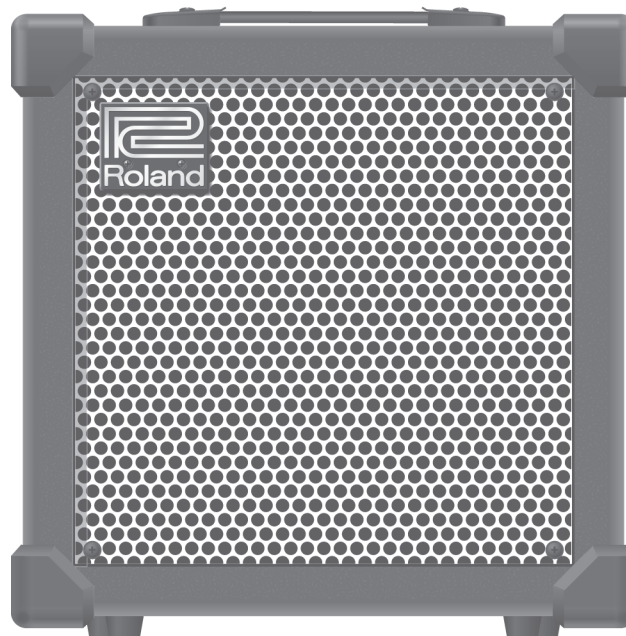


CUBE-40XL**SERVICE NOTES**
*Issued by RJA***Table of Contents**

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Cautionary Notes

Before beginning the procedure, please read through this document. The matters described may differ according to the model.

No User Data

This product cannot save user data. Backing up user data during servicing is not required.

Part Replacement

When replacing components near the power-supply circuit or a heat-generating circuit (such as a circuit provided with a heat sink or including a cement resistor), carry out the procedure according to the instructions with respect to the part number, direction, and attachment position (mounting so as to leave an air gap between the component and the circuit board, etc.).

Parts List

A component whose part code is ***** will not be supplied as a service part because one of the following reasons applies.

- Because it is supplied as an assembled part (under a different part code).
- Because a number of circuit boards are grouped together and supplied as a single circuit board (under a different part code).
- Because supply is prohibited due to copyright restrictions.
- Because reissuance is restricted.
- Because the part is made to order (at current market price).
- Because it is carried in electronic data on the Roland web site.
- Because it is a package or an accessory irrelevant to the function maintenance of the main body.
- Because it can be replaced with an article on the market. (battery or etc.)

Circuit Diagram

In the circuit diagram, "NIU" is an abbreviation for "Not in Use," and "UnPop" is an abbreviation for "Unpopulated." They both mean non-mounted components. The circuit board and circuit board diagram show silk-screened indications, but no components are mounted.

Specifications

CUBE-40XL:Guitar Amplifier

Rated Power Output

40 W

Nominal Input Level

INPUT: -10 dBu/1 M Ω

AUX IN: -10 dBu

Speaker

25 cm (10 inches)

Controls

POWER Switch

SELECT Switch

TUNER Switch

POWER SQUEEZER Switch

<JC CLEAN Channel>

VOLUME Knob

<LEAD Channel>

TYPE Switch (ACOUSTIC SIM, BLACK PANEL, BRIT COMBO,

TWEED, CLASSIC STACK, METAL STACK, R-FIER STACK,

EXTREME, DYNA AMP)

GAIN Knob

VOLUME Knob

<SOLO>

ON/OFF, MEMORY Switch

VOLUME Knob

<EQUALIZER>

BASS Knob

MIDDLE Knob

TREBLE Knob

<EFX>

EFX Knob (CHORUS, FLANGER, PHASER, TREMOLO,

HEAVY OCTAVE)

<DELAY/LOOPER>

REC/PLAY/DUB Switch

TAP/STOP Switch

DELAY/LOOPER Knob (DELAY, LOOPER)

<REVERB>

REVERB Knob (SPRING, PLATE)

Indicators

JC CLEAN Channel, LEAD Channel, TUNER, SOLO, EFX, DELAY/LOOPER, REC/PLAY/DUB, REVERB, POWER SQUEEZER

Connectors

INPUT Jack (1/4" phone type)

AUX IN Jack (Stereo miniature phone type)

RECORDING OUT/PHONES Jack (Stereo 1/4" phone type)

FOOT SW Jack (TIP:SELECT, RING:SOLO) (1/4" TRS phone type)

FOOT SW Jack (TIP:EFX, RING:REVERB) (1/4" TRS phone type)

FOOT SW Jack (TIP:DELAY/REC/PLAY/DUB, RING:TAP/STOP) (1/4" TRS phone type)

Power Consumption

43 W

Dimensions

385 (W) x 265 (D) x 385 (H) mm

15-3/16 (W) x 10-7/16 (D) x 15-3/16 (H) inches

Weight

10 kg / 22 lbs 1 oz

Accessory

Owner's Manual Multilanguage (#5100016039), Chinese (#5100016323)

Options

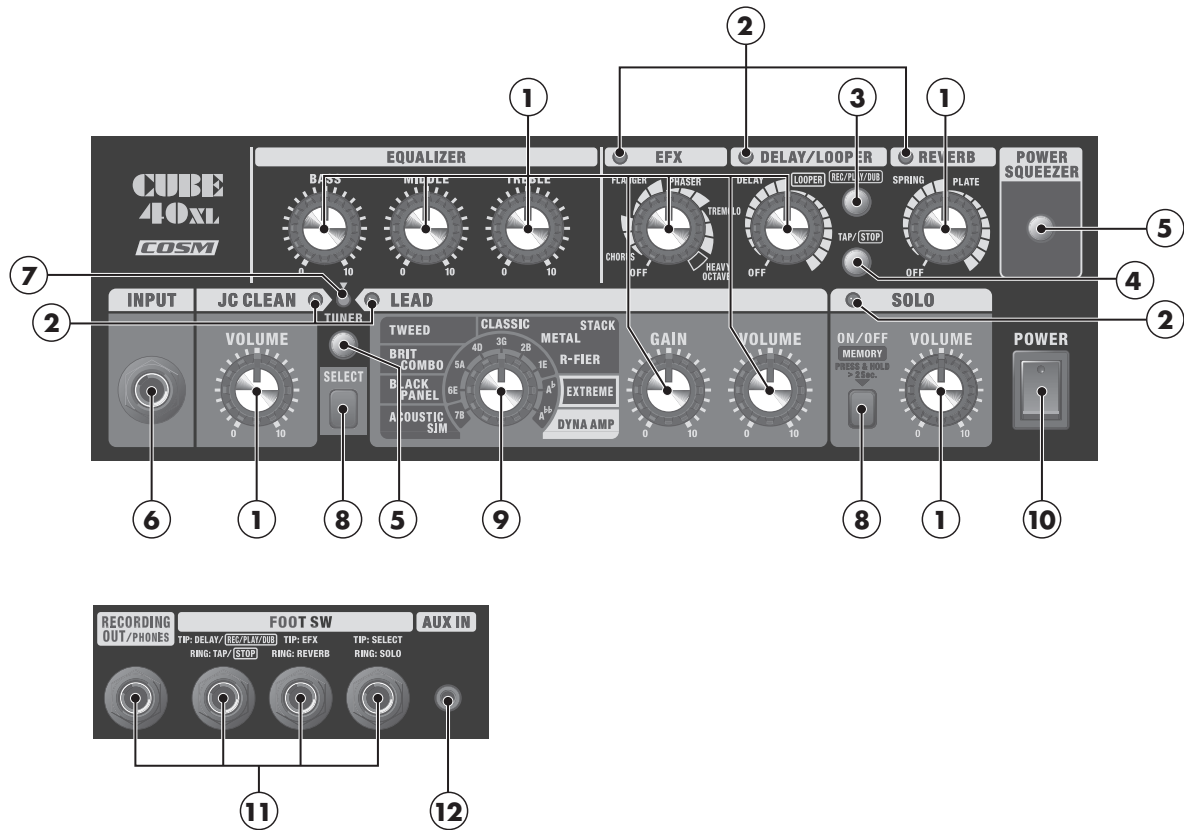
Foot Switch (BOSS FS-5L, FS-5U, FS-6)

* 0 dBu = 0.775 V_{rms}

* Printed matters will not be supplied after the end of the production. Then, download the electronic file from the Roland web site.

* In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.

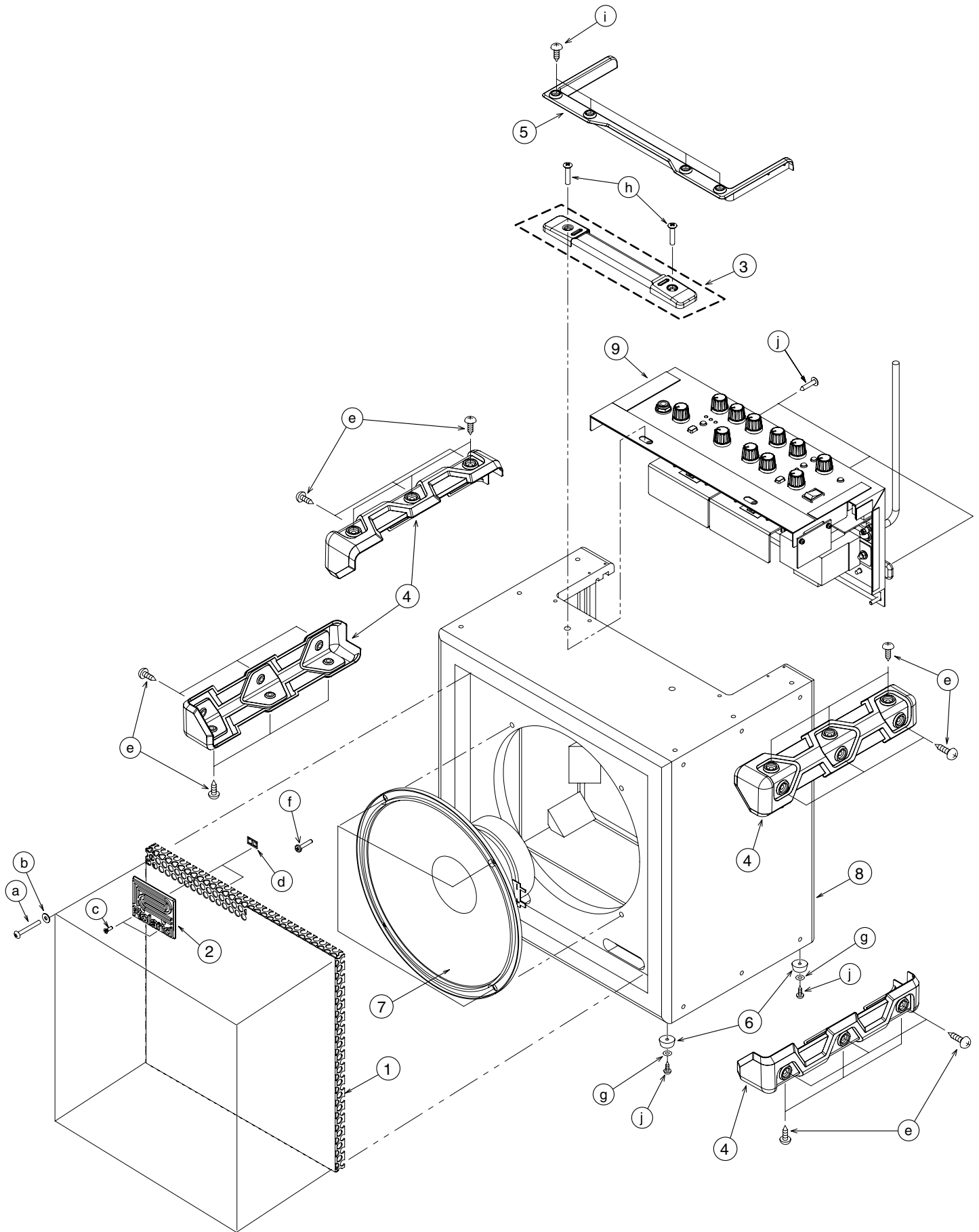
Location of Controls



Location of Controls Parts List

No.	Part Code	Part Name	Description	Q'ty
1	5100004182	POTENTIOMETER	RD901F-40E1-15F-0B10K-00DN6	10
	* This unit includes the following parts.			
	17048630	VR ACCESSORY NUT M9		10
	40452178	VR WASHER M9		10
1	5100004351	R-KNOB	05800-515(SD000043)40A-KBG-10	10
2	03349978	LED (RED)	L-34HDSL-FPB	6
3	5100004353	KEYTOP	40285-501(SD000906)	1
	05011067	LED	L-3WEGW (153-L-3WEGW)	1
	01780101	TACT SWITCH	SKQKABD010	1
4	5100004353	KEYTOP	40285-501(SD000906)	1
	01780101	TACT SWITCH	SKQKABD010	1
5	5100004353	KEYTOP	40285-501(SD000906)	2
	5100003359	LED	BL L-34ID (153-L-34IDSLLF)	2
	01780101	TACT SWITCH	SKQKABD010	2
6	22150756	JACK NUT 2	PLASTIC /BLK	1
	13449146	6.5MM JACK	YKB21-5012 (W/SW)	1
7	03349989	LED (GREEN)	L-34GDSL-FPB	1
8	5100015020	S-KEYTOP	SX BLK	2
	01780101	TACT SWITCH	SKQKABD010	2
9	510001612	ROTARY POTENTIOMETER	RD901F-40-15F-B10K-09DW6	1
	* This unit includes the following parts.			
	H5039521R0	NUT M7		1
	17048651	VR ACCESSORY WASHER M7	M7X12X0.5 NO.476	1
9	5100004351	R-KNOB	05800-515(SD000043)40A-KBG-10	1
10	02897801	SEESAW SWITCH	SDDJE13200 94V-0	1
11	22150756	JACK NUT 2	PLASTIC /BLK	4
	13449252	6.5MM JACK	YKB21-5006 (STEREO W/SW)	4
12	05019512	3.5MM JACK	203-HTJ03509ABT	1

Exploded View (Cabinet)

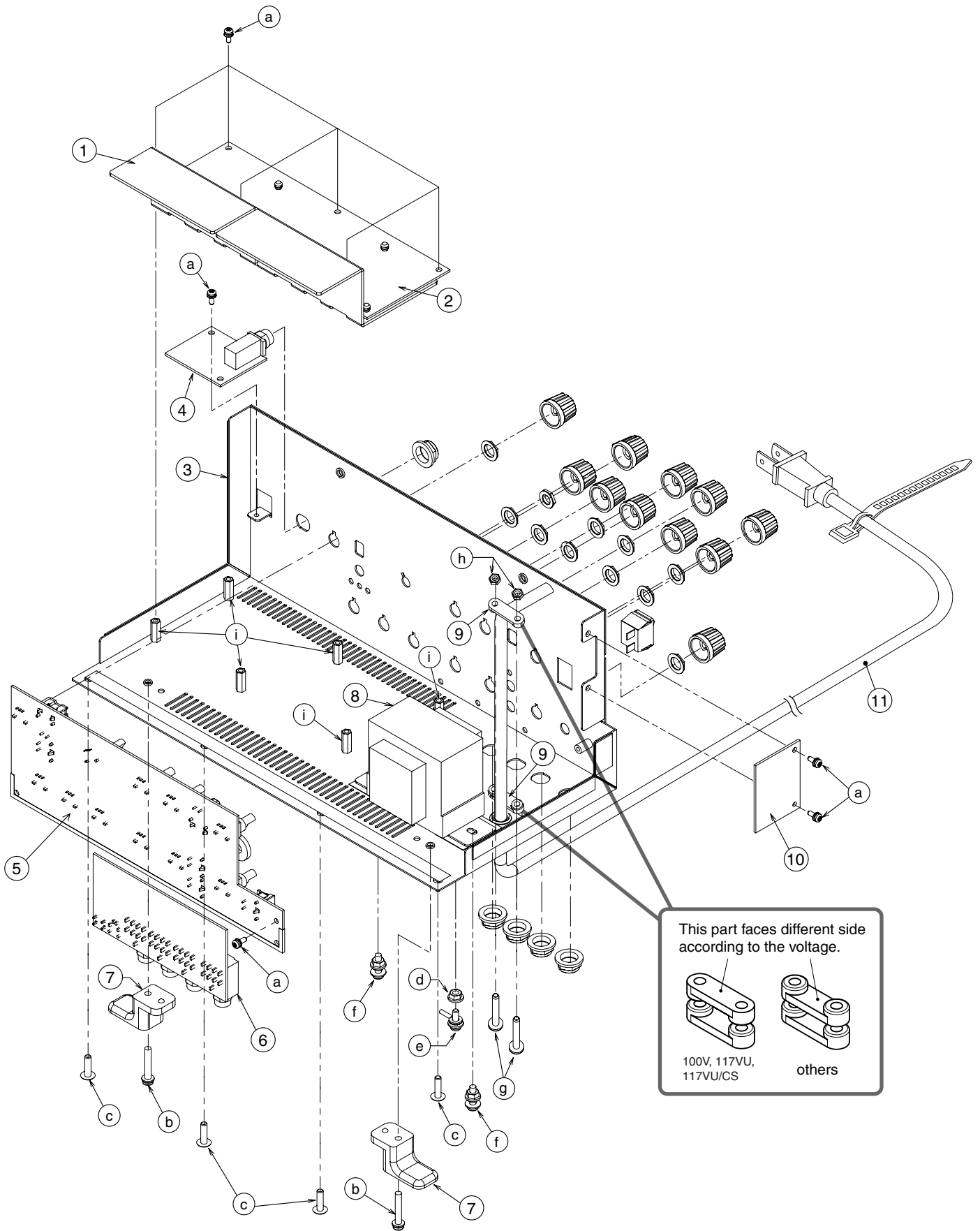


* Remove screws h and j first, then Chassis Assy can be removed.

Exploded View (Cabinet) Parts List

No.	Parts Code	Parts Name	Description	Q'ty
1	5100015008	GRILLE		1
2	SD000017	BADGE		1
3	SD000035	HANDLE WITH ESCUTHEON		1
		<i>* This unit includes the following parts.</i>		
	5100011381	HANDLE		1
	5100011382	HANDLE PLATE		1
	5100011383	HANDLE HOLDER		2
	5100015546	CABINET ASSY		1
		<i>* This unit includes the following parts.</i>		
4	5100015011	CORNER PROTECTOR		4
5	5100015013	TRIM SASH		1
6	12359104	RUBBER FOOT	G-5R	4
8	*****	CABINET		1
7	5100015948	SPEAKER	W1008-432A	1
9	*****	CHASSIS ASSY	Refer to Exploded View (Chassis) (p. 8).	1
a	SD000975	SCREW M4X35	ORIGINAL TRUSS BZC	4
b	SD000430	PLANE WASHER	D11 D4.1 T1 BLACK/323-BG-405LF	4
c	40230789	SCREW 3X10	OVAL MACHINE BZC	2
d	40011689	SPEED NUT M3	F-TYPE	2
e	40010667	SCREW 4X16	TRUSS TAPPING A FE BZC	24
f	40010367	SCREW M4X25	BINDING MACHINE BZC	4
g	SD000370	PLATE WASHER	4.2X10X0.5T FEBC	4
h	40564601	SCREW M5X35	OVALHEAD MACHINE BZC	2
i	5100005098	SCREW 3X16	TRUSS TAPPING A BZC	4
j	40010689	SCREW 4X25	TRUSS TAPPING A FE BZC	8

Exploded View (Chassis)



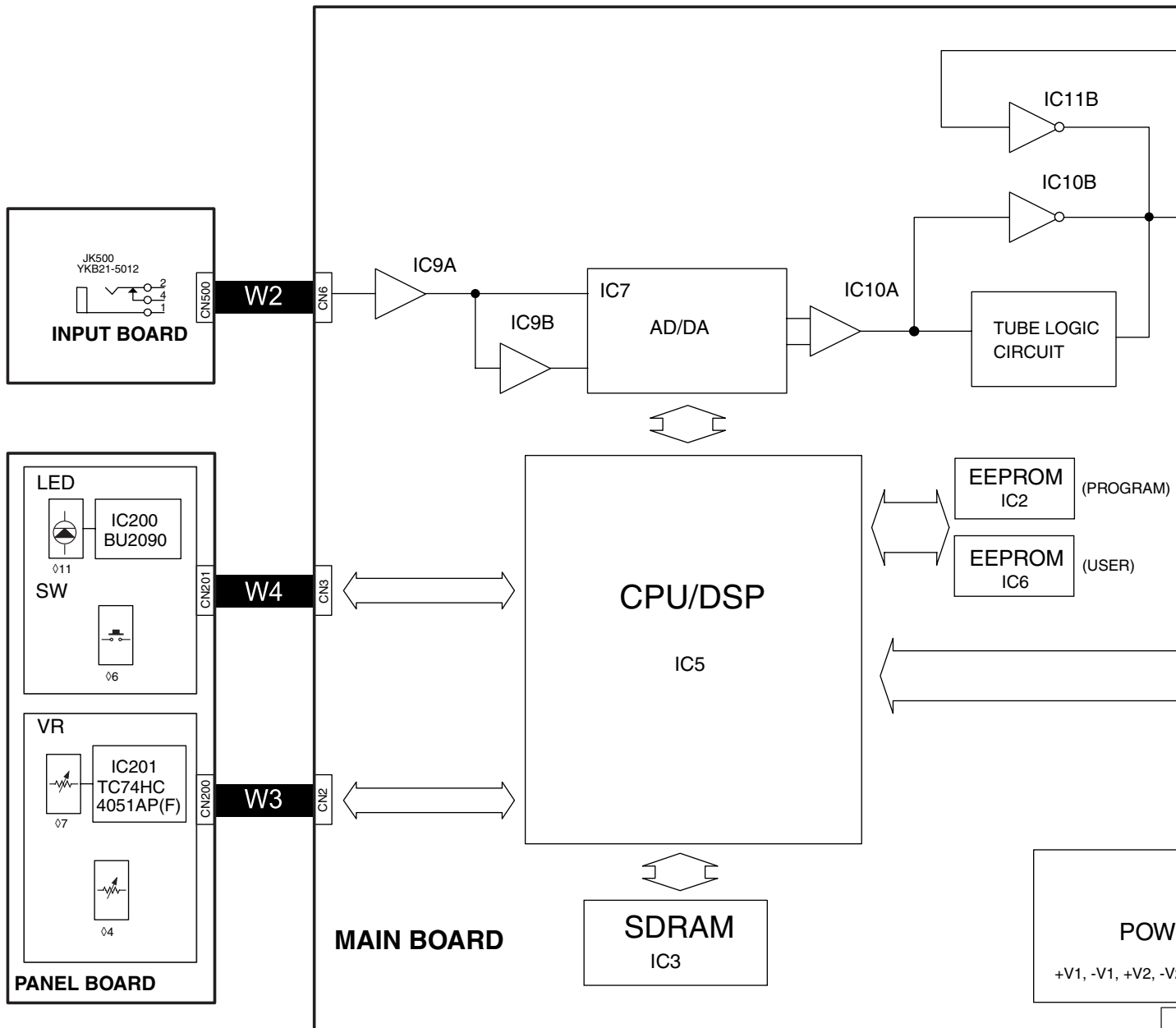
Exploded View (Chassis) Parts List

No.	Parts Code	Parts Name	Description	Q'ty
2	5100014936	MAIN BOARD ASSY		1
		* This unit includes the following parts.		
1	5100015021	HEATSINK		2
3	5100015016	CHASSIS		1
	5100016067	PANEL SHEET ASSY	100/117V	1
		* This unit includes the following parts.		
4	*****	Input Board		1
5	*****	Panel Board		1
6	*****	Jack Board		1
10	*****	PS Board		1
7	5100004359	CORD HOOK		2
8	5100016080	POWER TRANSFORMER	PT-AP018 100/117V	1
	5100016081	POWER TRANSFORMER	PT-AP018 230/240V	1
9	12369410	CORD BAND	1702B (except for 220VCN)	2
	5100010992	CORD COVER	40285-021 (for 220VCN)	1
11	SD000177	AC CORD PSE	SP-18A WITH TERMINAL 100V	1
	SD000912	AC CORD ASSY	SP-20 117V(2P)	1
	5100012741	AC CORD	181-BG429-BL 117VBL 2.5M	
	SD000913	AC CORD ASSY	SP-026A 230V(2P)	1
	SD000914	AC CORD ASSY	SP-61 230VE(2P)	1
	SD000915	AC CORD ASSY	SP-501 240V(2P)	1
	SD001068	AC CORD ASSY	SP-18B 115V(2P)	1
	5100005807	AC CORD ASSY	181-BG429-CNLF-220VCN 2.5M	1
a	40013067	SCREW M3X8	PAN MACHINE W/SW+SMALL PW ZC	10
b	40565489	SCREW M4X25(302-P8402551LF)	PAN MACHINE W/SW BZC	2
c	40010689	SCREW 4X25	TRUSS TAPPING A FE BZC	4
d	40011767	FLANGE HEX NUT M4	FE ZC	1
e	40011889	EXTERNAL TOOTH WASHER M4	FECM	1
	40230245	SCREW M4X12	PAN MACHINE W/SW+PW BZC	1
f	40011767	FLANGE HEX NUT M4	FE ZC	2
	5100017646	SPRING WASHER	4.1X7.6X1.0 ZC	2
	40230245	SCREW M4X12	PAN MACHINE W/SW+PW BZC	2
g	40010301	SCREW M3X20	BINDING MACHINE BZC	2
h	40011756	FLANGE HEX NUT M3	ZC (except for 220VCN)	2
i	22150518	STANDOFF	HEX.BOSS 5.5X15 M3	6

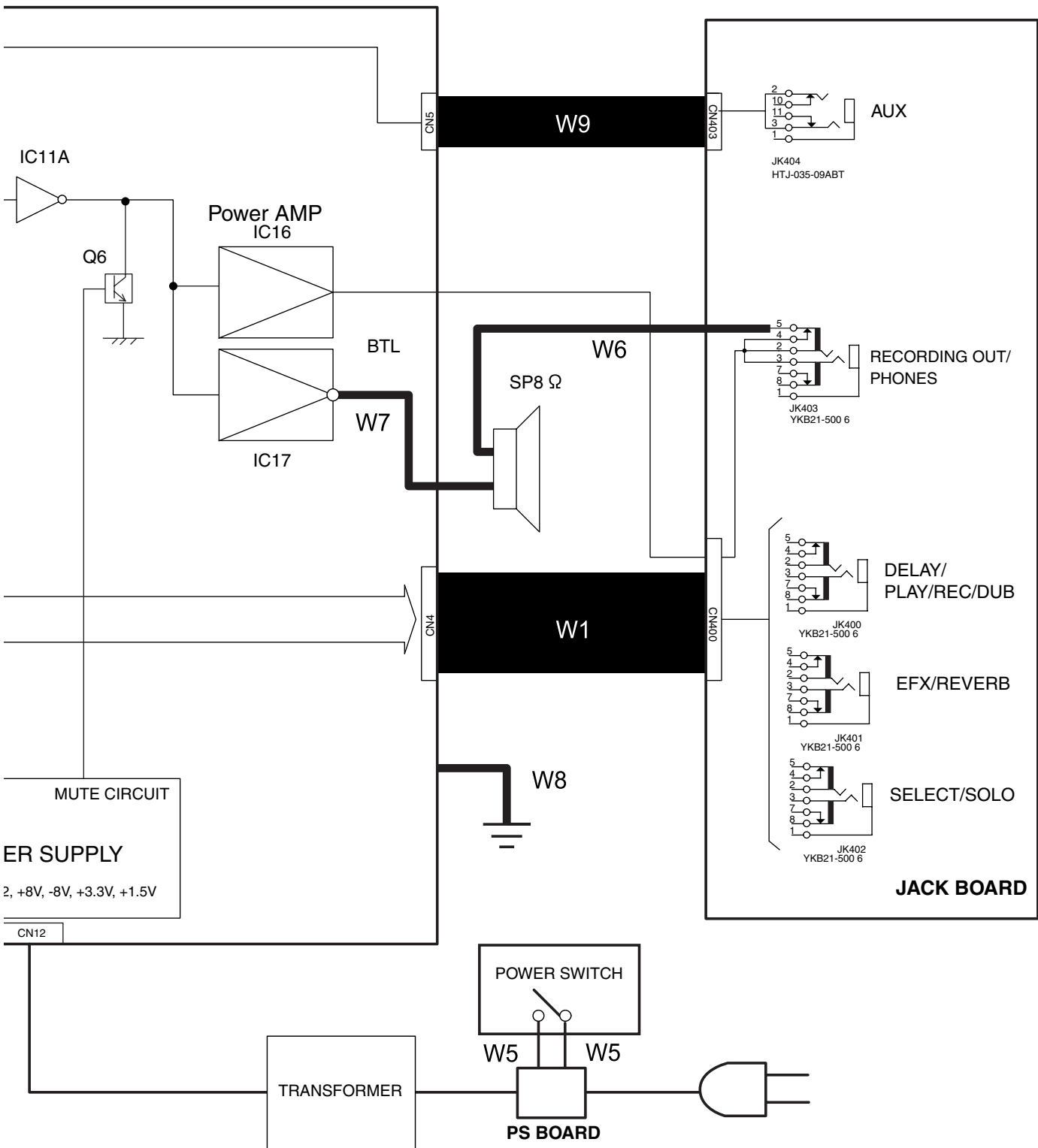
* Sandwich an Insulating Sheet (#5100015947) between the Heatsink (#5100015021) and Power IC.

* Apply bond to the Heatsink. (#40231345 KONISHI BOND CYEREX100)

Wiring Diagram/Block Diagram



No.	Part Code	Part Name	Description	Q'ty
W1	5100015676	WIRING	192-AP018-W1	1
W2	5100015938	WIRING	195-BG431-W3	1
W3	5100017216	WIRING	192-AP018-W3	1
W4	5100017217	WIRING	192-AP018-W4	1
W5	5100015939	WIRING	195-BG431-W5	2
W6	5100015937	WIRING	196-BG432-W6	1
W7	5100015934	WIRING	196-BG432-W7	1
W8	5100015935	WIRING	196-BG431-W8	1
W9	5100015936	WIRING	195-BG431-W4	1



Parts List

Safety Precautions:
The parts marked Δ have safety-related characteristics. Use only listed parts for replacement.

Due to one or more of the following reasons, parts with parts code ***** cannot be supplied as service parts.

- Part supplied only as a component in a complete assembly
- Copyright does not permit the part to be supplied
- Part is sold commercially

Note: The parts marked # are new. (initial parts) The description "Q'ty" means a necessary number of the parts per one product.

CASING				
#	5100015546	CABINET ASSY		1
#	5100015008	GRILLE		1
CHASSIS				
#	5100015016	CHASSIS		1
KNOB, BUTTON				
#	5100004351	R-KNOB	05800-515(SD000043)40A-KBG-10	11
#	5100015020	S-KEYTOP	SX BLK	2
	5100004353	KEYTOP	40285-501(SD000906)	4
SWITCH				
	01780101	TACT SWITCH	SKQKABD010	6
	02897801	SEESAW SWITCH	SDDJE13200 94V-0	1
JACK, EXT TERMINAL				
	05019512	3.5MM JACK	203-HTJ03509ABT	1
	13449146	6.5MM JACK	YKB21-5012 (W/SW)	1
	13449252	6.5MM JACK	YKB21-5006 (STEREO W/SW)	4
SPEAKER, BUZZER				
#	Δ 5100015948	SPEAKER	W1008-432A	1
PWB ASSY				
#	5100014936	MAIN BOARD ASSY		1
#	5100016067	PANEL SHEET ASSY	100/117V	1
		<i>* This unit includes the following parts.</i>		
#	*****	Panel Board		1
#	*****	Jack Board		1
#	*****	Input Board		1
#	*****	PS Board	Change a fuse for high voltage.	1
DIODE				
	03349978	LED (RED)	L-34HDSL-FPB	6
	03349989	LED (GREEN)	L-34GDSL-FPB	1
	05011067	LED	L-3WEGW (153-L-3WEGW)	1
	5100003359	LED	BL L-34ID (153-L-34IDSLLF)	2
POTENTIOMETER				
#	5100004182	POTENTIOMETER	RD901F-40E1-15F-0B10K-00DN6	10
#	5100016162	ROTARY POTENTIOMETER	RD901F-40-15F-B10K-09DW6	1
FUSE, FUSE HOLDER				
#	Δ 5100011084	FUSE	MET 1.25	4
#	Δ 5100011077	FUSE	MET 0.200	2
	Δ 03670534	FUSE	5ST 1.25 1.25A/250V	1
	Δ 03674001	FUSE	5ST 630MA/250V	1
#	5100000592	FUSE HOLDER	FC-201	2

WIRING, CABLE					
#		5100015676	WIRING	192-AP018-W1	1
#		5100017216	WIRING	192-AP018-W3	1
#		5100017217	WIRING	192-AP018-W4	1
#		5100015938	WIRING	195-BG431-W3	1
#		5100015936	WIRING	195-BG431-W4	1
#	△	5100015939	WIRING	195-BG431-W5	2
#	△	5100015937	WIRING	196-BG432-W6	1
#		5100015934	WIRING	196-BG432-W7	1
#		5100015935	WIRING	196-BG431-W8	1
TRANSFORMER					
#	△	5100016080	POWER TRANSFORMER	PT-AP018 100/117V	for low voltage 1
#	△	5100016081	POWER TRANSFORMER	PT-AP018 230/240V	for high voltage 1
AC CORD ASSY (Installed)					
	△	SD000177	AC CORD PSE	SP-18A WITH TERMINAL 100V	for 100V 1
#	△	SD001068	AC CORD ASSY	SP-18B 115V(2P)	for 115VTW 1
#	△	5100012741	AC CORD	181-BG429-BL 117VBL 2.5M	for 117VBL 1
#	△	SD000912	AC CORD ASSY	SP-20 117V(2P)	for 117VU, 117VU/CS 1
	△	5100005807	AC CORD	181-BG429-CNLF-220VCN 2.5M	for 220VCN 1
#	△	SD000914	AC CORD ASSY	SP-61 230VE(2P)	for 230VE 1
#	△	SD000913	AC CORD ASSY	SP-026A 230V(2P)	for 230VEU 1
#	△	SD000915	AC CORD ASSY	SP-501 240V(2P)	for 240VA 1
SCREWS					
		40230789	SCREW 3X10	OVAL MACHINE BZC	2
		5100005098	SCREW 3X16	TRUSS TAPPING A BZC	4
		40010667	SCREW 4X16	TRUSS TAPPING A FE BZC	24
		40010689	SCREW 4X25	TRUSS TAPPING A FE BZC	8
		40013067	SCREW M3X8	PAN MACHINE W/SW+SMALL PW ZC	10
		40010301	SCREW M3X20	BINDING MACHINE BZC	2
		40230245	SCREW M4X12	PAN MACHINE W/SW+PW BZC	3
		40010367	SCREW M4X25	BINDING MACHINE BZC	4
		40565489	SCREW M4X25(302-P8402551LF)	PAN MACHINE W/SW BZC	2
		SD000975	SCREW M4X35	ORIGINAL TRUSS BZC	4
		40564601	SCREW M5X35	OVALHEAD MACHINE BZC	2
		40011756	FLANGE HEX NUT M3	ZC	except for 220VCN 2
		40011756	FLANGE HEX NUT M3	ZC	for 220VCN 0
		40011767	FLANGE HEX NUT M4	FE ZC	3
		H5039521R0	NUT M7		1
		17048630	VR ACCESSORY NUT M9		10
		22150756	JACK NUT 2	PLASTIC/BLK	2
		40011689	SPEED NUT M3	F-TYPE	2
		SD000430	PLANE WASHER	D11 D4.1 T1 BLACK/323-BG-405LF	4
		SD000370	PLATE WASHER	4.2X10X0.5T FEBC	4
		5100017646	SPRING WASHER	4.1X7.6X1.0 ZC	1
		40011889	EXTERNAL TOOTH WASHER M4	FECM	1
		17048651	VR ACCESSORY WASHER M7	M7X12X0.5 NO.476	1
		40452178	VR WASHER M9		10
		22150518	STANDOFF	HEX.BOSS 5.5X15 M3	6
MISCELLANEOUS					
#		5100015011	CORNER PROTECTOR		4
#		5100015013	TRIM SASH		1
		SD000017	BADGE		1
		SD000035	HANDLE WITH ESCUTHEON		1
		5100011381	HANDLE		1
		5100011382	HANDLE PLATE		1
		5100011383	HANDLE HOLDER		2
		12359104	RUBBER FOOT	G-5R	4
		12369410	CORD BAND	1702B	except for 220VCN 2
		5100010992	CORD COVER	40285-021	for 220VCN 1
		5100004359	CORD HOOK		2
#		5100015945	EVA PACKING	85X22X1T W/ADH	1
#		5100015946	EVA PACKING	85X15X1T W/ADH	1
#		5100015943	EVA PACKING	320X35X1T W/ADH	1
#		5100015944	EVA PACKING	25X15X1T W/ADH	1
		5100011022	EVA PACKING	110X15X1T W/ADH	1
#		5100011023	EVA PACKING	110X10X1T W/ADH	2
#	△	5100015021	HEATSINK		2
#		5100015949	HIMELON	6X50X0.5T W/ADH	3
#		5100015941	HIMELON	10X320X1T W/ADH	1
#		5100018360	AC PLUG SHEET		for 230VE, 220VCN 1
#	△	5100015947	INSULATING SHEET		2
		5100005099	LOCKING CABLE TIE	120X2.5X1T DAIHWA	8
		5100004371	LED SPACER	LK-36-2	1

MISCELLANEOUS				
	5100004215	LED SPACER	LEDH-2	2
	5100004216	LED SPACER	LEDH-7	7
#	5100005211	SEAL	UL LIGHTNING FLASH	1
#	5100015942	ACETATE TAPE	#156A 35X25XT0.25	2
#	5100016363	ACETATE TAPE	#156A 275*10*0.25	1
#	5100006603	TERMINAL	PT1870502	2
	04892501	TERMINAL	JH-8M3-T	1
	40231345	BOND	KONISHI BOND CYREX100 330ML	-
ACCESSORIES (Standard)				
#	5100016038	OWNER'S MANUAL	JAPANESE	1
#	5100016039	OWNER'S MANUAL	MULTILANGUAGE	1
#	5100016323	OWNER'S MANUAL	CHINESE	1

Verifying the Version Number

Items Required

- Foot switch (FS-5U x 2 or FS-6)
- Foot-switch connection cable (PCS-31 or PCS-33)
- Dummy plug

Procedure

1. Connect the foot switches to the **FOOT SW TIP: SELECT/RING: SOLO** jack.
 - * The PCS-31 foot-switch connection cable is an adapter cable from stereo to mono x 2. The "white" end of the 1/4-inch mono phone plug is for **TIP: SELECT**, and the "red" end is for **RING: SOLO**. Connect the mono ends of the 1/4-inch phone plug to the FS-5U foot switches. You can connect the white and red ends to either FS-5U unit.
 - * Set the polarity switch on the FS-5U units to the "jack" side.
2. Make the following settings on the main unit.

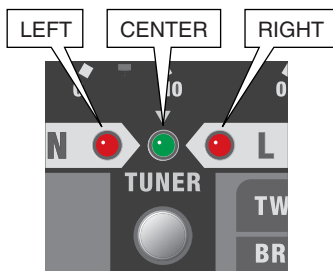
POWER switch:	OFF
SELECT switch:	JC CLEAN (The push switch is up.)
AMP TYPE control:	ACOUSTIC SIM
All knobs:	Minimum (0 or OFF)
3. Hold down the [SELECT] (white) foot switch connected to the **FOOT SW** jack and switch on the power.

At this time, all LEDs on the panel light for about one second. Hold down the FS-5U while the LEDs are lighting.
4. Release your hand immediately after the LEDs go off, and then press it two times.

After the all LEDs blink for a while, the version number is displayed as follows.

Version	LEFT	CENTER	RIGHT
1.00	o	-	-
1.01	-	o	-
1.02	-	-	o
1.03	o	o	-
1.04	o	-	o
1.05	-	o	o

o: flashing, -: dark



5. Switch off the power to the unit.

Factory Reset

Ordinary servicing or part replacement requires no factory reset. In the future, however, updates to the software version may make a factory reset necessary, and so the procedure is described below. (or refer to the Owner's Manual, p. 13).



Performing a factory reset causes user data to be deleted and returned to the factory defaults. User data (control setting data saved using the SOLO Function) cannot be backed up.

* When you want to check what the user data contains, refer to "Recalling the Saved Sound" (Owner's Manual, p. 12).

1. Hold down the **TAP/STOP** and **SOLO ON/OFF** switches at the same time and switch on the power.

All LEDs light up, after which only the SOLO LED flashes. Then setting data saved using the SOLO Function return to the factory-default state. This completes the factory reset, and user data is deleted.
2. Switch off the power to the unit.

Test Mode

Items Required

- Foot switch (FS-5U x 2 or FS-6)
- Foot-switch connection cable (PCS-31 or PCS-33)
- Dummy plug

Entering the Test Mode

Go to **Verifying the Version Number** (p. 15) and execute steps **1** through **4**. After verifying the version, depress the [SELECT] (white) foot switch connected to the **FOOT SW** jack to enter the first test item, **1. DSP Test**.

Exiting the Test Mode

Switch off the power.

Skipping

Inspection items cannot be skipped.

Test Items

1. DSP Test

DSP Test starts automatically as soon as you enter the Test Mode.

In the DSP Test, LEDs light up in the sequence of LEFT (JC CLEAN) -> CENTER -> RIGHT (LEAD) to indicate the progress of the testing.

- If the test is passed (OK)
 - The LEFT (JC CLEAN), CENTER, and RIGHT (LEAD) LEDs flash.
- If the test is failed (not OK)
 - The EFX LED flashes.

When the test has been passed, depressing the [SELECT] foot switch makes execution advance to the next test item.

2. Switch Test

Entering the Switch Test makes all LEDs go out.

Carry out operations in the sequence shown below and check the status of the corresponding LEDs.

1. Pressing the **SELECT** switch makes the LEFT (JC CLEAN), CENTER, and RIGHT (LEAD) LED light up.
2. Pressing the **TUNER** switch makes the TUNER LED light up.
3. Pressing the **REC/PLAY/DUB** switch makes the REC/PLAY/DUB LED light up red.
4. Pressing the **TAP/STOP** switch makes the REC/PLAY/DUB LED light up green.
5. Pressing the **TAP/STOP** switch again makes the REC/PLAY/DUB LED light up orange.
6. Pressing the **SOLO ON/OFF** switch makes the SOLO LED light up.
7. Pressing the **POWER SQUEEZER** switch makes the POWER SQUEEZER LED light up.
8. Operate the rotary switch, plug, and pedal as the order in the following table.

LEDs with "o" in the table will light.

* If you mistake the order of operations or operate more than one item at a time, LEDs of LEFT (JC CLEAN) and RIGHT (LEAD) will blink.

Operation		Lighting LED		
		LEFT (JC CLEAN)	CENTER	RIGHT (LEAD)

Rotate rotary switch				
1	ACOUSTIC SIM	o	o	o
2	BLACK PANEL	o	-	-
3	BRIT COMBO	-	-	o
4	TWEED	o	-	-
5	CLASSIC STACK	-	-	o
6	METAL STACK	o	-	-
7	R-FIER STACK	-	-	o
8	EXTREME	o	-	-
9	DYNA AMP	-	-	o
10	EXTREME	o	-	-
11	R-FIER STACK	-	-	o
12	METAL STACK	o	-	-
13	CLASSIC STACK	-	-	o
14	TWEED	o	-	-
15	BRIT COMBO	-	-	o
16	BLACK PANEL	o	-	-
17	ACOUSTIC SIM	o	o	o

Insert a dummy plug				
18	Insert into RECORDING OUT/PHONES	o	-	-
19	Pull out	o	o	-

o: illuminated, -: dark

Operation		Lighting LED					
		LEFT (JC CLEAN)	CENTER	RIGHT (LEAD)	EFX	DELAY/ LOOPER	REVERB

Press pedal, pull out/insert plug.							
20	Press FOOT SW [TIP: SELECT].	o	-	-	o	-	-
21	Press FOOT SW [RING: SOLO].	o	o	-	o	-	-
22	Pull out from FOOT SW (SELECT/SOLO).	-	-	-	-	-	-
23	Insert to FOOT SW (EFX/REVERB).	o	-	-	-	o	-
24	Press FOOT SW [TIP: EFX].	o	o	-	-	o	-
25	Press FOOT SW [RING: REVERB].	o	o	o	-	o	-
26	Pull out from FOOT SW (EFX/REVERB).	-	-	-	-	-	-
27	Insert to FOOT SW (DELAY/TAP).	o	-	-	-	-	o
28	Press FOOT SW [TIP: DELAY].	o	o	-	-	-	o
29	Press FOOT SW [RING: TAP].	o	o	o	-	-	o
30	Pull out from FOOT SW (DELAY/TAP).	-	-	-	-	-	-
31	Insert to FOOT SW (SELECT/SOLO).	o	o	o	o	o	o

o: illuminated, -: dark

All operations are finished, LEDs of LEFT (JC CLEAN), CENTER and RIGHT (LEAD) will blink.

9. Press FOOT SW [SELECT] to advance to the next test item.

3. Volume Control Test

When entering Volume Test, all LEDs go off temporarily.

- Operate the following knobs of (1)–(10) minimum–center–maximum in numerical order and confirm the all knobs work correctly with its LED lighting and sound from the speaker.

* *If you mistake the order, the knob will not response.*

* *After detecting all of the minimum, center and the maximum value, test program advances to test of the next knob.*

- (1) JC CLEAN VOLUME
- (2) EQUALIZER BASS
- (3) EQUALIZER MIDDLE
- (4) EQUALIZER TREBLE
- (5) EFX
- (6) DELAY/LOOPER
- (7) REVERB
- (8) SOLO VOLUME
- (9) LEAD VOLUME
- (10) LEAD GAIN

Position of control	Lighting LED
Minimum (all the way counterclockwise)	LEFT (JC CLEAN)
Center	LEFT (JC CLEAN), CENTER
Maximum (all the way clockwise)	LEFT (JC CLEAN), CENTER, RIGHT (LEAD)

The volume level of the speaker sound increases as the control is operated toward the maximum position, and the pitch rises at the intermediate position.

When all volume testing has been completed, the LEFT (JC CLEAN), CENTER, and RIGHT (LEAD) LEDs flash.

This concludes the testing.

Signal-level Test (for Reference)

When components on the circuit board have been replaced, perform this test.

Items Required

- Level meter
- Signal generator
- Dummy load resistor tool
 - 8 Ω (100 W or more)
 - 1/4-inch stereo phone plug with 100-Ω (1/2 W or more) load resistor connected between L, R, and GND

Procedure

- Go to **Verifying the Version Number** (p. 15) and execute steps **1** through **4**.
The version information is displayed.
- Depress the [SOLO] (red) foot switch connected to the **FOOT SW** jack. All LEDs light up, and the unit enters the Level Test mode.

AUX IN to PHONES Output Verification

- Adjust the **LEAD** control to **ACOUSTIC SIM**.
- To the **RECORDING OUT/PHONES** jack, connect the 1/4-inch stereo phone plug 100-Ω load resistors (x 2).
- Simultaneously input the following signals to **AUX IN** left and right.
 - L: 100-Hz, 1-kHz, and 10-kHz sine waves at -20 dBu
 - R: 100-Hz, 1-kHz, and 10-kHz sine waves at -20 dBu
- Verify that the output values of the **RECORDING OUT/PHONES** jack are as follows.
 - L: 100 Hz at +1.0±1.5 dBu (flat)
 - R: 100 Hz at +1.0±1.5 dBu (flat)
 - L: 1 kHz at -7.0±1.5 dBu (flat)
 - R: 1 kHz at -7.0±1.5 dBu (flat)
 - L: 10 kHz at +6.0±1.5 dBu (flat)
 - R: 10 kHz at +6.0±1.5 dBu (flat)

Speaker Output Verification (1)

- Adjust the **LEAD** control to **BLACK PANEL**.
- Connect the 8-Ω load resistor to the speaker cables (red and black).
 - * *When detaching the speaker cables, be careful to keep the cable connectors from being grounded. Failure to do so may damage the Main Board.*
- Input the following signals to the **INPUT** jack.
 - 100-Hz, 1-kHz, and 10-kHz sine waves at -25.0 dBu
- Verify that the output values of the speaker are as follows.
 - 100 Hz at +14.0±1.5 dBu (flat)
 - 1 kHz at +14.0±1.5 dBu (flat)
 - 10 kHz at +13.0±1.5 dBu (flat)

Speaker Output Verification (2)

- Adjust the **LEAD** control to **TWEED**.
- Confirm the 8-Ω load resistor is connected to the speaker cables (red and black).
- Input the following signals to the **INPUT** jack.
 - 100-Hz, 1-kHz, and 10-kHz sine waves at -25.0 dBu
- Verify that the output values of the speaker are as follows.
 - 100 Hz at +14.0±1.5 dBu (flat)
 - 1 kHz at +14.0±1.5 dBu (flat)
 - 10 kHz at +22.0±1.5 dBu (flat)

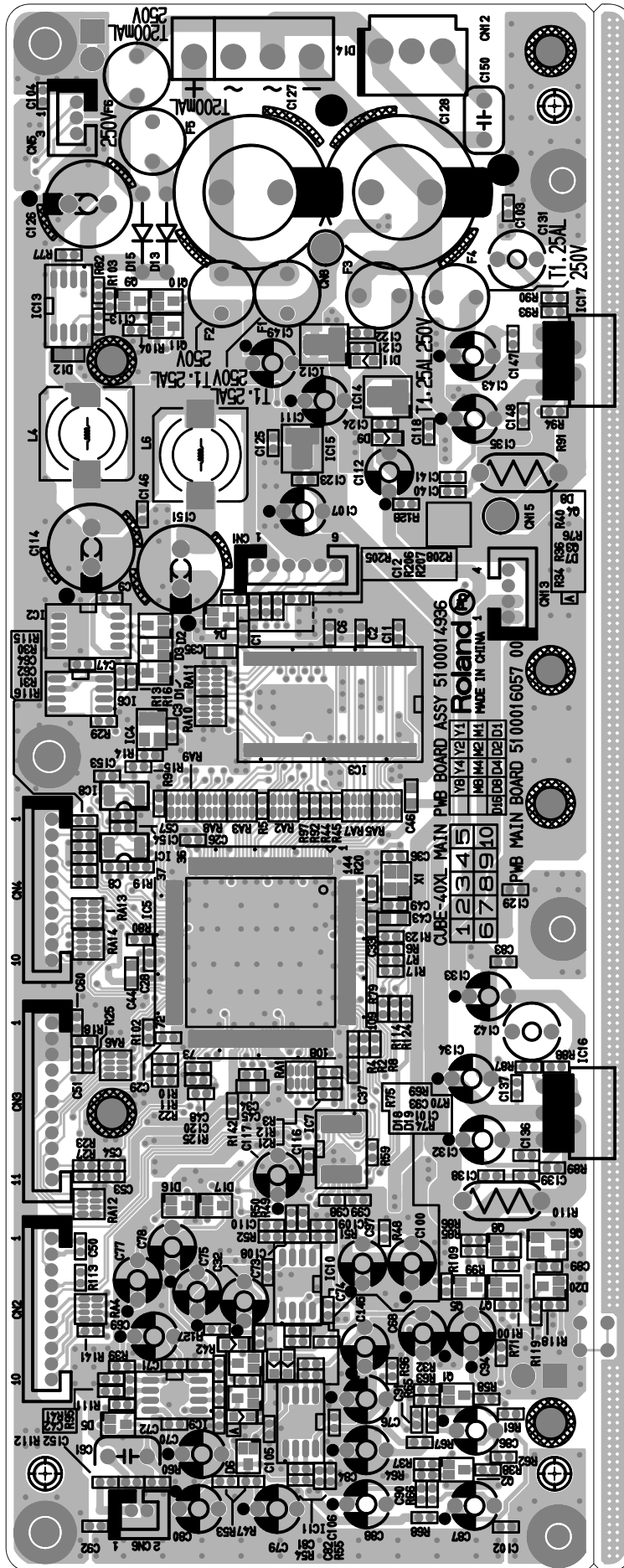
Speaker Output Verification (3)

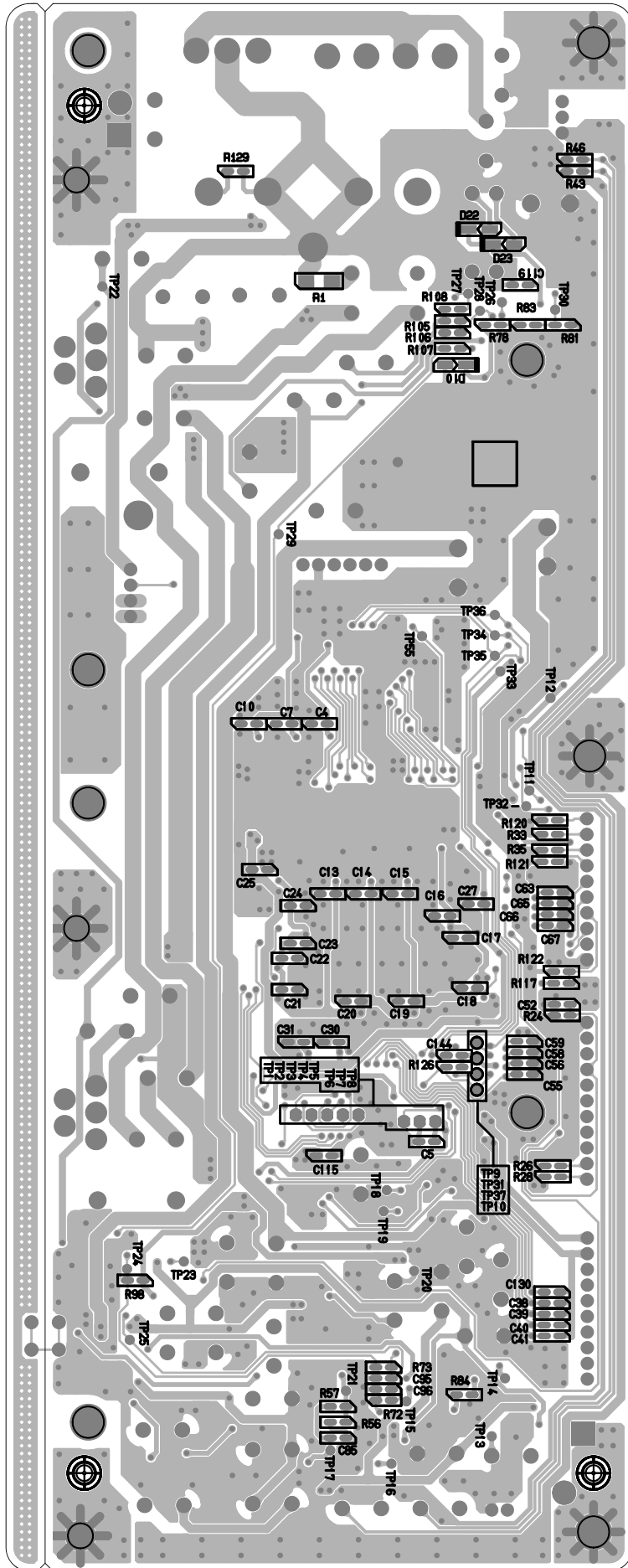
- Adjust the **LEAD** control to **CLASSIC**.
- Confirm the 8-Ω load resistor is connected to the speaker cables (red and black).
- Input the following signals to the **INPUT** jack.
 - 1-kHz sine wave at -25.0 dBu
- Verify that the output values of the speaker are as follows.
 - 1 kHz at +14.0±1.5 dBu (flat)

Speaker Output Verification (4) (TUBE LOGIC)

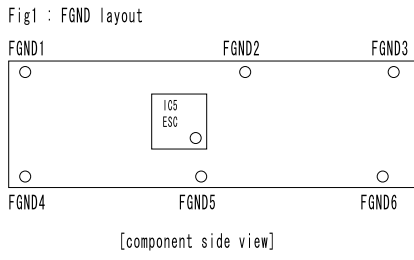
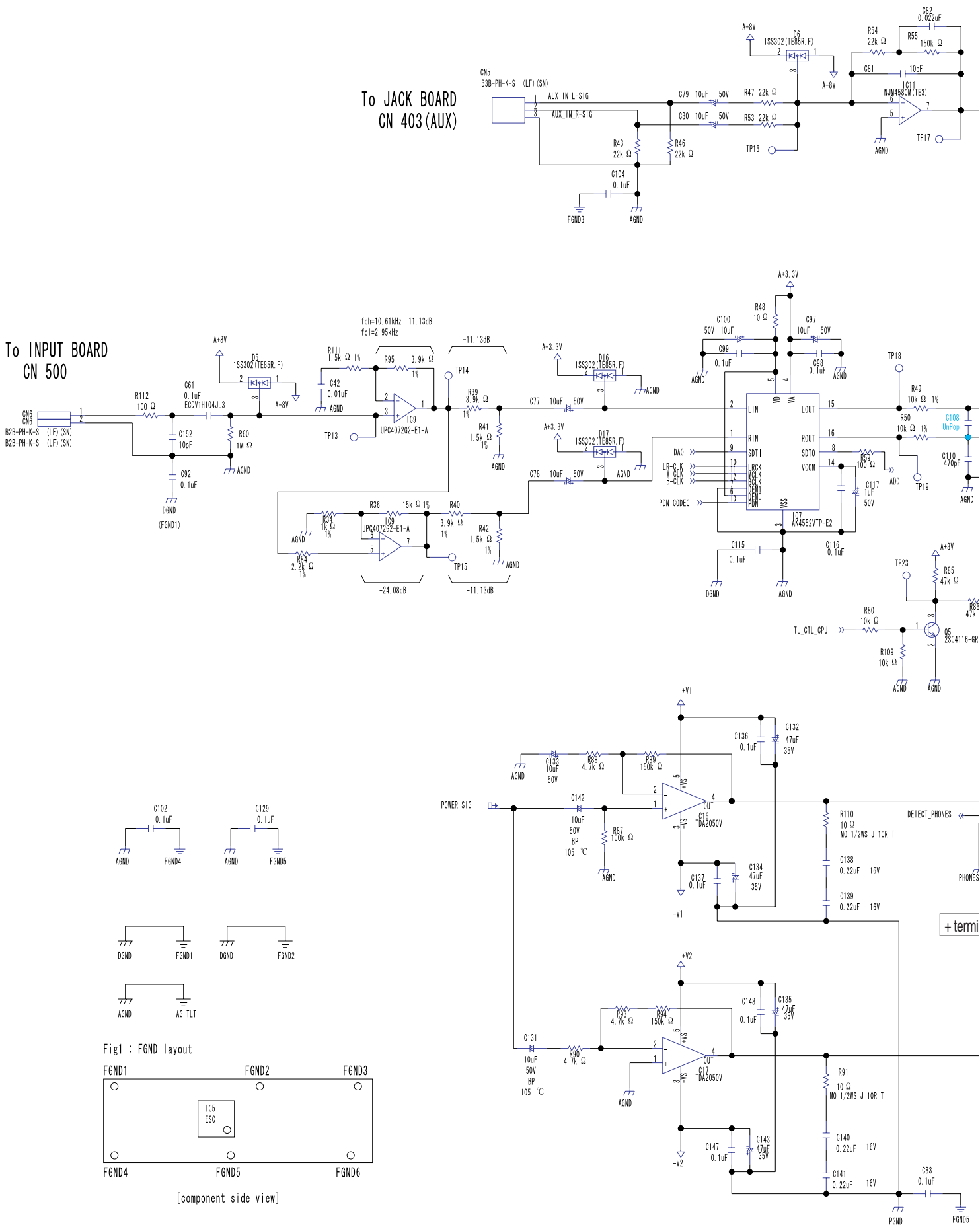
- Adjust the **LEAD** control to **EXTREME**.
- Confirm the 8-Ω load resistor is connected to the speaker cables (red and black).
- Input the following signals to the **INPUT** jack.
 - 100-Hz, 1-kHz, and 10-kHz sine waves at -35.0 dBu
- Verify that the output values of the speaker are as follows.
 - 100 Hz at +3.5±1.5 dBu (flat)
 - 1 kHz at +3.5±1.5 dBu (flat)
 - 10 kHz at +1.0±1.5 dBu (flat)

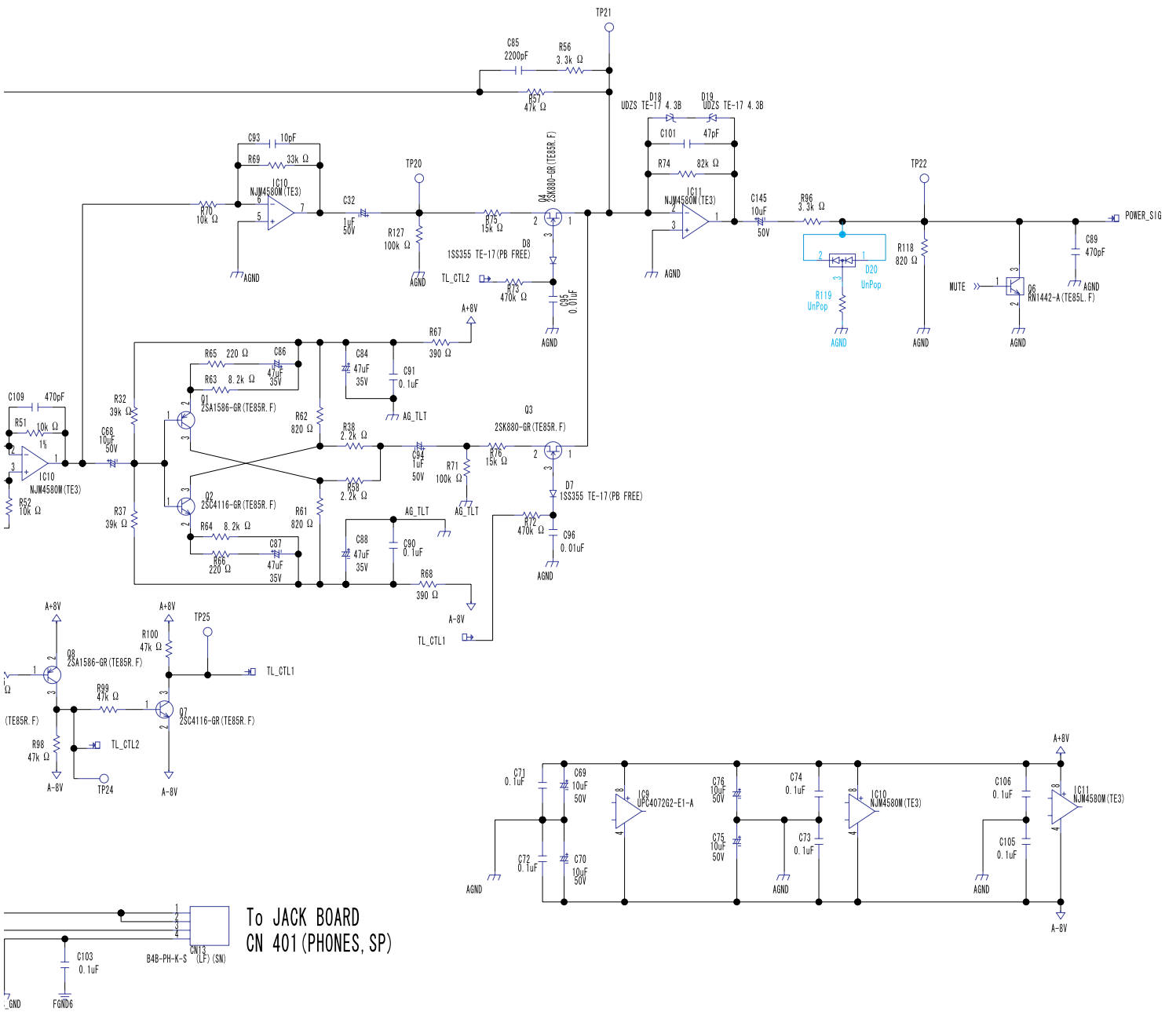
Circuit Board (Main Board)



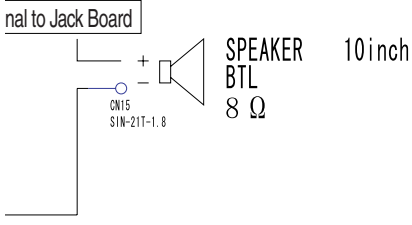


Circuit Diagram (Main Board: 2/3)

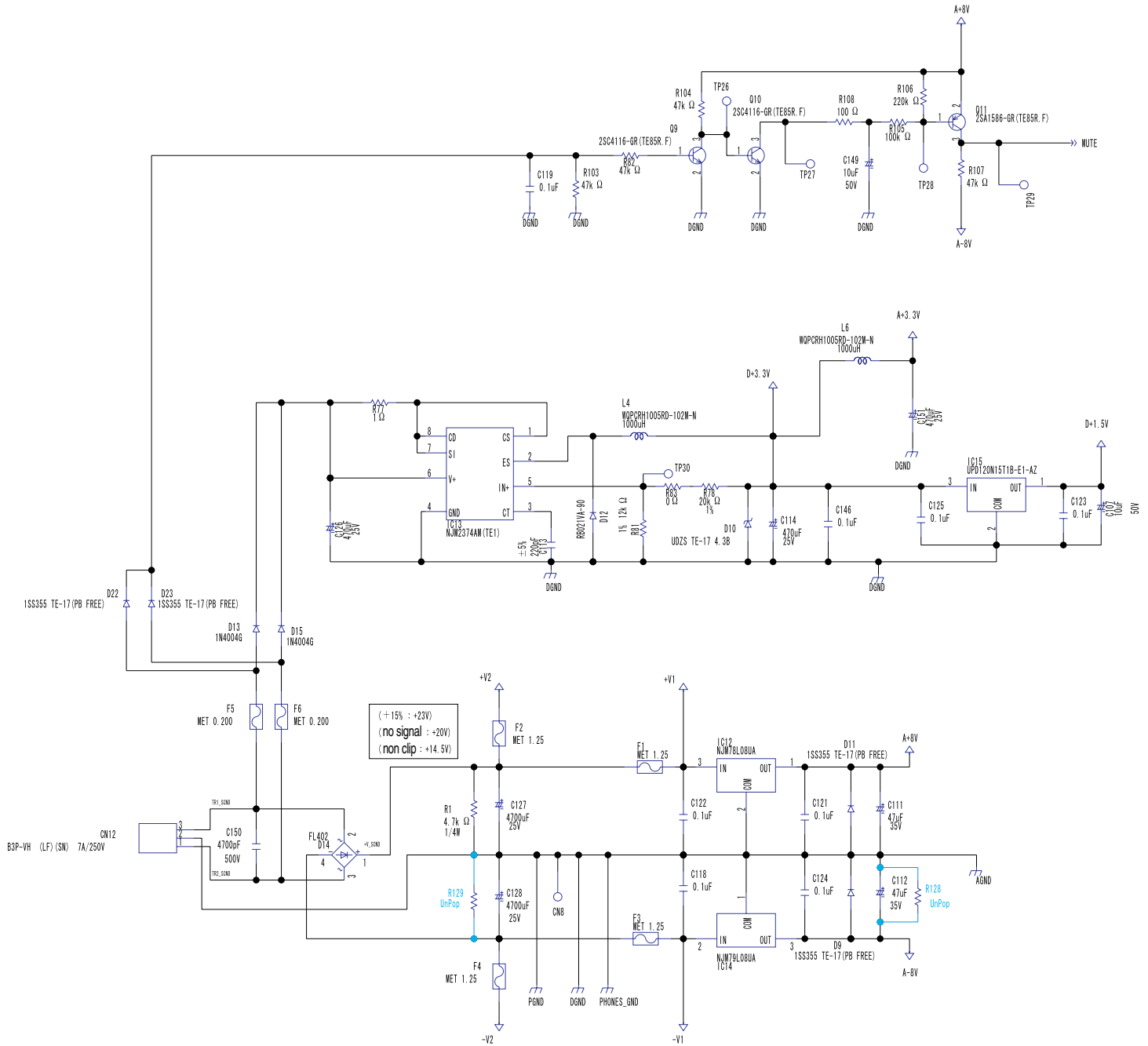




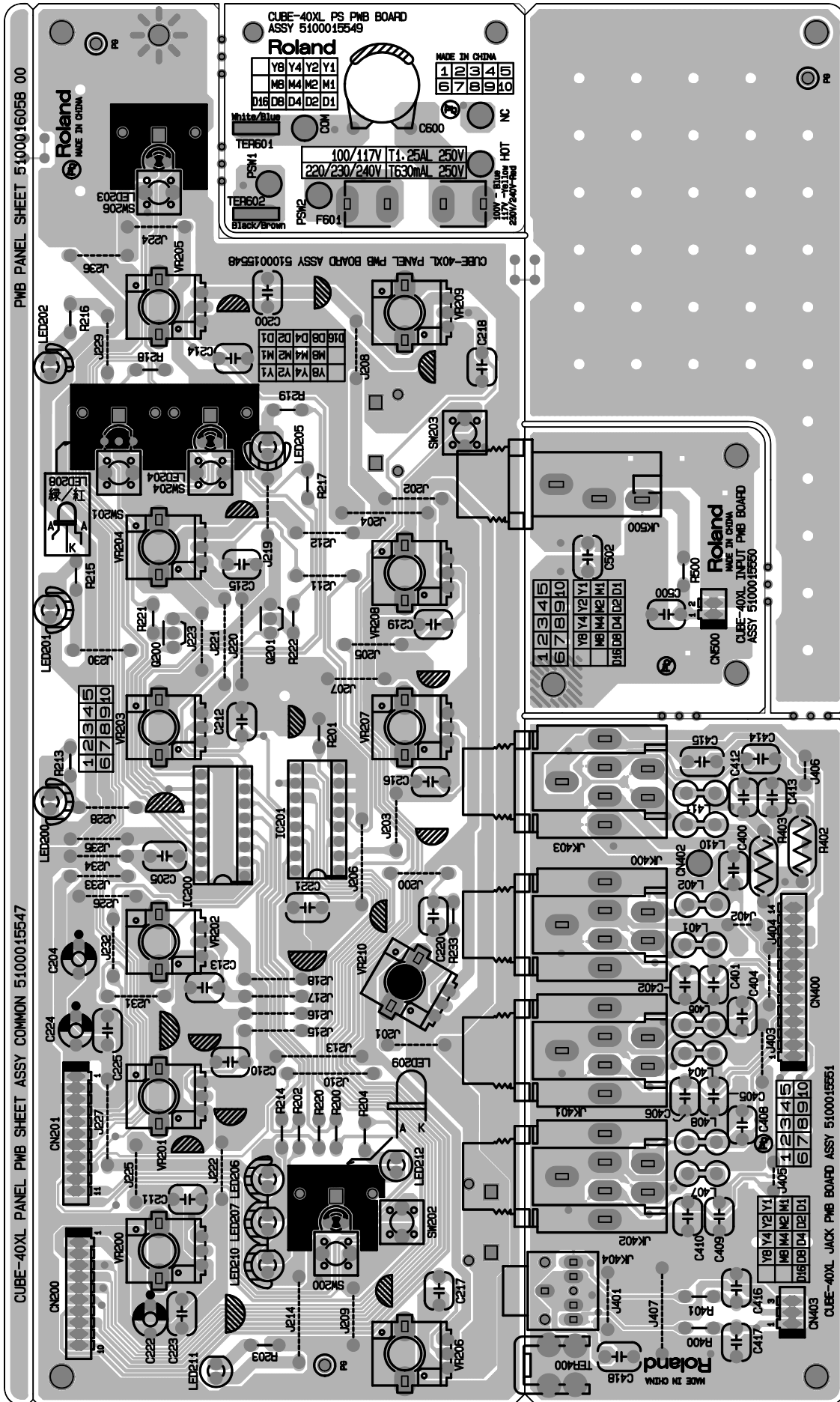
To JACK BOARD
CN 401 (PHONES, SP)



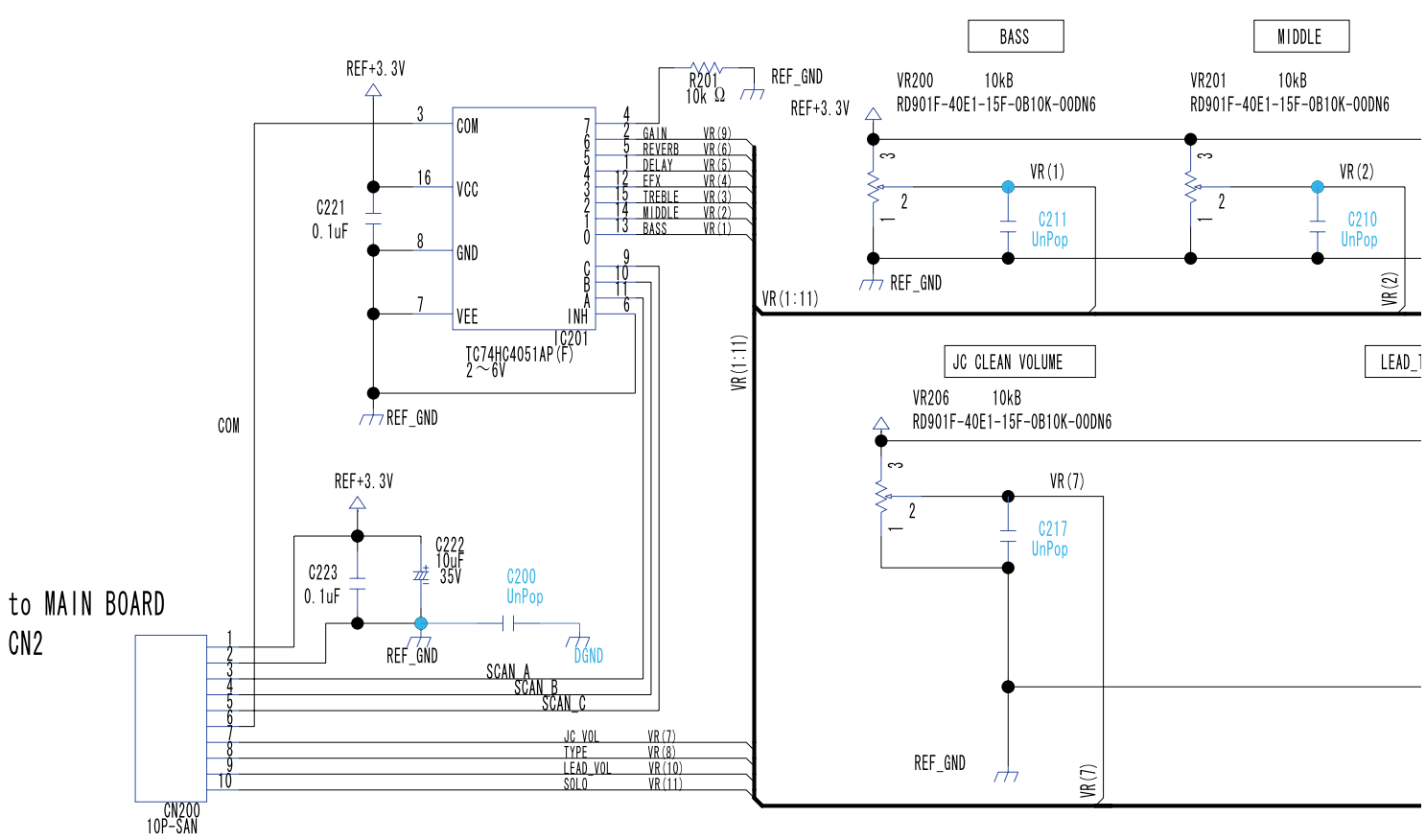
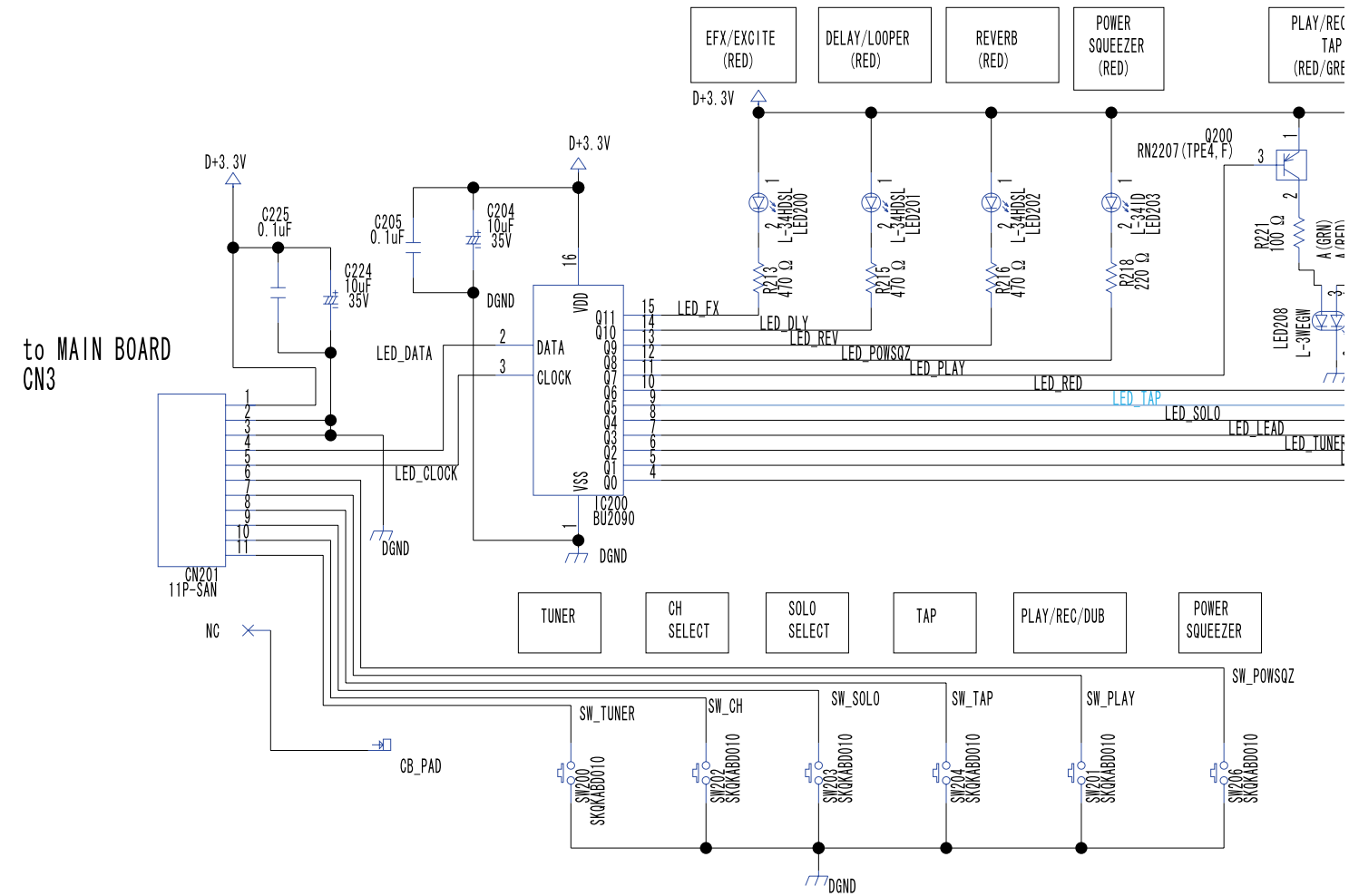
Circuit Diagram (Main Board: 3/3)

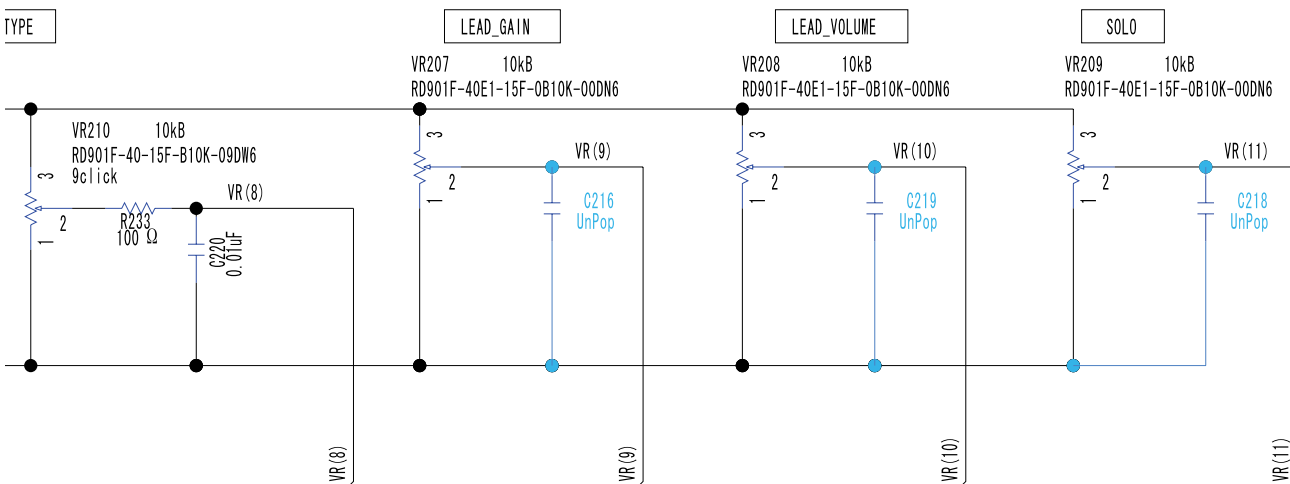
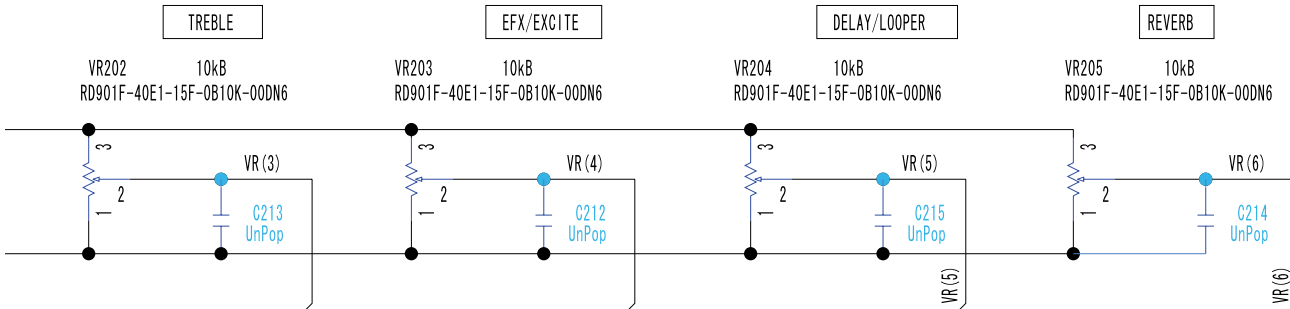
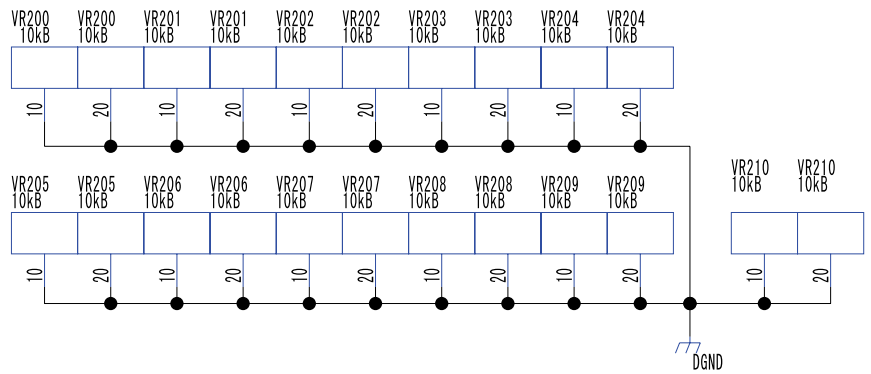
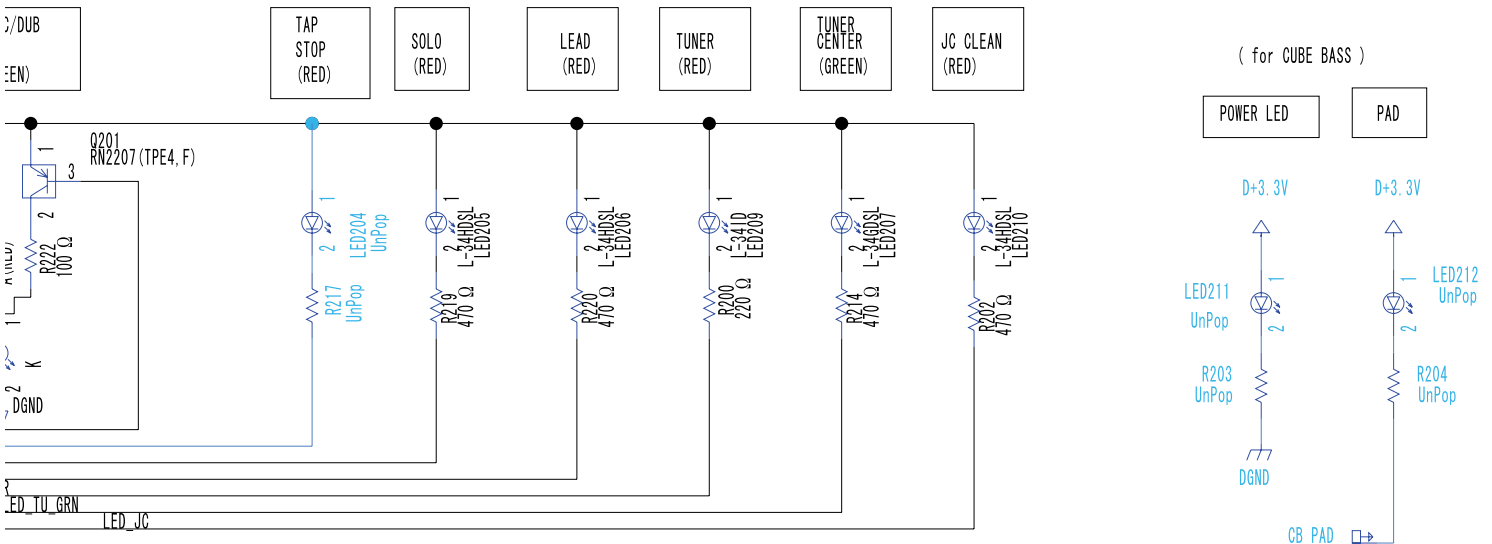


Circuit Board (Panel, Jack, Input, PS Board)

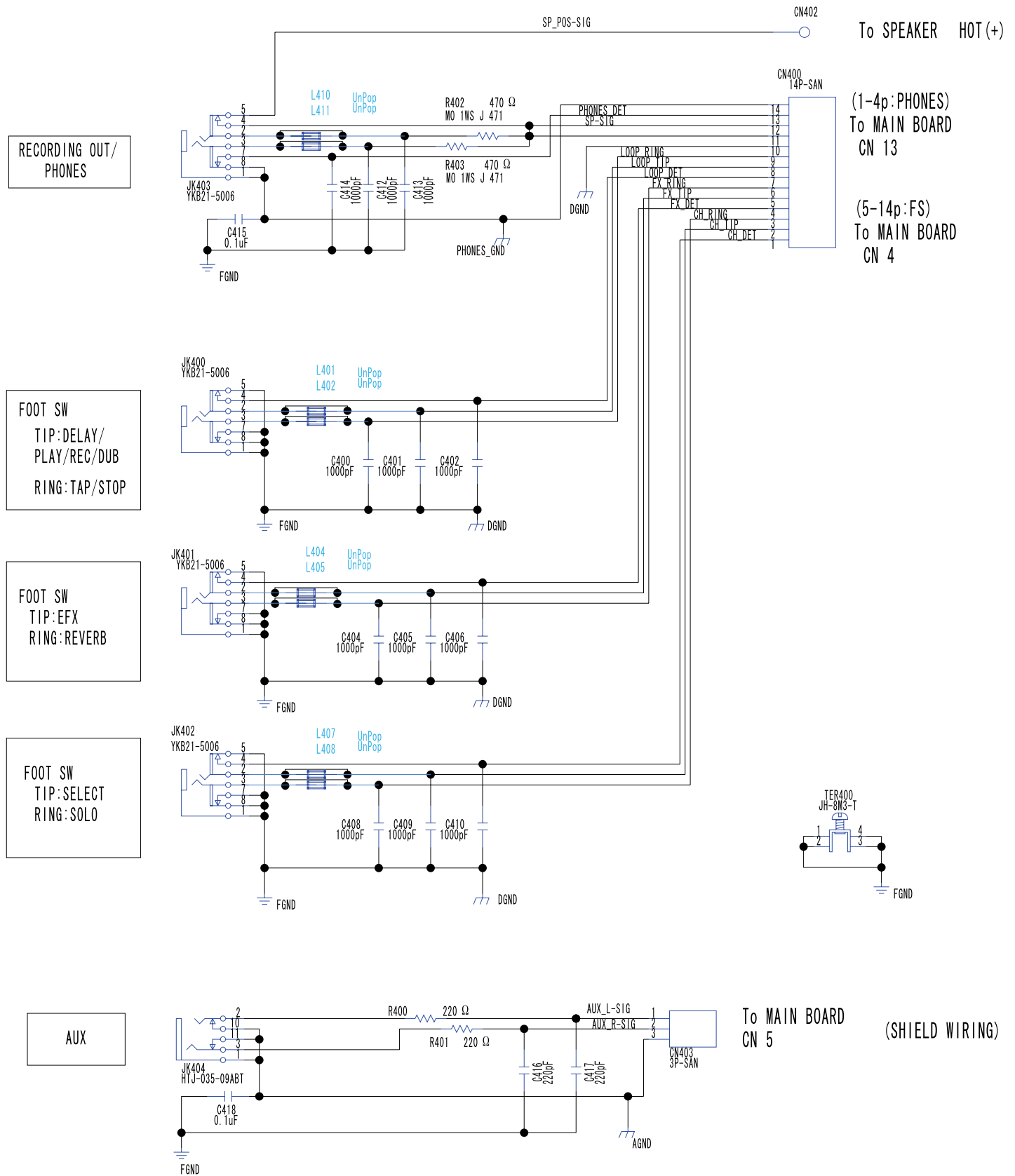


Circuit Diagram (Panel Board)

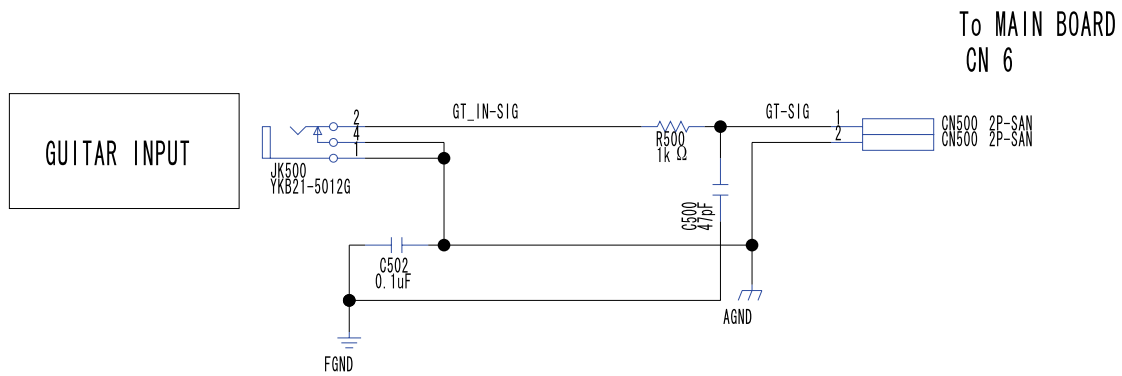




Circuit Diagram (Jack Board)



Circuit Diagram (Input Board)



Circuit Diagram (PS Board)

