

Service Manual

MODEL: L-6



www.altoproaudio.com

Version 1.0

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1. Introduction

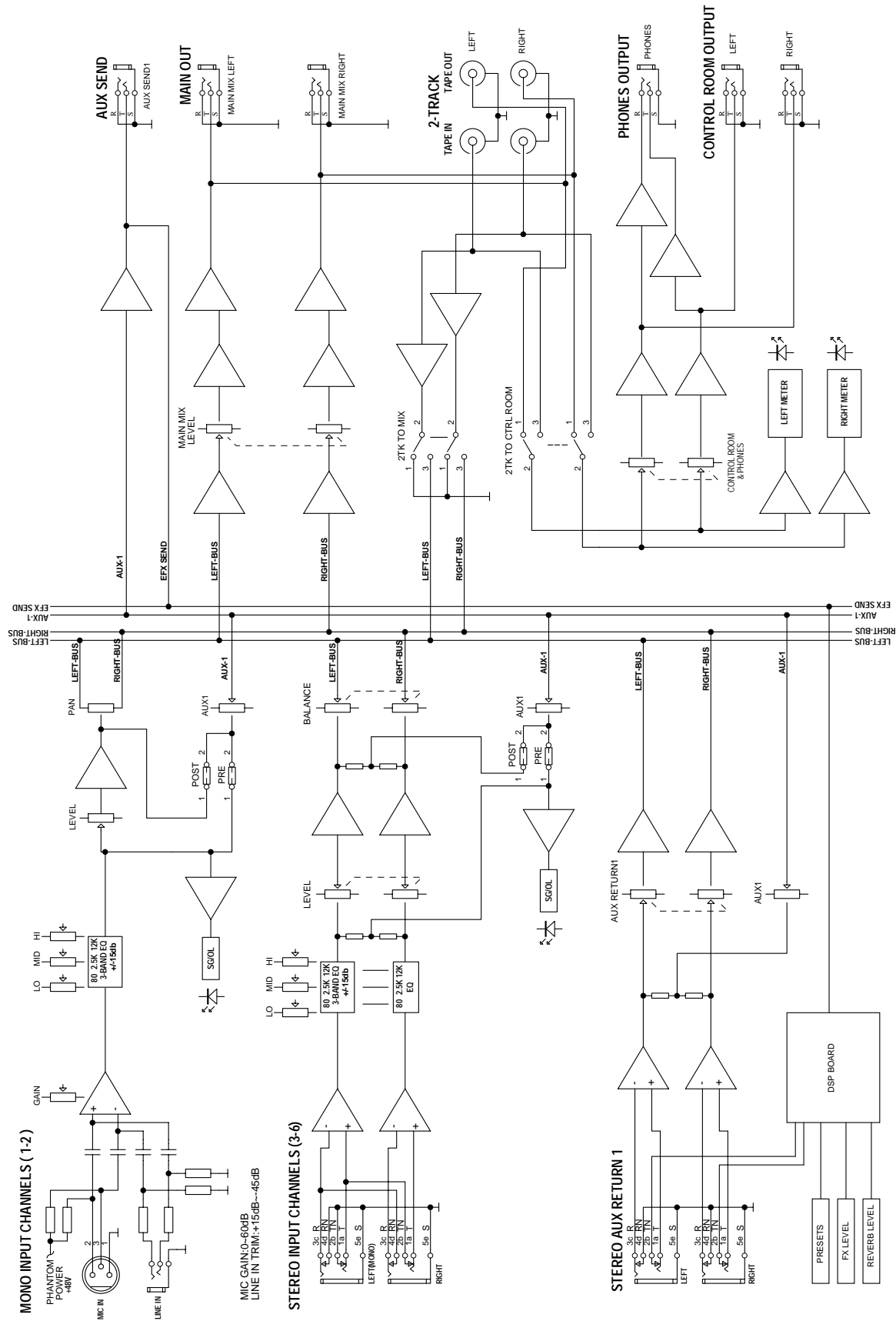
The **L-6** is 2 mono MIC/LINE channels with MIC PREAMPS plus 2 stereo channels perfect for keyboards, MIDI equipment or other stereo sound sources and a 2-track input/output for recording and playback in a mixer small enough to carry in your board luggage: you can find great 3-band equalizers in each channel, one AUX sends, one stereo returns, phantom power and accurate peak LED and level meters. Plus of course our ultra low noise circuitry and exceptional build quality.

- 2 MIC Input Channels with gold plated XLRs and balanced Line Inputs.
- 2 Stereo Input Channels with balanced TRS Jacks.
- Ultra-low noise discrete MIC Preamps with +48 V Phantom Power.
- Extremely high headroom – offering more dynamic range.
- Balanced Inputs for highest signal integrity.
- Warm , natural 3-band EQ on each channels.
- Peak LEDs on each mono Channels and each stereo Channels.
- Adjusts the input sensitivity on each stereo channels.
- 1 AUX Sends per channel for external effects and monitoring.
- Balanced TRS and XLR outputs, Control Room and Headphone Outputs.
- 2-Track Inputs assignable to Main Mix, Control Room / Headphone Outputs.
- Highly accurate 6 segment Bar graph Meters.
- Performance and excellent noise figures
- Rugged construction ensures long life even under the most demanding conditions
- Manufactured under ISO9001 certified management system

2. Specification

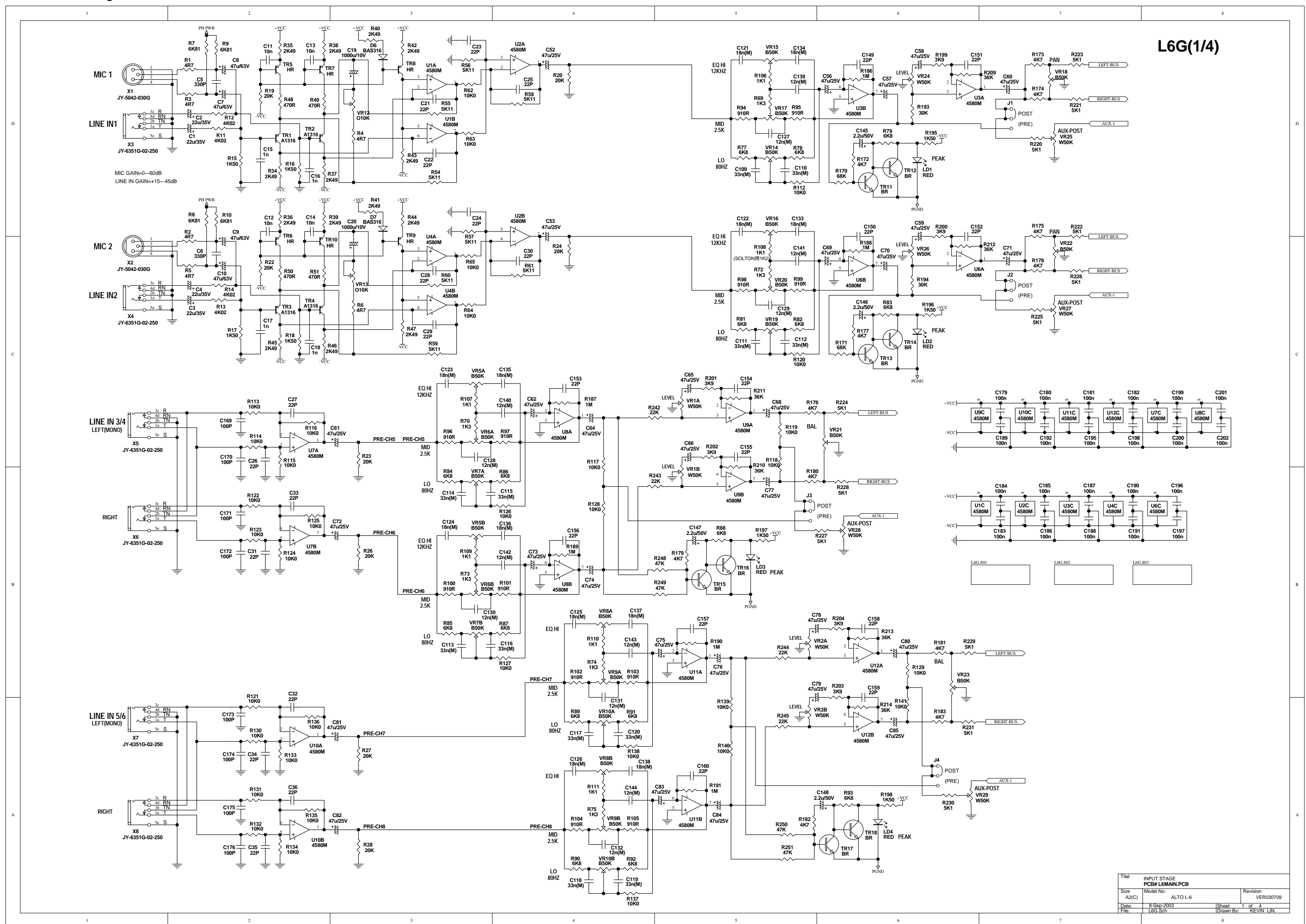
Mono input channels	
Microphone input	Electronically balanced, discrete input configuration
Frequency response	10Hz to 55kHz, +3dB
Distortion(THD & N)	0.005% at +4dBu, 1kHz
Gain range	0dB to 60dB (MIC)
SNR (Signal to Noise Ratio)	115dB
Line input	Electronically balanced
Frequency response	10Hz to 55kHz, +3dB
Distortion (THD & N)	0.005% at +4dBu,1kHz
Stereo input channels	
Line input	Unbalanced
Frequency response	10Hz to 55kHz,+3dB
Distortion (THD & N)	0.005% at +4dBu,1kHz
Impedance	
Microphone input	1.4kOhm
All other inputs	10kOhm or greater
Tape out	1kOhm
All other output	120Ohm
Equalization	
Hi shelving	+15dB @ 12kHz
Mid bell	+12dB @ 2.5kHz
Low shelving	+15dB @ 80Hz
Main Mix Section	
Noise (Bus noise)	Fader 0dB, channels muted:100dBr (ref.:+4dBu) Fader 0dB, all input channels assigned and set to UNITY gain: (ref.: +4dBu)
Max output	+22dBu balanced XLR +22dBu unbalanced , 1/4" jacks
AUX return gain range	OFF to 15dB
AUX send max out	+22dBu
DSP section	
A/D and D/A converters	24 bit
DSP resolution	24bit
Type of	Vibraflange, Funky, Rockabilly, bigstage, vibrato 1-4, Flanger1-4, Chorus 1-4
Presets	16
Presets	16-positon preset bank selector
Controls	FX level, reverb level Clip LED
Power supply (AC/AC adapter)	
Main Voltage	USA/Canada 100 12V~, 60Hz Europe 210 230V~,50Hz U.K./Australia 240V~, 50Hz
Power consumption	15Watts
Physical	
Net weight	1.4kg (xxxlb)
Shipping weight	Xxx kg (xxxlb)
Dimension (W*D*H)	185mm×230mm×35/55mm

3. Black Diagram

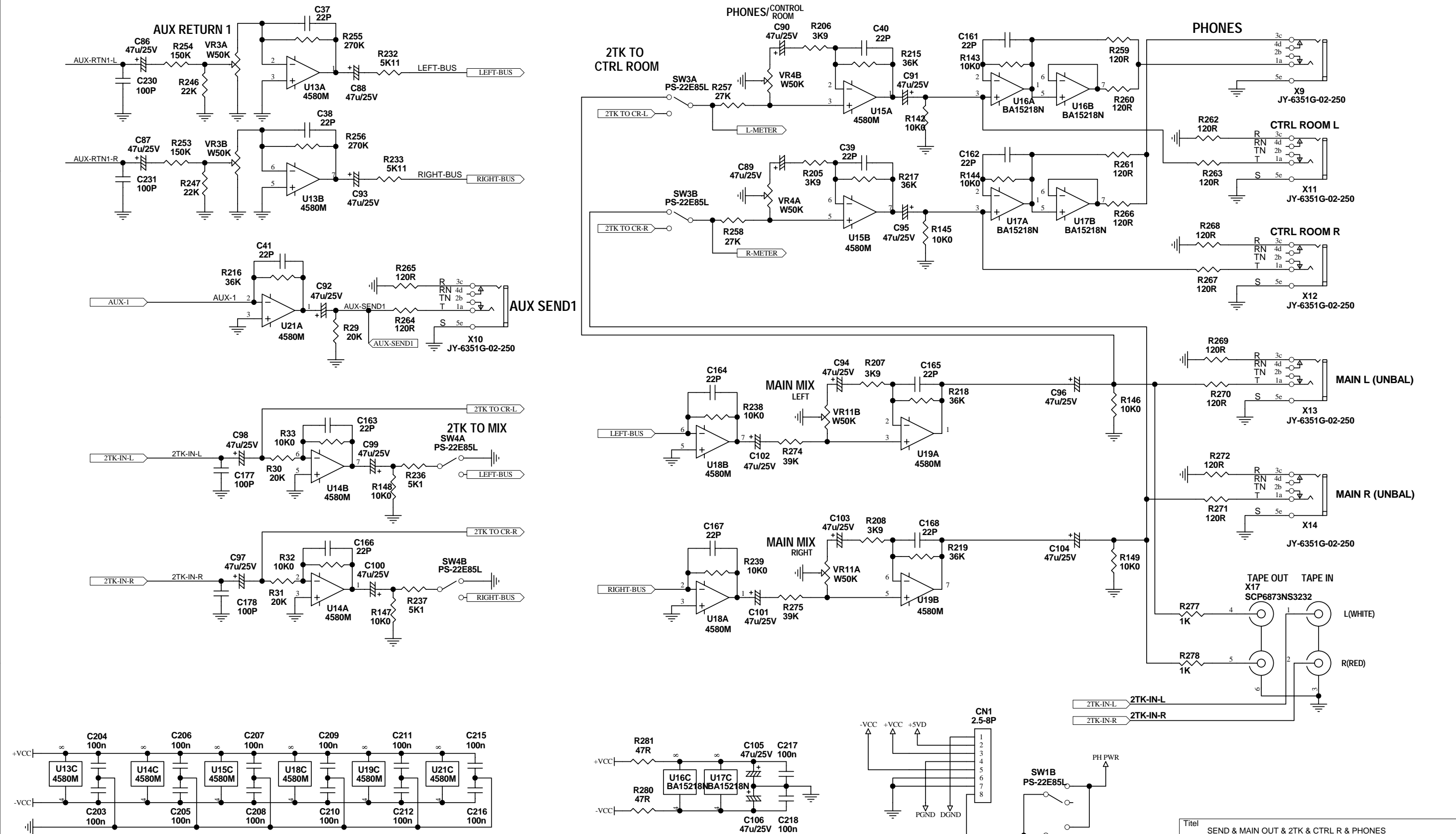


ALTO MIXING CONSOLE			
Title	Size A2(C)	Model No:	Revision
		L-6 BLOCK DIAGRAM	VER030701
Date:	0-Sep-2003	Sheet	1 of 1
File:	L6MAP.Sch	Drawn By:	KEVIN LIN
7			8

4. Schematic Diagram

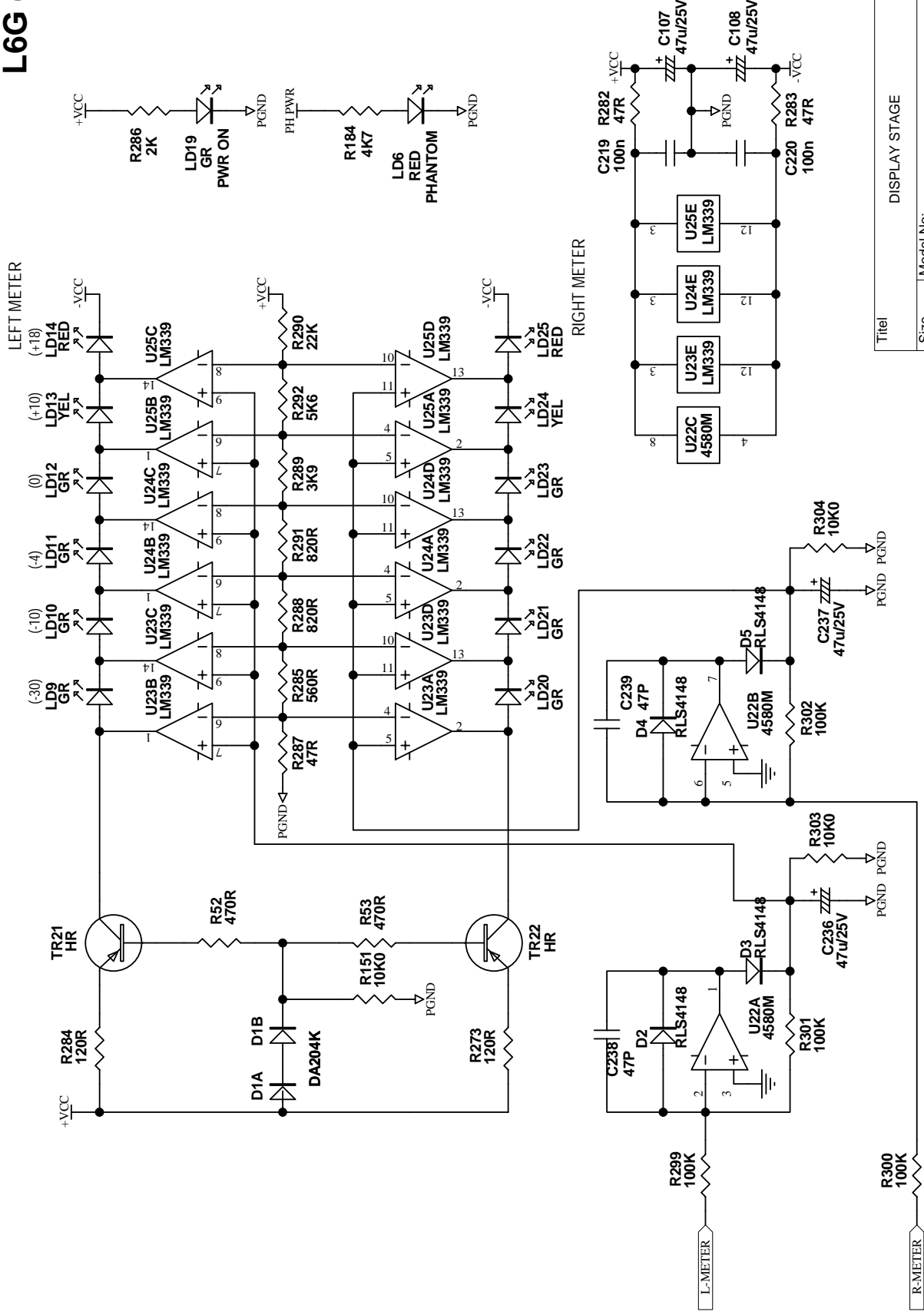


L6G (2/4)

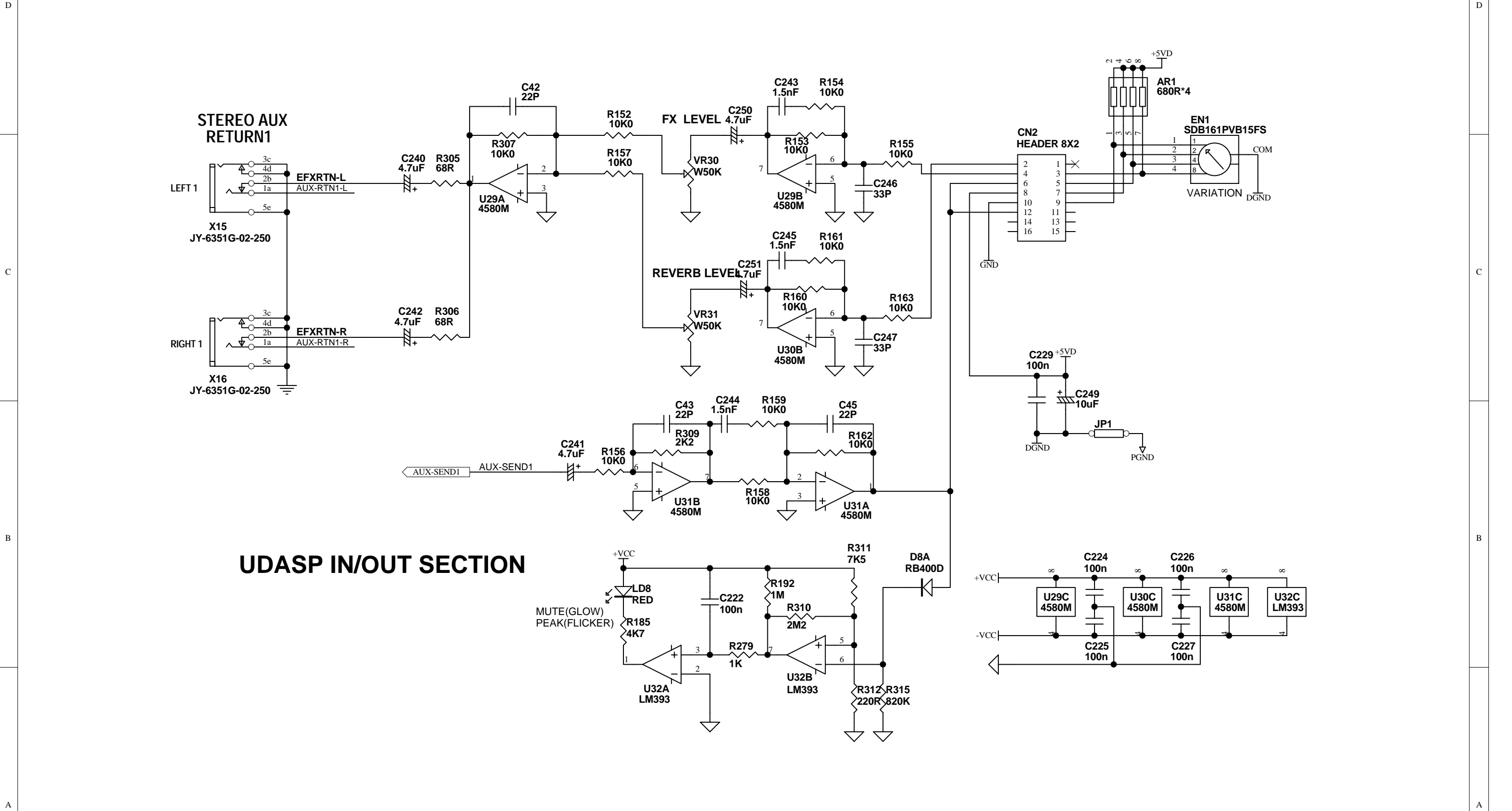


Titel SEND & MAIN OUT & 2TK & CTRL R & PHONES		
Size A2(C)	Model No: ALTO L-6	Revision VER030709
Date: 8-Sep-2003	Sheet 2 of 4	Drawn By: KEVIN LIN.
File: L6G.S01		

L6G (3/4)

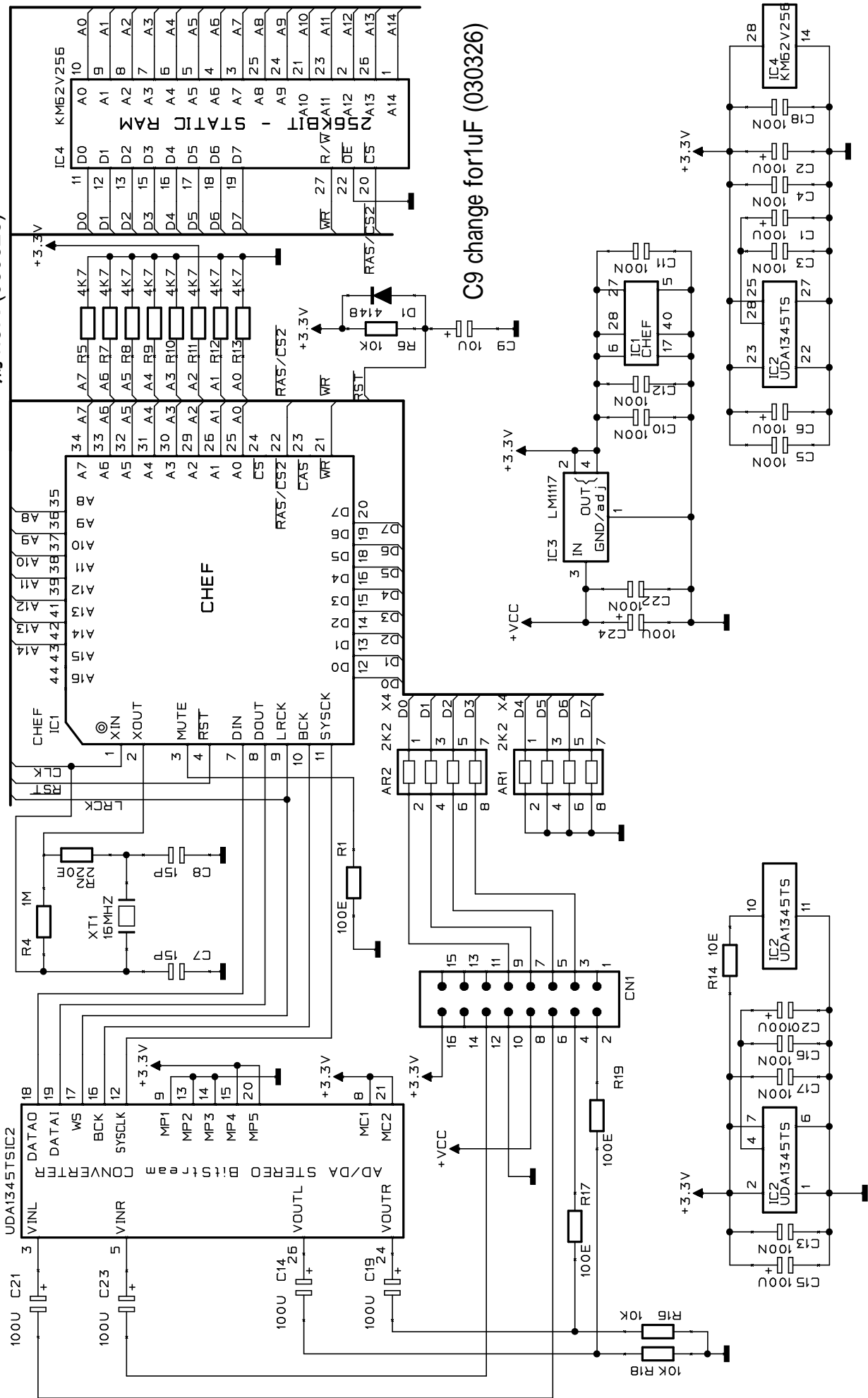


DISPLAY STAGE			
Title	Size	Model No:	Revision
	A4	ALTO L-6	VER030709
Date:	File:	Sheet	3 of 4
	L6G.S02	Drawn By:	KEVIN LIN.



1	2	3	4	5	6	7	8
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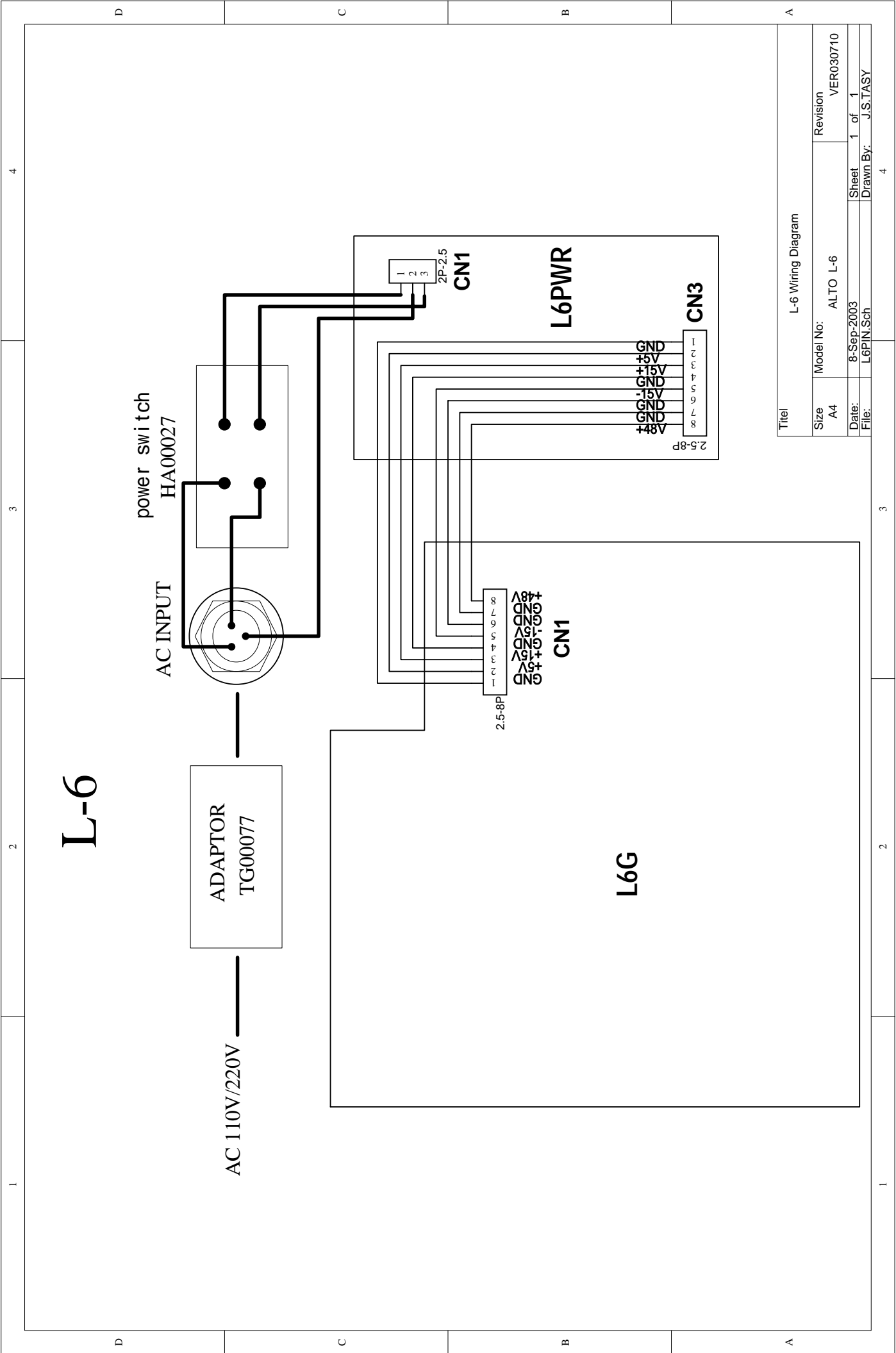
R5,7,8,9,10,11,12,13改
為1.5K (030326)



C9 change for 1uF (030326)

DRW L.GIBIN	DWG# 313124/1	PCB# 768284	Music Media Soft s.r.l.
CKD L.GIBIN	DATE 15/11/02	SCHEMATIC DIAGRAM	ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY MMS.
APP.	REV. A	CHEFEFX-5 Guitar Effect Board	

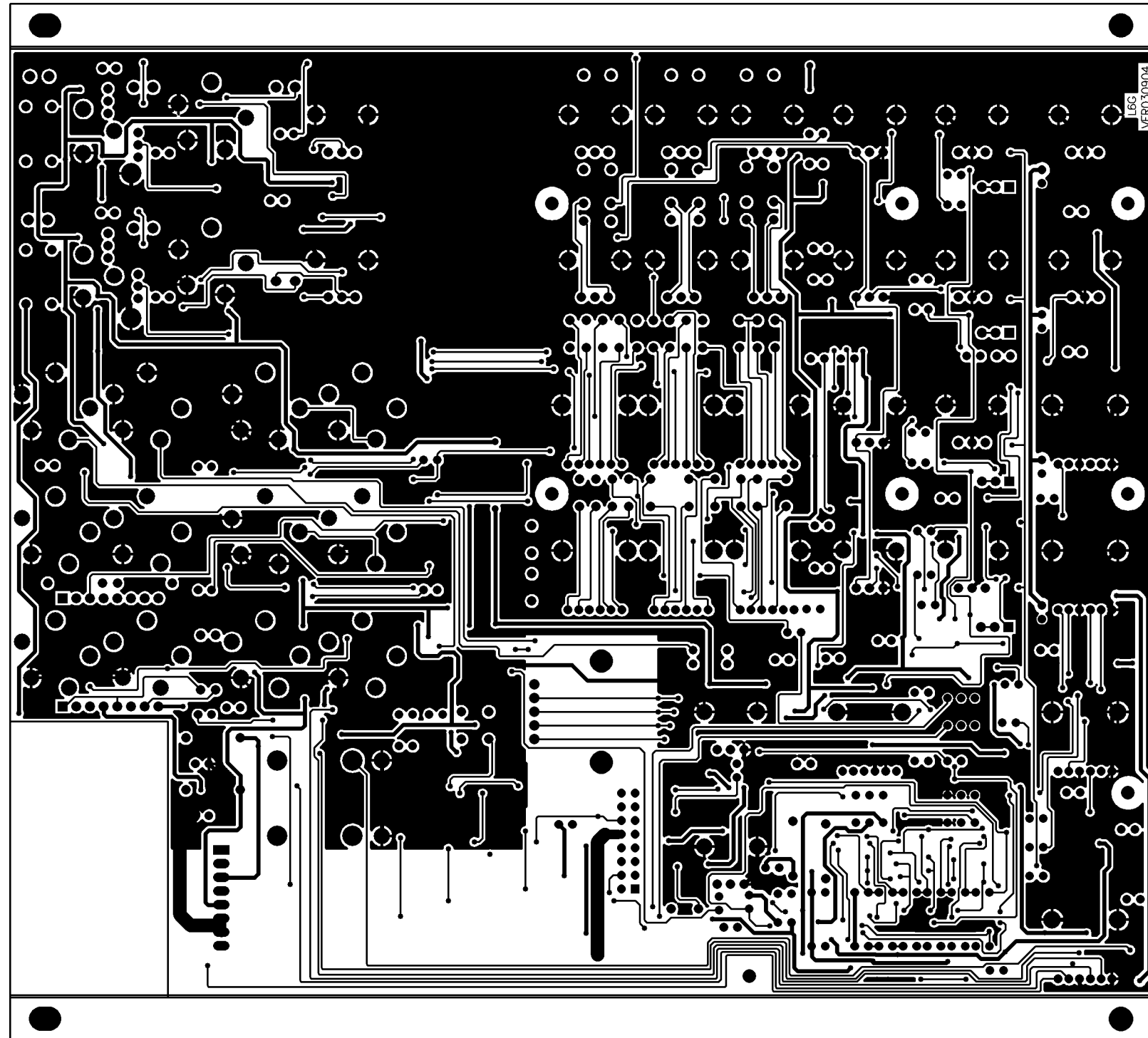
5. Wiring Diagram



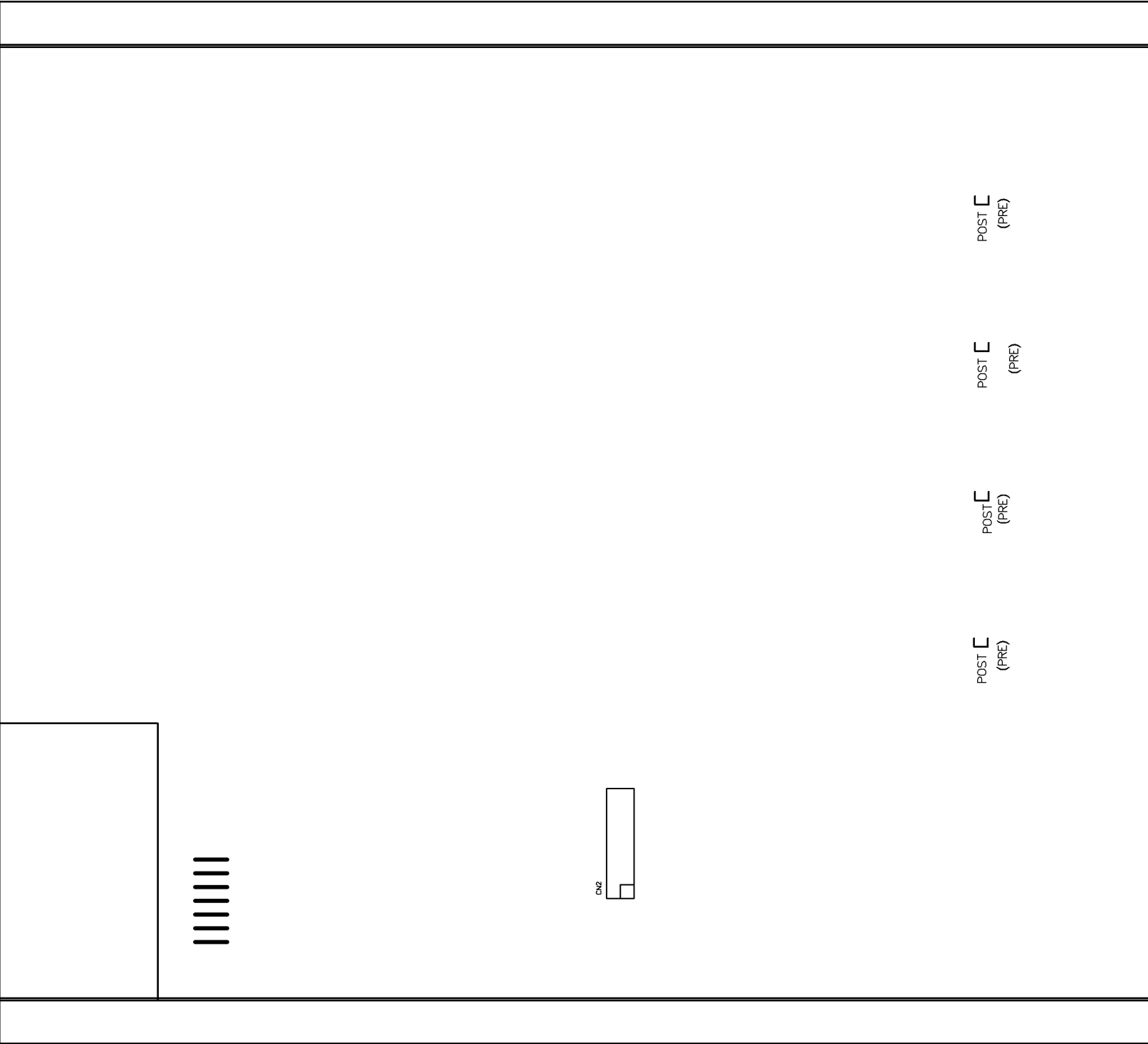
Titel				L-6 Wiring Diagram			
Size	A4	Model No:	ALTO L-6	Revision	VER030710		
Date:	8-Sep-2003	File:	L6PIN.Sch	Sheet	1	of	1
				Drawn By: J.S.TASY			

6. PCB Layout

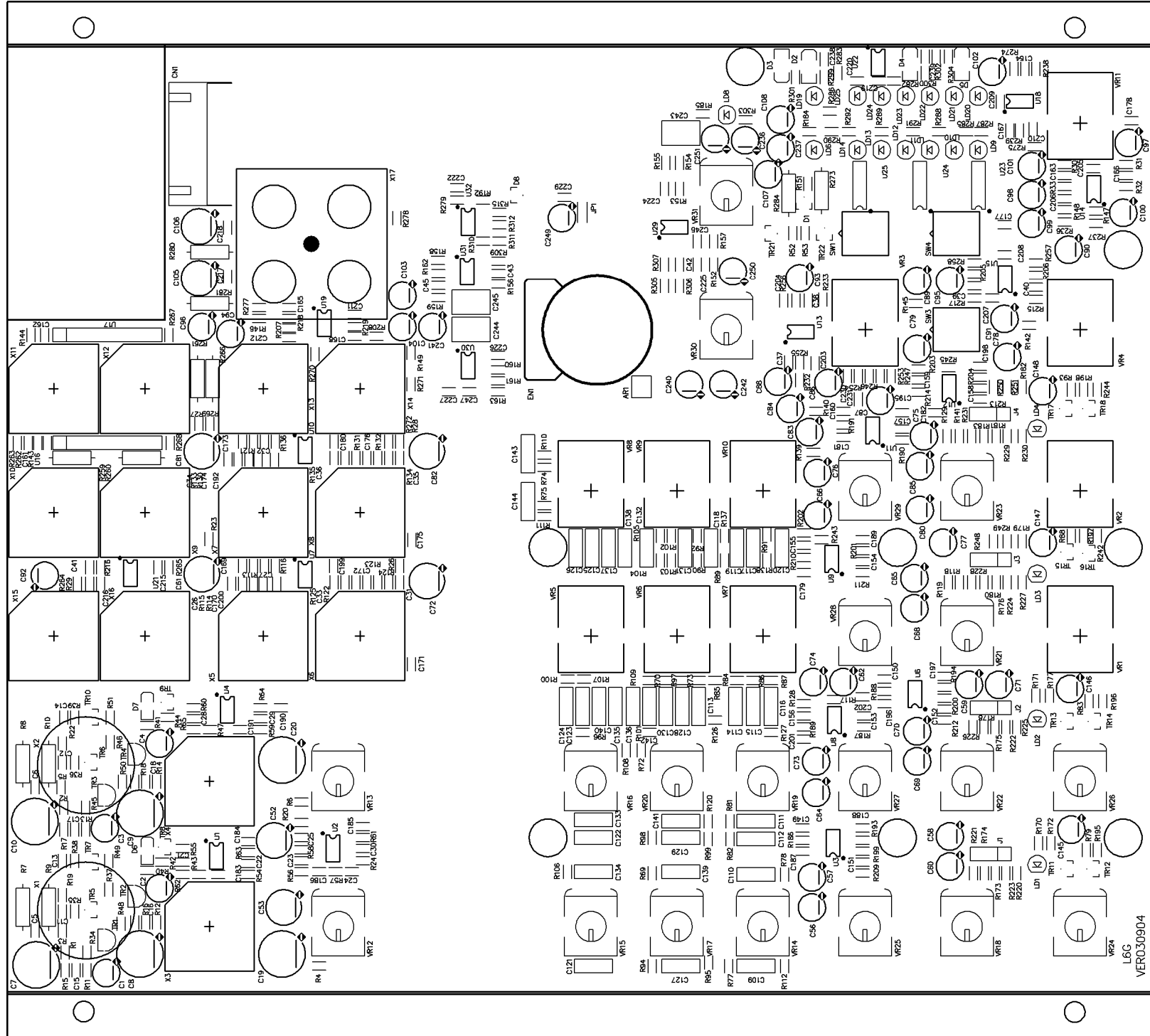
PCB : L6G



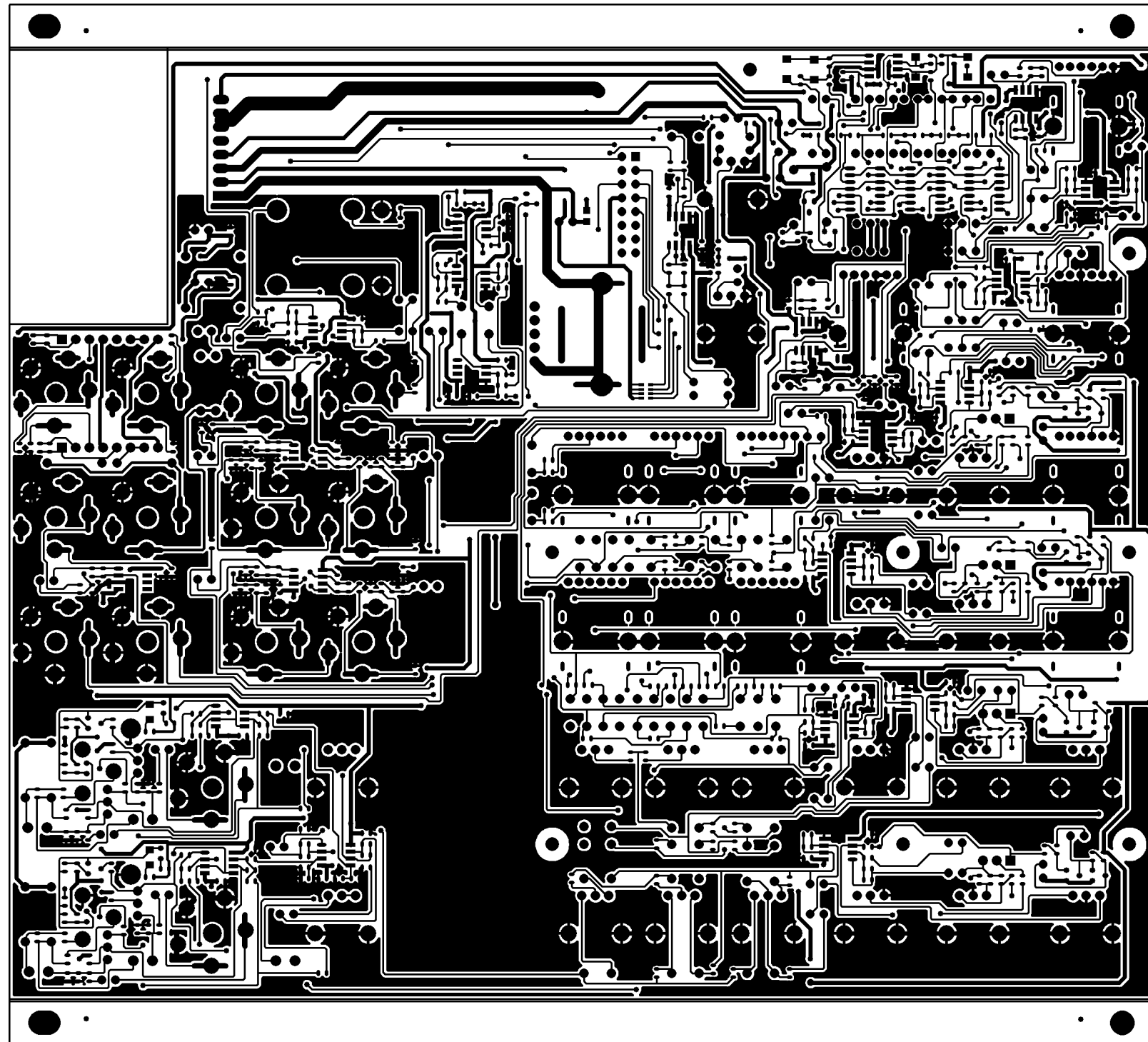
Bottom Layer



Bottom Overlay

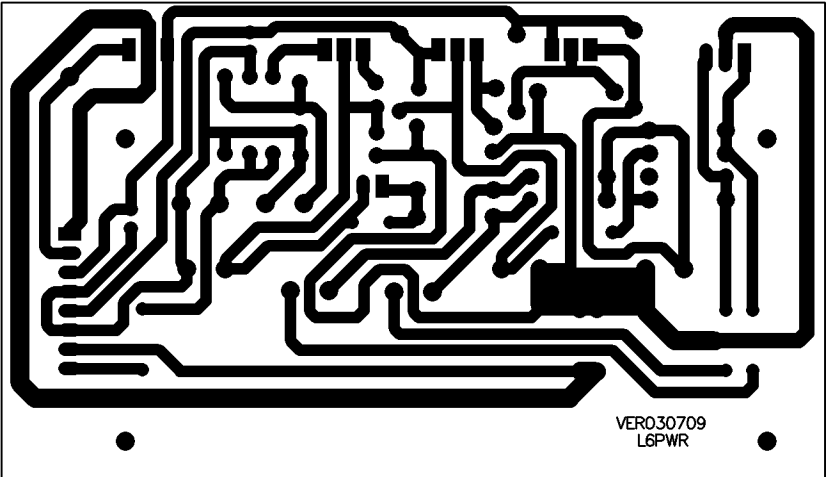


Top Overlay

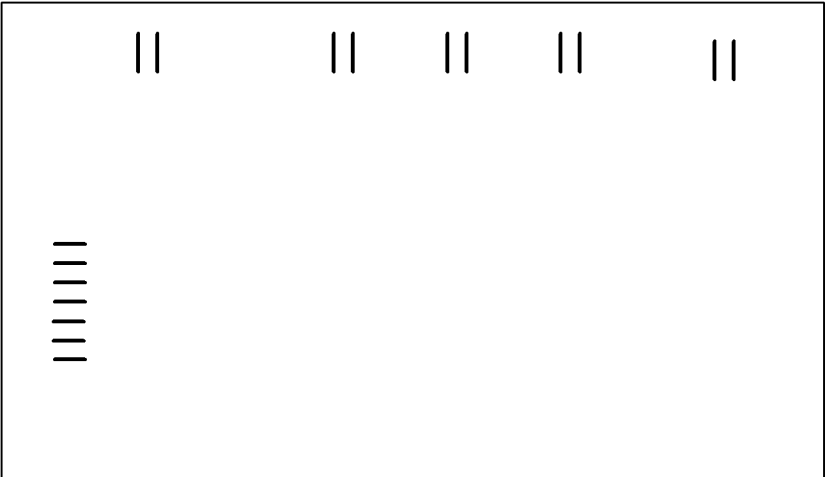


PCB : L6G Top Layer

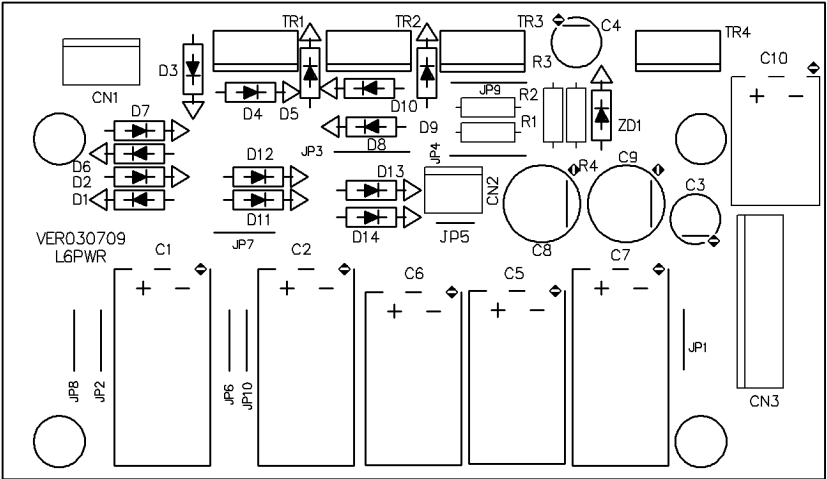
PCB: L6 PWR



Bottom layer



Bottom overlay



Top overlay

Finished product test procedure

1. Instruments

AP tester
Double trace oscilloscope
Voltmeter

2. Functions test

- a. Input the proper AC power supply, turn on the main power, POWER LED will be illuminated (green). Then switch on PHANTOM power, PHANTOM LED will be illuminated (red), use a voltmeter to test the first pin and second pin of each MIC (MIC 1, MIC 2), the volt of phantom power should be $46V(\pm 2V)$. then power off the switch.(Note: please turn off the switch when you are doing the steps of test procedure as follows)
- b. Set all TRIM, LEVEL, EQ, AUX knobs to the position of 0, set PAN to the position of LEFT. All buttons to the position of OFF.
- c. Input the signal from balanced sockets (MIC 1 & MIC 2), input the signal from unbalanced sockets (LINE IN 3/4&LINE5/6),
- d. Input the signal to the unbalanced AUX RETURN sockets separately, test the balanced output (LEFT & RIGHT) of MAIN MIX OUTPUT, which should be $5dBu(\pm 1dB)$ THD + N<0.003%.
- e. Insert the RCA plug to L& R of TAPE IN separately:

First, press 2TK TO MIX button, test the unbalanced outputs (LEFT&RIGHT) of MAIN MIX OUTPUT, CONTROL ROOM and PHONE (need stereo plug for testing) separately, which should be $0dBu(\pm 1dB)$ THD + N<0.006%.the output of TAPE OUT is $0dBu(\pm 1dB)$

Then release 2TK TO MIX button (OFF), no input from CONTROL ROOM, when press 2TK TO CONTROL ROOM, test the output, which is $0dBu(\pm 2dB)$ THD + N<0.002%.

- f. Input +15dBu 1kHz sine wave (load out 600Ω , BNC-Unbalanced) through LINE 1, when turn MAIN MIX LEVEL counter-clockwise to the minimize, all

LEVEL LEDs will be turned off, when turn MAIN MIX LEVEL pot clockwise to the maximize, the LEVEL LEDs will be illuminated in sequence. test that whether the relating LED is illuminated when the level of output signal reaches the exactly value as LED shows . If so, test the maximize output level (before clipping) is 20dBu(± 1 dB) THD + N<0.1%.)

Adjust TRIM knob of CH 1 clockwise, PEAK LED will be illuminated (red). And test all PEAK LEDs from CH 1 to CH6

3. frequency response test

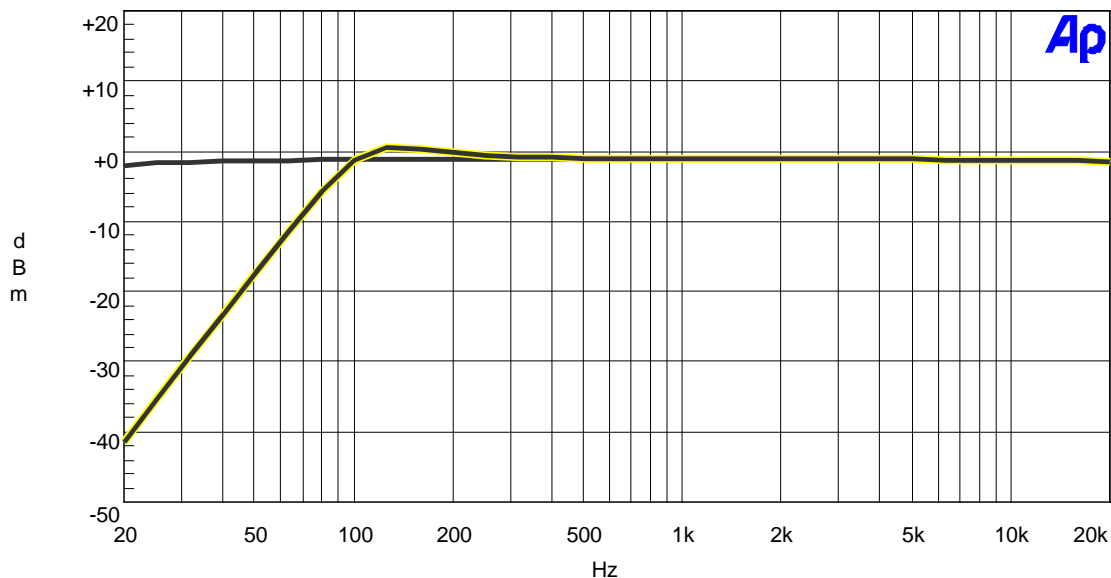
When Test the inputs of LINE 1, LINE 2, LINE 3, LINE 4, LINE 5, LINE 6 separately as follows, the frequency response curve of MAIN MIX OUTPUT (LEFT & RIGHT) (the preset of all knobs are the same as function test step 2.b)

- a. Open S8RESP1.atl test procedure, press and release the LOW CUT switch, test the frequency response curve of LINE 1, LINE 2 LINE 3, LINE 4 , please refer to the following figure.

(Remark: don't need to test L6 with this step)

Audio Precision

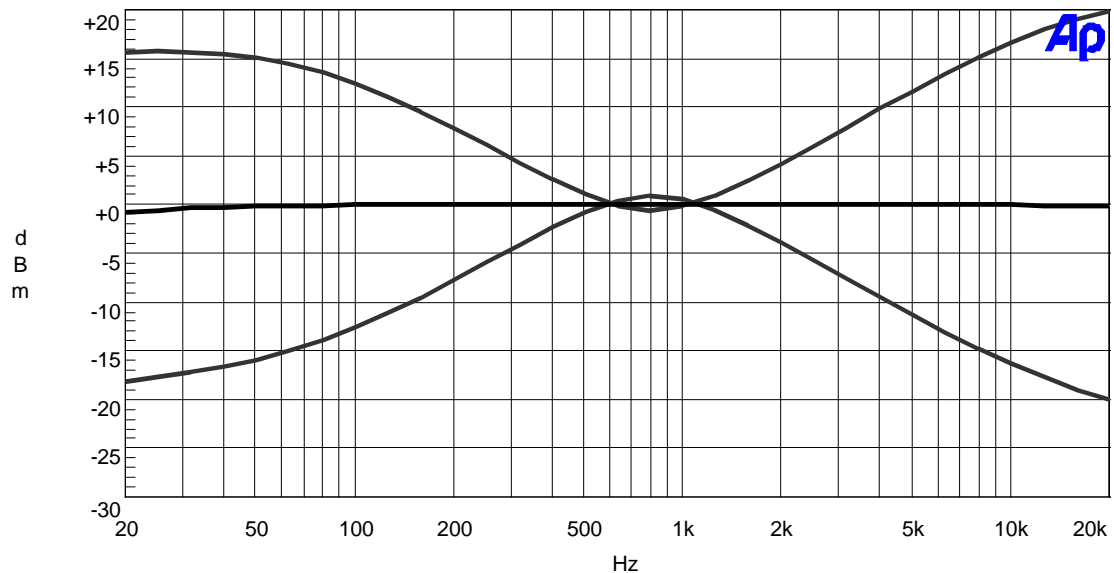
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- b. Turn EQ HI & LOW knob to the MAX and the MIN (EQ MID at the middle), test the frequency response, the frequency response curve is shown as follows, please refer to the following figure.

Audio Precision

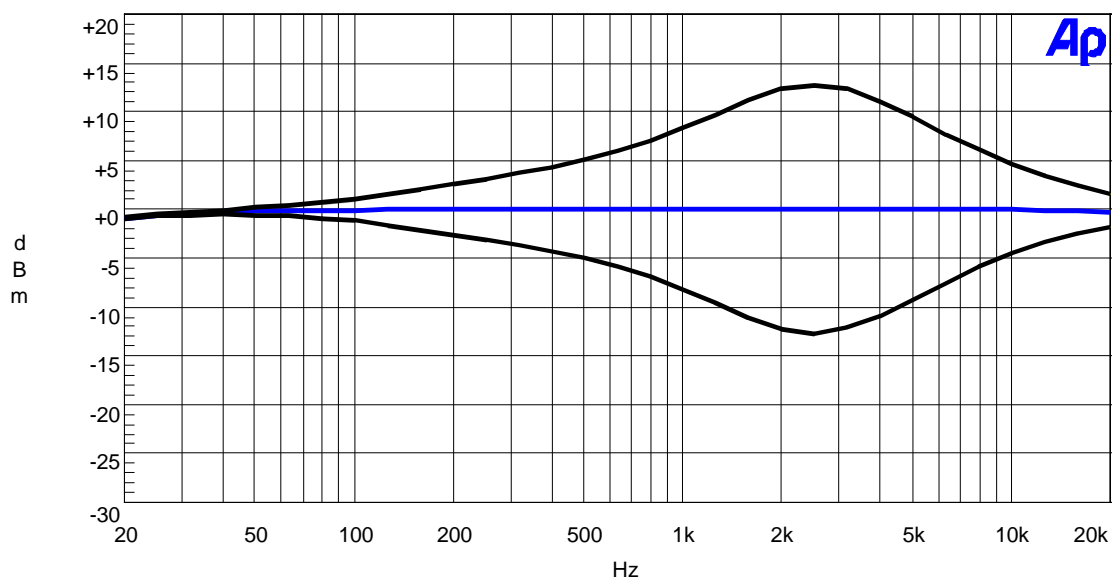
07/21/03 15:54:30



- c. Turn EQ MID to the MAX and the MIN (EQ HI & LOW at the middle), test the frequency response, the frequency response curve is shown as follows, please refer to the following figure.

Audio Precision

07/21/03 15:52:05



Remarks: the frequency response test of normal instruments:

- a. Turn EQ LOW knob of the relating channel clockwise to the max (+15), the output is +15dBu(± 2 dB), then turn EQ LOW knob of the relating channel counter-clockwise to the min. (-15), the output is -15dBu(± 2 dB);
- b. Input the signal at 2.5kHz, Turn EQ MID knob of the relating channel clockwise to the max (+12), the output is +12dBu(± 2 dB), then turn EQ MID knob of the relating channel counter-clockwise to the min. (-12), the output is -12dBu(± 2 dB);
- c. Input the signal at 15kHz, Turn EQ HIGH knob of the relating channel clockwise to the max (+15), the output is +15dBu(± 3 dB), then turn EQ HIGH knob of the relating channel counter-clockwise to the min. (-15), the output is -15dBu(± 3 dB);

4. test DSP

- a. Input the signal from MIC1, output the signal from MAIN MIX OUTPUT, turn AUX RTN2(DFX) clockwise to the MAX, turn PRESETS and VARIATIONS knobs, the signal will be processed by DSP, if the level of the signal is over-high, PEAK LED will be illuminated to red, press DFX MUTE button, Bypass the signal, press the footswitch, which is connected to DFX FOOTSWITCH, the signal will get out of BYPASS.
- b. Input the signal from MIC 1 to MIC 4, output the signal from AUX SEND S1, turn AUX 2 /DFX TO AUX 1 counter-clockwise to the MAX., turn PRESET and VARIATIONS knobs, the signal will be processed by DSP. (do not need to test L6 with this step)

5. Sampling test

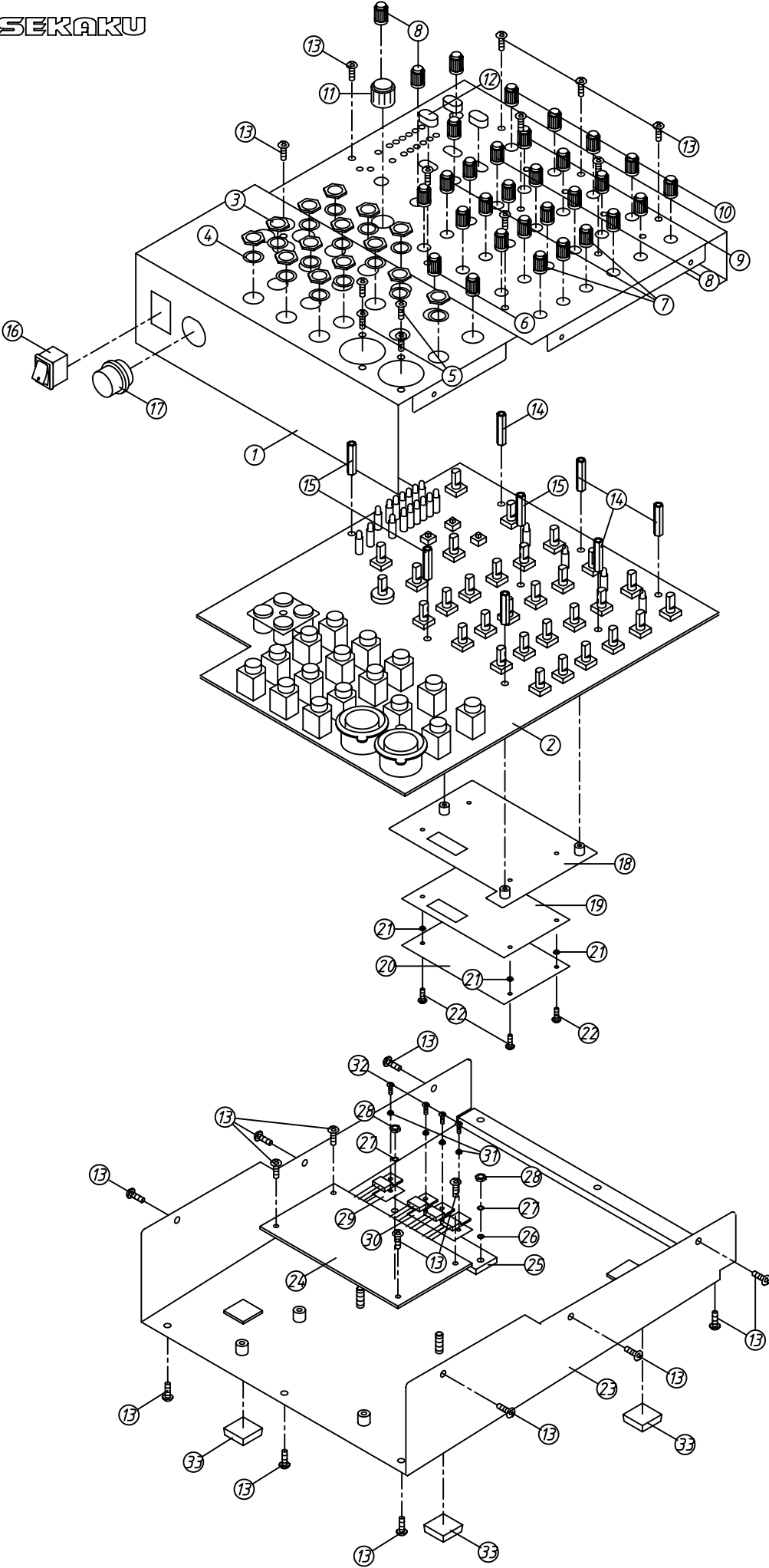
Connecting L 6 to a power amplifier and speakers, listening to the sound, no noise is OK.

Company preset: turn all volume knobs to the MIN. other control knobs to the middle, all switches to the position of OFF.

DONE

7. Exploded View & Mechanical Part List

SEKAKU



機種:L-6
圖號:L6-00
日期:2003/9/8

No.	Part No.	Description	Specification	Qty
1	MA04257	Panel	L-6 ALTO	1
2	HK02233	K-PCB	P-L6G-DIP	1
3	MF00061	Washer (MIC jack)	JY-6531G-02-250	14
4	ME00060	Screw (MIC jack)	JY-6531G-02-250	14
5	MG00061	Screw	M3*10	5
6	NI00284	knob	10.5*18	2
7	NI00283	knob	10.5*18	12
8	NI02633	knob	10.5*18	7
9	NI02082	knob	10.5*18	4
10	NI000826	knob	12*18	6
11	NI02386	Knob	14*13	1
12	NI01863	Button	5.5*W10*6	3
13	MG00041	Screw	M3*6	26
14	MG00304	Copper pillar	M-0P0.5 14mm	5
15	MG00363	Copper pillar	M-0P0.5 14mm	3
16	HI00019	Power switch	4P MSR-8	1
17	HC00527	Connector	SCMI405MOS3N	1
18	MJ01189	Barrier board	L-8	1
19	NI02620	Insulated board	1*86.5*53 L-8	1
20	HK03893	PCB	P-313123-DIP (1-8)	1
21	NI00863	Insulation bean	TO220B	4
22	MG00020	Screw	M3*8	4
23	MB02877	Rear panel	L-6 ALTO	1
24	HK01591	PCB	P-16 PWR	1
25	MJ01145	Heat sink	RD-82	1
26	MF00037	Color washer	3* 5*1t	2
27	MF00030	Washer	3* 8*0.8t	2
28	ME00015	Color screw	3mm	2
29	NC00005	Insulation pill	T0220 (square)	1
30	NC00022	Insulation pill	0.3t*18**45mm S-8	1
31	NI02249	Cushion	TW-1 (TO-220)	4
32	MG00162	Screw	M3*8	4
33	NI00501	Cushion	12.7*9*3t (SF-004)	4

8. BOM

No.	Part No.	Description	Specification	Remark
1	MA04257	panel	L-6 ALTO	
2	MA04258	panel	L-6	
3	MA04259	panel	L-6_V1.4	
4	MJ01186	hot gradual zinc	1.0t*2135*1220mm 20.45kg	
5	MB02877	rear board	L-6	
6	MB02878	rear board	L-6 1.0t*185.5*229*55	
7	MJ00058	single light board	1*2135*1220 20.45kg	
8	ME00032	iron pillar	hexagon6.35*M3*5.2	
9	ME00004	screw pillar	M3*10*0.5PH	
10	MJ01189	barrier	L-8	
11	MJ00061	iron board	1*2135*1220 20.45kg	
12	ME00066	iron pillar	M3*7	
13	HI00019	power switch	4P MSR-8	
14	HA00027	wire	40mm red L5R5	
15	HA00039	wire	40mm yellow L5R5	
16	NI00240	sleeve	2.5*10mm	
17	NI00239	sleeve	2.5*1000mm	
18	NI00251	sleeve	4*12mm	
19	NI00248	sleeve	4*1000mm	
20	MG00304	copper pillar	M3*14*0.5PH	
21	MG00363	copper pillar	M3*14*0.5PH	
22	NI01863	key-RS	5.5*W10*7.5	
23	NI02083	knob	10.5*18mm	
24	NI02633	knob	10.5*18	
25	NI02082	knob	10.5*18mm	
26	NI02714	knob	10*13.5mm	
27	NI00826	knob	12*18mm double color	
28	NI02386	knob	14*13mm	
29	MG00041	screw	M3*6	
30	MG00061	screw	M3*10	
31	ME00060	MIC jack	JY-6351G-02-250	
32	MF00061	MIC jack	9.6* 13*0.5t	
33	HA02750	wire	3P(female) 150mm UL1007 22AWG	
34	HA02355	wire	8P-8P 200mm UL1007 22AWG	
35	NI00218	cable tie	ALT-102SB	
36	NI00501	self-adhere foot cushion	12.7*9*3t(SF-004)	
37	NA00124	PE bag	0.04t*440*350mm	
38	HJ00002	desiccant	10g	
39	NF01503	instruction	L-6 ALTO_V1.1	
40	NH00149	paper	889*640mm	
41	NI02911	handle	ALTO 072C	

No.	Part No.	Description	Specification	Remark
42	NB02495	gift carton	L-6 ALTO	
43	NB02493	carton	L-6 ALTO	
44	HC00527	connector	SCMI405MOS3N000 3P mail	
45	TG00087	adapter	230V/50Hz_AC36V/500mA_EI-57	
46	MJ01145	heat sink	RD82	
47	MJ01142	radiator	RD82	
48	MJ00070	AL plate	4*2440*1220 32.40kg	
49	NI02249	plastic washer	TW-1(TO-220)	
50	NC00022	insulator	0.3t*18*45mm S-8	
51	NC00005	silicone insulator	TO-220 square type	
52	MG00162	screw	M3*8	
53	ME00015	color nut	3m/m	
54	MF00037	washer	3.2* 5.5*1t	
55	MF00030	washer	3.5* 8*0.8t	
56	NB02490	cushion	L-6 left	
57	NB02491	cushion	L-6 right	
58	NF00061	assurance card	ALTO	
59	NE05004	label	ALTO	
60	NH00334	cone paper	0.040*1m	
61	NE06299	label	L-6	
62	NH00012	bond paper	0.04*1M	
63	NI00014	membrane	0.035*1M	
64	NI02620	insulation board	1*86.5*53 L-8	
65	NC00010	insulation board	0.65M*60M*1t	
66	NI00863	plastic washer	TO220B	
67	MG00020	screw	M3*8	
68	HK02233	PC board	P-L6G-DIP	
69	RA00185	fixed resistor 1/4W	120 M type	R259,R260,R261,R266,R273,R284
70	RA00174	fixed resistor 1/4W	47 M type	R280,R281
71	CB00011	electrolytic capacitor	2.2uF/50V 5*11mm	C145,C146,C147,C148
72	CB00018	electrolytic capacitor	4.7uF/25V 4*7mm	C240,C241,C242,C250,C251
73	CB00024	electrolytic capacitor	10uF/16V 4*7mm	C249
74	CB00029	electrolytic capacitor	22uF/35V 5*11mm	C1,C2,C3,C4
75	CB00175	electrolytic capacitor	47uF/25V SLL 5*11mm	C52,C53,C108,C236,C237,C56,C57,C58,C59,C60,C61,C62,C64,C65,C66,C68,C69,C70,C71,C72,C73,C74,C75,C76,C77,C78,C79,C80,C81,C82,C83,C84,C85,C86,C87,C88,C89,C90,C91,C92,C93,C94,C95,C96,C97,C98,C99,C100,C101,C102,C103,C104,C105,C106,C107
76	CB00042	electrolytic capacitor	47uF/63V 105 LZ 8*11mm	C7,C8,C9,C10
77	CB00074	electrolytic capacitor	1000uF/10V 8*11mm	C19,C20
78	CF00054	metal-film capacitor MSC	0.012uF/63V ±5% CASE01	C127,C128,C129,C130,C131,C132,C139,C140,C141,C142,C143,C144

No.	Part No.	Description	Specification	Remark
79	CF00021	metal-film capacitor MSC	0.018uF/63V 5% CASE01	C121,C122,C123,C124,C125,C126, C133,C134,C135,C136,C137,C138 C109,C110,C111,C112,C113,C114, C115,C116,C117,C118,C119,C120
80	CF00023	metal-film capacitor MSC	0.033uF/63V 5% CASE01	C243,C244,C245
81	CF00003	metal-film capacitor MSC	0.0015uF/100V 5% CASE01	
82	HC00072	row-wire header	connector(male)	CN1
83	HC00511	connector	2.54 180° 2*8P(gold-plated) 5.7mm	CN2
84	HI00236	push-button switch-RS	2-stage 6P PS-9226A(SELF-LOCK)	SW1,SW3,SW4
85	SA00052	L.E.D	3 round(green)long foot 26	LD9,LD10,LD11,LD12,LD19,LD20, LD21,LD22,LD23
86	SA00053	L.E.D	3 round(red)long foot 26mm	LD1,LD2,LD3,LD4,LD6,LD8,LD14, LD25
87	SA00054	L.E.D	3m/m round(yellow)long foot 26	LD13,LD24
88	NI01782	LED spacer support	LEDS-11 11mm	LD1,LD2,LD3,LD4,LD6,LD8,LD9,LD10, LD11,LD12,LD13,LD14,LD19,LD20, LD21,LD22,LD23,LD24,LD25
89	RC00359	potentiometer	W50K RD09F113A224-50K4BT(SAS1);30F	VR24,VR25,VR26,VR27,VR28,VR29
90	RC00444	potentiometer	W50K RD09F1130047-50K4B(SAS1);30F	VR30,VR31
91	RC00361	potentiometer	W50K RD12L12CA60B-50K4BT*2(SAS1);30F	VR1,VR2,VR3,VR4,VR11
92	RC00358	potentiometer	B50K -RD09F113A223-50K2BT(SAS1);30F-C	VR14,VR15,VR16,VR17,VR18,VR19, VR20,VR21,VR22,VR23
93	RC00360	potentiometer	B50K RD12L12CA23A-50K3BT*2(SAS1);30F-C	VR5,VR6,VR7,VR8,VR9,VR10
94	RC00356	potentiometer	Z10K RD09F1130042-10KZ(SAS1);30F	VR12,VR13
95	HI00195	rotary switch	SDB161PVB15.5F-1-4-16-16PC	EN1
96	HC00126	balance MIC jack	JY-5042-030G female plug 180°	X1,X2
97	HC00125	MIC jack	JY-6351G-02-250	X3,X4,X5,X6,X7,X8,X9,X10,X11,X12, X13,X14,X15,X16
98	HC00403	RCA jack	SCP6873NS3232T2 4P	X17
99	SB00175	transistor	2SA970-BL(TE2;T)	TR1,TR2,TR3,TR4
100	SD00007	integrated circuit	BA15218N (M5218L substitute)	U16,U17
101	RA00505	precise resistor 1/4W	6.81K M type	R7,R8,R9,R10
102	HK02232	PC board	P-L6G-SMD	
103	HB01024	PCB	L6G_VER031125	
104	RD00355	SMD fixed resistor 1/10W	4.7 ±5% 0603	R1,R2,R3,R4,R5,R6
105	RD00065	SMD fixed resistor 1/10W	47 ±5% 0603	R282,R283,R287
106	RD00066	SMD fixed resistor 1/10W	68 ±5% 0603	R305,R306
107	RD00069	SMD fixed resistor 1/10W	120 ±5% 0603	R262,R263,R264,R265,R267,R268, R269,R270,R271,R272
108	RD00073	SMD fixed resistor 1/10W	220 ±5% 0603	R312
109	RD00078	SMD fixed resistor 1/10W	470 ±5% 0603	R48,R49,R50,R51,R52,R53
110	RD00079	SMD fixed resistor 1/10W	560 ±5% 0603	R285
111	RD00082	SMD fixed resistor 1/10W	820 ±5% 0603	R288,R291
112	RD00349	SMD fixed resistor 1/10W	910 ±5% 0603	R94,R95,R96,R97,R98,R99,R100, R101,R102,R103,R104,R105
113	RD00083	SMD fixed resistor 1/10W	1.0K ±5% 0603	R277,R278,R279
114	RD00350	SMD fixed resistor 1/10W	1.1K ±5% 0603	R106,R107,R108,R109,R110,R111
115	RD00351	SMD fixed resistor 1/10W	1.3K ±5% 0603	R69,R70,R72,R73,R74,R75
116	RD00087	SMD fixed resistor 1/10W	2.0K ±5% 0603	R286
117	RD00088	SMD fixed resistor 1/10W	2.2K ±5% 0603	R309
118	RD00092	SMD fixed resistor 1/10W	3.9K ±5% 0603	R199,R200,R201,R202,R203,R204, R205,R206,R207,R208,R289

No.	Part No.	Description	Specification		Remark
119	RD00093	SMD fixed resistor 1/10W	4.7K	±5% 0603	R172,R173,R174,R175,R176,R177, R178,R179,R180,R181,R182,R183, R184,R185
120	RD00094	SMD fixed resistor 1/10W	5.1K	±5% 0603	R220,R221,R222,R223,R224,R225, R226,R227,R228,R229,R230,R231, R236,R237
121	RD00095	SMD fixed resistor 1/10W	5.6K	±5% 0603	R292
122	RD00097	SMD fixed resistor 1/10W	6.8K	±5% 0603	R77,R78,R79,R81,R82,R83,R84,R85, R86,R87,R88,R89,R90,R91,R92,R93
123	RD00098	SMD fixed resistor 1/10W	7.5K	±5% 0603	R311
124	RD00306	SMD fixed resistor 1/10W	20K	±5% 0603	R19,R20,R22,R23,R24,R26,R27,R28, R29,R30,R31
125	RD00105	SMD fixed resistor 1/10W	22K	±5% 0603	R242,R243,R244,R245,R246,R247, R290,R152,R157
126	RD00106	SMD fixed resistor 1/10W	27K	±5% 0603	R257,R258
127	RD00107	SMD fixed resistor 1/10W	30K	±5% 0603	R193,R194
128	RD00353	SMD fixed resistor 1/10W	36K	±5% 0603	R209,R210,R211,R212,R213,R214, R215,R216,R217,R218,R219
129	RD00109	SMD fixed resistor 1/10W	39K	±5% 0603	R274,R275
130	RD00111	SMD fixed resistor 1/10W	47K	±5% 0603	R248,R249,R250,R251
131	RD00114	SMD fixed resistor 1/10W	68K	±5% 0603	R170,R171
132	RD00116	SMD fixed resistor 1/10W	100K	±5% 0603	R299,R300,R301,R302
133	RD00118	SMD fixed resistor 1/10W	150K	±5% 0603	R253,R254
134	RD00121	SMD fixed resistor 1/10W	270K	±5% 0603	R255,R256
135	RD00124	SMD fixed resistor 1/10W	820K	±5% 0603	R315
136	RD00125	SMD fixed resistor 1/10W	1.0M	±5% 0603	R186,R187,R188,R189,R190,R191, R192
137	RD00201	SMD precise resistor 1/10W	1.50K	±1% 0603	R15,R16,R17,R18,R195,R196,R197, R198
138	RD00204	SMD precise resistor 1/10W	2.49K	±1% 0603	R34,R35,R36,R37,R38,R39,R40,R41, R42,R43,R44,R45,R46,R47
139	RD00210	SMD precise resistor 1/10W	5.11K	±1% 0603	R54,R55,R56,R57,R58,R59,R60,R61, R232,R233
140	RD00364	SMD precise resistor 1/10W	4.02K	±1% 0603	R11,R12,R13,R14 R32,R33,R62,R63,R64,R65,R112, R113,R114,R115,R116,R117,R118, R119,R120,R121,R122,R123,R124, R125,R126,R127,R128,R129,R130, R131,R132,R133,R134,R135,R136, R137,R138,R139,R140,R141,R142, R143,R144,R145,R146,R147,R148, R149,R151,R153,R154,R155,R156, R158,R159,R160,R161,R162,R163, R238,R239,R303,R304,R307
141	RD00214	SMD precise resistor 1/10W	10.0K	±1% 0603	
142	RD00126	SMD fixed resistor 1/10W	2.2M	±5% 0603	R310 C21,C22,C23,C24,C25,C26,C27,C28, C29,C30,C31,C32,C33,C34,C35,C36, C37,C38,C39,C40,C41,C42,C43,C45, C149,C150,C151,C152,C153,C154, C155,C156,C157,C158,C159,C160, C161,C162,C163,C164,C165,C166, C167,C168
143	CI00051	SMD ceramic capacitor 0603	22PF/50V C0G±5%(C1608C0G1H220JT)/TDK		C246,C247
144	CI00053	SMD ceramic capacitor 0603	33PF/50V C0G±5%(C1608C0G1H330JT)/TDK		C169,C170,C171,C172,C173,C174, C175,C176,C177,C178,C230,C231
145	CI00059	SMD ceramic capacitor 0603	100PF/50V NPO ±5%		C5,C6
146	CI00062	SMD ceramic capacitor 0603	330PF/50V NPO ±5 %		C15,C16,C17,C18
147	CI00065	SMD ceramic capacitor 0603	0.001uF/50V X7R ±10%		C11,C12,C13,C14
148	CI00071	SMD ceramic capacitor 0603	0.01uF/50V X7R ±10%		

No.	Part No.	Description	Specification	Remark
149	CI00075	SMD ceramic capacitor 0603	0.1uF/50V Y5V +80,-20%	C179,C180,C181,C182,C183, C184,C185,C186,C187,C188,C189, C190,C191,C192,C195,C196,C197, C198,C199,C200,C201,C202,C203, C204,C205,C206,C207,C208,C209, C210,C211,C212,C215,C216,C217, C218,C219,C220,C222,C224,C225, C226,C227,C229
150	RE00011	SMD resistor networks 1/16W	680 *4 ±5% 8P 0603	AR1
151	SE00028	SMD rectifier diode	BAS316,115	D6,D7
152	SE00008	SMD rectifier diode	DA204K/T-146	D1
153	SE00007	SMD rectifier diode	RB400D(D3A)	D8
154	SE00011	SMD rectifier diode	RLS4148 0.5A (LL-34)	D2,D3,D4,D5
155	SF00053	transistor	MMBT3906(SOT-23)/(PHI)	TR5,TR6,TR7,TR8,TR9,TR10, TR21,TR22
156	SF00056	transistor	MMBT3904(SOT-23)/(PHI)	TR11,TR12,TR13,TR14,TR15,TR16, TR17,TR18
157	SG00032	SMD integrated circuit	LM339DR(TI)	U23,U24,U25
158	SG00122	SMD integrated circuit	NJM4580M-TE3	U1,U2,U3,U4,U6,U7,U8,U9,U10,U11, U12,U13,U14,U15,U18,U19,U21,U22, U29,U30,U31
159	SG00306	SMD integrated circuit	LM393DR(TI)/(MEXICO)	U32
160	AE00221	tin soldering paste	SJ-617	
161	AC00002	solder wire	63/37%	
162	HK01591	PC board	P-L6PWR	
163	HB00982	PCB	L6PWR_VER040416	
164	RA00242	fixed resistor 1/4W	10K M type	R2
165	RA00159	fixed resistor 1/4W	10 M type	R3
166	SA00094	rectifier diode	1N4002/100V	D1,D2,D3,D4,D5,D6,D7,D8,D9,D10, D11,D12,D13,D14
167	SA00127	zener diode	1/2W 47V 1N5261	ZD1
168	RA00250	fixed resistor 1/4W	20K M type	R4
169	RA00301	fixed resistor 1/4W	390K M type	R1
170	CB00039	electrolytic capacitor	47uF/25V 5*11mm	C3,C4
171	CB00043	electrolytic capacitor	47uF/100V 10*12mm	C8,C9
172	CB00052	electrolytic capacitor	100uF/100V 13*21mm	C5,C6
173	CB00061	electrolytic capacitor	220uF/100V 13*26mm	C7
174	CB00070	electrolytic capacitor	1000uF/16V 10*16mm	C10
175	CB00079	electrolytic capacitor	2200uF/25V 13*25mm	C1,C2
176	SD00074	integrated circuit	L7805CV(TO-220)(ST)	TR4
177	SD00077	integrated circuit	L7815CV(TO-220)(ST)(MOROCCO)	TR1
178	SD00079	integrated circuit	L7915CV(TO-220)(ST)	TR2
179	SB00043	transistor	TIP122(ST)	TR3
180	HC00066	connector(male)	3P 2.5mm 90°	CN1
181	HC00082	connector(male)	8P 2.5mm 180°	CN3
182	HA01922	jump	8mm	JP1,JP2,JP6,JP7,JP8,JP10
183	HA02249	wire	0.6	
184	HA01925	jump	10mm	JP3,JP4,JP9
185	HA02249	wire	0.6	
186	HA01919	jump	5mm	JP5

No.	Part No.	Description	Specification	Remark
187	HA02249	wire	0.6	
188	AC00002	solder wire	63/37%	
189	HK02227	PC board	P-TY-2G(L6)-DIP	
190	SC00004	crystal oscillator	16.00MHZ	XT1
191	HC00499	connector	2.54 180°2*8P(gold-plated) 6/11.6mm	CN1
192	HK02229	PC board	P-TY-2G(L6)-AI	
193	CB00010	electrolytic capacitor	1uF/50V 4*7mm	C9
194	CB00166	electrolytic capacitor	100uF/16V 6*5mm	C1,C24,C23,C21,C20,C19,C15,C14,C6,C2
195	HK03718	PC board	P-TY-2G-SMD	
196	HB00902	PCB	313124/1(1*8)	
197	CI00049	SMD ceramic capacitor 0603	15PF/50V C0G±5%(C1608C0G1H150JT)/TDK	C8,C7
198	CI00075	SMD ceramic capacitor 0603	0.1uF/50V Y5V +80,-20%	C3,C5,C22,C18,C17,C16,C13,C12,C11,C10,C4
199	RD00061	SMD fixed resistor 1/10W	10 ±5% 0603	R14
200	RD00068	SMD fixed resistor 1/10W	100 ±5% 0603	R17,R1,R19
201	RD00073	SMD fixed resistor 1/10W	220 ±5% 0603	R2
202	RD00085	SMD fixed resistor 1/10W	1.5K ±5% 0603	R10,R13,R9,R12,R5,R8,R7,R11
203	RD00101	SMD fixed resistor 1/10W	10K ±5% 0603	R18,R6,R16
204	RD00125	SMD fixed resistor 1/10W	1.0M ±5% 0603	R4
205	RE00010	SMD resistor networks 1/16W	2.2K *4±5% 8P 0603	AR1,AR2
206	SE00011	SMD rectifier diode	RLS4148 0.5A (LL-34)	D1
207	SG00016	SMD integrated circuit	UDA1345TS (Philips)	IC2
208	SG00102	SMD integrated circuit	BS62LV256SC-70	IC4
209	SG00166	SMD integrated circuit	TY-2 ALTO(GMCODE:105022)	IC1
210	SG00147	SMD integrated circuit	CHEF DSP(GMCODE:105022)	
211	SG00037	SMD integrated circuit	LD1117DT33C(TO-252)	IC3
212	AE00221	tin soldering paste	SJ-617	
213	AC00002	solder wire	63/37%	
214	NE02717	label	MADE IN CHINA	
215	NH00038	paper	0.115*1M	
216	NI00028	membrane	0.110*1M	
217	NI01594	MOUNT	TH-1	
218	MG00161	screw	M3*6	
219	MG00036	screw	M3*4	
220	NA00279	clip-chain bag	0.04t*100*150mm_V1.0	
221	AD00012	twin adhesive	90*120mm_V1.0	