GT-100

COSM AMP EFFECTS PROCESSOR

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. 14) 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

GT-100: Amp Effects Processor

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 (S/N) ratio of the A/D and D/A converters.

DA Conversion

24 bits

Sampling Rate

44.1 kHz

Program Memories

400: 200 (User) + 200 (Preset)

Effect Type

COMP
OD/DS
PREAMP
EQ
FX1/FX2 (*)
DELAY
CHORUS
REVERB
PEDAL FX
NS1/NS2
ACCEL FX

* *FX1/FX2:*
T.WAH
AUTO WAH
SUB WAH
ADV. COMP
LIMITER
SUB OD/DS
GRAPHIC EQ
PARA EQ
TONE MODIFY
GUITAR SIM
SLOW GEAR
DEFRETTER
WAVE SYNTH
SITAR SIM.
OCTAVE
PITCH SHIFTER
HARMONIST
SOUND HOLD
AC. PROCESSOR
PHASER
FLANGER
TREMOLO
ROTARY
UNI-V
PAN

SLICER
VIBRATO
RING MOD.
HUMANIZER
2X2 CHORUS
SUB DELAY

Nominal Input Level

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

Input Impedance

INPUT:	1 MΩ
RETURN:	100 kΩ
AUX IN:	47 kΩ

Nominal Output Level

OUTPUT:	-10 dBu/+4 dBu
SEND:	-10 dBu

Output Impedance

OUTPUT:	2 kΩ
SEND:	2 kΩ

Dynamic Range

100 dB or greater (IHF-A)

Displays

Graphic LCD (132 x 64 dots, backlit LCD) x 2

Connectors

INPUT jack (1/4-inch phone type)
AUX IN jack (Stereo miniature phone type)
OUTPUT L/MONO, R jacks (1/4-inch phone type)
PHONES jack (Stereo 1/4-inch phone type)
EXT LOOP jacks SEND, RETURN (1/4-inch phone type)
AMP CONTROL jack (1/4-inch phone type)
SUB CTL1, 2/SUB EXP jack (1/4-inch TRS phone type)
USB connector
MIDI connectors IN, OUT
DC IN jack

Power Supply

DC 9 V

Current Draw

600 mA

Dimensions

542 (W) x 271 (D) x 80 (H) mm
21-3/8 (W) x 10-11/16 (D) x 3-3/16 (H) inches
Maximum height:
542 (W) x 271 (D) x 102 (H) mm
21-3/8 (W) x 10-11/16 (D) x 4-1/16 (H) inches

Weight

4.8 kg / 10 lbs 10 oz (excluding AC Adaptor)

Accessories

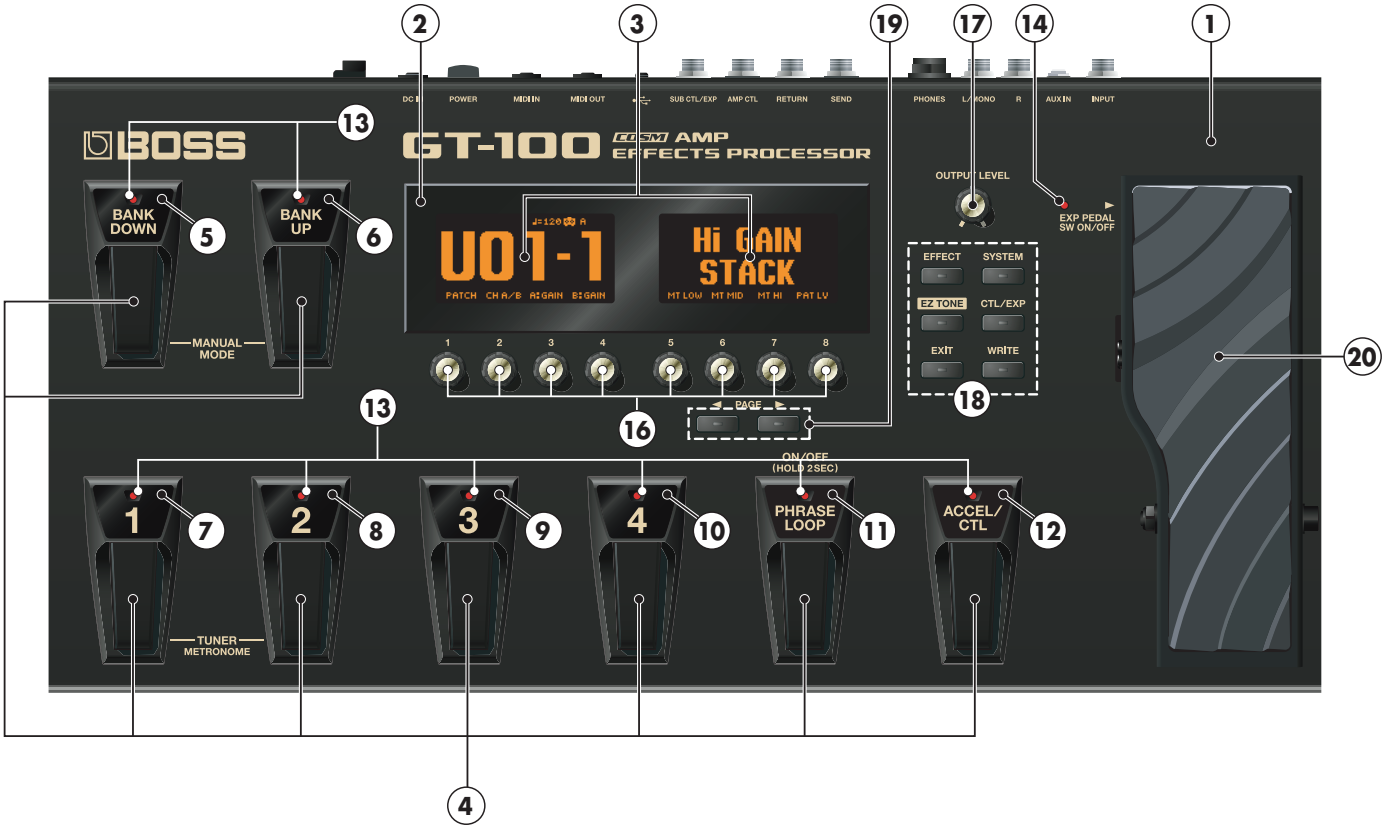
AC Adaptor (#04236101)
Power Cord (#5100028422, #5100012293, #02562456, #01903356, #5100018086, #03785590)
USB Cap (#05015034)
Owner's Manual (#5100024540)

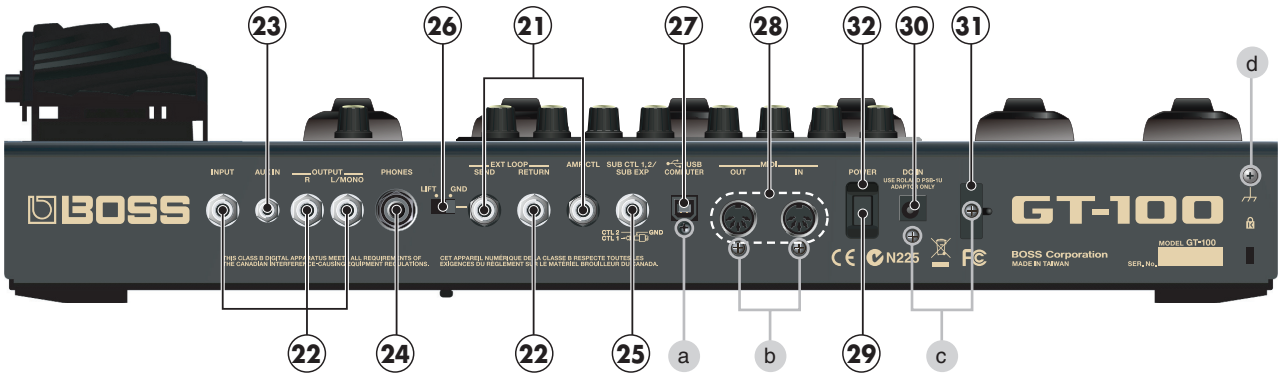
Options (sold separately)

Footswitch: BOSS FS-5U
Dual Footswitch: BOSS FS-6
Expression Pedal: BOSS FV-500L/500H, Roland EV-5

* *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

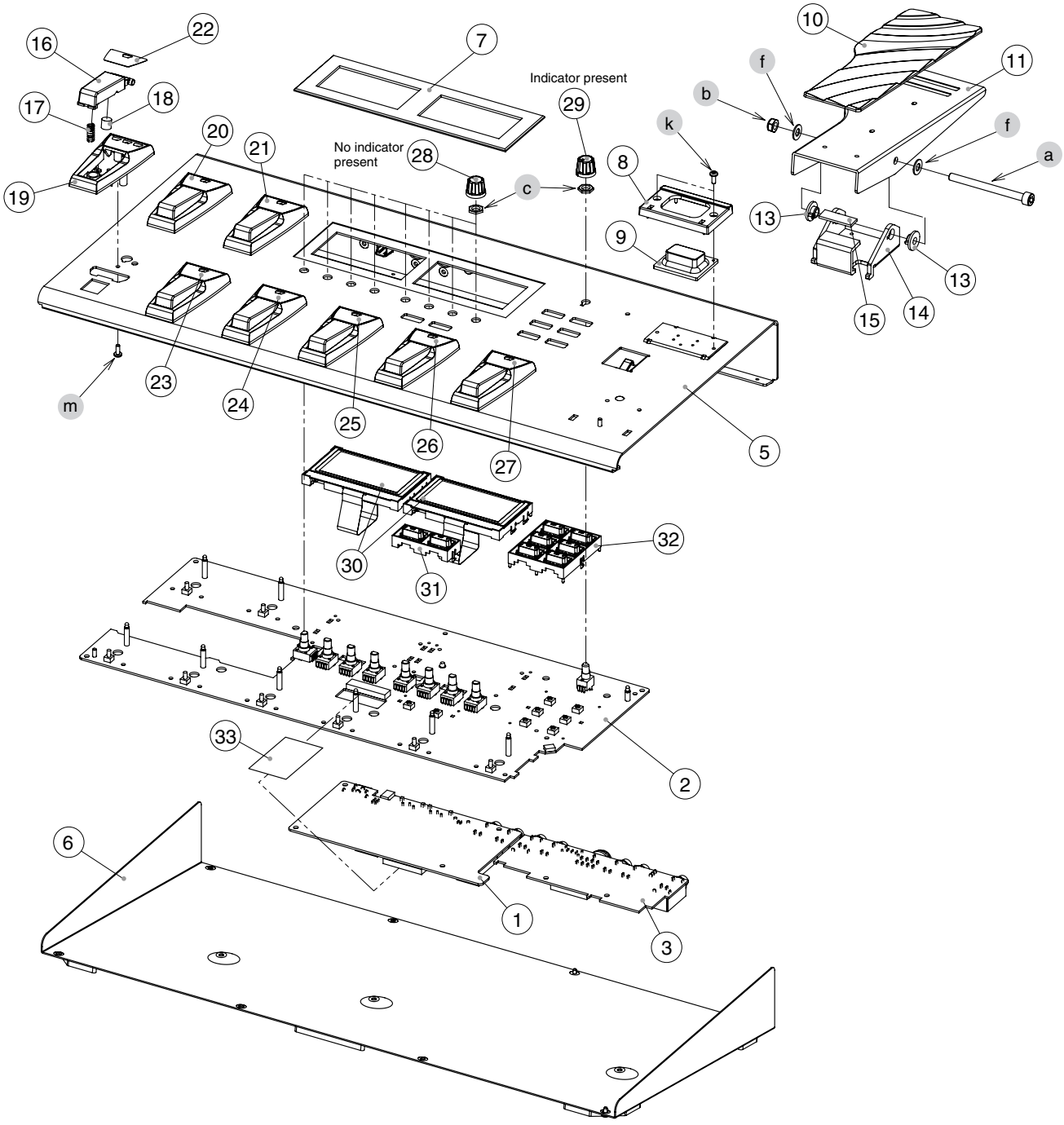


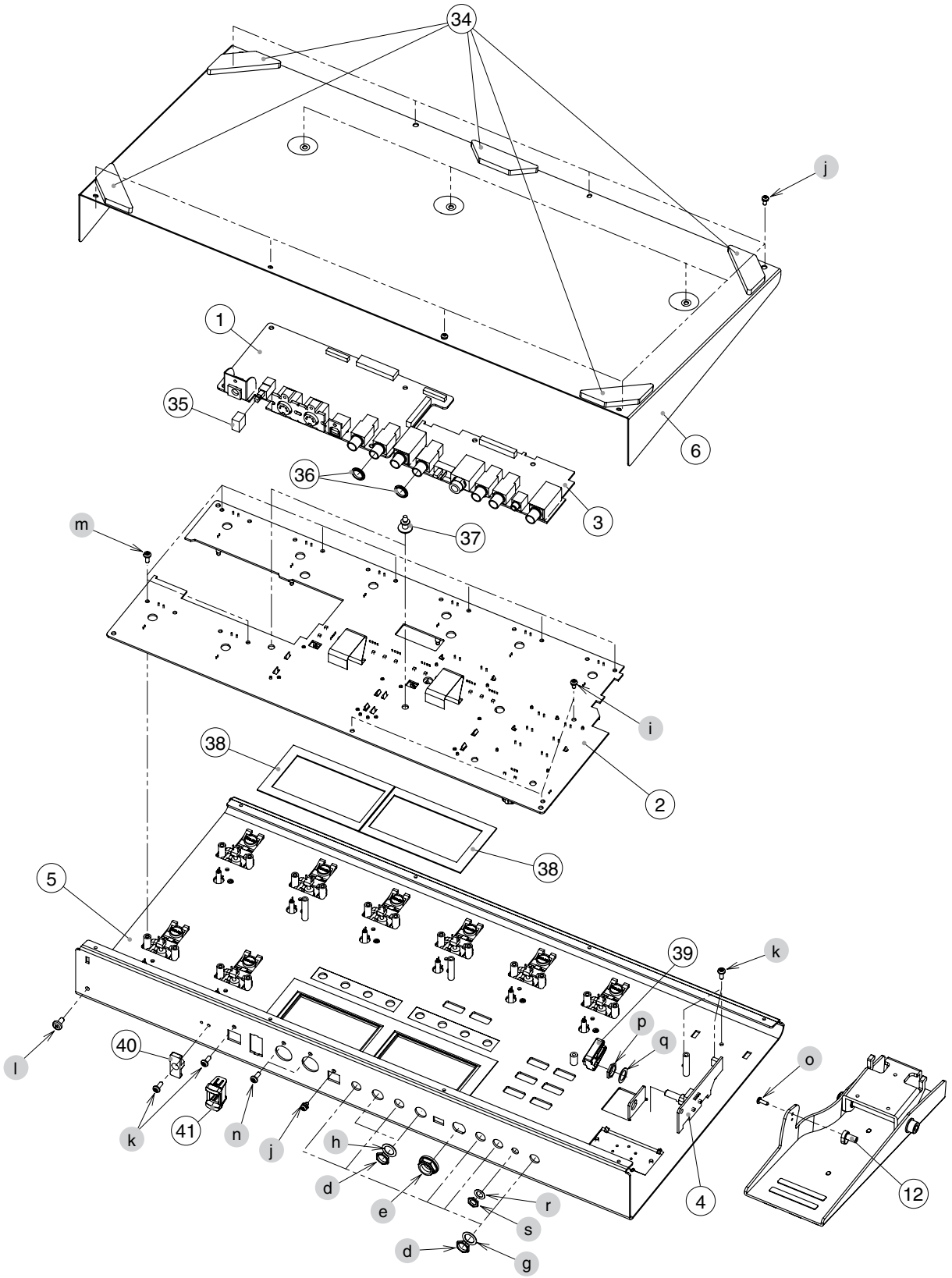


Location of Controls Parts List

No.	Part Code	Part Name	Description	Q'ty
1	5100024857	TOP COVER		1
2	5100024861	DISPLAY COVER		1
3	5100027738	LCD	PE13264ORT-006I03Q	2
4	5100025466	SW PEDAL ESCUTCHEON		8
	5100001928	SW PEDAL	(G2187916R0)	8
	03344723	TACT SWITCH	SKQKAKD010	8
5	5100024880	PEDAL LABEL (BANK DOWN)		1
6	5100024879	PEDAL LABEL (BANK UP)		1
7	5100024874	PEDAL LABEL (1)		1
8	5100024875	PEDAL LABEL (2)		1
9	5100024876	PEDAL LABEL (3)		1
10	5100024877	PEDAL LABEL (4)		1
11	5100024881	PEDAL LABEL (PHRASE LOOP)		1
12	5100024882	PEDAL LABEL (ACCEL/CTL)		1
13	03349978	LED(RED)	L-34HDSL-FPB	8
	04893056	LED SPACER	LED-15_KY(G2199512R0)	8
14	03349978	LED(RED)	L-34HDSL-FPB	1
	5100003409	LED SPACER	LEDS-8S	1
16	5100024864	ENCODER KNOB		8
	5100024538	ROTARY POTENTIOMETER	RV112FF-40B1-125F-0B20K-00A7	8
	40128923	HEX NUT M7		8
17	5100024883	R-KNOB	(GOLD)	1
	5100001448	POTENTIOMETER (F3279802R0)	RD901F-40-125F-B50K-00D	1
	40128923	HEX NUT M7		1
18	5100024862	KEYUNIT	(6KEY)	1
	01780101	TACT SWITCH	SKQKABD010	6
19	5100024863	KEYUNIT	(2KEY)	1
	01780101	TACT SWITCH	SKQKABD010	2
20	5100024872	VR PEDAL		1
	5100016596	PEDAL PLATE	G2357323R0	1
21	5100001342	6.5MM JACK	HTJ-064-12IMP (13449155R1)	2
	5100003918	JACK NUT M9X12X2	NI RTC(H5039510R0)	2
	03014912	INSULATING JACK WASHER	M9X14.5X0.5	2
	04671090	JACK BUSH		2
22	5100001342	6.5MM JACK	HTJ-064-12IMP (13449155R1)	4
	5100003918	JACK NUT M9X12X2	NI RTC(H5039510R0)	4
	5100003926	PLAIN WASHER 9X13.5X0.5T	NI(H5039158R0)	4
23	13449440R0	3.5MM JACK	HSJ0857-016210	1
	H5029904R0	JACK NUT M6		1
	H5039160R0	JACK WASHER M6(9.5X6.5)		1
24	F3449714R0	6.5MM JACK	HTJ-064-05A	1
	22150756	JACK NUT 2	PLASTIC/BLK	1
25	5100001163	6.5MM JACK	HTJ-064-12DSMP	1
	5100003918	JACK NUT M9X12X2	NI RTC(H5039510R0)	1
	5100003926	PLAIN WASHER 9X13.5X0.5T	NI(H5039158R0)	1
26	5100023701	SLIDE SWITCH(F3159104R0)	RSS037-222N-AACD1B-A	1
27	5100017587	USB CONNECTOR	UBR23-4K5100(F3439933R0)	1
28	13429825	MIDI CONNECTOR	YKF51-5054V	1
29	12499175	BUTTON	JSPUE0011A	1
	01899989	PUSH SWITCH	SPUP19-2N-LB2	1
30	F3439875R0	ADAPTOR JACK	KM02018ABM1P	1
31	22365714	CORD HOOK		1
32	5100018071	POWER SW ESCUTCHEON	G2207430R0	1
a	40342712	SCREW M3X6	PAN MACHINE W/SW+SMALL PW BZC	1
b	40011312	SCREW 3X8	BINDING TAPTITE P FE BZC	2
c	40019123	SCREW 3X8	BINDING TAPTITE S BZC	2
d	40679656	SCREW 4X8	BINDING TAPTITE S NI	1

Exploded View




34
j
1
35
6
36
3
m
37
i
38
2
38
5
39
k
l
40
p
q
o
k
41
n
j
h
d
e
r
s
d
g
4
12

Exploded View Parts List

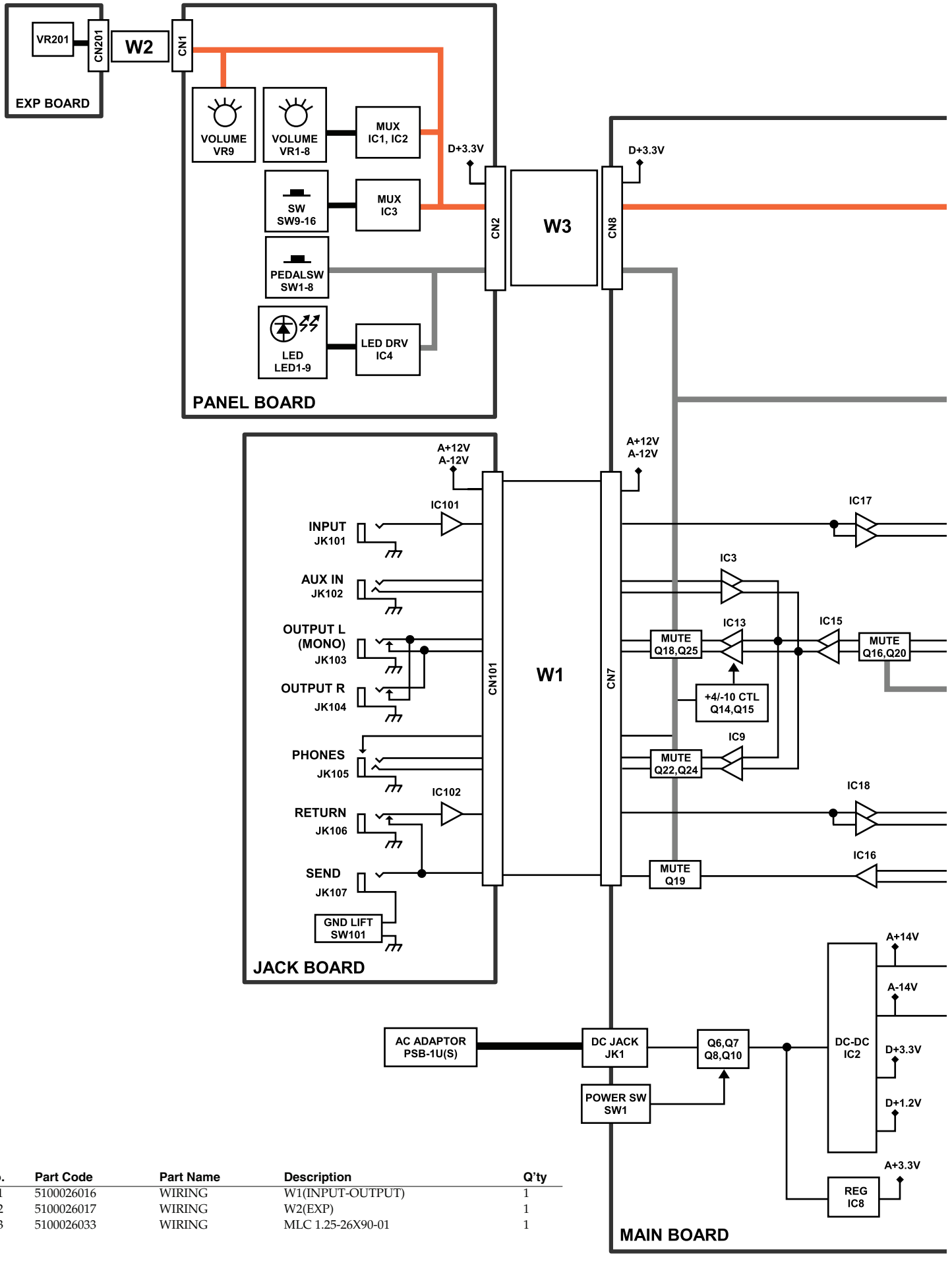
Parts

No.	Part Code	Part Name	Description	Q'ty
1	5100024146	MAIN BOARD ASSY		1
	5100024147	PANEL SHEET ASSY		
	* *This unit includes the following parts.*			
2	*******	PANEL BOARD		1
3	*******	JACK BOARD		1
4	*******	EXP BOARD		1
5	5100024857	TOP COVER		1
6	5100024858	BOTTOM COVER		1
7	5100024861	DISPLAY COVER		1
8	5100016345	RUBBER SW ESCUTCHEON	(#G2567121R0)	1
9	5100016344	RUBBER SW	(#G2637107R0)	1
10	5100016596	PEDAL PLATE	G2357323R0	1
11	5100024872	VR PEDAL		1
12	5100016343	PIN STAY	(#G1889117R0)	1
13	04560634	BOLT HOLDER	(G2147874)	2
14	5100002396	VR PEDAL HOLDER	(G2147916R0)	1
15	04560601	CUSHION	R (G2357111)	1
16	5100001928	SW PEDAL	(G2187916R0)	8
17	04560712	SUPPORT SPRING	(G2177103R0)	8
18	5100003910	PEDAL FOOT H=7.6	(G2357126R0)	8
19	5100025466	SW PEDAL ESCUTCHEON		8
20	5100024880	PEDAL LABEL (BANK DOWN)		1
21	5100024879	PEDAL LABEL (BANK UP)		1
22	5100024874	PEDAL LABEL (1)		1
23	5100024875	PEDAL LABEL (2)		1
24	5100024876	PEDAL LABEL (3)		1
25	5100024877	PEDAL LABEL (4)		1
26	5100024881	PEDAL LABEL (PHRASE LOOP)		1
27	5100024882	PEDAL LABEL (ACCEL/CTL)		1
28	5100024864	ENCODER KNOB		8
29	5100024883	R-KNOB	(GOLD)	1
30	5100027738	LCD	PE13264ORT-006I03Q	2
31	5100024863	KEYUNIT	(2KEY)	1
32	5100024862	KEYUNIT	(6KEY)	1
33	5100026033	WIRING	MLC 1.25-26X90-01	1
34	03344923	FOOT H=5 (G2357120RO)		5
35	12499175	BUTTON	JSPUE0011A	1
36	04671090	JACK BUSH		2
37	5100029212	SPACER	SCC-8	2
38	5100026125	DISPLAY CUSHION		2
39	03561356	SHAFT STAY	STAY	1
40	22365714	CORD HOOK		1
41	5100018071	POWER SW ESCUTCHEON	G2207430R0	1

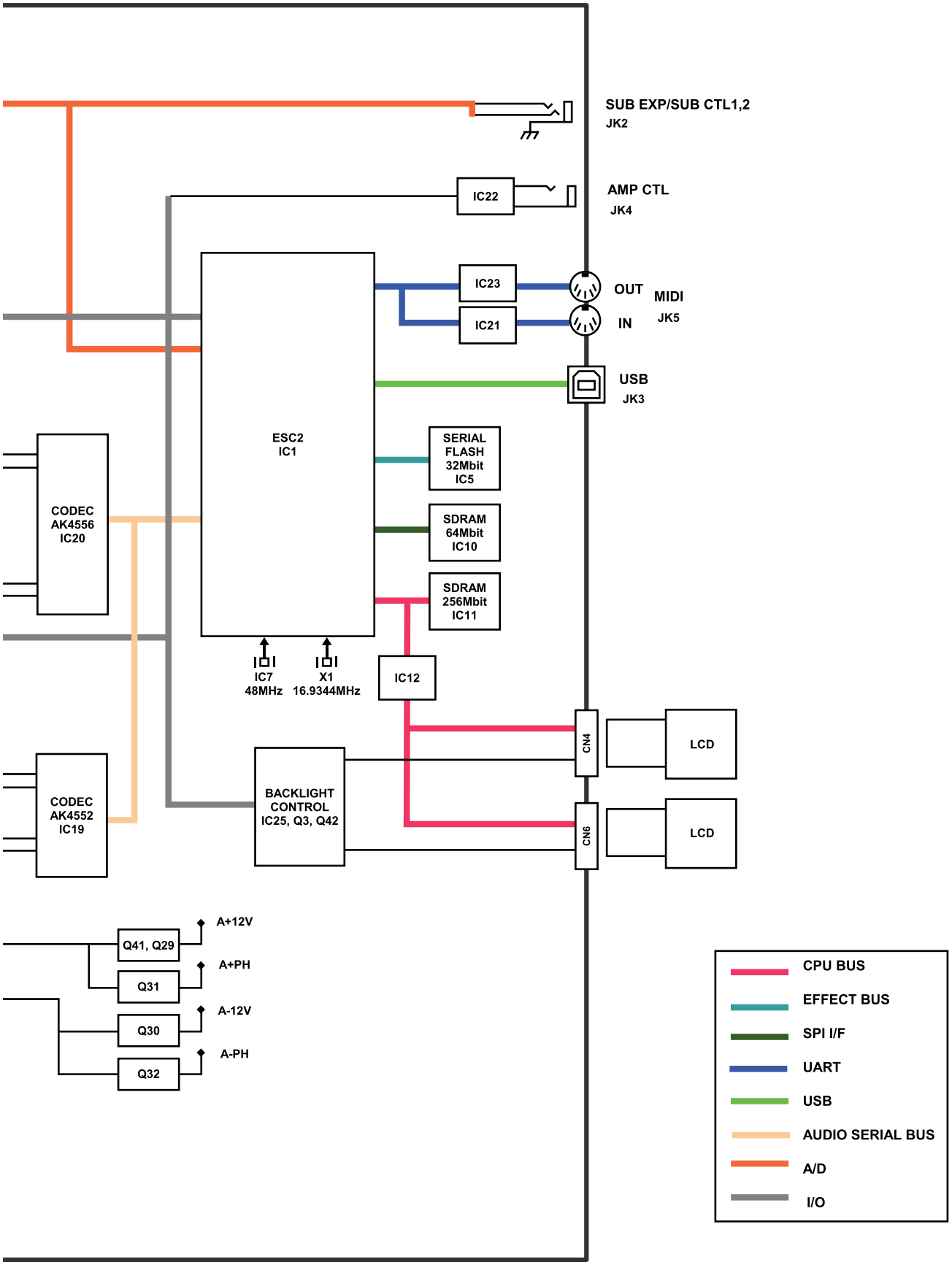
Screws

No.	Part Code	Part Name	Description	Q'ty
a	5100002092	SCREW M6X70 (H5029867R0)	HEX BOLT HALF THEREAD BZC	1
b	04560590	U-NUT M6	BZC	1
c	40128923	HEX NUT M7		9
d	5100003918	JACK NUT M9X12X2	NI RTC(H5039510R0)	7
e	22150756	JACK NUT 2	PLASTIC/BLK	1
f	04560589	WASHER	M6 T1 (H5039122)	2
g	5100003926	PLAIN WASHER 9X13.5X0.5T	NI(H5039158R0)	5
h	03014912	INSULATING JACK WASHER	M9X14.5X0.5	2
i	40017934	SCREW M3X6	PAN MACHINE W/SW+PW(L) FE ZC	3
j	40342712	SCREW M3X6	PAN MACHINE W/SW+SMALL PW BZC	12
k	40019123	SCREW 3X8	BINDING TAPTITE S BZC	7
l	40679656	SCREW 4X8	BINDING TAPTITE S NI	1
m	40011278	SCREW 3X8	BINDING TAPTITE P FE ZC	16
n	40011312	SCREW 3X8	BINDING TAPTITE P FE BZC	2
o	40233012	SCREW 2.6X8	BINDING TAPTITE P BZC	1
p	H5069001R0	NUT	M9	1
q	H5039126R0	M9 WASHER		1
r	H5039160R0	JACK WASHER M6(9.5X6.5)		1
s	H5029904R0	JACK NUT M6		1

Wiring Diagram/Block Diagram



No.	Part Code	Part Name	Description	Q'ty
W1	5100026016	WIRING	W1(INPUT-OUTPUT)	1
W2	5100026017	WIRING	W2(EXP)	1
W3	5100026033	WIRING	MLC 1.25-26X90-01	1


SUB EXP/SUB CTL1,2
JK2
IC22
AMP CTL
JK4
IC23
IC21
OUT
IN
MIDI
JK5
USB
JK3
ESC2
IC1
SERIAL
FLASH
32Mbit
IC5
SDRAM
64Mbit
IC10
SDRAM
256Mbit
IC11
CODEC
AK4556
IC20
IC7
48MHz
X1
16.9344MHz
IC12
CN4
LCD
CN6
LCD
CODEC
AK4552
IC19
BACKLIGHT
CONTROL
IC25, Q3, Q42
A+12V
Q41, Q29
A+PH
Q31
A-12V
Q30
A-PH
Q32
CPU BUS
EFFECT BUS
SPI I/F
UART
USB
AUDIO SERIAL BUS
A/D
I/O

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				
#	5100024857	TOP COVER		1
#	5100024872	VR PEDAL		1
	5100001928	SW PEDAL	(G2187916R0)	8
#	5100024858	BOTTOM COVER		1
CHASSIS				
	04560634	BOLT HOLDER	(G2147874)	2
	03129878	DC JACK HOLDER		1
	5100016596	PEDAL PLATE	G2357323R0	1
	5100016343	PIN STAY	(#G1889117R0)	1
	03561356	SHAFT STAY	STAY	1
	5100002396	VR PEDAL HOLDER	(G2147916R0)	1
KNOB, BUTTON				
#	5100024864	ENCODER KNOB		8
#	5100024883	R-KNOB	(GOLD)	1
	12499175	BUTTON	JSPUE0011A	1
#	5100024863	KEYUNIT	(2KEY)	1
#	5100024862	KEYUNIT	(6KEY)	1
	5100016344	RUBBER SW	(#G2637107R0)	1
SWITCH				
	01899989	PUSH SWITCH	SPUP19-2N-LB2	1
	5100023701	SLIDE SWITCH(F3159104R0)	RSS037-222N-AACD1B-A	1
	01780101	TACT SWITCH	SKQKABD010	8
	03344723	TACT SWITCH	SKQKAKD010	8
JACK, EXT TERMINAL				
	13449440R0	3.5MM JACK	HSJ0857-016210	1
	5100001342	6.5MM JACK	HTJ-064-12IMP (13449155R1)	6
	5100001163	6.5MM JACK	HTJ-064-12DSMP	1
	F3449714R0	6.5MM JACK	HTJ-064-05A	1
	F3439875R0	ADAPTOR JACK	KM02018ABM1P	1
	13429825	MIDI CONNECTOR	YKF51-5054V	1
	5100017587	USB CONNECTOR	UBR23-4K5100(F3439933R0)	1
DISPLAY UNIT				
#	5100027738	LCD	PE13264ORT-006I03Q	2
PWB ASSY				
#	5100024146	MAIN BOARD ASSY		1
#	5100024147	PANEL SHEET ASSY		1
	* *This unit includes the following parts.*			
	********	PANEL BOARD		1
	********	JACK BOARD		1
	********	EXP BOARD		1
DIODE				
	03349978	LED(RED)	L-34HDSL-FPB	9
POTENTIOMETER				
	01016167	11M/M ROTARY POTENTIOMETER	RK11K1140AFG 10KX1	1
	5100001448	POTENTIOMETER (F3279802R0)	RD901F-40-125F-B50K-00D	1
#	5100024538	ROTARY POTENTIOMETER	RV112FF-40B1-125F-0B20K-00A7	8
WIRING, CABLE				
#	5100026033	WIRING	MLC 1.25-26X90-01	1
#	5100026016	WIRING	W1(INPUT-OUTPUT)	1
#	5100026017	WIRING	W2(EXP)	1

SCREWS

	40017934	SCREW M3X6	PAN MACHINE W/SW+PW(L) FE ZC		3
	40342712	SCREW M3X6	PAN MACHINE W/SW+SMALL PW BZC		12
	5100002092	SCREW M6X70 (H5029867R0)	HEX BOLT HALF THEREAD BZC		1
	40233012	SCREW 2.6X8	BINDING TAPTITE P BZC		1
	40019123	SCREW 3X8	BINDING TAPTITE S BZC		7
	40011278	SCREW 3X8	BINDING TAPTITE P FE ZC		16
	40011312	SCREW 3X8	BINDING TAPTITE P FE BZC		2
	40679656	SCREW 4X8	BINDING TAPTITE S NI		1
	40128923	HEX NUT M7			9
	22150756	JACK NUT 2	PLASTIC/BLK		1
	5100003918	JACK NUT M9X12X2	NI RTC(H5039510R0)		7
	H5029904R0	JACK NUT M6			1
	04560590	U-NUT M6	BZC		1
	H5069001R0	NUT	M9		1
	5100003926	PLAIN WASHER 9X13.5X0.5T	NI(H5039158R0)		5
	04560589	WASHER	M6 T1 (H5039122)		2
	H5039160R0	JACK WASHER M6(9.5X6.5)			1
	H5039126R0	M9 WASHER			1
	03014912	INSULATING JACK WASHER	M9X14.5X0.5		2

MISCELLANEOUS

#	5100024861	DISPLAY COVER			1
	04560601	CUSHION	R (G2357111)		1
#	5100026125	DISPLAY CUSHION			2
	04671090	JACK BUSH			2
	04783901	JACK COVER	(G2257203R0)		1
	5100003409	LED SPACER	LEDS-8S		1
	04893056	LED SPACER	LED-15_KY(G2199512R0)		8
#	5100029212	SPACER	SCC-8		2
	03344923	FOOT H=5 (G2357120RO)			5
	5100003910	PEDAL FOOT H=7.6	(G2357126R0)		8
#	5100024874	PEDAL LABEL (1)			1
#	5100024875	PEDAL LABEL (2)			1
#	5100024876	PEDAL LABEL (3)			1
#	5100024877	PEDAL LABEL (4)			1
#	5100024879	PEDAL LABEL (BANK UP)			1
#	5100024880	PEDAL LABEL (BANK DOWN)			1
#	5100024881	PEDAL LABEL (PHRASE LOOP)			1
#	5100024882	PEDAL LABEL (ACCEL/CTL)			1
	5100018071	POWER SW ESCUTCHEON	G2207430R0		1
	5100016345	RUBBER SW ESCUTCHEON	(#G2567121R0)		1
#	5100025466	SW PEDAL ESCUTCHEON			8
	04560712	SUPPORT SPRING	(G2177103R0)		8
	22365714	CORD HOOK			1
	05015034	USB CONNECTOR CAP	USBC-1(G2247805R0)		1

ACCESSORIES (Standard)

	⚠	04236101	AC ADAPTOR WITHOUT AC CORD	PSB-1U(S) UNIVERSAL	1
	⚠	01903334	AC CORD SET PSE	100V 1.0M FOR PSB for 100V	1
#	⚠	5100028422	AC CORD	115VTW 1.0M FOR PSB for 117VASIA	1
	⚠	5100012293	AC CORD SET	117VBL 1.0M FOR PSB for 117VBL	1
	⚠	02562456	AC CORD SET	120V 1.0M (NON POLAR) for 117VU, 117VU/CS	1
	⚠	01903356	AC CORD SET	230V 1.0M FOR PSB for 230VEU, 220VCNR	1
	⚠	5100018086	AC CORD SET	230VE 1.0M FOR EPS for 230VE	1
	⚠	03785590	AC CORD SET	SC-078-NA05 240VA for 240VA	1
#		5100024539	OWNER'S MANUAL	JAPANESE	1
#		5100024540	OWNER'S MANUAL	ENGLISH	1

Verifying the Version

1. Hold down **EFFECT** and **SYSTEM**, and press and hold **POWER**.
   The version information is displayed on the LCD screen on the left.

   Ver: Program version
   Rev: Program revision (can be ignored)
   UVer: Update program version (can be ignored)

2. Press and hold **POWER** to turn off the power.

Data Backup and Restore Operations

To save user data, perform a batch send (Bulk Dump) to an external MIDI device (such as a computer on which a sequencing program is installed and set up). Similarly, to load user data back into the unit, perform a batch receive (Bulk Load) from the external MIDI device.

* *The following parameters cannot be backed up.*

Pedal Calibration value

After servicing or inspection, use the **SYSTEM** menu's **PEDAL CALIBRATION** (Owner's Manual page 36) or the **Test Mode's 7. INTERNAL EXP CHECK** to set a suitable value.

LCD Backlight/Contrast Calibration value

After servicing or inspection, use the **Test Mode's 3. LCD** to set a suitable value.

Items Required

- External MIDI device capable of correctly sending and receiving MIDI exclusive (SysEx) data
- MIDI cable

Backing Up Data (Bulk Dump)

1. Connect the **MIDI OUT** connector on the GT-100 and the MIDI IN connector on the external MIDI device.
2. Put the external MIDI device into standby for receiving MIDI exclusive data.
3. On the GT-100, press **SYSTEM**.
4. Turn knob **4** to move the cursor to **B.DUMP**.

5. Verify that the LCD screen on the right shows a display like the one below.

If a display like the one above is not shown, turn knobs **5** and **8** until a display like the one in the figure above appears.

This specifies the parameters from **SYSTEM** to **TEMP**—namely, all user data (**SYSTEM**, **QUICK**, **U01-1** through **U50-4**, and **TEMP**)—as the target for backing up.

6. Press **WRITE**.
   Data transmission starts. While data sending is in progress, the message **BULK DATA SENDING...** is displayed on the GT-100's LCD screen.
   When sending of the data ends, the message **COMPLETE** appears.

Restoring Data (Bulk Load)

1. Connect the **MIDI IN** connector on the GT-100 and the MIDI OUT connector on the external MIDI device.
2. Send the bulk data from the external MIDI device (by performing playback using the sequencing program).

   * *No particular operation on the GT-100 is required.*

   While data receiving is in progress, the message **BULK DATA RECEIVING...** is displayed on the GT-100's LCD screen. If nothing is received, verify that the GT-100's device ID is the same as when the bulk dump was performed.
   When the receipt of data ends, the **BULK DATA RECEIVING...** message disappears.

Performing a Factory Reset

* *Performing a factory reset causes customer setting data to be lost. If necessary, make a backup. (Refer to* ***Data Backup and Restore Operations*** *(p. 14).)*

1. Press **SYSTEM**.
2. Turn knob **4** to move the cursor to **FACTORY RESET**.
3. Turn knobs **5** and **8** to specify the range of parameters for the factory reset (**FROM** and **TO**).

Knob	Parameter	Setting value	Description
5, 8	FROM, TO	SYSTEM	System parameters
		QUICK	User Quick Settings
		U01-1—U50-4	Patch numbers U01-1—U50-4

4. Press **WRITE**.
   A confirmation screen appears.
5. Press **WRITE** again.
   A factory reset is executed.

   * *To cancel, press* ***EXIT****.*

Updating the System

Items Required

- Computer (running Windows)
- USB cable
- Update data (obtained via Service Net)
- AC adaptor (PSB-1U(S))

* *For the power source, use the AC adaptor.*

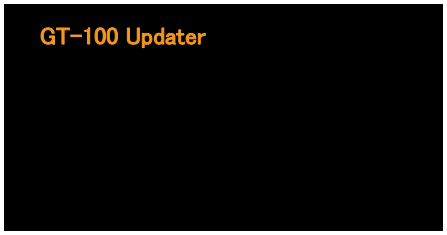
Procedure

1. Before you start, download the update data to any desired location on the computer.
   The update data is made up of the following 2 files.
   - ROMINFO.TXT (file containing required information for the update)
   - GT100ROM.BIN (the program itself)

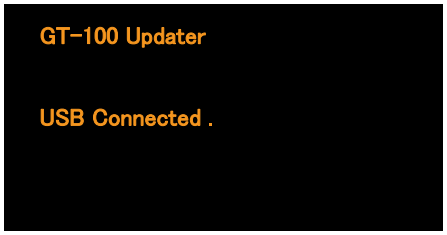
2. Adjust the **OUTPUT LEVEL** knob to minimum.
3. Hold down **SYSTEM** and press and hold **POWER**.

* *Do not connect the GT-100 and the computer yet.*

The unit's on-board updater starts, and a display like the one shown below appears on the LCD screen.



4. Using the USB cable, connect the GT-100 and the computer.
   A screen like the one shown below is displayed.



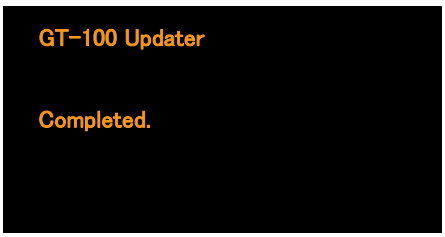
Also, an empty drive named **BOSS_GT-100** is mounted on the computer.

5. Copy the downloaded update data (**ROMINFO.TXT** and **GT100ROM.BIN**) to the root directory of **BOSS_GT-100**.
6. End the USB connection between the GT-100 and the computer.
7. Disconnect the USB cable.
   A screen like the one shown below is displayed.

8. Press **WRITE**.
   The update starts.

* *Never turn off the power to the equipment before the update finishes.*

When the update operation ends, a display like the one shown below appears.



9. Press and hold **POWER** to turn off the power.

Test Mode

Items Required

- AC adaptor (PSB-1U(S)) x 1
- Computer (running Windows) x 1

- GT-100 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/

- Miniature stereo phone plug equipped with 1-kΩ load resistors (a 1-kΩ load each between tip and sleeve and between ring and sleeve)
- 1/4-inch phone plug equipped with 47-kΩ load resistor (47-kΩ load between tip and sleeve)
- Dummy plugs
- MIDI cable x 1
- USB cable x 1
- EV-5 x 1
- Tester x 1
- Signal generator x 1
- Noise meter x 1
- Amp-equipped monitor speakers x 2

Connections

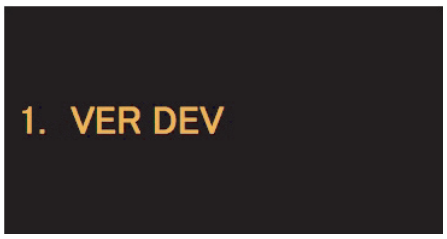
1. Using the MIDI cable, connect the **MIDI IN** connector and the **MIDI OUT** connector.
2. Using the USB cable, connect the GT-100 and the computer.
3. Connect the EV-5 to the **SUB CTL 1,2/SUB EXP** connector.

* *Adjust the control on the EV-5 to **0**.*

Entering the Test Mode

1. Adjust the **OUTPUT LEVEL** knob to minimum.
2. Hold down **WRITE** and **PAGE ►** and press and hold **POWER**.

* *Continue holding down **WRITE** and **PAGE ►** until the message **BOSS GT-100** appears.*
After a short wait, the Test Mode starts and a display like the one shown below appears.



Quitting the Test Mode

Press and hold **POWER** to turn off the power.

Selecting Test Items

1. Turn knob **8** to select the test item.
   1. VER DEV (p. 16)
   2. LED (p. 16)
   3. LCD (p. 17)
   4. SWITCH (p. 17)
   5. 360 VR (p. 17)
   6. OUTPUT VR (p. 17)
   7. INTERNAL EXP (p. 17)
   8. EXTERNAL EXP (p. 18)
   9. AMP CONTROL (p. 18)
   10. AUDIO (p. 18)
   11. Factory Reset (p. 21)
2. Press **WRITE**.
   This switches the screen for the test items.
   To return from a test-item screen to the screen in step **1** above, press **EXIT**.

* *When executing **1. VER DEV**, then before pressing **WRITE**, verify again that the MIDI and USB connections have been made. (Refer to **Connections** (p. 16).)*

1. VER DEV

Each respective device is tested automatically, and the results are displayed.

1. Verify that **OK** is displayed to the right of each item.

* *If the message **PROGRAM: USER NG** is displayed, a factory reset must be executed. (Refer to **Performing a Factory Reset** (p. 14).)*

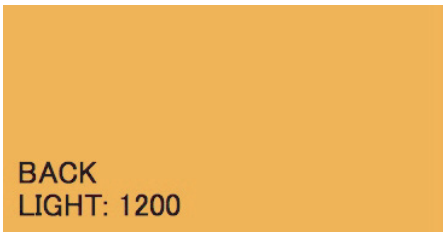
2. Verify that the message **Pull out the USB cable** is flashing at the bottom of the screen on the left.
3. Disconnect the USB cable.
   Execution automatically advances to the next test item.

2. LED

1. Verify that the LEDs (9) all light up, and that all dots in the LCD screens are displayed.
2. Press **PAGE ►** .
   Execution advances to the next test item.

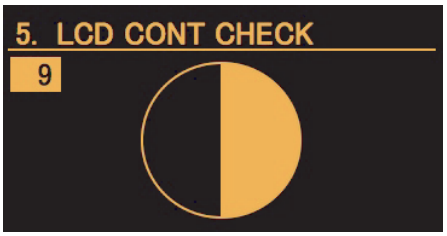
3. LCD

A screen for adjusting the backlight brightness appears on the left and right LCD screens.



1. Compare the brightness levels on the left and right, and adjust the brighter screen to match the darker screen.
   To make the screen on the left darker, turn knob **1**. To make the screen on the right darker, turn knob **5**.
   * *Only one screen can be adjusted at a time. Adjustment cannot be made by operating both the left and right controls.*
2. Press **WRITE**.
   A screen for adjusting the contrast appears on the left and right LCD screens.

3. Compare the brightness and contrast on the left and right, and adjust the brighter screen to match the darker screen.
   To make the screen on the left darker, turn knob **1**. To make the screen on the right darker, turn knob **5**.
   * *Only one screen can be adjusted at a time. Adjustment cannot be made by operating both the left and right controls.*
4. Press **WRITE**.
   A prompt screen for verifying the contrast control appears on the left and right LCD screens.



5. Turn knob **1** to vary the on-screen value from **1** to **16**, and verify that the contrast changes.
   If there is a difference in contrast on the left and right, redo the settings from step **1**.
6. Press **PAGE** ► .
7. Verify that all on-screen dots have become darker.

8. Press **PAGE** ► .
9. Verify that all on-screen dots have become brighter.

10. Press **PAGE** ► .
11. Verify that only the outermost periphery of the screen has become brighter.

12. Press **PAGE** ► .
    Execution advances to the next test item.

4. SWITCH

1. Press the pedal or button displayed on the screen.
   Pressing a LED-equipped pedal makes the LED go dark.
   Pressing **PAGE** ◄ makes the **EXP PEDAL SW ON/OFF** LED go dark.

   When testing from **BANK DOWN** to **SYSTEM** has finished, execution automatically advances to the next test item.

5. 360 VR

1. Verify that turning knob **1** clockwise makes the value increase, and that **OK** is displayed when the control has been turned all the way.
2. Test knobs **2** through **8** in the same way.
   When **OK** is displayed for all knobs, execution automatically advances to the next test item.

6. OUTPUT VR

1. Verify that the message **MIN: OK** is displayed. If it is not displayed, turn the control all the way counterclockwise, and verify that **OK** is displayed.
2. Slowly turn the **OUTPUT LEVEL** control clockwise.
   When the maximum value (**MAX**) is detected, execution automatically advances to the next test item.

7. INTERNAL EXP

1. Depress the heel of the unit's expression pedal and press **WRITE**.
   The minimum value offset is saved, and **OK** appears on the screen on the right.
2. In the same way, depress the toe and press **WRITE**.
   The maximum value offset is saved, and **OK** appears on the screen on the right.
3. Forcefully depress the toe.
   The **EXP PEDAL SW ON/OFF** LED lights up.
4. Forcefully depress the toe again.
   The **EXP PEDAL SW ON/OFF** LED goes dark, and execution automatically advances to the next test item.

8. EXTERNAL EXP

1. Depress the heel of the EV-5, and verify that the message **MIN: OK** appears on the left screen.
2. Depress the toe of the EV-5, and verify that the message **MAX: OK** appears on the right screen.
3. Detach the EV-5.
   Execution automatically advances to the next test item.

9. AMP CONTROL

1. Connect the dummy plug (1/4-inch mono phone plug) to the **AMP CTL** connector.
2. Set the tester to the resistance-measurement mode, and touch the + and - probes respectively to the tip and ground connectors of the dummy plug.
3. Following the indications displayed on the LCD screen, verify that the values shown below are displayed for the resistances.

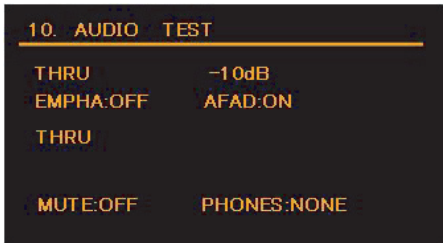
LCD screen display	Resistance
OPEN	Infinity
SHORT	Approx. 0 Ω

4. Press **PAGE ►** .
   Execution advances to the next test item.

10. AUDIO

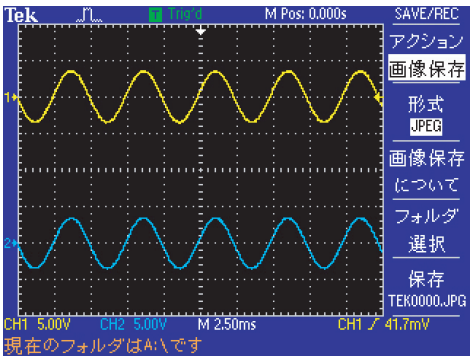
INPUT -> OUTPUT L/MONO and R (-10 dB Mode) Signal Levels

INPUT -> PHONES L and R (-10 dB Mode) Signal Levels

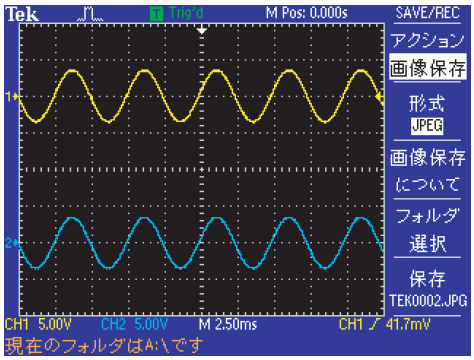


(AFAD: ON)

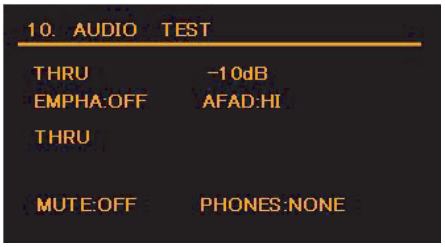
1. Connect the signal generator to the **INPUT** connector, and input the following signal.
   INPUT: **200-Hz sine wave** at **+10 dBm**
2. Connect the oscilloscope to the **OUTPUT L/MONO** and **R** connectors, and verify that the output values are as shown below.
   OUTPUT L/MONO: **6.5 Vpp–7.5 Vpp**
   OUTPUT R: **6.5 Vpp–7.5 Vpp**



3. Connect the oscilloscope to the **PHONES** connector, and verify that the output values are as shown below.
   PHONES L: **6.5 Vpp–7.5 Vpp**
   PHONES R: **6.5 Vpp–7.5 Vpp**

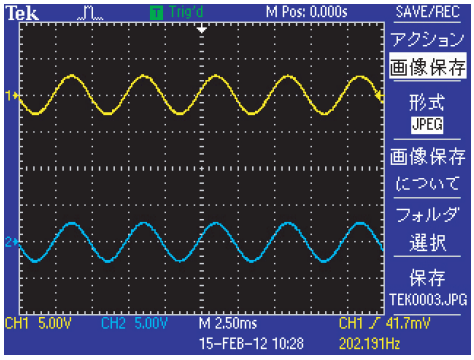


4. Press **PAGE ◄** .
   A screen like the one shown below is displayed.



(AFAD: HI)

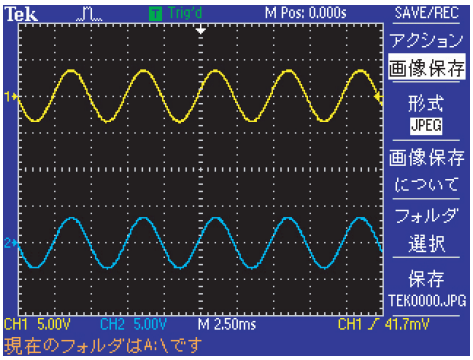
5. Input the following signal to the **INPUT** connector.
   200-Hz sine wave at **-16 dBm**
6. Connect the oscilloscope to the **OUTPUT L/MONO** and **R** connectors, and verify that the output values are as shown below.
   OUTPUT L/MONO: **5.4 Vpp–6.0 Vpp**
   OUTPUT R: **5.4 Vpp–6.0 Vpp**



7. Press **PAGE ◄** twice.
   A screen like the one shown below is displayed.

AUX IN -> OUTPUT L/MONO and R (-10 dB Mode) Signal Levels

1. Connect the signal generator to the **AUX IN** connector, and input the following signal.
   INPUT: **200-Hz sine wave** at **+10 dBm**
2. Connect the oscilloscope to the **OUTPUT L/MONO** and **R** connectors, and verify that the output values are as shown below.
   OUTPUT L/MONO: **6.5 Vpp–7.5 Vpp**
   OUTPUT R: **6.5 Vpp–7.5 Vpp**



3. Detach the signal generator from the **AUX IN** connector.

AUX IN -> OUTPUT L/MONO and R (-10 dB Mode) Residual Noise

AUX IN -> PHONES L and R (-10 dB Mode) Residual Noise

1. Connect the miniature stereo phone plug equipped with 1-kΩ load resistors to the **AUX IN** connector.
2. Connect the noise meter to the **OUTPUT L/MONO** and **R** connectors, and verify that residual noise is as shown below.
   OUTPUT L/MONO: **-90.0 dBm** or lower (DIN audio)
   or **-92.0 dBm** or lower (JIS A)
   OUTPUT R: **-90.0 dBm** or lower (DIN audio)
   or **-92.0 dBm** or lower (JIS A)
3. In the same way, verify that the residual noise at the **PHONES** connector is as shown below.
   PHONES L: **-88.0 dBm** or lower (DIN audio)
   or **-90.0 dBm** or lower (JIS A)
   PHONES R: **-88.0 dBm** or lower (DIN audio)
   or **-90.0 dBm** or lower (JIS A)

INPUT -> OUTPUT L/MONO and R (+4 dB Mode) Signal Levels

1. Depress **CTL/EXP**.
   A screen like the one shown below is displayed.

   (+4 dB)

1. Connect the signal generator to the **INPUT** connector, and input the following signal.
   INPUT: **200-Hz sine wave** at **+10 dBm**
2. Connect the oscilloscope to the **OUTPUT L/MONO** and **R** connectors, and verify that the output values are as shown below.
   OUTPUT L/MONO: **16.8 Vpp–18.0 Vpp**
   OUTPUT R: **16.8 Vpp–18.0 Vpp**
3. Depress **CTL/EXP**.
   A screen like the one shown below is displayed.

   (AFAD: ON)

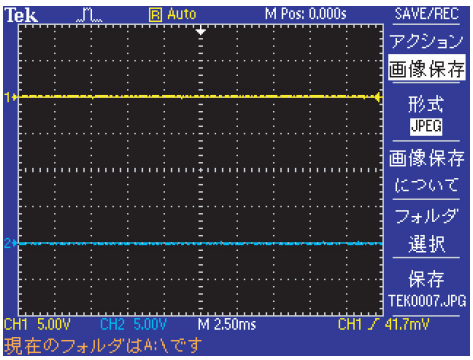
INPUT -> OUTPUT L/MONO and R (-10 dB Mode) Mute Operation

INPUT -> PHONES L and R (-10 dB Mode) Mute Operation

1. Press **WRITE**.
   A screen like the one shown below is displayed.

   (MUTE ON)

2. Input the following signal to the **INPUT** connector.
   INPUT: **200-Hz sine wave** at **+10 dBm**
3. Verify that output signals from the **OUTPUT L/MONO** and **R** connectors disappear.

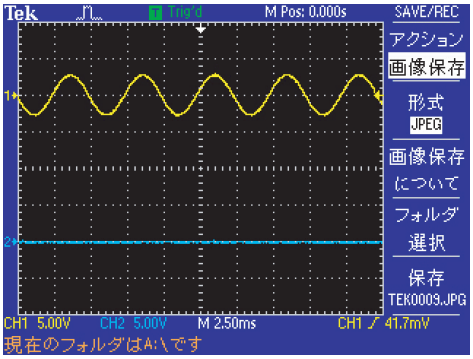


4. Press **WRITE**.
   A screen like the one shown below is displayed.

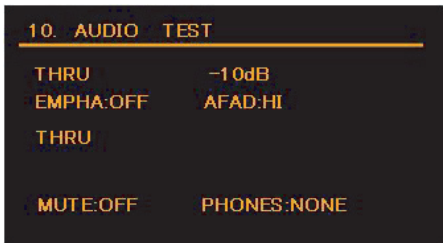
   (AFAD: ON)

RETURN -> SEND (Signal Levels)

1. Set the **GND LIFT** switch to **GND**.
2. Connect the signal generator to the **RETURN** connector, and input the following signal.
   RETURN: **200-Hz sine wave** at **+10 dBm**
3. Connect the oscilloscope to the **SEND** connector, and verify that the output value is as shown below.
   SEND: **5.5 Vpp–6.5 Vpp**

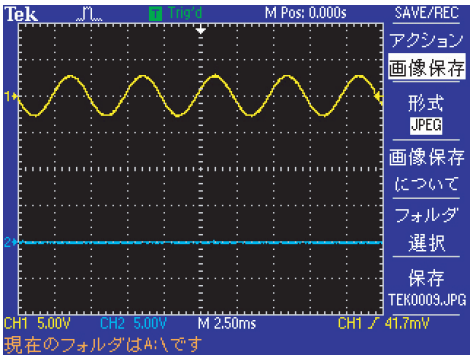


4. Press **PAGE** ◄ .
   A screen like the one shown below is displayed.



(AFAD: HI)

5. Input the following signal to the **RETURN** connector.
   RETURN: **200-Hz sine wave** at **-16 dBm**
6. Verify that the output value at the **SEND** connector is as shown below.
   SEND: **3.8 Vpp–4.8 Vpp**



7. Press **PAGE** ◄ twice.
   A screen like the one shown below is displayed.

RETURN -> SEND (Residual Noise)

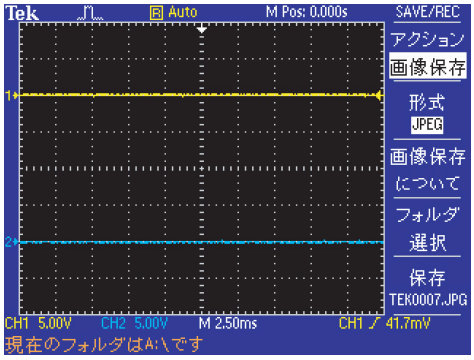
1. Connect the 1/4-inch phone plug equipped with 47-kΩ load resistor to the **RETURN** connector.
2. Connect the noise meter to the **SEND** connector, and verify that residual noise is as shown below.
   SEND: **-94.0 dBm** or lower (DIN audio)
   or **-96.0 dBm** or lower (JIS A)

RETURN -> SEND (Mute Operation)

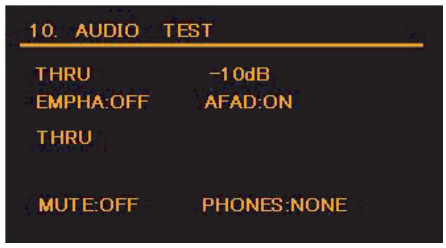
1. Press **WRITE**.
   A screen like the one shown below is displayed.

(MUTE ON)

2. Connect the signal generator to the **RETURN** connector, and input the following signal.
   INPUT: **200-Hz sine wave** at **+10 dBm**
3. Verify that the output signal at the **SEND** connector disappears.



4. Press **WRITE**.
   A screen like the one shown below is displayed.

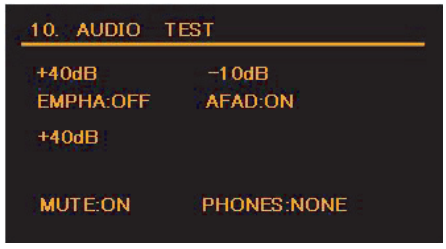


(AFAD: ON)

5. Detach the signal generator from the **RETURN** connector.

Impact Noise

1. Press **EFFECT**, then press **SYSTEM**.
   A screen like the one shown below is displayed.



2. Connect the miniature stereo phone plug equipped with 1-kΩ load resistors to the **AUX IN** connector.
3. Connect the amp-equipped monitor speakers to the **OUTPUT L** and **SEND** connectors.
4. Apply impact to the unit by allowing it to fall freely from a height of about 5 cm. Verify that no abnormal noise occurs at this time.

GND LIFT Switch

1. Connect dummy plugs to the **SEND** and **RETURN** connectors.
2. Set the **GND LIFT** switch to **LIFT**.
3. Using the tester, verify that the grounds of the **SEND** and **RETURN** connectors are not shorted.
4. Set **GND LIFT** to **GND**.
5. Verify that the grounds of the **SEND** and **RETURN** connectors are shorted.
6. Press **PAGE** ► .
   Execution advances to the next test item.

11. Factory Reset

1. Press **WRITE**.
   A screen like the one shown below is displayed.

2. Press **WRITE** again.
   A screen like the one shown below appears and the factory reset starts.

When the factory reset finishes, a screen like the one shown below appears.

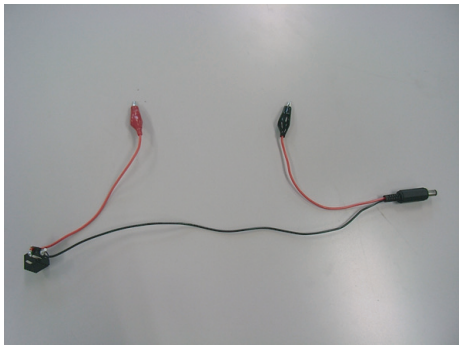
3. Press and hold **POWER** to turn off the power.

Additional Tests

This describes the procedure when measuring current consumption as required, such as when the Main Board has been replaced.

Items Required

- AC adaptor (PSB-1U(S)) x 1
- Tester x 1
- DC IN current-consumption measurement cable x 1

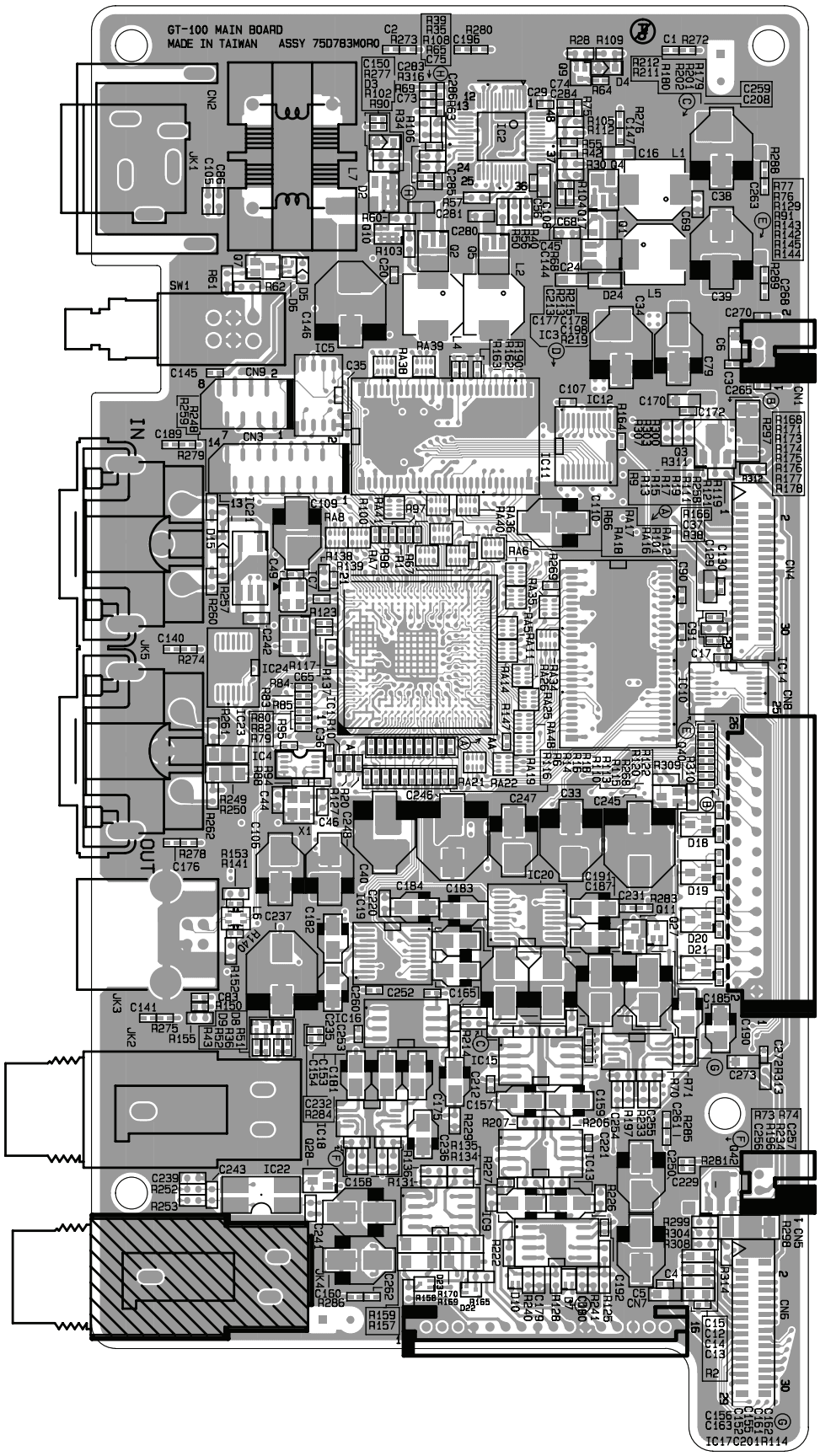


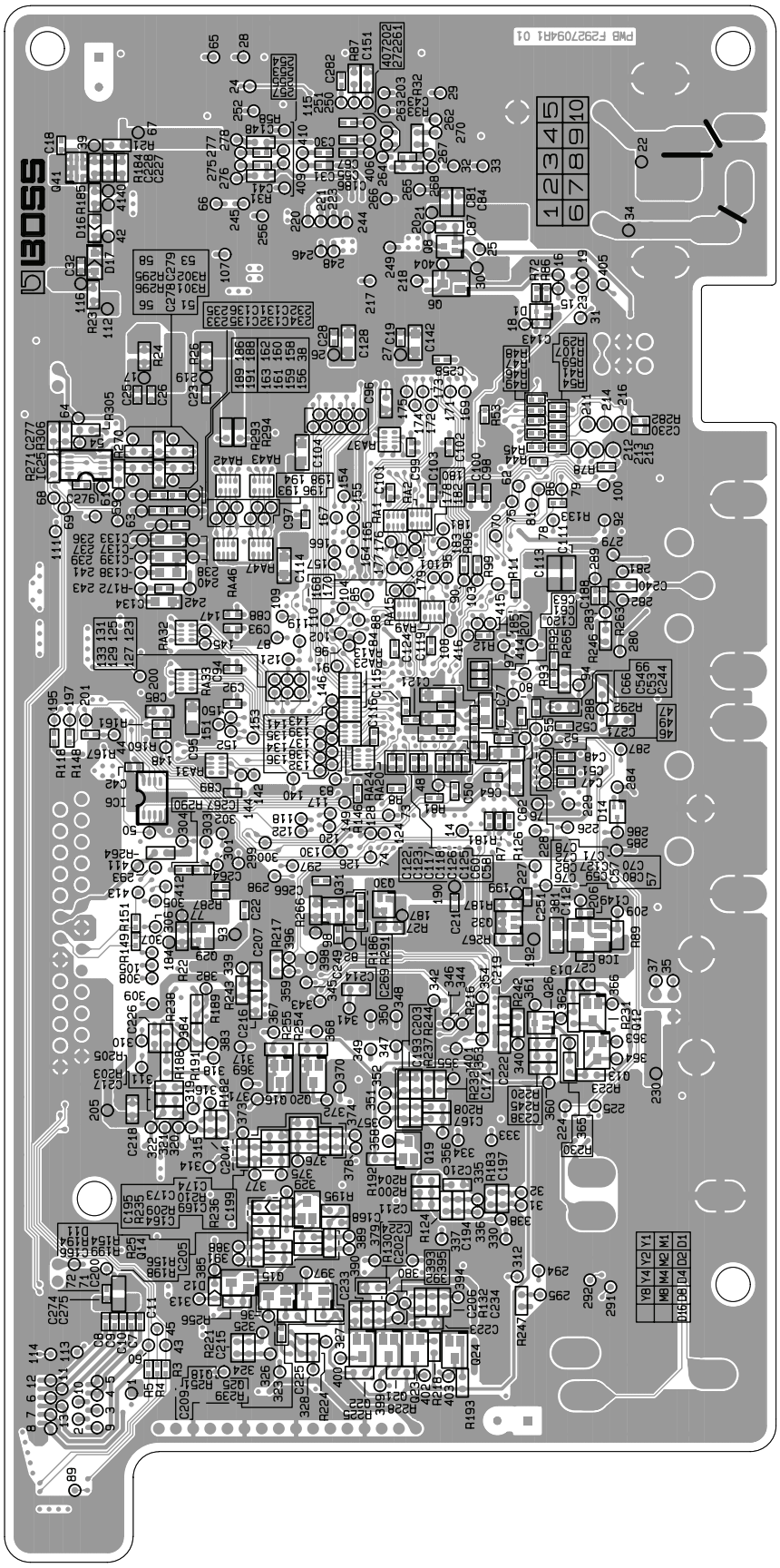
Verifying Current Consumption

1. Connect the DC IN current-consumption measurement cable to the **DC IN** connector on the GT-100, then connect the AC adaptor.

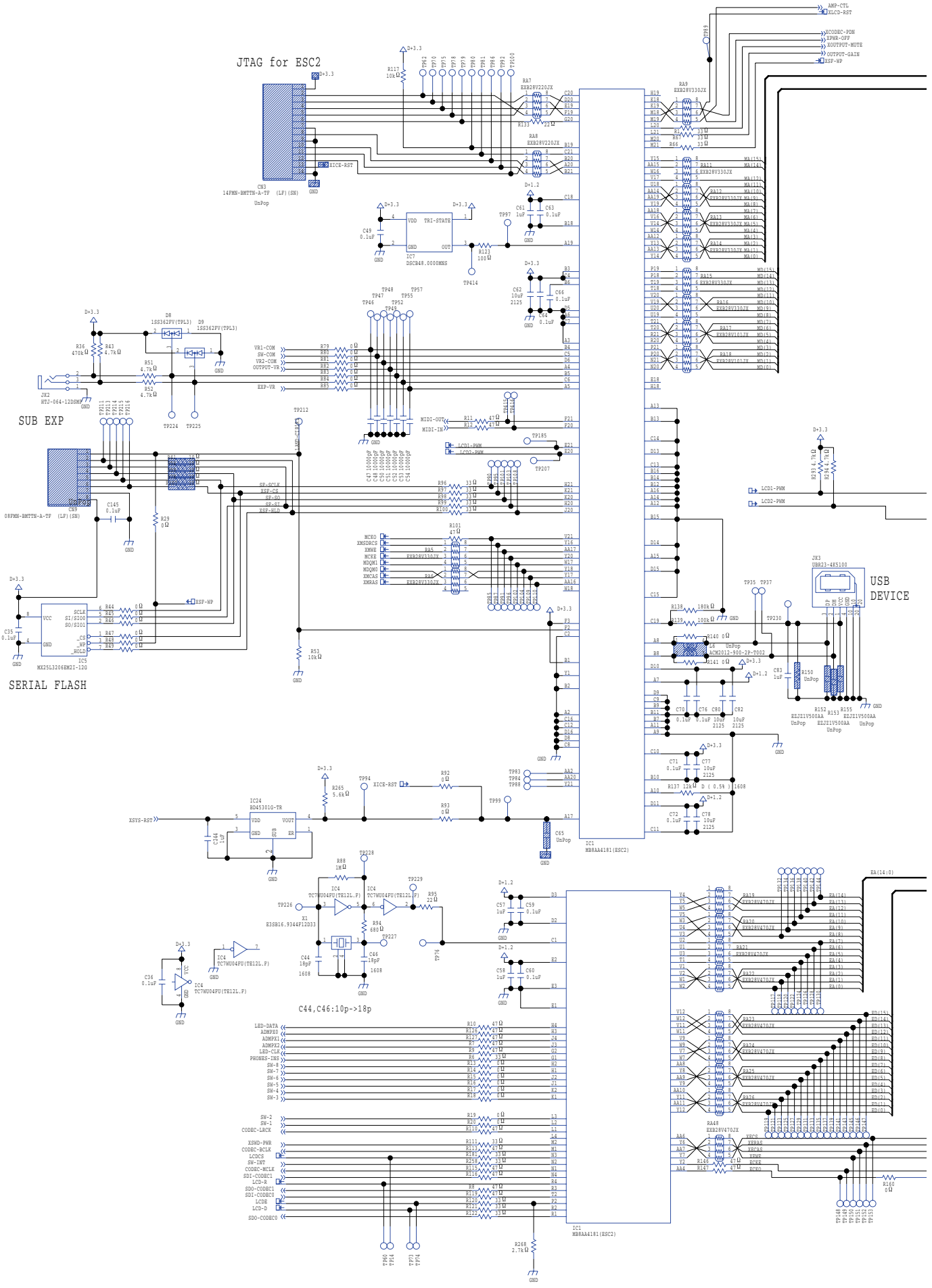
2. Adjust the **OUTPUT LEVEL** knob to minimum.
3. Hold down **WRITE** and **PAGE** ► and press and hold **POWER**.
   * *Continue holding down **WRITE** and **PAGE** ► until the message **BOSS GT-100** appears.*
   After a short wait, the Test Mode starts.
4. Turn knob **8** to display **2. LED** on the screen.
5. Verify that the LEDs (9) all light up, and that all dots in the LCD screens are displayed.
6. Verify that current consumption is **500 mA** or lower.

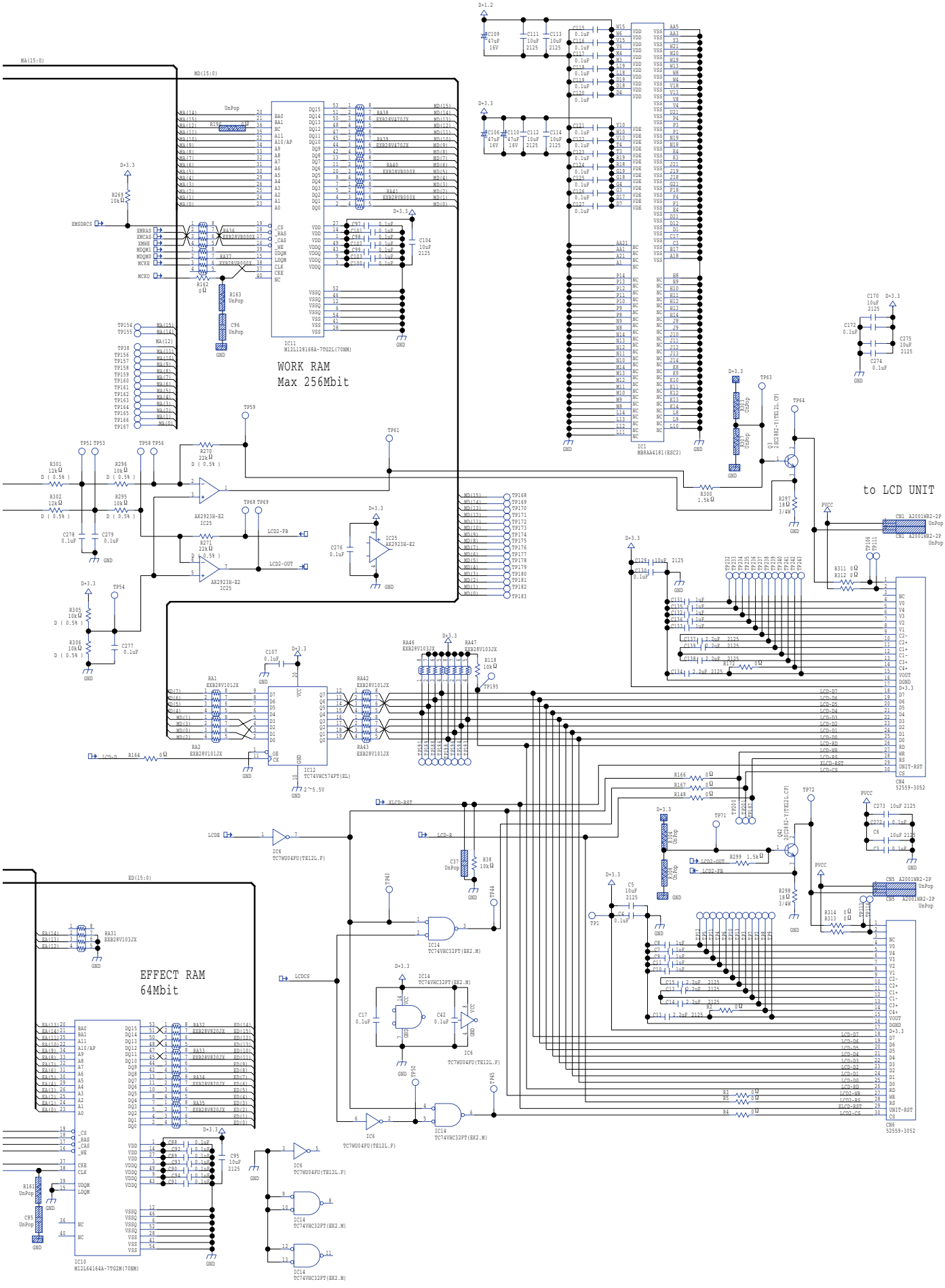
Circuit Board (Main Board)



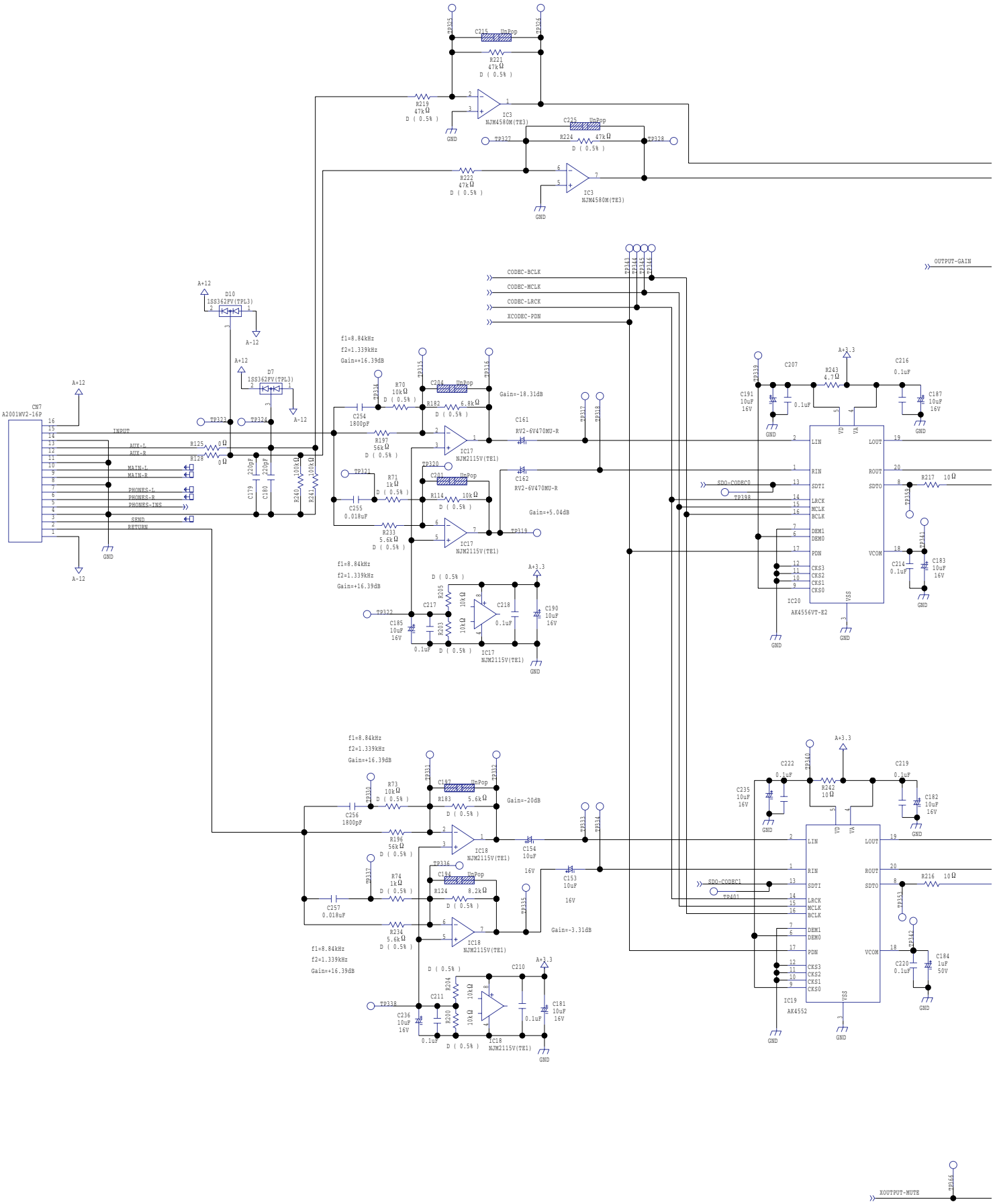

PWB F2927094A1 01
BOSS

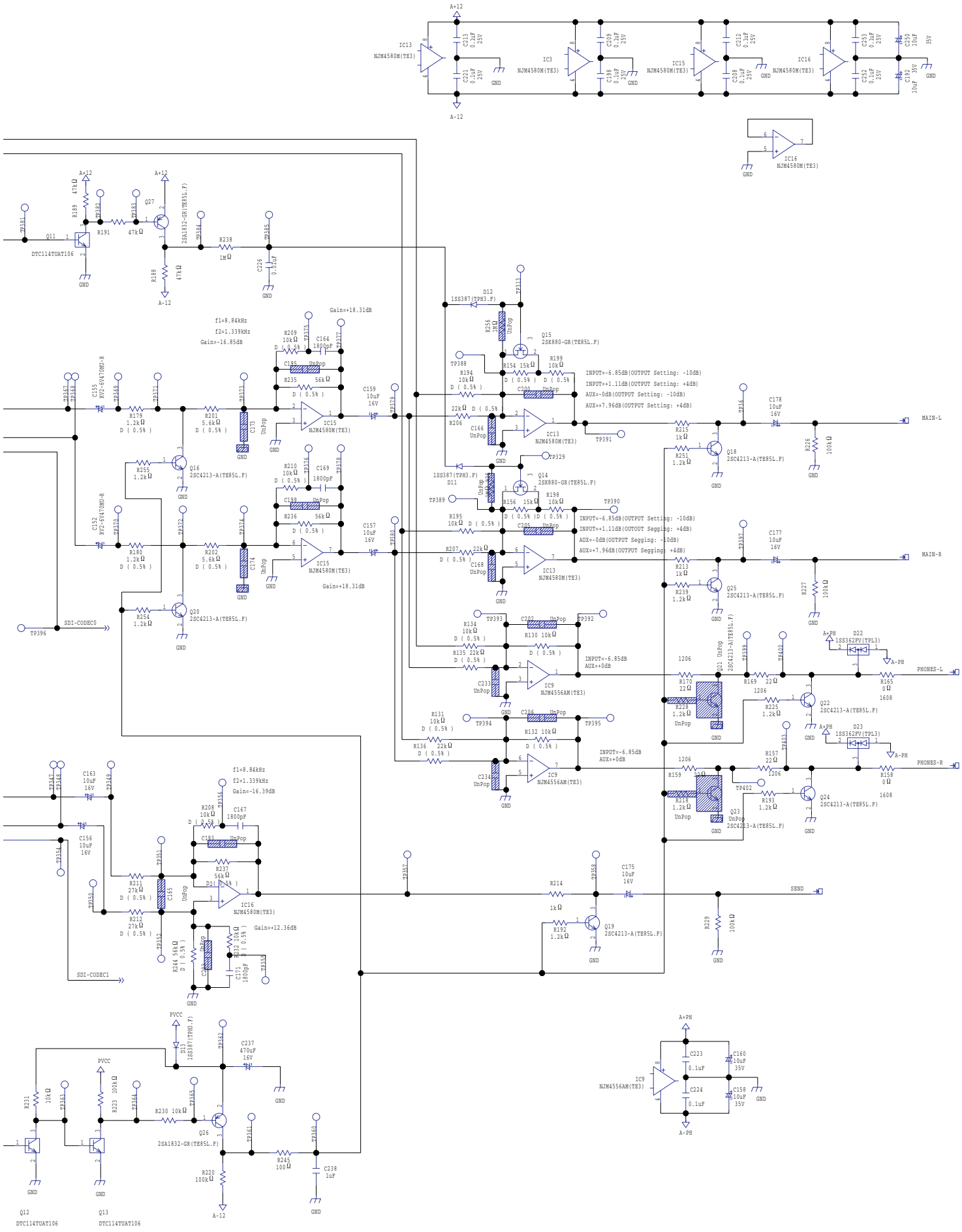
Circuit Diagram (Main Board: CPU)



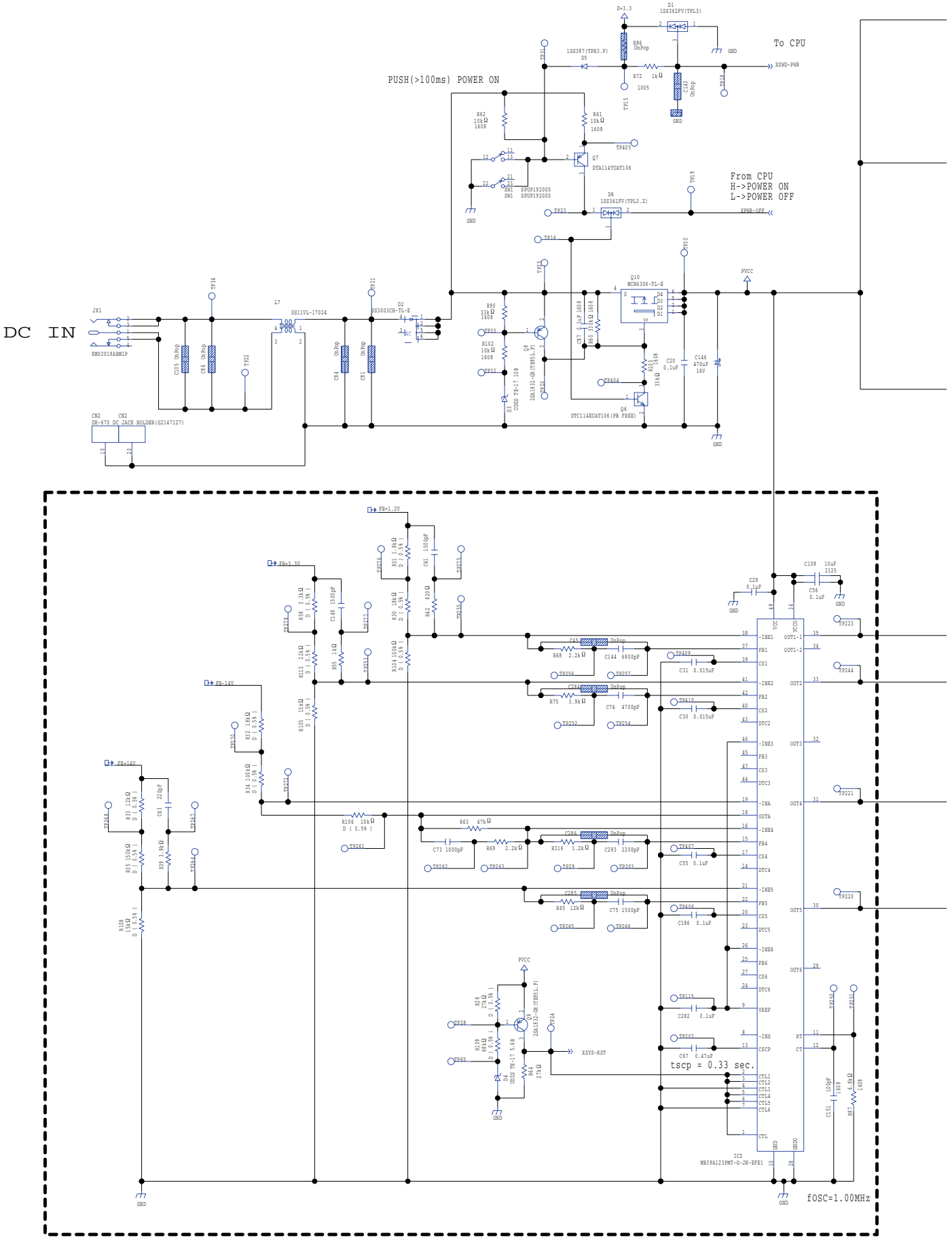

WORK RAM
Max 256Mbit
EFFECT RAM
64Mbit
to LCD UNIT

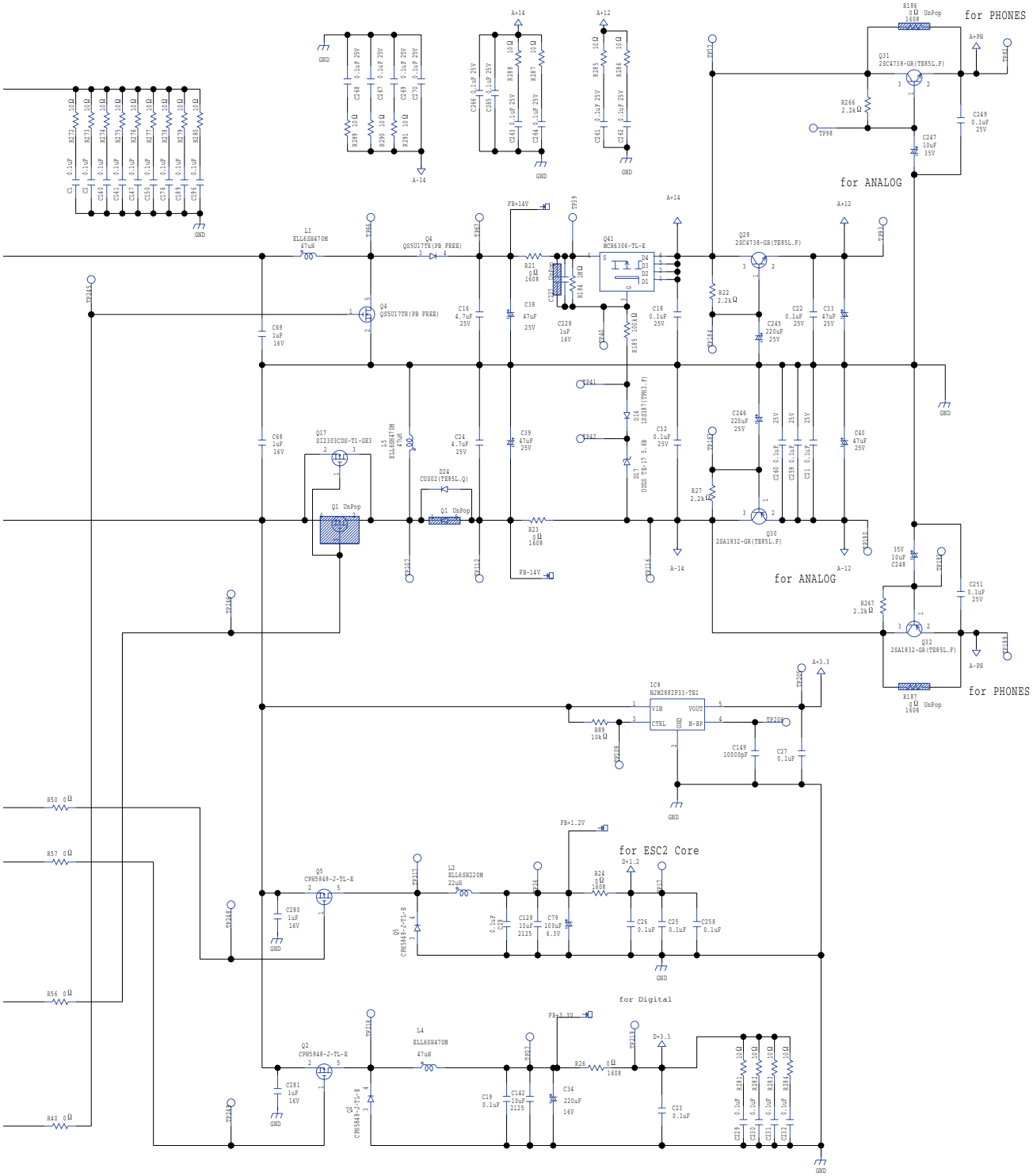
Circuit Diagram (Main Board: Analog)




A+12
A-12
GND
IC13 NJM4580M(TE3)
IC3 NJM4580M(TE3)
IC15 NJM4580M(TE3)
IC16 NJM4580M(TE3)
C213 0.1uF 25V
C221 0.1uF 25V
C209 0.1uF 25V
C198 0.1uF 25V
C212 0.1uF 25V
C208 0.1uF 25V
C253 0.1uF 25V
C252 0.1uF 25V
C250 10uF 35V
C192 10uF 35V
Q11 DTC114TUAT106
Q27 2SA1832-GR(TE85L,F)
R189 47kΩ
R191 47kΩ
R188 47kΩ
R238 1MΩ
C226 0.1uF
TP381
TP382
TP383
TP384
TP385
f1=8.84kHz
f2=1.339kHz
Gain=-16.85dB
Gain=+18.31dB
R209 10kΩ D (0.5%)
C164 1800pF
C185 UnPop
R235 56kΩ D (0.5%)
C159 10uF 16V
C173 UnPop
IC15 NJM4580M(TE3)
TP373
TP374
TP375
TP377
TP378
TP379
TP380
R179 1.2kΩ D (0.5%)
R201 5.6kΩ D (0.5%)
R255 1.2kΩ
Q16 2SC4213-A(TE85L,F)
R210 10kΩ D (0.5%)
C169 1800pF
C189 UnPop
R236 56kΩ D (0.5%)
C157 10uF 16V
C174 UnPop
R180 1.2kΩ D (0.5%)
R202 5.6kΩ D (0.5%)
R254 1.2kΩ
Q20 2SC4213-A(TE85L,F)
SDI-CODEC0
TP396
D12 1SS387(TPH3.F)
Q15 2SK880-GR(TE85L,F)
D11 1SS387(TPH3.F)
Q14 2SK880-GR(TE85L,F)
R256 100Ω
R154 15kΩ D (0.5%)
R199 10kΩ D (0.5%)
C200 UnPop
R194 10kΩ D (0.5%)
R206 22kΩ D (0.5%)
C166 UnPop
R156 15kΩ D (0.5%)
R198 10kΩ D (0.5%)
C202 UnPop
R195 10kΩ D (0.5%)
R207 22kΩ D (0.5%)
C168 UnPop
IC13 NJM4580M(TE3)
TP388 TP389 TP390 TP391 TP329
INPUT=-6.85dB(OUTPUT Setting: -10dB)
INPUT=+1.11dB(OUTPUT Setting: +4dB)
AUX=-0dB(OUTPUT Setting: -10dB)
AUX=+7.96dB(OUTPUT Setting: +4dB)
INPUT=-6.85dB(OUTPUT Setting: -10dB)
INPUT=+1.11dB(OUTOUT Segging: +4dB)
AUX=-0dB(OUTPUT Segging: -10dB)
AUX=+7.96dB(OUTPUT Segging: +4dB)
R215 1kΩ
R251 1.2kΩ
Q18 2SC4213-A(TE85L,F)
R213 1kΩ
R239 1.2kΩ
Q25 2SC4213-A(TE85L,F)
C178 10uF 16V
C177 10uF 16V
R226 100kΩ
R227 100kΩ
MAIN-L
MAIN-R
TP393 TP394 TP395 TP392
R134 10kΩ D (0.5%)
R135 22kΩ D (0.5%)
R130 10kΩ D (0.5%)
R131 10kΩ D (0.5%)
R132 10kΩ D (0.5%)
R136 22kΩ D (0.5%)
C233 UnPop
C206 UnPop
C234 UnPop
IC9 NJM4556AM(TE3)
INPUT=-6.85dB
AUX=+0dB
R170 22Ω
R228 1.2kΩ UnPop
Q21 2SC4213-A(TE85L,F)
R169 22Ω
R225 1.2kΩ
Q22 2SC4213-A(TE85L,F)
R165 0Ω 1608
PHONES-L
R159 22Ω
R218 1.2kΩ UnPop
Q23 UnPop 2SC4213-A(TE85L,F)
R157 22Ω
R193 1.2kΩ
Q24 2SC4213-A(TE85L,F)
R158 0Ω 1608
PHONES-R
D22 1SS362FV(TPL3)
D23 1SS362FV(TPL3)
A-PH
TP400 TP401 TP402
f1=8.84kHz
f2=1.339kHz
Gain=-16.39dB
Gain=+12.36dB
R208 10kΩ D (0.5%)
C167 1800pF
C183 UnPop
R237 56kΩ D (0.5%)
C163 10uF 16V
C156 10uF 16V
R211 27kΩ D (0.5%)
R212 27kΩ D (0.5%)
C165 UnPop
R244 56kΩ D (0.5%)
C184 UnPop
R232 10kΩ D (0.5%)
C171 1800pF
IC16 NJM4580M(TE3)
TP347 TP348 TP349 TP154 TP350 TP351 TP352 TP355 TP356 TP357 TP358
SDI-CODEC1
R214 1kΩ
R192 1.2kΩ
Q19 2SC4213-A(TE85L,F)
C175 10uF 16V
R229 100kΩ
SEND
PVCC
D13 1SS387(TPH3.F)
C237 470uF 16V
R231 10kΩ
R223 100kΩ
R230 10kΩ
Q26 2SA1832-GR(TE85L,F)
R220 100kΩ
R245 100Ω
C238 1uF
TP160 TP161 TP162 TP163 TP164 TP165
Q12 DTC114TUAT106
Q13 DTC114TUAT106
C223 0.1uF
C224 0.1uF
C160 10uF 35V
C158 10uF 35V

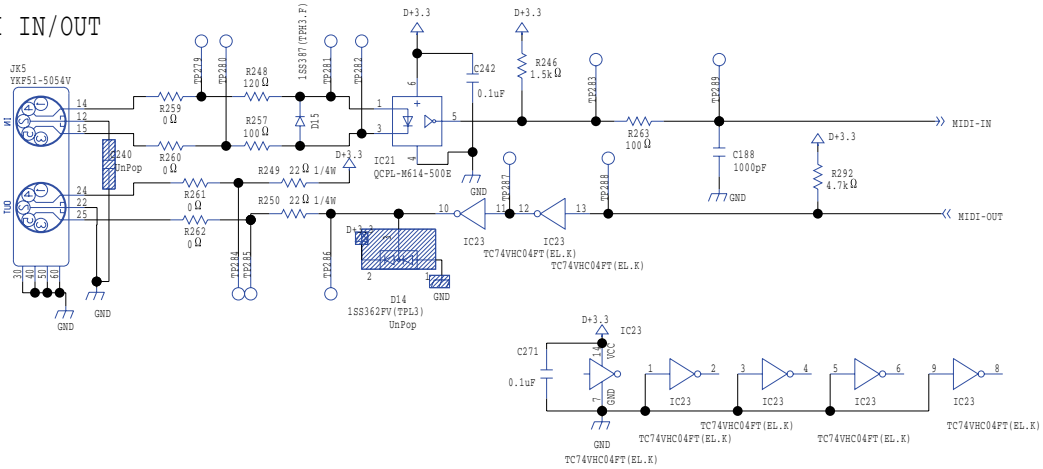
Circuit Diagram (Main Board: Power)

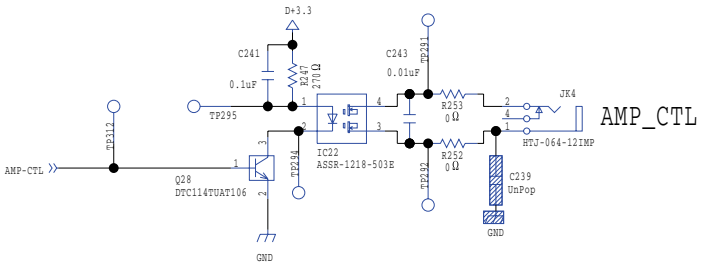


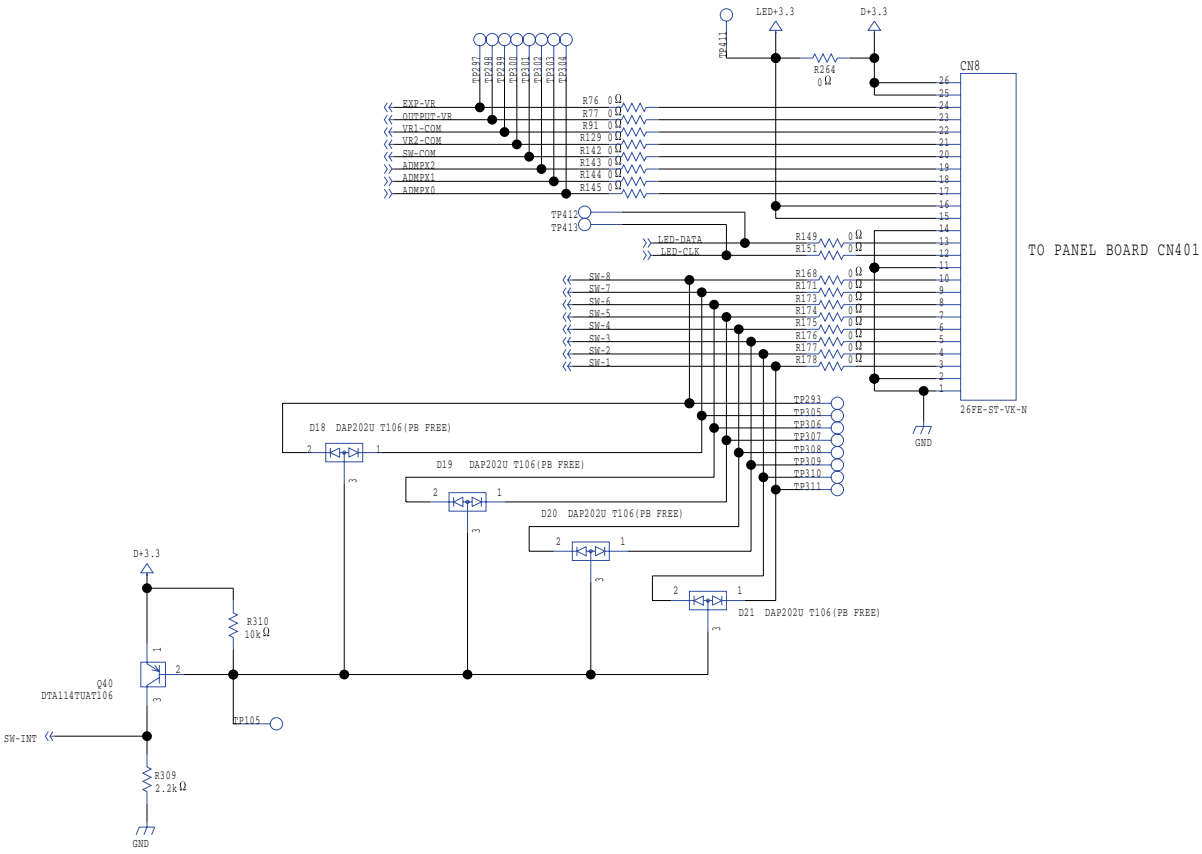

for PHONES
for ANALOG
for ANALOG
for PHONES
for ESC2 Core
for Digital

Circuit Diagram (Main Board: Digital)

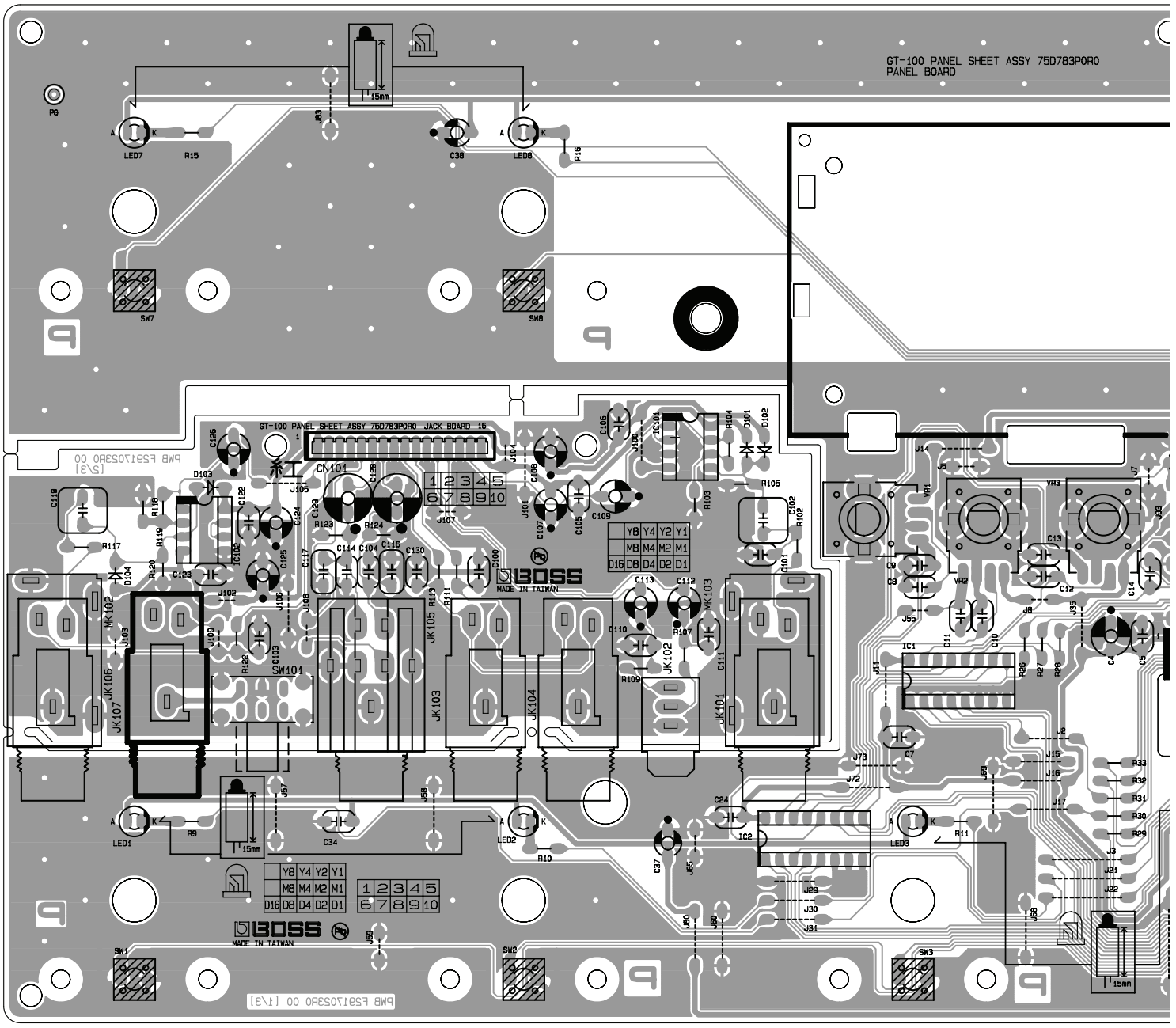
MIDI IN/OUT

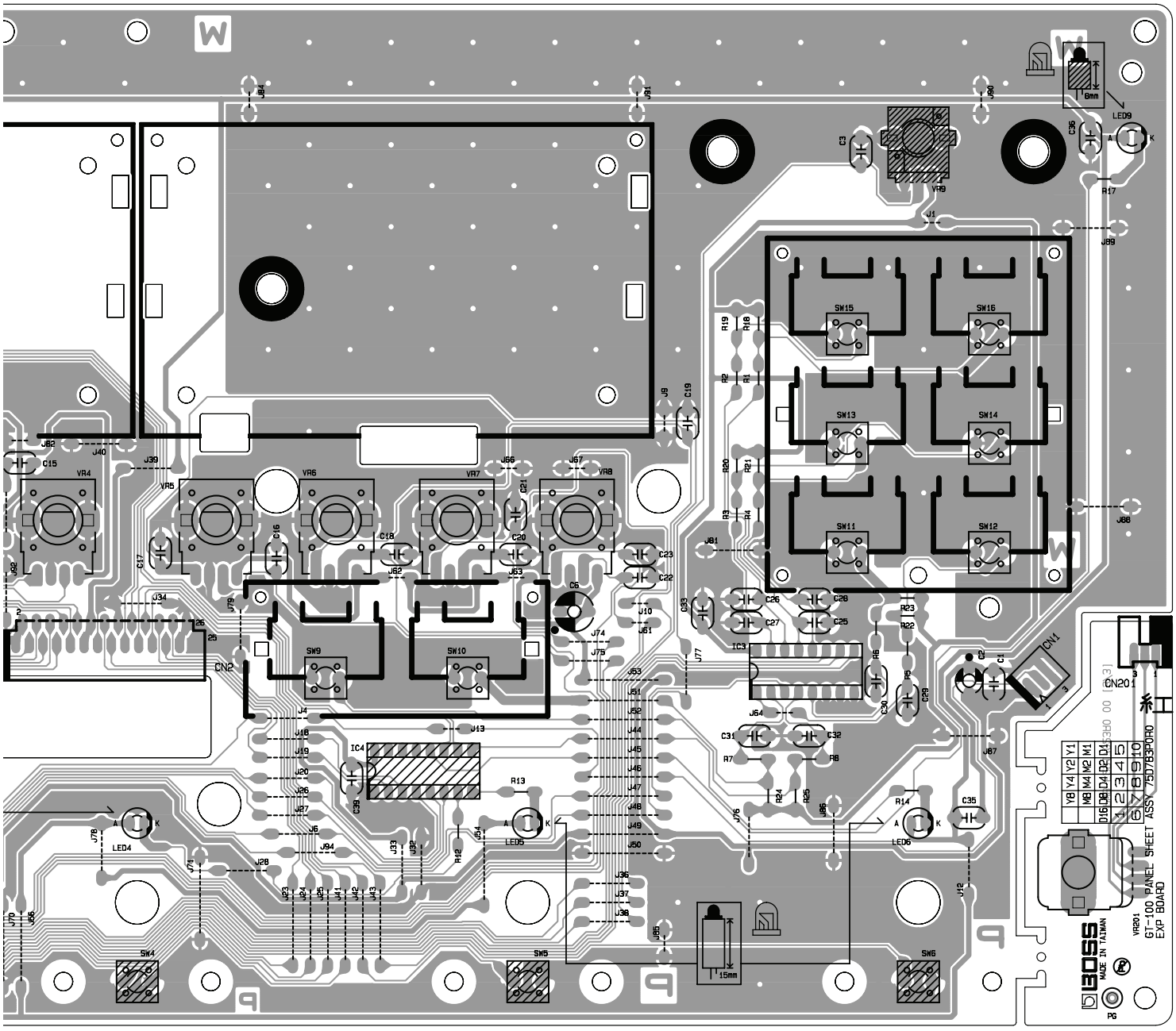




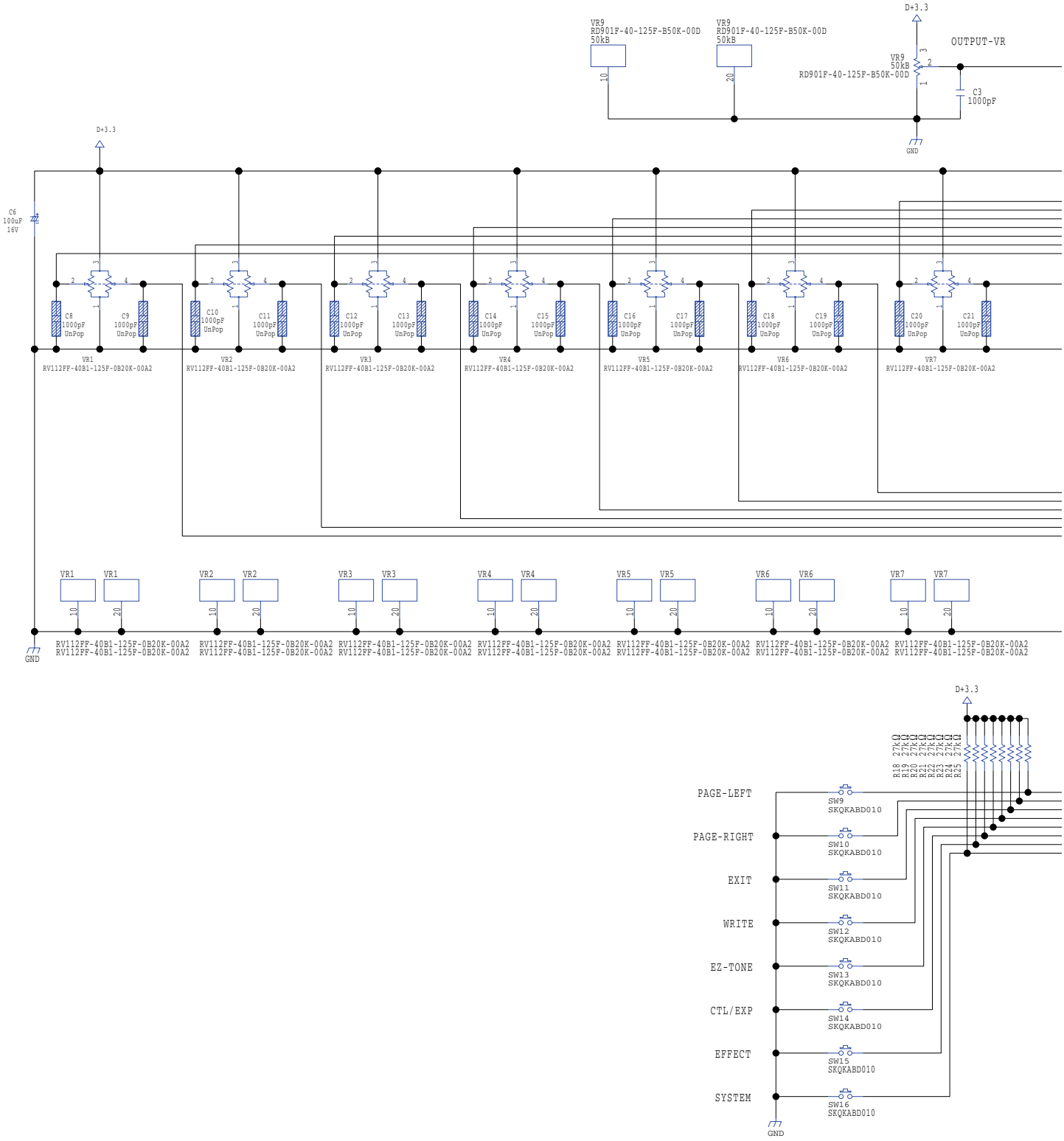


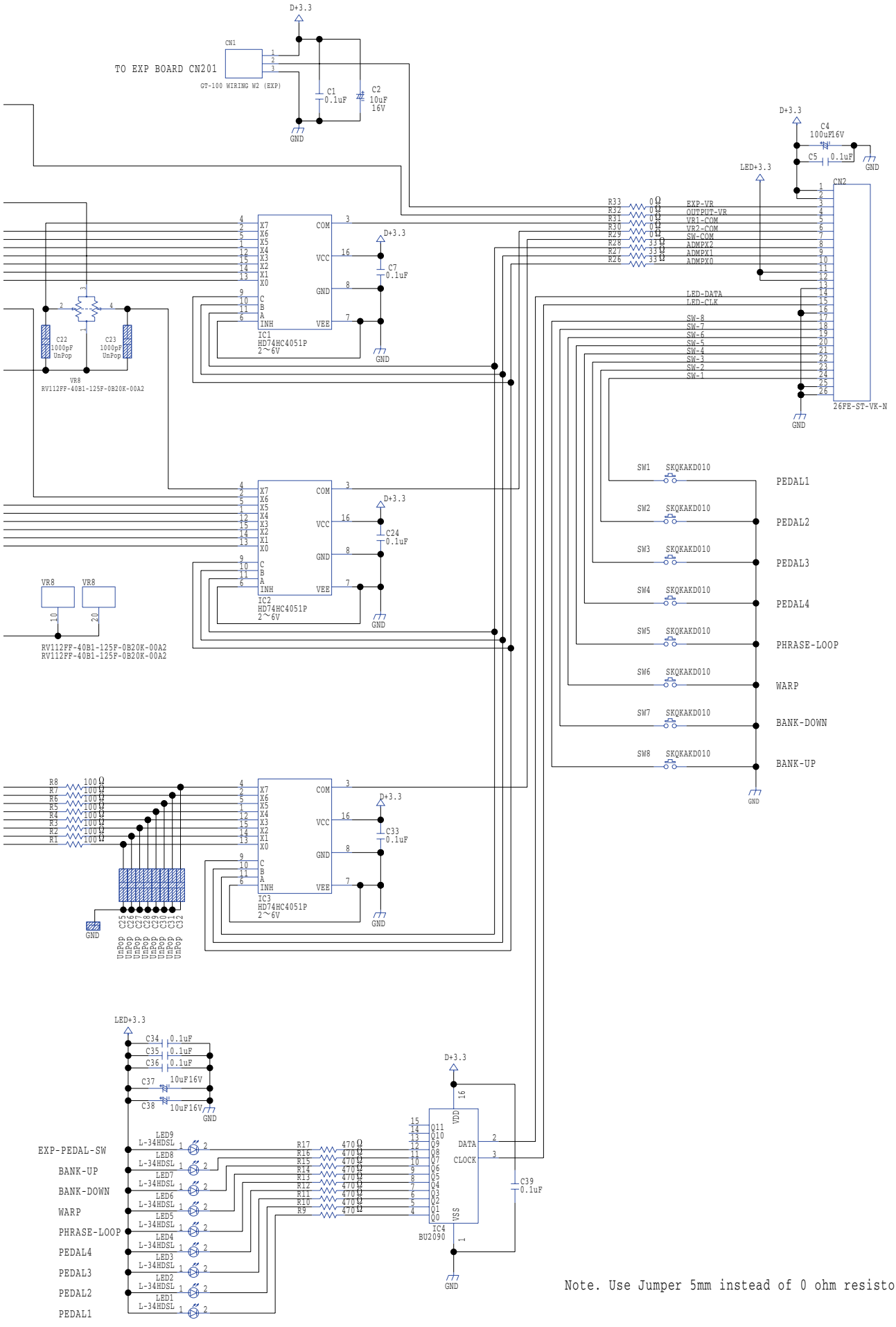
Circuit Board (Panel, Jack, EXP Board)




SW15
SW16
SW13
SW14
SW11
SW12
SW9
SW10
SW4
SW5
SW6
VR4
VR5
VR6
VR7
VR8
VR9
LED4
LED5
LED6
LED9
IC4
IC3
CN1
CN2
CN201
15mm
8mm
BOSS
MADE IN TAIWAN
VR201
GT-100 PANEL SHEET ASSY 7507830R0
EXP BOARD

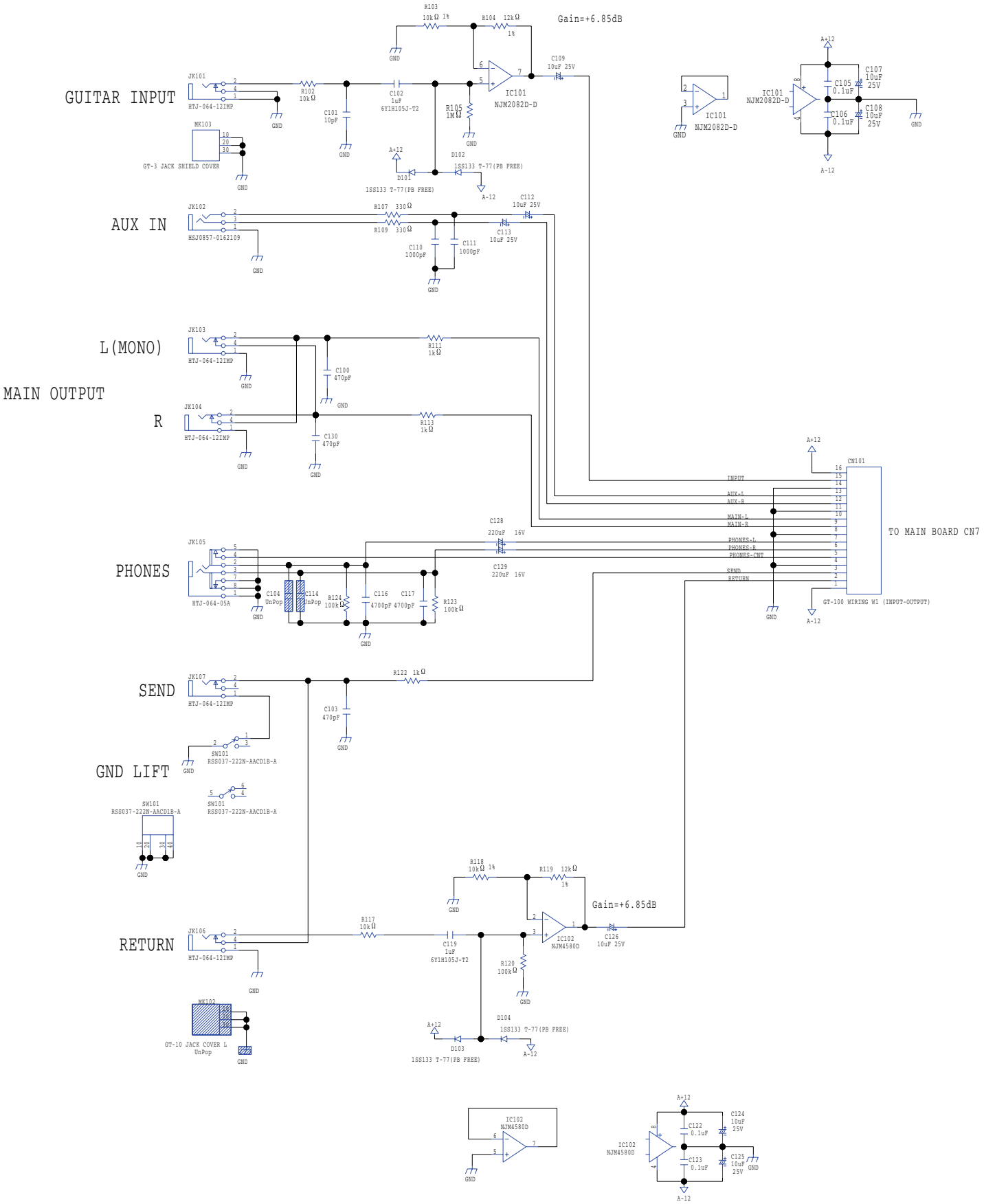
Circuit Diagram (Panel Board)



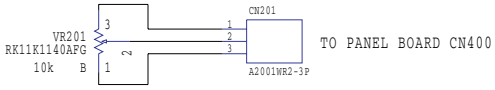


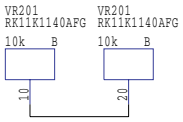
Note. Use Jumper 5mm instead of 0 ohm resistor

Circuit Diagram (Jack Board)



Circuit Diagram (EXP Board)





EXP BOARD