AH500-100V)**  
**VERSION 1**

Part Name	Part Code	Qty	Reference
THERMISTOR	72-THERMISTER-2	2	SS1 SS2
THERMISTOR	72-THERMISTER-2	2	SS3 SS4 FIT ONLY FOR AH1000 – 100V & 110V UNITS AND RAH/AH500 100V
PCB SPADE TAGS	72-CRIMP-PCB-TAB	2	J1 & J2
PC00110x1		1	

**N.B. THIS BOARD IS USED ON ALL GP12 PRODUCTS EXCEPT THE GP12X  
RACK PRE-AMP.**



**C12-PC00102x1. PC00102 ISSUE 1 - GP12X BACK PCB's  
CLIVE BUTTON 27/1/99 VERSION 1**

Part Name	Part Code	Qty	Reference
DIODE 1N4148	72-D-1N4148	4	D1-4
R1/4W,100K	72-RM100K	3	R45 R48-49
R1/4W,10K	72-RM10K	18	R4 R14 R20 R29-31 R37-38 R40-41 R43 R46 R56 R70 R72-73 R76 R77
R1/4W,15K	72-RM15K	12	R2 R9 R15 R17-19 R25-26 R32-35
R1/4W,1K	72-RM1K	3	R3 R6 R8
R1/4W,1M	72-RM1M	1	R27
R1/4W,22K	72-RM22K	8	R39 R42 R57 R71 R74 R75 R78-79
R1/4W,2K2	72-RM2K2	7	R58 R61-62 R65-66 R69 R81
R1/4W,33K	72-RM33K	1	R11
R1/4W,39K	72-RM39K	2	R16 R23
R1/4W,470R	72-RM470R	6	R59-60 R63-64 R67-68
R1/4W,47K	72-RM47K	15	R1 R5 R7 R10 R12-13 R24 R44 R47 R50-55
R1/4W,4K7	72-RM4K7	1	R80
R1/4W,6K8	72-RM6K8	4	R21-22 R28 R36
CAPCA,100n	72-C100N-100VCA	7	C1-2 C7 C13-14 C27-28
CAPCA,100p	72-C100P-100VCA	4	C4 C8-10
CAPCA,22n	72-C22N-100VCA	2	C5-6
CAPCA,33n	72-C33N-100VCA	2	C11-12
CAPCA,33p	72-C33P-100VCA	2	C21-22
CAPTANT,1u	72-C1-35VT	2	C25-26
J175	72-FET-J-175	8	TR1-8
TL072	72-IC-TL072	8	IC1-8
CAPE2,10u	72-C10-63VER	9	C3 C15-20 C23-24
2mm PITCH 10 WAY HEADER - JST	72-HEAD-10W-TEG	1	PL4
DIN 8PIN PCB SOCKET	72-SKT-DIN-8PIN	1	SK7
SLIMJACK	72-SKT-JCKBBB- SM	13	SK1-6 SK11-17
POTDUAL,B50K	73-POT-50K-DG	3	RV1-3
PUSH SWITCH FO2UEE	73-SWT-F2UEE	2	SW1-2
PCB SPADE	72-CRIMP-PCB-TAB	2	GND1 GND2
10 WAY 100MM JUMPER	72-LK-10W100TEG	1	PL2
10 WAY 300MM JUMPER	72-LK-10W300TEG	2	PL1 PL3
XLR MALE PCB	73-XLR-PCB-M	3	SK8-10

PC00102 ISSUE 1		1	2 PART PCB
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