

Wharfedale Pro

Service Manual :

S-1500

Professional Amplifier

S-1500

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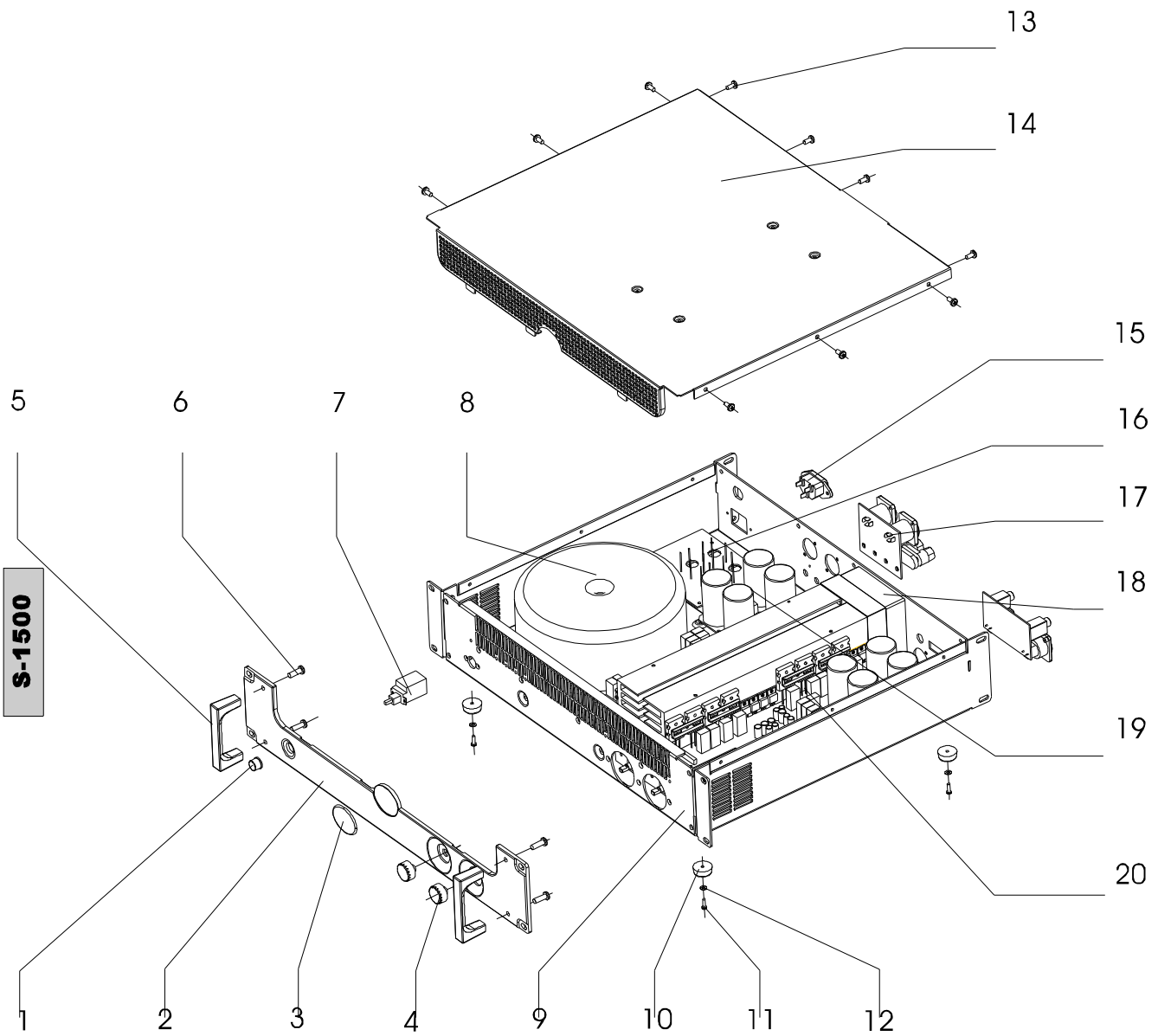
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★ SPECIFICATION

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Output Power	Stereo:
	300W+300W/8 OHM(0.1% THD at 20Hz-20kHz)
	450W+450W/4 OHM(0.1% THD at 20Hz-20kHz)
	320W+320W/8 OHM(0.1% THD at 1kHz)
	500W+500W/4 OHM(0.1% THD at 1kHz)
	750W+750W/2 OHM(0.1% THD at 1kHz)
	Bridge:
	900W/8 ohm(0.1% THD at 20Hz*20kHz)
	1000W/8 ohm(0.1% THD at 1kHz)
	1500W/4 ohm(0.1% THD at 1kHz)
THD+N	<0.02%
Frequency Response	20Hz-20kHz 0/-0.5dB
	10Hz-40kHz 0/-2dB
Hum and Noise	-95dB
Voltage Gain	33dB
Input Sensitivity	+4dBu
Maximum Input Level	+22dBu
Input Impedance	Balanced:20kohm;Unbalanced:10kohm
Controls	
Low Cut Filter:	50Hz -6dB(-12dB/oct);30Hz -6dB(-12dB/oct)
SIGNAL Indicators:	Truns on approx -35dBu
CLIP indicators:	Turns on approx 490W*2/4 ohm output
Limiter:	Turns on approx 506W*2/4 ohm output
Amplifier Protection:	Mute function;DC detection;Overload and
	short detection;Temperature detection
Power Amp Type	Class AB complementary linear output
Ac Power Options	AC100V/120V/220V/240V, 50/60Hz
Dimensions (H*W*D)	96*482.6*427 (mm)/3.8"*19"*16.8" (inches)
Weight	16.3kg/35.9lbs

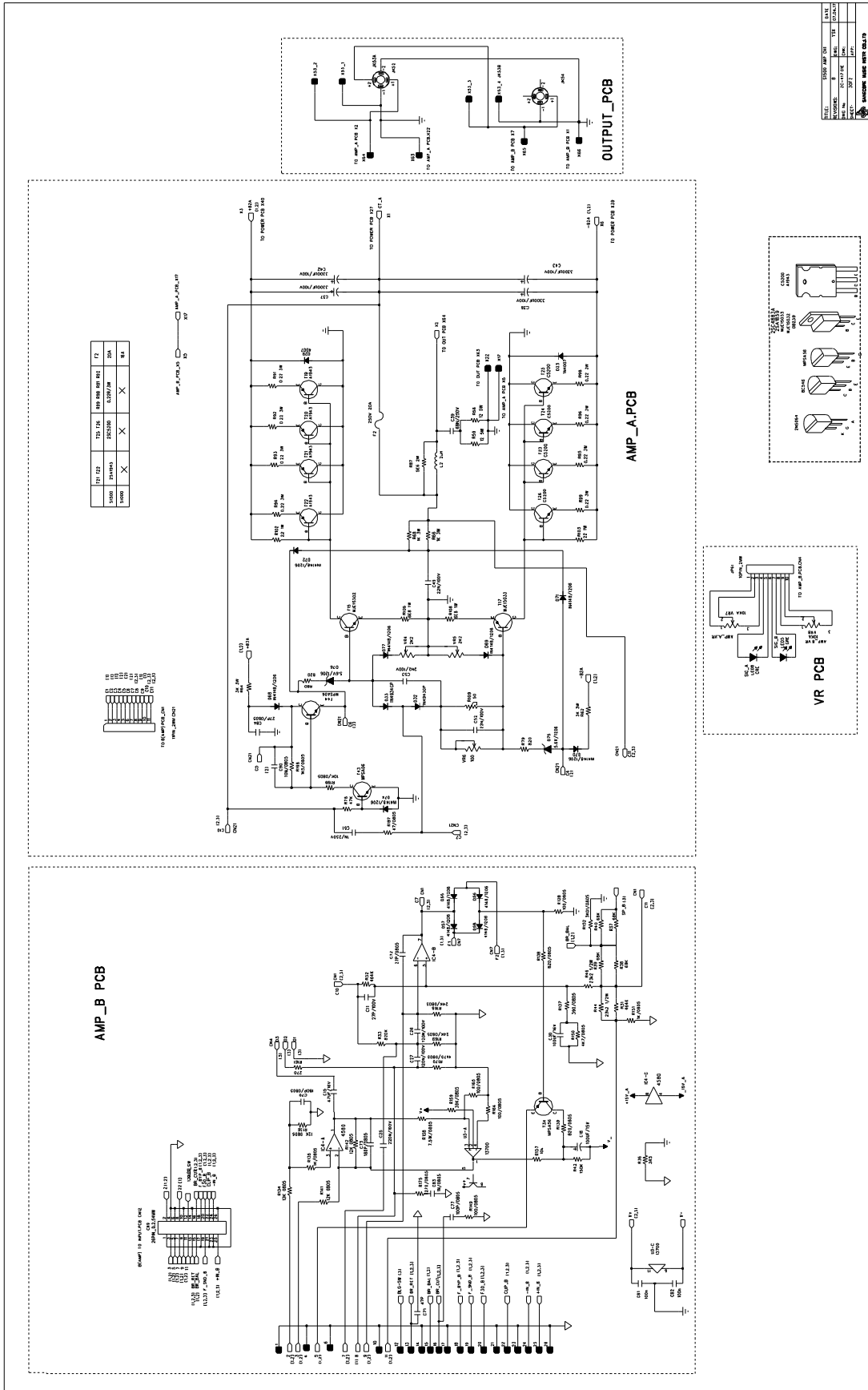
★ ASSEMBLY SKETCH



★ SCHEMATIC DIAGRAM

S1500REV03.sch-2 - Thu Aug 23 10:34:26 2007

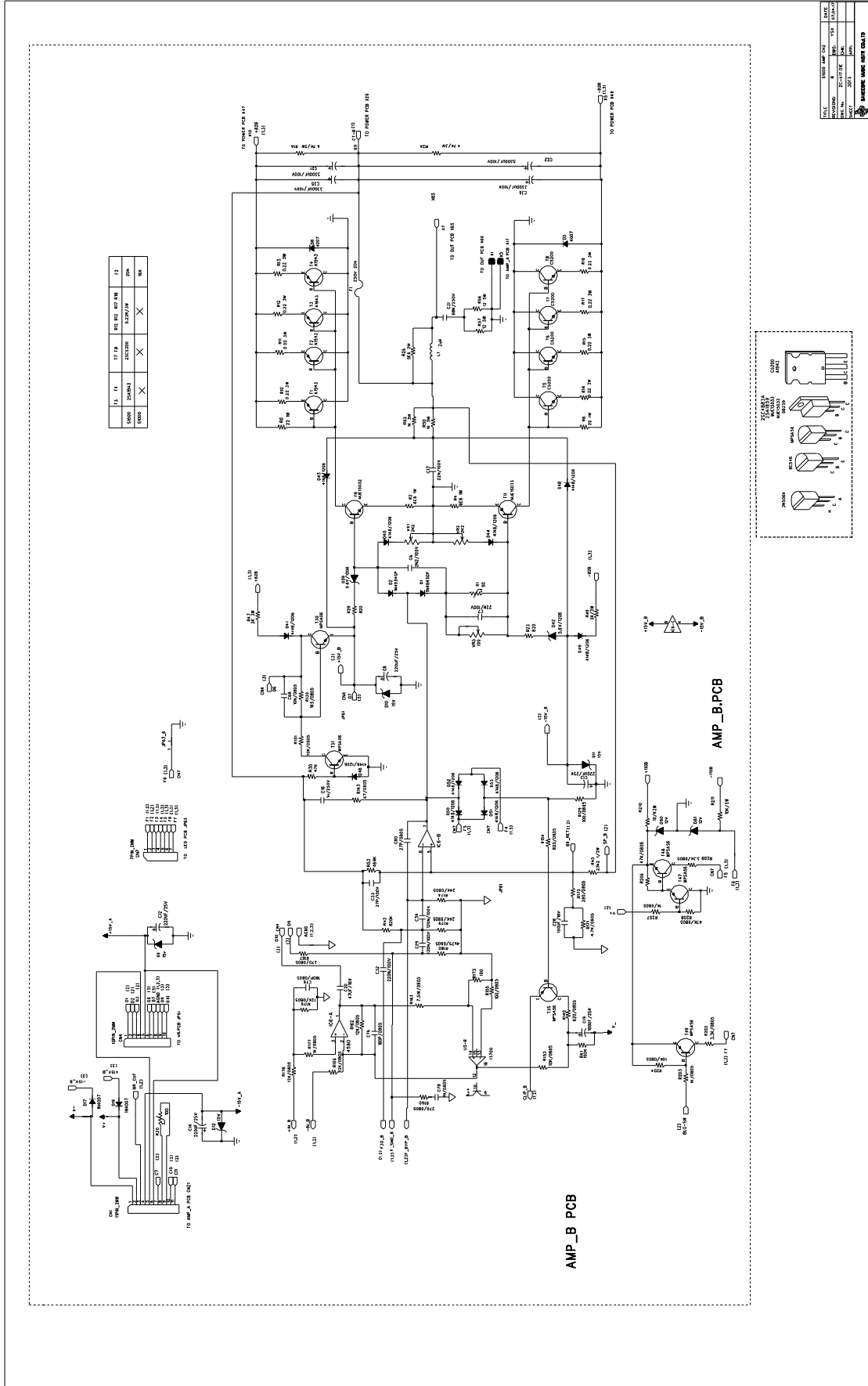
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★ SCHEMATIC DIAGRAM

S1500REV03.sch-3 - Thu Aug 23 10:35:04 2007

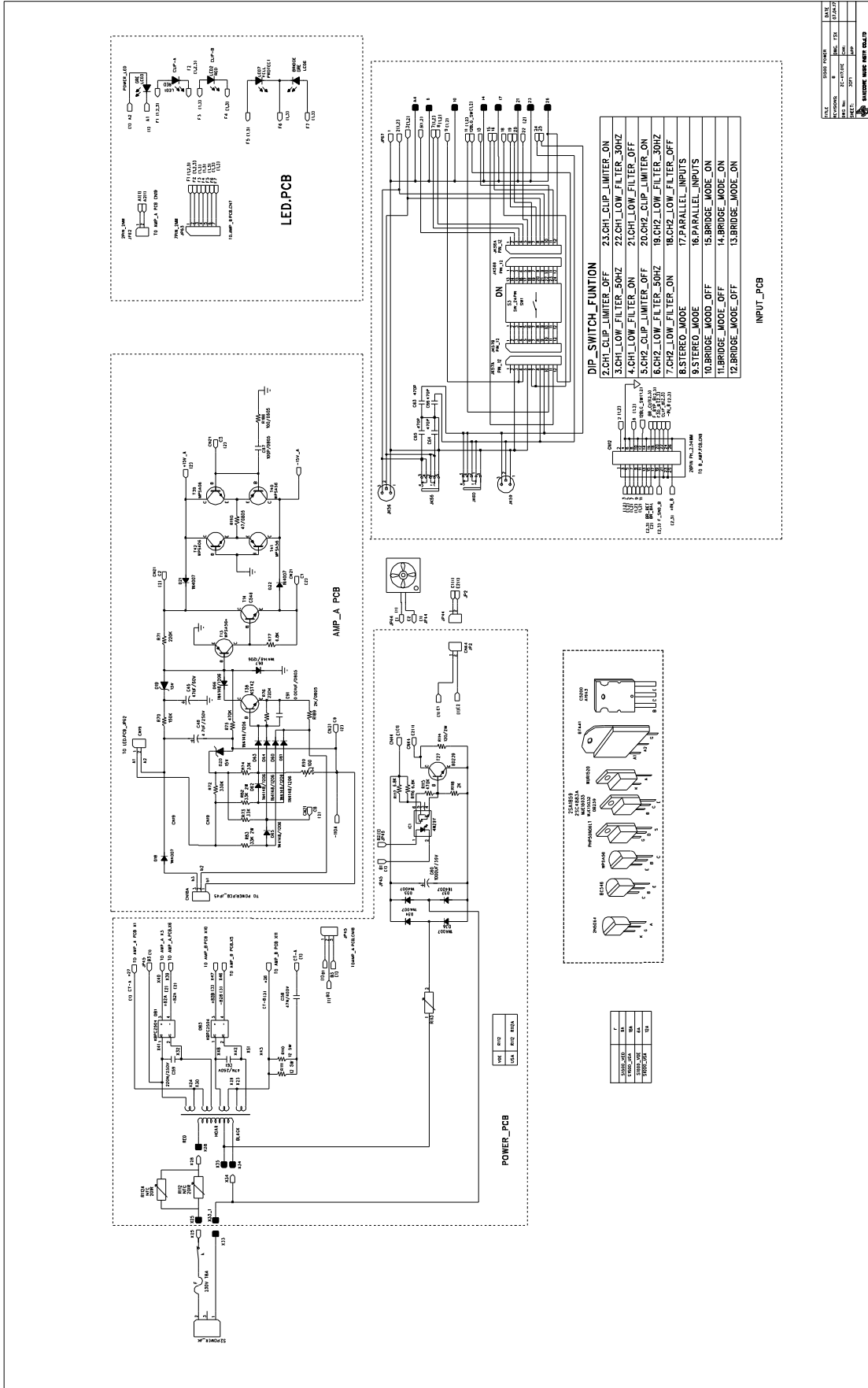
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★ SCHEMATIC DIAGRAM

S1500REV03.sch-1 - Thu Aug 23 10:33:39 2007

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FILE	S1500.PCB	DATE	
PLT	S1500.PLT	PLT	
DATE	15-07-2007	TIME	
USER	WANG	USER	

4.ASSEMBLY PARTS LIST

R/N	P/N	PART NAME	DESCRIPTION	QIA
1	215-1419000000R	BUTTON		1
2	300-1417000000R	FRONT PANEL		1
3	313-2104500001R	LOGO		1
4	213-1419000000R	KNOB		2
5	328-1419000000R	HANDLE		2
6	537-5001150801AR	SCREW	M5*15	4
7	041-1321000000R	POWER SWITCH		1
8	022-2000042331R	TRANSFORMER		1
9	309-1417000002R	MAIN FRAME		1
10	226-2020030800R	RUBBER FOOT		4
11	537-3001120801AR	SCREW	M3*10	4
12	513-3510090800AR	WASHER	M3	4
13	537-4001080801R	SCREW	M4*8	14
14	302-1419000000R	TOP COVER		1
15	044-0500000000R	POWER SOCKET		1
16	088-1417000400R	POWER BOARD		1
17	088-1419000038R	OUTPUT BOARD		1
18	083-0340000000R	FAN		1
19	088-1417001001R	AMP BOARD A		1
20	088-1417001002R	AMP BOARD B		1

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5.ELECTRONIC PARTS LIST

R/N	P/N	PART NAME	DESCRIPTION	QUA	LOCATION
	088-1417000400R	POWER BOARD		1	
1	001-1002205010R	RESISTOR	1K 1/4W F	1	R1A
2	001-1200810052R	RESISTOR	SQM 120R 2W 5%	1	R114
3	001-1209810052R	RESISTOR	SQM 12R 5W 5%	2	R100, R111
4	001-2002105050R	RESISTOR	2K 1/4W J	1	R118
5	001-2704205010QR	RESISTOR	270K 1/4W 1%	1	R2A
6	001-4704105050R	RESISTOR	470k 1/4W J	1	R115
7	001-6802105050R	RESISTOR	6.8K 1/4W J	2	R116, R117
8	004-3307000000R	RESISTOR	10D-20	1	R213
9	004-4442010000R	RESISTOR	NTC SCK201ROMSBY	1	R112
10	006-1014081153AR	CAPACITOR	100UF/35V 8*11	1	C1A
11	006-1020051393R	CAPACITOR	1000uF/35V	1	C60
12	006-2211081243R	CAPACITOR	220UF/25V 10%	1	C2A
13	013-2240421005R	CAPACITOR	220N/250V 10%	2	C59, C61
14	013-4730521505R	CAPACITOR	47N/400V 10%PH=10MM	1	C58
15	017-7800000000R	IC	4N29	1	IC1
16	018-1300239111R	TRANSISTOR	BD239A	1	T27
17	018-3408050115R	TRANSISTOR	SS8050	2	Q1A, Q2A
18	024-2240501014R	RELAY	GZ-SH-124M	1	RA1A
19	031-3000004000R	FUSE	FRU110F-30(1.1A 250V)	1	R113
20	034-2224002508R	BRIDGE RECTIFIER	KBPC2504W(400V/25A)	2	DB1, DB3
21	044-2250000000R	JACK	2P	1	CN44
22	053-1419001604R	PCB	201*119MM	1	
23	055-0203028233R	FLAT LINE	3PIN PH=2MM L=280MM	1	JP45
24	060-0140150312R	WIRE	14#1015 BLUE L=150MM	1	X33
25	060-0140160741R	WIRE	14#1015 YELLOW L=200MM	1	X27
26	060-0140250040R	WIRE	14#1015 RED L=250MM	1	X40
27	060-0140300440R	WIRE	14#1015 BLACK L=300MM	1	X39
28	060-0140360041R	WIRE	14#1015 RED L=400MM	1	X47
29	060-0140380413R	WIRE	14#1015 BLACK L=380MM	1	X46
30	060-0140400112R	WIRE	14#1015 BROWN L=400MM	1	X25
31	060-0140550713R	WIRE	14#1015 YELLOW L=550MM	1	X26
32	067-2204007000R	DIODE	IN4007	9	D34-37, D1A-D5A
33	306-1102000002R	HEAT SINK		1	T29
	088-1417001001R	AMP BOARD A		1	
1	001-0228809052R	RESISTOR	SQM 0R22 3W 5%	8	R91-96, R98-99
2	001-1001709050R	RESISTOR	3W 1K 5% MB/5MM	2	R66, R68
3	001-1209810052R	RESISTOR	SQM 12R 5W 5%	2	R58, R59
4	001-1504105050R	RESISTOR	150K 1/4W J	1	R70
5	001-2204105050R	RESISTOR	220K 1/4W J	2	R71
6	001-2209707012R	RESISTOR	22R 1W 5% MB/5MM	2	R102, R103
7	001-3002509050R	RESISTOR	SQM 3K 3W 5%	2	R62, 64
8	001-3302808052R	RESISTOR	SQM 33K 2W 5%	2	
9	001-3303105050R	RESISTOR	33K 1/4W J	2	R73, R74

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5.ELECTRONIC PARTS LIST

10	001-3304105050R	RESISTOR	330K 1/4W J	1	R72
11	001-3308707052R	RESISTOR	3R3 1W 5% MB/5MM	2	R106, R108
12	001-4703105050R	RESISTOR	47K 1/4W J	1	R78
13	001-4704105050R	RESISTOR	470k 1/4W J	1	R75
14	001-5608708052R	RESISTOR	5R6 2W 5% MB/5MM	1	R87
15	001-6802105050R	RESISTOR	6.8K 1/4W J	1	R77
16	001-8201105050R	RESISTOR	820 1/4W J	2	R79, R80
17	004-4431020000R	RESISTOR	100R PTMS21010RP730Y	1	R90
18	004-4432010000R	RESISTOR	TTC05050KSY 50R	1	R109
19	005-1000306101R	RESISTOR	100R TA0631V1B100C1	1	VR6
20	005-2201306101R	RESISTOR	2K2 TA0631 V1B22200C1	2	VR4, VR5
21	006-3324304098R	CAPACITOR	3300UF/100V	4	C37-38, C40, C42
22	006-4701061263R	CAPACITOR	47U 50V 10%	1	C45
23	006-4791081203R	CAPACITOR	4.7UF/250V 8*11.5	1	C48
24	008-4701030005R	CAPACITOR	470PF/300V 10%	4	C63-C66
25	013-1520421005R	CAPACITOR	1N5/250V 10% PH=10MM	1	
26	013-2220310501R	CAPACITOR	2.2nF 100V 5%	1	C53
27	013-2230310751R	CAPACITOR	22N 100V 5%	2	C49, C52
28	013-6830420506R	CAPACITOR	68N/250V 6*8	1	C39
29	018-0101943121R	POWER TUBE	2SA1943	4	T19-22
30	018-0305200121R	POWER TUBE	2SC5200	4	T23-26
31	018-2700056115R	TRANSISTOR	MPSA56	1	T13
32	018-2905551115R	TRANSISTOR	2N5551	1	T14
33	018-6015032310R	TRANSISTOR	MJE15032G	1	T15
34	018-6015033310R	TRANSISTOR	MJE15033	1	T17
35	031-2300628121R	FUSE	20A/250V 6*30	1	F2
36	042-1900000000R	SWITCH	RS-12-R-RS	1	SW1
37	044-2930000000R	JACK	2PIN PH=2MM	1	CN19
38	044-2940000000R	JACK	3PIN PH=2MM	1	CN18
39	048-1700000000R	CONNECTOR	NYS139 K3Y1	2	JK56, JK59
40	049-2102224111R	JACK	PHONE JY6351-02-250	2	JK60, TK55
41	050-0200070011R	FUSE HOLDER	6*30 FUC-3	2	
42	055-0326034228R	FLAT LINE	2*13PIN PH=2.54MM	1	CN12
43	056-2111002200R	JACK	11PIN 2.0PH	1	CN21
44	057-2542022121R	JACK	12PIN PH=2.54	2	JK57A, JK58A
45	067-2204007000R	DIODE	1N4007	5	D18, 21-23, 29
46	067-2204934000R	DIODE	1N4934	2	D32, D33
47	067-3304744000R	ZENER	1N4744A 15V-1W	2	D19, D20
48	080-0000100131R	INDUCTOR	12UH	1	L2
49	002-1001032050R	RESISTOR	100 OGM 0805	1	R186
50	002-1003022010R	RESISTOR	0805 10K 1/10W F	1	R199
51	002-1502032050R	RESISTOR	1.5K 0805	1	R198
52	002-2002022005QR	RESISTOR	2K 0.1W 0.5%	1	R189
53	002-4700032010QR	RESISTOR	47 OHM 1/8W 1% 0805	1	R190
54	002-7500032010R	RESISTOR	75 OHM 1/8W 1% 0805	1	R197

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5.ELECTRONIC PARTS LIST

55	007-1001052060R	CAPACITOR	100PF50V 5% NPO 0805	1	C87
56	007-1002052060QR	CAPACITOR	SMD 1nF 50V 5% 0805	1	C91
57	007-1003062060R	CAPACITOR	10nF 50V 10% 0805	1	C90
58	007-2700052060QR	CAPACITOR	27P 5% NPO SMD	1	C84
59	018-2700006227R	TRANSISTOR	MMBTA06	4	T39, 42-44
60	018-2700056227R	TRANSISTOR	MMBTA56	2	T40-41
61	018-7700042227R	TRANSISTOR	KST42	1	T38
62	053-1417000611R	PCB	279*114MM	1	
63	067-2204148111R	DIODE	IN4148 (IN4148W-7)	15	D60-72, D74, D77
64	067-3300056110R	DIODE	5.6V 1/2W 1206	2	D75, D76
65	306-1419000001R	HEAT SINK	270*79*35	1	
66	513-3005050800AR	FLAT WASHER		2	
67	517-3000000800AR	SPRING WASHER	M3	4	
68	520-3006400000R	PLASTIC WASHER	TW-1	2	
69	537-3001140801AR	SCREW	MP(+)-3*14	6	
	088-1417001002R	AMP BOARD B		1	
1	001-0228809052R	RESISTOR	SQM 0R22 3W 5%	8	R10-15, R17-18
2	001-1001709050R	RESISTOR	3W 1K 5% MB/5MM	2	R50, R52
3	001-1003308050R	RESISTOR	10K 2W J	2	R210, R211
4	001-1209810052R	RESISTOR	SQM 12R 5W 5%	2	R56-R57
5	001-1501105050R	RESISTOR	150K 1/4W J	2	R41-R42
6	001-2209707012R	RESISTOR	22R 1W 5% MB/5MM	2	R5-6
7	001-2322206010R	RESISTOR	1/2W 23K2 1%	3	R44, R45, R46
8	001-3002509050R	RESISTOR	SQM 3K 3W 5%	2	R47, R49
9	001-3308707050R	RESISTOR	3R3 1W 5% FKK/5MM	1	R2
10	001-3308707052R	RESISTOR	3R3 1W 5% MB/5MM	2	R4
11	001-4643105050R	RESISTOR	1/4W 464K J	3	R32, R53, R31
12	001-4702309050R	RESISTOR	4.7K 3W 5%	2	C36, C35
13	001-4703105050R	RESISTOR	47K 1/4W J	1	R30
14	001-5608708052R	RESISTOR	5R6 2W 5% MB/5MM	1	R26
15	001-6803105050R	RESISTOR	68K 1/4W J	4	R37-40
16	001-8201105050R	RESISTOR	820 1/4W J	2	R23, R43
17	001-8204205010QR	RESISTOR	820K 1/4W 1%	2	
18	004-4431020000R	RESISTOR	100R PTMS21010RP730Y	1	R20
19	004-4432010000R	RESISTOR	TTC05050KSY 50R	1	R1
20	005-1000306101R	RESISTOR	100R TA0631V1B100C1	1	VR3
21	005-2201306101R	RESISTOR	2K2 TA0631 V1B22200C1	2	VR1, VR2
22	006-1011061143R	CAPACITOR	SM 100uF 25V 10%	2	C18-19
23	006-1011081232R	CAPACITOR	100UF/16V 8*11.5	2	C28, C30
24	006-2211081243R	CAPACITOR	220UF/25V 10% 8*11.5	4	C8, C12-14
25	006-3324304098R	CAPACITOR	3300UF/100V ! 20%	4	C1-2, C35-36
26	006-4701071232R	CAPACITOR	47UF/16V 6.3*11	2	C15, C20
27	008-2700005015R	CAPACITOR	NPO 27PF-50V-10%	2	C11, C33
28	013-1240310503R	CAPACITOR	120NF/100V 5% PH=5MM	4	C26-27, C29, C34
29	013-1520421005R	CAPACITOR	1N5/250V 10% PH=10MM	1	C16

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5.ELECTRONIC PARTS LIST

30	013-2220310501R	CAPACITOR	2.2nF 100V 5%	1	C6
31	013-2230310751R	CAPACITOR	22N 100V 5%	2	C7, C17
32	013-2240320503R	CAPACITOR	220NF100V 7.5*5.0*8.0	2	C25, C32
33	013-6830420506R	CAPACITOR	68N/250V 6*8 10%PH=5MM	1	C31
34	018-0101943121R	POWER TUBE	2SA1943	4	T1-4
35	018-0305200121R	POWER TUBE	2SC5200	4	T5-8
36	018-6015032310R	TRANSISTOR	MJE15032G	1	T9
37	018-6015033310R	TRANSISTOR	MJE15033	1	T11
38	019-0311122001R	LED	204HD/E-A RED	2	LED1-2
39	019-0322122001R	LED	LED 204GD/E-A GREEN	2	LED3, LED6
40	019-0333122001R	LED	LED 204YD/E-A YELLOW	1	LED7
41	031-2300628121R	FUSE	20A/250V 6*30	1	F1
42	044-2950000000R	JACK	2*13PIN PH=2.54MM	1	CN9
43	044-3160000000R	JACK	7PIN PH=2.00MM	1	CN7
44	050-0200070011R	FUSE HOLDER	6*30 FUC-3	2	F1
45	055-0202012144R	FLAT LINE	2PIN PH=2MM UL26#	1	JP62
46	055-0207012144R	FLAT LINE	7PIN PH=2MM UL26#	1	
47	056-2110002160R	JACK	10Pin 2.00mm	1	CN4
48	056-2111002200R	JACK	11PIN 2.0PH	1	CN1
49	067-2204007000R	DIODE	IN4007	4	D5-6, D16-17
50	067-2204934000R	DIODE	IN4934	2	D1-2
51	067-3304742000R	DIODE	IN4742 12V 1W	2	D80, D81
52	067-3304744000R	ZENER	IN4744A 15V-1W	4	D9-12
53	080-0000100131R	INDUCTOR	12UH	1	L1
54	002-1001032050R	RESISTOR	100 OHM 0805	7	R128-129, 149, 155, 164-165, 173
55	002-1002022010R	RESISTOR	0805 1K 1/10W F	5	R135, 151, 177, 203, 207
56	002-1003022010R	RESISTOR	0805 10K 1/10W F	12	R131, 153, 157, 204, 134, 136, 141, 142, 162, 166, 178
57	002-1502032050R	RESISTOR	1.5K 0805	1	R130
58	002-2400032011R	RESISTOR	24K 1/8W 0805 1%	4	R168-169, 179, 174
59	002-2701032010R	RESISTOR	270 OHM 1/8W 1% 0805	4	R160-161, 167, 175
60	002-3012032010R	RESISTOR	3K01 0805 1/8W 1%	1	R152
61	002-3302032050R	RESISTOR	3.3K 0805	2	
62	002-3901032010R	RESISTOR	390 OHM 1/8W 1% 0805	2	R137, R172
63	002-3903032010R	RESISTOR	39K 1/8W 1% 0805	2	R156, 159
64	002-4702022010R	RESISTOR	RC05K472JT	2	R150, 171
65	002-4703032050R	RESISTOR	47K 0805 1/8W	2	R208, 206
66	002-4752032010R	RESISTOR	4K75 0805 1/8W 1%	2	R170, 180
67	002-7500032010R	RESISTOR	75 OHM 1/8W 1% 0805	1	R143
68	002-7502032010R	RESISTOR	7.5K OHM 1/8W 1% 0805	2	R158, 163
69	002-8201032010R	RESISTOR	820 OHM 1/8W 1% 0805	4	R138-140, 154
70	007-1001002060R	CAPACITOR	100NF/50V 0805M	2	C81, 82
71	007-1001052060R	CAPACITOR	100PF50V 5%	1	C77
72	007-1002052060R	CAPACITOR	SMD 1nF 50V 5%	2	C78, C83

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5.ELECTRONIC PARTS LIST

73	007-1003062060R	CAPACITOR	10nF 50V 10%	1	C68
74	007-1801062065R	CAPACITOR	180PF 0805 50V 10%	4	C70, 73, 76, 79
75	007-2700052060QR	CAPACITOR	27P 5% NPO SMD	2	C72, 80
76	007-4700052060R	CAPACITOR	47PF 50V 5%	1	C71
77	017-7780000000R	IC	NJM13700M JRC! W=4.9MM	1	IC5
78	017-9090000000R	IC	AZ4580 SOIC-8 W=3.9MM	2	IC4, IC6
79	018-2700006227R	TRANSISTOR	MMBTA06	2	T30-31
80	018-2700056227R	TRANSISTOR	MMBTA56	5	T34-35, 49, 47, 48
81	053-1417000610R	PCB		1	
82	067-2204148111R	DIODE	IN4148 (IN4148W-7)	15	D40, 41, 43, 44, 46, 48-53, 55-58
83	067-3300056110R	DIODE	5.6V 1/2W	2	D39, 42
84	222-0120403011R	LAMP HOLDER	LEDS-12	5	LED1-3, 6, 7
85	306-1419000000R	HEAT SINK	270*79*36	1	
86	513-3005050800AR	FLAT WASHER		2	
87	517-3000000800AR	SPRING WASHER	M3	4	
88	520-3006400000R	PLASTIC WASHER	TW-4	2	
89	537-3001140801AR	SCREW	MP(+) 3*14	6	
	088-1419000015R	POTENTIOMETER BOARD		1	
1	019-0322122001R	LED	204GD/E-A GREEN	2	LED4-5
2	020-1104120011R	POTENTIOMETER	10KB	2	VR7-8
3	053-1419000618R	PCB	126.2*164MM	1	
4	055-0210012144R	FLAT LINE	10PIN PH=2MM UL26#	1	X61
5	222-1500403511R	LAMP HOLDER	LEDS-15 WHITE	2	LED4-5
	088-1419000038R	OUTPUT BOARD		1	
1	046-0300100000R	TERMINAL	NL-4MP	2	JK52, JK54
2	053-1419000620R	PCB	148.7*114.3MM	1	
3	060-0140060513R	WIRE	14#1015 WHITE L=60MM	1	X64
4	060-0140300541R	WIRE	14#1015" L=300MM	1	X65
5	060-0140320213R	WIRE	14#1015 GREEN L=320MM	1	X63
6	060-0140440641R	WIRE	14#1015 GREEN L=440MM	1	X66
1	022-2000042331R	TRANSFORMER	1500W 50HZ 30V	1	
2	041-1321000000R	POWER SWITCH	RS4-13520-60-RS	1	
3	044-0500000000R	POWER SOCKET	SS-7B-10-4, 8	1	
4	046-0200000000R	TERMINAL POST	B2029002	2	
5	055-0211021244R	FLAT LINE	11PIN PH=2MM L=300MM	1	
6	060-0140150114R	WIRE	14#1015 BROWN L=150MM	1	
7	060-0140151955R	WIRE	14#1015 YELLOW L=150MM	1	
8	060-0140250233R	WIRE	14#1015 GREEN L=250MM	1	
9	060-0140400114R	WIRE	14#1015 BROWN L=400MM	1	
10	062-5318011110R	POWER CORD	H05W-F3*0.75MM	1	
11	071-1100000000R	CABLE TIES	100MM YJ-100	10	
12	079-0144000000R	BREAKER	ZE-800 8A/250V	1	
13	083-0340000000R	FAN	DC24V 0.25A	1	

S-1500