

KATANA-100 Mk II

Guitar Amplifier

SERVICE NOTES

Issued by RJA

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Cautionary Notes

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

Back Up User Data!

User data may be lost during the course of the procedure. Refer to **Data Backup and Restore Operations** (p. 21) in the Service Notes and save the data. After completing the procedure, restore the backed-up data to the product.

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.)
- Because it is sold as a product.

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.

There are cases that the circuit diagrams are omitted. This omission will happen to the highly integrated digital circuit boards (e.g. Main Board etc) that are virtually impossible to repair nor analyze.

Roland Japan Warranty

Please send the problem report with followings when the defect occurred within one year from production and within one month from the first customer's purchase.

- Model name:
- Serial number:
- Version:
- Purchase date by the first customer: yyyy/mm/dd
- Symptom:
- Frequency: always, sometimes or seldom
- Confirmed the symptom at your service dept: Yes/No

Please send the problem report to rjasc@roland.co.jp.

Specifications

BOSS KATANA-100 Mk II: Guitar Amplifier

Rated Power Output

100 W

Nominal Input Level

INPUT: -10 dBu (1 MΩ)

AUX IN: -10 dBu (20 kΩ)

RETURN IN: -10 dBu (100 kΩ)

Speaker

30 cm (12 inches) x 1

Controls

POWER switch

MASTER knob

PRESENCE knob

POWER CONTROL switch (STANDBY, 0.5 W, 50 W, 100 W)

AMPLIFIER

VARIATION button

AMP TYPE knob (ACOUSTIC, CLEAN, CRUNCH, LEAD, BROWN)

GAIN knob

VOLUME knob

EQUALIZER

BASS knob

MIDDLE knob

TREBLE knob

MULTI EFFECT

BOOSTER button

MOD button

FX button

DELAY button

REVERB button

TAP button

BOOSTER knob

MOD knob

FX knob

DELAY knob

REVERB knob

STONE SETTING

CH1 button

CH2 button

CH3 button

CH4 button

PANEL button

EXPAND

EXPAND switch

Indicators

VARIATION

ACOUSTIC

CLEAN

CRUNCH

LEAD

BROWN

BOOSTER

MOD

FX

DELAY

REVERB

TAP

CH1

CH2

CH3

CH4

PANEL

Connectors

INPUT jack: 1/4-inch phone type

POWER AMP IN jack: 1/4-inch phone type

LINE OUT jack: 1/4-inch phone type

SEND jack: 1/4-inch phone type

RETURN jack: 1/4-inch phone type

REC OUT/PHONES jack: Stereo 1/4-inch phone type

EXP PEDAL/CTL CH1/CH2 jack: 1/4-inch TRS phone type

GA-FC jack: 1/4-inch TRS phone type

AUX IN jack: Stereo miniature phone type

USB port: USB B type

AC IN jack

Power Consumption

77 W

Dimensions

530 (W) x 248 (D) x 484 (H) mm

20-7/8 (W) x 9-13/16 (D) x 17-1/2 (H) inches

Weight

14.8 kg

32 lbs 11 oz

Accessories

Owner's Manual (#5100068139, #5100068163)

Power cord (#00894378, #5100029165, #5100012292, #00894389, #00907001, #5100013842, #03450323, #5100013648)

GA-FC sticker (#5100068137)

Options (sold separately)

Footswitch: BOSS FS-5L, BOSS FS-6, BOSS FS-7

Expression pedal: Roland EV-5, BOSS EV-30, BOSS FV-500L, BOSS FV-500H

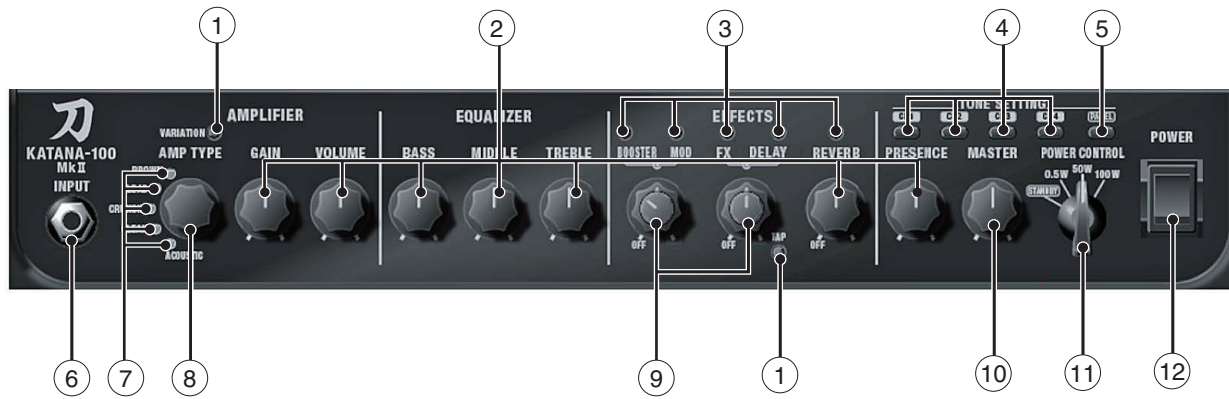
GA FOOT CONTROLLER (GA-FC)

* 0 dBu = 0.775 Vrms

* 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.

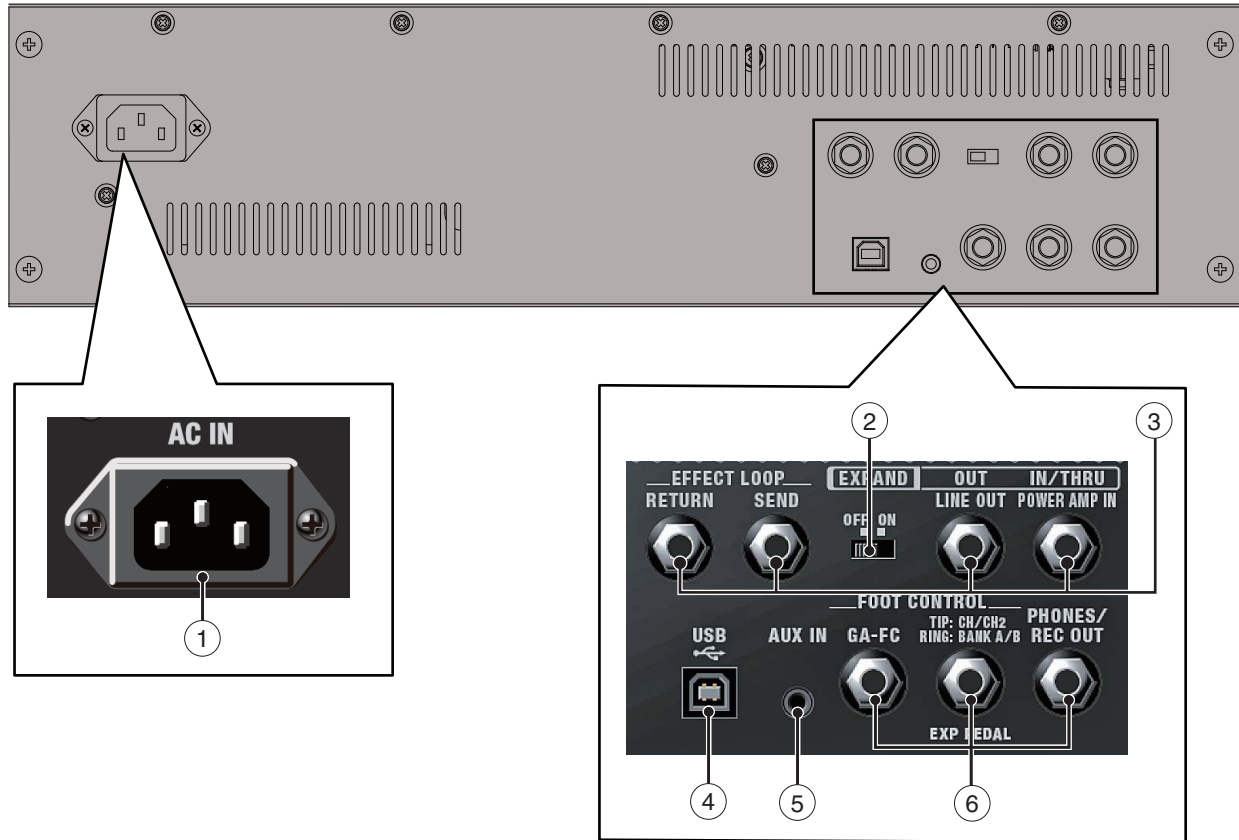
Location of Controls (Top)



Location of Controls Parts List (Top)

No.	Part Code	Part Name	Description	Q'ty
1	5100052217	C-KEYTOP		2
	01780101	TACT SWITCH	SKQKABD010	2
	5100003359	LED(RED)	L-34ID (153-L-34IDSLLF)	2
	5100044430	LED SPACER	LEDH-1.5	2
2	5100052214	R-KNOB	INDEX	7
	5100067364	ROTARY POTENTIOMETER	RV09BDF-40E1-15F-0B10K-003	7
	*****	VR NUT (M9)		7
			attached to VR	
3	5100052217	C-KEYTOP		5
	01780101	TACT SWITCH	SKQKABD010	5
	05011067	LED	L-3WEGW (153-L-3WEGW)	5
	5100004371	LED SPACER	LK-36-2	5
4	5100052218	S-KEYTOP		4
	01780101	TACT SWITCH	SKQKABD010	4
	5100003359	LED(RED)	L-34ID (153-L-34IDSLLF)	4
	5100044430	LED SPACER	LEDH-1.5	4
5	5100052218	S-KEYTOP		1
	01780101	TACT SWITCH	SKQKABD010	1
	05011067	LED	L-3WEGW (153-L-3WEGW)	1
	5100004371	LED SPACER	LK-36-2	1
6	5100024419	6.5MM JACK	PJ-644C-04-EP(610-11020-01-00)	1
	5100046593	JACK SPACER		1
	*****	JACK NUT		1
	*****	JACK WASHER		1
			attached to JACK	
			attached to JACK	
7	5100003359	LED(RED)	L-34ID (153-L-34IDSLLF)	5
	5100052216	LED GUIDE		1
8	5100052215	R-KNOB		1
	5100067534	ENCODER	RE111F-40B3A-15F-20P-118	1
	*****	VR NUT (M7)		1
			attached to VR	
9	5100067440	R-KNOB		2
	5100067443	O-KNOB		2
			inside	
			outside	
	5100067365	ROTARY POTENTIOMETER	RD912DF-40E1-15F-0B10K-60D0C5	2
	*****	VR NUT (M9)		2
			attached to VR	
10	5100052214	R-KNOB	INDEX	1
	5100067363	ROTARY POTENTIOMETER	RV09BDF-40E1-15F-2B20K-003	1
	*****	VR NUT (M9)		1
			attached to VR	
11	5100049813	INDEX KNOB		1
	5100052466	ROTARY POTENTIOMETER	RD901F-40-125F-B10K-04D60A	1
	*****	VR NUT (M7)		1
			attached to VR	
12	02897801	SEESAW SWITCH	SDDJE13200 94V-0	1
	5100046595	POWER SW ESCUTCHEON		1
	5100046598	POWER SW CUSHION		2

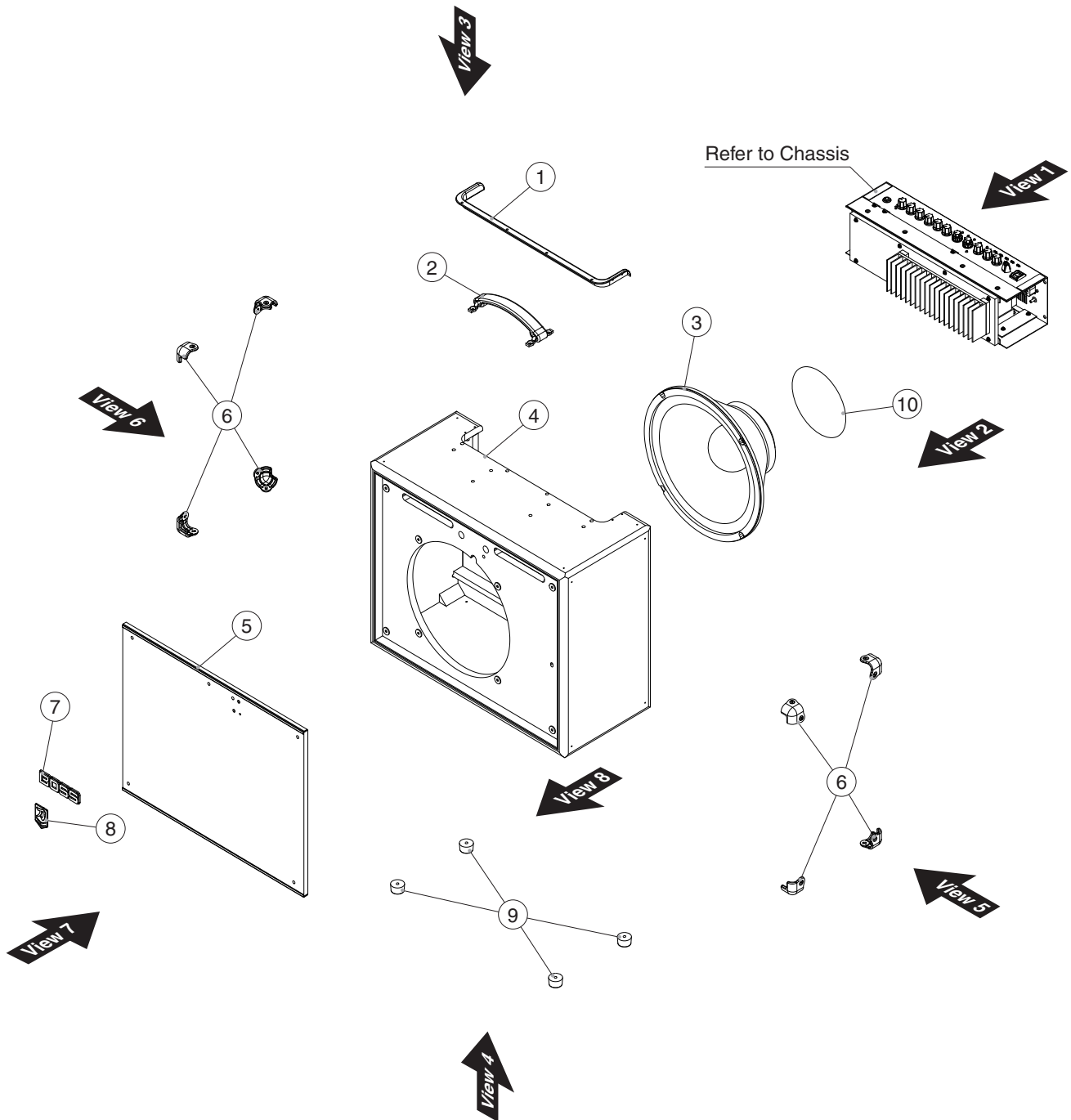
Location of Controls (Rear)



Location of Controls Parts List (Rear)

No.	Part Code	Part Name	Description	Q'ty
1	5100051443	AC INLET	M1909-C	1
2	04459978	SLIDE SWITCH	SV70050F-0202-10T-NN	1
3	5100024419	6.5MM JACK	PJ-644C-04-EP(610-11020-01-00)	4
	5100046593	JACK SPACER		4
	*****	JACK NUT	attached to JACK	4
	*****	JACK WASHER	attached to JACK	4
4	5100009531	USB CONNECTOR B TYPE FEMALE	YKF45-0044N	1
5	5100067366	3.5MM JACK	YKB21-5457N	1
6	5100031944	6.5MM JACK	PJ-644C-EP	3
	5100046593	JACK SPACER		3
	*****	JACK NUT	attached to JACK	3
	*****	JACK WASHER	attached to JACK	3

Exploded View (Cabinet)



Exploded View Parts List (Cabinet)

No.	Part Code	Part Name	Description	Q'ty
	5100067749	CABINET ASSY	W/O SPEAKER	1
		<i>* This unit includes the following parts.</i>		
1	5100052236	TRIM SASH		1
2	5100049817	HANDLE		1
4	*****	CABINET		1
5	*****	NET BOARD		1
6	5100052238	CORNER PROTECTOR		8
7	5100052237	BOSS BADGE		1
8	5100067502	KATANA2 BADGE		1
9	5100060776	FOOT	F1692	4
3	5100068225	SPEAKER	W1208-068B	1
10	5100068141	LABEL SPEAKER MAGNET		1

Disassembly Procedure

Detaching the Chassis Assy

1. Detach the speaker wirings from the speaker.
2. Remove screws and washers **e** (x 2) in **View 3. (Plain View (Cabinet: 1)** (p. 8))
3. Remove screws **a** (x 4) in **View 1. (Plain View (Cabinet: 1)** (p. 8))
4. Pull out the Chassis Assy.

* *The speaker can be taken out at this status.*

Detaching the Circuit Boards

1. Detach the Chassis Assy. (As described earlier)
2. Remove screws **s** (x 8) in **View 4. (Plain View (Chassis: 1)** (p. 12))
3. Detach the Chassis Cover Board and disconnect the connector (x 1).

* *When detaching the circuit boards, remove screws from the outside of the Chassis.*

Detaching the Net Board

1. Detach the Chassis Assy. (As described earlier)
2. Remove screws and washers **i** (x 4) in **View 7. (Plain View (Cabinet: 2)** (p. 9)).
3. Remove nuts and washers **b** (x 2) in **View 2. (Plain View (Cabinet: 1)** (p. 8))
4. Push the Net Board to the front side.

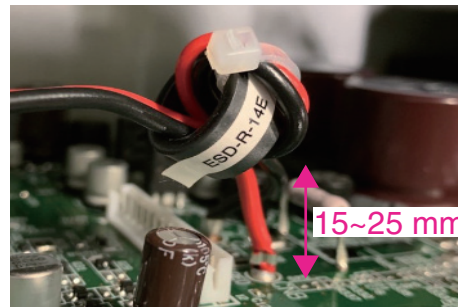
Important Notes on Disassembly

Discharge of Amp Board

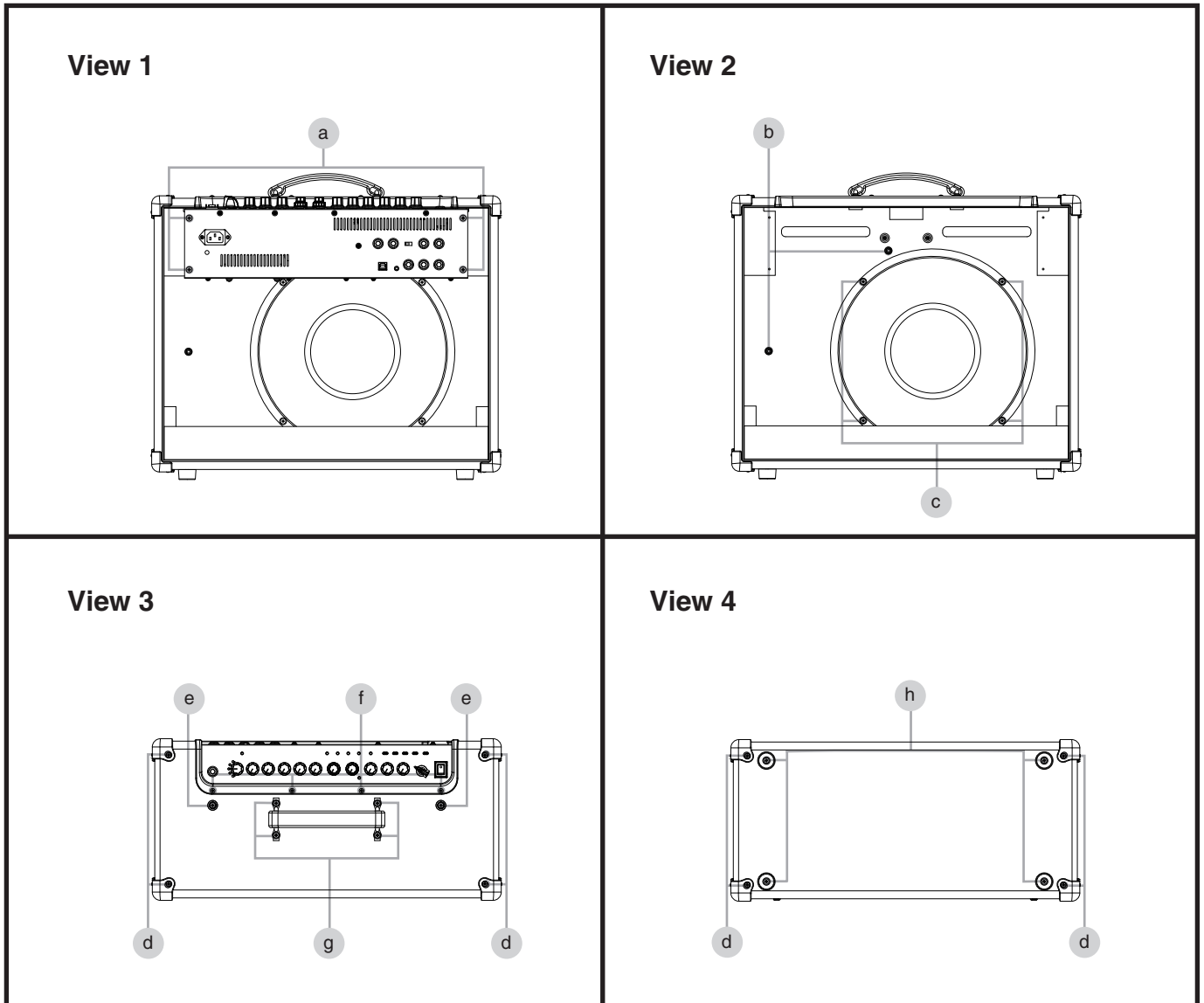
When detaching the Amp Board after applying electric charge, it is first necessary to discharge the accumulated electric charge. For detail information, refer to the Service Information No. 104784.

Important Notes on Assembly

When winding the wirings to the FERRITE CORE (#5100068863), disengage the FERRITE-CORE from the board around 15–25 mm, then secure it with a cable tie (#40016523).



Plain View (Cabinet: 1)



View 1

No.	Part Code	Part Name	Description	Q'ty
a	40010689	SCREW 4X25	TRUSS TAPPING A FE BZC	4

View 2

No.	Part Code	Part Name	Description	Q'ty
b	5100053056	NUT M4	W/SW BZC	2
	5100053055	PLAIN WASHER 4.2X14X1.0	BZC	2
c	40010390	SCREW M5X25	BINDING MACHINE FE BZC	4

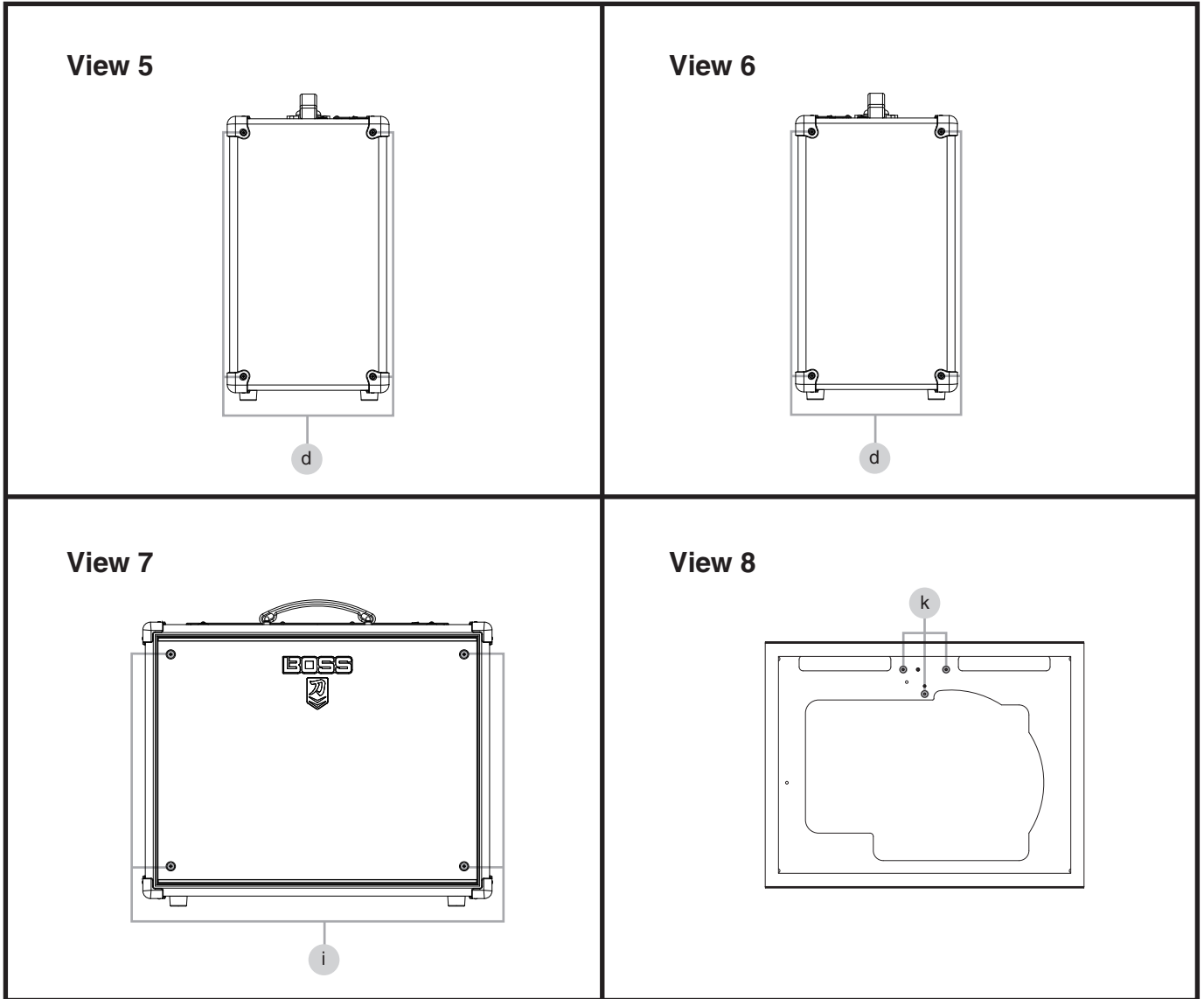
View 3

No.	Part Code	Part Name	Description	Q'ty
d	5100043887	SCREW 3.5X16	TRUSS TAPPING A NI	4
e	5100041078	ROSETTE WASHER M4	NI (MC-15042-20303-000)	2
	5100047173	SCREW M4X25	OVAL MACHINE NI	2
f	5100053052	SCREW 3X14	TRUSS TAPPING A BZC	4
g	5100048333	SCREW M4X15	OVAL MACHINE NI	4

View 4

No.	Part Code	Part Name	Description	Q'ty
d	5100043887	SCREW 3.5X16	TRUSS TAPPING A NI	4
h	40010678	SCREW 4X20	TRUSS TAPPING A FE BZC	4

Plain View (Cabinet: 2)



View 5, View 6

No.	Part Code	Part Name	Description	Q'ty
d	5100043887	SCREW 3.5X16	TRUSS TAPPING A NI	8

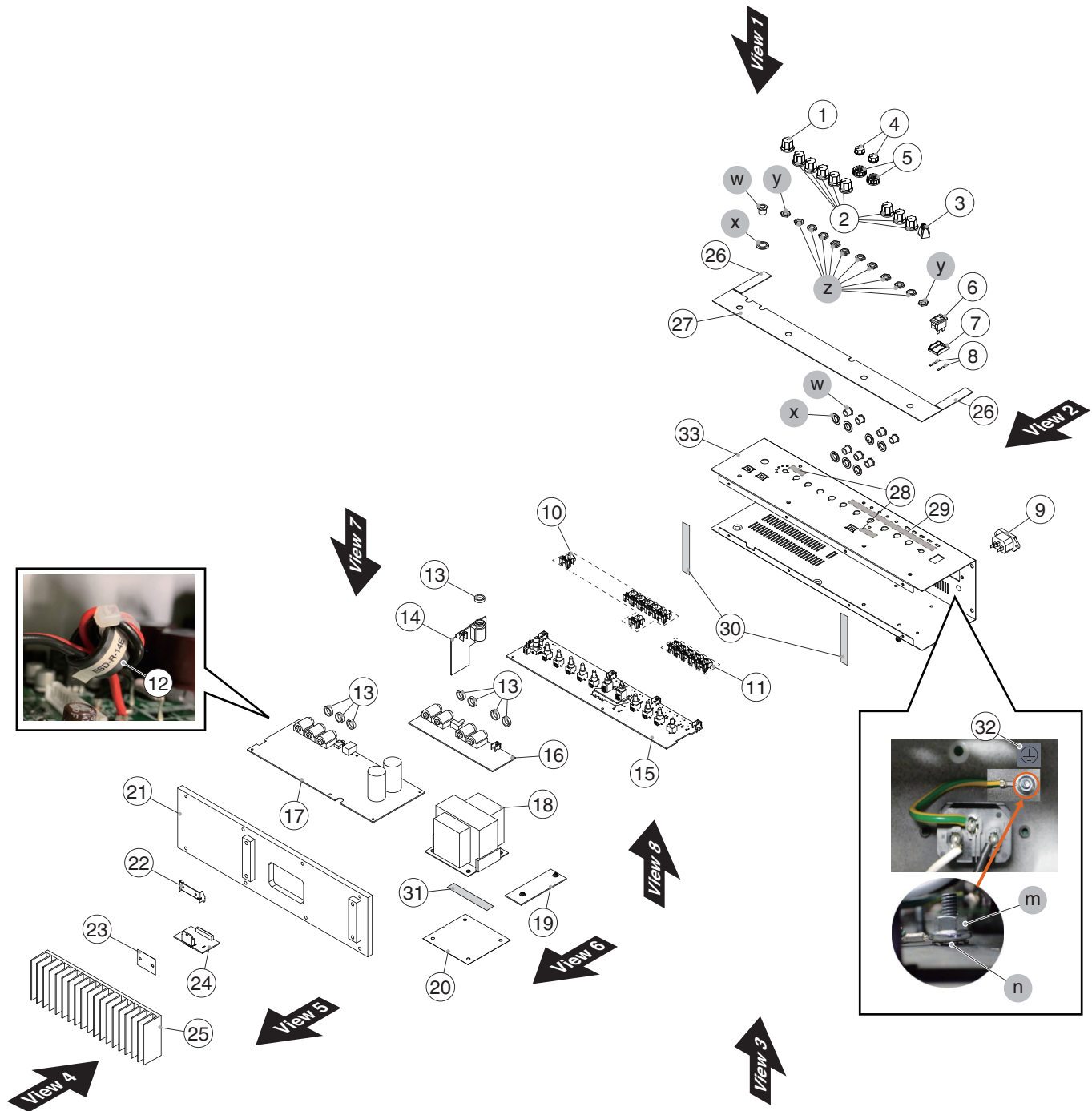
View 7

No.	Part Code	Part Name	Description	Q'ty
i	5100033930	SCREW 4X25	TRUSS TAPPING A NI	4
	5100053053	PLAIN WASHER 4.2X14X1.0	NI	4

View 8

No.	Part Code	Part Name	Description	Q'ty
k	40011323	SCREW 3X10	BINDING TAPTITE P BZC	3
	40457245	PLAIN WASHER 3X12X1	ZC	3

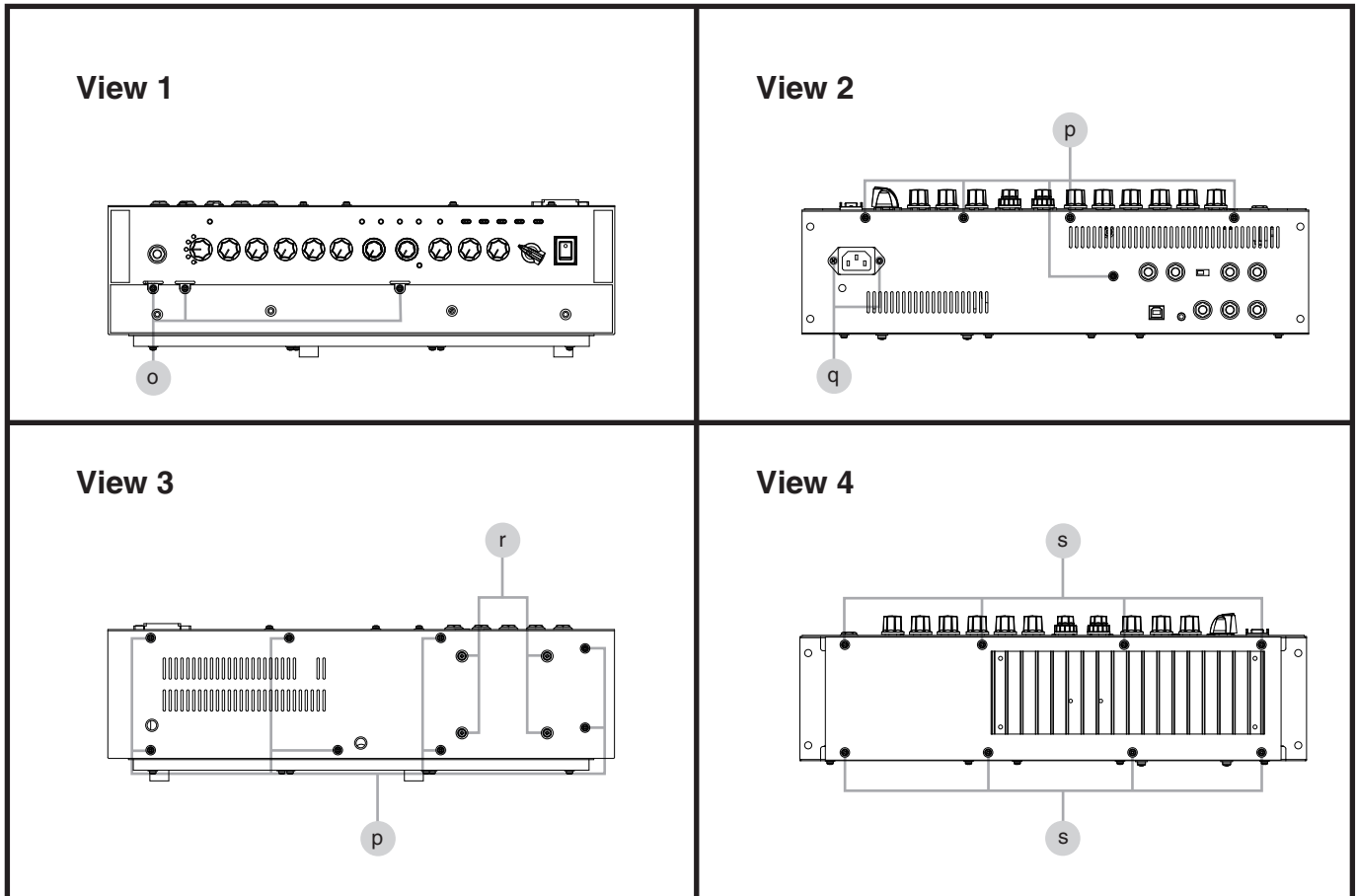
Exploded View (Chassis)



Exploded View Parts List (Chassis)

No.	Part Code	Part Name	Description	Q'ty	
1	5100052215	R-KNOB		1	
2	5100052214	R-KNOB	INDEX	8	
3	5100049813	INDEX KNOB		1	
4	5100067440	R-KNOB		2	
5	5100067443	O-KNOB		2	
6	02897801	SEESAW SWITCH	SDDJE13200 94V-0	1	
7	5100046595	POWER SW ESCUTCHEON		1	
8	5100046598	POWER SW CUSHION		2	
9	5100051443	AC INLET	M1909-C	1	
10	5100052217	C-KEYTOP		7	
11	5100052218	S-KEYTOP		5	
12	5100068863	FERRITE-CORE	ESD-R-14E	1	
13	5100046593	JACK SPACER		8	
	5100067626	PANEL SHEET ASSY		1	
	* This unit includes the following parts.				
14	*****	INPUT BOARD		1	
15	*****	PANEL BOARD		1	
16	*****	JACK BOARD		1	
19	*****	FUSE BOARD		1	
24	*****	AMP BOARD		1	
17	5100067624	MAIN BOARD ASSY		1	
18	5100051961	POWER TRANSFORMER	100/117V	for low voltage	1
	5100051962	POWER TRANSFORMER	225/240V	for high voltage	1
20	5100052226	TRANS SHEET		1	
21	5100068389	CHASSIS COVER BOARD		1	
22	5100051955	POWER IC HOLDER		1	
23	5100052288	POWER IC SHEET		included in AMP BOARD (24)	1
25	5100052224	HEATSINK		1	
26	5100052229	TOP CUSHION S		2	
27	5100068020	TOP CUSHION L		1	
28	5100049090	CU-CR-F	16X9X0.5	2	
29	5100067958	EVA PACKING	170X10X0.5	1	
30	40122612	ACETATE TAPE	NITTO #5 BLACK W10MM 30M	-	
31	40122534	DOUBLE-FACED TAPE	#500 W3MM 20M 136P	-	
32	40013812	CAUTION SEAL	IEC #142	1	
33	5100067415	CHASSIS		1	
m	5100050484	HEX NUT M4	W/SPW ZC	1	
n	40011889	EXTERNAL TOOTH WASHER M4	FECM	1	
w	*****	JACK NUT		attached to JACK	8
x	*****	JACK WASHER		attached to JACK	8
y	*****	VR NUT (M7)		attached to VR	2
z	*****	VR NUT (M9)		attached to VR	10

Plain View (Chassis: 1)



View 1

No.	Part Code	Part Name	Description	Q'ty
o	40011423	SCREW M3X6	PAN SEMS FECM	3

View 2

No.	Part Code	Part Name	Description	Q'ty
p	40012945	SCREW M3X6	PAN MACHINE W/SW+PW BZC	5
q	40011156	SCREW 3X8	FLAT TAPTITE B BZC	2

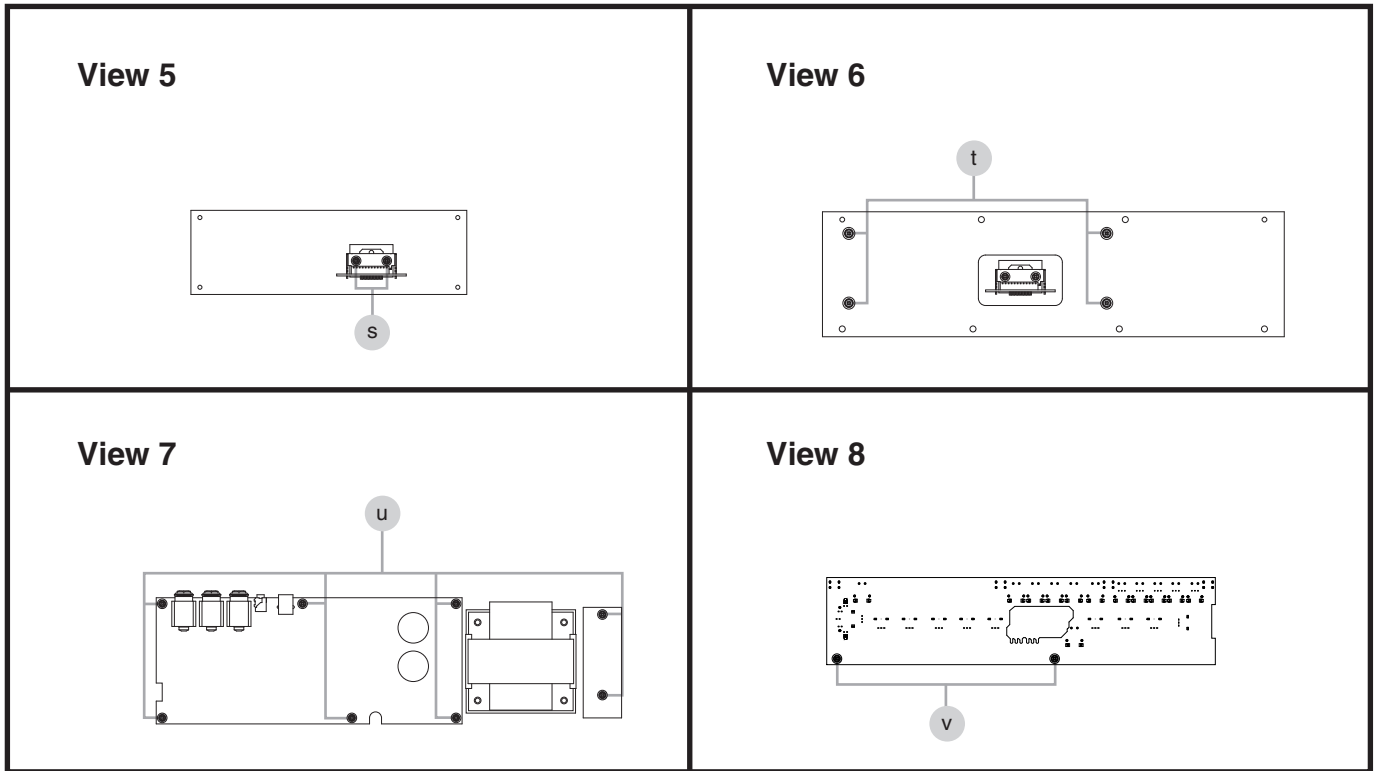
View 3

No.	Part Code	Part Name	Description	Q'ty
p	40012945	SCREW M3X6	PAN MACHINE W/SW+PW BZC	8
r	40013001	SCREW M4X8	PAN MACHINE W/SW+PW BZC	4

View 4

No.	Part Code	Part Name	Description	Q'ty
s	40564556	SCREW M3X15	PAN MACHINE W/SW FW ZC	8

Plain View (Chassis: 2)



View 5

No.	Part Code	Part Name	Description	Q'ty
s	40564556	SCREW M3X15	PAN MACHINE W/SW FW ZC	2

View 6

No.	Part Code	Part Name	Description	Q'ty
t	40012923	SCREW M4X25	PAN MACHINE W/SW+PW ZC	4

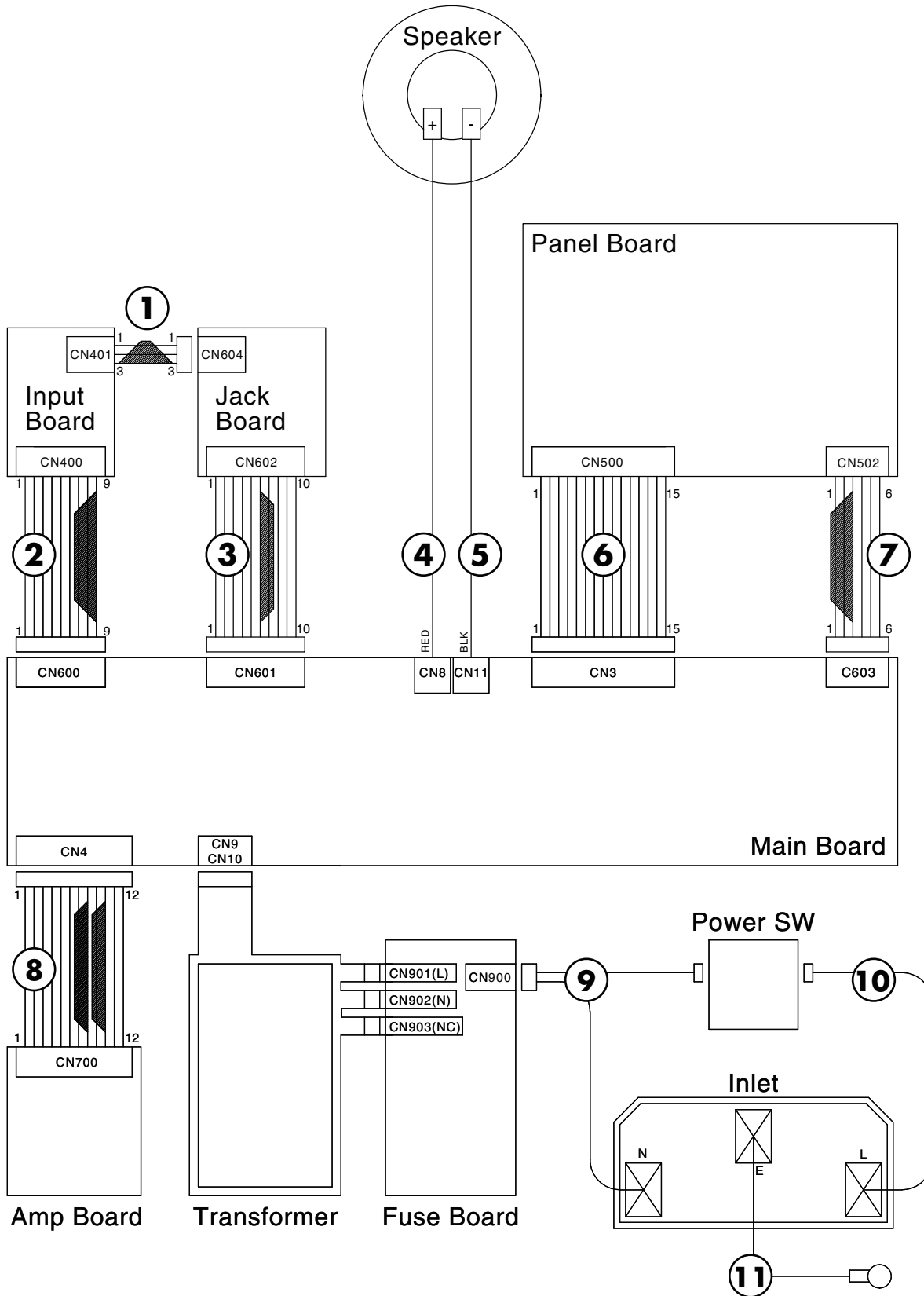
View 7

No.	Part Code	Part Name	Description	Q'ty
u	40017934	SCREW M3X6	PAN MACHINE W/SW+PW(L) FE ZC	8
	22150501	STANDOFF	M3-L5.5-H10 (BS)	8

View 8

No.	Part Code	Part Name	Description	Q'ty
v	40017934	SCREW M3X6	PAN MACHINE W/SW+PW(L) FE ZC	2
	22150517	STANDOFF	M3 L8	2

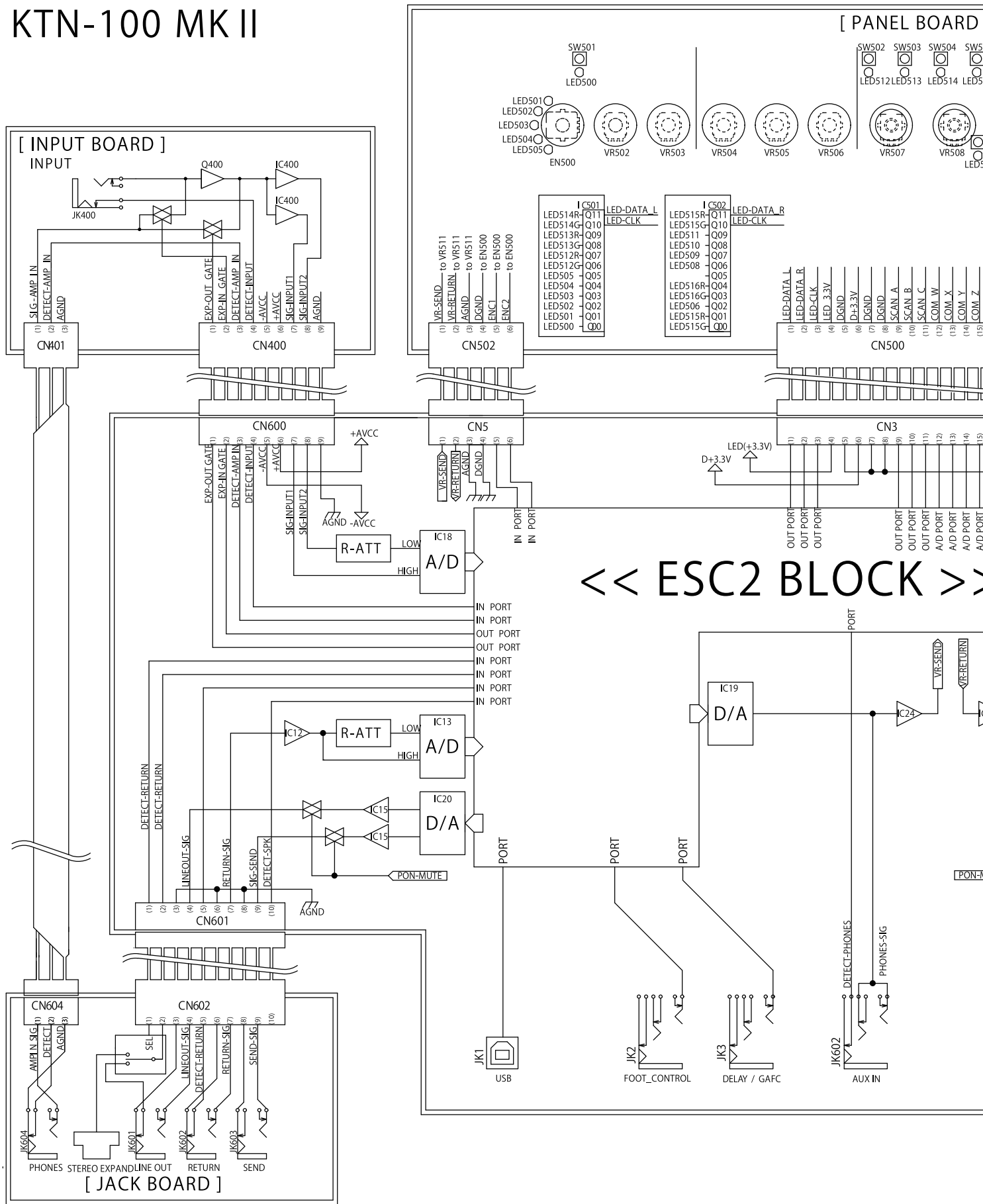
Wiring Diagram

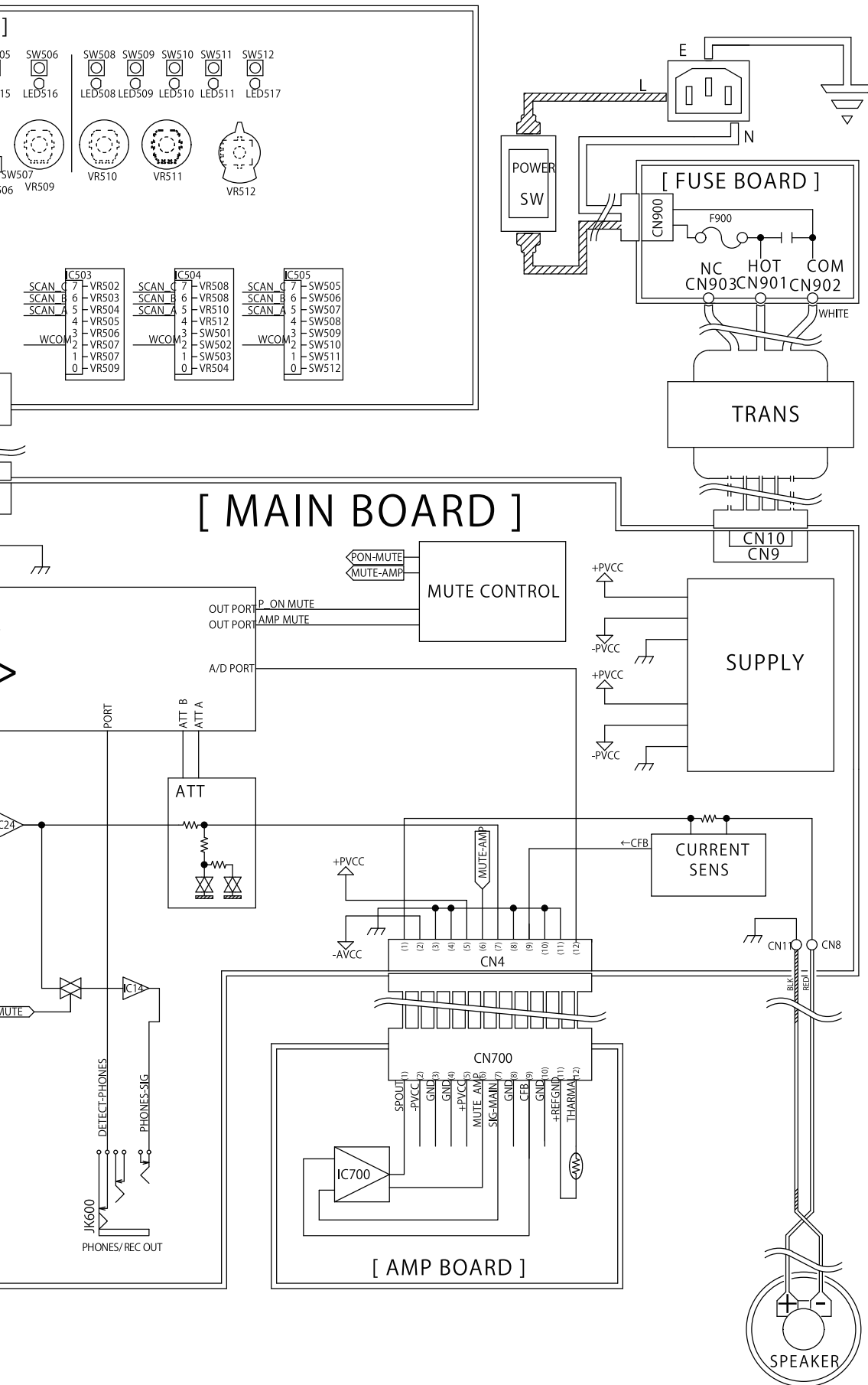


No.	Part Code	Part Name	Description	Q'ty
1	5100067827	WIRING	W14 (2547#28)	1
2	5100067824	WIRING	W4 (1007/2547#28)	1
3	5100067826	WIRING	W7 (1007/1185#28)	1
4	5100068454	WIRING	W1 (1015#22-RED)	1
5	5100068455	WIRING	W2 (1015#22-BLK)	1
6	5100067825	WIRING	1007#28 15X115-PHR-SAN-F	1
7	5100067823	WIRING	W3 (1007/2547#28)	1
8	5100068458	WIRING	W10 (1430#24/1185#26)	1
9	5100068456	WIRING	W8 (1672#22-BLK/WHT)	1
10	5100068457	WIRING	W9 (1672#22-BLK)	1
11	5100068453	WIRING	W17A (1015#18-GRN&YEL)	1

Block Diagram

KTN-100 MK II





Parts List

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

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

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

CASING				
#	5100067749	CABINET ASSY	W/O SPEAKER	1
CHASSIS				
#	5100067415	CHASSIS		1
#	5100068389	CHASSIS COVER BOARD		1
	5100051955	POWER IC HOLDER		1
KNOB, BUTTON				
	5100049813	INDEX KNOB		1
#	5100067443	O-KNOB		2
	5100052214	R-KNOB	INDEX	8
	5100052215	R-KNOB		1
#	5100067440	R-KNOB		2
	5100052217	C-KEYTOP		7
	5100052218	S-KEYTOP		5
SWITCH				
	02897801	SEESAW SWITCH	SDDJE13200 94V-0	1
	04459978	SLIDE SWITCH	SV70050F-0202-10T-NN	1
	01780101	TACT SWITCH	SKQKABD010	12
JACK, EXT TERMINAL				
#	5100067366	3.5MM JACK	YKB21-5457N	1
	5100024419	6.5MM JACK	PJ-644C-04-EP(610-11020-01-00)	5
	5100031944	6.5MM JACK	PJ-644C-EP	3
	5100009531	USB CONNECTOR B TYPE FEMALE	YKF45-0044N	1
SPEAKER, BUZZER				
#	5100068225	SPEAKER	W1208-068B	1
PWB ASSY				
#	5100067624	MAIN BOARD ASSY		1
#	5100067626	PANEL SHEET ASSY		1
	* This unit includes the following parts.			
	*****	PANEL BOARD		1
	*****	JACK BOARD		1
	*****	AMP BOARD		1
	*****	INPUT BOARD		1
	*****	FUSE BOARD		1
DIODE				
	05011067	LED	L-3WEGW (153-L-3WEGW)	6
	5100003359	LED(REDF)	L-34ID (153-L-34IDSLLF)	11
POTENTIOMETER				
	5100052466	ROTARY POTENTIOMETER	RD901F-40-125F-B10K-04D60A	1
#	5100067365	ROTARY POTENTIOMETER	RD912DF-40E1-15F-0B10K-60D0C5	2
#	5100067364	ROTARY POTENTIOMETER	RV09BDF-40E1-15F-0B10K-003	7
#	5100067363	ROTARY POTENTIOMETER	RV09BDF-40E1-15F-2B20K-003	1
ENCODER				
#	5100067534	ENCODER	RE111F-40B3A-15F-20P-118	1
FUSE, FUSE HOLDER				
	03673989	FUSE	5ST 2-R 2A/250V	for low voltage
	03670534	FUSE	5ST 1.25 1.25A/250V	for high voltage
	5100000592	FUSE HOLDER	FC-201(613-11617-01-00)	2

WIRING, CABLE				
#	5100067825	WIRING	1007#28 15X115-PHR-SAN-F	1
#	5100068454	WIRING	W1 (1015#22-RED)	1
#	5100068455	WIRING	W2 (1015#22-BLK)	1
#	5100067823	WIRING	W3 (1007/2547#28)	1
#	5100067824	WIRING	W4 (1007/2547#28)	1
#	5100067826	WIRING	W7 (1007/1185#28)	1
#	5100068456	WIRING	W8 (1672#22-BLK/WHT)	1
#	5100068457	WIRING	W9 (1672#22-BLK)	1
#	5100068458	WIRING	W10 (1430#24/1185#26)	1
#	5100067827	WIRING	W14 (2547#28)	1
#	5100068453	WIRING	W17A (1015#18-GRN&YEL)	1
TRANSFORMER				
	5100051961	POWER TRANSFORMER	100/117V	for low voltage 1
	5100051962	POWER TRANSFORMER	225/240V	for high voltage 1
AC INLET, OUTLET				
	5100051443	AC INLET	M1909-C	1
SCREWS				
	40012945	SCREW M3X6	PAN MACHINE W/SW+PW BZC	13
	40017934	SCREW M3X6	PAN MACHINE W/SW+PW(L) FE ZC	10
	40011423	SCREW M3X6	PAN SEMS FECM	3
	40564556	SCREW M3X15	PAN MACHINE W/SW FW ZC	10
	40013001	SCREW M4X8	PAN MACHINE W/SW+PW BZC	4
	5100048333	SCREW M4X15	OVAL MACHINE NI	4
	40012923	SCREW M4X25	PAN MACHINE W/SW+PW ZC	4
	5100047173	SCREW M4X25	OVAL MACHINE NI	2
	40010390	SCREW M5X25	BINDING MACHINE FE BZC	4
	40011156	SCREW 3X8	FLAT TAPTITE B BZC	2
	40011323	SCREW 3X10	BINDING TAPTITE P BZC	3
	5100053052	SCREW 3X14	TRUSS TAPPING A BZC	4
	5100043887	SCREW 3.5X16	TRUSS TAPPING A NI	16
	40010678	SCREW 4X20	TRUSS TAPPING A FE BZC	4
	40010689	SCREW 4X25	TRUSS TAPPING A FE BZC	4
	5100033930	SCREW 4X25	TRUSS TAPPING A NI	4
	22150501	STANDOFF	M3-L5.5-H10 (BS)	8
	22150517	STANDOFF	M3 L8	2
	5100050484	HEX NUT M4	W/SPW ZC	1
	5100053056	NUT M4	W/SW BZC	2
	40457245	PLAIN WASHER 3X12X1	ZC	3
	5100053055	PLAIN WASHER 4.2X14X1.0	BZC	2
	5100053053	PLAIN WASHER 4.2X14X1.0	NI	4
	40011889	EXTERNAL TOOTH WASHER M4	FECM	1
	5100041078	ROSETTE WASHER M4	NI (MC-15042-20303-000)	2
MISCELLANEOUS				
	5100052237	BOSS BADGE		1
#	5100067502	KATANA2 BADGE		1
	5100049817	HANDLE		1
	5100052238	CORNER PROTECTOR		8
	5100052236	TRIM SASH		1
	5100060776	FOOT	F1692	4
	5100046595	POWER SW ESCUTCHEON		1
	5100052224	HEATSINK		1
#	5100068863	FERRITE-CORE	ESD-R-14E	1
	5100046593	JACK SPACER		8
	5100004371	LED SPACER	LK-36-2	6
	5100044430	LED SPACER	LEDH-1.5	6
	5100052216	LED GUIDE		1
	5100052288	POWER IC SHEET		1
	5100052226	TRANS SHEET		1
	12199584	GROUNDING TERMINAL	M1698	6
	510005338	TERMINAL SLEEVE	TP-008 UL-G	2
#	5100068020	TOP CUSHION L		1
	5100052229	TOP CUSHION S		3
	5100046598	POWER SW CUSHION		2
	40016523	INSULOK TIE 100M/M T-18R	(1000 PCS ORDERING PER)	12
#	5100068141	LABEL SPEAKER MAGNET		1
	40013812	CAUTION SEAL	IEC #142	1
	5100049090	CU-CR-F	16X9X0.5	2
#	5100067958	EVA PACKING	170X10X0.5	1
	5100053271	EVA PACKING	240X15X0.5 W/ADH	1
	40122612	ACETATE TAPE	NITTO #5 BLACK W10MM 30M	-
	40122534	DOUBLE-FACED TAPE	#500 W3MM 20M 136P	-
	40122445	ADHESIVE CEMEDINE SUPER-X	NO.8008 170G/135ML	-

ACCESSORIES (Standard)					
	03340956	AC CORD SET PSE (W/ADAPTOR)	100V YA-101/YP-3NB/YC-13	(19) for 100V	1
	00894378	AC CORD SET	120V SP301+IS14 SJT18/3	(22, 28) for 117VU, 117VUC/S	1
	5100029165	AC CORD	115TW 2.5M SP301+IS14 VCTF	(25) for 115VTW	1
	5100012292	AC CORD SET	117VBL 2.5M 3P DAIKEI 117VBL	(26) for 117VBL	1
	00894389	AC CORD SET	230V SP22+IS14 H05VV-F3G1.0	(32) for 230VEU	1
	00907001	AC CORD SET	240VE SP-62+IS-14	(49) for 230VE	1
	5100013842	AC CORD SET	240VA 2.5M SAA HIRAKAWA	(59) for 240VA	1
	03450323	AC CORD SET	220V YP-36 YC-13D	(65) for 220VCN	1
	5100013648	AC CORD SET	220VK 10A 3P-3P 2.5M	(66) for 220VK	1
#	5100068137	GA-FC SHEET			1
#	5100068139	OWNER'S MANUAL	MULTILANGUAGE		1
#	5100068163	OWNER'S MANUAL	CHINESE		1

Verifying the Version

Carry out verification in the **Test Mode** (p. 22).

Data Backup and Restore Operations

All user data and settings of the unit can be backed up completely by procedure described below.

* Before executing the Data backup, update the system to the latest version. Even if the system program is updated, user data are not be lost.

Items Required

- Computer
 - USB cable

 - BOSS TONE STUDIO for KATANA MK II
 - Driver for KATANA
- * Obtain these from the following web page, and install them on the computer just described.
- <https://www.boss.info/global/support/>

Data Backup Operation

1. Connect the computer to the **USB** connector and turn on the power.
2. Start BOSS TONE STUDIO for KATANA Mk II on the computer.
If **Choose a device to connect with.** is appeared, select **KATANA** and click **OK**.
3. Click the **SYSTEM** icon at the top of the window.
The **SYSTEM** dialog box appears.
4. In the lower left frame, click **ALL DATA BACKUP**.
5. Click **TO FILE**.
The **Save As** dialog box appears.
6. Specify the destination for saving the file and the name of the file, then click **Save**.
When **Completed!!** is displayed, the backup operation has finished.
7. Quit the BOSS TONE STUDIO for KATANA Mk II and detach the USB cable.

Data Restore Operation

1. Connect the computer to the **USB** connector and turn on the power.
2. Start BOSS TONE STUDIO for KATANA Mk II on the computer.
3. Click the **SYSTEM** icon.
The **SYSTEM** dialog box appears.
4. Click **ALL DATA BACKUP**.
5. Click **FROM FILE**.
The **Open** dialog box appears.
6. Select the backed-up file and click **Open**.
When **Completed!!** is displayed, the restore operation has finished.
7. Click **OK**.
8. Quit the BOSS TONE STUDIO for KATANA Mk II and detach the USB cable.

System Update Procedure

Items Required

- Computer
- USB cable
- Update use file (obtained via Service Net)

Procedure

1. Hold down **CH1** and **PANEL** and switch on the power.
BOOSTER-PANEL flash.
 2. Connect the computer to the **USB** connector.
The buttons that flashed in step **1** change lighting, and the **BOSS_KTNMK2** drive appears on the computer screen.
 3. Copy the update use file (*.BIN, ROMINFO.TXT) to the root folder on the **BOSS_KTNMK2** drive.
 4. Eject the **BOSS_KTNMK2** drive and disconnect the USB cable.
CH1 and **CH2** turn dark, and **PANEL** flashes.
 5. Press **PANEL**.
BOOSTER, MOD, FX, DELAY and **REVERB** light up in green, and the update starts.
While the update is in progress **BOOSTER, MOD, FX, DELAY** and **REVERB** light up in sequence of red, orange, and green.
- * Never switch off the power while the update is in progress. Doing so might make the unit impossible to start.
- When **BOOSTER, MOD, FX, DELAY** and **REVERB** slowly flash in green simultaneously, the updating has completed.
- * If the update did not finish correctly, these 5 buttons will flash quickly.
6. Turn off the power.

Performing a Factory Reset

1. Hold down **PANEL** and turn on the power.
When all LEDs light up and then **BOOSTER-REVERB** flash repeatedly in sequence, then the factory reset starts.
2. Release your finger.
When **BOOSTER-REVERB** stop flashing, the factory reset has finished.
3. Turn off the power.

Test Mode

Items Required

- Computer
- Oscillator
- Oscilloscope
- Noise meter
- FS-5U (x 2) or FS-6 (x 1)
- Y cable (having one 1/4-inch stereo phone plug and two 1/4-inch monaural phone plugs) or 1/4-inch stereo phone cable
- 1/4-inch stereo phone cable
- 1/4-inch stereo phone cable with 33 Ω load resistors (connected 33 Ω load resistors to each location between L-GND and between R-GND)
- USB cable
- 1/4-inch monaural phone short plug
- Stereo miniature phone open plug
- Load resistor (4 Ω , 300 W)

- Driver for KATANA

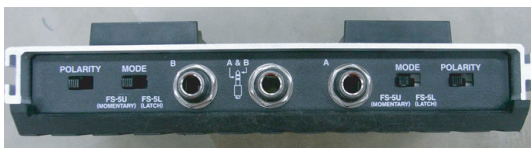
* Obtain this from the following web page, and install it on the computer just described.

<https://www.boss.info/global/support/>

* Set the POLARITY switch and the MODE switch on the foot switch as shown below.



FS-5U



FS-6

* If possible, do not connect the measuring devices such as oscilloscope and noise meter to the earth.

* When using a measuring device with multiple inputs, use only one input and do not feed any signals to the other jacks. Or else, the internal circuit of this product may be damaged.

Entering the Test Mode

1. Turn all knobs all the way counterclockwise.
2. Hold down **CH1** and **CH2** and turn on the power.
3. Continue to hold down **CH1** and **CH2** until all LEDs light up, then release your fingers.

After all of 5 **EFFECTS** buttons, **CH1-PANEL** and **TAP** flash twice, you will enter the first test item (**1. Model Check** (p. 23)).

* If you are proceeding to **9. Signal Level Check** (p. 26), **10. Noise Check** (p. 27), then disconnect the speaker cable from the speaker, and attach a load resistor (4 Ω , 300 W) to the speaker terminals (between red and black), before going into the Test Mode.

* Be very careful so that the speaker terminals never touch to the other conductive portion.

Quitting the Test Mode

Switch off the power.

Test Items

1. **Model Check** (p. 23)
2. **Version Check** (p. 23)
3. **Switch/LED Check** (p. 23)
4. **Selector Check** (p. 24)
5. **Volume Check** (p. 24)
6. **Jack Sense & Foot Switch Check** (p. 25)
7. **USB Check** (p. 25)
8. **Device Check** (p. 25)
9. **Signal Level Check** (p. 26)
10. **Noise Check** (p. 27)

Skipping the Test Items

While the unit is in **1. Model Check** (p. 23) or **2. Version Check** (p. 23), you can skip to each test item with the following operation.

- Press **PANEL**:
The unit skips to **3. Switch/LED Check** (p. 23).
- Hold down **PANEL** and press **BOOSTER**:
This unit skips to **5. Volume Check** (p. 24).
- Hold down **PANEL** and press **MOD**:
The unit skips to **6. Jack Sense & Foot Switch Check** (p. 25).
- Hold down **PANEL** and press **FX**:
The unit skips to **8. Device Check** (p. 25).
- Hold down **PANEL** and press **DELAY**:
The unit skips to **9. Signal Level Check** (p. 26).

1. Model Check

As shown in the table below, one of the 5 **EFFECTS** button lights up in green, and indicates the model.

MODEL	BOOSTER	MOD	FX	DELAY	REVERB
KTN-50 Mk II	G	-	-	-	-
KTN-100 Mk II	-	G	-	-	-
KTN-100/212 Mk II	-	-	G	-	-
KTN-HEAD Mk II	-	-	-	G	-

G: lights in green, -: goes off

* If the model name shown in the table above does not match with the model name sticker on the rear panel, then the wrong main board is being installed.

2. Version Check

1. Press and hold down **TAP**.

While pressing **TAP**, each of the 5 **EFFECTS** LEDs lights up or goes dark to display the value for each numerical place of the version number as shown in the table below.

Refer to the table below for value of each numerical place.

Ones Place BOOSTER	First Decimal Place		Second Decimal Place		Value
	MOD	FX	DELAY	REVERB	
-	-	-	-	-	0
G	-	G	-	G	1
R	-	R	-	R	2
O	-	O	-	O	3
undefined	G	-	G	-	4
undefined	G	G	G	G	5
undefined	G	R	G	R	6
undefined	G	O	G	O	7
undefined	R	-	R	-	8
undefined	R	G	R	G	9

R: lights in red, G: lights in green, O: lights in orange, -: goes off

2. Press **PANEL** to advance to the next test item.

3. Switch/LED Check

VARIATION flashes in red, **BOOSTER-PANEL** and **TAP** light up red.

Press buttons in number sequence as shown in the table below, and verify the status of the LEDs.

Operation Procedure		Button (LED)											
No.	Pressed Button	VARIATION	BOOSTER	MOD	FX	DELAY	REVERB	CH1	CH2	CH3	CH4	PANEL	TAP
0	Initial State	R*	R	R	R	R	R	R	R	R	R	R	R
1	VARIATION	-	R*	R	R	R	R	R	R	R	R	R	R
2	BOOSTER	-	G*	R	R	R	R	R	R	R	R	R	R
3	BOOSTER	-	-	R*	R	R	R	R	R	R	R	R	R
4	MOD	-	-	G*	R	R	R	R	R	R	R	R	R
5	MOD	-	-	-	R*	R	R	R	R	R	R	R	R
6	FX	-	-	-	G*	R	R	R	R	R	R	R	R
7	FX	-	-	-	-	R*	R	R	R	R	R	R	R
8	DELAY	-	-	-	-	G*	R	R	R	R	R	R	R
9	DELAY	-	-	-	-	-	R*	R	R	R	R	R	R
10	REVERB	-	-	-	-	-	G*	R	R	R	R	R	R
11	REVERB	-	-	-	-	-	-	R*	R	R	R	R	R
12	CH1	-	-	-	-	-	-	-	R*	R	R	R	R
13	CH2	-	-	-	-	-	-	-	-	R*	R	R	R
14	CH3	-	-	-	-	-	-	-	-	-	R*	R	R
15	CH4	-	-	-	-	-	-	-	-	-	-	R*	R
16	PANEL	-	-	-	-	-	-	-	-	-	-	G*	R
17	PANEL	-	-	-	-	-	-	-	-	-	-	-	R*
18	TAP	-	-	-	-	-	-	-	-	-	-	-	-

After goes off for 1 second, execution advances to the next test item.

R: lights in red, R*: flashes in red, G*: flashes in green, -: goes off

4. Selector Check

AMP TYPE of **ACOUSTIC** lights up red.

Slowly turn the **AMP TYPE** knob one click at a time in order of the numbers shown in the table below, and verify the status of the LEDs.

Knob Position		Button (LED)				
Procedure	Position	ACOUSTIC	CLEAN	CRUNCH	LEAD	BROWN
Start	beginning	R	-	-	-	-
1	1 click clockwise	R	R	-	-	-
2	1 click clockwise	R	R	R	-	-
3	1 click clockwise	R	R	R	R	-
4	1 click clockwise	G	G	G	G	G
5	1 click counterclockwise	G	G	G	G	-
6	1 click counterclockwise	G	G	G	-	-
7	1 click counterclockwise	G	G	-	-	-
8	1 click counterclockwise	After lighting for 1 second, execution advances to the next test item.		-	-	-

R: lights in red, G: lights in green, -: goes off

5. Volume Check

BOOSTER lights up red.

1. Slowly turn the **GAIN** knob in order of the numbers shown in the table below, and verify the status of the LED of each button.

Knob Position		Button (LED)				
Procedure	Position	BOOSTER	MOD	FX	DELAY	REVERB
Start	Minimum	R	-	-	-	-
1	8 o'clock-	R	R	-	-	-
2	9 o'clock-	R	R	R	-	-
3	11 o'clock-	R	R	R	R	-
4	12 o'clock-	G	G	G	G	G
5	13 o'clock-	G	G	G	G	-
6	15 o'clock-	G	G	G	-	-
7	16 o'clock-	G	G	-	-	-
8	Maximum	Execution advances to the next test item.		-	-	-

R: lights in red, G: lights in green, -: goes off

2. Likewise, from the **Volume** knob to the **PRESENCE** knob need also to be checked from left to right.
 - * If you turn the wrong knob, the 5 buttons flash. In this case, turn the wrong knob all the way counterclockwise, then turn the correct knob to continue the inspection.
3. Slowly turn the **POWER CONTROL** knob in order of the numbers shown in the table, and verify the status of the LED of each button.

Knob Position		Button (LED)				
Procedure	Position	BOOSTER	MOD	FX	DELAY	REVERB
Start	STANDBY	R	-	-	-	-
1	0.5 W	R	R	-	-	-
2	50 W	R	R	R	-	-
3	100 W	G	G	G	G	G
4	50 W	G	G	G	G	-
5	0.5 W	G	G	G	-	-
6	STANDBY	G	G	-	-	-
		Execution automatically advances to the next test item.				

R: lights in red, G: lights in green, -: goes off

When the **POWER CONTROL** knob is returned to **STANDBY**, execution automatically advances to the next test item.

6. Jack Sense & Foot Switch Check

VARIATION flashes.

Operate each jack in the number sequence shown in the table below, and verify the status of the LEDs.

Operation Procedure			Button (LED)											
Jack	Procedure	VARIATION	BOOSTER	MOD	FX	DELAY	REVERB	CH1	CH2	CH3	CH4	PANEL	TAP	
0	Initial State	R*	-	-	-	-	-	-	-	-	-	-	-	
1	INPUT	Insert a dummy plug	R	R*	-	-	-	-	-	-	-	-	-	
2	POWER AMP IN	Insert a dummy plug	R	R	R*	-	-	-	-	-	-	-	-	
3	LINE OUT	Insert a dummy plug	R	R	R	R*	-	-	-	-	-	-	-	
4	RETURN	Insert a dummy plug	R	R	R	R	R	R*	-	-	-	-	-	
5	PHONES/ REC OUT	Insert a dummy plug	R	R	R	R	R	R	R*	-	-	-	-	
6	FOOT CONTROL	Connect FS-5U (x 2) or FS-6 (x 1)	R	R	R	R	R	R	R	R*	-	-	-	
7	GA-FC	Connect FOOT CONTROL of GA-FC using 1/4-inch stereo phone cable	All LEDs on the GA-FC light up.											
8	AUX-IN	Insert miniature stereo phone plug	R	R	R	R	R	R	R	R	-	-	R	
9		Disconnect miniature stereo phone plug	R	R	R	R	R	R	R	R	-	-	R*	
10	EXPAND SW	OFF -> ON	R	R	R	R	R	R	R	R	-	-	R	
11		ON -> OFF	R	G*	R	R	R	R	R	R	-	-	-	
12	FOOT CONTROL	Press the Ring side pedal	R	G	R	R	R	R	R	R	-	-	-	
13		Release the Ring side pedal	R	R	G*	R	R	R	R	R	-	-	-	
14		Press the Tip side pedal	R	R	G	R	R	R	R	R	-	-	-	
15		Release the Tip side pedal	R	R	R	R	R	R	R	R	-	-	-	
16	GA-FC	Disconnect the plug	R	R	R	R	R	R	R	-	R	-	-	
17		Disconnect the plug	R	R	R	R	R	R	R	-	-	-	-	
18		Connect FS-5U using 1/4-inch monaural phone cable	R	R	R	R	R	R	-	-	R	-	-	
19		Press the pedal	R	R	R	G	R	R	-	-	R	-	-	
20		Release the pedal	R	R	R	R	R	R	-	-	R	-	-	
21		Disconnect the plug	R	R	R	R	R	R	-	-	-	-	-	
22		PHONES/ REC OUT	Disconnect the plug	R	R	R	R	-	-	-	-	-	-	
23	RETURN	Disconnect the plug	R	R	R	-	-	-	-	-	-	-		
24	LINE OUT	Disconnect the plug	R	R	-	-	-	-	-	-	-	-		
25	POWER AMP IN	Disconnect the plug	R	-	-	-	-	-	-	-	-	-		
26	INPUT	Disconnect the plug	-	-	-	-	-	-	-	-	-	-		
Execution automatically advances to the next test item.														

R: lights in red, G: lights in green, R*: flashes in red, G*: flashes in green -: goes off

7. USB Check

BOOSTER flashes.

1. Connect the computer to the **USB** connector.

BOOSTER lights up.

2. Disconnect the USB cable.

Execution automatically advances to the next test item.

8. Device Check

When the unit enters the Test Mode, the Device Check runs automatically in the background and the results are shown when entering this test item.

If they are **OK**, **BOOSTER-REVERB** flash in green, and the unit automatically advances to the next test item.

If the result is **not OK**, the buttons corresponding to the devices which have troubles flash as follows.

Not-OK Device	Button (LED)					
	BOOSTER	MOD	FX	DELAY	REVERB	TAP
SFlash	R*	-	-	-	-	-
SDRAM (CPU)	-	R*	-	-	-	-
DSP	-	-	R*	-	-	-
SDRAM (DSP ERAM)	-	-	-	R*	-	-
Program Sum	-	-	-	-	R*	-
Sensor	-	-	-	-	-	R*
If all are OK	G* (and advances to the next test item)					

R*: flashes in red, G*: flashes in green, -: goes off

9. Signal Level Check

INPUT -> SEND

BOOSTER, **CH1**, **CH2** and **CH3** light up red, and **MOD** lights up green. (AF Hi)

- Turn the **MASTER** knob to minimum, and the **POWER CONTROL** knob to **STANDBY**.
- If all the 9 knobs from **GAIN** to **PRESENCE** are not turned to maximum, then turn them all to maximum.
- Connect the oscilloscope and the noise meter to the **EFFECT LOOP SEND** jack.
- Connect the oscillator to the **INPUT** jack and input a signal like the following.
INPUT: 1-kHz sine wave at -30 dBm
- Verify that a signal like the following is output from the **EFFECT LOOP SEND** jack.
SEND: 1-kHz sine wave at -2.5±1.5 dBm (flat)
- Press **BOOSTER**.
BOOSTER lights up green. (AF-Lo)
- Verify that a signal like the following is output from the **EFFECT LOOP SEND** jack.
SEND: 1-kHz sine wave at -31.5±1.5 dBm (flat)
- Disconnect the plug from the **INPUT** jack.
- Connect the oscillator to the **POWER AMP IN** jack and input a signal like the following.
POWER AMP IN: 1-kHz sine wave at -30 dBm (flat)
- Verify that no signal is output from the **EFFECT LOOP SEND** jack.
- Press **MOD**.
MOD lights up red. (AF-Lo)
- Verify that a signal like the following is output from the **EFFECT LOOP SEND** jack.
SEND: 1-kHz sine wave at -31.5±1.5 dBm (flat)
- Press **MOD**.
MOD lights up orange. (AF-Lo)
- Press **MOD**.
MOD lights up green. (AF-Lo)

INPUT -> LINE OUT

- Connect the oscilloscope and the noise meter to the **LINE OUT** jack.
- Input a signal like the following to the **INPUT** jack.
INPUT: 1-kHz sine wave at -10 dBm
- Verify that a signal like the following is output from the **LINE OUT** jack.
LINE OUT: 1-kHz sine wave at -11.0±1.5 dBm (flat)

RETURN -> PHONES L/R

- Connect the oscilloscope and the noise meter to the **PHONES/REC OUT** jack (L).
* Connect a 1/4-inch stereo phone cable with 33 Ω load resistors to the **PHONES/REC OUT** jack.
- Connect the oscillator to the **EFFECT LOOP RETURN** jack and input a signal like the following.
RETURN: 1-kHz sine wave at -30 dBm
* Do not input the signal (sine wave) continuously for over 5 minutes or else the product may get damaged. This is the same in the following steps.
- Verify that no signal is output from the **PHONES/REC OUT** jack (L).
- Adjust the **MASTER** knob to center. (AF Hi)
- Verify that a signal like the following is output from the **PHONES/REC OUT** jack (L).
PHONES L: 1-kHz sine wave at -6.0±1.5 dBm (flat)
- Input a signal like the following to the **EFFECT LOOP RETURN** jack.
RETURN: 1-kHz sine wave at -10 dBm

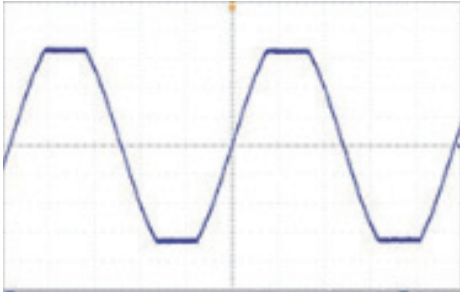
- Adjust the **MASTER** knob to maximum. (AF Hi)
- Verify that a signal like the following is output from the **PHONES/REC OUT** jack (L).
PHONES L: 1-kHz clipped wave at +8.5±1.5 dBm (flat)
- Press **CH3**. (AF-Lo)
CH3 turns dark.
- Input a signal like the following to the **EFFECT LOOP RETURN** jack.
RETURN: 1-kHz sine wave at -30 dBm
- Verify that a signal like the following is output from the **PHONES/REC OUT** jack (L).
PHONES L: 1-kHz sine wave at -17.0±1.5 dBm (flat)
- Connect the oscilloscope and the noise meter to the **PHONES/REC OUT** jack (R), then verify that a signal like the following is output.
PHONES R: 1-kHz sine wave at -17.0±1.5 dBm (flat)
- Disconnect the plug from the **PHONES/REC OUT** jack.

AUX IN -> Speaker Out

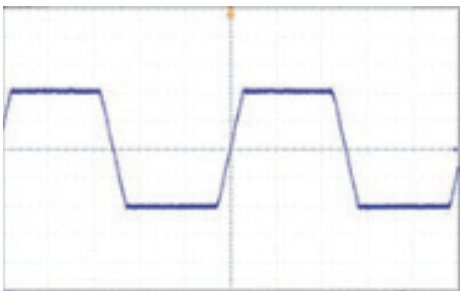
- Disconnect the speaker terminals from the speaker, and attach a load resistor (8 Ω, 300 W) to the speaker terminals (between red and black).
- Connect the oscilloscope and the noise meter to the speaker terminals.
* Connect the black line to the GND of the measuring device, and red line to the signal line.
- Connect the oscillator to the **AUX IN** jack and input a signal like the following to both L and R simultaneously.
AUX IN L/R: 100-Hz sine wave at -20 dBm
- Set the **POWER CONTROL** knob to **100 W**, and the **MASTER** knob to maximum.
* When feeding the signal, do not leave the **POWER CONTROL** knob to positions other than **STANDBY** for over 5 minutes, or else the product may get damaged. If the testing takes time, return it to **STANDBY** for a while. This is the same in the following steps.
- Verify that a signal like the following is output from the **SPEAKER OUT** jack.
SPEAKER OUT: 100-Hz sine wave at +25.5±1.5 dBm (flat)
- Input a signal like the following to the **AUX IN** jack. (change the frequency)
AUX IN L/R: 10-kHz sine wave at -20 dBm
- Verify that a signal like the following is output from the **SPEAKER OUT** jack.
SPEAKER OUT: 10-kHz sine wave at +30.0±1.5 dBm (flat)
- Input a signal like the following to the **AUX IN** jack. (change the frequency)
AUX IN L/R: 1-kHz sine wave at -20 dBm
- Verify that a signal like the following is output from the **SPEAKER OUT** jack.
SPEAKER OUT: 1-kHz sine wave at +23.5±1.5 dBm (flat)
- Set the **POWER CONTROL** knob to **50 W**.
- Verify that a signal like the following is output from the **SPEAKER OUT** jack.
SPEAKER OUT: 1-kHz sine wave at +19.0±1.5 dBm (flat)
- Set the **POWER CONTROL** knob to **0.5 W**.
- Verify that a signal like the following is output from the **SPEAKER OUT** jack.
SPEAKER OUT: 1-kHz sine wave at +4.5±1.5 dBm (flat)
- Set the **POWER CONTROL** knob to **STANDBY**.
- Verify that no signal is output from the speaker terminals.
- Detach the oscillator.

Waveform (Speaker/PHONES)

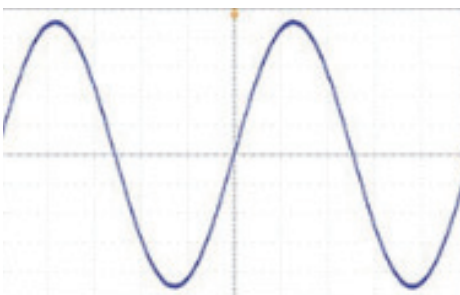
1. Connect the oscillator to the **INPUT** jack and input a signal like the following.
INPUT: 1-kHz sine wave at -10 dBm
2. Set the **POWER CONTROL** knob to **100 W**, and the **MASTER** knob to maximum.
3. Verify that the waveform of the signal output from the speaker terminals is as follows.



4. Detach the oscilloscope and the noise meter.
5. Connect the oscilloscope to the **PHONES/REC OUT** jack (L).
* Connect a 1/4-inch stereo phone cable with 33 Ω load resistors to the **PHONES/REC OUT** jack.
6. Input a signal like the following to the **INPUT** jack.
INPUT: 1-kHz sine wave at 0 dBm
7. Verify that the waveform of the signal output from the **PHONES/REC OUT** jack (L) is as follows.

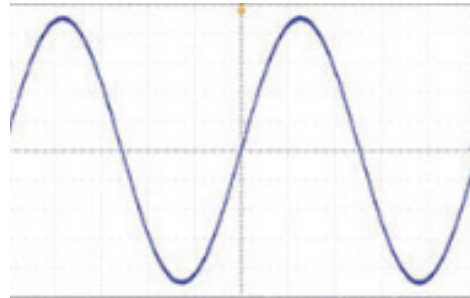


8. Press **BOOSTER**.
BOOSTER lights up red.
9. Set the **POWER CONTROL** knob to **STANDBY**.
10. Connect the oscillator to the **INPUT** jack and input a signal like the following.
INPUT: 1-kHz sine wave at -20 dBm
11. Connect the oscilloscope to the **EFFECT LOOP SEND** jack.
12. Verify that the waveform of the signal output from the **EFFECT LOOP SEND** jack is as follows.



13. Connect the oscilloscope to the **LINE OUT** jack.

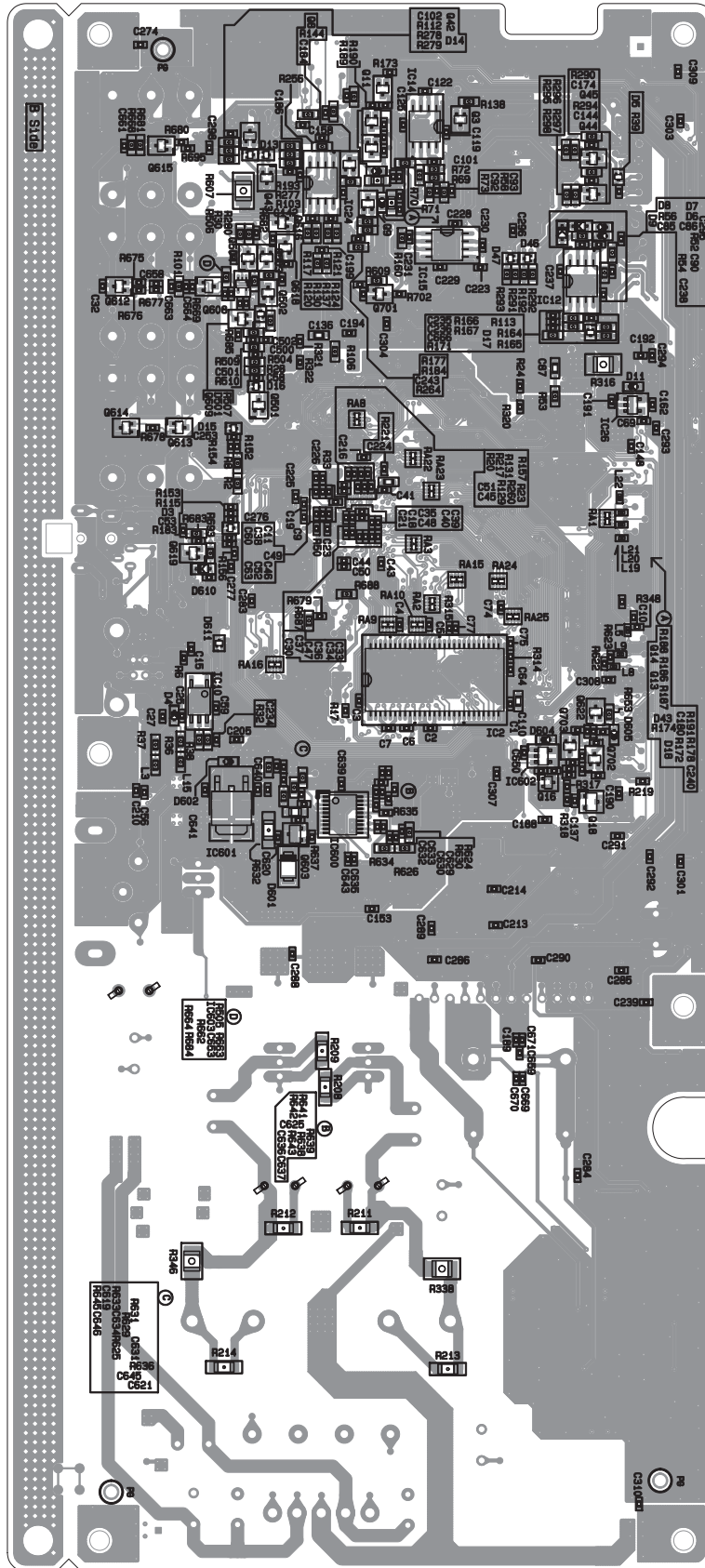
14. Verify that the waveform of the signal output from the **LINE OUT** jack is as follows.



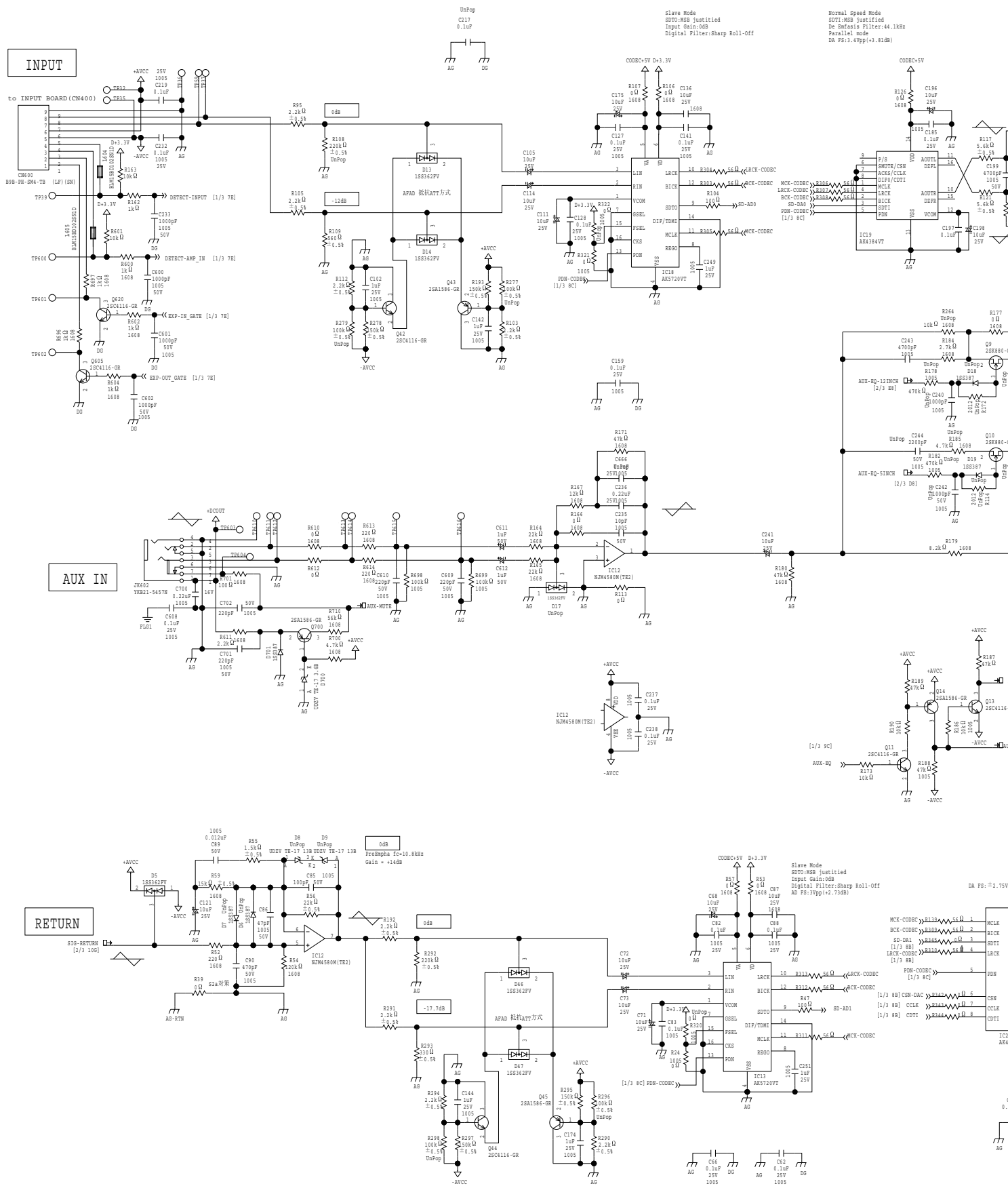
15. Disconnect the plug from the **INPUT** and **EFFECT LOOP SEND** jacks.
16. Press **BOOSTER**.
BOOSTER lights up green.

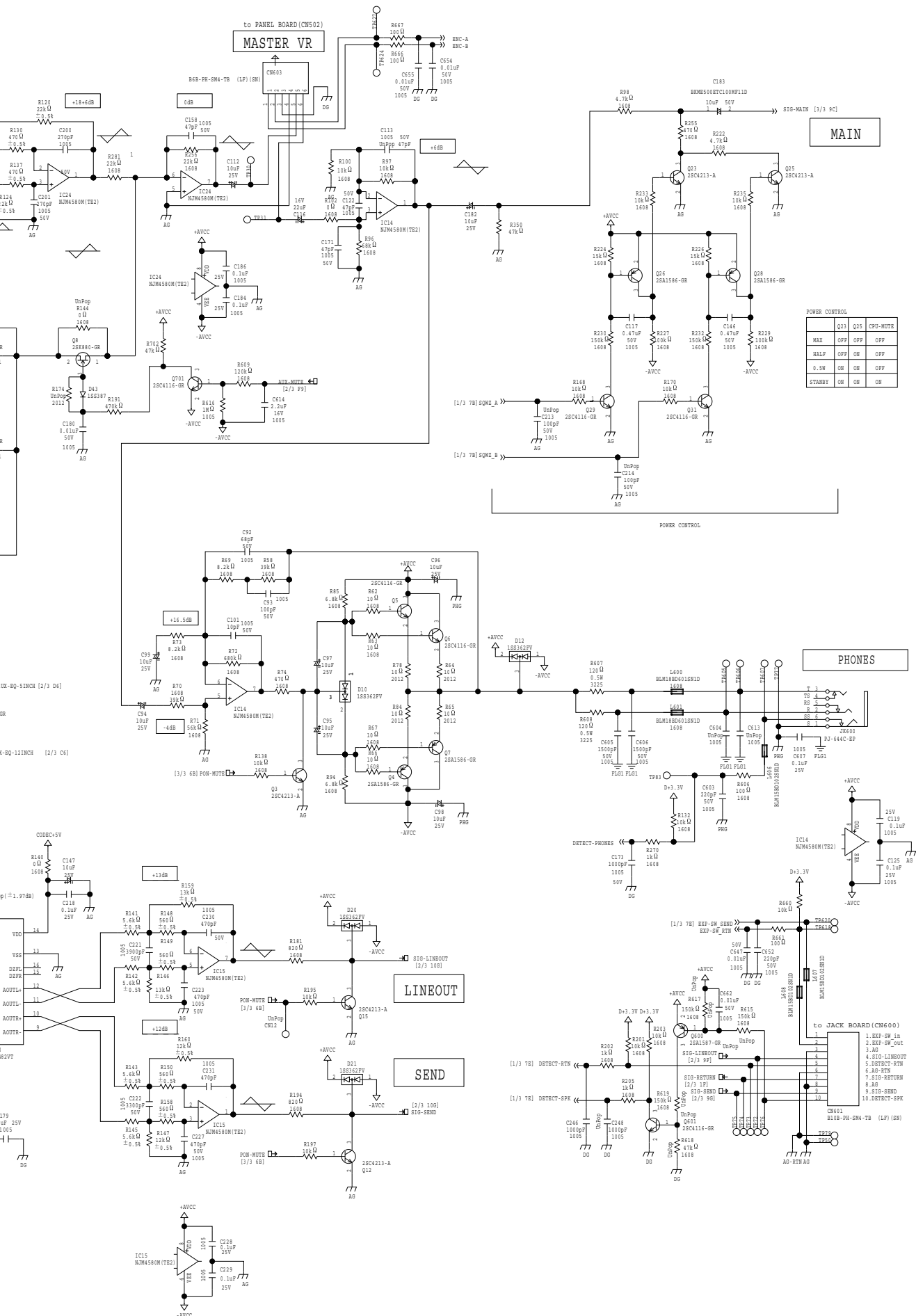
10. Noise Check

1. Connect a 1/4-inch monaural phone short plug to the **INPUT** jack.
2. Turn all knobs all the way clockwise.
3. Connect the noise meter to the **SPEAKER OUT** jack.
* Connect a 1/4-inch monaural phone cable with 8 Ω load resistor (8 Ω, 300 W load resistor connected between TIP-SLEEVE) to the **SPEAKER OUT** jack.
4. Verify that the residual noise at the **SPEAKER OUT** jack is as follows.
SPEAKER OUT: -33 dBm or lower (DIN-audio)
5. Connect the noise meter to the **PHONES/REC OUT** jack (L).
* Connect a 1/4-inch stereo phone cable with 33 Ω load resistors to the **PHONES/REC OUT** jack.
6. Verify that the residual noise at the **PHONES/REC OUT** jack (L) is as follows.
PHONES L: -70 dBm or lower (DIN-audio)
7. Connect the noise meter to the **EFFECT LOOP SEND** jack, and verify that the residual noise is as follows.
SEND: -65 dBm or lower (DIN-Audio)
8. Connect the noise meter to the **LINE OUT** jack and verify that the residual noise is as follows.
LINE OUT: -70 dBm or lower (DIN-audio)

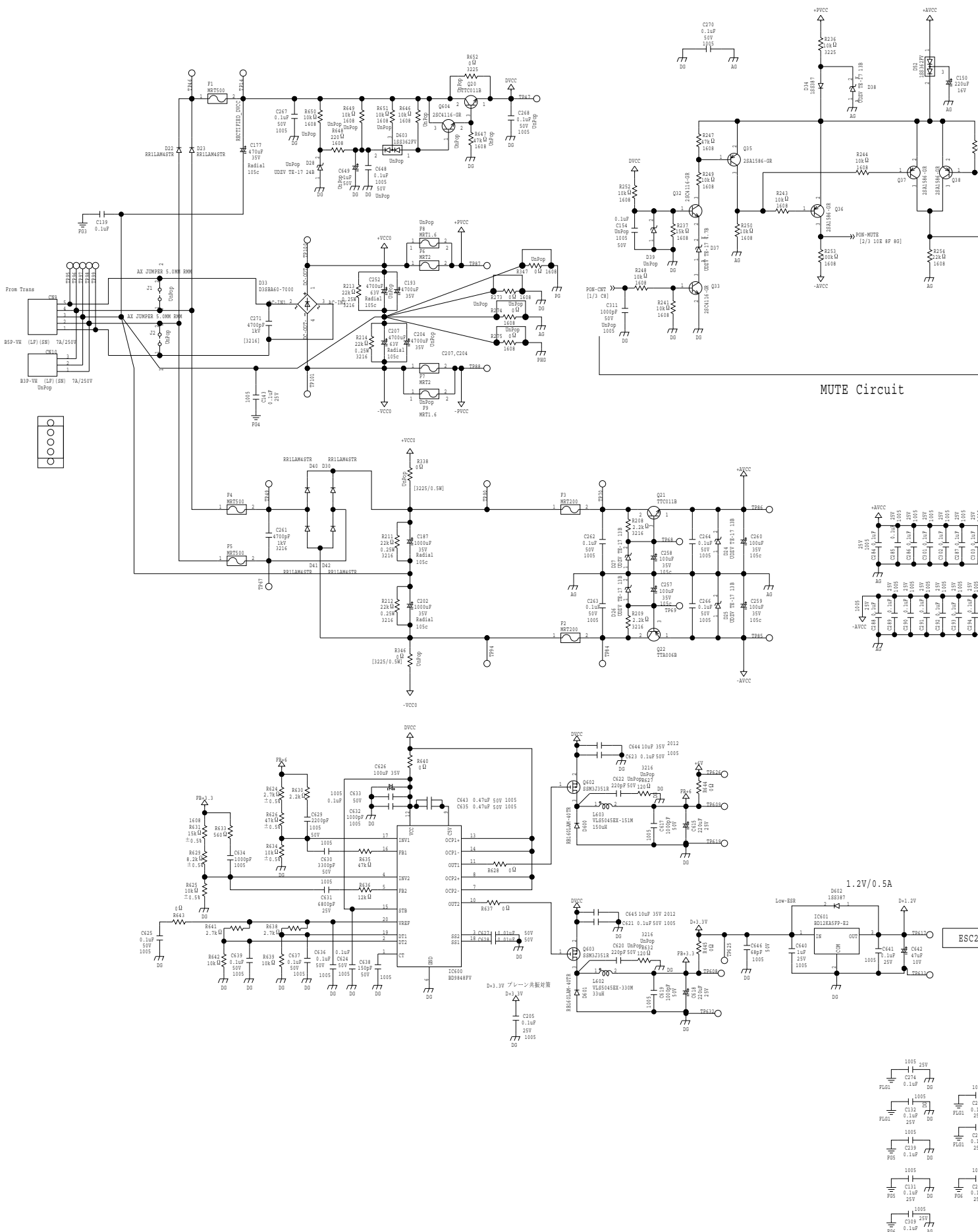


Circuit Diagram (Main Board: 2/3)

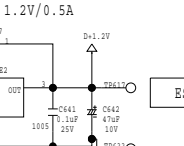
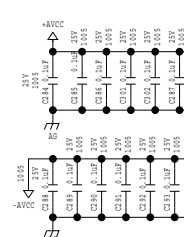


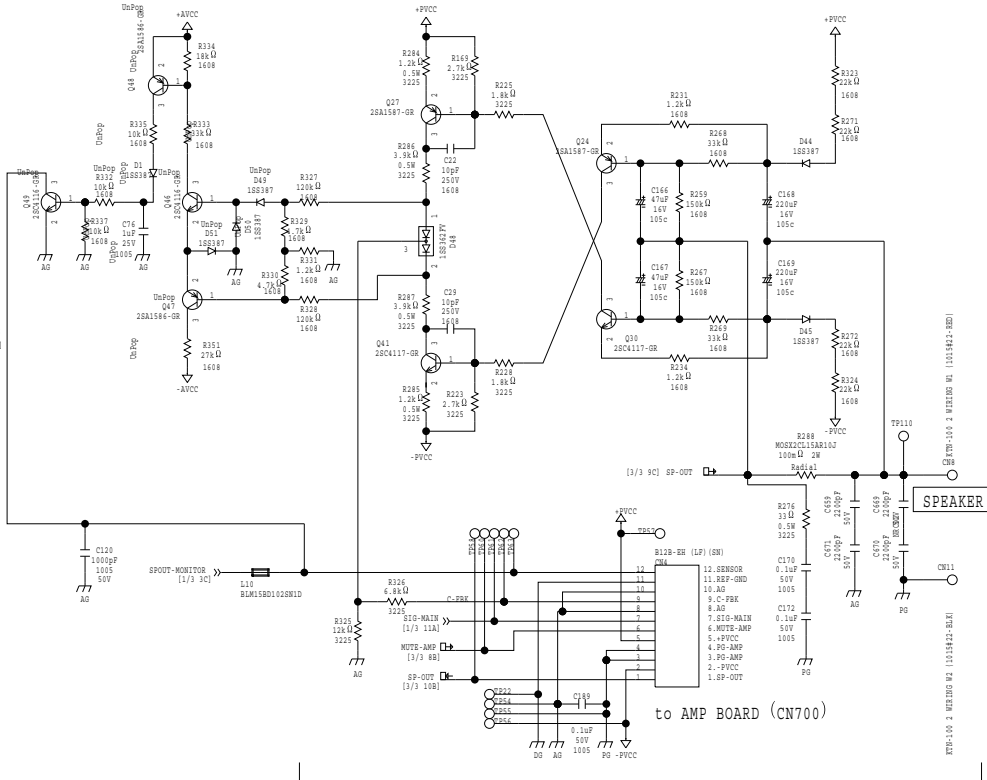


Circuit Diagram (Main Board: 3/3)

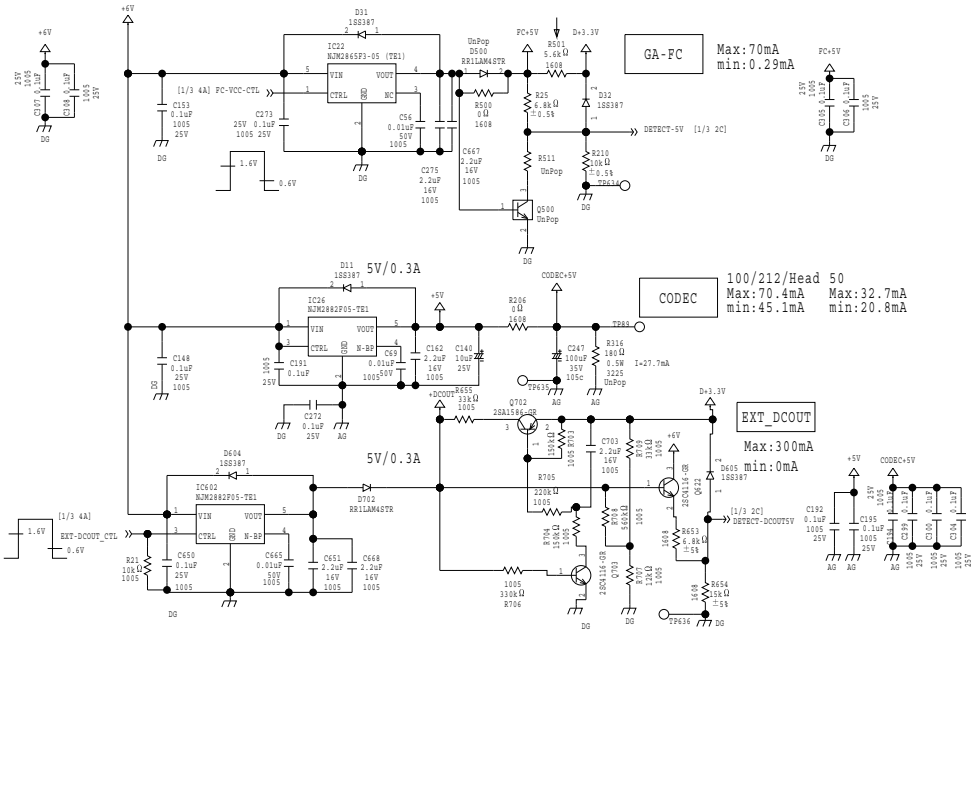
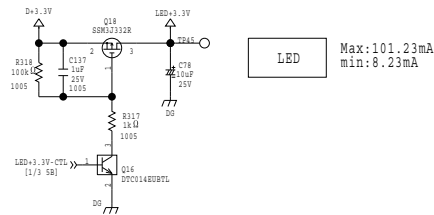


MUTE Circuit

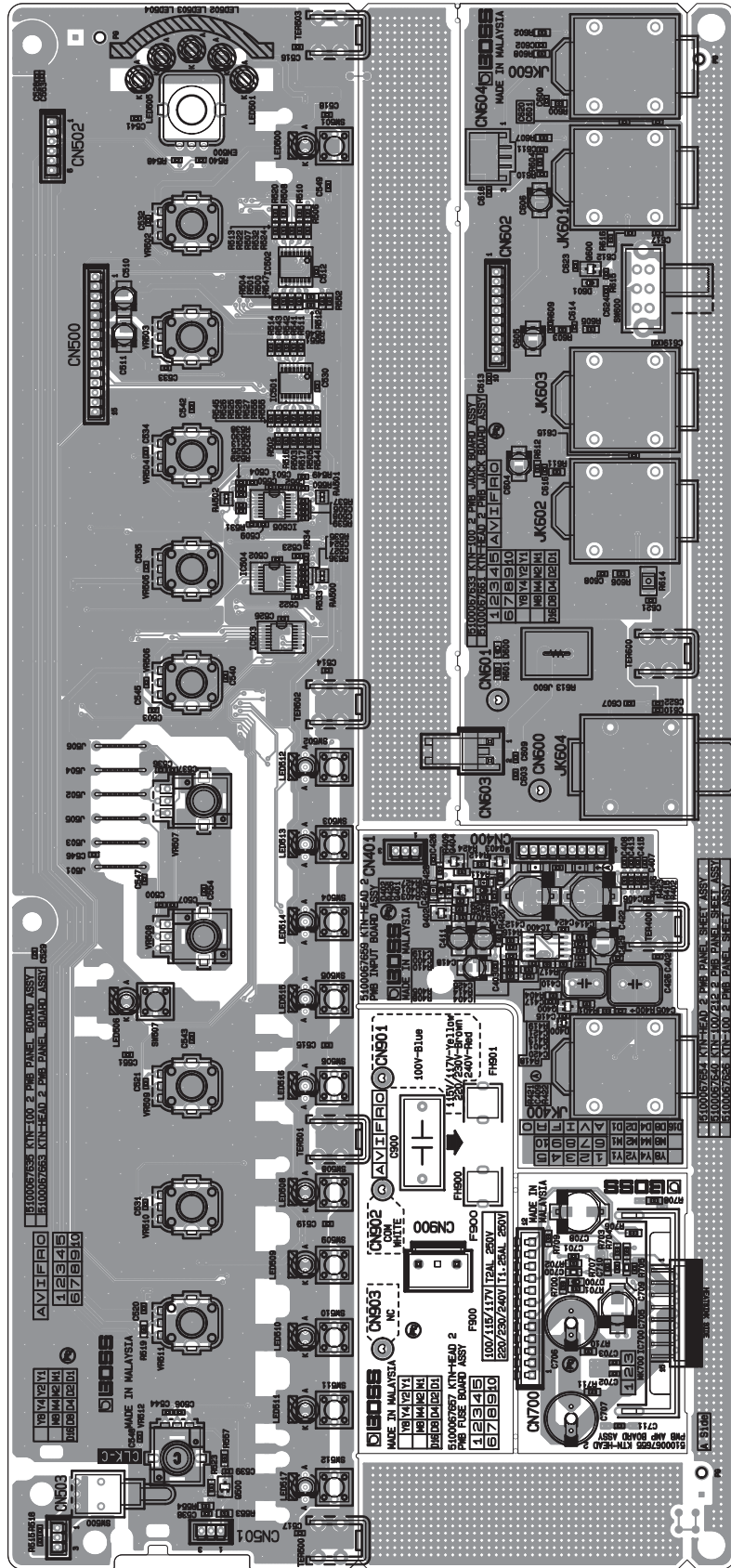




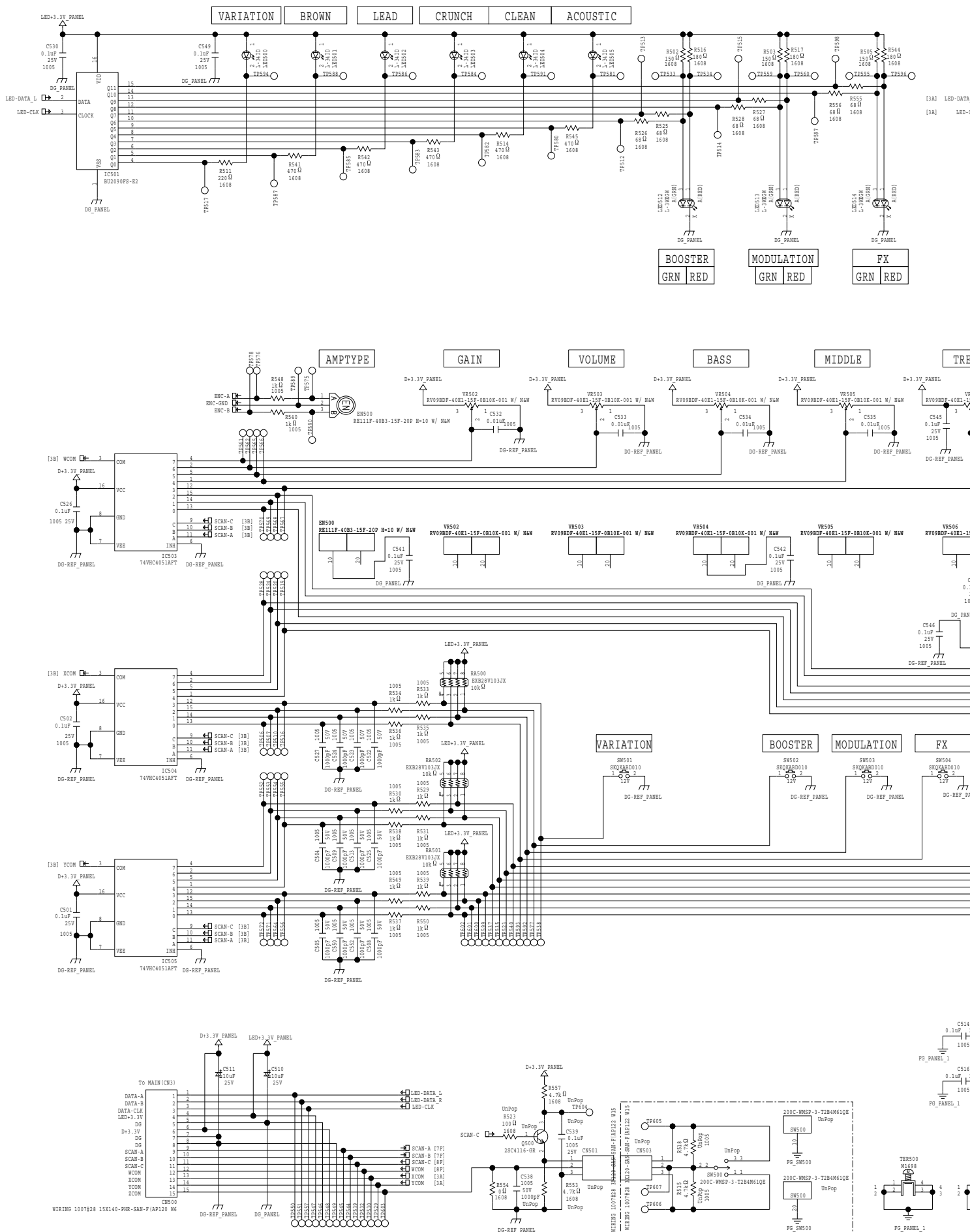
Current FB

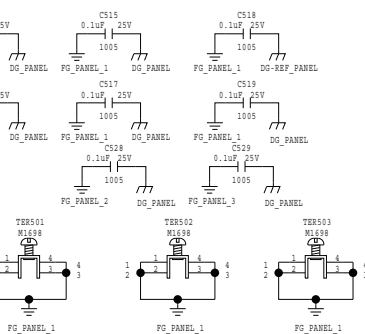
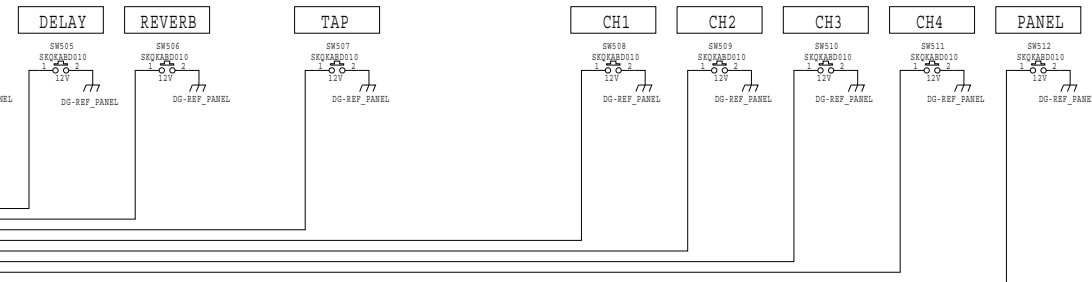
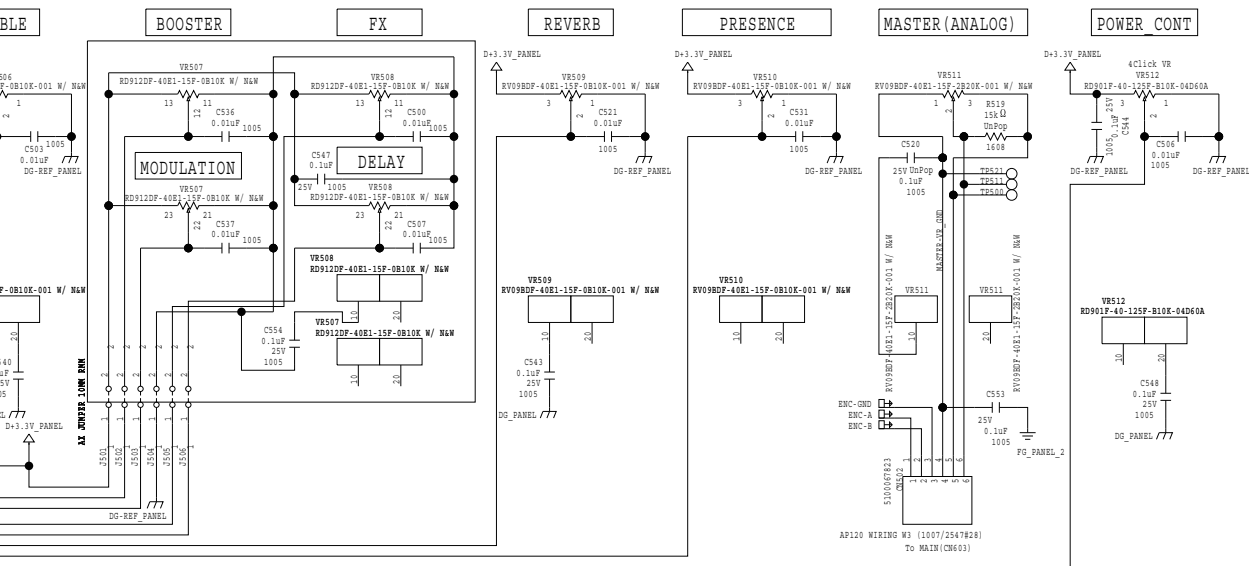
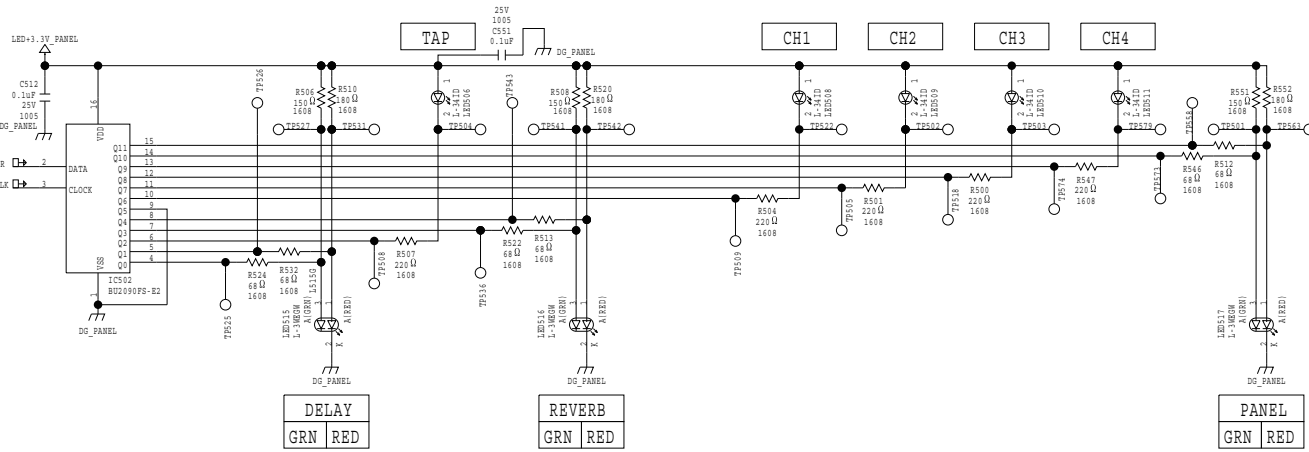


Circuit Board (Panel, Jack, Amp, Fuse, Input Board)

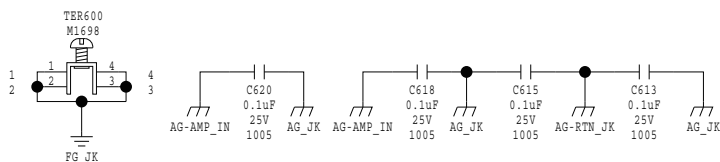
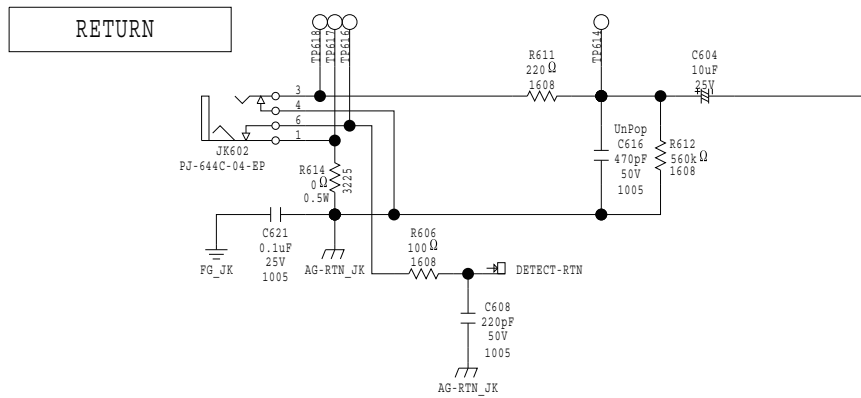
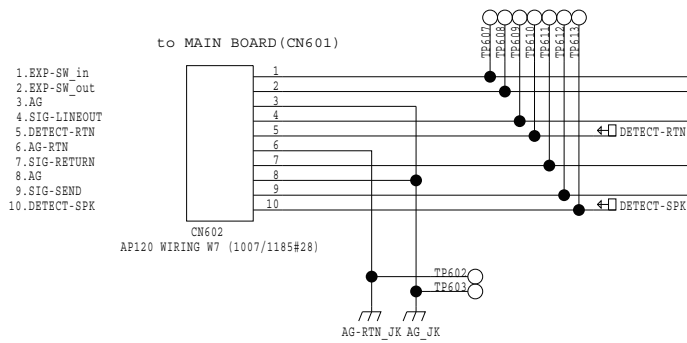
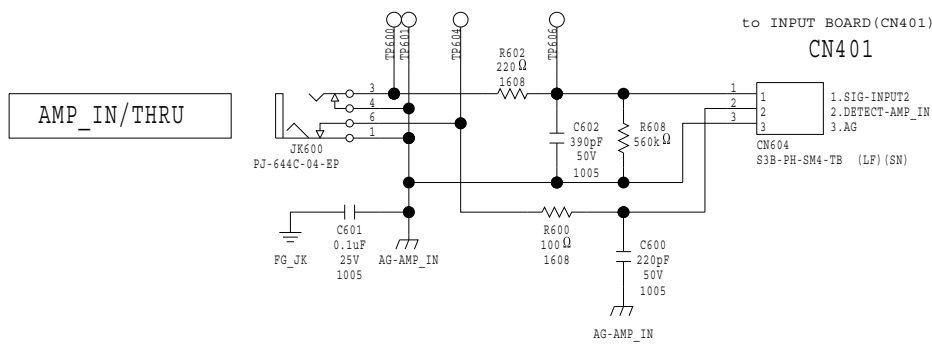


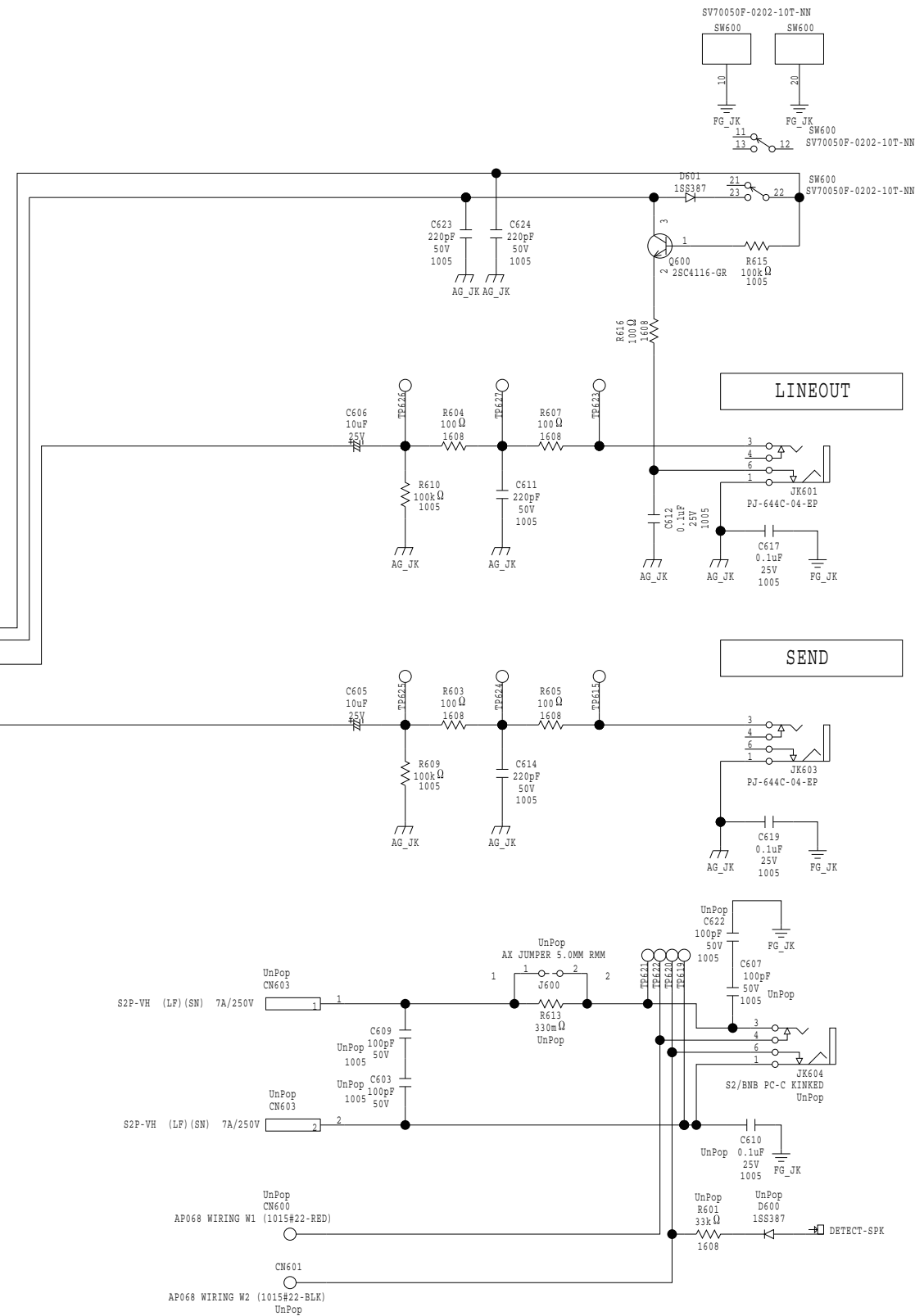
Circuit Diagram (Panel Board)



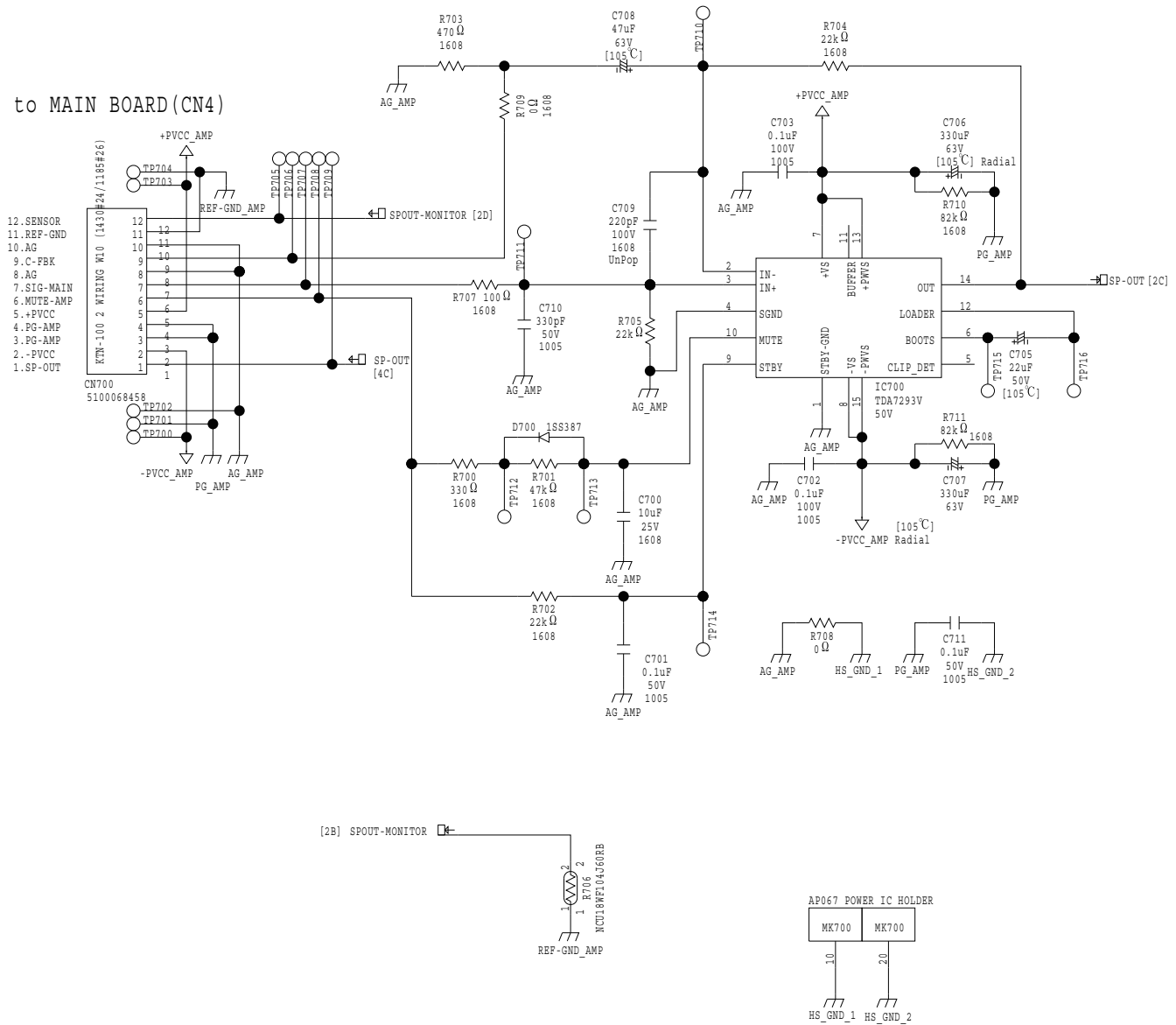


Circuit Diagram (Jack Board)

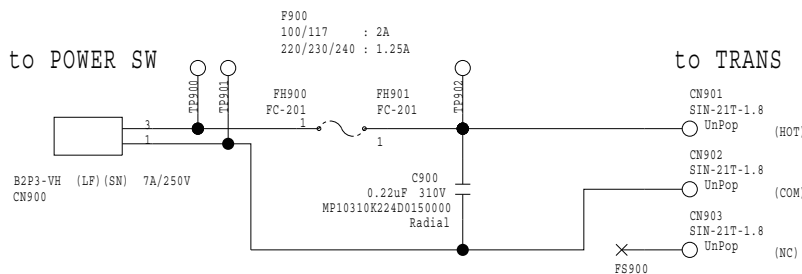




Circuit Diagram (Amp Board)



Circuit Diagram (Fuse Board)



Circuit Diagram (Input Board)

