

24bit WAVE/MP3 RECORDER

SERVICE NOTES

Issued by RJA

R-09

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Roland

17058420E0

Printed in Japan (0400) (SC-KWS)

Specifications

Recorder Part

● Tracks

2 (stereo)

● Signal Processing

AD/DA conversion: 24 bits, 44.1/48 kHz

● Data Type

<For Recording> * Stereo only

Format MP3 (MPEG-1 audio layer 3)
Sampling Rate 44.1/48 kHz
Bit Rates 64/96/128/160/192/224/320 kbps

Format WAV
Sampling Rate 44.1/48 kHz
Bit Depth 16/24 bits

<For Playback>

Format MP3 (MPEG-1 audio layer 3)
Sampling Rate 32/44.1/48 kHz
Bit Rates 64/96/128/160/192/224/256/320 kbps or
VBR (Variable Bit Rate)

Format WAV
Sampling Rate 32/44.1/48 kHz
Bit Depth 16/24 bits

● Memory Card

SD Memory Card (supports 64 MB–2 GB)

Recording Time	unit: minutes				
Settings	64MB	128MB	512MB	1GB	2GB
WAV (16 bits/44.1 kHz)	5	11	44	88	180
WAV (16 bits/48 kHz)	5	10	40	81	166
WAV (24 bits/44.1 kHz)	3	7	29	59	120
WAV (24 bits/48 kHz)	3	7	27	54	110
MP3 128 kbps	62	126	490	980	1,993
MP3 224 kbps	35	72	280	560	1,139
MP3 320 kbps	25	50	196	392	797

* Each recording time is approximate. The times may change depending on the card specifications.

* In case that there are plural files, the sum of recording time would be shorter than above.

Input/Output

● Audio Inputs

Internal Stereo Microphone

Mic input (Stereo miniature phone type, plug-in powered mic)

Line input (Stereo miniature phone type)

* The Internal/External MIC and the LINE IN can't be used at the same time; only the LINE IN is effective.

● Audio Outputs

Phones (Stereo miniature phone type)

Digital Out Connector (Optical miniature phone type)

* Phones and Digital Out use a common jack.

● Nominal Input Level (Variable)

Mic Input: -36dBu (Default input level)

Line Input: 0dBu (Default input level)

● Input Impedance

Mic input: 20 k ohms

Line input: 17 k ohms

● Output Level

25 mW (In case 16 ohms load)

● Recommended Load Impedance

16 ohms or greater

● Frequency Response

20 Hz-22 kHz

● USB Interface

Mini-B type

* support USB 2.0/1.1 mass storage device class

Effects

● Playback Reverb

4 types (Hall 1, Hall 2, Room, Plate)

Others

● Display

128 x 64 dot graphic display

● Power Supply

AC Adaptor, Alkaline dry battery LR6 (AA) type x 2, or Nickel Hydrogen battery (HR15/51) x 2

● Current Draw

360 mA

● Dimensions

62.6 (W) x 102 (D) x 29.1 (H) mm

2-1/2 (W) x 4-1/16 (D) x 1-3/16 (H) inches

● Weight

145 g / 6 oz (including batteries and memory card.)

● Accessories

Owner's Manual English (#73233756)

AC Adaptor (#03679478)

AC Cord Set

For 117V U/CS: 120V 1.0M (NON POLAR) (#02562456)

For 230V E/EU: 230V 1.0M FOR PSB (#01903356)

EURO CONVERTER PLUG ECP01-5A (#00905234)

For 240V A: SC-078-NA05 240VA (#03785590)

SD Memory Card (64 M bytes) (#04232278)

USB cable (Mini-B type) (#03788289)

* 0 dBu = 0.775 V rms

* Expected AA alkaline life under continuous use:

Continuous playback: approximately 5.5 hours

Continuous recording: approximately 4 hours

(These figures will vary depending on the actual conditions of use.)

● Options

OP-R09C: Cover Stand Set for R-09



OP-R09M: Mic Stand Adaptor for R-09



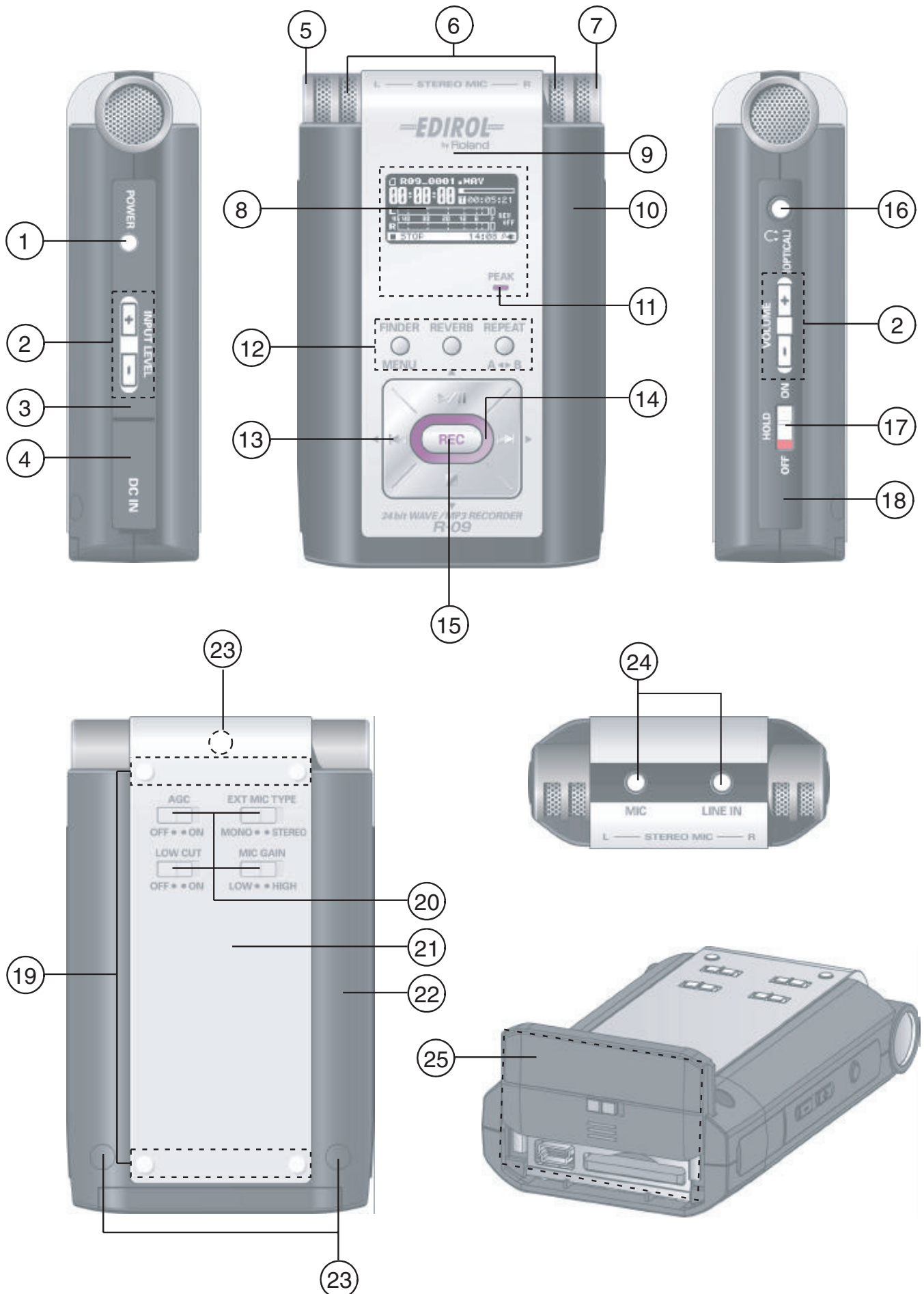
CB-R09S: Carrying Case for R-09



CS-15: Stereo Microphone



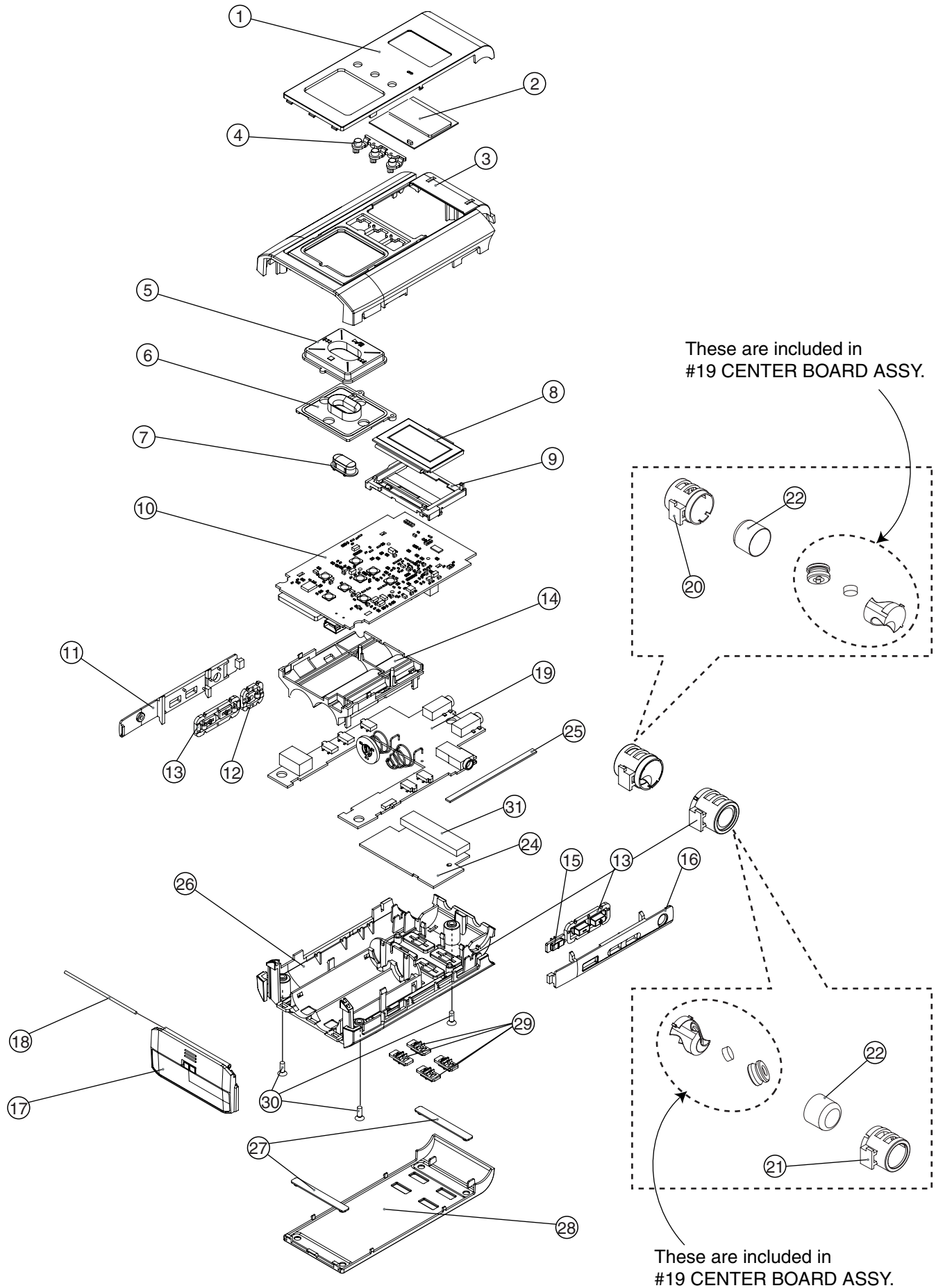
Location of Controls



Location of Controls Parts List

No	PART CODE	PART NAME1	DESCRIPTION1	Q'TY
1	04230367	KEYTOP	POWER	1
2	04230445	S-KEYTOP	SX2H PM	1
3	04230512	SIDE PANEL L		1
4	04128501	DC JACK	HEC3600-010510	1
5	04230467	MIC COVER L		1
6	04230456	MIC COVER A		2
7	04230478	MIC COVER R		1
8	04230389	DISPLAY COVER		1
9	04230567	TOP PANEL		1
10	04230556	TOP CASE		1
11	*****	LED (LED)	TLSU1002A(TO2)	1
		<i>* This part is included in #73129145 TOP BD ASSY.</i>		
12	04230423	C-KEYTOP	SX3H	1
13	04230434	KEYTOP	KEY CURSOR	1
14	04233190	RUBBER SHEET		1
		<i>* If the feel of button operations near [▶/] is poor, replace this part.</i>		
15	04230378	KEYTOP	REC	1
16	03348078	3.5MM JACK W/OPTICAL	GP1FD310TP0F	1
17	04233412	S-KNOB	BLK/RED	1
18	04230523	SIDE PANEL R		1
19	04233245	FOOT		2
20	04230545	S-KNOB	SLV	4
21	04230356	BOTTOM PANEL		1
22	04230334	BOTTOM CASE		1
23	40344167	SCREW 2X6	BINDING P-TITE FE BZC	3
24	04129312	3.5MM JACK	LGY2209-0101FC	2
25	73238667	BATTERY CVR-TMNL PM ASSY		1

Exploded View



Exploded View Parts List

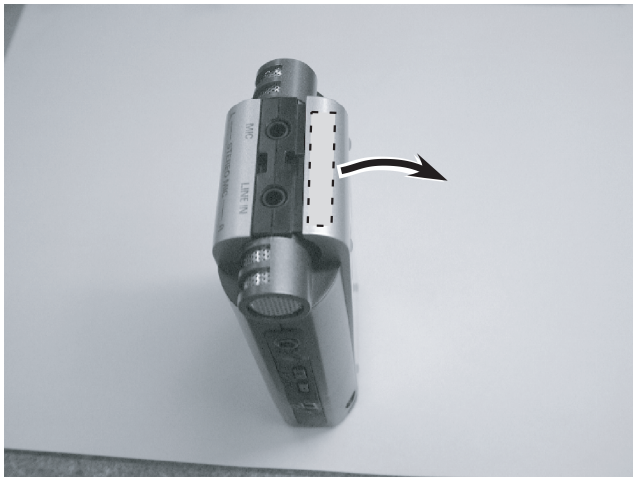
No	PART CODE	PART NAME	DESCRIPTION1	Q'TY
1	04230567	TOP PANEL		1
2	04230389	DISPLAY COVER		1
3	04230556	TOP CASE		1
4	04230423	C-KEYTOP	SX3H	1
5	04230434	KEYTOP	KEY CURSOR	1
6	04233190	RUBBER SHEET		1
		<i>* If the feel of button operations near [▶/] is poor, replace this part.</i>		
7	04230378	KEYTOP	REC	1
10	73129145	TOP BD ASSY		1
		<i>* This unit includes the following parts.</i>		
8	*****	DISPLAY	LCD E-55028WHJ-AAN	1
9	*****	DISPLAY HOLDER		1
11	04230512	SIDE PANEL L		1
12	04230367	KEYTOP	POWER	1
13	04230445	S-KEYTOP	SX2H PM	2
14	04230290	BATTERY HOLDER		1
15	04233412	S-KNOB	BLK/RED	1
16	04230523	SIDE PANEL R		1
17	73238667	BATTERY CVR-TMNL PM ASSY		1
18	04230501	BATTERY COVER SHAFT		1
19	73233989	CENTER BOARD ASSY		1
20	04230467	MIC COVER L		1
21	04230478	MIC COVER R		1
22	04230456	MIC COVER A		2
24	73233990	BOTTOM BOARD ASSY		1
25	04236501	WIRING	20624 SFWR-P=0.5-K1-6-50	1
26	04230334	BOTTOM CASE	connects #24 Bottom BD to #19 Center BD	1
27	04233245	FOOT		2
28	04230356	BOTTOM PANEL		1
29	04230545	S-KNOB	SLV	4
30	40344167	SCREW 2X6	BINDING P-TITE FE BZC	3
31	04450878	BOTTOM CUSHION		1
		<i>* This part has been added from serial number "A**3000."</i>		

Disassembly Procedure

Detaching the BOTTOM PANEL

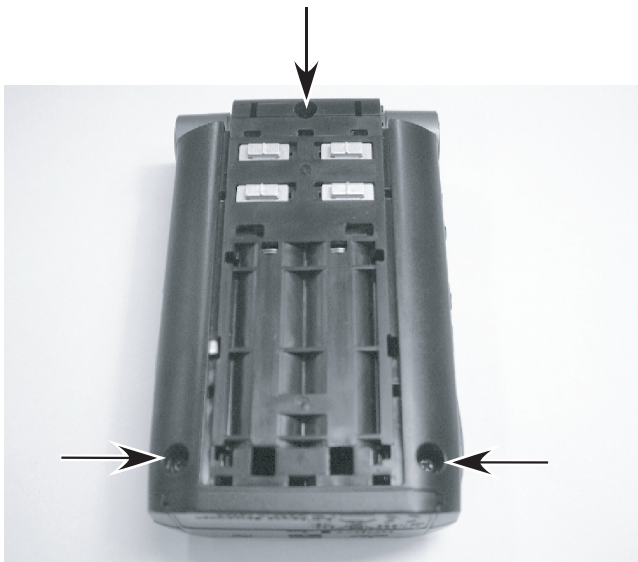
1. The bottom panel is secured in place with double-sided tape at the location shown by dotted lines in the figure. Peel off carefully in the direction of the arrow.

* The bottom panel may deform or crack. In such cases, placing a part order for a bottom panel is required.

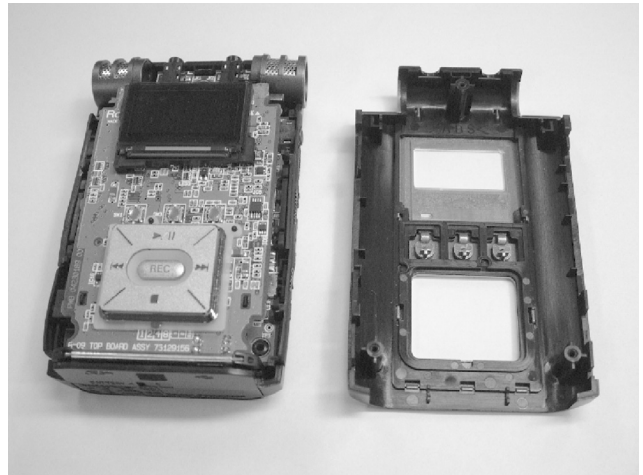


Detaching the TOP CASE and BOTTOM CASE

2. Remove the screws at the three locations shown in the figure.

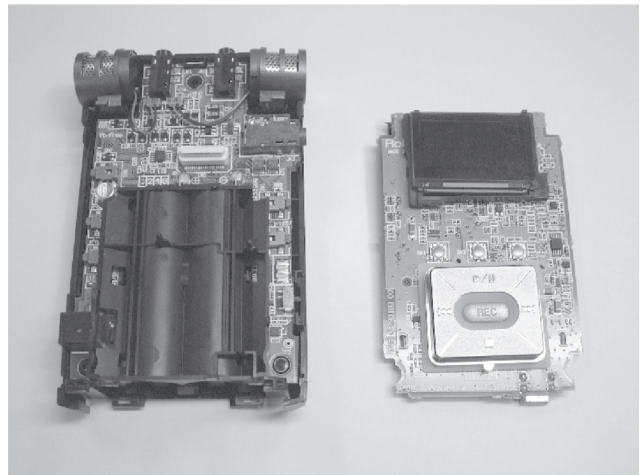


3. Place so that the top panel is at the top, then lift up the top case to remove.



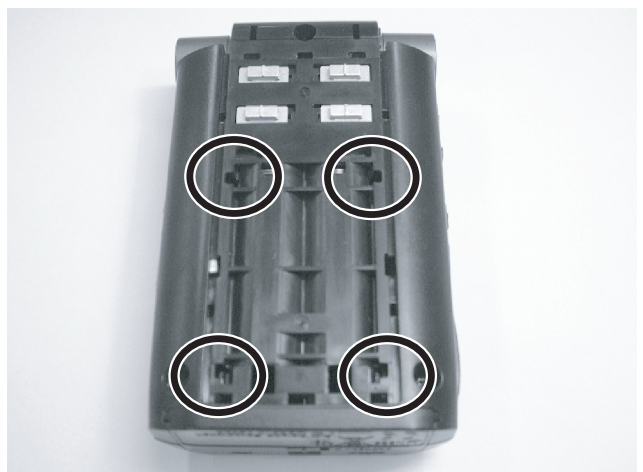
Detaching the TOP BOARD

4. Because this is secured in place by a circuit board to circuit board connector, grasp and remove the top board without applying twisting force to the connector.

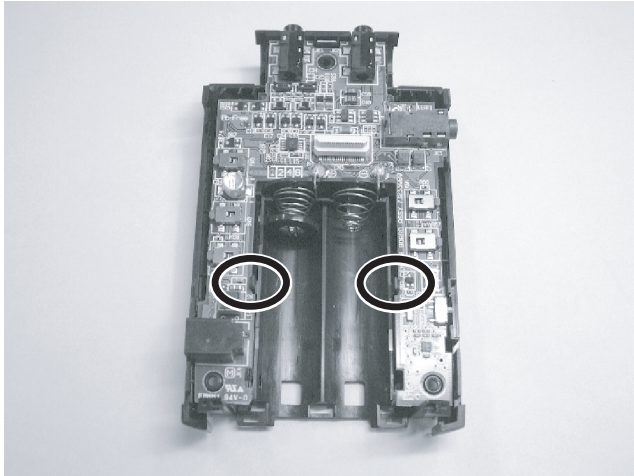


Detaching the CENTER BOARD and BOTTOM BOARD

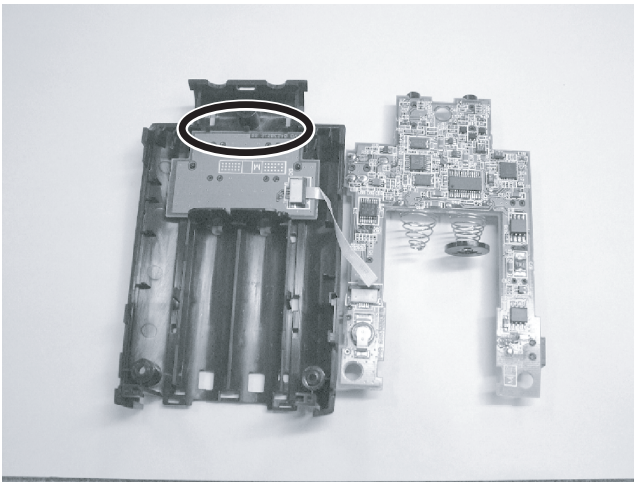
5. Turn upside-down, use tweezers or the like to flip up the lock tabs at the circled areas, then remove the BATTERY HOLDER while disengaging the locks.



6. Flip up the tabs in the circled areas and remove the CENTER BOARD.



7. For the BOTTOM BOARD as well, remove while flipping up the tabs holding the BOTTOM BOARD in place.



Parts List

CASING					
#	73238667	BATTERY CVR-TMNL PM ASSY			1
#	04230356	BOTTOM PANEL			1
#	04230512	SIDE PANEL L			1
#	04230523	SIDE PANEL R			1
#	04230567	TOP PANEL			1
#	04230501	BATTERY COVER SHAFT			1
#	04230389	DISPLAY COVER			1
#	04230456	MIC COVER A			2
#	04230467	MIC COVER L			1
#	04230478	MIC COVER R			1
#	04230334	BOTTOM CASE			1
#	04230556	TOP CASE			1
CHASSIS					
#	04230290	BATTERY HOLDER			1
KNOB, BUTTON					
#	04233412	S-KNOB	BLK/RED		1
#	04230545	S-KNOB	SLV		4
#	04230367	KEYTOP	POWER		1
#	04230423	C-KEYTOP	SX3H		1
#	04230434	KEYTOP	KEY CURSOR		1
#	04230378	KEYTOP	REC		1
#	04230445	S-KEYTOP	SX2H PM		2
JACK, EXT TERMINAL					
#	04128501	DC JACK	HEC3600-010510	on CENTER BOARD	1
#	04129312	3.5MM JACK	LGY2209-0101FC	on CENTER BOARD	2
	03348078	3.5MM JACK W/OPTICAL	GP1FD310TP	on CENTER BOARD	1
PWB ASSY					
#	73233990	BOTTOM BOARD ASSY			1
#	73129145	TOP BD ASSY			1
#	73233989	CENTER BOARD ASSY			1
		<i>* This unit includes the following parts.</i>			
#	04128501	DC JACK	HEC3600-010510		1
#	04129312	3.5MM JACK	LGY2209-0101FC		2
	03348078	3.5MM JACK W/OPTICAL	GP1FD310TP		1
#	04233189	TERMINAL COVER			1
#	04230301	BATTERY TERMINAL M			1
#	04230312	BATTERY TERMINAL P			1
WIRING, CABLE					
#	04236501	WIRING	20624 SFWR-P=0.5-K1-6-50	connects Bottom BD to Center BD	1
SCREWS					
	40344167	SCREW 2X6	BINDING P-TITE FE BZC		3
PACKING					
#	04233901	PACKING PAD	LOWER		
#	04230278	PACKING PAD	UPPER		1
#	04230267	PACKING CASE	JAPANESE		1
#	04233345	PACKING CASE	ENGLISH		1
MISCELLANEOUS					
#	04233190	RUBBER SHEET			1
		<i>* If the feel of button operations near [▶/■] is poor, replace this part.</i>			
#	04233245	FOOT			2
#	04233189	TERMINAL COVER		on CENTER BOARD	1
#	04230301	BATTERY TERMINAL M		on CENTER BOARD	1
#	04230312	BATTERY TERMINAL P		on CENTER BOARD	1
#	40674989	DOUBLE FACED TAPE	#500 W5MM X L30MM		-
#	04450878	BOTTOM CUSHION			1
		<i>* This part has been added from serial number "A**3000."</i>			

ACCESSORIES (Standard)

	03788289	USB CABLE	MINI-B U4A5B-100S 1.0M		1
#	04232278	IC CARD	RP-SD064BRL0		1
#	73129090	OWNER'S MANUAL	JAPANESE		1
	40232334	WARRANTY CARD	MOCHIKOMI JAPAN ONLY		1
#	73233756	OWNER'S MANUAL	ENGLISH		1
	03679478	AC ADAPTOR	PSB-6U (WITHOUT AC CORD)		1
	01903334	AC CORD SET	100V 1.0M FOR PSB-1U	For 100V	1
	02562456	AC CORD SET	120V 1.0M (NON POLAR)	For 117V U, 117V CS	1
	01903356	AC CORD SET	230V 1.0M FOR PSB	For 230V E, 230V EU	1
	00905234	EURO CONVERTER PLUG	ECP01-5A	For 230V E, 230V EU	1
	03785590	AC CORD SET	SC-078-NA05 240VA	For 240V A	1

Checking the Version Number

1. Turn off the power to the R-09.
2. While holding down the [■] button, turn on the power.
3. A screen like the one shown below appears, enabling you to verify the versions of the programs.

```

Version
Program: Ver 1.03
BUILD 0021
DATE 2006/05/10 13:08
Booter: Ver 1.03
Updater: Ver 1.03
Exit, Push [FINDER]
  
```

Program: Version of the main program

Booter: Version of the bootup program

Updater: Version of the updater program

4. Press the [FINDER/MENU] button to return to the MENU screen.

Factory Reset Instructions

Factory Reset restores to their factory defaults any parameter values changed via the setup menu, as well as the input and output level setting values.

1. Turn on the power to the R-09.
2. Press the [FINDER/MENU] button for a while until the MENU screen appears.
3. Move the cursor to "8 Factory Reset," then press the [REC] button. The Factory Reset screen appears.

```

Factory Reset
Factory Reset,
Push [REC]
  
```

4. Press the [REC] button to execute the Factory Reset, or press the [FINDER/MENU] button to cancel it.
5. "Are you sure ?" is displayed. Select "Yes" to execute or "No" not to execute, then press the [REC] button.

```

Factory Reset
Are you sure ?
No Yes
SELECT & PUSH [REC]
  
```

When the Factory Reset finishes, the Menu screen automatically returns.

Note for User Data

Parameter values set via the Menu screen and input and output level setting values are saved in memory when the power is switched off, but they cannot be saved in a file or extracted as user data.

System Software Updating Instructions

Copy the system-update files on the UPDATE CD-ROM to an SD card inserted into the R-09, then update the system.

Items Required

- An SD card (blank)
- PC equipped with an USB connector
- The USB cable attached with R-09
- AC adaptor
- UPDATE CD-ROM (#17041866)

Creating an update SD card

To create an update-use SD card, you first format the SD card. Formatting is performed on the R-09.

1. Turn on the power to the RC-09.
2. Press the [FINDER/MENU] button for a while until the MENU screen appears.
3. Move the cursor to "7 SD Card," then press the [REC] button.
4. Move the cursor to "2 Format," then press the [REC] button.

```

SD Card SELECT
1 Information
^ 2 Format
  
```

5. "Are you sure ?" is displayed. Select "Yes" to execute formatting.

```

Format SD Card
Are you sure ?
No Yes
SELECT & PUSH [REC]
  
```

6. When formatting has finished, press the [FINDER/MENU] button several times to return to the basic screen.

This completes formatting of the SD card. Next, copy the system-update file.

7. Connect the PC to the R-09 with the USB cable.
8. Display the SD card for the R-09 on the PC's screen, then copy the system-update file to the root directory of the SD card.

NOTE

Four types of system-update files are available.

- DMZ15.UPD:** Update for all blocks
- DMZ15_BOT.UPD:** Update for the Boot block
- DMZ15_UPD.UPD:** Update for the Updater block
- DMZ15_PRG.UPD:** Update for the Main Program block

9. When copying is finished, refer to the R-09 Owner's Manual and follow the instructions in "Disconnecting the PC" (p. 59) to disconnect the R-09 from the PC.
10. Turn off the power to the R-09.

System Update Procedure

NOTE

When performing a system update, be sure to use the AC adaptor. If this is attempted using battery power, a low battery during the procedure may cause the update to fail and cause the unit not to operate correctly.

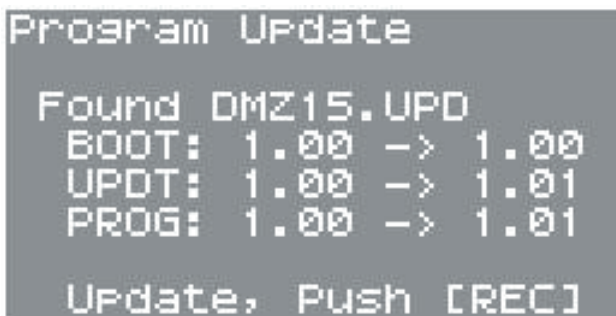
NOTE

Never disconnect the AC adaptor while the update is in progress. Doing so may corrupt the system and cause the unit to fail to operate correctly.

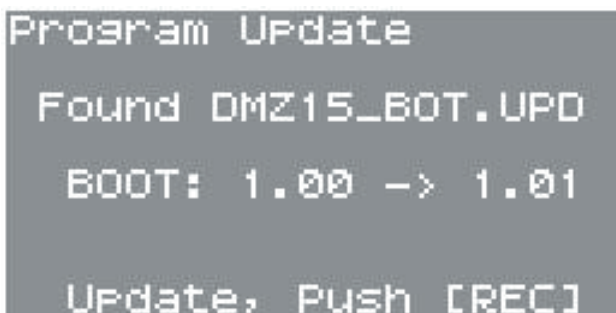
1. Turn off the power to the R-09.
2. Using the update-use SD card created according to the procedure described in the section of "Creating an update SD card," insert the update-use SD card into the card slot in the R-09.
3. While holding down the [REC] button, turn on the power. When a valid update-use file is found on the SD card, the **Program Update** screen like the one shown below appears.

* The screen that is displayed differs according to the type of update-use file.

DMZ15.UPD (update for all blocks)



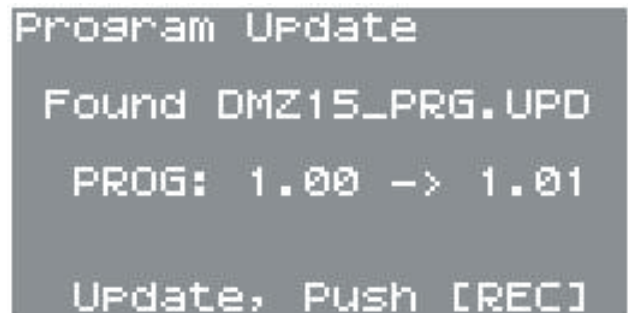
DMZ15_BOT.UPD (update for the Boot block only)



DMZ15_UPD.UPD (update for the Updater block only)



DMZ15_PRG.UPD (update for the Main Program block only)



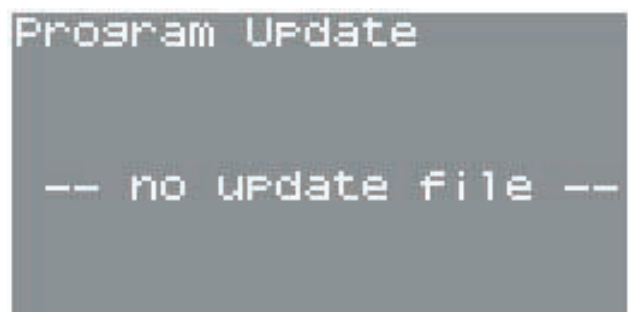
NOTE

If no SD card is inserted, a screen like the one below appears.



NOTE

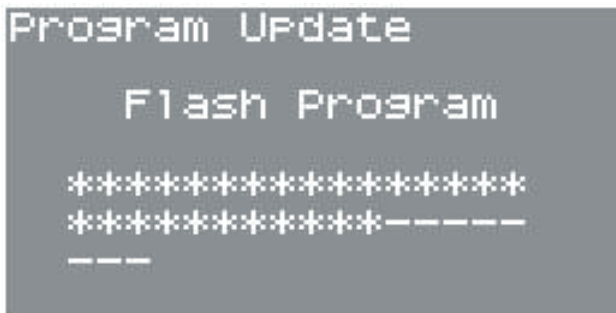
If no valid update-use file exists on the SD card, a screen like the one below appears.



- Pressing the [REC] button starts the update.
When the update starts, the **PEAK** LED and **REC** LED flash in alternation and the contents of the flash ROM are erased.

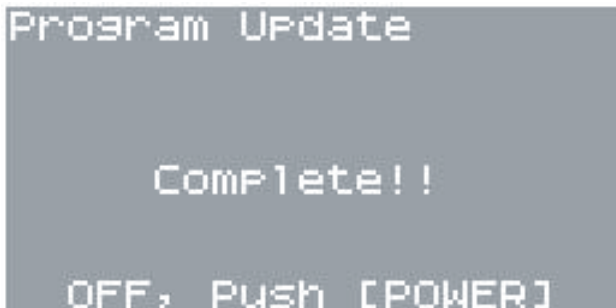


Next, the update file is written.



NOTE

Be very sure never to disconnect the AC adaptor while the operation is in progress. When the update finishes, a screen like the one shown below appears.



- Switch off the power to finish the system-update operation.

Corrective Action if the System Update Fails

If a problem occurs during the update, the **REC** LED flashes and a message appears on the screen.



<< Unsuccessful erasing of the flash ROM >>



<< Unsuccessful writing to the flash ROM >>

If one of these errors occurs, take corrective action as described below.

Of the four types of updates, if one of the errors just described occurs during the procedure for **DMZ15_PRG.UPD** (updating the Main Program block), then disconnect the AC adaptor and redo the update operation.

DMZ15.UPD (for updating all blocks)

DMZ15_BOT.UPD (for updating the Boot block)

DMZ15_UPD.UPD (for updating the Updater block)

If the error occurred during the procedure for one of these, disconnect the AC adaptor and replace the TOP BOARD ASSY (#73129156).

Test Mode

Items Required

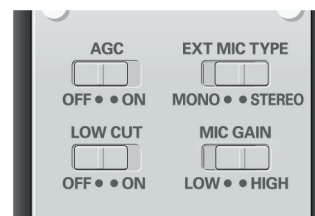
- An SD card (formatted on R-09)
- AC adaptor
- Headphones
- Plug-in power mic
- PC equipped with a USB connector
- Audio equipment or oscillator
- Digital optical cable (plug type: mini <-> square)
- Monitor speaker equipped with digital input (e.g. EDIROL MA-10D)

NOTE

When executing Test mode, be sure to use the AC adaptor.

Entering Test Mode

- Turn off the power to the R-09.
- Set the switches on the back of the unit as shown in the figure below.



- While holding down the [FINDER/MENU] button and the [REPEAT] button at the same time, turn on the power.

Exiting Test Mode

1. While in Test mode, hold down the [FINDER/MENU] button and press the [▶▶] button several times to move to "12. Factory Reset."
The next screen appears.



2. Press the [REC] button to execute Factory Reset.



When processing finishes, the screen automatically changes. If an SD card is inserted, a screen like the one shown below appears.



3. Eject the SD card, and when a screen like the one shown below appears, switch off the power.



When the power is off and the screen has gone completely blank, disconnect the AC adaptor.

Skipping test items

To move among the test items, use the [◀◀] and [▶▶] buttons. If you want to proceed to the next without executing tests for any items, hold down the [FINDER/MENU] button and use the [◀◀] and [▶▶] buttons to make the selection.

Test Items

In Test mode, you perform testing for the following items.

1. Checking Version
2. Device Test
3. Analog (External Mic) Test
4. Analog (LINE) Test
5. Recording and Playing
6. Switch/LED Test
7. Display Test
8. USB Test
9. Digital Out Test
10. Analog (Internal Mic) Test
11. Noise Test
12. Factory Reset

1. Checking Version

Entering Test mode displays the version-confirmation screen.



Prog: Program version and relevant information

Boot: Bootup program version

Updt: Update program version

After verifying the version, use the [▶▶] button to advance to the next item.

2. Device Test

Entering this item automatically starts testing of each device.

```

Test Mode
02.Device
Flash:-- SDRAM:--
RTC Clock : --
M66592   : --
SD Card <No Card>
  
```

Insert a formatted SD card into the card slot. On insertion, checking is resumed, and operation automatically advances to the next item unless a problem is found.

```

Test Mode
03.Analog(E-Mic)
c. [OK] Device Test OK c
EXT MIC -X-> OUT
  
```

NOTE

Test descriptions

- Flash:** This verifies the checksum of the flash-ROM program area.
- SDRAM:** This checks read/write access to the SDRAM.
- RTC Clock:** This checks whether the oscillator for the internal clock is oscillating correctly.
- M66592:** This checks read/write access to the registers for the M66592 USB controller.
- SD Card:** This checks write to the SD card.
(After the check is completed, the content written to the SD card by the test is erased.)

NOTE

If a test fails, "NG" is displayed for the corresponding item.

```

Test Mode
02.Device
Flash:NG SDRAM:OK
RTC Clock : OK
M66592   : OK
SD Card   : OK
  
```

3. Analog (External Mic) Test

This checks the throughput of input from the external microphone jack to output.

Make the connection to the external microphone input jack (**MIC**).

Microphone input is impossible when nothing is connected or when the connection is made to the line input jack (**LINE IN**). In such cases, a screen like the one shown below is displayed.

```

Test Mode
03.Analog(E-Mic)
Connect with E-MIC
EXT MIC -X-> OUT
  
```

<<Connect an external microphone. >>

```

Test Mode
03.Analog(E-Mic)
Disconnect Line
EXT MIC -X-> OUT
  
```

<< Disconnect the device connected to the line input jack (**LINE IN**). >>

When the correct connection is made, a screen like the one shown below appears.

```

Test Mode
03.Analog(E-Mic)
Please check
EXT MIC ---> OUT
  
```

Connect headphones and check the audio input from the microphone. After verifying, use the [▶▶] button to advance to the next item.

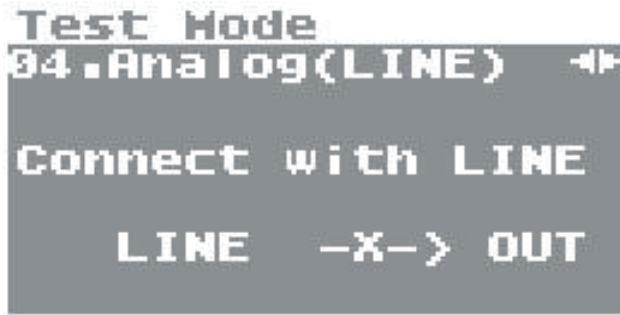
NOTE

At this time, input gain adjustment (the **INPUT LEVEL** button) and output volume-level adjustment (the **VOLUME** button) do not function. If the volume level of the sound heard through the headphones is too low, make sure the **MIC GAIN** switch on the back of the unit is set to **HIGH**.

4. Analog (LINE) Test

This checks the throughput of input from the line input jack (**LINE IN**) to output.

Entering this item displays a screen like the one shown below.



Connect the output from an audio device or an oscillator to the line input jack (**LINE IN**). When the connection is made, a screen like the one shown below is displayed.



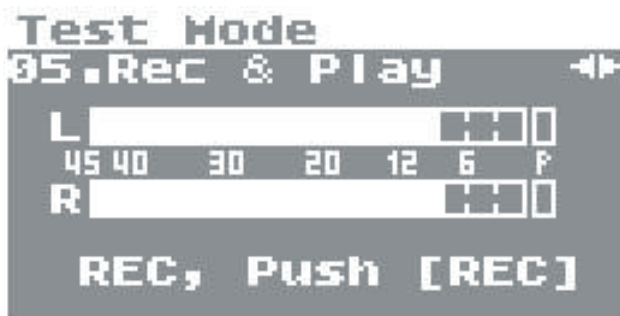
Check the audio input with headphones. After verifying, use the [▶▶] button to advance to the next item.

NOTE

At this time, input gain adjustment (the **INPUT LEVEL** button) and output volume-level adjustment (the **VOLUME** button) do not function. Adjust the volume level of the audio device (or oscillator) so as not to damage your hearing.

5. Recording and Playing

Entering this item displays a screen like the one shown below.



If an SD card is not inserted, or if the SD card is locked, a screen like the one shown below appears.



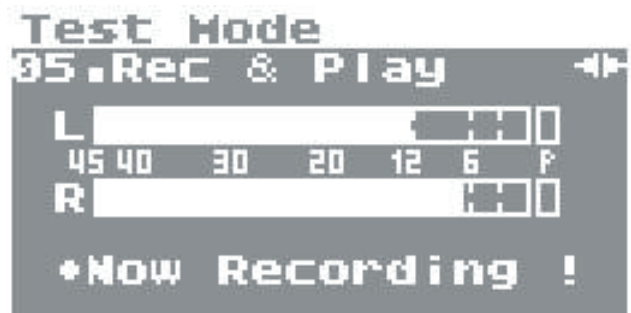
<< No card is inserted. >>



<< The card is locked. Undo the lock switch on the SD card and reinsert the card. >>

Next, carry out the test with the output of the audio device or oscillator connected to the line input jack (**LINE IN**).

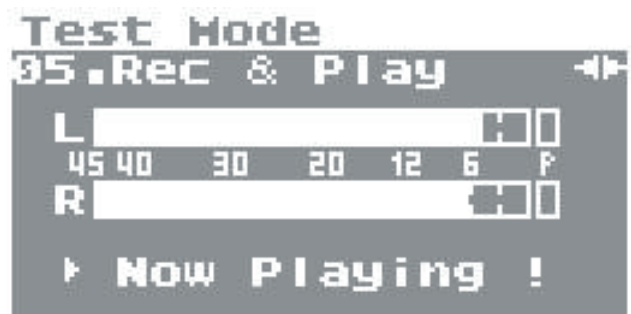
Pressing the [REC] button starts recording of the audio signal input from the line input jack (**LINE IN**).



NOTE

The audio signal is not output to the digital output connector (**OPTICAL**) during recording, but this is not a malfunction.

After recording for approximately 3 seconds, playback starts automatically.

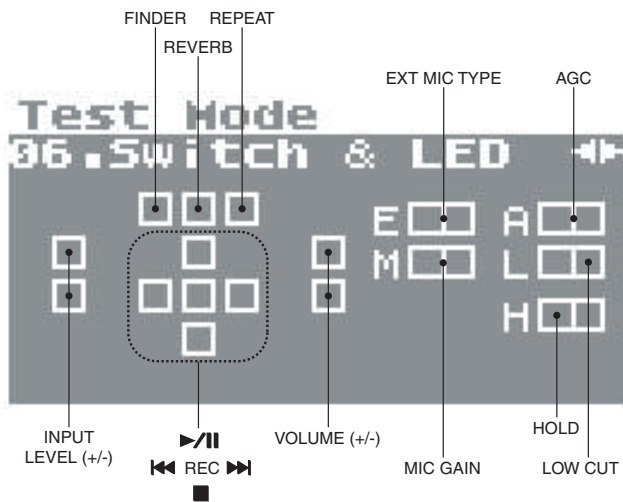


Make sure the recorded audio signal is played back.

If playback is correct, press the [▶▶] button to advance to the next item.

6. Switch/LED Test

Entering this item displays a screen like the one shown below.



Make sure the **PEAK** and **REC** LEDs are lighted.

Next, press all buttons and switches except [POWER] one at a time. Slide the slider switches to both ON and OFF.

If the buttons and switches function correctly, their "□" indicators on the screen change to "■."

** Pressing the [REPEAT] button makes the **PEAK** LED go dark, and pressing the [REC] button makes the **REC** LED go dark.*



After verification that all buttons and switches function correctly, operation automatically advances to the next item.

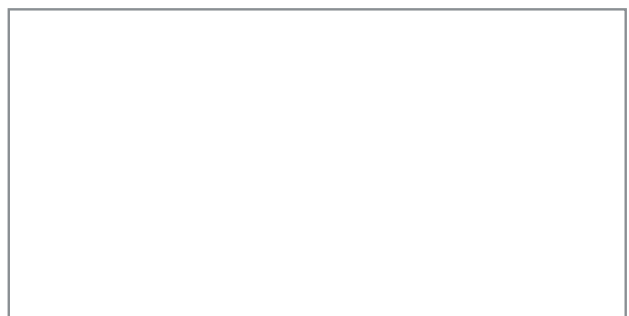
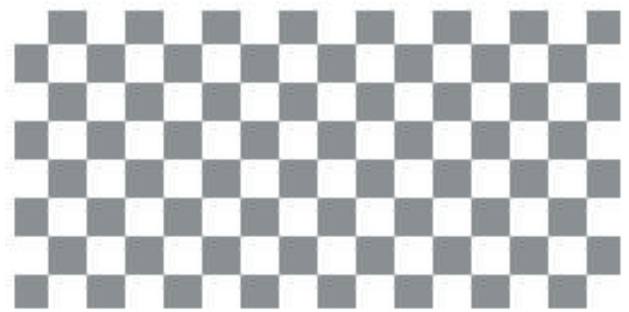
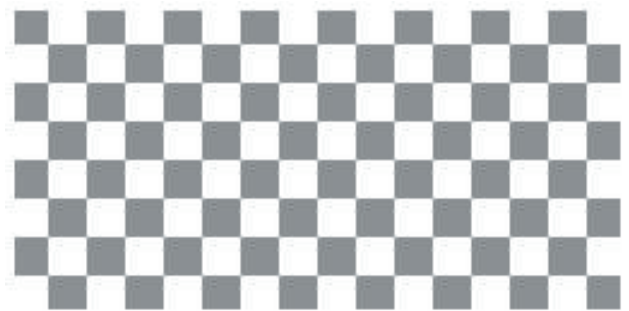
7. Display Test

Entering this item displays a screen like the one shown below.



Press the [▶▶] button to start the test.

There are five test screens. Press the [▶▶] button to move to the next test screen. To go back, press the [◀◀] button.



At the final screen, testing of contrast adjustment is performed.



Use the [▶/||] button and the [■] button to check whether the contrast changes. Also make sure that the values at the bottom of the screen change from 1 to 10.

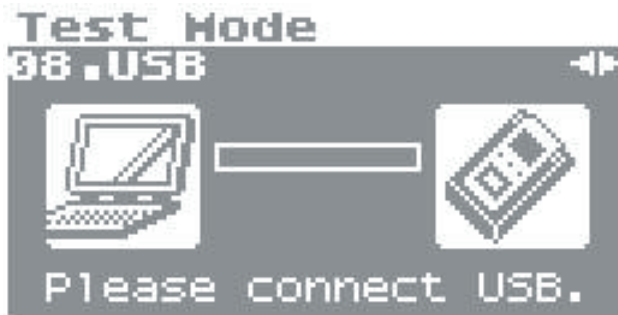
Use the [▶▶] button to advance to the next item.

NOTE

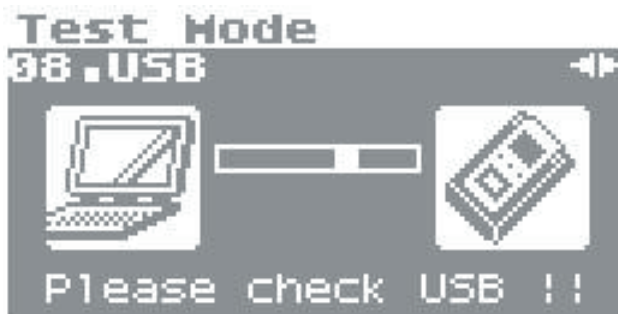
If the contrast values 1 and 10 are not checked, moving to the next item is impossible, even when the [▶▶] button is pressed.

8. USB Test

While a screen like the one shown below is displayed, connect the PC and the R-09 using a USB cable.



When the connection is made, a screen like the one shown below appears.



If an SD card is not inserted, a screen like the one shown below appears. Insert an SD card.



Make sure the R-09 is seen as a USB drive on the PC's screen.

After verifying, disconnect the USB cable. Operation automatically advances to the next item.

NOTE

Moving to a different test item is not possible while the USB connection is made. To move, first end the USB connection.

9. Digital Out Test

This checks the throughput from the external microphone input jack (MIC) to the digital output connector (OPTICAL).

Make the connection to the external microphone input jack (MIC).

Microphone input is impossible when nothing is connected or when something is connected to the line input jack (LINE IN). In such cases, a screen like the one shown below is displayed.



<< Connect an external microphone. >>



<< Disconnect the device connected to the line input jack (LINE IN). >>

When the correct connection is made, a screen like the one shown below appears.



Connect the digital output connector (**OPTICAL**) to a device that has a digital input and check the microphone input audio.

After finishing verification, use the [▶▶] button to advance to the next item.

NOTE

At this time, input gain adjustment (the **INPUT LEVEL** button) and output volume-level adjustment (the **VOLUME** button) do not function. If the volume level of the sound heard from the connected device is too low, make sure the **MIC GAIN** switch on the back of the unit is set to **HIGH**.

10. Analog (Internal Mic) Test

This performs testing of the internal microphone.

When something is connected to the external microphone input jack (**MIC**) or the line input jack (**LINE IN**), use of the internal microphones becomes impossible and a screen like the one shown below is displayed.



Disconnect the device connected to the external microphone input jack (**MIC**) or line input jack (**LINE IN**).

When use of the internal microphones becomes possible, a screen like the one shown below is displayed.

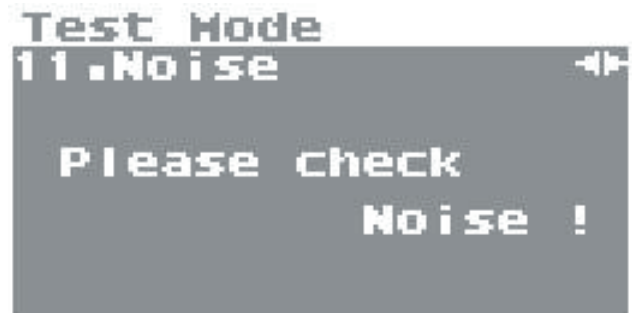


Input audio toward the left and right internal microphones and make sure sound is heard from both the left channel and the right channel of the digital output connector (**OPTICAL**). After finishing verification, use the [▶▶] button to advance to the next item.

11. Noise Test

This performs testing for residual noise.

Entering this item displays a screen like the one shown below.



Use headphones to carry out checking to determine whether audible noise is heard from the headphones jack.

After finishing verification, use the [▶▶] button to advance to the next item.

12. Factory Reset

This returns the settings to their factory defaults.

Entering this item displays a screen like the one shown below.



Pressing the [REC] button starts processing.



When processing finishes, operation automatically advances to the next item.

If an SD card is inserted, a screen like the one shown below appears.

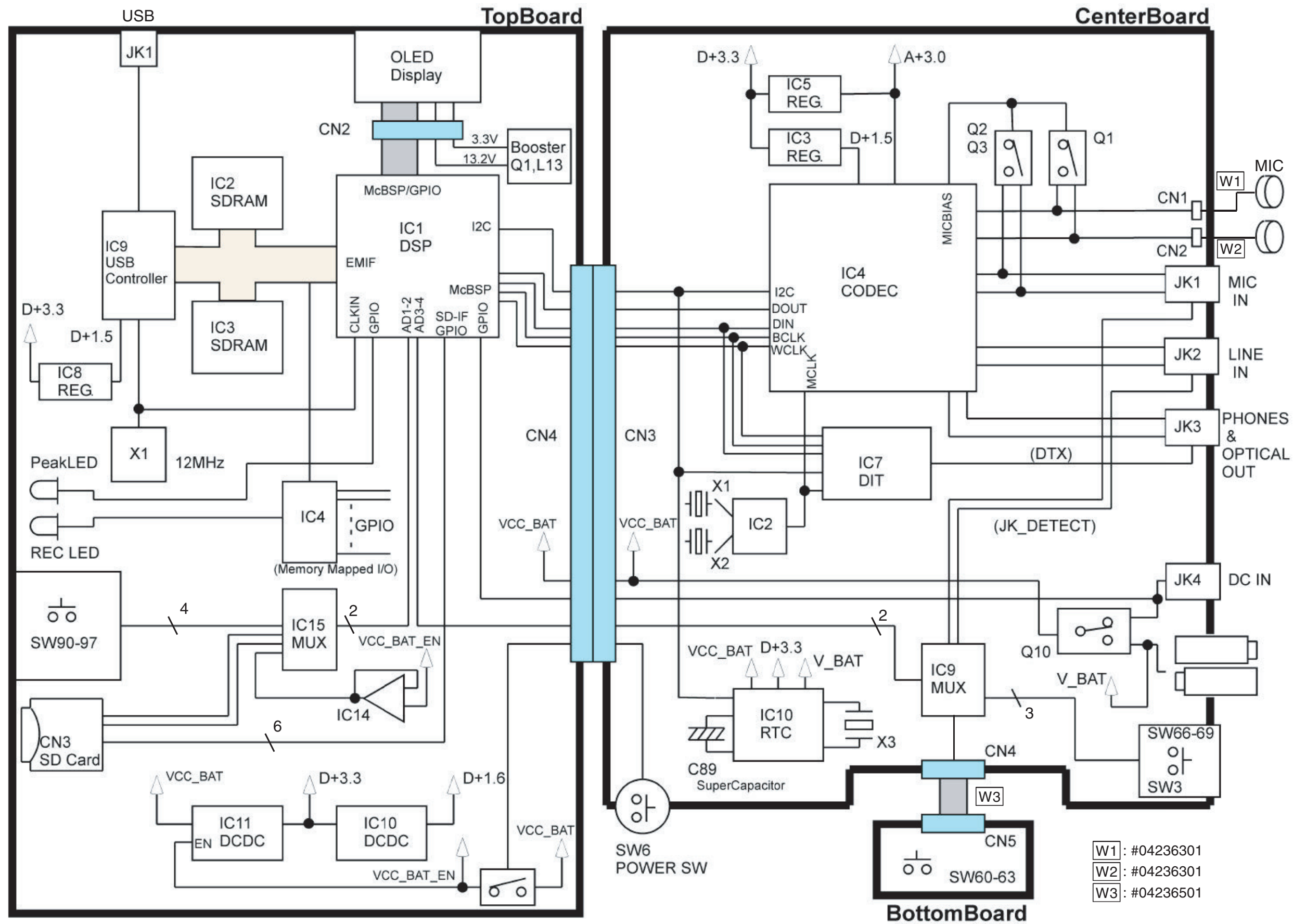


Eject the SD card, and when a screen like the one shown below appears, switch off the power.

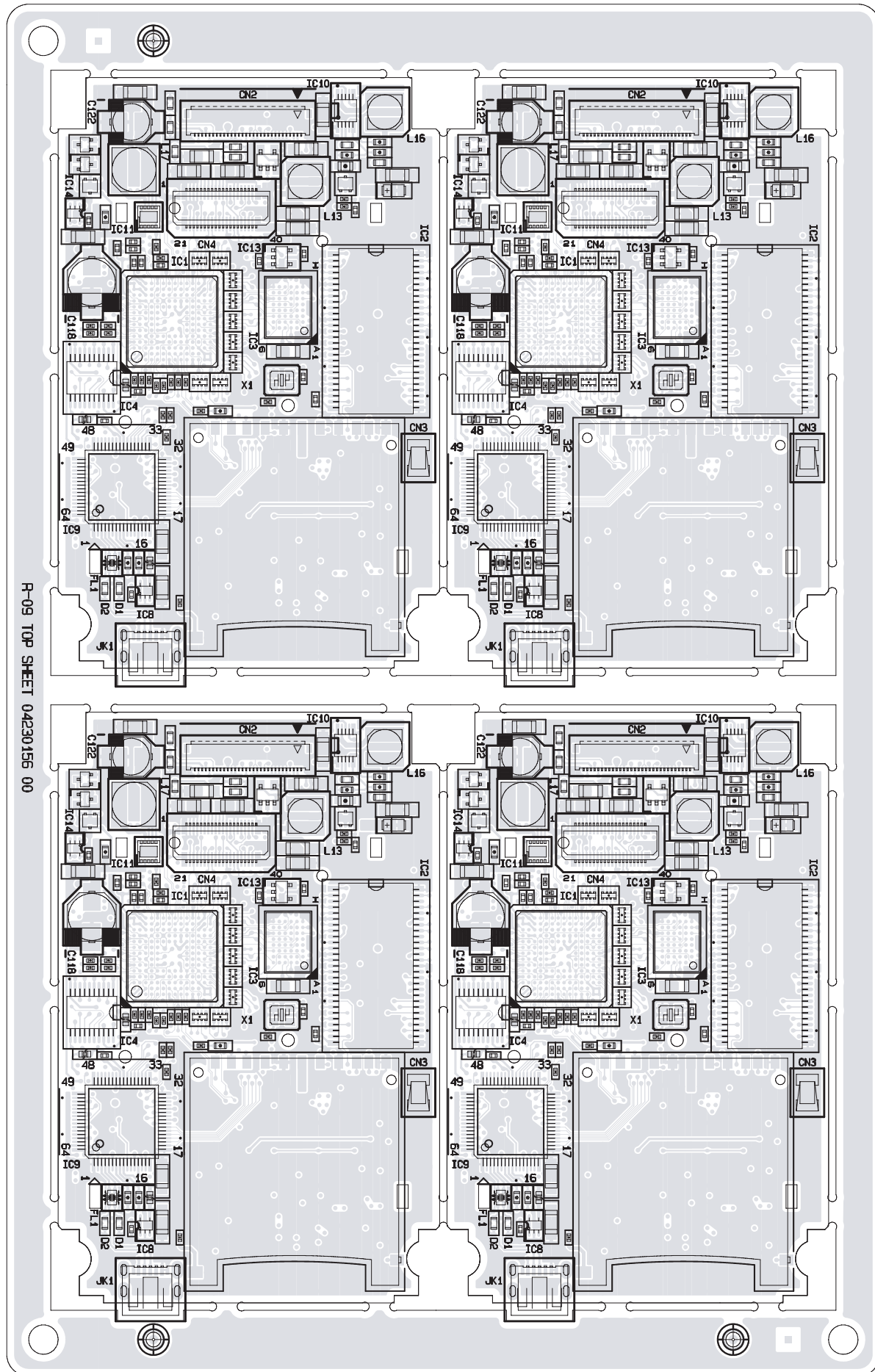


When the power is off and the display has cleared completely, disconnect the AC adaptor.

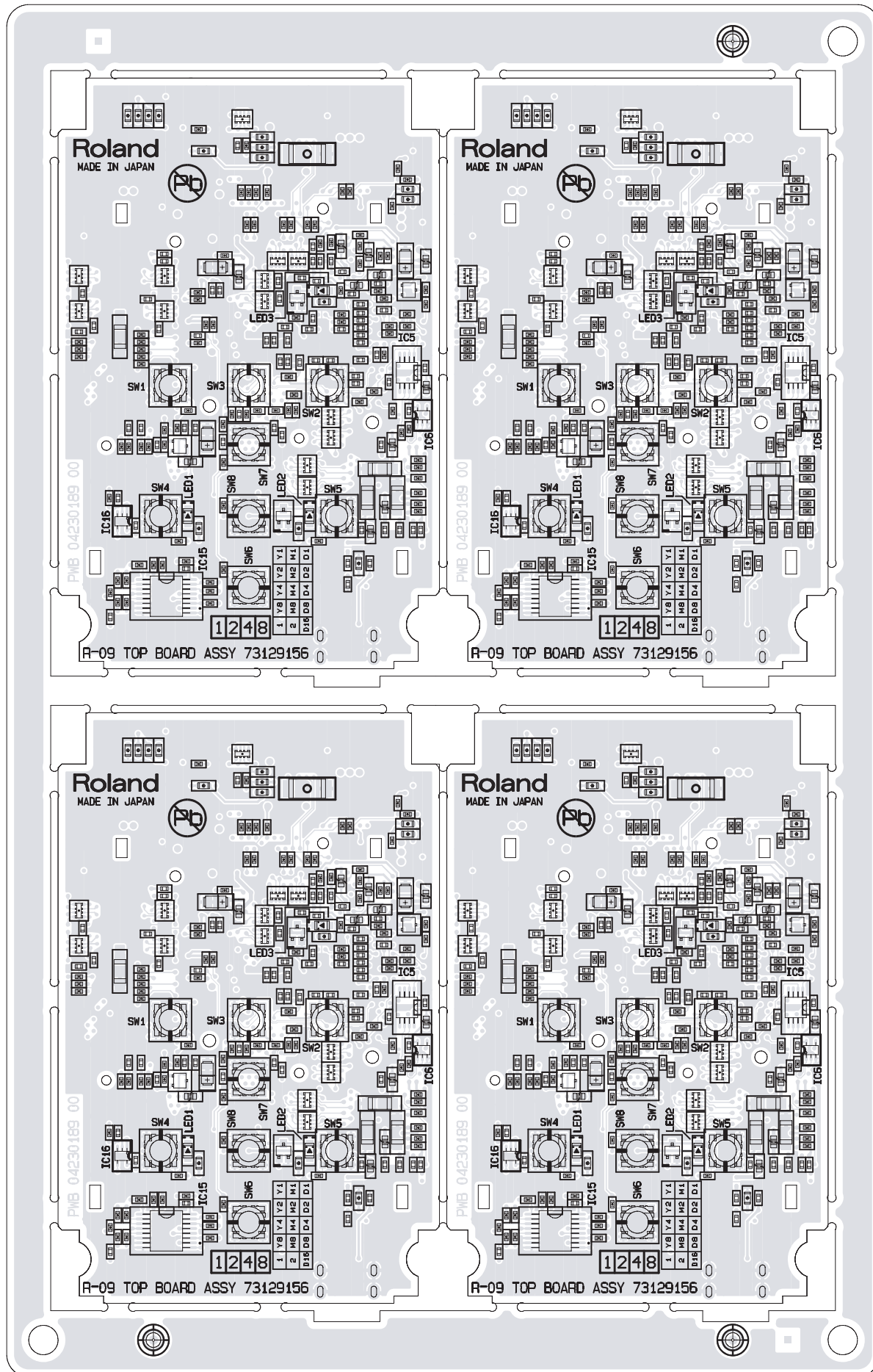
Block Diagram



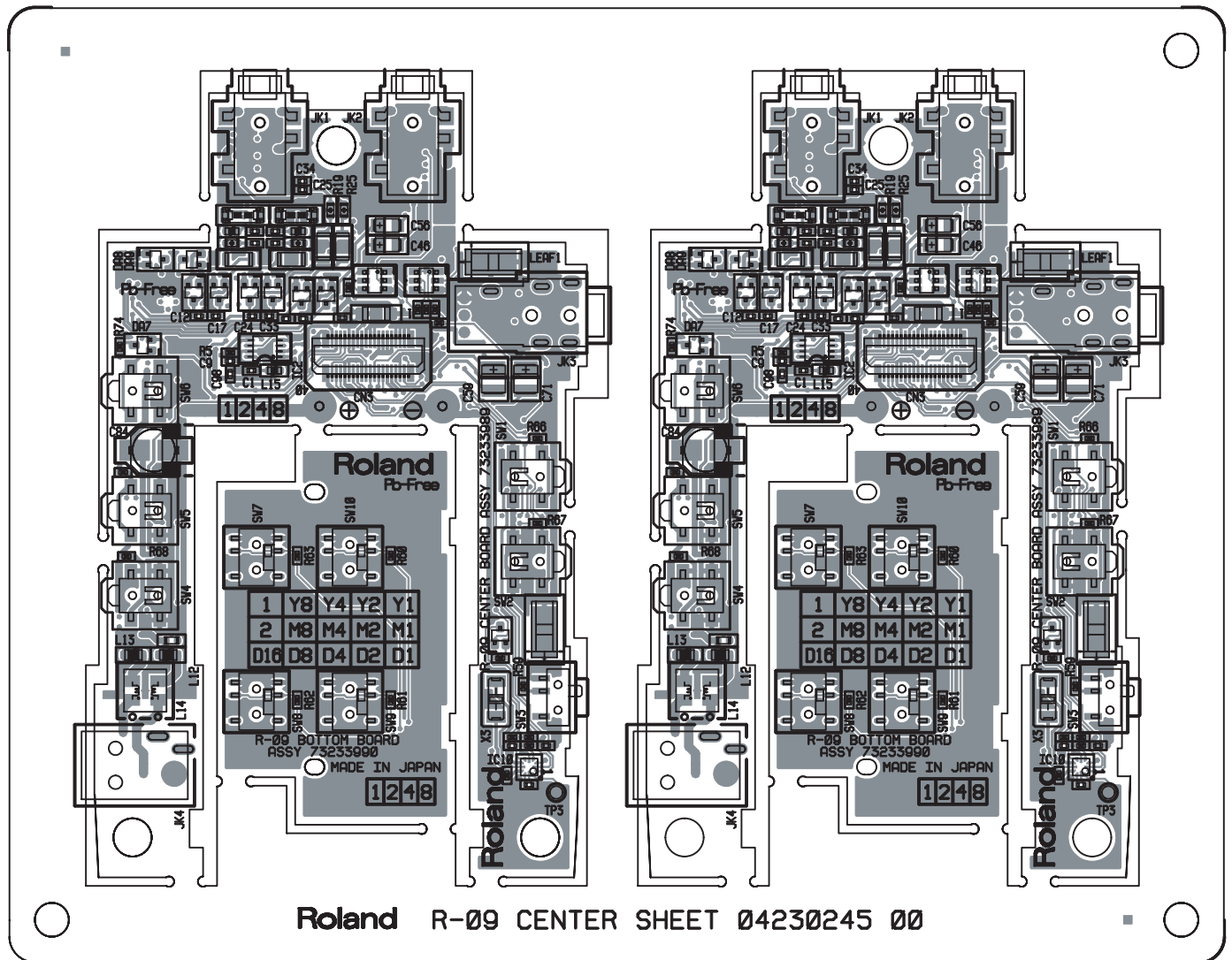
Circuit Board (TOP BOARD 1/2)



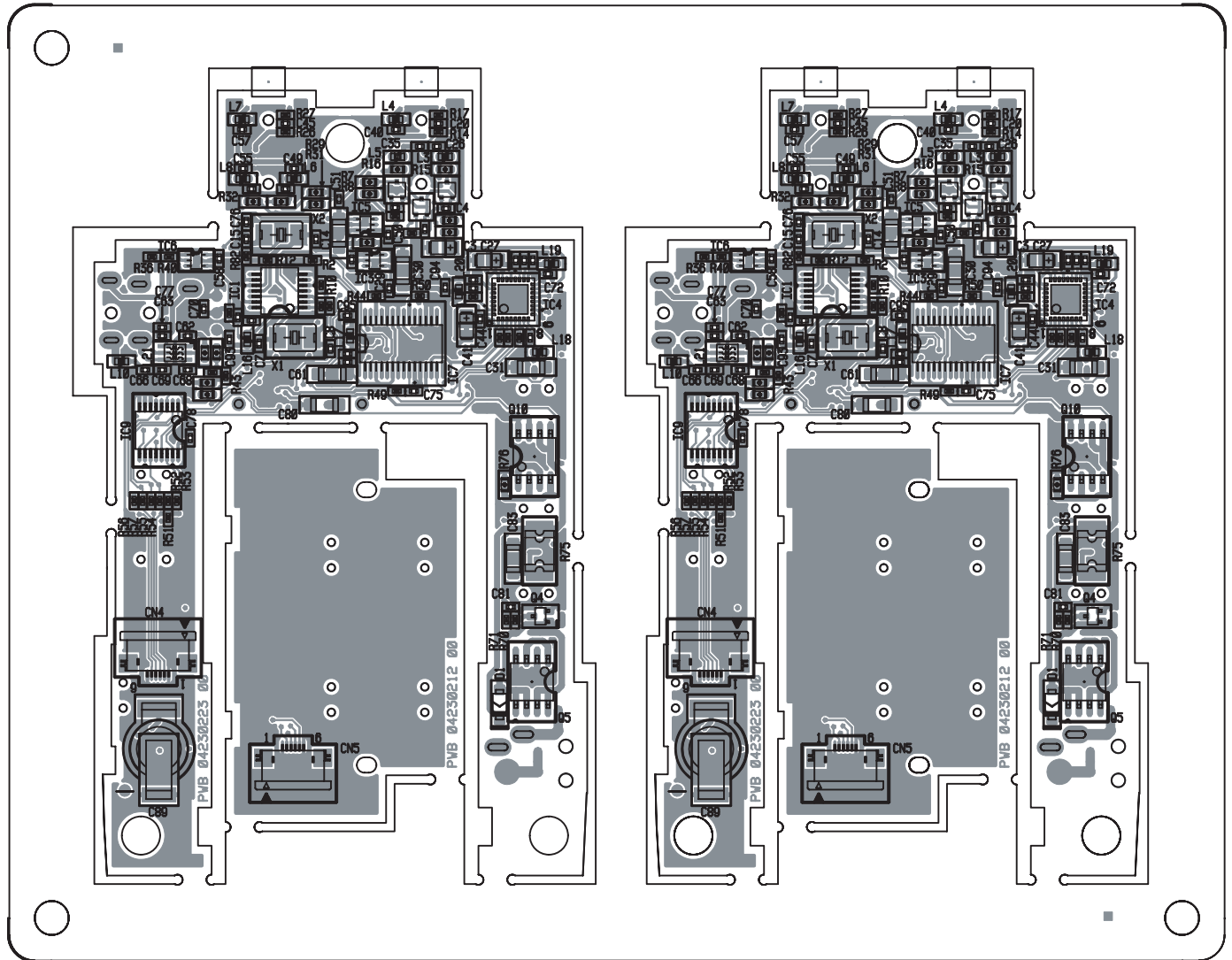
Circuit Board (TOP BOARD 2/2)



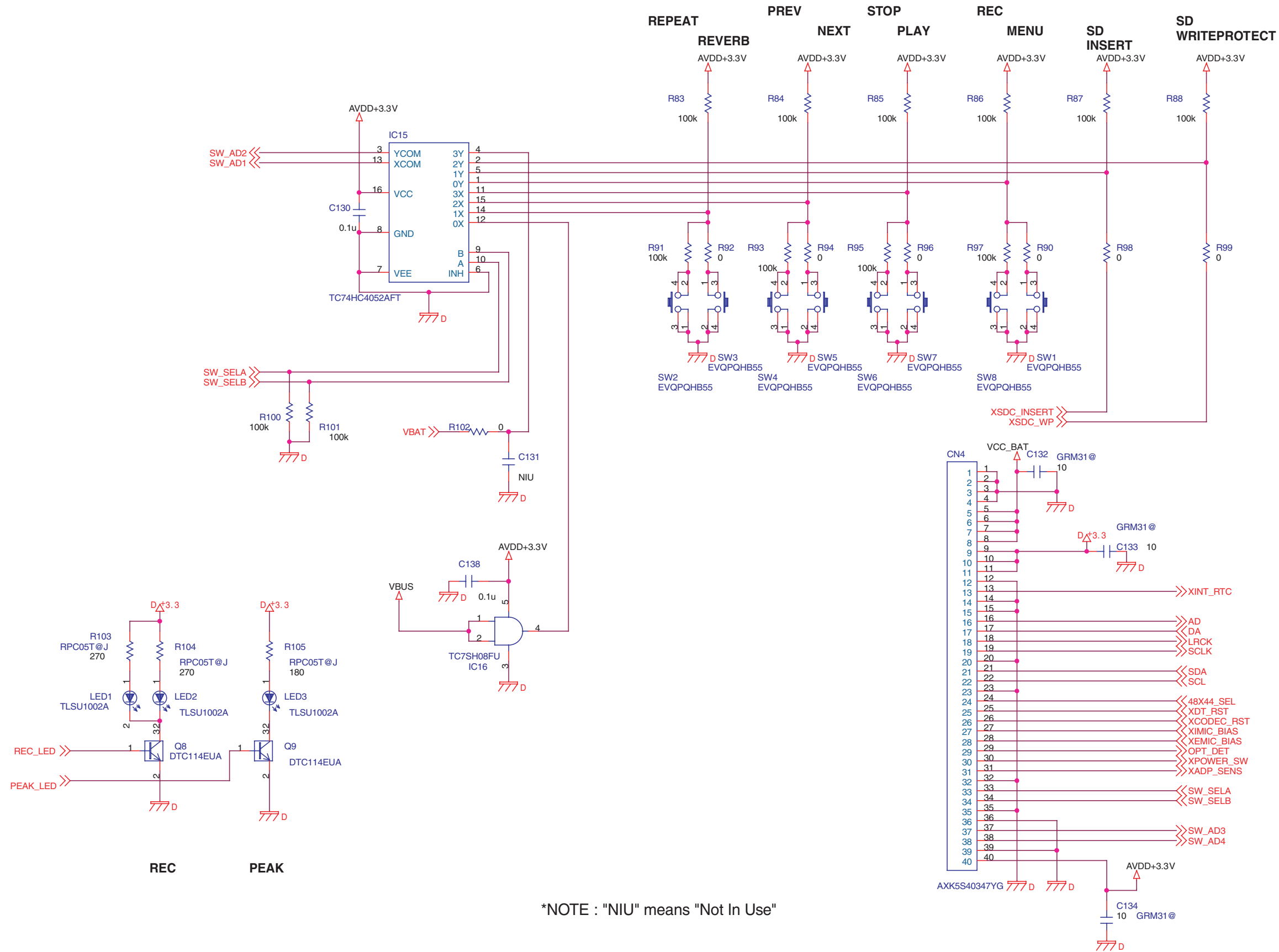
Circuit Board (CENTER BOARD 1/2)



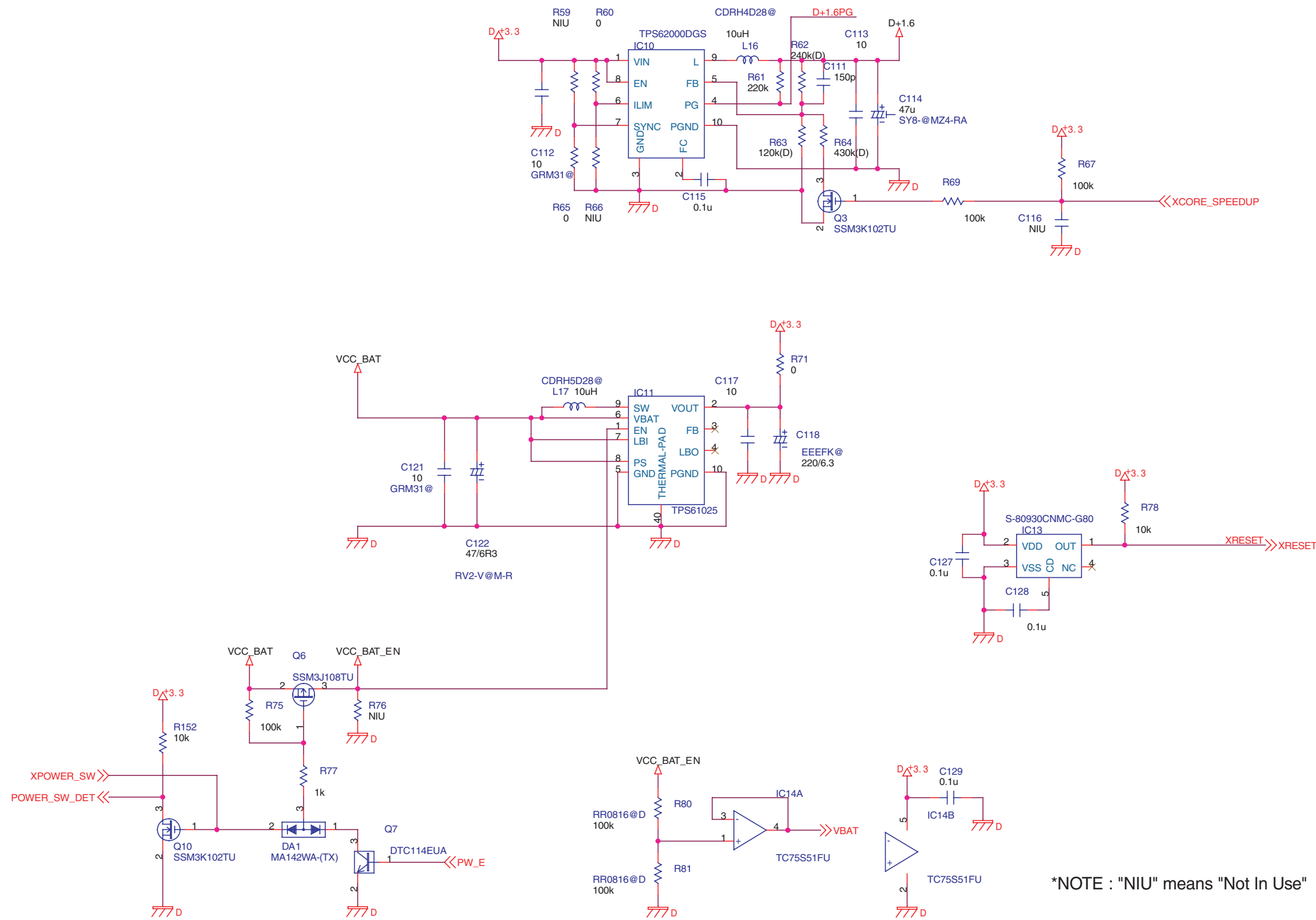
Circuit Board (CENTER BOARD 2/2)



Circuit Diagram (TOP BOARD 1/4)

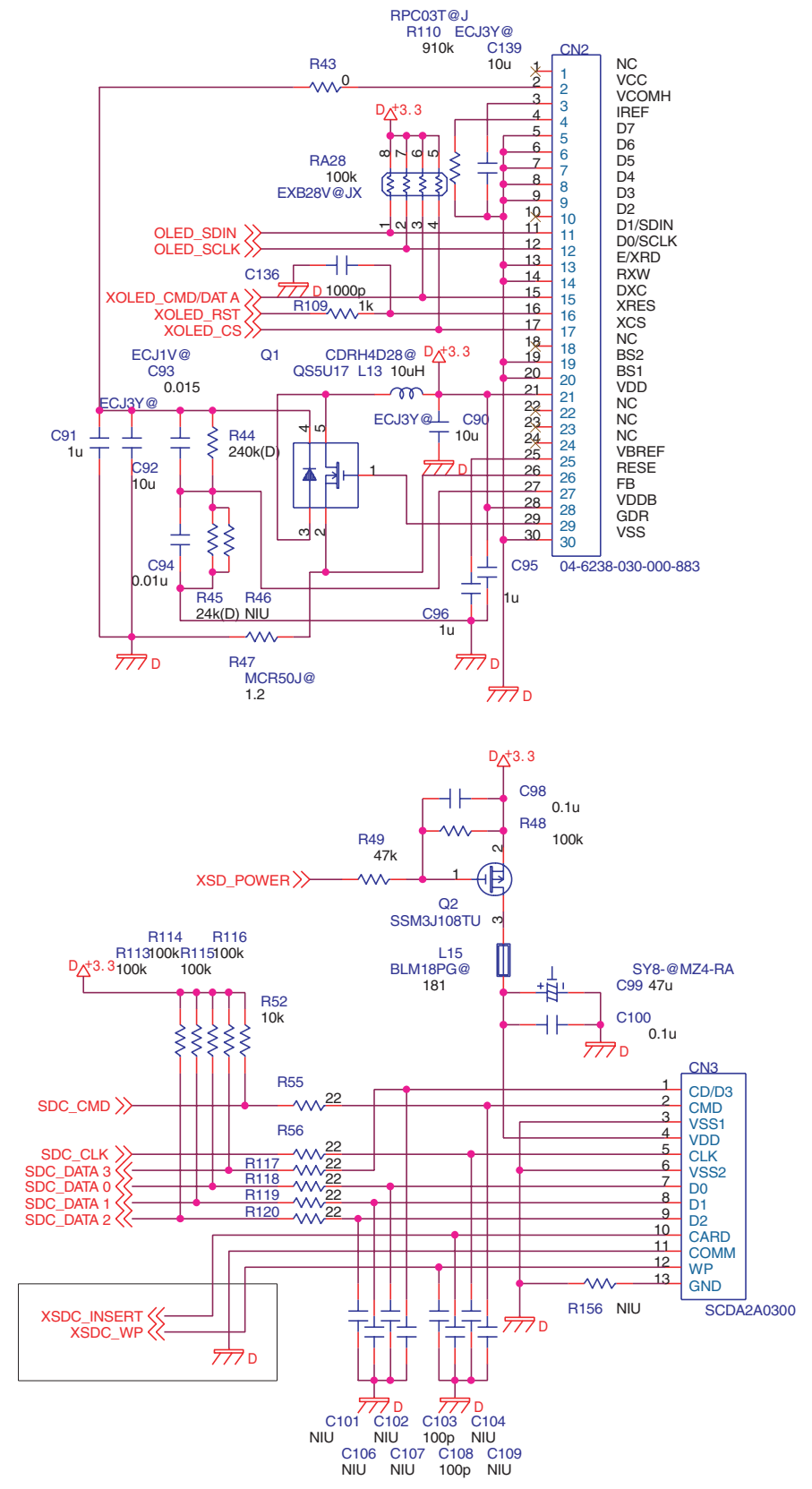
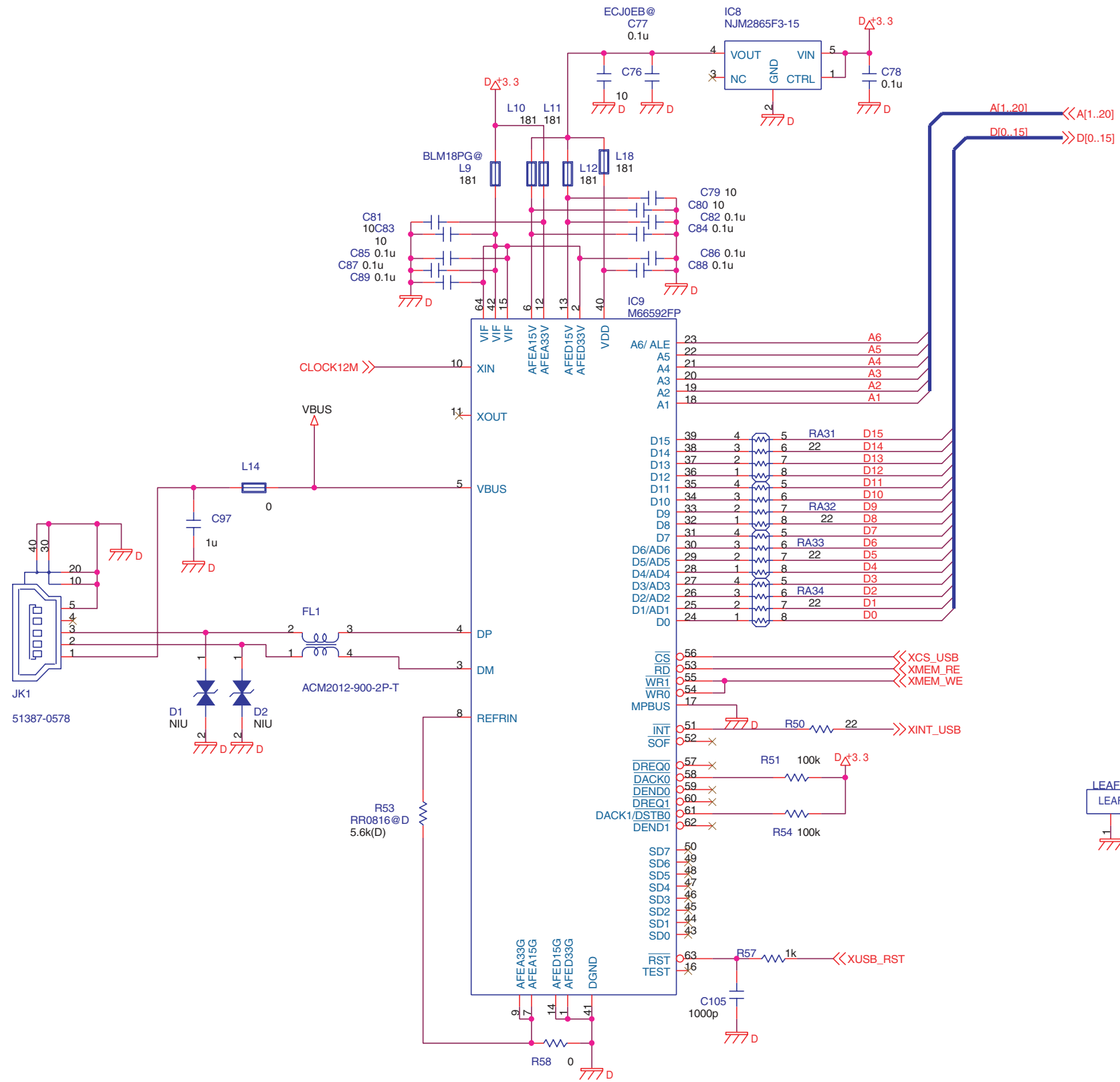


Circuit Diagram (TOP BOARD 2/4)



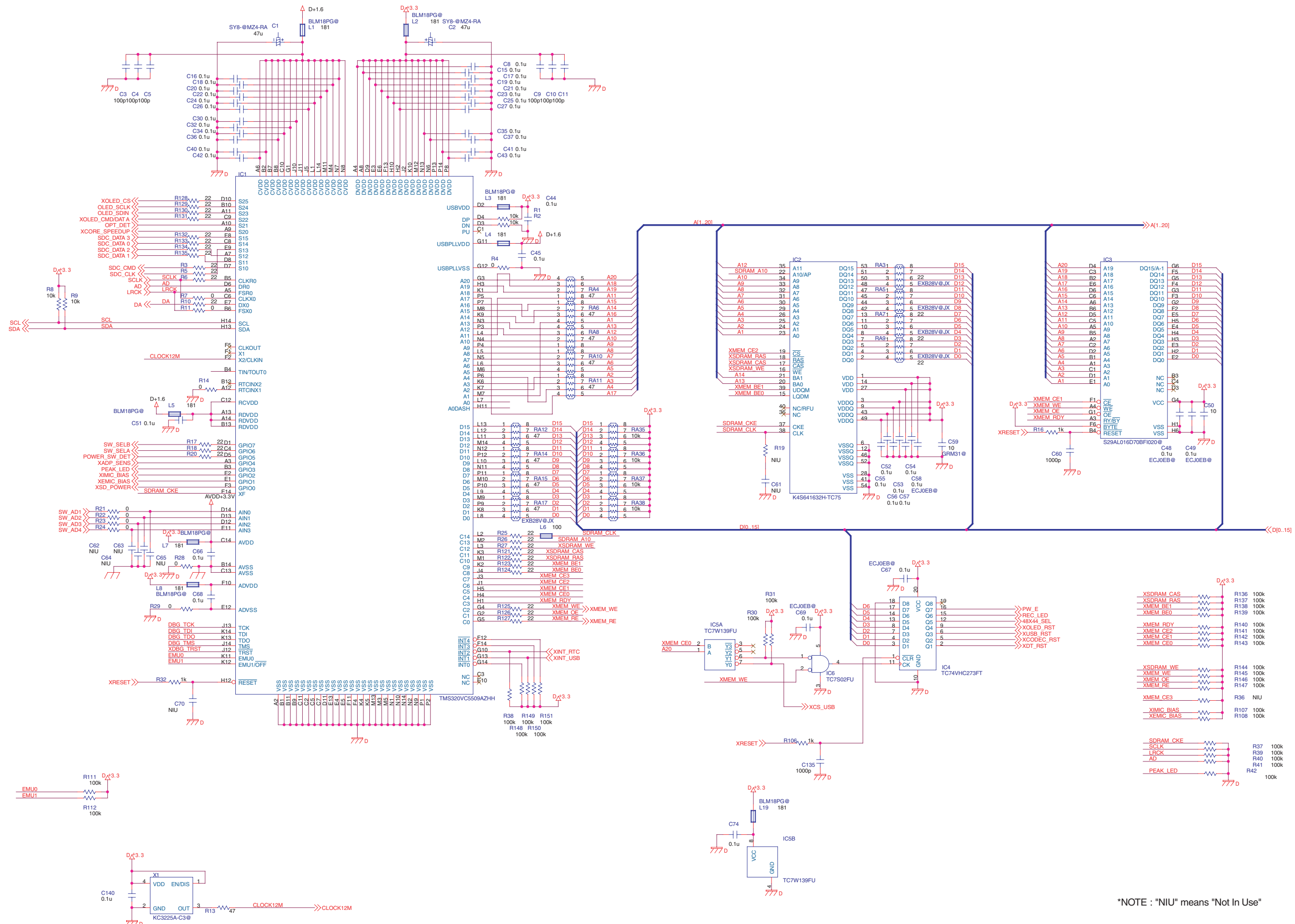
*NOTE : "NIU" means "Not In Use"

Circuit Diagram (TOP BOARD 3/4)



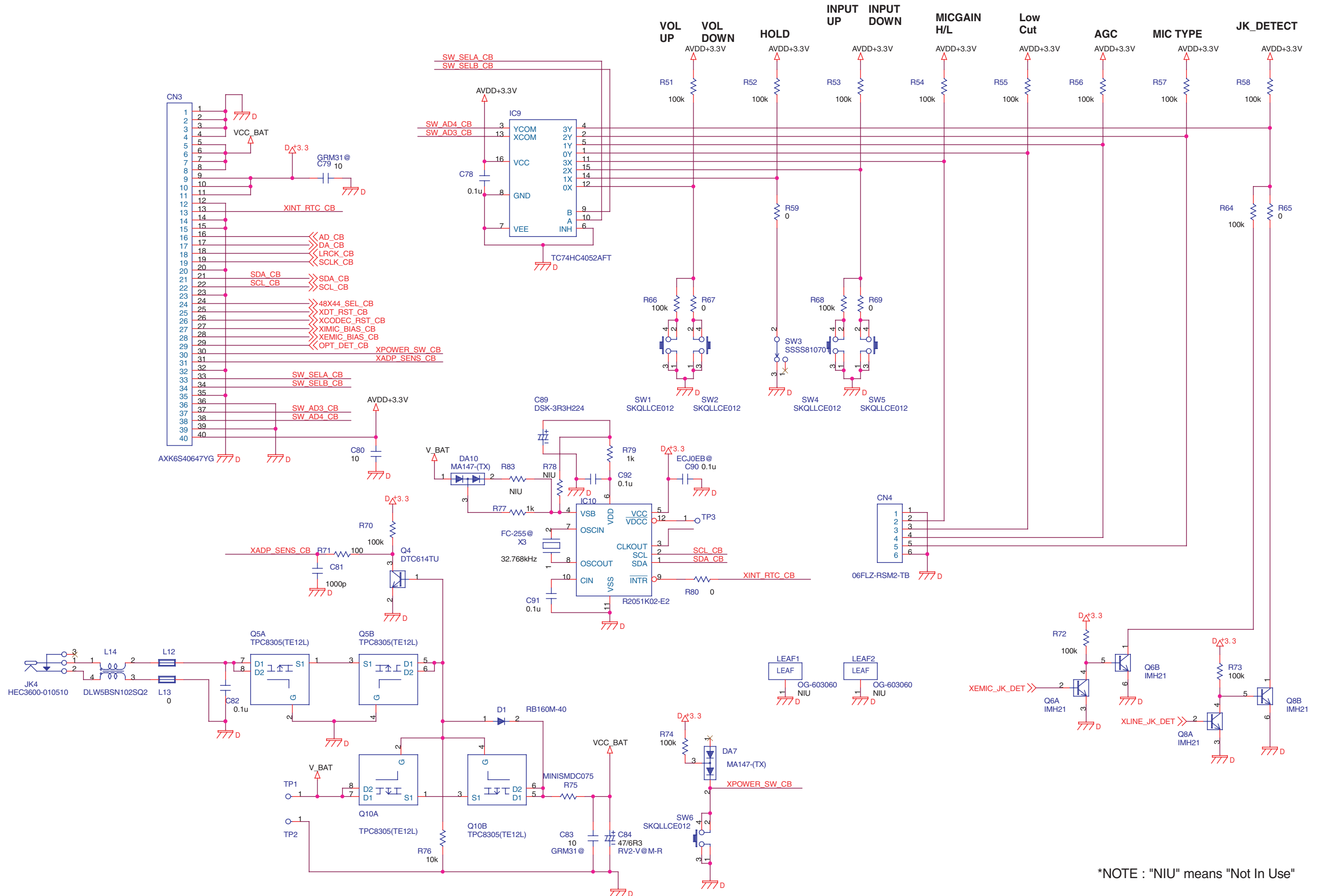
*NOTE : "NIU" means "Not In Use"

Circuit Diagram (TOP BOARD 4/4)



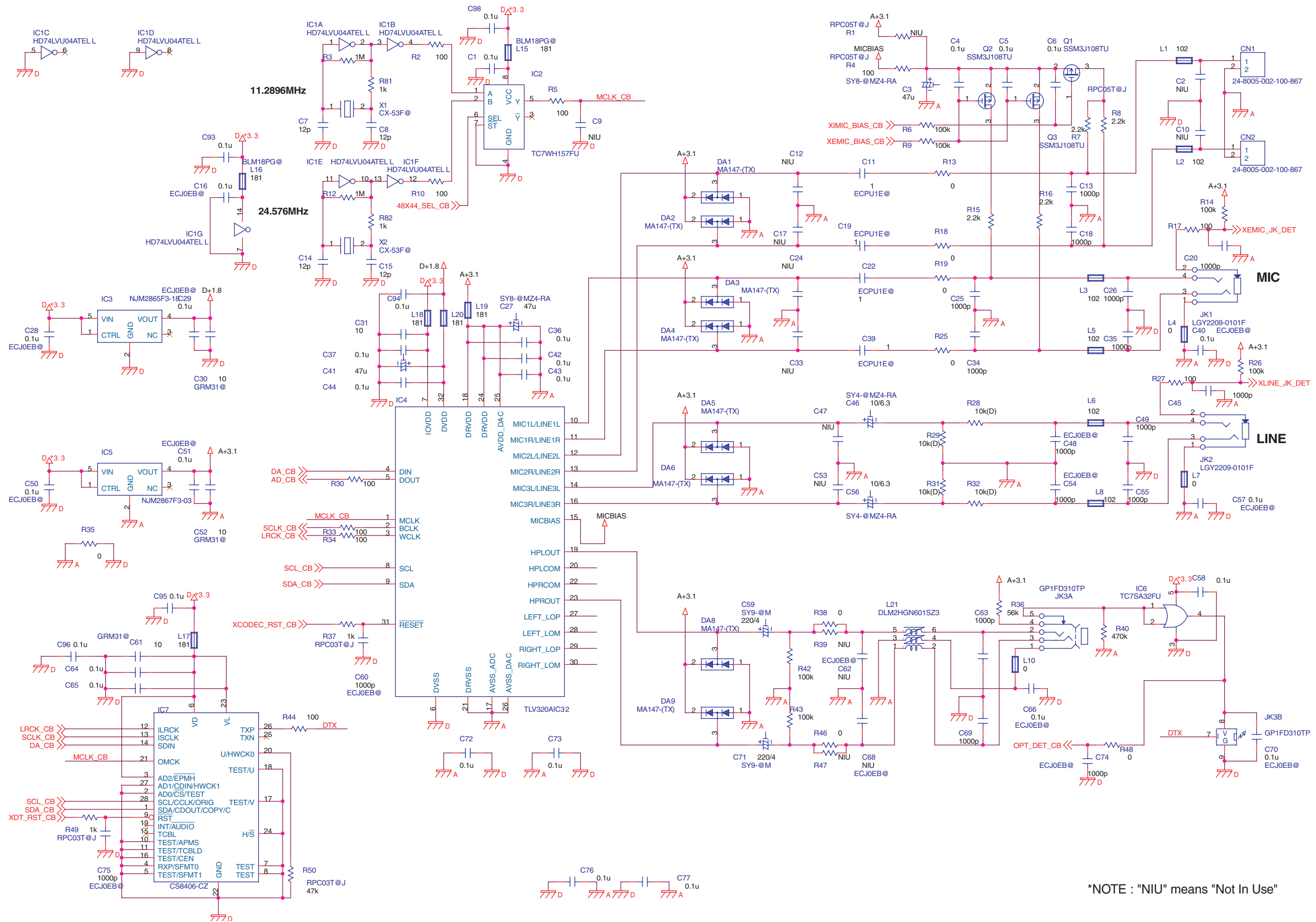
*NOTE : "NIU" means "Not In Use"

Circuit Diagram (CENTER BOARD 1/2)



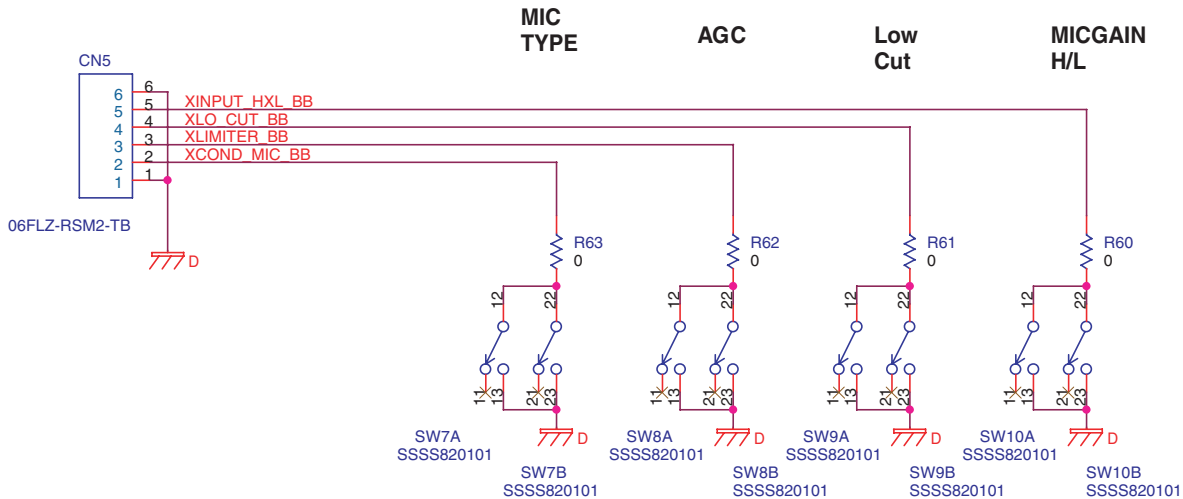
*NOTE : "NIU" means "Not In Use"

Circuit Diagram (CENTER BOARD 2/2)



*NOTE : "NIU" means "Not In Use"


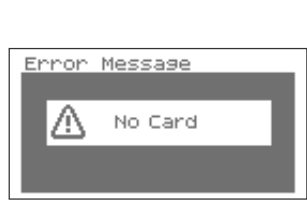




Circuit Diagram (BOTTOM BOARD)



Messages

Messages in the display are shown below.

Message	Problem	Message	Problem
	Clock Initialized The internal clock was initialized because no power was available.		Name Too Long The name is too long.
	Battery Low The remaining power of the internal battery is low. The battery must be replaced. The AC adaptor may also be used.		File System Err The memory card has not been formatted. Format the memory card on the R-09.
	Improper Song The song is in a file format that cannot be used with the R-09.		SD Unformatted The memory card is not formatted or cannot be recognized. Format the memory card on the R-09.
	Already Exists There is a song or folder of the same name. Create the song or folder using a different name.		SD Card Full The memory card does not have sufficient space available. Copy the song to the PC and check the memory card capacity.
	Song Protected The song is protected. Turn Write protect OFF and then try again.		SD Card Slow The write to the memory card was too slow. Use a memory card that was tested for the R-09. The performance of the memory card may have decreased because of improper song organization on the memory card, which was caused by repeated saving and deleting. In this case, re-format the memory card.

Message	Problem
<p>Error Message</p> <p>SD Card Locked</p>	<p>SD Card Locked</p> <p>The memory card is locked. Remove the memory card and unlock it.</p>
 <p>Error Message</p> <p>SD Card Error</p>	<p>SD Card Error</p> <p>An error occurred while accessing the memory card. The memory card may be corrupted.</p>
 <p>Error Message</p> <p>No Card</p>	<p>No Card</p> <p>No memory card has been inserted. Insert a memory card into the R-09.</p>
 <p>Error Message</p> <p>HOLD is ON</p>	<p>HOLD is ON</p> <p>The hold switch is ON. This message is shown when an operation is attempted while the hold switch is turned on.</p>
 <p>Error Message</p> <p>Now Recording</p>	<p>Now Recording</p> <p>Recording is currently in progress. This message is displayed when an operation is attempted during recording. Cancel the recording to perform an operation.</p>
 <p>Error Message</p> <p>Now Playing</p>	<p>Now Playing</p> <p>Playback is currently in progress. This message is displayed when an operation is attempted during playback. Cancel playback to perform an operation.</p>
 <p>Error Message</p> <p>AGC is ON</p>	<p>AGC is ON</p> <p>The Auto Gain Control switch is ON. This message is shown when an operation of the Input Level button is attempted while the Auto Gain Control switch is turned on.</p>

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