

Service Manual

Model: ACL2 PRO

Compressor/Limiter



www.altoproaudio.com

Version: 1.1

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1. Specification

SPECIFICATIONS FOR ACL2 PRO

INPUT		
Connectors	XLR and 1/4" TRS (Pin 2 and Tip hot)	
Type	Electronically balanced/unbalanced, RF filtered	
Impedance	Balanced >50Kohm, Unbalanced>25Kohm	
Nominal operating level	+4dBu/-10dBV switchable	
Max input level	>+24dBu balanced and unbalanced	
CMRR	Typically>50dB at 1KHz	

OUTPUT		
Connectors	XLR and 1/4" TRS (Pin 2 and Tip hot)	
Type	Electronically balanced/unbalanced, RF filtered	
Impedance	Balanced 120ohm, Unbalanced>60ohm	
Max output level	>+21dBu,+20dBm balanced and unbalanced	

SIDECCHAIN INPUT		
Connectors	1/4" TRS (Tip hot)	
Type	RF-rejecting, DC de-coupled, unbalanced input	
Impedance	>10Kohm	
Max input level	>+24dBu	

SIDECCHAIN OUTPUT		
Connectors	1/4" TRS (Tip hot)	
Type	RF-rejecting, DC de-coupled, unbalanced output	
Impedance	2Kohm	
Max input level	>+21dBu	

SYSTEM SPECIFICATIONS		
Bandwidth	20HZ to 20kHz, +0/-0.5dB	
Frequency Response	0.35Hz to 200kHz,+0/-3dB	
Noise	>-95dBu, unweighted, 22Hz to 22kHz	
THD	<0.008% Typical at +4dBu, 1kHz, unity gain <0.04% Typical at +20dBu, 1kHz, unity gain	
IMD	<0.1% Typical SMPTE	
Crosstalk	<-100dB, 22Hz to 22Khz	
Stereo Coupling	True RMS detection	

EXPANDER/GATE SECTION		
Type	Interactive Expander (Interactive Ratio Control)	
Threshold	variable (OFF to +15dB)	
Ratio	variable (1:1 to 1:8)	
Attack	<1ms/50dB, program dependent	
Release	variable (SLOW:100ms/1dB,FAST:100ms/100Db)	

COMPRESSOR SECTION		
Type	Interactive Compressor (Interactive Knee Adaptation)	
Threshold	variable (-40dB to +20dB)	
Ratio	variable (1:1 to ∞ :1)	
Threshold Characteristic	variable (Interactive or Hard Knee)	
Manual Attack Time	variable (0.5ms to 100ms / 20dB)	
Manual Release Time	variable from 0.05 ms to 5s / 20dB	
Auto Attack Time	Typical 15ms at 10dB, 5ms at 20dB, 3ms at 30dB	
Auto Release Time	Program dependent, typical 125dB/s	
Output level	variable (-20dB to +20dB)	

PEAK LIMITER SECTION		
Type	Interactive Gain Control Peak Limiter	
Threshold	variable (+4dB to OFF (+22dBu))	
Ratio	∞ :1	
Stage 1 Limiter Type	Clipper	
Attack Time	“zero”	
Release Time	“zero”	
Stage 2 Limiter Type	Program Limiter	
Attack	program dependent, typ. <5ms	
Release	program dependent, typ. 20dB/s	

FUNCTION SWITCHES		
SC EXTERN	Switches the detector section to the external SC input.	
SC MON	Monitoring the external SC input, disengaging the normal audio.	
INTERACTIVE	Enables the “Interactive Knee Adaptation” characteristics.	
CONTOUR	Allows for frequency dependent detection.	
AUTO	Enable the automatic and program dependent setting of the Attack-/Release times, disengaging the manual Attack-/Release controls.	
I/O METER	Switches between input and output for the Level Meter.	
IN/OUT	Relay controlled hard-bypass	
OPERATING LEVEL	Changes the internal reference level from +4 dBu to -10dBu.	
COUPLE	Linking both channels for stereo operation. Channel 1 becomes master.	

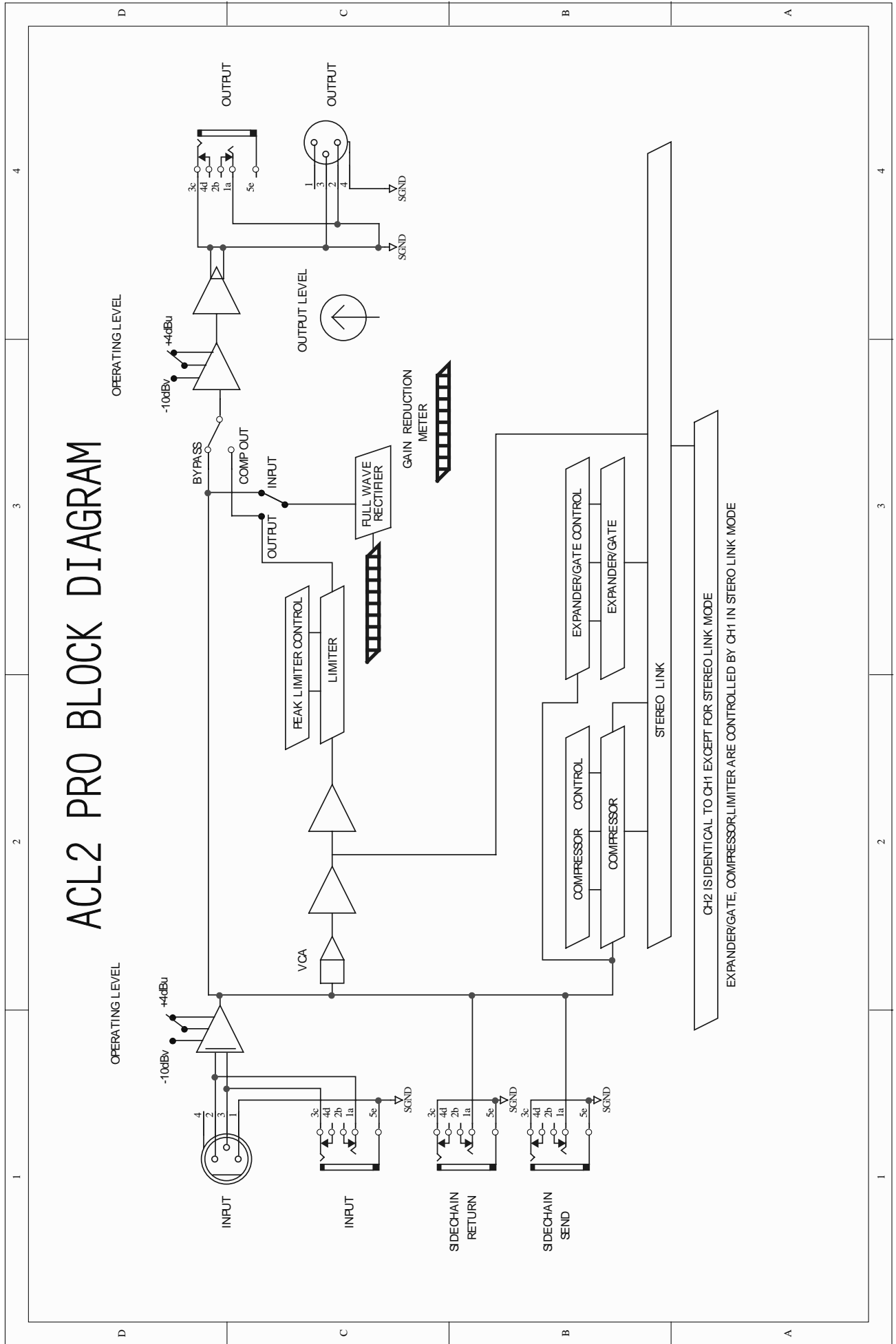
INDICATORS		
GAIN REDUCTION	12 element LED display: 1/2/4/6/9/12/15/18/21/24/27/30 dB.	
INPUT/OUTPUT LEVEL	8 element LED display: -30/-24/-18/-12/-6/0/+3/+6/+9/+12/+18 dB	
Expander/Gate Threshold	2 LED for under “+” and above “-“	
Compressor Threshold	3 LEDs for under “+”, Interactive “0” and above “-“	
Peak Limiter Threshold	1 LED for indication of limiter function.	
Function switch	LED indicator for each	

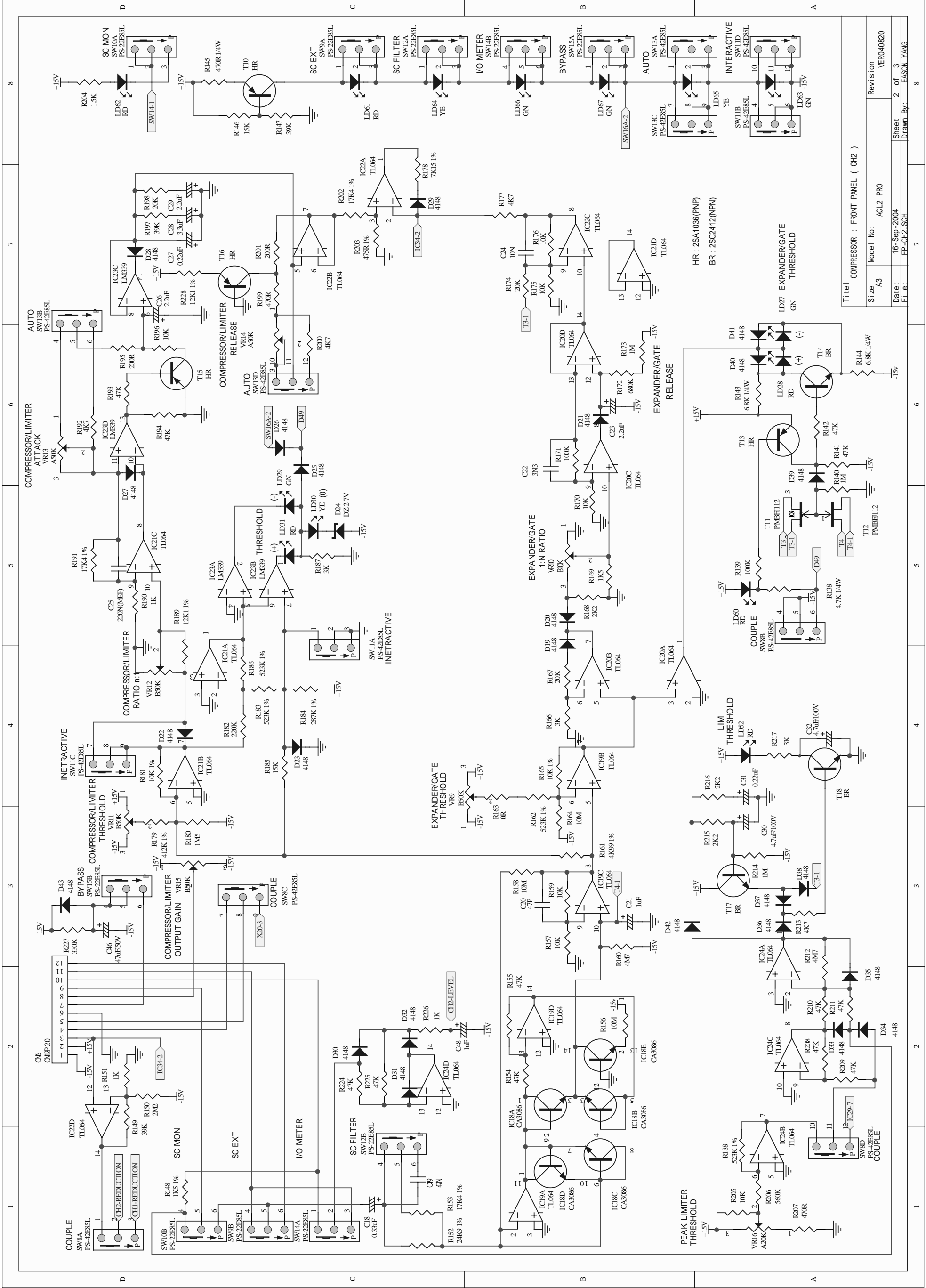
POWER SUPPLY		
Mains Voltages	USA/Canada ~120VAC, 60Hz U.K./Australia ~240VAC, 50Hz Europe ~230VAC, 50Hz General Export Model ~100-120VAC, ~200-240VAC, 50-60Hz	
Fuse	100-120VAC : 400mA (SLOW-BLOW) 200-240VAC : 200mA (SLOW-BLOW)	
Power consumption	14 Watts	
Mains Connection	Standard IEC receptacle	

PHYSICAL		
Dimension	W(483.0)*D(198.0)*H(44.2) mm	
Net Weight	3.3Kg	

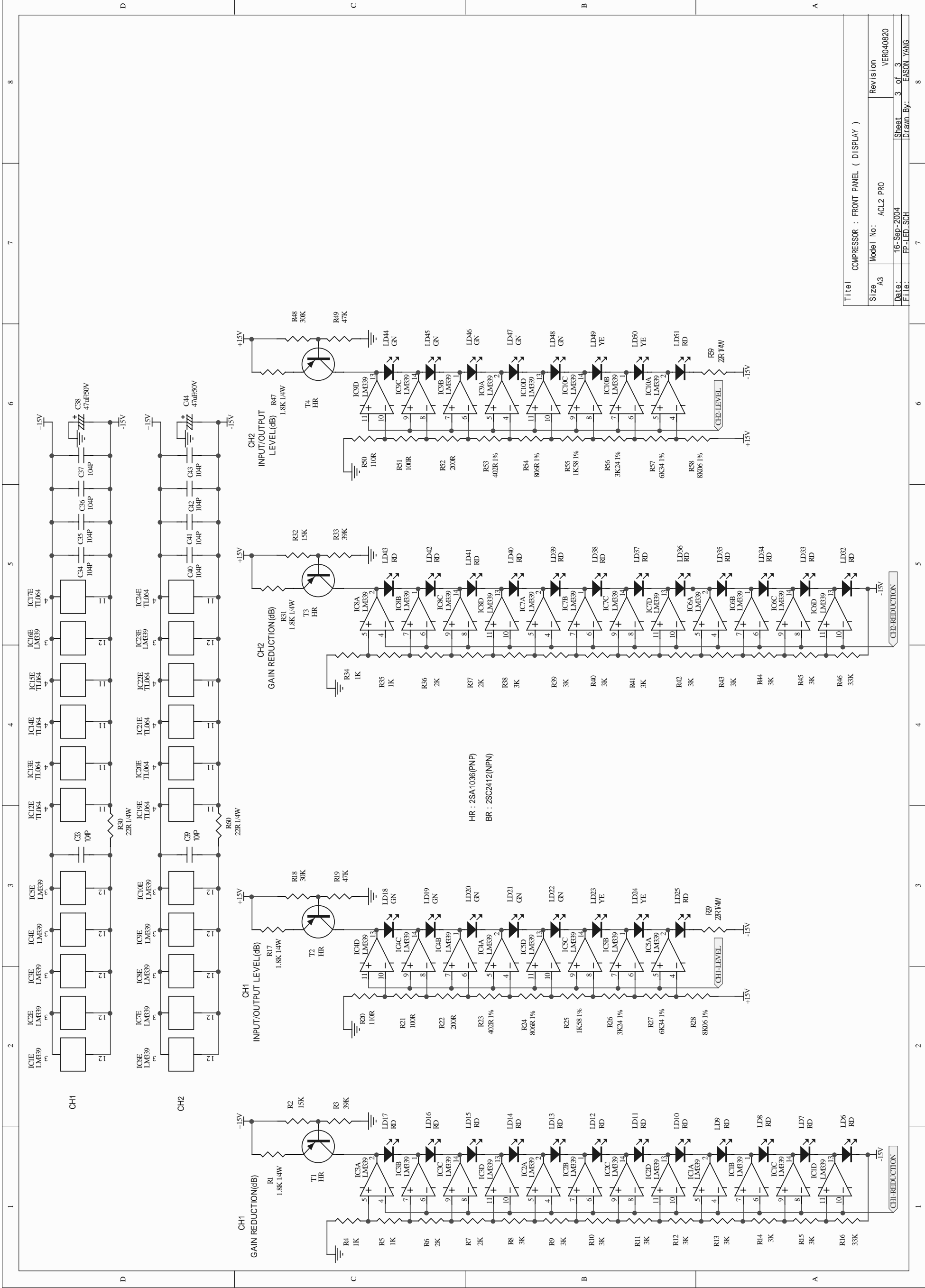
2.Black Diagram

ACL2 PRO BLOCK DIAGRAM

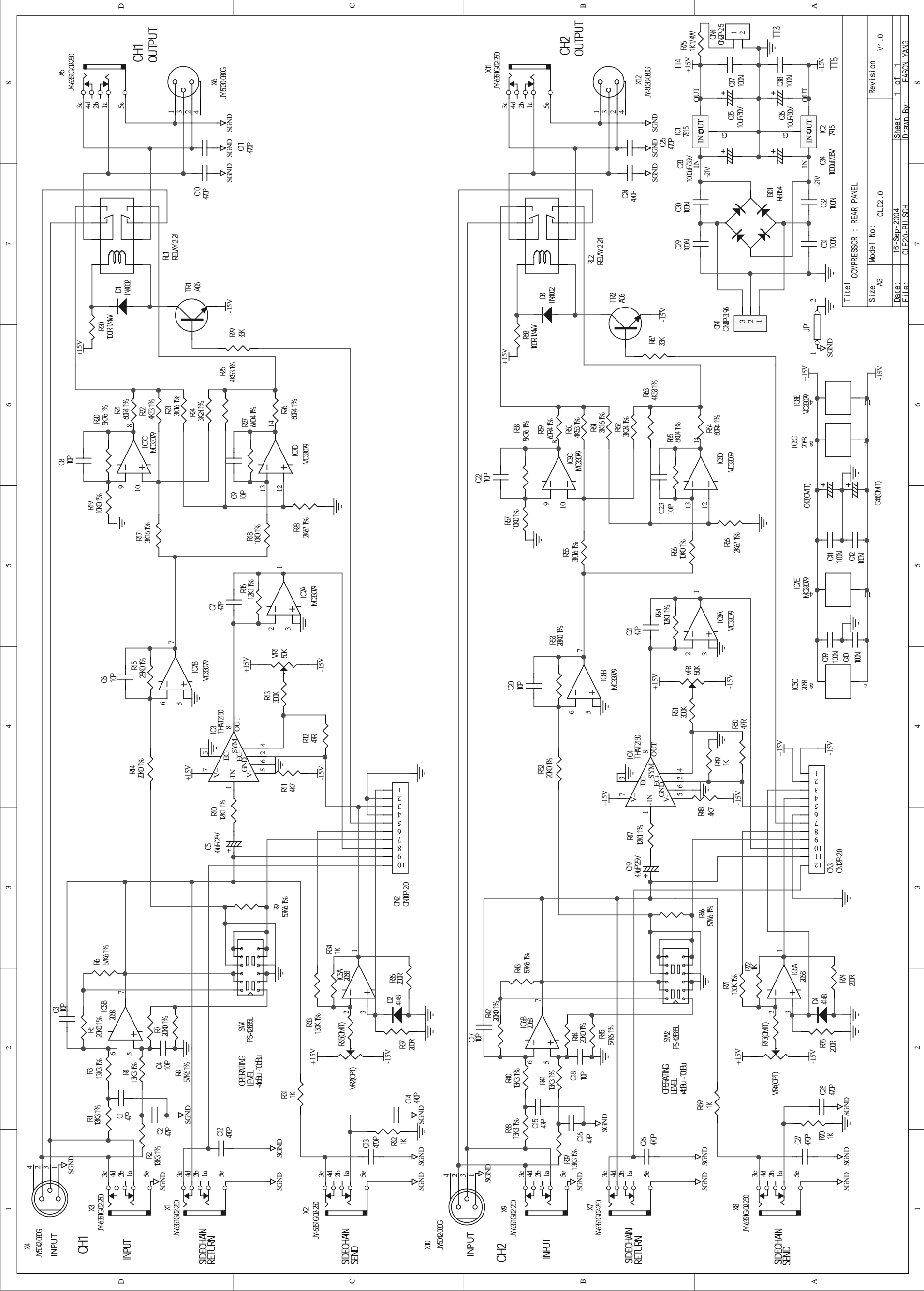




Title		COMPRESSOR : FRONT PANEL (CH2)	
Model No.	ACL2 PRO	Revision	VER040820
Date:	16-Sep-2004	Sheet	2 of 3
File:	FP-CH2.SCH	Drawn By:	EASON YANG

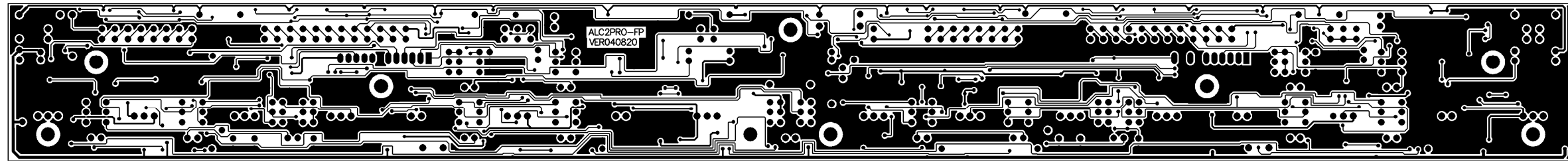


Title		COMPRESSOR : FRONT PANEL (DISPLAY)	
Size	A3	Model No :	ACL2 PRO
Date :	16-Sep-2004	Revision	VERO40820
File :	FP-LED.SCH	Sheet	3 of 3
		Drawn By :	EASON YANG

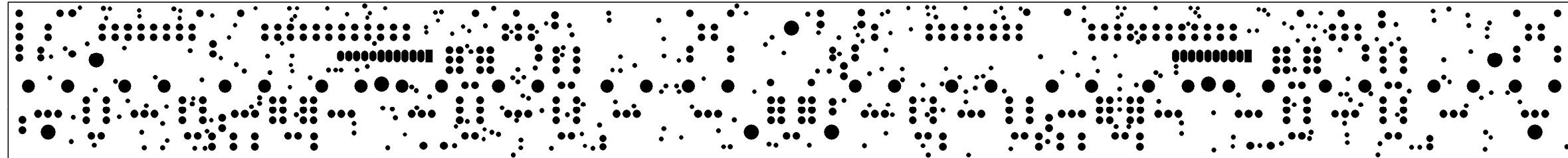


Title: COMPRESSOR : REAR PANEL	
Size: A3	Model No: CLE2.0
Date: 16-Sep-2004	Revision: V1.0
File: CLE20-PLU.SCH	Sheet: 1 of 1
Drawn By: EASON YANG	

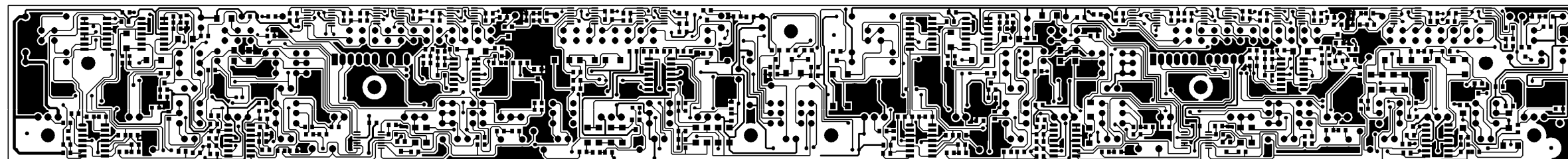
4.PRINTED CIRCUIT BOARD



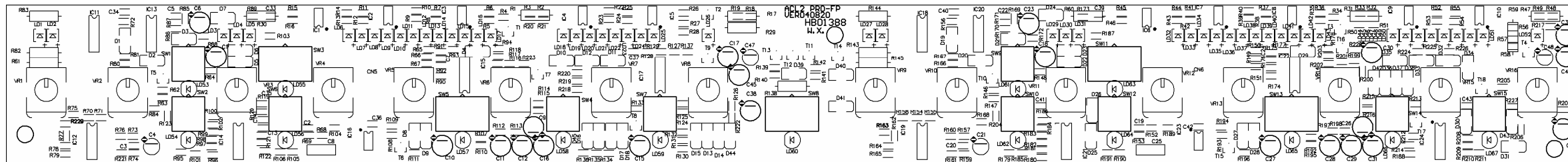
PCB : ACL2 PRO-FP Bottom Layer



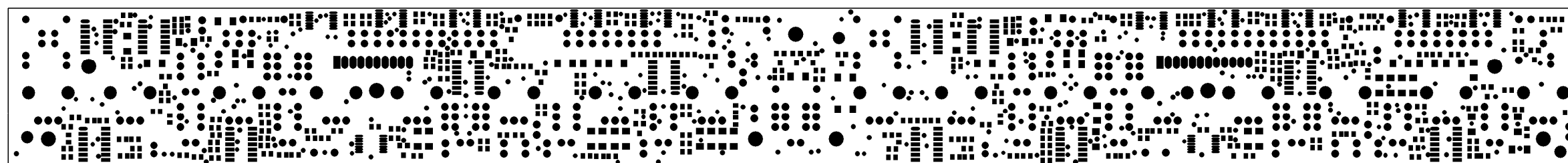
PCB : ACL2 PRO-FP Bottom Solder Mask



PCB : ACL2 PRO-FP TOP Layer

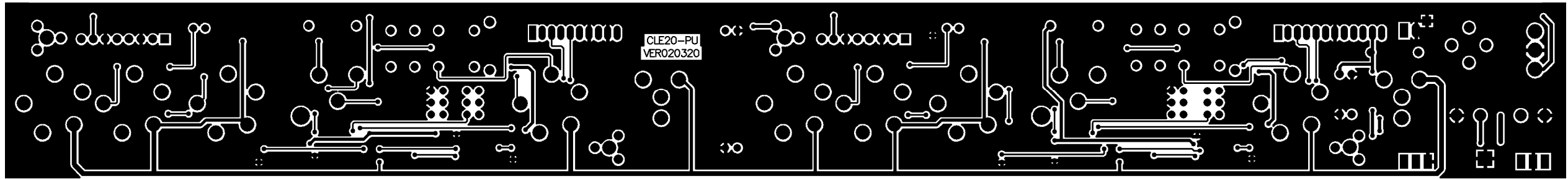


PCB : ACL2 PRO-FP Top overlay

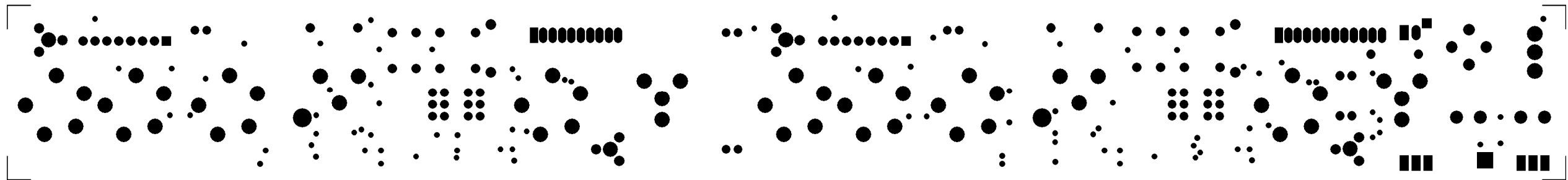


PCB : ACL2 PRO-FP TOP Solder Mask

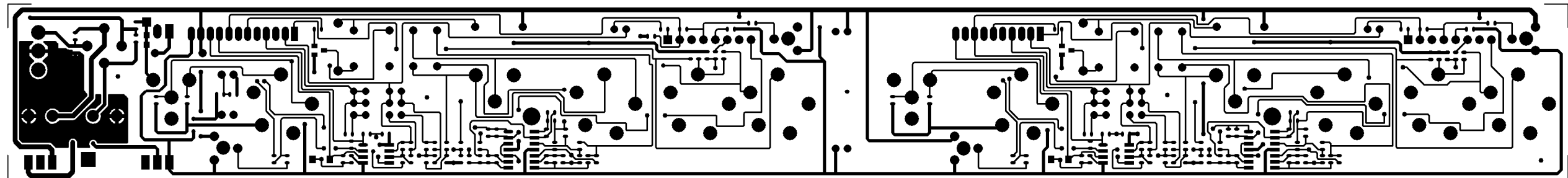
Tool	Hole Size	Hole Count	Plated	Tool Travel
T1	20mil (0.508mm)	84		38.80 Inch (985.63 mm)
T2	24mil (0.6096mm)	232		73.42 Inch (1864.91 mm)
T3	31mil (0.7874mm)	340		76.92 Inch (1953.88 mm)
T4	39mil (0.9906mm)	70		27.20 Inch (690.82 mm)
T5	87mil (2.2098mm)	32		30.12 Inch (765.13 mm)
T6	138mil (3.5052mm)	9	NPTH	29.68 Inch (753.97 mm)
Totals		767		276.16 Inch (7014.34 mm)



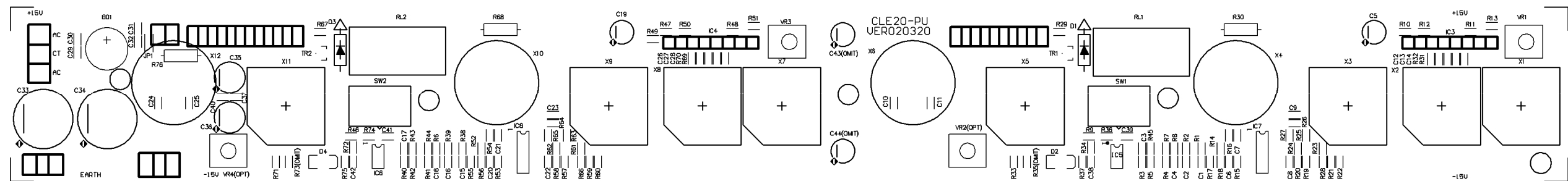
PCB : CLE20-PU Bottom Layer



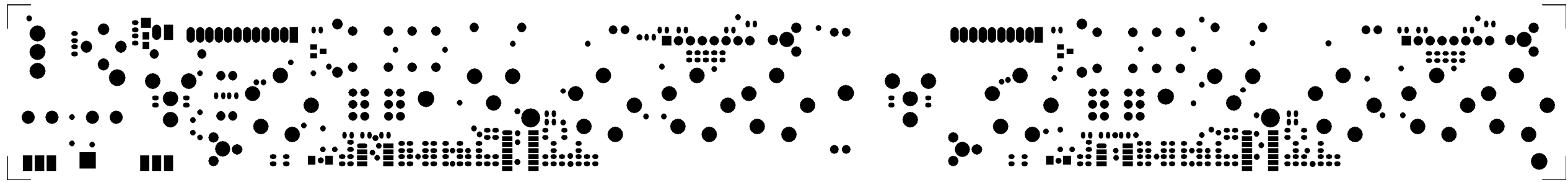
PCB : CLE20-PU Bottom Solder Mask



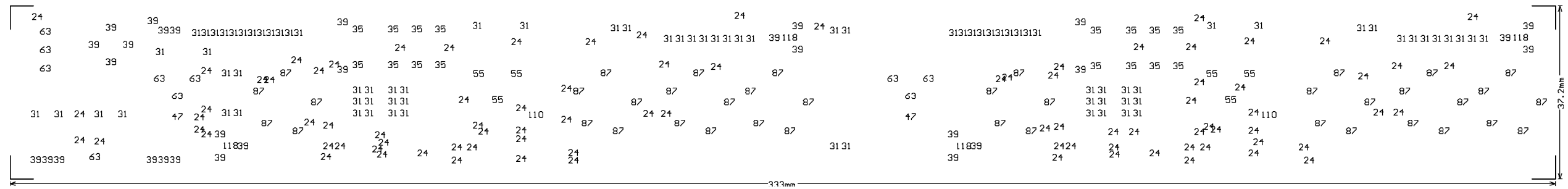
PCB : CLE20-PU TOP Layer



PCB : CLE20-PU Top overlay



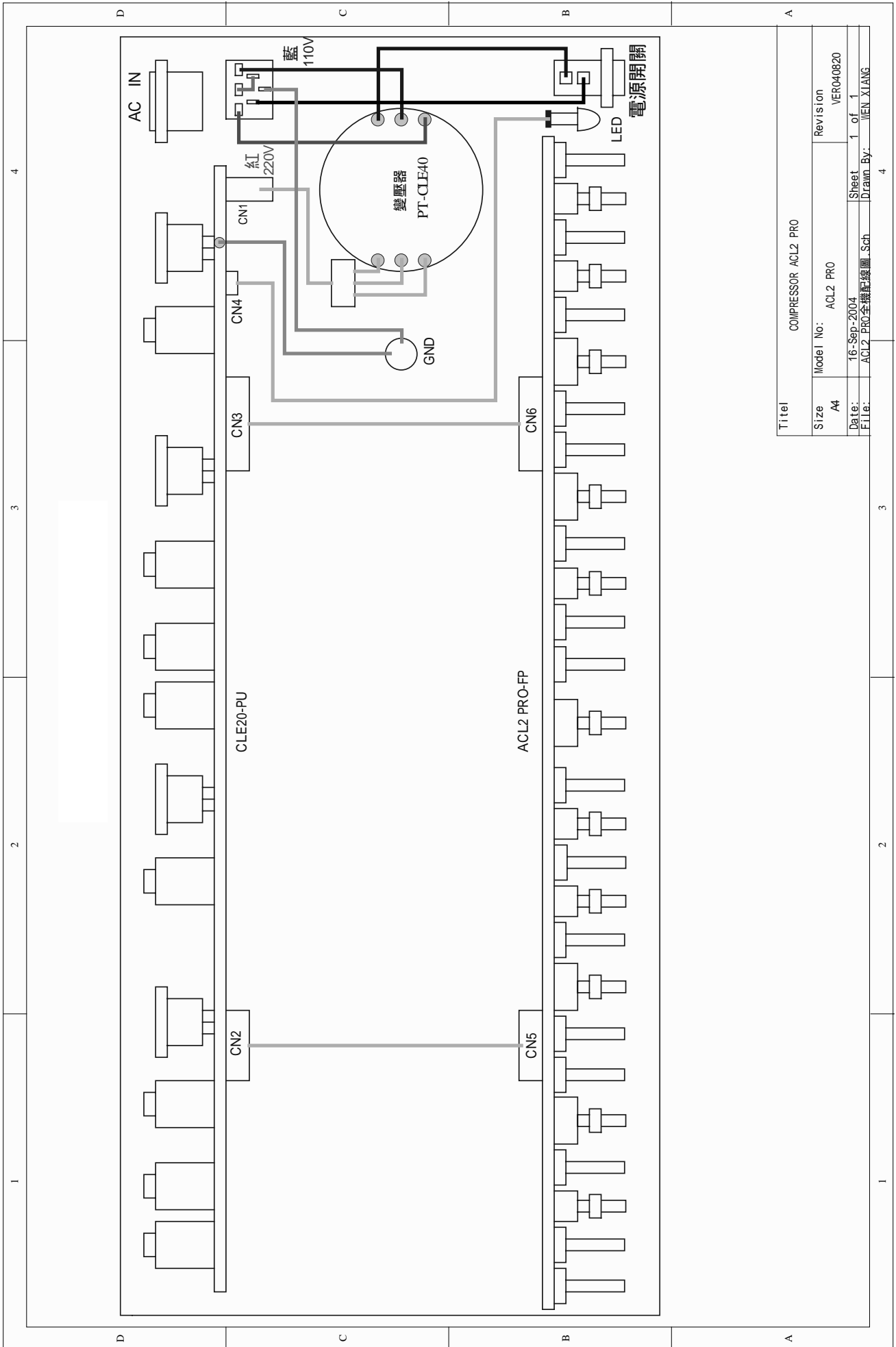
PCB : CLE20-PU TOP Solder Mask



PCB : CLE20-PU Drill Drawing

T Tool	Hole Size	Hole Count Plated	Tool Travel
T1	24mil (0.6096mm)	89	53.02 Inch (1346.77 mm)
T2	31mil (0.7874mm)	84	35.50 Inch (901.59 mm)
T3	35mil (0.889mm)	16	25.65 Inch (651.62 mm)
T4	39mil (0.9906mm)	29	43.23 Inch (1098.07 mm)
T5	47mil (1.1938mm)	2	15.35 Inch (389.92 mm)
T6	55mil (1.397mm)	6	19.21 Inch (487.94 mm)
T7	63mil (1.6002mm)	10	18.19 Inch (461.94 mm)
T8	87mil (2.2098mm)	40	33.76 Inch (857.48 mm)
T9	110mil (2.794mm)	2	18.29 Inch (464.65 mm)
T10	118mil (2.9972mm)	4	NPTH 26.74 Inch (679.21 mm)
Totals		282	288.94 Inch (7339.18 mm)

5. Wiring Diagram



Title		COMPRESSOR ACL2 PRO	
Size	Model No:	Revision	
A4	ACL2 PRO	VER040820	
Date:	16-Sep-2004	Sheet	1 of 1
File:	ACL2 PRO全機配線圖.Sch	Drawn By:	WEN XIANG

7. Electrical Parts List

SEKAKU ELECTRON INDUSTRY (H.K.) CO.,LTD

Multi-Level BOM Structure Listing

Report No.: IEBO_P02
 Prepared by 030037[蘇文祥]
 Item No. PF01980
 DESCRIPTION: ACL2
 ACL2 ALTO 230V

Date 2004/12/14
 Page No.: 1 / 13

Version
 UNIT: PCS
 Date: 2004/11/06

Version	Item No	Loss %	Ver.	Unit	Cardinal	Effective Date
Component Remark	Item Descri				Usage Rate	@:Phantom Layer
					Attrition	Rate
-0001-----	MA00084 panel			PCS	1.0000	2004/11/06
	ACL2 ALTO_V1.0				1	N
					0.00	%
-0001-----	MA00206 panel			PCS	1.0000	2004/09/27
	ACL2				1	N
					0.00	%
-0001-----	MA00169 panel			PCS	1.0000	2004/09/27
	ACL2_V1.0				1	N
					0.00	%
-0001-----	MJ00057 AL board			PCS	1.0000	2004/09/27
	3*2000*1000 16.32kg			KG	84	N
					0.00	%
-0002-----	MB03703 rear board			PCS	1.0000	2004/11/06
	ACL2_V1.1				1	N
					0.00	%
-0001-----	MB03694 bottom board			PCS	1.0000	2004/09/27
	ACL2				1	N
					0.00	%
-0001-----	MB03693 bottom rear board			PCS	1.0000	2004/09/27
	ACL2_V1.0				1	N
					0.00	%
-0001-----	MJ00058 iron board			PCS	1.0000	2004/09/27
	1*2135*1220 20.45kg			KG	12	N
					0.00	%
-0002-----	ME00035 iron pillar			PCS	5.0000	2004/09/27
	hexagon6.35*M3*6				1	N
					0.00	%
-0003-----	ME00001 screw pillar			PCS	1.0000	2004/09/27
	M4*10*0.7PH				1	N
					0.00	%
-0004-----	ME00004 screw pillar			PCS	2.0000	2004/09/27
	M3*10*0.5PH				1	N
					0.00	%
-0005-----	ME00032 iron pillar			PCS	3.0000	2004/09/27
	hexagon6.35*M3*5.2				1	N
					0.00	%
-0003-----	MI02395 frint board			PCS	1.0000	2004/11/06
	ACL2_V1.0				1	N
					0.00	%
-0001-----	MJ00061 Zn-plated board			PCS	1.0000	2004/09/27
	1*2135*1220 20.45kg			KG	115	N
					0.00	%
-0002-----	ME00035 iron pillar			PCS	8.0000	2004/09/27
	hexagon6.35*M3*6				1	N
					0.00	%
-0004-----	MC00649 top cover			PCS	1.0000	2004/11/06
	ACL2_V1.0				1	N
					0.00	%
-0001-----	MC00633 top cover			PCS	1.0000	2004/11/12
	ACL2				1	N
					0.00	%
-0001-----	MC00632 top cover			PCS	1.0000	2004/09/27
	ACL2_V1.0				1	N
					0.00	%
-0001-----	MJ00059 iron board			PCS	1.0000	2004/09/27
	1.2*2135*1220 24.54kg			KG	24	N
					0.00	%
-0005-----	NI01862 key			PCS	4.0000	2004/11/06
	5.5*5.5*14.5				1	N
					0.00	%
-0006-----	NI02925 knob			PCS	4.0000	2004/11/06
	5.5*5.5*11.2mm TYPHOON black				1	N
					0.00	%
-0007-----	NI03256 knob			PCS	10.0000	2004/11/21
	φ9.5*22.75 5445C_V1.0				1	N
					0.00	%

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 Date: 2004/11/06

Date 2004/12/14
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Version	Item No Item Descri	Loss %	Ver.	Unit	Cardinal Usage Rate Attrition	Effective Date @:Phantom Layer Rate
-0008-----	NI03257 knob φ11.5*25 5445C_V1.0			PCS	4.0000 1 0.00 %	2004/11/21 N
-0009-----	NI03258 knob φ7.5*3.3 298C_V1.0			PCS	10.0000 1 0.00 %	2004/11/21 N
-0010-----	NI03259 knob φ9.2*4.1 298C_V1.0			PCS	4.0000 1 0.00 %	2004/11/21 N
-0011-----	HC00015 AC socket (S)315-B (AC select)			PCS	1.0000 1 0.00 %	2004/11/06 N
-0012-----	HD00023 glass tube fuse 200mA 250V φ5.2*20mm CSA/S/UL/VDE			PCS	1.0000 1 0.00 %	2004/11/06 N
-0013-----	NI03251 knob 19.3*19.2*7_V1.0			PCS	1.0000 1 0.00 %	2004/11/06 N
-0014-----	NI03252 switch key 32*12.53*14_V1.0			PCS	1.0000 1 0.00 %	2004/11/06 N
-0015-----	NI03253 bole 15*15*10.7_V1.0			PCS	1.0000 1 0.00 %	2004/11/06 N
-0016-----	MG00025 screw M3*6			PCS	3.0000 1 0.00 %	2004/11/06 N
-0017-----	MG00038 screw M3*6			PCS	7.0000 1 0.00 %	2004/11/06 N
-0018-----	MG00042 screw M3*10			PCS	2.0000 1 0.00 %	2004/11/06 N
-0019-----	MG00538 screw M3*10*0.5PH_V1.0			PCS	4.0000 1 0.00 %	2004/11/06 N
-0020-----	MF00038 washer φ4*φ7*1t			PCS	1.0000 1 0.00 %	2004/11/06 N
-0021-----	ME00015 nut 3m/m			PCS	2.0000 1 0.00 %	2004/11/06 N
-0022-----	MG00061 screw M3*10			PCS	8.0000 1 0.00 %	2004/11/06 N
-0023-----	MG00041 screw M3*6			PCS	11.0000 1 0.00 %	2004/11/06 N
-0024-----	ME00016 nut 4m/m			PCS	1.0000 1 0.00 %	2004/11/06 N
-0025-----	NI00002 nut of plastic φ7/16"*G20/15*4.8(hexagon)			PCS	6.0000 1 0.00 %	2004/11/06 N
-0026-----	NC00131 washer 1*φ11.3*φ15.3 red			PCS	12.0000 1 0.00 %	2004/11/06 N
-0027-----	MF00048 washer φ4*φ8*0.5t			PCS	2.0000 1 0.00 %	2004/11/06 N
-0028-----	MG00281 screw M3*6			PCS	2.0000 1 0.00 %	2004/11/06 N
-0029-----	MG00560 copper pillar M3*24.5*0.5PH 30.5			PCS	2.0000 1 0.00 %	2004/11/06 N

Multi-Level BOM Structure Listing

Report No.: IEBO_P02
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 Item No. PF01980
 DESCRIPTION: ACL2
 ACL2 ALTO 230V

Version

UNIT: PCS
 Date: 2004/11/06

Date 2004/12/14
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Version	Item No Item Descri	Loss %	Ver.	Unit	Cardinal Usage Rate Attrition	Effective Date @:Phantom Layer Rate
-0030-----	MG00036 screw M3*4			PCS	3.0000 1 0.00 %	2004/11/06 N
-0031-----	MF00037 washer φ 3* φ 5*1t			PCS	2.0000 1 0.00 %	2004/11/21 N
-0032-----	HA01468 header wiring 2P-2P 300			PCS	1.0000 1 0.00 %	2004/11/06 N
-0033-----	HA01558 row-wire connector wiring 5P-5P 220			PCS	2.0000 1 0.00 %	2004/11/06 N
-0034-----	HA02905 wire 3P-3P/3P 330/200mm UL1007 24AWG			PCS	1.0000 1 0.00 %	2004/11/06 N
-0035-----	HA00861 power cord Europe 3P LT-312+LT-501			PCS	1.0000 1 0.00 %	2004/11/06 N
-0036-----	NI00252 sleeve φ 4*20mm			PCS	6.0000 1 0.00 %	2004/11/06 N
-0001-----	NI00248 sleeve φ 4*1000mm			M	20.0000 1000 0.00 %	2002/06/04 N
-0037-----	NI00218 cable tie-black ALT-102SB			PCS	3.0000 1 0.00 %	2004/11/06 N
-0038-----	NI00501 foot cushion 12.7*9*3t(SF-004)			PCS	4.0000 1 0.00 %	2004/11/06 N
-0039-----	NA00137 clip-chain bag 5*7			PCS	1.0000 1 0.00 %	2004/11/06 N
-0040-----	NF00061 assurance card ALTO			PCS	1.0000 1 0.00 %	2004/11/06 N
-0041-----	NA00279 clip-chain bag 0.04t*100*150mm_V1.0			PCS	1.0000 1 0.00 %	2004/11/06 N
-0042-----	AD00011 twin adhesive 90*120mm_V1.0			PCS	1.0000 1 0.00 %	2004/11/06 N
-0043-----	HJ00006 desiccant 30g			PCS	1.0000 1 0.00 %	2004/11/06 N
-0044-----	NB03221 colour box ACL2 ALTO_V1.0			PCS	1.0000 1 0.00 %	2004/11/06 N
-0045-----	NB02163 barrier X23,34,40			PCS	1.0000 1 0.00 %	2004/11/06 N
-0046-----	NB02164 barrier X23,34,40			PCS	1.0000 1 0.00 %	2004/11/06 N
-0047-----	NB02088 box (1H) ALTO 19"			PCS	1.0000 4 0.00 %	2004/11/06 N
-0048-----	TC00074 transformer PT-SCX34			PCS	1.0000 1 0.00 %	2004/11/06 N
-0049-----	NE13576 label ACL2_V1.0			PCS	4.0000 1 0.00 %	2004/11/06 N
-0001-----	NH00012 bond paper 0.04*1M			M	1.0000 80 0.00 %	2004/09/27 N

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Version	Item No Item Descri	Loss %	Ver.	Unit	Cardinal Usage Rate Attrition	Effective Date @:Phantom Layer Rate
0002-----	NI00014 membrane 0.035*1M			M	1.0000 80 0.00 %	2004/09/27 N
0050-----	NE05004 label ALTO			PCS	4.0000 1 0.00 %	2004/11/06 N
0001-----	NH00334 cone paper 0.040*1m			M	1.0000 76 0.00 %	2004/11/29 N
0051-----	HK04586 PC board P-ACL2-FP-DIP			PCS	1.0000 1 0.00 %	2004/11/06 N
0001-----	RC00155 resistor 10KΩ φ6 EVND8A VR1,VR6			PCS	2.0000 1 0.00 %	2004/11/06 N
0002-----	SA00240 L.E.D 3*3(L-714GDT) LD5,LD6			PCS	2.0000 1 0.00 %	2004/11/06 N
0003-----	SA00241 L.E.D 3*3(L-714YD) LD2,LD4			PCS	2.0000 1 0.00 %	2004/11/06 N
0004-----	SA00242 L.E.D 3*3(L-714YD) LD1,LD3,LD7,LD8,LD9,LD10,LD11,LD12,LD13,LD14,LD15, LD16,LD17,LD18,LD19,LD20,LD21,LD22,LD23,LD24,LD25, LD26,LD27,LD28,LD29,LD30			PCS	26.0000 1 0.00 %	2004/11/06 N
0005-----	NI03261 separating 38.4*22.5*2.9_V1.0 LD1,LD2,LD3,LD4,LD5,LD6,LD7,LD8,LD9,LD10,LD11,LD12, LD13,LD14,LD15,LD16,LD17,LD18,LD19,LD20,LD21,LD22, LD23,LD24,LD25,LD26,LD27,LD28,LD29,LD30			PCS	3.0000 1 0.00 %	2004/11/06 N
0006-----	RC00214 potentiometer B1KΩ R0911NOB-V1B102FN00-00 VR11,VR12			PCS	2.0000 1 0.00 %	2004/11/06 N
0007-----	RC00313 potentiometer A10KΩ 35mm R0911NOB-V1A105FN00-00 VR13,VR14,VR15,VR16			PCS	4.0000 1 0.00 %	2004/11/06 N
0008-----	RC00213 potentiometer B10KΩ 軸長35 R0911NOB-V1B103FN00-00 VR2,VR3,VR4,VR5,VR7,VR8,VR9,VR10			PCS	8.0000 1 0.00 %	2004/11/06 N
0009-----	SB00075 transistor 2SA06840R/(PANASONIC) Q1,Q2			PCS	2.0000 1 0.00 %	2004/11/06 N
0010-----	HI00162 push-button switch 2 paragraphs 6p PS-22E8552L			PCS	2.0000 1 0.00 %	2004/11/06 N

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 Date: 2004/11/06

Date 2004/12/14
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Version	Item No	Loss %	Ver.	Unit	Cardinal	Effective Date
Component Remark	Item Descri				Usage Rate	@:Phantom Layer
					Attrition	Rate
	SW1,SW2					
-0011-----	HI00163 push-button switch 2 stage 12P PS-42E85 SW3,SW4			PCS	2.0000 1 0.00 %	2004/11/06 N
-0012-----	HC00077 row-wire header(male) 3P 2.5mm 180°			PCS	1.0000 1 0.00 %	2004/11/06 N
-0013-----	HC00256 row-wire header(male) 5P 2.0mm 180° CN1,CN2			PCS	2.0000 1 0.00 %	2004/11/06 N
-0014-----	HK04601 PC board P-ACL2-FP-AI			PCS	1.0000 1 0.00 %	2004/11/06 N
-0001-----	RA01112 fixed resistor 1/4W 100Ω R81,R82,R83,R84			PCS	4.0000 1 0.00 %	2004/11/06 N
-0002-----	CF00141 metal-film capacitor MSC 0.0068uF/100V 5% CASE01 C17,C18			PCS	2.0000 1 0.00 %	2004/11/06 N
-0003-----	CF00147 metal-film capacitor 0.047uF/100V 5% CASE01 C19,C20,C21,C22,C23,C24			PCS	6.0000 1 0.00 %	2004/11/06 N
-0004-----	CF00140 metal-film capacitor MSC 0.1uF/63V 5% CASE01 C35,C36			PCS	2.0000 1 0.00 %	2004/11/06 N
-0005-----	CF00038 metal-film capacitor MSC 0.22uF/63V 5% CASE02 C27,C28			PCS	2.0000 1 0.00 %	2004/11/06 N
-0006-----	CF00042 metal-film capacitor MSC 0.47uF/63V 5% CASE02 C1,C2,C3,C4			PCS	4.0000 1 0.00 %	2004/11/06 N
-0007-----	CF00142 metal-film capacitor MSC 1.0uF/63V 5% CASE07 C37,C38			PCS	2.0000 1 0.00 %	2004/11/06 N
-0008-----	CB00246 electrolytic capacitor 0.47uF/50V φ4*7mm C33,C34			PCS	2.0000 1 0.00 %	2004/11/06 N
-0009-----	CB00250 electrolytic capacitor 22uF/25V φ6*7mm C9,C10,C11,C12,C13,C14,C15,C16			PCS	8.0000 1 0.00 %	2004/11/06 N

Multi-Level BOM Structure Listing

Report No.: IEBO_P02
 Prepared by 030037[蘇文祥]
 Item No. PF01980
 DESCRIPTION: ACL2
 ACL2 ALTO 230V

Version

UNIT: PCS
 Date: 2004/11/06

Date 2004/12/14
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Version	Item No	Loss %	Ver.	Unit	Cardinal	Effective Date
Component Remark	Item Descri				Usage Rate	@:Phantom Layer
					Attrition Rate	Rate
0010-----	CB00235 electrolytic capacitor 100uF/25V φ6*11mm C39,C40			PCS	2.0000 1 0.00 %	2004/11/06 N
0011-----	SB00068 transistor BC546B(PHILIPS) Q3,Q4,Q5,Q6			PCS	4.0000 1 0.00 %	2004/11/06 N
0012-----	SB00069 transistor BC547B,126 Q7,Q8			PCS	2.0000 1 0.00 %	2004/11/06 N
0013-----	SB00070 transistor BC557B Q9,Q10,Q11,Q12			PCS	4.0000 1 0.00 %	2004/11/06 N
0014-----	HK04587 PC board P-ACL2-FP-SMD			PCS	1.0000 1 0.00 %	2004/11/06 N
0001-----	HB01390 PCB ACL2-FP(1*2)_VER040910			PCS	1.0000 1 0.00 %	2004/11/06 N
0002-----	RD00068 SMD fixed resistor 1/10W 100Ω ±5% 0603 R139,R140			PCS	2.0000 1 0.00 %	2004/11/06 N
0003-----	RD00070 SMD fixed resistor 1/10W 150Ω ±5% 0603 R59,R60			PCS	2.0000 1 0.00 %	2004/11/06 N
0004-----	RD00078 SMD fixed resistor 1/10W 470Ω ±5% 0603 R135,R136			PCS	2.0000 1 0.00 %	2004/11/06 N
0005-----	RD00080 SMD fixed resistor 1/10W 680Ω ±5% 0603 R55,R56			PCS	2.0000 1 0.00 %	2004/11/06 N
0006-----	RD00083 SMD fixed resistor 1/10W 1.0KΩ ±5% 0603 R119,R120,R121,R122,R123,R124,R125,R126,R127,R128, R129,R130			PCS	12.0000 1 0.00 %	2004/11/06 N
0007-----	RD00350 SMD fixed resistor 1/10W 1.1KΩ ±5% 0603 R71,R72,R73,R74			PCS	4.0000 1 0.00 %	2004/11/06 N
0008-----	RD00084 SMD fixed resistor 1/10W 1.2KΩ ±5% 0603 R51,R52,R53,R54			PCS	4.0000 1 0.00 %	2004/11/06 N

Multi-Level BOM Structure Listing

Report No.: IEBO_P02
 Prepared by 030037[蘇文祥]
 Item No. PF01980
 DESCRIPTION: ACL2
 ACL2 ALTO 230V

Version

UNIT: PCS
 Date: 2004/11/06

Date 2004/12/14
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Version	Item No	Loss %	Ver.	Unit	Cardinal	Effective Date
Component Remark	Item Descri				Usage Rate	@:Phantom Layer
					Attrition	Rate
-0009-----	RD00085 SMD fixed resistor 1/10W 1.5KΩ ±5% 0603 R43,R44,R47,R48			PCS	4.0000 1 0.00 %	2004/11/06 N
-0010-----	RD00086 SMD fixed resistor 1/10W 1.8KΩ ±5% 0603 R45,R46			PCS	2.0000 1 0.00 %	2004/11/06 N
-0011-----	RD00087 SMD fixed resistor 1/10W 2.0KΩ ±5% 0603 R85,R86,R87,R88,R89,R90,R91,R92			PCS	8.0000 1 0.00 %	2004/11/06 N
-0012-----	RD00088 SMD fixed resistor 1/10W 2.2KΩ ±5% 0603 R133,R134			PCS	2.0000 1 0.00 %	2004/11/06 N
-0013-----	RD00090 SMD fixed resistor 1/10W 3.0KΩ ±5% 0603 R61,R62,R63,R64			PCS	4.0000 1 0.00 %	2004/11/06 N
-0014-----	RD00092 SMD fixed resistor 1/10W 3.9KΩ ±5% 0603 R93,R94			PCS	2.0000 1 0.00 %	2004/11/06 N
-0015-----	RD00093 SMD fixed resistor 1/10W 4.7KΩ ±5% 0603 R9,R10			PCS	2.0000 1 0.00 %	2004/11/06 N
-0016-----	RD00094 SMD fixed resistor 1/10W 5.1KΩ ±5% 0603 R75,R76,R77,R78,R79,R80			PCS	6.0000 1 0.00 %	2004/11/06 N
-0017-----	RD00096 SMD fixed resistor 1/10W 6.2KΩ ±5% 0603 R57,R58			PCS	2.0000 1 0.00 %	2004/11/06 N
-0018-----	RD00097 SMD fixed resistor 1/10W 6.8KΩ ±5% 0603 R49,R50			PCS	2.0000 1 0.00 %	2004/11/06 N
-0019-----	RD00099 SMD fixed resistor 1/10W 8.2KΩ ±5% 0603 R107,R108			PCS	2.0000 1 0.00 %	2004/11/06 N
-0020-----	RD00101 SMD fixed resistor 1/10W 10KΩ ±5% 0603 R65,R66,R67,R68,R69,R70			PCS	6.0000 1 0.00 %	2004/11/06 N
-0021-----	RD00103 SMD fixed resistor 1/10W 15KΩ ±5% 0603			PCS	4.0000 1 0.00 %	2004/11/06 N

Multi-Level BOM Structure Listing

Report No.: IEBO_P02
 Prepared by 030037[蘇文祥]
 Item No. PF01980
 DESCRIPTION: ACL2
 ACL2 ALTO 230V

Version

UNIT: PCS
 Date: 2004/11/06

Date 2004/12/14
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Version	Item No	Loss %	Ver.	Unit	Cardinal	Effective Date
Component Remark	Item Descri				Usage Rate	@:Phantom Layer
					Attrition	Rate
	R33,R34,R35,R36					
-0022-----	RD00306 SMD fixed resistor 1/10W 20KΩ ±5% 0603 R15,R16,R17,R18,R19,R20,R21,R22,R23,R24,R25,R26,R27, R28,R29,R30,R31,R32			PCS	18.0000 1 0.00 %	2004/11/06 N
-0023-----	RD00105 SMD fixed resistor 1/10W 22KΩ ±5% 0603 R13,R14			PCS	2.0000 1 0.00 %	2004/11/06 N
-0024-----	RD00110 SMD fixed resistor 1/10W 43KΩ ±5% 0603 R115,R116			PCS	2.0000 1 0.00 %	2004/11/06 N
-0025-----	RD00111 SMD fixed resistor 1/10W 47KΩ ±5% 0603 R114,R113,R112,R111,R110,R109			PCS	6.0000 1 0.00 %	2004/11/06 N
-0026-----	RD00114 SMD fixed resistor 1/10W 68KΩ ±5% 0603 R11,R12			PCS	2.0000 1 0.00 %	2004/11/06 N
-0027-----	RD00115 SMD fixed resistor 1/10W 82KΩ ±5% 0603 R1,R2,R3,R4			PCS	4.0000 1 0.00 %	2004/11/06 N
-0028-----	RD00116 SMD fixed resistor 1/10W 100KΩ ±5% 0603 R5,R6,R7,R8			PCS	4.0000 1 0.00 %	2004/11/06 N
-0029-----	RD00263 SMD fixed resistor 1/10W 200KΩ ±5% 0603 R117,R118			PCS	2.0000 1 0.00 %	2004/11/06 N
-0030-----	RD00123 SMD fixed resistor 1/10W 470KΩ ±5% 0603 R131,R132			PCS	2.0000 1 0.00 %	2004/11/06 N
-0031-----	RD00125 SMD fixed resistor 1/10W 1.0MΩ ±5% 0603 R137,R138			PCS	2.0000 1 0.00 %	2004/11/06 N
-0032-----	RD00126 SMD fixed resistor 1/10W 2.2MΩ ±5% 0603 R39,R40			PCS	2.0000 1 0.00 %	2004/11/06 N
-0033-----	RD00127 SMD fixed resistor 1/10W 2.7MΩ ±5% 0603 R103,R104,R105,R106			PCS	4.0000 1 0.00 %	2004/11/06 N

Multi-Level BOM Structure Listing

Report No.: IEBO_P02
 Prepared by 030037[蘇文祥]
 Item No. PF01980
 DESCRIPTION: ACL2
 ACL2 ALTO 230V

Version

UNIT: PCS
 Date: 2004/11/06

Date 2004/12/14
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Version	Item No Item Descri	Loss %	Ver.	Unit	Cardinal Usage Rate Attrition Rate	Effective Date @:Phantom Layer Rate
0034-----	RD00309 SMD fixed resistor 1/10W 10MΩ ±5% 0603 R95,R96,R97,R98,R99,R100			PCS	6.0000 1 0.00 %	2004/11/06 N
0035-----	RD00445 SMD precise resistor 1/10W 2.43KΩ ±1% 0603 R41,R42			PCS	2.0000 1 0.00 %	2004/11/06 N
0036-----	RD00448 SMD precise resistor 1/10W 24.3KΩ ±1% 0603 R37,R38			PCS	2.0000 1 0.00 %	2004/11/06 N
0037-----	RD00214 SMD precise resistor 1/10W 10.0KΩ ±1% 0603 R101,R102			PCS	2.0000 1 0.00 %	2004/11/06 N
0038-----	CI00053 SMD ceramic capacitor 0603 33PF/50V NPO ±5% C25,C26			PCS	2.0000 1 0.00 %	2004/11/06 N
0039-----	CI00055 SMD ceramic capacitor 0603 47PF/50V NPO ±5% C5,C6,C7,C8			PCS	4.0000 1 0.00 %	2004/11/06 N
0040-----	CI00059 SMD ceramic capacitor 0603 100PF/50V NPO ±5% C29,C30,C31,C32			PCS	4.0000 1 0.00 %	2004/11/06 N
0041-----	SE00011 SMD rectifier diode RLS4148 0.5A (LL-34) D1,D2,D3,D4,D5,D6,D7,D8,D9,D10,D11,D12			PCS	12.0000 1 0.00 %	2004/11/06 N
0042-----	SG00119 SMD integrated circuit CA3086M96 IC7,IC17			PCS	2.0000 1 0.00 %	2004/11/06 N
0043-----	SG00116 SMD integrated circuit BA1033FV E2 IC3,IC4,IC8,IC9,IC13,IC14,IC18			PCS	8.0000 1 0.00 %	2004/11/06 N
0044-----	SG00107 SMD integrated circuit TL064CDT IC1,IC5,IC6,IC11,IC15,IC16			PCS	6.0000 1 0.00 %	2004/11/06 N
0045-----	SG00122 SMD integrated circuit NJM4580M-TE3 IC2,IC12			PCS	2.0000 1 0.00 %	2004/11/06 N

Multi-Level BOM Structure Listing

Report No.: IEBO_P02
 Prepared by 030037[蘇文祥]
 Item No. PF01980
 DESCRIPTION: ACL2
 ACL2 ALTO 230V

Version

UNIT: PCS
 Date: 2004/11/06

Date 2004/12/14
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Version	Item No Item Descri	Loss %	Ver.	Unit	Cardinal Usage Rate Attrition Rate	Effective Date @:Phantom Layer Rate
0052-----	HK04588 PC board P-ACL2-BP-DIP			PCS	1.0000 1 0.00 %	2004/11/06 N
0001-----	RA00220 fixed resistor 1/4W 2.0KΩ M type R9,R28			PCS	2.0000 1 0.00 %	2004/11/06 N
0002-----	CB00025 electrolytic capacitor 10uF/50V φ6*7mm C5,C12			PCS	2.0000 1 0.00 %	2004/11/06 N
0003-----	CB00033 electrolytic capacitor 22uF/25V φ6*7mm C3,C9			PCS	2.0000 1 0.00 %	2004/11/06 N
0004-----	CA00053 ceramic capacitor 0.1uF SL C6,C10			PCS	2.0000 1 0.00 %	2004/11/06 N
0005-----	RC00185 resistor 100KΩ 3P TG625HC-104 VR1,VR2			PCS	2.0000 1 0.00 %	2004/11/06 N
0006-----	SD00015 integrated circuit THAT2150A IC2,IC3			PCS	2.0000 1 0.00 %	2004/11/06 N
0007-----	HC00112 XLR MIC jack 99M-107SP-1-2 90° PUSH X1,X6			PCS	2.0000 1 0.00 %	2004/11/06 N
0008-----	HC00111 XLR MIC jack 99M-108SP1 X2,X9			PCS	2.0000 1 0.00 %	2004/11/06 N
0009-----	HC00108 stereo MIC jack φ6.3 stereo LJB0661-6 X3,X4,X5,X7,X8,X10			PCS	6.0000 1 0.00 %	2004/11/06 N
0010-----	HC00077 row-wire header(male) 3P 2.5mm 180° CN2			PCS	1.0000 1 0.00 %	2004/11/06 N
0011-----	HC00256 row-wire header(male) 5P 2.0mm 180° CN1,CN3			PCS	2.0000 1 0.00 %	2004/11/06 N
0012-----	HK04589 PC board P-ACL2-BP-SMD			PCS	1.0000 1 0.00 %	2004/11/06 N

Multi-Level BOM Structure Listing

Report No.: IEBO_P02
 Prepared by 030037[蘇文祥]
 Item No. PF01980
 DESCRIPTION: ACL2
 ACL2 ALTO 230V

Version

UNIT: PCS
 Date: 2004/11/06

Date 2004/12/14
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Version	Item No Item Descri	Loss %	Ver.	Unit	Cardinal Usage Rate Attrition Rate	Effective Date @:Phantom Layer Rate
0001-----	HB01391 PCB ACL2-BP(1*2)_VER040910			PCS	1.0000 1 0.00 %	2004/11/06 N
0002-----	RD00061 SMD fixed resistor 1/10W 10Ω ±5% 0603 R13,R25			PCS	2.0000 1 0.00 %	2004/11/06 N
0003-----	RD00304 SMD fixed resistor 1/10W 33Ω ±5% 0603 R14,R15,R29,R30			PCS	4.0000 1 0.00 %	2004/11/06 N
0004-----	RD00065 SMD fixed resistor 1/10W 47Ω ±5% 0603 R8,R27			PCS	2.0000 1 0.00 %	2004/11/06 N
0005-----	RD00094 SMD fixed resistor 1/10W 5.1KΩ ±5% 0603 R16,R26			PCS	2.0000 1 0.00 %	2004/11/06 N
0006-----	RD00103 SMD fixed resistor 1/10W 15KΩ ±5% 0603 R7,R24			PCS	2.0000 1 0.00 %	2004/11/06 N
0007-----	RD00116 SMD fixed resistor 1/10W 100KΩ ±5% 0603 R1,R3,R6,R10,R17,R22			PCS	6.0000 1 0.00 %	2004/11/06 N
0008-----	RD00118 SMD fixed resistor 1/10W 150KΩ ±5% 0603 R12,R23			PCS	2.0000 1 0.00 %	2004/11/06 N
0009-----	RD00219 SMD precise resistor 1/10W 20.0KΩ ±1% 0603 R2,R4,R5,R11,R18,R19,R20,R21			PCS	8.0000 1 0.00 %	2004/11/06 N
0010-----	CI00053 SMD ceramic capacitor 0603 33PF/50V NPO ±5% C1,C2,C7,C8			PCS	4.0000 1 0.00 %	2004/11/06 N
0011-----	CI00059 SMD ceramic capacitor 0603 100PF/50V NPO ±5% C4,C11			PCS	2.0000 1 0.00 %	2004/11/06 N
0012-----	SG00122 SMD integrated circuit NJM4580M-TE3 IC1			PCS	1.0000 1 0.00 %	2004/11/06 N
0053-----	HK04612 PC board P-XPWR(ACL2)			PCS	1.0000 1 0.00 %	2004/11/06 N

Multi-Level BOM Structure Listing

Report No.: IEBO_P02
 Prepared by 030037[蘇文祥]
 Item No. PF01980
 DESCRIPTION: ACL2
 ACL2 ALTO 230V

Version

UNIT: PCS
 Date: 2004/11/06

Date 2004/12/14
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Version	Item No Item Descri	Loss %	Ver.	Unit	Cardinal Usage Rate Attrition Rate	Effective Date @:Phantom Layer Rate
0001-----	HB00012 PCB XPWR(1*4)			PCS	1.0000 1 0.00 %	2004/11/06 N
0002-----	RA00358 fixed resistor 1/8W 1.5KΩ M type R1			PCS	1.0000 1 0.00 %	2004/12/02 N
0003-----	CA00052 ceramic capacitor 0.1uF SL C4,C5,C8,C9			PCS	4.0000 1 0.00 %	2004/11/06 N
0004-----	CB00065 electrolytic capacitor 470uF/25V φ 10*16mm C6,C7			PCS	2.0000 1 0.00 %	2004/11/06 N
0005-----	CB00076 electrolytic capacitor 2200uF/35V φ 16*31mm C18,C19			PCS	2.0000 1 0.00 %	2004/11/06 N
0006-----	SA00001 bridge rectifier 1A/400V RB154 DB1			PCS	1.0000 1 0.00 %	2004/11/06 N
0007-----	SD00077 integrated circuit L7815CV(TO-220)(ST) IC1			PCS	1.0000 1 0.00 %	2004/11/06 N
0008-----	SD00079 integrated circuit L7915CV(TO-220)(ST) IC2			PCS	1.0000 1 0.00 %	2004/11/06 N
0009-----	HC00077 row-wire header(male) 3P 2.5mm 180° CN2,CN3			PCS	2.0000 1 0.00 %	2004/11/06 N
0010-----	HC00076 row-wire header(male) 2P 2.5mm 180° CN4			PCS	1.0000 1 0.00 %	2004/11/06 N
0011-----	HC00172 row-wire header(male) 3P 3.96mm 180° CN1			PCS	1.0000 1 0.00 %	2004/11/06 N
0012-----	NC00005 silicone insulator TO-220 square type			PCS	2.0000 1 0.00 %	2004/11/06 N
0013-----	MI00177 heat sink MA103*25m/m*2PIN			PCS	2.0000 1 0.00 %	2004/11/06 N
0014-----	MF00037 washer φ 3*φ 5*1t			PCS	2.0000 1 0.00 %	2004/11/06 N

Multi-Level BOM Structure Listing

Report No.: IEBO_P02
 Prepared by 030037[蘇文祥]
 Item No. PF01980
 DESCRIPTION: ACL2
 ACL2 ALTO 230V

Version

UNIT: PCS
 Date: 2004/11/06

Date 2004/12/14
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Version	Item No Item Descri	Loss %	Ver.	Unit	Cardinal Usage Rate Attrition Rate	Effective Date @:Phantom Layer Rate
0015-----	MG00160 screw M3*6 P0.5			PCS	2.0000 1 0.00 %	2004/11/06 N
0054-----	HK04585 PC board P-ACL2PWRSW			PCS	1.0000 1 0.00 %	2004/11/06 N
0001-----	HB01389 PCB ACL2PWRSW(1*10)_VER041122			PCS	1.0000 1 0.00 %	2004/11/06 N
0002-----	HI00023 power switch SDDL B 1007U SW1			PCS	1.0000 1 0.00 %	2004/11/06 N
0003-----	SA00185 diode φ3 blue (6554-TLHB4400) LD1			PCS	1.0000 1 0.00 %	2004/12/02 N
0004-----	HC00076 row-wire header(male) 2P 2.5mm 180° CN1			PCS	1.0000 1 0.00 %	2004/11/06 N
0005-----	HA01798 wire 250 black			PCS	1.0000 1 0.00 %	2004/11/06 N
0006-----	HA01925 jumper wire 10mm R1			PCS	1.0000 1 0.00 %	2004/11/06 N
0001-----	HA02249 wire φ0.6			M KG	0.0200 1 0.00 %	2004/08/05 N
0055-----	NF01958 instruction ACL2 ALTO_V1.0			PCS	1.0000 1 0.00 %	2004/11/06 N
0001-----	NH00149 paper 889*640mm			張 令	0.6250 1 0.00 %	2004/11/12 Y
0056-----	MF00030 washer φ3*φ8*0.8t			PCS	2.0000 1 0.00 %	2004/11/23
0057-----	NA00123 PE bag 0.04t*580*300mm			PCS KG	1.0000 1 0.00 %	2004/12/03

8.Exploded Views

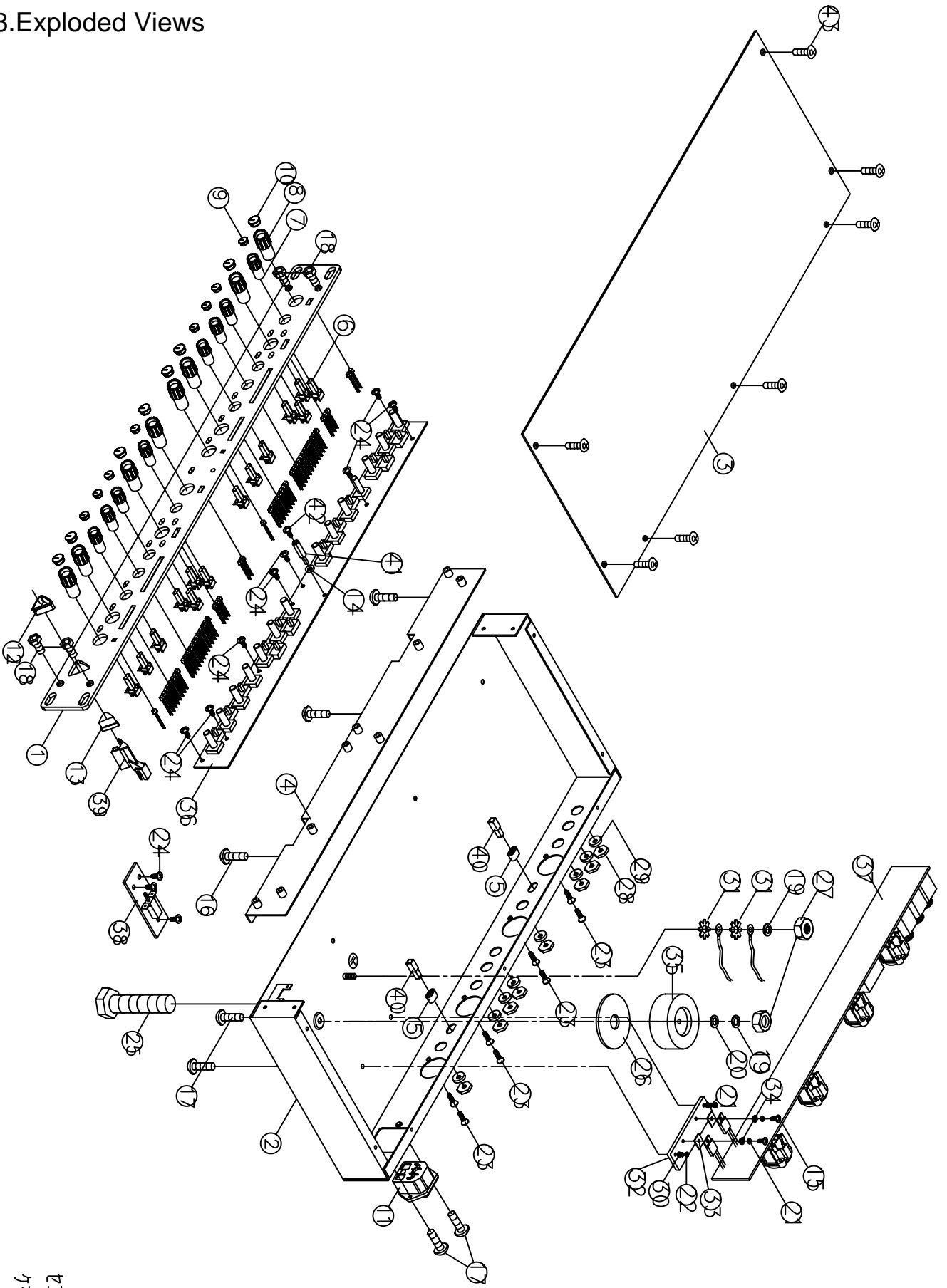


Fig: ACL2PRO
Part: ACL2PRO-00
Ref: 20040925