

# Wharfedale

# Pro

## Service Manual : R 2004 Professional Audio Mixers

R-2004

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# 1. SPECIFICATIONS

Maximum Output level (0.5% T.H.D at 1kHz)	+22dB(MIX L/R,ALT3-4)@600 ohm
	+22dB(AUX SEND1-2)@600 ohm
	+22dB(INSER)@40 K ohm
	+22db(CTRL RO O M)@40 ohm
	Over 100mW(Headphone)@40 ohm
Total Harmonic Distortion	0.0025% @+14dB 20Hz-20kHz
	(MIX L/R,ALT3-4,AUX SEND1-2,CTRL ROOM)@600 ohm
Frequency Response	20Hz-20kHz,+0/-1dB
	(MIX L/R,ALT3-4,AUX SEND1-2,CTRL ROOM)@600 ohm
Hum and Noise (Average,Rs=150)	-127dB equivalent input noise
	-95dB residual noise(MIX L/R,ALT3-4,AUX SEND1-2,CTRL ROOM)
	-90dB(MIX L/R,ALT3-4,AUX SEND1-2,CTRL ROOM)
	*Master fader at nominal level and all channel assign switch OFF
Maximum Voltage Gain	72dB MIC IN TO MIX L/R,ALT3-4
	72dB MIC IN TO AUX1
	72dB MIC IN TO AUX 2(POST),EFX
	74dB MIC IN TO CONTROL ROOM L/R
	72dB MIC IN TO REC L/R
	54dB LINE IN TO MIX L/R,ALT3-4
	58dB LINE IN TO AUX 1
	58dB LINE IN TO AUX 2(POST)
	60dB LINE IN TO CONTROL ROOM L/R
	22dB ST IN TO MIX L/R,ALT3-4
	20dB AUX RETURN IN TO MIX L/R
	16dB TAPE IN TO MIX L/R
	Maximum Levels
Tape in: +13dBu	
All other inputs: +25dBu	
Interference(Crosstalk)at 1kHz	Main fader down: -85dBu
	Channel Alt/Mute switch engaged: -80dBu
	Channel fader down: -70dBu
Mono input channel gain	50dB variable(-60dB~-10dB),-40dB~+10db
Input channel EQ(R1604)	HIGH:(+/-15dB)12kHz shelving
	MID:(+/-15dB)2.5kHz shelving
	LOW:(+/-15dB)80Hz shelving
	*Turnover/rollover frequency:located 3dB below the point of maximum amplification and attenuation
Level meter	10- Segment LED*2(output of +4dB at 0dB)
Peak indicator	Input channel: truns on 3dB under pre-fader signal clip
Phantom power	+48V DC
Power/power consumption	AC 100V /120V/230V/240V,50/60Hz
Weights	7.3kg
Dimensions(mm)	80.3*416*431

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## 2.ASSEMBLY PART LIST

R/N	P/N	PART NAME	DESCRIPTION	QIA
1	300-1253000011	STEEL PANEL OF R2004 MIXERS		1
2	303-1253000011	BOTTOM COVER OF 2004 MIXERS		1
3	317-1253000001	FRONT ARMREST		1
4	319-1253000001	SIDE PLATE		2
5	228-1254000001	LEFT PLASTIC COVER		1
6	228-1254000002	RIGHT PLASTIC COVER		1
7	215-1252000001	KNOB(BICE)		44
8	215-1252000002	KNOB(RED)		26
9	215-1252000003	KNOB(ASH)		12
10	215-1252000004	KNOB(WHITE)		3
11	215-1252000005	KNOB(ASH)		8
12	228-1252000001	BUTTON		14
13	228-1252000002	BUTTON		1
14	212-1252000001	KEYSTOKE		43
15	212-1252000002	KEYSTOKE		12
16	212-1252000003	KEYSTOKE		12
17	307-2300601501	COPPER POLE	M3*15	23
18	537-3001060801A	SCREWS	MP(+)3*6 BZn	49
19	527-3012100811A	SCREWS	SP(+)3*10 DC H BZN	34
20	527-4022080811A	SCREWS	SP(+)4*8 MC H BZn	8
21	088-1253003700	CHANNEL PCB		1
22	088-1253000000	MAIN PCB		1
23	088-1191000401	POWER PCB		1
24	022-1057013194	TRANSFORMER	OUTPUT:17V*2 1000A	1

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### 3.ELECTRONIC PARTS LIST

R/N	P/N	PART NAME	DESCRIPTION	QIA	PLACE
	088-1253003700	CHANNEL PCB		1	
1	053-1253001136	PCB BOARD		1	
2	008-1001005015	CAPACITOR	100PF-50V-10%	16	C119A-H,122A-H
3	008-4700005004	CAPACITOR	47P-50V-J	8	C118A-H
4	008-4701005004	CAPACITOR	470K-50V	16	C102A-H,103A-H
5	008-2201005015	CAPACITOR	220P-50V-10%	24	C104A-H,105A-H,107A-H
6	008-1000005015	CAPACITOR	10P/50V	16	C108A-H,100A-H
7	008-1003005015	CAPACITOR	103/50V 20%	16	C106A-H,109A-H
8	014-4730100002	CAPACITOR	AMZ 0.047UF 50V	24	C112A-H,113A-H,114A-H
9	014-3320100002	CAPACITOR	3300p 50V J	8	C120A-H
10	014-1030100002	CAPACITOR	AMZ 0.01UF 50V	8	C121A-H
11	008-2700005015	CAPACITOR	NPO 27PF-50V-1	8	C123A-H
12	014-2230100002	CAPACITOR	AMZ 0.022UF 50	8	C124A-H
13	008-3300005015	CAPACITOR	50V 10% 33P	8	C133A-H
14	014-3330100002	CAPACITOR	AMZ 0.033uF	16	134A-H,135A-H
15	006-2204051143	CAPACITOR	22uF 25V	64	C115A-H,116A-H,117A-H,125A-H,128A-H,129A-H,130A-H,131A-H
16	006-4704081173	CAPACITOR	47uF 63V	16	C100A-H,101A-H
17	006-4714081133	CAPACITOR	CD11-470U16V 8	8	C111A-H
18	006-1004051143	CAPACITOR	SM10uF 25V	16	C126A-H,127A-H
19	001-1004203010	RESISTOR	100K 1/8W F	8	R165A-H
20	001-1803203010	RESISTOR	18K 1/8W F	16	R152A-H,R153A-H
21	001-1003203010	RESISTOR	10K 1/8W F	40	R123A-H,124A-H,131A-H,133A-H,130A-H,R137A-H
22	001-8203203010	RESISTOR	82Kohm 1/8W F	8	R134A-H
23	001-6803203010	RESISTOR	68K 1/8W F	8	R136A-H
24	001-5603203010	RESISTOR	56K 1/8W F	8	R144A-H
25	001-4702203010	RESISTOR	4.7K 1/8W F	64	R143A-H,146A-H,147A-H,164A-H,R106A-H,R117A-H,R118A-H,R110A-H
26	001-8202203010	RESISTOR	8.2K 1/8W F	16	R114A-H,115A-H
27	001-1002203010	RESISTOR	1K 1/8W F	16	R140A-H,141A-H
28	001-1303203010	RESISTOR	13K 1/8W F	8	R122A-H
29	001-7502203010	RESISTOR	7.5K 1/8W F	8	R127A-H
30	001-1302103050	RESISTOR	1.3Kohm 1/8W 5%	16	R132A-H,166A-H
31	001-2203203010	RESISTOR	22K 1/8W F	24	R135A-H,104A-H,105A-H
32	001-2202203010	RESISTOR	2.2K 1/8W F	48	R145A-H,R148A-H,R113A-H,R116A-H,R139A-H,R142A-H
33	001-3603103050	RESISTOR	36K 1/8W 5%	8	R155A-H
34	001-6802203010	RESISTOR	6.8K 1/8W F	32	R100A-H,101A-H,157A-H,159A-H
35	001-1000203010	RESISTOR	10ohm 1/8W F	40	R107A-H,108A-H,111A-H,112A-H,R121A-H
36	001-2403203010	RESISTOR	24K 1/8W F	16	R119A-H,120A-H

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### 3.ELECTRONIC PARTS LIST

37	001-2404203010	RESISTOR	240K1/8W	8	R176A-H
38	001-3303203010	RESISTOR	33K 1/8W F	16	I49A-H,R150A-H
39	001-5602203010	RESISTOR	5.6Kohm 1/8W F	16	R158A-H,160A-H
40	067-1104148000	DIODE	IN4148	8	D100A-H
41	049-2102224111	JACK	PHONE JY6351-02-250	8	CN101A-H,102A-H
42	018-0302240115	DARLINGTONS	2SC2240BL TO-92	16	Q100A-H,101A-H
43	018-0301815115	AUDION	2SC1815GR TO-92	16	Q102A-H,103A-H
44	018-0500030115	AUDION	2SK30ATM TO-92	8	Q104A-H
45	222-0120403011	BRACKET	LEDS-12	24	L101A-H,L102A-H,L100A-H
46	019-0322022001	LED	234GD/E	16	L101A-H,L102A-H
47	019-0311022001	LED	234HD	8	L100A-H
48	020-5032120015B	POTENTIOMETERS	RD09F1140040 50KA	16	VR106A-H,107A-H
49	020-5032111115B	POTENTIOMETERS	RDO9K114A004 50KB	32	VR104A-H,108A-H,102A-H,101A-H
50	020-1042314425B	POTENTIOMETERS	RD12L124A451 100KC*2	8	VR103A-H
51	020-5022127315B	POTENTIOMETERS	RDO9F1140041 5K2Y	8	VR100A-H
52	020-1033320812	POTENTIOMETERS	10KA,60MM	8	VR105A-H
53	040-1400000000	SWITCH	JPS2281EA	24	S100A-H,102A-H,103A-H
54	040-1700000000	SWITCH	2*6	8	S104A-H
55	017-1010000000	IC	NJM4558L	24	U101A-H,U102A-H,U100A-H
56	048-1700000000	CONNECTOR	NYS139 K3Y1	8	CN100A-H
57	056-2103220011	JACK	JS9001-03 2.0PH	8	
58	056-3105223300	JACK	2503-05-WF 2.5mm*5pin	1	
59	002-2202032010	RESISTOR	2.2K 1/8W 1%	16	R169A-H,R168A-H
60	007-2701052060	CAPACITOR	270P 50V 5% 0	8	C168A-H
61	008-1004005015	CAPACITOR	0.1UF 50V 10%	8	C488E-L
62	055-1305100133	LEAD	5P L=100MM	1	
63	055-2503200133	LEAD	3P L=220MM	8	
64	055-3804060133	LEAD	4P L=60MM	2	
	001-4702203010	RESISTOR	4.7K 1/8W F	8	R109A-H
1	088-1253000000	MAIN PCB		1	
2	053-1253001600	PCB BOARD		1	
3	008-1001005015	CAPACITOR	100PF-50V-10%	10	C303,304,215A-D,216A-D
4	014-2240100003	CAPACITOR	MMT 224 50V J	1	C489
5	008-1003005015	CAPACITOR	103/50V 20%	43	C238A-D,C239A-D,C232A-D,C233A-D,C230A-D,C231A-D,C395-408,C410-414
6	008-1003005015	CAPACITOR	103/50V 20%	7	C416-422
7	008-4700005004	CAPACITOR	47P-50V-J	22	C307,308,202A-D,203A-D,224A-D,225A-D,C5,C6,C9,C10
8	008-2200005004	CAPACITOR	22P-50V-J	17	C313,316,320,321,326,327,338,339,344
9	008-2200005004	CAPACITOR	22P-50V-J	5	77,388,389,391,392

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### 3.ELECTRONIC PARTS LIST

10	008-2700005015	CAPACITOR	NPO 27PF-50V-1	8	C218A-D,219A-D
11	014-1530100002	CAPACITOR	AMZ 0.015UF 50	20	206A-D,207A-D,209A-D,210A-D,212A-D
12	013-1230110501	CAPACITOR	0.012U-50V	4	C208A-D
13	014-5620100001	CAPACITOR	50V,5% 562	8	C213A-D,214A-D
14	006-2204051143	CAPACITOR	22uF 25V	18	C300,301,305,306,309,310,311,312,315,317,318,319,322,323,324,325,328,329,
15	006-2204051143	CAPACITOR	22uF 25V	18	330,331,332,333,334,000,000,000,000
16	006-2204051143	CAPACITOR	22uF 25V	18	354,355,356,357,358,360,361,363,365,
17	006-2204051143	CAPACITOR	22uF 25V	24	379,380,385,386,387,390,393,
18	006-2204051143	CAPACITOR	22uF 25V	30	221A-D,222A-D,223A-D,226A-D,227A-D,204A-D,C1-4,C7-8
19	006-4794051133	CAPACITOR	CD11-4.7U16V	2	C381,382
20	001-3302203010	RESISTOR	3.3K 1/8W 5%	2	R300,301
21	001-1004203010	RESISTOR	100K 1/8W F	13	R304-307,378-381,R430,R249A-D
22	001-2702203010	RESISTOR	2.7K 1/8W F	26	R308,310,218A-D,219A-D,220A-D,221A-D,222A-D,223A-D
23	001-1003203010	RESISTOR	10K 1/8W F	24	R309,311,326-329,348-351,210A-D,211A-D,R302-303,R17-20
24	001-1003203010	RESISTOR	10K 1/8W F	8	R319-R322,R344-347,
25	001-5603203010	RESISTOR	56K 1/8W F	6	R316,317,340,341,R314-315
26	001-3301203010	RESISTOR	MF330ohm 1/8W F	2	R428,R429
27	001-4702203010	RESISTOR	4.7K 1/8W F	14	031204 R320-322,363,R407,R402,414-415,R344-347,R319,R431,228A-D,235A-D
28	001-4702203010	RESISTOR	4.7K 1/8W F	16	236A-D,250A-D,R334-335,R358-359,R225A-D
29	001-1001203010	RESISTOR	100ohm 1/8W F	9	R366,382-385,393,408,419,422
30	001-8202203010	RESISTOR	8.2K 1/8W F	20	R388,389,201A-D,203A-D,205A-D,206A-D,R413,R416
31	001-1502203010	RESISTOR	1.5Kohm 1/8W F	7	R370,R372,R374,R376,401,417,420
32	001-4702205010	RESISTOR	4.7K 1/4W F	2	R386,387
33	001-2201203010	RESISTOR	220ohm 1/8W F	1	R392
34	001-1201203010	RESISTOR	120ohm 1/8W 1%	1	R394
35	001-1801203010	RESISTOR	180ohm 1/8W 1%	1	R395
36	001-2701203010	RESISTOR	270ohm 1/8W F	1	R396
37	001-3901203010	RESISTOR	390ohm 1/8W F	1	R397
38	001-5601103050	RESISTOR	560ohm 1/8W J	17	R398,214A-D,215A-D,216A-D,217A-D
39	001-7501203010	RESISTOR	750ohm 1/8W F	1	R399
40	001-1002203010	RESISTOR	1K 1/8W F	9	R400,231A-D,234A-D,
41	001-2703203010	RESISTOR	27K 1/8W F	10	R418,421,204A-D,207A-D,
42	001-1803203010	RESISTOR	18K 1/8W F	1	R23
43	001-2202203010	RESISTOR	2.2K 1/8W F	40	R224A-D,227A-D,229A-D,230A-D,232A-D,233A-D,237A-D,238A-D,241A-D,242A-D
44	001-2202203010	RESISTOR	2.2K 1/8W F	6	R11-16
45	001-1203203010	RESISTOR	12K 1/8W F	4	R371,R373,R375,R377
46	001-2204203010	RESISTOR	220K 1/8W 1%	10	R239A-D,R240A-D,R362,R403
47	001-8203203010	RESISTOR	82Kohm 1/8W F	2	R21,R22

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### 3.ELECTRONIC PARTS LIST

48	001-3903203010	RESISTOR	39K 1/8W F	2	R8,R9
49	001-2203203010	RESISTOR	22K 1/8W F	12	R5-6,R364,R406,R200A-D,R202A-D
50	001-3303203010	RESISTOR	33K 1/8W F	2	R356,R357
51	001-6802203010	RESISTOR	6.8K 1/8W F	34	R208A-D,209A-D,212A-D,213A-D,R312,R313,R243A-D,R244A-D,R245A-D,R246A-D
52	001-6802203010	RESISTOR	6.8K 1/8W F	4	R1-4
53	001-4701205010	RESISTOR	470ohm 1/4W F	1	R44
54	067-3305242000	MANOSTAT	12V 1/2W IN5242	1	ZD1
55	017-1920000000	IC	MC14551BCP	2	IC317,IC1
56	056-4120001144	JACK	20PIN 2.54MM	1	CON304
57	056-4104221100	JACK	DJ2802-4P	2	CON301,302
58	056-3105223300	JACK	2503-05-WF 2.5mm*5p	1	CON303
59	067-1104148000	DIODE	IN4148	4	D300-303
60	049-2102224111	JACK	PHONE JY6351-02-250	17	CN312-313,200A-D,201A-D,CN1,CN2,CN307-311
61	051-3300000000	JACK	4PIN PCB JK040	1	CN300
62	018-1400557115	AUDION	BC557B PNP CBO TO-9	2	Q400,401
63	018-0500030115	AUDION	2SK30ATM TO-92	4	Q200A-D
64	019-0322022001	LED	234GD/E-	4	L200A-D
65	019-0311022001	LED	234HD	3	L301-303
66	019-4011112001	LED		6	LED300,301
67	019-4022112001	LED		14	LED300,301
68	205-1186000001	BRACKET	C186	2	LED300,301
69	223-0532220801		3-8.0	6	LED300,301
70	222-0120403011	BRACKET	LEDS-12	7	L200A-D,L301-303
71	017-0460000000	IC	LM339N	5	IC309-313
72	020-1033320822	POTENTIOMETERS	10A*2,60MM	7	VR300,301,302,203A-D
73	020-5032120015B	POTENTIOMETERS	RD09F1140040 50KA	10	VR204A-D,VR205A-D,VR303,VR307.
74	020-5032111125B	POTENTIOMETERS	RD12L12DA254 50KB*2	12	VR200A-D,201A-D,202A-D
75	020-5032111115B	POTENTIOMETERS	RDO9K114AO04 50KB	4	VR206A-D
76	020-5032120025B	POTENTIOMETERS	RD12L12D0050 50KA*2	3	VR1,VR2,VR306
77	043-0106010400	SWITCH	SS70020-0202-LT-021	1	S306
78	040-1400000000	SWITCH	JPS2281EA	19	S300,301,302,304,305,200A-D,201A-D,203A-D,S1,S2
79	040-1700000000	SWITCH	SPPH42	4	S202A-D
80	017-1010000000	IC	NJM4558L	26	308,314,316,318,319,IC200A-D,201A-D,202A-D,IC3
81	017-1940000000	IC	TLE2062CP	1	IC315
82	048-3000000000	JACK	NYS143 J3Y1 3pin PC	2	CN301,303
83	049-2102224111	JACK	PHONE JY6351-02-250	12	CN302,304,305,306,CN102A-D,109A-D
84	001-1001203010	RESISTOR	100ohm 1/8W F	12	R330-333,336-339,352,353.360,361
85	001-1003203010	RESISTOR	10K 1/8W F	8	R133A-140A
86	006-2204051143	CAPACITOR	22µF 25V	8	C125A-132A
87	056-4120001144	JACK	20PIN 2.54MM	1	JP304
88	006-4711132573	CAPACITOR	SM 470uF 63V 10	1	C24
89	008-1004005015	CAPACITOR	0.1µF 50V 10%	12	C488A-L
90	055-0404220322	JACK		1	
91	055-0320280528	LEAD	UL2651#28*20P*280MM	1	
92	001-3303203010	RESISTOR	33K 1/8W F	2	R309.R391
93	001-1002203010	RESISTOR	1K 1/8W F	2	R368.R369

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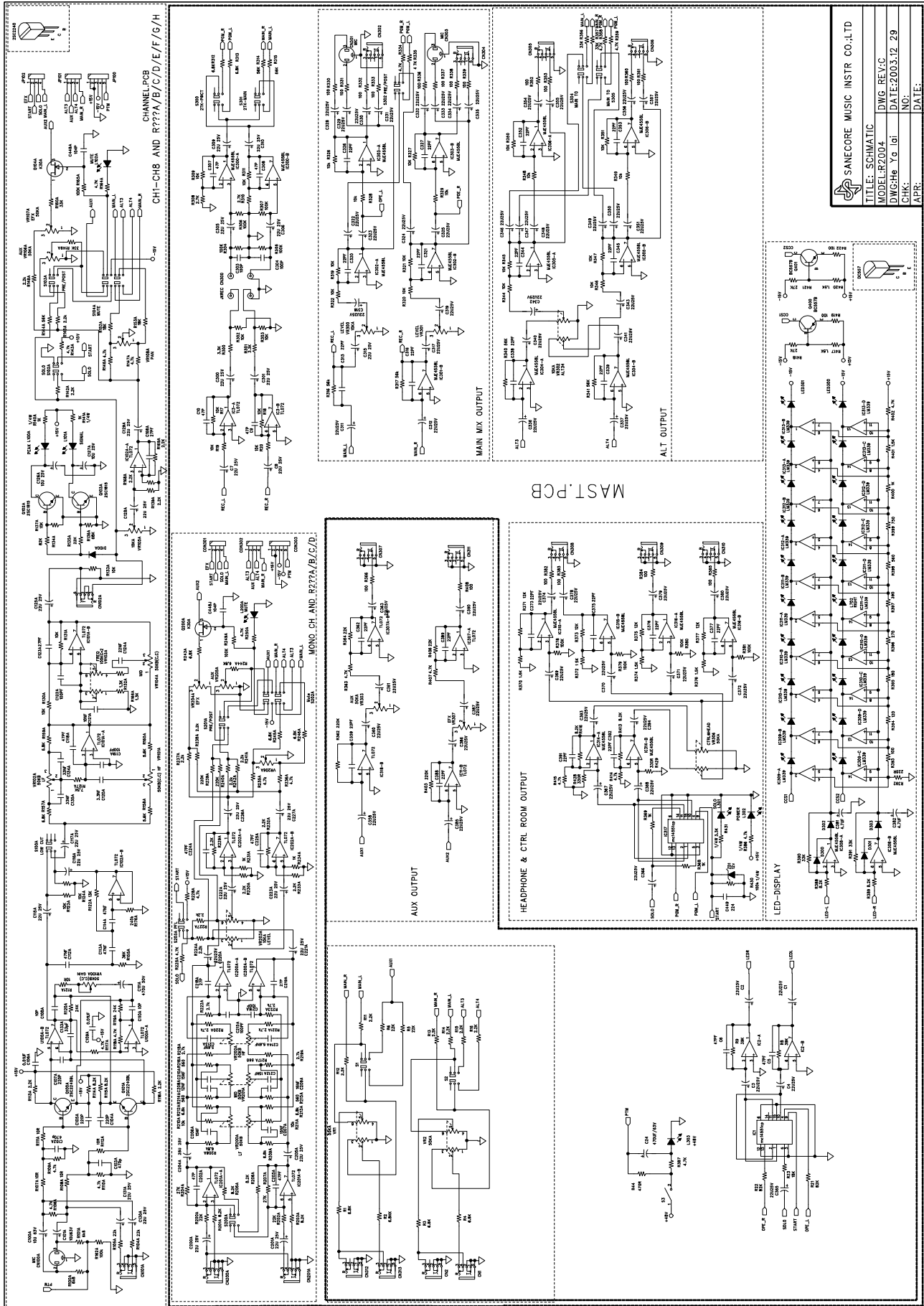
### 3.ELECTRONIC PARTS LIST

	088-1191000401	POWET SUPPLY PCB		1	
1	053-1191011604	PCB BOARD		1	
2	001-2701205010	RESISTOR	270ohm 1/4W F	1	R1
3	001-1003205010	RESISTOR	10MK 1/4W F	1	R2
4	001-0229105050	RESISTOR	0.22ohm 1/4W J	4	R10.11.12.13
5	006-4721222553	CAPACITOR	4700UF 35V 10%	2	C8.11
6	014-1040100028	CAPACITOR	MKS2 100uF 50V	3	C7.9.10
7	006-3311101143	CAPACITOR	330uF 25V 10%	2	C3.4
8	006-1021222093	CAPACITOR	1000uF 63V 20%	1	C12
9	006-1014081673	CAPACITOR	SM100uF 63V	3	C1.2.6
10	006-0474051173	CAPACITOR	4.7uF 63V 20%	1	C5
11	067-2205402000	DIODE	IN5402	4	D11-14
12	067-2204003000	DIODE	IN4003	10	D1-10
13	017-0190000000	IC	NJM7815FA	2	IC2.4
14	017-1830000000	IC	KIA7915	2	IC1.5
15	017-1950000000	IC	TL783CKS/C	1	IC3
16	056-4104221100	SEAT	DJ2802-4P	2	CN2,CN1
17	277-0010000000	CUSHION	TW-1	5	
18	306-1254000001	RADIATOR		1	
19	537-3001100801A	SCREWS	MP(+)*3*10 BZn	5	
20	500-3050240300A	NUT	M3 Zn	5	
21	312-1040000002	FILM	TO-220	5	
1	041-2043000000	POWET SWITCH	R130-22C-11P	1	
2	044-0700000000	JACK	SCM 4305-3P	1	
3	060-0180070300	LEAD		2	
4	022-1057013194	TRANSFORMER	OUTPUT:17*2 1000A	1	

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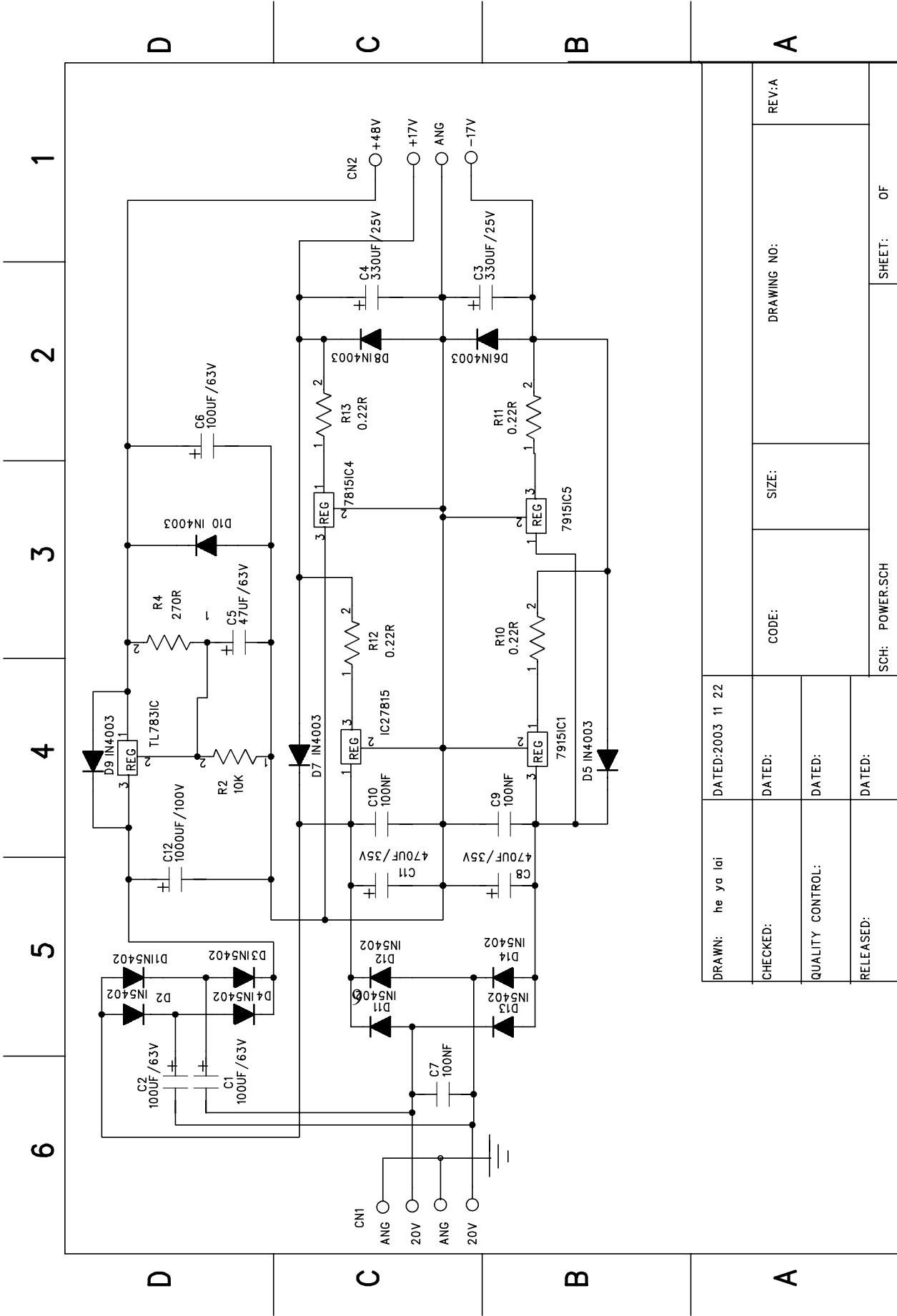
# 4. SCHEMATIC DIAGRAM



SANECORE MUSIC INSTR CO.LTD	
TITLE: SCHEMATIC	
MODEL: R2004	
DWG REV: C	
DATE: 2003.12.29	NO.:
CHK: Y.G. Igi	DATE:
APR:	

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# 4. SCHEMATIC DIAGRAM



DRAWN: he ya lai	DATED: 2003 11 22	REV: A
CHECKED:	DATED:	DRAWING NO:
QUALITY CONTROL:	DATED:	SIZE:
RELEASED:	DATED:	CODE:
SCH: POWER.SCH		SHEET: OF

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