V-Synth GT

SERVICE NOTES
Issued by RJA

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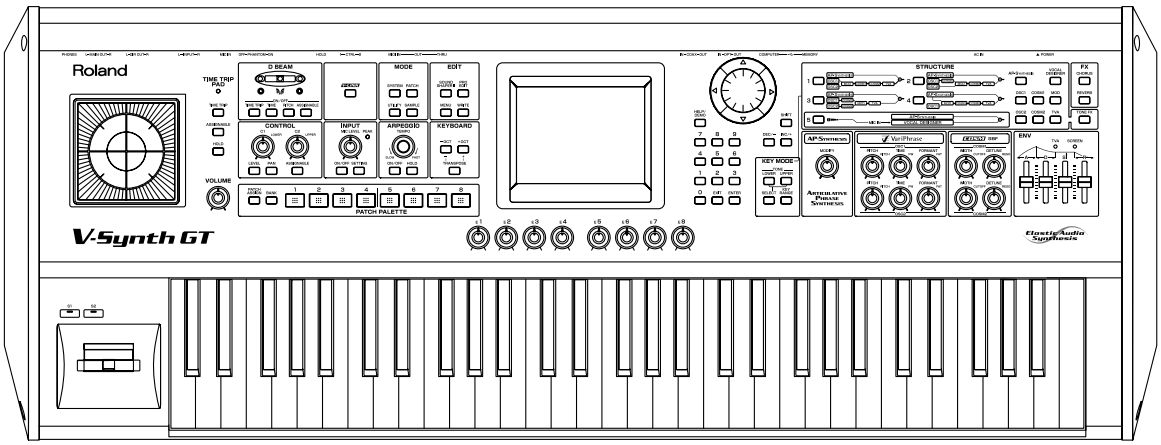

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Cautionary Notes

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 "**Saving and Loading Data**" (p. 28) in the Service Notes and save the data. After completing the procedure, restore the backed-up data to the product.

Part Replacement

When replacing components near the power-supply circuit or a heat-generating circuit (such as a circuit provided with a heat sink or including a cement resistor), carry out the procedure according to the instructions with respect to the part number, direction, and attachment position (mounting so as to leave an air gap between the component and the circuit board, etc.).

Parts List

A component whose part code is ******** cannot be supplied as a service part because one of the following reasons applies.

- Because it is supplied as an assembled part (under a different part code).
- Because a number of circuit boards are grouped together and supplied as a single circuit board (under a different part code).
- Because supply is prohibited due to copyright restrictions.
- Because reissuance is restricted.
- Because the part is made to order (at current market price).

Circuit Diagram

In the circuit diagram, "NIU" is an abbreviation for "NOT IN USE." The circuit board and circuit-board diagram show silkscreened indications, but no components are mounted.

Specifications

V-Synth GT: Synthesizer Keyboard

Keyboard

61 keys (with velocity and channel aftertouch)

Sound Generator Configuration

Dual-core (2 Tones per Patch: Upper, Lower)
Sections per Tone:
Oscillator (envelope x 4 + LFO x 1) x 2
Modulator x 1
COSM (envelope x 2 + LFO x 1) x 2
TVA (envelope x 1 + LFO x 1) x 1
Multi Step Modulator x 1
Tone-FX x 1
AP-Synthesis (Articulative Phrase Synthesis) x 1 (*)
Vocal Designer x 1 (*)
Usable on either upper or lower (not both)

OSC1/OSC2 (Oscillator 1, 2)

Analog Modeling: 14 waveforms
(SAW, SQUARE, TRIANGLE, SINE, RAMP, JUNO, HQ-SAW, HQ-SQUARE, NOISE, LA-SAW, LA-SQUARE, SUPER-SAW, FEEDBACK-OSC, XMOD-OSC)
PCM/VariPhrase
(Preset waveforms + Sampling waveforms)
External Input

MOD (Modulator)

4 types (RING, FM, ENV-RING, OSC-SYNC)

COSM

16 types
(OD/DS, W-SHAPE, AMP, SPEAKER, RESONATOR, SBF1, SBF2, COMB, DUAL, TVF, DYN-TVF, COMP, LIMITER, F-SHIFT, LO-FI, TB FILTER)

Multi Step Modulator

Provided independently for the Upper Tone and Lower Tone
Tracks per tone: 4
Maximum number of step: 16
Tempo: 20-250 BPM

AP-Synthesis

Source Waveforms: 38 types
Phrase Models: Violin, Erhu, Sax, Flute, Multifade

Vocal Designer

Carrier: Oscillator x 2, Modulator x 1, COSM x 2, TVA x 1, Multi Step Modulator x 1
Vocoder: 4 types (Stereo, Mono, Vintage, Enhance)
Formant: 7 types (Maximum)

Zones

Upper Tone: 16, Lower Tone: 16

Arpeggiator

Patterns: User programmable (supports use of control change messages)
Motifs: 8 types
Tempo: 20-250 BPM

MIDI Parts

1

Maximum Polyphony

28 voices (varies according to the sound generator load)

Internal Memory

Project: 1
Patches: 512
Tones: 896
Wave Memory (RAM): 64 MB

Internal Storage

Internal Flash Memory: 49.5 MB

External Storage Device

USB Flash Memory

Effects

Tone-FX: 41 types
Chorus: 8 types
Reverb: 13 types
4-band system EQ
Input Effects (Mic/Sampling)

Sampling Frequency

Internal: 44.1 kHz
DIGITAL IN/OUT: 96, 48, 44.1 kHz

Signal Processing

Internal Processing
Sound Generating Section: 32 bits (floating point)
Effects Section: 32 bits (fixed point)
DA Conversion: 24 bits
AD Conversion: 24 bits

Nominal Output Level

MAIN OUT: +4 dBu
DIRECT OUT: +4 dBu

Nominal Input Level

INPUT (L, R): -10/-20 dBu
MIC IN: -50–10 dBu

Display

320 x 240 dots backlit TFT full color touch screen

Connectors

Headphone Jack (Stereo 1/4 inch phone type)
Main Output Jacks (L/MONO, R) (1/4 inch TRS phone type)
Direct Output Jacks (L, R) (1/4 inch phone type)
Input Jacks (L, R) (1/4 inch phone type)
Mic Jack (1/4 inch phone type/XLR type, phantom power)
Hold pedal Jack
Control pedal Jacks (1, 2)
MIDI Connectors (IN, OUT, THRU)
USB Connectors
  COMPUTER (supports USB 2.0 file transfer, USB 1.1 USB MIDI, and USB Audio)
  MEMORY (supports USB 2.0 Flash Memory)
Digital Audio Interface (24-bit, IEC60958)
  COAXIAL (IN, OUT)
  OPTICAL (IN, OUT)
AC Inlet

Power Supply

AC 115 V, AC 117 V, AC 220 V, AC 230 V, AC 240 V (50/60 Hz)

Power Consumption

30 W

Dimensions

1066 (W) x 411 (D) x 125 (H) mm
42 (W) x 16-3/16 (D) x 4-15/16 (H) inches

Weight

13.8 kg
30 lbs 7 oz

Accessories

Owner's Manual Set English (#73459878)

* *This set consists of the following parts.*
  Owner's Manual English
  Quick Start
  Driver Installation Guide

CD-ROM (USB Driver) (#04566645)
AC CORD SET 120V SP301+IS14 SJT18/3 (#00894378)
  230V SP22+IS14 H05VV-F3G1.0 (#00894389)
  240VE SP-60+IS-14 (#00907001)
  240VA SC-144-JO1 ES303-10HMA (#23495124)

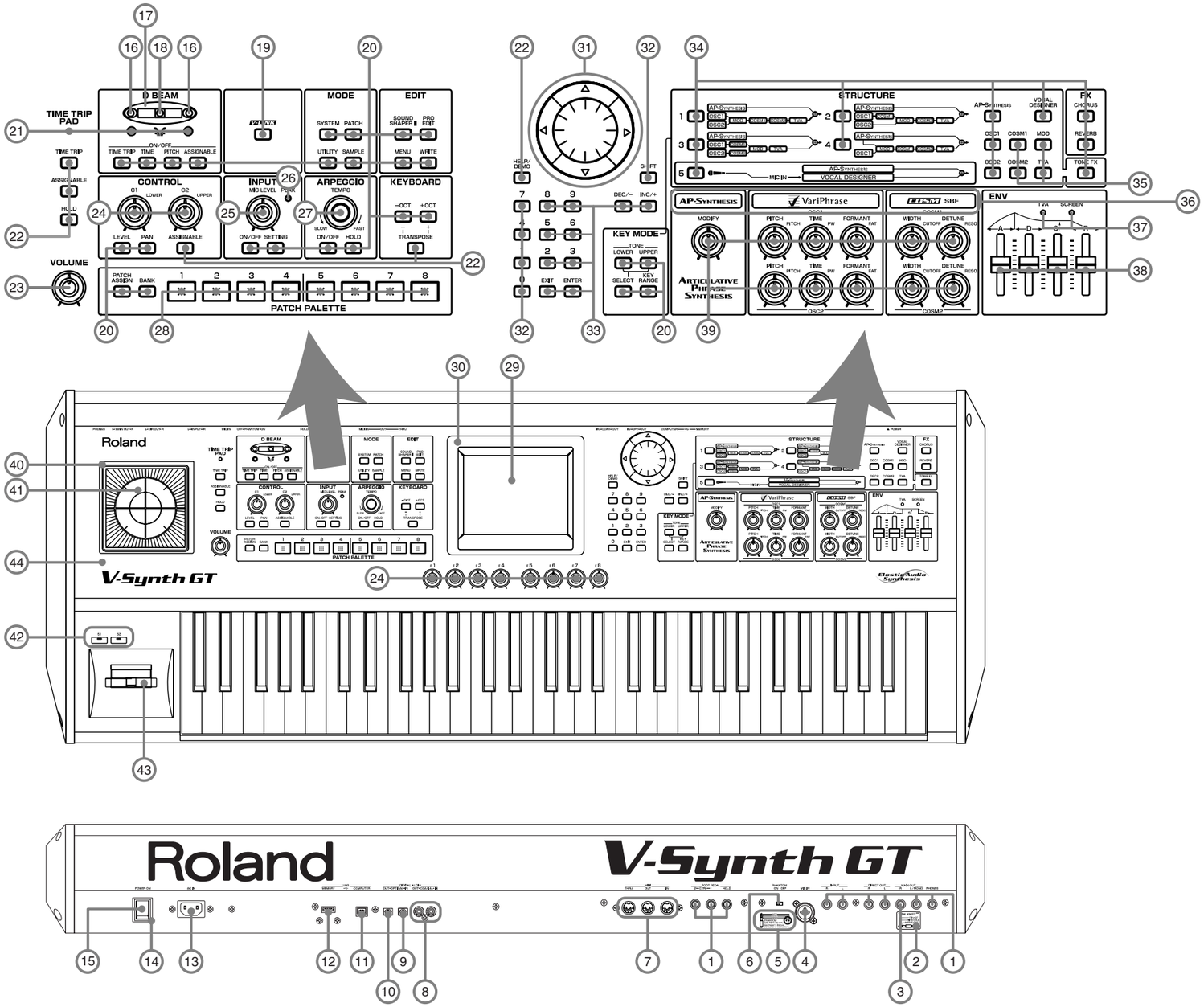
Options

Keyboard Stand: KS-12
Pedal Switch: DP series
Foot switch: BOSS FS-5U
Expression Pedal: EV-5
USB Memory: M-UF128
Microphone: DR series

(0 dBu = 0.775 Vrms)

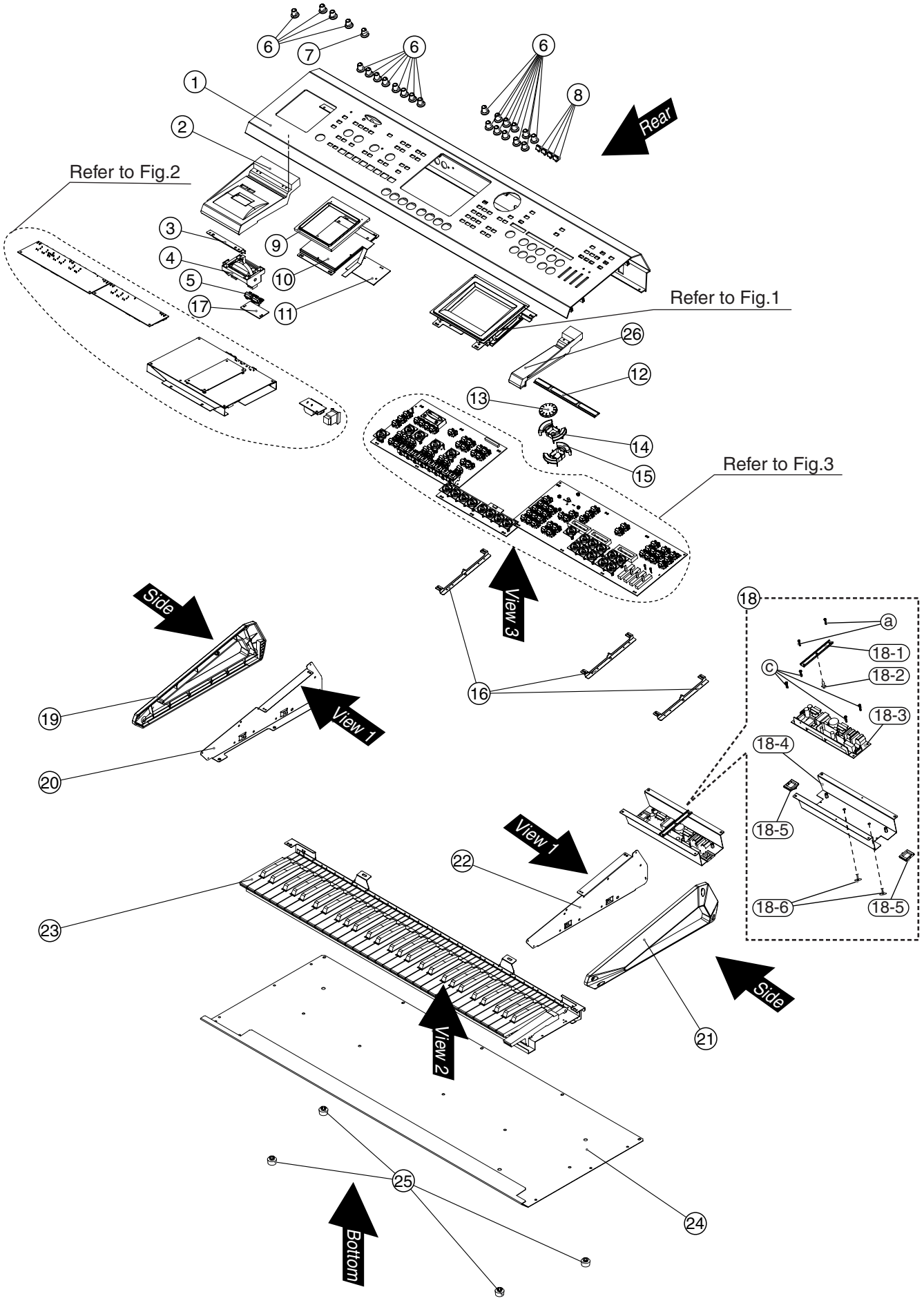
* *In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.*

Location of Controls



No.	Part Code	Part Name	Description	Q'ty
1	00120434	JACK	YKB21-5262	9
2	40679901	LABEL	BALANCED LABEL	1
3	13449252	6.5MM JACK	YKB21-5006 (STEREO W/SW)	1
4	02232412	XLR CONNECTOR	NCJ6FI-H-0	1
5	40679445	LABEL	XLR LABEL	1
6	03016956	SLIDE SWITCH	SSSU121700	1
7	13429274	MIDI SOCKET	YKF51-5041	1
8	03231812	RCA (PIN)	YKC21-4173	1
9	03453389	IC (OPTICAL)	GP1FM313RZOF	1
10	04125012	OPTICAL CONNECTOR	GP1FMV51TK0F	1
11	02781189	USB CONNECTOR B TYPE FEMALE	YKF45-0021	1
12	04459190	PLUG	YKF45-0033N	1
13	00125023	AC INLET	PWI1818 (INL-7) 10A/250V 3P	1
14	01786045	SW HOLDER	AT-217K	1
15	01786012	SEESAW SWITCH	JW-M11RKK	1
16	03126134	LED (INFRARED)	TLN233 (F)	2
17	04344312	TWIN D-BEAM CONTROLLER ESCT.		1
18	04235490	PHOTO DI	TPS703 (F)	1
19	03120890	D S-KEYTOP	SX1H-B GRS	1
	03893601	LED	SLR343BCT3F	1
20	03120889	D S-KEYTOP	SX2H-B GRS	13
	02781634	TACT SWITCH	SKRGAED010	26
	02125167	LED (YELOW)	SLI-343DCT32W	26
21	03893601	LED	SLR343BCT3F	3
22	03120890	D S-KEYTOP	SX1H-B GRS	6
	02781634	TACT SWITCH	SKRGAED010	6
	02125167	LED (YELOW)	SLI-343DCT32W	6
23	02891812	12M/M ROTARY POTENTIOMETER	RK12L12C0C08	1
	04124267	J R-KNOB	SF-ELA BLK/SLV	1
24	01340234	POTENTIOMETER (9M/M)	EVUF2K1B14 L=12.5 10KB	10
	04124267	J R-KNOB	SF-ELA BLK/SLV	10
25	04569256	POTENTIOMETER	RK12L12C0C1G	1
	04124267	J R-KNOB	SF-ELA BLK/SLV	1
26	03230656	LED (RED)	SLR-343VCT32	1
27	04347467	J R-KNOB	ELA-ENC BLK/SLV	1
	01905467	ROTARY ENCODER	EVE GC1 F20 24B	1
28	01783956	N S-KEYTOP	MD4H	2
	02781634	TACT SWITCH	SKRGAED010	8
	02125167	LED (YELOW)	SLI-343DCT32W	8
29	73456989	LCD ASSY		1
30	04566312	DISPLAY ESCT		1
31	04565478	KNOB	ZE R-KNOB LF	1
	04566445	KEYTOP	ZE CURSOR KEY A	1
	04566456	KEYTOP	ZE CURSOR KEY B	1
	01905467	ROTARY ENCODER	EVE GC1 F20 24B	1
32	03120890	D S-KEYTOP	SX1H-B GRS	5
	02781634	TACT SWITCH	SKRGAED010	5
33	03120889	D S-KEYTOP	SX2H-B GRS	5
	02781634	TACT SWITCHSKRGAED010		10
34	03126867	D S-KEYTOP	SX1H-B CLR	12
	02781634	TACT SWITCH	SKRGAED010	12
	02125167	LED (YELOW)	SLI-343DCT32W	12
35	03126856	D S-KEYTOP	SX2H-B CLR	2
	02781634	TACT SWITCH	SKRGAED010	4
	02125167	LED (YELOW)	SLI-343DCT32W	4
36	04566490	LED COVER		1
	03893601	LED	SLR343BCT3F	9
37	02894090	LED (ORNG)	SLR-343DUT32	2
38	01561578	J S-KNOB S BLK/LCG		4
	03122123	30M/M SLIDE POTENTIOMETER	EWA NKE C15 B14	4
39	03679378	POTENTIOMETER	EVUF3KFK1B14	11
	04124267	J R-KNOB	SF-ELA BLK/SLV	11
40	04566323	PAD ESCT		1
41	73459734	XY-PAD ASSY		1
42	22495278	DS-KEYTOP	MD2H BLK (W/WINDOW)	1
	02781634	TACT SWITCH	SKRGAED010	2
	02125167	LED (YELOW)	SLI-343DCT32W	2
43	03234723	BENDER	PB-H0204	1
44	04563678	TOP PANEL		1

Exploded View (Total)

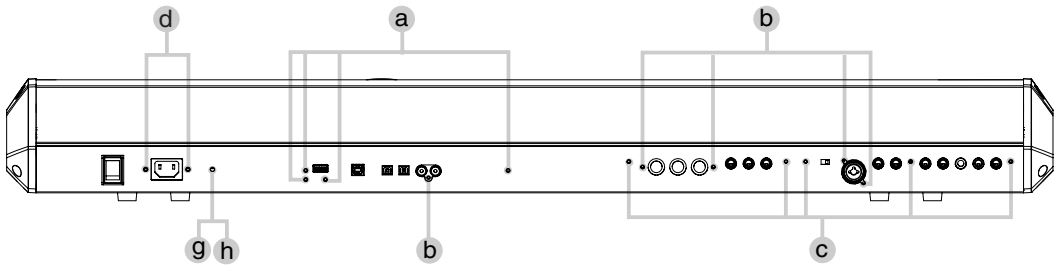


Exploded View (Total) Parts List

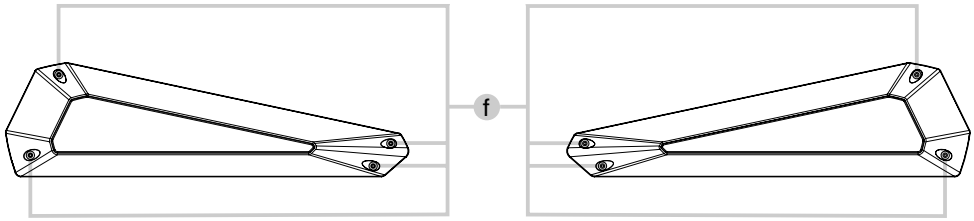
No.	Part Code	Part Name	Description	Q'ty
1	04563678	TOP PANEL		1
2	04566290	BENDER PANEL		1
3	02673945	STAY	BENDER	1
4	03234723	BENDER	PB-H0204	1
5	22495278	DS-KEYTOP	MD2H BLK (W/WINDOW)	1
6	04124267	J R-KNOB	SF-ELA BLK/SLV	23
7	04347467	J R-KNOB	ELA-ENC BLK/SLV	1
8	01561578	J S-KNOB S BLK/LCG		4
9	04566323	PAD ESCT		1
10	73459734	XY-PAD ASSY		1
11	73459789	PAD BOARD ASSY		1
12	04566490	LED COVER		1
13	04565478	KNOB	ZE R-KNOB LF	1
14	04566456	KEYTOP	ZE CURSOR KEY B	1
15	04566445	KEYTOP	ZE CURSOR KEY A	1
16	04566378	PANEL PWB HOLDER		3
17	73459834	BENDER BOARD ASSY		1
18	********	POWER SUPPLY ASSY		1
19	04566278	SIDE COVER L		1
20	04566334	SIDE HOLDER L		1
21	04566289	SIDE COVER R		1
22	04566345	SIDE HOLDER R		1
23	????????	SK-1061-A KBD ASSY		1
24	04566267	BOTTOM COVER		1
25	12359139	RUBBER FOOT	FF-018 BLK	4
26	04566301	END BLOCK		1
18-1	04671323	CHANNEL		1
18-2	04671301	SPACER	KGPS-3S V0	1
18-3	04561723	SWITCHING REGULATOR	LEA50F-5-SXRLD	1
18-4	04566390	PWR SPLY HOLDER		1
18-5	01455523	CORD BUSHING	EDS-1717U	2
18-6	04671312	SPACER	KGPS-10RF V0	2
a	40011101	SCREW 3X8	BINDING TAPTITE B BZC	2
c	40237101	SCREW M3X8	PAN MACHINE W/SW+SMALL PW BZC	4

Exploded View (Plain 1)

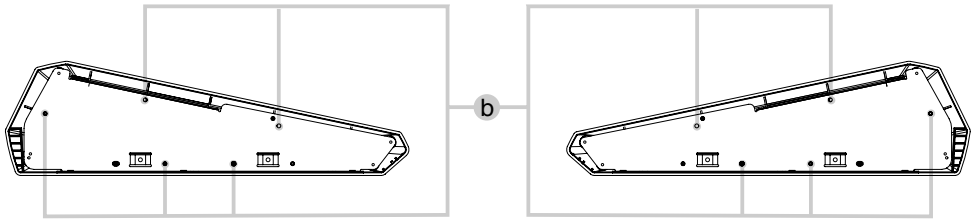
Rear



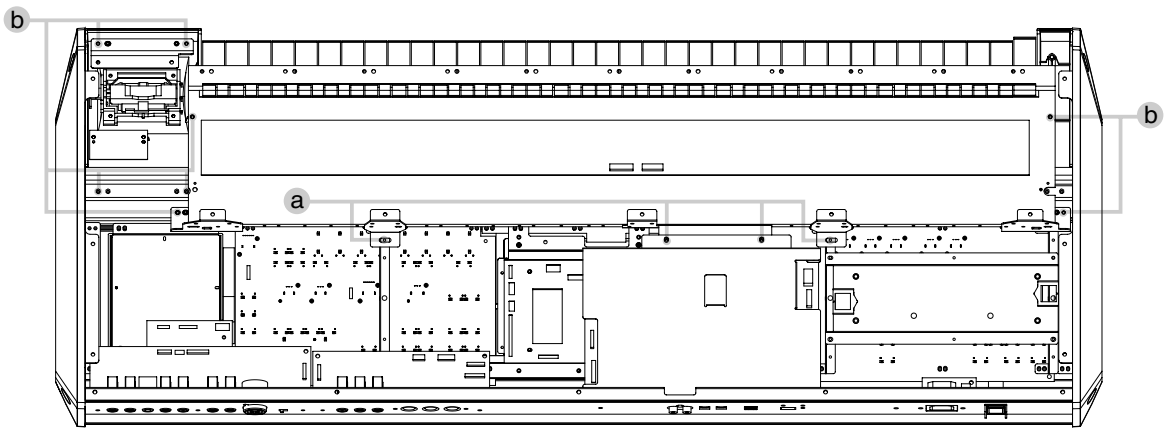
Side



View1



View2



Exploded View (Plain 1) Parts List

No.	Part Code	Part Name	Description	Q'ty
a	40011101	SCREW 3X8	BINDING TAPTITE B BZC	4
b	40011312	SCREW 3X8	BINDING TAPTITE P BZC	5
c	40237101	SCREW M3X8	PAN MACHINE W/SW+SMALL PW BZC	5
d	40011123	SCREW 4X8	BINDING TAPTITE B BZC	2
g	40010345	SCREW M4X10	BINDING MACHINE FE BZC	1
h	40011745	HEX NUT M4	SPRING NUT FE ZC	1

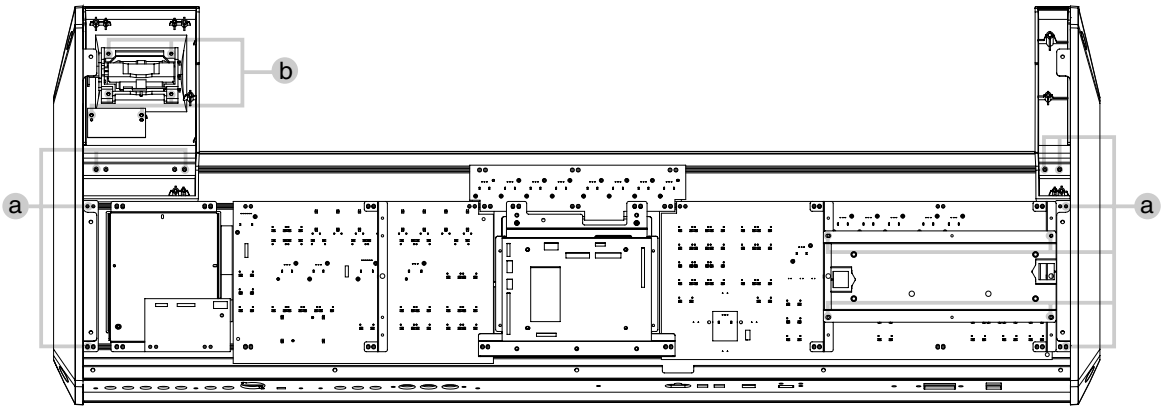
No.	Part Code	Part Name	Description	Q'ty
f	40454045	SCREW 3X8	FLAT TAPTITEB NI FLANGE SOCKET	8

No.	Part Code	Part Name	Description	Q'ty
b	40011312	SCREW 3X8	BINDING TAPTITE P BZC	10

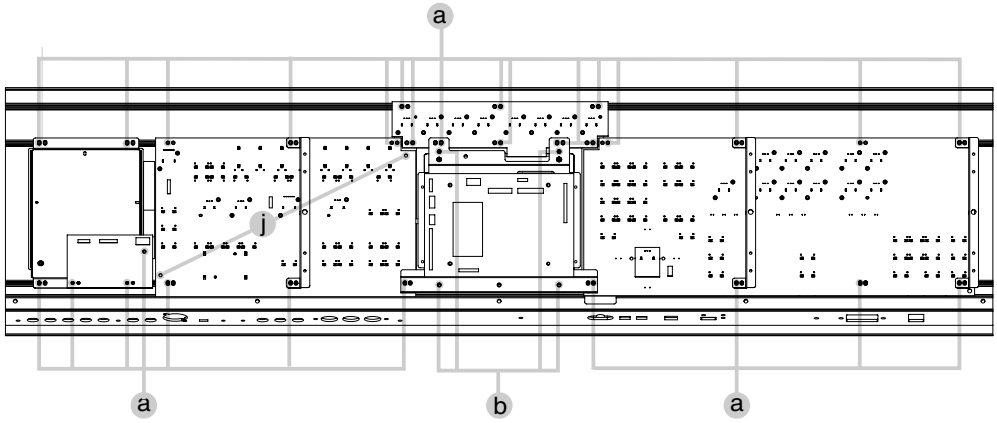
No.	Part Code	Part Name	Description	Q'ty
a	40011101	SCREW 3X8	BINDING TAPTITE B BZC	4
b	40011312	SCREW 3X8	BINDING TAPTITE P BZC	7

Exploded View (Plain 2)

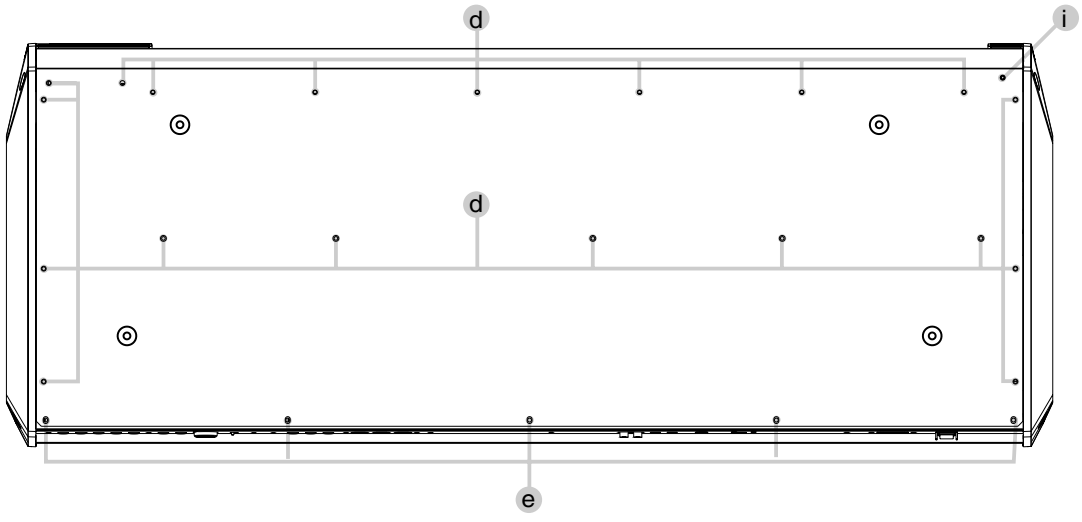
View3-1



View3-2



Bottom



Exploded View (Plain 2) Parts List

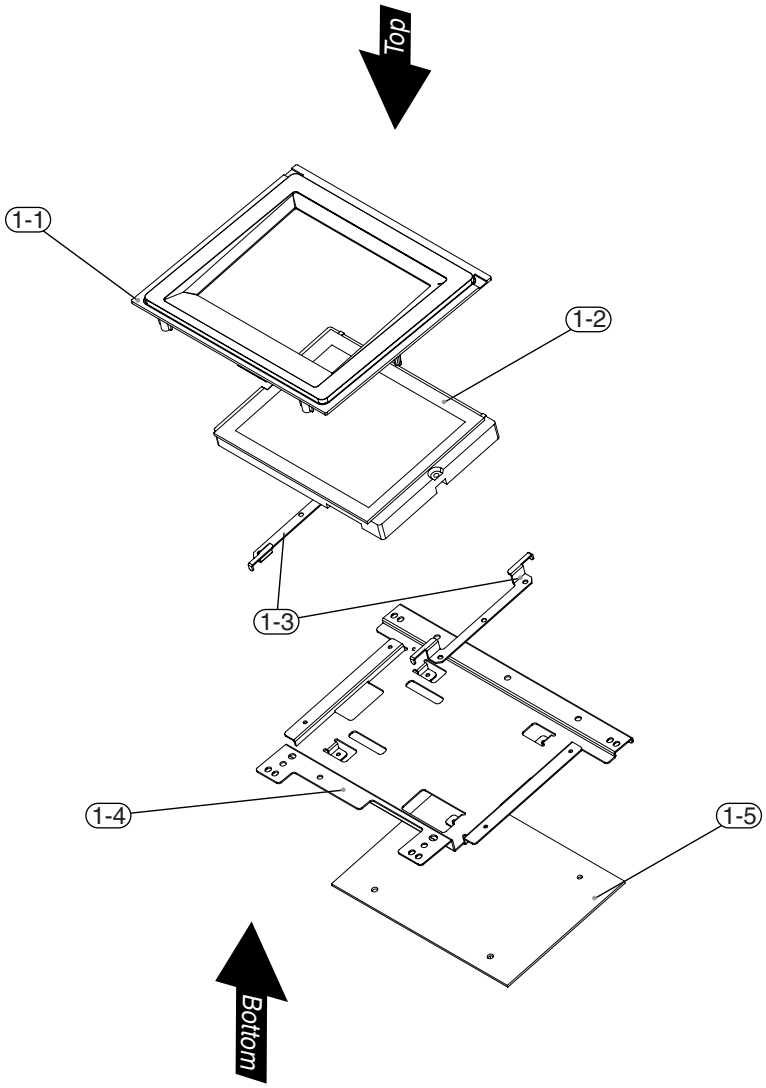
No.	Part Code	Part Name	Description	Q'ty
a	40011101	SCREW 3X8	BINDING TAPTITE B BZC	12
b	40011312	SCREW 3X8	BINDING TAPTITE P BZC	6

No.	Part Code	Part Name	Description	Q'ty
a	40011101	SCREW 3X8	BINDING TAPTITE B BZC	28
b	40011312	SCREW 3X8	BINDING TAPTITE P BZC	4
j	40016590	NYLON RIVET	NRP-345 BLACK	2

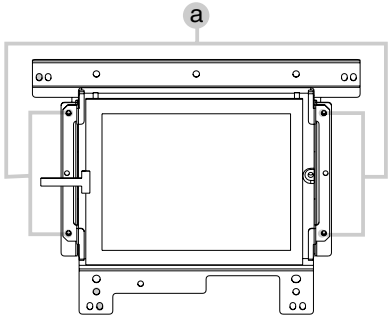
No.	Part Code	Part Name	Description	Q'ty
d	40011123	SCREW 4X8	BINDING TAPTITE B BZC	19
e	40013001	SCREW M4X8	PAN MACHINE W/SW+PW BZC	5
i	40012501	SCREW M4X12	BINDING TAPTITE P FE BZC	1

Exploded View (Fig.1)

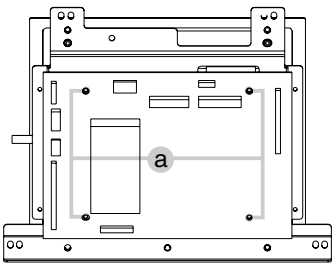
Fig.1



Top



Bottom



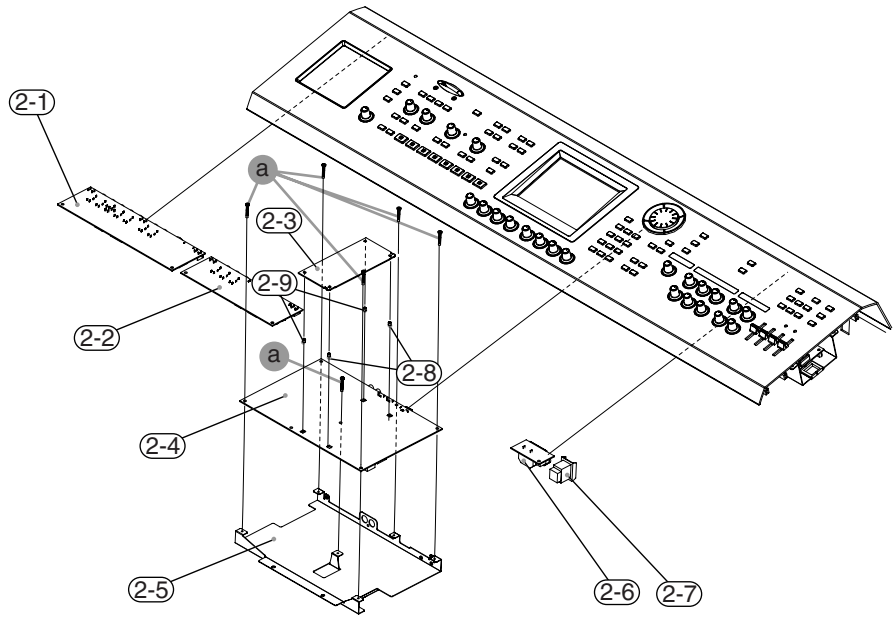
Exploded View (Fig.1) Parts List

No.	Part Code	Part Name	Description	Q'ty
1-1	04566312	DISPLAY ESCT		1
1-2	********	POSITION SENSOR	EMU601A2MA32	1
	********	LCD	TCG057QV1AC-G10	1
1-3	03897512	DISPLAY HOLDER B		2
1-4	04566434	DISPLAY HOLDER		1
1-5	73566345	SUB BOARD ASSY		1

No.	Part Code	Part Name	Description	Q'ty
a	40011101	SCREW 3X8	BINDING TAPTITE B BZC	8

Exploded View (Fig.2)

Fig.2

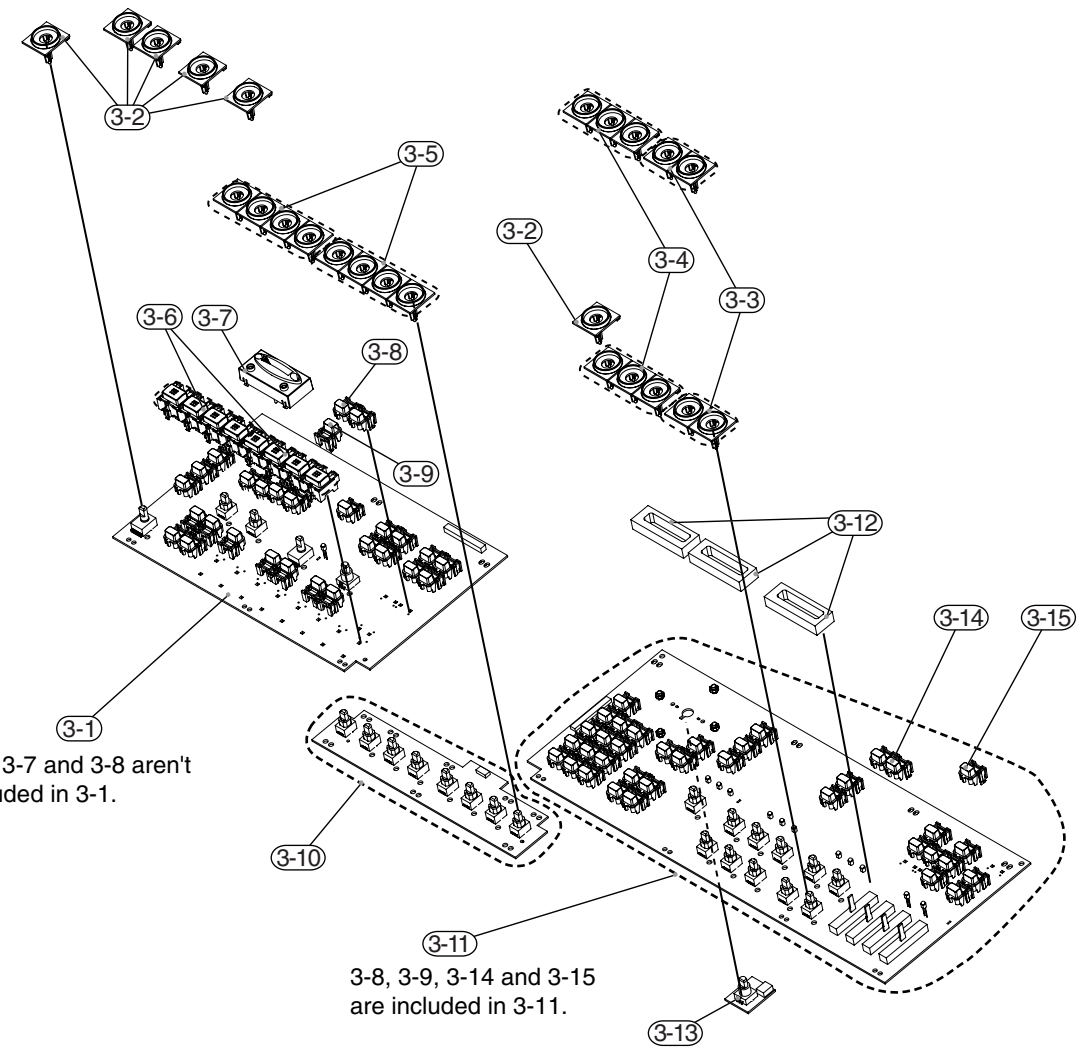


Exploded View (Fig.1) Parts List

No.	Part Code	Part Name	Description	Q'ty
2-1	73459756	JACK BOARD ASSY		1
2-2	73459767	MIDI BOARD ASSY		1
2-3	73459690	S-BOARD ASSY		1
2-4	73456990	MAIN BOARD ASSY		1
	* *MAIN BOARD ASSY includes the following parts.*			
2-8	04564045	SPACER	KGES-6	2
2-9	04564067	SPACER	PHD-06	2
2-5	04566389	MAIN PWB HOLDER		1
2-6	73459790	INLET BOARD ASSY		1
2-7	01786045	SW HOLDER	AT-217K	1
	01786012	SEESAW SWITCH	JW-M11RKK	1
a	40011101	SCREW 3X8	BINDING TAPTITE B BZC	6

Exploded View (Fig.3)

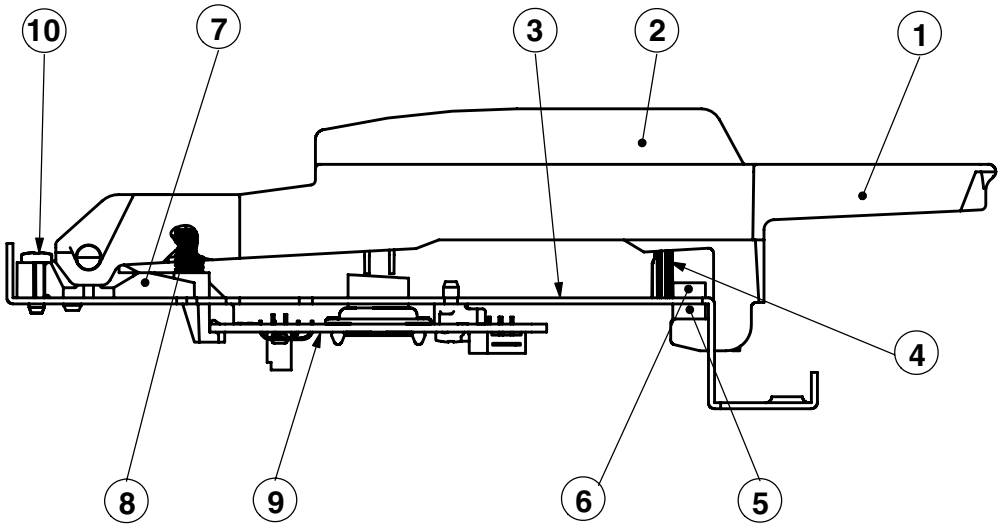
Fig.3



Exploded View (Fig.3) Parts List

No.	Part Code	Part Name	Description	Q'ty
3-1	73459801	PANEL-L BOARD ASSY		1
3-2	04566478	J R-ESCT	SX1H SLV	6
3-3	04566489	J R-ESCT	SX2H SLV	2
3-4	04566912	J R-ESCT	SX3H SLV	2
3-5	04566923	J R-ESCT	SX4H SLV	2
3-6	01783956	N S-KEYTOP	MD4H	2
3-7	04344312	TWIN D-BEAM CONTROLLER ESCT.		1
3-8	03120889	D S-KEYTOP	SX2H-B GRS	11
3-9	03120890	D S-KEYTOP	SX1H-B GRS	6
3-10	73459823	VOLUME BOARD ASSY		1
3-11	73457101	PANEL-R KEYTOP ASSY		1
	*	*PANEL-R KEYTOP ASSY includes the following parts.*		
3-8	03120889	D S-KEYTOP	SX2H-B GRS	7
3-9	03120890	D S-KEYTOP	SX1H-B GRS	6
3-14	03126856	D S-KEYTOP	SX2H-B CLR	2
3-15	03126867	D S-KEYTOP	SX1H-B CLR	12
3-12	04671345	ISOLATOR		3
3-13	73459812	EN BOARD ASSY		1

Keyboard Parts List



No.	Part Code	Part Name	Description	Q'ty
	73780967	KEYBOARD ASSY	SK-1061-A	
1	73671489	NATURAL KEY CF		10
	73671490	NATURAL KEY EB		10
	73671501	NATURAL KEY D		5
	73671512	NATURAL KEY G		5
	73671523	NATURAL KEY A		5
	73671534	NATURAL KEY C'		1
2	73671545	SHARP KEY		25
3	********	CHASSIS 61P		1
4	04347078	GUIDEBUSHING-B		61
5	00893701	CUSHION 61P		1
6	04013278	AFTERTOUCH-B		1
7	04452190	SUB CHASSIS 12P		4
	04452212	SUB CHASSIS 13P		1
8	01231534	SPRING		61
9	04567412	61P PWB SET		1
10	40012256	SCREW M3X10	BINDING B-TITE FE ZC	31

* *The contact circuit board (#04567412) is a set of an upper board and a lower board, and includes rubber switches.*

* *The cable which connects the contact circuit board (#04567412) to Main Board (#73456990) isn't included in this unit (#73780967).*

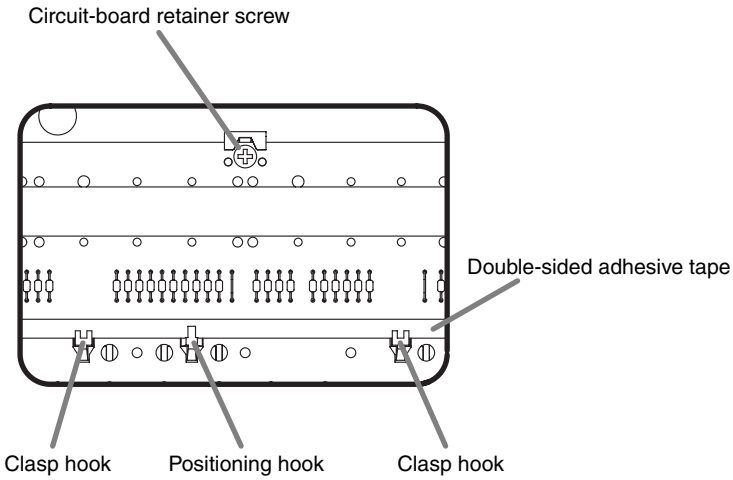
Keyboard Assembly Procedure

How to Install the Contact Circuit Board

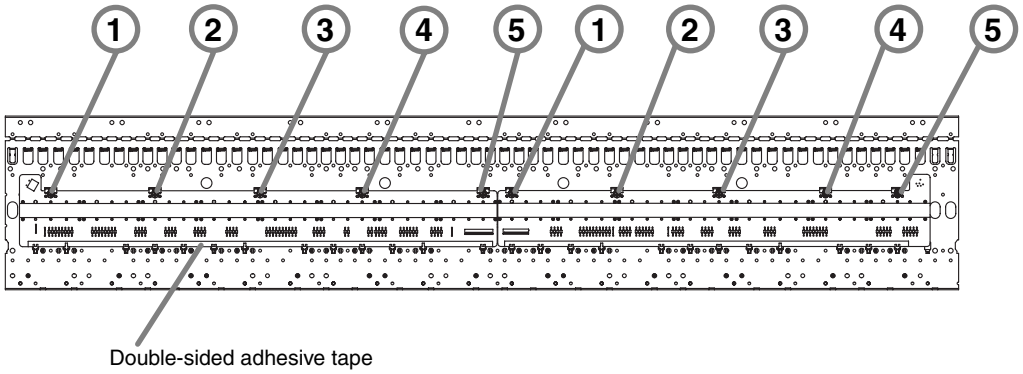
NOTE

The service-use contact circuit board (#04567412) is supplied with the rubber switches mounted. To prevent problems with sound generation due to dust contamination, do not detach the rubber switches.

1. Turn the keyboard chassis upside-down.
2. Peel off the backing paper from the double-sided adhesive tape affixed to the edge surfaces of the contact circuit board.
3. Align the notch in the contact circuit board with the **positioning hook** on the keyboard chassis, and install the circuit board so that it is clasped by the **clasp hooks**.



4. Working from the bass section to the treble section, tighten the screws in the numbered sequence shown in the figure.



* *If the contact circuit board is warped, tighten while pressing down lightly on the center of the circuit board.*

* *If using an electric screwdriver, set the screw-tightening torque at 0.8 N. Applying excessive force to the circuit board may damage the pattern and cause problems with sound generation.*

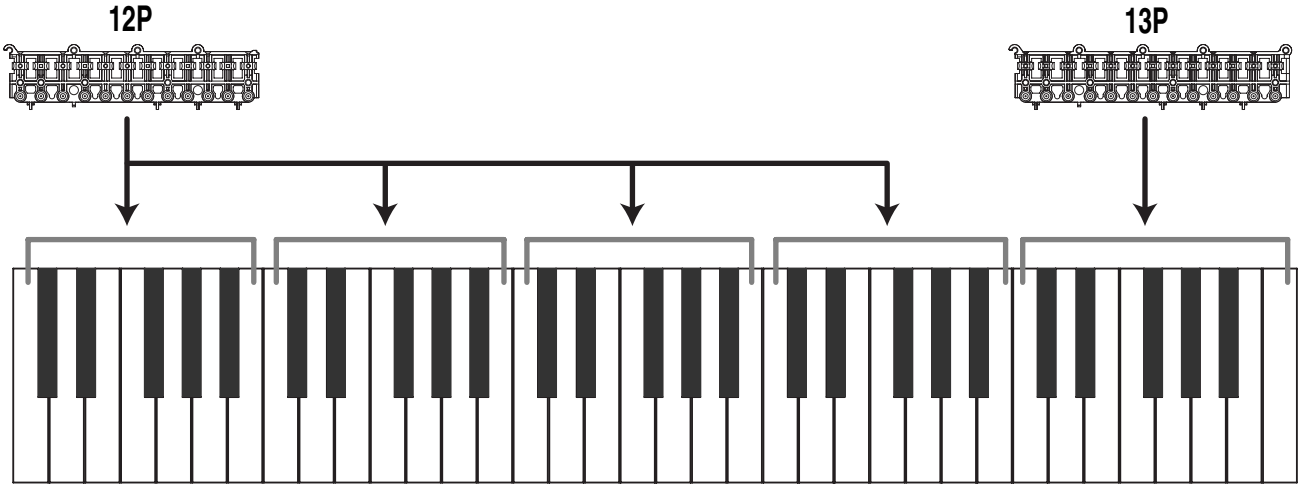
Arrangement of the Sub-chassis

The sub-chassis are of two types having a different number of keys.

04452190	SUB CHASSIS 12P
04452212	SUB CHASSIS 13P

When replacing, refer to the figure below and install the specified sub-chassis at the specified location.

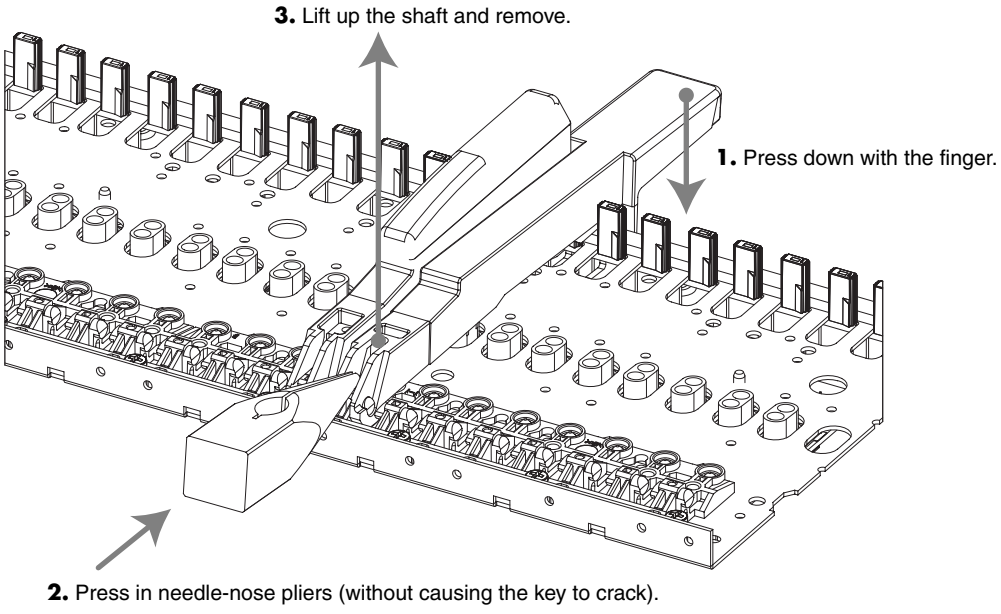
* *If springs are attached by adhesive to the sub-chassis before replacement, then when replacing the sub-chassis, order springs (#01231534) as well.*



How to Remove Keys

1. Press down on the tip of the key with the finger.
2. Insert needle-nose pliers into the U-shaped groove on the shaft side and press in the direction of the arrow.
3. Lift up the shaft and detach the key from the chassis.

* *Before removing a black key, be sure to first remove the white keys on both sides.*

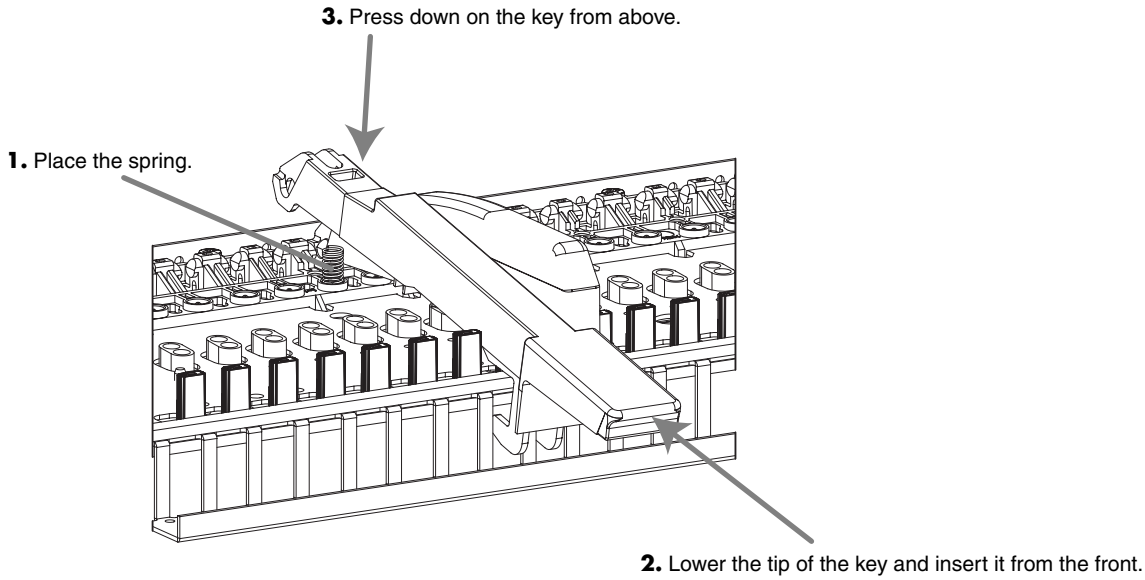


How to Attach Keys

1. Place the spring on the chassis.
2. With the tip of the key angled downward, insert the key in the direction of the arrow shown in the figure.
3. Press down near the key shaft from above and fit the key into the shaft.

* *Attaching a key with the spring not upright results in altered touch. Make sure the spring is not squeezed.*

* *Be sure to attach a black key while the white keys on both are uninstalled.*

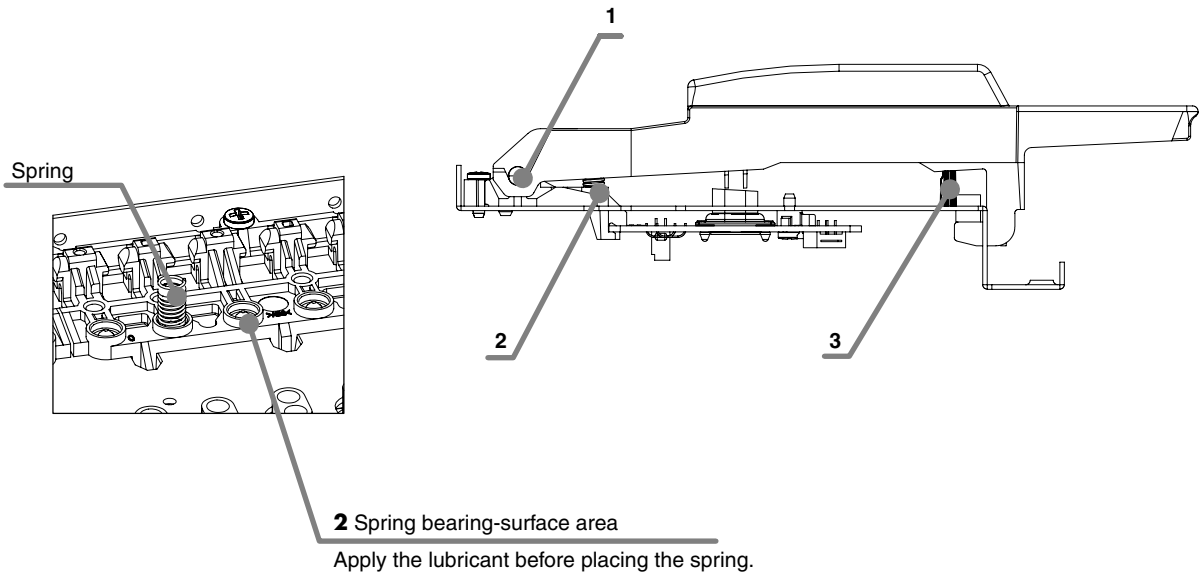


1. Place the spring.
2. Lower the tip of the key and insert it from the front.
3. Press down on the key from above.

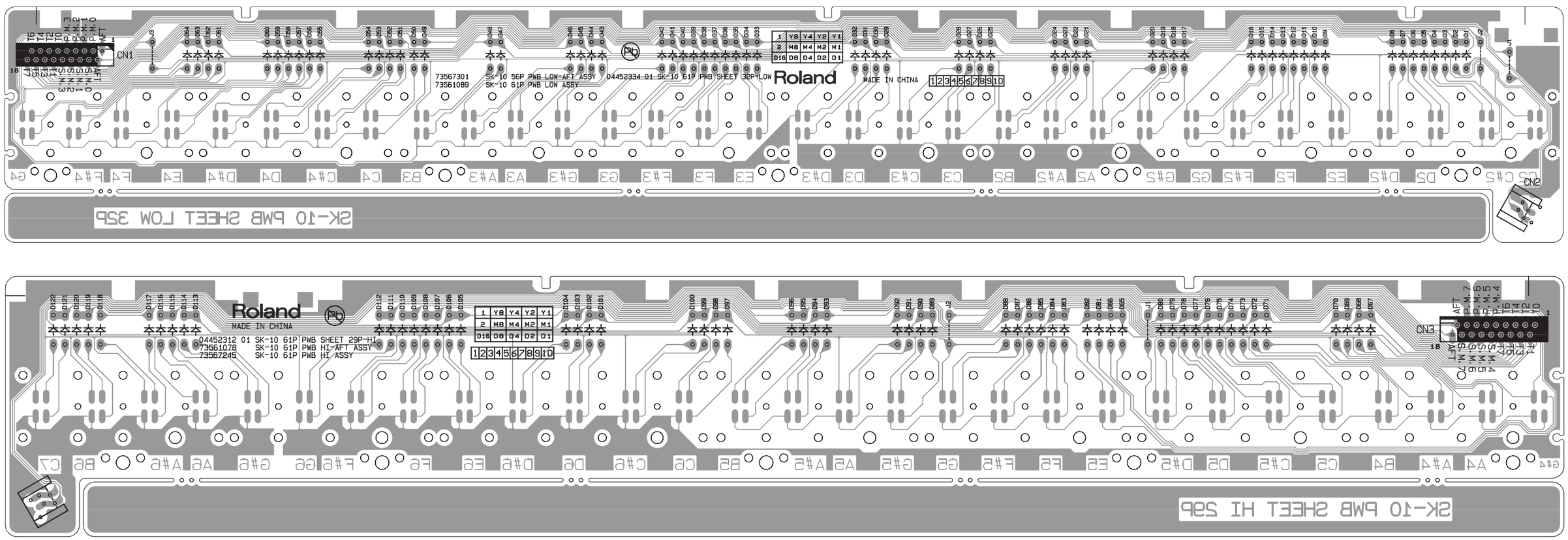
Lubricant Application Sites

When replacing keys or the sub-chassis, apply the specified lubricant at the locations shown in the figure.

	Location	Lubricant
1	Key and sub-chassis shaft area	MOLYKOTE G-1039 (#17041858)
2	Spring bearing-surface area	MOLYKOTE G-1039 (#17041858)
3	White- and black-key guide-bushing sides	FLOIL G-336A (#17049543)



Keyboard Circuit Board



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

#	04566923	J R-ESCT	SX4H SLV		2
#	04566912	J R-ESCT	SX3H SLV		2
#	04566489	J R-ESCT	SX2H SLV		2
#	04566478	J R-ESCT	SX1H SLV		6
#	04566290	BENDER PANEL			1
#	04566267	BOTTOM COVER			1
#	04566312	DISPLAY ESCT			1
#	04566301	END BLOCK			1
#	04566490	LED COVER			1
#	04566323	PAD ESCT			1
	03126590	POT DUST COVER A			1
#	04566278	SIDE COVER L			1
#	04566289	SIDE COVER R			1
#	04563678	TOP PANEL			1
	04344312	TWIN D-BEAM CONTROLLER ESCT.			1

CHASSIS

	01786045	SW HOLDER	AT-217K		1
#	04671323	CHANNEL			1
#	04566434	DISPLAY HOLDER			1
	03897512	DISPLAY HOLDER B			2
#	04566389	MAIN PWB HOLDER			1
#	04566378	PANEL PWB HOLDER			3
#	04566390	PWR SPLY HOLDER			1
#	04566334	SIDE HOLDER L			1
#	04566345	SIDE HOLDER R			1

KNOB, BUTTON

#	04565478	KNOB	ZE R-KNOB LF		1
#	04566456	KEYTOP	ZE CURSOR KEY B		1
#	04566445	KEYTOP	ZE CURSOR KEY A		1
	03120889	D S-KEYTOP	SX2H-B GRS		18
	03126856	D S-KEYTOP	SX2H-B CLR		2
	03120890	D S-KEYTOP	SX1H-B GRS		12
	03126867	D S-KEYTOP	SX1H-B CLR		12
	04124267	J R-KNOB	SF-ELA BLK/SLV		23
	01783956	N S-KEYTOP	MD4H		2
	22495278	DS-KEYTOP	MD2H BLK (W/WINDOW)		1
	04347467	J R-KNOB	ELA-ENC BLK/SLV		1
	01561578	J S-KNOB S BLK/LCG			4

SWITCH

	03016956	SLIDE SWITCH	SSSU121700	SW1 on Jack Board	1
	02781634	TACT SWITCH	SKRGAED010	SW3, SW4 on Bender Board, SW8, SW7, SW6, SW27, SW26, SW31, SW5, SW9, SW28, SW25, SW30, SW11, SW32, SW36, SW35, SW34, SW29, SW13, SW21, SW20, SW19, SW18, SW17, SW16, SW23, SW14, SW4, SW12, SW1, SW2, SW3, SW37, SW22, SW33, SW24, SW15 on PANEL-L Board, SW10, SW9, SW8, SW7, SW6, SW4, SW1, SW28, SW23, SW24, SW25, SW11, SW27, SW3, SW43, SW42, SW41, SW40, SW39, SW38, SW37, SW36, SW35, SW34, SW33, SW30, SW29, SW26, SW22, SW20, SW19, SW2, SW21, SW18, SW12, SW17, SW16, SW15, SW14, SW13 on PANEL-R Board	78
⚠	01786012	SEESAW SWITCH	JW-M11RKK		1

JACK, EXT TERMINAL

		13429274	MIDI SOCKET	YKF51-5041	JK1 on MIDI Board	1
#		04459190	PLUG	YKF45-0033N	JK1 on Main Board	1
		02781189	USB CONNECTOR B TYPE FEMALE	YKF45-0021	JK2 on Main Board	1
		03231812	RCA (PIN)	YKC21-4173	JK4 on Main Board	1
		00120434	JACK	YKB21-5262	JK9, JK11, JK5, JK6, JK8, JK10 on Jack Board, JK2, JK3, JK4 on MIDI Board	9
		13449252	6.5MM JACK	YKB21-5006 (STEREO W/SW)	JK12 on Jack Board	1
		02232412	XLR CONNECTOR	NCJ6FI-H-0	JK7 on Jack Board	1
#		04125012	OPTICAL CONNECTOR	GP1FMV51TK0F	CN11 on Main Board	1
		03453389	IC (OPTICAL)	GP1FM313RZOF	CN12 on Main Board	1

DISPLAY UNIT

#		73456989	LCD ASSY			1

POWER SUPPLY UNIT

#	⚠	04561723	SWITCHING REGULATOR	LEA50F-5-SXRLD		1

BENDER UNIT

		03234723	BENDER	PB-H0204		1

SPEAKER, BUZZER

		03900712	SPEAKER	TWEETER PKM13EPYH4002-B0	SP1 on SUB Board	1

KEYBOARD ASSY

#		73780967	KEYBOARD ASSY	SK-1061-A		1

PWB ASSY

#		73459834	BENDER BOARD ASSY			1
#		73459812	EN BOARD ASSY			1
#	⚠	73459790	INLET BOARD ASSY			1
#		73459756	JACK BOARD ASSY			1
#		73456990	MAIN BOARD ASSY			1
#		73459767	MIDI BOARD ASSY			1
#		73459789	PAD BOARD ASSY			1
#		73459801	PANEL-L BOARD ASSY			1
#		73457101	PANEL-R KEYTOP ASSY			1
#		73459690	S-BOARD ASSY			1
#		73566345	SUB BOARD ASSY			1
#		73459823	VOLUME BOARD ASSY			1

IC

		04235490	PHOTO DI	TPS703 (F)	D1 on PANEL-L Board	1

DIODE

		03126134	LED (INFRARED)	TLN233 (F)	LED84, LED83 on PANEL-L Board	2
		03893601	LED	SLR343BCT3F	LED5, LED16, LED1, LED6 on PANEL-L Board, LED25, LED22, LED23, LED24, LED26, LED27, LED30, LED29, LED28 on PANEL-R Board	13
		03230656	LED (RED)	SLR-343VCT32	LED17 on PANEL-L Board	1
		02894090	LED (ORNG)	SLR-343DUT32	LED32, LED31 on PANEL-R Board	2
		02125167	LED (YELOW)	SLI-343DCT32W	LED3, LED2 on Bender Board, LED2, LED20, LED19, LED22, LED23, LED24, LED25, LED26, LED27, LED28, LED21, LED4, LED15, LED14, LED3, LED12, LED41, LED29, LED7, LED8, LED11, LED10, LED9, LED18, LED40, LED31, LED32, LED33, LED34, LED35, LED36, LED37, LED38, LED30, LED39 on PANEL-L Board, LED12, LED20, LED19, LED18, LED17, LED16, LED15, LED21, LED13, LED3, LED11, LED10, LED9, LED8, LED7, LED6, LED5, LED4, LED2, LED14, LED1 on PANEL-R Board	58

POTENTIOMETER

#	04569256	POTENTIOMETER	RK12L12C0C1G	VR2 on PANEL-L Board	1
	02891812	12M/M ROTARY POTENTIOMETER	RK12L12C0C08	VR1 on PANEL-L Board	1
	03122123	30M/M SLIDE POTENTIOMETER	EWA NKE C15 B14	VR16, VR15, VR13, VR14 on PANEL-R Board	4
#	03679378	POTENTIOMETER	EVUF3KFK1B14	VR6, VR1, VR9, VR4, VR10, VR11, VR12, VR7, VR8, VR3, VR2 on PANEL-R Board	11
	01340234	POTENTIOMETER (9M/M)	EVUF2K1B14 L=12.5 10KB	VR3, VR4 on PANEL-L Board, VR11, VR12, VR13, VR14, VR15, VR16, VR18, VR17 on VOL Board	10

ENCODER

	01905467	ROTARY ENCODER	EVE GC1 F20 24B	EN2 on EN Board, EN1 on PANEL-L Board	2

WIRING, CABLE

#	04673390	WIRING	W6		1
#	04566634	WIRING	W4		1
#	04566623	WIRING	W3		1
#	04566601	WIRING	W2		1
#	04566590	WIRING	W1		1
#	04569578	WIRING	SFWR-P=0.50-K-33-220		1
#	04569734	WIRING	FWR-P=1.25-K-18-180		1
#	04569712	WIRING	FWR-P=1.25-K-16-180		1
#	04569689	WIRING	FWR-P=1.00-K-8-80		1
#	04569690	WIRING	FWR-P=1.00-K-40-160		1
#	04569701	WIRING	FWR-P=1.00-K-38-90		1
#	04569612	WIRING	FWR-P=1.00-K-20-550		1
#	04569623	WIRING	FWR-P=1.00-K-18-180		1
#	04569678	WIRING	FWR-P=1.00-K-16-400		1
#	04569601	WIRING	FWR-P=1.00-K-16-180		1
#	04569634	WIRING	FWR-P=1.00-K-14-50		1
#	04569656	WIRING	FWR-P=1.00-K-12-200		1
#	04569667	WIRING	FWR-P=1.00-K-10-240		1
	02341967	WIRING	4X50-P2.0-PHR-PHR-F		1
	02341978	WIRING	4X100-P2.0-PHR-PHR-F		1

AC INLET, OUTLET

⚠	00125023	AC INLET	PWI1818 (INL-7) 10A/250V 3P	JK13 on Inlet Board	1

PICK UP, SENSOR

#	73459734	XY-PAD ASSY			1

SCREWS

	40011745	HEX NUT M4	SPRING NUT FE ZC		1
	40237101	SCREW M3X8	PAN MACHINE W/ SW+SMALL PW BZC		9
	40013001	SCREW M4X8	PAN MACHINE W/SW+PW BZC		5
	40454045	SCREW 3X8	FLAT TAPTITEB NI FLANGE SOCKE		8
	40012501	SCREW M4X12	BINDING TAPTITE P FE BZC		1
	40011312	SCREW 3X8	BINDING TAPTITE P BZC		32
	40011101	SCREW 3X8	BINDING TAPTITE B BZC		63
	40011123	SCREW 4X8	BINDING TAPTITE B BZC		21
	40010345	SCREW M4X10	BINDING MACHINE FE BZC		1

PACKING

#	04566567	CENTER PAD	UPPER		1
#	04566545	PACKING PAD	R		1
#	04566556	CENTER PAD	LOWER		1
#	04566534	PACKING PAD	L		1
#	04566523	PACKING CASE			1

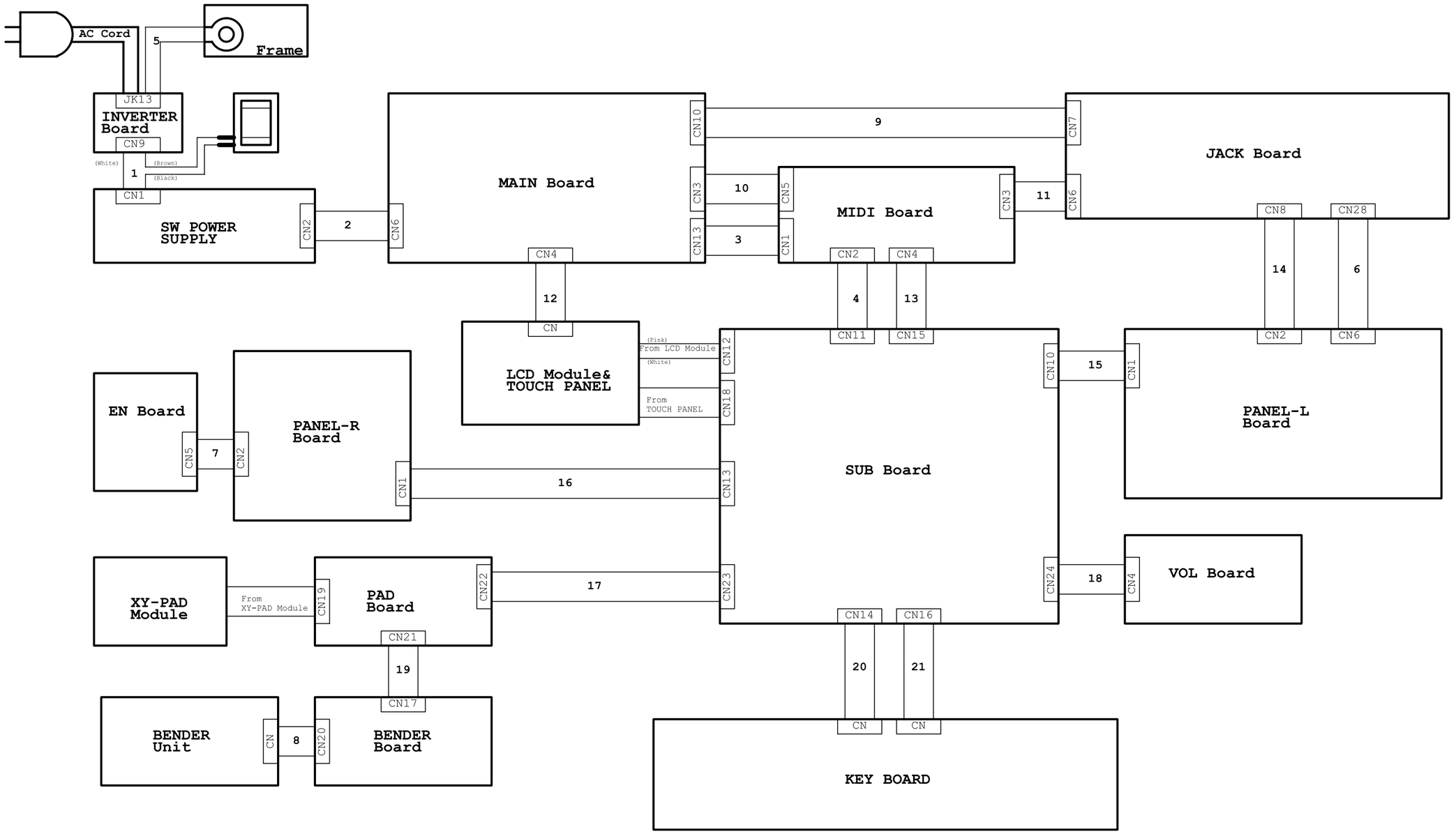
MISCELLANEOUS

#	40679445	LABEL	XLR LABEL		1
#	04564067	SPACER	PHD-06		2
	40016590	NYLON RIVET	NRP-345 BLACK		2
	12199584	GROUNDING TERMINAL	M1698	TER4, TER3, TER5 on Jack Board, TER2, TER1 on MIDI Board	5
	02890945	CLAMP	LWSM-0605		1
	12169391	LED SPACER	LH-5S-10		4
	03014945	LED SPACER	LH-3-8		2
#	04671301	SPACER	KGPS-3S V0		1
#	04671312	SPACER	KGPS-10RF V0		2
#	04564045	SPACER	KGES-6		2
	12359139	RUBBER FOOT	FF-018 BLK		4
	01455523	CORD BUSHING	EDS-1717U		2
#	40679434	LABEL	CAUTION LABEL		1
	02673945	STAY	BENDER		1
#	40679901	LABEL	BALANCED LABEL		1
	40014589	WARNING SEAL	102-103		1
#	04671334	INSULATING SHEET			1
#	04671345	ISOLATOR			3
	17049543	GREASE FOR KEY	FLOIL G-336A WHITE 100CC		-
	17041858	GREASE FOR KEY	MOLYKOTE G-1039 (100CC)		-

ACCESSORIES (Standard)

#		73459689	OWNER'S MANUAL	JAPANESE	1
#		73459878	OWNER'S MANUAL	ENGLISH	1
	⚠	03340956	AC CORD SET PSE	100V YA-101/YP-3NB/YC-13	1
	⚠	00894378	AC CORD SET	120V SP301+IS14 SJT18/3	2
	⚠	00894389	AC CORD SET	230V SP22+IS14 H05VV-F3G1.0	1
	⚠	00907001	AC CORD SET	240VE SP-60+IS-14	1
	⚠	23495124	AC CORD SET	240VA SC-144-JO1 ES303-10HMA	1
#		04566645	CD-ROM V1.00		1

Wiring Diagram



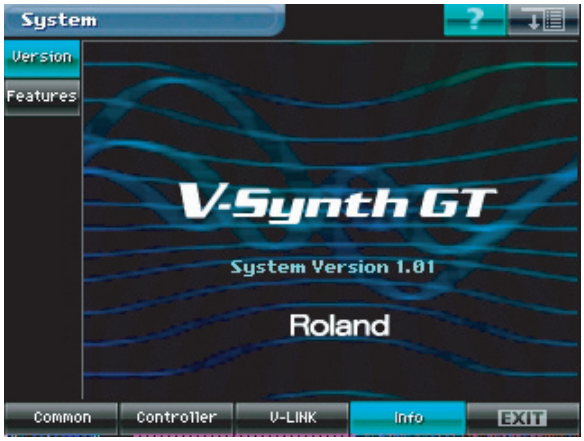
No.	Part Code	Part Name	Description	Q'ty
1	04566590	WIRING	W1	1
2	04566601	WIRING	W2	1
3	04566623	WIRING	W3	1
4	04566634	WIRING	W4	1
5	********	WIRING	W5	1
	* *WIRING W5 is included in INLET BOARD ASSY (#73459790).*			
6	04673390	WIRING	W6	1
7	02341967	WIRING	4X50-P2.0-PHR-PHR-F	1
8	02341978	WIRING	4X100-P2.0-PHR-PHR-F	1
9	04569612	WIRING	FWR-P=1.00-K-20-550	1
10	04569601	WIRING	FWR-P=1.00-K-16-180	1
11	04569634	WIRING	FWR-P=1.00-K-14-50	1
12	04569578	WIRING	SFWR-P=0.50-K-33-220	1

No.	Part Code	Part Name	Description	Q'ty
13	04569623	WIRING	FWR-P=1.00-K-18-180	1
14	04569656	WIRING	FWR-P=1.00-K-12-200	1
15	04569690	WIRING	FWR-P=1.00-K-40-160	1
16	04569701	WIRING	FWR-P=1.00-K-38-90	1
17	04569678	WIRING	FWR-P=1.00-K-16-400	1
18	04569689	WIRING	FWR-P=1.00-K-8-80	1
19	04569667	WIRING	FWR-P=1.00-K-10-240	1
20	04569712	WIRING	FWR-P=1.25-K-16-180	1
21	04569734	WIRING	FWR-P=1.25-K-18-180	1

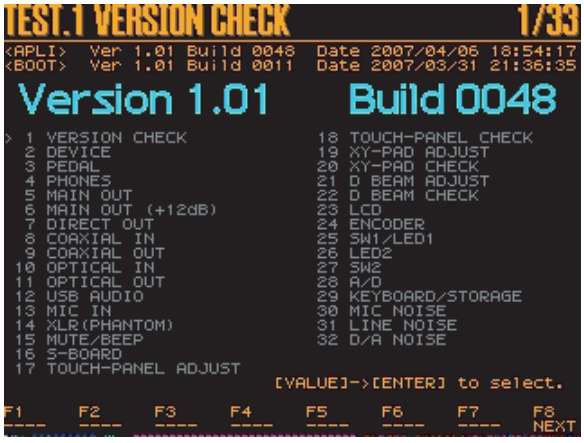
Verifying the Version Number

Two types must be checked: the main program and the S-Board program.

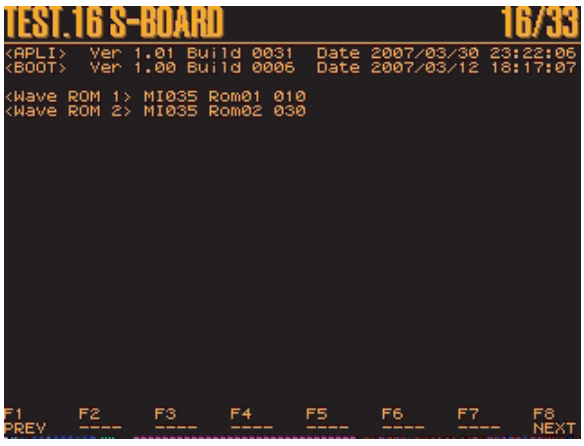
1. Power up the V-Synth/GT.
2. Press [SYSTEM].
   The System mode is enabled.
3. Touch <Info>.



4. Hold down [SHIFT] and press the PATCH PALETTE buttons in this sequence: [7], [8], [7], [8].
   The Test mode is enabled.
5. For the main program, check the **APLI** and **BOOT** versions.



6. Turn the encoder to move the cursor to **16 S-BOARD**, then press [ENTER].
7. For the S-Board, check the **APLI** and **BOOT** versions.



8. Power down the V-Synth/GT.

Saving and Loading Data

Operations for saving or loading data are performed in the USB Storage mode. Compatible computer operating systems are Windows XP and Windows Vista. Before attempting these operations, verify the operating system on the computer.

NOTE

Never switch off the power to the V-Synth/GT while the operation is in progress. Doing so may result in data corruption.

Back up Patch and Wave Data (Projects)

1. Connect the V-Synth/GT and the computer using a USB cable.
2. Press the [UTILITY] button and touch **USB Storage**, then **Mount the Internal Memory**.
   The V-Synth/GT's internal memory is detected as a removable drive on the computer.
3. Operate the computer to copy all files and folders within the drive named **V-SYNTH GT** to a drive (hard disk) in the computer.
4. After copying, use the **Safety Remove Hardware** feature of the taskbar at the bottom right of the computer screen to cancel (stop) the connection to the V-Synth/GT.
5. Detach the USB cable.
6. Press the [EXIT] button several times to return to the PATCH screen.

Loading Backed-up Data into the Unit

1. Connect the V-Synth/GT and the computer using a USB cable.
2. Press the [UTILITY] button and touch **USB Storage**, then **Mount the Internal Memory**.
   The V-Synth/GT's internal memory is detected as a removable drive on the computer.
3. Operate the computer to delete all files and folders within the drive named **V-SYNTH GT**.
4. Operate the computer to copy the backed-up data (all files and folders) on a drive (hard disk) in the computer to the drive named **V-SYNTH GT**.
5. After copying, use the **Safety Remove Hardware** feature of the taskbar at the bottom right of the computer screen to cancel (stop) the connection to the V-Synth/GT.
6. Detach the USB cable.
7. Press the [EXIT] button several times to return to the PATCH screen.

How to Perform a Factory Reset

This restores all data stored in memory on the V-Synth/GT to its factory-default settings.

NOTE

Performing a factory reset causes any user-created data saved in the V-Synth/GT to be lost.

NOTE

When performing a factory reset, refer to **Saving and Loading Data** (p. 30) and back up the data.

1. Hold down [EXIT] and switch on the power. When **Load Project** appears, release the [EXIT] button.
2. Press [UTILITY].
   The Utility Menu screen appears.

3. Touch **Factory Reset**.
   The Factory Reset screen appears.

4. Touch **Execute** to execute the factory reset.
   * *To skip execution of a factory reset, press [EXIT] or touch **EXIT**.*

   When **Factory Reset Completed!** is displayed, the factory reset is finished.
5. Touch **OK**.

How to Update the System

Items Required

- Computer running Windows
- USB memory device (M-UF128) (#03906701)
- Update CD-ROM for V-Synth/GT

Update Procedure

NOTE

Never switch off the power to the V-Synth/GT while the update operation is in progress. Doing so may result in data corruption.

1. Unarchive ***.zip files from the Update CD-ROM on the computer's desktop.
2. Copy the ***.bin files in the unarchived folders to the root directory on the USB memory device.
3. Use the **Safety Remove Hardware** feature of the taskbar at the bottom right of the computer screen to cancel (stop) the connection to USB memory device.
4. Connect the USB memory device removed from the computer to the V-Synth/GT, then power up the V-Synth/GT.
   At powerup, the update starts automatically, and the LCD screen turns blue.
   When **Completed!** is displayed, the update is complete.
5. Power down the V-Synth/GT.
6. Detach the USB memory device, then power up the V-Synth/GT and verify that the versions are the latest.
   * *Powering up without disconnecting the USB memory device causes the update to be carried out again.*
   * *If the USB memory device used for the update is one ordinarily used by the V-Synth/GT, then format it on the computer.*

Corrective Action for a Failed Update

Switch the power off and back on, then execute the update again.

* *If the update cannot be performed again, it is highly likely that the update-use files were not correctly copied to the USB memory device. Re-create the files and execute the update again.*
* *If the update still cannot be accomplished, replace the Main Board.*

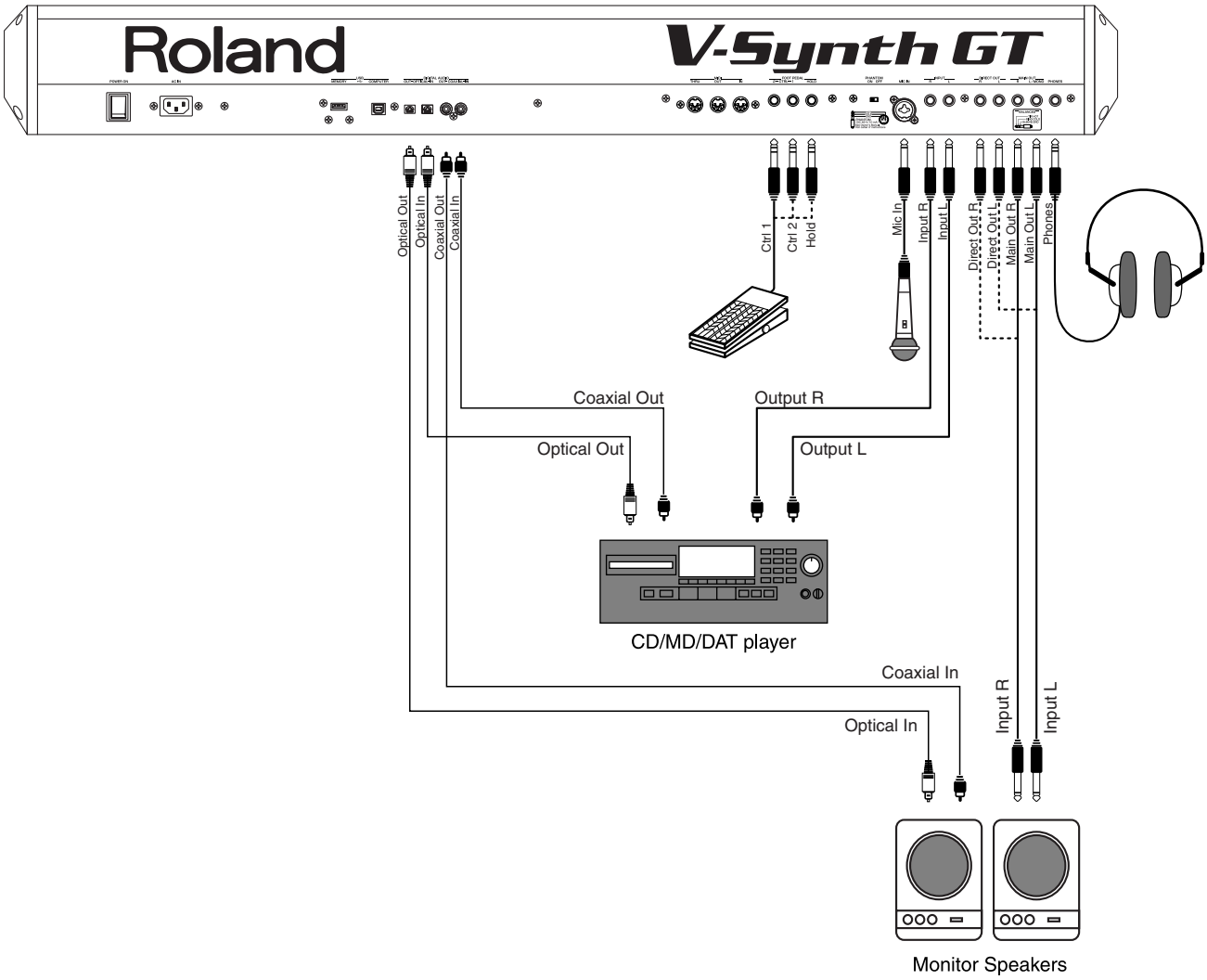
Test Mode

Test Items

1. VERSION CHECK (p. 32)
2. DEVICE (p. 32)
3. PEDAL (p. 32)
4. PHONES (p. 32)
5. MAIN OUT (p. 33)
6. MAIN OUT (+12 dB) (p. 33)
7. DIRECT OUT (p. 33)
8. COAXIAL IN (p. 33)
9. COAXIAL OUT (p. 34)
10. OPTICAL IN (p. 34)
11. OPTICAL OUT (p. 34)
12. USB AUDIO (p. 34)
13. MIC IN (p. 35)
14. XLR (PHANTOM) (p. 35)
15. MUTE/BEEP (p. 35)
16. S-BOARD (p. 35)
17. TOUCH-PANEL ADJUST (p. 36)
18. TOUCH-PANEL CHECK (p. 36)
19. XY-PAD ADJUST (p. 36)
20. XY-PAD CHECK (p. 36)
21. D BEAM ADJUST (p. 37)
22. D BEAM CHECK (p. 37)
23. LCD (p. 37)
24. ENCODER (p. 38)
25. SW1/LED1 (p. 39)
26. LED2 (p. 39)
27. SW2 (p. 39)
28. A/D (p. 40)
29. KEYBOARD/STORAGE (p. 40)
30. MIC NOISE (p. 41)**31. LINE NOISE** (p. 41)**32. D/A NOISE** (p. 41)**33. COMPLETED** (p. 41)

Items Required

- USB memory device (M-UF128) (#03906701)
  To recognized the USB memory device from the computer, copy a file named testmode.txt (containing anything) to the USB memory device beforehand.
  A file named testmode.txt (containing anything) must be saved on the memory device.
- Computer running Windows (XP or Vista)
  The V-SYNTH/GT USB AUDIO/MIDI driver must be installed.
- Sequencer program and MIDI file that can run on the computer
  MIDI data must be included on MIDI Channel 1.
- Expression pedal x 3
- Touch pen (included with the PMA-5) (#00900545)
- Headphones
- Dynamic microphone (DR-50, etc.)
- Condenser microphone (DR-80C, etc. -- compatible with PHANTOM power source)
- Noise meter
- MIDI cable x 1
- USB cable x 1
- Audio cable x 6
- Mic cable (XLR male-female) x 1
- Coaxial cable x 2
- Optical cable x 2
- Monitor Speaker
  MA-10D, etc., having analog and digital input (optical/coaxial 44.1/48/96 kHz)
- Device having analog output (CD player, etc.)
- Device (such as a USB audio interface) having digital output (optical/coaxial 44.1/48/96 kHz)



Preparations for Testing

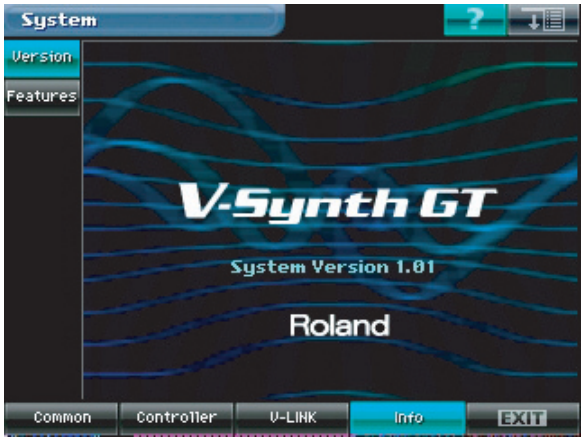
Connect the USB COMPUTER connector and the computer running Windows using the USB cable. Connect a USB memory device to the USB MEMORY connector.

Connect MIDI IN and MIDI OUT using the MIDI cable.

Connect the other devices, referring to the figure above.

How to Enter the Test Mode

1. Power up the V-Synth/GT.
2. Press [SYSTEM] to enter the System mode.
3. Touch <Info>.



4. Hold down [SHIFT] and press the PATCH PALETTE buttons in this sequence: [7], [8], [7], [8].
   The Test mode (1. VERSION CHECK) starts.

Quitting the Test Mode

Power down the V-Synth/GT.

Basic Operation in the Test Mode

The basic operations while the Test mode is active are as follows.

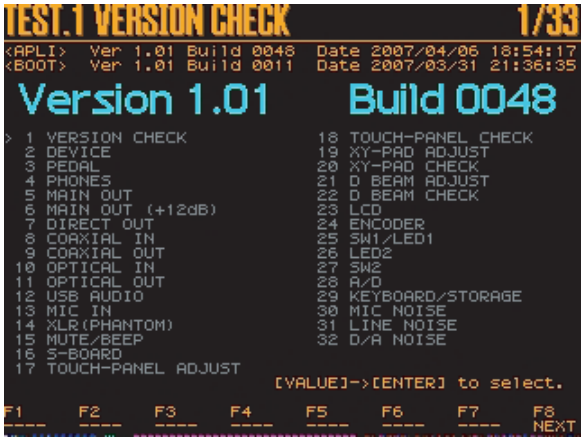
[SHIFT] + [▶]: Performs forced movement to the next test item.

[SHIFT] + [◀]: Performs forced movement to the previous test item.

Test Items

1. VERSION CHECK

This verifies the version of the main program.



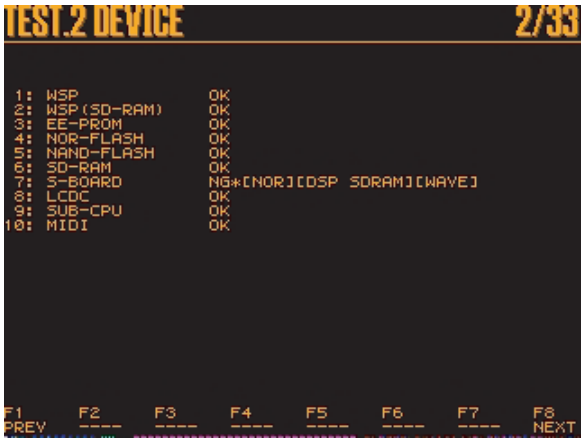
Before advancing to the next test item, "**2. DEVICE**," connect MIDI IN and MIDI OUT with the MIDI cable.

Pressing [▶] advances to the next test item.

2. DEVICE

This tests various devices.

A screen like the one shown below is displayed on the LCD, and a total of ten items are automatically tested.



If all results are OK (acceptable), execution automatically advances to the next test item.

If a problem occurs, NG ("not OK") is displayed and the location of the problem is noted. (No automatic advance to the next item occurs.)

LCD screen display	Meaning
1: WSP	Make sure IC54 (MAIN) is mounted correctly.
2: WSP (SD-RAM)	Make sure IC58 (MAIN) is mounted correctly.
3: EE-PROM	Make sure IC53 (MAIN) is mounted correctly.
4: NOR-FLASH	Make sure IC20 (MAIN) is mounted correctly.
5: NAND-FLASH	Make sure IC21 (MAIN) is mounted correctly.
6: SD-RAM	Make sure IC34 and 35 (MAIN) are mounted correctly.
7: S-BOARD	Make sure IC2, 4, 29, 31, and 33 (S-BOARD) are mounted correctly.
8: LCDC	Make sure IC38 (MAIN) is mounted correctly.
9: SUB-CPU	Make sure IC20 (SUB) is mounted correctly.
10: MIDI	Make sure MIDI IN and MIDI OUT (JK1) are connected by the MIDI cable.

3. PEDAL

This performs verification of pedal operation.

A screen like the one shown below is displayed on the LCD.

Depress and return the EV-5 pedals in order.

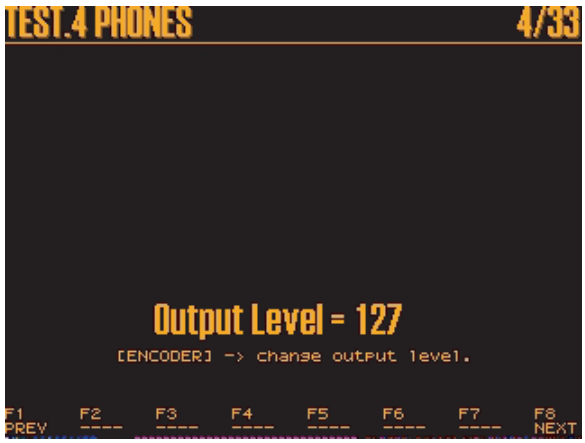
When the values have changed from **0** to **127**, **OK** is displayed.

If all results are OK (acceptable), execution automatically advances to the next test item.

4. PHONES

This tests the audio signal (L and R) output from the PHONES connector.

A screen like the one shown below is displayed on the LCD.



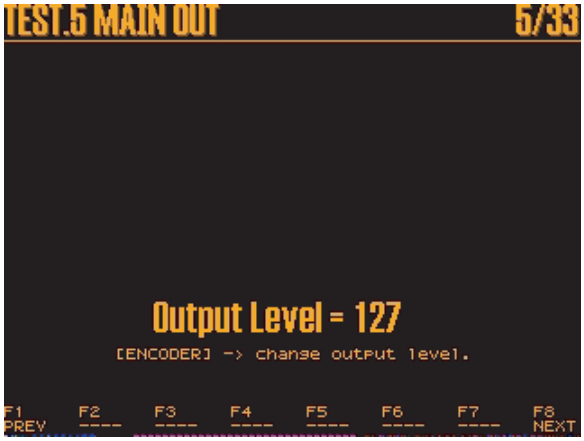
Slowly turn the VOLUME control to the MAX setting.

The audio signal input from the INPUT (L/R) connectors is output from the PHONES connector.

If no problem is encountered, press [▶] to advance to the next test item.

5. MAIN OUT

This tests the audio signal (L and R) output from the MAIN OUT connectors.
A screen like the one shown below is displayed on the LCD.

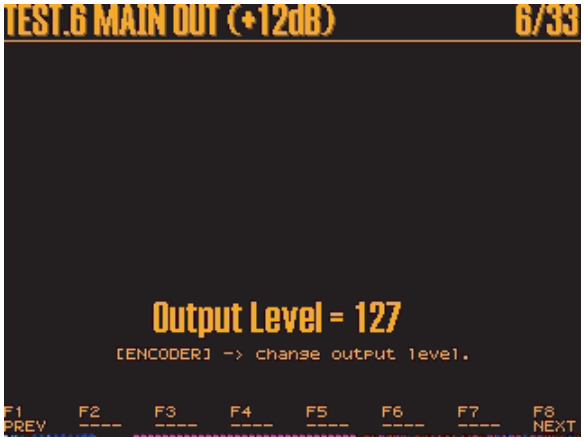


The audio signal input from the INPUT (L/R) connectors is output from the MAIN OUT (L/R) connectors.

If no problem is encountered, press [▶] to advance to the next test item.

6. MAIN OUT (+12 dB)

This tests the audio signal (L and R) output from the MAIN OUT connectors.
A screen like the one shown below is displayed on the LCD.

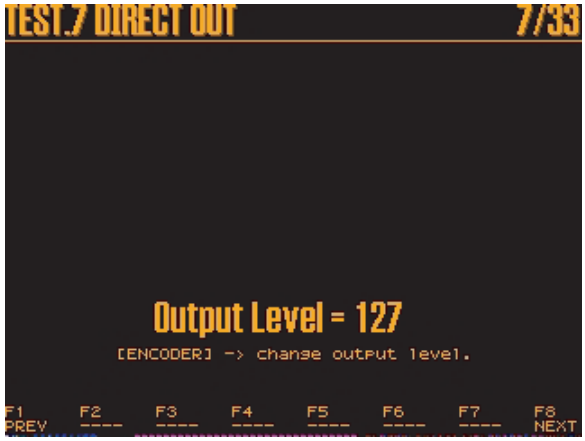


The audio signal input from the INPUT (L/R) connectors is output from the MAIN OUT (L/R) connectors at a higher volume than in "**5. MAIN OUT**."

If no problem is encountered, press [▶] to advance to the next test item.

7. DIRECT OUT

This tests the audio signal (L and R) output from the DIRECT OUT connectors.
A screen like the one shown below is displayed on the LCD.

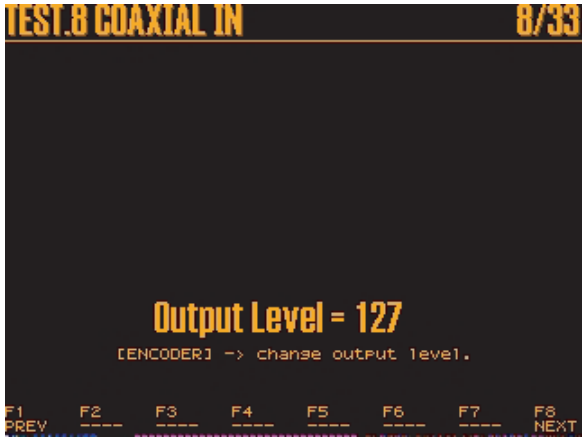


The audio signal input from the INPUT (L/R) connectors is output from the DIRECT OUT (L/R) connectors.

If no problem is encountered, press [▶] to advance to the next test item.

8. COAXIAL IN

This tests the audio signal input from the COAXIAL IN connector.
A screen like the one shown below is displayed on the LCD.

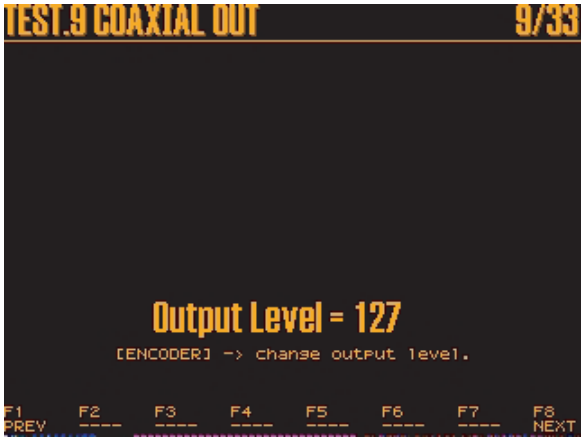


The audio signal input from the COAXIAL IN connector is output from the MAIN OUT (L/R) connectors.

If no problem is encountered, press [▶] to advance to the next test item.

9. COAXIAL OUT

This tests the audio signal output from the COAXIAL OUT connector.
A screen like the one shown below is displayed on the LCD.

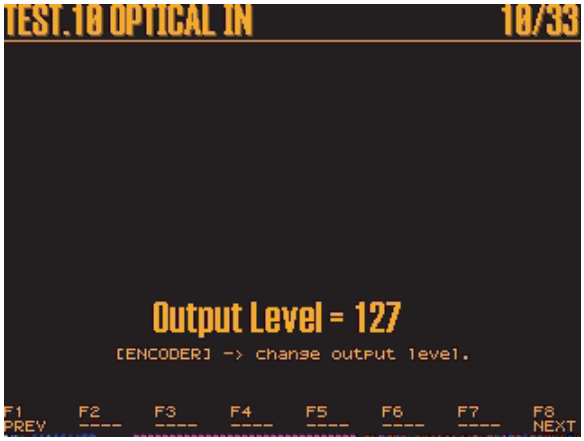


The audio signal input from the LINE IN (L/R) connectors is output from the COAXIAL OUT connector.

If no problem is encountered, press [▶] to advance to the next test item.

10. OPTICAL IN

This tests the audio signal input from the OPTICAL IN connector.
A screen like the one shown below is displayed on the LCD.

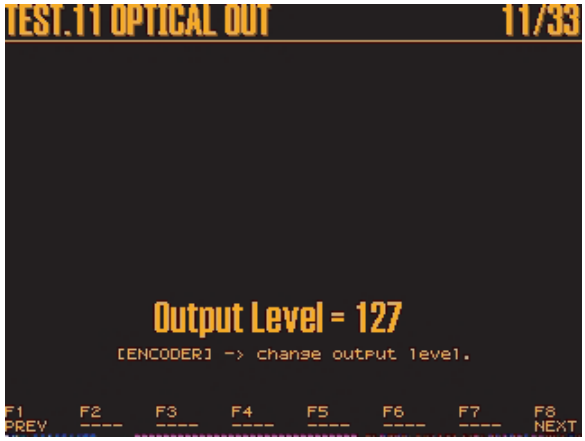


The audio signal input from the OPTICAL IN connector is output from the MAIN OUT (L/R) connectors.

If no problem is encountered, press [▶] to advance to the next test item.

11. OPTICAL OUT

This tests the audio signal output from the OPTICAL OUT connector.
A screen like the one shown below is displayed on the LCD.

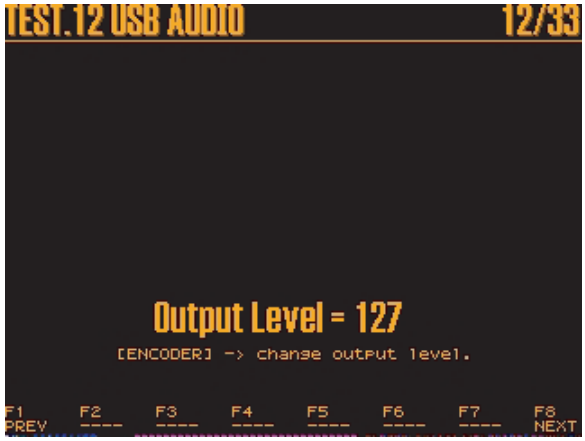


The audio signal input from the LINE IN (L/R) connectors is output from the OPTICAL OUT connector.

If no problem is encountered, press [▶] to advance to the next test item.

12. USB AUDIO

This tests the audio signal input from the USB COMPUTER connector.
A screen like the one shown below is displayed on the LCD.



Play back any WAVE file on the computer.

* *A number of sample WAVE files can be found in* ***C:\WINDOWS\Media****.*

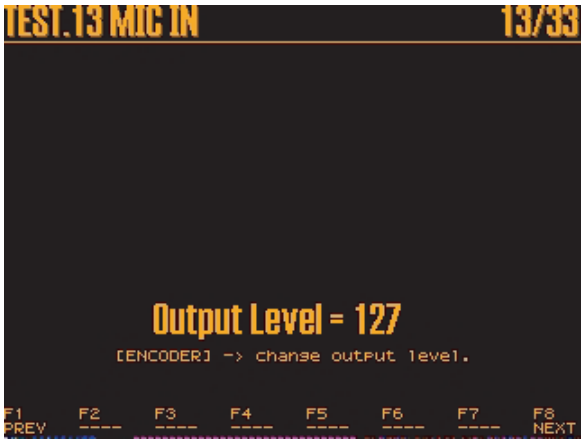
The audio signal input from the USB COMPUTER connector is output from the MAIN OUT (L/R) connectors.

If no problem is encountered, stop playback and press [▶] to advance to the next test item.

13. MIC IN

This tests the audio signal input from the MIC IN connector and the operation of the PHANTOM power source.

A screen like the one shown below is displayed on the LCD.



Make sure the PHANTOM switch is set to OFF.

Input an audio signal to a dynamic microphone connected to the MIC IN connector.

Make sure that output occurs at the MAIN OUT (L/R) connectors and that the volume level changes when INPUT MIC LEVEL is turned.

Next, change the dynamic microphone connected to the MIC IN connector to a condenser microphone.

Set the PHANTOM switch to ON.

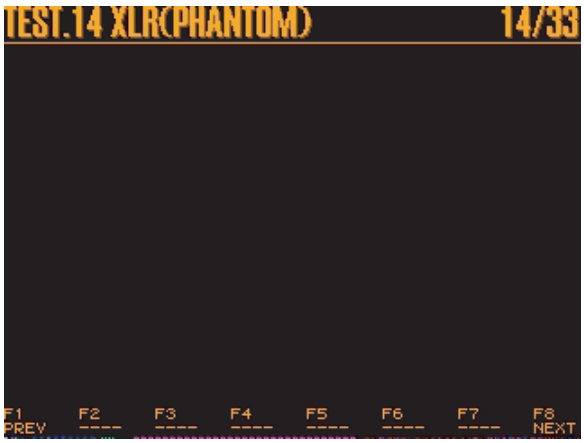
Input an audio signal to the condenser microphone connected to the MIC IN connector.

Make sure that output occurs at the MAIN OUT (L/R) connectors and that the volume level changes when INPUT MIC LEVEL is turned.

If no problem is encountered, press [▶] to advance to the next test item.

14. XLR (PHANTOM)

A screen like the one shown below is displayed on the LCD.



No inspection is performed for this item.

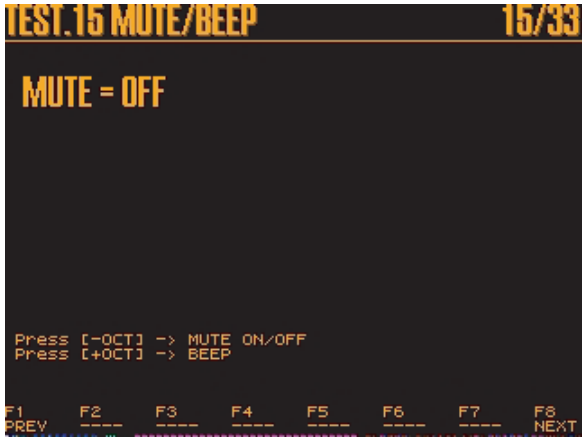
* *On reaching the next test item, "**15. MUTE/BEEP**," a hum is played at high volume level. Turn down the VOLUME control.*

Press [▶] to advance to the next test item.

15. MUTE/BEEP

This performs verification of the MUTE circuit and the beep sound.

A screen like the one shown below is displayed on the LCD.



The hum is output from the MAIN OUT (L/R) connectors.

[-OCT] flashes and [+OCT] is lighted.

Make sure that the volume of the audio output from MAIN OUT is lowered while [-OCT] is depressed.

Make sure that the volume of the audio output from MAIN OUT returns to its original level when [-OCT] is released.

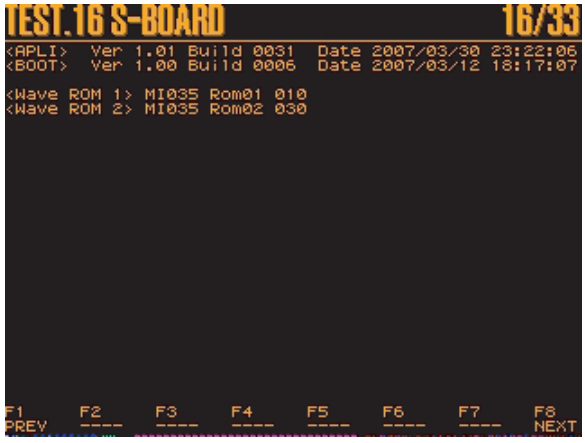
Make sure that a beep is played when [+OCT] is pressed.

If no problem is encountered, press [▶] to advance to the next test item.

16. S-BOARD

This verifies whether the S-Board is operating correctly.

A screen like the one shown below is displayed on the LCD.



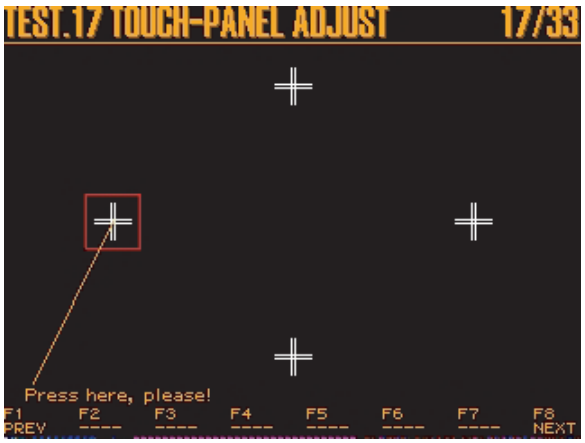
This verifies the version of the S-Board program.

A SAX phrase is played and output from the MAIN OUT (L/R) connectors.

If no problem is encountered, press [▶] to advance to the next test item.

17. TOUCH-PANEL ADJUST

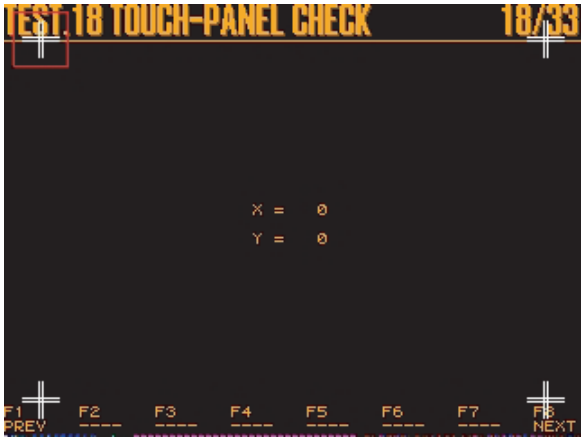
This performs adjustment of the positioning for the touch panel.
A screen like the one shown below is displayed on the LCD.



Using the touch pen, touch the center of the "+" symbol inside the box (☐).
When the touch is detected, the ☐ moves to the next point.
Make sure that a beep is played simultaneously with the touch.
After all four points on the screen have been touched, execution automatically advances to the next test item.

18. TOUCH-PANEL CHECK

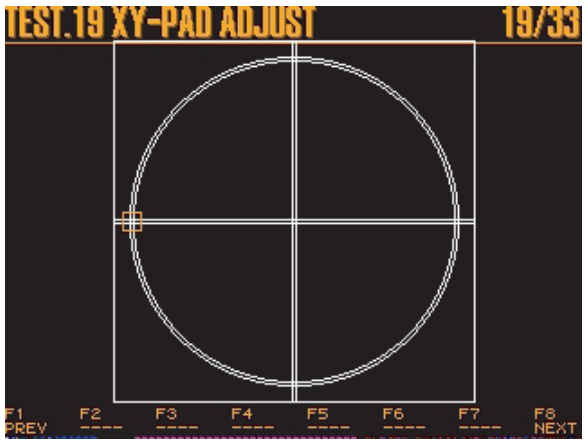
This performs verification of the touch panel.
A screen like the one shown below is displayed on the LCD.



Using the touch pen, touch the center of the "+" symbol inside the box (☐).
When the touch is detected, the ☐ moves to the next point.
Make sure that a beep is played simultaneously with the touch.
After all four points on the screen have been touched, if no problem occurs, execution automatically advances to the next test item.

19. XY-PAD ADJUST

This performs adjustment of the positioning for the XY pad.
A screen like the one shown below is displayed on the LCD.



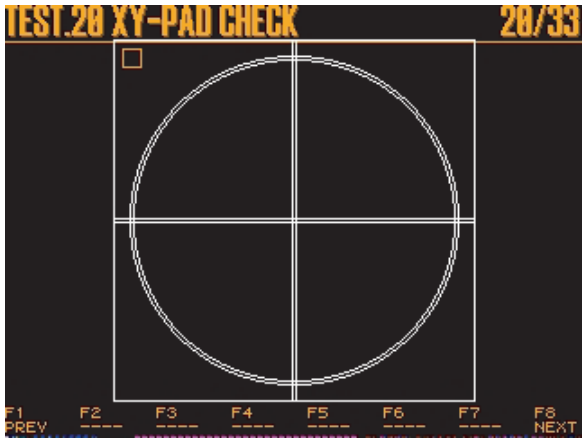
An image of the XY pad is displayed on the LCD screen. Using the touch pen, touch the center of the "+" symbol inside the box (☐) on the XY pad.

* *Touch the XY pad, not the touch screen.*

When the touch is detected, the ☐ moves to the next point.
Make sure that a beep is played simultaneously with the touch.
After all four points on the screen have been touched, execution automatically advances to the next test item.

20. XY-PAD CHECK

This performs verification of the XY pad.
A screen like the one shown below is displayed on the LCD.



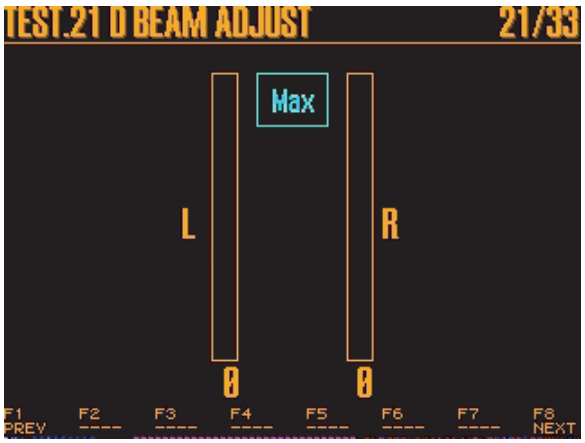
An image of the XY pad is displayed on the LCD screen. Using the touch pen, touch the center of the "+" symbol inside the box (☐) on the XY pad.

* *Touch the XY pad, not the touch screen.*

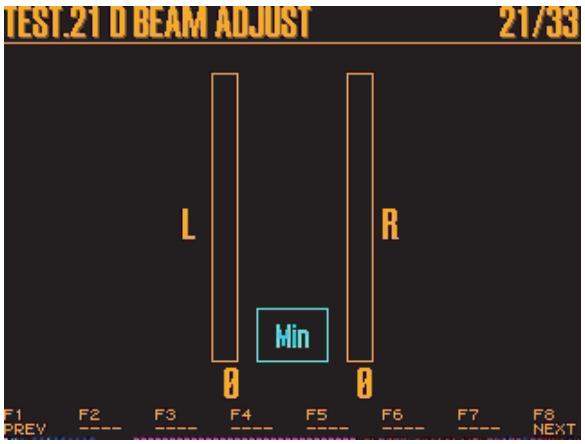
When the touch is detected, the ☐ moves to the next point.
Make sure that a beep is played simultaneously with the touch.
After all four points on the screen have been touched, if no problem occurs, execution automatically advances to the next test item.

21. D BEAM ADJUST

This performs adjustment of the D beams.
A screen like the one shown below is displayed on the LCD.



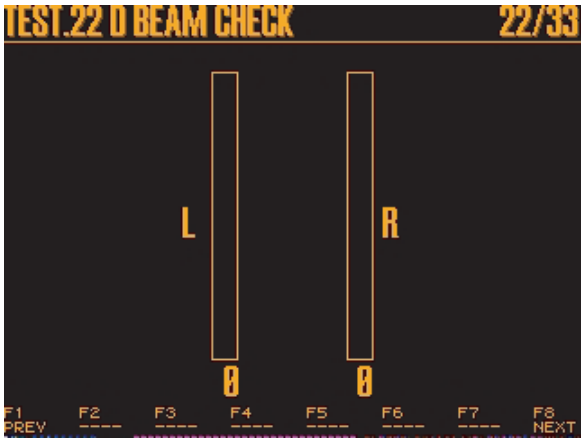
Hold the hand at a location 5 cm above the D beams and touch **Max**.
A screen like the one shown below is displayed on the LCD.



Hold the hand at a location 40 cm above the D beams and touch **Min**.
When adjustment ends, execution automatically advances to the next test item.

22. D BEAM CHECK

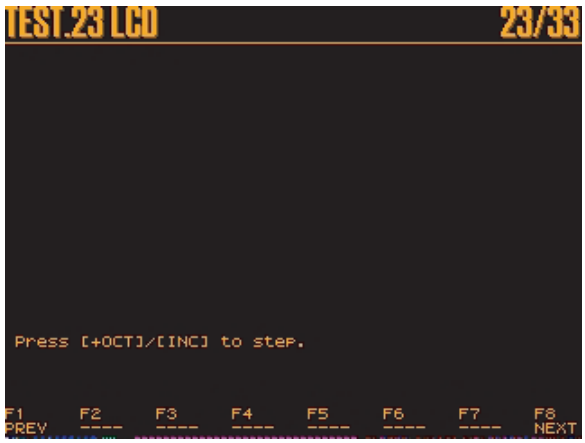
This performs verification of the D beams.
A screen like the one shown below is displayed on the LCD.



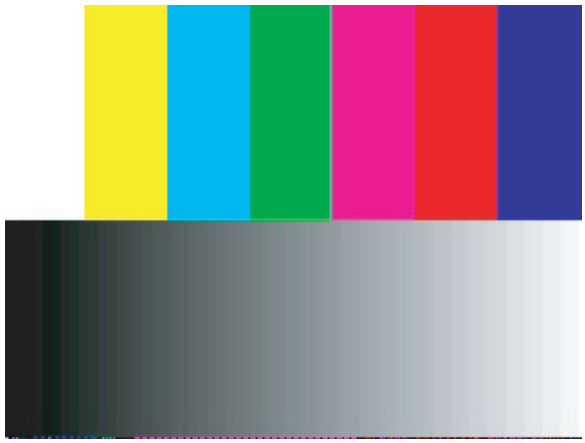
Make sure that a value of **127** is displayed at a location of 5 cm for both the L and R D beams.
Make sure that a value of **0** is displayed at a location of 40 cm.
If no problem occurs, execution automatically advances to the next test item.

23. LCD

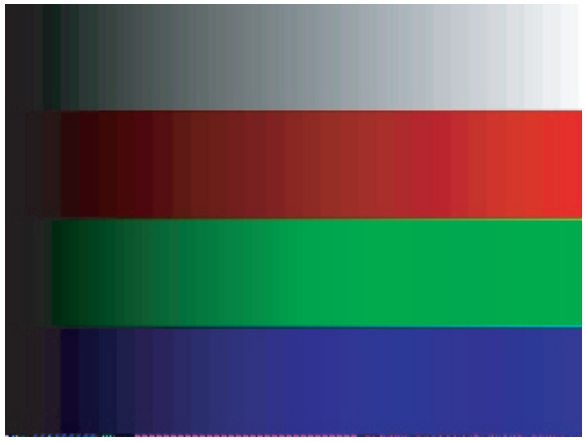
This verifies the display on the LCD screen.
A screen like the one shown below is displayed on the LCD.



Press [+OCT] or [INC].
Seven types of pattern are displayed. Check each for the presence of discolored dots, uneven colors, missing dots, and noticeable video artifacts.
Press [+OCT] or [INC] to advance to the next pattern.



7-color and gray scale bars



Gray scale, Red, Green and Blue

Red (full-screen)

Green (full-screen)

Blue (full-screen)

White (full-screen)

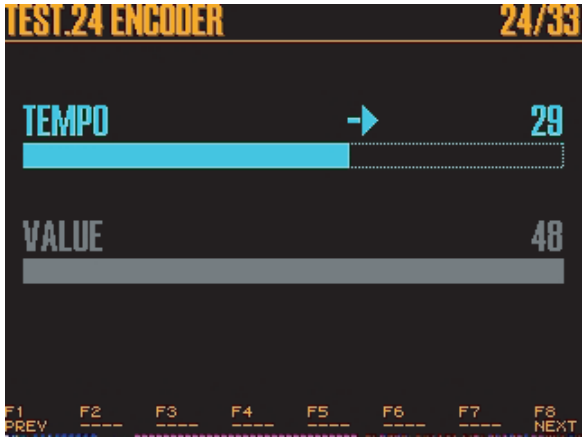
Black (full-screen)

When verification of all patterns has finished, a display like the one shown below appears on the LCD screen.

If no problem has been encountered, press [PATCH PALETTE 8] or [▶] to advance to the next test item.

24. ENCODER

This performs verification of the encoder.
A screen like the one shown below is displayed on the LCD.



Verify that turning the ARPEGGIO TEMPO knob counterclockwise two turns displays a value of **0** and sounds a beep.

Verify that turning the ARPEGGIO TEMPO knob clockwise two turns displays a value of **48** and sounds a beep.

Verify that turning the VALUE dial counterclockwise two turns displays a value of **0** and sounds a beep.

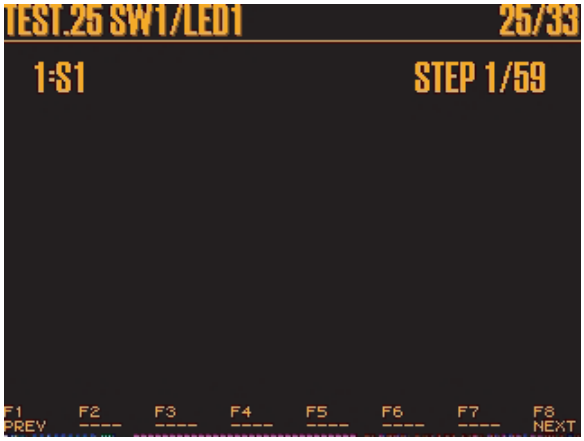
Verify that turning the VALUE dial clockwise two turns displays a value of **48** and sounds a beep.

If no problem occurs with either ARPEGGIO TEMPO or VALUE, execution automatically advances to the next test item.

25. SW1/LED1

This performs verification of switches with LEDs.

A screen like the one shown below is displayed on the LCD.



Press the buttons displayed on the LCD screen in sequence.

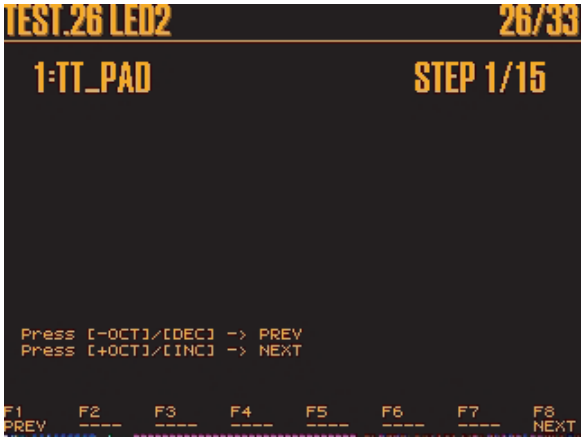
Make sure that the LED lights up and a beep is played at this time.

When the last button, [TONE FX], has been pressed, execution automatically advances to the next test item.

26. LED2

This performs verification of LEDs.

A screen like the one shown below is displayed on the LCD.



Make sure that the LED displayed on the LCD screen is lighted.

Pressing [+OCT] or [INC] makes the next LED light up.

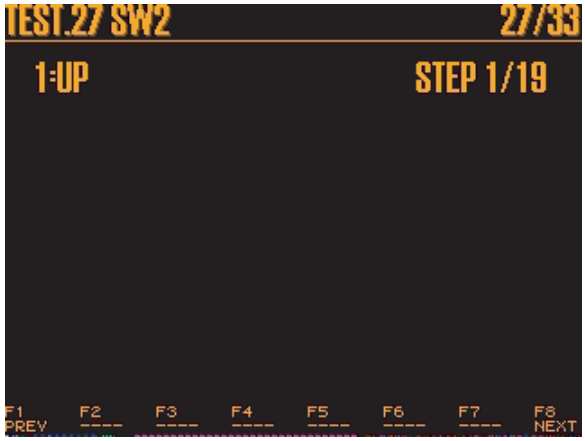
At [15: ENV_SCREEN], pressing [+OCT] or [INC] makes the LED go dark.

Press [▶] to advance to the next test item.

27. SW2

This performs verification of switches without LEDs.

A screen like the one shown below is displayed on the LCD.



All LEDs light up.

Press the buttons displayed on the LCD screen in sequence.

Verify that a beep is sounded when each button is pressed.

When the last button, [INC], has been pressed, execution automatically advances to the next test item.

28. A/D

This performs verification of the Bender and Aftertouch controls, control knobs, and sliders.

A screen like the one shown below is displayed on the LCD.

- Move the Bender control left and right all the way.
  Verify that a value of **-8192** is displayed when the Bender is moved to the left and that a value of **8192** is displayed when the Bender is moved to the right. If no problem occurs, OK is displayed and a beep is played.
- Move the Bender control all the way toward MODULATION.
  Verify that a value of **127** is displayed. If no problem occurs, **OK** is displayed and a beep is played.
- Verify the Aftertouch. Deeply press in any key.
  Verify that a value of **127** is displayed. If no problem occurs, **OK** is displayed and a beep is played.
- Verify the control knobs. Turn the controls displayed on the LCD screen left and right all the way.
  Verify that a value of **0** is displayed when the control is turned all the way to the left.
  Verify that a value of **127** is displayed when the control is turned all the way to the right.
  If no problem occurs, **OK** is displayed and a beep is played.
  For controls that have a center click, verify that a value of **64** is displayed when the control is centered.
- Verify the sliders. Move the sliders displayed on the LCD screen up and down all the way.
  Verify that a value of **0** is displayed at the lowest position.
  Verify that a value of **127** is displayed at the highest position.
  If no problem occurs, **OK** is displayed and a beep is played.
  When **OK** has been displayed for all items, execution automatically advances to the next test item.

29. KEYBOARD/STORAGE

This performs verification for sound generation, velocity, USB storage, and USB MIDI.

A screen like the one shown below is displayed on the LCD.

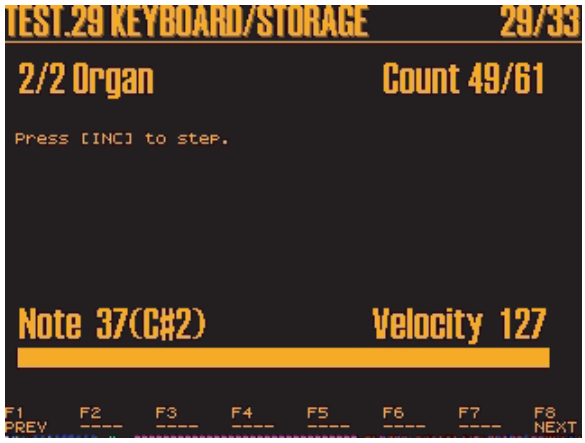
Pressing a key plays a Piano sound (attenuated), and the note number and velocity value of the key are displayed on the LCD screen.

Verify that sound is generated for all keys.

Also verify that the volume level changes according to the velocity with which the keys are played.

If no problem is encountered, press [INC]. This is not [▶]. Pressing [▶] advances execution to the "**30. MIC NOISE**" test.

A screen like the one shown below is displayed on the LCD.



Pressing a key plays a Organ sound (sustained), and the note number and velocity value of the key are displayed on the LCD screen.

An eight-note check is performed. Finger the keys to verify.

On the computer, start **Explorer**.

Verify that the connected USB memory device is visible as a removable drive.

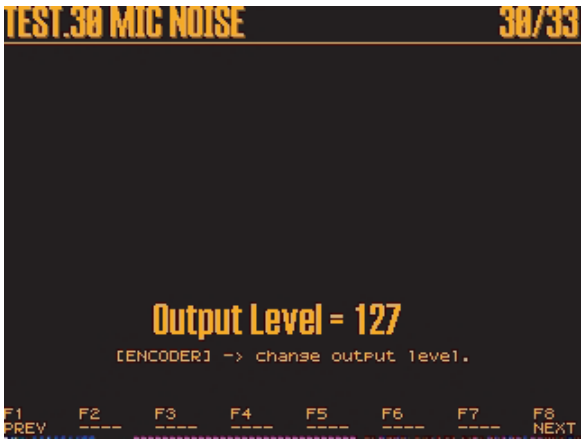
On the computer, use a sequencer program such as Cakewalk to play a MIDI file, and verify that sustained sound is output from the MAIN OUT connectors.

* *A number of sample MIDI files can be found in* ***C:\WINDOWS\Media****.*

If no problem is encountered, cancel the connection for the USB memory device on the computer and press [▶] to advance to the next test item.

30. MIC NOISE

This performs measurement of residual noise during MIC input.
A screen like the one shown below is displayed on the LCD.

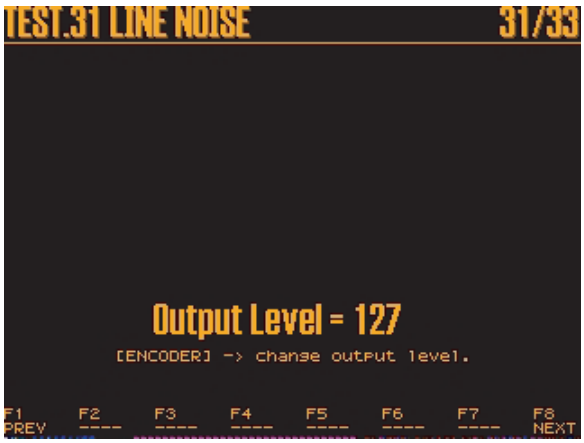


Detach all connected cables.
Set the input filter on the noise meter to DIN AUDIO.
Turn the VOLUME and INPUT MIC LEVEL control to the MAX position.
Verify that MAIN OUT is **-50 dB** and DIRECT OUT is **-50** dB or less.

If no problem is encountered, press [▶] to advance to the next test item.

31. LINE NOISE

This performs measurement of residual noise during LINE input.
A screen like the one shown below is displayed on the LCD.

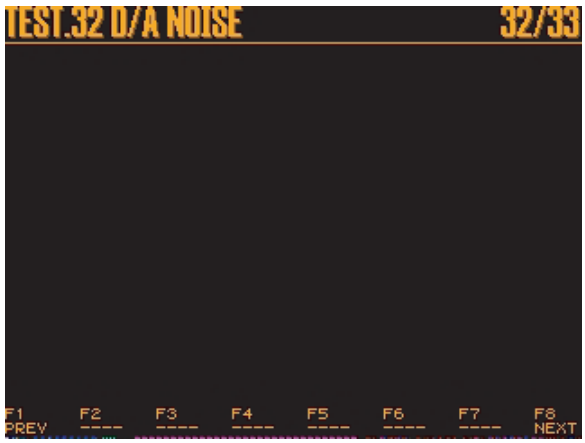


Verify that MAIN OUT is **-70 dB** and DIRECT OUT is **-70 dB** or less.

If no problem is encountered, press [▶] to advance to the next test item.

32. D/A NOISE

This performs measurement of residual noise during the no-input state.
A screen like the one shown below is displayed on the LCD.



Verify that MAIN OUT is **-80 dB** and DIRECT OUT is **-80 dB** or less.

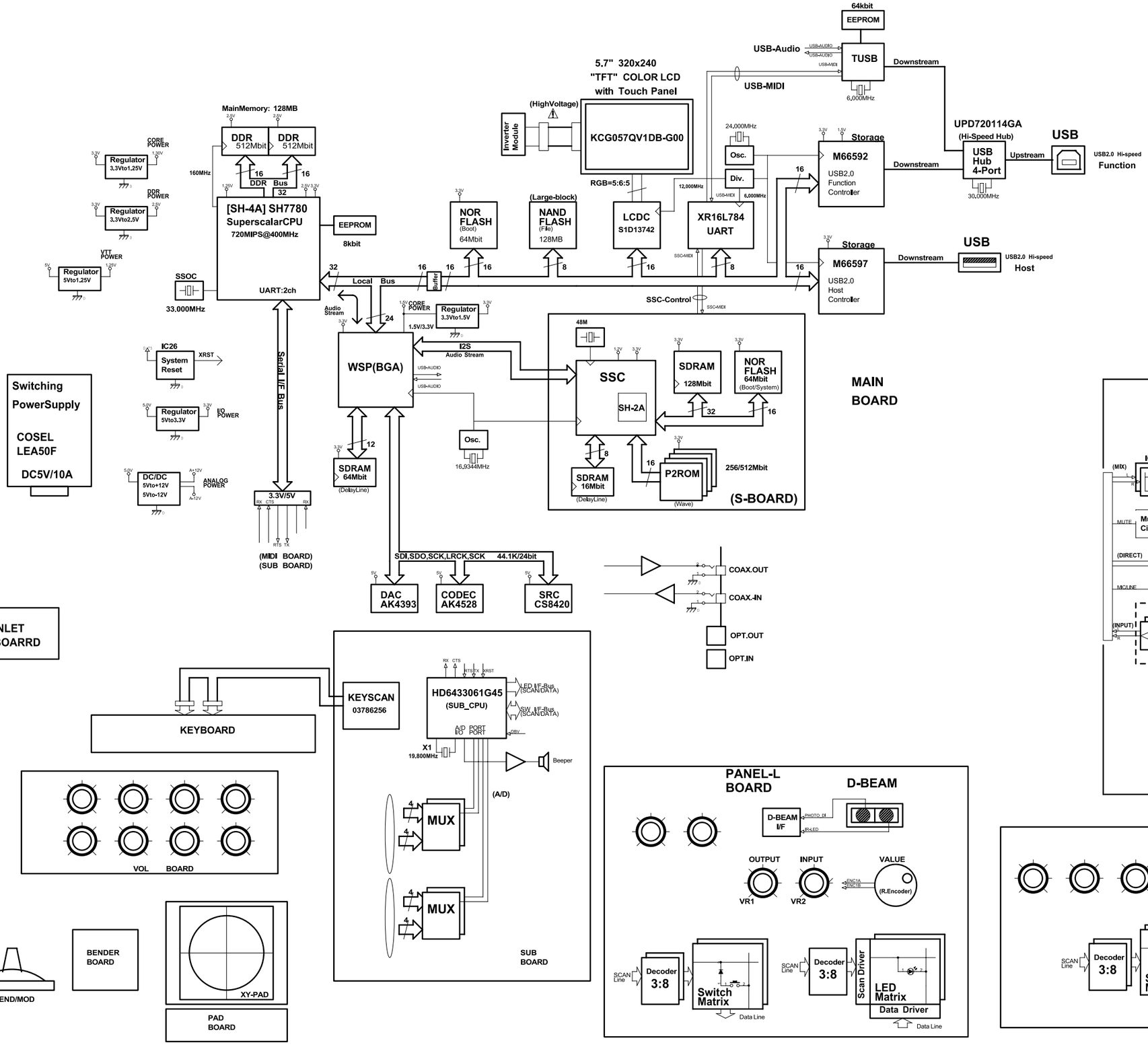
If no problem is encountered, press [▶] to advance to the next test item.

33. COMPLETED

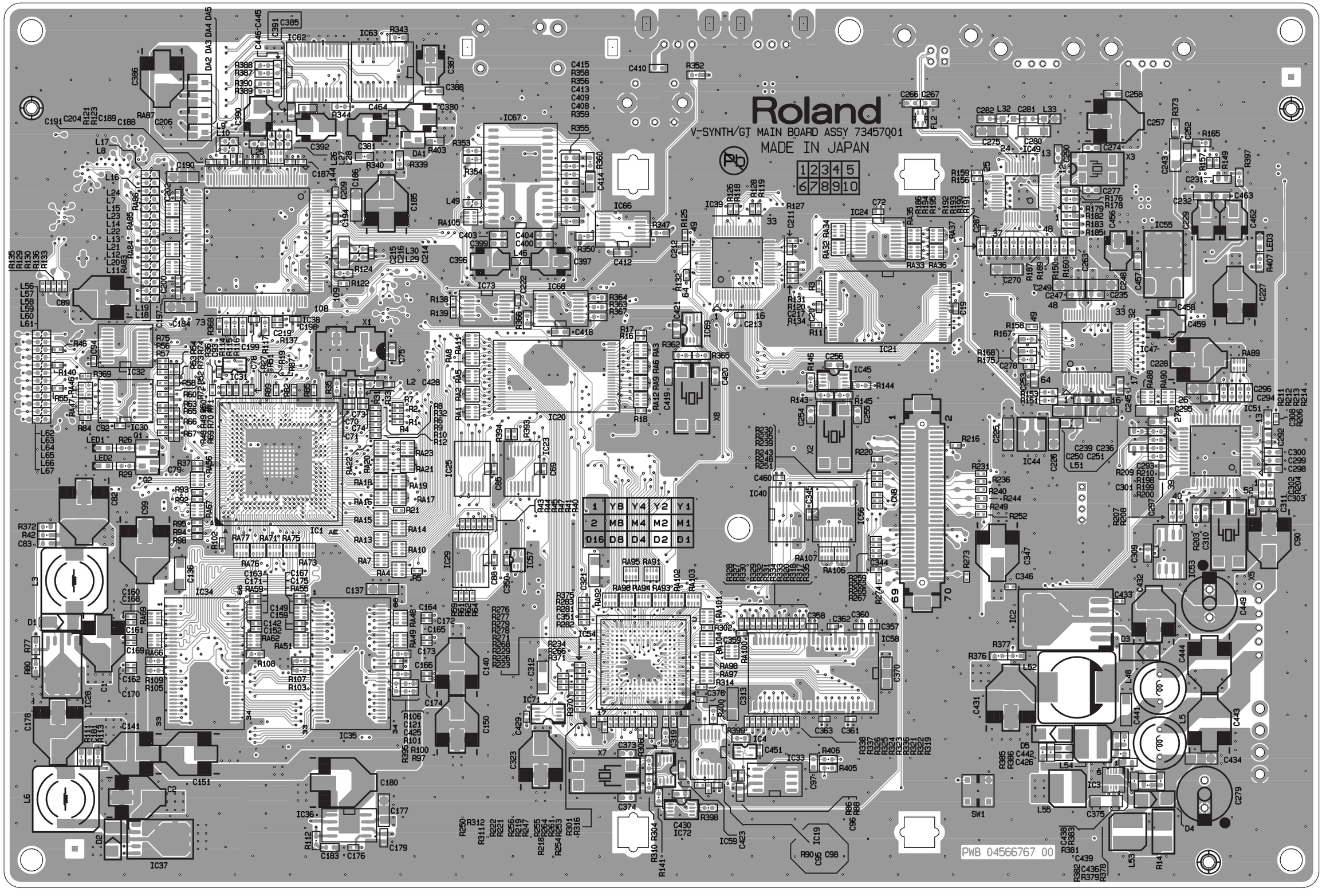
This ends the Test Mode.
A screen like the one shown below is displayed on the LCD.

Power down the V-Synth/GT.

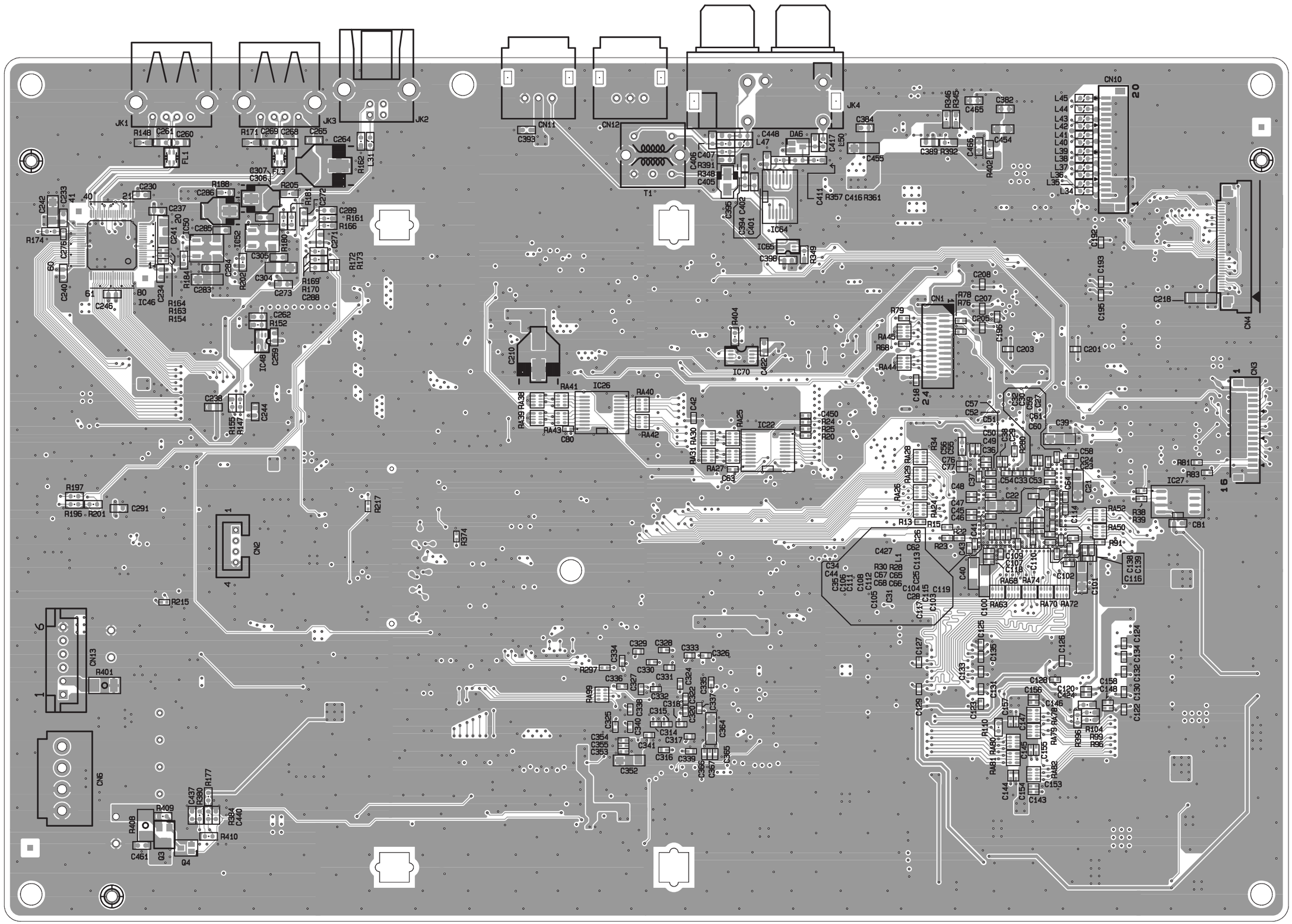
Block Diagram



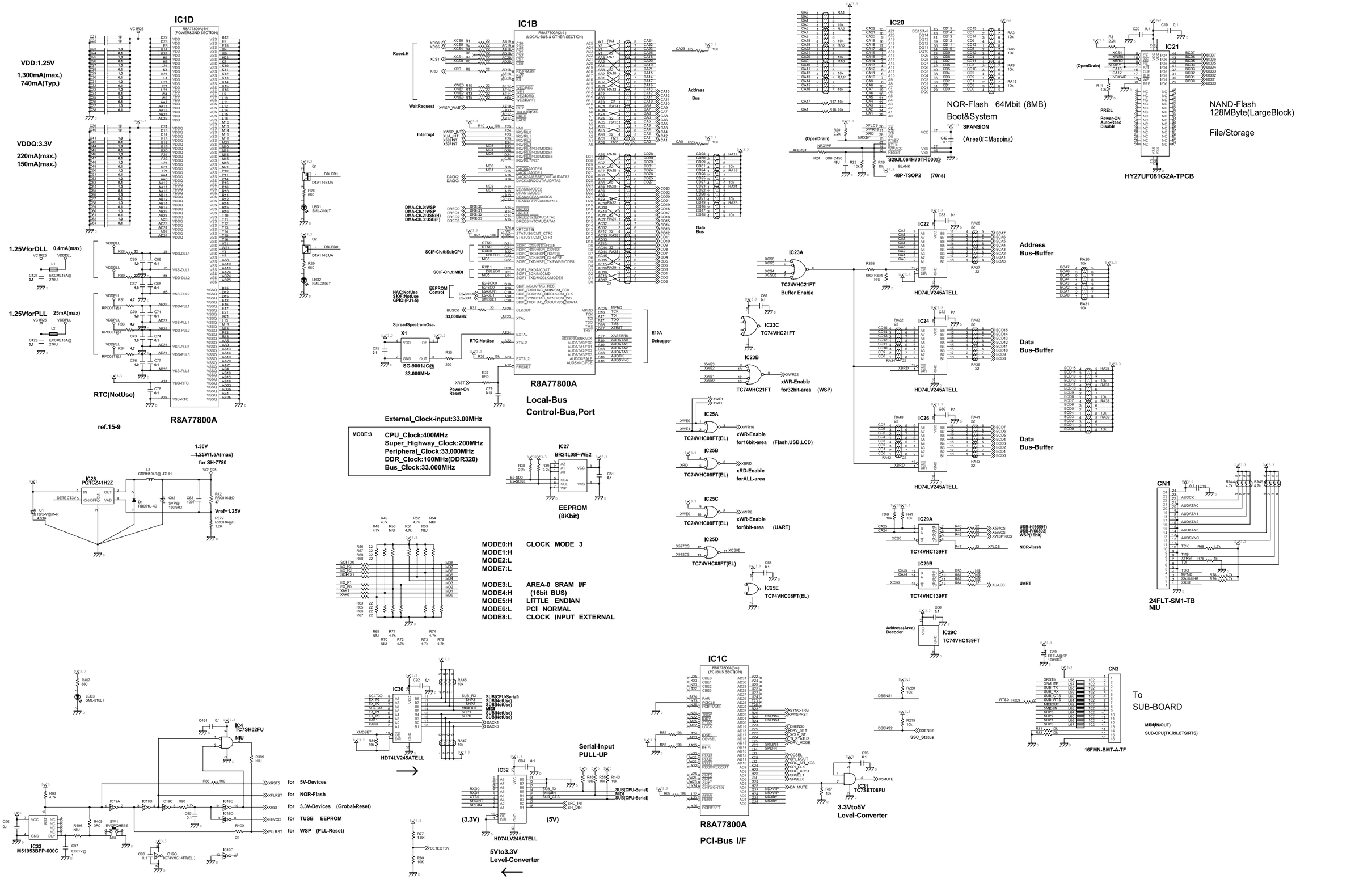
Circuit Board (Main Board: 1/2)



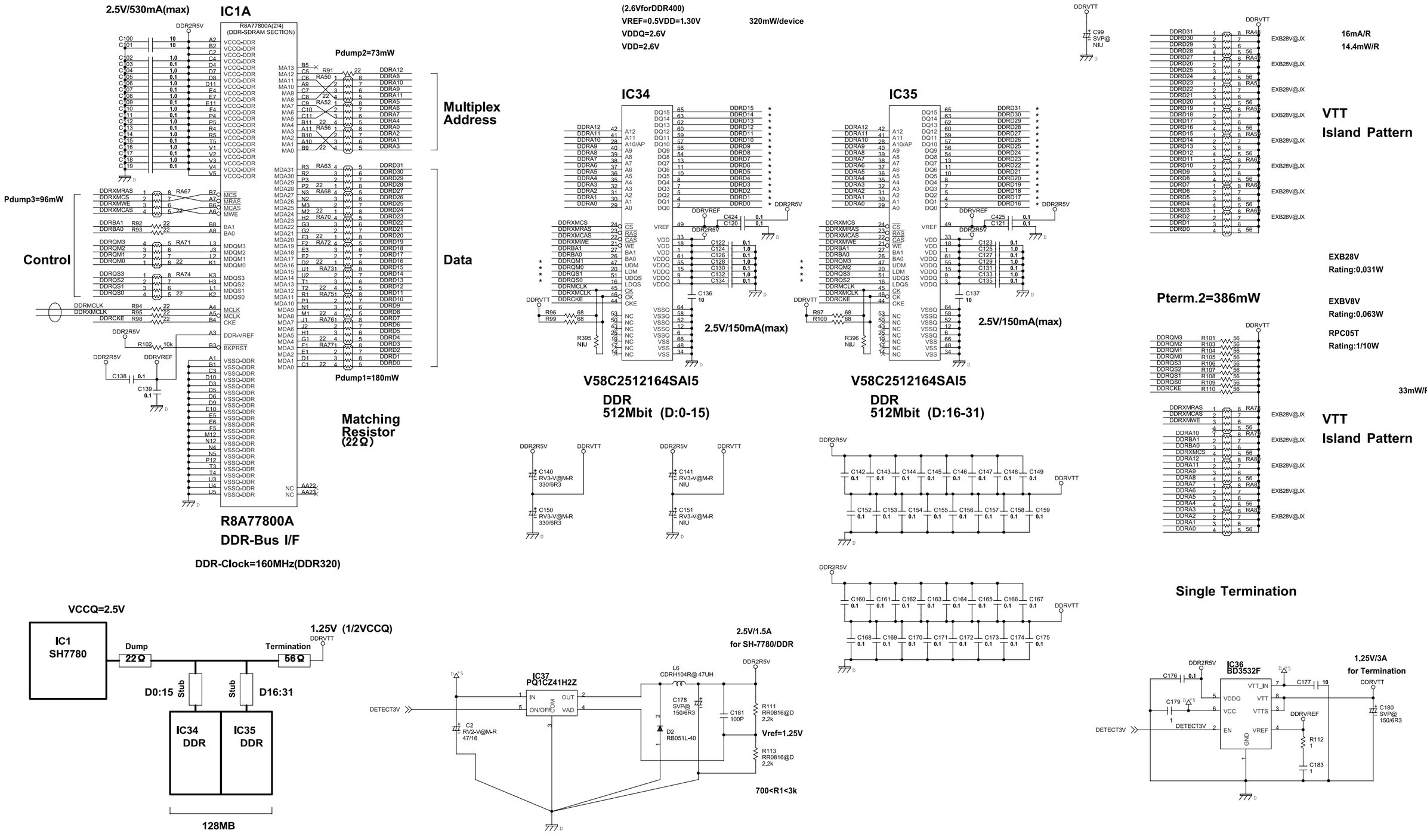
Circuit Board (Main Board: 2/2)



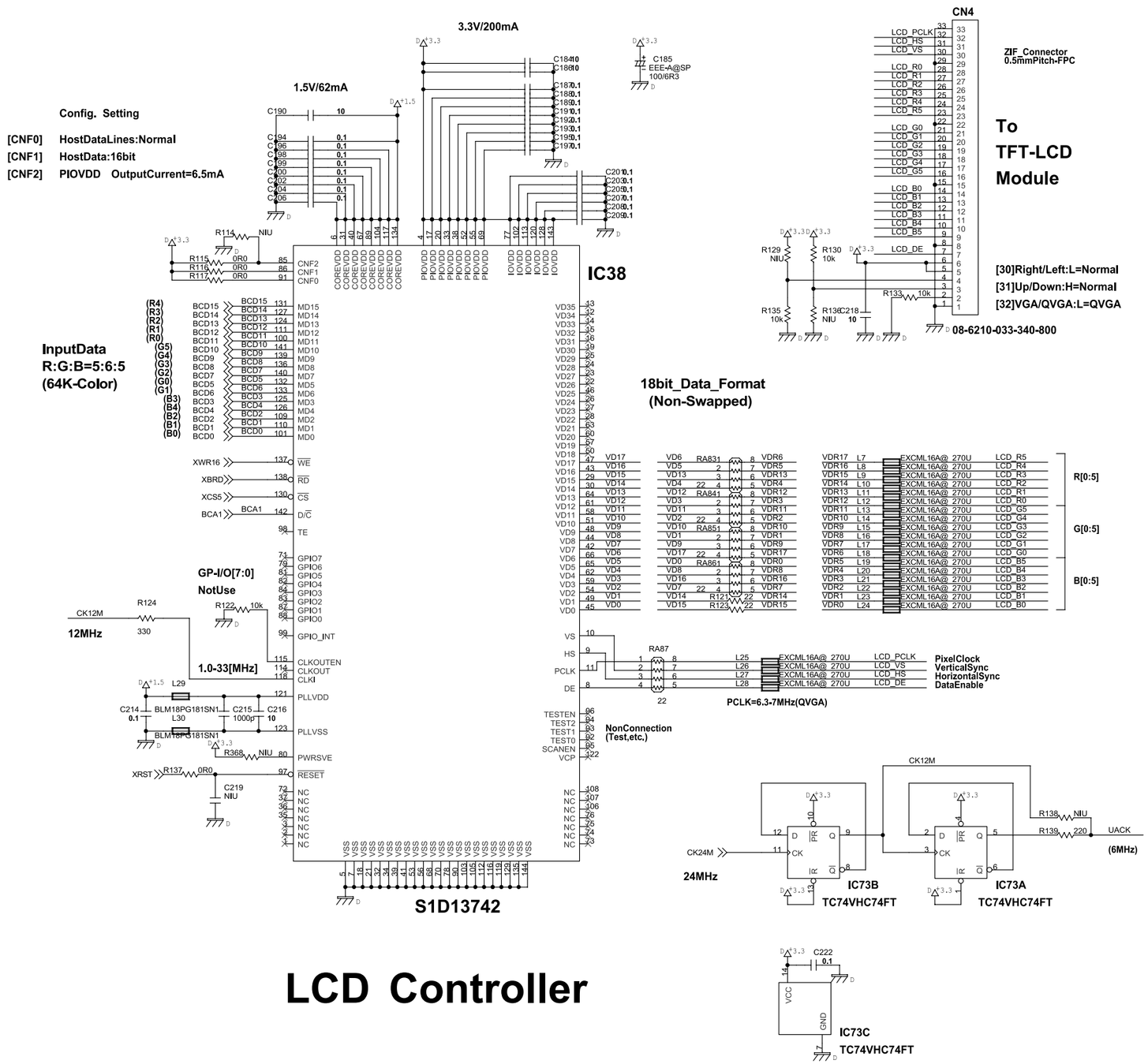
Circuit Diagram (Main Board: 1/8)



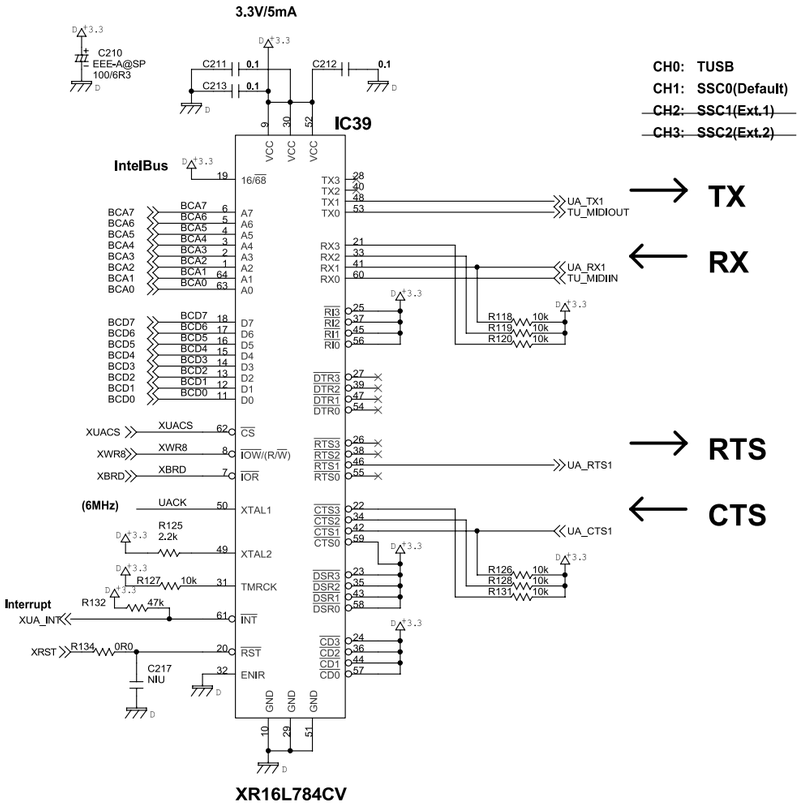
Circuit Diagram (Main Board: 2/8)



Circuit Diagram (Main Board: 3/8)

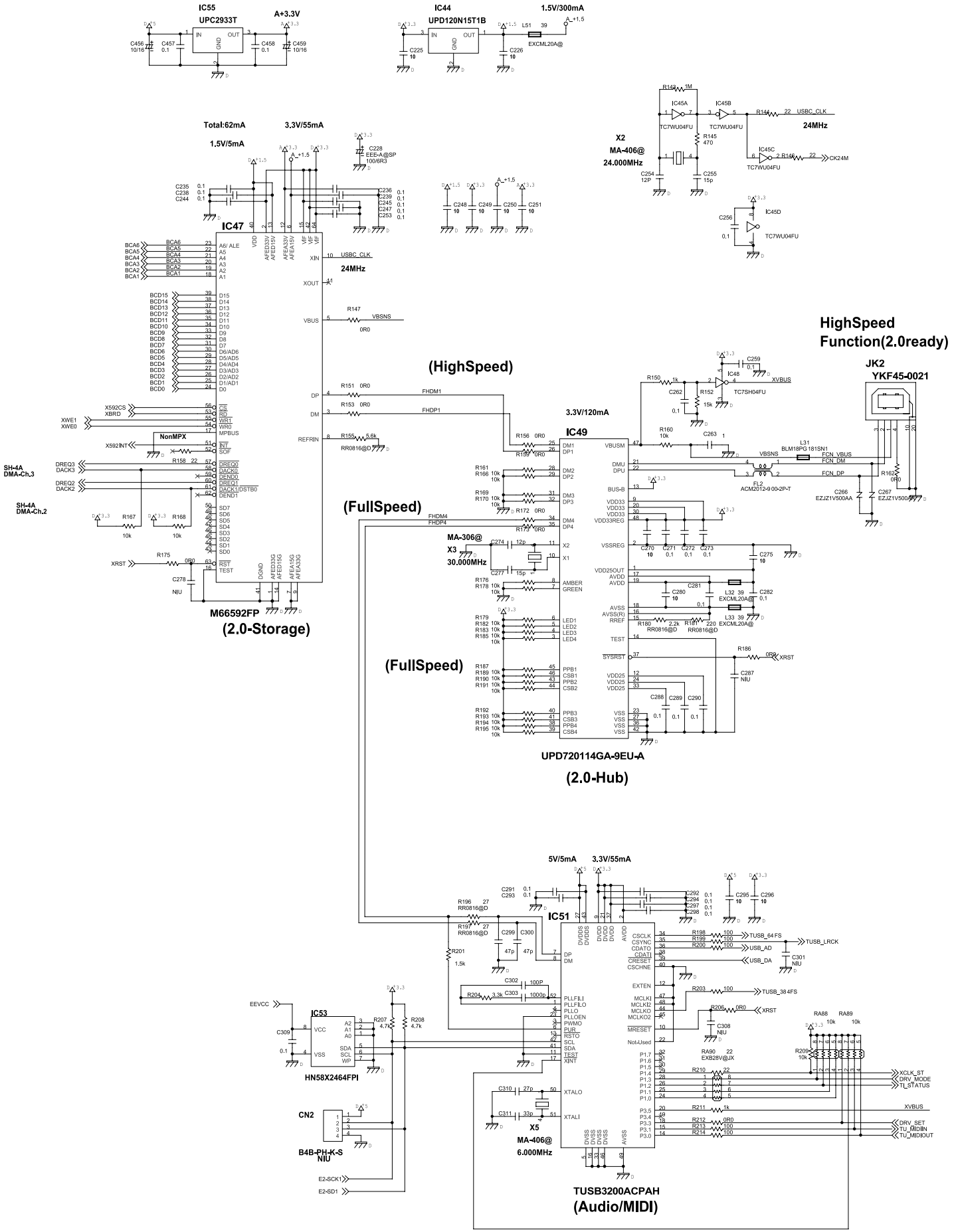


LCD Controller

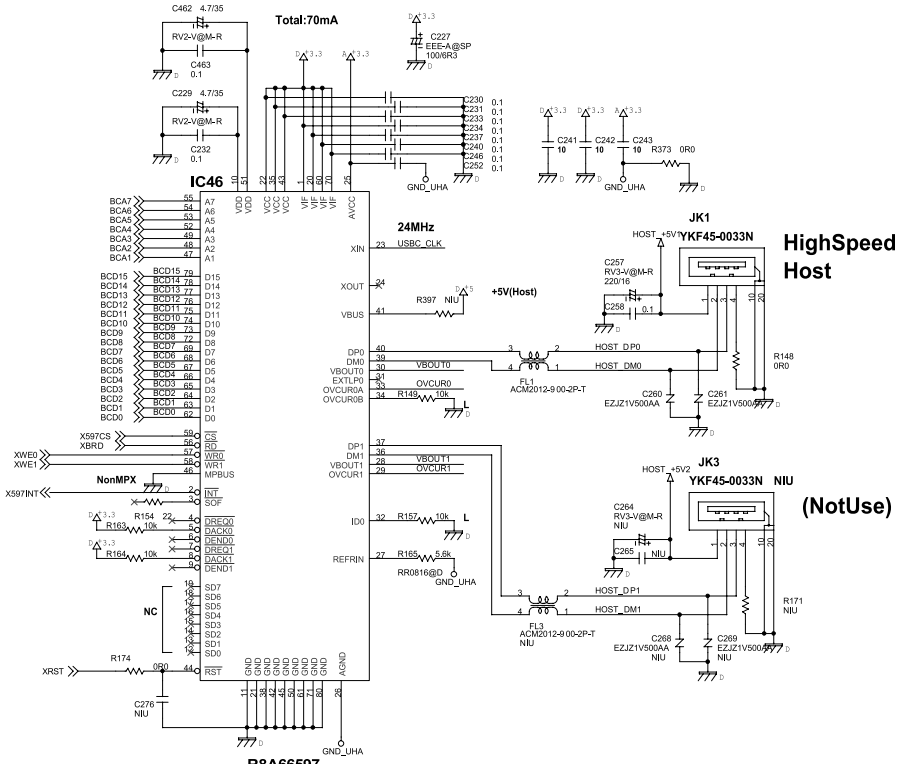


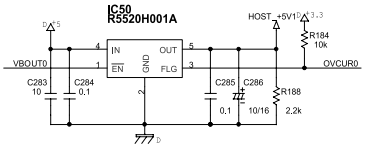
4CH. UART

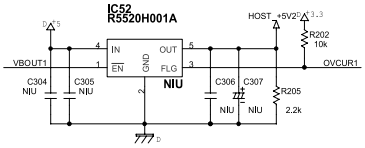
Circuit Diagram (Main Board: 4/8)



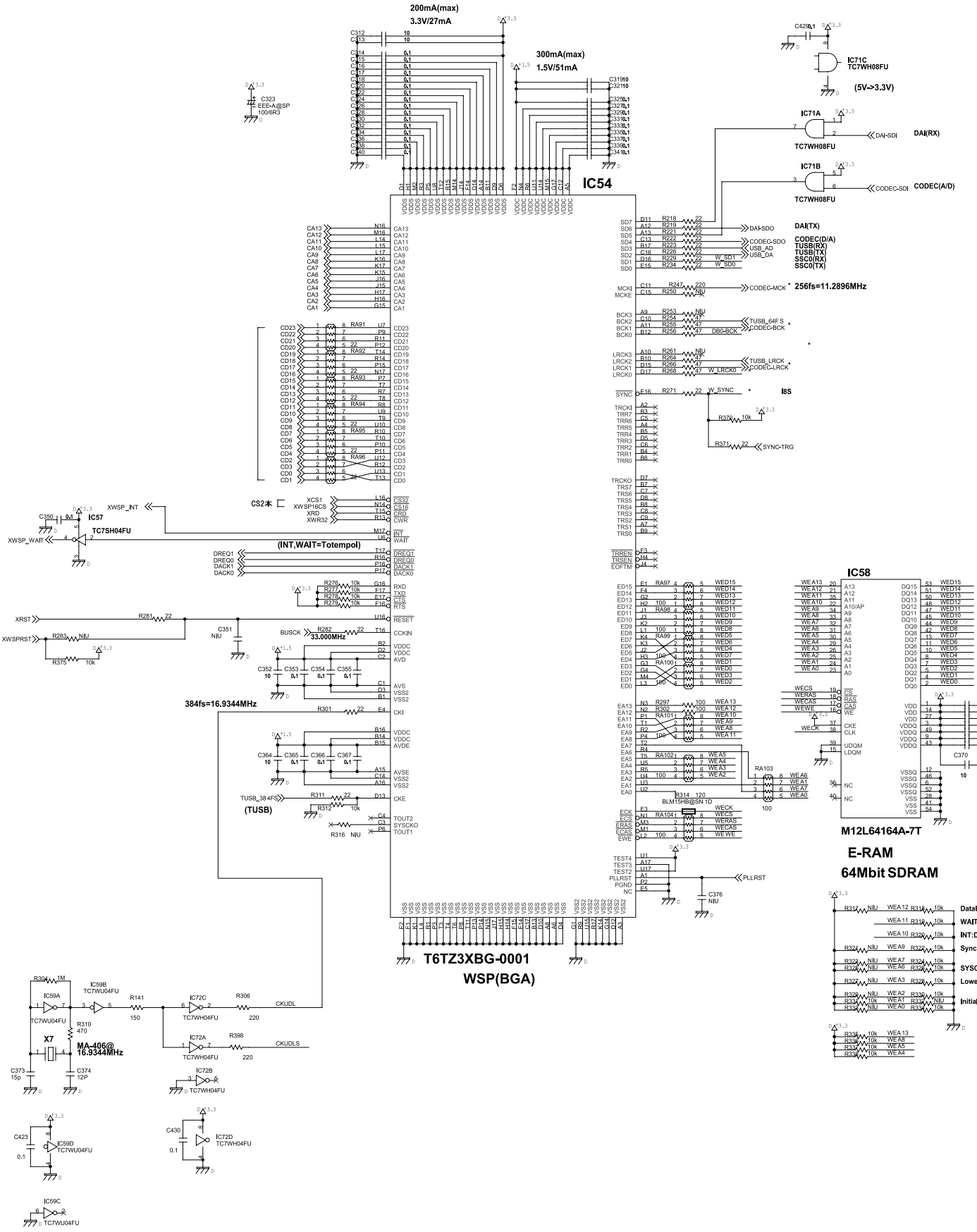
Circuit Diagram (Main Board: 5/8)



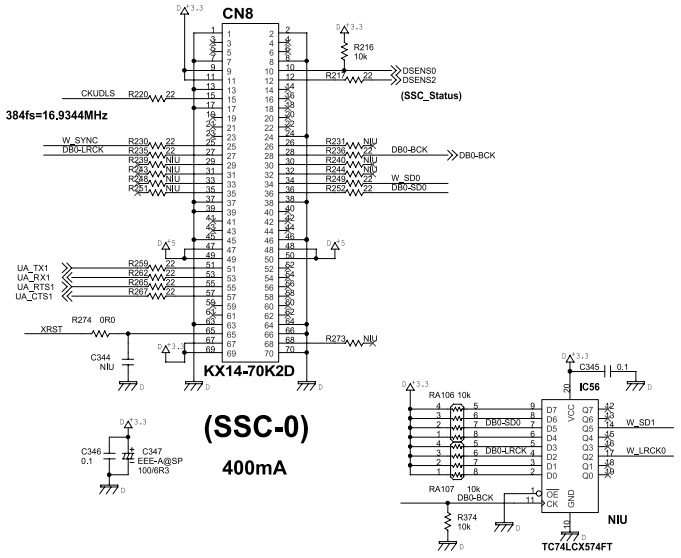


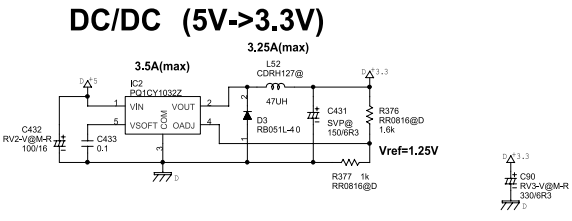


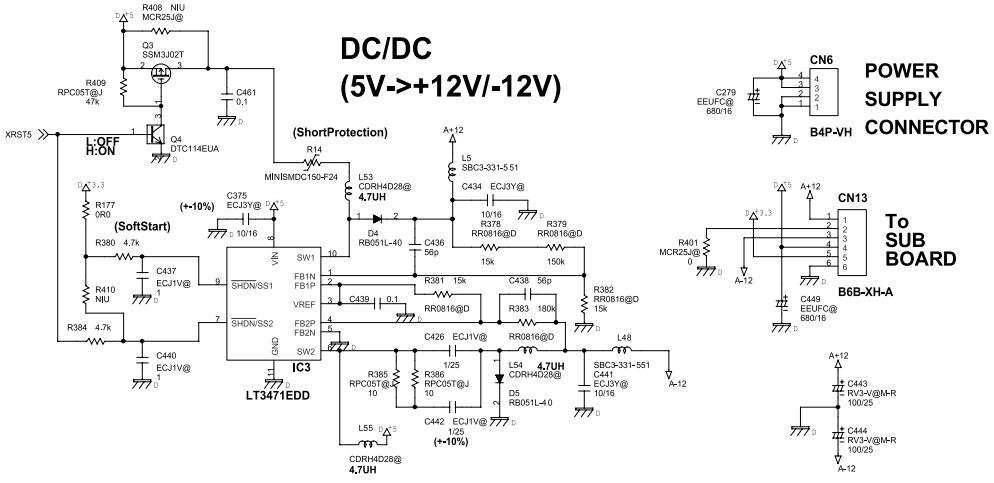
Circuit Diagram (Main Board: 6/8)



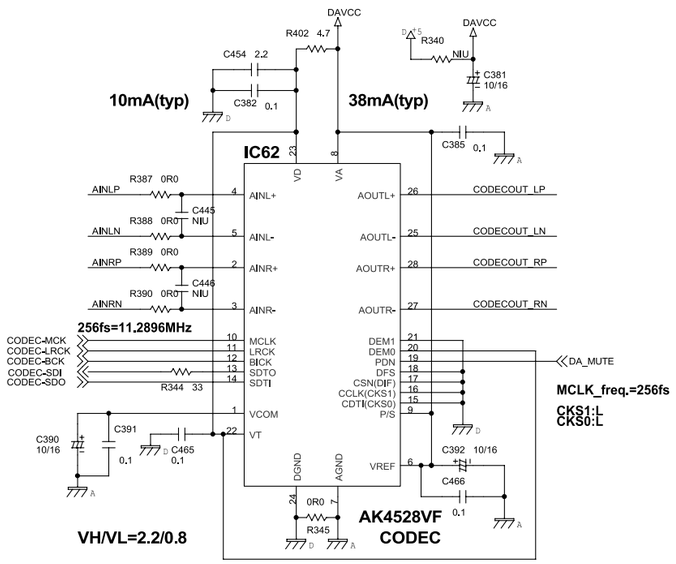
Circuit Diagram (Main Board: 7/8)

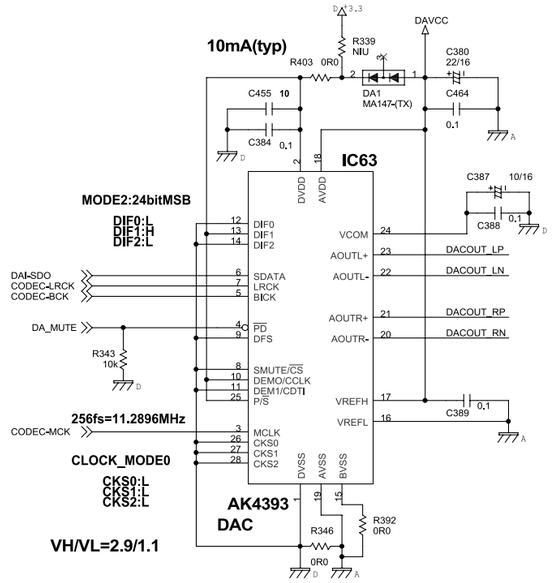


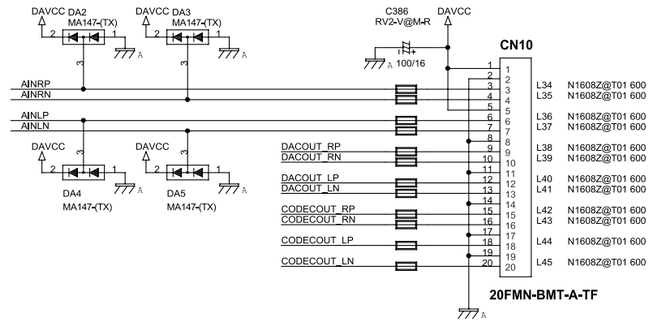


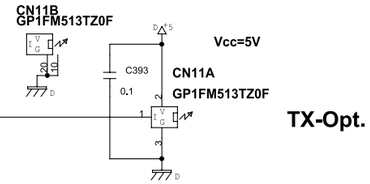


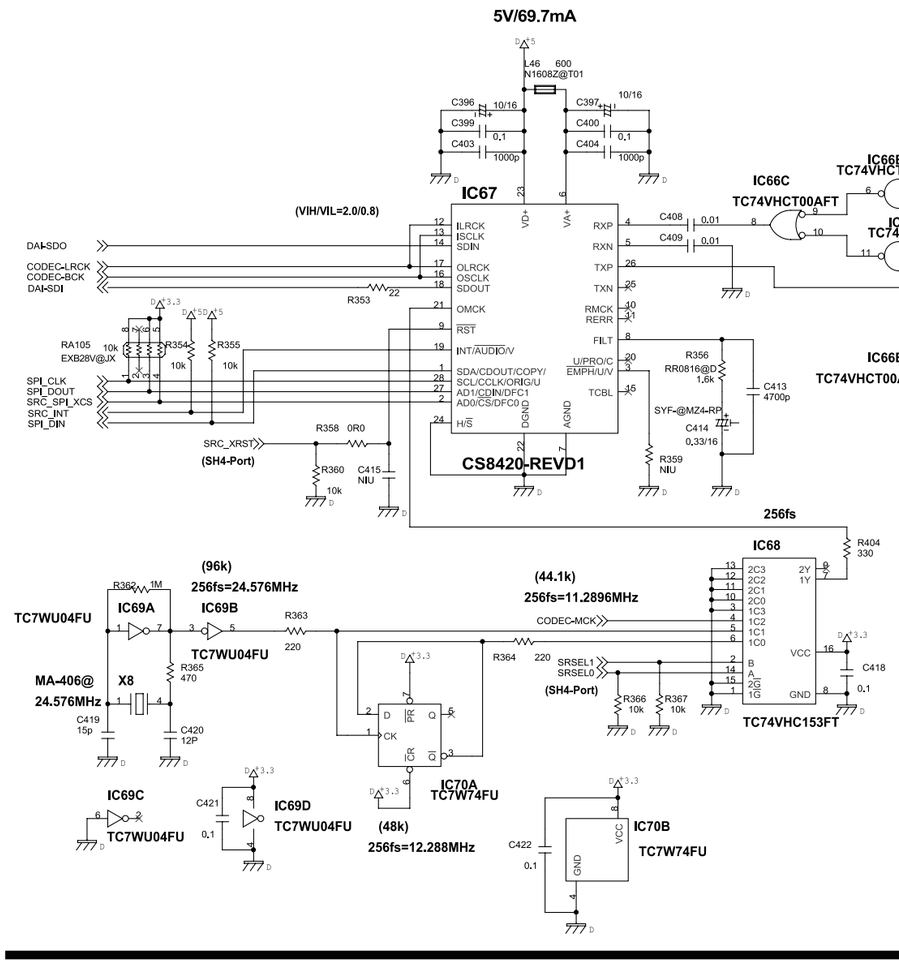
Circuit Diagram (Main Board: 8/8)

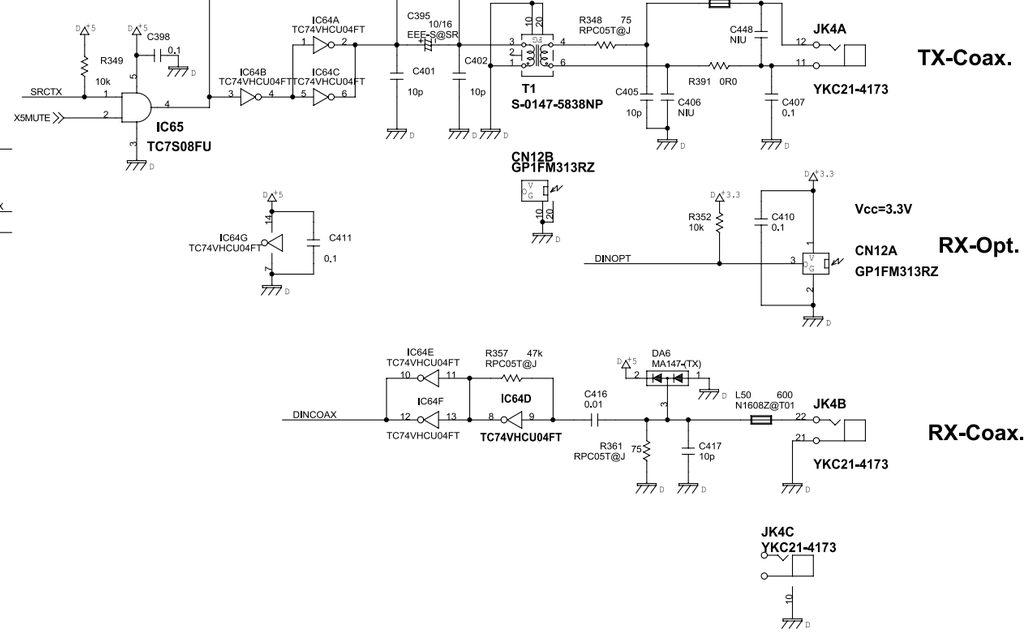




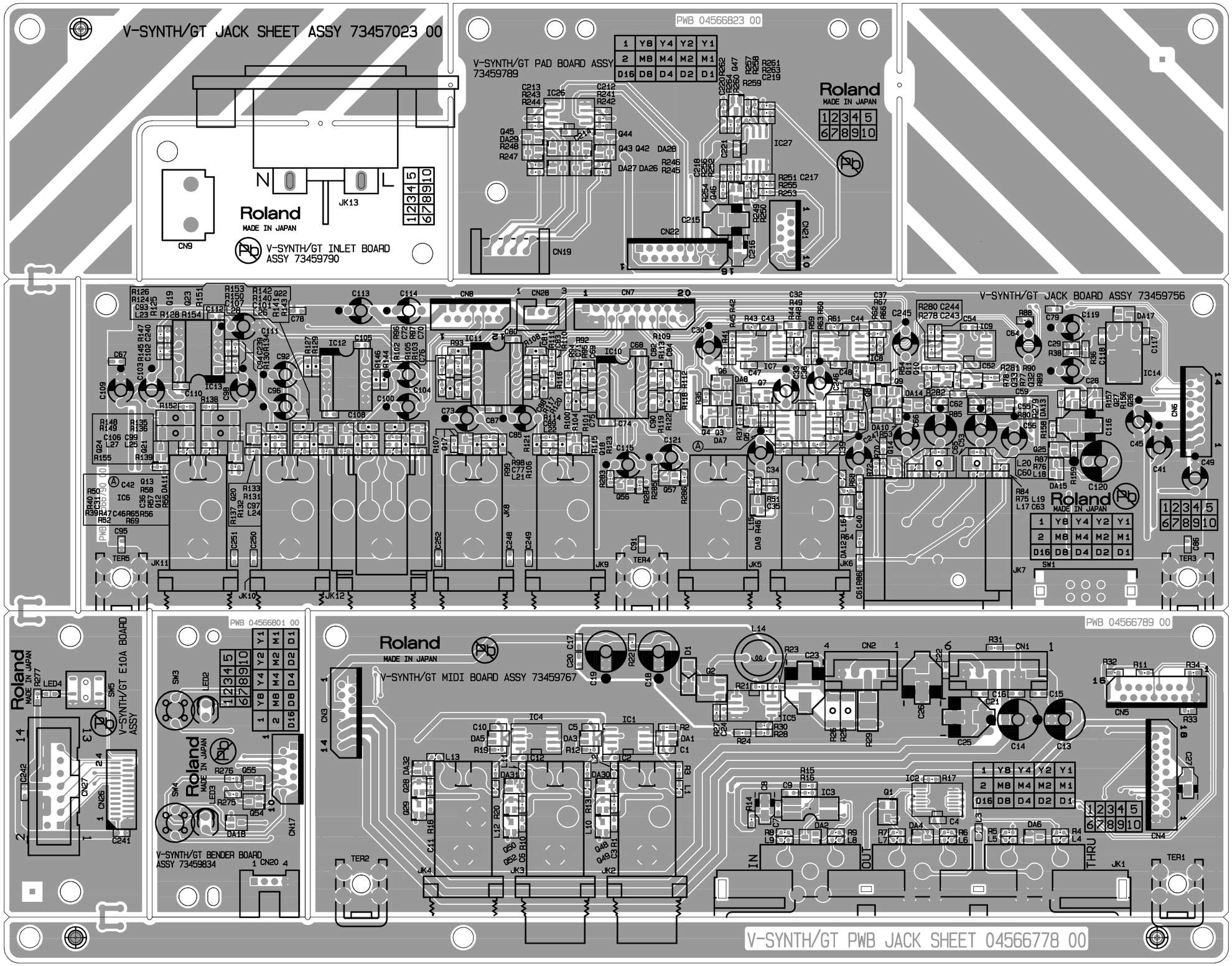




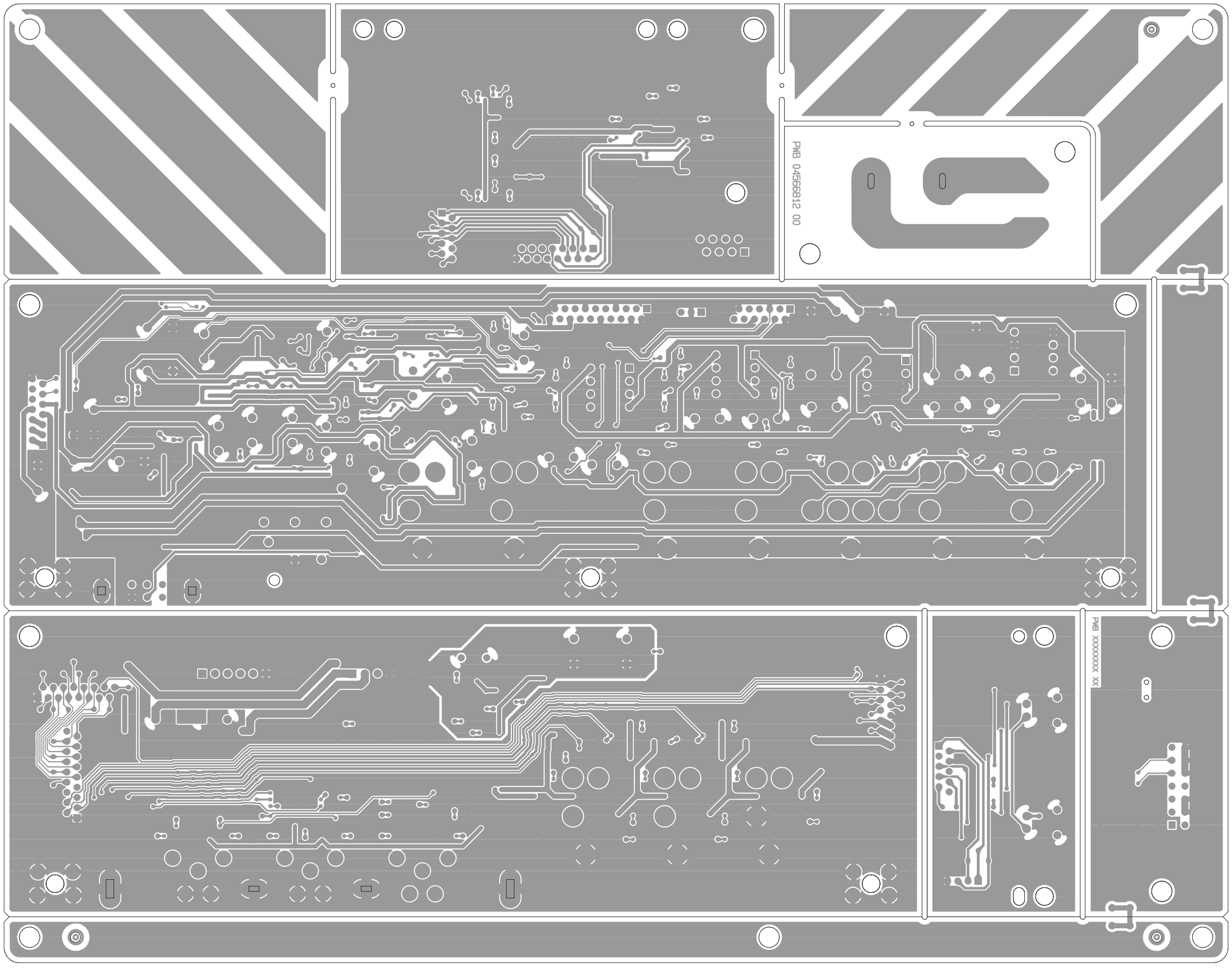




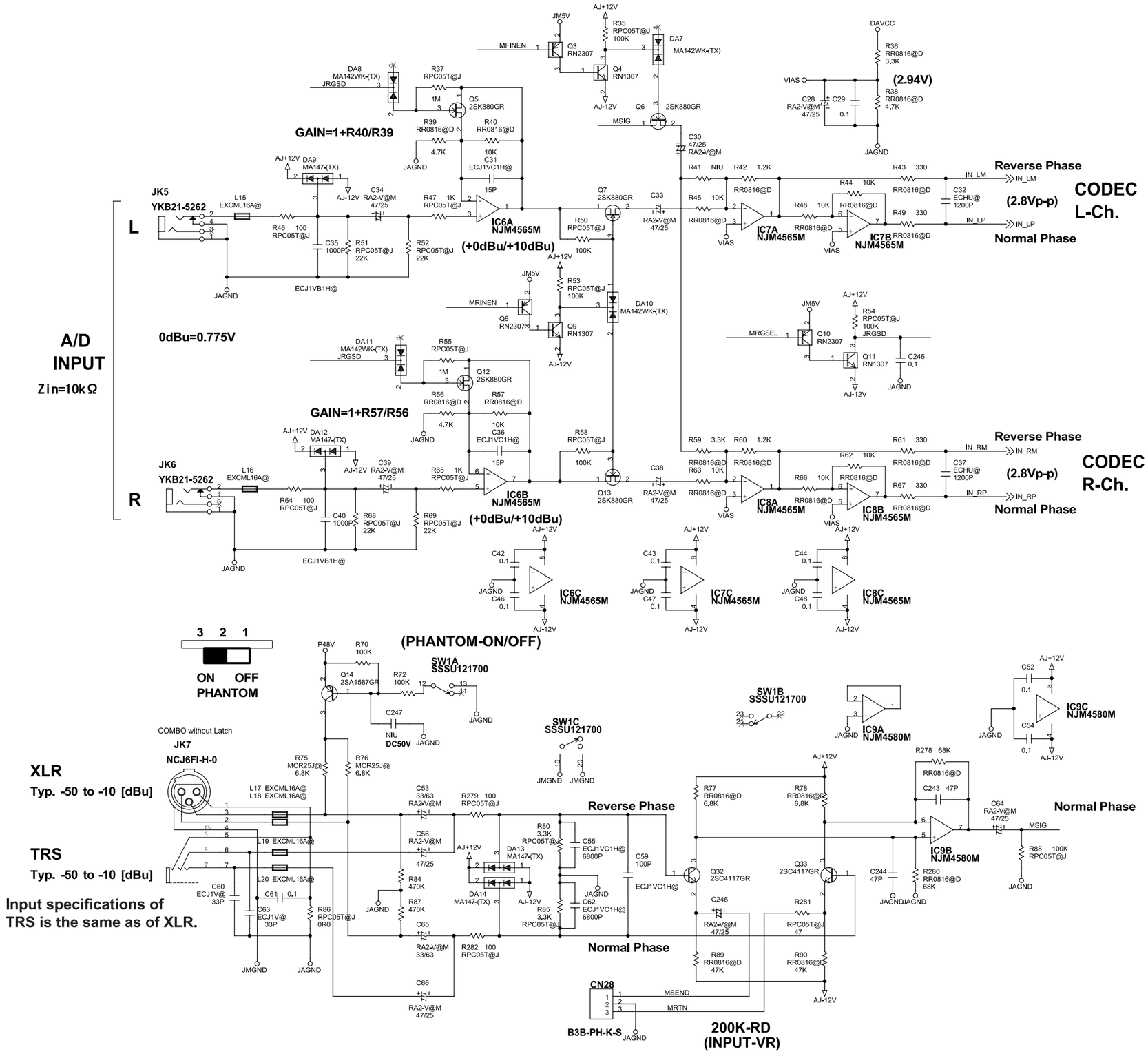
Circuit Board (Jack, MIDI, PAD, BENDER, INLET Board: 1/2)



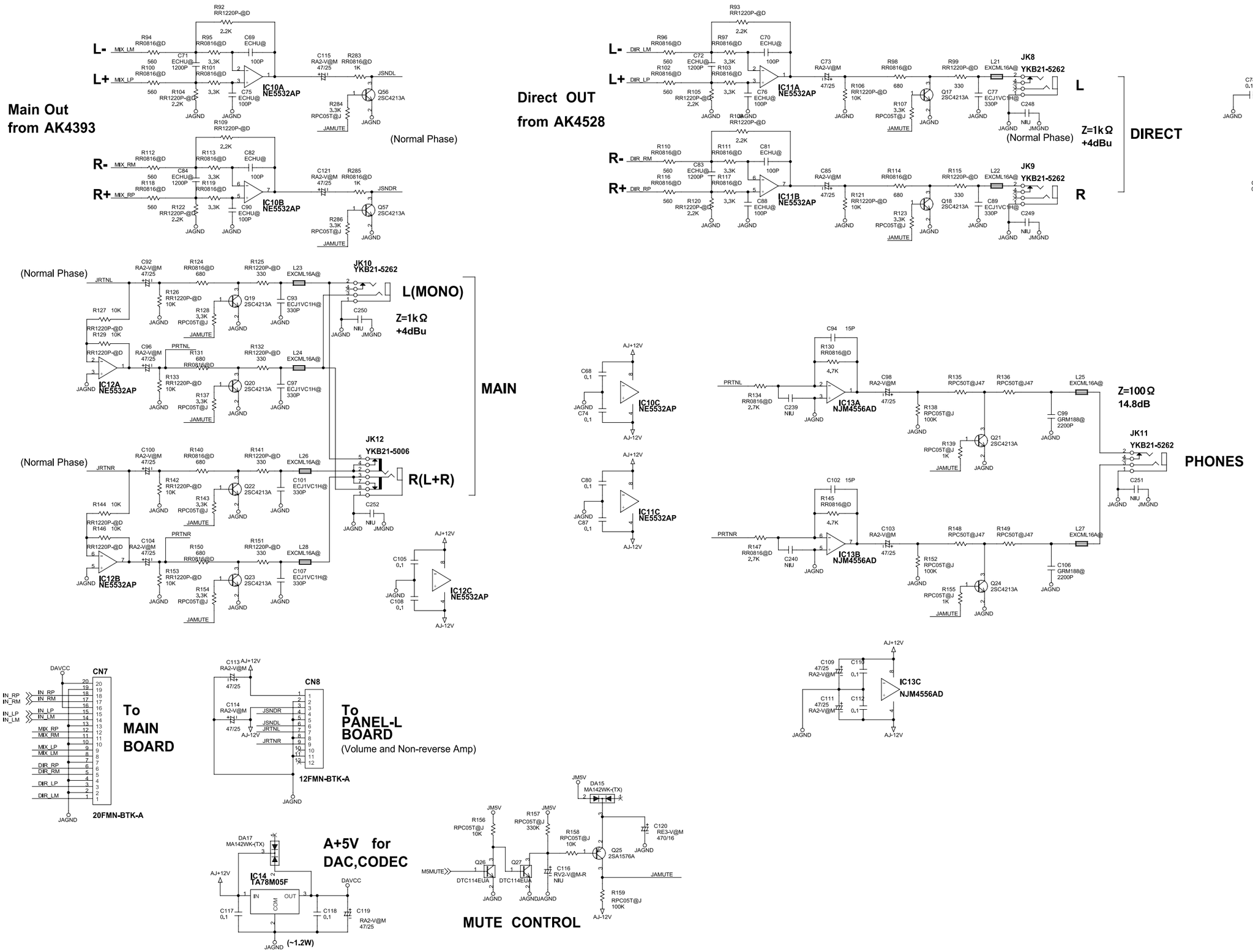
Circuit Board (Jack, MIDI, PAD, BENDER, INLET Board: 2/2)



Circuit Diagram (Jack Board: 1/2)

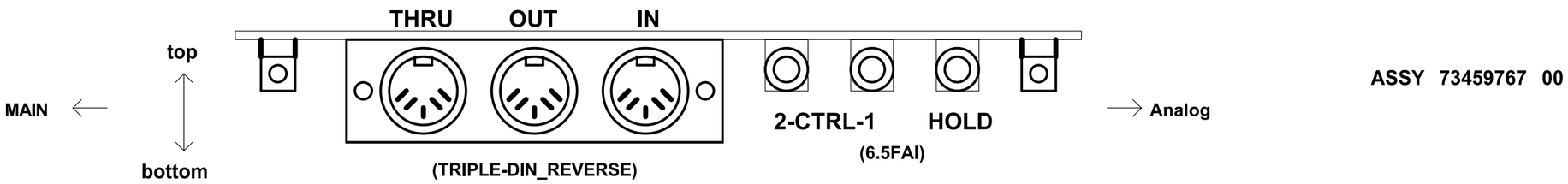


Circuit Diagram (Jack Board: 2/2)

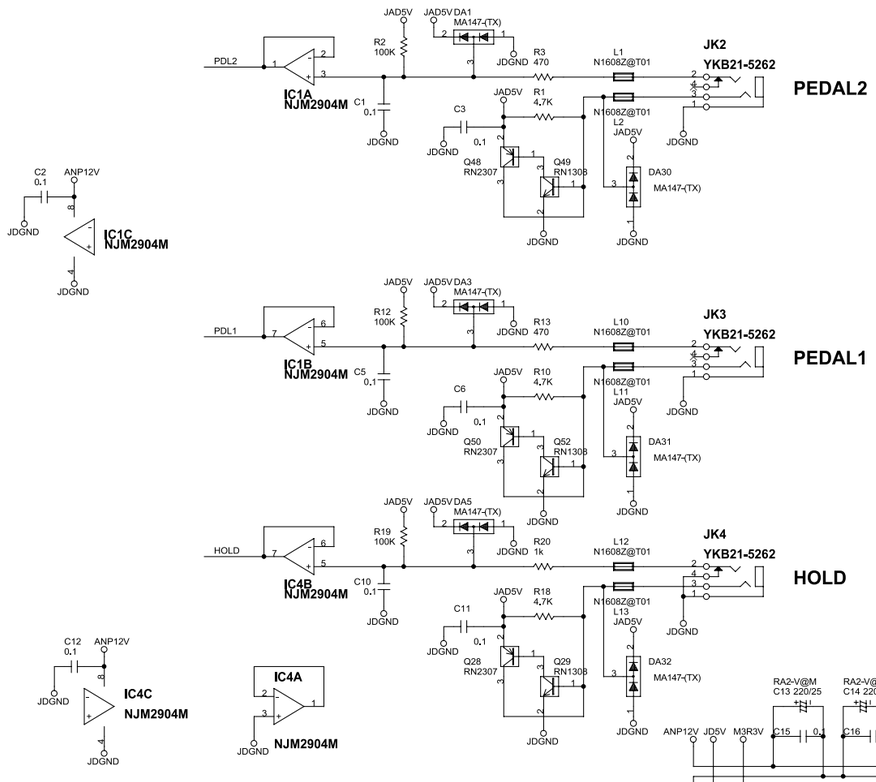


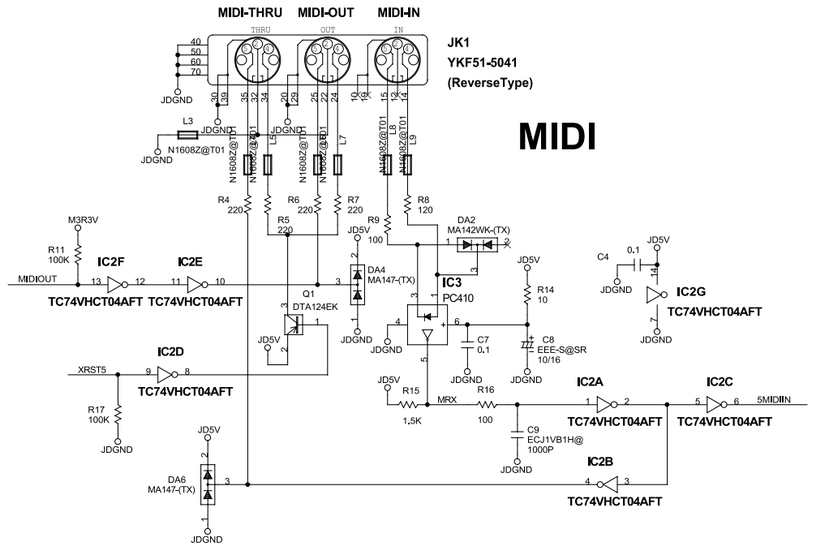
Circuit Diagram (MIDI Board)

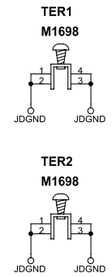
Rear Panel Leyout

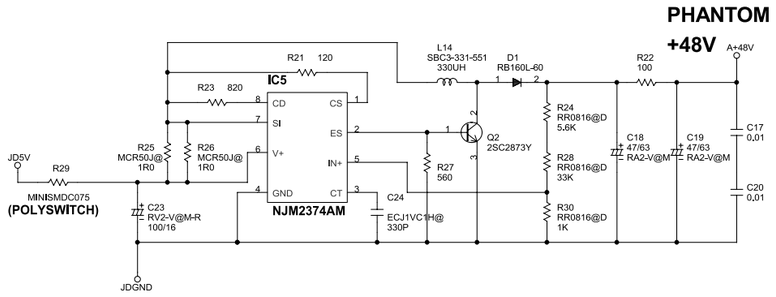


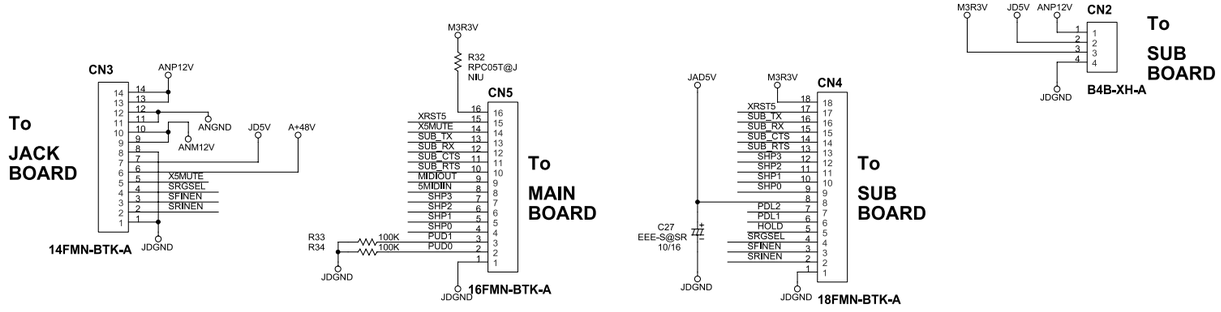
ASSY 73459767 00



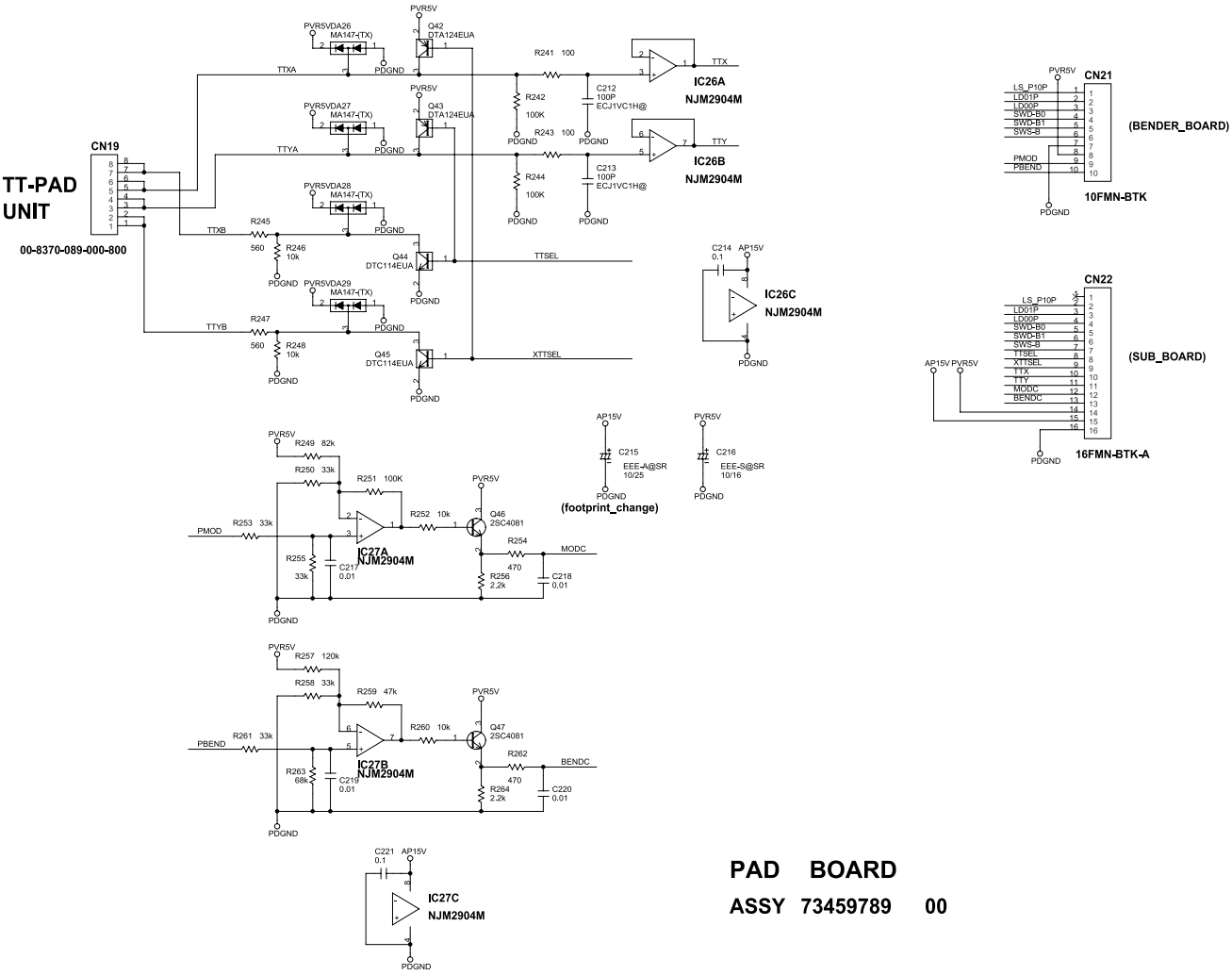




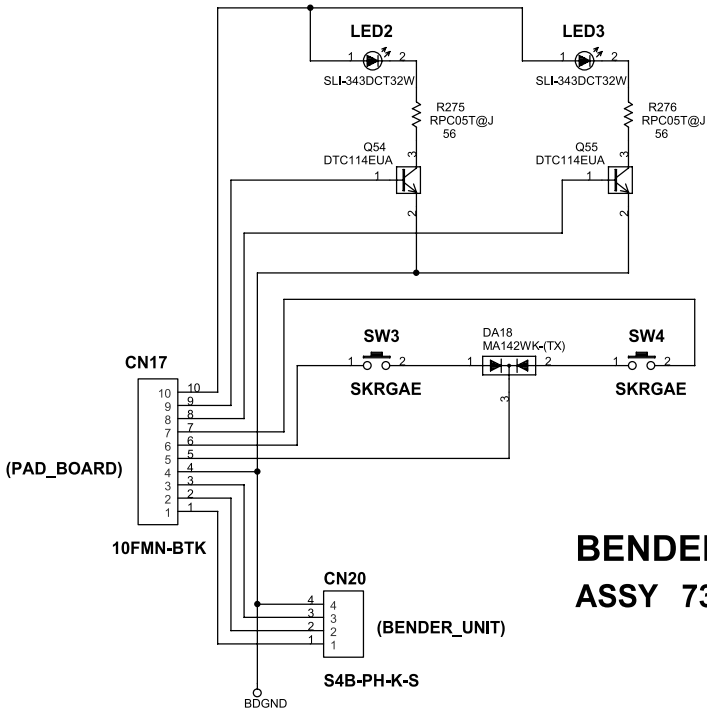




Circuit Diagram (PAD Board)

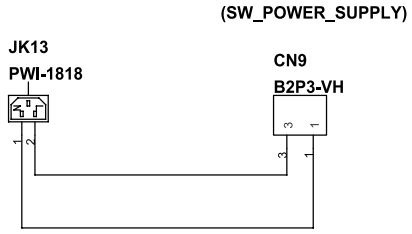


Circuit Diagram (BENDER Board)



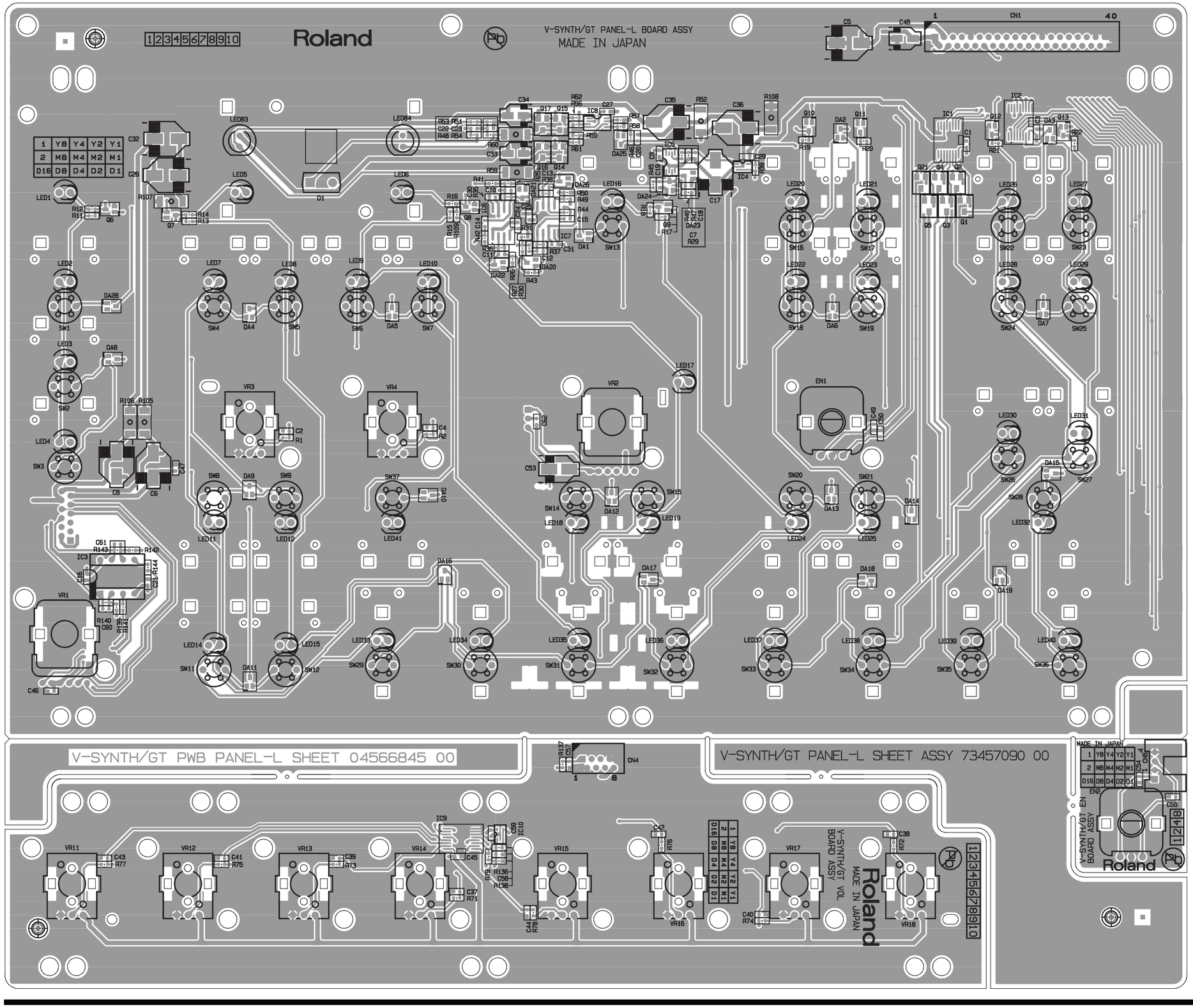
BENDER BOARD
ASSY 73459834 00

Circuit Diagram (INLET Board)

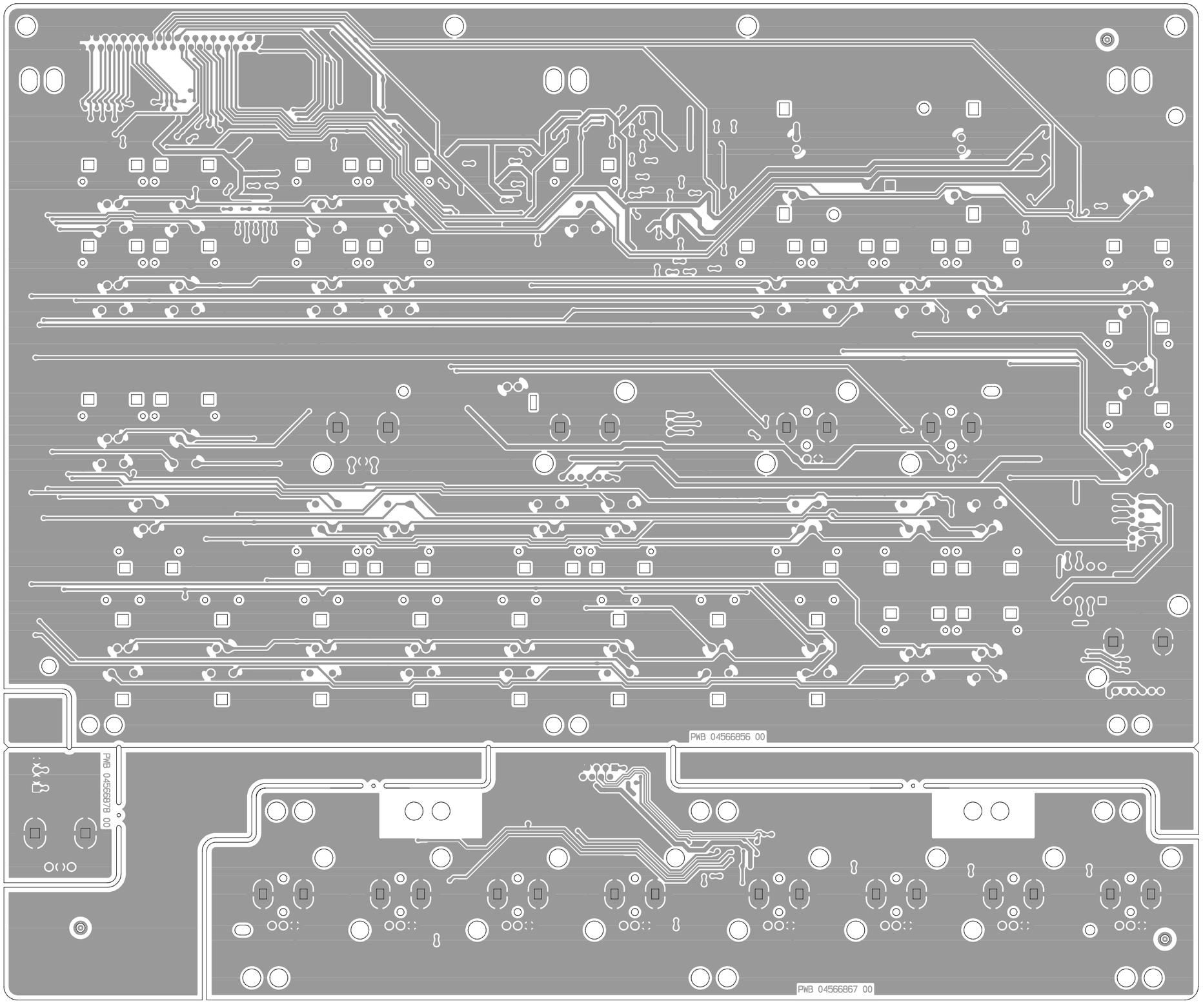


INLET BOARD
ASSY 73459790 00

Circuit Board (Panel L, VOL, EN Board: 1/2)



Circuit Board (Panel L, VOL, EN Board: 2/2)



Circuit Diagram (Panel L Board)

SUB BOARD

CN1
40FMN-STK-A

TC74VHC138FT
IC1
IC2

Q1–Q21 RN2426
LS_P0 LS_P1 LS_P2 LS_P3 LS_P4 LS_P5

Use LED SPACER 12169391 LH-5S-10
Use LED SPACER 03014945 LH-3-8

LED1 SLR-343DCT32 TIME TRIP PAD (BLUE)
LED5 SLR-343BCT32 D BEAM-L (BLUE)
LED6 SLR-343BCT32 D BEAM-R (BLUE)
LED16 SLR-343BCT32 V-LINK (BLUE)
LED20 SLI-343DCT32W SYSTEM
LED21 SLI-343DCT32W PATCH
LED26 SLI-343DCT32W SOUND SHAPER
LED27 SLI-343DCT32W PRO EDIT

LED7 TIME TRIP (D)
LED8 TIME
LED9 PITCH
LED10 ASSIGNABLE (D)
LED22 UTILITY
LED23 MENU/WRITE
LED28 STEP MOD
LED29 ZONE

LED2 TIME TRIP (P)
LED3 ASSIGNABLE (P)
LED4 HOLD
LED11 OSC
LED12 COSM
LED41 ASSIGNABLE (C)

LED14 PATCH ASSIGN
LED15 BANK

Use LED SPACER 12169391 LH-5S-10
LED17 SLR-343VC PEAK (RED)

LED18 SW
LED19 SETTING
LED24 ON/OFF
LED25 HOLD
LED30 -OCT
LED31 +OCT
LED32 TRANSPOSE

LED33 PATCH PALETTE 1
LED34 PATCH PALETTE 2
LED35 PATCH PALETTE 3
LED36 PATCH PALETTE 4
LED37 PATCH PALETTE 5
LED38 PATCH PALETTE 6
LED39 PATCH PALETTE 7
LED40 PATCH PALETTE 8

R11–R22 47/33
R109 56

Q6–Q13 DTC114EUA

LD00 LD01 LD02 LD03 LD04 LD05 LD06 LD07

D BEAM

DA20 MA142WK-(TX) NIU
DA21 MA142WK-(TX) NIU
DA22 MA142WK-(TX)
DA24 MA147-(TX)
DA25 MA142WK-(TX)
DA26 MA142WK-(TX)
DA23 MA142WK-(TX)

UPC4570G2-E2-A
IC5 TC7W53FU
IC4A TC75S51FU
IC8 TC7W241FU
IC6C IC7C IC4B TC75S51FU

DB+12V DBGND DB-12V
DB_PULSE
ANSEL0

Q14 Q15 Q16 Q17 2SC2412KR 2SC3265Y
LED83 LED84 TLN233

JACK BOARD

CN2
12FMN-BTK-A
CN6
B3B-PHK-S

SNDR SNDL RTNR RTNL MSEND MRTN

TEMPO
EN1A EVEGC1F@
EN1B EVEGC1F@
ENC_L-A ENC_L-B

VOLUME
VR1A VR1B VR1C RK12L12C@ 02891812
IC3A IC3B IC3C NE5532AP

MIC LEVEL
VR2A VR2B VR2C RK12L12C0@ 04569256

VR3A VR3B EVUF2K@ 01340234

SCD7 SCD6 SCD5 SCD4 SCD3 SCD2 SCD1 SCD0
SWS0 SWS1 SWS2 SWS3 SWS4

SW1 DA28 TIME TRIP (P)
SW13 DA1 V-LINK
SW16 DA2 SYSTEM
SW17 PATCH
SW22 DA3 SOUND SHAPER
SW23 PRO EDIT

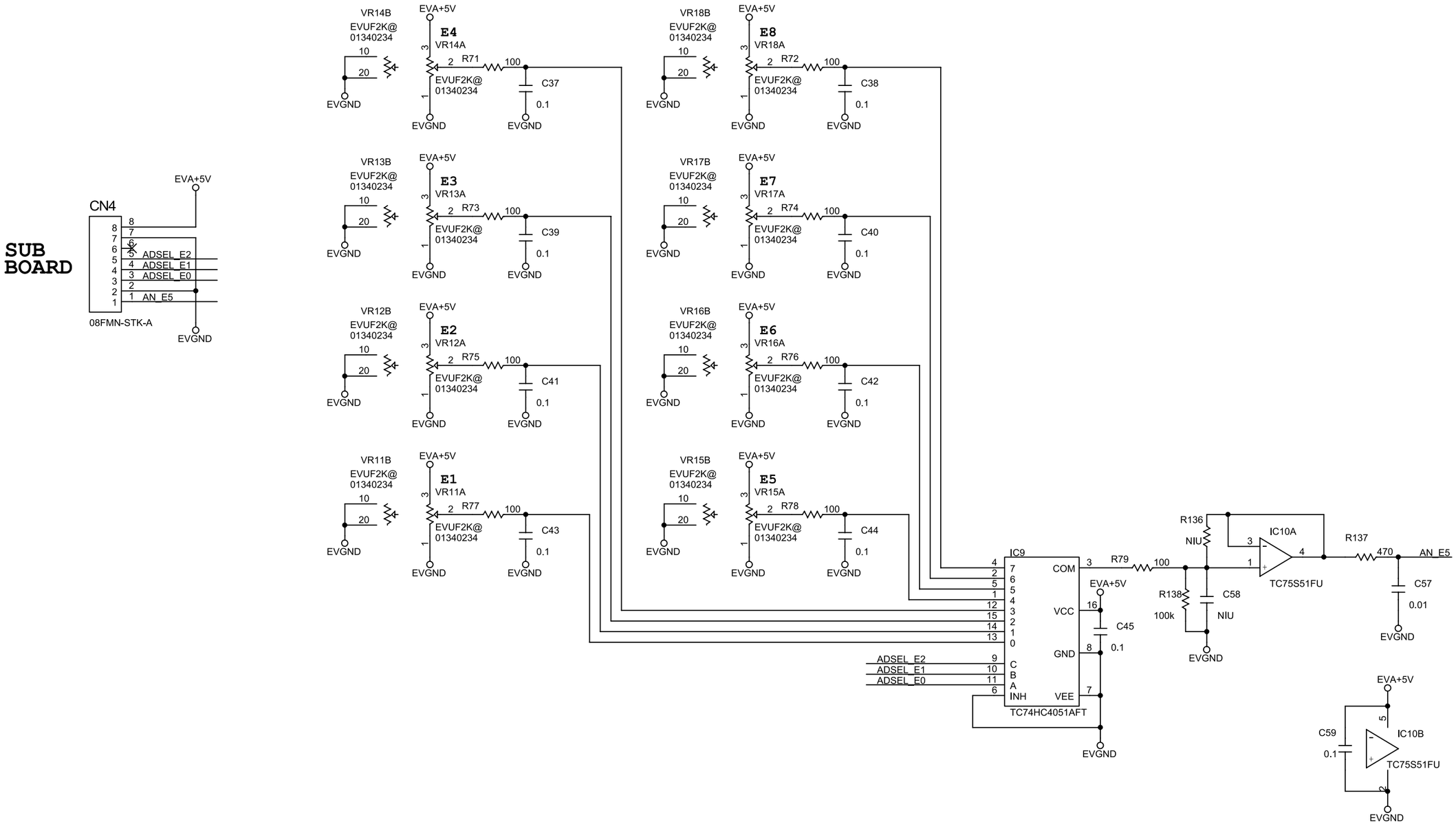
SW4 DA4 TIME TRIP (D)
SW5 TIME
SW6 DA5 PITCH
SW7 ASSIGNABLE (D)
SW18 DA6 UTILITY
SW19 MENU/WRITE
SW24 DA7 STEP MOD
SW25 ZONE

SW2 DA8 ASSIGNABLE (P)
SW3 HOLD
SW8 DA9 OSC
SW9 COSM
SW10 DA10 ASSIGNABLE (C)
SW37
SW11 DA11 PATCH ASSIGN
SW12 BANK

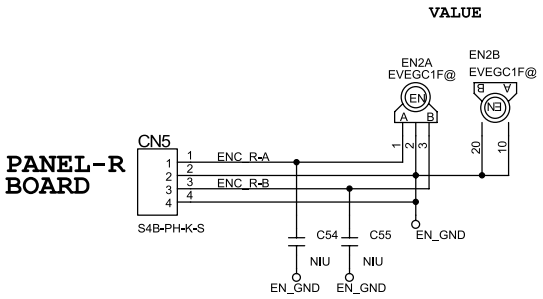
SW14 DA12 SW
SW15 SETTING
SW20 DA13 ON/OFF
SW21 DA14 HOLD
SW26 -OCT
SW27 DA15 +OCT
SW28 TRANSPOSE

SW29 DA16 PATCH PALETTE 1
SW30 PATCH PALETTE 2
SW31 DA17 PATCH PALETTE 3
SW32 PATCH PALETTE 4
SW33 DA18 PATCH PALETTE 5
SW34 PATCH PALETTE 6
SW35 DA19 PATCH PALETTE 7
SW36 PATCH PALETTE 8

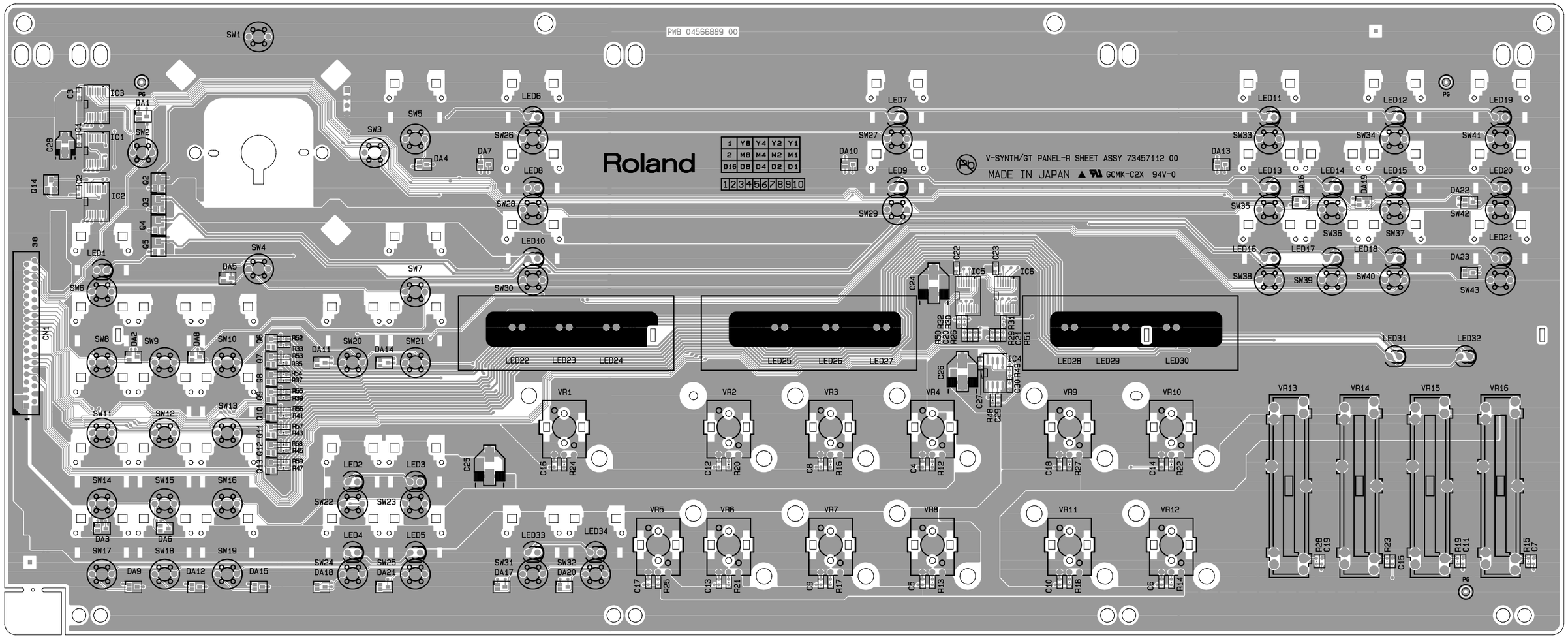
Circuit Diagram (VOL Board)



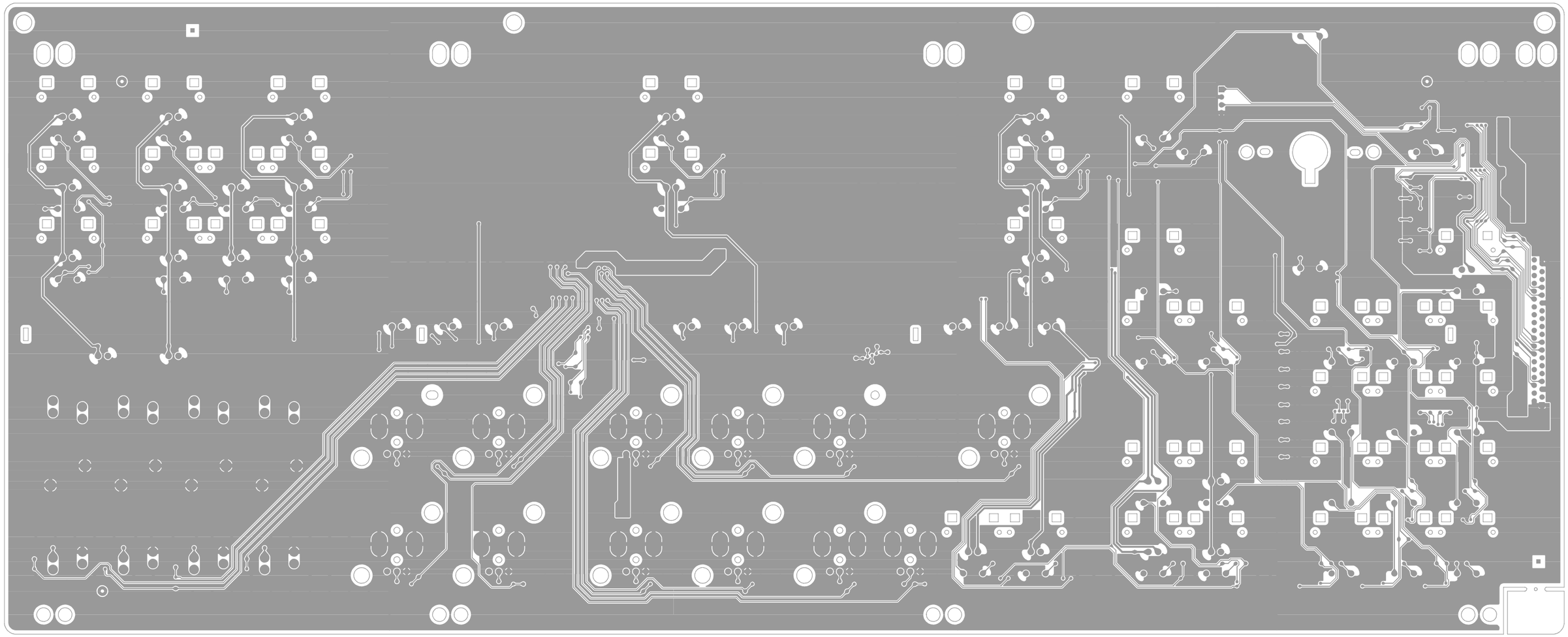
Circuit Diagram (EN Board)



Circuit Board (Panel R Board: 1/2)



Circuit Board (Panel R Board: 2/2)



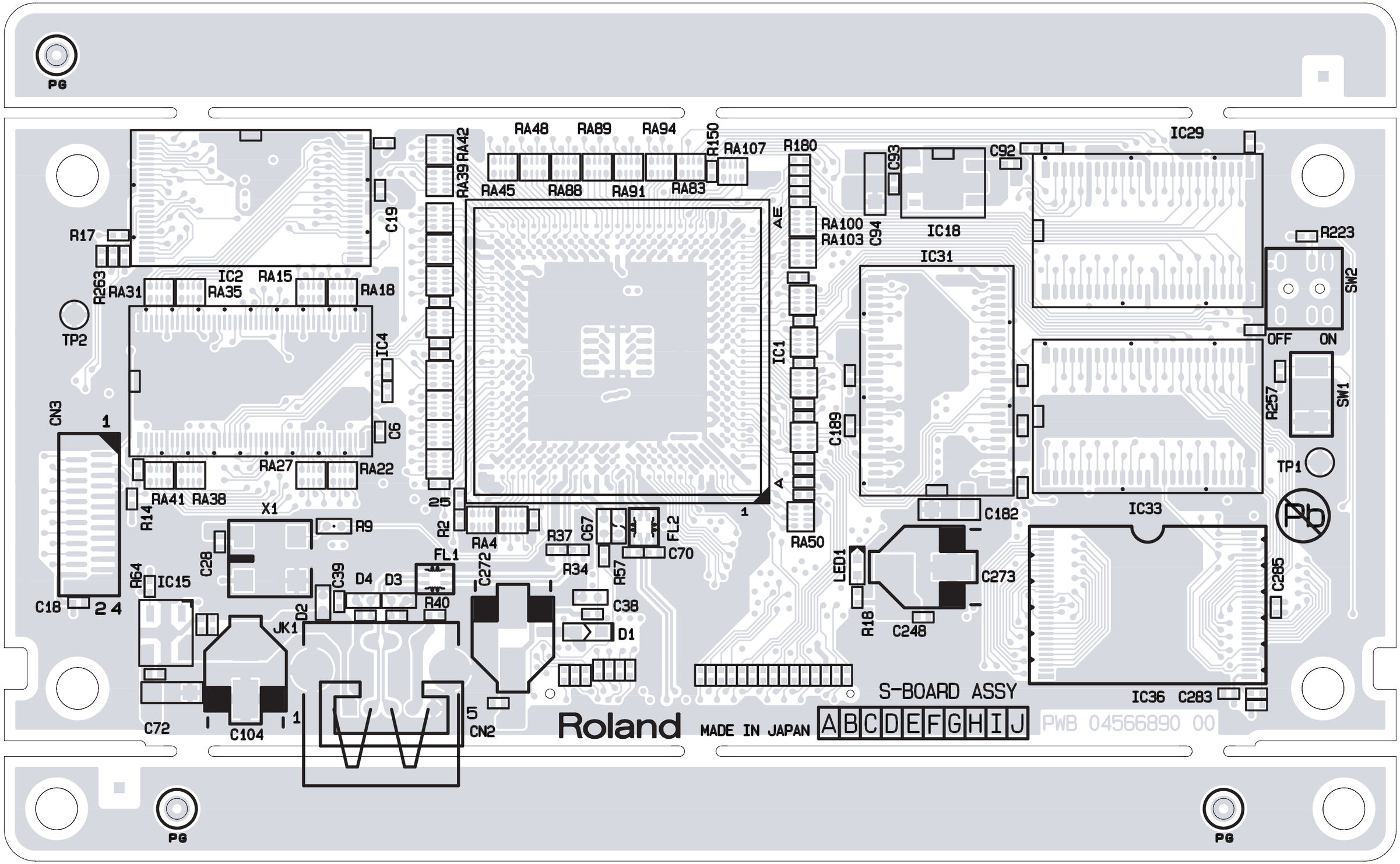
Circuit Diagram (Panel R Board)

SUB BOARD

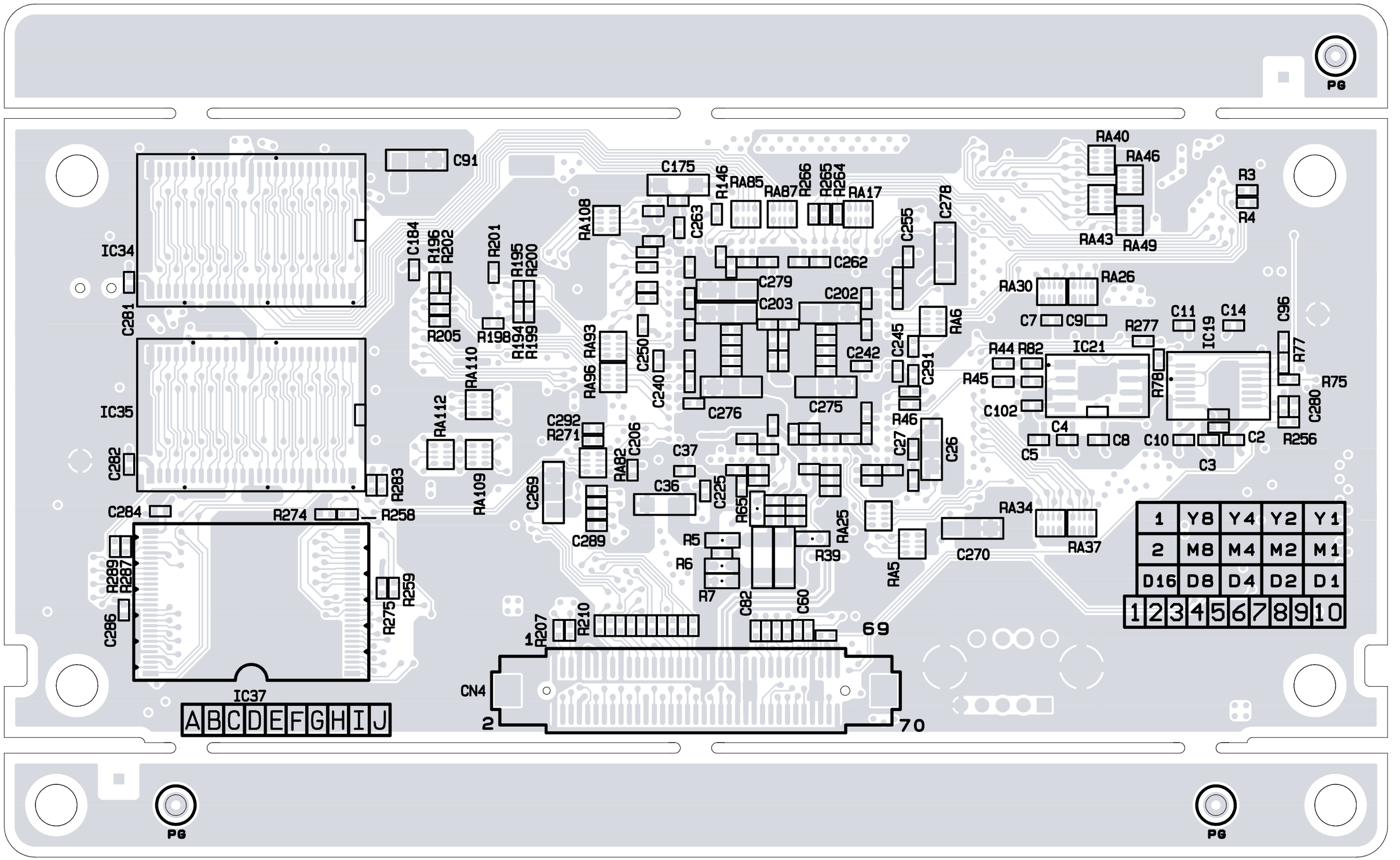
EN BOARD

Use LED SPACER : 12169391 LH-58-10

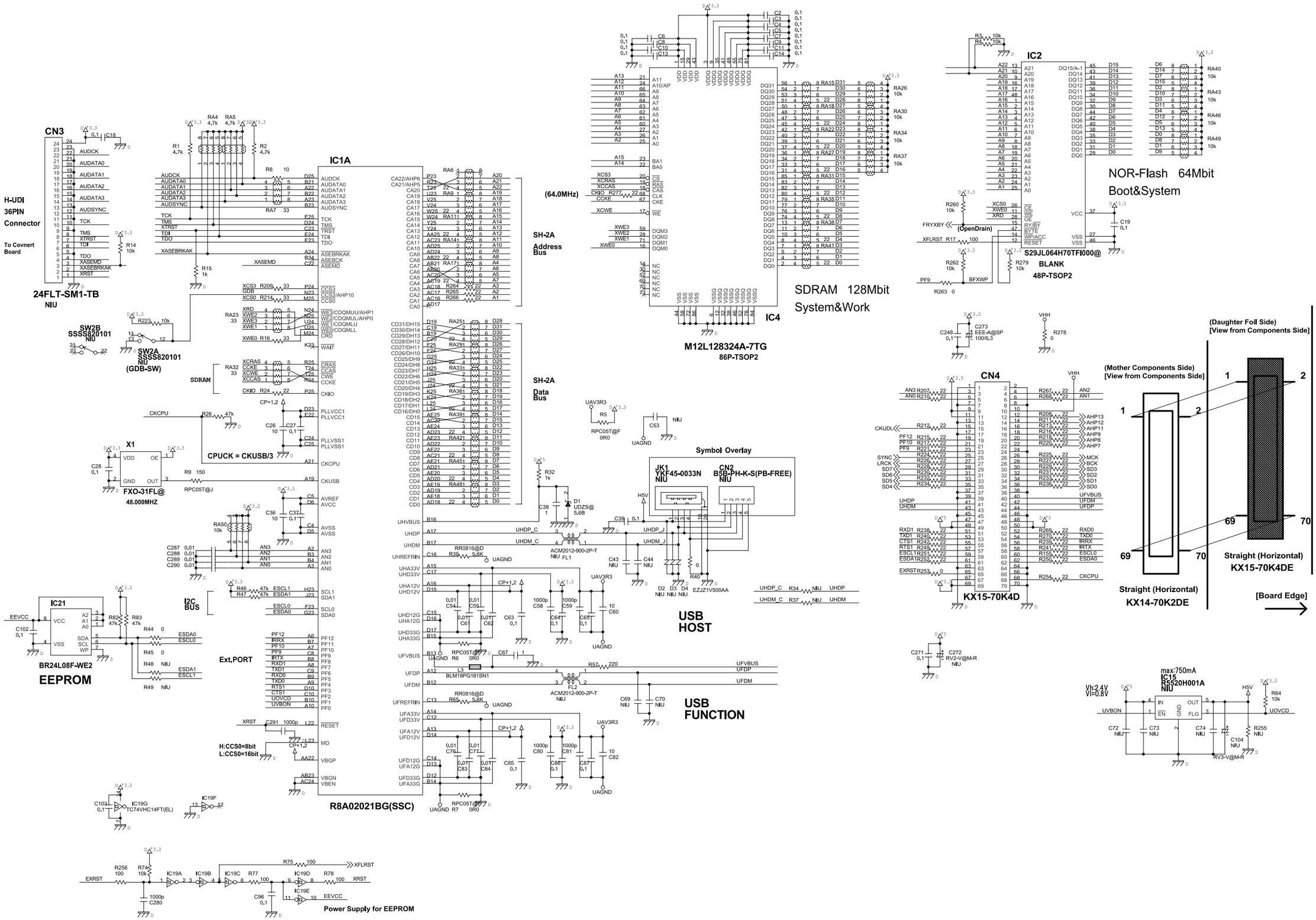
Circuit Board (S Board: 1/2)



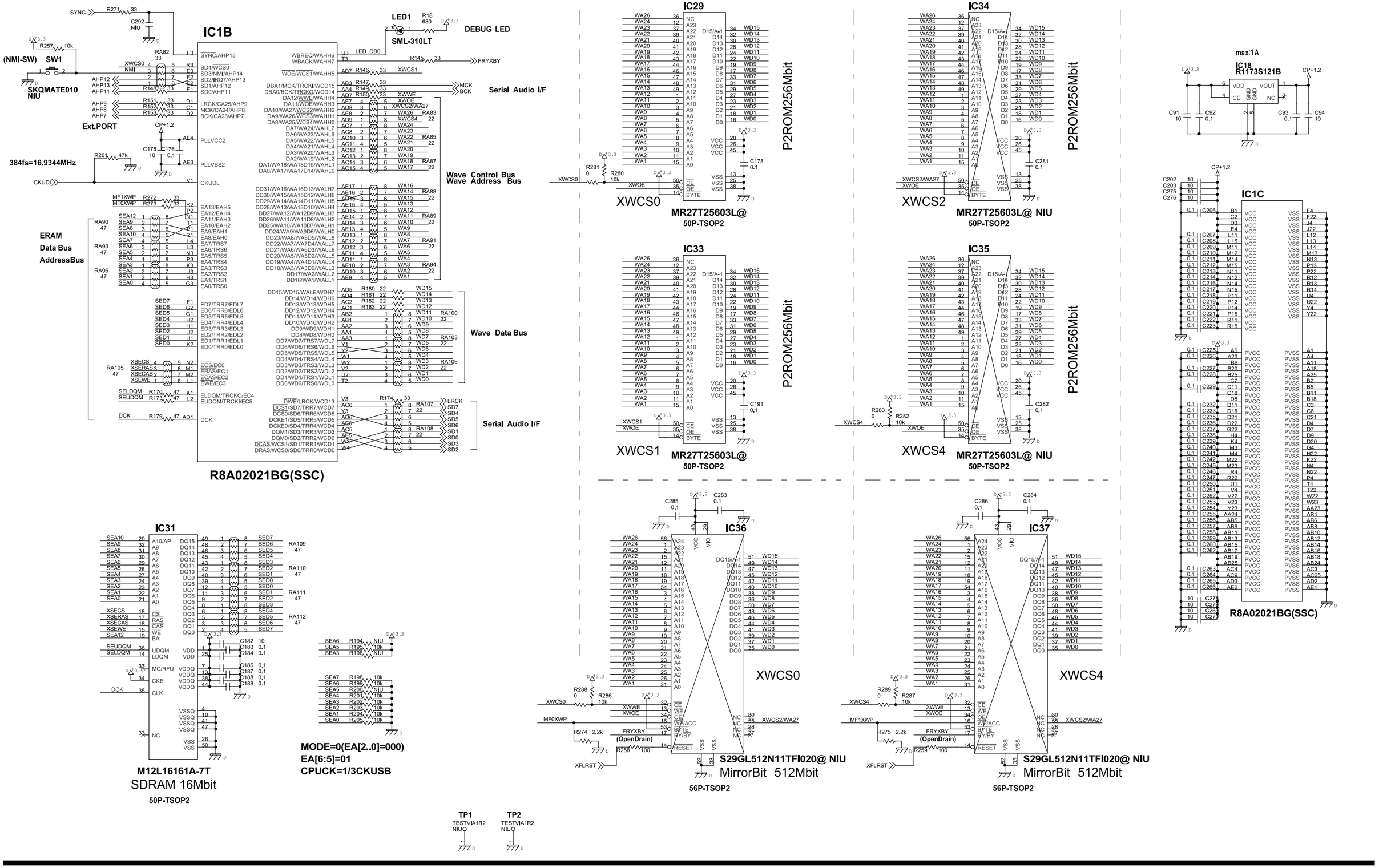
Circuit Board (S Board: 2/2)



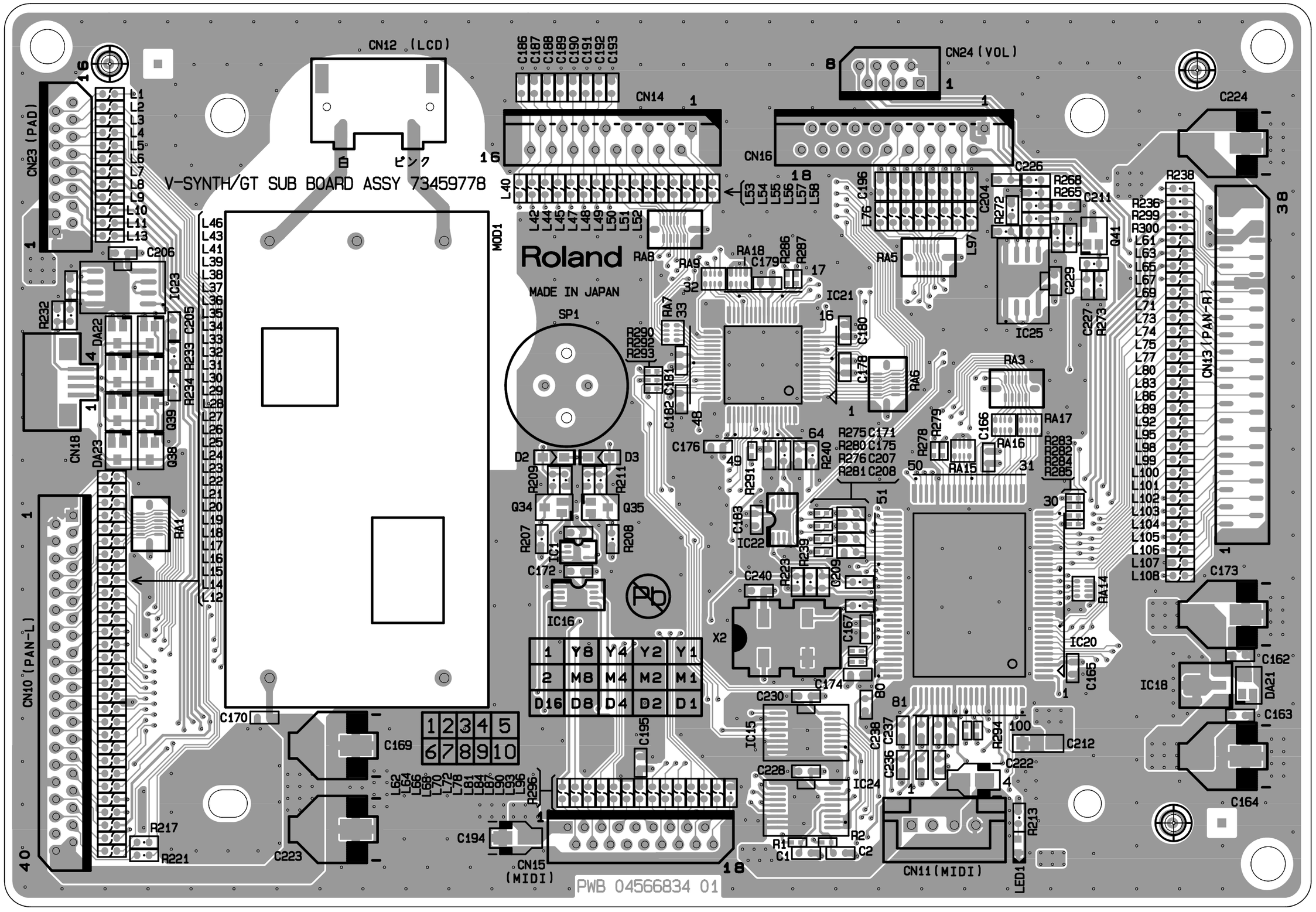
Circuit Diagram (S Board: 1/2)



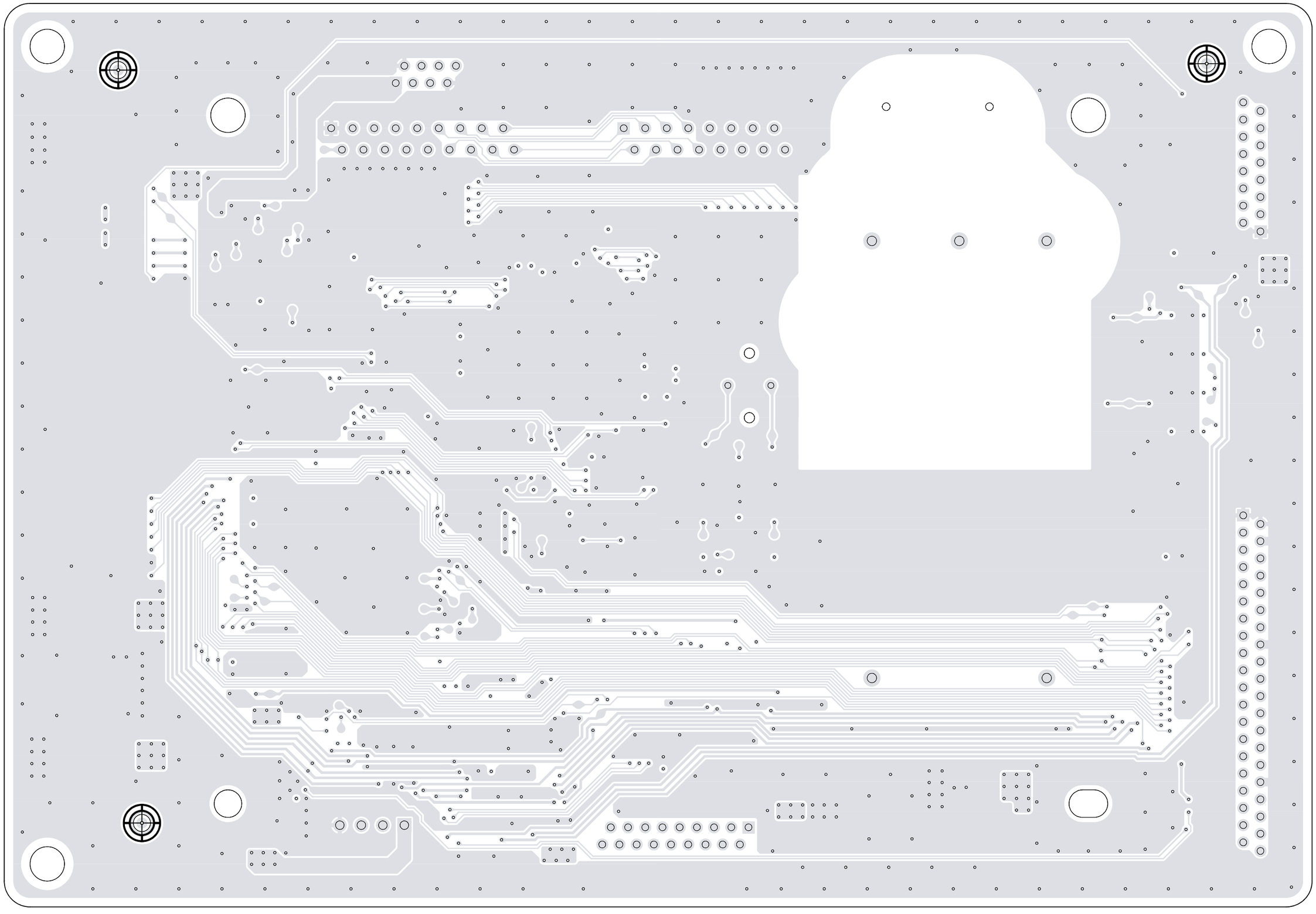
Circuit Diagram (S Board: 2/2)



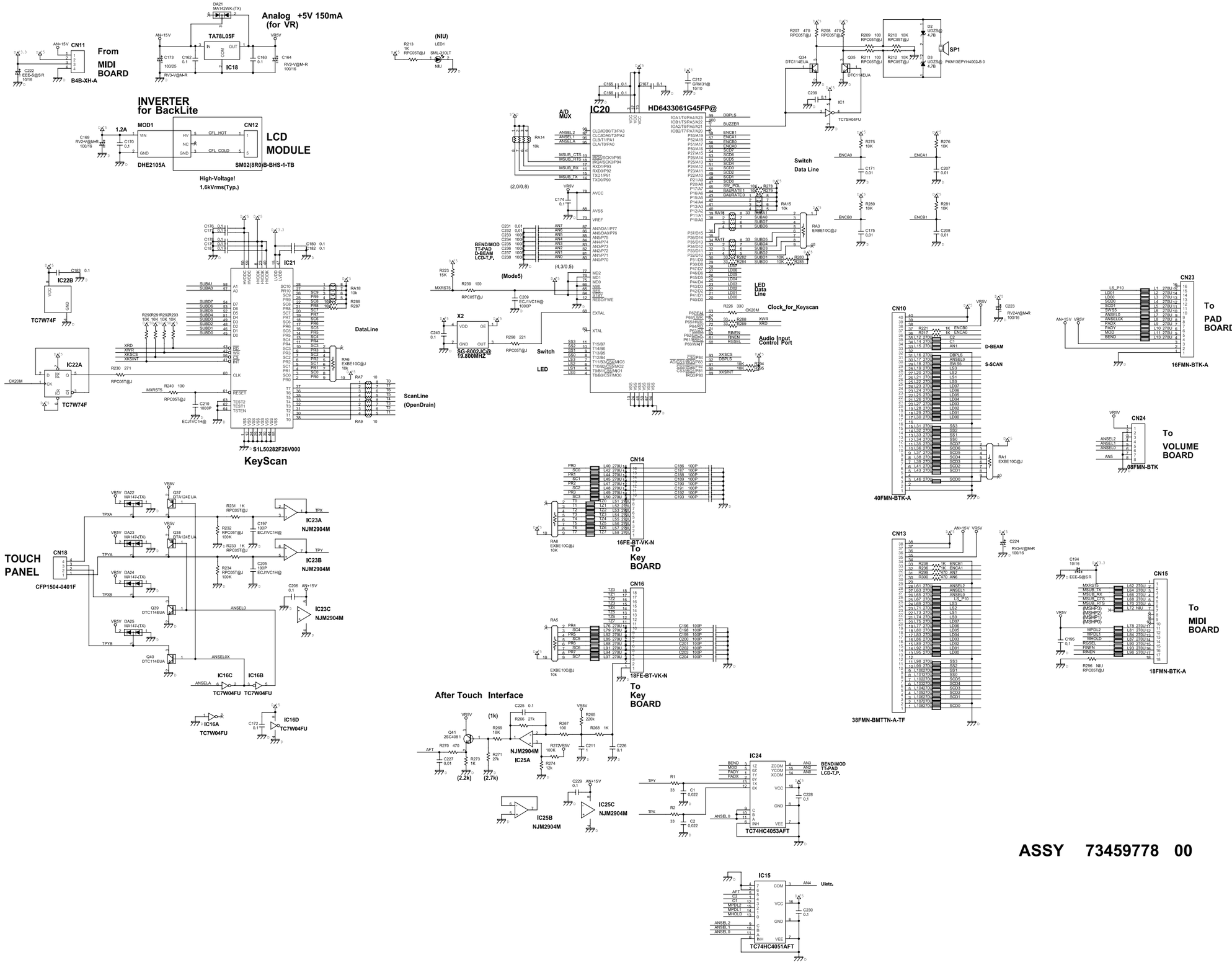
Circuit Board (Sub Board: 1/2)



Circuit Board (Sub Board: 2/2)



Circuit Diagram (Sub Board)



MEMO