ME-80

Guitar Multiple Effects

SERVICE NOTES
Issued by RJA

Table of Contents

Revise Information

May 22, 2014 p. 22, p. 23 Corrected errors.

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 (patches and setting data) can be backed up by using special software for the ME-80.
Refer to **Data Backup and Restore Operations** (p. 14) in the Service Notes and save the data. After completing the procedure, restore the backed-up data to the product.

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

BOSS ME-80: GUITAR MULTIPLE EFFECTS

AD Conversion

24 bits + AF method

* *AF method (Adaptive Focus method) This is a proprietary method from Roland & BOSS that vastly improves the signal-to-noise (SN) ratio of the AD and DA converters.*

DA Conversion

24 bits

Sampling Frequency

44.1 kHz

Patches

36 (User) + 36 (Preset)

Pedals

Pedal switch x 8
Expression pedal x 1

Nominal Input Level

GUITAR INPUT: -10 dBu
AUX IN: -20 dBu

Input Impedance

GUITAR INPUT: 1 MΩ
AUX IN: 27 kΩ

Nominal Output Level

Gt. AMP OUTPUT L/MONO, R: -10 dBu
REC OUT/PHONES: -10 dBu

Output Impedance

Gt. AMP OUTPUT L/MONO, R: 2 kΩ
REC OUT/PHONES: 44 Ω

Recommended Load Impedance

Gt. AMP OUTPUT L/MONO, R: 10 kΩ or greater
REC OUT/PHONES: 16 Ω or greater

Connectors

GUITAR INPUT jack: 1/4-inch phone type
Gt. AMP OUTPUT L/MONO, R jack: 1/4-inch phone type
REC OUT/PHONES jack: Stereo miniature phone type
AUX IN jack: Stereo miniature phone type
USB COMPUTER port: USB type B
DC IN jack

Display

7 segments, 2 digits LED

Power Supply

Alkaline battery (AA, LR6) x 6
or
Carbon-zinc battery (AA, R6) x 6
or
AC adaptor

Current Draw

200 mA

Expected battery life under continuous use (These figures will vary depending on the actual conditions of use.)

Alkaline: Approx. 7 hours
Carbon: Approx. 2 hours

Dimensions

447 (W) x 231 (D) x 70 (H) mm
17-5/8 (W) x 9-1/8 (D) x 2-13/16 (H) inches
Maximum height:
447 (W) x 231 (D) x 91 (H) mm
17-5/8 (W) x 9-1/8 (D) x 3-5/8 (H) inches

Weight (including battery)

3.6 kg
7 lbs 15 oz

Accessories

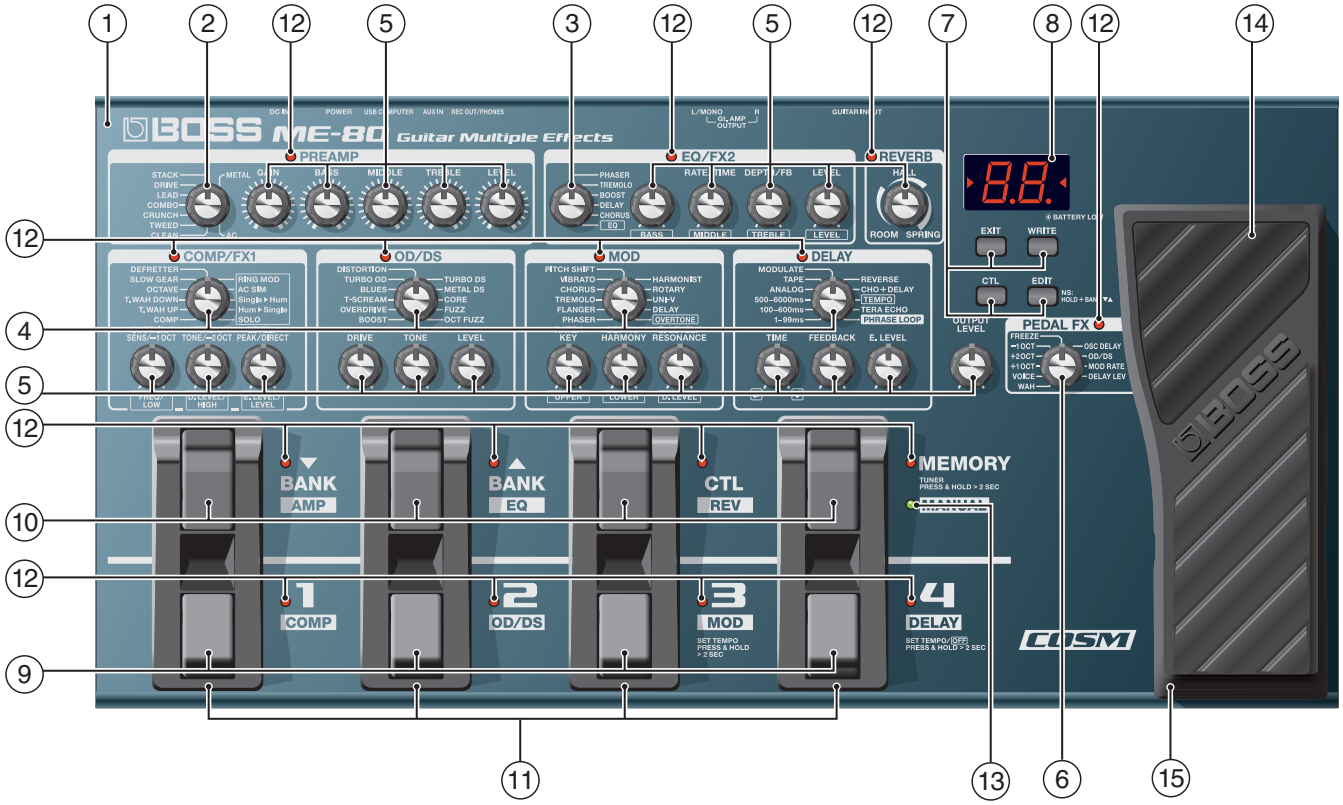
Owner's Manual (#5100037408)
Alkaline battery (AA, LR6) (#********) x 6
"Read Me First" Leaflet (#********)

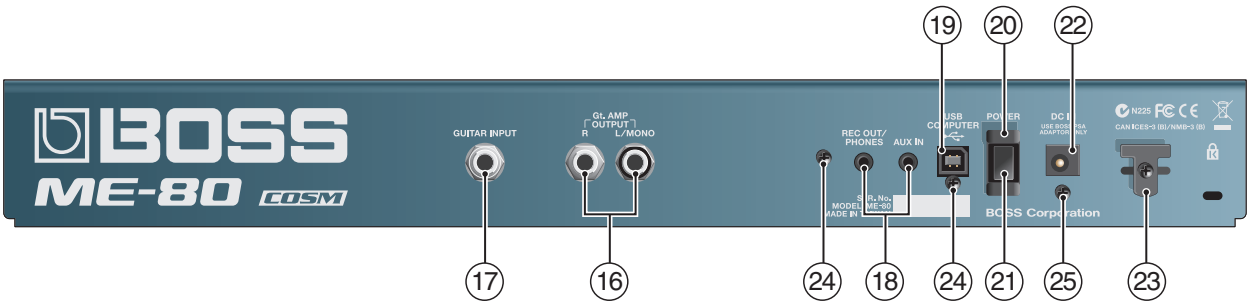
Option (sold separately)

AC adaptor: PSA series

* *0 dBu = 0.775 Vrms*
* *Printed matters will not be supplied after the end of the production. Then, download the electronic file from the Roland web site.*
* *In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.*

Location of Controls

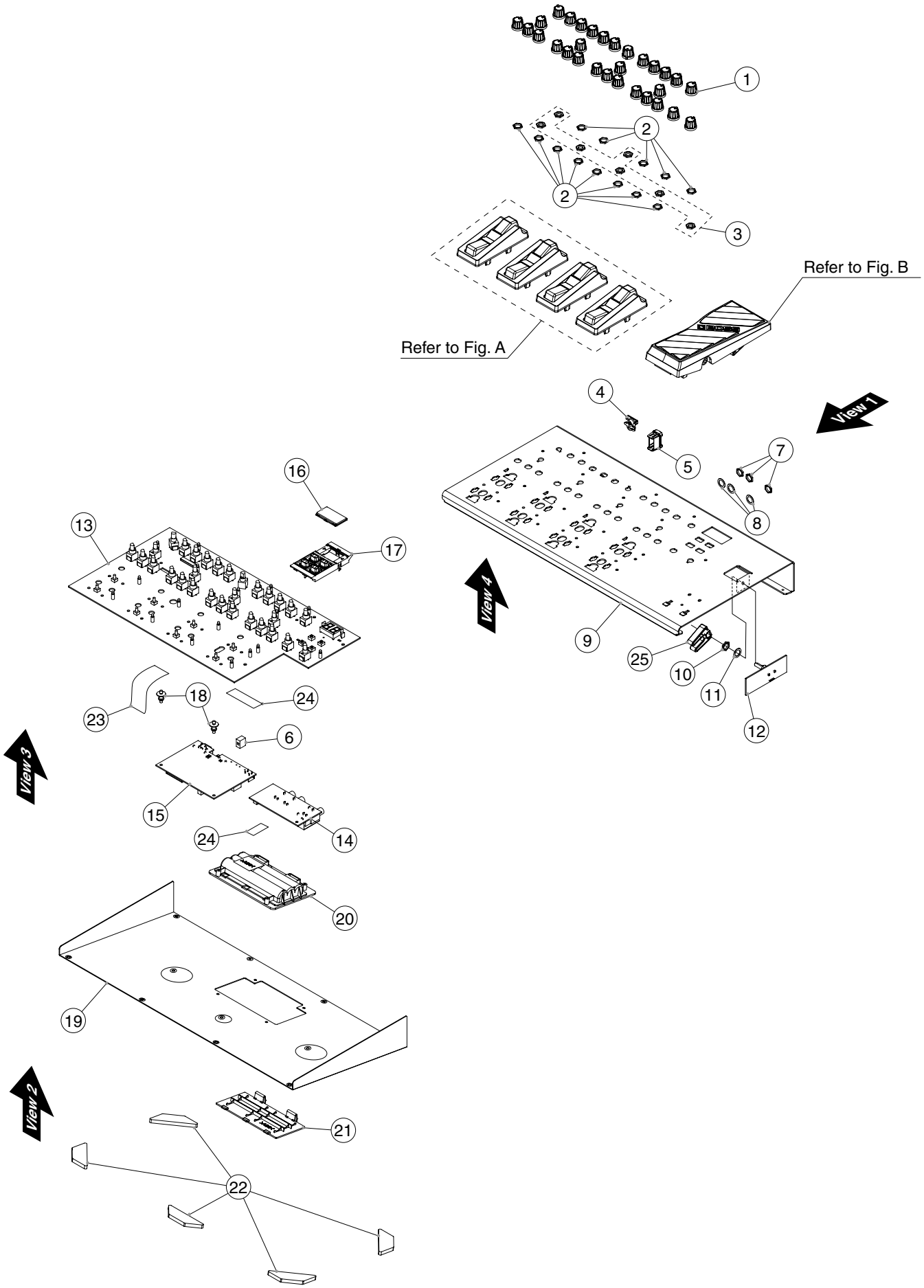




Location of Controls Parts List

No.	Part Code	Part Name	Description	Q'ty
1	5100037540	TOP COVER		1
2	03344934	R-KNOB	(75D522N0R0)	1
	5100037572	ROTARY POTENTIOMETER	RD901F-40-125F-B50K-09D	1
3	03344934	R-KNOB	(75D522N0R0)	1
	5100001449	POTENTIOMETER (F3279804R0)	RD901F-40-125F-B50K-06D	1
4	03344934	R-KNOB	(75D522N0R0)	4
	5100001455	ROTARY POTENTIOMETER	RD901F-40-125F-B50K-0DD	4
5	03344934	R-KNOB	(75D522N0R0)	23
	5100037380	ROTARY POTENTIOMETER	RV09BDF-40E1-125F-B50K-00D	23
6	03344934	R-KNOB	(75D522N0R0)	1
	5100001452	POTENTIOMETER (F3229205R0)	RD901F-40-125F-B50K-0BD	1
7	5100037543	KEYTOP UNIT		1
	01780101	TACT SWITCH	SKQKABD010	4
8	5100001581	LED	BL A-552SR-A B/W (F5029412R0)	1
	5100001582	LED	BL L-323SRDT (F5229810R0)	2
	5100002398	7 SEG COVER	(G2567172R0)	1
9	5100037545	SW PEDAL FRONT		4
	5100003910	PEDAL FOOT H=7.6	(G2357126R0)	4
	04560712	SUPPORT SPRING	(G2177103R0)	4
10	5100037546	SW PEDAL REAR		4
	5100003910	PEDAL FOOT H=7.6	(G2357126R0)	4
	04560712	SUPPORT SPRING	(G2177103R0)	4
11	5100037544	SW PEDAL ESCUTCHEON		4
12	05015956	LED	BL L-7104SRT (F5229820R0)	16
	5100003409	LED SPACER	LEDS-8S	16
13	05015967	LED	L-7104SGT	1
	5100003409	LED SPACER	LEDS-8S	1
14	5100011395	PEDAL PLATE		1
15	5100011392	VR PEDAL		1
16	5100001342	6.5MM JACK	HTJ-064-12IMP (13449155R1)	2
	5100003918	JACK NUT M9X12X2	NI RTC(H5039510R0)	2
	5100003926	PLAIN WASHER 9X13.5X0.5T	NI(H5039158R0)	2
17	5100001342	6.5MM JACK	HTJ-064-12IMP (13449155R1)	1
	5100003918	JACK NUT M9X12X2	NI RTC(H5039510R0)	1
	5100003926	PLAIN WASHER 9X13.5X0.5T	NI(H5039158R0)	1
	04783901	JACK COVER	(G2257203R0)	1
18	5100006474	3.5MM JACK	HTJ-035-10ABZ(F3439911R0)	2
19	5100017587	USB CONNECTOR	UBR23-4K5100(F3439933R0)	1
20	5100018071	POWER SW ESCUTCHEON	G2207430R1	1
21	12499175	BUTTON	JSPUE0011A	1
	01899989	PUSH SWITCH	SPUP19-2N-LB2	1
22	04908701	ADAPTOR JACK	KM02018ABM1P(F3439875R0)	1
23	22360712	CORD HOOK	236-712	1
	40019123	SCREW 3X8	BINDING TAPTITE S BZC	1
24	40342712	SCREW M3X6	PAN MACHINE W/SW+SMALL PW BZC	2
25	40019123	SCREW 3X8	BINDING TAPTITE S BZC	1
	03129878	DC JACK HOLDER		1

Exploded View (All)



Exploded View (All) Parts List

No.	Part Code	Part Name	Description	Q'ty
1	03344934	R-KNOB	(75D522N0R0)	30
2	********	NUT	attached to VR	13
3	********	NUT	attached to VR	7
4	22360712	CORD HOOK	236-712	1
5	5100018071	POWER SW ESCUTCHEON	G2207430R1	1
6	12499175	BUTTON	JSPUE0011A	1
7	5100003918	JACK NUT M9X12X2	NI RTC(H5039510R0)	3
8	5100003926	PLAIN WASHER 9X13.5X0.5T	NI(H5039158R0)	3
9	5100037540	TOP COVER		1
10	********	NUT		1
11	********	WASHER		1
	5100037426	PANEL SHEET ASSY		1
	* *This unit includes the following parts.*			
12	********	EXP BOARD		1
13	********	PANEL BOARD		1
14	********	JACK BOARD		1
15	5100037421	MAIN BOARD ASSY		1
16	5100002398	7 SEG COVER	(G2567172R0)	1
17	5100037543	KEYTOP UNIT		1
18	5100021018	PWB SPACER	LBC-08-N2W	2
19	5100037541	BOTTOM COVER		1
20	5100038986	BATTERY CASE SET		1
21	04560878	BATTERY COVER	RTC #G2027602R0	1
22	03344923	FOOT H=5 (G2357120R0)		5
23	5100037403	FLAT CABLE	SML2CD-28X80-BDX6(BL)-P1.0-S4	1
24	40122645	NITTO FILAMENT TAPE	#3883 W19MM 50M 60P (CM)	-
25	03561356	SHAFT STAY	STAY	1

Disassembly Procedure

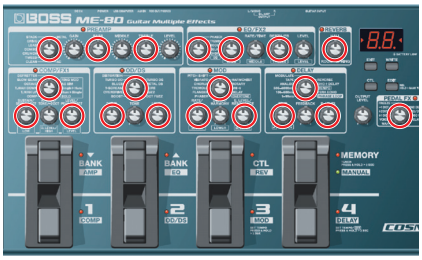
1. Remove screws **d** (11) in **View 2** (**Plane View (1)** (p. 8)).
2. Lift the Bottom Cover slightly and detach the wiring (1) connecting the Main Board and the Battery Case Set.

Important Notes on Assembly

On the ME-80, not all potentiometers use potentiometer nuts.

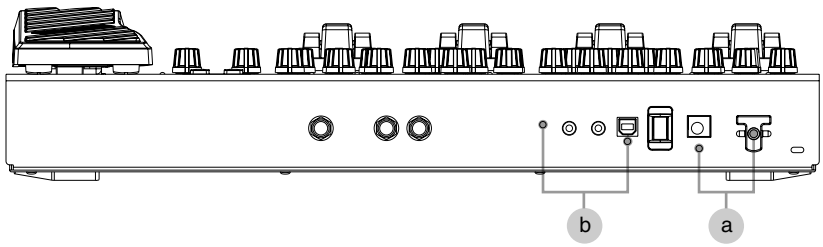
Nuts are used only at the locations shown below.

When reassembling the unit, carry out assembly with reference to the figure below.

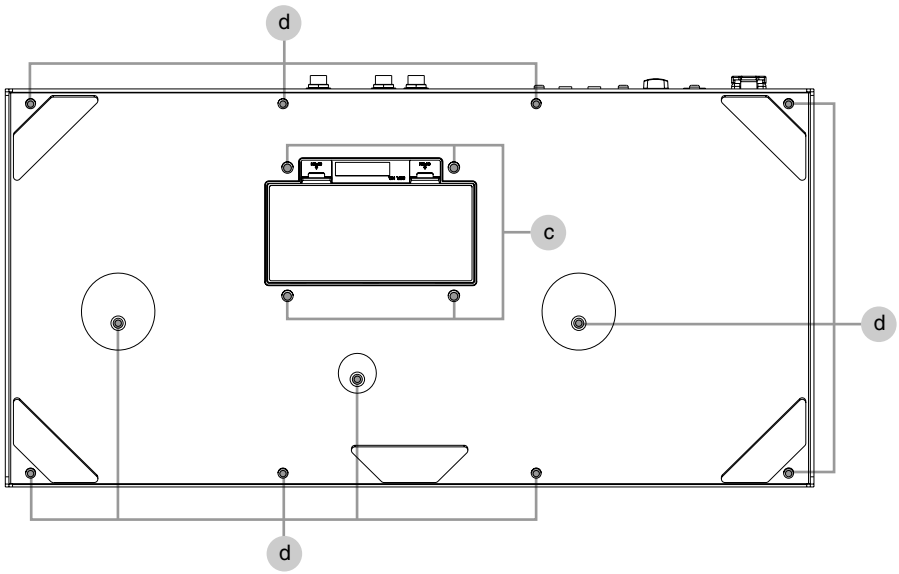


Plane View (1)

View 1



View 2



Plane View (1) Parts List

View 1

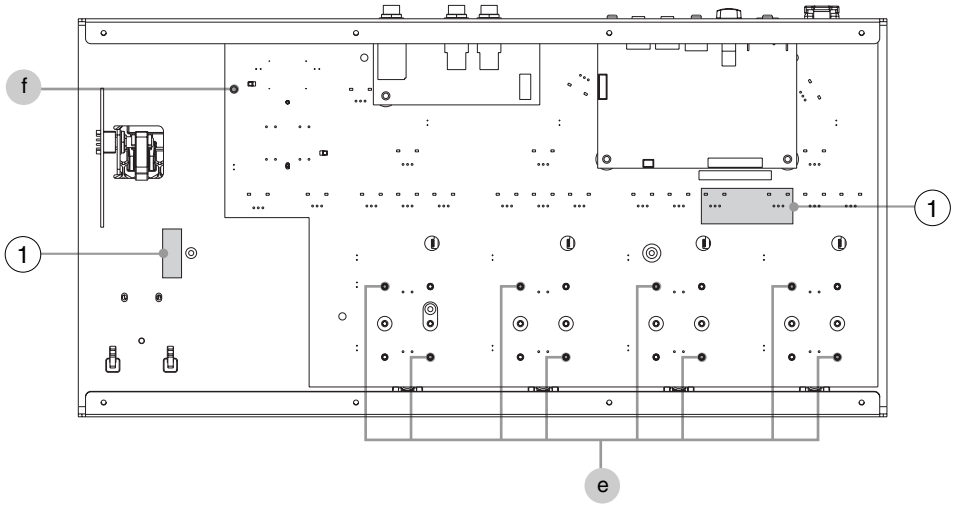
No.	Part Code	Part Name	Description	Q'ty
a	40019123	SCREW 3X8	BINDING TAPTITE S BZC	2
b	40342712	SCREW M3X6	PAN MACHINE W/SW+SMALL PW BZC	2

View 2

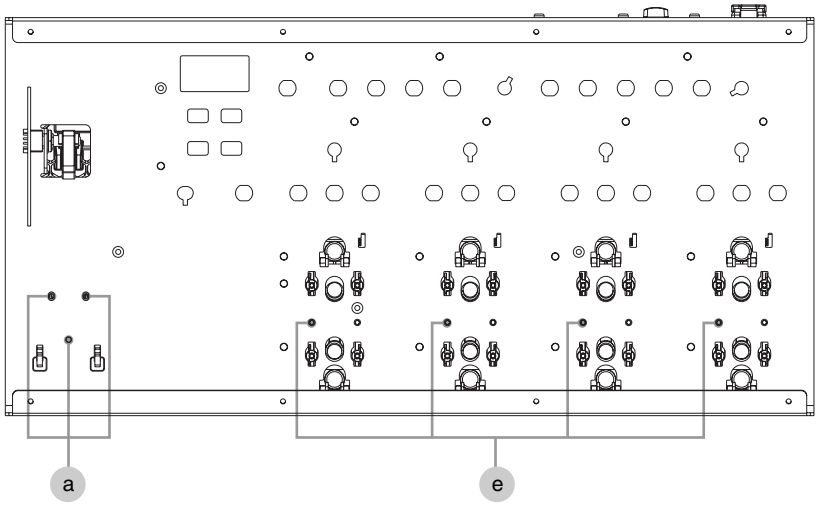
No.	Part Code	Part Name	Description	Q'ty
c	40011312	SCREW 3X8	BINDING TAPTITE P FE BZC	4
d	40342712	SCREW M3X6	PAN MACHINE W/SW+SMALL PW BZC	11

Plane View (2)

View 3



View 4



Plane View (2) Parts List

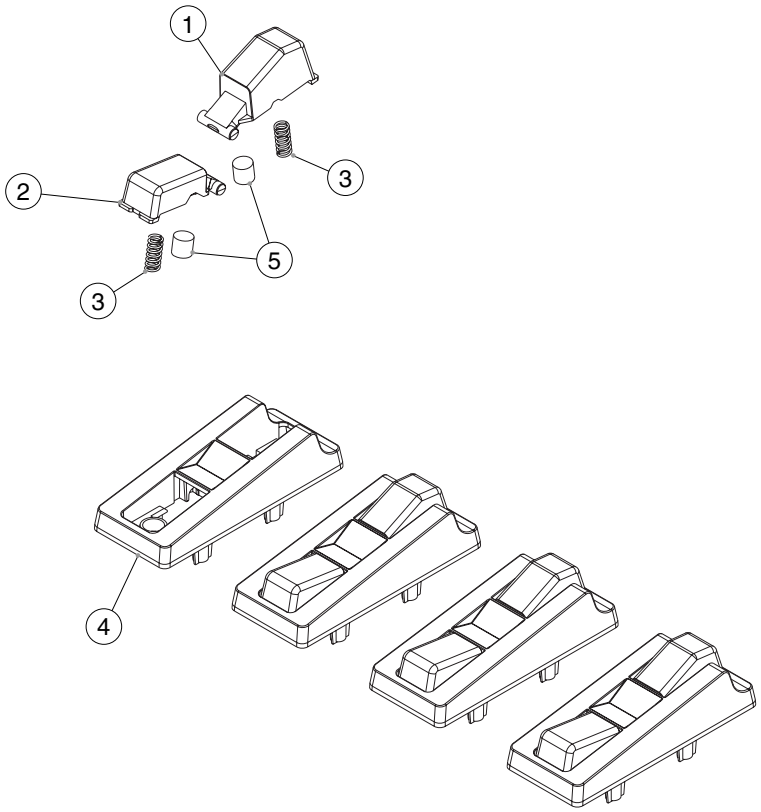
View 3

No.	Part Code	Part Name	Description	Q'ty
e	40011278	SCREW 3X8	BINDING TAPTITE P FE ZC	8
f	40017934	SCREW M3X6	PAN MACHINE W/SW+PW(L) FE ZC	1
1	40122645	NITTO FILAMENT TAPE	#3883 W19MM 50M 60P (CM)	-

View 4

No.	Part Code	Part Name	Description	Q'ty
a	40019123	SCREW 3X8	BINDING TAPTITE S BZC	3
e	40011278	SCREW 3X8	BINDING TAPTITE P FE ZC	4

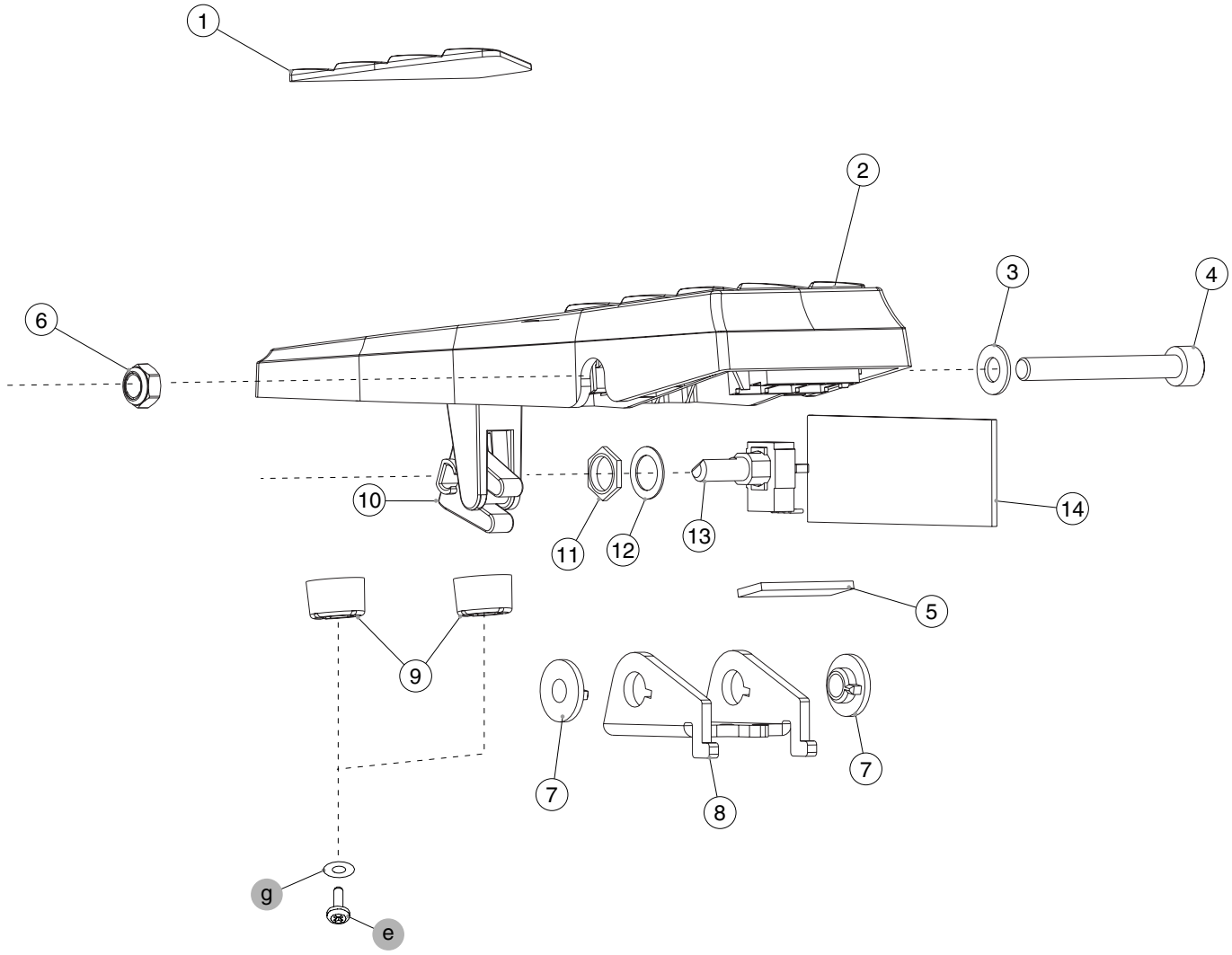
Exploded View (Fig. A)



Exploded View (Fig. A) Parts List

No.	Part Code	Part Name	Description	Q'ty
1	5100037546	SW PEDAL REAR		4
2	5100037545	SW PEDAL FRONT		4
3	04560712	SUPPORT SPRING	(G2177103R0)	8
4	5100037544	SW PEDAL ESCUTCHEON		4
5	5100003910	PEDAL FOOT H=7.6	(G2357126R0)	8

Exploded View (Fig. B)



Exploded View (Fig. B) Parts List

No.	Part Code	Part Name	Description	Q'ty
1	5100011395	PEDAL PLATE		1
2	5100011392	VR PEDAL		1
3	04560589	WASHER	M6 T1 (H5039122)	1
4	5100012929	HEX BOLT M6X50	HALF THREAD BZC	1
5	04560601	CUSHION	R (G2357111)	1
6	04560590	U-NUT M6	BZC	1
7	04560634	BOLT HOLDER	(G2147874)	2
8	5100011394	PEDAL HOLDER		1
9	5100012831	REAR CUSHION		2
10	03561356	SHAFT STAY	STAY	1
11	*******	NUT		1
12	*******	WASHER		1
13	01016167	11M/M ROTARY POTENTIOMETER	RK11K1140AFG 10KX1	1
	5100037426	PANEL SHEET ASSY		1
	* *This unit includes the following parts.*			
14	*******	EXP BOARD		1
	*******	PANEL BOARD	Refer to **Exploded View (All)** (p. 6).	1
	*******	JACK BOARD	Refer to **Exploded View (All)** (p. 6).	1
e	40011278	SCREW 3X8	BINDING TAPTITE P FE ZC	2
g	40127023	PLAIN WASHER 3X8X0.5	ZC	2

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

#	5100037540	TOP COVER		1
	5100002398	7 SEG COVER	(G2567172R0)	1
	5100011392	VR PEDAL		1
	5100011395	PEDAL PLATE		1
#	5100037544	SW PEDAL ESCUTCHEON		4
#	5100037545	SW PEDAL FRONT		4
#	5100037546	SW PEDAL REAR		4
#	5100037541	BOTTOM COVER		1
	04560878	BATTERY COVER	RTC #G2027602R0	1

CHASSIS

#	5100038986	BATTERY CASE SET		1
	5100011394	PEDAL HOLDER		1

KNOB, BUTTON

	03344934	R-KNOB	(75D522N0R0)	30
	12499175	BUTTON	JSPUE0011A	1
#	5100037543	KEYTOP UNIT		1

SWITCH

	01780101	TACT SWITCH	SKQKABD010	4
	03344723	TACT SWITCH	SKQKAKD010	8
	01899989	PUSH SWITCH	SPUP19-2N-LB2	1

JACK, EXT TERMINAL

	5100006474	3.5MM JACK	HTJ-035-10ABZ(F3439911R0)	2
	5100001342	6.5MM JACK	HTJ-064-12IMP (13449155R1)	3
	04908701	ADAPTOR JACK	KM02018ABM1P(F3439875R0)	1
	5100017587	USB CONNECTOR	UBR23-4K5100(F3439933R0)	1

PWB ASSY

#	5100037421	MAIN BOARD ASSY		1
#	5100037426	PANEL SHEET ASSY		1
	* *This unit includes the following parts.*			
#	********	PANEL BOARD		1
#	********	JACK BOARD		1
#	********	EXP BOARD		1

DIODE

	5100001581	LED	BL A-552SR-A B/W (F5029412R0)	1
	5100001582	LED	BL L-323SRDT (F5229810R0)	2
	05015956	LED	BL L-7104SRT (F5229820R0)	16
#	05015967	LED	L-7104SGT	1

POTENTIOMETER

	5100001449	POTENTIOMETER (F3279804R0)	RD901F-40-125F-B50K-06D	1
#	5100037572	ROTARY POTENTIOMETER	RD901F-40-125F-B50K-09D	1
	5100001452	POTENTIOMETER (F3229205R0)	RD901F-40-125F-B50K-0BD	1
#	5100001455	ROTARY POTENTIOMETER	RD901F-40-125F-B50K-0DD	4
	01016167	11M/M ROTARY POTENTIOMETER	RK11K1140AFG 10KX1	1
#	5100037380	ROTARY POTENTIOMETER	RV09BDF-40E1-125F-B50K-00D	23

WIRING, CABLE

#	5100037403	FLAT CABLE	SML2CD-28X80-BDX6(BL)-P1.0-S4	1
#	5100037404	WIRING W1	(EXP)	1
#	5100037405	WIRING W2	(INPUT)	1

SCREWS

	40342712	SCREW M3X6	PAN MACHINE W/SW+SMALL PW BZC	13
	40017934	SCREW M3X6	PAN MACHINE W/SW+PW(L) FE ZC	1
	40019123	SCREW 3X8	BINDING TAPTITE S BZC	5
	40011278	SCREW 3X8	BINDING TAPTITE P FE ZC	14
	40011312	SCREW 3X8	BINDING TAPTITE P FE BZC	4
	5100012929	HEX BOLT M6X50	HALF THREAD BZC	1
	04560590	U-NUT M6	BZC	1
	5100003918	JACK NUT M9X12X2	NI RTC(H5039510R0)	3
	40127023	PLAIN WASHER 3X8X0.5	ZC	2
	5100003926	PLAIN WASHER 9X13.5X0.5T	NI(H5039158R0)	3
	04560589	WASHER	M6 T1 (H5039122)	1

MISCELLANEOUS

	5100003910	PEDAL FOOT H=7.6	(G2357126R0)	8
	5100018071	POWER SW ESCUTCHEON	G2207430R1	1
	03344923	FOOT H=5 (G2357120R0)		5
	04560634	BOLT HOLDER	(G2147874)	2
	22360712	CORD HOOK	236-712	1
	5100003409	LED SPACER	LEDS-8S	17
	5100021018	PWB SPACER	LBC-08-N2W	2
	04560601	CUSHION	R (G2357111)	1
	5100012831	REAR CUSHION		2
	03561356	SHAFT STAY	STAY	1
	04783901	JACK COVER	(G2257203R0)	1
	03129878	DC JACK HOLDER		1
	04560712	SUPPORT SPRING	(G2177103R0)	8
	04892501	TERMINAL	JH-8M3-T	1
	40122645	NITTO FILAMENT TAPE	#3883 W19MM 50M 60P (CM)	-

ACCESSORIES (Standard)

#	5100037407	OWNER'S MANUAL	JAPANESE	1
#	5100037408	OWNER'S MANUAL	ENGLISH	1

Verifying the Version

1. Turn down the **OUTPUT LEVEL** control all the way counterclockwise (minimum).
2. Hold down **WRITE** and press **POWER** for 1 second or longer.
   The version appears on the 7-segment LED display.
   Examples of version indication

7-segment LED display	Version
1.0	1.0
1.1	1.1
1.2	1.2

3. After verifying the version, press **POWER** for 1 second or longer and switch off the power.

Virus Check

Before connecting your computer to the ME-80, carry out a virus check on the ME-80. If it has been infected by a virus, format it after obtaining permission from the end user. For the formatting procedure, refer to **Performing a Factory Reset** (p. 14).

Data Backup and Restore Operations

User data (patches and setting data) can be backed up by using special software for the ME-80.

You can download the special software from the Roland website (http://www.roland.co.jp).

For detailed information on usage, carefully read the Readme included in the downloadable file and use accordingly.

Performing a Factory Reset

1. Press **POWER** for 1 second or longer and start the unit normally.
2. Depress the pedal **MEMORY/MANUAL** several times to switch to the manual mode.
   The **MANUAL** LED lights up.
3. Hold down **EDIT** and depress pedal **3**.
   FA appears on the 7-segment LED display.
4. Press **WRITE**.
   The triangular LEDs to the left and right of the 7-segment LED display flash.
5. Press **WRITE** a second time.
   The 7-segment LED and the triangle LEDs on the left and right flash, and a factory reset is executed.

* *Never switch off the power while the Factory Reset operation is being executed.*

When the factory reset finishes, the unit returns to the ordinary state at startup.

Updating the System

Items Required

- Computer (running Windows)
- USB cable
- AC adaptor (PSA-***S)
- Update program (obtained via Service Net)

Procedure

* *Never switch off the power to the unit while the update is in progress.*

1. Import the update program (**ME80ROM.BIN** and **ROMINFO.TXT**) into the computer.
2. Connect an AC adaptor (PSA series).
3. Hold down **EXIT** and **WRITE** and switch on the power.
   Verify that **UP** appears on the 7-segment LED display.
4. Using the USB cable, connect the ME-80 and the computer.
   Verify that the reading on the 7-segment LED display changes to **U.P** and the dot is flashing.
5. Copy the update programs (**ME80ROM.BIN** and **ROMINFO.TXT**) to the **BOSS_ME80** folder recognized by the computer.
6. End the USB connection using the proper procedure for Windows.
   The **PEDAL FX** LED lights up.
7. Press **WRITE**.
   The update starts.

* *Never switch off the power while the update operation is in progress.*

When the **MANUAL** LED flashes and a screen like the one shown below appears, the update has finished.

8. Switch off the power.

Test Mode

Items Required

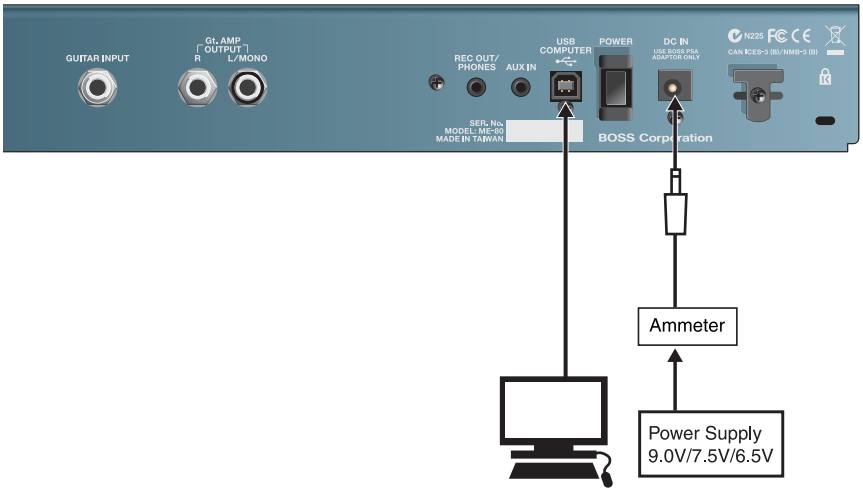
- Oscilloscope
- Noise Meter
- Monitor Speakers
- Oscillator
- 47-kΩ short plug (standard monaural)
- Computer (running Windows)

- ME-80 driver

* *Obtain this from one of the following web pages, and install it on the computer described above.*
http://www.roland.co.jp/
http://www.roland.com/

- Tester (Ammeter)
- Stabilized power supply
- Cables for connecting the items just described
- AA dry-cell batteries x 6

Connection Diagram



Entering the Test Mode

1. Refer to the connection diagram, connect the respective pieces of equipment.
2. Adjust the **PEDAL FX** control to **FREEZE**.
3. Turn down all controls other than the **PEDAL FX** control all the way counterclockwise (minimum).
   * *The Test Mode is not entered unless the control is turned all the way.*
4. Hold down **WRITE** and **CTL** and press **POWER** for 1 second or longer.
5. When **80** appears on the 7-segment LED display, release your hand.
   The version appears on the 7-segment LED display.

Quitting the Test Mode

Press **POWER** for 1 second or longer to switch off the power.

Skipping Test Items

To advance to the next test item, hold down **EXIT** and press **WRITE**. Returning to the previous test item is not possible.

Test Items

1. Version Check and Device Check

1. When entering the Test Mode, the device check begins automatically.

* *When no USB cable is connected, an error is displayed.*

The version appears on the 7-segment LED display and verify that the triangular LED on the left is lighted.

If the device check results in an error, the location of the error is shown on the 7-segment LED display.

Display	Location of Error
	Serial flash error
	App Check Sum error
	Updater Check Sum error
	USB error
	DSP iram0 error
	DSP iram1 error
	DSP pram0 error
	Internal ERAM error
	External ERAM error
	External ERAM error
	UDL Clock error
	MONO Test Failed
	A1 Waveform Test Failed
	A1 MUTE Test Failed
	A1 NOISE Test Failed
	A2 Waveform Test Failed
	A2 MUTE Test Failed
	A2 NOISE Test Failed
	A3 Waveform Test Failed
	A3 MUTE Test Failed
	A3 NOISE Test Failed
	A4 Waveform Test Failed
	A4 MUTE Test Failed
	A4 NOISE Test Failed

2. Disconnect the USB cable.

When correct detection occurs, execution automatically advances to the next test item.

* *If an error occurs, execution does not advance to the next test item.*

2. Current-consumption Check, Voltage Detection Check and SW/LED Check

1. Verify that all LEDs are lighted.

Verify that the voltage of the stabilized power supply is **9 V**.

2. Measure the current consumption and verify that it is between **140** and **170 mA**.

3. Set the voltage of the stabilized power supply to **6.5 V**.

Verify that **bt** appears on the 7-segment LED display.

4. Set the voltage of the stabilized power supply to **7.5 V**.

Verify that the all LEDs light up.

5. Set the voltage of the stabilized power supply to **9.0 V**.

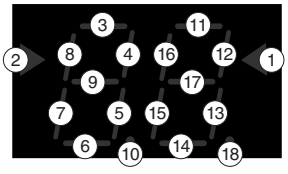
6. Press the switches shown in the following chart in the sequence shown under No.

When you press each switch, verify that the corresponding LED in the chart goes dark.

Verify that a clicking sensation is felt when each switch is pressed.

No.	Operated switch	Darkened LED
1	PEDAL 4 (DELAY)	DELAY (Pedal)
2	PEDAL 3 (MOD)	MOD (Pedal)
3	PEDAL 2 (OD/DS)	OD/DS (Pedal)
4	PEDAL 1 (COMP)	COMP (Pedal)
5	BANK ▼ PEDAL	BANK ▼
6	BANK ▲ PEDAL	BANK ▲
7	CTL PEDAL	CTL
8	MEMORY/MANUAL PEDAL	MANUAL
9	MEMORY/MANUAL PEDAL	MEMORY
10	EDIT	COMP/FX1
11	EDIT	OD/DS
12	EDIT	MOD
13	EDIT	DELAY
14	EDIT	PREAMP
15	EDIT	EQ/FX2
16	EDIT	REVERB
17	EDIT	PEDAL FX
18	CTL	7-segment LED 1
19	CTL	7-segment LED 2
20	EXIT	7-segment LED 3
21	EXIT	7-segment LED 4
22	EXIT	7-segment LED 5
23	EXIT	7-segment LED 6
24	EXIT	7-segment LED 7
25	EXIT	7-segment LED 8
26	EXIT	7-segment LED 9
27	EXIT	7-segment LED 10
28	EXIT	7-segment LED 11
29	EXIT	7-segment LED 12
30	EXIT	7-segment LED 13
31	EXIT	7-segment LED 14
32	EXIT	7-segment LED 15
33	EXIT	7-segment LED 16
34	EXIT	7-segment LED 17
35	EXIT	7-segment LED 18

7-segment LED darkening sequence



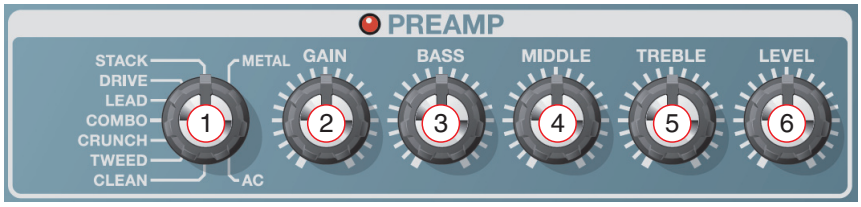
After all have gone dark, press **WRITE** to advance to the next test item.

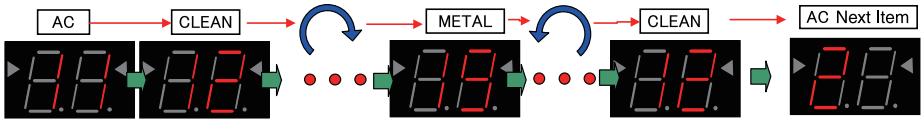
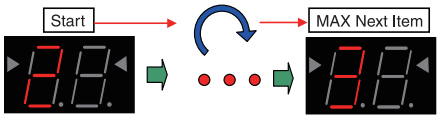
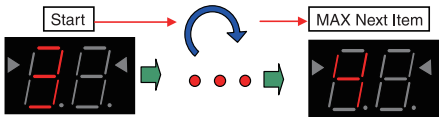
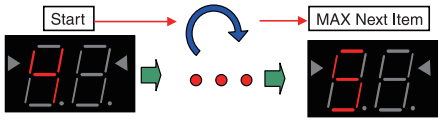
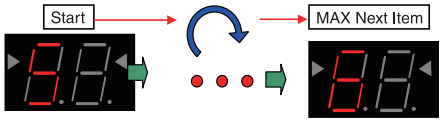
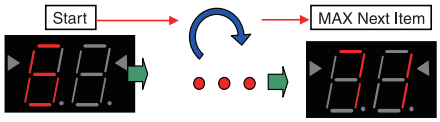
3. VR Test

1. Verify that **11** is shown on the 7-segment LED display.

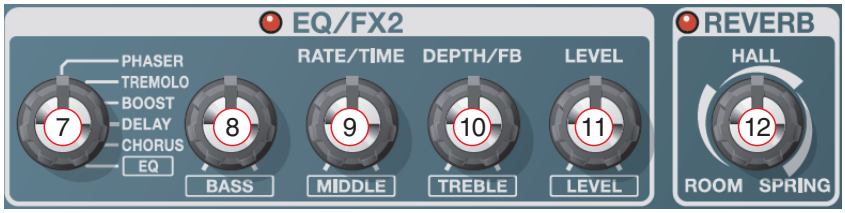
* *If **11** is not shown on, turn down all controls all the way counterclockwise (minimum) and verify that the reading changes to **11**.*

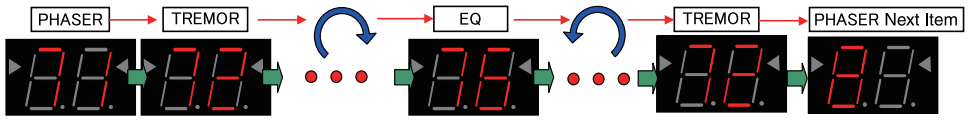
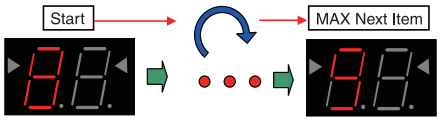
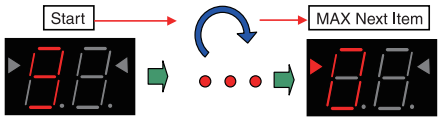
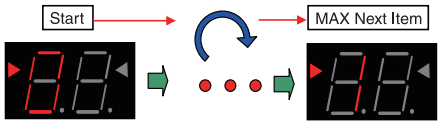
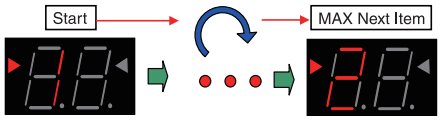
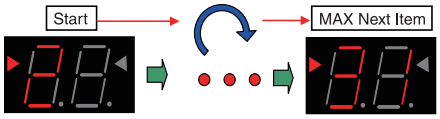
2. Operate the VR knobs shown in the following chart in the sequence shown under No. and verify the reading of the 7-segment LED display.



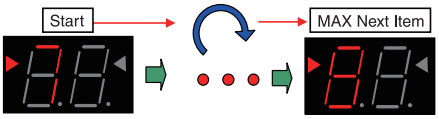
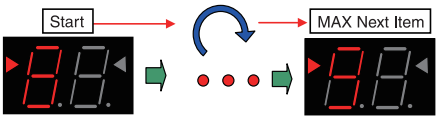
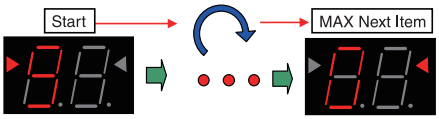
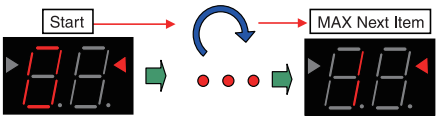
No.	VR knob	VR position and reading on the 7-segment LED display
1	PREAMP TYPE	 Verify that the 7-segment LED display changes with each click.
2	PREAMP GAIN	
3	PREAMP BASS	
4	PREAMP MIDDLE	
5	PREAMP TREBLE	
6	PREAMP LEVEL	

3. Verify that **71** is shown on the 7-segment LED display.

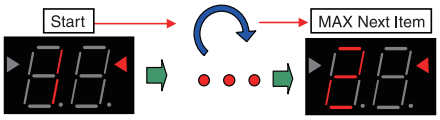
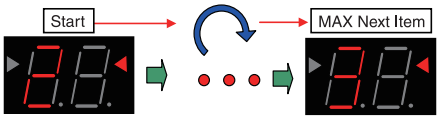
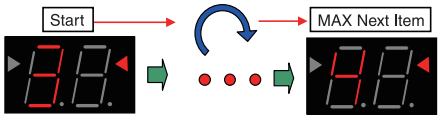
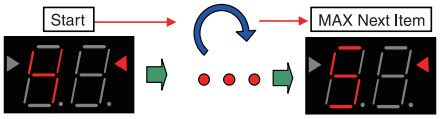
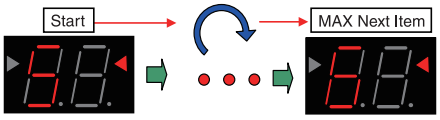
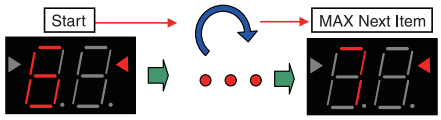
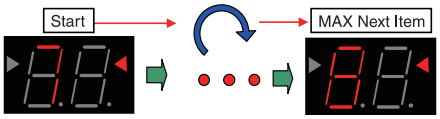
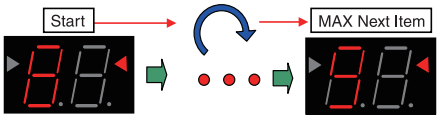


No.	VR knob	VR position and reading on the 7-segment LED display
7	EQ/FX2 TYPE	 Verify that the 7-segment LED display changes with each click.
8	EQ/FX2 BASS	
9	EQ/FX2 MIDDLE	
10	EQ/FX2 TREBLE	
11	EQ/FX2 LEVEL	
12	REVERB	

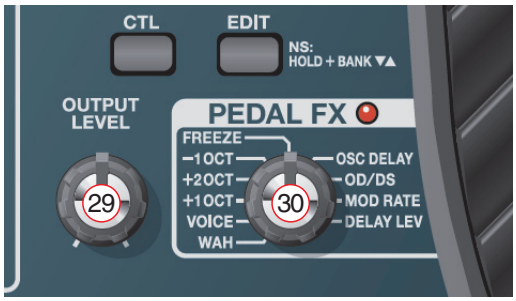
4. Verify that **31** is shown on the 7-segment LED display.

No.	VR knob	VR position and reading on the 7-segment LED display
13	DELAY TYPE	 Verify that the 7-segment LED display changes with each click.
14	MOD TYPE	 Verify that the 7-segment LED display changes with each click.
15	OD/DS TYPE	 Verify that the 7-segment LED display changes with each click.
16	COMP/FX1 TYPE	 Verify that the 7-segment LED display changes with each click.
17	COMP/FX1/SUSTAIN/ SENS/-1OCT	
18	COMP/FX1/ATTACK/ TONE/-2OCT	
19	COMP/FX1/LEVEL/ PEAK/DIRECT	
20	OD/DS DRIVE	

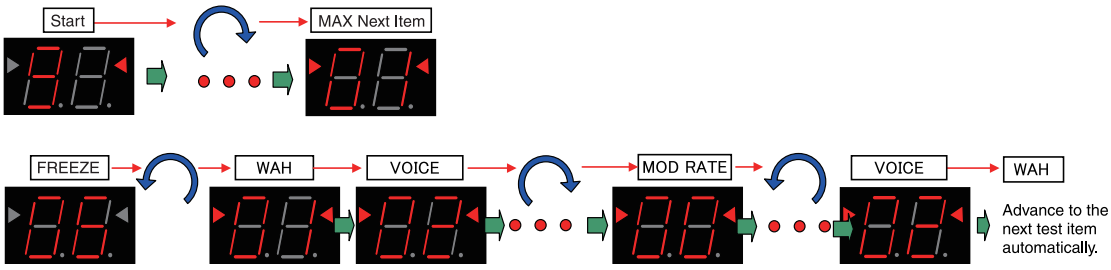
5. Verify that **1** is shown on the 7-segment LED display.

No.	VR knob	VR position and reading on the 7-segment LED display
21	OD/DS TONE	
22	OD/DS LEVEL	
23	MOD/RATE/KEY	
24	MOD/DEPTH/HARMONY	
25	MOD/E.LEVEL/RESONANCE	
26	DELAY TIME	
27	DELAY FEEDBACK	
28	DELAY E.LEVEL	

6. Verify that **9** is shown on the 7-segment LED display.



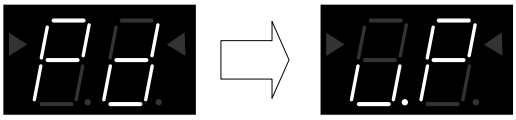
No.	VR knob	VR position and reading on the 7-segment LED display
29	OUTPUT LEVEL	Start → MAX Next Item
30	PEDAL FX TYPE	FREEZE → WAH → VOICE → MOD RATE → VOICE → WAH



Verify that the 7-segment LED display changes with each click.

4. EXP VR Check

The 7-segment LED display shows **Pd**, then **UP** appears.



1. Depress the heel side of the expression pedal all the way and press **WRITE**.
dn appears on the 7-segment LED display.

2. Depress the toe side of the expression pedal all the way and press **WRITE**.
5 appears on the 7-segment LED display.

3. Depress the toe side of the expression pedal more forcefully and verify that the **PEDAL FX** LED lights up.

4. Again depress the toe side of the expression pedal forcefully and verify that the **PEDAL FX** LED goes dark.

5. Verify that a screen like the one shown below appears on the 7-segment LED display.

6. Press **WRITE** to advance to the next test item.

5. AUDIO Check

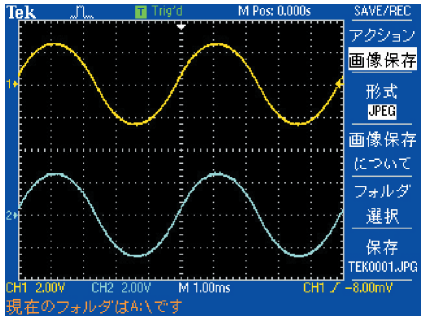
The **1** LED lights up.
Verify that **AU** is shown on the 7-segment LED display.

D/A Check

1. Make the settings shown below on the oscilloscope and connect it to the **Gt. AMP OUTPUT L/MONO** and **R** jacks.
ch1: 2.00 V/div, ch2: 2.00 V/div, TIME: 1.00 ms/div

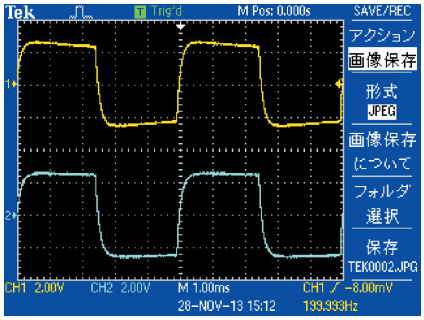
2. Depress the pedal **2**.
The **2** LED lights up.

3. Verify that the output value is between **4.9** and **5.2 Vp-p**.

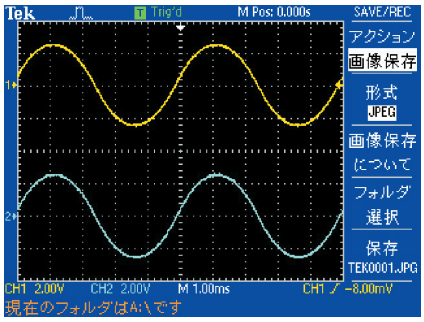


4. Press **CTL**.
The **DELAY** LED lights up.

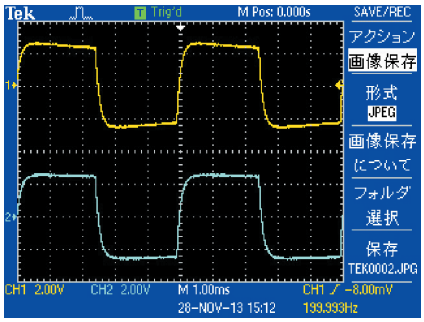
5. Verify that the output value is between **4.9** and **5.2 Vp-p**.



6. Connect the oscilloscope to the **REC OUT/PHONES** jack.
7. Depress the pedal **2**.
   The **2** LED lights up.
8. Verify that the output value is between **4.9** and **5.2 Vp-p**.



9. Press **CTL**.
   The **DELAY** LED lights up.
10. Verify that the output value is between **4.9** and **5.2 Vp-p**.

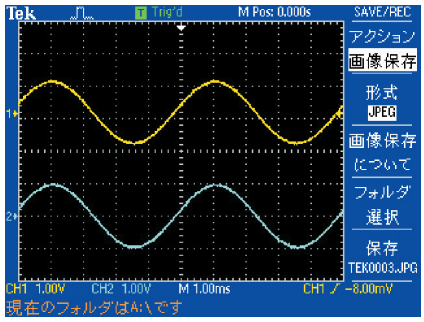


DA Residual Noise Check

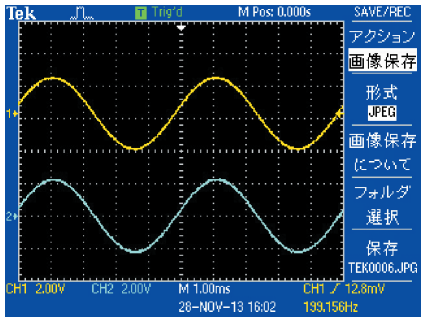
1. Connect the noise meter to the **Gt. AMP OUTPUT L/MONO** and **R** jacks.
2. Depress the pedal **1**.
   The **1** LED lights up.
3. Verify that the noise-meter value is **-58 dBm** or less (DIN audio).
4. Connect the noise meter to the **REC OUT/PHONES** jack.
5. Verify that the noise-meter value is ~~**-58 dBm**~~ **-90dBm** or less (DIN audio).

A/D Check

1. Make the settings shown below on the oscillator and connect it for input to the **GUITAR INPUT** jack.
   200-Hz sine wave at 2.0 Vp-p
2. Make the settings shown below on the oscilloscope and connect it to the **Gt. AMP OUTPUT L/MONO** and **R** jacks.
   ch1: 1.00 V/div, ch2: 1.00 V/div, TIME: 1.00 ms/div
3. Press **EDIT**.
   The **PEDAL FX** LED lights up.
4. Verify that the output value is between **1.9** and **2.1 Vp-p**.



5. Make the settings shown below on the oscillator and connect it for input to the **GUITAR INPUT** jack.
   200-Hz sine wave at 50 mVp-p
6. Make the settings shown below on the oscilloscope and connect it to the **Gt. AMP OUTPUT L/MONO** and **R** jacks.
   ch1: 2.00 V/div, ch2: 2.00 V/div, TIME: 1.00 ms/div
7. Depress the pedal **3**.
   The **3** LED lights up.
8. Verify that the output value is between **4.2** and **4.6 Vp-p**.

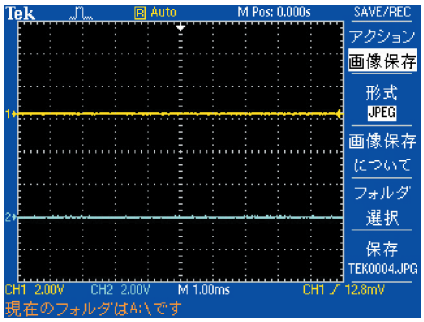


AD Residual Noise Check and Impact-shock Noise Check

1. Connect the noise meter to the **Gt. AMP OUTPUT L/MONO** and **R** jacks.
2. Insert a 47-kΩ short plug into the **GUITAR INPUT** jack.
3. Depress the pedal **3** and verify that the noise-meter value is **-58 dBm** (DIN-AUDIO).
4. Connect the monitor speakers to the **Gt. AMP OUTPUT L/MONO** and **R** jacks.
5. Verify that no abnormal noise is heard even when vibration is applied.

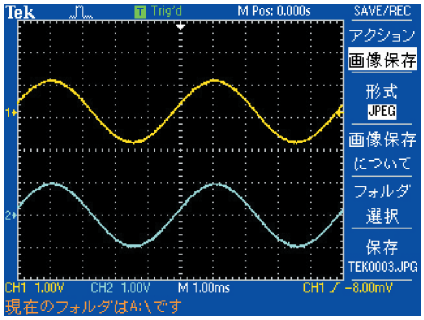
MUTE Check

1. Make the settings shown below on the oscilloscope and connect it to the **Gt. AMP OUTPUT L/MONO** and **R** jacks.
   ch1: 2.00 V/div, ch2: 2.00 V/div, TIME: 1.00 ms/div
2. Depress the pedal ~~**MEMORY/MANUAL**~~ **CTL**.
   The ~~**MEMORY/MANUAL**~~ **CTL** LED lights up.
3. Verify that no waveforms are output.



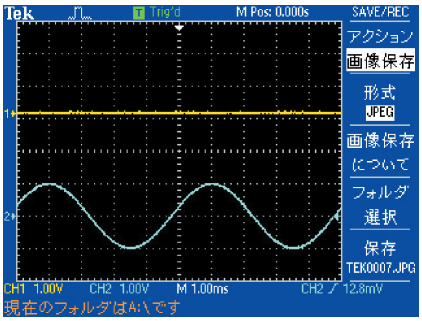
AUX IN Check

1. Make the settings shown below on the oscillator and connect it for input to the **AUX IN** (L, R) jacks.
   200-Hz sine wave at 2.0 Vp-p
2. Make the settings shown below on the oscilloscope and connect it to the **Gt. AMP OUTPUT L/MONO** and **R** jacks.
   ch1: 1.00V/div, ch2: 1.00V/div, TIME: 1.00 ms/div
3. Press **EDIT**.
   The **PEDAL FX** LED lights up.
4. Verify that the output value is between **1.9** and **2.1 Vp-p**.

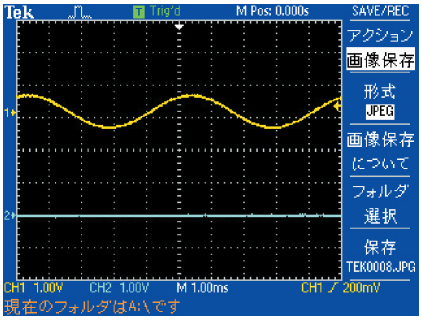


OUTPUT MONO Check

1. Set the signal generator as shown below, and perform input only to the R channel of the **AUX IN** jack.
   200-Hz sine wave at 2.0 Vp-p
2. Make the settings shown below on the oscilloscope and connect it to the **Gt. AMP OUTPUT L/MONO** and **R** jacks.
   ch1: 1.00 V/div, ch2: 1.00 V/div, TIME: 1.00 ms/div
3. Verify that the waveforms are output to the only ch2 (R channel).



4. Detach the plug from the **Gt. AMP OUTPUT R** jack.
   Verify that the waveforms are output to the only ch1 (L channel).

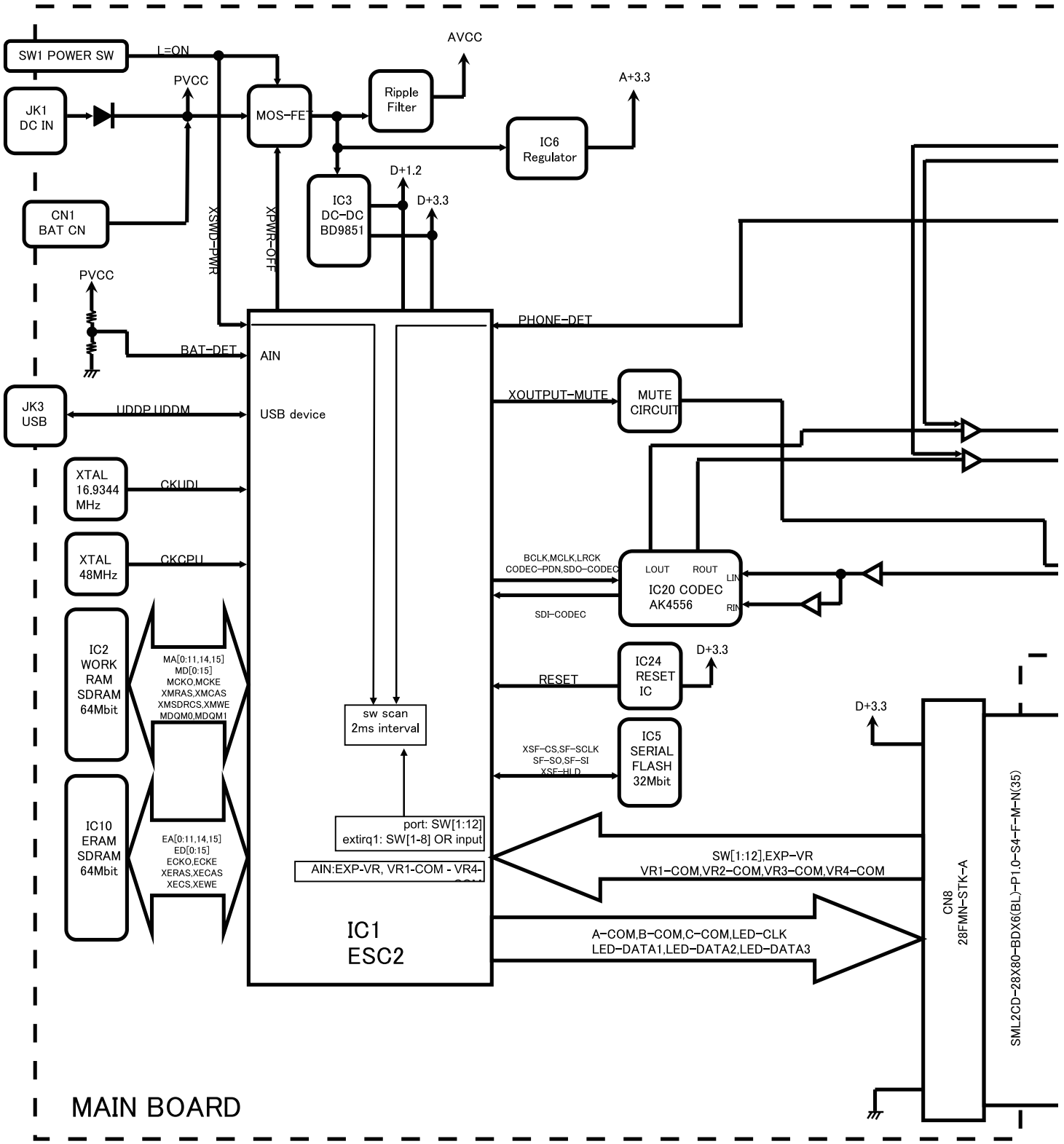


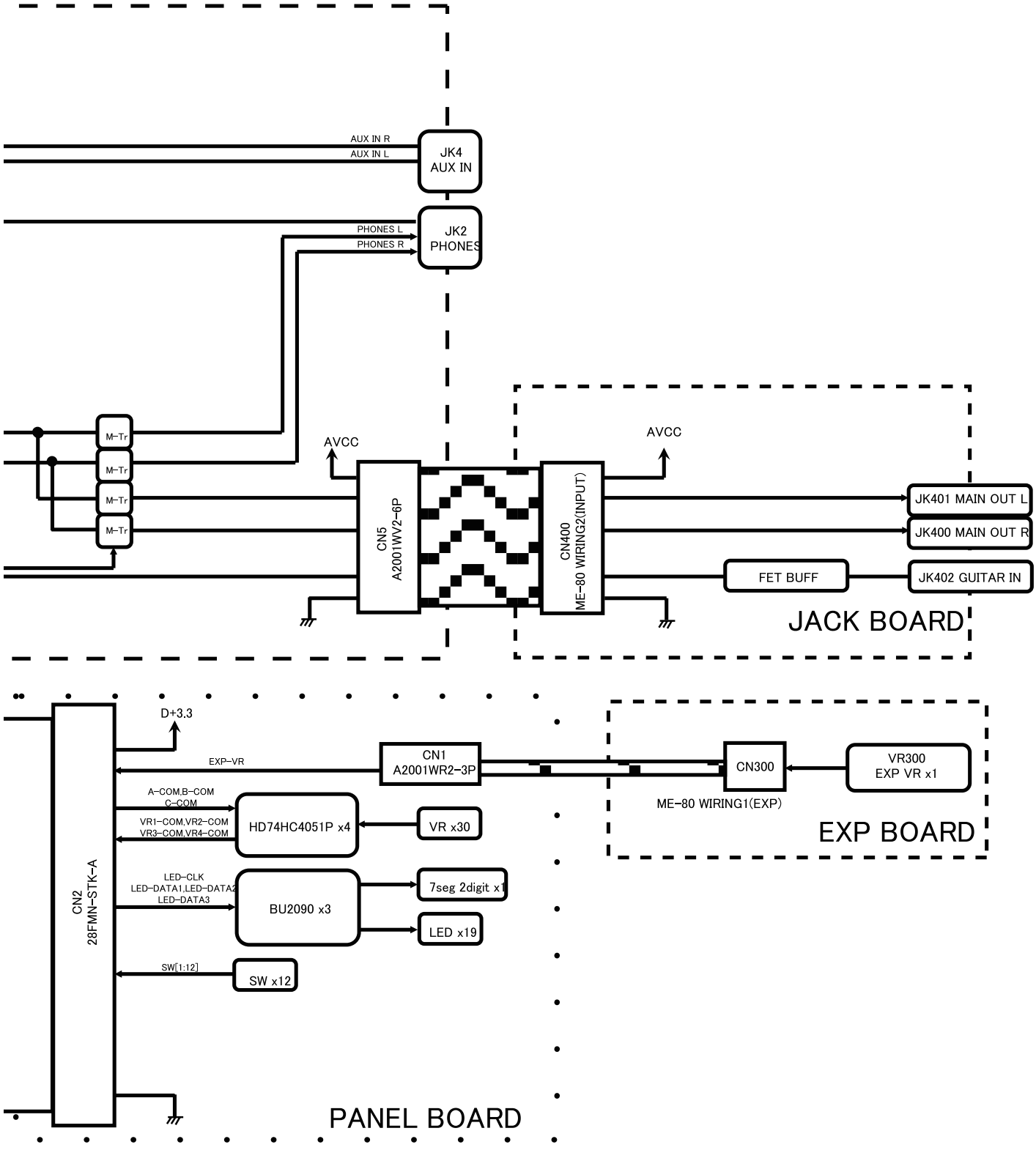
5. Switch off the power.

6. Battery Operation Check

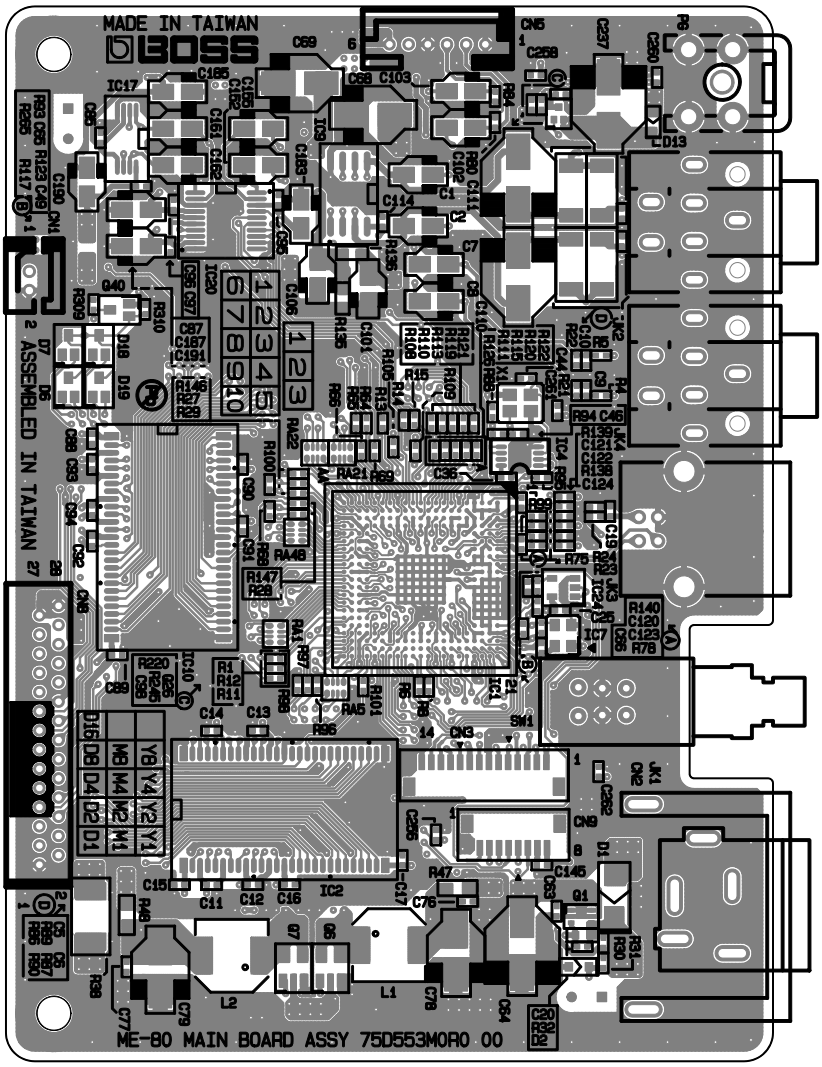
1. Detach the connected AC adaptor.
2. Insert batteries into the battery box, then switch on the power.
   Verify that the 7-segment LED display lights up.
3. If normal operation can be verified, the test results are considered to be OK (passed).
4. Switch off the power.

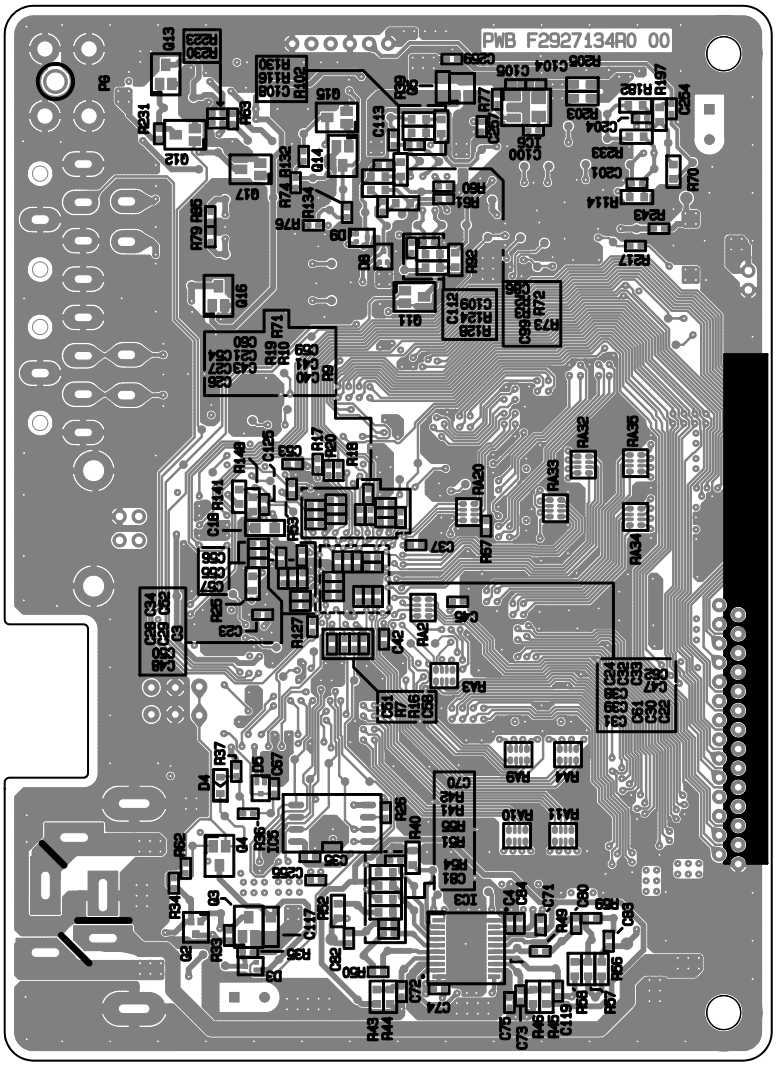
Block Diagram



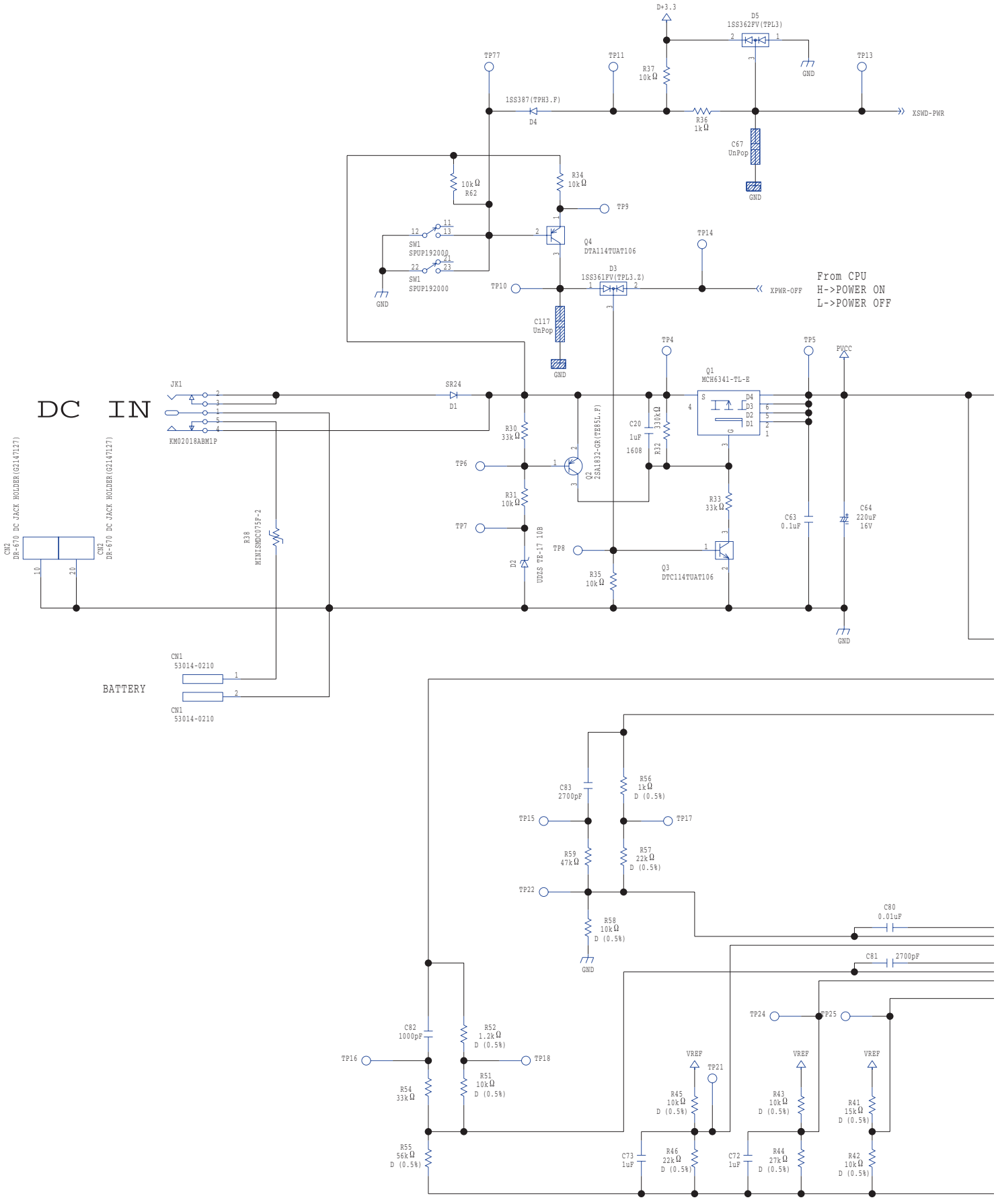

AUX IN R
AUX IN L
JK4
AUX IN
PHONES L
PHONES R
JK2
PHONES
M-Tr
M-Tr
M-Tr
M-Tr
AVCC
CN5
A2001WV2-6P
AVCC
CN400
ME-80 WIRING2(INPUT)
JK401 MAIN OUT L
JK400 MAIN OUT R
FET BUFF
JK402 GUITAR IN
JACK BOARD
D+3.3
EXP-VR
CN1
A2001WR2-3P
CN300
VR300
EXP VR x1
ME-80 WIRING1(EXP)
EXP BOARD
A-COM,B-COM
C-COM
VR1-COM,VR2-COM
VR3-COM,VR4-COM
HD74HC4051P x4
VR x30
CN2
28FMN-STK-A
LED-CLK
LED-DATA1,LED-DATA2
LED-DATA3
BU2090 x3
7seg 2digit x1
LED x19
SW[1:12]
SW x12
PANEL BOARD

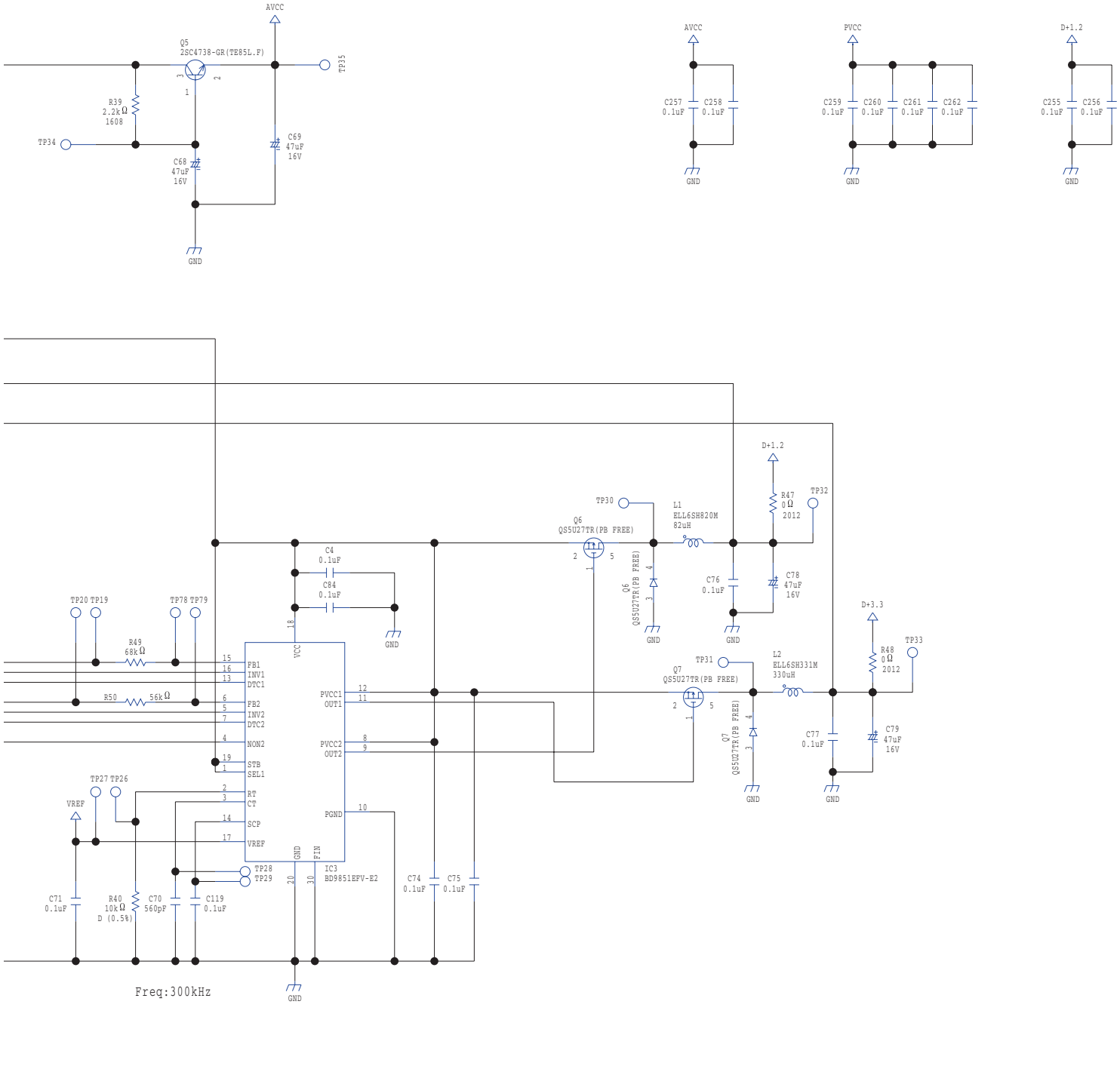
Circuit Board (Main Board)



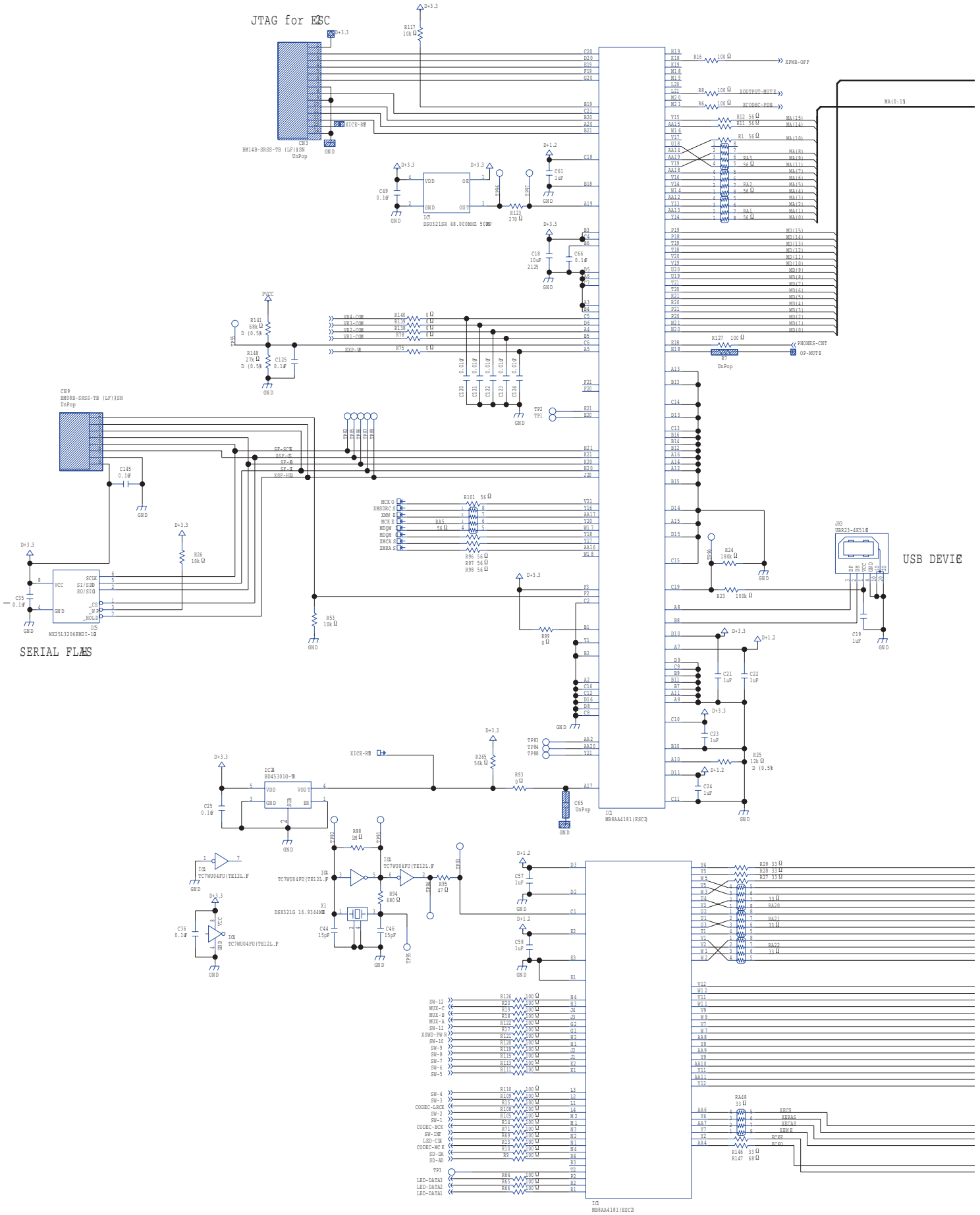

PWB F2927134R0 00

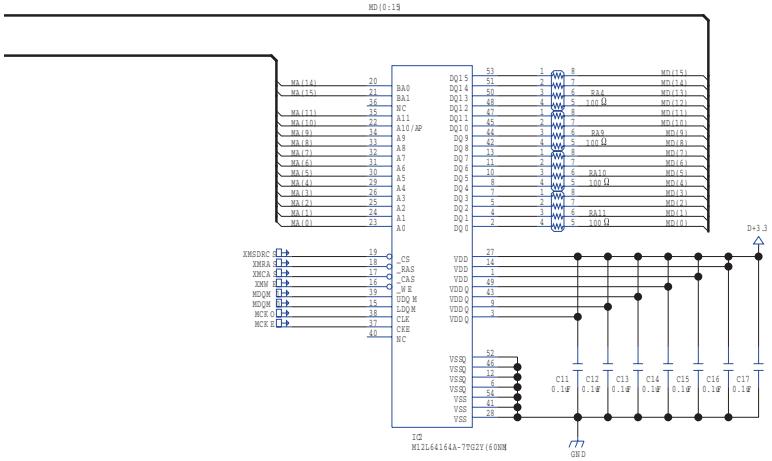
Circuit Diagram (Main Board: 1/4)

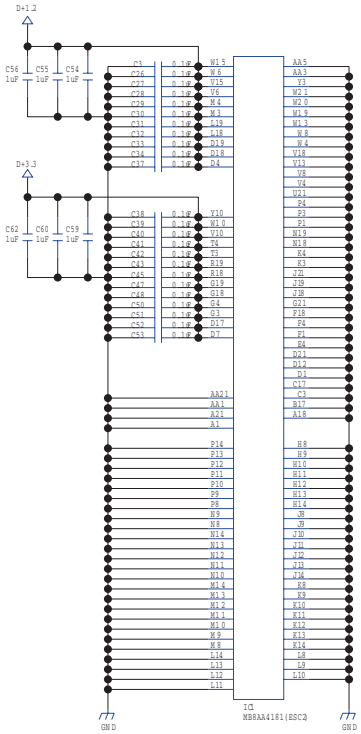


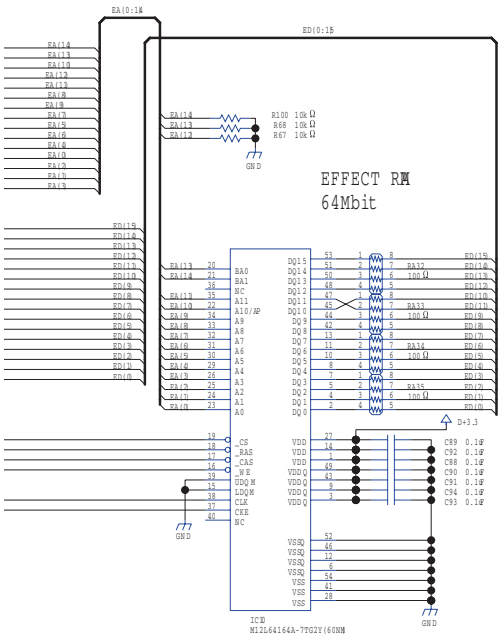

AVCC
Q5
2SC4738-GR(TE85L,F)
TP35
R39
2.2kΩ
1608
TP34
C69
47uF
16V
C68
47uF
16V
GND
AVCC
C257
0.1uF
C258
0.1uF
GND
PVCC
C259
0.1uF
C260
0.1uF
C261
0.1uF
C262
0.1uF
GND
D+1.2
C255
0.1uF
C256
0.1uF
GND
D+1.2
TP30
Q6
QS5U27TR(PB FREE)
L1
ELL6SH820M
82uH
R47
0Ω
2012
TP32
C4
0.1uF
C84
0.1uF
C76
0.1uF
C78
47uF
16V
GND
TP20 TP19
TP78 TP79
R49
68kΩ
R50
56kΩ
VCC
FB1
INV1
DTC1
FB2
INV2
DTC2
NON2
STB
SEL1
RT
CT
SCP
VREF
PVCC1
OUT1
PVCC2
OUT2
PGND
GND
PIN
IC3
BD9851EFV-E2
TP28
TP29
TP27 TP26
VREF
C71
0.1uF
R40
10kΩ
D (0.5%)
C70
560pF
C119
0.1uF
C74
0.1uF
C75
0.1uF
TP31
Q7
QS5U27TR(PB FREE)
L2
ELL6SH331M
330uH
D+3.3
TP33
R48
0Ω
2012
C77
0.1uF
C79
47uF
16V
Freq:300kHz

Circuit Diagram (Main Board: 2/4)

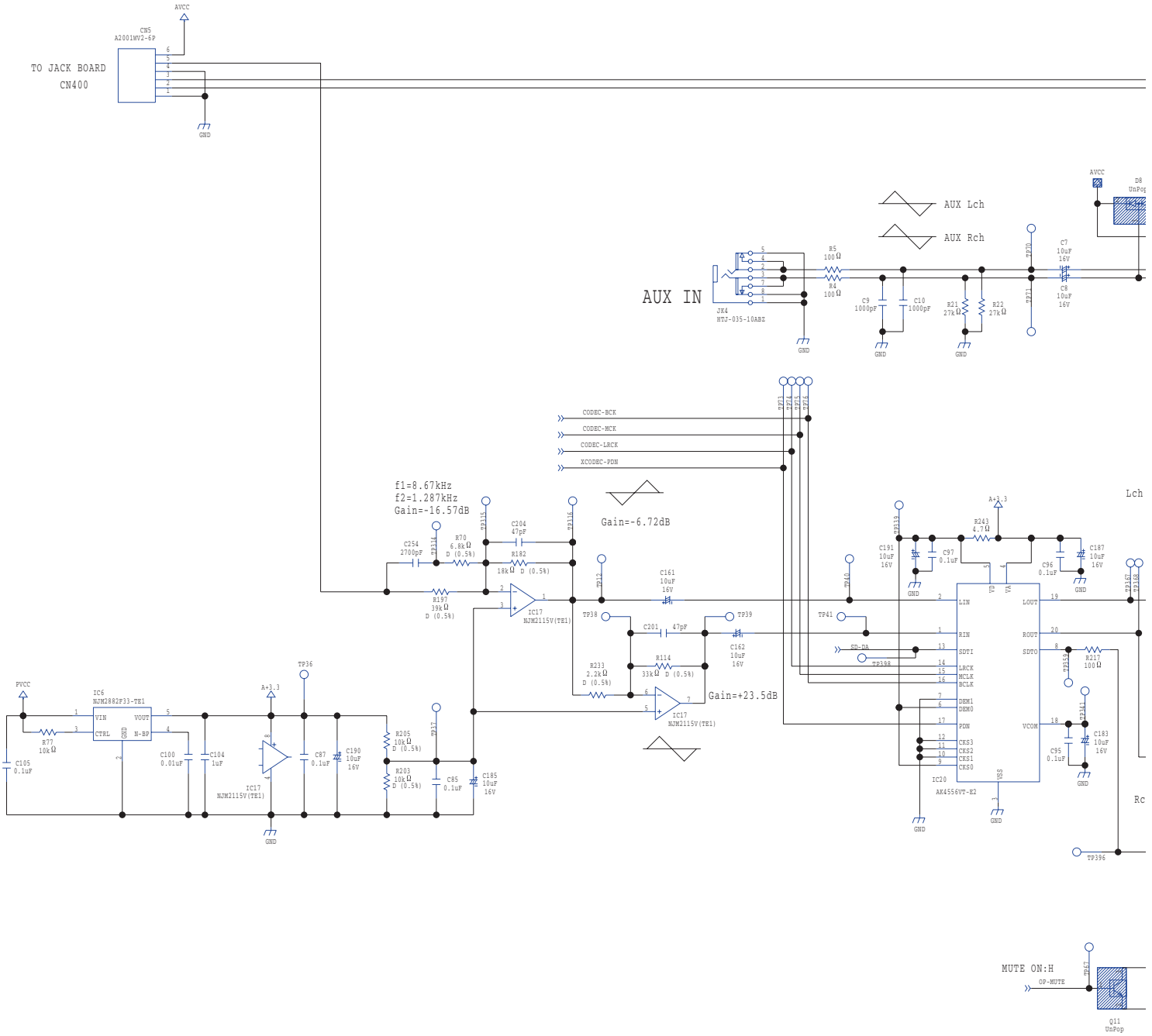


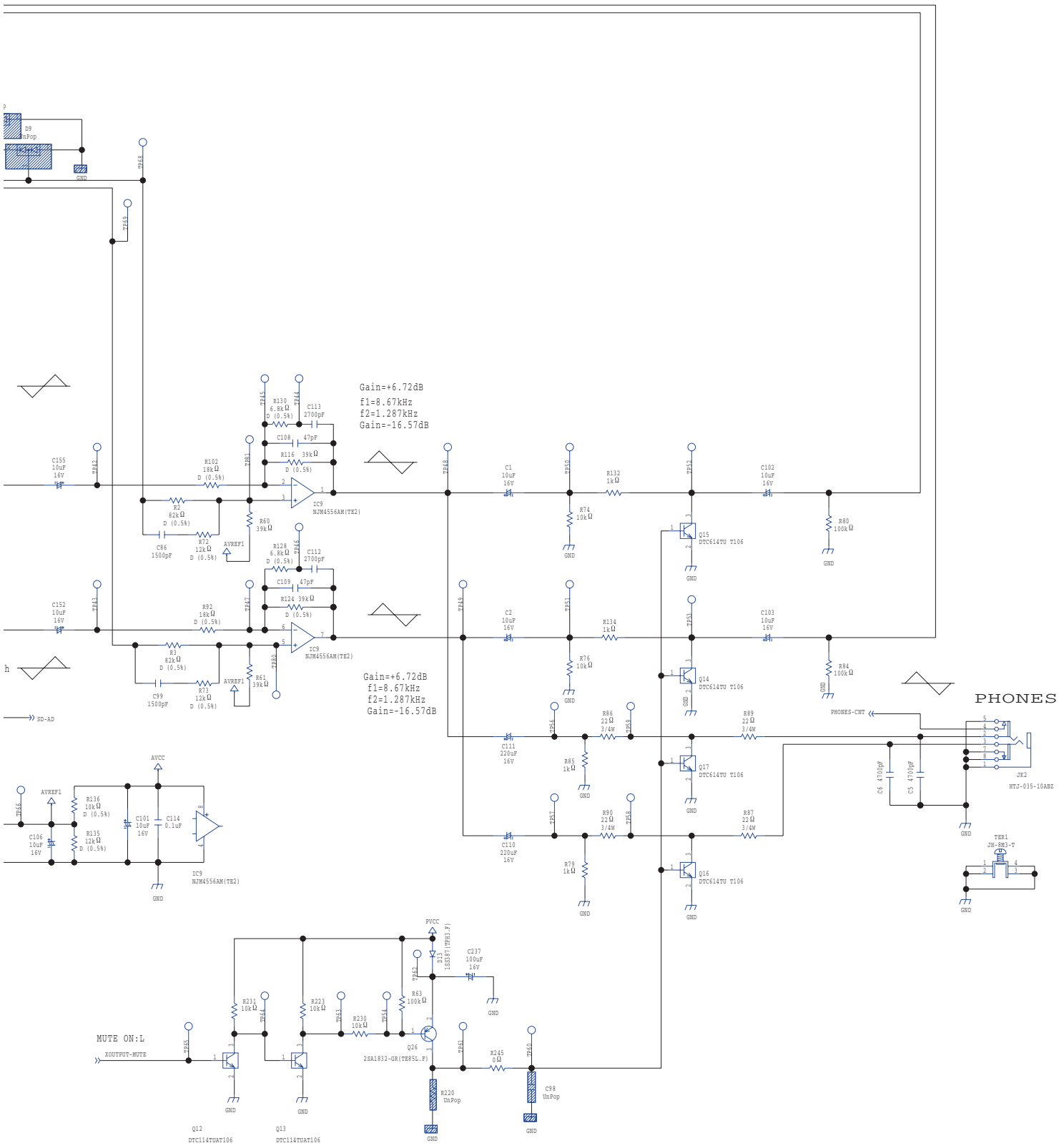

MD(0:15)
IC2
M12L64164A-7TG2Y(60NM
D+3.3
GND


D+1.2
D+3.3
IC1
MB8AA4181(ESC2)
GND

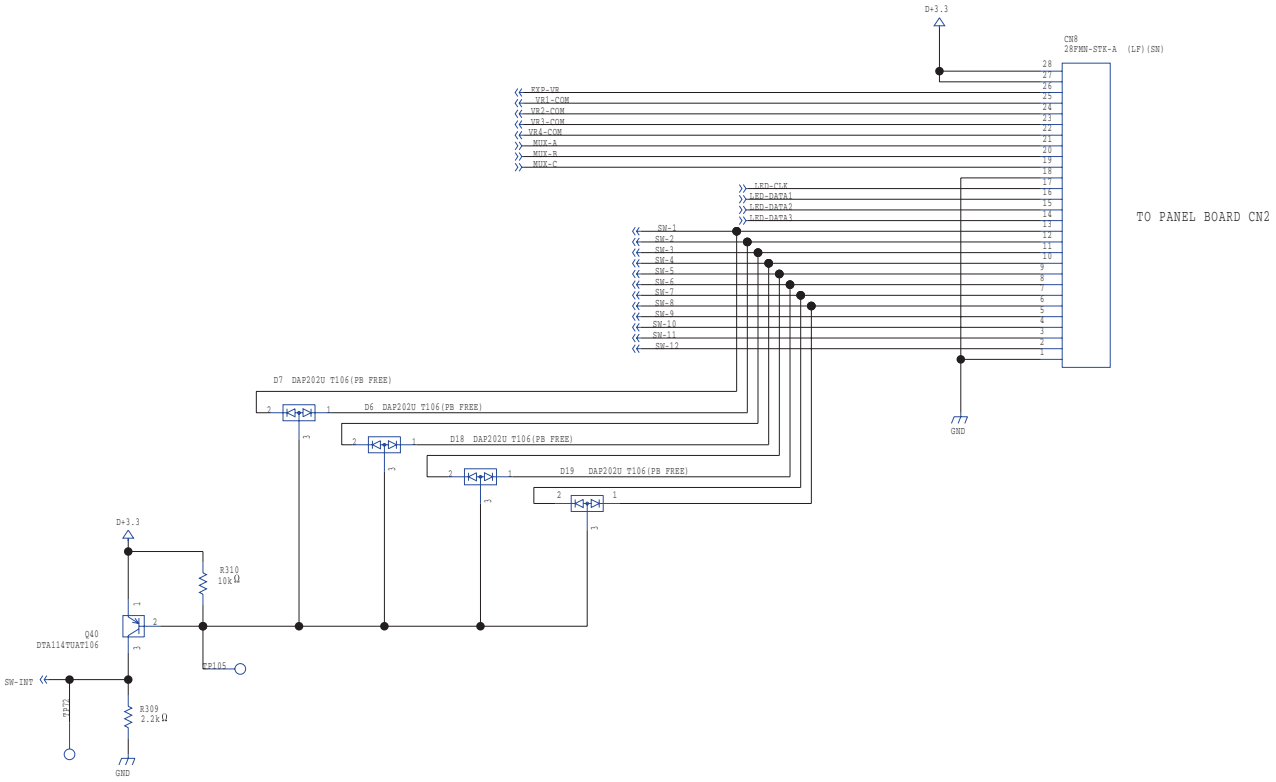

EA(0:14)
ED(0:15)
EFFECT RAM
64Mbit
IC3
M12L64164A-7TG2Y(60NM
D+3.3
GND

Circuit Diagram (Main Board: 3/4)

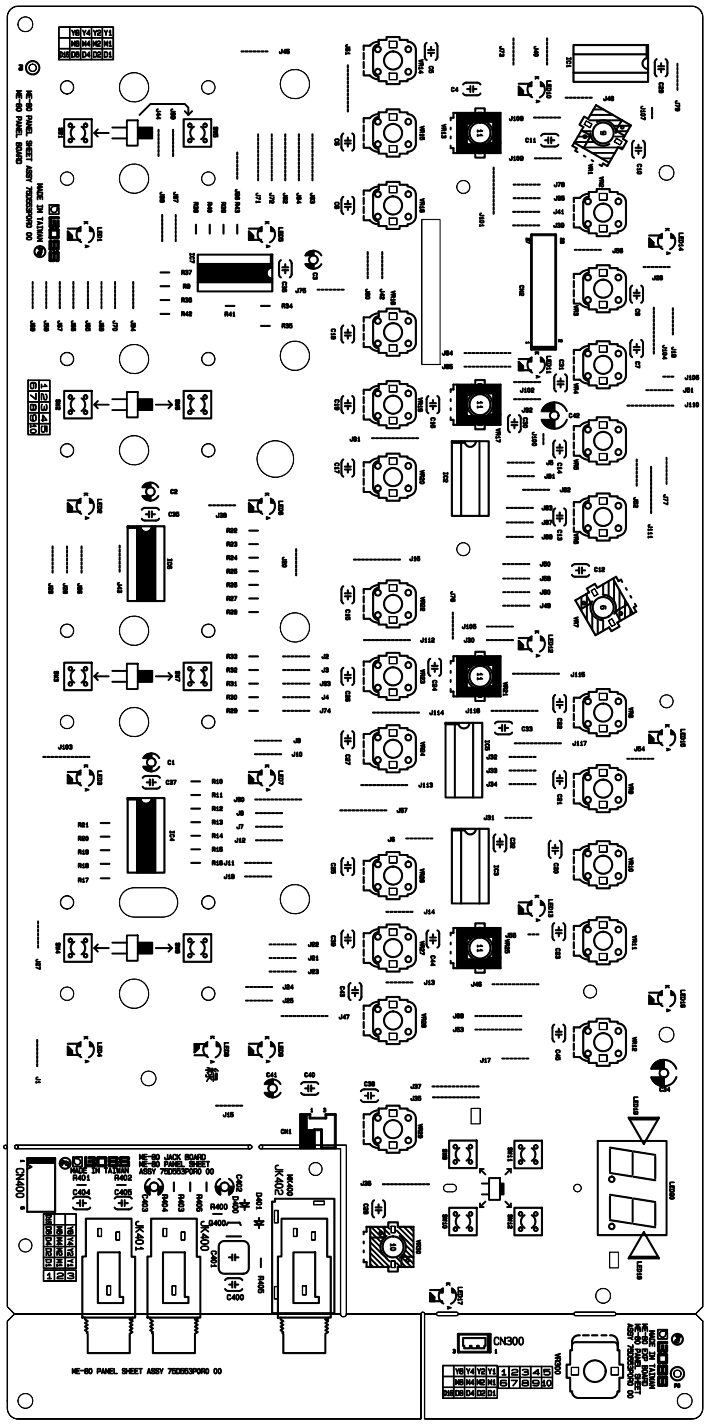


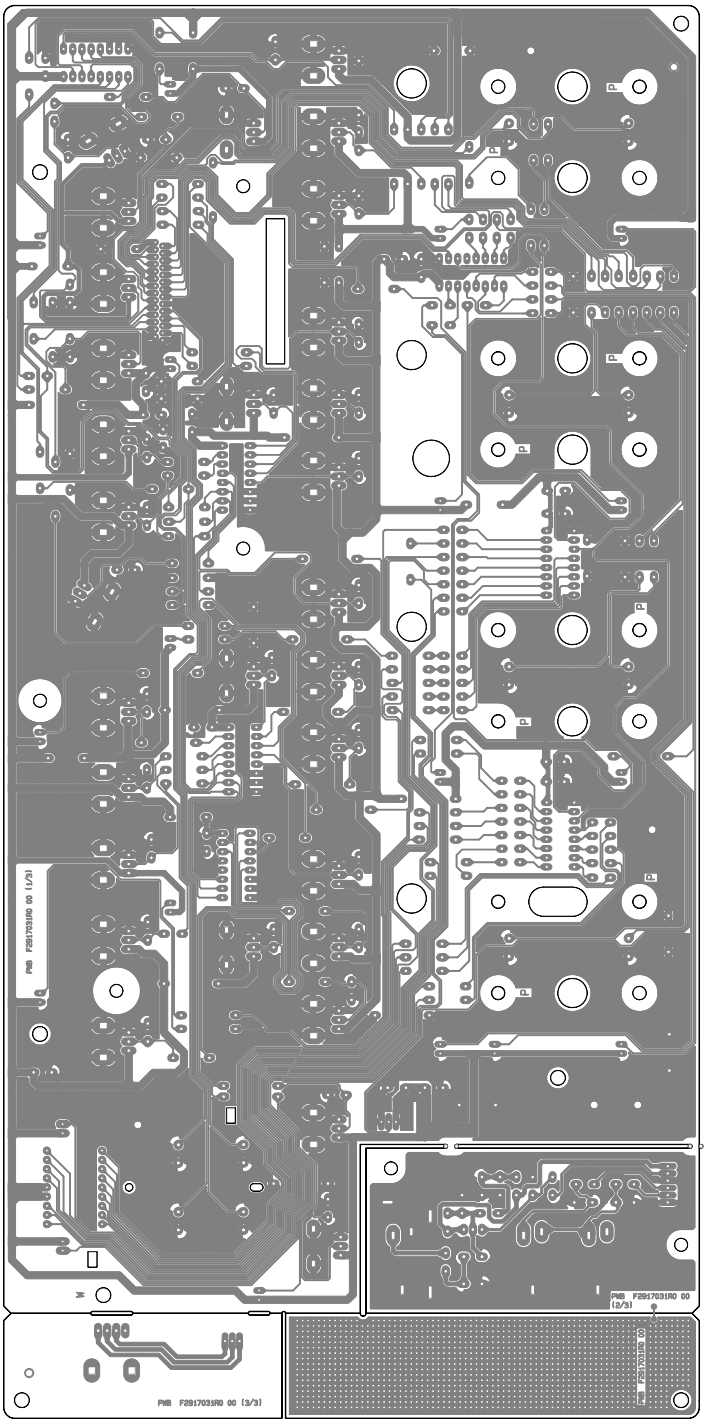

Gain=+6.72dB
f1=8.67kHz
f2=1.287kHz
Gain=-16.57dB
Gain=+6.72dB
f1=8.67kHz
f2=1.287kHz
Gain=-16.57dB
PHONES
MUTE ON:L
XOUTPUT-MUTE
SD-AD
IC9 NJM4556AM(TE2)
Q15 DTC614TU T106
Q14 DTC614TU T106
Q17 DTC614TU T106
Q16 DTC614TU T106
Q26 2SA1832-GR(TE85L,F)
Q12 DTC114TUAT106
Q13 DTC114TUAT106
JK2 HTJ-035-10ABZ
TER1 JH-6M3-T
AVCC
PVCC
AVREF1
GND

Circuit Diagram (Main Board: 4/4)

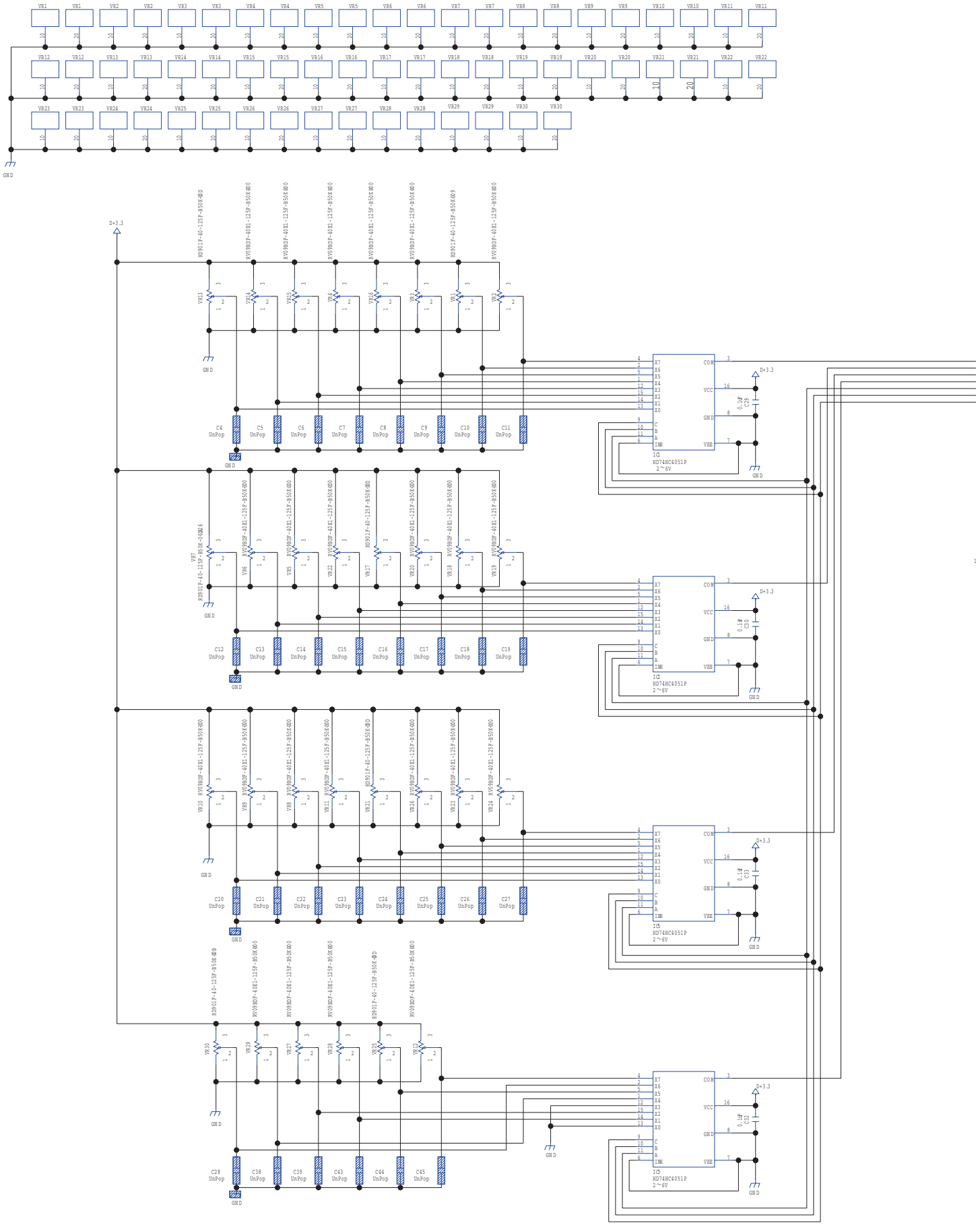


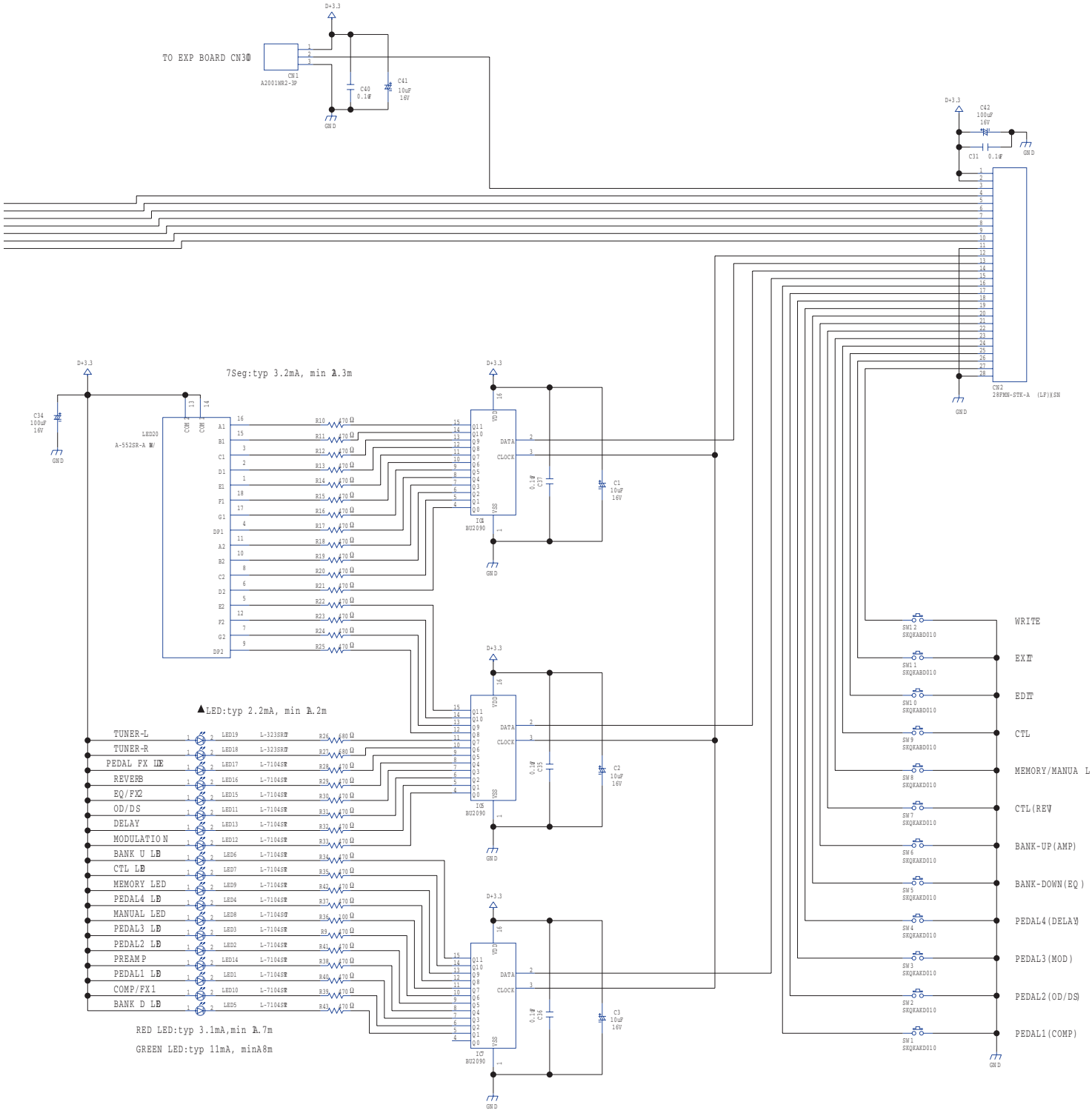
Circuit Board (Panel, Jack, EXP Board)




PWB F2917031RO 00 (1/3)
PWB F2917031RO 00 (2/3)
PWB F2917031RO 00 (3/3)

Circuit Diagram (Panel Board)




TO EXP BOARD CN30
7Seg:typ 3.2mA, min 1.3m
▲LED:typ 2.2mA, min 0.2m
TUNER-L
TUNER-R
PEDAL FX LED
REVERB
EQ/FX2
OD/DS
DELAY
MODULATION
BANK U LED
CTL LED
MEMORY LED
PEDAL4 LED
MANUAL LED
PEDAL3 LED
PEDAL2 LED
PREAMP
PEDAL1 LED
COMP/FX1
BANK D LED
RED LED:typ 3.1mA,min 0.7m
GREEN LED:typ 11mA, minA8m
WRITE
EXIT
EDIT
CTL
MEMORY/MANUAL
CTL(REV)
BANK-UP(AMP)
BANK-DOWN(EQ)
PEDAL4(DELAY)
PEDAL3(MOD)
PEDAL2(OD/DS)
PEDAL1(COMP)

Circuit Diagram (Jack, EXP Board)