

INTERACTIVE ARRANGER

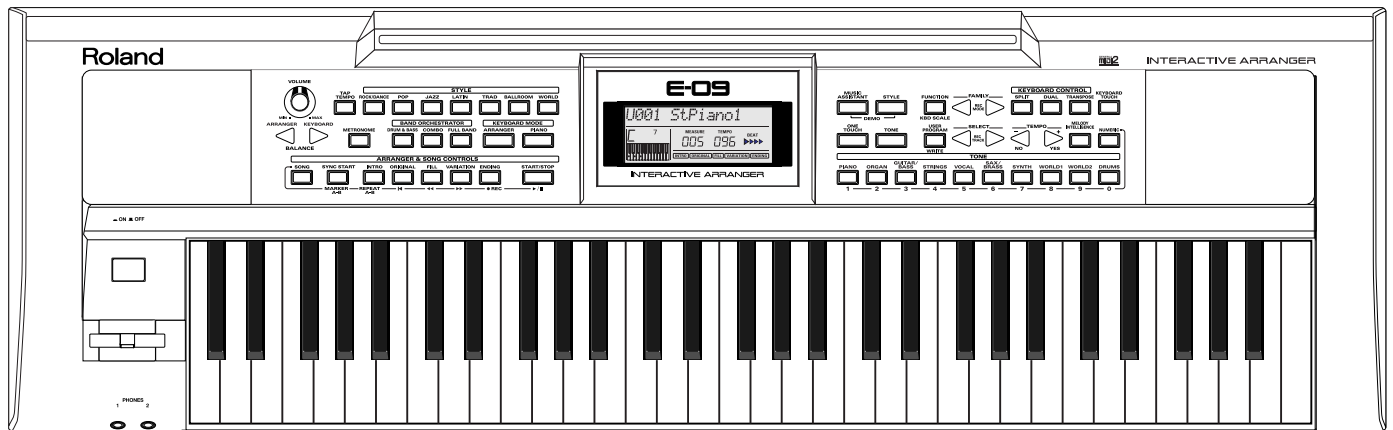
# E-09

# SERVICE NOTES

*Issued by RJA*

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## CAUTIONARY NOTES

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**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 "USERS DATA SAVE AND LOAD" 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 \*\*\*\*\* cannot 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).

## CIRCUIT DIAGRAM

In the circuit diagram, 'NIU' is an abbreviation for 'NOT IN USE'.

The circuit board and circuit-board diagram show silkscreened indications, but no components are mounted.

# SPACIFICATIONS

## E-09(40034):INTERACTIVE ARRANGER

### Keyboard

61 keys (with velocity)

### [Sound Generator]

#### Maximum Polyphony

64 voices

#### Parts

16 parts + Keyboard part

#### Wave Memory

32 M bytes (16-bit linear equivalent)

#### Tones

Tones: 614 + 256 (GM2)

Drum Sets: 61 + 9 (GM2)

#### Effects

MFx: 47 types

Reverb: 8 types

Chorus: 8 types

#### Transpose

- 12 to +12 (in semitones)

### [Arranger]

#### Tempo

20 to 250

#### Styles

130 styles

#### Band Orchestrator

3 types: Drum & Bass, Combo, Full Band

#### User Program

100 programs

#### One Touch Setting

2 settings/styles

#### Control

start/stop, sync start, intro original, fill in, variation, ending, tap tempo,

#### Melody Intelligence

18 types

#### Music Assistant

130 types

### [Metronome]

#### Signature

1/4, 2/4, 3/4, 4/4, 5/4, 6/4, 6/8, 9/8

### [Song Controls]

#### Tracks

16

#### 16-track Recorder Mode

4 easy modes (ALL, Keyboard, Single, Punch In/Out)

#### Control

start/stop, recording, reset, rewind, forward, marker A-B, repeat A-B

### [Others]

#### Rated Power Output

7.5 W + 7.5 W

#### Speakers

10 cm x 2

#### Controller

Pitch Bend/Modulation Lever

#### Display

Large backlit custom LCD

#### Connectors

Output Jacks (L/MONO, R)

Headphones Jack 1/2

MIDI Connectors (IN, OUT)

Foot Switch Jack

#### Power Supply

DC 9 V (AC Adaptor)

#### Current Draw

2,000 mA

#### Dimensions

1045 (W) x 320 (D) x 128 (H) mm

41-3/16 (W) x 12-5/8 (D) x 5-1/16 (H) inches

#### Weight

7.3 kg / 16 lbs 2 oz (excluding AC adaptor)

#### Accessories

Music rest (#04122634)

Owner's Manual (#04122123)

AC Adaptor (PSB-1U)

#### Options

Keyboard Stand: KS-12

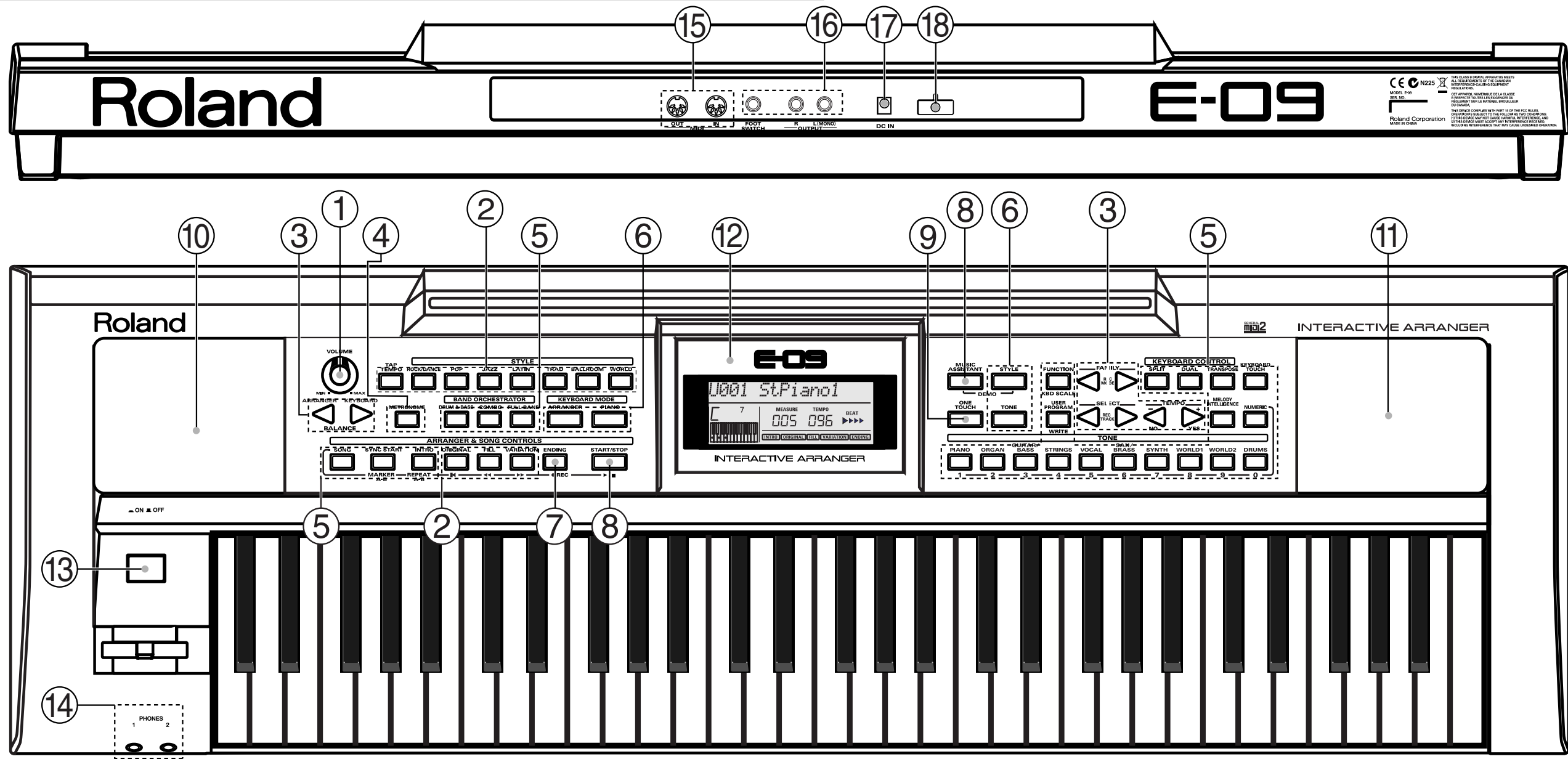
Pedal Switch: DP series

Foot Switch: BOSS FS-5U

MIDI IMPLEMENTATION (#17041742)

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

LOCATION OF CONTROLS



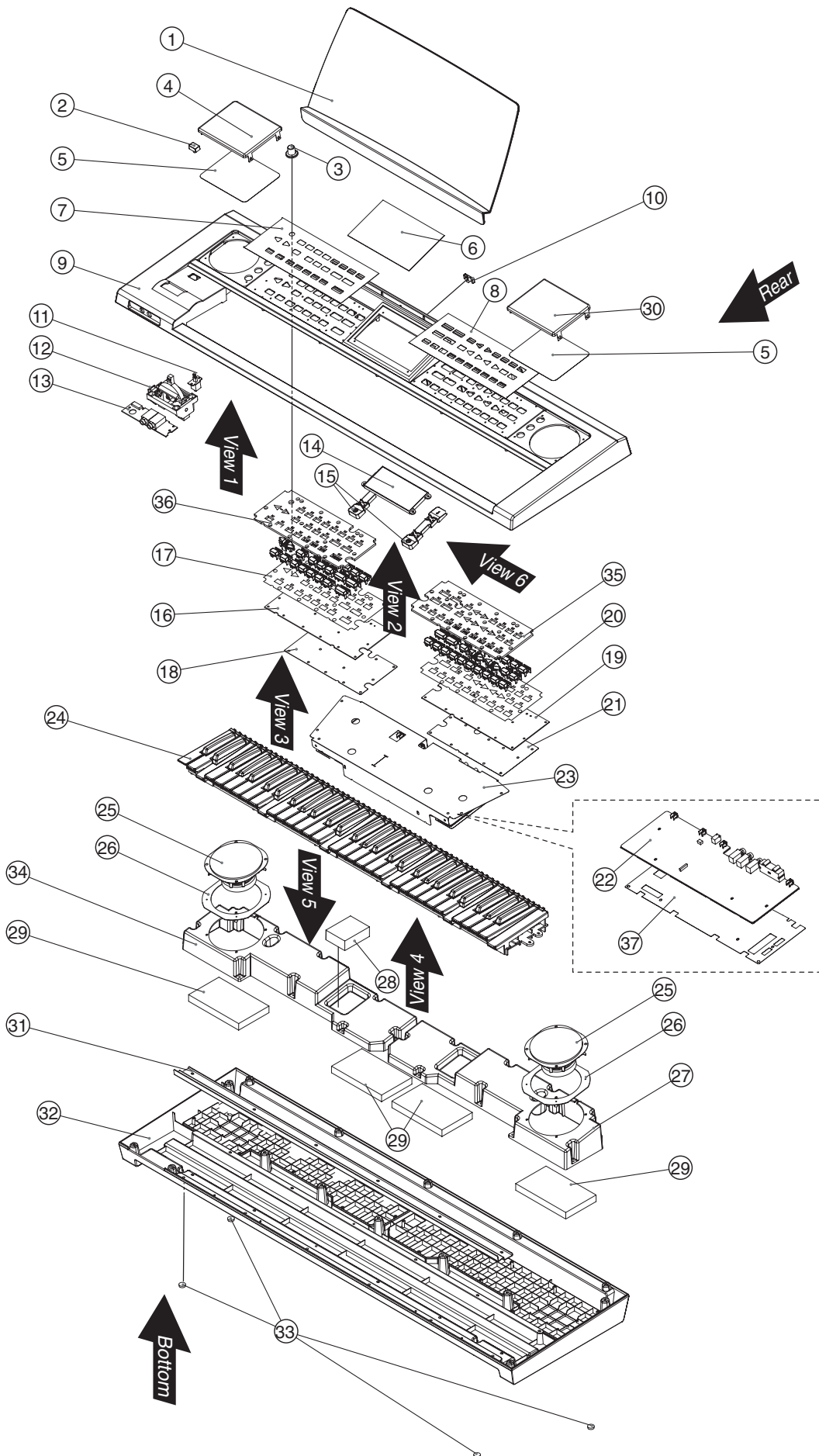
LOCATION OF CONTROLS PARTS LIST

No	PART CODE	PART NAME	DESCRIPTION	QTY
1	04018534	R-KNOB	LF BLK	1
2	04017978	S-KEYTOP	SX GRS	11
3	04018012	T-KEYTOP	MX GRS	4
4	04017989 02454278	S-KEYTOP LED	SX CLR SLR-322MC-T32	1 1
5	04017989 01340323	S-KEYTOP LED	SX CLR SLR-332DC(ORANGE)	24 24
6	04018001 01340323	S-KEYTOP LED	LX CLR SLR-332DC(ORANGE)	4 4
7	04017989 01904112	S-KEYTOP LED(RED)	SX CLR SLR-342VCT32 N.P.Q RANK	1 1
8	04018001 02454278	S-KEYTOP LED	LX CLR SLR-322MC-T32	2 2
9	04017990	S-KEYTOP	LX GRS	1

LOCATION OF CONTROLS PARTS LIST

No	PART CODE	PART NAME	DESCRIPTION	QTY
10	04018789	SPEAKER COVER L		1
	04128290	GRILL CLOTH	INNER	1
11	04018790	SPEAKER COVER R		1
	04128290	GRILL CLOTH	INNER	1
12	04018823	DISPLAY COVER		1
	03902867	LCD UNIT	UCZ24080	1
13	04018545 03454690	KEYTOP(ON/OFF) PUSH SWITCH	S-BUTTON LX BLK SDKLA10900	1 1
14	13449169	6.5MM JACK	YKB21-5078	2
15	02568867	MIDI JACK		1
16	00569278	6.5MM JACK	LGR4609-7100F	3
17	13449720	DC JACK	HEC2305-01-250	1
18	22365714	CORD HOOK		1

# EXPLODED VIEW

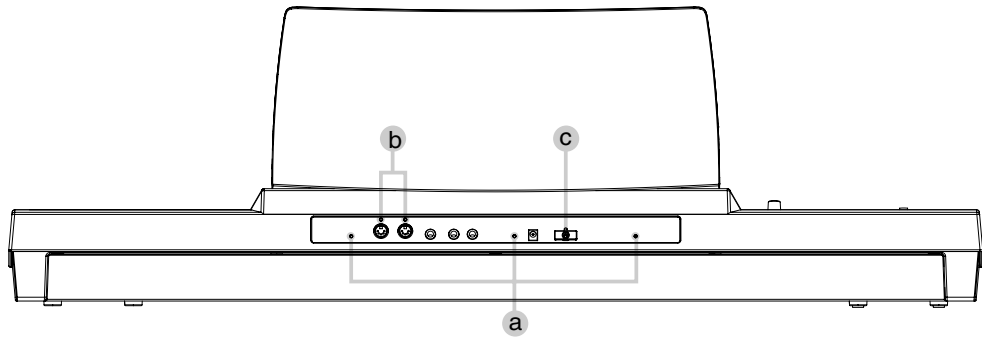


## EXPLODED VIEW PARTS LIST

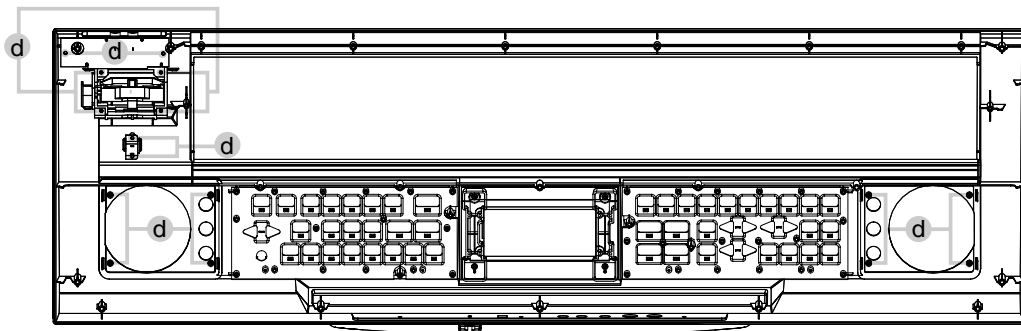
No	PART CODE	PART NAME	DESCRIPTION	Q'TY
1	04122634	MUSIC REST ASSY	FOR SERVICE(#04018023+#12359137x2)	1
2	04018545	KEYTOP(ON/OFF)	S-BUTTON LX BLK	1
3	04018534	R-KNOB	LF BLK	1
4	04018789	SPEAKER COVER L		1
5	04128290	GRILL CLOTH	INNER	2
6	04018823	DISPLAY COVER		1
7	04018801	PANEL SHEET L		1
8	04018812	PANEL SHEET R		1
9	04017634	TOP CASE		1
10	22365714	CORD HOOK		1
11	03454690	PUSH SWITCH	SDKLA10900	1
12	03234723	BENDER	PB-H0204	
13	04011312	PHONES BOARD ASSY	FOR SERVICE	1
14	03902867	LCD UNIT	UCZ24080	1
15	04017956	LCD HOLDER		2
16	04011290	PANEL L BOARD ASSY	FOR SERVICE	1
17	04129234	KEYTOP SHEET-L		1
18	04120689	INSULATING SHEET	FOR PANEL-L BOARD	1
19	04011301	PANEL R BOARD ASSY	FOR SERVICE	1
20	04129245	KEYTOP SHEET-R		1
21	04120690	INSULATING SHEET	FOR PANEL-R BOARD	1
22	04011323	MAIN BOARD ASSY	FOR SERVICE	1
		NOTE:'MAIN BOARD ASSY ' includes the following parts.		
23	04120667	SHIELD SHEET		1
37	04120678	INSULATING SHEET	FOR MAIN BOARD	1
24	03903223	KEYBOARD ASSY	FOR SERVICE	1
25	04125312	WOOFER	#410100-09330 4OHM 20W	2
26	04128390	SPEAKER CUSHION		2
27	04017667	SPEAKER BOX R		1
28	04232889	FERRITE CORE CUSHION		1
29	04129989	SPEAKER INNER CUSHION B		4
30	04018790	SPEAKER COVER R		1
31	03894945	REINFORCE BAR		1
32	04017645	BOTTOM CASE		1
33	12359137	RUBBER FOOT	SJ-5012BLK	4
34	04017656	SPEAKER BOX L		1
35	04018901	PANEL CUSHION R		1
36	04018890	PANEL CUSHION L		1

# EXPLODED VIEW 2

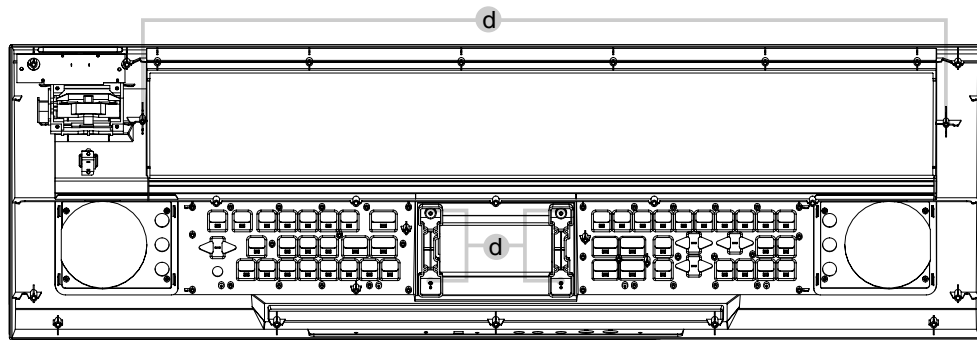
Rear



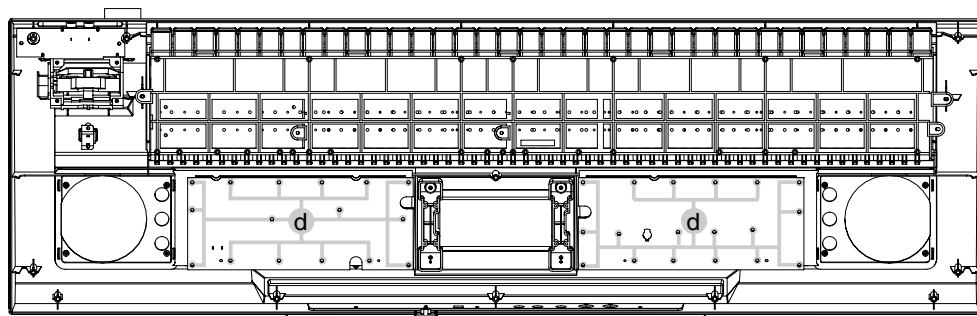
View 1



View 2



View 3



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## EXPLODED VIEW 2 PARTS LIST

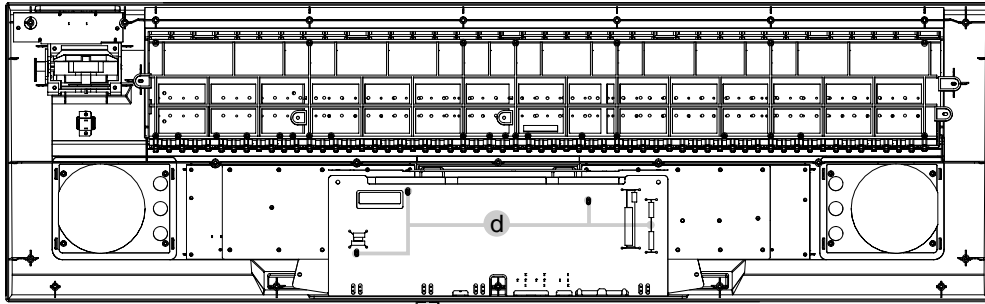
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No	PART CODE	PART NAME	DESCRIPTION	Q'TY
a	40012956	SCREW M3X8	PAN MACHINE W/SW+PW FE BZC	3
b	40011201	SCREW M3X8	PAN HEAD TAPTITE P BZC	2
c	40011512	SCREW M3X12	PAN MACHINE W/SW BZC	1
d	40011312	SCREW M3X8	BINDING TAPTITE P BZC	56

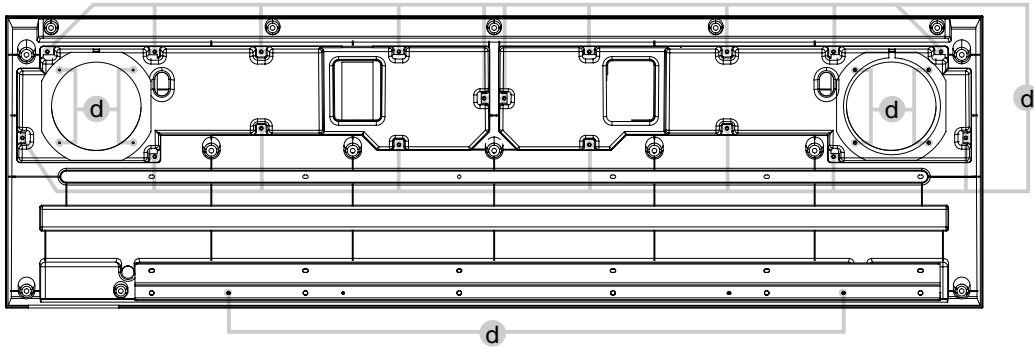


# EXPLODED VIEW 3

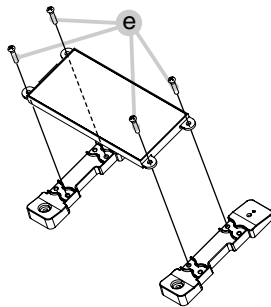
View 4



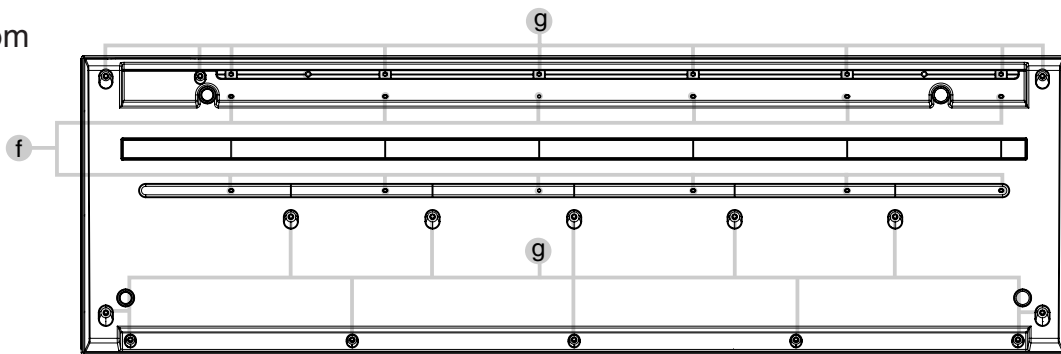
View 5



View 6



Bottom



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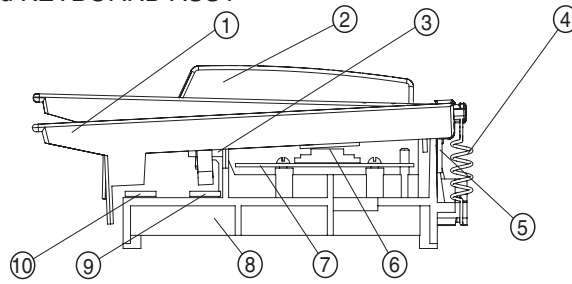
## EXPLODED VIEW 3 PARTS LIST

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No	PART CODE	PART NAME	DESCRIPTION	Q'TY
d	40011312	SCREW M3X8	BINDING TAPTITE P BZC	32
e	40011301	SCREW M3X6	BINDING P-TITE FE BZC	4
f	40011334	SCREW M3X12	BINDING TAPTITE P FE BZC	12
g	40012490	SCREW M4X10	BINDING TAPTITE P BZC	21

# KEYBOARD PARTS LIST

A detailed KEYBOARD ASSY



No	PART CODE	CATEGORY	PART NAME	DESCRIPTION
1	03786378	KEYMOLD ASSY	NATURAL KEY C	FOR MSK-2
1	03786389	KEYMOLD ASSY	NATURAL KEY D	FOR MSK-2
1	03786390	KEYMOLD ASSY	NATURAL KEY E	FOR MSK-2
1	03786401	KEYMOLD ASSY	NATURAL KEY F	FOR MSK-2
1	03786412	KEYMOLD ASSY	NATURAL KEY G	FOR MSK-2
1	03786423	KEYMOLD ASSY	NATURAL KEY A	FOR MSK-2
1	03786434	KEYMOLD ASSY	NATURAL KEY B	FOR MSK-2
1	03786445	KEYMOLD ASSY	NATURAL KEY C'	FOR MSK-2
2	03786456	KEYMOLD ASSY	SHARP KEY	FOR MSK-2
3	03786312	KEYMOLD ASSY	KEY FELT	MSK-2 HOOK T2.0MM L828XW5.5
4	03456967	KEYMOLD ASSY	COILED SPRING	MSK-1 NATURAL KEY
4	03456978	KEYMOLD ASSY	COILED SPRING	MSK-1 SHARP KEY
5	03786301	KEYMOLD ASSY	KEY FELT	MSK-2 BACK T4.0MM L840XW6.0
6	03456856	KEYMOLD ASSY	RUBBER SW KEYBOARD 12P	FOR MSK-1
6	03456867	KEYMOLD ASSY	RUBBER SW KEYBOARD 13P	FOR MSK-1
7	03786345	KEYMOLD ASSY	PWB KEYBOARD LO ASSY	FOR MSK-2
7	03786356	KEYMOLD ASSY	PWB KEYBOARD HI ASSY	FOR MSK-2
8	03786367	KEYMOLD ASSY	CHASSIS KEYBOARD	FOR MSK-2
9	03786334	KEYMOLD ASSY	KEY FELT	MSK-2 BOTTOM M T2.0MM L840XW10
10	03786323	KEYMOLD ASSY	KEY FELT	MSK-2 BOTTOM L T2.0MM L840XW15

## GREASING SPREADING POSITION



Grease spreading in the marking section of figure.

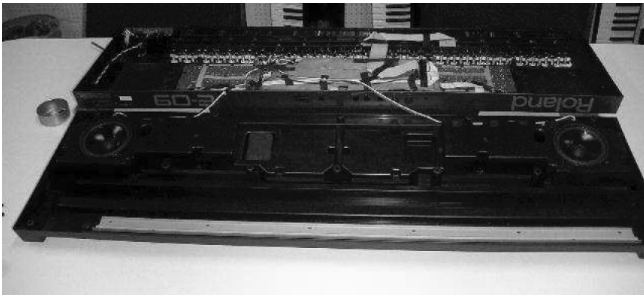
# Disassembly Procedure

## (How to Remove the Main Board)

1. Remove the all bottom screws.

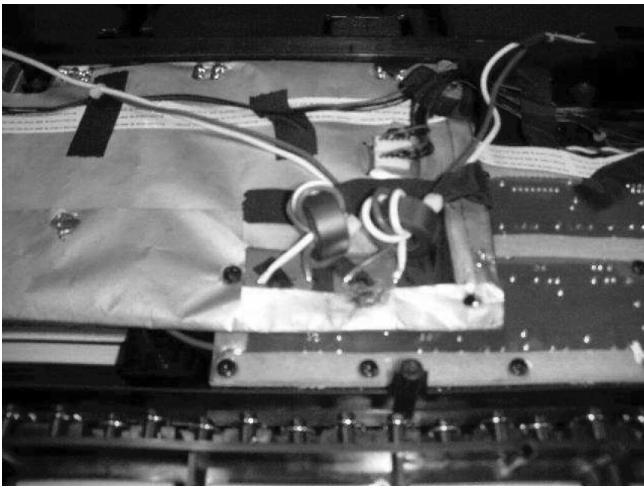


2. Detach the bottom carefully (Lift the keyboard side of bottom and open it so that the rear panel side should be a fulcrum, because the speaker cable is connected).

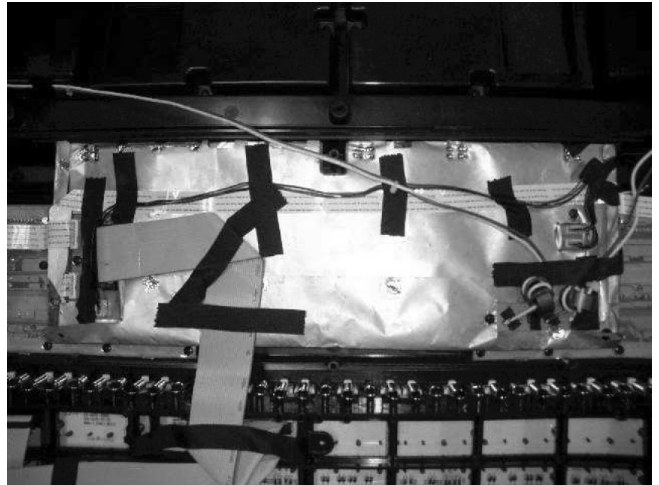


3. Detach the speaker cable wound with a ferrite core that is soldered to the mainboard. (The bottom can be separated.)

(If the component is attached by a connector instead of being soldered, detach the connector.)



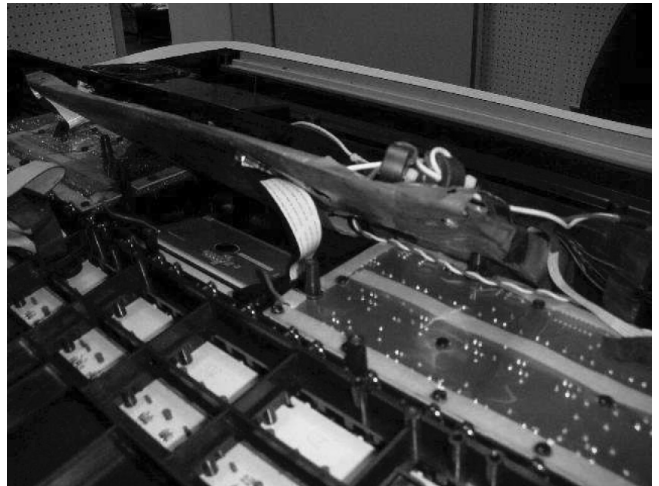
4. Detach the wiring connected to the mainboard.



5. Remove the 4 screws securing the mainboard.

6. Carefully remove the mainboard.

\* Wiring is also connected to the opposite side (the component-mounted surface of the circuit board). Watch carefully while removing to ensure that no wiring is severed or disconnected.

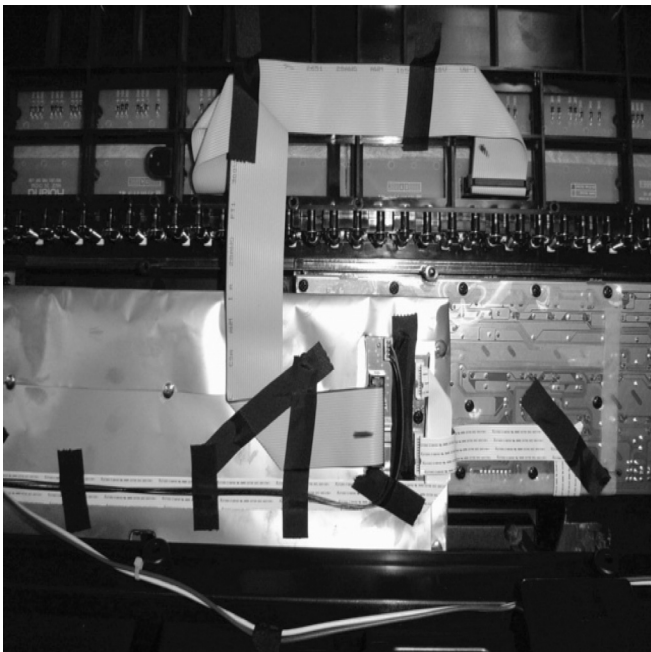


# IMAGE OF REFERENCE

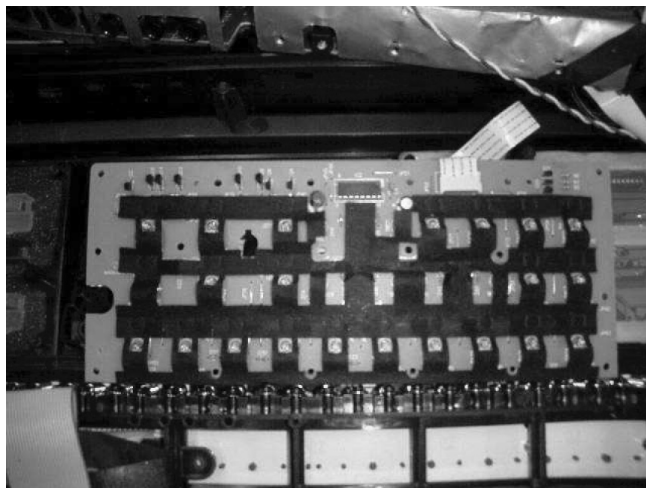
1. MAIN BOARD (The neighborhood of ferrite core.)



2. MAIN BOARD (The neighborhood of connector.)



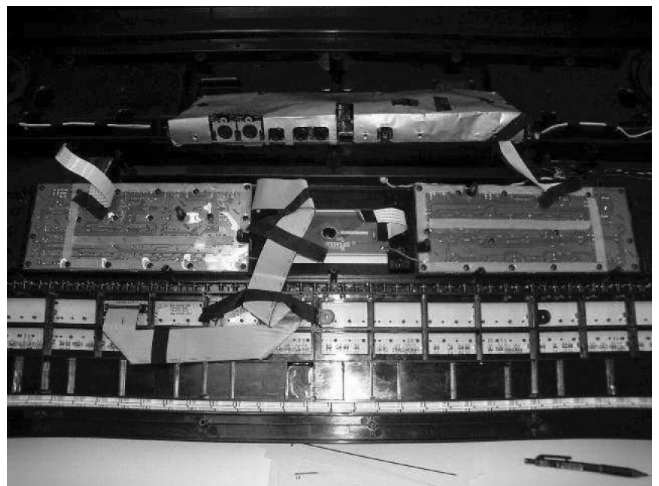
3. PANEL BOARD (COMPONENTS SIDE)



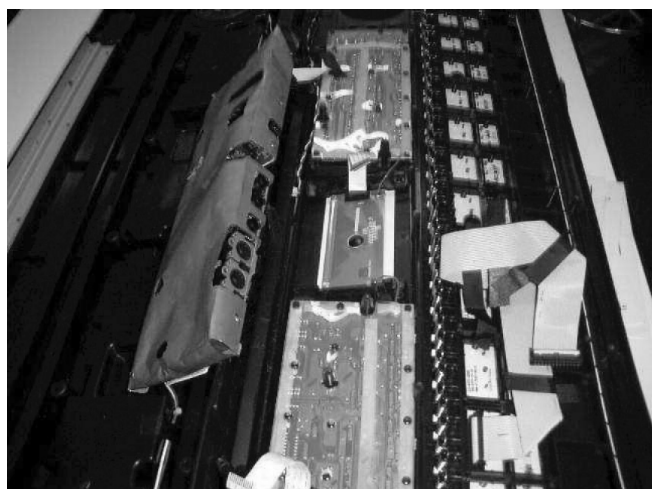
4. MAIN BOARD ASSY (It was wrapped in the shield sheet.)



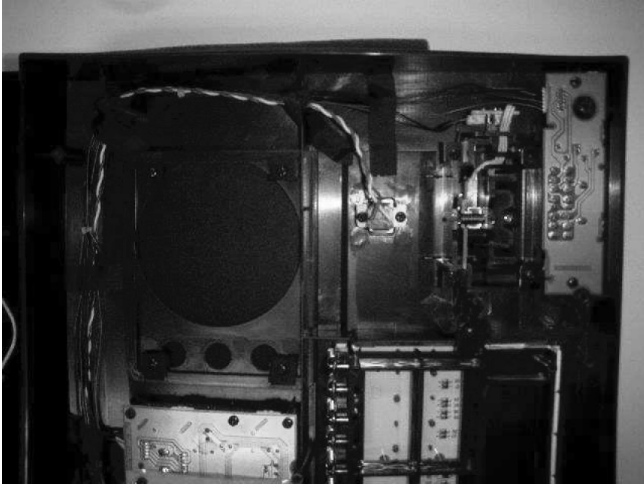
5. PANEL BOARD (FOIL SIDE)



6. LCD BOARD



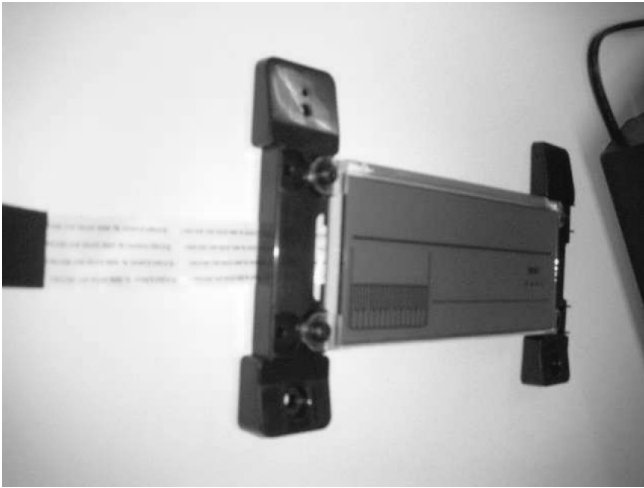
7. BENDER UNIT



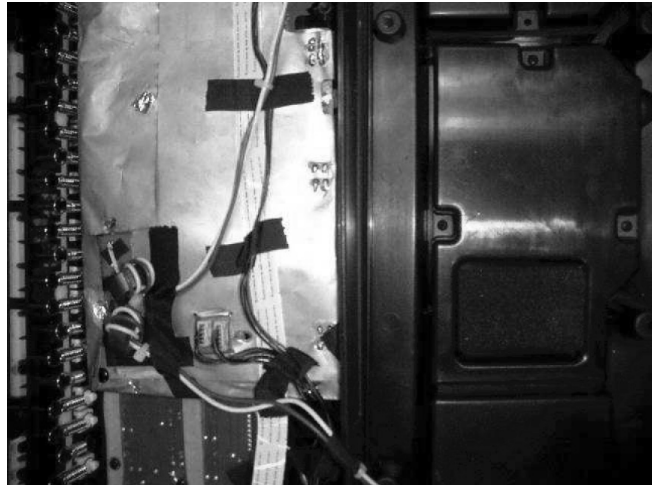
9. THE INSIDE OF SPEAKER BOX.(SPEAKER INNER CUSHION installation place)



8. LCD UNIT (The status which removed LCD UNIT from the E-09.)



10. BOTTOM (The INNER CUSHION installation place of a ferrite core and oscillating prevention.)



# 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>					
#	04017667	PLASTIC PARTS	SPEAKER BOX R		1
#	04017656	PLASTIC PARTS	SPEAKER BOX L		1
#	04017634	TOP CASE	PLC TOP CASE		1
#	04017645	BOTTOM CASE	PLC BOTTOM CASE		1
#	04017956	HOLDER	LCD HOLDER		2
#	04018823	DISPLAY COVER			1
<b>CHASSIS</b>					
#	04018790	METAL PARTS	SPEAKER COVER R		1
#	04018789	METAL PARTS	SPEAKER COVER L		1
	03894945	REINFORCE BAR			1
<b>KNOB,BUTTON</b>					
#	04018012	KEYTOP	T-KEYTOP MX GRS	L1 R3	4
#	04017978	KEYTOP	S-KEYTOP SX GRS	L11 R0	11
#	04017989	KEYTOP	S-KEYTOP SX CLR	L8 R18	26
#	04017990	KEYTOP	S-KEYTOP LX GRS	L0 R1	1
#	04018001	KEYTOP	S-KEYTOP LX CLR	L3 R3	6
#	04018545	KEYTOP (ON/OFF)	S-BUTTON LX BLK		1
#	04018534	R-KNOB	LF BLK		1
<b>SWITCH</b>					
	02891789	TACT SWITCH	SKRGADD010 H=5.0	SW4, SW5, SW9, SW10, SW11, SW15, SW16, SW17, SW21, SW22, SW23, SW24, SW28, SW29, SW30, SW31, SW35, SW36, SW37, SW38, SW42, SW43, SW44, SW45, SW49, SW50, SW51, SW52 on PANEL_R	28
	02891789	TACT SWITCH	SKRGADD010 H=5.0	SW1, SW2, SW3, SW6, SW7, SW8, SW12, SW13, SW14, SW18, SW19, SW20, SW25, SW26, SW27, SW32, SW33, SW34, SW39, SW40, SW41, SW46, SW47, SW48 on PANEL_L	24
	03454690	PUSH SWITCH	SDKLA10900	POWER SW	1
<b>JACK,EXT TERMINAL</b>					
	13449169	6.5MM JACK	YKB21-5078	JK1, JK2 on PHONES	2
	00569278	6.5MM JACK	LGR4609-7100F	JK2, JK5, JK6 on MAIN	3
	13449720	DC JACK	HEC2305-01-250	JK7 on MAIN	1
	02568867	MIDI JACK	DIN HDC-052A-12	JK1 on MAIN	1
<b>BENDER UNIT</b>					
	03234723	BENDER	PB-H0204		1
<b>DISPLAY UNIT</b>					
	03902867	UCZ24080	LCD UNIT		1
<b>SPEAKER, BUZZER</b>					
#	04125312	BLACK #410100-09330 4OHM 20W	SPEAKER UNIT		2
<b>KEYBOARD ASSY</b>					
#	03786456	FOR MSK-2	SHARP KEY		25
#	04230834	FOR MSK-1	RUBBER SWITCH 13P		1
#	04230845	FOR MSK-1	RUBBER SWITCH 12P		4
	03786345	FOR MSK-2 36KEYS	PWB KEYBOARD LOW ASSY		1

<b>KEYBOARD ASSY</b>					
	03786356	25KEYS	PWB KEYBOARD HI ASSY FOR MSK-		1
	03786412	FOR MSK-2	NATURAL KEY G		5
	03786401	FOR MSK-2	NATURAL KEY F		5
	03786390	FOR MSK-2	NATURAL KEY E		5
	03786389	FOR MSK-2	NATURAL KEY D		5
	03786445	FOR MSK-2	NATURAL KEY C'		1
	03786378	FOR MSK-2	NATURAL KEY C		5
	03786434	FOR MSK-2	NATURAL KEY B		5
	03786423	FOR MSK-2	NATURAL KEY A		5
	03903223	FOR SERVICE	KEYBOARD ASSY		
	03786301	MSK-2 BACK T3.0MM L840XW6.0	KEY FELT		1
	03786323	MSK-2 BOTTOM L T2.5MM L840XW1	KEY FELT		1
	03786334	MSK-2 BOTTOM M T2.5MM L840XW1	KEY FELT		1
	03786312	MSK-2 HOOK T2.5MM L870XW5.5	KEY FELT		1
#	03786367	MSK-2 CHASSIS 61P	KESY CHASSIS		1
	03456967	NATURAL KEY	COILED SPRING		36
	03456978	SHARP KEY	COILED SPRING		25
	03456856	RUBBER SW KEYBOARD 12P			4
	03456867	RUBBER SW KEYBOARD 13P			1
<b>PWB ASSY</b>					
#	04011323	MAIN BOARD ASSY	FOR SERVICE		1
	NOTE: 'MAIN BOARD ASSY' includes the following parts.				
	04120667	SHIELD SHEET			
	04120678	INSULATING SHEET	FOR MAIN BOARD		
#	04011290	PANEL L BOARD ASSY	FOR SERVICE		1
#	04011301	PANEL R BOARD ASSY	FOR SERVICE		1
#	04011312	PHONES BOARD ASSY	FOR SERVICE		1
<b>DIODE</b>					
	01904112	SLR-342VCT32 N.P.Q RANK	LED(RED)	LED2 on PANEL_L	1
	02454278	SLR-322MC-T32	LED	LED4 on PANEL_R	1
	02454278	SLR-322MC-T32	LED	LED6, LED10 on PANEL_L	2
	01340323	SLR-332DC (ORANGE)	LED	LED1, LED5, LED9, LED13, LED17, LED21, LED25, LED29 on PANEL_L	8
	01340323	SLR-332DC (ORANGE)	LED	LED3, LED7, LED8, LED11, LED12, LED14, LED15, LED16, LED18, LED19, LED20, LED22, LED23, LED24, LED26, LED27, LED28, LED30, LED31, LED32 on PANEL_R	20
<b>POTENTIOMETER</b>					
	02455234	EVJY15F02B14	12M/M ROTARY POTENTI- OMETER	VR1 on PANEL_L	1
<b>INDUCTOR&amp;ACOIL&amp;AFILTER</b>					
	00568434	TR-20-10-10-M	FERRITE CORE		2
<b>WIRING, CABLE</b>					
#	04125634	WIRING FOR MAINBOARD JUMPER	WIRING W5 FOR POWERAMP TWIST		1
#	04122745	WIRING W3 FOR MAIN=SPEAKER-R	FOR SPEAKER-R / CABLE IS RED		1
#	04122734	WIRING W2 FOR MAIN=SPEAKER-L	FOR SPEAKER-L / CABLE IS BLUE		1
#	04122723	WIRING W1 FOR MAIN=POW- ER-SW	FOR POWER-SW / CABLE IS BROWN		1
#	04123801	WIRING W4 FOR LCD JUMPER	FOR LCD=PANEL-L/ LCD=PANEL-R		2
#	04122701	CABLE ASSY FOR MAIN=PANEL_R	FFC 12PIN BNCD-P=1.25-K-12- 18		1
#	04122690	CABLE ASSY FOR MAIN=PANEL_L	FFC 10PIN BNCD-P=1.25-K-10- 55		1
	02343345	WIRING	6X650-P2.0-PHR-PHR-F		1
#	04122712	WIRING FOR MAIN=PANEL- L-VOL	5WAY240MM P=2 W/2HDR PHR-PHR-		1
#	02342189	WIRING FOR MAIN=BENDER	4WAY950MM P=2 W/2HDR PHR-PHR-		1



**SCREWS**

	40012956	SCREW M3X8	PAN MACHINE W/SW+PW FE BZC	3
	40011512	SCREW M3X12	PAN MACHINE W/SW BZC	1
	40233234	SCREW 3X12	PAN HEAD TAPTITE P BZC	2
	40011334	SCREW 3X12	BINDING TAPTITE-P FE BZC	12
	40011312	SCREW 3X8	BINDING TAPTITE P BZC	84
	40012490	SCREW 4X10	BINDING TAPTITE P BZC	21
	40011301	SCREW M3X6	BINDING P-TITE FE BZC	4
	40011201	SCREW 3X8	PAN TAPTITE P BZC	2

**PACKING**

#	04018867	CENTER PAD	PACKING PAD CENTER	1
#	04018856	SIDE PAD	PACKING PAD SIDE R	1
#	04018845	SIDE PAD	PACKING PAD SIDE L	1
	40340567	PLASTIC BAG AG-PL	0.03*250*380	1
#	04018834	PACKING CASE		1
#	04018878	PACKING PAD ADAPTOR		1

**MISCELLANEOUS**

	40016534	INSULOK TIE 204M/M	T-18L	2	
#	04129989	CUSHION	SPEAKER INNER CUSHION B	INSIDE SPEAKER BOX	4
#	04128390	CUSHION	SPEAKER CUSHION		2
	12359137	RUBBER FOOT	SJ-5012 BLK		4
	12359137	RUBBER FOOT	SJ-5012 BLK		2
#	04120667	SHIELD SHEET	SHIELD SHEET MADE FROM COPPER		1
#	04018812	PANEL	PANEL SHEET R		1
#	04018801	PANEL	PANEL SHEET L		1
#	04018901	CUSHON	PANEL CUSHON R		1
#	04018890	CUSHON	PANEL CUSHON L		1
	40122812	ACETATE TAPE	NITTO NO.5 BLK W15MM 30M	FOR SHIELD SHEET (to cover the hole of CN12, 13)	1
	40232134	TAPE W5MM 20M	NITTO ADHESIVE TAPE #5	FOR SPEAKER COVER	4
	12199584	GROUNDING TERMINAL	M1698	TER1, TER2, TER3, TER4 on MAIN	4
#	04129245	CLOTH	KEYTOP SHEET-R	FOR PANEL BOARD-R	1
#	04129234	CLOTH	KEYTOP SHEET-L	FOR PANEL BOARD-L	1
#	04128290	CLOTH	GRILLE CLOTH		2
#	04120690	INSULATING SHEET	FOR PANEL-R BOARD		1
#	04120689	INSULATING SHEET	FOR PANEL-L BOARD		1
#	04120678	INSULATING SHEET	FOR MAIN BOARD		1
#	04232889	CUSHION	FERRITE CORE CUSHION	FOR HOLLOW OF SPEAKER BOX R	1
	40122612	NITTO ACETATE TAPE #5	BLACK W10MM 30M 20P	FOR MAINBOARD (for cut trace for CN12, 13)	4
	22365714	CORD HOOK	236-714		1
	40122490	DOUBLE-FACED TAPE	#500 W5MM 20M 40P	FOR GRILL CLOTH	2
	40345056	DOUBLE-FACED TAPE	#500 W10MM 20M 20P(CM)	FOR MAINBOARD SHIELD SHEET AND PANEL-R BOARD WIRING	1
#	04129223	SPEAKER INNER CUSHION A			1
	*****	HOT MELT	for SPEAKER BOX	Glue use is possible	1

**ACCESSORIES (Standard)**

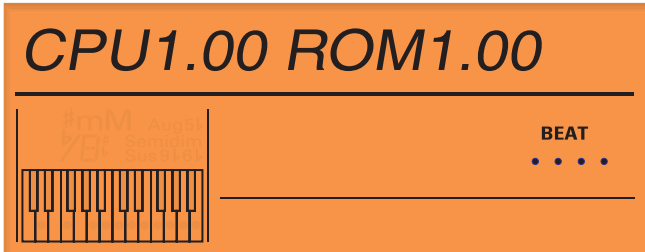
#	04122123	OWNER'S MANUAL	ENGLISH		1
	*****	REGISTRATION CARD	for RUS (RAM3059)		1
!	03017356	AC ADAPTOR WITHOUT AC CORD	PSB-1U(R) UNIVERSAL		1
!	02562456	AC CORD SET	120V 1.0M (NON POLAR)		1
!	02562456	AC CORD SET	120V 1.0M (NON POLAR)		1
	*****	AC CORD SET	230V for UK	(#00905234+#01903356)	0
!	00905234	EURO CONVERTER PLUG	ECP01-5A		1
!	01903356	AC CORD SET	230V 1.0M FOR PSB	without PLUG	1
!	03785590	AC CORD SET	240VA SC-078-NA05		1
#	04122634	MUSIC REST ASSY FOR SERVICE			1

## CHECKING THE VERSION NUMBER

1. Hold down the [WORLD 1] + [SPRIT] + [KEYBOARD TOUCH] buttons, and turn on unit's power.

\* Hold down the three buttons until the following message appears.  
The CPU and ROM version numbers will be displayed.

2. Please turn off the power, if the version of CPU and ROM is checked.



## USERS DATA SAVE AND LOAD

### Required Equipment

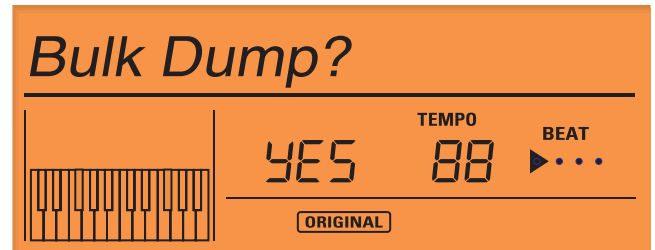
- SMF Player
- MIDI Cable

### SAVING DATA

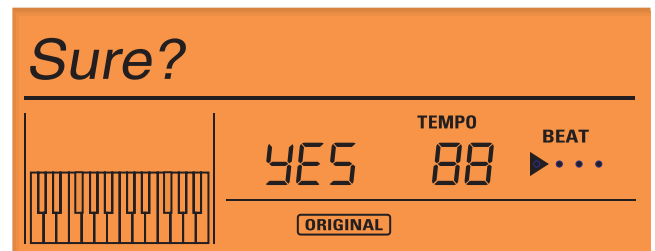
This backs up (saves) all settings on the E-09 to an external MIDI sequencer.

#### Procedure

1. Use a MIDI cable to connect MIDI OUT on the E-09 to MIDI IN on the sequencer.
2. Press the [FUNCTION] button to make it light up.
3. Use the [FAMILY < ] and [FAMILY > ] buttons to choose "UTILITY".  
Note: The LCD screen immediately after selection automatically changes to [LCD Contrast].
4. Use the [SELECT < ] and [SELECT > ] buttons to choose "Bulk Dump?".



5. Press the [TEMPO + / YES] button.



6. Start recording on the receiving sequencer.
7. Press the [TEMPO + / YES] button a second time.



8. When "Completed" is displayed, the operation is finished.  
Approximately 2 seconds after [Completed] is displayed, the usual [001 St.Piano 1] screen appears.  
Stop recording on the sequencer.

## LOADING DATA

This restores backed-up data from the sequencer to the E-09 unit.

### Procedure

1. Use a MIDI cable to connect MIDI IN on the E-09 to MIDI OUT on the sequencer.
2. Switch on the power to the E-09. Perform no other operation.
3. On the sequencer, play back the file to load.



Do not operate the E-09 while data is being received. "Receiving" is displayed while receiving is in progress. The E-09 automatically starts processing on receiving the file.

4. When file playback ends, loading is finished.

## FACTORY RESET

How to Perform a Factory Reset.

This returns all data stored on the E-09 to its factory defaults.

Any important data that has already been created and saved on the E-09 unit is lost completely when a factory reset is performed. When you wish to keep such data, save it using an external sequencer. (Refer to the sections on saving and loading data.)

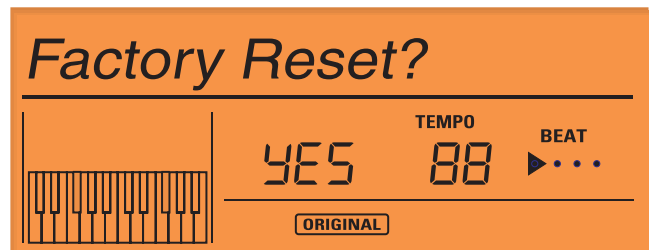
### Procedure

1. Press the [FUNCTION] button to make it light up.
2. Use the [FAMILY < ] and [FAMILY > ] buttons to choose "UTILITY".

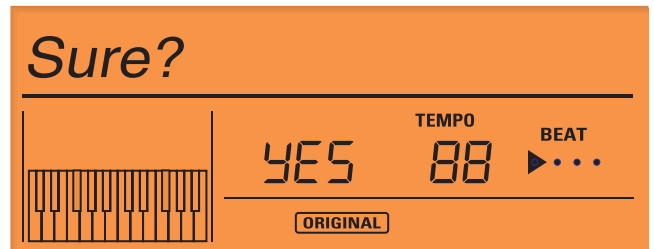


\* Stopping the operation when "UTILITY" has been selected makes the LCD screen displayed change to "LCD Contrast".

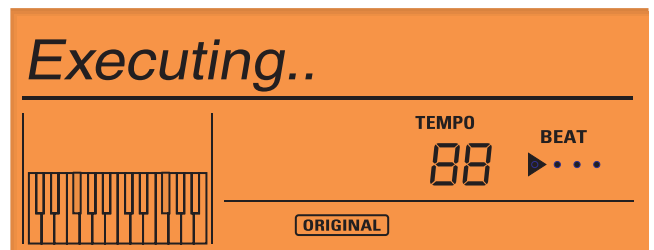
3. Use the [SELECT < ] and [SELECT > ] buttons to choose "Factory Reset".



4. Press the [TEMPO + / YES] button.



5. Press the [TEMPO + / YES] button a second time to execute.



6. When the factory reset is finished, "Completed" is displayed on the screen.  
Approximately 2 seconds after "Completed" is displayed, the usual [001 St.Piano 1] screen appears.

## SYSTEM UPDATE

How to Update the System.

Update-use data is provided as ordinary Standard MIDI file (SMF) data.

You can update the program version by connecting a sequencer capable of SMF-data playback to the E-09 and loading the data into the E-09.

When the system has been updated, a factory reset is required.

Any user data is reset at this time, and so it must be backed up beforehand. (Refer to the sections on USERS DATA SAVE AND LOAD.)

The time required to update the system is approximately 40 minutes.



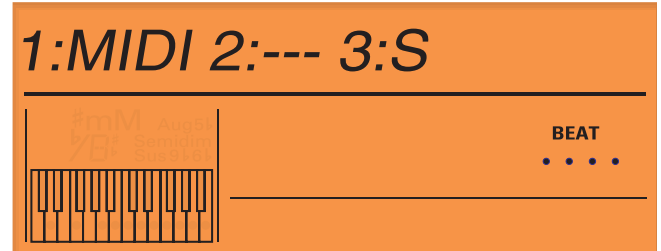
SMF data is stored on the CD-ROM as files with names in the format of "p000XX.mid" (where "XX" is a sequential number starting with 01; the number of files varies according to the version). You play back these files in numerical sequence.

## Required Equipment

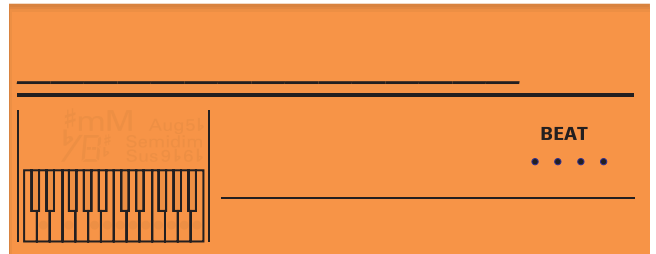
- SMF Player
- MIDI Cable
- UPDATE CD-ROM (#17041741)

## Procedure

1. Use a MIDI cable to connect MIDI OUT on the external sequencer to MIDI IN on the E-09.  
If the sequencer is capable of chain play, make the settings to enable chain play of the SMF data.
2. While holding down the [FAMILY >] and [TEMPO >] buttons, switch on the power to the unit. (Continue holding down the buttons until the following screen appears.)



3. Pressing the [1] (PIANO) button displays " \_\_\_\_\_ ", enabling the standby state for receiving MIDI data.



4. Check the display to make sure the E-09 is at standby for receiving MIDI data, then play back all "\*.mid" files on the E-09 SMF Update Disk in numerical sequence.



While MIDI data is being received, the " \_\_\_\_\_ " displayed changes to " \* \_\_\_\_\_ ".

When data transmission of one file ends, the display changes to "Waiting...". Continue by playing back the next file.



Updating can be accomplished more easily by using a sequencer provided with a chain-play feature, such as the Roland MC-80.

5. When the update ends, the checksum is calculated and displayed on the LCD.



6. Make sure the "\*\*\*\*" portion displayed matches the checksum for the updated version.
7. Reset the power to the unit and perform a factory reset. (Refer to "How to Perform a Factory Reset".)



If the upgrade is unsuccessful, redo the operation from step 1.

# TEST MODE

## Backing Up the User Data

All user data is deleted when Test Mode is carried out.  
Also be sure to reload the user data after completing Test Mode.

## Required Equipment

- AC voltmeter (ex. NF M-177)
- Head Phone
- Speakers (ex. MA-10D) x2
- EXP Pedal
- Hold Pedal
- Audio Cable x2
- MIDI cable

## Test items

The following tests are provided for the E-09. For detailed information about the tests, refer to the corresponding sections.

0. Test Mode Top page
1. Shock TEST
2. Memory TEST
3. MIDI TEST
4. SOUND TEST1 (OUT1,2 HEADPHONE)
5. SOUND TEST2 (Low, Mid, High)
6. LCD TEST
7. A/D TEST
8. Pedal TEST
9. Switch & LED TEST
10. KEYBOARD TEST
11. Noise TEST
12. Factory Reset

## Important Notes on Starting Testing

- After entering the Test mode, no user data is lost until "12.Factory Reset" is executed.  
Save user data beforehand using an external sequencer and computer only when executing "12.Factory Reset". (Refer to the sections on USERS DATA SAVE AND LOAD.)
- Some test items output confirmation-use audio.  
Before you start, connect headphones and a monitor speaker.

## How to Enter the Test Mode

Holding down the [8 (WORLD 1)] + [SPLIT] + [KEYBOARD TOUCH] buttons and switching on the power to the unit displays the top page for the Test mode (CPU and ROM versions). Continue to hold down the buttons until the Test mode top page appears.

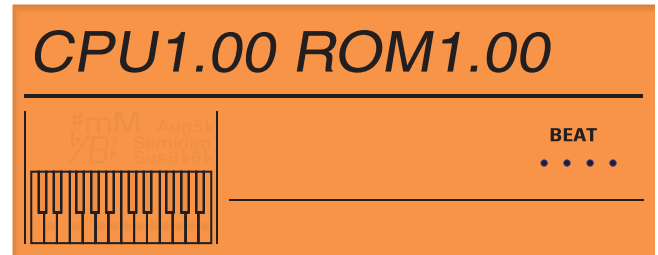
## How to Move among the Test Items

Use the [USER PROG] + [FAMILY < ] buttons to move to the previous test and the [USER PROG] + [FAMILY > ] buttons to move to the next test.

## Test item details

Detailed Description of the Test Mode.

### 0.Test Mode Top page (E-09 PD Test)



1. Verify the versions of the CPU and program ROM.  
If the versions are not appropriate, perform an upgrade. (Refer to "How to Update the System.")  
For information on the latest versions, check the Service Information.
2. Pressing the [TEMPO + / YES] button starts the Test mode.

### 1.SHOCK Test

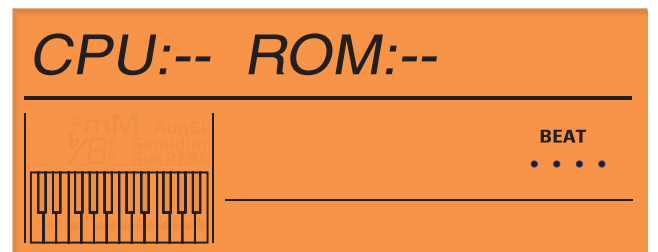


1. The DEMO SONG is played.  
Perform checking for momentary noise and the like when the VOLUME control is operated.
2. Make sure that audio output is muted while the [SONG] button is pressed.
3. Pressing the [TEMPO + / YES] button proceeds to the next test.

### 2.MEMORY Test

(MEMORY Test 1)

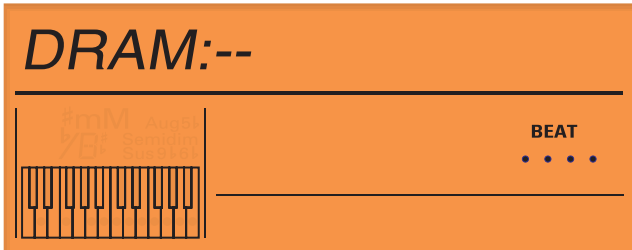
1. Perform a check of the CPU and flash ROM (program memory).



2. If no problem is found, "OK" (pass) is displayed and operation automatically advances to MEMORY Test 2.  
If "NG" (fail) is displayed, check the following locations.  
CPU NG (fail): MAIN BOARD IC3, IC11, IC12, and X1  
ROM NG (fail): MAIN BOARD IC5 and IC36  
Pressing the [USER PROG] + [TEMPO + / YES] buttons proceeds to the next test.

(MEMORY Test 2)

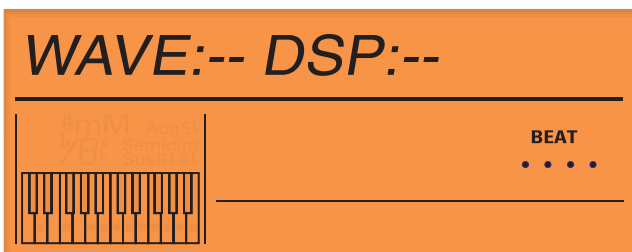
3. Perform a check of the DRAM.



4. If no problem is found, "OK" (pass) is displayed and operation automatically advances to MEMORY Test 3.  
If "NG" (fail) is displayed, check the following location.  
DRAM NG (fail): MAIN BOARD IC8  
Pressing the [USER PROG] + [TEMPO + / YES] buttons proceeds to Memory Test 3.

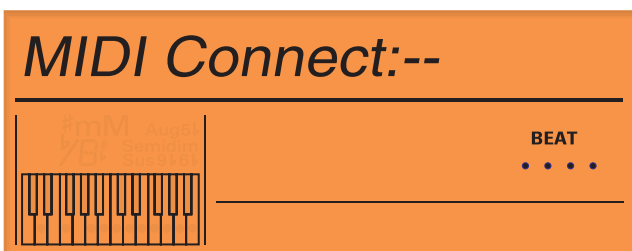
(MEMORY Test 3)

5. Perform a check of the wave ROM and DSP.



6. On normal completion, "OK" is displayed and processing automatically moves on to the next test.  
If "NG" (fail) is displayed, check the following locations.  
WAVE NG (fail): MAIN BOARD IC22  
DSP NG (fail): MAIN BOARD IC21, X2, and IC29  
Pressing the [USER PROG] + [TEMPO + / YES] buttons changes to the next test.  
If no problem is found in any memory test, operation automatically advances to the next test.

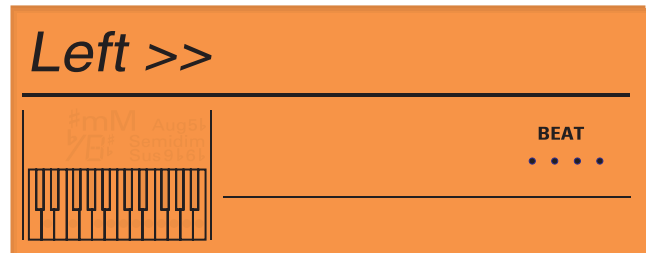
### 3.MIDI Test



Connect MIDI IN and MIDI OUT using a MIDI cable.  
When the connection is correct, the LCD screen on the E-09 displays "OK" and operation automatically advances to the next test.

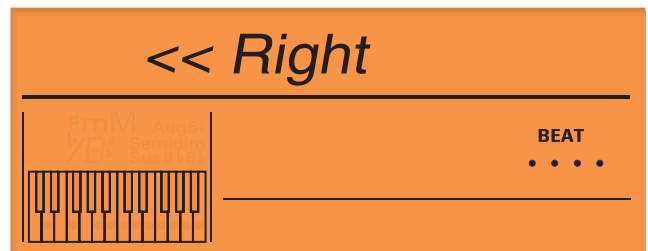
### 4.SOUND Test1

(L-ch Test)



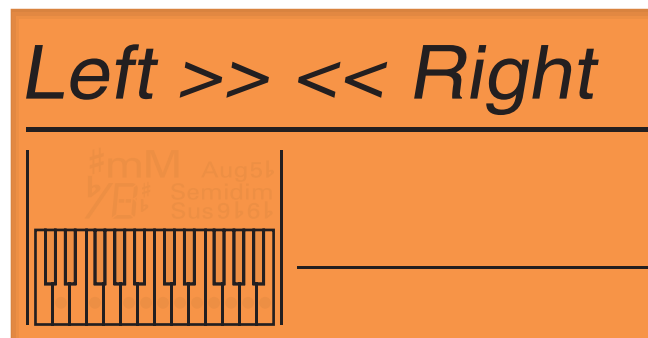
1. Make sure a sine wave is output from Output-L and the left side of the headphones.
2. Pressing the [TEMPO + / YES] button proceeds to the R-ch test.

(R-ch Test)



3. Make sure a delta wave is output from Output-R and the right side of the headphones.
4. Pressing the [TEMPO + / YES] button proceeds to the L/R-ch test.

(L/R-ch Test)



5. Make sure a sine wave is output from Output-L and the left side of the headphones and a delta wave is output from Output-R and the right side of the headphones.
6. Pressing the [TEMPO + / YES] button proceeds to the next test.

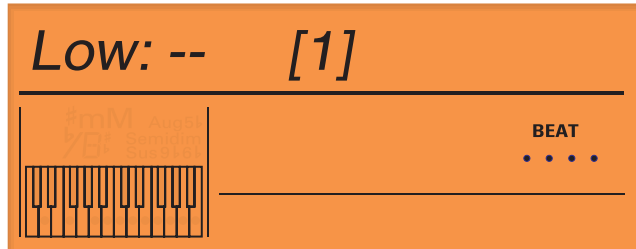
**5.SOUND Test2**

Check for speaker flutter.

Adjust the VOLUME control so that the setting is no higher than the center.

(Low Range Test)

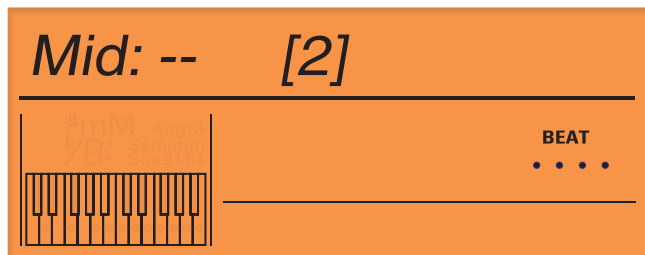
1. Make sure a bass-range sine wave (with up and down changes in pitch) is output from Output-L and -R.
2. Make sure the speaker audio is free of flutter.



3. Pressing [TEMPO + / YES] advances to the Mid Range Test.

(Mid Range Test)

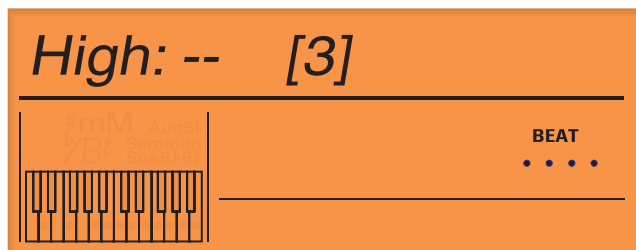
4. Make sure a mid-range sine wave (with up and down changes in pitch) is output from Output-L and -R.
5. Make sure the speaker audio is free of flutter.



6. Pressing [TEMPO + / YES] advances to the High Range Test.

(High Range Test)

7. Make sure a treble-range sine wave (with up and down changes in pitch) is output from Output-L and -R.
8. Make sure the speaker audio is free of flutter.



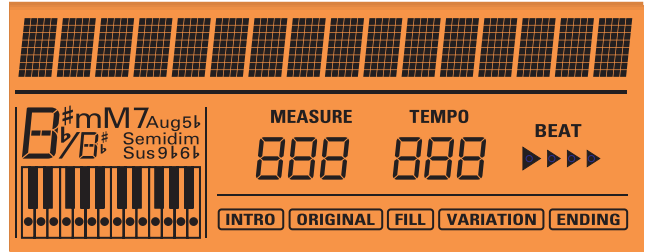
- \* Pressing [1] returns to the Low Range Test.
- \* Pressing [2] returns to the Mid Range Test.
- \* Pressing [3] returns to the High Range Test.

**NOTE**

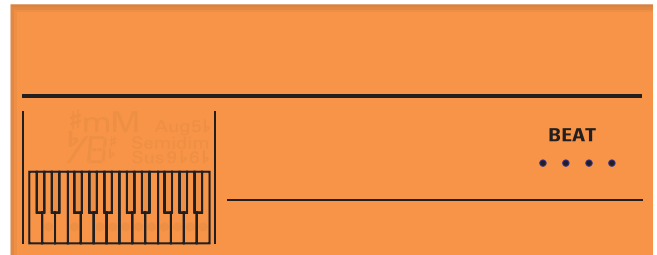
Note:The following three operations allow more detailed inspection.

1. Pressing [SONG] makes the pitch-changing stop. Pressing it a second time resumes.
2. Pressing [SELECT < ] or [SELECT > ] during operation changes the direction of the pitch-change.
3. Pressing [SELECT < ] or [SELECT > ] while operation is stopped allows fine adjustment of the pitch.
9. Pressing [TEMPO + / YES] advances to the next item.

**6.LCD Test**

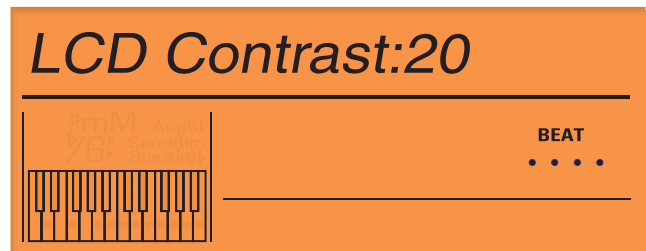


1. Make sure all dots and icons on the LCD screen are displayed.
2. Pressing the [TEMPO + / YES] button advances to the LCD hide-all test.



3. Make sure no dots or icon on the LCD screen are displayed.
4. Pressing the [TEMPO + / YES] button advances to the LCD Contrast Test.

(LCD Contrast Test)



5. Make sure the contrast value increases or decreases by 10 steps at a time when [SELECT < ] or [SELECT > ] is pressed. The contrast value is displayed on the LCD screen (at the \*\* location).
6. Pressing the [TEMPO + / YES] button proceeds to the next test.

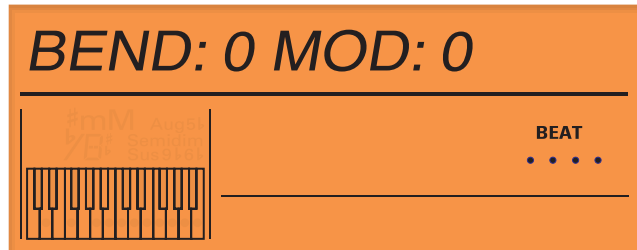
## 7.A/D Test 1 (Bender, Modulation)

Verify bender and modulation operation.

### NOTE

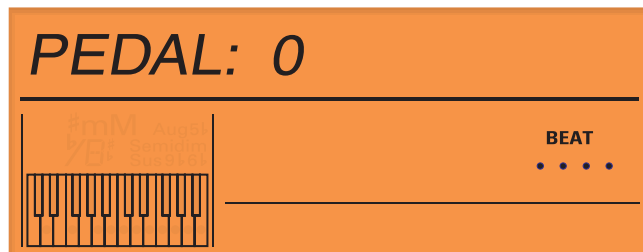
When entering this test, first make sure the Bender control has not been operated (flipped down). (This is because the A/D value when entering the test is read as the midpoint voltage.)

("OK" is not displayed unless the tests are conducted in the sequence of Bender left, Bender right, and Modulation.)



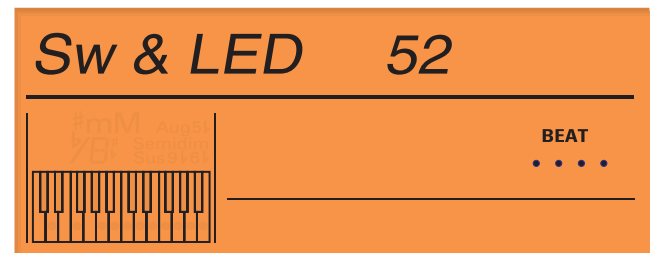
1. Move the Bender control all the way to the left, and when the value "128" is displayed, a clicking sound is heard.
2. Move the Bender control all the way to the right, and when the value "127" is displayed, a clicking sound is heard.
3. When left and right testing are both finished, "OK" is displayed.
4. Move the Modulation control all the way toward the back, and when the value "127" is displayed, a clicking sound is heard.
5. Return the Modulation control back toward the front, and when the value "0" is displayed, a clicking sound is heard, "OK" is displayed, and operation advances to the next test.

## 8.Pedal Test (Hold Pedal)



1. Connect a Hold pedal to FOOT SWITCH at the rear of the unit.
2. Depressing the Hold pedal displays the value "127", and a clicking sound is heard.
3. Return the Hold pedal, and when the value "0" is displayed, a clicking sound is heard, "OK" is displayed, and operation automatically advances to the next test.

## 9.SWITCH & LED Test



Perform a check of the switches and LEDs.  
Entering this test makes all LEDs light up.

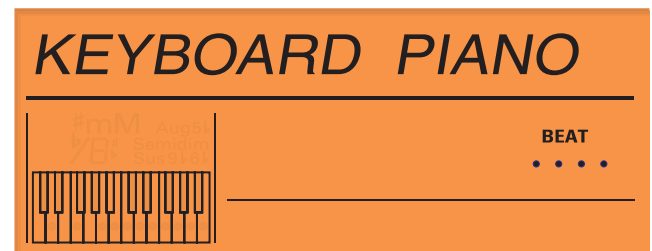
1. Pressing the switches provided with LEDs makes the LEDs go dark. The number of switches remaining unpressed is displayed at the top right of the screen.  
<FILTER>, <ENV>, <BACKING>, and <EFFECT> LEDs = [SELECT] switch (button)
2. When all switches have been pressed, operation automatically advances to the next test.

### NOTE

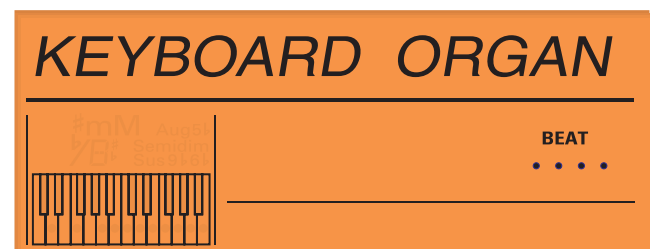
When more than one switch is pressed simultaneously, "WARNING !!" is displayed on the LCD screen.

If this happens, press the [USER PROG] + [FAMILY <] buttons, choose the "9.SWITCH & LED Test" item again, and redo the test.

## 10.KEYBOARD Test



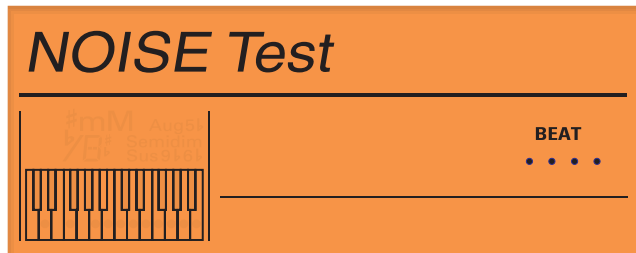
1. Make sure that all keys produce sound when played. Also make sure that the volume changes according to the velocity with which the keys are played.
2. Pressing the [TEMPO + / YES] button changes the tone from PIANO to ORGAN.



3. Make sure that all keys produce sound when played.
4. Pressing the [TEMPO + / YES] button proceeds to the next test.

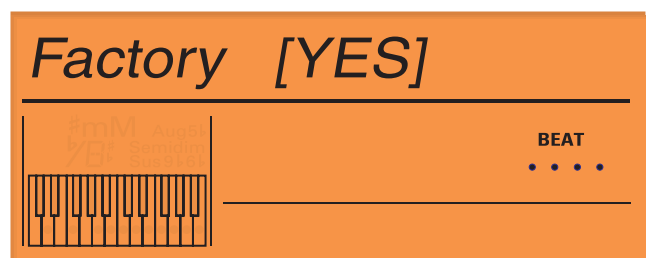


**11.NOISE Test**



1. Perform measurement of residual noise with a AC voltmeter. Measure residual noise for OUTPUT-L and OUTPUT-R. When measuring residual noise at OUTPUT-L, be sure to insert a dummy plug into OUTPUT-R.
2. Turn the [VOLUME] control on the E-09 clockwise all the way.
3. Set the input filter for the AC voltmeter to "DIN-AUDIO".
4. Make sure the value is "-82.0 dBm" or lower.
5. Pressing the [TEMPO + / YES] button proceeds to the next test.

**12.Factory Reset**



1. Pressing [TEMPO + / YES] button executes a "Factory Reset." (Never switch off the power while "KEEP POWER ON!" is displayed on the screen.)  
The factory reset is completed within several seconds.
2. When no factory reset is to be performed, pressing the [TEMPO - / NO] button returns operation to "11.NOISE Test".



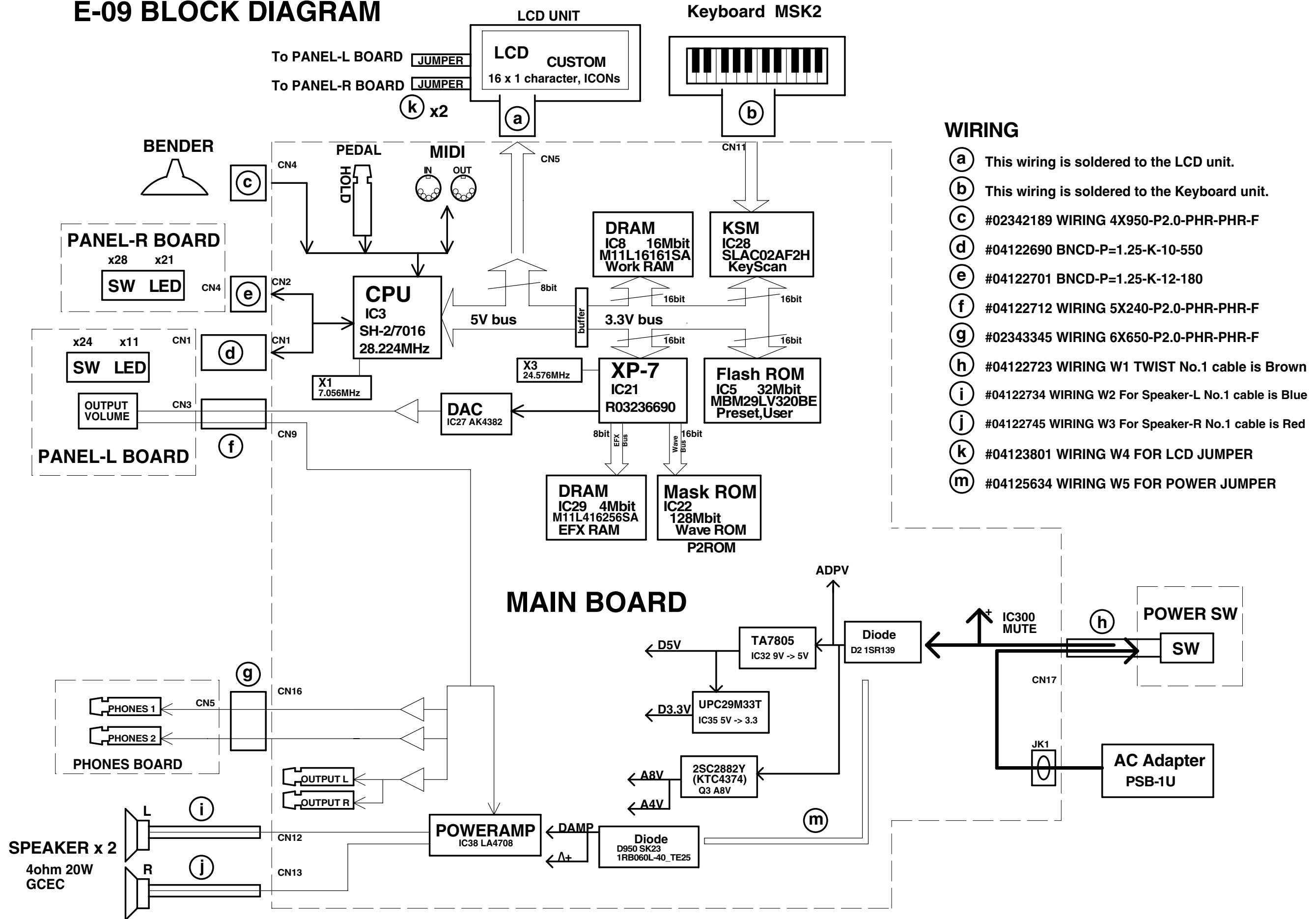
3. The operation is finished when this screen appears. Switch off the power.

**Test Mode END**



**BLOCK DIAGRAM**

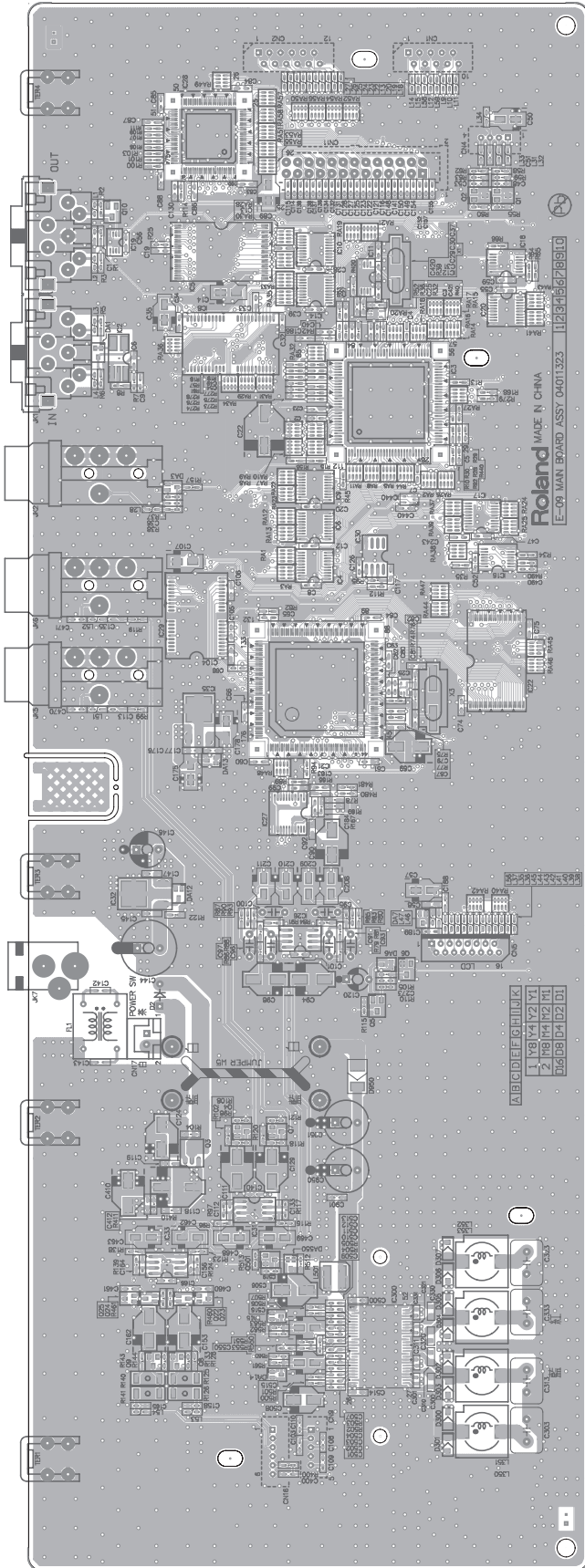
**E-09 BLOCK DIAGRAM**



**WIRING**

- (a) This wiring is soldered to the LCD unit.
- (b) This wiring is soldered to the Keyboard unit.
- (c) #02342189 WIRING 4X950-P2.0-PHR-PHR-F
- (d) #04122690 BNCD-P=1.25-K-10-550
- (e) #04122701 BNCD-P=1.25-K-12-180
- (f) #04122712 WIRING 5X240-P2.0-PHR-PHR-F
- (g) #02343345 WIRING 6X650-P2.0-PHR-PHR-F
- (h) #04122723 WIRING W1 TWIST No.1 cable is Brown
- (i) #04122734 WIRING W2 For Speaker-L No.1 cable is Blue
- (j) #04122745 WIRING W3 For Speaker-R No.1 cable is Red
- (k) #04123801 WIRING W4 FOR LCD JUMPER
- (m) #04125634 WIRING W5 FOR POWER JUMPER

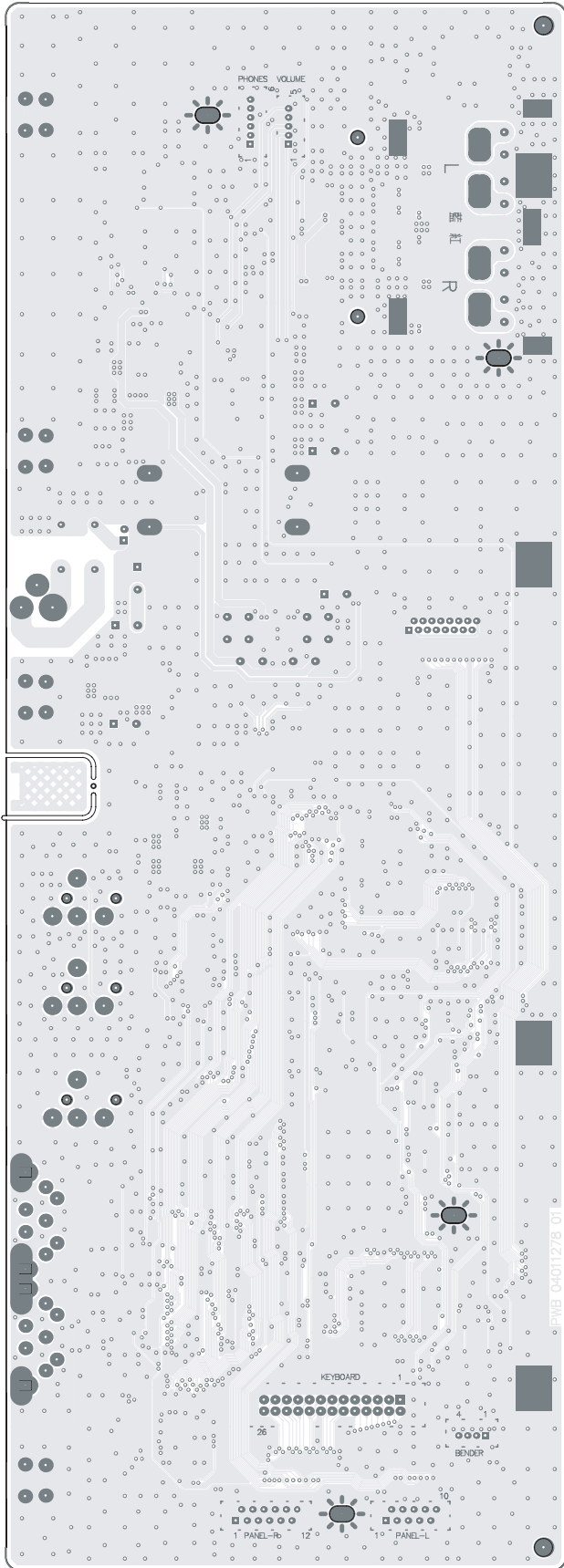
# CIRCUIT BOARD(MAIN)



View from components side

“scale=0.6”

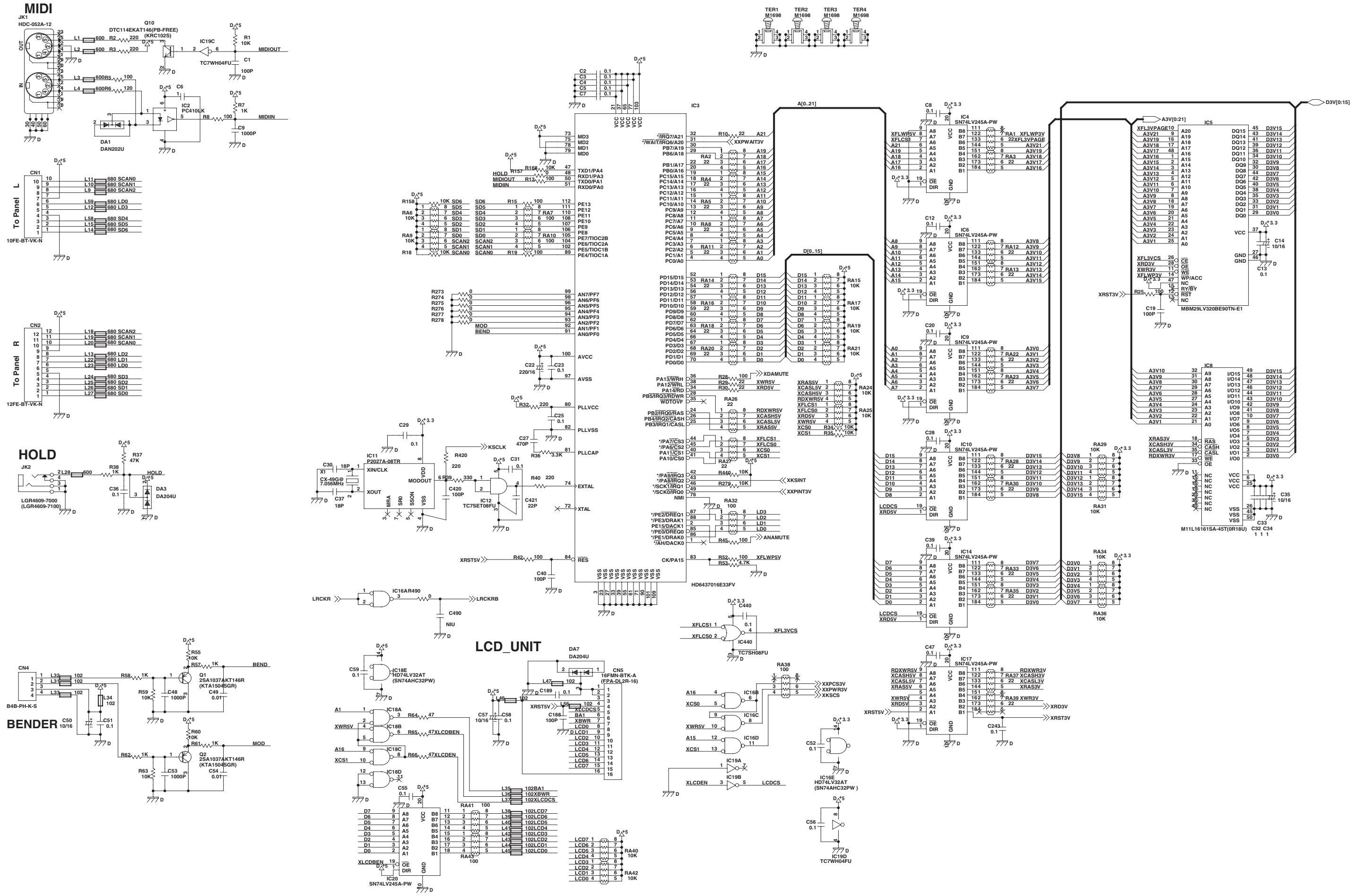
# CIRCUIT BOARD(MAIN)



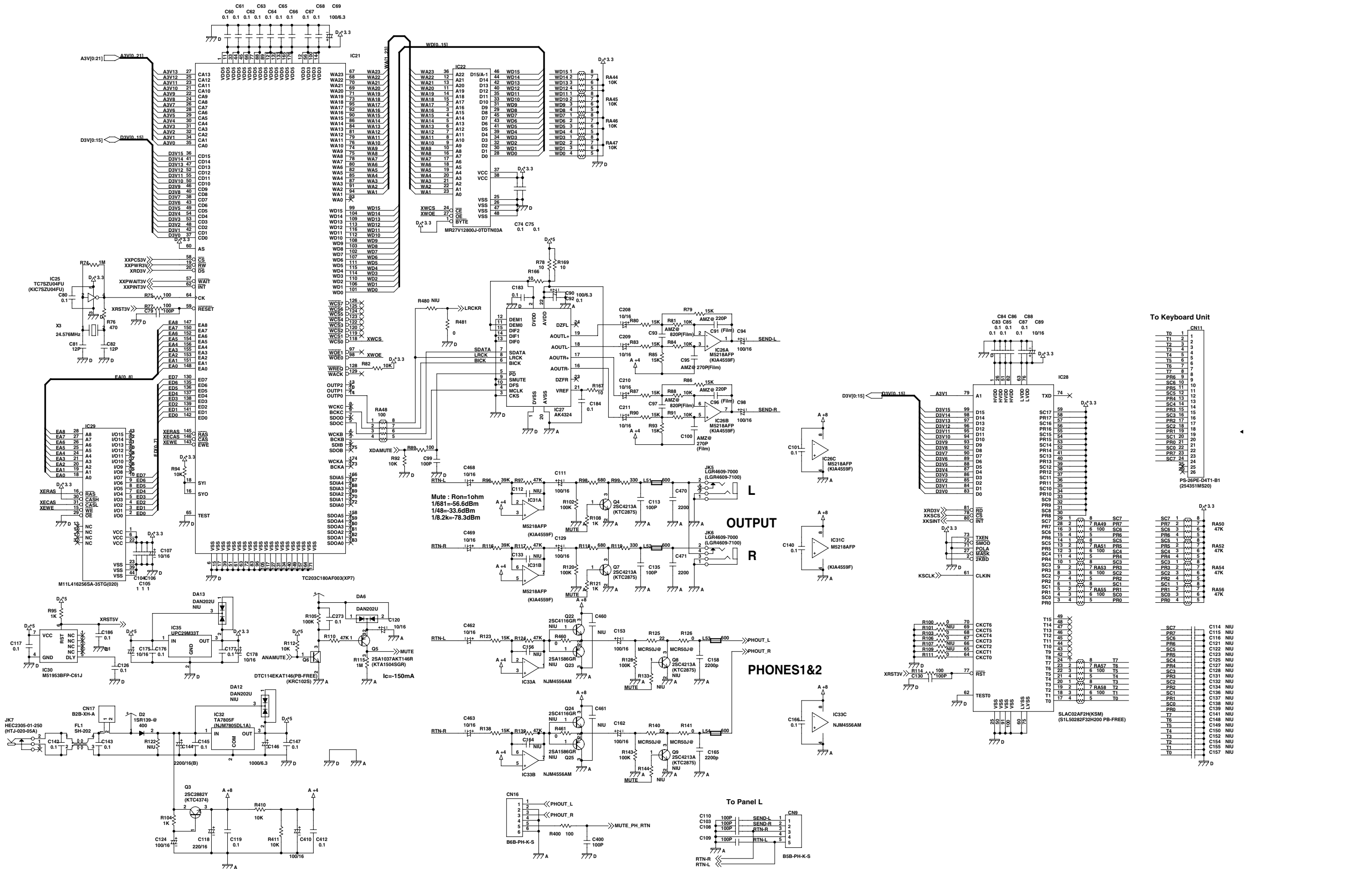
View from foil side

“scale=0.6”

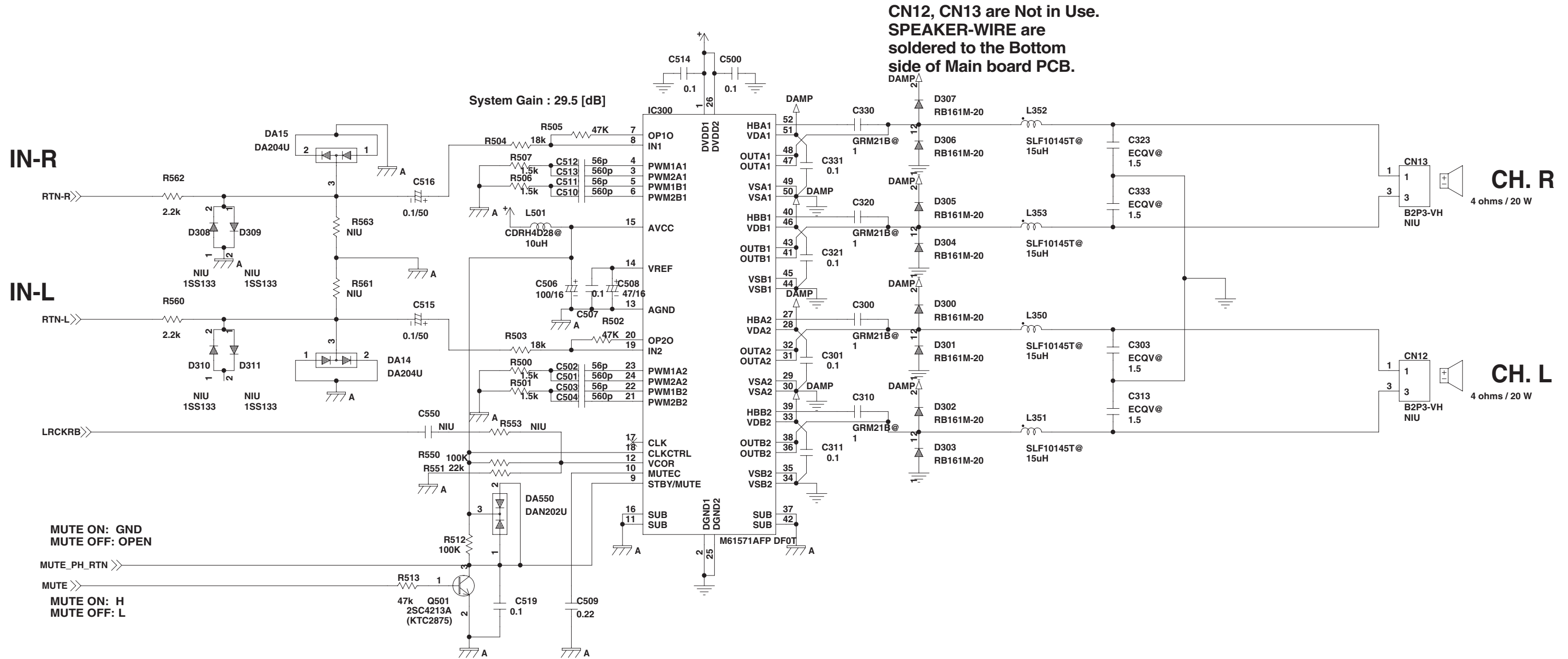
# 回路图 (MAIN 1/3)



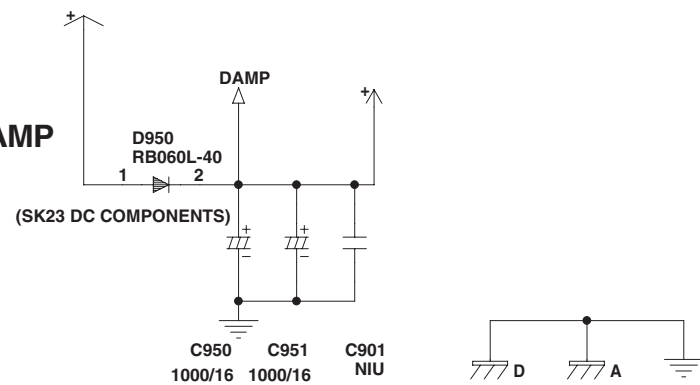
# CIRCUIT DIAGRAM(MAIN 2/3)



**CIRCUIT DIAGRAM(MAIN 3/3)**

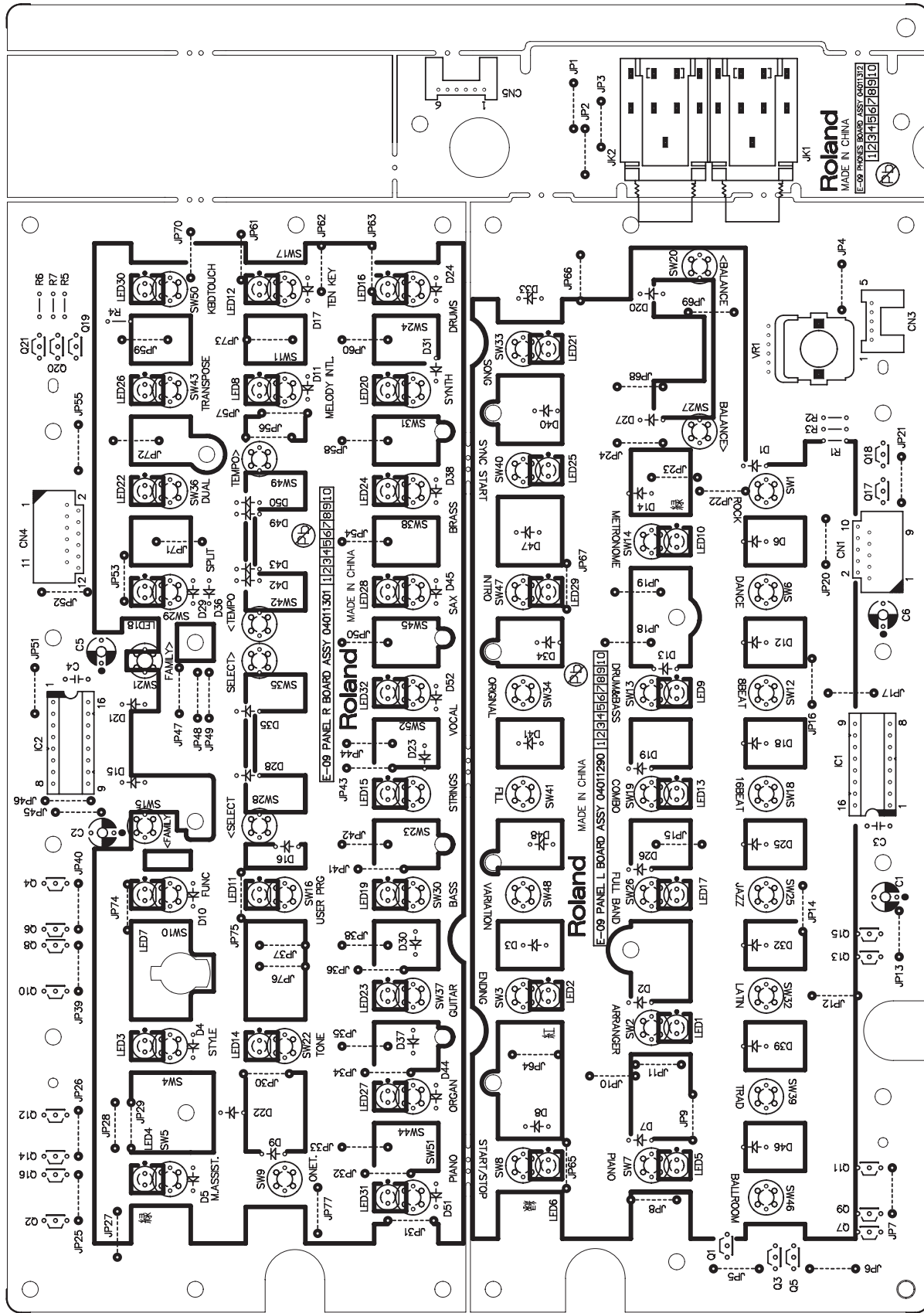


**JUMPER WIRING W5 FOR POWERAMP**



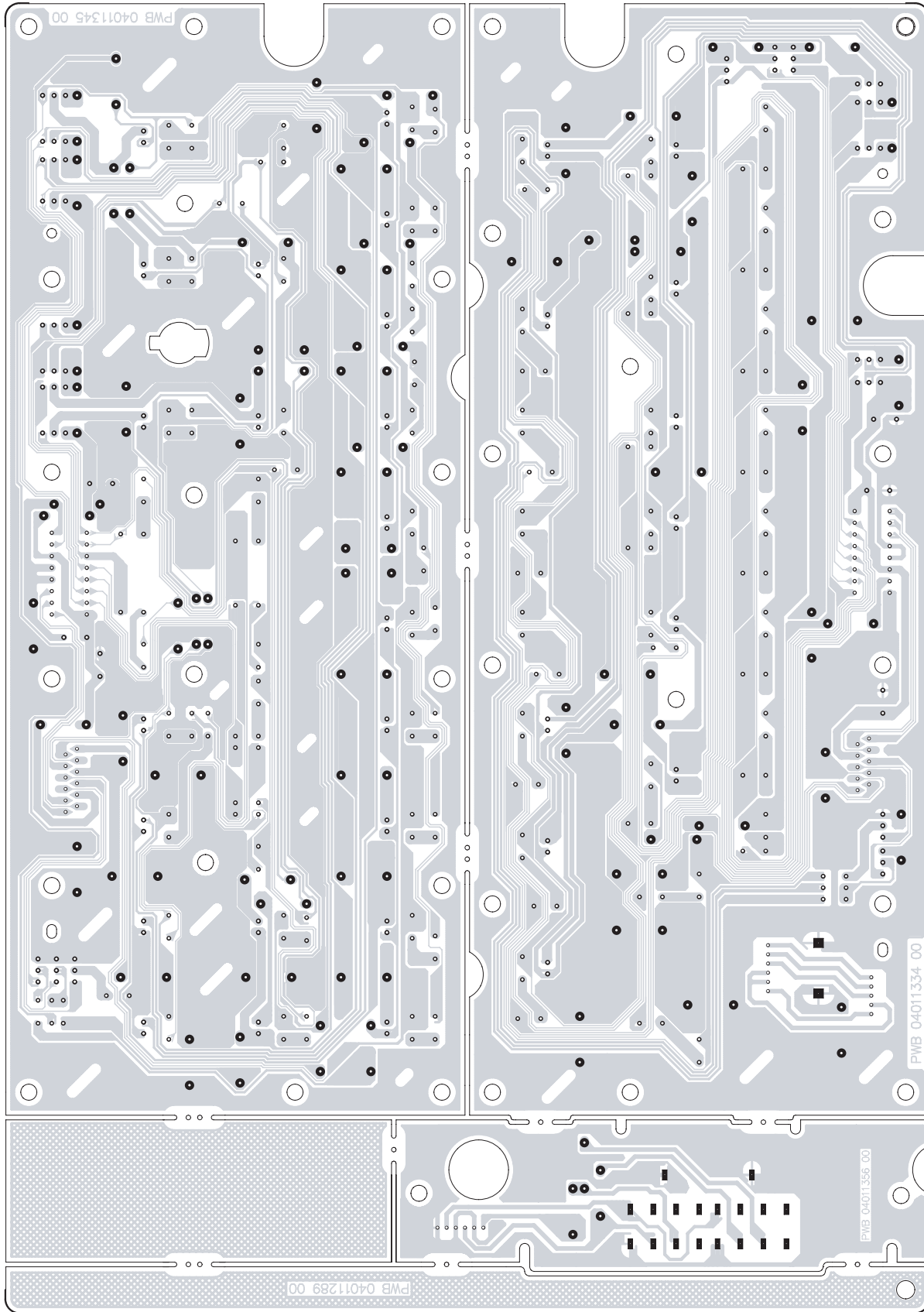


# CIRCUIT BOARD(PANEL(L/R)/PHONES)



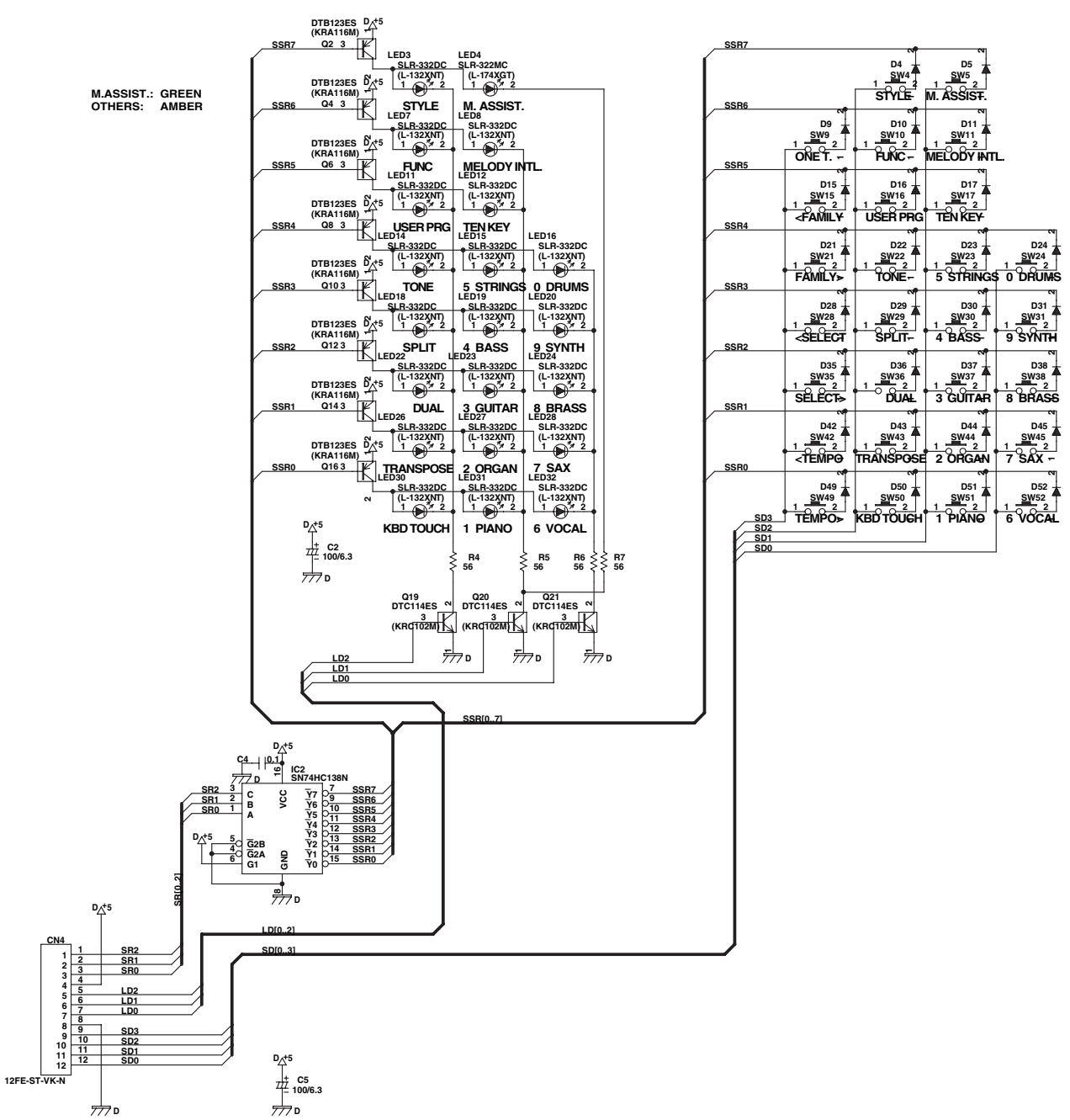
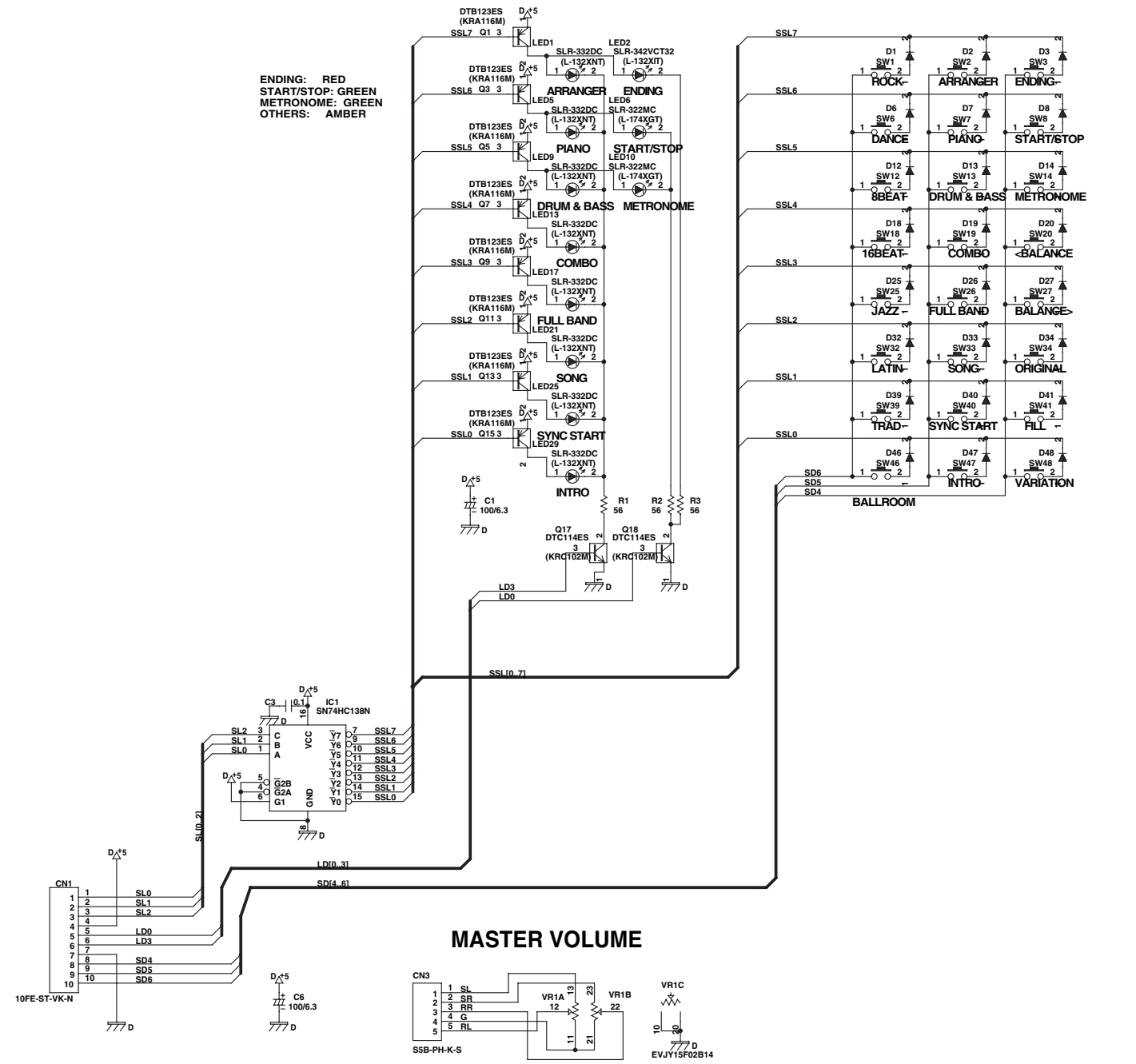
View from components side  
"scale=0.6"

# CIRCUIT BOARD(PANEL(L/R)/PHONES)



View from foil side  
"scale=0.6"

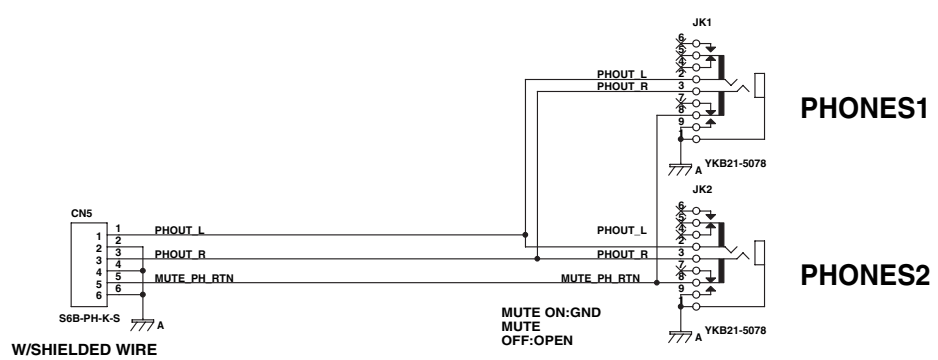
# CIRCUIT DIAGRAM(PANEL(L/R)/PHONES)



PANEL-L BOARD

PANEL-R BOARD

PHONES BOARD



## ERROR MESSAGES

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### **MIDI Buffer Full**

Cause:           The amount of MIDI messages received was too large to allow correct processing.

Remedy:         Reduce the amount of MIDI messages sent.

### **MIDI Off Line**

Cause:           There is a problem with the MIDI cable connection.

Remedy:         Make sure the MIDI cable has not become disconnected and does not have broken wires.

### **MIDI Error**

Cause:           MIDI messages could not be received correctly.

Remedy:         If the same message is displayed repeatedly, it means there may be a problem in the content of a MIDI message.