

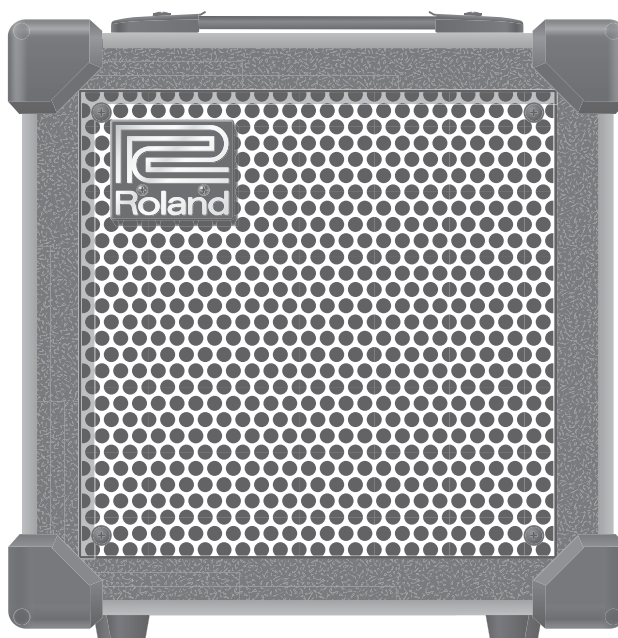
# CUBE-15XL

## SERVICE NOTES

*Issued by RJA*

### Table of Contents

Cautionary Notes .....	2	Parts List .....	8
Specifications .....	2	Verification of Operation .....	10
Location of Controls .....	3	Block Diagram .....	12
Location of Controls Parts List .....	3	Circuit Board (Main, PRE, PS1, Power Squeezer Board) .....	13
Exploded View (Cabinet) .....	4	Circuit Diagram (Main, PRE, PS1, Power Squeezer Board) .....	14
Exploded View (Cabinet) Parts List .....	5		
Exploded View (Chassis) .....	6		
Exploded View (Chassis) Parts List .....	7		



**Copyright © 2010 Roland Corporation**

All rights reserved. No part of this publication may be reproduced in any form without the written permission of Roland Corporation.

**Roland**

17058697E0

CC-KWS

## 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-15XL: Guitar Amplifier

#### Rated Power Output

15 W

#### Nominal Input Level

INPUT (CLEAN channel): -10dBu/1MΩ

AUX IN: -10dBu

#### Speakers

20 cm (8 inch)

#### Controls

[POWER] Switch

[SELECT] Switch

[POWER SQUEEZER] Switch

<CLEAN Channel> [VOLUME] Knob

<LEAD Channel> TYPE Switch (OVERDRIVE, DISTORTION, METAL ZONE, EXTREME), [GAIN] Knob, [VOLUME] Knob

<EQUALIZER> [BASS] Knob, [MIDDLE] Knob, [TREBLE] Knob

#### Indicators

CLEAN Channel

LEAD Channel

#### Connectors

INPUT Jack

AUX IN Jack

RECORDING OUT/PHONES Jack

#### Power Consumption

18 W

#### Dimensions

335 (W) x 240 (D) x 335 (H) mm

13-3/16 (W) x 9-1/2 (D) x 13-3/16 (H) inches

#### Weight

7.1 kg / 15 lbs 11 oz

#### Accessories

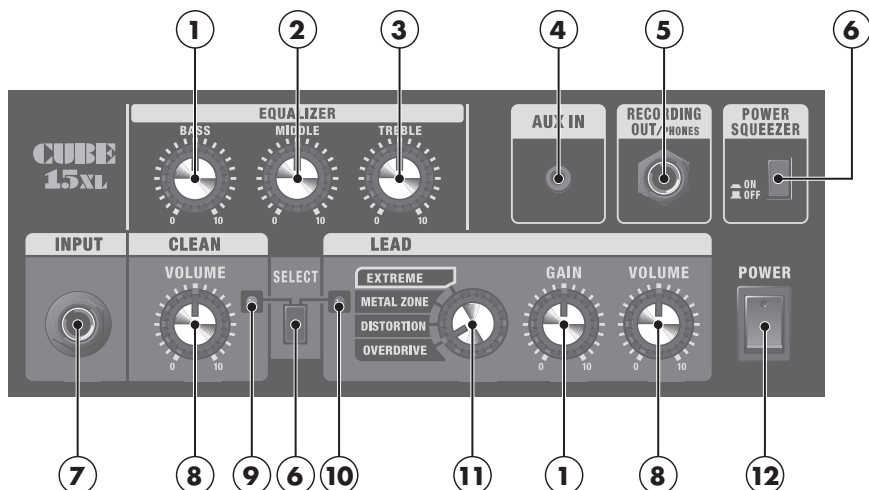
Owner's Manual Multilanguage (#5100016037)

Owner's Manual Chinese (#5100016325)

\* 0 dBu = 0.775 Vrms

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

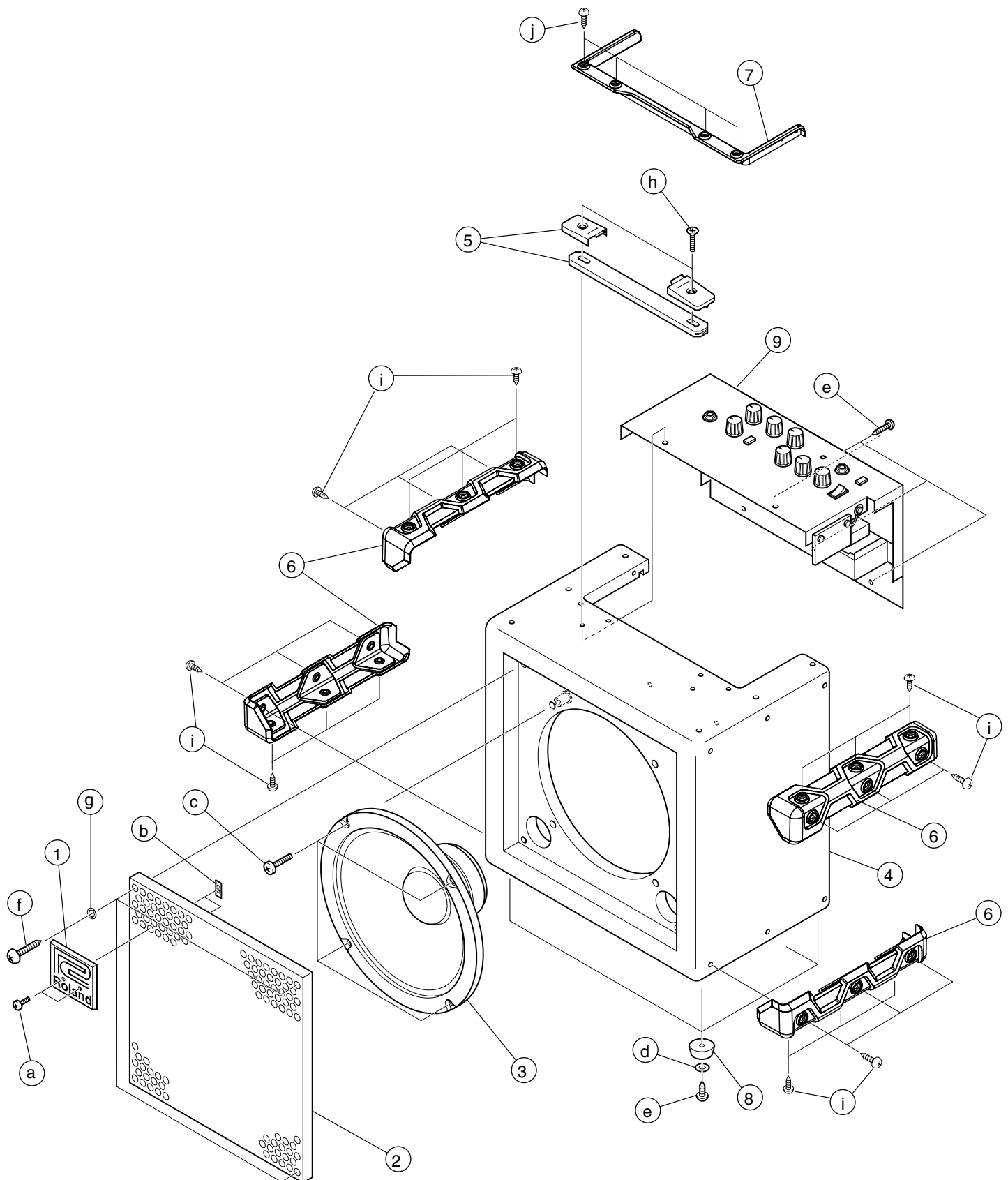
## Location of Controls



## Location of Controls Parts List

No.	Part Code	Part Name	Description	Q'ty
1	5100016757	ROTARY POTENTIOMETER	RD901F-20E1-15FWA250K-00	2
	* This unit includes the following parts.			
	17048630	VR ACCESSORY NUT M9		2
	40452178	VR WASHER M9		2
1	5100004351	R-KNOB	05800-515(SD000043)40A-KBG-10	2
2	5100016756	ROTARY POTENTIOMETER	RD901F-20E1-15FW1B20K-00	1
	* This unit includes the following parts.			
	17048630	VR ACCESSORY NUT M9		1
	40452178	VR WASHER M9		1
2	5100004351	R-KNOB	05800-515(SD000043)40A-KBG-10	1
3	5100016755	ROTARY POTENTIOMETER	RD901F-20E1-15FWB100K-00	1
	* This unit includes the following parts.			
	17048630	VR ACCESSORY NUT M9		1
	40452178	VR WASHER M9		1
3	5100004351	R-KNOB	05800-515(SD000043)40A-KBG-10	1
4	02456390	3.5MM JACK	STEREO YKB21-5290	1
5	13449252	6.5MM JACK	YKB21-5006 (STEREO W/SW)	1
	22150756	JACK NUT 2	PLASTIC/BLK	1
6	01348745	SWITCH (PUSH)	SPUP192700	2
	22497521R0	PUSH BUTTON	BLACK #521(40A-1BBG-108)	2
7	13449146	6.5MM JACK	YKB21-5012 (W/SW)	1
	22150756	JACK NUT 2	PLASTIC/BLK	1
8	5100016754	ROTARY POTENTIOMETER	RD901F-20E1-15FW1B10K-00DN6	2
	* This unit includes the following parts.			
	17048630	VR ACCESSORY NUT M9		2
	40452178	VR WASHER M9		2
8	5100004351	R-KNOB	05800-515(SD000043)40A-KBG-10	2
9	03349989	LED (GREEN)	L-34GDSL-FPB	1
10	03349978	LED (RED)	L-34HDSL-FPB	1
11	5100016825	SWITCH	SRBM142300	1
	* This unit includes the following parts.			
	40128923	HEX NUT M7		1
	17048651	VR ACCESSORY WASHER M7	M7X12X0.5 NO.476	1
11	5100004351	R-KNOB	05800-515(SD000043)40A-KBG-10	1
12	02897801	SEESAW SWITCH	SDDJE13200 94V-0	1

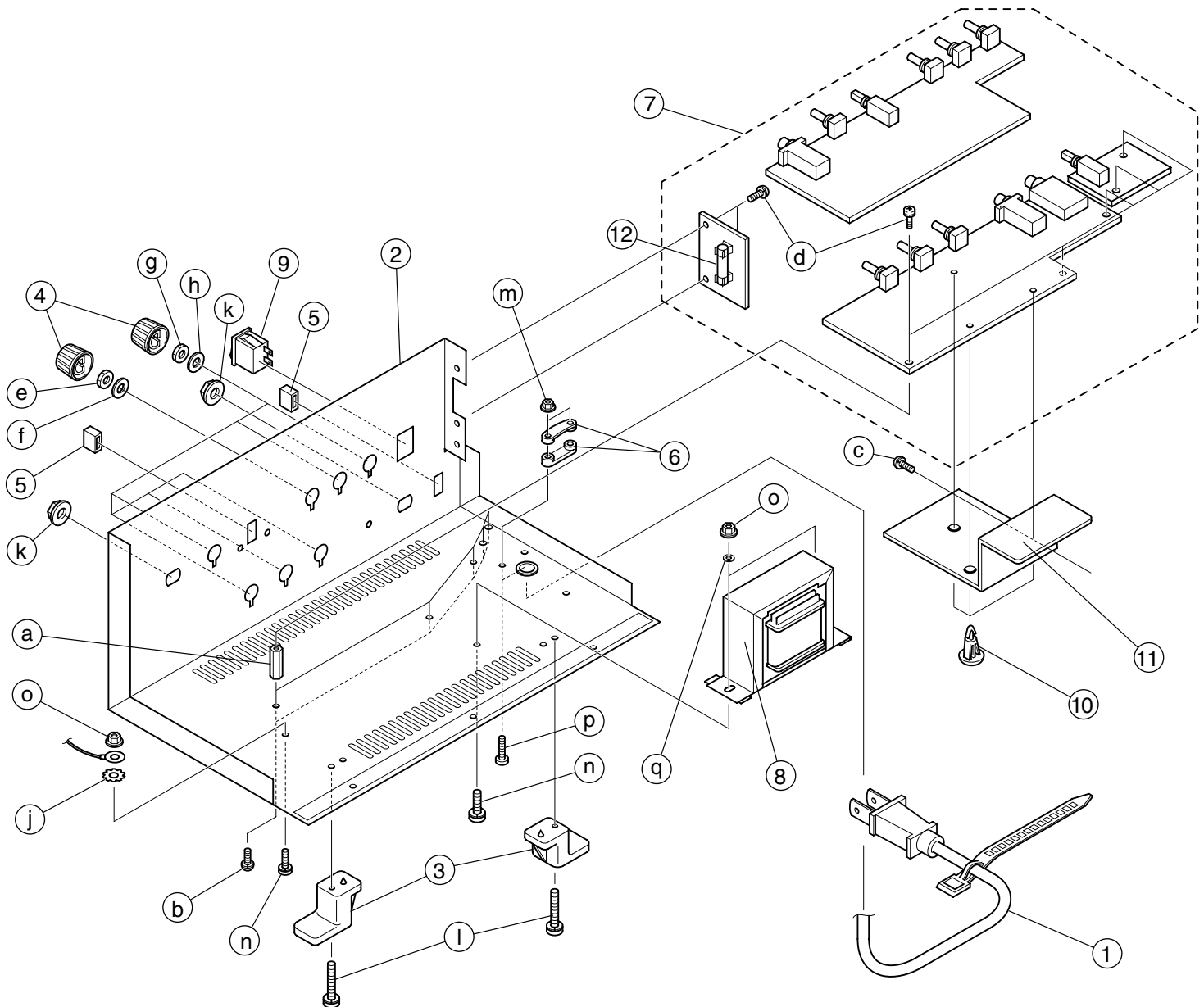
# Exploded View (Cabinet)



## Exploded View (Cabinet) Parts List

No.	Part Code	Part Name	Description	Q'ty
1	SD000017	BADGE		1
2	5100016519	GRILLE		1
3	SD000950	SPEAKER	(W0804-431A) 20CM/4OHM	1
	5100016544	CABINET ASSY		1
	* This unit includes the following parts.			
4	*****	CABINET		1
6	5100015010	CORNER PROTECTOR		4
7	5100015012	TRIM SASH		1
8	12359104	RUBBER FOOT	G-5R	4
5	SD000035	HANDLE WITH ESCUTHEON		1
	* This unit includes the following parts.			
	5100011381	HANDLE		1
	5100011382	HANDLE PLATE		1
	5100011383	HANDLE HOLDER		2
9	*****	CHASSIS ASSY	Refer to <b>Exploded View (Chassis)</b> (p. 6).	1
a	40230789	SCREW 3X10	OVAL MACHINE BZC	2
b	40011689	SPEED NUT M3	F-TYPE	2
c	40010367	SCREW M4X25	BINDING MACHINE BZC	4
d	SD000370	PLATE WASHER	4.2X10X0.5T FEBC	4
e	40010689	SCREW 4X25	TRUSS TAPPING A FE BZC	7
f	SD000975	SCREW M4X35	ORIGINAL TRUSS BZC	4
g	SD000430	PLANE WASHER	D11 D4.1 T1 BLACK/323-BG-405LF	4
h	40564601	SCREW M5X35	OVALHEAD MACHINE BZC	2
i	40010667	SCREW 4X16	TRUSS TAPPING A FE BZC	24
j	5100005098	SCREW 3X16	TRUSS TAPPING A BZC	4

# Exploded View (Chassis)



## Exploded View (Chassis) Parts List

No.	Part Code	Part Name	Description	Q'ty
1	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
2	5100015015	CHASSIS		1
3	5100004359	CORD HOOK		2
4	5100004351	R-KNOB	05800-515(SD000043)40A-KBG-10	7
5	22497521R0	PUSH BUTTON	BLACK #521(40A-1BBG-108)	2
6	12369410	CORD BAND	1702B	2
	5100010992	CORD COVER	40285-021 (only for 220VCN)	1
7	5100016555	MAIN BOARD ASSY	100/117V	1
	* This unit includes the following parts.			
	*****	MAIN BOARD		1
	*****	PRE BOARD		1
	*****	PS1 BOARD	100/117V (Change a fuse for high voltage.)	1
	*****	POWER SQUEEZER BOARD		1
8	SD000967	TRANSFORMER	PT BG433L 100V/117V	1
	SD000968	TRANSFORMER	PT BG433H 230V/240V	1
9	02897801	SEESAW SWITCH	SDDJE13200 94V-0	1
10	SD000053	PCB SPACER	SCC-6 94V-0	3
11	SD000026	HEATSINK		1
12	5100016776	FUSE	5ST 500-R 500MA/250V (for low voltage)	1
	03903834	FUSE	5ST 250 (for high voltage)	1
a	22150518	STANDOFF	HEX.BOSS 5.5X15 M3	5
b	40237101	SCREW M3X8	PAN MACHINE W/SW+SMALL PW BZC	5
c	40012878	SCREW M3X10	PAN MACHINE W/SW+PW ZC	1
d	40013067	SCREW M3X8	PAN MACHINE W/SW+SMALL PW ZC	7
e	40128923	HEX NUT M7		1
f	17048651	VR ACCESSORY WASHER M7	M7X12X0.5 NO.476	1
g	17048630	VR ACCESSORY NUT M9		6
h	40452178	VR WASHER M9		6
j	40011889	EXTERNAL TOOTH WASHER M4	FECM	1
k	22150756	JACK NUT 2	PLASTIC/BLK	2
l	40565489	SCREW M4X25	PAN MACHINE W/SW BZC	2
m	40011756	FLANGE HEX NUT M3	ZC (except for 220VCN)	2
n	40230245	SCREW M4X12	PAN MACHINE W/SW+PW BZC	3
o	40011767	FLANGE HEX NUT M4	FE ZC	3
p	40010301	SCREW M3X20	BINDING MACHINE BZC	2
q	40347534	WASHER M4	SPRING BZC	2

\* Attach the No. 10 PCB Spacer from the circuit-board side using KONISHI BOND CYEREX 100 (#40231345).

\* Apply KS-64 SILICON GREASE (#40347934) to the No. 11 heat sink and power IC.

# Parts List

Safety Precautions:  
The parts marked  $\Delta$  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.

<b>CASING</b>					
#	5100016544	CABINET ASSY			1
#	5100016519	GRILLE			1
<b>CHASSIS</b>					
#	5100015015	CHASSIS			1
<b>KNOB, BUTTON</b>					
	5100004351	R-KNOB	05800-515(SD000043)40A-KBG-10		7
#	22497521R0	PUSH BUTTON	BLACK #521(40A-1BBG-108)		2
<b>SWITCH</b>					
#	5100016825	SWITCH	SRBM142300		1
	01348745	SWITCH (PUSH)	SPUP192700		2
$\Delta$	02897801	SEESAW SWITCH	SDDJE13200 94V-0		1
<b>JACK, EXT TERMINAL</b>					
	02456390	3.5MM JACK	STEREO YKB21-5290		1
	13449146	6.5MM JACK	YKB21-5012 (W/SW)		1
	13449252	6.5MM JACK	YKB21-5006 (STEREO W/SW)		1
<b>SPEAKER, BUZZER</b>					
$\Delta$	SD000950	SPEAKER	(W0804-431A) 20CM/40HM		1
<b>PWB ASSY</b>					
#	5100016555	MAIN BOARD ASSY	100/117V		1
	<i>* This unit includes the following parts.</i>				
#	*****	MAIN BOARD			1
#	*****	PRE BOARD			1
#	*****	PS1 BOARD		Change a fuse for high voltage.	1
#	*****	POWER SQUEEZER BOARD			1
<b>DIODE</b>					
	03349978	LED (RED)	L-34HDSL-FPB		1
	03349989	LED (GREEN)	L-34GDSL-FPB		1
<b>POTENTIOMETER</b>					
#	5100016754	ROTARY POTENTIOMETER	RD901F-20E1-15FW1B10K-00DN6		2
#	5100016756	ROTARY POTENTIOMETER	RD901F-20E1-15FW1B20K-00		1
#	5100016757	ROTARY POTENTIOMETER	RD901F-20E1-15FWA250K-00		2
#	5100016755	ROTARY POTENTIOMETER	RD901F-20E1-15FWB100K-00		1
<b>FUSE, FUSE HOLDER</b>					
#	$\Delta$	5100016776	FUSE	5ST 500-R 500MA/250V	for low voltage 1
	$\Delta$	03903834	FUSE	5ST 250	for high voltage 1
#	$\Delta$	5100000592	FUSE HOLDER	FC-201	2
<b>WIRING, CABLE</b>					
#	5100016817	WIRING	184-BG433-W1		1
#	5100016820	WIRING	192-BG433-W6		1
#	5100015939	WIRING	195-BG431-W5		2
#	5100016821	WIRING	196-BG431-W6		1
#	5100016822	WIRING	196-BG431-W7		1
#	5100016823	WIRING	196-BG433-W5		1
<b>TRANSFORMER</b>					
#	$\Delta$	SD000967	TRANSFORMER	PT BG433L 100V/117V	for low voltage 1
#	$\Delta$	SD000968	TRANSFORMER	PT BG433H 230V/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	7
		40013067	SCREW M3X8	PAN MACHINE W/SW+SMALL PW ZC	7
		40237101	SCREW M3X8	PAN MACHINE W/SW+SMALL PW BZC	5
		40012878	SCREW M3X10	PAN MACHINE W/SW+PW ZC	1
		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
		40128923	HEX NUT M7		1
		22150756	JACK NUT 2	PLASTIC/BLK	2
		40011756	FLANGE HEX NUT M3	ZC	except for 220VCN 2
		40011767	FLANGE HEX NUT M4	FE ZC	3
		40011689	SPEED NUT M3	F-TYPE	2
		17048630	VR ACCESSORY NUT M9		6
		SD000430	PLANE WASHER	D11 D4.1 T1 BLACK/323-BG-405LF	4
		40011889	EXTERNAL TOOTH WASHER M4	FECM	1
		17048651	VR ACCESSORY WASHER M7	M7X12X0.5 NO.476	1
		40452178	VR WASHER M9		6
		SD000370	PLATE WASHER	4.2X10X0.5T FEBC	4
		40347534	WASHER M4	SPRING BZC	2
		22150518	STANDOFF	HEX.BOSS 5.5X15 M3	5
MISCELLANEOUS					
#		5100015010	CORNER PROTECTOR		4
#		5100015012	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	2
	△	5100010992	CORD COVER	40285-021	1
		5100004359	CORD HOOK		2
#		5100015944	EVA PACKING	25X15X1T W/ADH	1
#		5100015946	EVA PACKING	85X15X1T W/ADH	1
#		5100015945	EVA PACKING	85X22X1T W/ADH	1
#		5100011023	EVA PACKING	110X10X1T W/ADH	2
		5100011022	EVA PACKING	110X15X1T W/ADH	1
#		5100016835	EVA PACKING	268X35X1T W/ADH	1
#	△	SD000026	HEATSINK		1
#		5100015949	HIMELON	6X50X0.5T W/ADH	3
#		5100016838	HIMELON	10X270X1T W/ADH	1
		5100005099	LOCKING CABLE TIE	120X2.5X1T DAIHWA	3
#	△	SD000053	PCB SPACER	SCC-6 94V-0	3
#	△	5100005211	SEAL	UL LIGHTNING FLASH	1
#		5100015942	ACETATE TAPE	#156A 35X25XT0.25	2
#		5100000603	TERMINAL	PT1870502	2
		40231345	BOND	KONISHI BOND CYEREX100 330ML	-
		40347934	SILICON GREASE	KS-64 100G	-
ACCESSORIES (Standard)					
#		5100016036	OWNER'S MANUAL	JAPANESE	1
#		5100016037	OWNER'S MANUAL	MULTILANGUAGE	1
#		5100016325	OWNER'S MANUAL	CHINESE	1

# Verification of Operation

## Items Required

- Signal generator
- Noise meter

## Connections

### For Verifying Speaker Output

Disconnect the speaker wires from the speaker, connect a 4-Ω load resistor between the red and black wires, then connect the noise meter.

### For Verifying Headphones Output

To the **RECORDING OUT/PHONES** jack, connect a headphones plug that has one 100-Ω load resistor connected between L and ground and one connected between R and ground, then connect the noise meter.

## Measurement of the CLEAN Output Values

- Set the panel buttons and controls as shown below.
 

SELECT:	CLEAN
CLEAN VOLUME:	10
LEAD TYPE:	OVERDRIVE
GAIN:	10
VOLUME:	10
EQUALIZER BASS:	10
MIDDLE:	10
TREBLE:	10
POWER SQUEEZER:	OFF
- Connect the signal generator to the **INPUT** jack and input a **1-kHz sine** wave at **-40 dBm**.
- Verify that the output value between the red and black speaker wires is **+2.0±2.0 dBm**.
- Connect the signal generator to the left channel of the **AUX IN** connector and input a **1-kHz sine** wave at **-20 dBm**.
- Verify that the output value between the red and black speaker wires is **-3.0±2.0 dBm**.
- Connect the signal generator to the right channel of the **AUX IN** connector and input a **1-kHz sine** wave at **-20 dBm**.
- Verify that the output value between the red and black speaker wires is **-3.0±2.0 dBm**.

## Measurement of the LEAD Output Values

- Set the panel buttons and controls as shown below.
 

SELECT:	LEAD
CLEAN VOLUME:	10
LEAD TYPE:	Refer to step 3 and after.
GAIN:	10
VOLUME:	10
EQUALIZER BASS:	10
MIDDLE:	10
TREBLE:	10
POWER SQUEEZER:	OFF
- Input a **300-Hz sine** wave at **-60 dBm** to the **INPUT** jack.
- Set **LEAD TYPE** to **OVERDRIVE**, and verify that the output value between the red and black speaker wires is **+1.5±2.0 dBm**.
- Set **LEAD TYPE** to **DISTORTION**, and verify that the output value between the red and black speaker wires is **+8.0±2.0 dBm**.

- Set **LEAD TYPE** to **METAL ZONE**, and verify that the output value between the red and black speaker wires is **+14.5±2.0 dBm**.
- Set **LEAD TYPE** to **EXTREME**, and verify that the output value between the red and black speaker wires is **+3.0±2.0 dBm**.

## Measurement of the POWER SQUEEZER Output Value

- Set the panel buttons and controls as shown below.
 

SELECT:	LEAD
CLEAN VOLUME:	10
LEAD TYPE:	EXTREME
GAIN:	10
VOLUME:	10
EQUALIZER BASS:	10
MIDDLE:	10
TREBLE:	10
POWER SQUEEZER:	ON
- Input a **4-kHz sine** wave at **-60 dBm** to the **INPUT** jack.
- Verify that the output value between the red and black speaker wires is **+2.0±2.0 dBm**.

## Measurement of the EQUALIZER Output Values

- Set the panel buttons and controls as shown below.
 

SELECT:	CLEAN
CLEAN VOLUME:	10
LEAD TYPE:	EXTREME
GAIN:	10
VOLUME:	10
EQUALIZER BASS:	10 (changed in step 3)
MIDDLE:	10 (changed in step 5)
TREBLE:	10 (changed in step 7)
POWER SQUEEZER:	OFF
- Input a **100-Hz sine** wave at **-40 dBm** to the **INPUT** jack.
- Adjust the **EQUALIZER BASS** control to **10**, then **0**, then **10**, and verify that the output value between the red and black speaker wires changes as shown below. After verifying, adjust the control to **10**.
 

When at 10:	<b>+6.5±2.0 dBm</b>
When at 0:	<b>-1.5±2.0 dBm</b>
- Input a **1-kHz sine** wave at **-40 dBm** to the **INPUT** jack.
- Adjust the **EQUALIZER MIDDLE** control to **10**, then **0**, then **10**, and verify that the output value between the red and black speaker wires changes as shown below. After verifying, adjust the control to **10**.
 

When at 10:	<b>+2.0±2.0 dBm</b>
When at 0:	<b>-5.5±2.0 dBm</b>
- Input a **10-kHz sine** wave at **-40 dBm** to the **INPUT** jack.
- Adjust the **EQUALIZER TREBLE** control to **10**, then **0**, then **10**, and verify that the output value between the red and black speaker wires changes as shown below. After verifying, adjust the control to **10**.
 

When at 10:	<b>+17.5±2.0 dBm</b>
When at 0:	<b>+9.5±2.0 dBm</b>

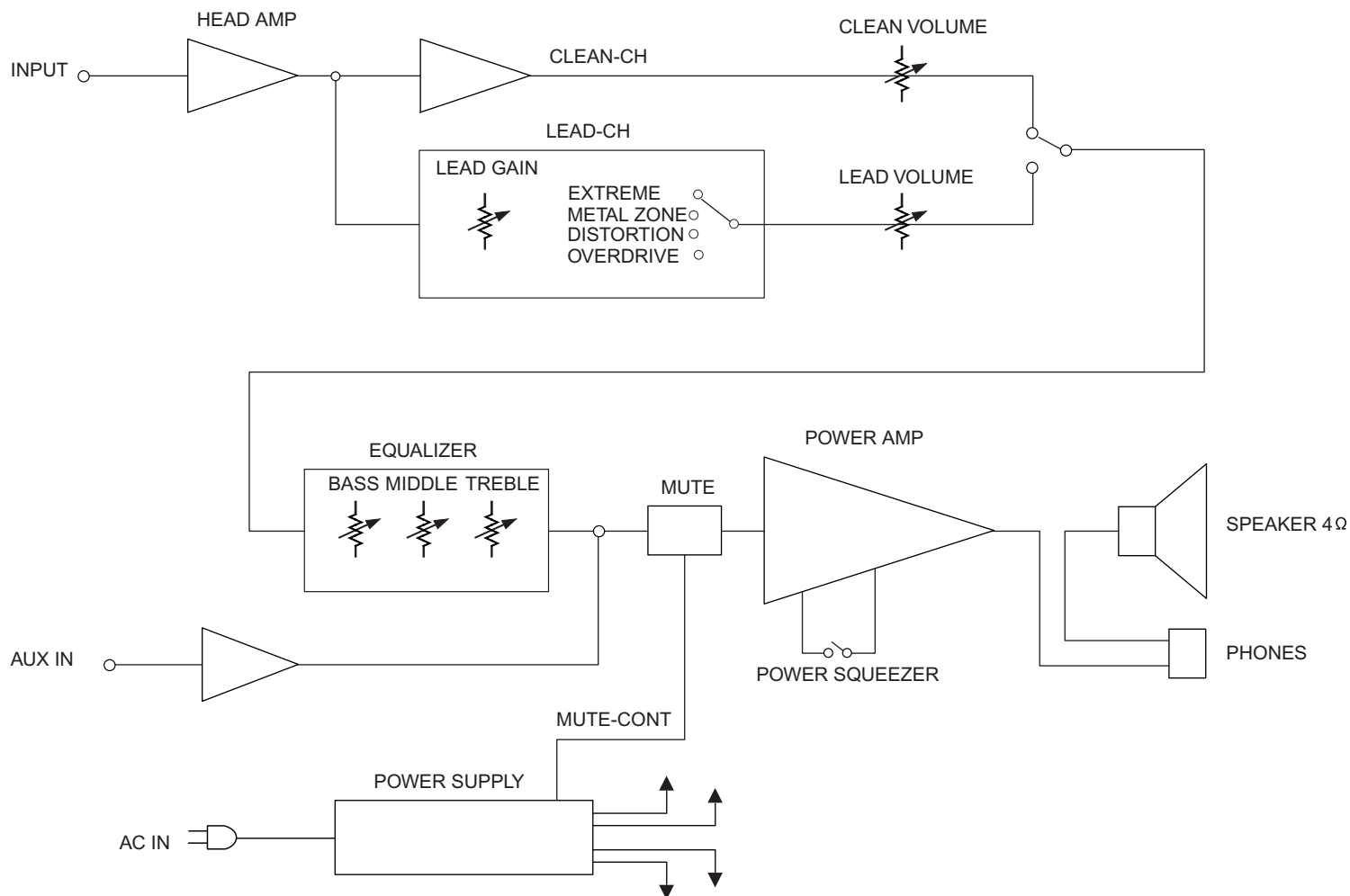
## Measurement of the PHONES Output Values

1. Set the panel buttons and controls as shown below.

SELECT:	CLEAN
CLEAN VOLUME:	10
LEAD TYPE:	EXTREME
GAIN:	10
VOLUME:	10
EQUALIZER BASS:	10
MIDDLE:	10
TREBLE:	10
POWER SQUEEZER:	OFF

2. Input a **1-kHz sine** wave at **-40 dBm** to the **INPUT** jack.
3. Verify that the left and right output values of the **PHONES** jack are both at **+1.5±2.0 dBm**.

# Block Diagram





## 14

