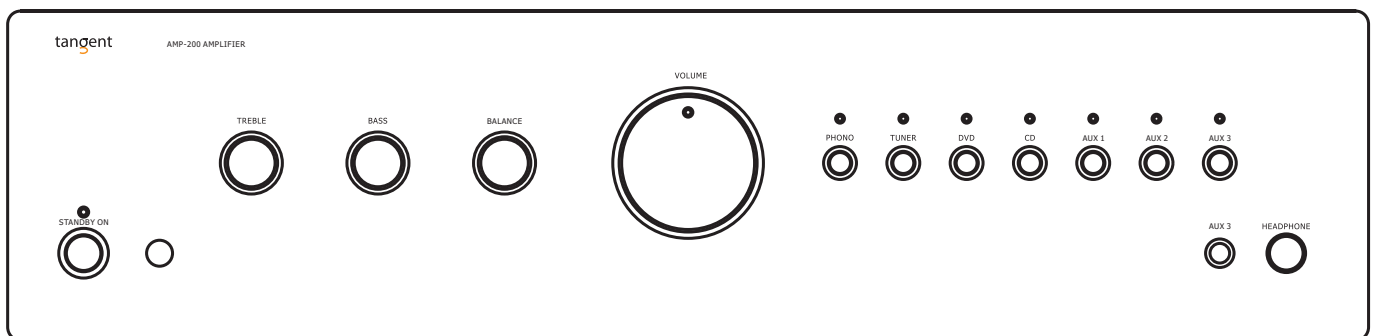


# tangent

# Service manual

## AMP-200 AMPLIFIER



CONTENTS

1. Specification.....1

2. Front panel information.....2

3. Rear panel information.....3

4. Remote control information.....4

5. Wiring diagram.....5

6. Semiconductor instruction.....6

7. Printed circuit boards.....7-14

8. Schematic diagram.....15-23

9. Exploded view.....24-25

10. Electrical parts list.....26-30

## SPECIFICATION

### Phono input

Input impedance 47 KOhm

Input sensitivity 2.8 mV

### Line level inputs

Output impedance Line out < 1 KOhm

Headphones 300 Ohm

### Tone control

Treble +/- 10 dB

Bass +/- 10 dB

Output power 100Wx2 at 8 ohms THD 1%

125Wx2 at 4 ohms THD 1%

Frequency response 20 Hz~20KHz

Distortion <0.05%

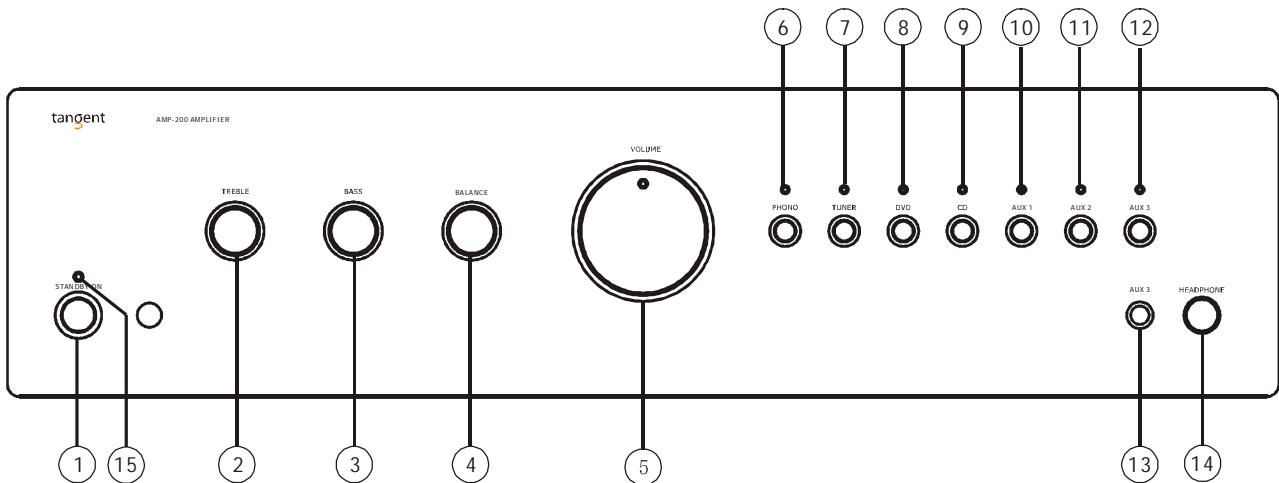
Signal/noise ratio >90 dB

Voltage and power consumption See the rear panel

Dimension (W x D x H) 430x240x115 mm

**\*Design and specifications are subject to change without notice.**

## PANEL INFORMATION



### 1. Mains switch

Use to interrupt the mains voltage.

### 2. Treble

Adjusts the treble level.

### 3. Bass

Adjusts the bass level.

### 4. Balance

Adjusts the Balance level.

### 5. Volume

Adjusts master volume, Bass, Treble, Balance and loudness.

### 6. Phono

Active the Phono input.

### 7. Tuner

Active the Tuner input.

### 8. DVD

Active the DVD input.

### 9. CD

Active the CD input.

### 10. AUX1

Active the AUX1 input.

### 11. AUX2

Active the AUX2 input.

### 12. AUX3

Active the AUX3 input.

### 13. AUX3 jack

Jack for AUX3 inputs.

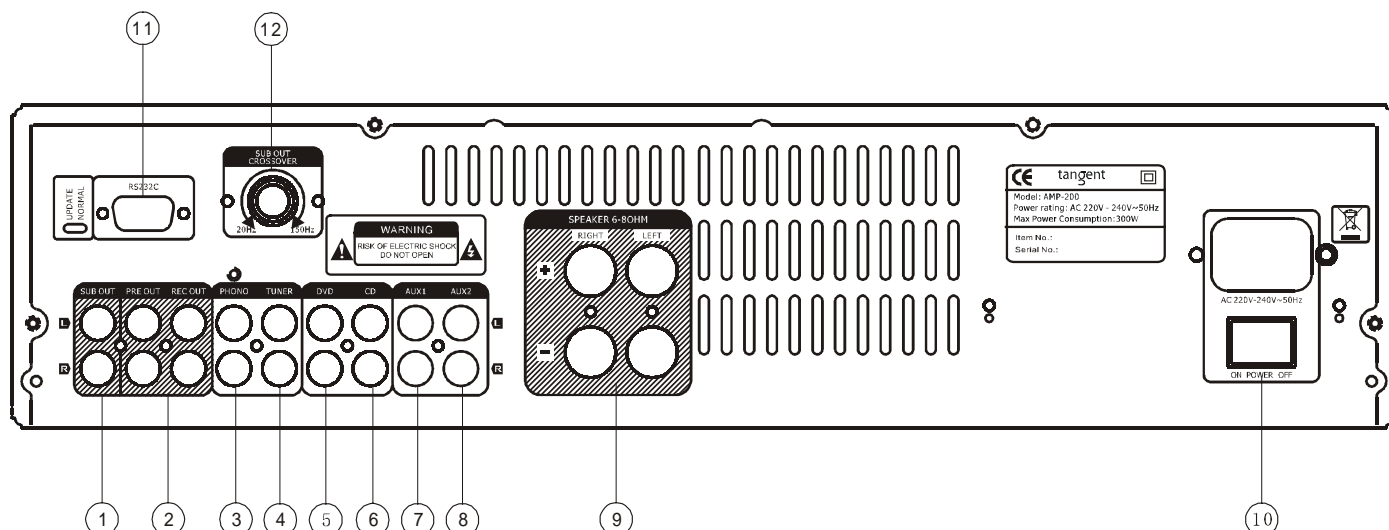
### 14. Headphone jack

6-mm jack that suits most headphone.

### 15. LED indicator

Lights green when the amplifier is turned on. Lights red when the amplifier is in standby mode or in operation.

## PANEL INFORMATION



1. **Sub Out:** Line output for an active subwoofer
2. **Pre out/Rec out:** For connection of a external amplifier
3. **Phono:** For connection of record player(Note: Additional ground terminal available above inputs)
4. **Tuner:** For connection of FM/DAB player
5. **DVD:** For connection of DVD player(Note: analogue stereo input)
6. **CD:** For connection of CD player(Note: analogue stereo input)
7. **AUX1 :** For connection of optional equipment
8. **AUX2 :** For connection of optional equipment
9. **Speaker out:** For connection of loudspeaker

Note:-The speaker impedance must be 4 and 16 Ohm

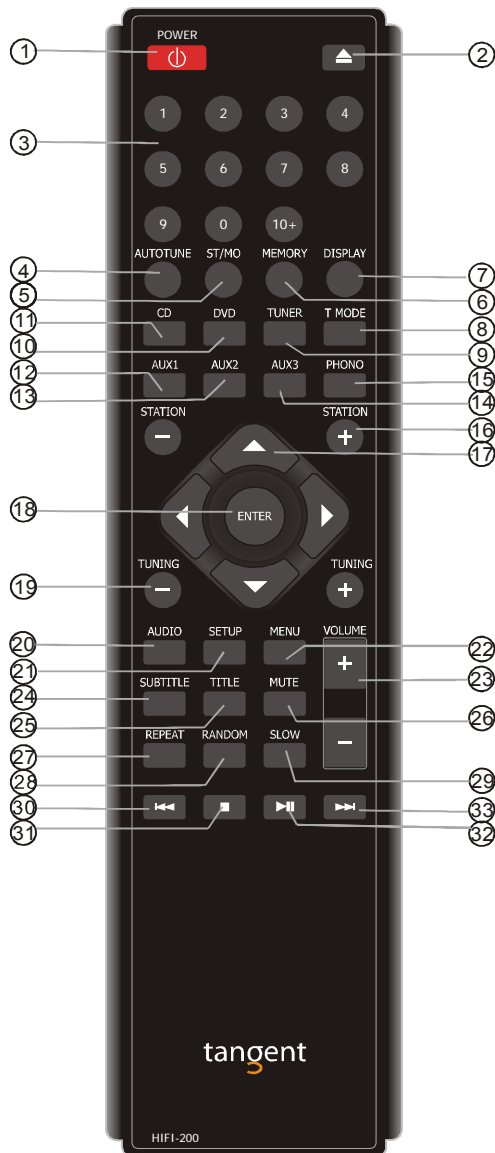
- For optimal sound quality there must be a proper connection between the speaker terminal and the amplifier terminal .
- The cable ends must not be frayed to avoid that they come into contact with each other or the cabinet back panel.

10. **AC input:** For connection of mains voltage .Make sure that the plug is correctly inserted, and that

The voltage corresponds to the text printed on the cabinet back panel

11. **RS232 port:** For connection of the equipment which contains the RS232 port.
12. **Sub out crossover:** For control the Sub speaker.

## REMOTE CONTROL INFORMATION



### 1. System Off

Press this key to turn the AMP-200 into Standby Mode, press it again to turn this unit off.

2. **▲** Open and close the disc tray on the AMP-200.

### 3. Number Keys

Select the store station on the AMP-200. Depress the key for more than 2 seconds, a station will be stored as preset under the number concerned on AMP-200

### 4. Autotune

Press once to automatic tune in to DAB station. Depress button for 2 seconds to initiate an international search .At FM, the autotune function will search for a station at higher frequency.

### 5. ST/Mono

Press it to alternate between stereo mode and mono mode when listen to FM broadcast.

### 6. Memory

Press it to store the broadcast station as a preset on the DAB-200.

### 7. Display

Display RDS and DAB information on DAB-200.

### 8. T MODE

Press this button to change between Fm and AM.

### 9. Tuner

Press this button to choose the inputs on AMP-200 of Tuner.

### 10. DVD

Press this button to choose the inputs on AMP-200 of DVD.

### 11. CD

Press this button to choose the inputs on AMP-200 of CD.

### 12. AUX1

Press this button to choose the inputs on AMP-200 of AUX1.

### 13. AUX2

Press this button to choose the inputs on AMP-200 of AUX2.

### 14. AUX3

Press this button to choose the inputs on AMP-200 of AUX3.

### 15. Phono

Press this button to choose the inputs on AMP-200 of Phono.

### 16. STATION +/-

Press these buttons to select the next/ previous preset in both FM and AM mode.

### 17. Cursor keys ◀ ▶ ▲ ▼

### 18. Enter

To confirm the item, button or number that you select.

### 19. Tuning +/-

When using the Tuner these buttons adjust the radio frequency.

### 20. Audio (only for DVD)

In DVD mode: change between the audio tracks on the disc.

### 21. Setup (only for DVD)

You can access the DVD player configuration settings by using the Setup Menu.

### 22. Menu

Press it to show the main contents of AMP.

### 23. Volume +/-

To increase or decrease the Master Volume.

### 24. Subtitle (only for DVD)

Press this button to select different subtitle languages from those included in the DVD video or turn it off.

### 25. Title (only for DVD)

When playing DVD including many titles, press this button, the title menu will appear on the television screen, use the cursor to choose the desired title, then press ENTER to start it.

### 26. Mute

Press this button to mute the sound, press it again to cancel the mute function.

### 27. Repeat

Repeats a single track or all tracks on a disc on AMP-200

### 28. Random

All tracks on the disc loaded in AMP-200 are played in random order.

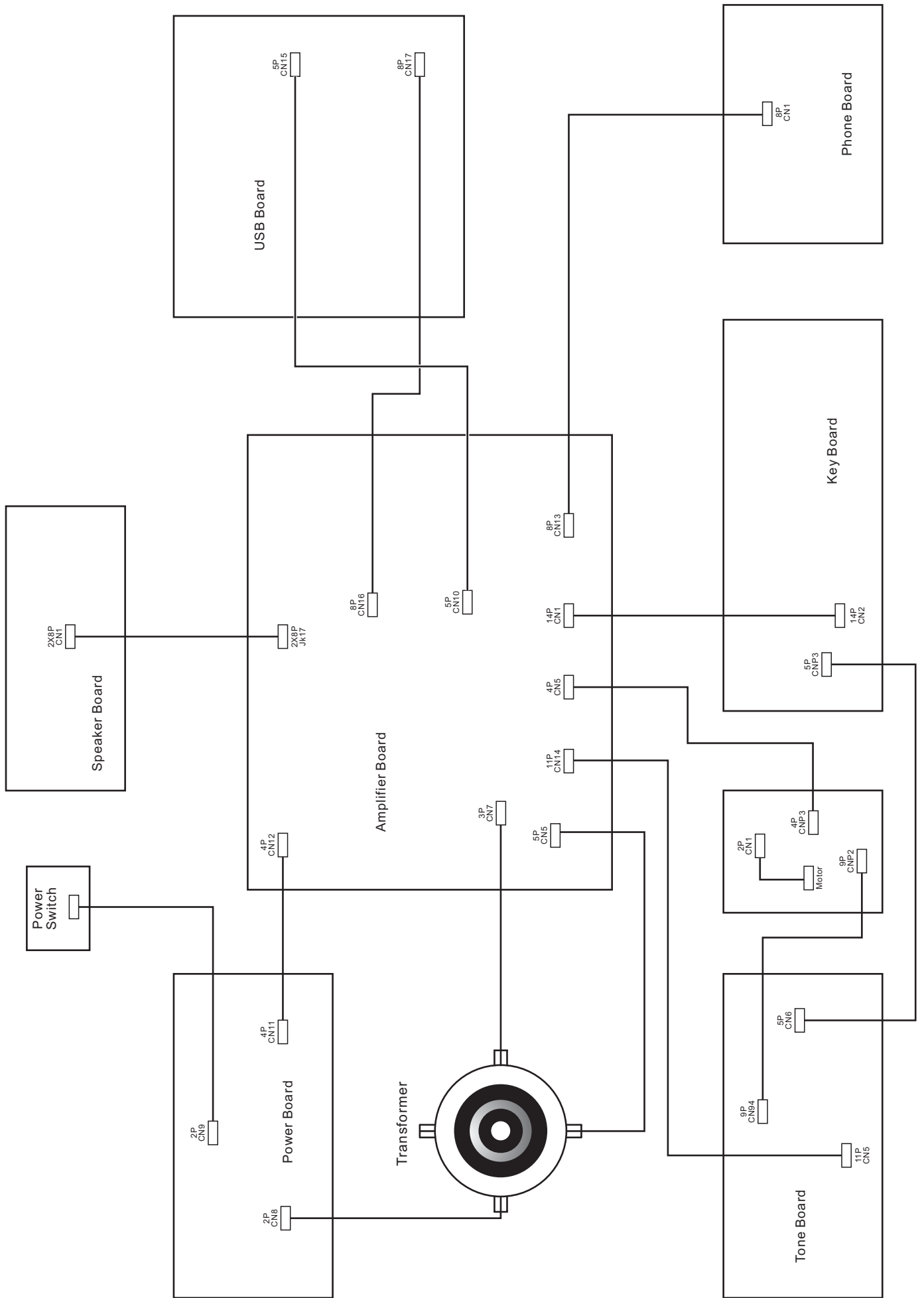
### 29. Slow

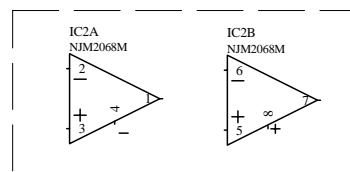
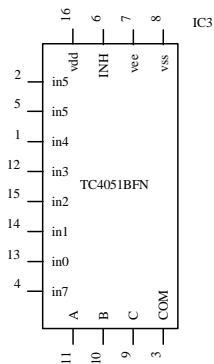
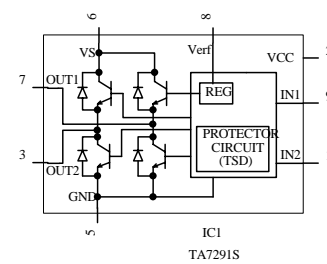
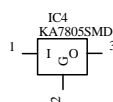
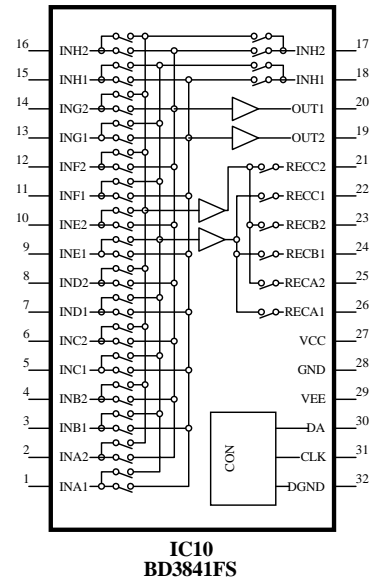
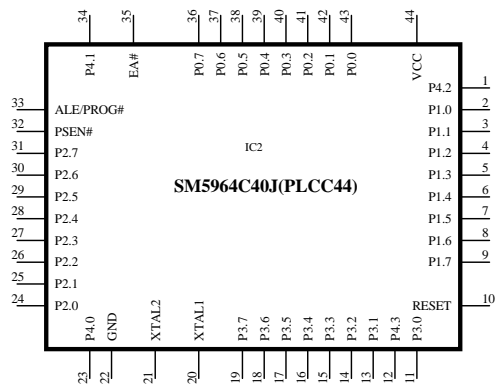
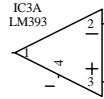
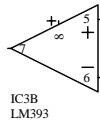
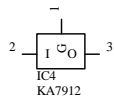
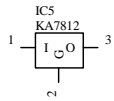
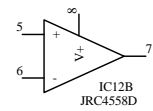
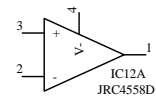
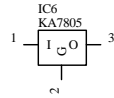
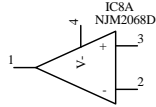
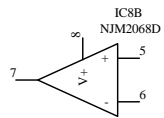
30. **◀◀** Press to select the previous track, chapter. Press and hold to fast rewind.

31. **■** Stop playback on AMP-200

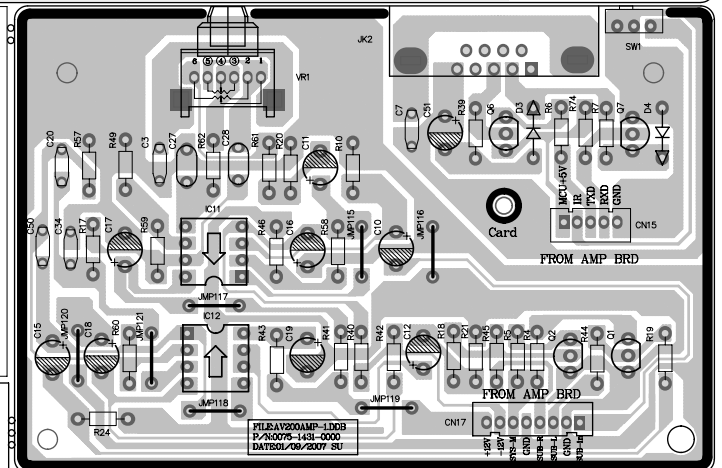
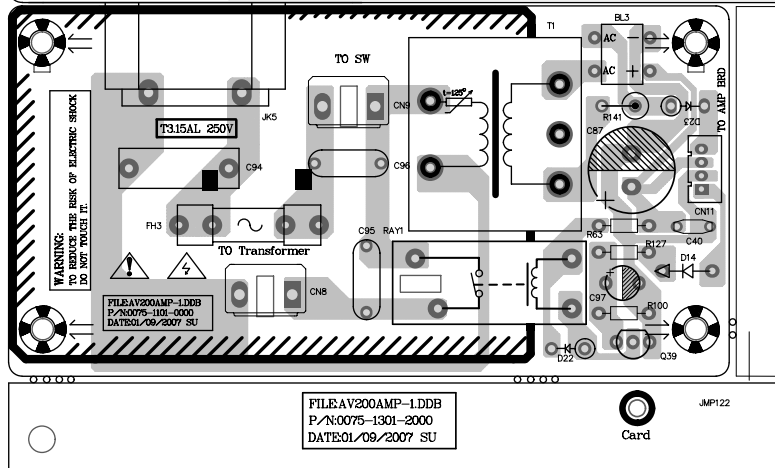
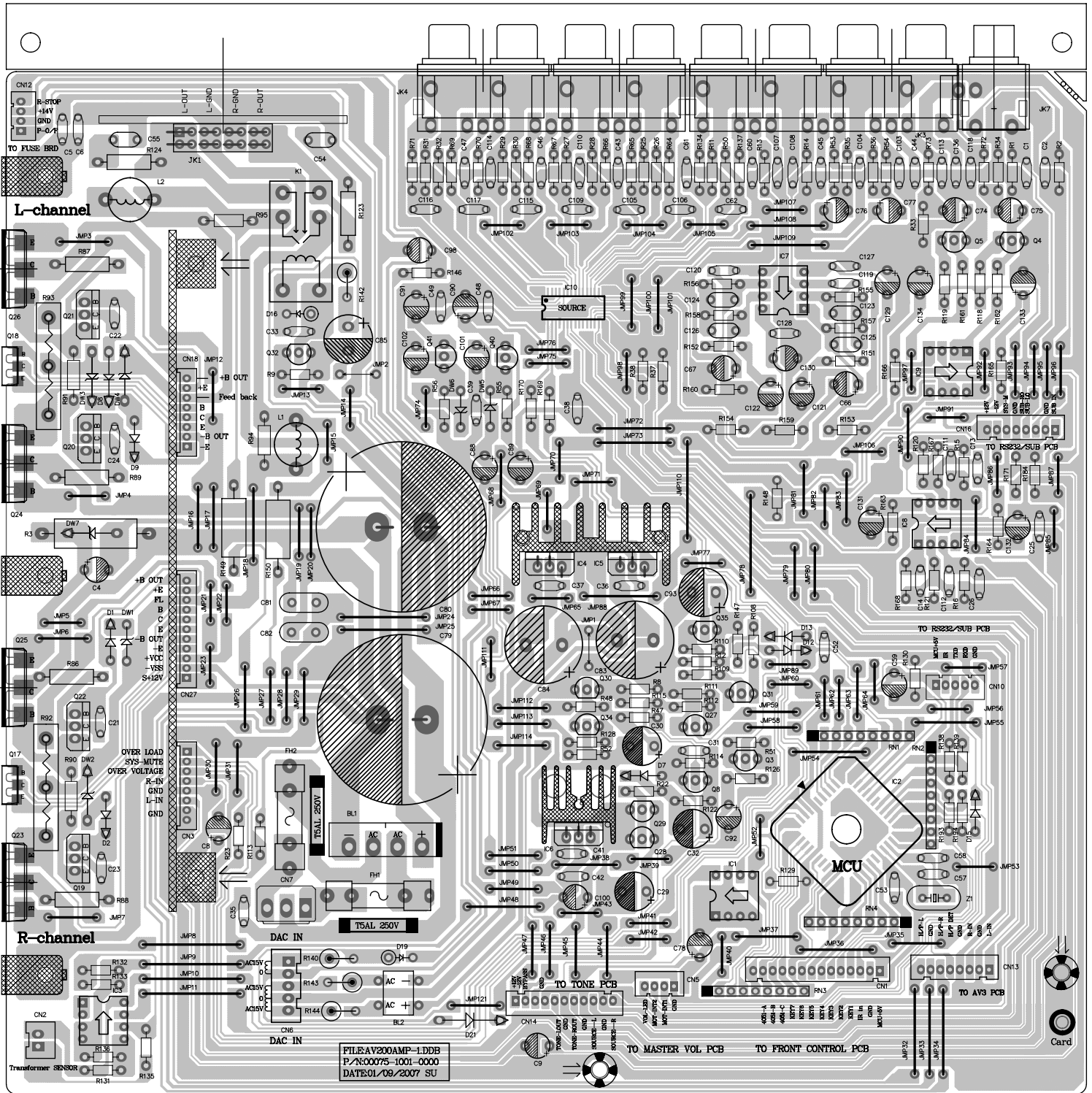
32. **▶▶/||** Starts and pauses the playback on AMP-200

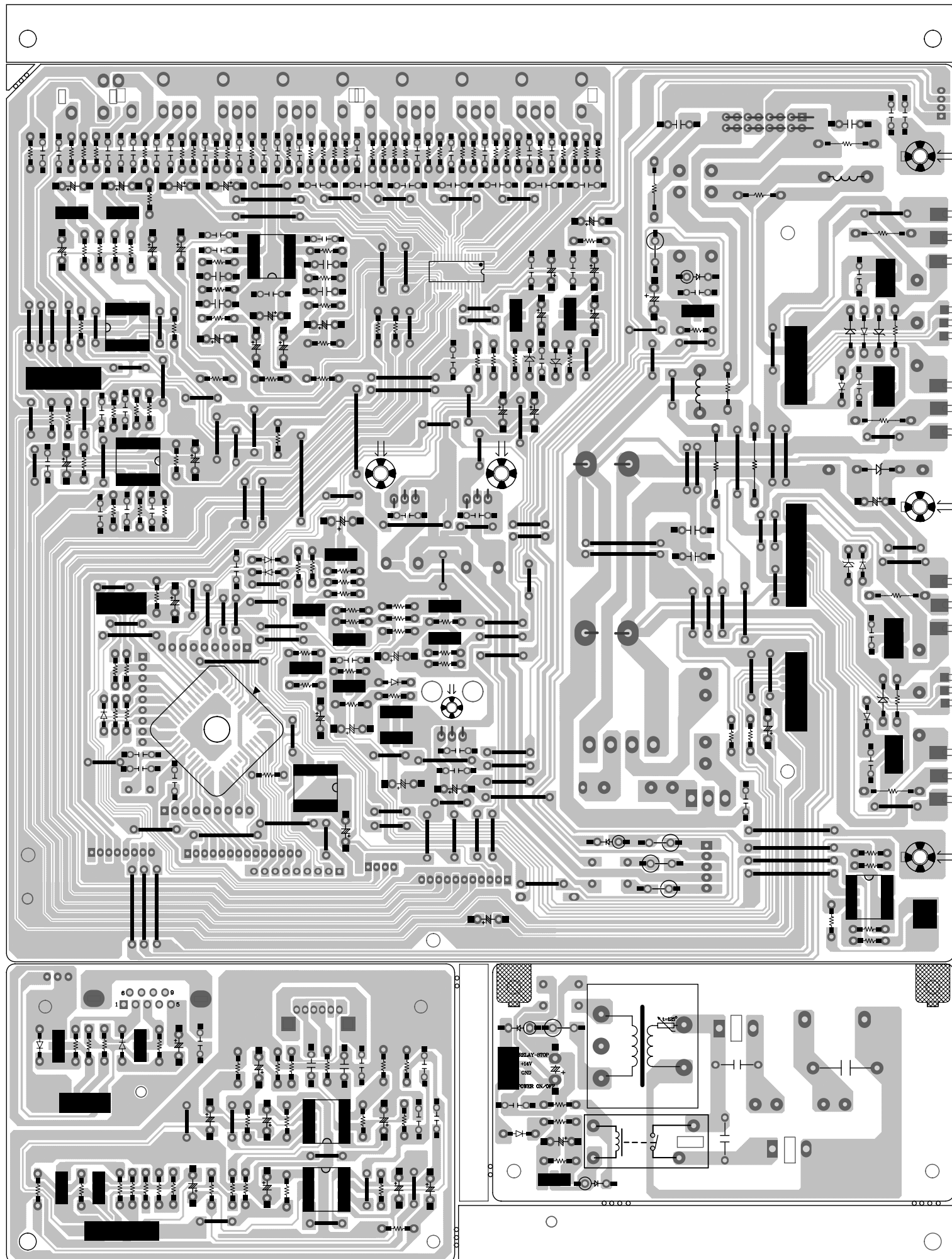
33. **▶▶▶** Press to select the next track, chapter. Press and hold to fast forward.

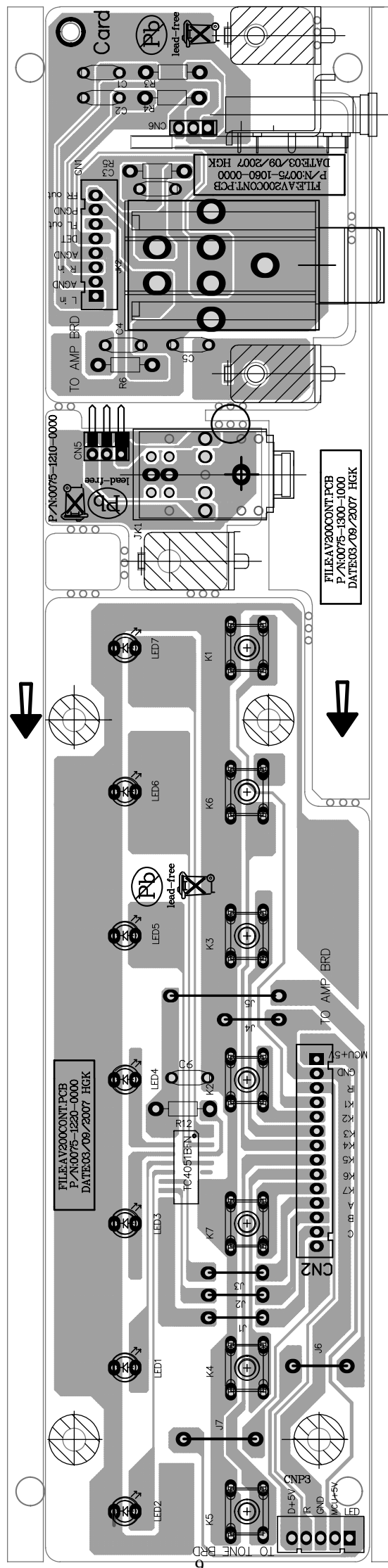




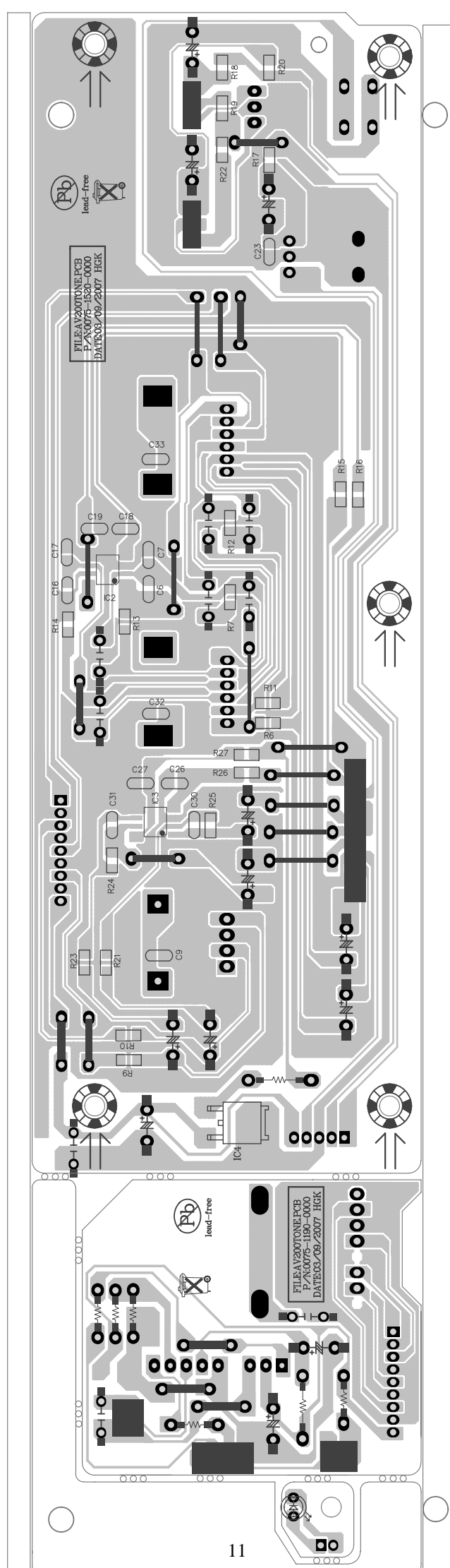


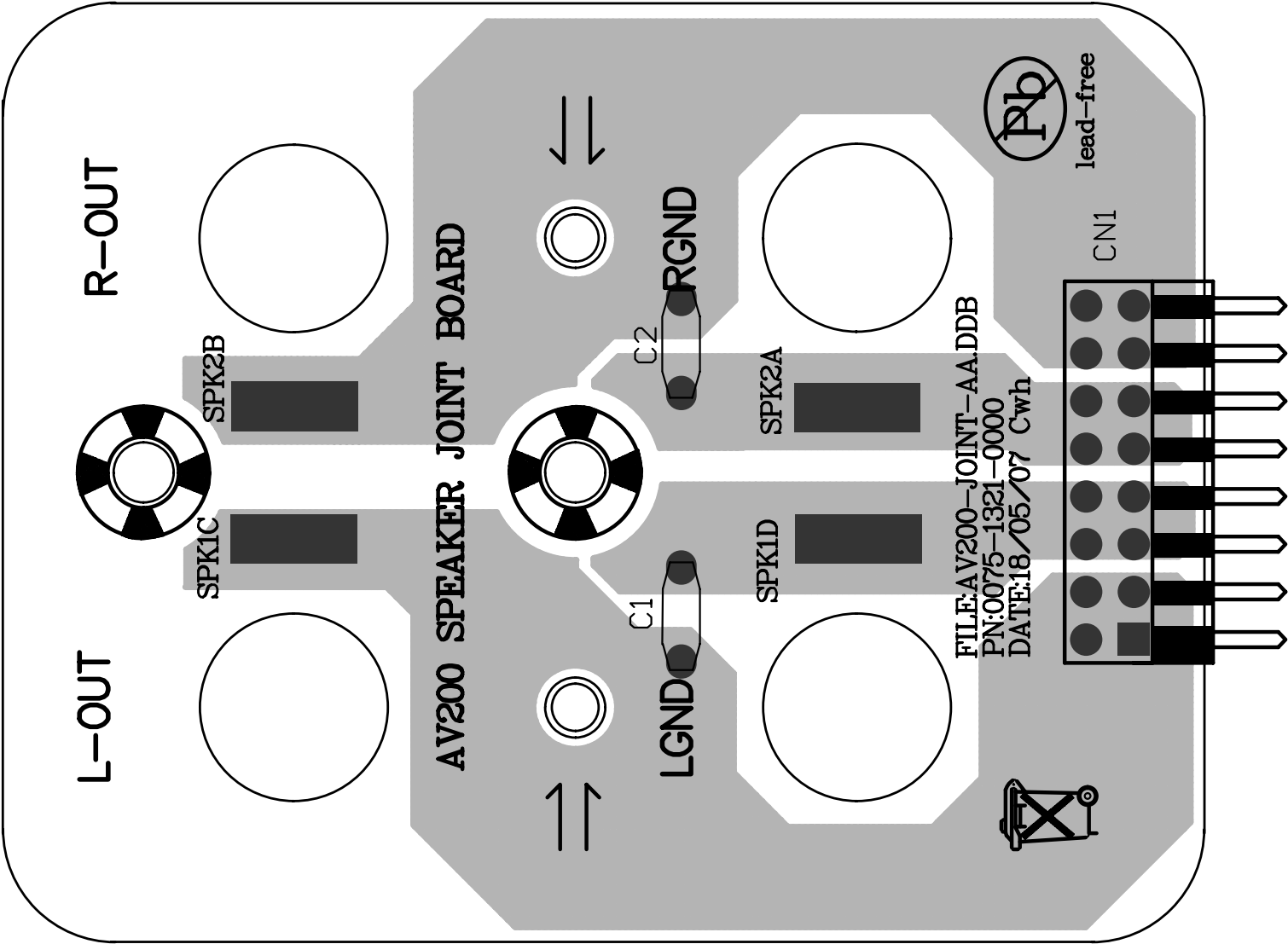


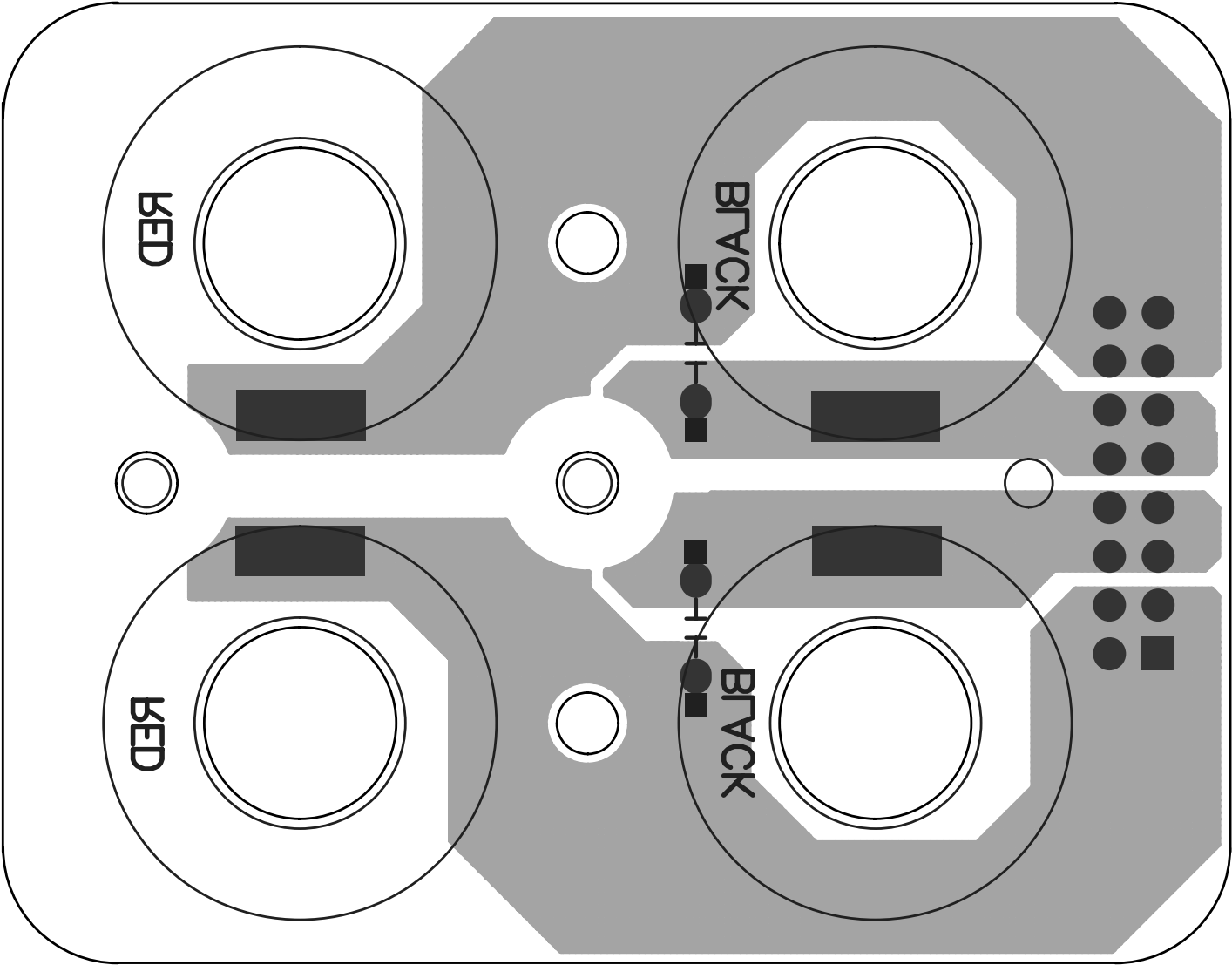














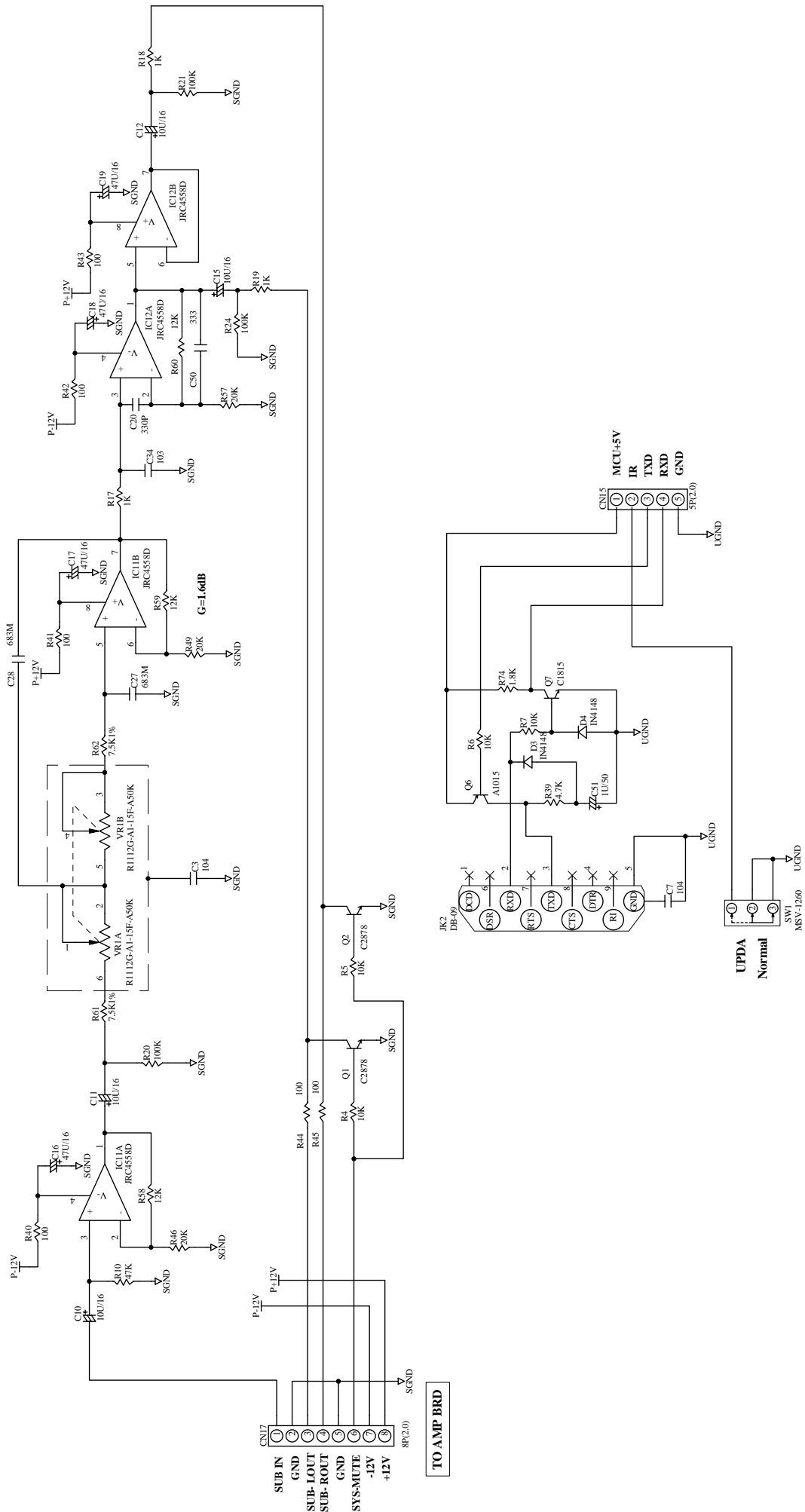


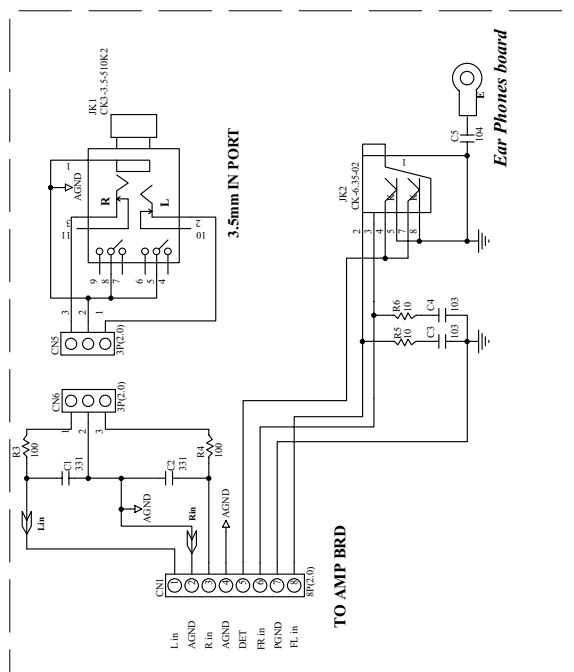




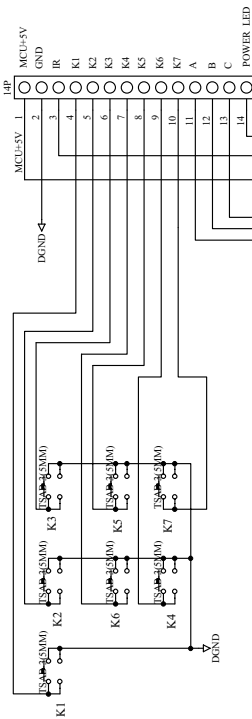




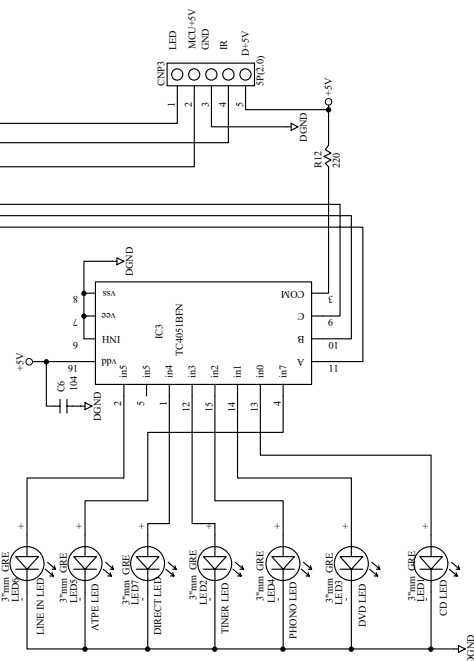


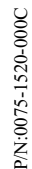


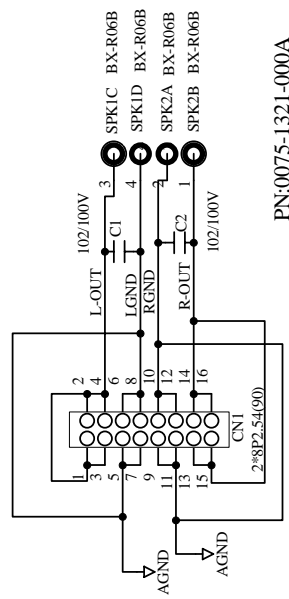
### TO AMP BRD



### TO TONE BRD



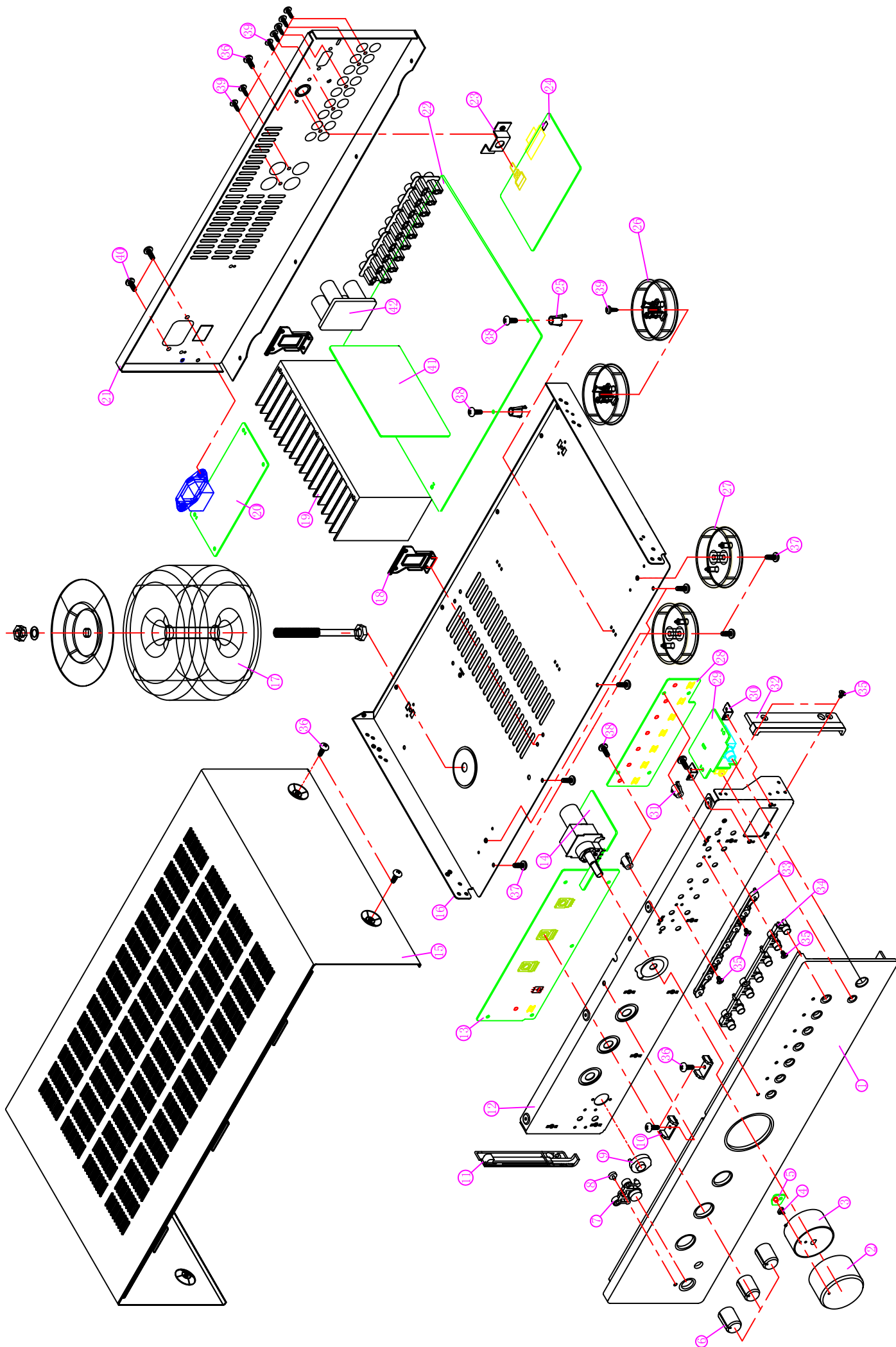




PN:0075-1321-000A







### AV-200 Explode

NO	PART.NO	DESCRIPTION	QTY
1	6045 1201 0000	AL PANEL	1
2	6545 1210 0000	VOLUME KNOB	1
3	7545 1230 0000	VOLUME PASTEM	1
4	7445 1220 0000	VOLUME LENS	1
5	0075 1020 0000	VOL LED PCB	1
6	7345 1201 0000	BASS KNOB	3
7	7345 5010 0000	POWER KNOB	1
8	7445 1020 0000	STANBY LENS	1
9	7445 1200 0000	REMOTE CONTROL LENS	1
10	7545 1220 0000	TOP COVER BRACKET	1
11	7545 1210 0000	LEFT PANEL BRACKET	1
12	5345 1203 0000	SUBPANEL	1
13	0075 1520 0000	VOLUME CONTROL PCB	1
14	0075 1190 0000	VOL PCB	1
15	6145 120A 0000	TOP COVER	1
16	6245 1202 0000	BOTTOM COVER	1
17	4013 1015 0000	ANNULAR TRANSFORMER	1
18	5333 1041 0000	HEATSINK BRACKET	1
19	5145 1201 0071	HEATSINK	1
20	0075 1101 0000	FUSE PCB	1
21	6345 1202 0000	BACK COVER	1
22	0075 1001 0000	AMP PCB	1
23	5345 1210 0000	BRACKET	1
24	0075 1431 0000	SUB/RS232 PCB	1
25	7941 1030 0000	PCB COLUMN(H=8MM)	4
26	7940 1021 0043	REAR FOOT	2
27	7940 1010 0043	FRONT FOOT	2
28	0075 1220 0000	CONTROL PCB	1
29	0075 1210 0000	3.5 EARPHONE PCB	1
30	5300 0060 0000	L BRACKET (H)	8
31	7545 5060 0000	PCB BRACKET ( H=9mm )	9
32	7545 1200 0000	RIGHT PANEL BRACKET	1
33	7445 1210 0000	LED LIGHT LENS	1
34	7345 5021 0000	SEVER KEY CIRCLE KNOB	1
35	5011 3006 0030	COUNTERSINK SCREW BTB $\phi$ 3.0X6	15
36	5011 3006 0010	SCREW BTB 3.0x6.0	40
37	5011 3008 0010	SCREW BTB $\phi$ 3.0x8	12
38	5011 3014 0010	SCREW BTB $\phi$ 3.0X14	13
39	5013 3010 0010	SCREW PA $\phi$ 3.0x10	17
40	5012 3008 0010	SCREW BM 3.0x8	2
41	0075 1361 0000	PAMP PCB	1
42	0075 1321 0000	SPEARER LINK PCB	1

Bill of Material for MAIN.Bom  
Used Part Type

Designator

=====	=====	=====
1	24C02	IC1
1	KA7805	IC6
1	KA7812	IC5
1	KA7912	IC4
1	LM393	IC3
3	NJM2068D	IC7 IC8 IC9
1	SM5964C40J(PLCC44)	IC2
1	BD3841FS	IC10
2	2SA940	Q19 Q20
1	2SA950	Q41
1	2SA970	Q8
1	2SA1015	Q35
2	2SB817	Q23 Q24
2	2SC2073	Q21 Q22
1	2SC2120	Q40
1	2SC2235	Q32
5	2SC2458	Q27 Q28 Q29 Q30 Q31
3	2SC2878	Q3 Q4 Q5
2	2SD1047	Q25 Q26
2	2SD946BR	Q17 Q18
1	RS803	BL1
1	DB104G	BL2
3	IN4001	D16 D19 D21
8	1N4148	D1 D2 D7 D9 D12 D13 D15 D8
1	1N4742A	DW7
4	6A3 (5.5V)	DW1 DW2 DW3 DW4
2	7B2 (7.2V)	DW5 DW6
1	12MHz	Z1
2	0.5UH	L1 L2
1	JZC-42F	K1
2	T5AL 250V	FH1 FH2
2	4P(2.0)	CN5 CN12
1	5P(2.0)	CN10
2	8P(2.0)	CN13 CN16
1	11P(2.0)	CN14
1	14P2.0	CN1
2	2P(2.5)	CN2 CN4
1	5P(2.5)	CN6
1	3P(3.96)	CN7
2	1*8P2.0(180)	CN3 CN18
1	1*11P2.0(180)	CN27
1	2*8P2.5(180)	JK1
1	AV2-8.4-13/ES	JK7
2	AV8-8.4-13/EC	JK3 JK4
1	02DSB282J	RT2
4	9A103G (10K x 8)	RN1 RN2 RN3 RN4
4	4.7/0.5W	R86 R87 R88 R89
1	RF/1/0.25W	R140
2	10/0.25W	R94 R95
2	220/0.25W	R90 R91
2	RF/1/1W	R143 R144
3	10/1W	R123 R124 R142
2	1.2K/1W	R149 R150
1	2.4K/3W	R3

2	0.22/5WX2	R92 R93
1	220/1%	R135
1	1.8K/1%	R133
1	2K/1%	R131
1	6.8K/1%	R136
1	18K/1%	R132
6	33	R138 R139 R169 R170 R193 R194
16	100	R64 R65 R66 R67 R68 R69 R70 R71 R72 R73 R134 R137
		R163 R164 R165 R166
2	150	R153 R154
1	470	R146
2	560	R151 R152
10	1K	R47 R48 R51 R52 R53 R54 R55 R56 R161 R162
2	4.7K	R126 R128
1	6.2K	R111
1	8.2K	R122
9	10K	R108 R112 R113 R114 R115 R120 R121 R129 R130
1	15K	R147
4	22K	R109 R110 R118 R119
4	33K	R155 R156 R167 R168
22	47K	R1 R2 R11 R13 R14 R22 R23 R25 R26 R27 R28
		R29 R30 R31 R32 R33 R34 R35 R36 R37 R38 R50
8	100K	R8 R9 R15 R16 R159 R160 R171 R184
2	220K	R12 R148
2	470K	R157 R158
2	16P/50V	C57 C58
2	68P/50V	C119 C120
2	100P/50V	C13 C14
6	150P/50V	C21 C22 C23 C24 C25 C26
20	330P/50V	C1 C2 C61 C62 C103 C104 C105 C106 C107 C108 C109
		C110 C111 C112 C113 C114 C115 C116 C117 C118
1	0.047uF/50V	C31
23	0.1uF/50V	C5 C6 C33 C35 C36 C37 C38 C39 C41 C42 C43
		C44 C45 C46 C47 C48 C49 C52 C53 C60 C127 C128 C136
2	0.1uF/100V	C81 C82
2	2200P/100V	C123 C124
2	8200P/100V	C125 C126
2	104K500A	C54 C55
2	470uF/10V	C29 C30
9	10uF/16V	C8 C9 C59 C66 C67 C74 C75 C76 C77
3	47uF/16V	C100 C101 C102
8	100uF/16V	C4 C78 C129 C130 C131 C132 C133 C134
1	220uF/16V	C32
1	22uF/25V	C98
4	47uF/25V	C88 C89 C90 C91
1	470uF/25V	C85
1	2.2uF/50V	C92
2	4.7uF/50V	C121 C122
1	1000uF/10V	C93
2	3300uF/25V	C83 C84
2	10000uF/63V	C79 C80

Bill of Material for FUSE.Bom

Used	Part Type	Designator
=====	=====	=====
1	2SC2120	Q39
1	1N4001	D22

1	1N4148	D14
1	DB101G	BL3
1	T3.15AL 250V	FH3
1	RL3-111G-2-BK	SW2
1	TU-301-AP(3P)	JK5
1	JQX-115F(12V DC)	RAY1
1	EI-28	T1
1	4P(2.0)	CN11
2	2P7.92	CN8 CN9
1	RF/1/0.25W	R141
1	100	R63
2	4.7K	R100 R127
1	0.1uF/275VAC(X2)	C94
2	JY103M(X1/400V.Y2/300V)	C95 C96
1	0.1uF/50V	C40
1	220uF/16V	C97
1	2200uF/25V	C87

#### Bill of Material for RS232T.Bom

Used	Part Type	Designator
=====	=====	=====
2	JRC4558D	IC11 IC12
1	2SA1015	Q6
1	2SC1815	Q7
2	2SC2878	Q1 Q2
2	IN4148	D3 D4
1	DB-09	JK2
1	MSV-1260	SW1
1	R1112G-A1-15F-A50K	VR1
1	5P(2.0)	CN15
1	8P(2.0)	CN17
2	7.5K1%	R61 R62
6	100	R40 R41 R42 R43 R44 R45
3	1K	R17 R18 R19
1	1.8K	R74
1	4.7K	R39
4	10K	R4 R5 R6 R7
3	12K	R58 R59 R60
3	20K	R46 R49 R57
1	47K	R10
3	100K	R20 R21 R24
1	330P/50V	C20
2	0.1uF/50V	C3 C7
1	0.01uF/50V	C34
1	0.033uF/50V	C50
2	0.068uF/100V	C27 C28
4	10uF/16V	C10 C11 C12 C15
4	47uF/16V	C16 C17 C18 C19
1	1uF/50V	C51

#### Bill of Material for CONT.Bom

Used	Part Type	Designator
=====	=====	=====
1	TC4051BFN	IC3
7	TSAB-3(5MM)	K1 K2 K3 K4 K5 K6 K7
7	3"mm GREEN	LED1 LED2 LED3 LED4 LED5 LED6 LED7
1	CK3-3.5-510K2	JK1

1	CK-6.35-02	JK2
1	1*3P2.0(90)	CN5
1	1*3P2.0(180)	CN6
1	5P(2.0)	CNP3
1	8P(2.0)	CN1
1	14P(2.0)	CN2
2	10	R5 R6
2	100	R3 R4
1	220	R12
2	0.01uF/50V	C3 C4
2	0.1uF/50V	C5 C6
2	330P/50V	C1 C2

Bill of Material for TONE&VOL.Bom

Used	Part Type	Designator
=====	=====	=====
1	KA7805SMD	IC4
2	NJM2068M	IC2 IC3
1	TA7291S	IC1
1	2SA1015	Q2
1	2SC2458	Q1
1	KSM-803LM	IR1
1	TSAB-3(5MM)	K8
2	R1112G-D1-20F-B100K-CC	VR2 VR3
1	R1112N-D1-20F-B100K-CC	VR4
1	RM1613GU-A104-20FA	VR5
1	3"mm (G/R) LED	LED4
1	3"MM-GREEN	LED1
3	2P(2.0)	CN1 CN7 CN8
1	4P(2.0)	CNP3
1	5P(2.0)	CNP6
1	9P(2.0)	CNP2
1	11P(2.0)	CN5
1	9P(2.0)90	CNP4
1	47R1/2W	R28
1	10R1/4W	R3
2	22	C30 C31
1	47	R17
4	100	R15 R16 R26 R27
2	470	R9 R10
2	560	R8 R19
1	1K	R22
2	5.6K	R4 R5
1	6.8K	R2
2	8.2K	R7 R12
4	10K	R21 R23 R24 R25
2	22K	R18 R20
4	33K	R6 R11 R13 R14
1	47K	R1
2	33P/50V	C6 C16
2	330P/50V	C7 C17
10	0.1uF/50V	C8 C9 C18 C19 C23 C26 C27 C32 C33 C34
1	0.047uF/50V	C1
2	1500P/100V	C5 C13
4	0.01uF/100V	C11 C12 C14 C15
2	47uF/10V	C2 C3
6	10uF/16V	C24 C25 C20 C21 C28 C29

1	47uF/16V	C35
1	100uF/16V	C22
2	10uF/50V	C4 C10

#### Bill of Material for CONNECT.Bom

Used	Part Type	Designator
1	2*8P2.54(90)	CN1
4	BX-R06B	SPK1B SPK1A SPK2B SPK2A
2	0.001uF/100V	C1 C2

#### Bill of Material for PAMP.Bom

Used	Part Type	Designator
4	2SA970	Q4 Q5 Q8 Q9
4	2SC2240	Q10 Q11 Q12 Q13
2	2SC2705	Q16 Q17
2	2SC2878	Q1 Q3
6	1N4148	D1 D2 D3 D4 D8 D9
2	DEL	VR1 VR3
2	8P2.0(90)	CN2 CN3
1	11P2.0(90)	CN5
2	2K1%	R43 R45
2	2.7K1%	R73 R74
4	5.6K/0.25W	R22 R23 R26 R27
2	100	R70 R72
4	220	R46 R47 R49 R50
2	820	R13 R15
2	1K	R34 R36
2	1.2K	R67 R69
4	1.5K	R1 R2 R5 R6
4	1.8K	R28 R29 R31 R33
4	2.2K	R61 R62 R63 R64
2	6.8K	R7 R9
2	8.2K	R37 R39
6	22K	R52 R53 R54 R55 R56 R57
4	47K	R16 R17 R20 R21
2	100K	R10 R12
2	470K	R40 R42
2	12P/50V	C13 C15
2	20P/50V	C28 C30
2	47P/50V	C7 C9
2	1000P/50V	C25 C26
2	1000P/100V	C4 C6
2	1200P/100V	C10 C12
2	10uF/16V	C1 C3
2	220uF/16V	C16 C18
2	2.2uF/50V/NP	C22 C23
2	47uF/50V	C19 C21