

Service Manual

Model: SR500SA

ALTO
REV.2

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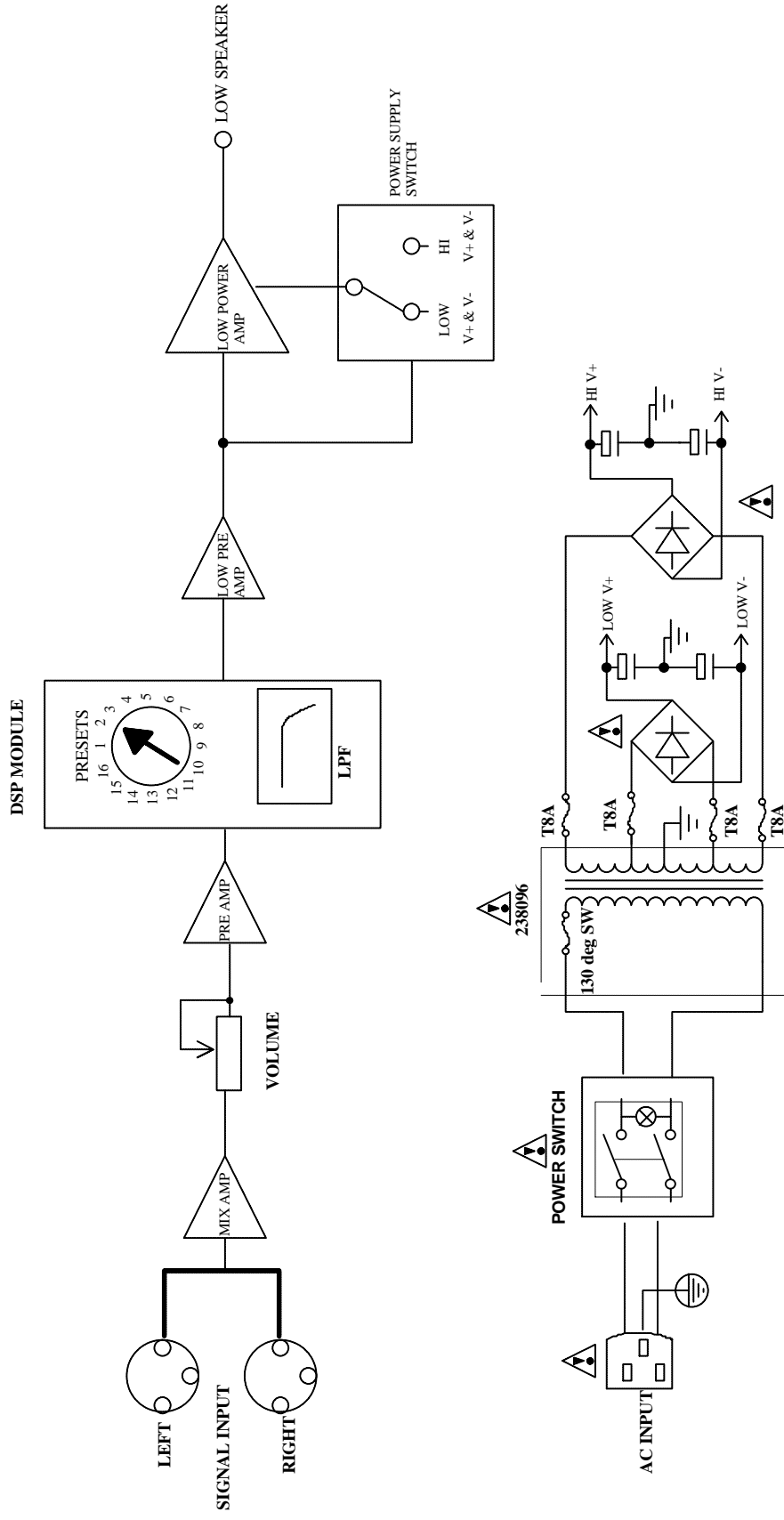
Test Result					
Model No: SR 500SA			Test Date: 20041004		Tester: mo guo zhu
Test Item		Test Conditions	Spec	Test Result	Remark
1	Power Source		AC: 230V ; 50 Hz		
2	Idle Current	AC 230 V No-Load	3 ± 0.5 mV	_____mV	across R26&R24
3	Power Consumption	Rated Output. Aux At 50Hz		_____ A _____ W	FLAT
4	Rated Output	Low Load : 4	40---41 V THD:1.2%	_____V	Aux At 100Hz FLAT. Rated W
		Hi Load : 8		_____V	
		Load 16	_____V	_____V	
		Load _____ (25V)	_____V	_____V	
		Load_____ (50V)	_____V	_____V	
		Load_____ (70V)	_____V	_____V	
		Load_____ (100V)	_____V	_____V	
5	Maximum at Output 10% THD	Aux 1KHz dB Load	_____W	_____W	FLAT
7	Hum or Noise	VR Max (Low)	10 _____mV	_____mV	
		VR Max (Hi)	_____mV	_____mV	
8	Tone control Response	Input From Aux Output At 1W	100HZ: _____dB	100HZ: _____dB	
			10KHZ: _____dB	10KHZ: _____dB	
9	Puncture Voltage	5mA , 5Sec	3750V	_____V	
10	MONITOR	Aux 1KHz dB Load			FLAT
11	MONITOR NO:	AUX,TAPE,TUNER,CD,MIC1,MIC2			
12	CD PLAYER	1KHz 0dB			
13	TUNER	AM/FM			
14	PRIORITY	MIC1			
15	TEL.PAGING	1KHz_____dB Load_____ V	G-T____dB ; G-R____dB。	G-T____dB ; G-R____dB。	FLAT
16	ZONE PAGING	100V	ALL/ Z1 , Z2 , Z3 , Z4		
17	CLIP 動作點測試	Input: 1kHz Output : 8 ohm		OK	
18	PTC TEST	Up to Output Decrease			
19	Burn in	Input: 0dB Pink noise Output :			

Test Result									
Model No : SR500SA			Test Date: 20041004			Tester : mo guo zhu			
Test Item		1. Input Sensitivity	2. Signal/Noise		3. Distortion at 1W		4. Distortion at Rated		5. Frequency Response
Test Conditions		FLAT Rated Output 40V Load4	FLAT Rated Output 40V Load 4		FLAT Output at 2V Load 4		FLAT Rated Output 40V Load 4		FLAT Output at 2V Load 4
Test Result									
LINE	Low OUT	3.5 ±0.3 dBV	70 dB		0.3 %		1.2 %		
	Hi OUT	dBV	dB		%		%		
	TUNER	dB	dB		%		%		
	CD	dB	dB		%		%		
AUX2	AUX	dB	dB		%		%		
	TAPE	dB	dB		%		%		
	TUNER	dB	dB		%		%		
	CD	dB	dB		%		%		
AUX3	AUX	dB	dB		%		%		
	TAPE	dB	dB		%		%		
	TUNER	dB	dB		%		%		
	CD	dB	dB		%		%		
MIC1	MIC	dB	dB		%		%		
	LINE	dB	dB		%		%		
	24V	dB	dB		%		%		
	UNBAL	dB	dB		%		%		
MIC-2	MIC	dB	dB		%		%		
	LINE	dB	dB		%		%		
	24V	dB	dB		%		%		
	UNBAL	dB	dB		%		%		
MIC-3	MIC	dB	dB		%		%		
	LINE	dB	dB		%		%		
	24V	dB	dB		%		%		
	UNBAL	dB	dB		%		%		
MIC-4	MIC	dB	dB		%		%		
	LINE	dB	dB		%		%		
	24V	dB	dB		%		%		
	UNBAL	dB	dB		%		%		
Remark	1.Test is done with instrument ATS-2. 2.Load connection: connect LOW output with 40hm load. 3.Short circuit DSP terminals. 4.Frequency response test: After function test is done, scan with test instrument AUDIO PRECISION the frequency response for the unit. refer to the attached figure.								

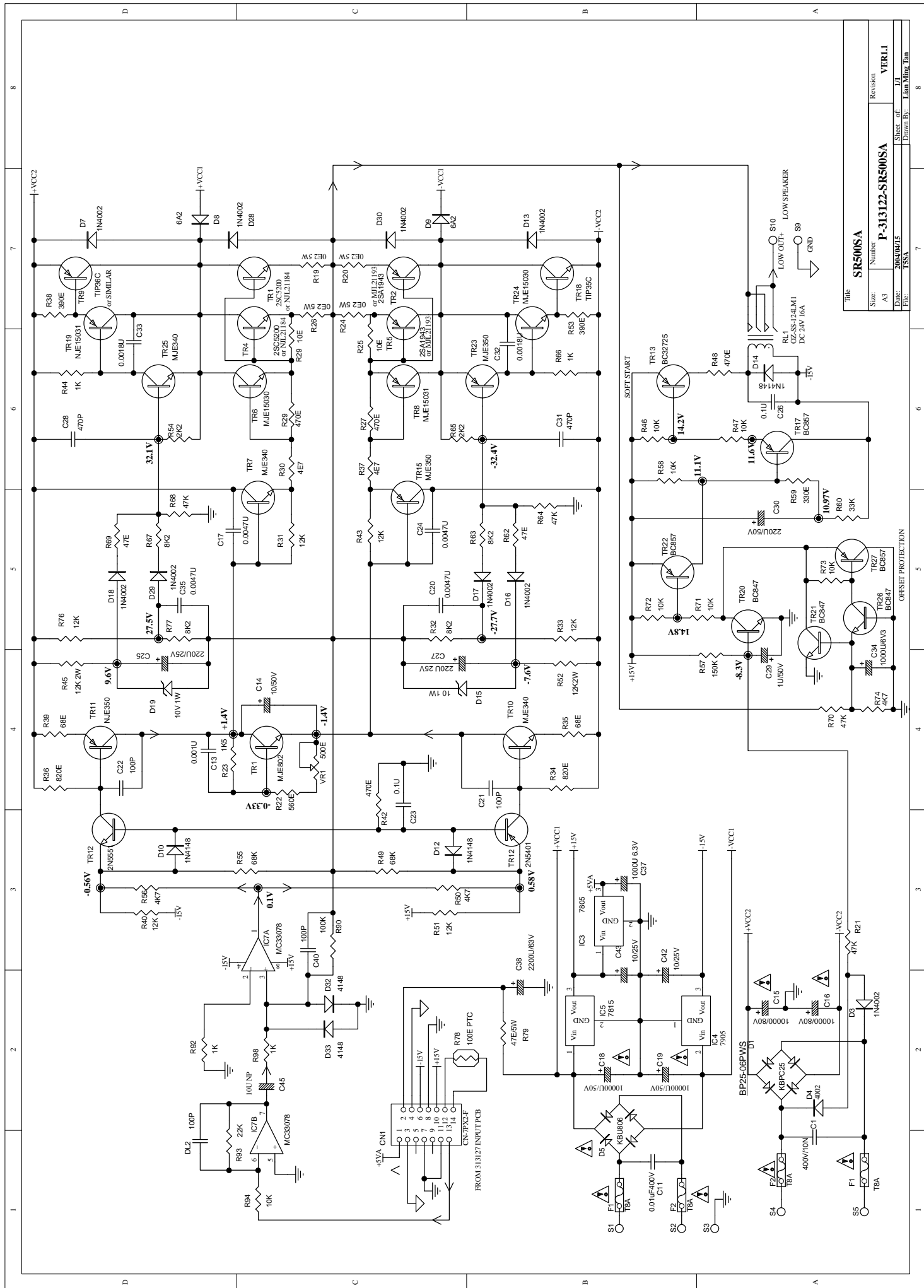
Authorization by :

Check by :

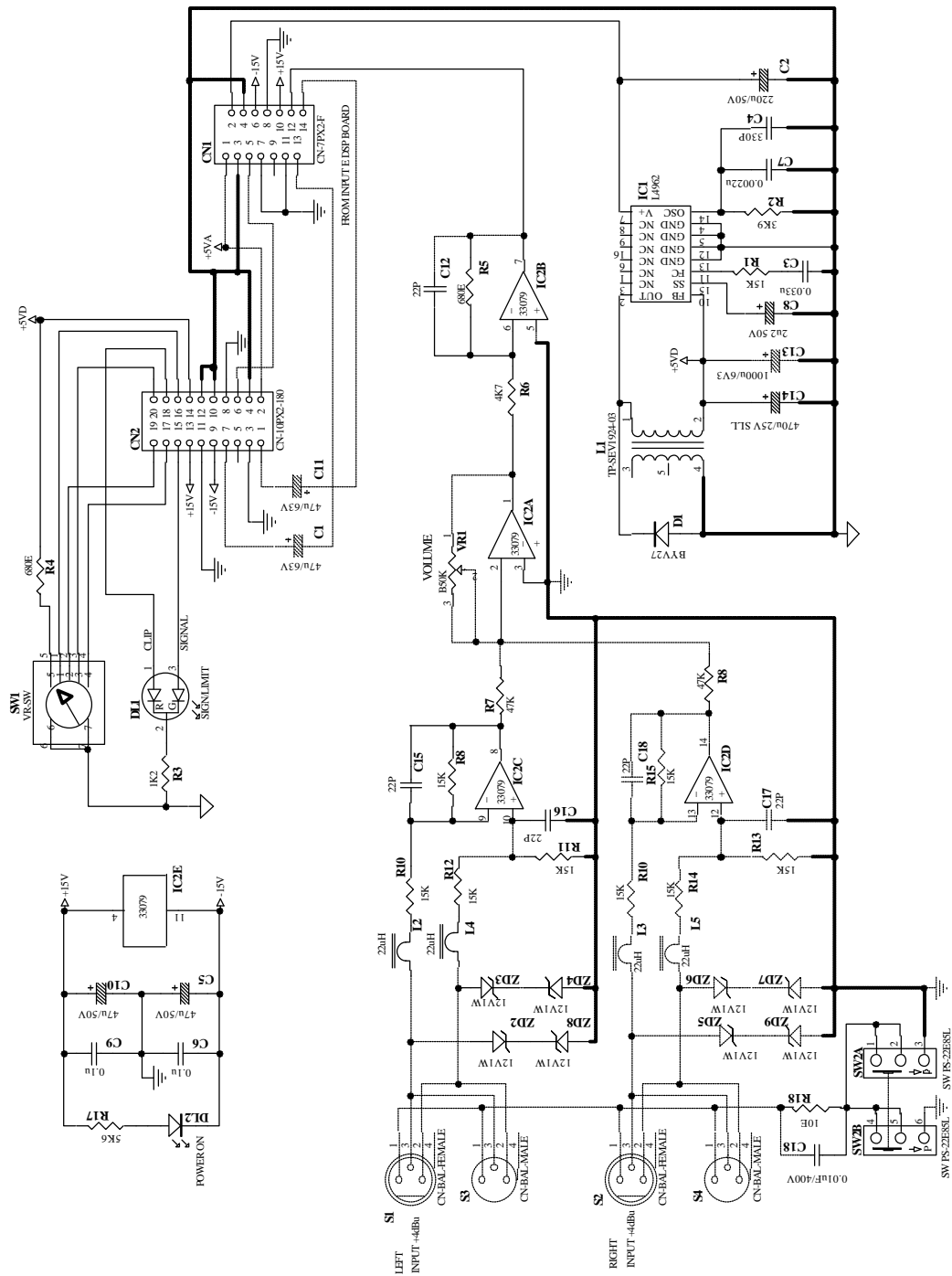
SR500SA BLOCK DIAGRAM



Title SR500SA			
Size: A3	Number SR500SA BLOCK DIAGRAM	Revision VER1.0	
Date: 2004/04/16	Sheet of: 1/1	Drawn By: Lian Ming Tan	
File: TSSA			



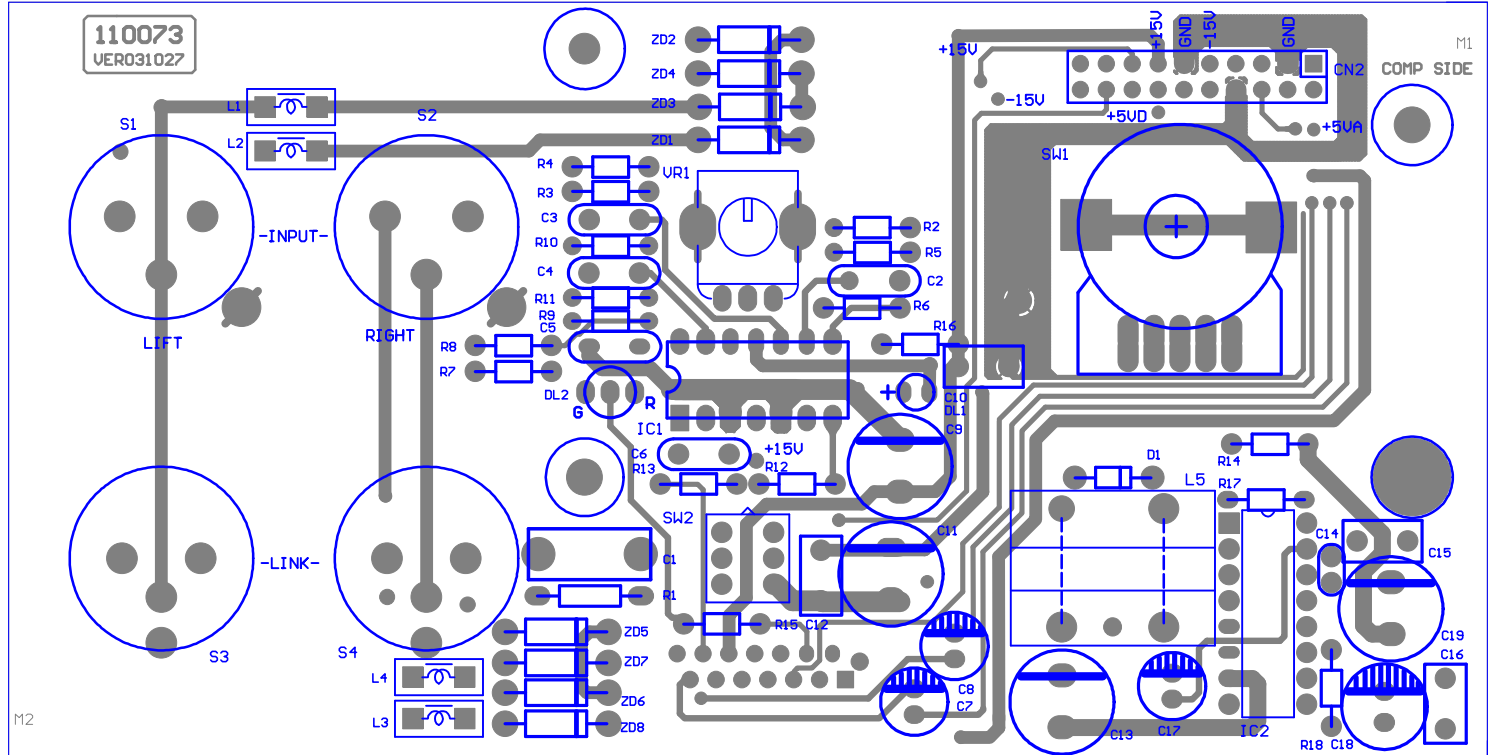
Title		Revision	
SR500SA		VER1.1	
Size:	A3	Sheet:	1/1
Date:	2004/01/15	Drawn By:	Lian Ming Tan
File:	SR500SA		



Title		SR500SA	
Size	Number	Revision	
A3	110073	VER1.1	
Date	2004/01/15	Sheet of	10
File	SR500SA	Drawn By	LimXingJin

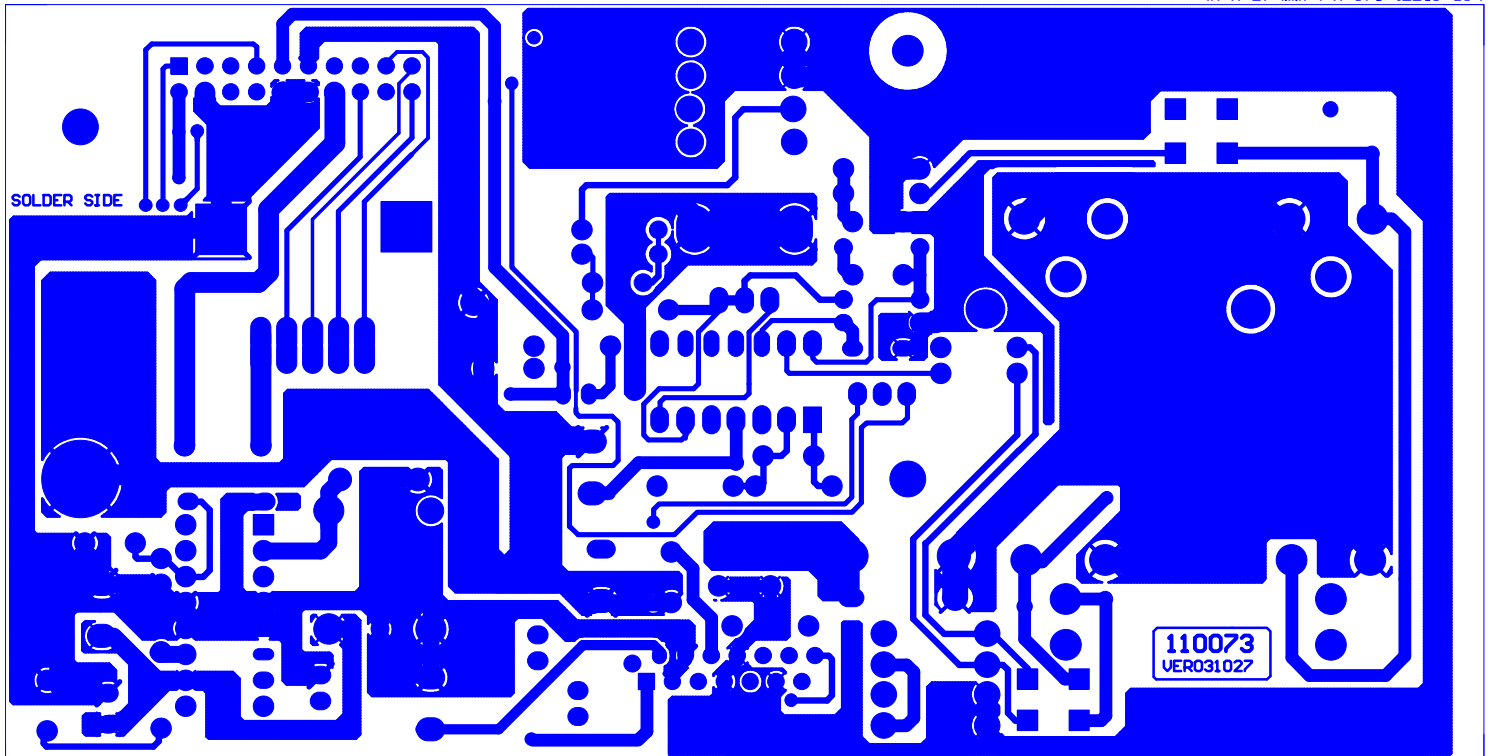
TOPLAYER&TOPOVERLAY

PCB SIZE: 145 x 74mm (L x W)

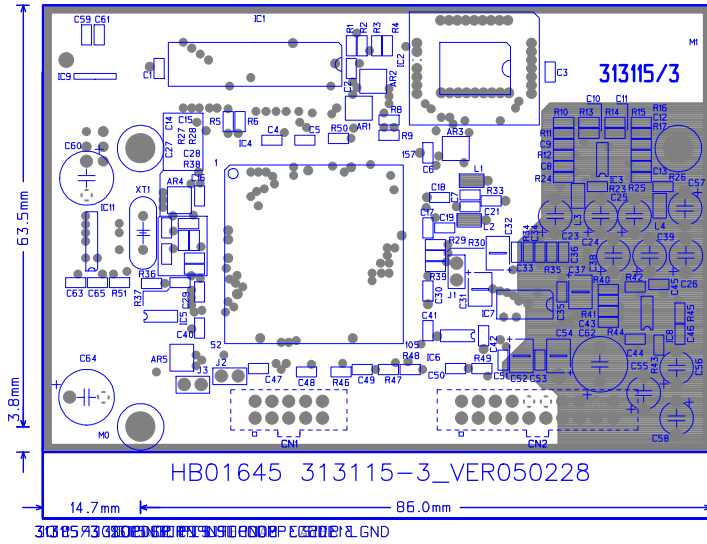


BOTTOMLAYER

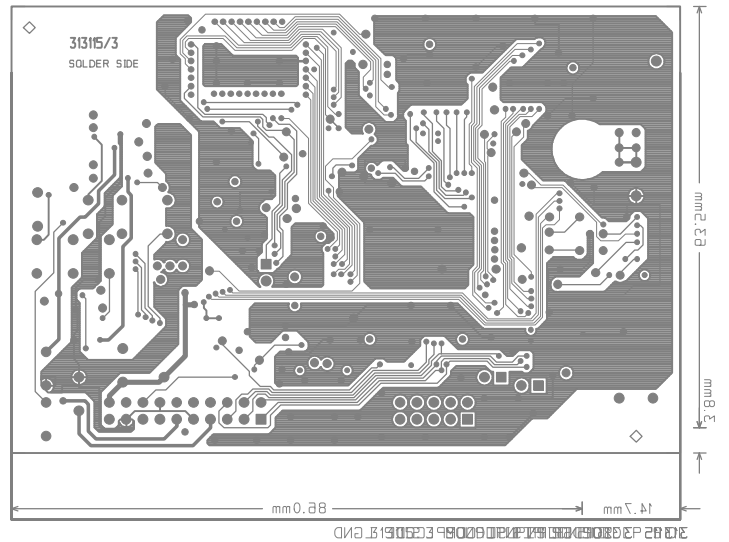
PCB 21512 809 (4 x J) mm x 74 x 145



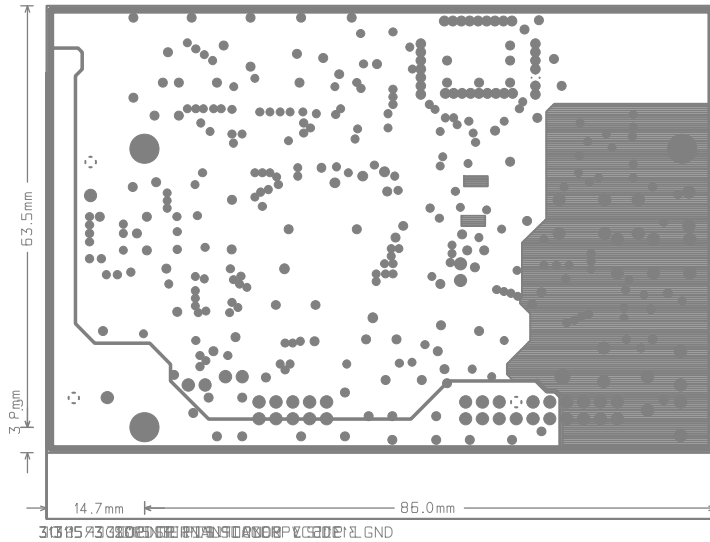
TOPLAYER&TOPOVERLAY



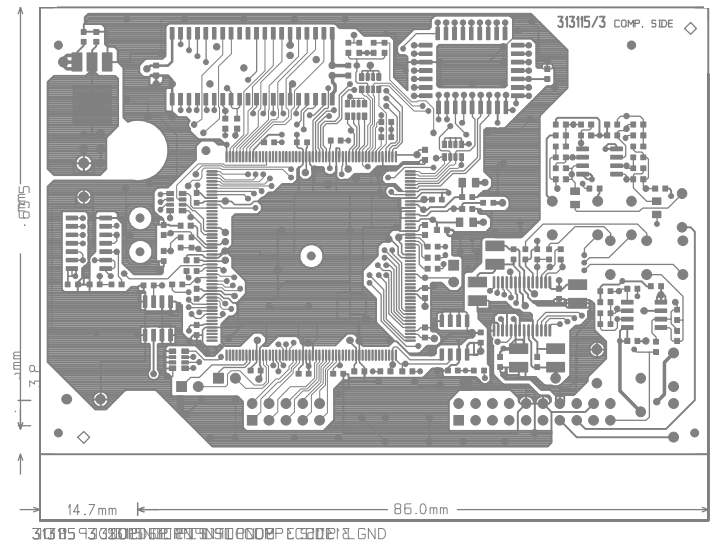
BOTTOM LAYER



VC



CS



Instruments required:

- | | |
|----------------------------------|---------------------------------------|
| 1) Sinusoidal signal generator, | 4) Variac 0-250 Vac, |
| 2) Dual trace scope, with probe, | 5) Resistive load 4 Ω 800W, |
| 3) Digital multimeter, | 6) Pink noise from the GM "AUDIO CD". |

P.S: Isolate the oscilloscope from earth and adjust the two traces on center of screen in GND position.

Par. 1: visual check

- Make a visual check if the amplifier is perfectly done and especially verify:
 - a) the right value of fuses 8A 250V *4PCS
 - b) the right earth main connection on rear surface of front panel.
 - c) the insulation between the heat-sink and the case of TR1-24, IC3-5 -then,
- Set the VOLUME control full clockwise.

Par. 2: connections

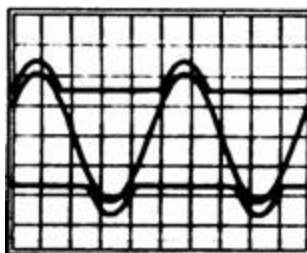
- Switch off the amplifier module,
- Set the ENCODER pot. on preset "NORMAL".
- Connect the mains of amplifier module to VARIAC and set it at zero AC voltage.
- Connect the signal generator to Line Input (XLR socket) and set it at 100Hz /0dBu,.
- Connect the scope CH1 probe to amplifier low output and CH2 probe to amplifier high output-

Par. 3: Initial test

- Increase slowly the VARIAC voltage up to the nominal value (230Vac).
- Check the transformer sec. voltages with multimeter, (without signal on input):
 - F1-F2: 54V \pm 1.5Vac
 - F3-F4: 106V \pm 2Vac
- Check the +/-15Vdc supply on relative voltage regulator outputs (IC3 & IC4 devices).
- Switch ON the signal generator and verify that the output signals must be symmetrical referring to GND, without detectable distortion and oscillation.
- Check that the low amplifier power output signal is 39.5V~41V;
- -Check of SIGNAL led function, moving the volume potentiometer of amplifier;
 - when the output signal is $< 0.5V_{peak}$ the led must be OFF,
 - when the output signal is $> 0.5V_{peak}$, the led must be GREEN lighted.
- Then, rotate the volume potentiometer knob full clockwise

Par. 4: BOOSTER check of LOW Amplifier

- Connect alternatively the CH2 probe tip of scope on D2 cathode and D3 anode and verify the following conditions:
 - when the output signal is $< 18V_{rms}$ the $\pm VCC1$ voltage must remain linear at 36V,
 - when the output signal is $> 18V_{rms}$ the $\pm VCC1$ voltage must follow the output signal wave with 6Vdc offset, as shown in the following picture



TESTING PROCEDURE

- Switch ON the LOW amplifier output to 4Ω load resistor and repeat the above booster check verifying more or less the same $\pm V_{CC1}$ conditions and verify that the signal must be symmetrical refer to GND, without detectable distortion and oscillation.
Increase the VOLUME pot. until a signal clipping.
Switch OFF the LOW amplifier out. to 4Ω load resistor

Par. 5: COMPRESSOR check of LOW amplifier

- Increase the input signal of 10 dB and check the out. signal to remain constant at $45V_{peak}$ and if the Signal/Comp. led has changed the lighted colour, from GREEN to RED.

Par. 6: PTC function check on Heatsink

- Heat the PTC temperature sensor with a welder heated tip, in touch with its body, to verify this protection works properly reducing the amplifier out. signal to few volts on time.
P.S. The check must be done with PTC, placed into heat-sink hole and silicon grease on.

Par. 7: Idle current setting of LOW amplifier

- Decrease to zero the signal generator, then, adjust VR1 trimmer to have a $3mV \pm 0,5mV_{dc}$ voltage drop across R24 & R26 power resistors.

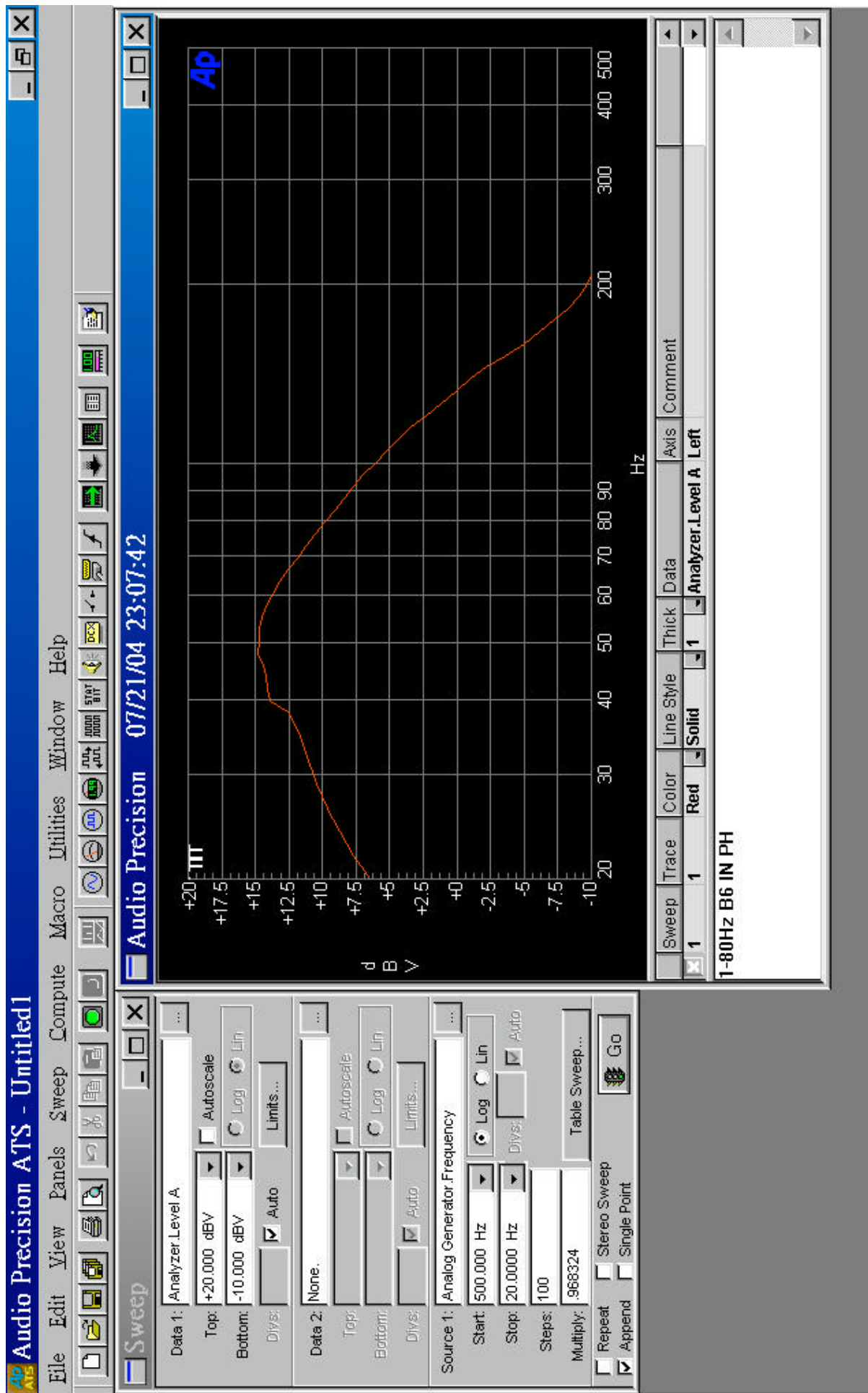
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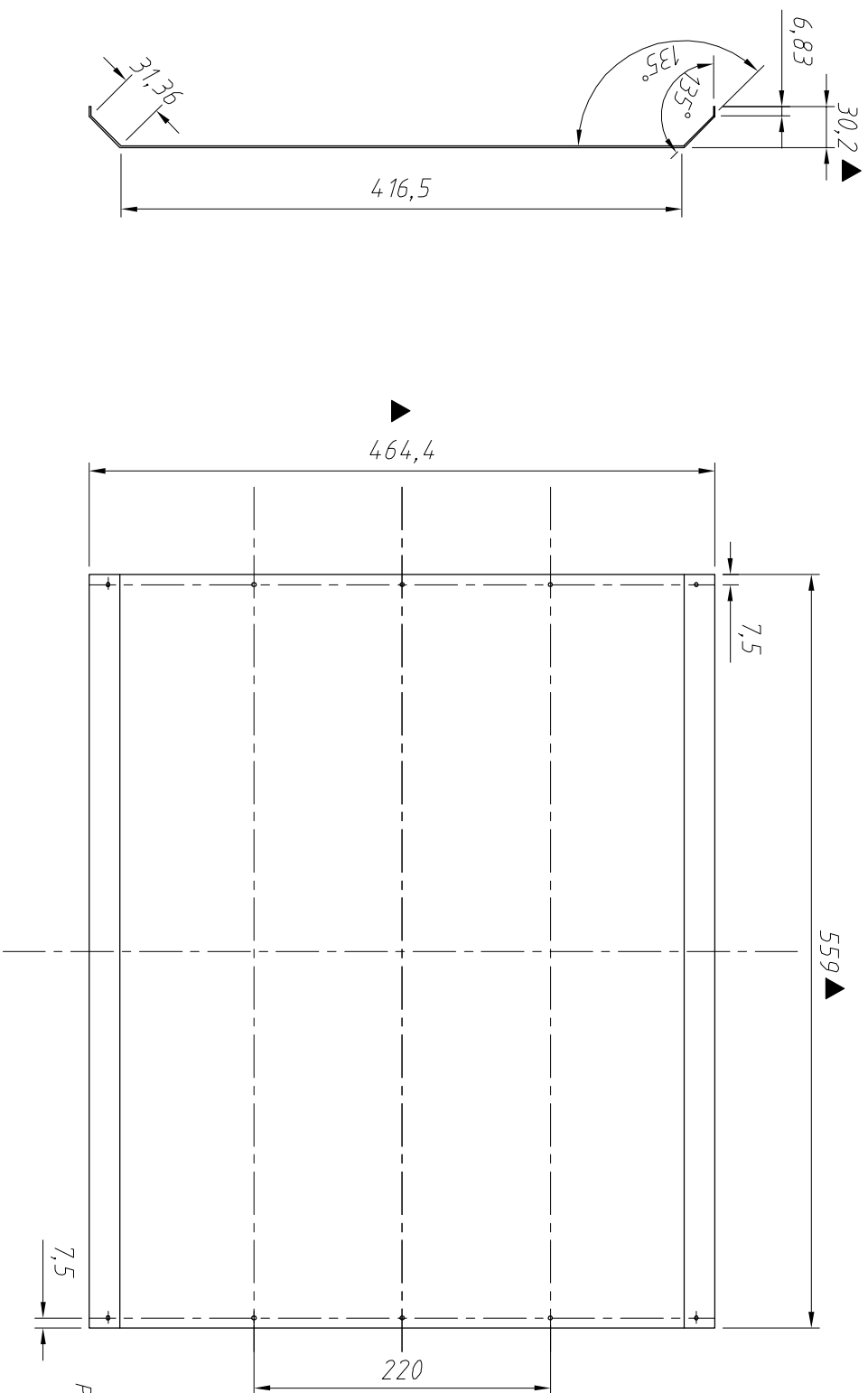
Part .8: Burn-in test

1. Connect the pink noise signal from CD player with the line input of speaker module.
2. Connect 4ohm 500W load resistor with the bass output.
3. Put band switch to the position 1, and then turn on the power switch of speaker module.
4. Adjust the pink noise level from CD player until SIGNAL/LIMIT indicators (red, green) sparkle.
5. Put the speaker module vertical and take the burn-in test for 3 hours.

Part .9: Final inspection

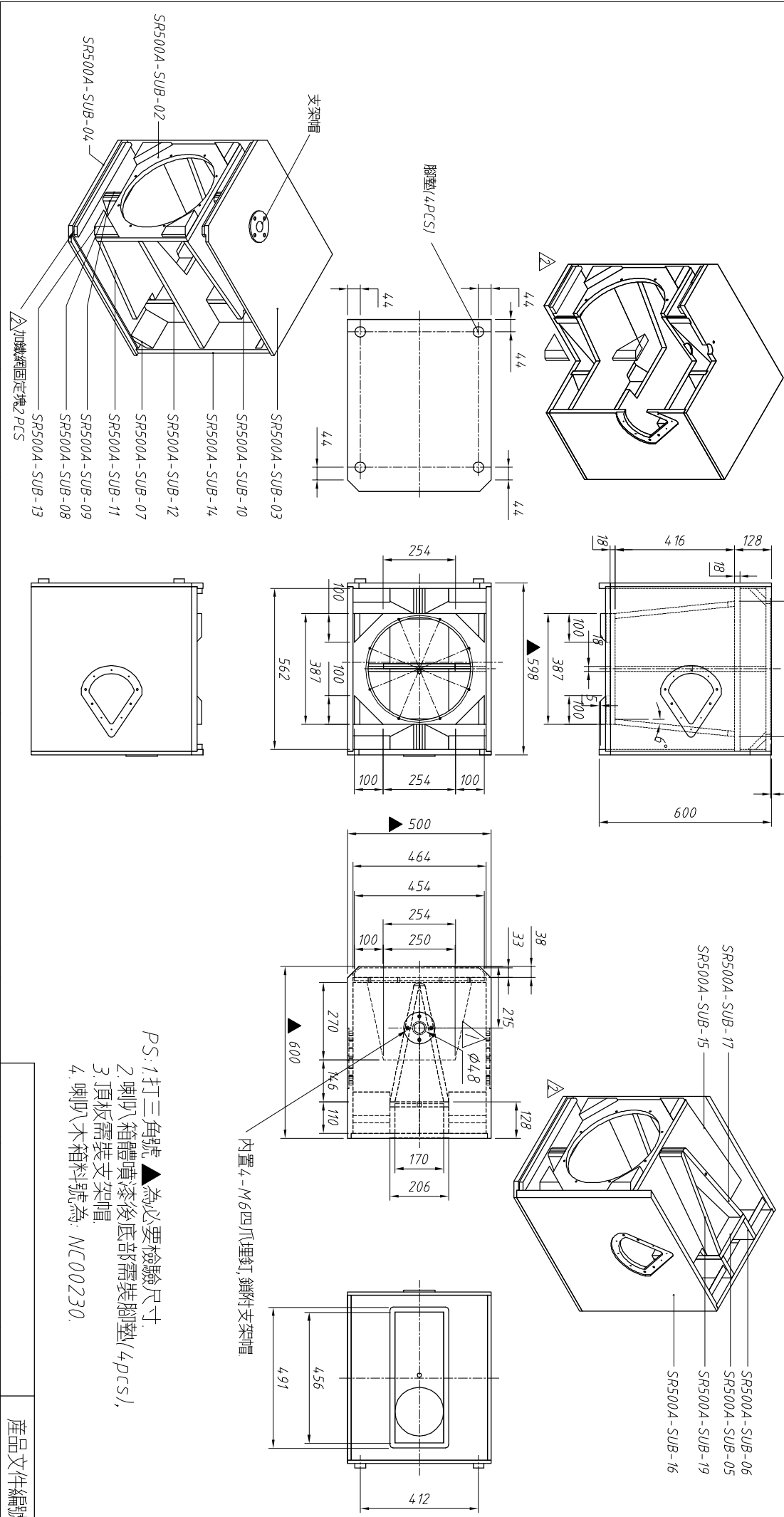
1. Check the electronic performance of the tested unit completely.



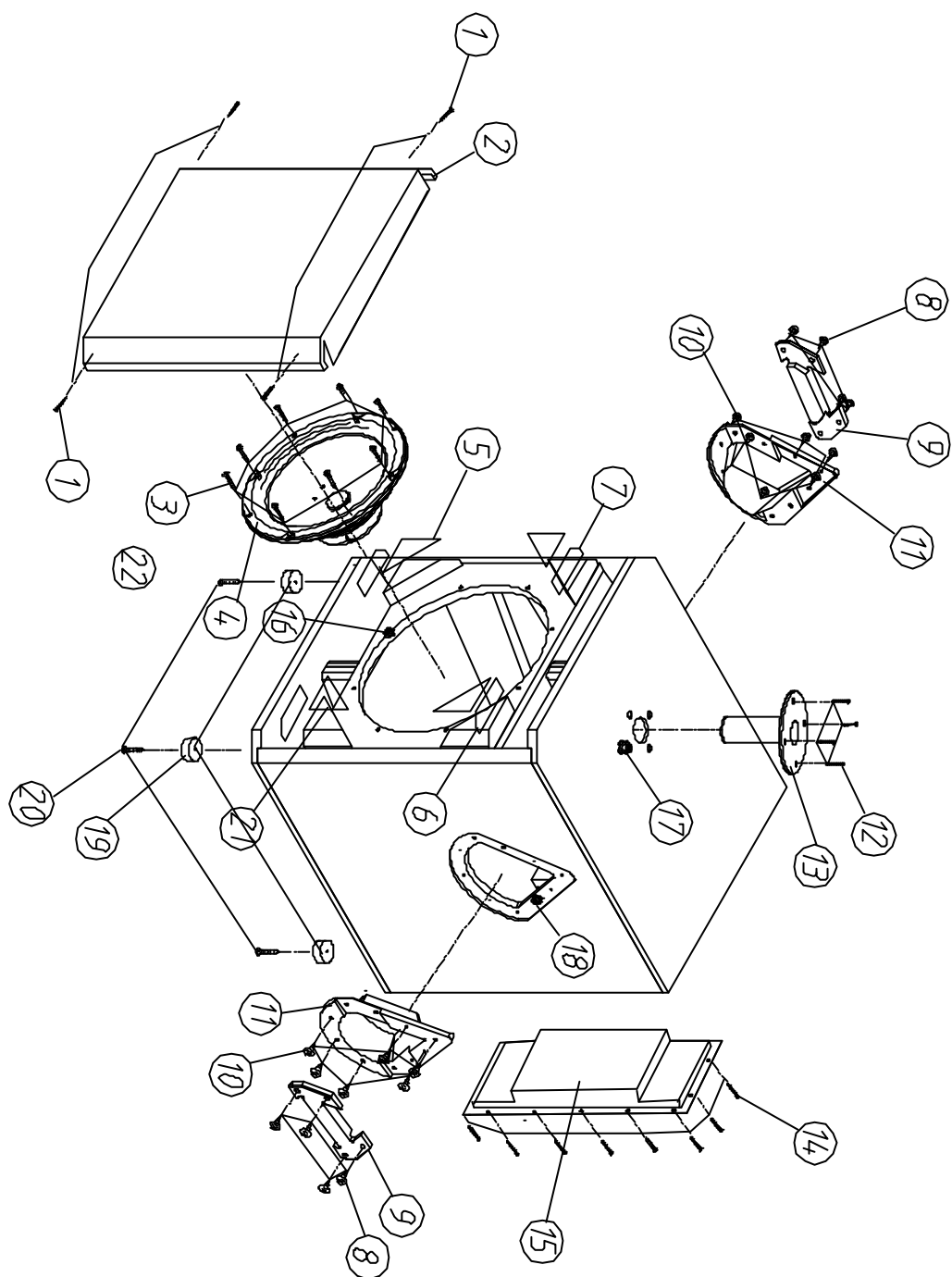


PS:1. 打三角號▲為必要檢驗尺寸。
2. 沖床料號為:MD00536
3. 素材料號為:MD00535

[illegible]



				尺寸公差 ± mm					審核	電子	結構	繪圖	冀海葉	日期	20031213	適用機種:	表面處理		機種	SR500A-SUB
				超過	以下	精級	中級	粗級									材質	18t 夾板		
				0	5	0.05	0.1	0.2	核								規格	600×598×500	SR500A-SUB	
				5	30	0.1	0.2	0.5												
				30	65	0.15	0.3	0.8									料號	NC00222	圖號	SR500A-SUB-01
				65	250	0.2	0.4	1.2												
△	加鐵網固定塊2PCS	何建華	20041121	65	250	0.2	0.4	1.2												
△	原φ4.5mm改為φ4.8mm	何建華	20041013	250	1000	0.3	0.5	2												
				1000	1500	0.4	0.6	2.5												
NO:	修改記錄或變更單號	更改者	日期	1500	2500	0.5	0.7	3.5									素材料號	000	比率	比例
																			1/20	



機種:SR500A-SUB
 圖號:SR 500A-SUB-00
 日期:2004.09.14

MECHANICAL PART LIST				
MODEL NO		SR500SA_ALTO_230V		
NO	PART NO	ITEM DESCRIPTION	SPECIFICATION	PCS
1	MG00349	black screw-T head 6	M3*16	8
2	ND00537	ZC-grille-black	SR 500A-SUB_V1.0 black	1
3	MG00530	black screw-T head 10	M3*30mm	8
4	HG00129	speaker _bass	15吋 4 SR500SA(Z008288_LP385.75)	1
5	ND00394	EV sponge-one side adhesive	2.0t*115*115 dark black V1.0	2
6	ND00395	EV sponge-one side adhesive	100*30*1 dark black_V1.0	4
7	ND00399	EV sponge-one side adhesive	SR500A-SUB 100*30*1 dark black_V1.0	4
8	MG00338	black screw-T head 8	M4*30mm	8
9	NI03152	handle-ABS	85.6*207*7 black_V1.0	2
10	MG00361	black screw-pill	M4*20mm	12
11	NI031151	SR 400A black_V1.0	handle -ABS	2
12	MG00353	black screw-semicircle pan head	M6*30mm	4
13	MH00801	rack hat-black	SKC004	1
14	MG00351	black screw-pill	M4*16mm	14
15	HK04508	K-front panel combination	SR500SA-ALTO-230V	1
16	ME00082	grey screw-T head- nut	M5*9mm	8
17	ME00083	grey screw-T head- nut	M6*11mm	4
18	ME00085	grey screw-T head- nut	M4*7mm	8
19	NI02426	foot pad -black	37*15mm	4
20	MG00360	black screw-pan head	M4*25mm	4
21	ND00416	EVA sponge-one side adhesive	100*110*2t dark black_V1.0	2
22	ND00398	EVA sponge-sponge-one side adhesiv	SR500A-SUB 1205.5*15*2 black_V1.0	1

	PC00298	SR500SA	SR500SA_ALTO_230V		REVISED: 2006/5/30
LEVEL	PART NO	DESCRIPTION	SPECIFICATION	QTY	REFERENCE
0001-----	MG00349	screw	M3*16	8	
0002-----	NC00222	box	SR500A-SUB 600*598*500_V1.1	1	
0001-----	NI03152	handle	85.6*207*7 black_V1.0	2	
0002-----	NI03151	handle cover	SR400A;SR500SA black_V1.0	2	
0003-----	NC00230	box	SR500A-SUB_V1.0	1	
0001-----	ME00085	nut	M4	8	
0002-----	ME00082	nut	M5	8	
0003-----	ME00083	nut	M6	4	
0004-----	MG00353	screw	M6*30	4	
0005-----	MH01704	handle	ELVIS 110*96_V1.0	1	
0001---	MH00801	bracket	110*96_V1.1	1	
0006-----	NI02426	foot cushion	37*15.5mm	4	
0007-----	MG00360	screw	M4*25mm	4	
0008-----	MG00338	screw	M4*30mm	8	
0009-----	MG00361	screw	M4*20mm	12	
0003-----	MG00351	screw	M4*16	14	
0004-----	ND00394	EV foam	100*110*2_V1.0	2	
0005-----	ND00398	EV foam	SR500A-SUB 1205.5*15*2_V1.0	1	
0006-----	ND00399	EV foam	SR500A-SUB 490*15*2t_V1.1	2	
0007-----	HK05278	speaker	15inch 300W 4 SR500SA(Z008288_LP385.75	1	
0001-----	HG00177	voice coil-RS	A09090A_BK 75-55-335/22*4P-3_V1.0	1	
0002-----	NH00345	cone	B08250A_U-SONIC CP312/32-SC348A/6-F_V1.0	1	
0003-----	NH00237	cushion	C0910A_GR 385/6+2	1	
0004-----	ND00485	spider	D09140A_CT 75-165/12 C3 CONEX_V1.0	1	
0005-----	ND00525	dust-proof shade	E06600A_CP 115/C	1	
0006-----	MH01983	T type middle pillar	H08400A_PN 75/1800.10 F30_V1.2	1	
0007-----	MH01984	washer	I08420A_PS 75/1800.10 SW F4_V1.1	1	
0008-----	MH01986	magnet-RS	G04550A_D180*95*20 Y30_V1.0	1	
0009-----	MI02745	holder	L08120B_CR 385/F4 N_V1.0	1	
0010-----	HC00426	terminal	M0021B_PT2.1	1	
0001---	HC00496	connect terminal	0.8*13*16.3mm	1	
0002---	HC00495	connect terminal	0.8*13*16.3mm	1	
0003---	NI02583	terminal block	3.5*24.5*3t	1	
0011-----	MH01110	rivet	M0500A_OU-30	2	
0012-----	MD00642	iron net	SR500SA 0.5t* 42.5*4H_V1.0	1	
0001---	MD00712	iron net	SR500SA 0.5t* 42.5*4H_V1.0	1	
0001---	MD00643	iron net	0.5t*70*70 SR500SA_V1.0	1	
0013-----	HA02494	strand	TA4X4YKA42W*120mm	2	
0001---	HA02079	strand	TA4X4YKA42W*1M	120	
0014-----	MG00599	screw	M5*9.6*0.8PH_V1.0	6	
0015-----	NE16120	lable	HK05278_V1.0	1	
0001-----	NI00014	membrane	0.035*1M	1	
0002-----	NH00012	bond paper	0.04*1M	1	
0008-----	MG00350	screw	M5*30	8	
0009-----	HK04508	faceplate	SR500SA-ALTO-230V	1	
0001-----	MA00113	panel	SR500SA_ALTO_V1.1	1	
0001---	MA04834	panel	SR500SA	1	
0001---	MA04835	panel	SR500SA 1.5t*202*41*487_V1.1	1	
0001---	MJ00088	single light board	1.5*2135*1220 30.67kg	1	
0002---	ME00106	iron pillar	M3*24*0.5PH_V1.1	2	
0003---	MI00318	connect terminal	PFM-15SA	1	
0001---	MI00316	connect terminal	PFM-15SA	1	
0001---	MJ00747	single light board	0.8t*21.6mm*100M 22.5kg	1	
0002-----	MI02033	heat sink	307.5*162*40mm SR500SA_V1.0	1	
0003-----	TD00162	transformer	238096	1	
0004-----	HI00022	power switch-RS	4p black frame red key	1	
0005-----	HC00005	AC socket-RS	AC-008	1	
0006-----	NI01862	key	5.5*5.5*14.5_V1.1	1	
0007-----	NI01863	key-RS	5.5*W10*7.5	1	
0008-----	NI02386	konb	14*13mm	1	
0009-----	NI02672	knob	21*16mm	1	
0010-----	NI00437	rubber coil	20* 120*2tB	1	
0011-----	MG00404	screw	M6*70*1.0PH	1	
0012-----	ME00014	color nut	6*1.0	1	
0013-----	MF00130	MIC jack	6.3* 19*1t_v1.0	1	
0001---	MF00051	washer	6.3* 19*1t_V1.0	1	
0001---	MJ00058	single light board	1*2135*1220 20.45kg	1	
0014-----	MF00040	washer	6* 10*1.5t	1	

	PC00298	SR500SA	SR500SA_ALT0_230V		REVISED: 2006/5/30
LEVEL	PART NO	DESCRIPTION	SPECIFICATION	QTY	REFERENCE
0015-----	SA00012	bridge rectifier	25A/600V BP25-06PWS	1	
0016-----	RH00007	thermistor	330 (PTH9L04BD222TS2F330)	1	R78
0017-----	SD00074	integrated circuit	L7805CV(T0-220)(ST)	1	IC3
0018-----	SD00077	integrated circuit	L7815CV(T0-220)(ST)(MOROCCO)	1	IC5
0019-----	SD00079	integrated circuit	L7915CV(T0-220)(ST)	1	IC4
0020-----	SB00057	transistor	TIP35C	1	TR18
0021-----	SB00058	transistor	TIP36C	1	TR9
0022-----	SB00040	transistor	MJE15030	2	TR6, TR7
0023-----	SB00041	transistor	MJE15031	2	TR8, TR19
0024-----	SB00086	transistor	MJE802P	1	TR3
0025-----	SB00021	power transistor	2SC5200	2	TR1, TR4
0026-----	SB00023	power transistor	2SA1943-0	2	TR2, TR5
0027-----	HA01253	single terminal wiring	150mm UL1015 18AWG white	2	
0028-----	HA01252	wire	80 green/yellow	1	
0029-----	MG00284	copper pillar	M3*8*0.5PH	6	
0030-----	MG00304	copper pillar	M3*14*0.5PH	1	
0031-----	MG00363	copper pillar	M3*14*0.5PH	2	
0032-----	MG00024	screw	M3*7 0.5PH	16	
0033-----	MG00027	screw	M3*12	14	
0034-----	MG00042	screw	M3*10	2	
0035-----	MG00327	screw	M3*10*0.5PH	8	
0036-----	MG00069	screw	M4*16	1	
0037-----	MF00014	washer	3* 6.5*0.5t	16	
0038-----	MF00136	washer	3* 5.5*0.7t_V1.0	14	
0001----	MF00034	washer	3* 5.5*0.7t_V1.0	1	
0001----	MJ00060	single light board	0.7*2135*1220 14.31kg	1	
0039-----	MF00037	washer	3.2* 5.5*1t	14	
0040-----	MF00038	washer	4* 7*1t	1	
0041-----	NC00128	washer	1.6* 6.8* 3.5 red	10	
0001----	NC00172	insulation board	1.6t*65mm(-0.2mm)*100M	1	
0042-----	NC00005	mica	SB-9500DSP 18*13*0.1t_V1.0	8	
0043-----	NC00127	mica	22*28	6	
0044-----	NI00863	plastic washer	T0220B	9	
0045-----	NI00218	cable tie	ALT-102SB	6	
0046-----	HA02571	wire	14P-14P PH1.27 75mm	1	
0047-----	HK04509	PC board	P-110073-SR500SA	1	
0001----	HB01355	PCB	110073_VER031027	1	
0002----	RA00637	fixed resistor 1/8W	680 M type	2	R13, R14
0003----	RA00640	fixed resistor 1/8W	1.2K M type	1	R15
0004----	RA00646	fixed resistor 1/8W	3.9K M type	1	R17
0005----	RA00647	fixed resistor 1/8W	4.7K M type	1	R12
0006----	RA00653	fixed resistor 1/8W	15K M type	9	R2, R3, R4, R5, R7, R8, R9, R10, R18
0007----	RA00659	fixed resistor 1/8W	47K M type	2	R6, R11
0008----	RA00159	fixed resistor 1/4W	10 Mr type	1	R1
0009----	RC00217	potentiometer	B50K R0911NOB-V1B503FN00-00	1	VR1
0010----	CA00009	ceramic capacitor	22PF/50V NPO	5	C2, C3, C4, C5, C6
0011----	CA00032	ceramic capacitor	330PF Y5E	1	C14
0012----	CF00005	metal-film capacitor MSC	0.0022uF/63V 5% CASE01	1	C15
0013----	CF00014	metal-film capacitor MEC	0.01uF/400V 10%	1	C1
0014----	CF00023	metal-film capacitor MSC	0.033uF/63V 5% CASE01	1	C16
0015----	CH00017	laminated capacitor	0.1uF/50V Y5V PH5	2	C10, C12
0016----	CB00141	electrolytic capacitor	2.2uF/63V 5*11mm	1	C17
0017----	CB00066	electrolytic capacitor	470uF/25V 105 10*16mm	1	C19
0018----	CB00253	electrolytic capacitor	1000uF/16V 10*16mm 5mm	1	C18
0019----	SA00004	high speed diode	2A/100V BYV27-200,113	1	D1
0020----	SA00105	zener diode	1W 12V 1N4742	8	ZD1, ZD2, ZD3, ZD4, ZD5, ZD6, ZD7, ZD8
0021----	SA00051	L.E.D	3 orange, green B0G303b	1	DL1
0022----	SA00052	L.E.D	3 round(green)long foot 26	1	DL2
0023----	SD00135	integrated circuit	MC33079N	1	IC1
0024----	SD00047	integrated circuit	L4962/A	1	IC2
0025----	HC00154	connector	2.54 180 ° 2*10P(gold-plated) 6/11.6mm	1	CN2
0026----	HC00050	row-wire header	14PIN A28b-14B.T.6	1	CN1
0027----	HI00205	rotary switch	SDB161PVB25FS-1-4-16-16PC	1	SW1
0028----	HI00162	push-button switch	2 paragraphs 6p PS-22E8552L	1	SW2
0029----	HC00392	balance MIC jack-RS	JY-5030-030G 180 °	2	S3, S4
0030----	HC00126	balance MIC jack-RS	JY-5042-030G female plug 180 °	2	S1, S2

	PC00298	SR500SA	SR500SA_ALTO_230V		REVISED: 2006/5/30
LEVEL	PART NO	DESCRIPTION	SPECIFICATION	QTY	REFERENCE
0031----	TC00004	transformer	SEV1924-03(EE-19)	1	L5
0032----	CG00018	filter-EMI FILTER	LF-22UH(WAH TAY1)	4	L1,L2,L3,L4
0033----	NI02532	LED spacer support	LEDS-22 22mm	2	DL1,DL2
0034----	RA00656	fixed resistor 1/8W	27K M type	1	R16
0035----	CB00059	electrolytic capacitor	220uF/50V 10*16mm	3	C9,C11,C13
0036----	CB00127	electrolytic capacitor	47uF/63V 6*11mm	2	C7,C8
0037----	AC00179	tin without lead	M705E Sn 3Ag-0.5Cu	40	
0048-----	HK03858	PC board	P-313122-DIP-T5SA	1	
0001----	RA00668	fixed resistor 1/8W	47 M type	2	R62,R69
0002----	RA00670	fixed resistor 1/8W	68 M type	2	R35,R39
0003----	RA00677	fixed resistor 1/8W	390 M type	2	R38,R53
0004----	RA00635	fixed resistor 1/8W	470 M type	3	R27,R29,R42
0005----	RA00636	fixed resistor 1/8W	560 M type	1	R22
0006----	RA00638	fixed resistor 1/8W	820 M type	2	R34,R36
0007----	RA00639	fixed resistor 1/8W	1.0K M type	2	R44,R46
0008----	RA00641	fixed resistor 1/8W	1.5K M type	1	R23
0009----	RA00643	fixed resistor 1/8W	2.2K M type	2	R54,R65
0010----	RA00647	fixed resistor 1/8W	4.7K M type	2	R50,R56
0011----	RA00650	fixed resistor 1/8W	8.2K M type	4	R32,R63,R67,R77
0012----	RA00652	fixed resistor 1/8W	12K M type	6	R31,R33,R40,R43,R51, R76
0013----	RA00659	fixed resistor 1/8W	47K M type	3	R21,R64,R68
0014----	RA00661	fixed resistor 1/8W	68K M type	2	R49,R55
0015----	RA00322	fixed resistor 1/4W	4.7 M type	2	R30,R37
0016----	RA00159	fixed resistor 1/4W	10 Mr type	2	R25,R28
0017----	RA00204	fixed resistor 1/4W	470 M type	1	R48
0018----	RA00881	metal-oxide-film resistor 3W	12K RSS P type	2	R45,R52
0019----	RA00091	chassis bracket 5W	0.2 (P)	4	R19,R20,R24,R26
0020----	RA00852	chassis bracket 5W	47 SQP	1	R79
0021----	RC00164	resistor	500 8 RB	1	VR1
0022----	CA00024	ceramic capacitor	100PF SL	1	DL2
0023----	CA00029	ceramic capacitor	220PF Y5E	2	C21,C22
0024----	CA00034	ceramic capacitor	470PF Y5E	4	C28,C31,C46,C47
0025----	CA00040	ceramic capacitor	0.001uF Z5V	1	C13
0026----	CC00012	mylar capacitor	0.0047uF/100V 10%	4	C20,C32,C33,C35
0027----	CF00014	metal-film capacitor MEC	0.01uF/400V 10%	2	C11,C12
0028----	CH00017	laminated capacitor	0.1uF/50V Y5V PH5	2	C23,C26
0029----	CB00010	electrolytic capacitor	1uF/50V 4*7mm	1	C29
0030----	CB00026	electrolytic capacitor	10uF/50V 6*7mm	3	C14,C42,C43
0031----	CB00020	electrolytic capacitor	10uF/50V NP 5*11mm	1	C45
0032----	CB00057	electrolytic capacitor	220uF/25V 8*11mm	3	C25,C27,C30
0033----	CB00069	electrolytic capacitor	1000uF/6.3V 8*11mm	2	C34,C37
0034----	CB00168	electrolytic capacitor	2200uF/63V 22*30mm	1	C38
0035----	CB00098	electrolytic capacitor	10000uF/50V 30*45mm	2	C18,C19
0036----	CB00102	electrolytic capacitor	10000uF/80V 35*50mm	2	C15,C16
0037----	HC00062	FUSE holder	JEF-501L	8	F1,F2,F3,F4
0038----	HC00324	connect terminal	6.5m/m (PC250)	7	S1,S2,S3,S4,S5,S9,S10
0039----	HC00050	row-wire header	14PIN A28b-14B.T.6	1	CN1
0040----	SA00093	rectifier diode	1N4148 0.5A	2	D10,D12
0041----	SA00094	rectifier diode	1N4002/100V	10	D3,D4,D7,D13,D16,D17, D18,D28,D29,D30
0042----	SA00097	rectifier diode	6A2 6A	2	D8,D9
0043----	SA00104	zener diode	1W 10V 1N4740	2	D15,D19
0044----	SA00007	bridge rectifier	8A KBU-806 comb type	1	D4
0045----	SB00059	transistor	BC327-25	1	TR13
0046----	SB00073	transistor	2N5550/2N5551	1	TR12
0047----	SB00074	transistor	2N5401	1	TR14
0048----	SB00060	transistor	MJE340 (ST)	3	TR7,TR10,TR25
0049----	SB00061	transistor	MJE350 (ST)	3	TR11,TR15,TR23
0050----	HI00009	relay	OZ-SS-124LM1 24V/16A	1	RL1
0051----	NI02516	cushion	4*8mm PW-2	16	D8,D9,R19,R20,R24,R26 ,R45,R52
0052----	MH00764	copper drill	2*4	2	D4
0053----	HD00024	glass tube fuse	8A 250V 5.2*20mm CSA/UL	4	F1,F2,F3,F4
0054----	HK03857	PC board	P-313122-SMD-T5SA	1	
0001----	HB00912	PCB	313122-2 VER031014	1	
0002----	RD00076	SMD fixed resistor 1/10W	330 $\pm 5\%$ 0603	1	R59
0003----	RD00083	SMD fixed resistor 1/10W	1.0K $\pm 5\%$ 0603	2	R92,R98

	PC00298	SR500SA	SR500SA_ALTO_230V		REVISED: 2006/5/30
LEVEL	PART NO	DESCRIPTION	SPECIFICATION	QTY	REFERENCE
0004--	RD00093	SMD fixed resistor 1/10W	4.7K $\pm 5\%$ 0603	1	R74
0005--	RD00101	SMD fixed resistor 1/10W	10K $\pm 5\%$ 0603	7	R46,R47,R58,R71,R72, R73,R94
0006--	RD00105	SMD fixed resistor 1/10W	22K $\pm 5\%$ 0603	1	R93
0007--	RD00114	SMD fixed resistor 1/10W	68K $\pm 5\%$ 0603	1	R60
0008--	RD00111	SMD fixed resistor 1/10W	47K $\pm 5\%$ 0603	1	R70
0009--	RD00116	SMD fixed resistor 1/10W	100K $\pm 5\%$ 0603	1	R90
0010--	RD00118	SMD fixed resistor 1/10W	150K $\pm 5\%$ 0603	1	R57
0011--	CI00016	SMD ceramic capacitor 0805	100PF/50V NPO	2	C40,DL2
0012--	SE00011	SMD rectifier diode	RLS4148 0.5A (LL-34)	3	D14,D32,D33
0013--	SF00031	SMD transistor	BC847B(SOT-23)/(PHI)	3	TR20,TR21,TR26
0014--	SF00032	SMD transistor	BC857B(SOT-23)/(PHI)	3	TR17,TR22,TR27
0015--	SG00040	SMD integrated circuit	MC33078DT(ST)MC33078D(ON)	1	IC7
0016--	AC00179	tin without lead	M705E Sn 3Ag-0.5Cu	40	
0055----	CA00071	ceramic capacitor	0.0047uF/100V	2	C17,C24
0056----	AC00179	tin without lead	M705E Sn 3Ag-0.5Cu	40	
0049-----	HK05848	PC board	P-313115-3-DIP-SR500SA+	1	
0001----	SC00319	crystal oscillator	12.288MHZ	1	XT1
0002----	NE16151	lable	SR500SA+ CS:5DA0_V1.0	1	
0001----	NI00034	membrane	0.045*1M	1	
0002----	NH00014	bond paper	0.05*1M white	1	
0003----	HC00145	connector	2.54 90° 2P(gold-plated) 6/14mm 1.2mm	1	
0004----	HC00492	connector	20PIN B22-2*10BGA1	1	CN2
0005----	CB00166	electrolytic capacitor	100uF/16V 6*5mm	1	C60
0006----	CB00069	electrolytic capacitor	1000uF/6.3V 8*11mm	2	C62,C64
0007----	CB00201	electrolytic capacitor	47uF/25V 6*7mm	8	C23,C24,C25,C26,C38, C39,C57,C58
0008----	CB00026	electrolytic capacitor	10uF/50V 6*7mm	2	C55,C56
0009----	SG00342	SMD integrated circuit	EN29LV040-70JC/SR500SA+ CS:5DA0	1	IC2
0001----	SG00337	integrated circuit	EN29LV040-70JC(PLCC32)/(EON)	1	
0010----	HK04891	PC board	P-313115-3-SMD-ALTO	1	
0001----	SG00069	SMD integrated circuit	MAX709L-CSA	1	IC5
0002----	SF00009	voltage stabilized transistor	LM1117MP-3.3 (3.3V, SOT223)	1	IC9
0003----	RD00068	SMD fixed resistor 1/10W	100 $\pm 5\%$ 0603	4	R1,R29,R30,R39
0004----	RD00076	SMD fixed resistor 1/10W	330 $\pm 5\%$ 0603	1	R49
0005----	SG00331	SMD integrated circuit	RED 208N MQFP208/(LEM NO#105024)	1	IC4
0006----	SG00379	SMD integrated circuit	74HC132DT(S014)/(PHILIPS)	1	IC11
0007----	SG00050	SMD integrated circuit	AK4528VF AKM	1	IC7
0008----	SG00040	SMD integrated circuit	MC33078DT(ST)MC33078D(ON)	2	IC3,IC8
0009----	RE00006	SMD resistor networks 1/16W	100 *4 $\pm 5\%$ 8P 0603	1	AR4
0010----	RE00008	SMD resistor networks 1/16W	4.7K *4 $\pm 5\%$ 8P 0603	4	AR1,AR2,AR3,AR5
0011----	RD00063	SMD fixed resistor 1/10W	22 $\pm 5\%$ 0603	2	R34,R35
0012----	RD00073	SMD fixed resistor 1/10W	220 $\pm 5\%$ 0603	8	R12,R13,R15,R17,R27,R33 ,R46,R50
0013----	RD00101	SMD fixed resistor 1/10W	10K $\pm 5\%$ 0603	2	R9,R36
0014----	RD00093	SMD fixed resistor 1/10W	4.7K $\pm 5\%$ 0603	15	R8,R10,R11,R14,R16,R23 ,R24,R25,R26,R40,R41,R42,R 43,
0015----	RD00125	SMD fixed resistor 1/10W	1.0M $\pm 5\%$ 0603	1	R28
0016----	RD00116	SMD fixed resistor 1/10W	100K $\pm 5\%$ 0603	1	R51
0017----	HB01645	PCB	313115-3_VER050228	1	
0018----	HC00611	IC socket (SMD)	PLCC32 (AMP S/N:822516-7)	1	IC2
0019----	CI00091	SMD ceramic capacitor 0603	0.0056uF/50V X7R $\pm 10\%$	1	C65
0020----	CO00006	SMD chip inductance	BLM21A102SPT/(MURATA)	4	L1,L2,L3,L4
0021----	CI00129	SMD ceramic capacitor 0603	0.0015uF/50V X7R $\pm 10\%$	2	C34,C36
0022----	CI00069	SMD ceramic capacitor 0603	0.0033uF/50V X7R $\pm 10\%$	2	C9,C12
0023----	CL00006	SMD tantalum capacitor	10uF/16V case B2	4	C31,C32,C37,C54
0024----	CI00063	SMD ceramic capacitor 0603	470PF/50V NPO $\pm 5\%$	4	C8,C10,C11,C13
0025----	CI00075	SMD ceramic capacitor 0603	0.1uF/50V Y5V +80,-20%	28	C3,C4,C5,C6,C7,C15,C16, C17,C18,C19,C21,C28,C29,C3 0,
0026----	CI00266	SMD ceramic capacitor-RS 0603	22PF/50V NPO $\pm 5\%$	3	C43,C46,C50
0027----	CI00264	SMD ceramic capacitor-RS 0603	15PF/50V NPO $\pm 5\%$	2	C14,C27
0011-----	AC00179	tin without lead	M705E Sn 3Ag-0.5Cu	40	
0010-----	HA02815	signle terminal wiring	800mm UL1015 18AWG	1	
0011-----	NI02250	MIC jack	17* 23.5*9	2	
0012-----	HA00861	power cord Europe 3P	LT-312+LT-501	1	
0013-----	NE11750	label	ALTO PC	4	

	PC00298	SR500SA	SR500SA_ALTO_230V		REVISED: 2006/5/30
LEVEL	PART NO	DESCRIPTION	SPECIFICATION	QTY	REFERENCE
0001-----	NH00334	cone paper	0.040*1m	1	
0014-----	NE13566	label	SR 500SA_V1.1	4	
0001-----	NH00012	bond paper	0.04*1M	1	
0002-----	NI00014	membrane	0.035*1M	1	
0015-----	NF00061	assurance card	ALTO	1	
0016-----	NA00296	PE bag	0.05t*1100*1300mm	1	
0017-----	NF01890	instruction	SR series ALTO_V1.2	1	
0001-----	NH00149	paper	889*640mm	1	
0018-----	NA00279	clip-chain bag	0.04t*100*150mm_V1.0	1	
0019-----	AD00012	twin adhesive	90*120mm_V1.0	1	
0020-----	NB03224	box	SR 500SA ALTO_V1.2	1	
0021-----	ND00416	EV foam	100*110*2t_V1.0	2	
0022-----	MD00599	net	SR500SA ALTO_V1.0	1	
0001-----	MD00537	iron net	SR500A-SUB_V1.2	1	
0001-----	MD00536	iron net	SR500A-SUB_V1.2	1	
0001-----	MD00535	iron net	1.2t*559*492mm_V1.3	1	
0023-----	NE04372	label	red	6	
0001-----	NI02598	membrane	125mm	1	
0002-----	NH00252	paper	130mm	1	
0024-----	NE12802	label	SR500SA ALTO_V1.0	1	
0001-----	NI00057	adhesive label	0.11*1M	1	
0002-----	NI00027	membrane	0.105*1M	1	
0025-----	NB04091	paper defend horn	SR 500SA 626*48mm_V1.0	4	
0026-----	NA00434	silk wadding-RS	SR 500SA_V1.0	2	
0027-----	NE11168	label	HK 15 ALTO	1	
0001-----	NH00012	bond paper	0.04*1M	1	
0002-----	NI00014	membrane	0.035*1M	1	