XPS-10

EXPANDABLE SYNTHESIZER

SERVICE NOTES
Issued by RJA

Table of Contents

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. 16) 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.)

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

Roland XPS-10: Synthesizer Keyboard (Conforms to General MIDI 2 System)

Keyboard

61 keys (with velocity)

Sound Generator Section

Maximum Polyphony

128 voices (varies according to the sound generator load)

Parts

16 parts

Preset Memory

Patches: 1,273 + 256 (GM2)
Drum Kits: 19 + 9 (GM2)
Performances: 16

User Memory

Patches: 256
Drum Kits: 8
Performances: 128
Favorites: 100

Effects

Multi-Effects: 3 systems, 78 types
Chorus: 3 types
Reverb: 5 types

Sample Import Function

File Format

Audio File: WAV (44.1 kHz, 16 bits)
AUDIO PAD Section

File Format

Audio File: WAV, AIFF, MP3

External Memory

USB Flash Memory (supports USB 2.0 Hi-Speed Flash Memory: Sold Separately)

Other

Rhythm Pattern

Preset: 24 groups x 6

Arpeggio

Preset: 128

Controllers

Pitch Bend/Modulation lever
Sound Modify slider x 9

Display

16 characters 2 line LCD

Connectors

PHONES jack: Stereo miniature phone type
OUTPUT (L/MONO, R) jacks: 1/4-inch phone type
PEDAL jack
USB COMPUTER port (MIDI)
USB MEMORY port
DC IN jack

Power Supply

AC adaptor

Current draw

1.3 A

Dimensions

1,002 (W) x 251 (D) x 93 (H) mm
39-1/2 (W) x 9-15/16 (D) x 3-11/16 (H) inches

Weight (excluding AC adaptor)

4.0 kg
8 lbs 14 oz

Accessories

Owner's manual (#5100039241)
AC adaptor (#04236101)
Power cord (#5100012293, #5100000692, #5100000564, #5100039367, #5100018086, #05017301)

Options (sold separately)

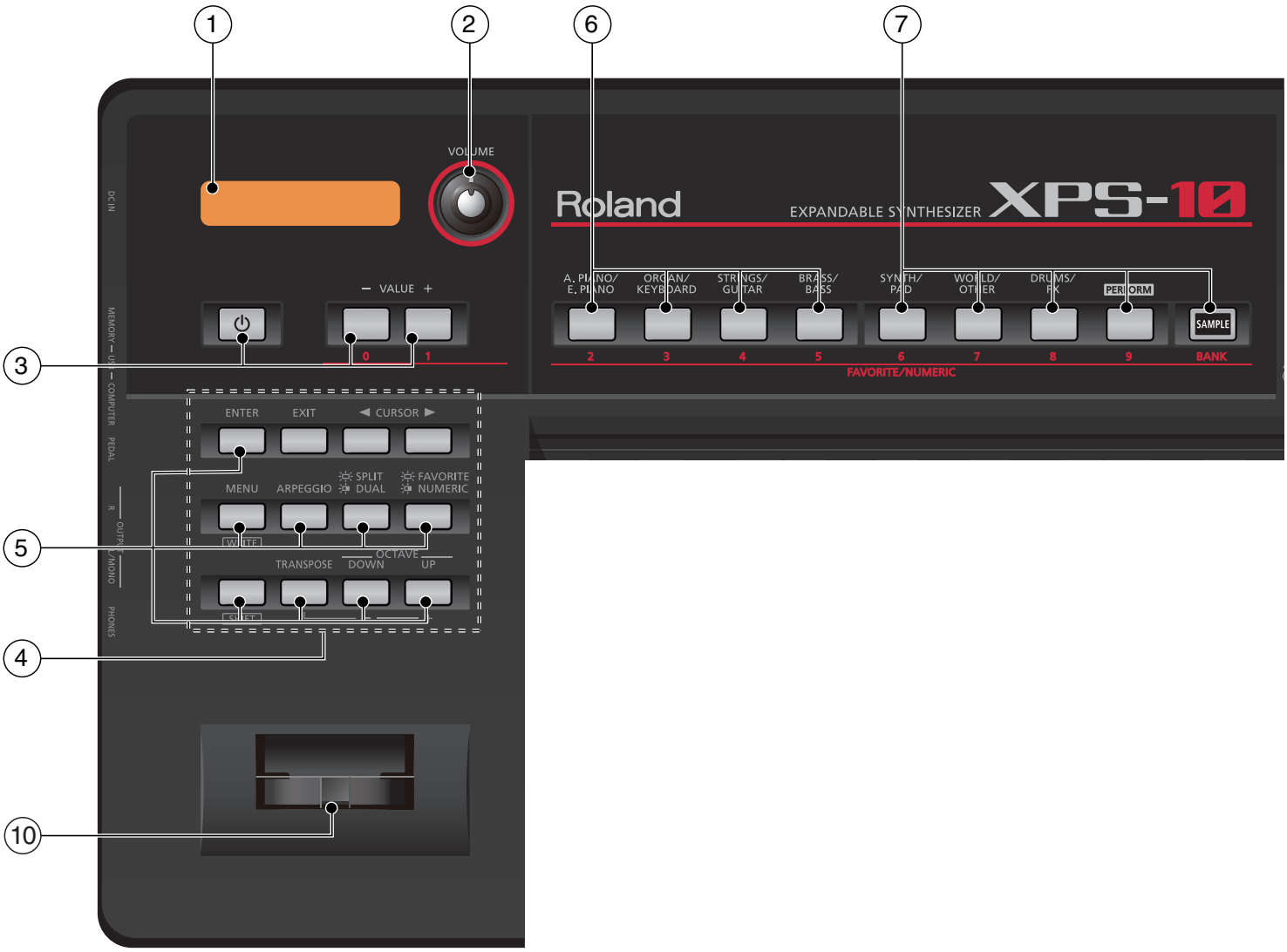
Keyboard stand: KS-18Z (Use a stand that causes the height of the unit to be one meter or lower.)
Pedal switch: DP Series
Expression pedal: EV-5
USB Flash Memory

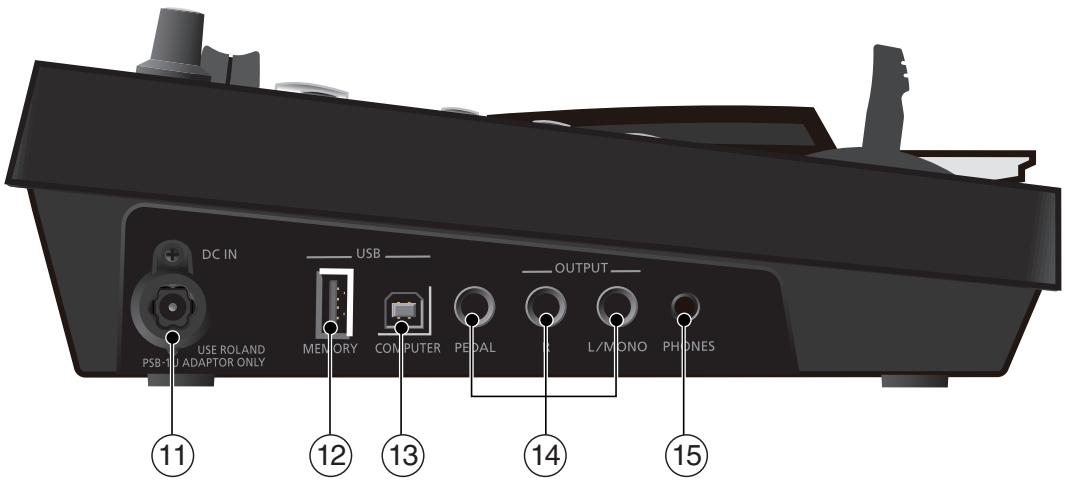
* *Use USB Flash Memory sold by Roland. We cannot guarantee operation if other products are used.*

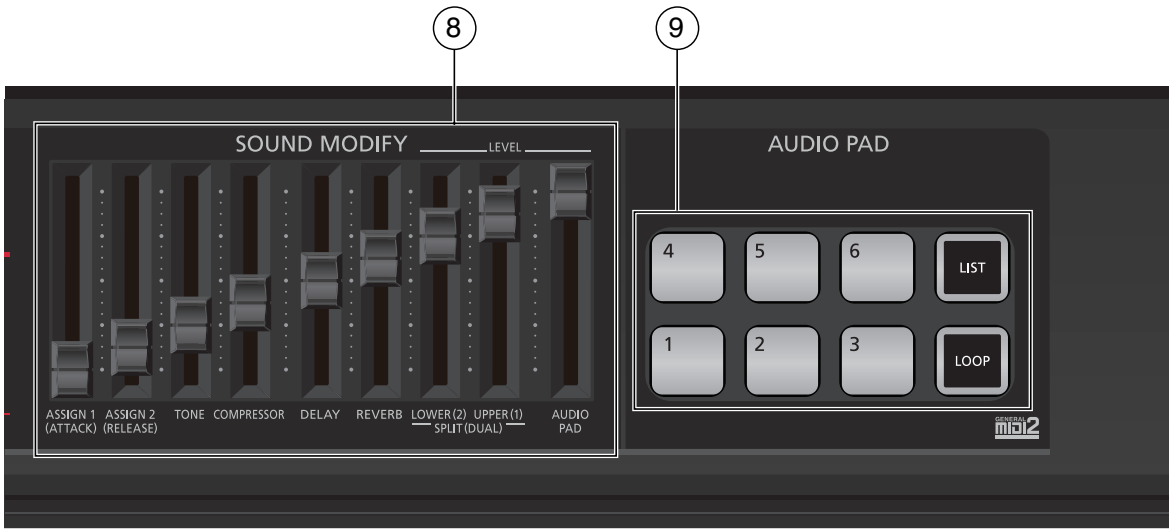
* *Printed matters will not be supplied after the end of the production. Then, download the electronic file from the Roland web site.*

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

Location of Controls



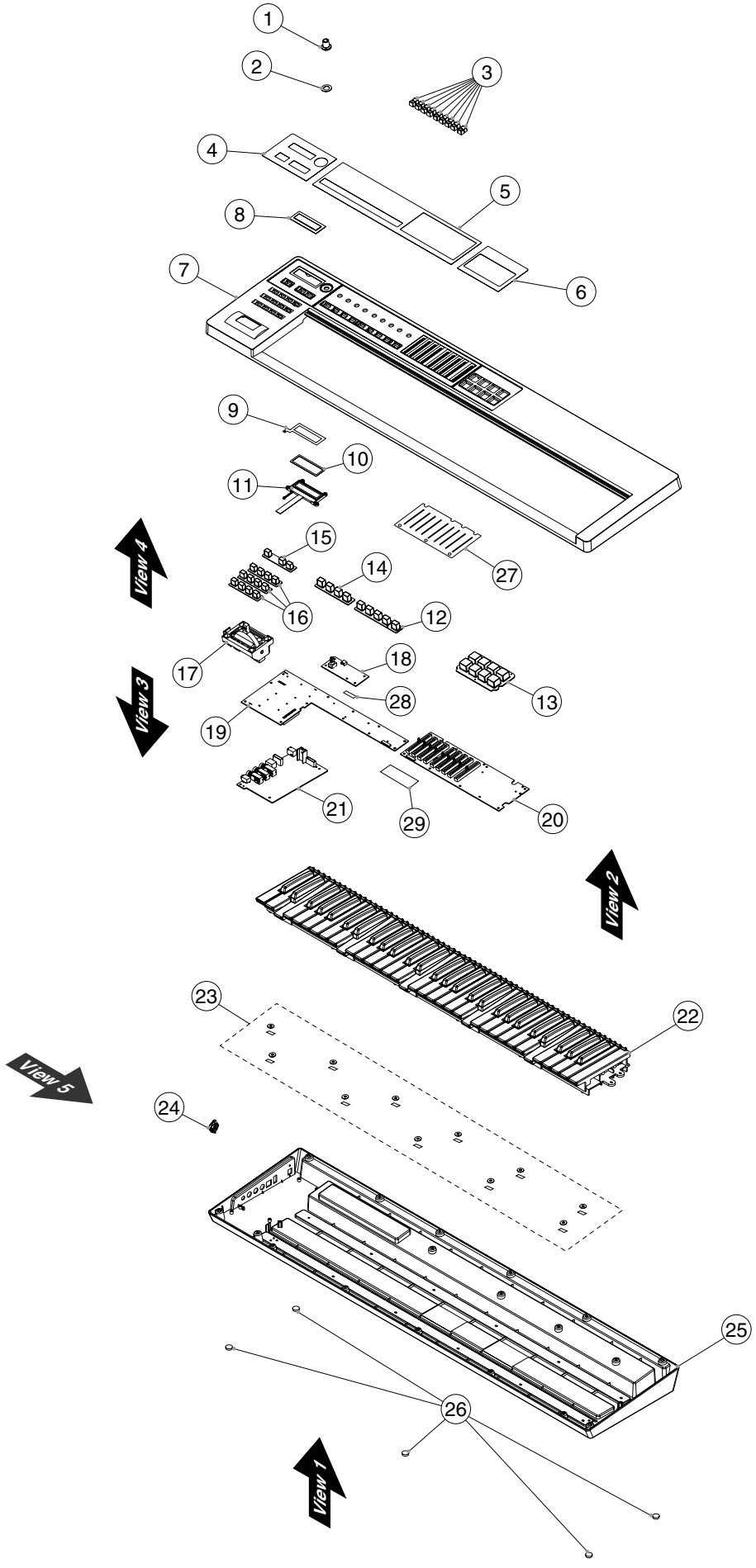




Location of Controls Parts List

No.	Part Code	Part Name	Description	Q'ty
1	5100009116	LCD	221-1162-1357(883-09037-01-00	1
2	5100036841	ROTARY POTENTIOMETER	XV09223NPV20F1B10K/I	1
	5100038373	VR SPACER		1
	04124267	J R-KNOB SF-ELA BLK/SLV	990-05045-10-08	1
3	5100003141	LED	KPT-2012SURCK	3
	5100038375	RUBBER SW 3P		1
4	5100038378	RUBBER SW 4P-A		3
5	5100003141	LED	KPT-2012SURCK	9
6	5100003141	LED	KPT-2012SURCK	4
	5100038376	RUBBER SW 4P		1
7	5100003141	LED	KPT-2012SURCK	5
	5100038377	RUBBER SW 5P		1
8	04566990	SLIDE POT(231-06023-05-00)	F-4505N B50K L10 P(P)	9
	5100038389	S-KNOB S	BLK	9
9	5100003141	LED	KPT-2012SURCK	8
	5100038374	RUBBER SW 8P		1
10	03234723	BENDER	PB-H0204	1
11	13449720	DC JACK	HEC2305-016250	1
	5100009656	DC PLUG SUPPORTER		1
12	5100039459	USB CONNECTOR	2548AW-04G5T-A	1
13	5100010665	USB CONNECTOR B TYPE FEMALE	2549A-04G2T(610-02001-04-00)	1
14	13449275	6.5MM JACK	YKB21-5074	3
15	02456390	3.5MM JACK	STEREO YKB21-5290	1

Exploded View



Exploded View Parts List

No.	Part Code	Part Name	Description	Q'ty
1	04124267	J R-KNOB SF-ELA BLK/SLV	990-05045-10-08	1
2	5100038373	VR SPACER		1
3	5100038389	S-KNOB S	BLK	9
4	5100038370	PANEL SHEET L		1
5	5100038371	PANEL SHEET C		1
6	5100038372	PANEL SHEET R		1
7	5100038368	TOP CASE		1
8	5100010673	LCD COVER		1
9	5100011761	LCD SHIELD SHEET		1
10	5100010674	DISPLAY CUSHION		1
11	5100009116	LCD	221-1162-1357(883-09037-01-00	1
12	5100038377	RUBBER SW 5P		1
13	5100038374	RUBBER SW 8P		1
14	5100038376	RUBBER SW 4P		1
15	5100038375	RUBBER SW 3P		1
16	5100038378	RUBBER SW 4P-A		3
17	03234723	BENDER	PB-H0204	1
	5100038454	PANEL SHEET ASSY		1
	* *This unit includes the following parts.*			
18	********	MASTER VOLUME BOARD		1
19	********	PANEL BOARD		1
20	********	SVR & PAD BOARD		1
21	5100038450	MAIN BOARD ASSY		1
22	04344189	KEYBOARD ASSY MSK-261	W/O CABLE	1
23	5100038381	PLAIN WASHER 4.5X12X1	NI	11
	40122490	DOUBLE-FACED TAPE	#500 W5MM 20M 40P	-
24	5100009656	DC PLUG SUPPORTER		1
25	5100038369	BOTTOM CASE		1
26	12359137	RUBBER FOOT	SJ-5012 BLK	5
27	5100039053	POT DUST COVER		1
28	40122612	ACETATE TAPE	NITTO #5 BLACK W10MM 30M 20P	-
29	40122556	DOUBLE FACED ADHESIVE TAPE	#575X W30MM 30M 10P 30CM	-

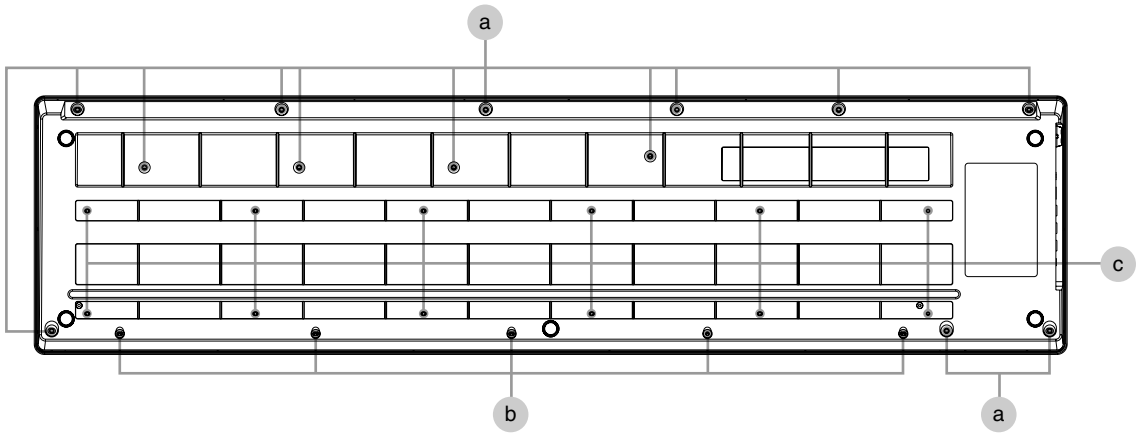
Disassembly Procedure

1. Remove screws **a** (13) and **b** (5) in **View 1** (**Plane View (1)** (p. 8)).

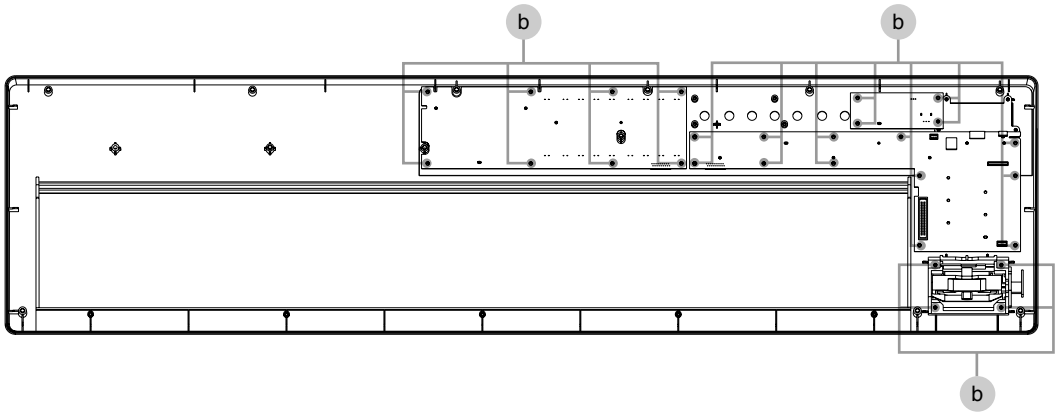
2. Lift the top case slightly and detach the wiring connecting the main board and the pedal board and the wiring connecting the keyboard and the panel board.

Plane View (1)

View 1



View 2



Plane View (1) Parts List

View 1

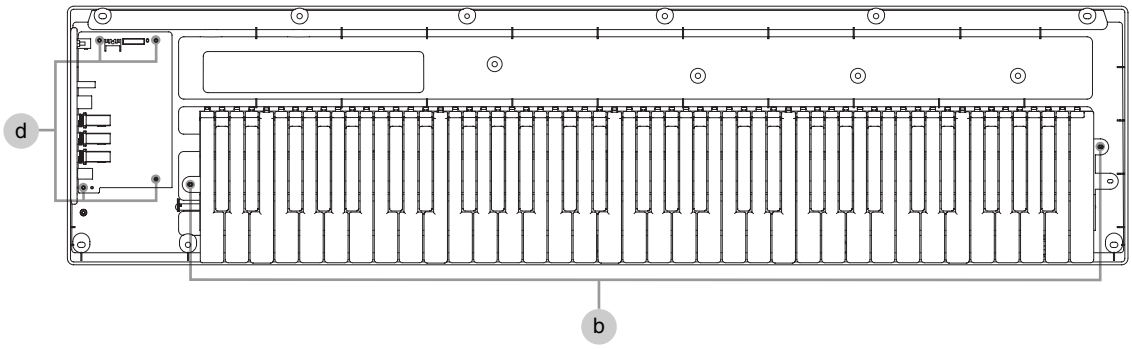
No.	Part Code	Part Name	Description	Q'ty
a	40012490	SCREW 4X10	BINDING TAPTITE P BZC	13
b	40011312	SCREW 3X8	BINDING TAPTITE P FE BZC	5
c	40011334	SCREW 3X12	BINDING TAPTITE P FE BZC	12

View 2

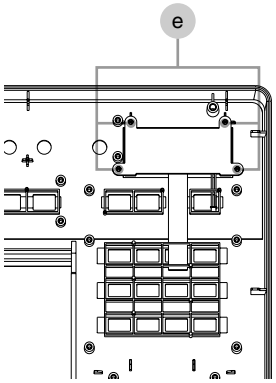
No.	Part Code	Part Name	Description	Q'ty
b	40011312	SCREW 3X8	BINDING TAPTITE P FE BZC	28

Plane View (2)

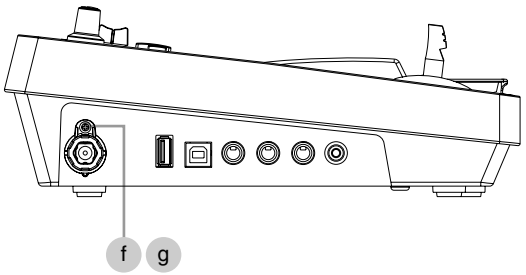
View 3



View 4



View 5



Plane View (2) Parts List

View 3

No.	Part Code	Part Name	Description	Q'ty
b	40011312	SCREW 3X8	BINDING TAPTITE P FE BZC	2
d	40011301	SCREW 3X6	BINDING TAPTITE P FE BZC	4

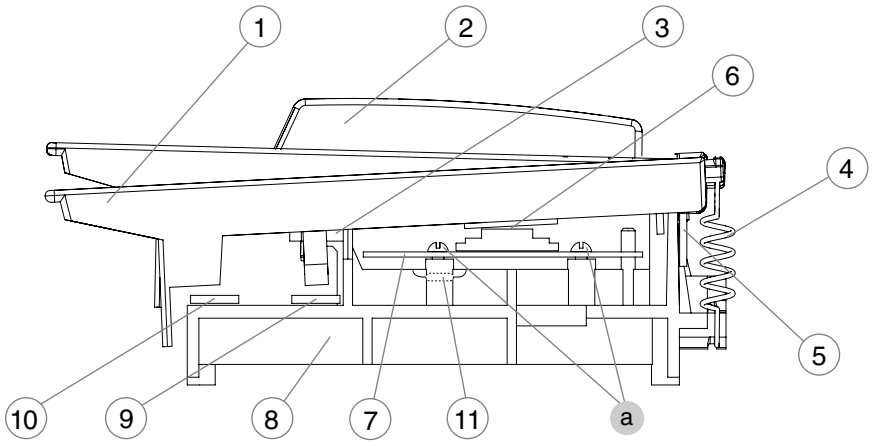
View 4

No.	Part Code	Part Name	Description	Q'ty
e	5100038406	SCREW 2.6X6	BINDING TAPTITE P BZC	4

View 5

No.	Part Code	Part Name	Description	Q'ty
f	5100034002	SCREW M3X12	PAN MACHINE W/SMW+PW BZC	1
g	5100011004	NUT HEX	529-08028-01-00	1

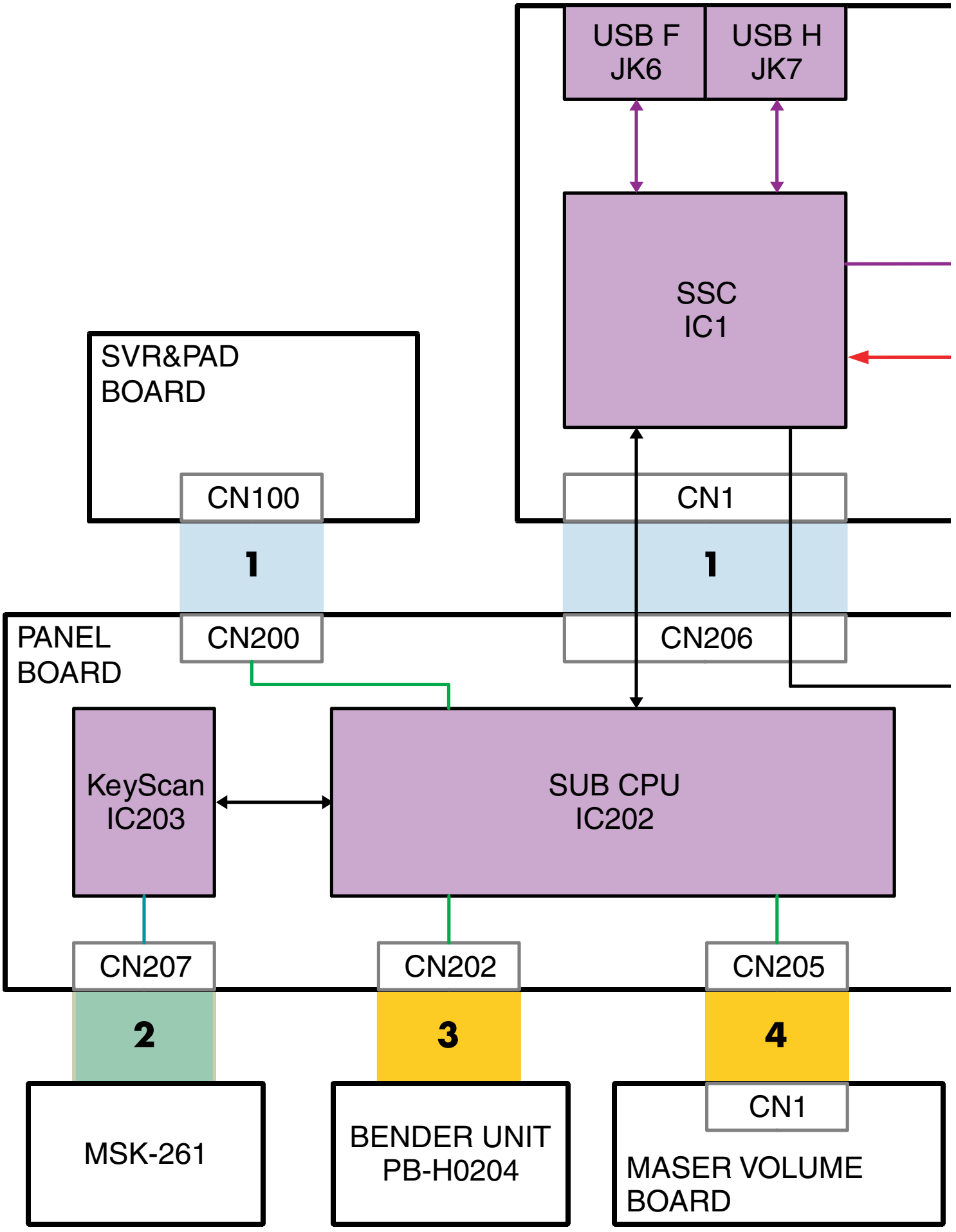
Keyboard Parts List (MSK-2)

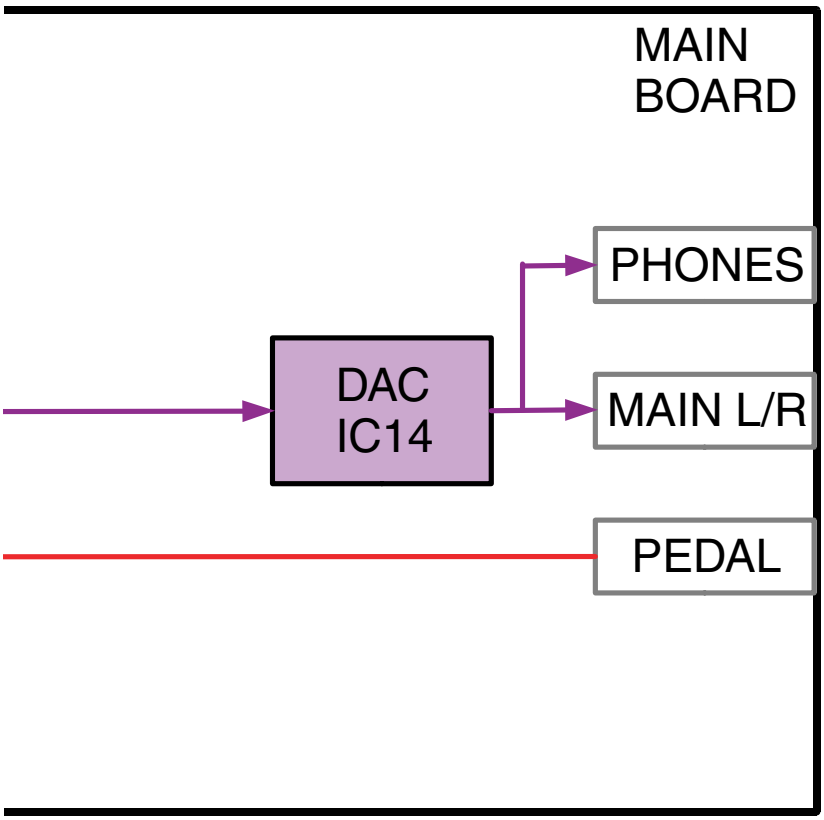


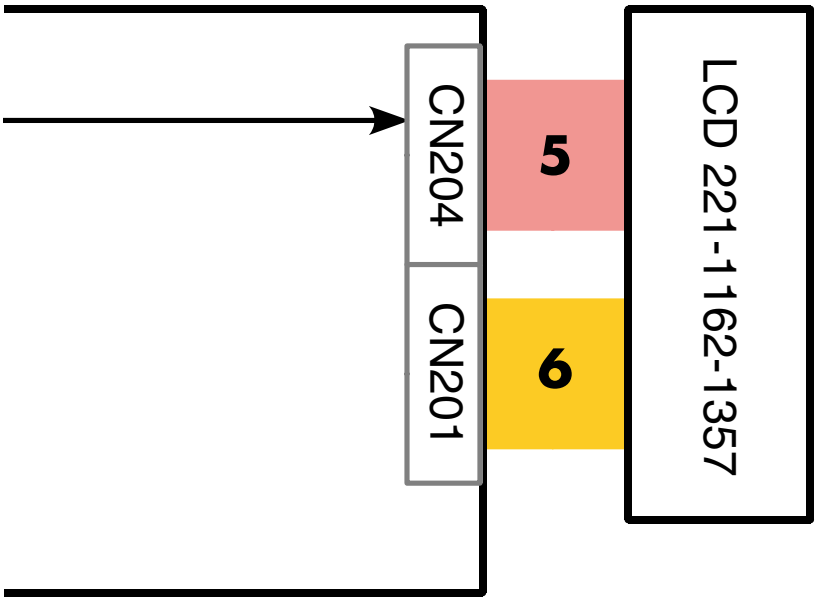
No.	Part Code	Part Name	Description	Q'ty
	04344189	KEYBOARD ASSY	MSK-261KEY (W/O CABLE)	
1	03786378	NATURAL KEY C	FOR MSK-2	5
	03786389	NATURAL KEY D	FOR MSK-2	5
	03786390	NATURAL KEY E	FOR MSK-2	5
	03786401	NATURAL KEY F	FOR MSK-2	5
	03786412	NATURAL KEY G	FOR MSK-2	5
	03786423	NATURAL KEY A	FOR MSK-2	5
	03786434	NATURAL KEY B	FOR MSK-2	5
	03786445	NATURAL KEY C'	FOR MSK-2	1
2	03786456	SHARP KEY	FOR MSK-2	25
3	03786312	KEY FELT	MSK-2 HOOK T2.0MM L828XW5.5	1
4	03456967	COILED SPRING	MSK-1 NATURAL KEY	36
	03456978	COILED SPRING	MSK-1 SHARP KEY	25
5	03786301	KEY FELT	MSK-2 BACK T4.0MM L840XW6.0	1
6	04230834	RUBBER SWITCH 12P	FOR MSK-1/MSK-2	4
	04230845	RUBBER SWITCH 13P	FOR MSK-1/MSK-2	1
7	03786345	PWB KEYBOARD LO ASSY	FOR MSK-2	1
	03786356	PWB KEYBOARD HI ASSY	FOR MSK-2	1
8	********	CHASSIS KEYBOARD	FOR MSK-2	1
9	03786334	KEY FELT	MSK-2 BOTTOM M T2.0MM L840XW10	1
10	03786323	KEY FELT	MSK-2 BOTTOM L T2.0MM L840XW15	1
11	15019126	SWITCHING DIODE	1SS133 T-77	122
a	40011189	SCREW 3X8	PAN TAPTITE-P FE ZC	34

* *The cables (#04569934) is not included in this unit (#04344189).*

Wiring Diagram/Block Diagram







No.	Part Code	Part Name	Description	Q'ty
1	5100039039	FLAT CABLE	SML2CD-18X120-BDX8(BL)-P1.0-S	2
2	04569934	WIRING	CA ASSY 26WAY 240+550MM W/2	1
3	5100010664	WIRING	4X50-P2.0-PHR-PHR-F	1
4	5100039038	WIRING	1061#28 3X80-PHR-PHR-F MOONPO	1
5	*******	Flat Cable from LCD		1
6	*******	Wiring from LCD		1

Parts List

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

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

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

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

CASING				
#	5100038368	TOP CASE		1
#	5100038369	BOTTOM CASE		1
KNOB, BUTTON				
#	5100038389	S-KNOB S	BLK	9
	04124267	J R-KNOB SF-ELA BLK/SLV	990-05045-10-08	1
#	5100038375	RUBBER SW 3P		1
#	5100038376	RUBBER SW 4P		1
#	5100038378	RUBBER SW 4P-A		3
#	5100038377	RUBBER SW 5P		1
#	5100038374	RUBBER SW 8P		1
JACK, EXT TERMINAL				
	02456390	3.5MM JACK	STEREO YKB21-5290	1
	13449275	6.5MM JACK	YKB21-5074	3
	13449720	DC JACK	HEC2305-016250	1
#	5100039459	USB CONNECTOR	2548AW-04G5T-A	1
	5100010665	USB CONNECTOR B TYPE FEMALE	2549A-04G2T(610-02001-04-00)	1
DISPLAY UNIT				
	5100009116	LCD	221-1162-1357(883-09037-01-00	1
BENDER UNIT				
	03234723	BENDER	PB-H0204	1
KEYBOARD ASSY				
	04344189	KEYBOARD ASSY MSK-261	W/O CABLE	1
PWB ASSY				
#	5100038450	MAIN BOARD ASSY		1
#	5100038454	PANEL SHEET ASSY		1
	* *This unit includes the following parts.*			
	********	PANEL BOARD		1
	********	MASTER VOLUME BOARD		1
	********	SVR & PAD BOARD		1
DIODE				
#	5100003141	LED	KPT-2012SURCK	29
POTENTIOMETER				
	5100036841	ROTARY POTENTIOMETER	XV09223NPV20F1B10K/I	1
	04566990	SLIDE POT(231-06023-05-00)	F-4505N B50K L10 P(P)	9
WIRING, CABLE				
#	5100039039	FLAT CABLE	SML2CD-18X120-BDX8(BL)-P1.0-S	2
	04569934	WIRING	CA ASSY 26WAY 240+550MM W/2	1
	5100010664	WIRING	4X50-P2.0-PHR-PHR-F	1
#	5100039038	WIRING	1061#28 3X80-PHR-PHR-F MOONPO	1

SCREWS

	5100034002	SCREW M3X12	PAN MACHINE W/SMW+PW BZC		1
#	5100038406	SCREW 2.6X6	BINDING TAPTITE P BZC		4
	40011301	SCREW 3X6	BINDING TAPTITE P FE BZC		4
	40011312	SCREW 3X8	BINDING TAPTITE P FE BZC		35
	40011334	SCREW 3X12	BINDING TAPTITE P FE BZC		12
	40012490	SCREW 4X10	BINDING TAPTITE P BZC		13
	5100011004	NUT HEX	529-08028-01-00		1
#	5100038381	PLAIN WASHER 4.5X12X1	NI		11

MISCELLANEOUS

#	5100010673	LCD COVER			1
#	5100038370	PANEL SHEET L			1
#	5100038371	PANEL SHEET C			1
#	5100038372	PANEL SHEET R			1
	12359137	RUBBER FOOT	SJ-5012 BLK		5
	5100009656	DC PLUG SUPPORTER			1
#	5100010674	DISPLAY CUSHION			1
	5100011761	LCD SHIELD SHEET			1
#	5100039053	POT DUST COVER			1
#	5100038373	VR SPACER			1
	40122534	DOUBL-FACE TAPE #500	W3MM 20M 136P		-
	40122490	DOUBLE-FACED TAPE	#500 W5MM 20M 40P		-
	40122556	DOUBLE FACED ADHESIVE TAPE	#575X W30MM 30M 10P 30CM		-
	40122612	ACETATE TAPE	NITTO #5 BLACK W10MM 30M 20P		-

ACCESSORIES (Standard)

	⚠	04236101	AC ADAPTOR WITHOUT AC CORD	PSB-1U(S) UNIVERSAL		1
	⚠	5100012293	AC CORD SET	117VBL 1.0M FOR PSB	for 117VBL	1
	⚠	5100000692	AC CORD SET	117V U 1.0M	for 117VU, 117VU/CS	1
	⚠	5100000564	AC CORD (CCC) 220V CN	452-04038-02-01	for 220VCN	1
#	⚠	5100039367	AC CORD	SP021A+IS037 220VK 2.5M 2P	for 220VK	1
	⚠	5100018086	AC CORD SET	230VE 1.0M FOR EPS	for 230VE	1
	⚠	05017301	AC CORD SET	230V 1.0M FOR EU	for 230VEU	1
#		5100039241	OWNER'S MANUAL	ENGLISH		1

Verifying the Version

Use the procedure described below to verify the version of the application program. If the version of the boot program is also required, refer to **Test Mode** (p. 17).

1. Press **MENU**.
   The **MENU** screen appears.
2. Press **CURSOR** ◄ or ► to select **VERSION INFO**, then press **ENTER**.
   The **VERSION INFO** screen appears.

Data Backup and Restore Operations

Formatting a USB Memory Device

1. Insert a USB memory device into the **USB MEMORY** connector.
2. Press **MENU**.
   The **MENU** screen appears.
3. Press **CURSOR** ◄ or ► to select **UTILITY**, then press **ENTER**.
   The **UTILITY** screen appears.
4. Press **CURSOR** ◄ or ► to select **USB MEM FORMAT**, then press **ENTER**.
   Format USB Mem? is displayed.
5. To execute formatting, press **ENTER**. To cancel it, press **EXIT**.
6. When formatting has finished, detach the USB memory device.

Data Backup Operations

Items Required

- USB memory device (recommended: M-UF2G)

Procedure

1. Format the USB memory device (as described earlier).
2. Press **MENU**.
   The **MENU** screen appears.
3. Press **CURSOR** ◄ or ► to select **UTILITY**, then press **ENTER**.
   The **UTILITY** screen appears.
4. Press **CURSOR** ◄ or ► to select **BACKUP**, then press **ENTER**.
   NAME [ENT] flashes.
5. Press **ENTER**.
   Backup is displayed.
6. To execute the backup operation, press **ENTER**. To cancel it, press **EXIT**.
   When the backup finishes, the display returns to the original screen.

Data Restore Operations

Procedure

1. Insert the USB memory device containing the backed-up data into the **USB MEMORY** connector.
2. Press **MENU**.
   The **MENU** screen appears.
3. Press **CURSOR** ◄ or ► to select **UTILITY**, then press **ENTER**.
   The **UTILITY** screen appears.
4. Press **CURSOR** ◄ or ► to select **RESTORE**, then press **ENTER**.
5. Press **ENTER** again.
   RESTORE: [ENT] flashes.
6. To execute the restore operation, press **ENTER**. To cancel it, press **EXIT**.
   When the restore operation finishes, **Completed. Turn off power.** is displayed.
7. Detach the USB memory device and reset the power.

Performing a Factory Reset

1. Press **MENU**.
   The **MENU** screen appears.
2. Press **CURSOR** ◄ or ► to select **UTILITY**, then press **ENTER**.
   The **UTILITY** screen appears.
3. Press **CURSOR** ◄ or ► to select **FACTORY RESET**, then press **ENTER**.
   Factory Reset is displayed.
4. To execute the factory reset, press **ENTER**. To cancel it, press **EXIT**.
   When the factory reset has finished, **Completed. Turn off power.** is displayed.
5. Reset the power.

Updating the System

Items Required

- USB memory device (recommended: M-UF2G)
- Update program (obtained via Service Net)

Procedure

1. Format the USB memory device. (Refer to **Formatting a USB Memory Device** (p. 16).)
2. Copy the update program (**xps10_up.bin**) to the root directory of the USB memory device just described.
3. While the power to the unit is switched off, insert the USB memory device just described into the **USB MEMORY** connector.
4. Hold down **ENTER** and switch on the power.
   The update starts automatically.

   * *Never switch off the power or detach the USB memory device while the update is in progress. Doing so may cause malfunction.*

   When **finished.** appears, the update has finished.
5. Detach the USB memory device and reset the power.
6. Verify that the version has been updated. (Refer to **Verifying the Version** (p. 16).)

Test Mode

Items Required

- Computer (No dedicated driver is required.)
- USB cable
- USB memory device (recommended: M-UF1G/2G)
- Audio cable
- Expression pedal (EV-5)
- Amp-equipped monitor speakers
- Oscilloscope
- Noise Meter

* *Use a two-prong power cord for the noise meter.*

Entering the Test Mode

1. Connect the USB memory device to the **USB MEMORY** connector.
2. Using the USB cable, connect the **USB COMPUTER** connector and the computer.
3. Hold down **FAVORITE/NUMERIC 1**, **3** and **6** and switch on the power.

Quitting the Test Mode

Switch off the power.

Skipping Test Items

SHIFT + **CURSOR** ► : This forces execution to advance to the next test item.

SHIFT + **CURSOR** ◄ : This forces execution to return to the previous test item.

SHIFT + **MENU**: **TEST MENU** is displayed.

Use **VALUE -** or **+** to select the test item, then press **ENTER** to jump to the item.

* *Testing for some items cannot be accomplished correctly unless testing is performed in sequence, starting at* ***1. VERSION*** *(p. 17).*

* *Depending on the test item currently being executed, pressing* ***SHIFT + MENU*** *might not display the* ***TEST MENU****.*

Test Items

1. VERSION

This verifies the version of the program.

```
-|--------------------|-
 | Appli:1.01(00**)   |
 | 14/02/11   18:43   |
-|--------------------|-
```

The version of the program is displayed on the LCD screen and the LEDs other than **EXIT**, **CURSOR**, ◄ and ► light up.

1. After verifying the version, press **VALUE +**.
   The boot version is displayed.

```
-|--------------------|-
 | Boot:1.00(00**)    |
 | 14/02/11  18:43    |
-|--------------------|-
```

2. Verify the boot version.
3. Verify that the LEDs shown in the figure are lighted up red.

4. Press **CURSOR** ► to advance to the next test item.

* *Because the adjustment of the pitch bender starts at the same time when the next test item is enabled, never touch the pitch bender.*

2. DEVICE

* *Before entering this test item, insert the USB memory device into the* ***USB MEMORY*** *connector at the unit and connect the unit and the computer using the USB cable.*

This automatically tests various devices.

```
-|--------------------|-
 | 1.FLASH: --        |
 | 2.SDRAM1: --       |
-|--------------------|-
```

1. Flash
2. SDRAM1
3. SDRAM2
4. FX-RAM
5. WROM
6. USB H
7. USB F
8. SUBCPU
9. KEYSCAN

If the test result is **OK**, **OK** is displayed for the corresponding device.
If the test result is **NG** (not OK), **NG** is displayed for the corresponding device.

* *The check of the entire wave ROM area does not yield an OK immediately. It only starts the full-area check in the background.*

If the results of **OK** have been obtained for all tests other than **5. WROM**, a screen like the one shown below is displayed on the LCD.

```
-|--------------------|-
 | Remove the USB     |
 | Memory & Cable.    |
-|--------------------|-
```

Detach the USB memory device and the USB cable.

* *Detection of the removal of the USB memory device and USB cable might take a short while.*

Execution automatically advances to the next test item.

3. SW/LED1

This verifies the operation of LED-equipped switches.

```
-|--------------------|-
 | 1.POWER            |
 |      1/29          |
-|--------------------|-
```

Follow the on-screen indications and successively press each button whose LED lights up.
When all buttons with LED have been pressed, execution automatically advances to the next test item.

4. SW2

This verifies the operation of switches that have no LEDs.

```
-|--------------------|-
 | 1.EXIT             |
 |      1/3           |
-|--------------------|-
```

Follow the on-screen indications and successively press the buttons.
When all have been pressed, execution automatically advances to the next test item.

5. LCD

This verifies the on-screen indications.

```
-|--------------------|-
 | Press [ENTER]      |
 | LCD Check          |
-|--------------------|-
```

1. Press **ENTER**.
   The entire screen goes black.
2. Press **ENTER**.
   The entire screen goes white.
3. Press **ENTER**.
   A screen like the one shown below is displayed.

```
-|--------------------|-
 | Press [ENTER]      |
 | Contrast Check     |
-|--------------------|-
```

4. Press **ENTER**.
   Contrast is maximized.
5. Press **ENTER**.
   Contrast is minimized.
6. Press **ENTER**.
   A screen like the one shown below is displayed.

```
-|--------------------|-
 | Press[>].          |
 |                    |
-|--------------------|-
```

7. Press **CURSOR** ► to advance to the next test item.

6. A/D

This verifies the operation of the pitch bender, pedal and control knobs.

```
-|--------------------|-
 | BEND--- MOD---     |
 | HOLD---            |
-|--------------------|-
```

1. BEND: BENDER
2. MOD: MODULATION
3. HOLD: PEDAL
4. VOL1: VOLUME
5. SLD1: CUT OFF
6. SLD: RESONANCE
7. SLD3: ATTACK
8. SLD4: RELEASE
9. SLD5: CHORUS
10. SLD6: REVERB
11. SLD7: LOWER/2
12. SLD8: UPPER/1
13. SLD9: AUDIO PAD

Pitch Bender

1. Move the pitch bender to the left edge, and verify that a value of **0** is displayed for **BEND**.
2. Release the control near the center, and verify that **64** is displayed.
3. Move to the right edge, and verify that **127** is displayed.
   If no problems are found, **OK** is displayed.
4. Move the modulation lever (pitch bender) to the front and back and verify that the value of **MOD** changes from **0** to **127**.
   If no problems are found, **OK** is displayed.

Pedal

5. Connect the expression pedal to the **PEDAL** jack.
6. Depress the expression pedal and verify that the value of **HOLD** changes from **0** to **127**.
   If no problems are found, **OK** is displayed.

Control knobs

7. Operate each knob indicated on-screen from minimum to maximum, and verify that the corresponding value changes from **0** to **127**.
   If no problems are found, **OK** is displayed.
8. Check the other control knobs in the same manner.
   When all results are **OK**, a screen like the one shown below is displayed on the LCD.

```
-|--------------------|-
 | Remove Pedal.      |
 |                    |
-|--------------------|-
```

9. Detach the expression pedal.
   Execution automatically advances to the next test item.

7. OUTPUT

This tests the audio signal (L/R) output from the **OUTPUT** jack.

```
-|--------------------|-
 | OUTPUT    :SINE    |
 | Press[>]           |
-|--------------------|-
```

1. Connect the oscilloscope to the **OUTPUT L/MONO** and **R** jacks and display the waveform.
2. Verify that the following signals are output.
   OUTPUT L: 1-kHz ±50 Hz sine wave at 6.0 ±2.0 Vpp
   OUTPUT R: 2-kHz ±50 Hz sine wave at 6.0 ±2.0 Vpp
3. Press **CURSOR** ► to advance to the next test item.

8. PHONES

This tests the audio signal (L/R) output from the **PHONES** jack.

```
-|--------------------|-
 | Phones    :SINE    |
 | Press[>]           |
-|--------------------|-
```

1. Connect the oscilloscope to the **PHONES** jack and display the waveform.
2. Verify that the following signals are output.
   PHONES L: 1-kHz ±50 Hz sine wave at 6.0 ±2.0 Vpp
   PHONES R: 2-kHz ±50 Hz sine wave at 6.0 ±2.0 Vpp
3. Press **CURSOR** ► to advance to the next test item.

9. MUTE

This verifies the operation of the MUTE.

```
-|--------------------|-
 | MUTE=OFF:[ENTER]   |
 |                    |
-|--------------------|-
```

1. Connect the amp-equipped monitor speakers to the **OUTPUT** jacks.
   Demo song is played back.
2. Verify that audio is muted while **ENTER** is depressed.
3. Verify that the mute is canceled when **ENTER** is released.
4. Press **CURSOR** ► to advance to the next test item.

10. KEYBOARD

This verifies the operation of the keyboard.

```
-|--------------------|-
 | 1/2 Pno            |
 |                    |
-|--------------------|-
```

1. Play all keys, and verify that notes are produced with piano sound. Also verify that the volume level changes according to the velocity of key fingering.
2. Press **VALUE +**.

```
-|--------------------|-
 | 2/2 Org            |
 |                    |
-|--------------------|-
```

3. Play all keys, and verify that notes are produced with organ sound.
4. Press **CURSOR** ► to advance to the next test item.

11. NOISE

This performs testing for residual noise.

```
-|--------------------|-
 | Check NoiseLevel   |
 | Press[>]           |
-|--------------------|-
```

1. Turn the **VOLUME** knob to maximum.
2. Connect the noise meter to the **OUTPUT L/MONO** and **R** jacks and verify that noise levels are at the following values.
   OUTPUT L/MONO: -80 dBm or lower (DIN-audio)
   OUTPUT R: -80 dBm or lower (DIN-audio)
3. Press **CURSOR** ► to advance to the next test item.

12. WAVE ROM

This verifies the results of the check of the entire wave ROM area.

```
-|--------------------|-
 | Wave ROM:OK        |
 | Press[>]           |
-|--------------------|-
```

1. Verify that **Wave ROM:OK** is displayed.
   If **Busy** is displayed, wait for **OK** to be displayed.

* *This item is started after **2. DEVICE** (p. 17) has been executed. If **2. DEVICE** (p. 17) was not selected, the test starts at the time that this **12. WAVE ROM** (p. 19) is selected.*

2. Press **CURSOR** ► to advance to the next test item.

13. FACTORY RST

This executes Factory Reset.

```
-|--------------------|-
 | Press [ENTER]      |
 | Factory Reset      |
-|--------------------|-
```

Press **ENTER**.
A factory reset is executed.

When the factory reset has finished, execution automatically advances to the next test item.

14. ERP CHECK

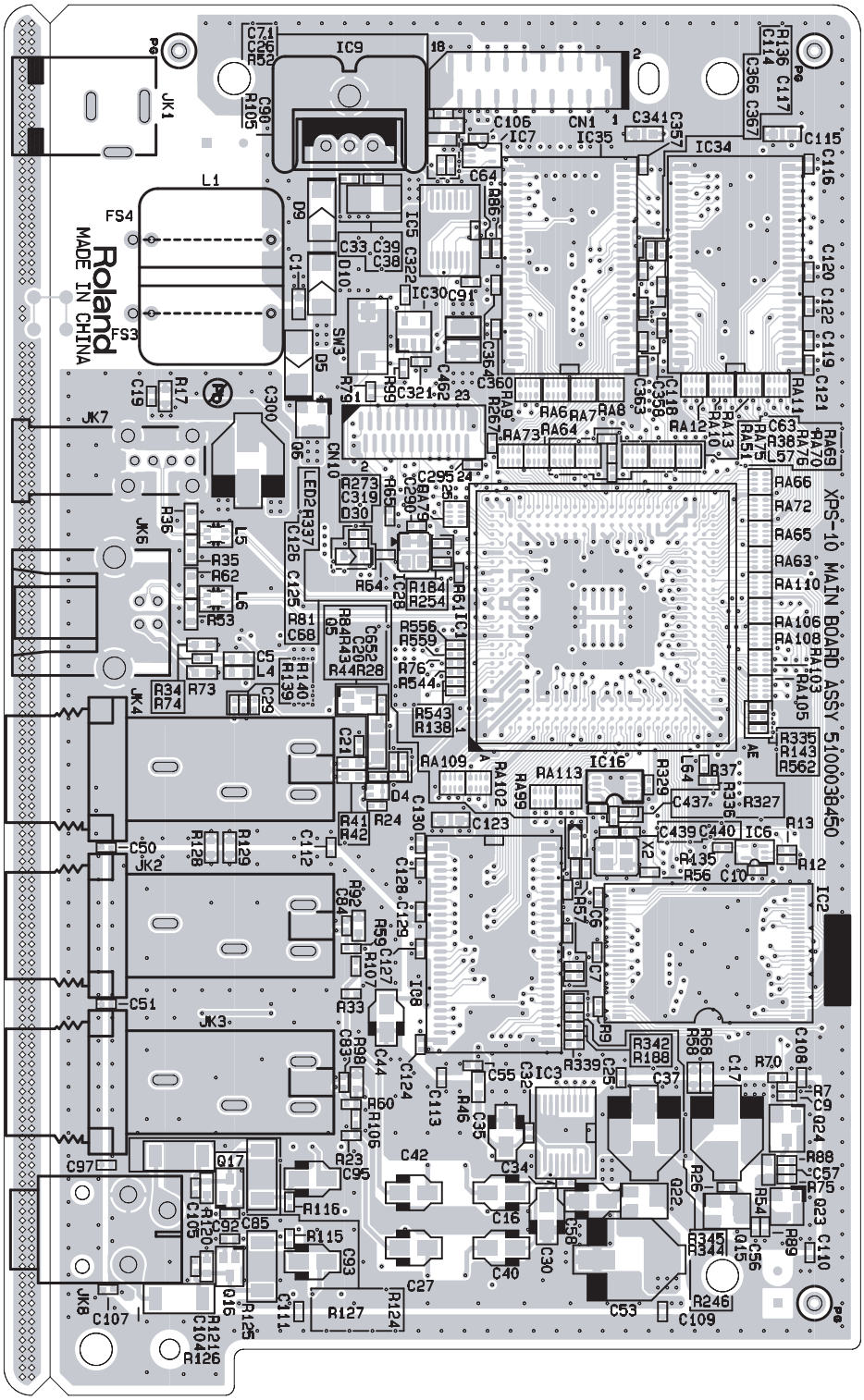
This checks the auto-off function.

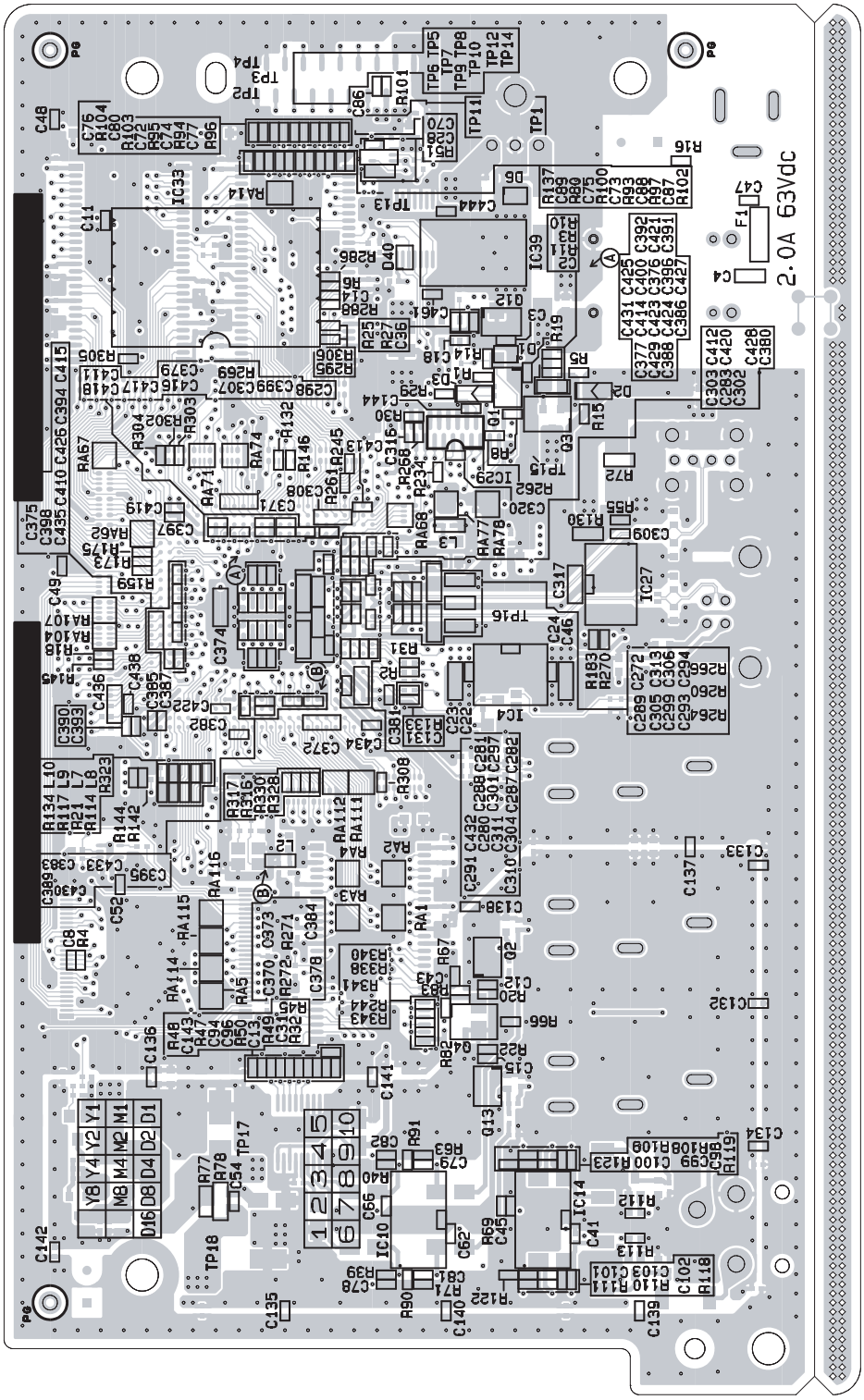
```
-|--------------------|-
 | Press [SAMPLE]     |
 | Erp Power Off      |
-|--------------------|-
```

Press **SAMPLE**, and verify that the power to the unit is switched off.

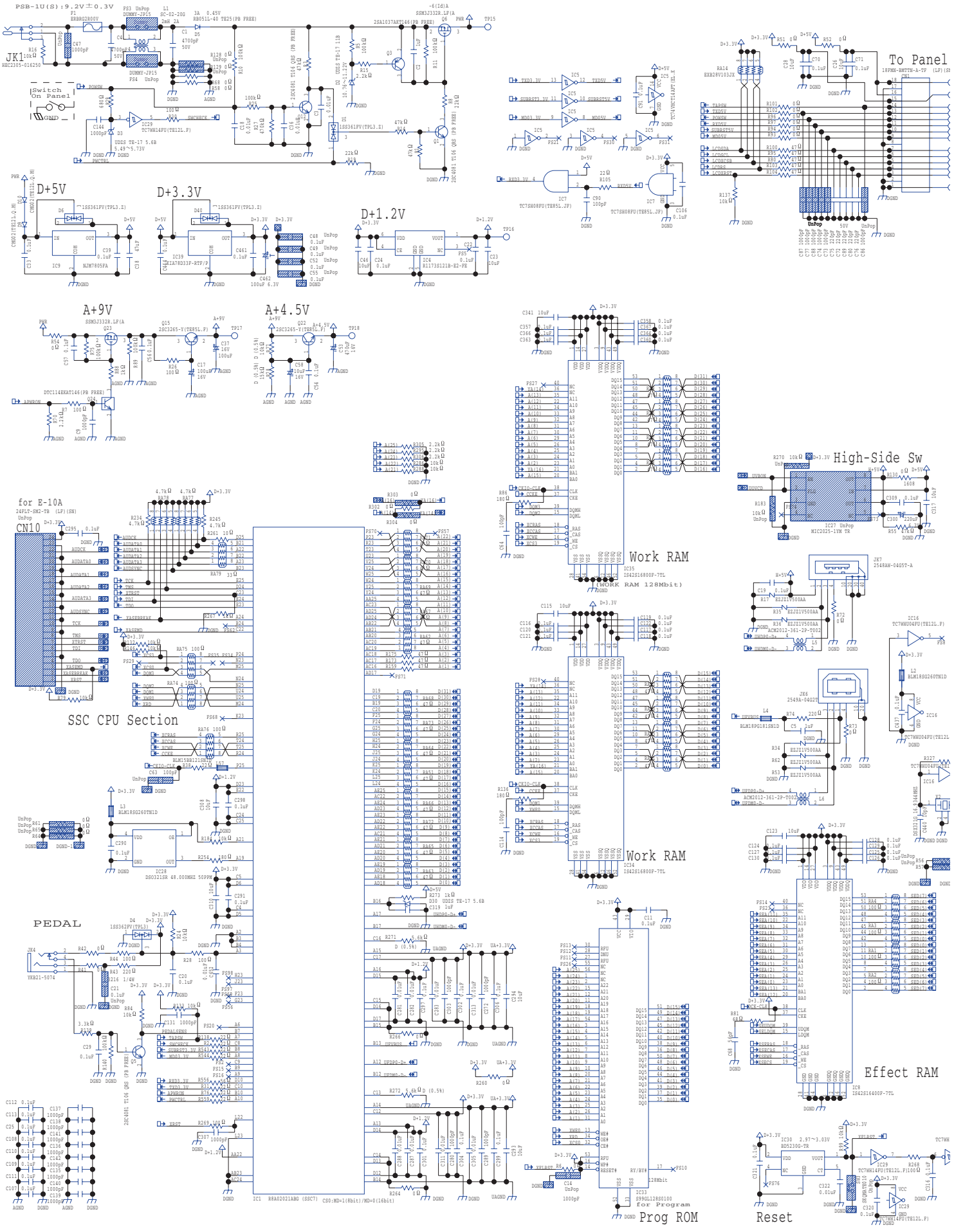
This ends the Test Mode.

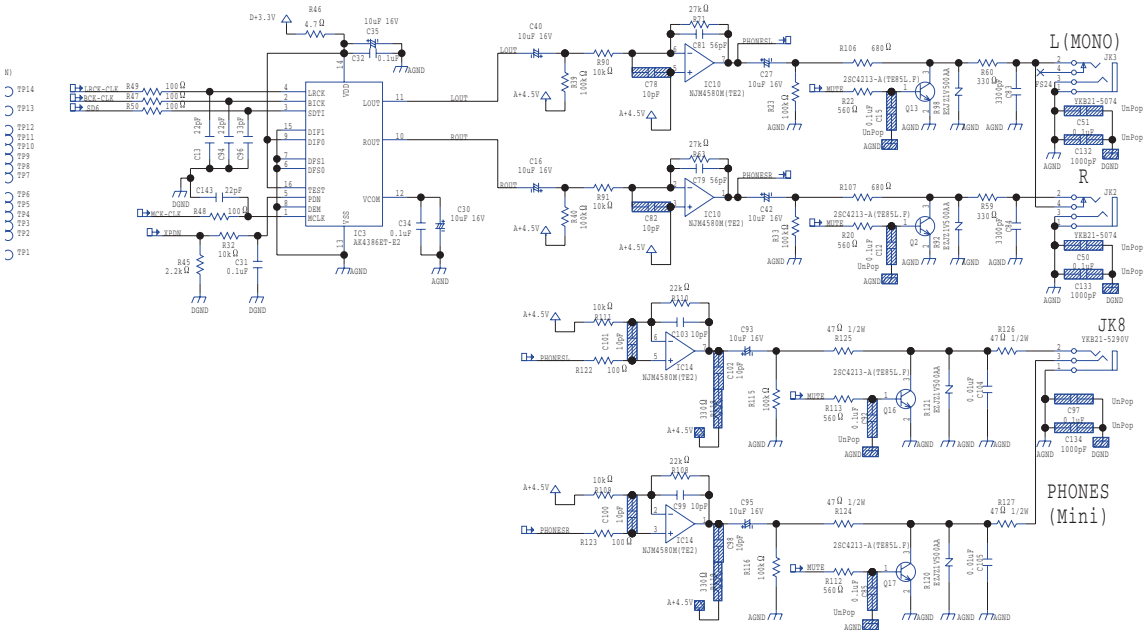
Circuit Board (Main Board)

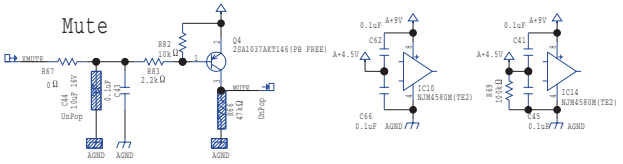


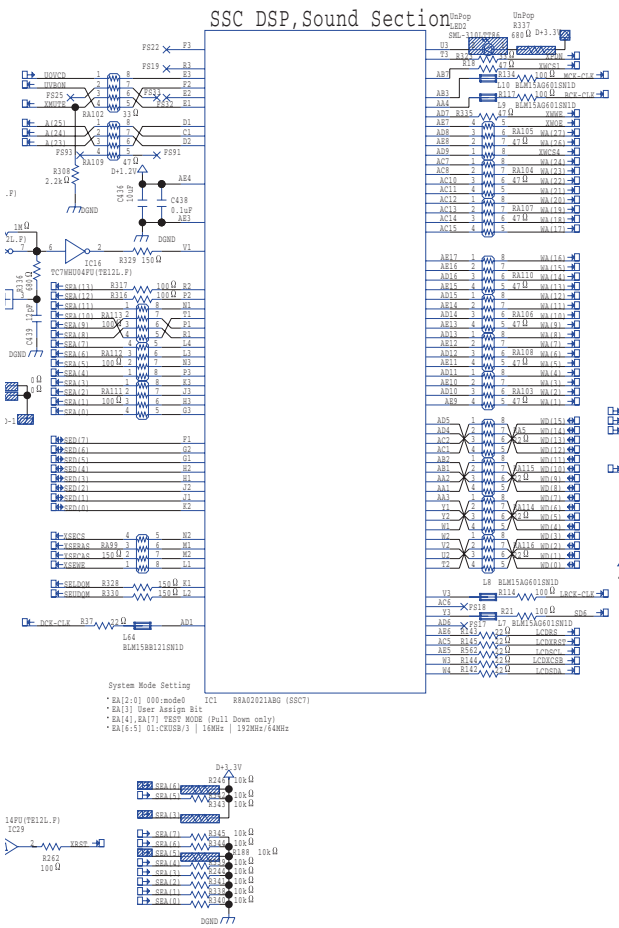

2.0A 63Vdc

Circuit Diagram (Main Board)

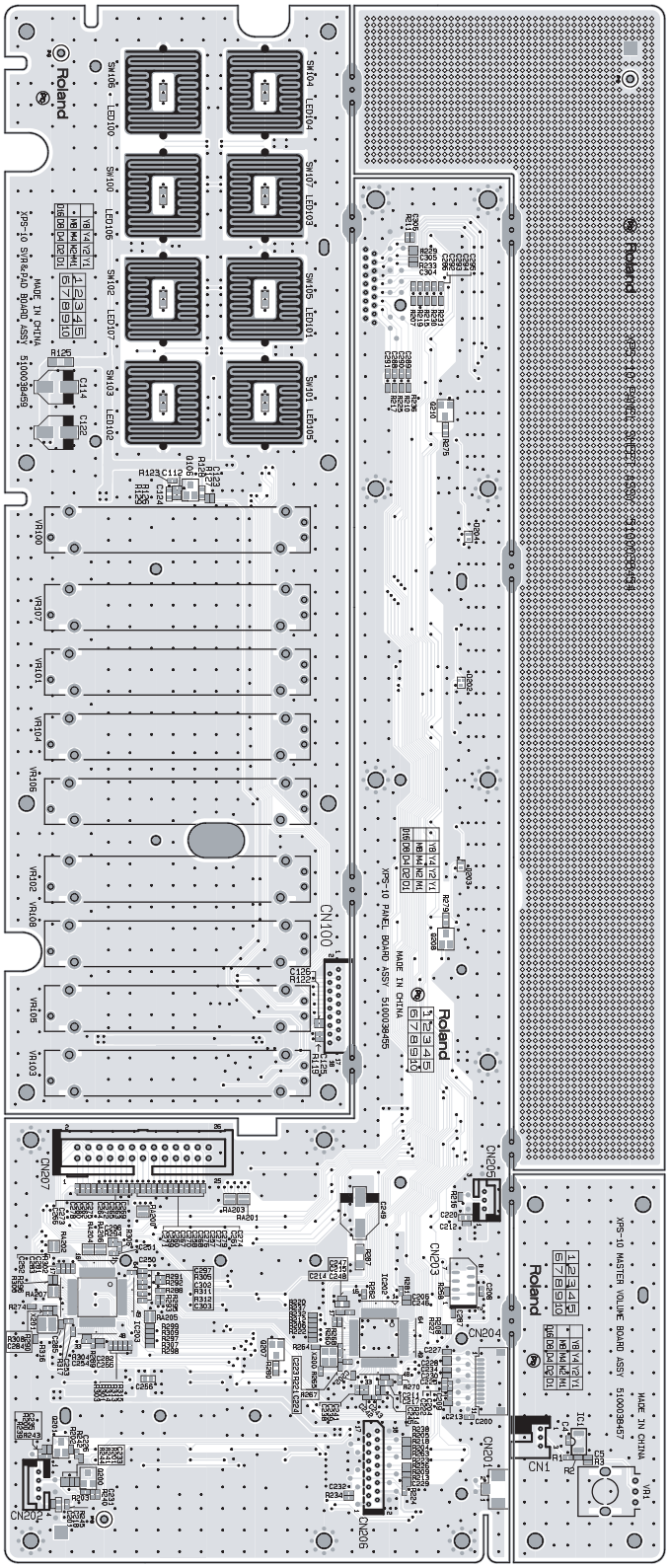


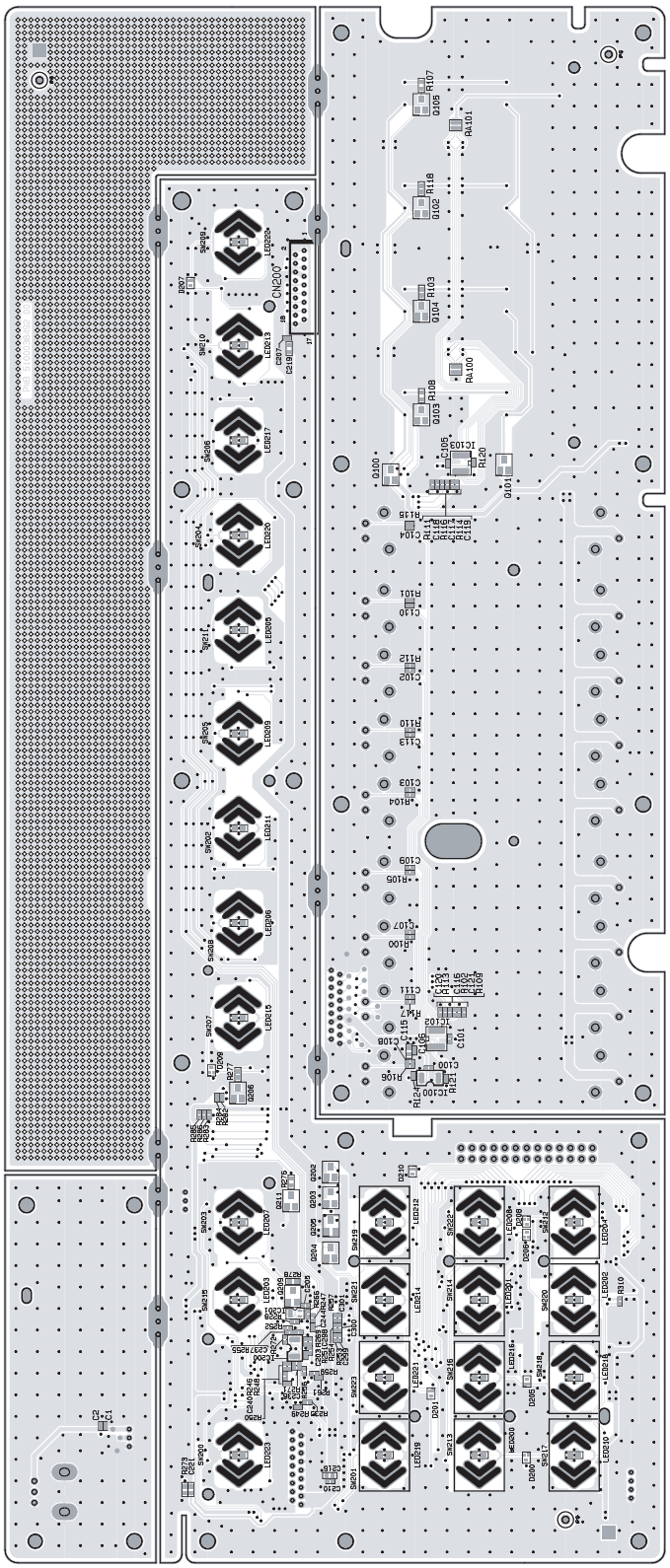

L(MONO)
R
JK8
PHONES
(Mini)


Mute

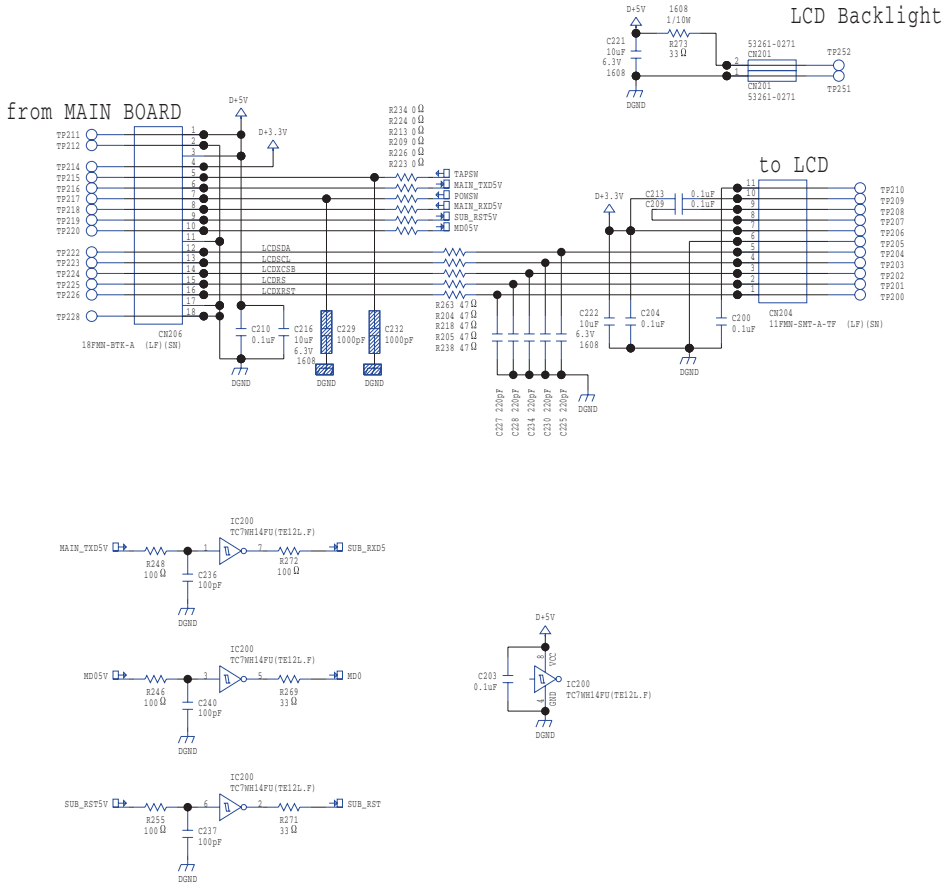

SSC DSP,Sound Section
Wave ROM
SSC
Power Section

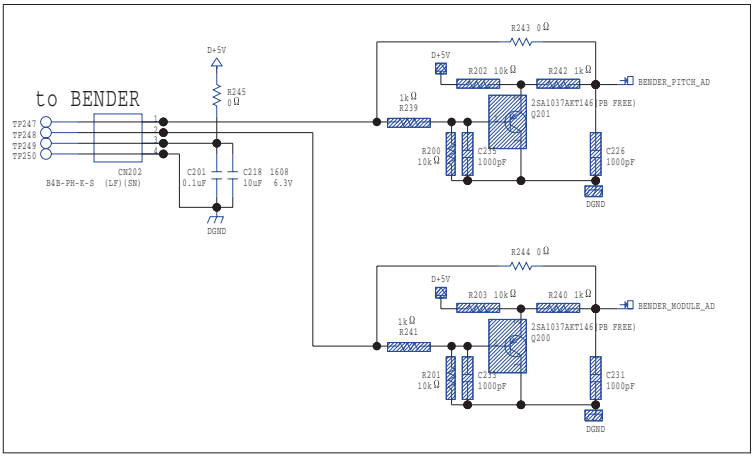
Circuit Board (Panel, SVR & Pad, Master Volume Board)

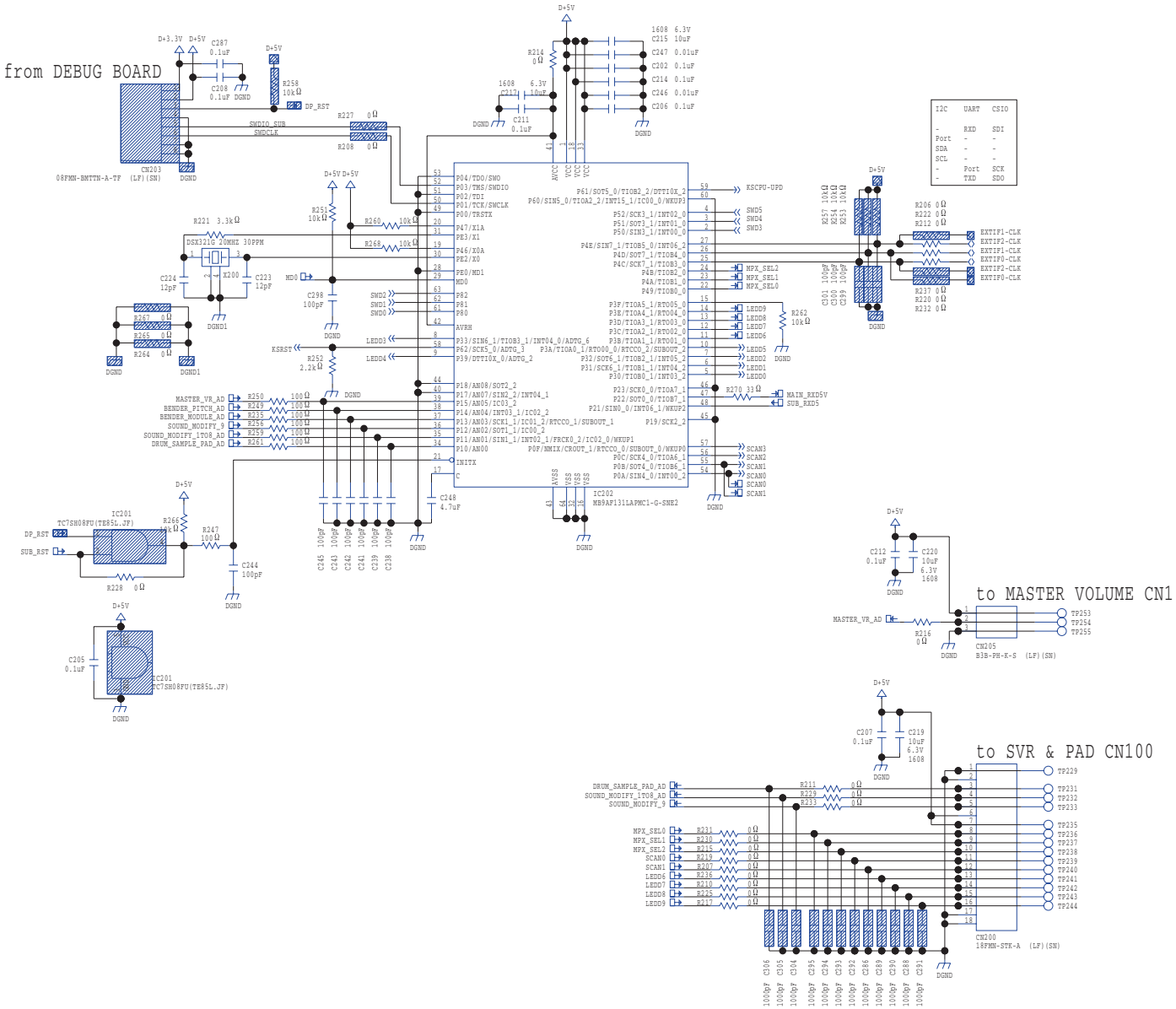




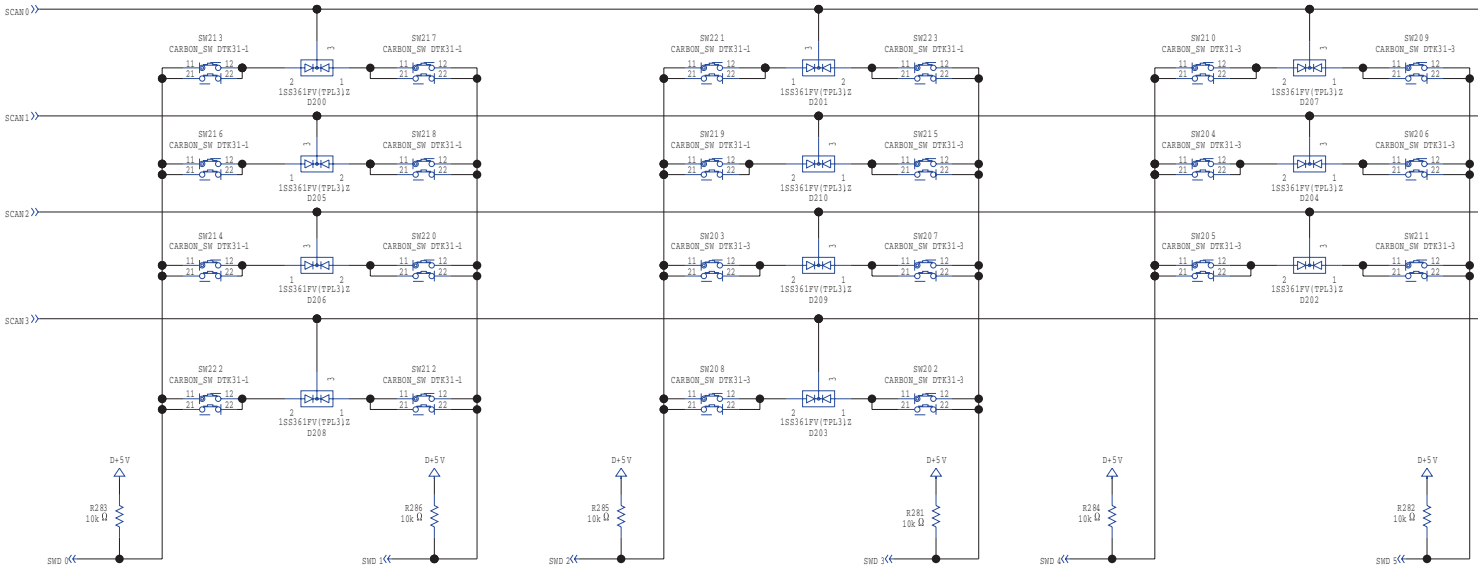
Circuit Diagram (Panel Board: 1/3)

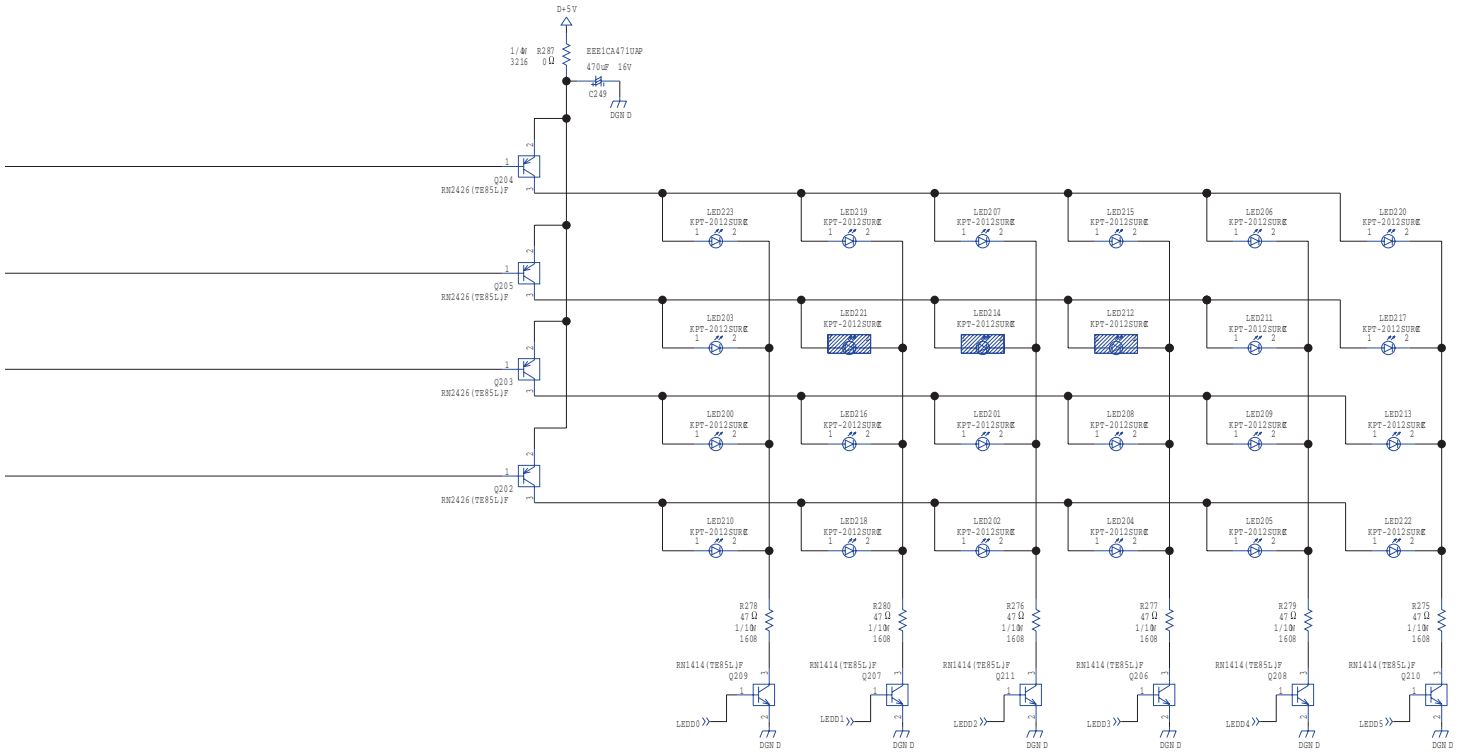





from DEBUG BOARD
to MASTER VOLUME CN1
to SVR & PAD CN100
I2C UART CSIO
- RXD SDI
Port - -
SDA - -
SCL - -
- Port SCK
- TXD SDO

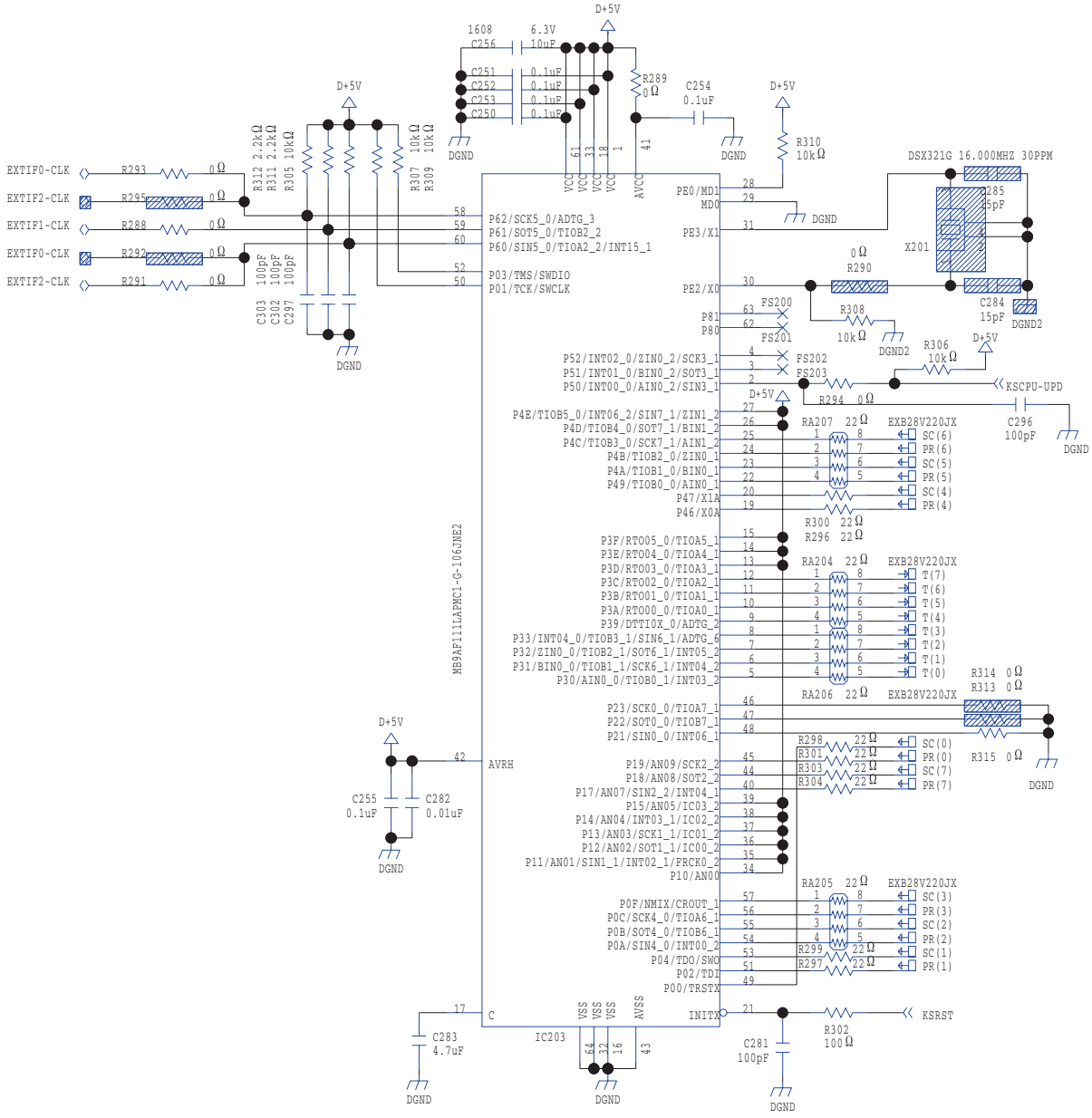
Circuit Diagram (Panel Board: 2/3)

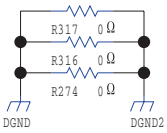


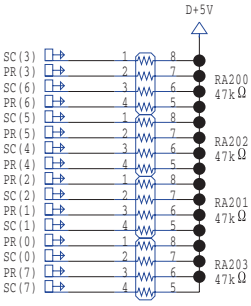

D+5V
1/4W R287 0Ω
3216
EEE1CA471UAP
470uF 16V
C249
DGN D
Q204
RN2426(TE85L)F
Q205
RN2426(TE85L)F
Q203
RN2426(TE85L)F
Q202
RN2426(TE85L)F
LED223 KPT-2012SURC
LED219 KPT-2012SURC
LED207 KPT-2012SURC
LED215 KPT-2012SURC
LED206 KPT-2012SURC
LED220 KPT-2012SURC
LED203 KPT-2012SURC
LED221 KPT-2012SURC
LED214 KPT-2012SURC
LED212 KPT-2012SURC
LED211 KPT-2012SURC
LED217 KPT-2012SURC
LED200 KPT-2012SURC
LED216 KPT-2012SURC
LED201 KPT-2012SURC
LED208 KPT-2012SURC
LED209 KPT-2012SURC
LED213 KPT-2012SURC
LED210 KPT-2012SURC
LED218 KPT-2012SURC
LED202 KPT-2012SURC
LED204 KPT-2012SURC
LED205 KPT-2012SURC
LED222 KPT-2012SURC
R278 47Ω 1/10W 1608
R280 47Ω 1/10W 1608
R276 47Ω 1/10W 1608
R277 47Ω 1/10W 1608
R279 47Ω 1/10W 1608
R275 47Ω 1/10W 1608
RN1414(TE85L)F Q209
RN1414(TE85L)F Q207
RN1414(TE85L)F Q211
RN1414(TE85L)F Q206
RN1414(TE85L)F Q208
RN1414(TE85L)F Q210
LEDD0
LEDD1
LEDD2
LEDD3
LEDD4
LEDD5
DGN D

Circuit Diagram (Panel Board: 3/3)

I2C	UART	CSIO
SCL	-	-
-	Port_0	SCK
SDA	TXD	SDO
-	RXD	SDI
Port_0	-	-

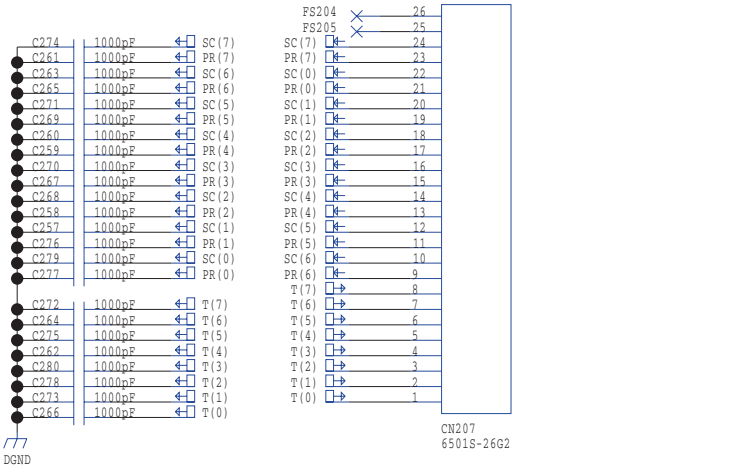




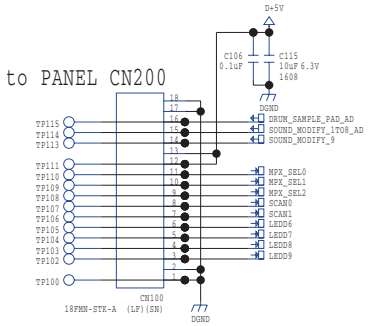


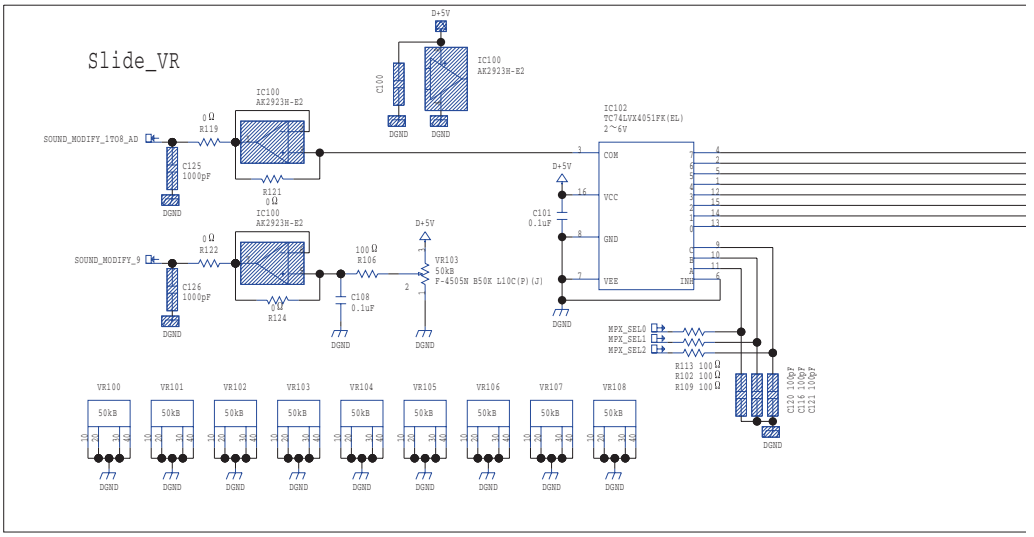
	P23	P22	P21	
PHA3/PX-7	H	H	H	
MSK-2	H	H	L	
UART BOOT	H	L	H	(for future use)
PHA3/PX-7	L	H	H	(stand alone)
MSK-2	L	H	L	(stand alone)

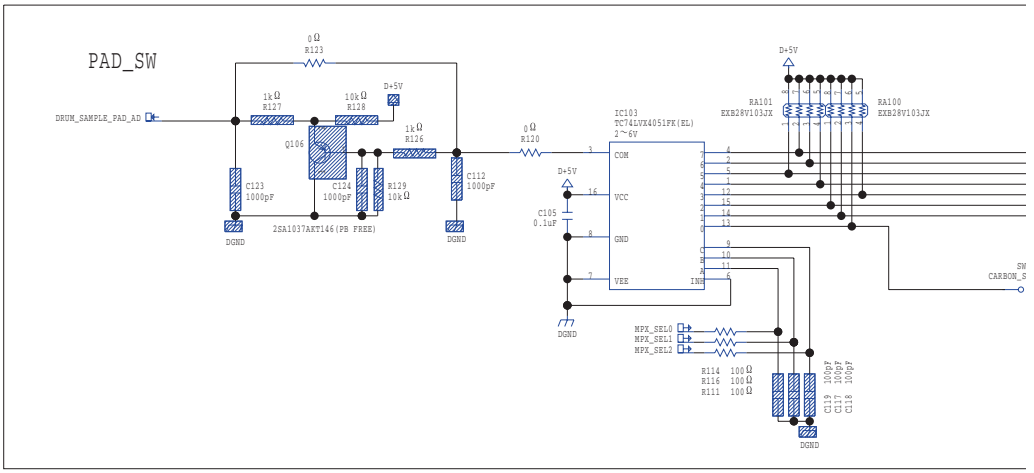
from Keyboard Unit

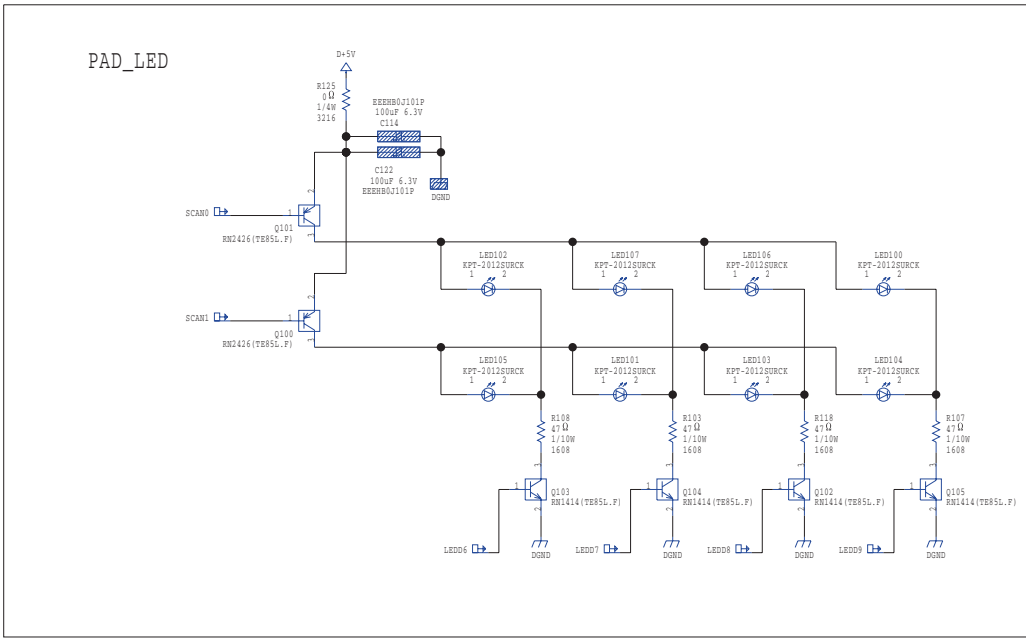


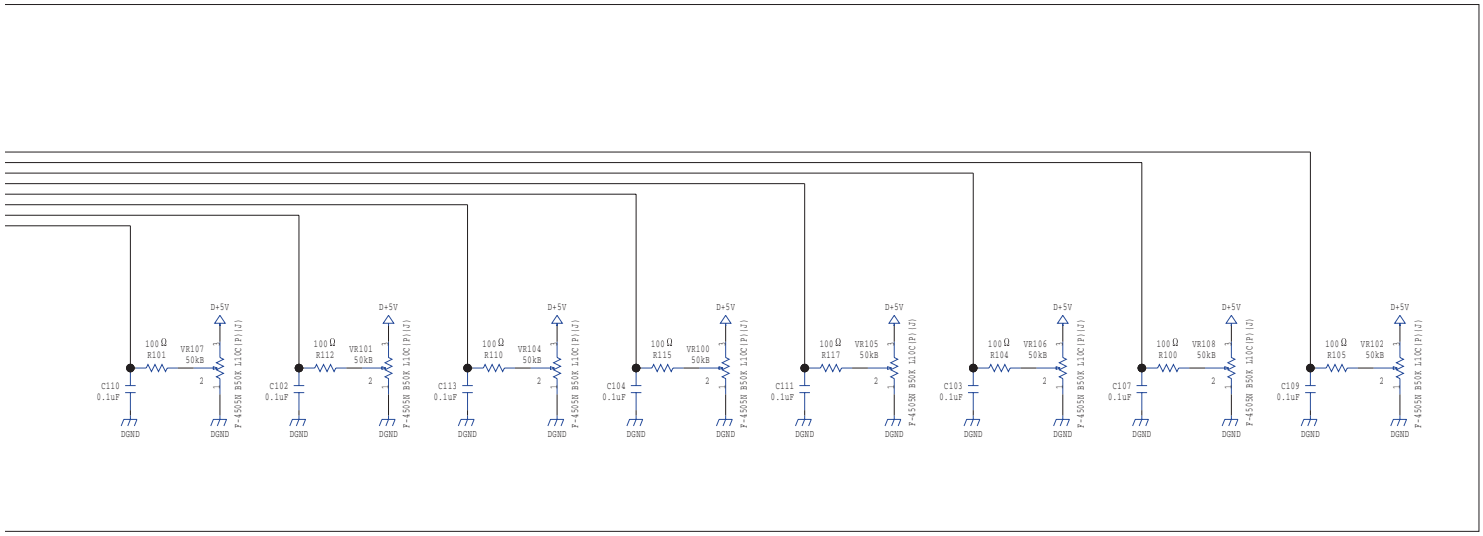
Circuit Diagram (SVR & Pad Board)

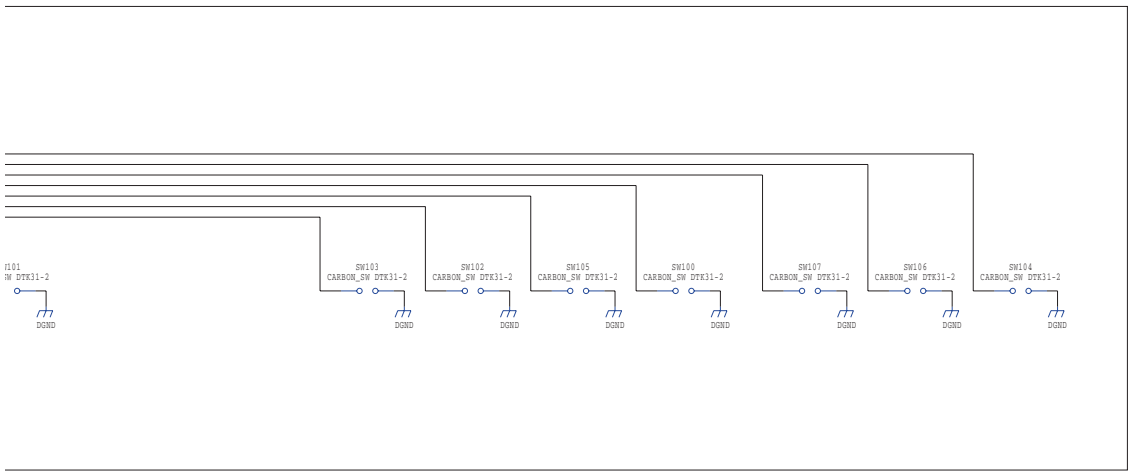









D+5V
100Ω
R101
VR107
50kB
C110
0.1uF
DGND
F-4505N B50K 11GC(P)(J)
100Ω
R112
VR101
50kB
C102
0.1uF
100Ω
R110
VR104
50kB
C113
0.1uF
100Ω
R115
VR100
50kB
C104
0.1uF
100Ω
R117
VR105
50kB
C111
0.1uF
100Ω
R104
VR106
50kB
C103
0.1uF
100Ω
R100
VR108
50kB
C107
0.1uF
100Ω
R105
VR102
50kB
C109
0.1uF


SW103
CARBON_SW DTK31-2
SW102
CARBON_SW DTK31-2
SW105
CARBON_SW DTK31-2
SW100
CARBON_SW DTK31-2
SW107
CARBON_SW DTK31-2
SW106
CARBON_SW DTK31-2
SW104
CARBON_SW DTK31-2
DGND

Circuit Diagram (Master Volume Board)