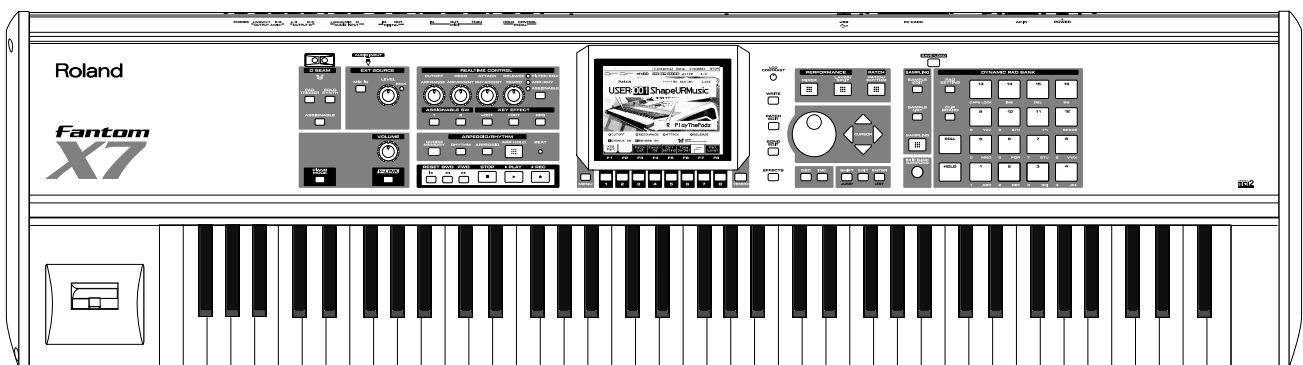


Fantom X7

SERVICE NOTES Issued by RJA

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SPECIFICATIONS

Fantom-X7:
Synthesizer Keyboard (Conforms to General MIDI 2 System)

Keyboard

76 keys (with velocity and channel aftertouch)

Sound Generator Section

Maximum Polyphony

128 voices (shared with the sampling section)

Parts

16 parts

Wave Memory

128 M bytes (16-bit linear equivalent)

Waveforms

1,480

Preset Memory

Patches: 1,024 + 256 (GM2)
Rhythm Sets: 40 + 9 (GM2)
Performances: 64

User Memory

Patches: 256
Rhythm Sets: 32
Performances: 64

Card Memory (PC card)

Patches: 256
Rhythm Sets: 32
Performances: 64

Effects

Multi-Effects: 3 systems, 78 types
Chorus: 3 types
Reverb: 5 types
Input Effects: 6 types
Mastering Effects: 3-band compressor

Sampling Section

Data Format

16-bit linear (File Type: .WAV/.AIFF)

Sampling Frequency

44.1 kHz (fixed)

Maximum Sampling Time

- When sampling memory isn't expanded (32 MB)
mono: 360 sec. approx., stereo: 180 sec. approx.
- When sampling memory is expanded with DIMM (544 MB)
mono: 108 min. approx., stereo: 54 min. approx.

Number of Samples

User memory: 2,000 (maximum total approximately 32 MB)
Card memory: 7,000 (PC card)

Sequencer Section

Tracks

Phrase tracks (16 MIDI channels per track): 16
Tempo track: 1
Beat track: 1

Patterns

100

Resolution

480 TPQN

Tempo

5-300

Note Capacity

approx. 400,000 notes

Song Length

9,998 measures

Recording Method

Realtime recording, Step recording

Others

Arpeggio

Preset: 128
User: 128

Rhythm Pattern

Preset: 256 (32 groups)
User: 256 (32 groups)

Chord Memory

Preset: 64
User: 64

Display

Graphic 320 x 240 dots backlit LCD (Color)

Pads

16 pads, Velocity and Aftertouch sensitive

Controllers

Pitch Bend/Modulation Lever
Control Knob x 4
Assignable Switch x 2
D Beam Controller

Connectors

Headphones Jack
A (MIX) Output Jacks (L/MONO, R): 1/4 inch TRS phone type
B Output Jacks (L, R): 1/4 inch phone type
Input Jacks (L/MONO/MIC, R): 1/4 inch phone type
Hold Pedal Jack (Half Pedal recognition)
Control Pedal Jack (assignable)
MIDI Connectors (IN, OUT, THRU)
USB Connector (supports file transfer (mass storage class) and MIDI)
Digital Audio Interface (COAXIAL INPUT/OUTPUT)
AC Inlet

Expansion Slots

- Expansion of waveforms and patches for the internal sound generator
SRX expansion boards: 4 slots
- Expansion of sampling memory
DIMM: 1 slot (supports 128 MB, 256 MB, 512 MB (3.3 V))

External Storage Device

PC card: 1 slot (supports SmartMedia and CompactFlash using a PC card adapter)

Power Supply

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

Power Consumption

17 W

Dimensions

1,262 (W) 358 (D) x 125 (H) mm
49-11/16 (W) x 14-1/8 (D) x 4-15/16 (H) inches

Weight

14.5 kg / 32 lbs

Accessories

Owner's Manual
English:(#72564812)
Japanese:(#72564078)
Sample Data (Audio) CD:(#*****)

CD-ROM (Editor, USB MIDI driver):(#03569745)
Sticker:(#40565990)
PC Card Protector:(#03120712)
Power Cord
100V:(#03340956)
120V:(#00894378)
230V:(#00894389)
240VA:(#23495124)
240VE:(#00907001)

Options

Wave Expansion Board: SRX Series
Keyboard Stand: [X6] [X7] KS-12 / [X8] KS-17
Pedal Switch: DP series
Foot Switch: BOSS FS-5U
Expression Pedal: EV-5

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

Options

Wave Expansion Board: SRX Series
Keyboard Stand: [X6] [X7] KS-12 / [X8] KS-17
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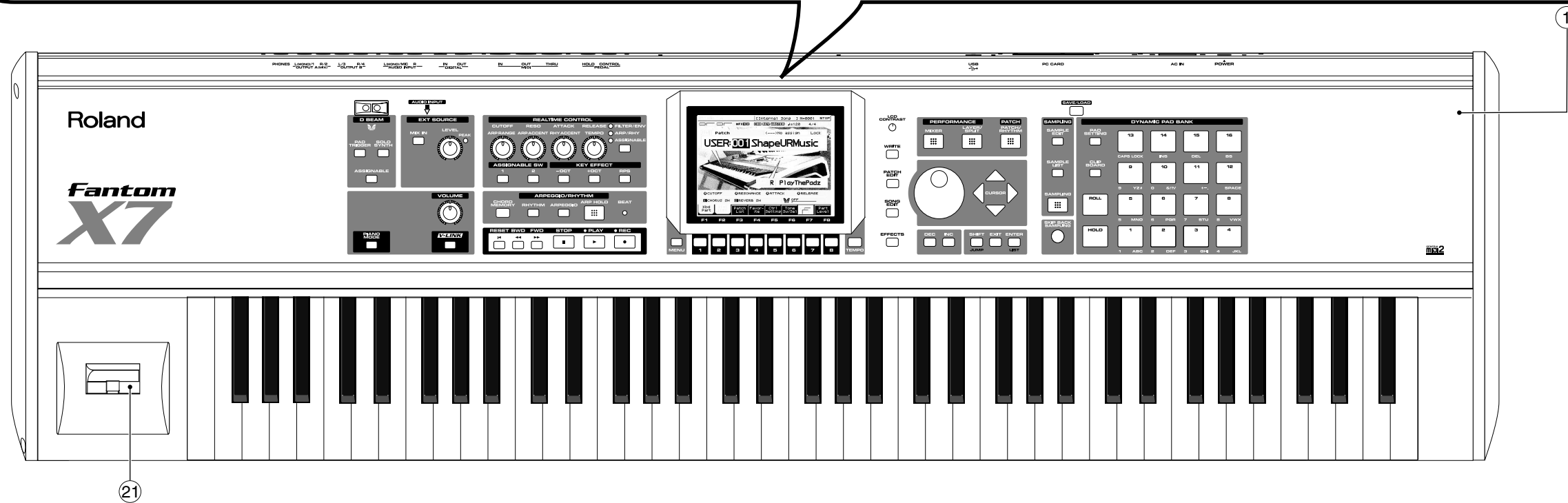
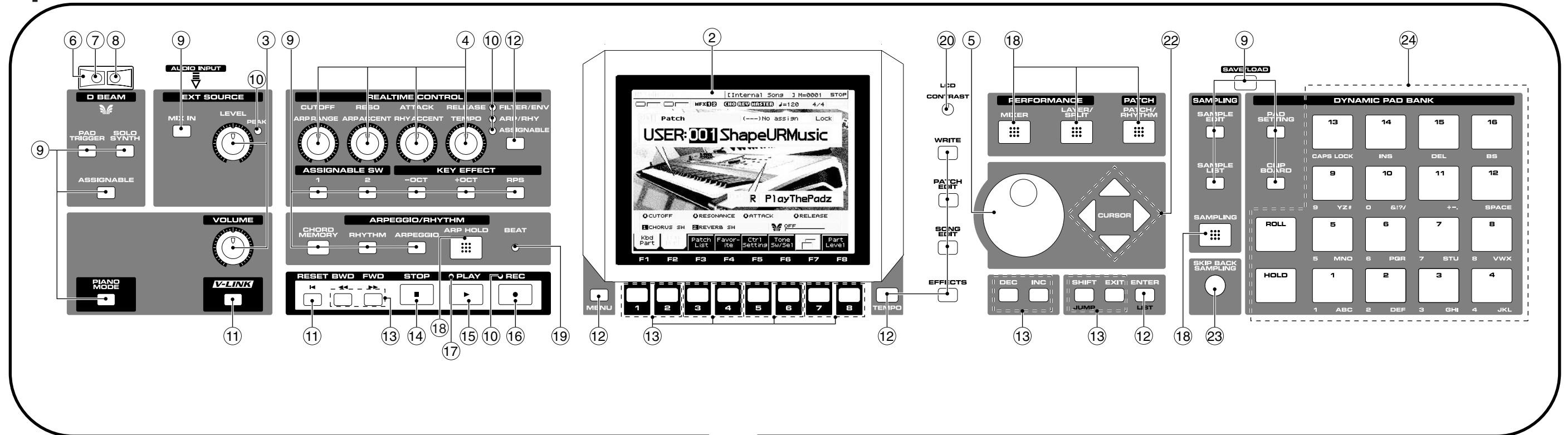
* *In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.*

LOCATION OF CONTROLS

[REAR]



[TOP]



LOCATION OF CONTROLS PARTS LIST

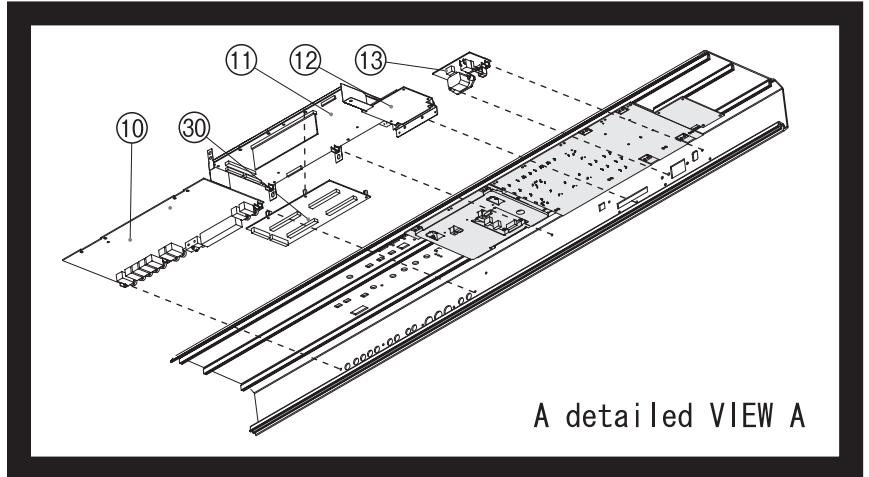
[TOP]

NO	PART CODE	CATEGORY	PART NAME	DESCRIPTION	Q'TY
1	03562501	CASING	TOP PANEL		1
2	03562112	CASING	DISPLAY COVER		1
2	03560889	DISPLAY UNIT	LCD	KCG057QV1DB-G00	1
2	03565245	CASING	DISPLAY ESCT		
3	03565234	KNOB,BUTTON	J R-KNOB	SF-ELA BLK/SLV	2
3	03126167	POTENTIOMETER	12M/M ROTARY POTENTIOMETER	EVJY10FB6A24	2
4	03565234	KNOB,BUTTON	J R-KNOB	SF-ELA BLK/SLV	4
4	03126178	POTENTIOMETER	9M/M ROTARY POTENTIOMETER	EVUF2JFK3B14	4
5	22485303	KNOB,BUTTON	D R-KNOB(ALPHA-DIAL)	L BLK 248-303	1
5	01905467	ENCODER	ROTARY ENCODER	EVE GC1 F20 24B	1
6	01343089	CASING	ESCUTCHEON	D-BEAM CONTROLLER ESCT BLK	1
7	01900612	DIODE	DIODE	TPS611	1
7	12169368	MISCELLANEOUS	LED SPACER	LDS-40B	1
8	03126134	DIODE	LED	TLN233	1
8	02230578	MISCELLANEOUS	LED SPACER	LDS-50R	1
9	03120890	KNOB,BUTTON	D S-KEYTOP	SX1H-B GRS	18
9	02125167	DIODE	LED (YELLOW)	SLI-343DCT32W	18
9	01340290	SWITCH	TACT SWITCH	EVQ11A H=5.0	18
10	01011656	DIODE	LED (RED)	SLR-332VR3F	5
10	12169406	MISCELLANEOUS	LED SPACER		5
11	03120890	KNOB,BUTTON	D S-KEYTOP	SX1H-B GRS	1
11	03122112	DIODE	LED(BLUE)	SLR-343BBT3F	1
11	01340290	SWITCH	TACT SWITCH	EVQ11A H=5.0	1
12	03120890	KNOB,BUTTON	D S-KEYTOP	SX1H-B GRS	9
12	01340290	SWITCH	TACT SWITCH	EVQ11A H=5.0	9
13	03120889	KNOB,BUTTON	D S-KEYTOP	SX2H-B GRS	7
13	01340290	SWITCH	TACT SWITCH	EVQ11A H=5.0	14
14	03565190	KNOB,BUTTON	KEYTOP STOP		1
14	00894645	SWITCH	TACT SWITCH	SKECAF WITHOUT LED	1
15	00894645	SWITCH	TACT SWITCH	SKECAF WITHOUT LED	1
15	03565212	KNOB,BUTTON	KEYTOP PLAY		1
16	00894645	SWITCH	TACT SWITCH	SKECAF WITHOUT LED	1
16	03565223	KNOB,BUTTON	KEYTOP REC		1
17	01012078	DIODE	LED (GREEN)	SLR-332MG3F	1
17	12169406	MISCELLANEOUS	LED SPACER		1
18	01783923	KNOB,BUTTON	N S-KEYTOP	MD1H	5
18	02894090	DIODE	LED (ORNG)	SLR-343DUT32	5
19	01455901	MISCELLANEOUS	LED SPACER	LH-36-9	1
19	00127367	DIODE	LED (RED/GREEN)	SPR-39MVW	1
20	03562256	POTENTIOMETER	ROTARY POTENTIOMETER	EVUF2AE20B14	1
21	03234723	POWER SUPPLY UNIT	BENDER	PB-H0204	1
22	01234090	KNOB,BUTTON	D T-KEYTOP	MX4B BLK	1
22	01340290	SWITCH	TACT SWITCH	EVQ11A H=5.0	4
23	02013090	KNOB,BUTTON	F C-KEYTOP	MX1H CLR	1
23	03122112	DIODE	LED(BLUE)	SLR-343BBT3F	1
23	01340290	SWITCH	TACT SWITCH	EVQ11A H=5.0	1
24	03562145	KNOB,BUTTON	RUBBER SW		1
24	03122067	CASING	RUBBER SW ESCT		1
24	03128767	PICK UP,SENSOR	PRESSURE SENSOR SHEET		1

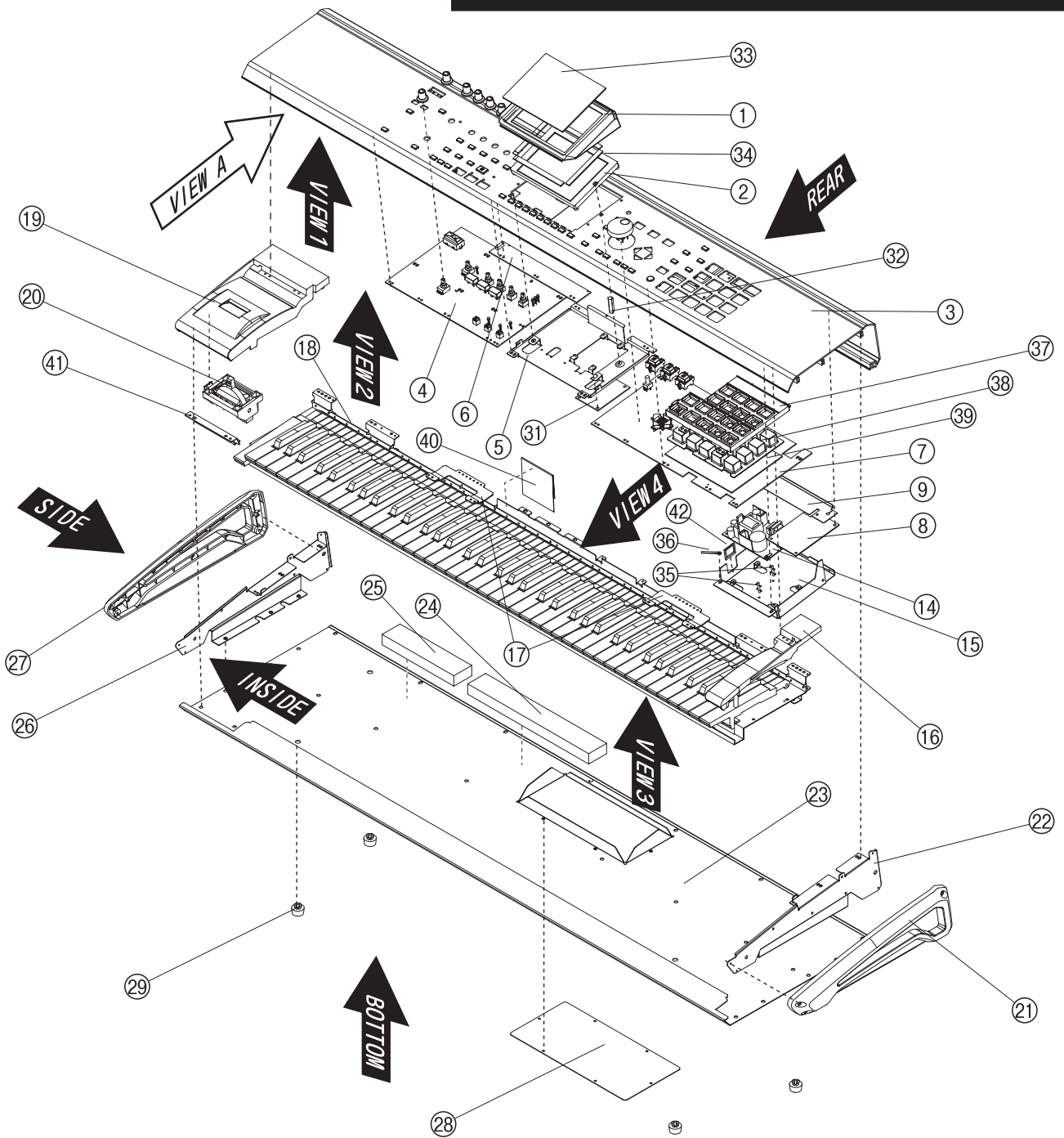
[REAR]

NO	PART CODE	CATEGORY	PART NAME	DESCRIPTION	Q'TY
25	72565734	CASING	BOTTOM COVER ASSY		1
26	32490595	KNOB,BUTTON	P S-KEY	MX BLK	1
26	*****	SWITCH	PUSH SWITCH		1
27	*****	AC INLET, OUTLET	AC INLET		1
When you order the above parts, please order the 72564312 INLET BOARD ASSY.					
28	03562156	CASING	PC CARD ESCUTCHEON	BLK	1
28	02900867	JACK,EXT TERMINAL	CARD EJECTOR	SCAB1A5600	1
29	02781189	JACK,EXT TERMINAL	USB CONNECTOR	YKF45-0021	1
30	13449275	JACK,EXT TERMINAL	6.5MM JACK	YKB21-5074	2
31	13429274	JACK,EXT TERMINAL	MIDI SOCKET	YKF51-5041	1
32	03231812	JACK,EXT TERMINAL	RCA(PIN)	YKC21-4173	1
33	13449283	JACK,EXT TERMINAL	6.5MM JACK	HLJ7101-01-3010	4
34	13449258	JACK,EXT TERMINAL	6.5MM JACK	HLJ4306-01-3080	1
35	13449284	JACK,EXT TERMINAL	6.5MM JACK	HLJ7001-01-3010	2

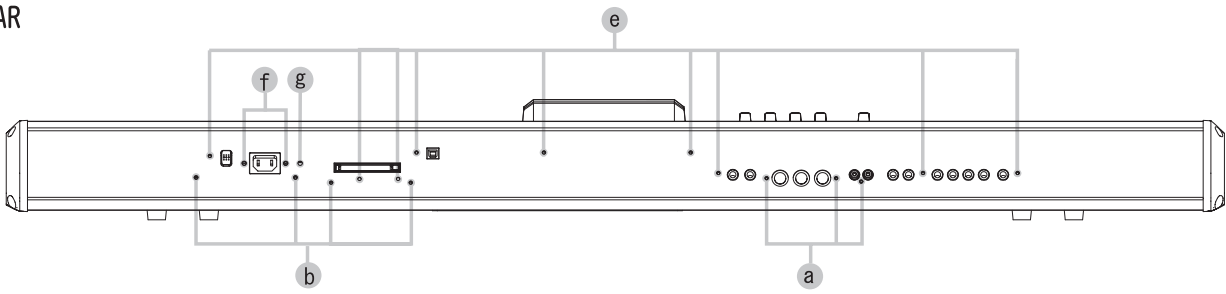
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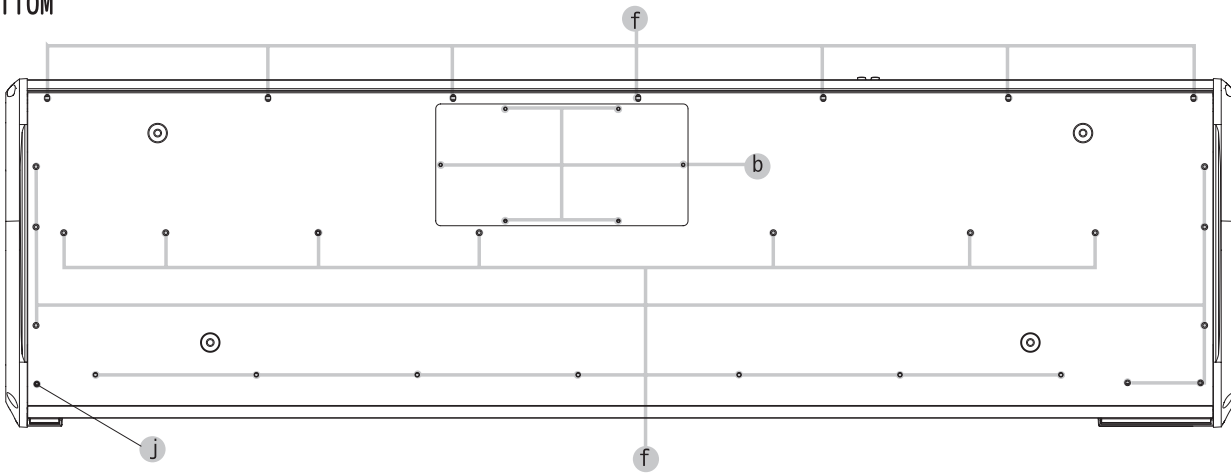
A detailed VIEW A



REAR



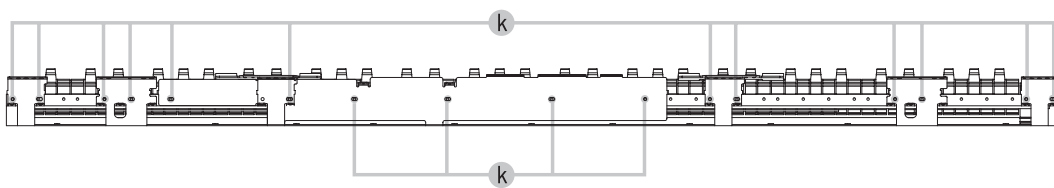
BOTTOM



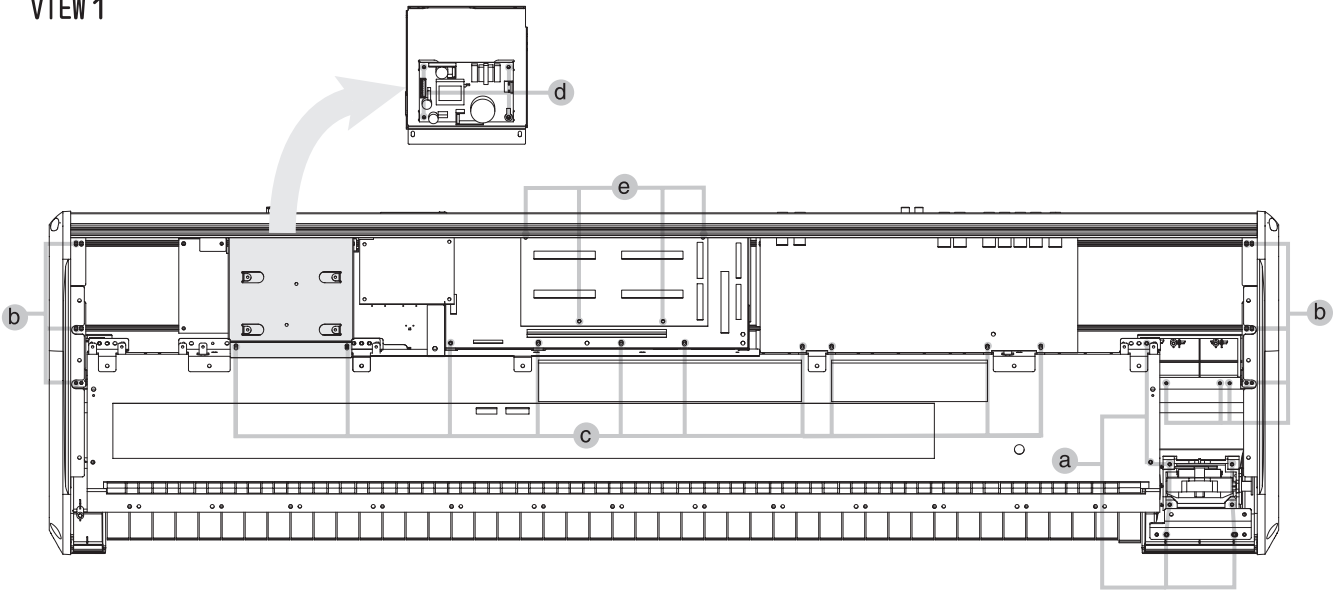
SIDE



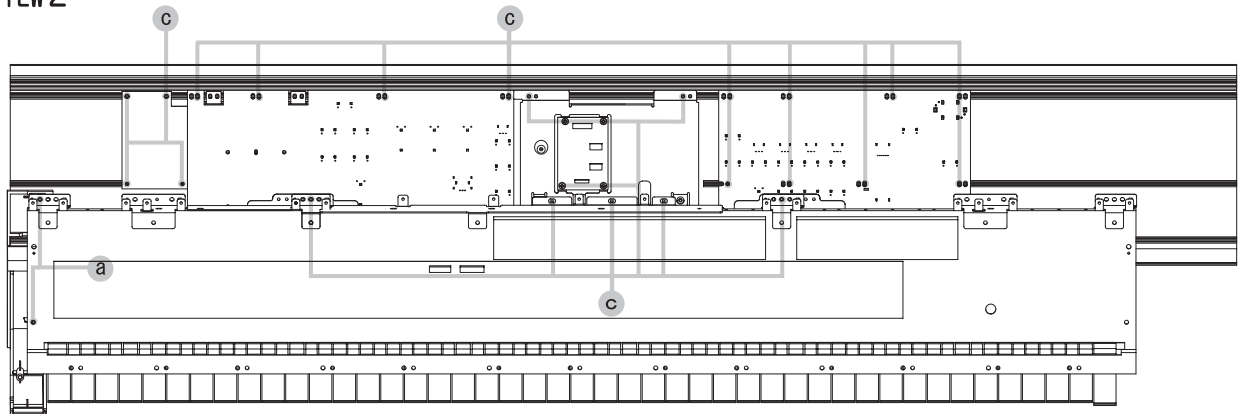
VIEW 4



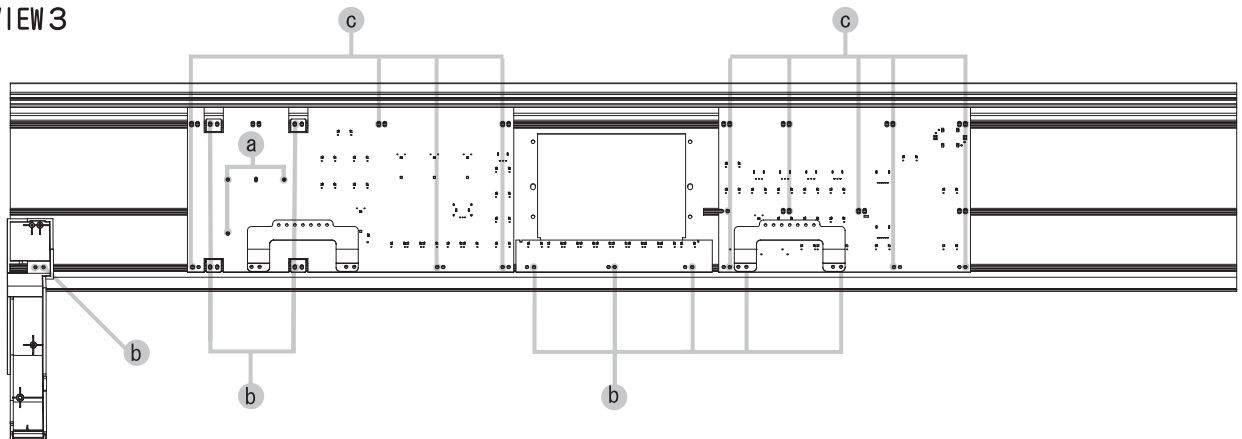
VIEW 1



VIEW 2



VIEW 3



EXPLODED VIEW PARTS LIST

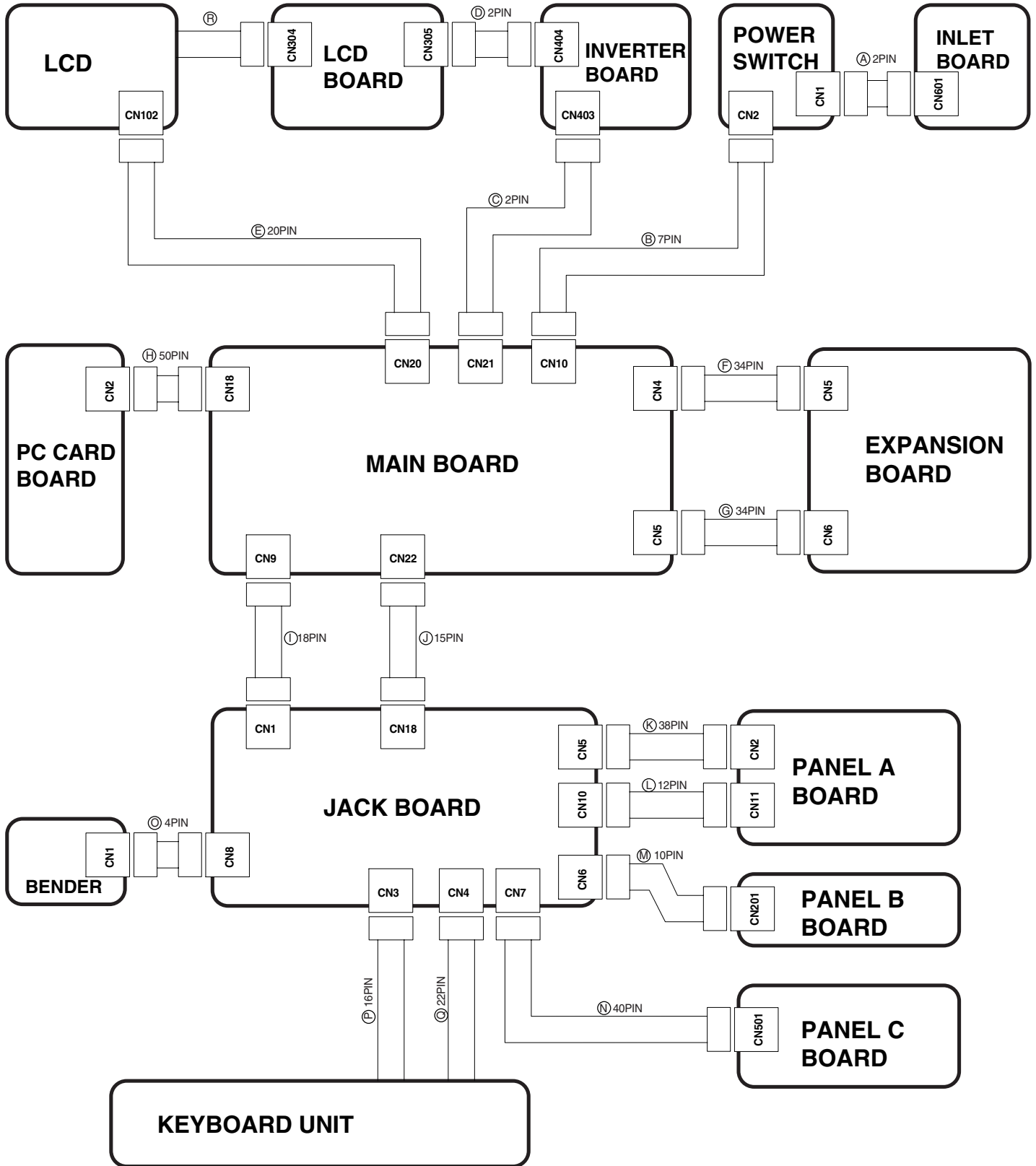
[PARTS]

No	PART CODE	CATEGORY	Part name	Description	Q'TY
1	03565245	CASING	DISPLAY ESCT		1
2	03560889	DISPLAY UNIT	LCD	KCG057QV1DB-G00	1
3	03562501	CASING	TOP PANEL		1
4	72564256	PWB ASSY	PANEL-A KEYTOP ASSY		1
5	03562123	CHASSIS	DISPLAY HOLDER		1
6	72564278	PWB ASSY	PANEL-B KEYTOP ASSY		1
7	72564334	PWB ASSY	PANEL-C KEYTOP ASSY		1
8	72564212	PWB ASSY	INVERTER BOARD ASSY		1
9	03567789	MISCELLANEOUS	INSULATING SHEET		1
10	72565812	PWB ASSY	JACK BOARD ASSY		1
11	72564734	PWB ASSY	MAIN BOARD ASSY		1
NOTE:When you replace the MAIN BOARD ASSY for repairing, be sure to perform the "MAIN BOARD SETTING FOR SELECTING MODEL PROCEDURE"(to see P24). In addition, we supply the MAIN BOARD ASSY of FANTOM-X6 setting for spare parts.					
12	72564245	PWB ASSY	PC CARD BOARD ASSY		1
13	72564312	PWB ASSY	INLET BOARD ASSY		1
14	01785823	POWER SUPPLY UNIT	SWITCHING REGULATOR	A1DU2L3B034	1
15	03125845	CHASSIS	PWR SPLY HOLDER		1
16	03126556	CASING	END BLOCK		1
17	02674034	CHASSIS	PANEL HOLDER		2
18	72567090	KEYBOARD ASSY	KEYBOARD ASSY	SK-976-C	1
19	03126567	CASING	BENDER PANEL		1
20	03234723	BENDER UNIT	BENDER	PB-H0204	1
21	03122045	CASING	SIDE COVER R		1
22	03125812	CHASSIS	SIDE HOLDER R		1
23	72565734	CASING	BOTTOM COVER ASSY		1
24	03670689	MISCELLANEOUS	CUSHION A		1
25	03670701	MISCELLANEOUS	CUSHION B		1
26	03125801	CHASSIS	SIDE HOLDER L		1
27	03122034	CASING	SIDE COVER L		1
28	03017778	CASING	EXP COVER		1
29	12359139	MISCELLANEOUS	RUBBER FOOT	FF-018 BLK	4
30	72235090	PWB ASSY	EXP BASE BOARD ASSY		1
31	72564223	PWB ASSY	LCD BOARD ASSY		1
32	03670734	MISCELLANEOUS	SPACER M3X20	HEX	1
33	03562112	CASING	DISPLAY COVER		1
34	03567790	CASING	DISPLAY CUSHION		4
35	03017867	MISCELLANEOUS	CARD SPACER	MPS-10-0	2
36	40120967	MISCELLANEOUS	COATING CLIP	CS-3	1
37	03122067	CASING	RUBBER SW ESCT		1
38	03562145	KNOB,BUTTON	RUBBER SW		1
39	03128767	PICK UP,SENSOR	PRESSURE SENSOR SHEET		1
40	03670712	MISCELLANEOUS	CUSHION C		1
41	02673945	MISCELLANEOUS	STAY	BENDER	1
42	01455523	MISCELLANEOUS	CORD BUSHING	EDS-1717U	1

[SCREW]

No	PART CODE	Part name	Description	Q'TY
a	40011312	SCREW 3X8	BINDING TAPTITE P BZC	23
b	40011101	SCREW 3X8	BINDING TAPTITE B BZC	18
c	40011056	SCREW 3X6	BINDING TAPTITE B ZC	57
d	40017934	SCREW M3X6	PAN MACHINE W/SW+PW FE ZC	4
e	40011490	SCREW M3X6	PAN MACHINE W/SW BZC	22
f	40011123	SCREW 4X8	BINDING TAPTITE B BZC	6
g	40010345	SCREW M4X10	BINDING MACHINE FE BZC	1
h	40013078	SCREW M3X10	PAN MACHINE W/SW FE ZC	1
i	40454045	SCREW 3X8	FLAT TAPTITEB NI FLANGE SOCKET	8
j	40012501	SCREW M4X12	BINDING TAPTITE P FE BZC	1
k	40011067	SCREW 3X8	BINDING TAPTITE B FE ZC	16
l	22150501	STAND OFF	M3 L10C	4

WIRING DIAGRAM



NO	PART CODE	PART NAME	DESCRIPTION	NO	PART CODE	PART NAME	DESCRIPTION
I.	03566590	BAN CARD	BNCD-P=1.00-K-18-500	J.	03564945	WIRING W2	
A.	03120801	WIRING W3		K.	03129290	BAN CARD	BNCD-P=1.00-K-38-400
B.	02679390	WIRING	7X150-P2.5-XHP-XHP-F	L.	02344023	WIRING	12X200-P2.0-PHR-PHR-F
C.	03564990	WIRING W3		M.	03129301	BAN CARD	BNCD-P=1.00-K-10-400
D.	03564912	WIRING W1		N.	03129312	BAN CARD	BNCD-P=1.00-K-40-700
E.	03565267	BAN CARD	BNCD-P=0.50-K-20-320	O.	02342034	WIRING	4X300-P2.0-PHR-PHR-F
F.	03129323	BAN CARD	BNCD-P=1.00-K-34-60	P.	03565312	BAN CARD	BNCD-P=1.25-K-16-180
G.	03129323	BAN CARD	BNCD-P=1.00-K-34-60	Q.	03565334	BAN CARD	BNCD-P=1.25-K-22-300
H.	03565290	BAN CARD	BNCD-S-P=0.50-K-50-140	R.	This wiring is included the LCD UNIT.		

PARTS LIST

SAFETY PRECAUTIONS:

The parts marked Δ have safety-related characteristics. Use only listed parts for replacement.

CONSIDERATION ON PARTS ORDRING

When ordering any parts listed in the parts list, please specify the following items in the order sheet.

	QTY	PART NUMBER	DESCRIPTION	MODEL NUMBER
Ex.	10	22575241	Sharp Key	C-20/50
	15	2247017300	Knob (orange)	DAC-15D

Failure to completely fill the above items with correct number and description will result in delayed or even undelivered replacement.

NOTE: The parts marked # are new. (initial parts)

CASING

	03562112	DISPLAY COVER		1
	03017778	EXP COVER		1
	03567790	DISPLAY CUSHION		4
	03122034	SIDE COVER L		1
	03122045	SIDE COVER R		1
	03565245	DISPLAY ESCT		1
	03122067	RUBBER SW ESCT		1
	03126556	END BLOCK		1
	03126567	BENDER PANEL		1
#	03562501	TOP PANEL		1
#	72565734	BOTTOM COVER ASSY		1
	NOTE: 'BOTTOM COVER ASSY' includes the following parts.			
#	*****	BOTTOM COVER		1
	12359139	RUBBER FOOT	FF-018 BLK	4

CHASSIS

	03125845	PWR SPLY HOLDER		1
	03562123	DISPLAY HOLDER		1
	02674034	PANEL HOLDER		2
	03125801	SIDE HOLDER L		1
	03125812	SIDE HOLDER R		1

KNOB, BUTTON

	32490595	P S-KEY	MX BLK	1
	01234090	D T-KEYTOP	MX4B BLK	1
	03565234	J R-KNOB	SF-ELA BLK/SLV	6
	22485303	D R-KNOB(ALPHA-DIAL)	L BLK 248-303	1
	03562145	RUBBER SW		1

SWITCH

	01340290	TACT SWITCH	EVQ11A H=5.0	SW2,SW3,SW13,SW20,SW19,SW18,SW17,S W16,SW1,SW14,SW4,SW12,SW11,SW10,S W8,SW7,SW6,SW5,SW15 on PANEL-A BOARD, SW201,SW202,SW203,SW204,SW210,SW20 5,SW206,SW207,SW208,SW209 on PANEL- B BOARD ,SW516,SW503,SW518,SW514,SW513,SW51 2,SW520,SW515,SW521,SW522,SW523,SW5 19,SW506,SW511,SW501,SW517,SW505,SW 507,SW508,SW509,SW510,SW502,SW504 on PANEL-C BOARD	10 +19 +23
	00894645	TACT SWITCH	SKECAF WITHOUT LED	SW21,SW23,SW22 on PANEL-A BOARD	3

JACK, EXT TERMINAL

	02900867	CARD EJECTOR	SCAB1A5600		1
	02900834	CARD CONECTR	SCAA1A2300	CN1 on PC CARD BOARD	1
	13429274	MIDI SOCKET	YKF51-5041	JK1 on JACK BOARD	1
	03231812	RCA(PIN)	YKC21-4173	JK12 on JACK BOARD	1
	13449258	6.5MM JACK	HLJ4306-01-3080	JK7 on JACK BOARD	1
	13449275	6.5MM JACK	YKB21-5074	JK2,JK3 on JACK BOARD	2
	13449283	6.5MM JACK	HLJ7101-01-3010	JK9,JK10,JK8,JK11 on JACK BOARD	4
	13449284	6.5MM JACK	HLJ7001-01-3010	JK6,JK4 on JACK BOARD	2
	02781189	USB CONNECTOR	YKF45-0021	JK1 on MAIN BOARD	1
	02781101	USB CONNECTOR	YKF45-0020		1

DISPLAY UNIT

	03560889	KCG057QV1DB-G00	LCD		1
	NOTE: Replacement KCG057QV1DB-G00 should be made on a unit base.				

POWER SUPPLY UNIT					
△	01785823	A1DU2L3B034	SWITCHING REGULATOR	1	
	NOTE: Replacement A1DU2L3B034 should be made on a unit base.				
BENDER UNIT					
	03234723	PB-H0204	BENDER	1	
	NOTE: Replacement PB-H0204 should be made on a unit base.				
KEYBOARD ASSY					
#	72567090	SK-976-C	KEYBOARD ASSY	1	
	NOTE: See 'KEYBOARD PARTS LIST' for details.				
PCB ASSY					
	72235090	EXP BASE BOARD ASSY		1	
	NOTE: 'EXP BASE BOARD ASSY' includes the following parts.				
	02019034	PWB SPACER	RSPLS-12L	4	
	01902756	PWB SPACER	RSPLS-12L	4	
	72564278	PANEL-B KEYTOP ASSY		1	
	NOTE: 'PANEL-B KEYTOP ASSY' includes the following parts.				
	03120889	D S-KEYTOP	SX2H-B GRS	4	
	03120890	D S-KEYTOP	SX1H-B GRS	2	
	72564256	PANEL-A KEYTOP ASSY		1	
	NOTE: 'PANEL-A KEYTOP ASSY' includes the following parts.				
	01343089	ESCUTCHEON	D-BEAM CONTROLLER ESCT BLK	1	
	03565223	KEYTOP REC		1	
	03565212	KEYTOP PLAY		1	
	03565190	KEYTOP STOP		1	
	03120890	D S-KEYTOP	SX1H-B GRS	16	
	03120889	D S-KEYTOP	SX2H-B GRS	1	
	01783923	N S-KEYTOP	MD1H	1	
	12169368	LED SPACER	LDS-40B	1	
	12169406	LED SPACER		6	
	02230578	LED SPACER	LDS-50R	1	
	01455901	LED SPACER	LH-36-9	1	
	72564245	PC CARD BOARD ASSY		1	
	NOTE: 'PC CARD BOARD ASSY' includes the following parts.				
	03562156	PC CARD ESCUTCHEON	BLK	1	
	03562167	PC CARD HOLDER	HOLDER	1	
	40343367	SCREW M2X14	PAN MACHINE W/SW+SMALL PWZC	4	
	72564212	INVERTER BOARD ASSY		1	
	72564223	LCD BOARD ASSY		1	
	72564312	INLET BOARD ASSY		1	
	72564334	PANEL-C KEYTOP ASSY		1	
	NOTE: 'PANEL-C KEYTOP ASSY' includes the following parts.				
	01783923	N S-KEYTOP	MD1H	4	
	02013090	F C-KEYTOP	MX1H CLR	1	
	03120889	D S-KEYTOP	SX2H-B GRS	2	
	03120890	D S-KEYTOP	SX1H-B GRS	10	
	02123012	ENCODER HOLDER		1	
	#	72565812	JACK BOARD ASSY	1	
	NOTE: 'JACK BOARD ASSY' includes the following parts.				
	40342856	COATING CLIP	CP-1S	2	
	72564734	MAIN BOARD ASSY		1	
	NOTE: 'MAIN BOARD ASSY' includes the following parts.				
	03670045	SHEET	K4E(10)-55X15T15S	1	
	03670034	SHEET	K4E(10)-23X20T15S	1	
	NOTE: When you replace the MAIN BOARD ASSY for repairing, be sure to perform the "MAIN BOARD SETTING FOR SELECTING MODEL PROCEDURE"(to see P24). In addition, we supply the MAIN BOARD ASSY of FANTOM-X6 setting for spare parts.				
IC					
	02675689	HD74LV245ATELL	IC (CMOS)	IC1,IC2,IC3 on EXP BASE BOARD, IC3,IC44,IC40,IC8,IC7,IC5 on MAIN BOARD	3 +6
	15189186	UPC4570C	IC (BIPOLAR OP AMP)	IC4,IC2,IC3 on PANEL-A BOARD	3
	01785012	HA17324	IC (BIPOLAR OP AMP)	IC1 on PANEL-A BOARD	1
	01783589	HD74HC4052FPEL	IC (CMOS)	IC14 on JACK BOARD ,IC503,IC501 on PANEL-C BOARD	2 +1

IC				
02894301	HA17324ARPEL(FP-14DN)	IC (CMOS OP)	IC502 on PANEL-C BOARD	1
03127267	HD6433061G45FP	IC (16BIT CPU)	IC2 on JACK BOARD	1
00129278	SSC1080F0B	IC	IC5 on JACK BOARD	1
15269219H0	HD74LS05FPEL	IC (TTL)	IC12 on JACK BOARD	1
01121834	TC7W74FU TE12L	IC	IC6 on JACK BOARD	1
01783656	HD74HC4053FPEL	IC CMOS	IC23 on JACK BOARD	1
15249104	TC7S04F(TE85L)	IC (CMOS)	IC22 on JACK BOARD	1
00567534	TC74VHC138F(EL)	IC (CMOS)	IC9,IC8 on JACK BOARD	2
01908678	TC74VHCU04FT(EL)	IC (CMOS)	IC17 on JACK BOARD	1
02451712	HD74LV14ATELL	IC (CMOS)	IC1 on JACK BOARD	1
15189261	M5218AFP-600E	IC (BIPOLAR OP AMP)	IC71,IC70,IC68,IC61,IC59 on MAIN BOARD, IC18,IC19,IC16,IC24,IC25 on JACK BOARD	5 +5
15289105	UPC4570G2-E2	IC (BIPOLAR OP AMP)	IC20 on JACK BOARD	1
15289151	NJM2904M-TE3	IC (OP AMP)	IC7,IC10,IC15,IC21 on JACK BOARD	4
02900545	PC410LKNIP	IC (PHOTO COUPLER)	IC11 on JACK BOARD	1
02903723	HD6417706	IC (32BIT CPU)	IC1 on MAIN BOARD	1
02900978	M66291GP	IC (USB CONTROLLER)	IC56 on MAIN BOARD	1
03456167	S1D13705F00A200	IC (LCD-DRIVER CPU PERIPH)	IC128 on MAIN BOARD	1
03566067	T6TV2TBG-0002(WX)	IC (CUSTOM)	IC102 on MAIN BOARD	1
03124989	UPD23C128040ALGY-535-MJH	IC (MASK ROM)	IC33 on MAIN BOARD	1
03124978	UPD23C128040ALGY-536-MJH	IC (MASK ROM)	IC28 on MAIN BOARD	1
03562234	UPD23C128040BLGY-818-MJH	IC (MASK ROM)	IC103 on MAIN BOARD	1
03562223	UPD23C128040BLGY-819-MJH	IC (MASK ROM)	IC104 on MAIN BOARD	1
*****	MBM29LV160BE70TN-E1	IC (FLASH MEMORY)	IC19 on MAIN BOARD	1
03560589	TC58DVM92A1TG00BBH	IC (FLASH MEMORY)	IC53 on MAIN BOARD	1
03237689	M12L64164A-7T	IC (MEMORY DRAM)	IC106 on MAIN BOARD	1
03342201	K4S281632E-TC75	IC (SDRAM)	IC20,IC2,IC24,IC6 on MAIN BOARD	4
03017590	UDA1351TS	IC (DIR DAC)	IC75 on MAIN BOARD	1
03231701	AK4527BVQ	IC (AD/DA)	IC60 on MAIN BOARD	1
01458401	TC74LVX4245FS(EL)	IC (TTL)	IC114,IC112 on MAIN BOARD	2
03231678	TC7WZ74FU(TE12L)	IC (CMOS)		1
03459745	HD74LVC540ATELL-E	IC (CMOS)	IC111 on MAIN BOARD	1
03346267	HD74LV273ATELL-E	IC (CMOS)	IC90 on MAIN BOARD	1
01901623	TC74LVXC3245FS	IC (CMOS)		2
01677689	HD74HC238FPEL	IC (CMOS)	IC96 on MAIN BOARD	1
01349590	TC7WU04FU(TE12L)	IC (CMOS)	IC16,IC26 on MAIN BOARD	2
03015390	TC74HCT273AF(EL)	IC (CMOS)	IC54 on MAIN BOARD	1
01455312	TC7WH74FU	IC (CMOS)	IC115 on MAIN BOARD	1
01348956	TC7SH00FU(TE85L)	IC (CMOS)	IC105 on MAIN BOARD	1
01348945	TC7SH32FU(TE85L)	IC (CMOS)	IC130 on MAIN BOARD	1
01675034	TC74VHC138FT(EL)	IC CMOS	IC99,IC98 on MAIN BOARD	2
01675023	TC74VHC139FT(EL)	IC (CMOS)	IC107,IC108,IC110 on MAIN BOARD	3
01783523	TC74VHCT245AFT(EL)	IC (CMOS)	IC119,IC118,IC117 on MAIN BOARD	3
01890367	TC74VHC175FT(EL)	IC (CMOS)	IC52 on MAIN BOARD	1
01348901	TC7SH04FU(TE85L)	IC (CMOS)		1
03015234	HD74LV32ATELL	IC (CMOS)	IC113,IC14,IC50 on MAIN BOARD	3
02451923	HD74LV74ATELL	IC (CMOS)		1
02675656	HD74LV11ATELL	IC (CMOS)	IC92 on MAIN BOARD	1
02456756	TC74VHCT04AFT(EL)	IC (CMOS)	IC9 on MAIN BOARD	1
02451912	HD74LV00ATELL	IC (CMOS)	IC74,IC116 on MAIN BOARD	2
02451690	HD74LV08ATELL	IC (CMOS)	IC94 on MAIN BOARD	1
02129334	TC7WH08FU(TE12L)	IC (CMOS)	IC120 on MAIN BOARD	1
02675667	HD74LV21ATELL	IC (CMOS)	IC91 on MAIN BOARD	1
02675645	HD74LV04ATELL	IC (CMOS)	IC17,IC10 on MAIN BOARD	2
00344390	TA7805F(TE16L)	IC (REGULATOR)	IC58 on MAIN BOARD	1
02671545	PQ070XZ01ZP	IC (REGULATOR)	IC101,IC57 on MAIN BOARD	2
03125089	PQ1CY1032ZP	IC (SWITCHING REGULATOR)	IC100 on MAIN BOARD	1
01785178	TC9271FS	IC (DIGITAL OUT IF)	IC62 on MAIN BOARD	1
02900690	P2027A-08TR	IC	IC89 on MAIN BOARD	1
15199937	M51953BFP-600C	IC (RESET)	IC18 on MAIN BOARD	1

TRANSISTOR				
03126145	2SA933ASTPR	TRANSISTOR	Q2 on PANEL-A BOARD	1
15129626	2SD1468S TP Q	TRANSISTOR	Q3 on PANEL-A BOARD	1
15319101	2SC2412KR T146	TRANSISTOR	Q42 on JACK BOARD ,Q501 on PANEL-C BOARD	1 +1
00901523	2SA1681 (SC-62)(POW SW)	TRANSISTOR	Q34 on JACK BOARD	1
15309101	2SA1037AKT146R	TRANSISTOR	Q11,Q12 on MAIN BOARD, Q28 on JACK BOARD	1 +2
01121289	2SC4081 T106 QRS	TRANSISTOR	Q23,Q24,Q19,Q18,Q1 on JACK BOARD	5
02671023	2SC3052-T12-1E	TRANSISTOR	Q41,Q35 on JACK BOARD	2
15319105	2SC3326-A	TRANSISTOR	Q27,Q40,Q39,Q38,Q37,Q33,Q32,Q26,Q25,Q30 on JACK BOARD	10
15329103T0	2SK880-GR(TE85R)	FET	Q7,Q8,Q10,Q9 on MAIN BOARD, Q31 on JACK BOARD	1 +4
00239801	DTA114EU T-106	TRANSISTOR	Q20 on JACK BOARD	1
02451378	RN2427	TRANSISTOR	Q3,Q4,Q5,Q6,Q7,Q8,Q9 on JACK BOARD	7
15329533	RN2307(TE85R)	TRANSISTOR	Q21 on JACK BOARD	1
00239812	DTC114EUT106	TRANSISTOR	Q14,Q15,Q16,Q18,Q13 on MAIN BOARD, Q17,Q16,Q15,Q14,Q13,Q12,Q11,Q10 on JACK BOARD	8 +5

TRANSISTOR					
02671267	RT1N141C-T12-1	TRANSISTOR	Q36,Q29 on JACK BOARD	2	
15329511	DTC114TKT146	DIGITAL TRANSISTOR	Q43 on JACK BOARD	1	
15329531	RN1308-TE85R	TRANSISTOR	Q22 on JACK BOARD	1	
02900778	PW MOSFET XP132A1275SR	TRANSISTOR	Q17 on MAIN BOARD	1	
DIODE					
15019126	1SS133 T-77	SWITCHING DIODE	D18,D29,D28,D27,D26,D25,D24,D23,D22,D21,D1,D19,D17,D16,D6,D2,D3,D20,D5,D15,D7,D8,D10,D11,D12,D13,D14,D4 on PANEL-A BOARD, D204,D201,D203,D205,D206,D207,D208,D209,D210,D202 on PANEL-B BOARD	10 +28	
01900612	TPS611	DIODE	Q1 on PANEL-A BOARD	1	
03126134	TLN233	LED	LED23 on PANEL-A BOARD	1	
03122112	SLR-343BBT3F	LED(BLUE)	LED14 on PANEL-A BOARD, LED522 on PANEL-C BOARD	1 +1	
02894090	SLR-343DUT32	LED (ORNG)	LED18 on PANEL-A BOARD, LED501,LED523,LED508,LED515 on PANEL-C BOARD	1 +4	
02125167	SLI-343DCT32W	LED (YELLOW)	LED15,LED2,LED16,LED11,LED10,LED9,LED8,LED7,LED5,LED4,LED3,LED1,LED17 on PANEL-A BOARD, LED509,LED502,LED510,LED516,LED503 on PANEL-C BOARD	13 +5	
01012078	SLR-332MG3F	LED (GREEN)	LED19 on PANEL-A BOARD	1	
01011656	SLR-332VR3F	LED (RED)	LED21,LED13,LED12,LED6,LED20 on PANEL-A BOARD	5	
00127367	SPR-39MVW	LED (RED/GREEN)	LED22 on PANEL-A BOARD	1	
15339130	MA142WK-(TX)	ARRAY DIODE	DA8,DA6,DA7,DA9 on MAIN BOARD, DA3,DA1,DA4,DA2 on JACK BOARD ,DA503,DA505,DA502,DA501,DA504,DA513,DA512,DA511,DA510,DA509,DA508,DA507,DA506 on PANEL-C BOARD	13 +4 +4	
03564390	SML-212DTT86	LED	LED520,LED527,LED518,LED528,LED504,LED526,LED525,LED524,LED521,LED519,LED517,LED514,LED513,LED512,LED511,LED507,LED505,LED506 on PANEL-C BOARD	18	
01121323	DA204U T106	DIODE ARRAY	DA16 on JACK BOARD	1	
01121334	DAN202U T106	ARRAY DIODE	DA10 on JACK BOARD	1	
01897189	MA147-(TX)	ARRAY DIODE	DA3,DA2,DA5,DA4 on MAIN BOARD, DA5,DA6,DA7,DA9,DA11,DA12,DA13,DA14,DA15,DA8 on JACK BOARD	10 +4	
00129767	RD10M-T1B B2	ZENER DIODE	D1 on JACK BOARD	1	
01780045	RB051L-40	SCHOTTKY DIODE	D4 on MAIN BOARD	1	
RESISTOR					
00567289	RPC05T 103 J	MTL.FILM RESISTOR	R2,R6,R10 on EXP BASE BOARD,R118,R119,R134,R139,R150,R164,R165,R166,R174,R114,R176,R44,R188,R175, R110,R109,R105,R84,R82,R195,R43,R42,R40,R39,R25,R13,R414,R80,R437,R393,R395,R413,R428,R430,R392,R436,R446,R438,R445,R449,R453,R455,R238,R396,R431,R266,R451,R244,R247,R390,R243,R313,R358,R363,R364,R365,R381,R241,R384,R387,R388,R248 on MAIN BOARD ,R14,R12,R13,R38,R86,R88,R96,R106,R127,R135,R148,R165,R202,R203,R207,R208,R10,R5,R182,R2,R11 on JACK BOARD ,R517 on PANEL-C BOARD	3 +1 +21 +62	
02457790	MNR14 EOAB J 330	RESISTOR-ARRAY		2	
01906678	MNR14 EOAB J 103	RESISTOR-ARRAY	RA1,RA16 on JACK BOARD	8 +2	
01906667	MNR14 EOAB J 100	RESISTOR-ARRAY	RA24,RA6,RA2,RA25,RA3,RA4 on JACK BOARD	22 +6	
13749190	SR50TR 100 J	CARBON RESISTOR	R8,R7 on PANEL-A BOARD	2	
13749765T0	SR25TRE 470 J	CARBON RESISTOR	R23 on PANEL-A BOARD	1	
13749771T0	SR25TRE 820 J	CARBON RESISTOR	R22 on PANEL-A BOARD	1	
13749773T0	SR25TRE 101 J	CARBON RESISTOR	R2,R13,R4,R3,R1 on PANEL-A BOARD	5	
13749779T0	SR25TRE 181 J	CARBON RESISTOR	R17 on PANEL-A BOARD	1	
13749781T0	SR25TRE 221 J	CARBON RESISTOR	R21,R16 on PANEL-A BOARD	2	
13749797T0	SR25TRE 102 J	CARBON RESISTOR	R14,R19 on PANEL-A BOARD	6	
13749799T0	SR25TR 122J	CARBON RESISTOR	R15 on PANEL-A BOARD	1	
13749805T0	SR25TRE 222 J	CARBON RESISTOR	R6 on PANEL-A BOARD	1	
13749811T0	SR25TRE 392 J	CARBON RESISTOR	R5,R10 on PANEL-A BOARD	2	
13749821T0	SR25TRE 103 J	CARBON RESISTOR	R30,R28,R26,R18,R11,R24 on PANEL-A BOARD	6	
13749837T0	SR25TRE 473 J	CARBON RESISTOR	R12 on PANEL-A BOARD	1	
13749839T0	SR25TRE 563 J	CARBON RESISTOR	R20 on PANEL-A BOARD	1	
13749859T0	SR25TRE 394 J	CARBON RESISTOR	R9 on PANEL-A BOARD	1	

RESISTOR					
02904445	EXB2HV330JV	RESISTOR-ARRAY	RA4,RA28,RA21,RA10 on MAIN BOARD, RA5,RA1,RA2,RA3,RA4 on PC CARD BOARD	5 +4	
00567456	RPC05T 224 J	MTL.FILM RESISTOR	R51 on JACK BOARD ,R524 on PANEL-C BOARD	1 +1	
00566967	RPC05T 470 J	MTL.FILM RESISTOR	R284,R292,R79,R282,R283,R337,R290,R285, R400,R338,R401,R294,R293,R291,R289,R288, R287,R286,R399 on MAIN BOARD, R514,R513 on PANEL-C BOARD	2 +19	
01011856	RPC05T 0R0 J	MTL.FILM RESISTOR	R68,R412,R427,R429,R439,R456,R73,R411,R 41,L18,L17,L16,R147,R113,R87,R305,R136,R 140,R144,R157,R214,R419,R304,R410,R306, R307,R308,R309,R397,R403,R409,R239,R141 on MAIN BOARD ,R37,R3,R50,R73,R97,R99,R160,R178,R185,R 217,R227,R236,R33,R48,R34,R19,R18,R16,R1 5,R6 on JACK BOARD ,R522,R516,R523,R515 on PANEL-C BOARD	5 +19 +33	
00567290	RPC05T 123 J	MTL.FILM RESISTOR	R58 on JACK BOARD ,R521 on PANEL-C BOARD	1 +1	
00567367	RPC05T 393 J	MTL.FILM RESISTOR	R518 on PANEL-C BOARD	1	
00567023	RPC05T 101 J	MTL.FILM RESISTOR	R315,R316,R183,R246,R245,R187,R182,R181 ,R58,R57,R51,R320,R318,R54,R321,R331,R36 9,R370,R371,R372,R375,R378,R454,R317 on MAIN BOARD, R45,R53,R71,R77,R156,R177,R184,R231,R31 on JACK BOARD, R505,R501,R504,R507,R508,R510,R511,R502 on PANEL-C BOARD	8 +9 +24	
00567501	RPC05T 474 J	MTL.FILM RESISTOR	R506,R509,R503,R512 on PANEL-C BOARD	4	
01450490	NTH5G1M33B103J	THERMISTOR RESISTOR	R519 on PANEL-C BOARD	1	
03128889	EXBV8V222JV	RESISTOR-ARRAY	RA502,RA503,RA504,RA501 on PANEL-C BOARD	4	
15399565	RPC18T 470 J	CARBON RESISTOR	R220,R63,R64,R65,R219,R221,R222,R62 on JACK BOARD	8	
15399561	RPC18T 330 J	CARBON RESISTOR	R61 on JACK BOARD	1	
15399567	RPC18T 560 J	CARBON RESISTOR		4	
15399573	RPC18T 101 J	CARBON RESISTOR	R226 on JACK BOARD	1	
15399583	RPC18T 271 J	CARBON RESISTOR	R67,R68 on JACK BOARD	2	
00566956	RPC05T 390 J	MTL.FILM RESISTOR	R70,R69 on JACK BOARD	2	
00567001	RPC05T 750 J	MTL.FILM RESISTOR	R235,R126 on JACK BOARD	2	
00567034	RPC05T 121 J	MTL.FILM RESISTOR	R75 on JACK BOARD	1	
00567067	RPC05T 221 J	MTL.FILM RESISTOR	R421,R422 on MAIN BOARD, R80,R125,R82,R81,R79 on JACK BOARD	+2	
00567078	RPC05T 271 J	MTL.FILM RESISTOR	R72,R90 on JACK BOARD	2	
00567089	RPC05T 331 J	MTL.FILM RESISTOR	R206,R232,R168,R153,R140,R130,R211 on JACK BOARD	7	
00567112	RPC05T 471 J	MTL.FILM RESISTOR	R177,R169,R179,R167 on MAIN BOARD, R27,R21,R20,R26,R28,R29,R30,R57,R84,R91, R92,R100,R108,R25 on JACK BOARD	14 +4	
00567134	RPC05T 681 J	MTL.FILM RESISTOR	R55,R158,R101 on MAIN BOARD, R212,R167,R152,R139,R129,R74,R213 on JACK BOARD	7 +3	
00567156	RPC05T 102 J	MTL.FILM RESISTOR	R322,R319,R233,R226,R206,R198,R91 on MAIN BOARD, R120,R4,R7,R54,R59,R225,R113,R155,R176, R224,R85 on JACK BOARD	11 +7	
00567178	RPC05T 152 J	MTL.FILM RESISTOR	R148 on MAIN BOARD, R186 on JACK BOARD	1 +1	
00567190	RPC05T 222 J	MTL.FILM RESISTOR	R133 on MAIN BOARD, R102,R110 on JACK BOARD	2 +1	
00567201	RPC05T 272 J	MTL.FILM RESISTOR	R225,R205,R197,R232 on MAIN BOARD, R174,R223,R173,R150 on JACK BOARD	4 +4	
00567212	RPC05T 332 J	MTL.FILM RESISTOR	R115,R170,R166,R158,R151,R143,R137,R132 ,R122,R210,R214,R215,R233,R205,R128 on JACK BOARD	15	
00567245	RPC05T 472 J	MTL.FILM RESISTOR	R193,R159,R161,R171,R53,R194,R196,R200, R218,R228,R163 on MAIN BOARD, R87 on JACK BOARD	1 +11	
00567256	RPC05T 562 J	MTL.FILM RESISTOR	R119,R118,R112,R111 on JACK BOARD	4	
00567312	RPC05T 183 J	MTL.FILM RESISTOR	R235 on MAIN BOARD, R55 on JACK BOARD	1 +1	
00567323	RPC05T 223 J	MTL.FILM RESISTOR	R163,R164,R180,R181 on JACK BOARD	4	
00567334	RPC05T 273 J	MTL.FILM RESISTOR	R60,R52 on JACK BOARD	2	
00567345	RPC05T 333 J	MTL.FILM RESISTOR	R94,R107,R104,R101,R98 on JACK BOARD	5	
00567378	RPC05T 473 J	MTL.FILM RESISTOR	R408,R229,R231,R234 on MAIN BOARD, R146,R234,R230,R78,R187,R138,R136,R105, R229 on JACK BOARD	9 +4	
00567389	RPC05T 563 J	MTL.FILM RESISTOR	R255,R256 on MAIN BOARD, R149 on JACK BOARD	1 +2	
00567390	RPC05T 683 J	MTL.FILM RESISTOR	R109 on JACK BOARD	1	
00567401	RPC05T 823 J	MTL.FILM RESISTOR	R93 on JACK BOARD	1	

RESISTOR				
00567412	RPC05T 104 J	MTL.FILM RESISTOR	R420,R227,R222,R211,R208,R199,R172,R415, R416,R236,R417,R418,R168 on MAIN BOARD, R116,R145,R209,R204,R183,R172,R169,R89, R157,R142,R134,R131,R95,R83,R76,R56,R12 3,R161 on JACK BOARD	18 +13
00567423	RPC05T 124 J	MTL.FILM RESISTOR	R103 on JACK BOARD	1
00567556	RPC05T 105 J	MTL.FILM RESISTOR	R50,R99,R156 on MAIN BOARD, R141 on JACK BOARD	1 +3
15399501	RPC18T 0R0 J	MTL.FILM RESISTOR	R66 on JACK BOARD	1
15399952	MCR50JZH470 1/2W	CHIP RESISTOR	R189,R188,R121,R114 on JACK BOARD	4
00126134	EXB-A10E103J	RESISTOR ARRAY	RA9,RA11,RA17,RA14,RA7,RA5,RA12 on JACK BOARD	7
01906656	MNR14 EOAB J 000	RESISTOR-ARRAY	RA18,RA19 on JACK BOARD	2
00567478	RPC05T 334 J	MTL.FILM RESISTOR	R173,R216 on MAIN BOARD	2
00567467	RPC05T 274 J	MTL.FILM RESISTOR	R230 on MAIN BOARD	1
00567445	RPC05T 184 J	MTL.FILM RESISTOR	R170,R212 on MAIN BOARD	2
00566923	RPC05T 270 J	MTL.FILM RESISTOR	R146,R145 on MAIN BOARD	2
00566934	RPC05T 330 J	MTL.FILM RESISTOR	R72,R350,R348,R346,R345,R344,R71,R349,R 74,R75,R76,R314,R323,R325,R326,R335,R34 3,R7,R450,R1,R2,R3,R347,R6,R368,R8,R10,R 63,R70,R435,R434,R433,R432,R4 on MAIN BOARD	34
00566912	RPC05T 220 J	MTL.FILM RESISTOR	R302,R425,R424,R423,R367,R366,R342,R340 ,R34,R298,R297,R130,R100,R45,R339,R426,R 341,R300 on MAIN BOARD	18
00566867	RPC05T 100 J	MTL.FILM RESISTOR	R441,R261,R260,R442,R262,R263 on MAIN BOARD	6
03239523	RR0816Q-390-D	MTL.FILM RESISTOR	R355 on MAIN BOARD	1
03018878	RR0816P-471-D	MTL.FILM RESISTOR	R356 on MAIN BOARD	1
02014945	MCR50 JZH J 0R0	MTL.FILM RESISTOR	R407 on MAIN BOARD	1
01904945	RR0816P-120-D	MTL.FILM RESISTOR	R359 on MAIN BOARD	1
02673423	RR0816P-162-D	MTL.FILM RESISTOR	R351 on MAIN BOARD	1
02673401	RR0816P-102-D	MTL.FILM RESISTOR	R353,R357 on MAIN BOARD	2
01896278	MCR18EZHZ 2R2	MTL.FILM RESISTOR	R273 on MAIN BOARD	1
01904956	RR0816P-821-D	MTL.FILM RESISTOR	R361 on MAIN BOARD	1
03342845	RR0816P-151-D	MTL.FILM RESISTOR	R360 on MAIN BOARD	1
03239556	RR0816Q-100-D	MTL.FILM RESISTOR	R354 on MAIN BOARD	1
03232623	EXB28V0R0JX	RESISTOR-ARRAY	RA101 on MAIN BOARD	1
03015290	EXB28V104JX	RESISTOR-ARRAY	RA109 on MAIN BOARD	1
03015278	EXB28V220JX	RESISTOR-ARRAY	RA98,RA100 on MAIN BOARD	2
03015301	EXB28V330JX	RESISTOR-ARRAY	RA88,RA121,RA93,RA89 on MAIN BOARD	4
01457145	EXBE10C103J	RESISTOR ARRAY	RA63,RA13,RA74,RA19,RA39,RA29,RA24, RA22,RA51,RA17,RA78,RA14,RA61,RA11, RA7,RA5,RA1,RA16,RA42 on MAIN BOARD	19
03015289	EXB28V103JX	RESISTOR-ARRAY	RA95,RA92,RA116,RA90,RA91,RA102,RA9 4 on MAIN BOARD	7
02904601	EXB2HV104JV	RESISTOR-ARRAY	RA108 on MAIN BOARD	1
03015056	EXB2HV470JV	RESISTOR-ARRAY	RA18,RA15,RA12,RA23 on MAIN BOARD	4
02456878	EXB2HV220JV	RESISTOR-ARRAY	RA60,RA50,RA62,RA107,RA20,RA27,RA8, RA34,RA36,RA37,RA40,RA56,RA54,RA52, RA43,RA105,RA33,RA117,RA110,RA111,R A103,RA9,RA115,RA3,RA99,RA97,RA118, RA96,RA86,RA119,RA77,RA73,RA120 on MAIN BOARD	33
02898923	EXBE10C104J	RESISTOR-ARRAY	RA104,RA106 on MAIN BOARD	2
POTENTIOMETER				
03126178	EVUF2JFK3B14	9M/M ROTARY POTENTIOMETER	VR6,VR5,VR2,VR4 on PANEL-A BOARD	4
03126167	EVJY10FB6A24	12M/M ROTARY POTENTIOMETER	VR1,VR3 on PANEL-A BOARD	2
03562256	EVUF2AE20B14	ROTARY POTENTIOMETER	VR501 on PANEL-C BOARD	1
CAPACITOR				
01674701	ECJ1VF1E104Z 0.1UF/16VK	CERAMIC CAPACITOR	C30,C21,C22,C23,C26,C27,C33,C29,C31,C20 ,C11,C28,C19,C18,C16,C15,C14,C12,C34,C1 0,C9,C8,C7,C1,C13,C32 on EXP BASE BOARD C443,C225,C224,C442,C196,C450,C192,C19 1,C190,C186,C183,C199,C449,C451,C452,C4 53,C454,C455,C181,C222,C460,C462,C470,C 472,C444,C122,C171,C129,C128,C127,C125, C201,C131,C123,C132,C121,C120,C119,C10 3,C102,C101,C100, C98,C124,C143,C175,C173,C438,C170,C435, C169,C130,C144,C178,C142,C141,C140,C13 8,C137,C136,C135,C134,C133,C167,C413,C4 04,C336,C406,C407,C408,C409,C410,C272,C 412,C403,C334,C333,C307,C305,C299,C297, C280,C279,C439,C275,C411,C385,C340,C34 2,	275

CAPACITOR

				,C220,C101,C107,C108,C111,C227,C222,C30 ,C70,R228,C206,C60,C62,C64,C65,C10,C68, C12,C72,C73,C99,C26,C66,C144,C8,C185,C2 11,C116,C120,C205,C131,C194,C183,C171,C 172,C174,C176,C181,C178,C180,C128,C115, C114,C7,C29,C6 on JACK BOARD ,C521,C520,C519 on PANEL-C BOARD C343,C344,C346,C350,C352,C405,C372,C40 2,C387,C390,C391,C392,C393,C394,C396,C3 99,C400,C401,C353,C424,C230,C276,C420,C 421,C422,C423,C229,C270,C227,C418,C425, C427,C428,C429,C226, C430,C431,C432,C433,C434,C228,C241,C26 7,C261,C259,C257,C252,C248,C247,C419,C2 45,C417,C238,C237,C236,C233,C66,C231,C9 7,C414,C415,C416 ,C246,C36,C52,C51,C50,C49,C48,C47,C45,C 43,C42,C41,C40,C39,C53,C37,C14,C15,C16, C17,C18,C38,C96,C35,C20,C21,C6,C23,C30, C33,C34,C19,C200,C54,C70,C69,C68,C73,C7 7,C65,C64,C63,C92,C93,C57,C56,C55,C74 on MAIN BOARD, C2 on PC CARD BOARD C4,C3,C2,C6,C25,C5,C17 on EXP BASE	36
15369152	ECEV1CA100SR	CHEMICAL CAPACITOR			
13519641	DD308-959F104Z50	CERAMIC CAPACITOR		C2,C4,C5,C12,C15,C1,C20,C21,C24,C25,C30 ,C31,C13,C3 on PANEL-A BOARD	
13519661	DD104-989SL150J50	CERAMIC CAPACITOR		C11,C10 on PANEL-A BOARD	
13529509	DD106-999F103Z50	CERAMIC CAPACITOR		C14 on PANEL-A BOARD	
02018701	DD104-989SL680J50	CERAMIC CAPACITOR		C16,C18,C26,C28 on PANEL-A BOARD	
13639150M0	ECEA1CKS100B 10UF/16V	CHEMICAL CAPACITOR		C6 on PANEL-A BOARD, C508 on PANEL-C BOARD	
13639569M0	ECEA1EKA470B	CHEMICAL CAPACITOR		C22,C23 on PANEL-A BOARD	
13669266	ECEA1EKS100B	CAPACITOR		C9,C7 on PANEL-A BOARD, C501 on PANEL-C BOARD	
02018690	R2A-16V101M-T2	CHEMICAL CAPACITOR		C19,C17,C32,C8,C33 on PANEL-A BOARD ,C522 on PANEL-C BOARD	
03343045	EEE0JA101SP	CHEMICAL CAPACITOR		C375,C461,C459,C398,C395,C360,C358,C39 7 on MAIN BOARD, C1 on PC CARD BOARD	
13529132	RPE132-901F104Z50	CERAMIC CAPACITOR		C403 on INVERTER BOARD	
01900834	RA2-16V101M-T2	CHEMICAL CAPACITOR		C401 on INVERTER BOARD	
01674389	ECUV1H221JCV	CERAMIC CAPACITOR		C514,C515,C505,C516,C517,C513,C512,C51 1,C510,C518,C509,C504,C503,C502,C506,C5 07 on PANEL-C BOARD	
00568456	ECJ1VF1C474Z	CERAMIC CAPACITOR		C106 on JACK BOARD	
01674167	ECUV1H100DCV	CERAMIC CAPACITOR		C138 on JACK BOARD	
01674212	ECUV1H220JCV	CERAMIC CAPACITOR		C22,C23,C110 on JACK BOARD	
01674334	ECUV1H101JCV	CERAMIC CAPACITOR		C232,C447,C139,C234,C240,C243,C265,C99 on MAIN BOARD, C204,C75,C193,C191,C190,C91,C158,C203,C 92,C143,C97,C96,C95,C94,C166,C77,C76,C7 8,C79,C192,C93,C90,C80,C81,C87,C89,C88, C82,C86,C85,C84,C83 on JACK BOARD	
01674423	ECUV1H471JCV	CERAMIC CAPACITOR		C25,C24 on MAIN BOARD ,C140 on JACK BOARD	
01674612	ECJ1VB1H103K	CERAMIC CAPACITOR		C187,C15,C121,C126,C125,C124,C123,C139, C17,C113,C2,C5,C13,C14,C16,C19,C20,C63, C109,C18,C119 on JACK BOARD	
01674712	ECJ1VF1A105Z	CERAMIC CAPACITOR		C75,C290 on MAIN BOARD ,C104,C61 on JACK BOARD	
02129534	ECJ1VB1H102K	CERAMIC CAPACITOR		C386 on MAIN BOARD, C189,C188,C21,C224,C44 on JACK BOARD	
00674423	ECA0JM102B 1000U/6.3V	CHEMICAL CAPACITOR		C9 on JACK BOARD	
01127078	ECA0JM471B	CHEMICAL CAPACITOR		C3,C11 on JACK BOARD	
01454889	RA2-16V470MT2 470UF/16V	CHEMICAL CAPACITOR		C155,C164 on JACK BOARD	
01900823	RA2-16V100M-T2	CHEMICAL CAPACITOR		C117 on JACK BOARD	
01902867	RA2-25V101M-T2	CHEMICAL CAPACITOR		C127,C167,C161,C154,C149,C146,C135,C13 2,C130,C207,C208 on JACK BOARD	
01906501	RA2-16V220M-T2	CHEMICAL CAPACITOR		C137,C156,C165 on JACK BOARD	
02014912	RA2-25V100MT2	CERAMIC CAPACITOR		C179,C170,C105,C177,C173,C182,C184,C18 6,C209,C210,C175 on JACK BOARD	
02894390	RA2-25V330MC-T2	CHEMICAL CAPACITOR		C219,C217,C215,C214,C169 on JACK BOARD	
02900523	EEE1CA101WP	CHEMICAL CAPACITOR		C100,C98 on JACK BOARD	
13639552M0	ECEA1CU331B 16V/330UF	CHEMICAL CAPACITOR		C67,C195,C71,C69 on JACK BOARD	
01674190	ECUV1H150JCV	CERAMIC CAPACITOR		C71,C27,C72,C164,C165,C263,C264,C440,C 441,C26 on MAIN BOARD	
01674689	ECJ1VF1H473Z	CERAMIC CAPACITOR		C283,C318 on MAIN BOARD	
01899223	ECHU1H102JX5	POLYEST. CAPACITOR		C285,C277 on MAIN BOARD	
02126434	ECHU1H821JX5	POLYEST. CAPACITOR		C323,C310,C300,C328 on MAIN BOARD	
03346089	ECHU1C682JX5	POLYEST. CAPACITOR		C303,C332,C327,C316 on MAIN BOARD	
01120301	ECEV1CA221P 220UF	CHEMICAL CAPASITOR			
# 02345201	RV2-6V220MU-RR2	CHEMICAL CAPACITOR			
02897045	ECEV1CA220WR	CHEMICAL CAPACITOR			
02345145	RV2-16V101M-R	CHEMICAL CAPACITOR		C437 on MAIN BOARD	

CAPACITOR				
02783412	6SVP150 OS-CON	CHEMICAL CAPACITOR	C244,C254 on MAIN BOARD	2
03564345	EEE1AA102P	CHEMICAL CAPACITOR	C457,C445 on MAIN BOARD	2
15369109	ECEV0JA101SP	CHEMICAL CAPACITOR		8
03458790	EEE1CS100SR	CHEMICAL CAPACITOR	C180,C149,C239,C273,C94,C31,C166,C150, C145,C188,C308,C278,C281,C282,C296,C16 8,C298,C309,C315,C324,C335,C345,C271,C3 39,C354,C349,C351,C341,C266 on MAIN BOARD	29
03454912	EEE1HA2R2SR	CHEMICAL CAPACITOR	C292 on MAIN BOARD	1
03454812	EEE1CA470SP	CHEMICAL CAPACITOR	C363,C365 on MAIN BOARD	2
03454790	EEE1CA221P	CHEMICAL CAPACITOR	C258,C253 on MAIN BOARD	2
03454789	EEE1CA220WR	CHEMICAL CAPACITOR	C284,C274 on MAIN BOARD	2
02015778	ECEV1AA102P	CHEMICAL CAPACITOR		2
01904856	ECEV1CA470WR	CHEMICAL CAPACITOR		2
01896589	SK4-0J106MZ4-RA	TANTALUM CAPACITOR	C448,C384,C126,C118,C104,C426,C95,C456, C59,C46,C44,C29,C22,C13 on MAIN BOARD	14
INDUCTOR, COIL, FILTER				
01565578	N1608Z601T01	FERRITE-BEAD	L36,L35,L34,L33,L32,L31,L30,L29,L28,L27,L 26,L8,L20,L24,L23,L7,L22,L6,L21,L25,L19,L 14,L13,L12,L11,L10,L9,L37,L5 on MAIN BOARD, L21,L22,L23,L26,L27,L37,L29,L18,L30,L31,L 33,L35,L36,L28, L10,L1,L2,L3,L4,L5,L20,L7,L19,L11,L12,L13, L14,L15,L16,L17,L34,L6,L32 on JACK BOARD	33 +29
00903167	N2012Z601T02 (CHIP)	FERRITE-BEAD	L24,L25 on JACK BOARD	2
03125167	SLF12565T-470M2R4	CHOKE COIL	L1 on MAIN BOARD	1
03566334	EMI FILTER	NFW31SP106X1E4L		1
01909645	EXCML16A270U	FERRITE-BEAD	L4,L3,R237 on MAIN BOARD	3
CRYSTAL, RESONATOR				
00894023	MA-406 20.000MHZ TE24	CRYSTAL	X1 on JACK BOARD	1
01340745	MA-406 12MHZ	CRYSTAL	X4 on MAIN BOARD	1
15299170	MC-406 32.768KHZ	CRYSTAL	X1 on MAIN BOARD	1
00894034	MA-406 16.000MHZ TE24	CRYSTAL	X2 on MAIN BOARD	1
02673134	MA-406 16.9344MHZ	CRYSTAL	X3 on MAIN BOARD	1
ENCODER				
01905467	EVE GC1 F20 24B	ROTARY ENCODER	EN501 on PANEL-C BOARD	1
CONNECTOR				
03126045	34FMN-STK-A	CONNECTOR	CN5,CN6 on EXP BASE BOARD	2
02010078	TX25-80P-6ST-E1	CONNECTOR	CN4,CN3,CN2,CN1 on EXP BASE BOARD	4
02782478	10FMN-STK	CONNECTOR	CN201 on PANEL-B BOARD	1
03126034	38FMN-STK-A	CONNECTOR	CN2 on PANEL-A BOARD	1
13369564	B12B-PH-K-S JST	CONNECTOR	CN11 on PANEL-A BOARD, CN10 on JACK BOARD	1 +1
03230623	54104-5092	CONNECTOR	CN18 on MAIN BOARD, CN2 on PC CARD BOARD	1 +1
13369570	B2B-PH-K-S (2P)	CONNECTOR	CN21 on MAIN BOARD, CN403 on INVERTER BOARD	1 +1
02673145	B2(4-2.3)B-XH-A	CONNECTOR	CN404 on INVERTER BOARD	1
02566489	SM02(8.0)B-BHS-TB	CONNECTOR	CN304 on LCD BOARD	1
01349645	S2(4-2.3)B-XH-A	CONNECTOR	CN305 on LCD BOARD	1
03126090	40FMN-SMT-A-TF	CONNECTOR	CN501 on PANEL-C BOARD	1
01908667	22FE-BT-VK-N	CONNECTOR	CN4 on JACK BOARD	1
01908645	16FE-BT-VK-N	CONNECTOR	CN3 on JACK BOARD	1
02782467	10FMN-BTK	CONNECTOR	CN6 on JACK BOARD	1
03126067	18FMN-BMTTN-A-TFT	CONNECTOR	CN9 on MAIN BOARD, CN1 on JACK BOARD	1 +1
03126078	38FMN-BMTTN-A-TFT	CONNECTOR	CN5 on JACK BOARD	1
03126089	40FMN-BMTTN-A-TFT	CONNECTOR	CN7 on JACK BOARD	1
03013989	B4B-PH-K-S JST(PB FREE)	CONNECTOR	CN8 on JACK BOARD	1
13369562	B15B-PH-K-S JST	CONNECTOR	CN22 on MAIN BOARD, CN18 on JACK BOARD	1 +1
03345856	34FMN-BMTTN-A-TFT	CONNECTOR	CN5,CN4 on MAIN BOARD	2
13369592	B7B-XH-A(7P) JST	CONNECTOR	CN10 on MAIN BOARD	1
03457478	20FLT-SM1-TB	CONNECTOR	CN20 on MAIN BOARD	1
WIRING, CABLE				
03566590	BAN CARD	BNCD-P=1.00-K-18-500		1
02679390	WIRING	7X150-P2.5-XHP-XHP-F		1
03564945	WIRING W2			1
03564912	WIRING W1			1
03120801	WIRING W3			1

WIRING, CABLE

#	03564990	WIRING W3			1
#	03565312	BAN CARD	BNCD-P=1.25-K-16-180		1
	03129323	BAN CARD	BNCD-P=1.00-K-34-60		2
	03565267	BAN CARD	BNCD-P=0.50-K-20-320		1
#	03565334	BAN CARD	BNCD-P=1.25-K-22-300		1
	02342034	WIRING	4X300-P2.0-PHR-PHR-F		1
	02344023	WIRING	12X200-P2.0-PHR-PHR-F		1
	03129290	BAN CARD	BNCD-P=1.00-K-38-400		1
	03129301	BAN CARD	BNCD-P=1.00-K-10-400		1
	03129312	BAN CARD	BNCD-P=1.00-K-40-700		1
	03565290	BAN CARD	BNCD-S-P=0.50-K-50-140		1

TRANSFORMER

△	03561389	EL-INVERTOR DHE1105B-5VE	TRANSFORMER	MOD401 on INVERTER BOARD	1
	02019478	(7KQ5) 19832A	PULSE TRANS	T1 on JACK BOARD	1

PICKUP, SENSOR

	03128767	PRESSURE SENSOR SHEET			1
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SCREW

	40011056	SCREW 3X6	BINDING TAPTITE B ZC		57
	40011101	SCREW 3X8	BINDING TAPTITE B BZC		18
	40011123	SCREW 4X8	BINDING TAPTITE B BZC		26
	40239734	SCREW 3X6	VWH B-TIGHT ZC		4
	40011312	SCREW 3X8	BINDING TAPTITE P BZC		23
	40012501	SCREW M4X12	BINDING TAPTITE P FE BZC		1
	40011490	SCREW M3X6	PAN MACHINE W/SW BZC		15
	40343367	SCREW M2X14	PAN MACHINE W/SW+SMALL PWZC		4
	22150501	STAND OFF	M3 L10C		4
	40010345	SCREW M4X10	BINDING MACHINE FE BZC		1
	40454045	SCREW 3X8	FLAT TAPTITEB NI FLANGE SOCKET		8
	40013078	SCREW M3X10	PAN MACHINE W/SW FE ZC		1
	40011745	HEX NUT M4	SPRING NUT FE ZC		1
	40011067	SCREW 3X8	BINDING TAPTITE B FE ZC		16
	40017934	SCREW M3X6	PAN MACHINE W/SW+PW FE ZC		4

PACKING

	03670223	UPPER PAD CENTER			1
	03670234	REAR PAD CENTER			1
#	03670267	LOWER PAD CENTER			1
#	03670412	PAD L/R			2
	03670245	PACKING PAD			1
	03235823	SIDE PAD L			1
	03235834	SIDE PAD R			1
#	03569989	PACKING CASE			1

MISCELLANEOUS

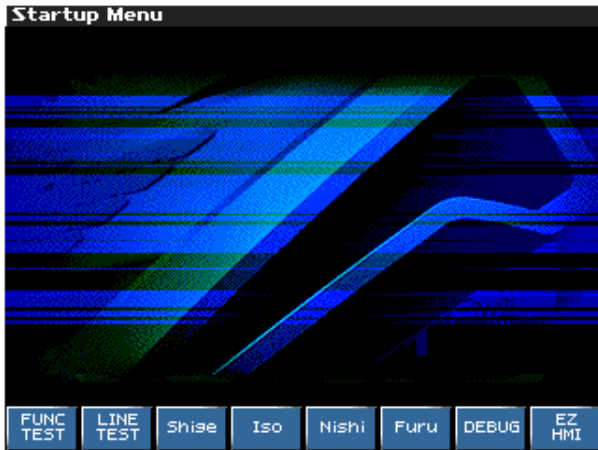
	01455523	CORD BUSHING	EDS-1717U		1
	03670712	CUSHION C			1
	03670701	CUSHION B			1
	03670689	CUSHION A			1
	40565956	LABEL	FCC LOGO MARK		1
	03567789	INSULATING SHEET			1
	03670734	SPACER M3X20	HEX		1
	03017867	CARD SPACER	MPS-10-0		2
	40120967	COATING CLIP	CS-3		1
	40016512	INSULOK TIE	80M/M T-18S		1
	02673945	STAY	BENDER		1
	03346289	IC SOCKET	61816-61103	CN2 on MAIN BOARD	1
	40014589	WARNING SEAL	102-103		1

ACCESSORIES (STANDARD)

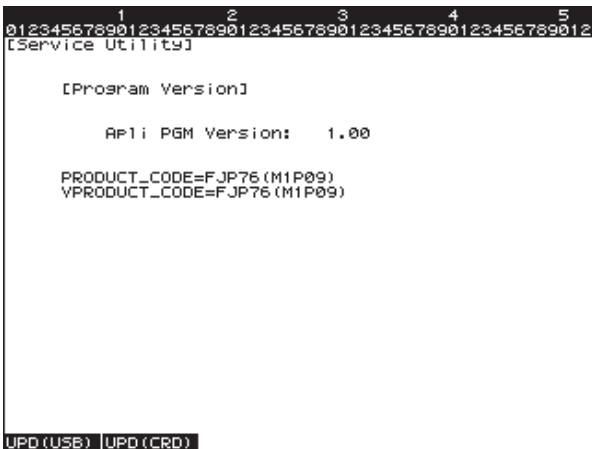
△	03340956	AC CORD SET	100V YA-101/YP-3NB		1
△	00894378	AC CORD SET	120V SP301+IS14 SJT18/3		1
△	00894389	AC CORD SET	230V SP22+IS14 H05VV-F3G1.0		1
△	23495124	AC CORD SET	240VA SC-144-JO1 ES303-10HMA		1
△	00907001	AC CORD SET	240VE KP-610 GTTBS-3 KS-31A		1
	03569745	CD-ROM	V1.00		1
	72564078	OWNER'S MANUAL	JAPANESE		1
	72564812	OWNER'S MANUAL	ENGLISH		1
	*****	LEAFLET USER TOUROKU ANNAI	MANUAL		1
	*****	SAMPLING CD			1
	03120712	CARD PROTECTOR			1
	40565990	LABEL STICKER			1
	40232334	WARRANTY CARD	MOCHIKOMI JAPAN ONLY		1

MAIN BOARD SETTING FOR SELECTING MODEL PROCEDURE

1. Turn on the power of the Fantom.
2. Press the [MENU] button to display the Menu window.
3. Turn the [VALUE] dial to select "Utility," and then press the [ENTER] button.
4. Press the [4]
5. Press the buttons in the order of [SHIFT] ,[4],[5],[1],[8], and the LCD display will show as follows.



6. Press the [F8 (EZHMI)] button to display the [Service Utility].



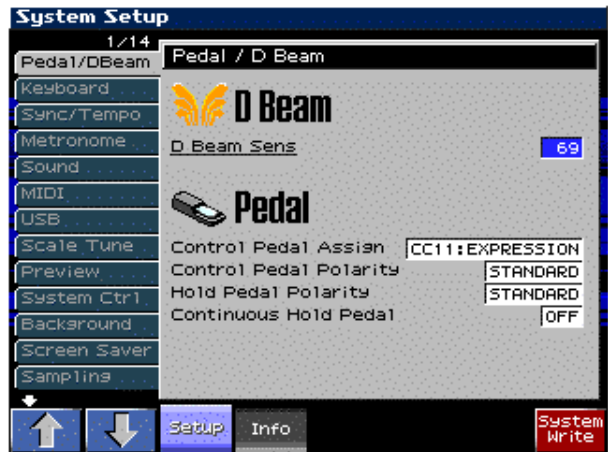
7. Press the [+OCT] button twice to display the [3.PJCODE].



8. Press the [F1],[F2] or [F3] to select the model.
[F1]: 61keys -> Fantom-X6
[F2]: 76keys -> Fantom-X7
[F3]: 88keys -> Fantom-X8
9. Turn off and turn on the power again

CHECKING THE VERSION NUMBER

1. Turn on the power of the Fantom-X.
2. Press the [MENU] button to access the Menu window.
3. Use the [CURSOR] up/down buttons to select "System," and then press the [ENTER] button.
4. The System Setup screen will appear, and the LCD display will show as follows.



5. Press the [4] button "System Info".
6. Use [1 (▲)] [2 (▼)] to select "Version Info." The Version Info screen will appear, and the LCD display will show the program version number.



USERS DATA SAVE AND LOAD

Backing Up User Data (User Backup)

Here's how all user data in the user area can be saved on a memory card.

The following user data will be saved.

- Performances
- Patches
- Rhythm sets
- Rhythm Patterns
- Rhythm Groups
- Multisamples
- Songs
- Samples
- Pattern sets
- RPS sets
- Arpeggio styles
- Chord forms
- System settings

* In order to execute User Backup, the memory card must have approximately 16 MB or more free area.

1. Insert a memory card into the slot.
2. Turn on the power of the Fantom.
3. Press the [MENU] button to display the Menu window.
4. Turn the [VALUE] dial to select "Utility," and then press the [ENTER] button.
5. In the Utility screen, press [1 (User Backup)].
A message will ask you for confirmation.
6. To execute the backup, press [8 (Exec)].
To cancel, press [7 (Cancel)].

Restoring User Data that You Backed Up (User Restore)

Here's how user data saved on a memory card by the User Backup operation can be reloaded back into the user memory of the Fantom-X.

When you execute User Restore, the current contents of the user area will be completely erased.

1. Into the slot, insert the memory card on which user data has been saved.
2. Turn on the power of the Fantom.
3. Press the [MENU] button to display the Menu window.
4. Turn the [VALUE] dial to select "Utility," and then press the [ENTER] button.
5. In the Utility screen, press [2 (User Restore)].
A message will ask you for confirmation.
6. To proceed with the restoration, press [8 (Exec)].
To cancel, press [7 (Cancel)].
7. When the display indicates "Please Power Off," turn the power off, then on again.

TEST MODE

Required equipment

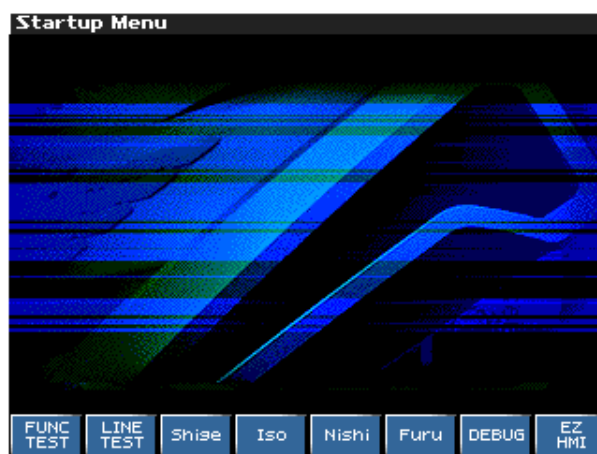
1. Monitor speakers
2. MIDI cables
3. Audio cables
4. PCS-31 (stereo phone plug <=> monaural phone plug x 2)
5. Coaxial (PIN) cable
6. USB cable
7. PC CARD
8. 512 MB DIMM (for DIMM specifications, refer to Main Specifications)
9. Wave expansion boards: SRX series, 4 pcs.
10. Computer (with USB connector; OS may be Windows Me, Windows 2000, or Windows XP)
11. Expression pedal (e.g., EV-5)
12. Test device for applying a force of 3(kgf) (e.g., push-pull gauge) or Weight 3 kg

Test mode procedure

Before you begin Test mode, make sure that the power is turned off, detach the EXP COVER from the bottom panel of the Fantom, and insert the DIMM and expansion boards you provided.

Starting up Test Mode

1. Turn on the power of the Fantom.
2. Press the [MENU] button to display the Menu window.
3. Turn the [VALUE] dial to select "Utility," and then press the [ENTER] button.
4. Press the [4]
5. Press the buttons in the order of [SHIFT] ,[4],[5],[1],[8], and the LCD display will show as follows.



When you press the [2] button (LINE TEST), the LCD display will show as follows, and Test mode will start up.

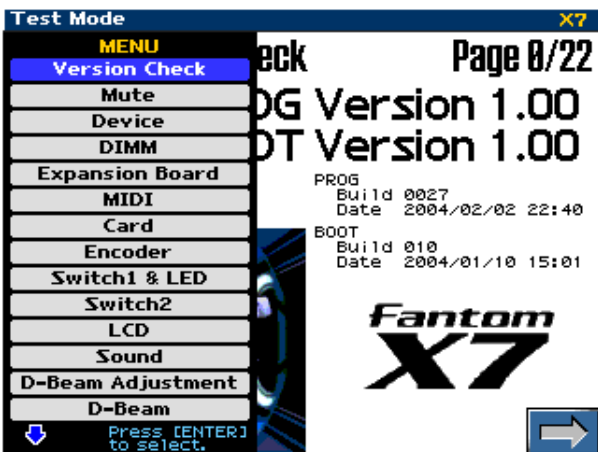


Basic operation in Test mode

Basic operation of the controls will be as follows.

- [8] To the next test screen
- [1] To the previous test screen
- [SHIFT]+[8] Forcibly move to the next test screen
- [SHIFT]+[1] Forcibly move to the previous test screen
- [MENU] Select test items

When you enter the test item select screen, the LCD display will show as follows.



Use the [VALUE] dial, [INC][DEC] buttons, or [CURSOR] up/down buttons to select a test item, and press the [ENTER] button.

Test items

Test the following twenty items.

0. Version Check
1. Mute
2. Device
3. DIMM
4. Expansion Board
5. MIDI Test
6. Card
7. Encoder Test
8. Switch1 & LED Test
9. Switch2
10. LCD Test
11. Sound Test
12. D-Beam Adjustment
13. D-Beam

14. Pad Adjustment
15. Pad Velocity Test
16. Pad Aftertouch Test
17. A/D Test
18. Keyboard Test
19. USB
20. Noise Test
21. Factory Reset
22. Completed

0. VERSION check

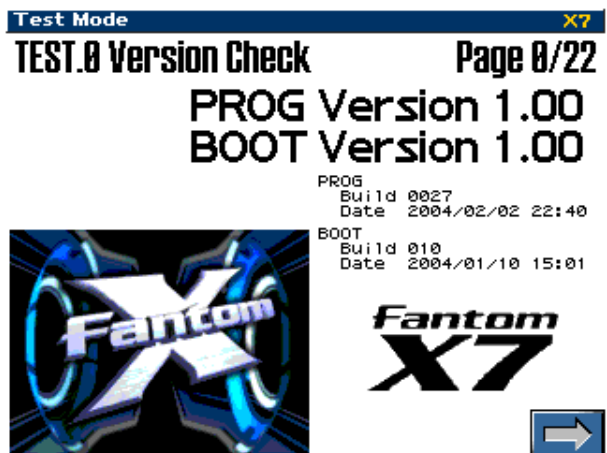
When you enter Test mode, you will begin from the VERSION check item.



The LCD display shows the program version number. All LEDs will light. Press the [8] button to proceed to the next test item.

1. MUTE test

This tests the mute circuit on the jack board. The LCD display will show as follows, and a built-in demo song will begin playing.



Verify that an audio signal is being output from the [PHONES] jack and the [OUTPUT A L/R] jacks. Then verify that the audio signal is muted while you press the [4] button. Press the [8] button to proceed to the next test item.

2. DEVICE test

This tests various devices located on the main board.

When you enter the DEVICE test, the LCD display will show as follows, and device testing will begin automatically.

Test Mode X7
TEST.2 Device Page 2/22



1: FLASH(NOR)	OK
2: FLASH(NAND)	OK
3: SD-RAM(MAIN)	OK
4: SD-RAM(SMPL)	OK
5: SD-RAM(DSP)	OK
6: WAVE ROM	NG
7: WX	OK
8: USBC	NG



Devices corresponding to LCD display indications

LCD display indication	Corresponding main board device
1:FLASH (NOR)	IC19
2:FLASH (NAND)	IC53
3:SD-RAM (MAIN)	IC2,6
4:SD-RAM (SMPL)	IC20,24
5:SD-RAM(DSP)	IC106
6:WAVE ROM	IC28,IC33,IC103,IC104
7:XV	IC102
8:USBC	IC56

If all test results are OK, you will automatically proceed to the next test item.

3. DIMM test

This tests the DIMM socket and peripheral circuits.

When you enter the DIMM test, the LCD display will show as follows, and the DIMM test will begin automatically.

Test Mode X7
TEST.3 DIMM Page 3/22



DIMM Socket: NG
DIMM Read/Write: NG



If the test result is OK, you will automatically proceed to the next test item.

4. Expansion Board test

This tests the Expansion Board socket and peripheral circuits.

When you enter the Expansion Board test, the LCD display will show as follows, and the Expansion Board test will begin automatically.

Test Mode X7
TEST.4 Expansion Board Page 4/22



Slot-A: NG
Slot-B: NG
Slot-C: NG
Slot-D: NG



If the test result is OK, you will automatically proceed to the next test item.

5. MIDI test

This tests MIDI connectivity.

When you enter the MIDI test without any MIDI cable connected between MIDI IN and MIDI OUT, the LCD display will show as follows.

Test Mode X7
TEST.5 MIDI Page 5/22

Status: Disconnect



Please, Connect MIDI In and Out.



Use a MIDI cable to connect the MIDI IN and MIDI OUT .

If the test result is OK, you will automatically proceed to the next test item.

6. Card

This tests the PC CARD connector and peripheral circuits.

When you enter the Card test, the LCD display will show as follows.

Test Mode X7
TEST.6 Card Page 6/22



Protect= OK
Please, Remove The Card.



Next insert the PC CARD (formatted; no protect label) into the PC card slot.

When the test result is OK, the display will indicate "Read/Write=OK Please,Remove The Card".

When you remove the inserted PC CARD, you will automatically proceed to the next test item.

7. Encoder

When you enter the Encoder test, the LCD display will show as follows.



Turn The Value Dial to Left.

Left: 0
Right: 0



Continue turning the [VALUE] dial toward the left, and verify that the LCD display indicates "Left: 72 OK."

Next, continue turning the [VALUE] dial toward the right, and verify that the LCD display indicates "Right: 72 OK." You will then automatically proceed to the next test item.

8. Switch 1 & LED

This tests the operation of LED-equipped switches.

When you enter the Switch 1 & LED test, the LCD display will show as follows.



1:PAD_TRIGGER



One LED-equipped panel switch will light.

When you press that switch, the next LED-equipped switch will light.

Repeat this until all switches are OK, and you will automatically proceed to the next test item.

Pressing two or more switches simultaneously is not valid.

Switches with an LED window will produce the OK result when they are pressed once. In the case of switches (without a window) located next to exposed LEDs, the OK result will be produced when you press the switch the number of times corresponding to the number of exposed LEDs.

When the display for all switches has become lighter, and the test results are OK, you will automatically proceed to the next test item.

9. Switch2

This tests the operation of switches that were not checked in the Switch1 & LED test.

When you enter the Switch2 test, the LCD display will show as follows.



One by one, press each switch shown in the LCD display.

Verify that the indication in the LCD display for the corresponding switch becomes lighter.

When the indications of all switches have become lighter and the test results are OK, you will automatically proceed to the next test item.

10. LCD

This tests the operation of the LCD display.

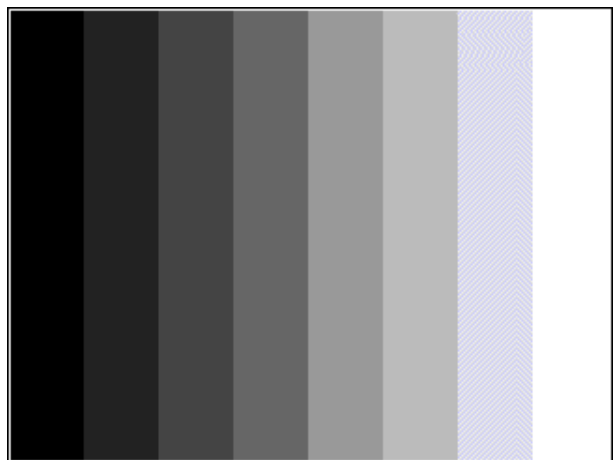
When you enter the LCD test, the LCD display will show as follows.



Press 'F8' For Test.

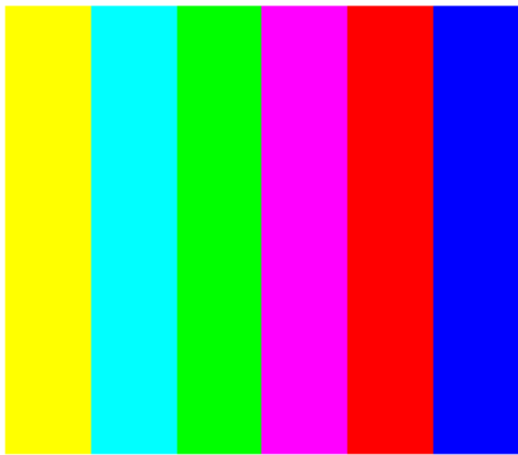


When you press the [8] button you will proceed to the eight-level grayscale test. The LCD display will show as follows.

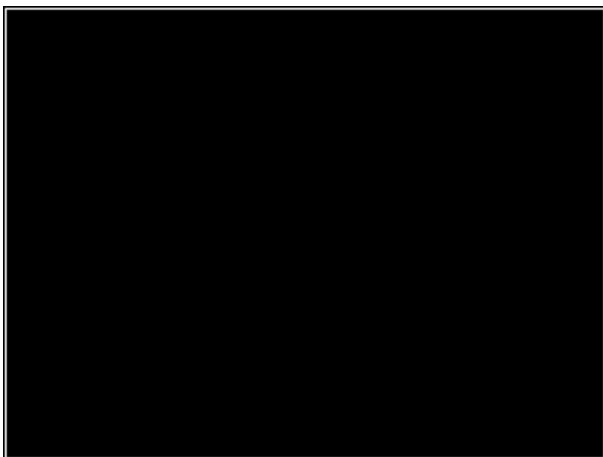


Turn the [LCD CONTRAST] knob, verify that eight-levels of grayscale are displayed, and set the knob to the optimal contrast.

When you press the [8] button you will proceed to the color display test. The LCD display will show as follows.



When you press the [8] knob, you will proceed to the all-pixels-displayed test. The LCD display will show as follows.



Verify that there are no missing dots, and that the darkness is consistent. When you press the [8] button, you will proceed to the all-pixels-on test. The LCD display will show as follows.



Verify that there is no obtrusive dirt or dust. Press the [8] button to proceed to the next test item.

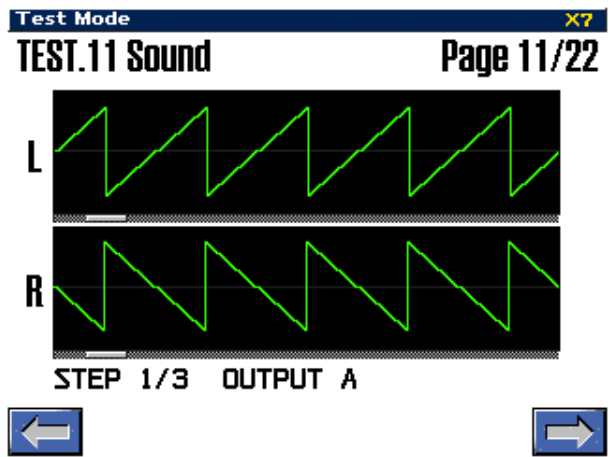
11. Sound test

This tests the audio input/output circuitry.

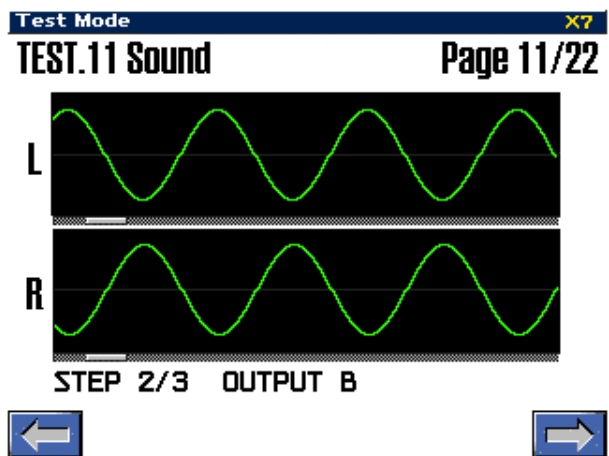
First you will test the [OUTPUT A L (MONO)] jack and [INPUT L/R] jack circuitry.

Connect the stereo side of the PCS-31 to the [OUTPUT A L (MONO)] jack, connect the PCS-31's monaural L channel to the [INPUT L] jack, and the PCS-31's monaural R channel to the [INPUT R] jack. Insert a dummy plug into the [OUTPUT A R] jack, and turn the [VOLUME OUTPUT] knob and [VOLUME INPUT] knob all the way toward the right (MAX).

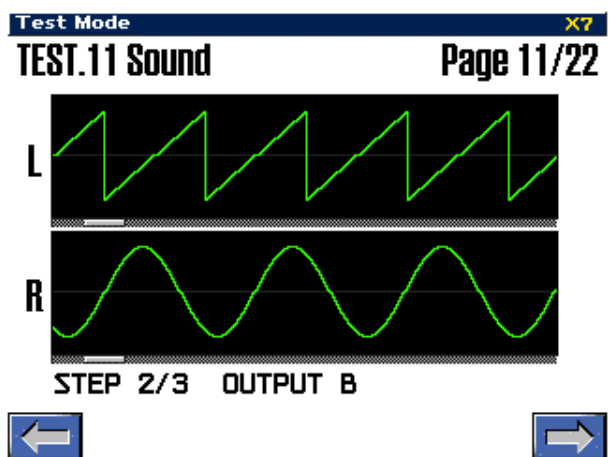
Verify that the LCD display shows a sawtooth wave and another sawtooth wave (of inverted phase relative to the upper one) below, as follows.



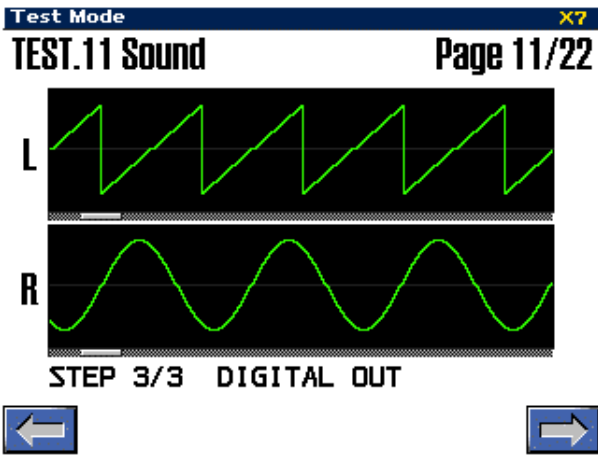
Next you will test the circuitry of the [OUTPUT A R] jack. Connect the stereo side of the PCS-31 to the [OUTPUT A R] jack, connect the PCS-31's monaural L channel to the [INPUT L] jack, and connect the PCS-31's monaural R channel to the [INPUT R] jack. Turn the [VOLUME OUTPUT] knob and the [VOLUME INPUT] knob all the way toward the right (MAX). Verify that the LCD display shows a sine wave above and another sine wave (of inverted phase relative to the upper one) below, as follows.



When you press the [8] button you will proceed to the test of the [OUTPUT B L/R] jack circuit. Use an audio cable to connect the [OUTPUT B L] jack to the [INPUT L] jack, and the [OUTPUT B R] jack to the [INPUT R] jack. Turn the [VOLUME INPUT] knob all the way toward the right (MAX). Verify that the LCD display shows a sawtooth wave above and a sine wave below, as follows.



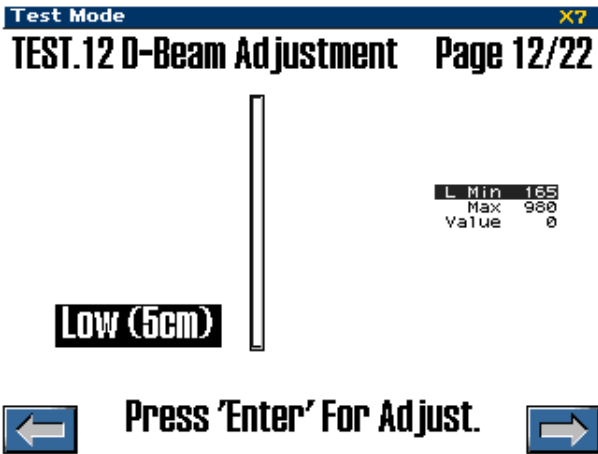
When you press the [8] button you will proceed to the test of the [DIGITAL INPUT OUTPUT] jacks. Use a COAXIAL (pin) cable to connect the [DIGITAL INPUT] and [DIGITAL OUT] jack. Verify that the LCD display shows a sawtooth wave above and a sine wave below, as follows.



Press the [8] button to proceed to the next test item.

12. D-Beam Adjustment test

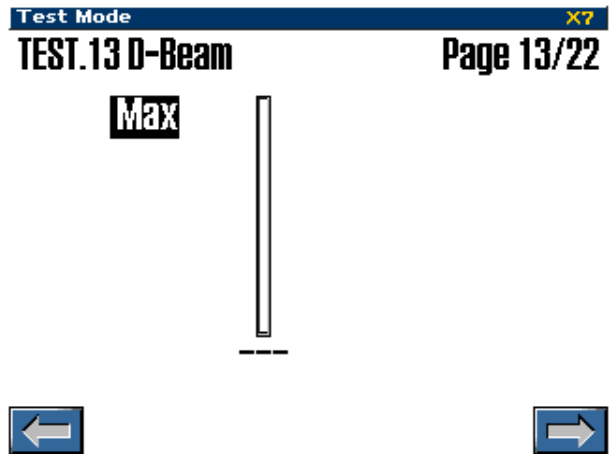
This adjusts the sensitivity of the [D BEAM] controller.
 This adjustment sets the optimal sensitivity for the controller by making adjustments for two distances from the [D BEAM] controller; at 5 cm and at 45 cm.
 Before you begin this test: The location of the Fantom must satisfy the following conditions.
 Do not place objects nearby the Fantom. (It must be at least 30 cm from surrounding objects.)
 Place the Fantom at a distance from large flat surfaces such as ceiling or walls. (It must be at least 100 cm away from such surfaces.)
 Do not place the Fantom where strong light, such as direct sunlight or electric light, can fall on it.
 When you enter the D-Beam Adjustment test, the LCD display will show as follows.



First make the "5 cm" setting for the [D BEAM] controller.
 The LCD display will indicate "Low (5cm)."
 Place your hand in parallel with the panel surface at a vertical distance of 5 cm from the [D BEAM] controller, and press the [ENTER] button.
 Do not move your hand while the lower part of the LCD display shows "Now Adjusting..."
 When the setting has been completed, you will automatically proceed to the next setting.
 Make the "45 cm" setting for the [D BEAM] controller.
 The LCD display will indicate "High (45cm)."
 Place your hand in parallel with the panel surface at a vertical distance of 45 cm from the [D BEAM] controller, and press the [ENTER] button.
 Do not move your hand while the lower part of the LCD display shows "Now Adjusting..."
 When the setting has been completed, you will automatically proceed to the next test item.

13. D-Beam test

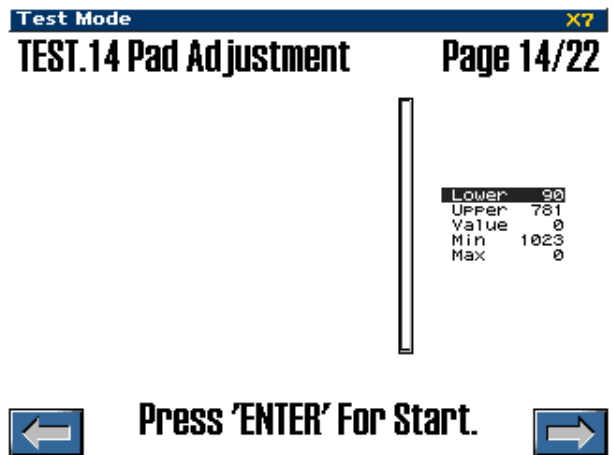
This tests the operation of the [D BEAM] controller.
 When you begin the D-Beam test, the LCD display will show as follows.



First you will test the [D BEAM] controller.
 The LCD display will show "Max."
 Place your hand above the [D BEAM] controller, and move that hand downward.
 Verify that the LCD display shows the maximum value (L 127) when your hand is approximately 5 cm from the surface of the panel.
 If the test result is OK, the LCD display will show "Min."
 Place your hand above the [D BEAM] controller, and move that hand upward.
 Verify that the LCD display shows the minimum value (L 0) when your hand is approximately 45 cm from the surface of the panel.
 If the test result is OK, you will automatically proceed to the next test item.

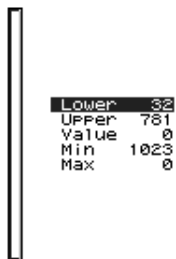
14. Pad Adjustment

This adjusts the [DYNAMIC PAD] sensitivity.
 This adjustment sets the optimal [DYNAMIC PAD] sensitivity relative to a force of 3 (kgf) applied to the [DYNAMIC PAD].
 When you enter the Pad Adjustment test, the LCD display will show as follows.



When you press the [ENTER] button, every [DYNAMIC PAD] will blink, and the LCD display will show as follows.

Test Mode **X7**
TEST.14 Pad Adjustment **Page 14/22**



← **Press 'PAD' For Adjust.** →

Using the push-pull gauge you provided, apply pressure of 3 (kgf) to [DYNAMIC PAD 4].

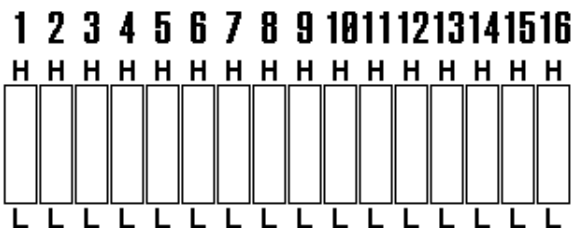
When you press the [ENTER] button, the setting will be saved and you will automatically proceed to the next test item.

15. Pad Velocity

This tests [DYNAMIC PAD] operation.

When you enter the Pad Velocity test, every [DYNAMIC PAD] will blink, and the LCD display will show as follows.

Test Mode **X7**
TEST.15 Pad Velocity **Page 15/22**



← →

Lightly press each [DYNAMIC PAD] from [1] through [16]. Verify that the LED of the [DYNAMIC PAD] you press changes from blinking to lit, and that in the LCD display the "L" indication for the corresponding button becomes lighter.

Strongly press each [DYNAMIC PAD] from [1] through [16].

Verify that the LED of the [DYNAMIC PAD] you press changes from lit to dark, and that in the LCD display the "H" indication for the corresponding button becomes lighter.

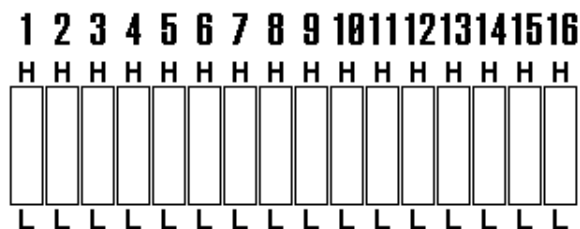
If the test result is OK, you will automatically proceed to the next test item.

16. Pad Aftertouch

This tests [DYNAMIC PAD] operation.

When you enter the Pad Velocity test, every [DYNAMIC PAD] will blink, and the LCD display will show as follows.

Test Mode **X7**
TEST.16 Pad Aftertouch **Page 16/22**



← →

Strongly and slowly press each [DYNAMIC PAD] from [1] through [16]. Verify that the LED of the [DYNAMIC PAD] you press changes from blinking to dark, and that in the LCD display the bar graph for the corresponding button becomes lighter.

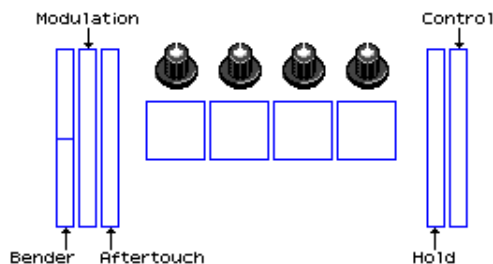
If the test result is OK, you will automatically proceed to the next test item.

17. A/D

This tests the operation of each rotary control and slide control.

When you enter the A/D test, the LCD display will show as follows.

Test Mode **X7**
TEST.17 A/D **Page 17/22**



← →

One by one, operate all controls (other than the [VOLUME OUTPUT] knob and the [VOLUME INPUT] knob), including the bender, aftertouch, [CONTROL] jack (connect an expression pedal such as the EV-5), and [HOLD] jack (connect an expression pedal such as the EV-5), to adjust through their variable range from MAX to MIN.

Verify that the corresponding indicator in the LCD display becomes lighter.

When all indicators have become light, and the test results are OK, you will automatically proceed to the next test item.

18. Keyboard

This tests the keyboard.

When you enter the keyboard test, the LCD display will show as follows.

Test Mode X7
TEST.18 Keyboard Page 18/22



← **Piano** →

Perform the eight-note check. Play the keyboard to check.

Also verify that the volume changes according to the strength with which you press the key.

When you press the [8] button, the sound will change, and the LCD display will show as follows.

Test Mode X7
TEST.18 Keyboard Page 18/22



← **Organ** →

Perform the two-note check. Play the keyboard to check.

Press the [8] button to proceed to the next test item.



When you do not check the all key, you can not proceed to the next test items.

19. USB

This tests USB operation.

When you enter the USB test, the LCD display will show as follows.

Test Mode X7
TEST.19 USB Page 19/22

Status: Disconnect



Please, Connect USB to PC.

← →

Connect a USB cable to your computer (one that has a USB connector; the OS can be either Windows Me, Windows 2000, or Windows XP).

If the test result is OK, the display will indicate "Status: Connect USB Test Completed!"

On your computer, use the Safely Remove Hardware icon shown in the taskbar at the lower right of the screen to break the connection with the Fantom-X.

Press the [8] button to proceed to the next test item.

20. Noise test

Test Mode X7
TEST.20 Noise Page 20/22

← **Check Noise Levels.** →

1. Check the noise is soundig or not.
2. Press the [8] button to proceed to the next test item.

21. Factory Reset

This perform a Factory Reset.

The LCD display will show as follows.

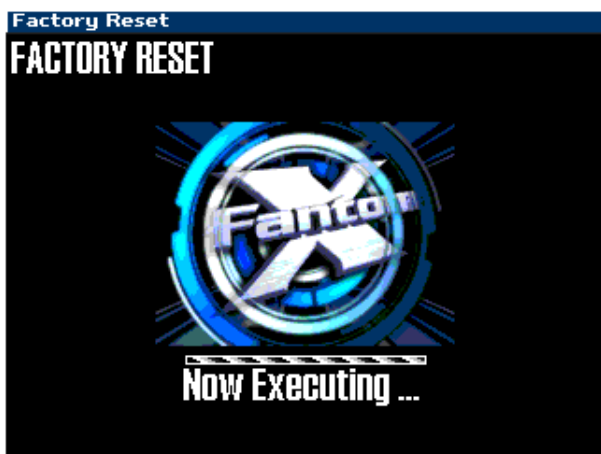
Test Mode X7
TEST.21 Factory Reset Page 21/22



Press 'ENTER' to Factory Reset.



When you press the [ENTER] button, the LCD display will show as follows, and the factory reset will be executed automatically.



When the factory reset is completed, the LCD display will show as follows, and you will exit Test mode.



COMPLETED
Please Power Off.

Turn off the power of the Fantom.

RESTORING THE FACTORY SETTINGS

This restores all data in the Fantom-X to the factory-set condition (Factory Reset).

NOTE

If there is important data you've created that's stored in the Fantom-As's internal memory, all such data is discarded when a Factory Reset is performed (the data of the internal user memory will be lost). If you want to keep the existing data, save it on a PC CARD or save it on via USB to your computer

1. Press [MENU] to open the Menu window.
2. Press to select "Utility," and then press [ENTER].
3. Press [3 (Factory Reset)].
A message will ask confirmation.
4. Press [8 (Exec)] to execute the Factory Reset.
* To cancel, press [7 (Cancel)].
5. When the display indicates "Please Power Off," turn the power off, then on again.

SYSTEM SOFTWARE UPDATE PROCEDURE

The Fantom-X uses flash memory as its program ROM, and can be updated using either of the following two methods.

1. Updating from a computer via a USB cable

(Time required: approximately 3 minutes)

2. Updating from PC CARD via the Fantom's PC card slot

(Time required: approximately 3 minutes)

1. Updating from a computer via a USB cable

Required items

1. UPDATE DATA FOR SERVICE CD-ROM (#17041421)
2. A computer (with a USB connector; the OS can be either Windows Me, Windows 2000, or Windows XP)
* You cannot use a Mac under any circumstances.
3. One PC card (64 MB or more free space) or PC
4. Used to back up user data
5. USB cable

If user memory contains important data, save the data (refer to Saving and Loading User Data) before you perform the update procedure.

Procedure

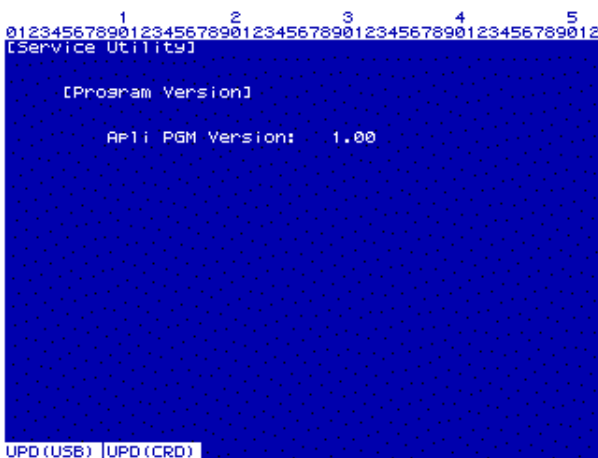
1. Turn on the power of the Fantom-X.
2. Press the [MENU] button to access the Menu window.
3. Use the [CURSOR] up/down buttons to select "System," and then press the [ENTER] button.
4. The System Setup screen will appear, and the LCD display will show as follows.



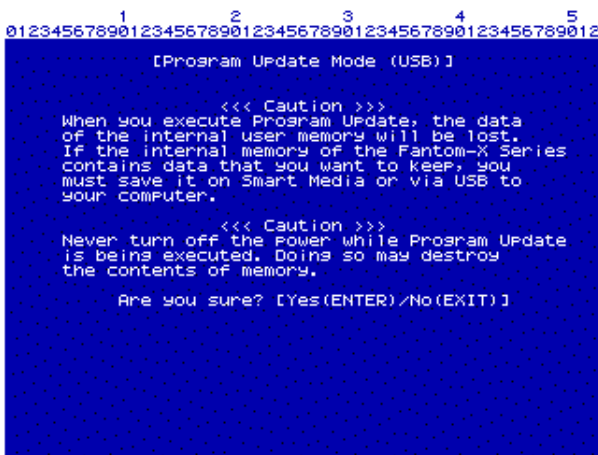
5. Press the [4] button "System Info".
6. Use [1 (▲)] [2 (▼)] to select "Version Info." The Version Info screen will appear, and the LCD display will show as follows.



7. Press buttons in the order of [SHIFT]->[7]->[8]->[7]->[8].
8. The "Service Utility" screen will appear, and the LCD display will show as follows.



9. When you press the [1] button, the [Program Update Mode (USB)] screen will appear, and the LCD display will show as follows.



10. Press the [ENTER] button. The LCD display will show "Initializing...." and will then show as follows.
11. If you decide to cancel the update, press the [EXIT] button before you press the [ENTER] button. (If you execute the update, all user data will be erased.)



At this time "[USB STATUS]" will indicate the status of the USB connection. [USB STATUS] Disconnected. The computer is not connected. [USB STATUS] connected. The Fantom-X is connected to the computer. [USB STATUS] Receiving. Data is being received from the computer.

12. Turn on the power of the computer.
13. Use a USB cable to connect the computer to the Fantom-X. (The computer will detect the Fantom-X as a removable disk drive.)
Verify that the LCD display of the Fantom-X indicates "[USB STATUS] connected."
14. Insert the UPDATE CD-ROM (#17041421) into your computer, and navigate to the "Roland" folder of the CD-ROM.
15. Copy the file "fanx.bin" file (located within the "Roland" folder) to the Fantom-X (removable disk).
The Fantom-X will receive the data from the computer.
Verify that the LCD display of the Fantom-X indicates "[USB STATUS] Receiving."
- When the LCD display of the Fantom-X shows the "[USB STATUS] Connected." indication for ten seconds or longer, this indicates that the copy has been completed.
16. On your computer, use the Safely Remove Hardware icon in the taskbar at the lower right of the screen to disconnect the Fantom-X from your computer.
17. Press the [ENTER] button. After a time, the display will indicate "Completed. Please, PowerOff." The update procedure has been completed.
18. Turn the power of the Fantom-X off and then on again, and perform the version check and execute Test mode.

Cautions when updating via USB

After you have pressed the [ENTER] button at the end of the procedure described above, never turn off the power of the Fantom-X until the indication of "Completed. Please, PowerOff." has appeared. If the power is turned off during this time, the program will be erased. You must restart your computer before you begin the update procedure.

2. Updating from PC CARD via the Fantom's PC card slot

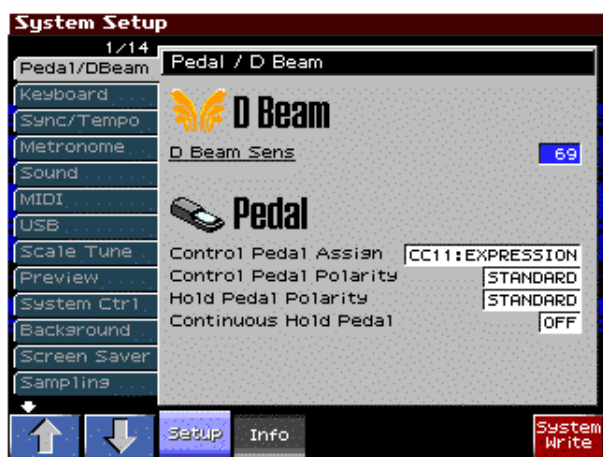
Required items

- UPDATE DATA FOR SERVICE CD-ROM (#17041420)
- Computer (the OS can be either Windows Me, Windows 2000, or Windows XP)
- * You cannot use a Mac under any circumstances.
- PC cards (one with 32 MB or more free space, one with 32 MB or more free space (used to back up user data))
- * In addition, substitution to PC is possible for user data back up.
- PC CARD reader/writer

If user memory contains important data, save the data (refer to Saving and Loading User Data) before you perform the update procedure.

Procedure

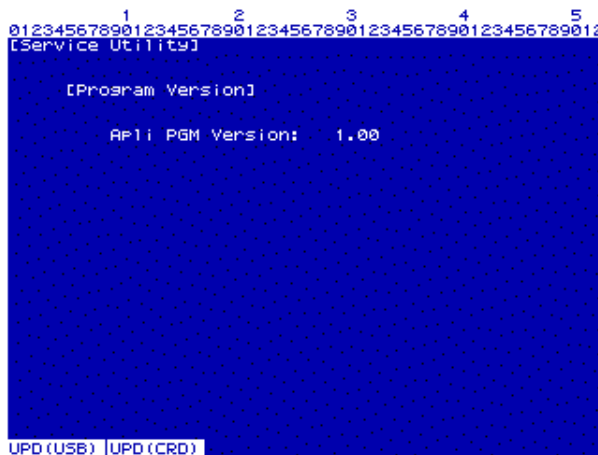
1. Create an update card.
2. Turn on the power of your computer.
3. Insert a 32 MB or larger PC card into the PC CARD reader/writer connected to your computer, and format it.
4. Insert the UPDATE CD-ROM (#17041420) into your computer, and navigate to the "Roland" folder within the CD-ROM.
5. Copy the entire "Roland" folder with its contents onto the PC card.
6. Turn on the power of the Fantom-X.
7. Press the [MENU] button to access the Menu window.
8. Use the [CURSOR] up/down buttons to select "System," and then press the [ENTER] button.
9. The System Setup screen will appear, and the LCD display will show as follows.



10. Press the [4] button "System Info."
11. Use [1 (.)] [2 (.)] to select "Version Info." The Version Info screen will appear, and the LCD display will show as follows.



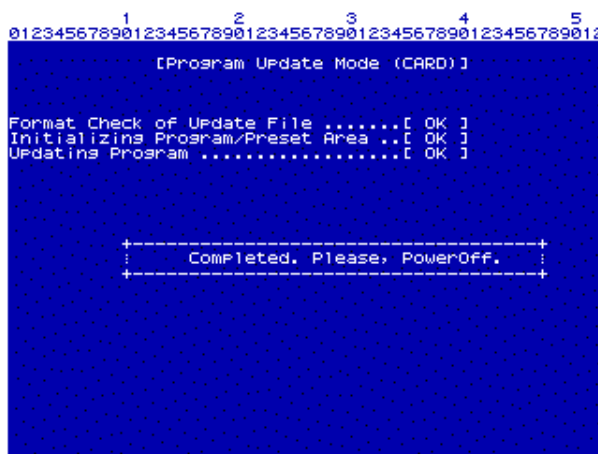
12. Press the buttons in the order of [SHIFT]->[7]->[8]->[7]->[8].
13. The "Service Utility" screen will appear, and the LCD display will show as follows.



14. Press the [2] button to access the [Program Update Mode (CARD)] screen. The LCD display will show as follows.



15. Press the [ENTER] button. After a time, the display will indicate "Completed. Please, PowerOff." The update procedure has been completed.



16. If you decide to cancel the update procedure, press the [EXIT] button before you press the [ENTER] button.
17. Turn the power of the Fantom-X off and then on again, and perform the version check and execute Test mode.

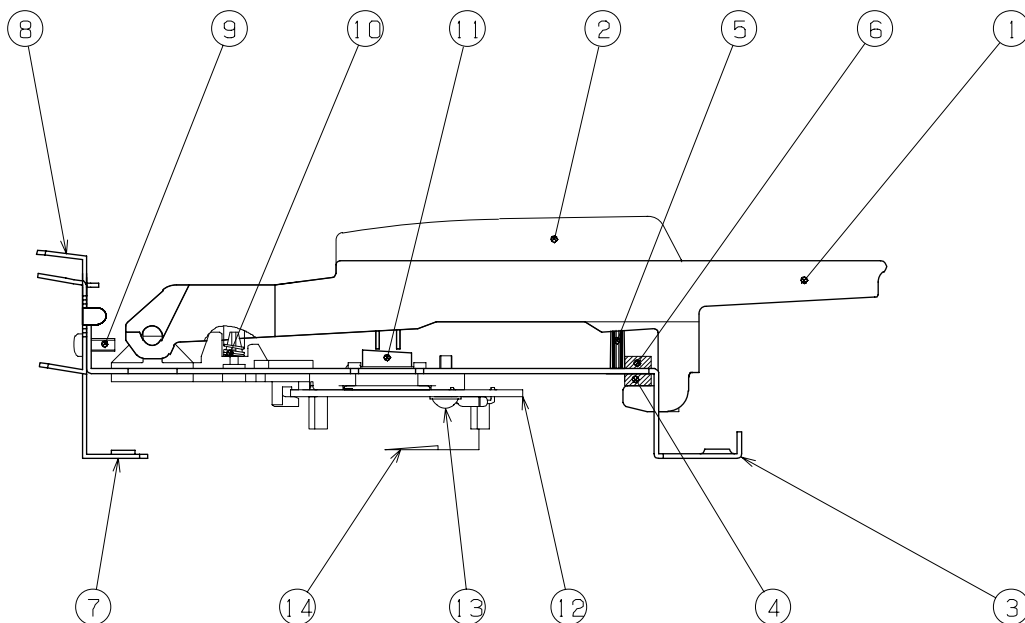
Cautions when updating via PC card

After you have pressed the [ENTER] button at the end of the procedure described above, never turn off the power of the Fantom-X until the indication of "Completed. Please, PowerOff." has appeared. If the power is turned off during this time, the program will be erased. You must restart your computer before you begin the update procedure.

KEYBOARD PARTS LIST

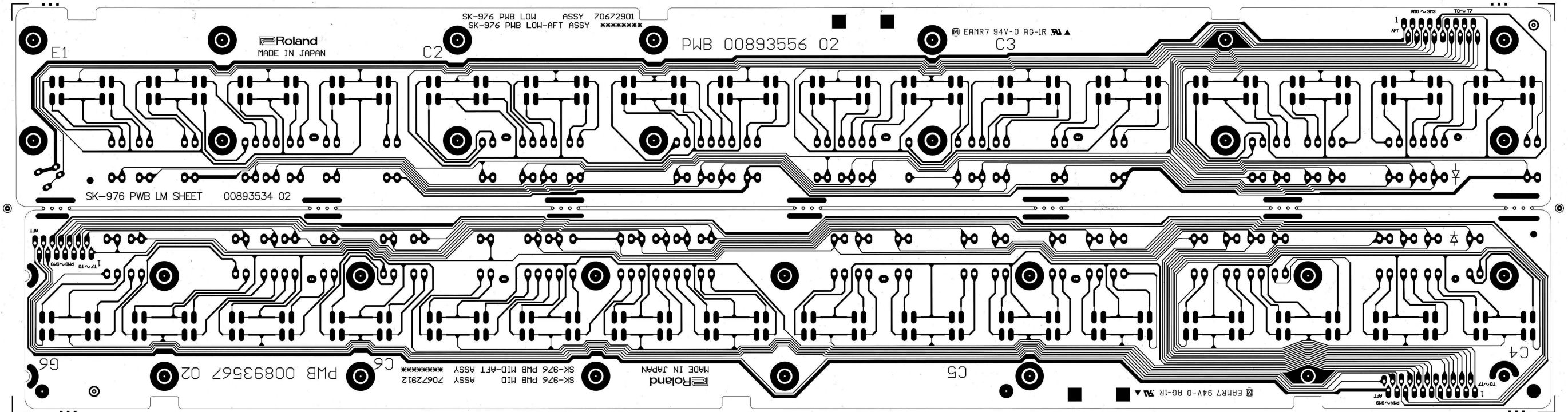
SK-976-C KBD ASSY PARTS LIST

No.	PARTS No.	PARTS NAME	Qty.	
1	00893723W0	SK-9 NATURAL KEY CF (WEIGHT)	13	
	00893734W0	SK-9 NATURAL KEY EB (WEIGHT)	12	
	00893756W0	SK-9 NATURAL KEY D (WEIGHT)	6	
	00893767W0	SK-9 NATURAL KEY G (WEIGHT)	6	
	00893745W0	SK-9 NATURAL KEY A (WEIGHT)	6	
	00895156W0	SK-9 NATURAL KEY E' B' (WEIGHT)	1	
	00895167W0	SK-9 NATURAL KEY G' (WEIGHT)	1	
2	00893790W0	SK-9 SHARP KEY (WEIGHT)	31	
	*****	SK-9 CHASSIS 76P-D ASSY	1	
	3	02455023	SK-9 CHASSIS 76P LONG	1
	4	00895212	SK-9 CUSHION 76P	1
	5	01122023	SK-9 GUIDE	76
	6	02455034	SK-976 AFTERTOUC	1
	7	02674012	FANTOM KBD HOLDER	3
		03120734	V-SYNTH KBD HOLDER	2
	8	03565989	FANTOM-X6 PWB HOLDER	1
	9	40011067	SCREW BINDING TAPTITE B 3X8MM ZC	16
10	01231534	SK-9 SPRING-WT2	76	
11	00893823	SK-9 RUBBER SWITCH 12P	4	
	00893834	SK-9 RUBBER SWITCH 13P	1	
	00895178	SK-9 RUBBER SWITCH 8PL	1	
	00895189	SK-9 RUBBER SWITCH 7PH	1	
12	70672901	SK-976 PWB LOW ASSY	1	
	71901101	SK-976 PWB MID-AFT ASSY	1	
	71901112	SK-976 PWB HI-AFT ASSY	1	
13	40233545	SCREW VWH TAPTITE B 3X10MM ZC	19	
14	23475965	BNCD-P=1.25-K-14-70	1	



KEYBOARD CIRCUIT BOARD

SK-976 PWB LOW ASSY

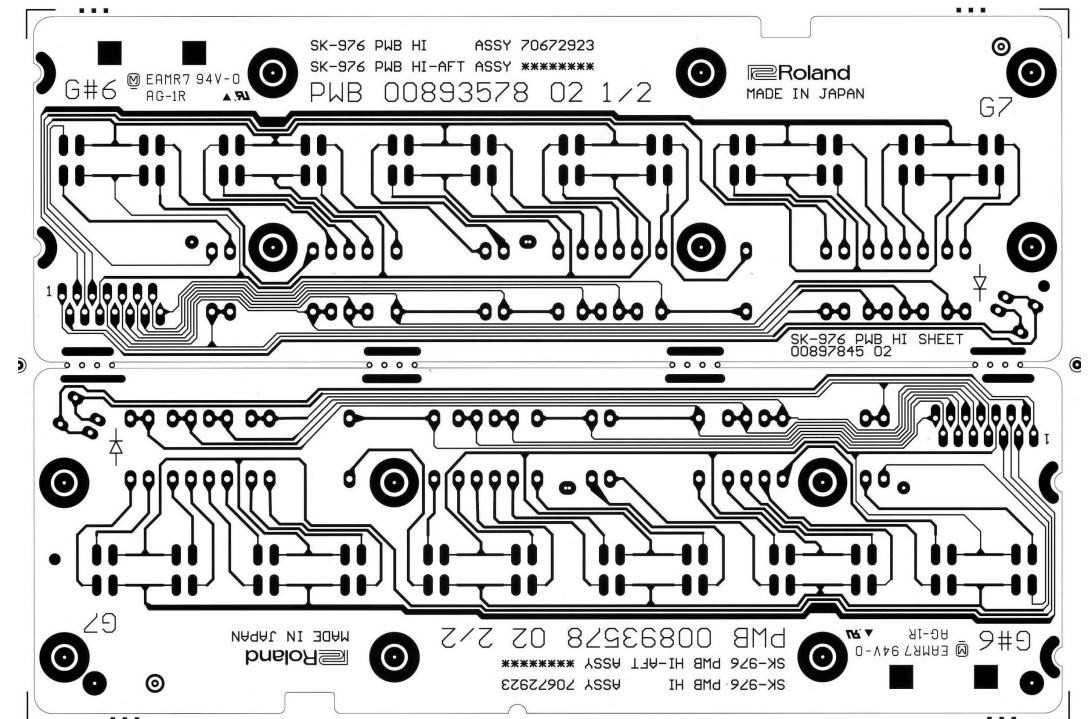


View from components side.

SK-976 PWB MID ASSY

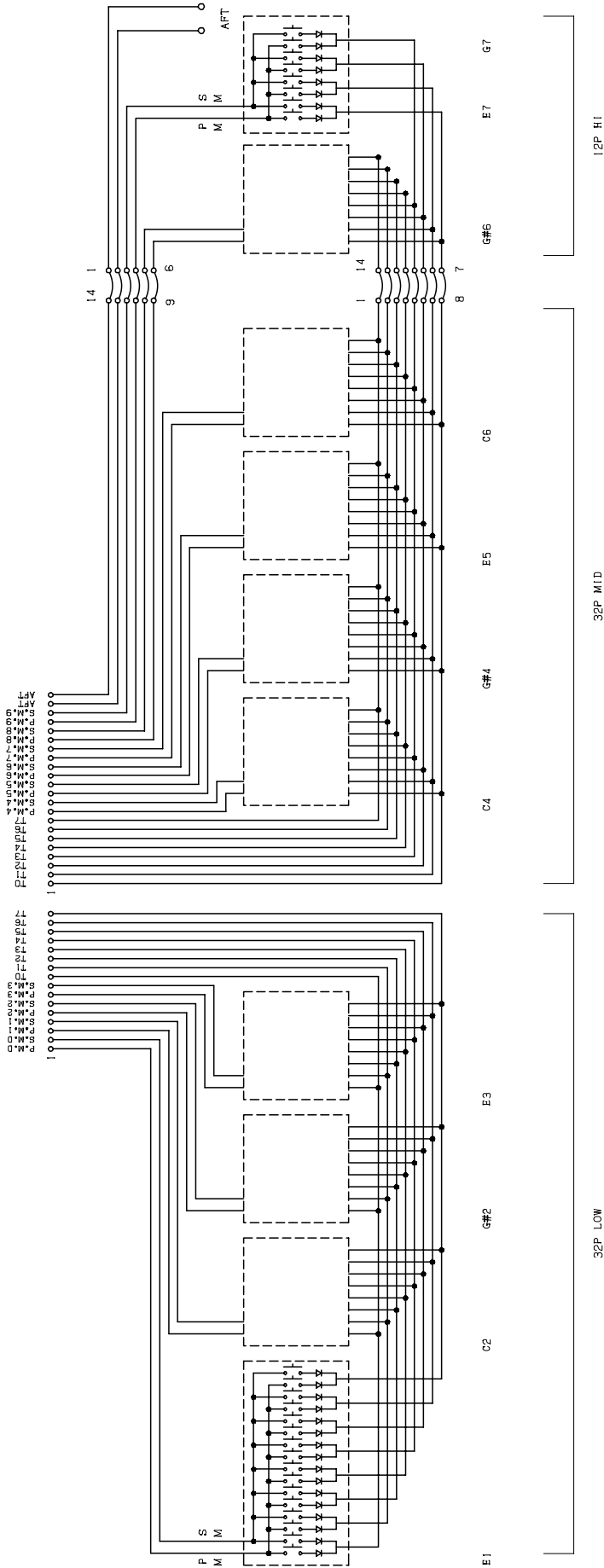


SK-976 PWB HI ASSY



View from components side.

KEYBOARD CIRCUIT DIAGRAM



KEYBOARD DISASSEMBLY

<Attaching the RUBBER SWITCHES and PCB>

To fasten the SK-9 PWB, be sure to use 3*10mm BINDING VWB (PART No.40233545).

1. Turn the chassis over as shown in fig.1. Next, place 4 pieces of RUBBER SWITCH 12P in turn, on the chassis from the left end (the bass side of keyboard), aligning them with the long holes provided on the chassis.

At this point, be sure that the air-escape grooves of each RUBBER SWITCH are positioned at the respective air-escape grooves on the chassis. (See fig.2)
Then on the right side (the high note area), place RUBBER SWITCH 13P in the same way.

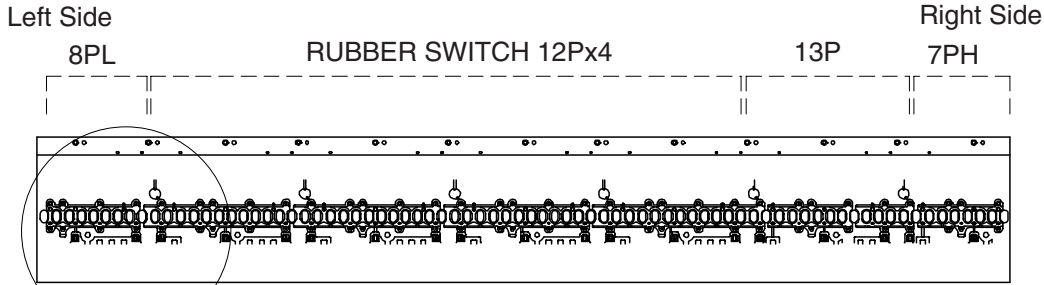
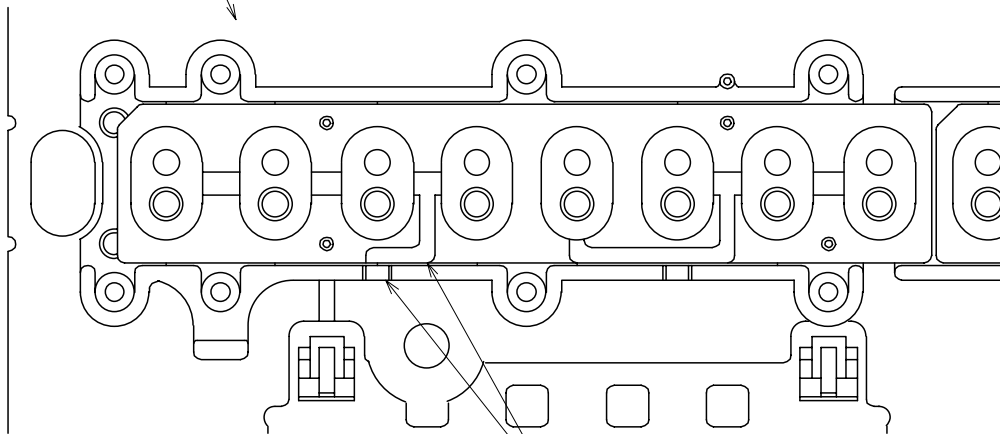


Fig.1



Air-escape groove

Fig.2

- Aligning the cutouts in the PWB with the lugs on the chassis, put one side of the PCB into the chassis hooks. Place the PCB on the Chassis so that the chassis positioning pins fit into the positioning holes. (See fig.3) At this point, the chassis positioning reference pin should first be fitted into the hole. There are two PCBs, LOW and HI, as shown in fig.4. The Chassis positioning reference pins are located near the connector each of the LOW and HI PCBs.

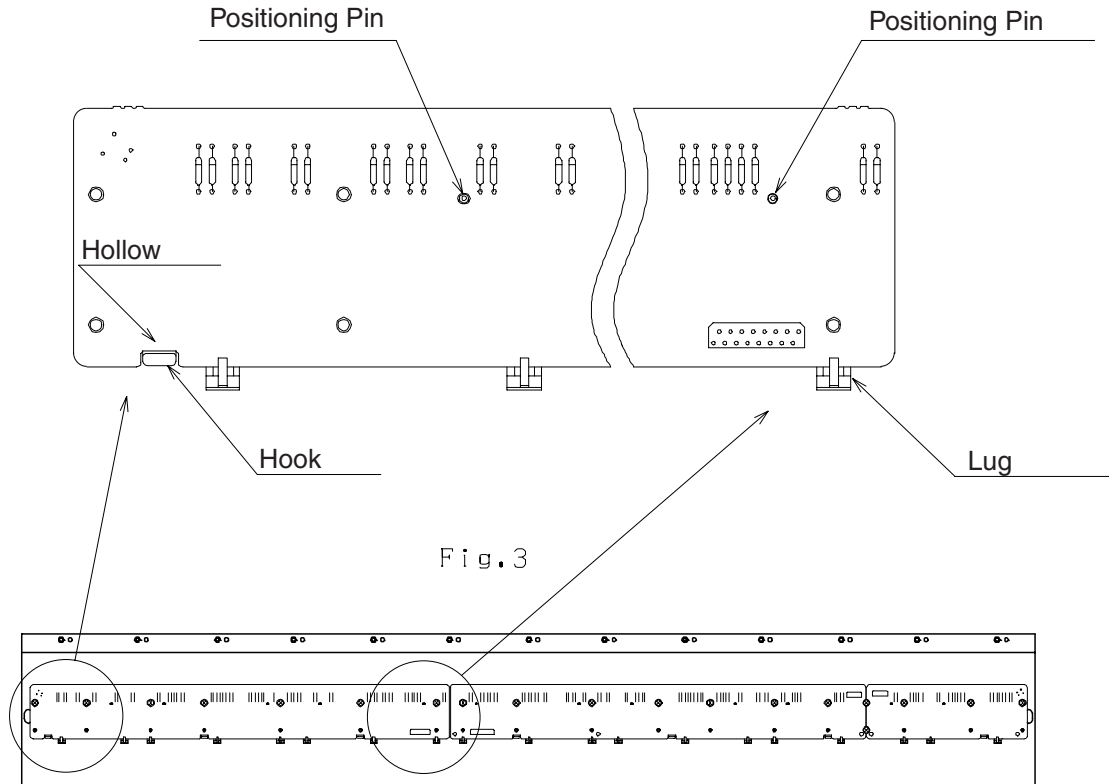
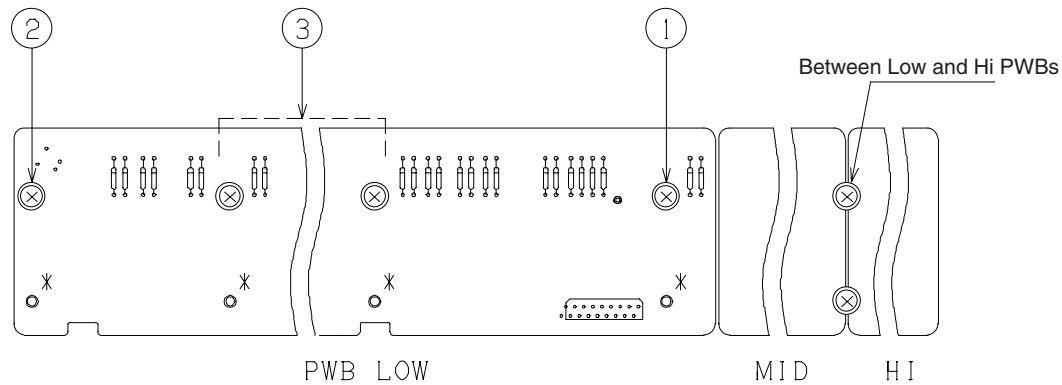


Fig. 3

Fig. 4

- Then, using the screws, fasten the LOW and HI PCBs to the chassis from the center of the keyboard, that is, from the LOW PCB as shown in fig.5. While you are screwing down the PCB, it may float from the chassis. To avoid this, after screwing in the PCB at the center of the keyboard, screw down opposite end, before screwing in other areas in the middle of the PCB. (See fig.5) In addition, the PCBs may be warped by soldering, etc. It is recommended that each PCB be fastened with screws while holding down the middle of the PCB lightly. Finally, screw down the adjacent area between the LOW and HI PCBs.



⊗ Screw positions/

*Use of these screw holes is not necessary, but if the chassis hooks are broken use these holes for inserting a screw.

Fig. 5

Note) When using an electric screwdriver, be careful of the torque. If excessive force is applied, the PCB may break or chip. (Suitable torque: 8kgf-cm)

<Key removal>

Hold the tip of the key, put pliers into the bearing side, and spread out. (Refer to fig.6)

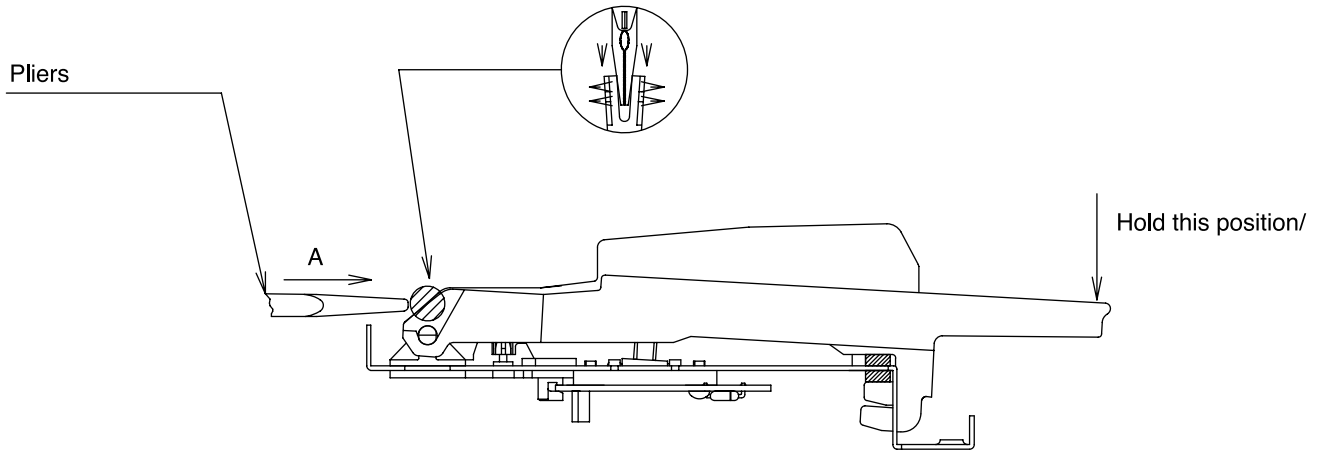


Fig.6

<Key installation>

Place a spring on the chassis. Next, place a key (see fig.7) and press the bearing side.

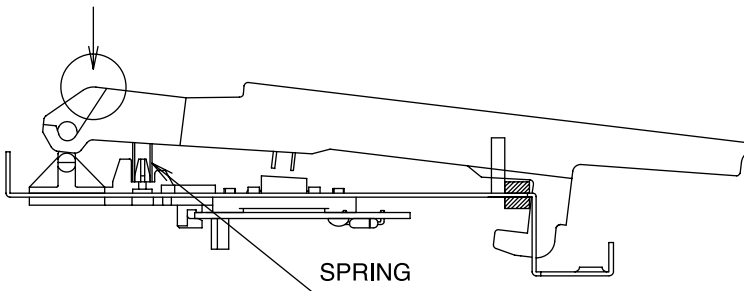
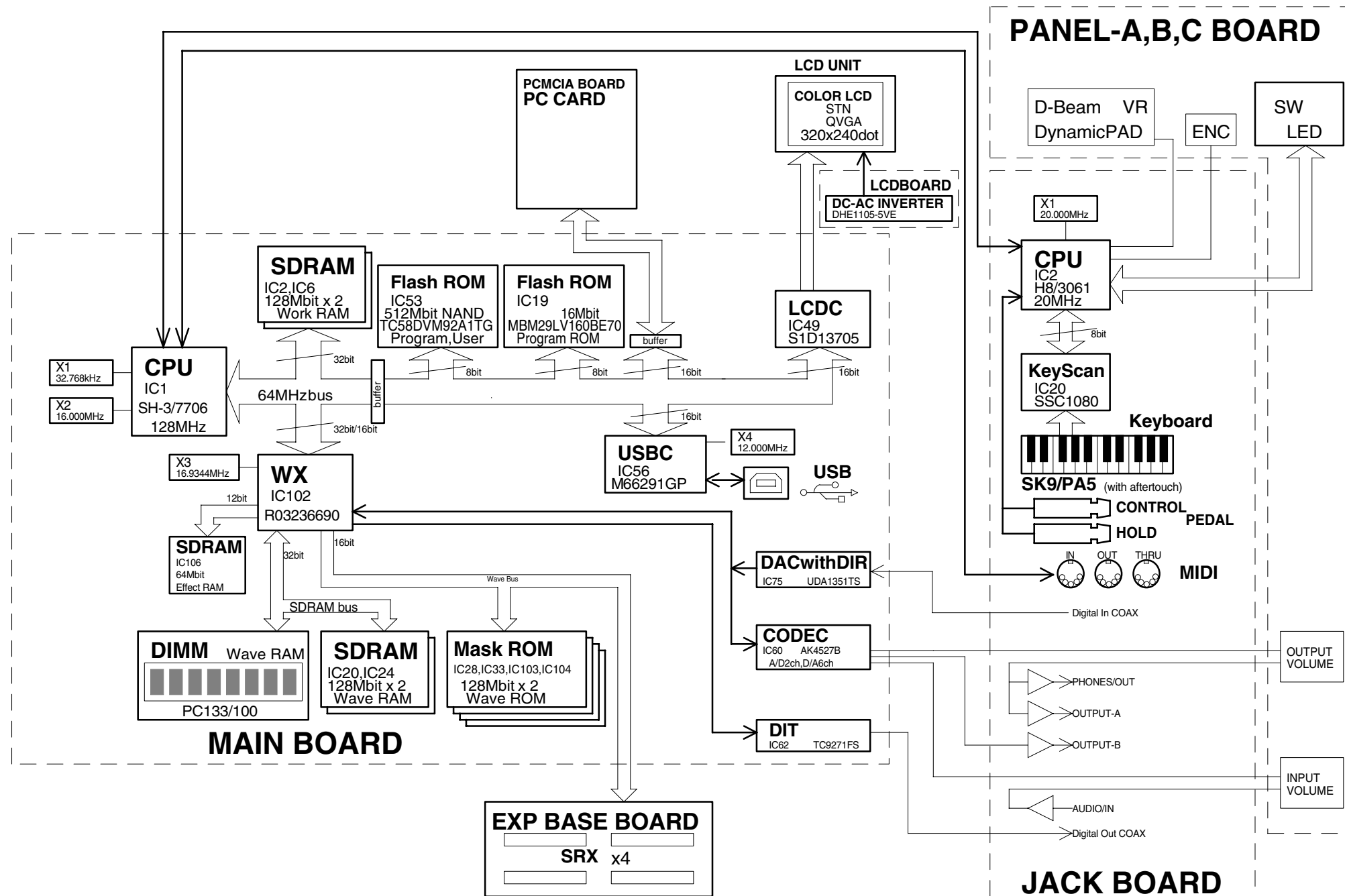
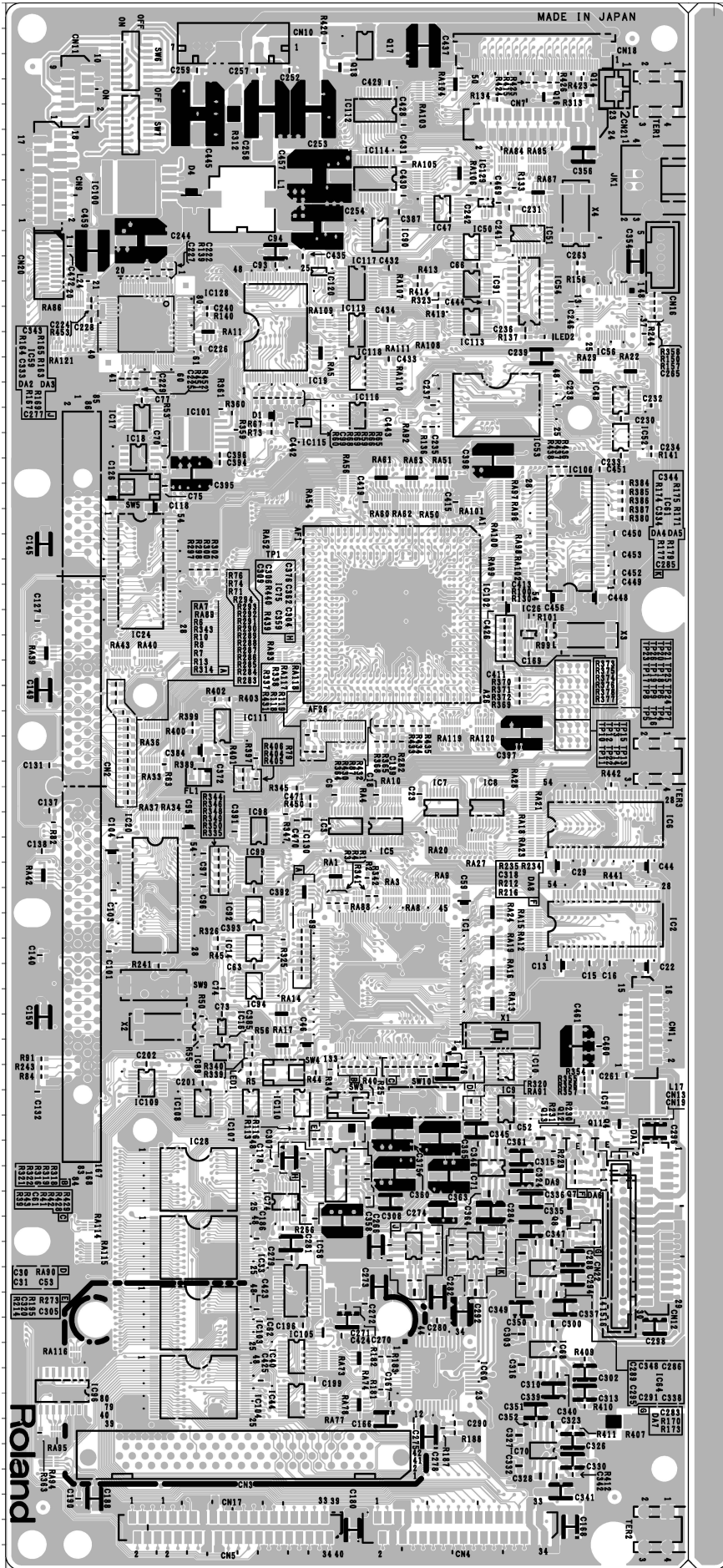


Fig.7

BLOCK DIAGRAM

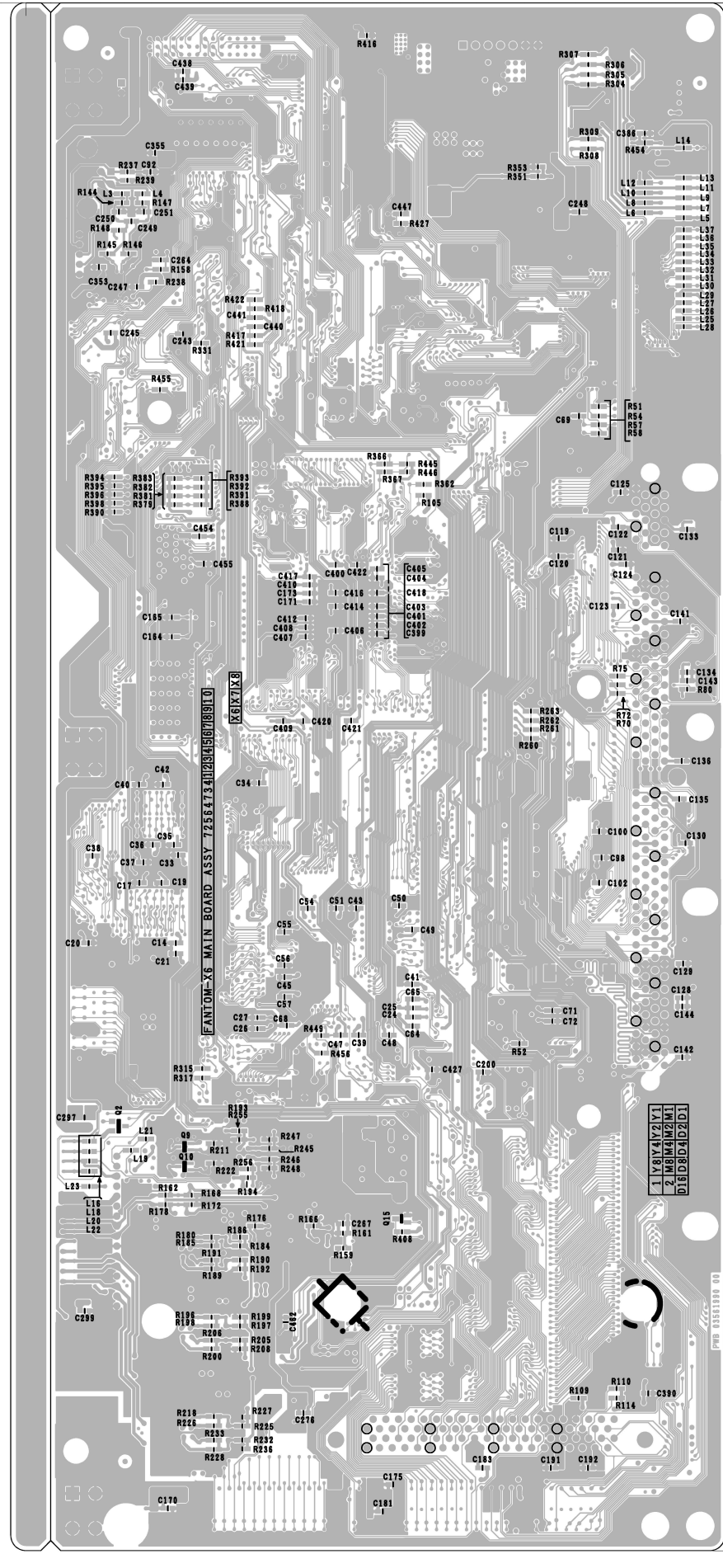


CIRCUIT BOARD(MAIN 1)



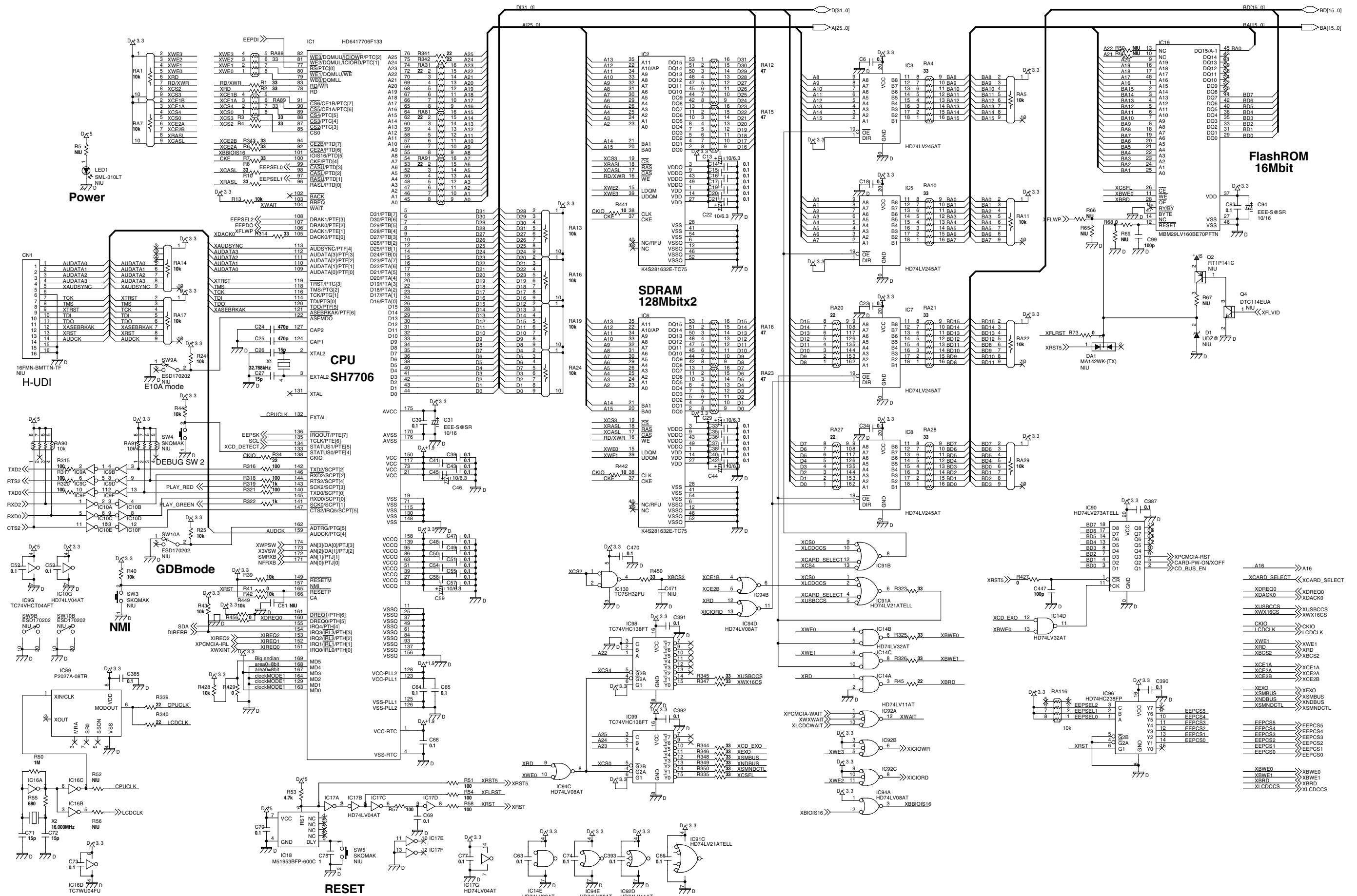
View from components side

CIRCUIT BOARD(MAIN 2)

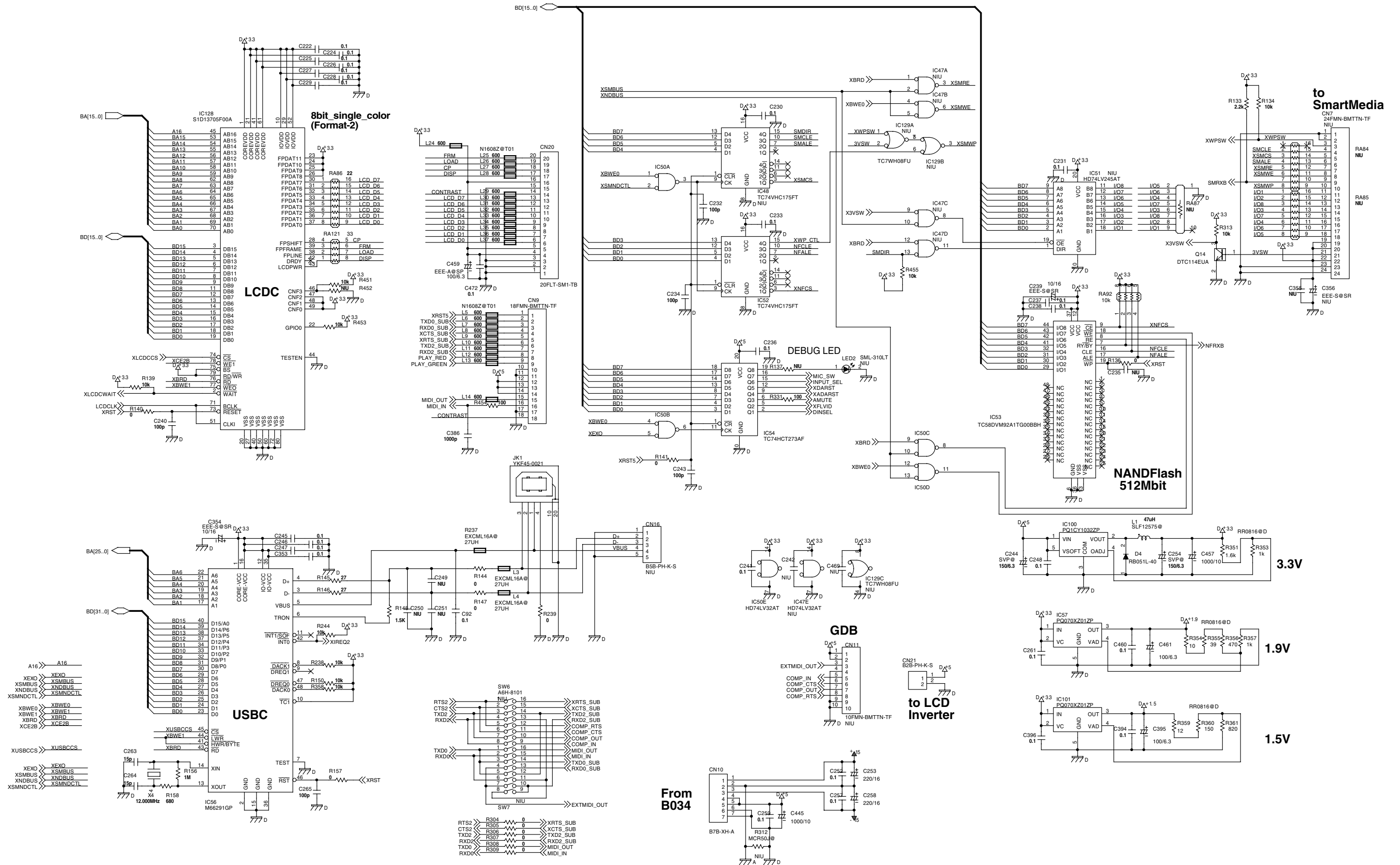


View from foil side

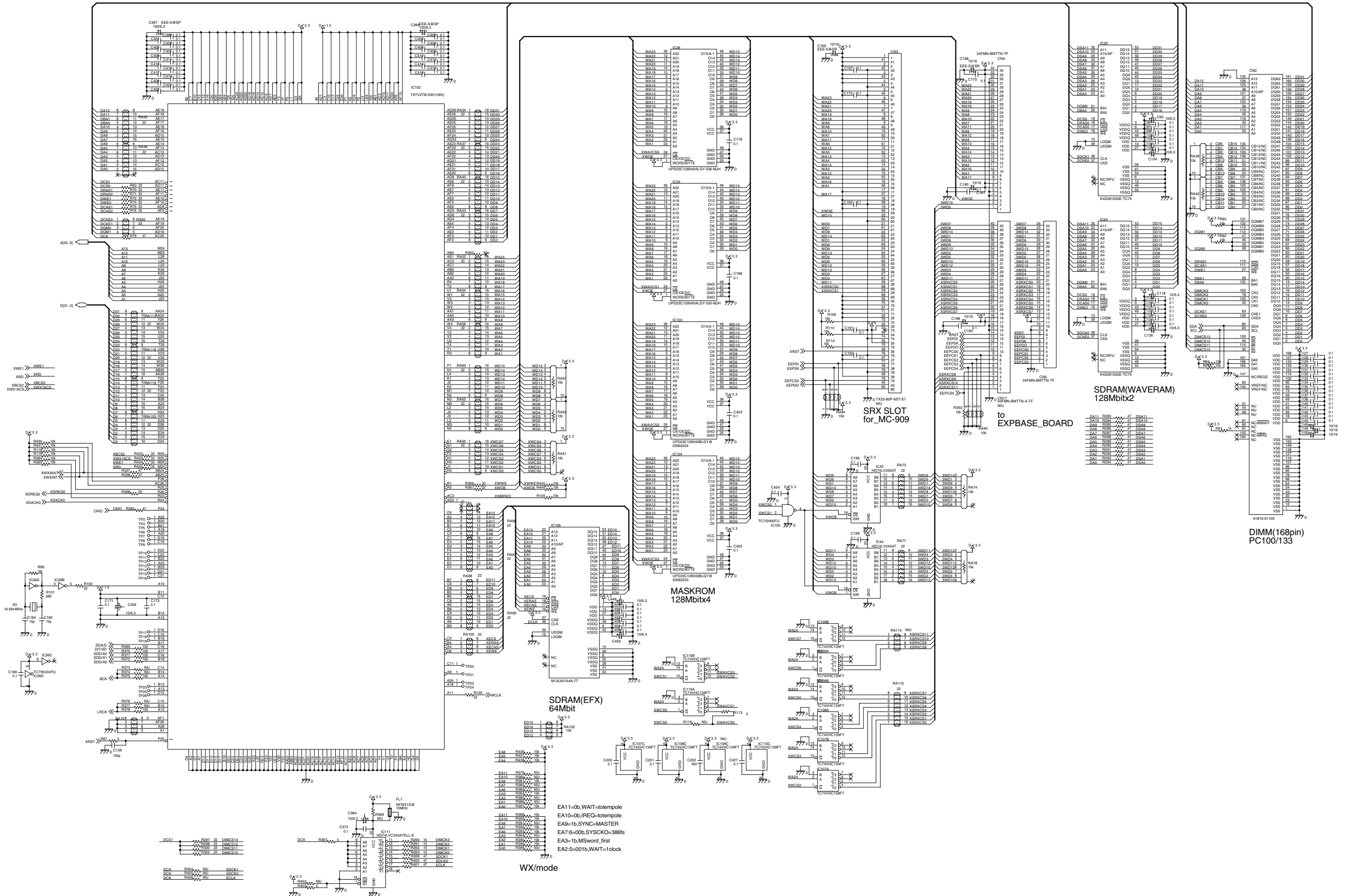
CIRCUIT DIAGRAM(MAIN 1)



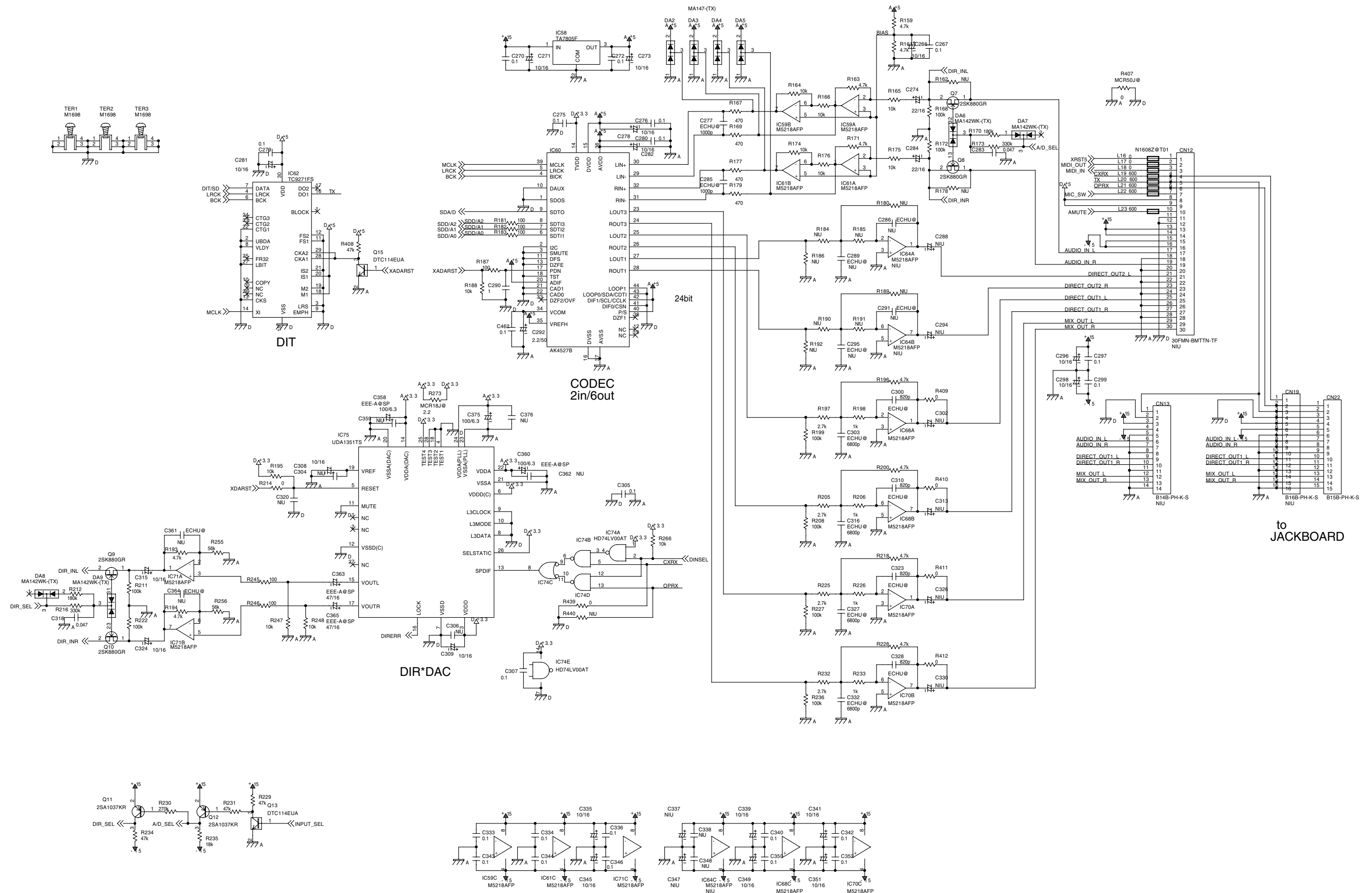
CIRCUIT DIAGRAM(MAIN 2)



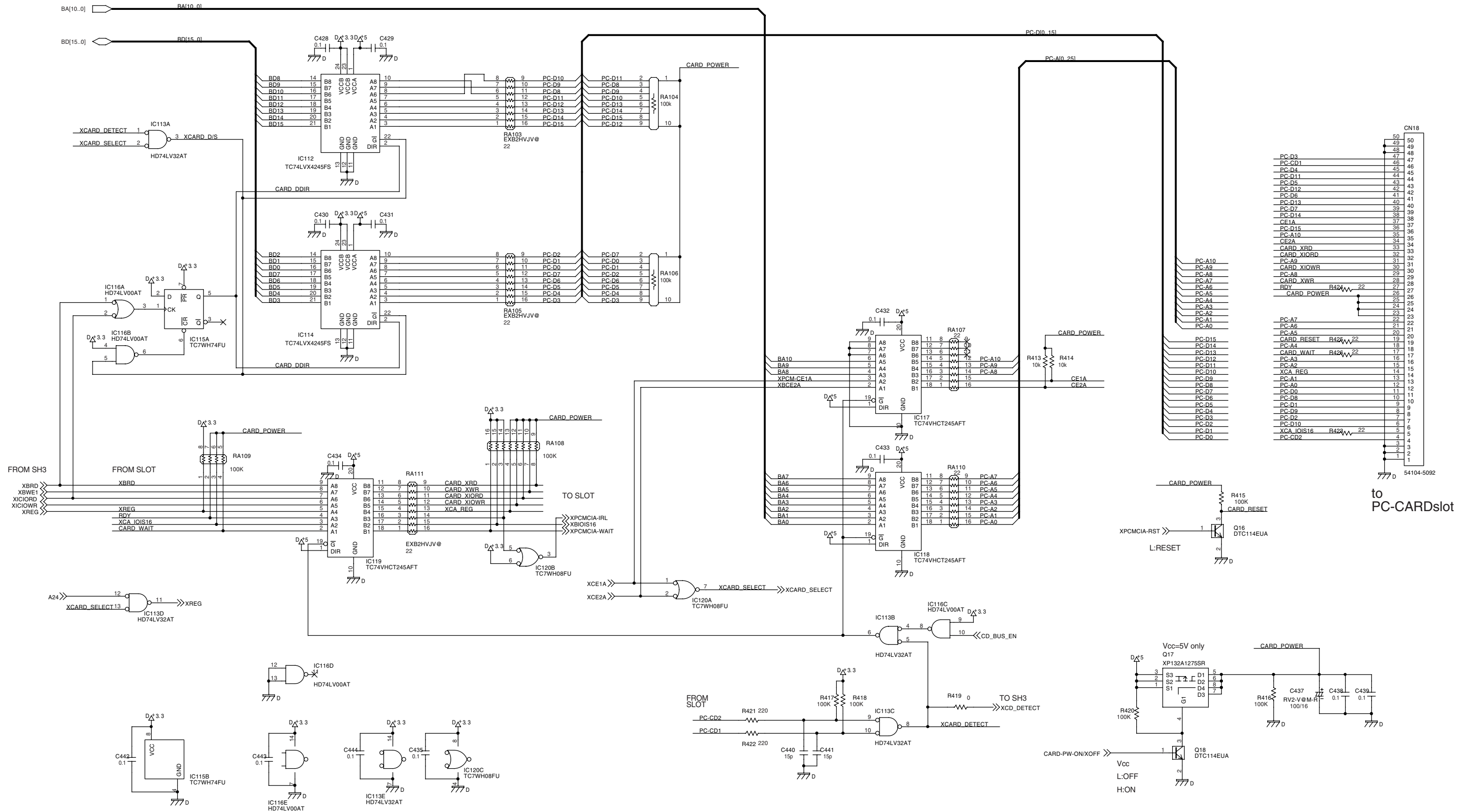
CIRCUIT DIAGRAM(MAIN 3)



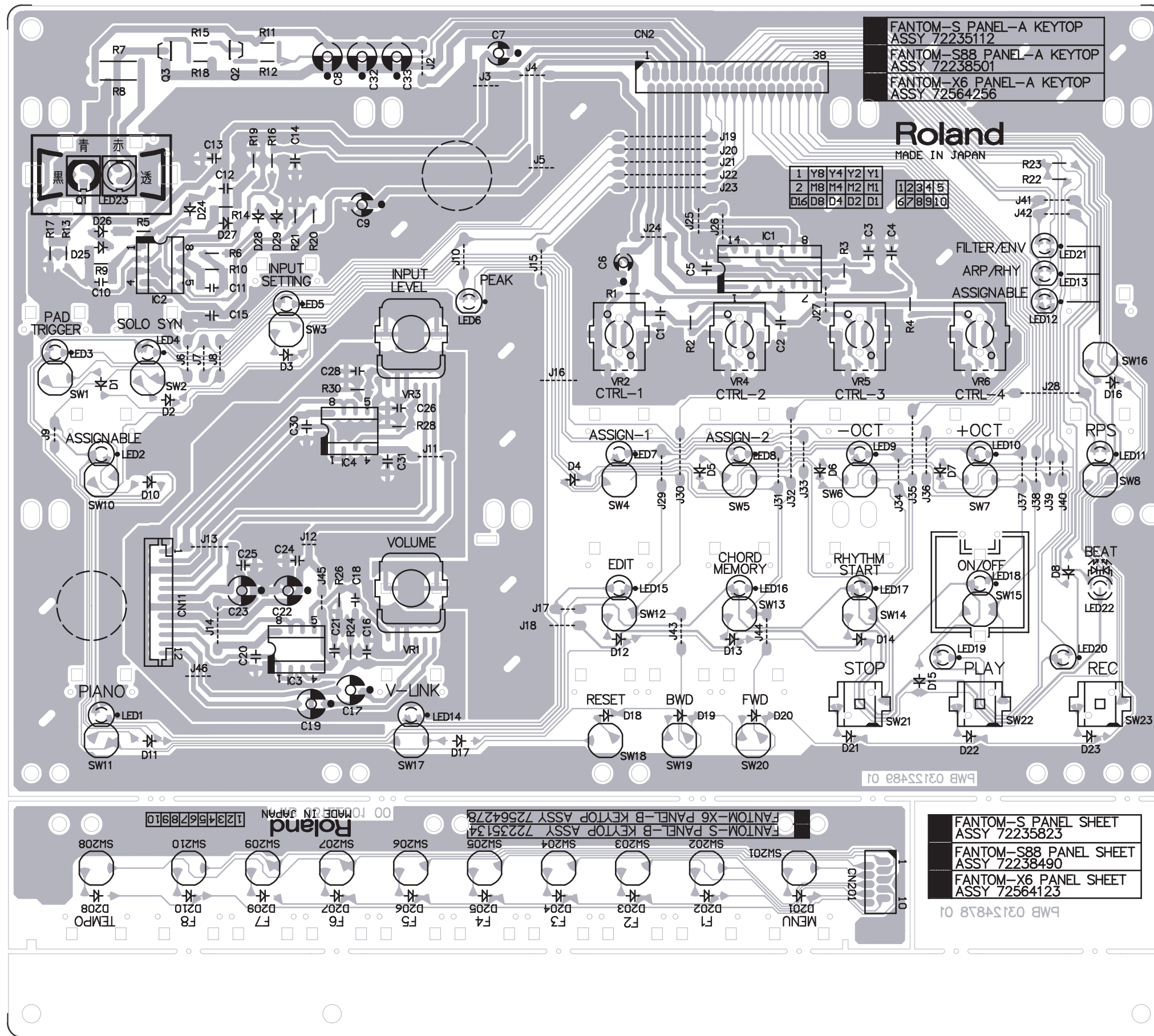
CIRCUIT DIAGRAM(MAIN 4)



CIRCUIT DIAGRAM(MAIN 5)

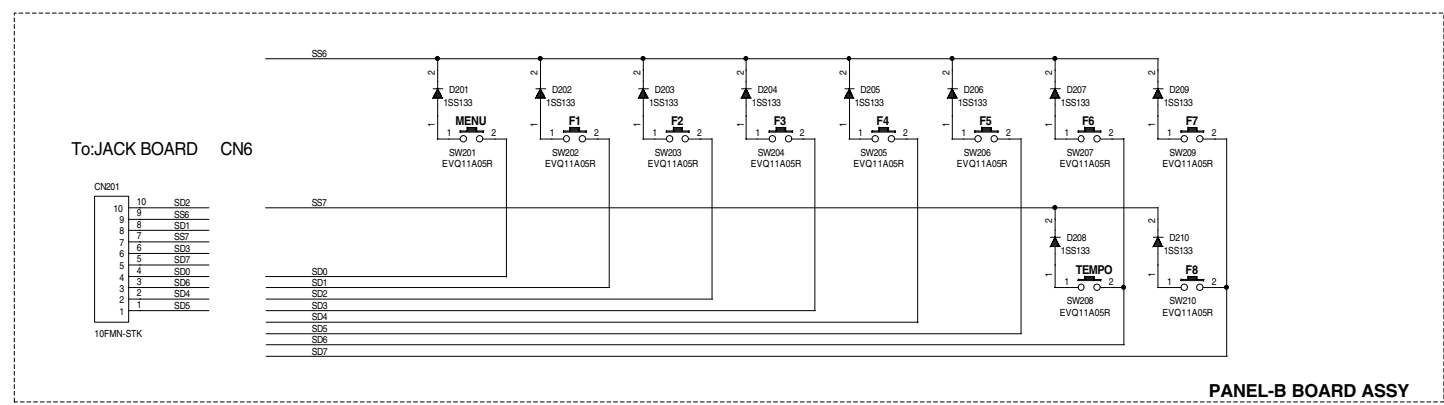
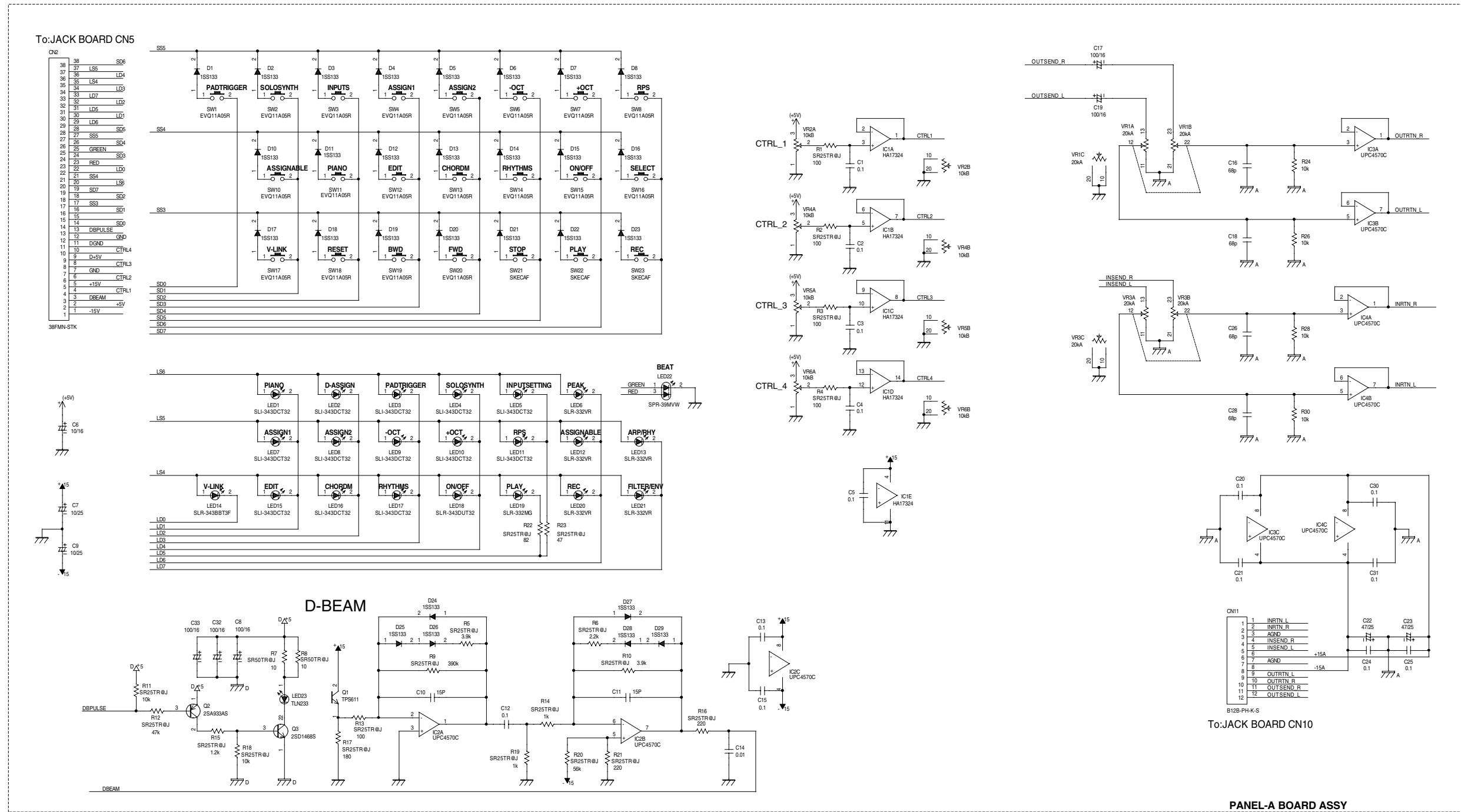


CIRCUIT BOARD(PANEL-A KEYTOP, PANEL-B KEYTOP)

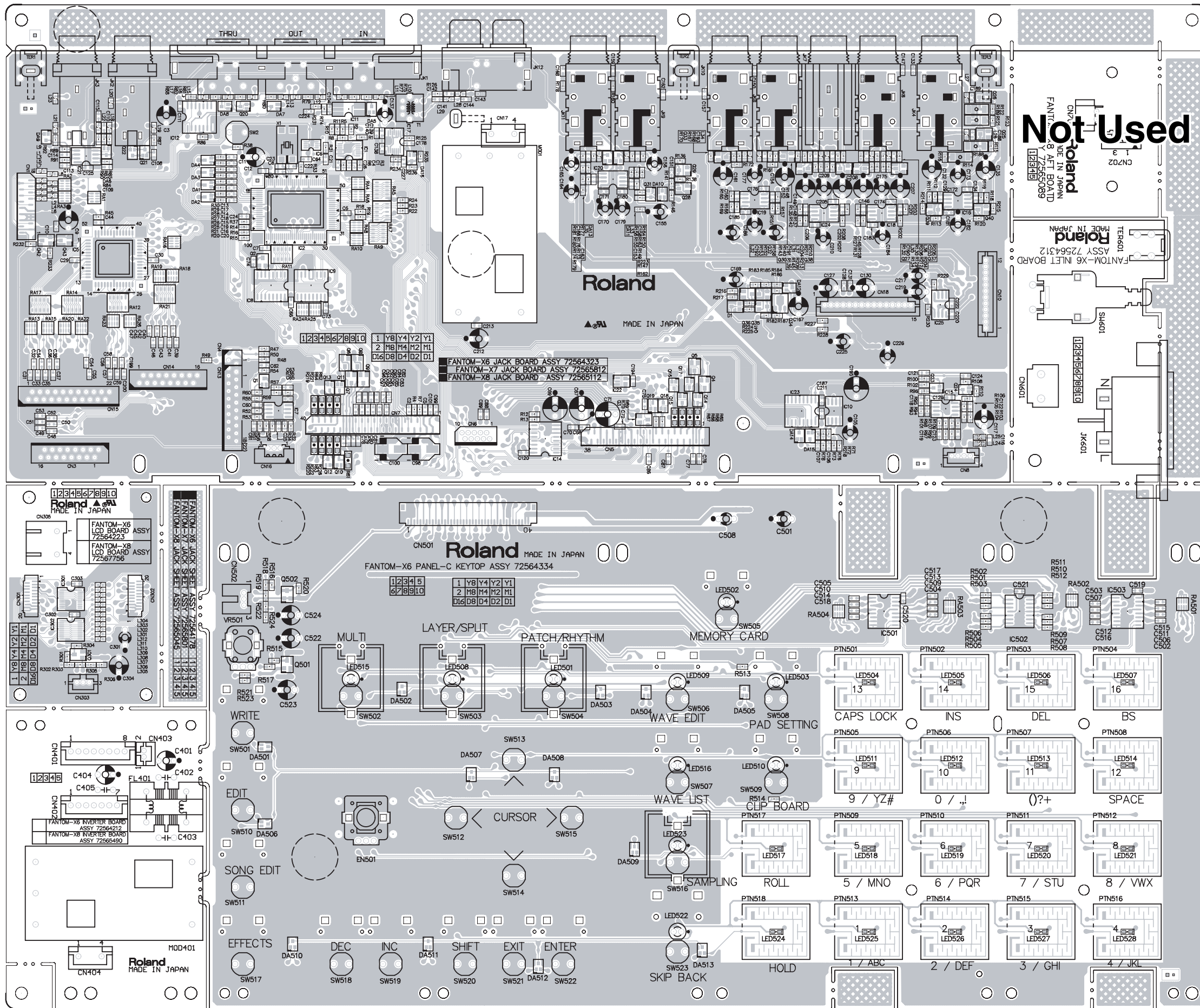


View from components side
"scale=0.95 "

CIRCUIT DIAGRAM(PANEL-A KEYTOP, PANEL-B KEYTOP)

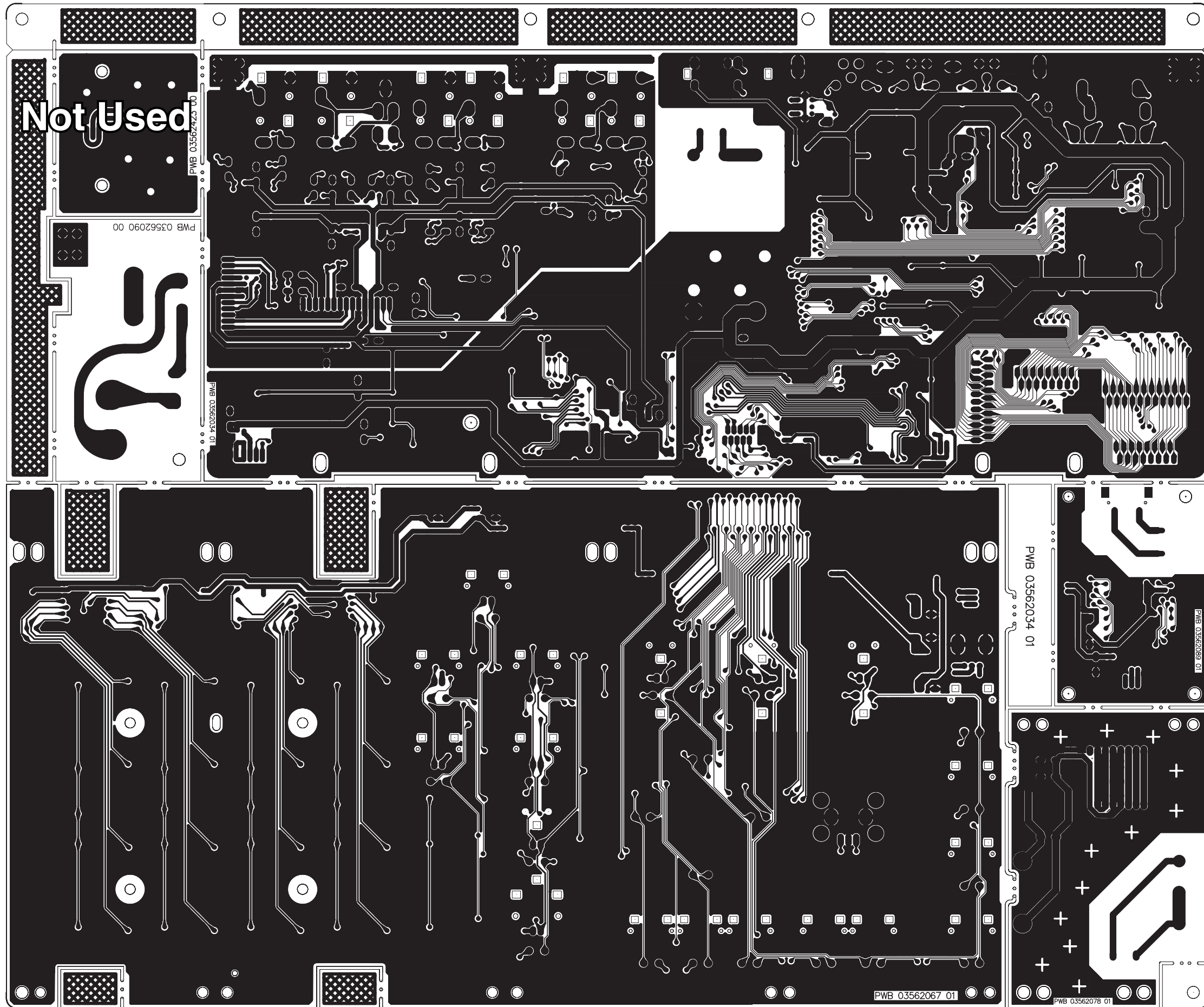


CIRCUIT BOARD(LCD, INVERTER, JACK, PANEL-C KEYTOP, INLET)



View from components side
"scale=0.95"

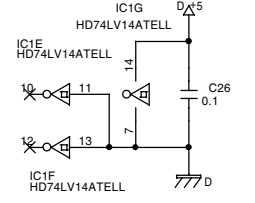
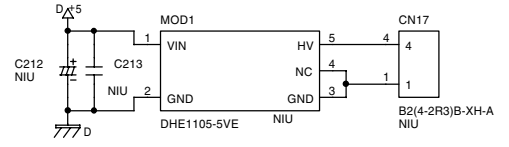
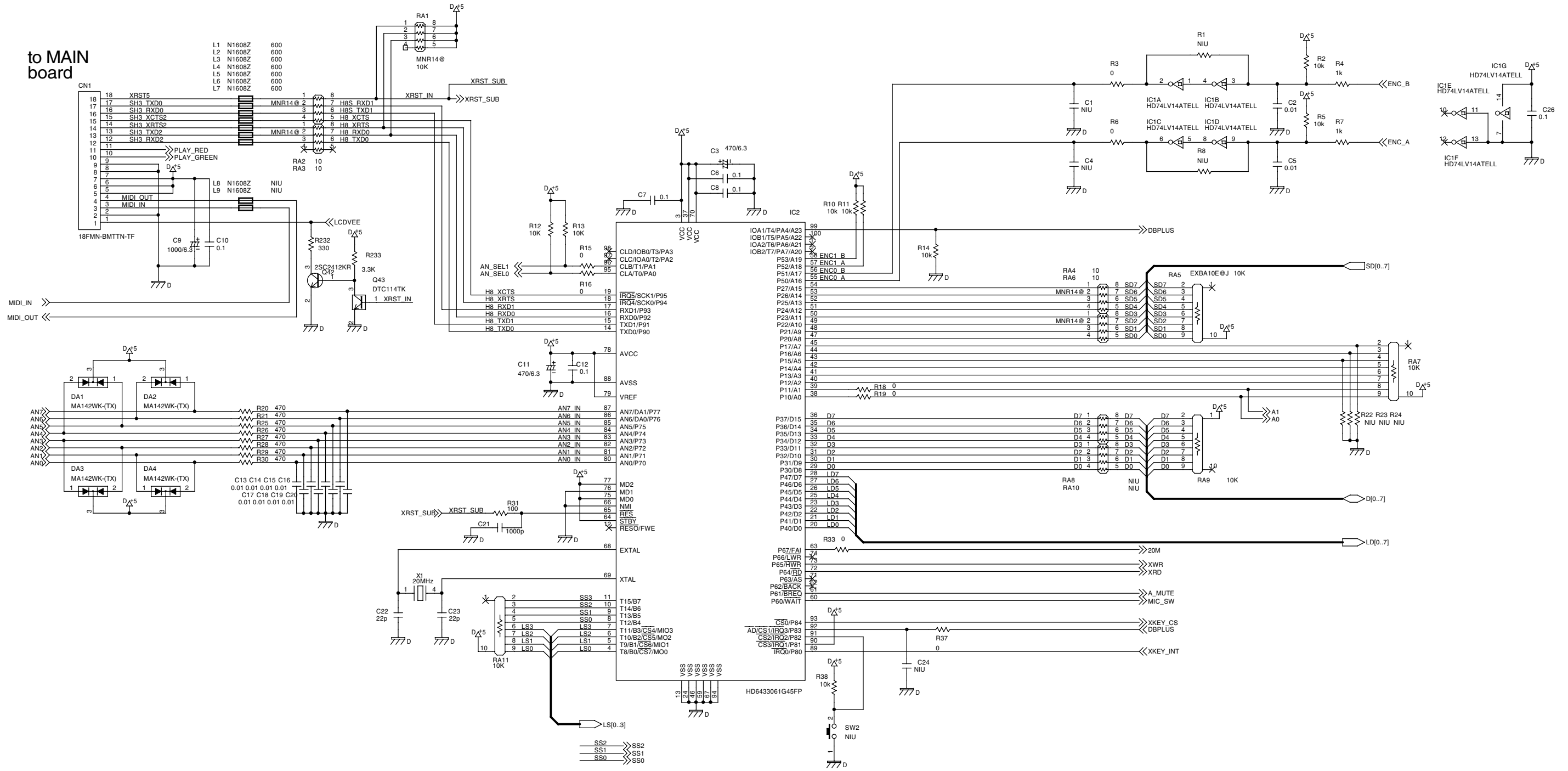
CIRCUIT BOARD(LCD, INVERTER, JACK, PANEL-C KEYTOP, INLET)



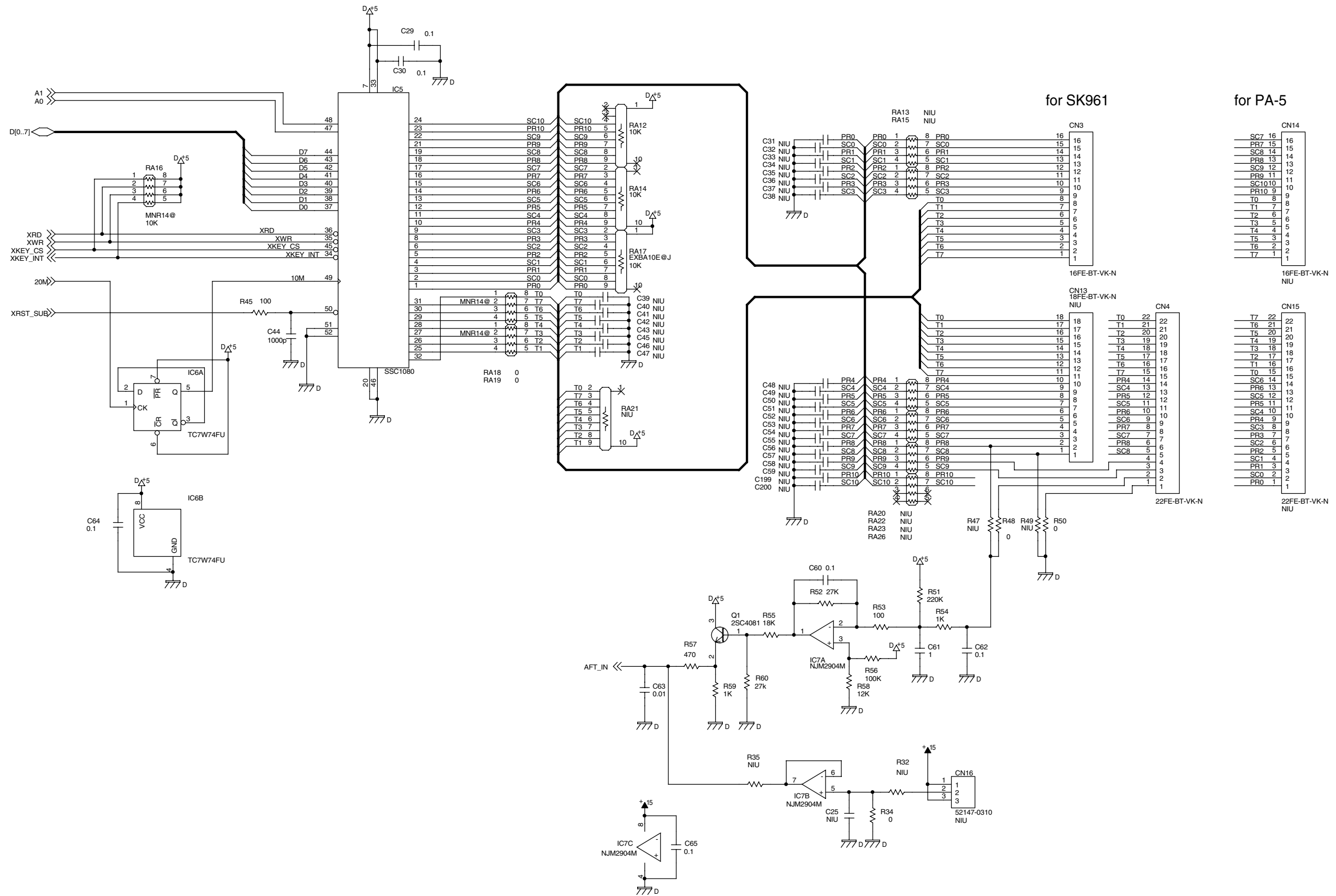
View from foil side

"scale=0.95 "

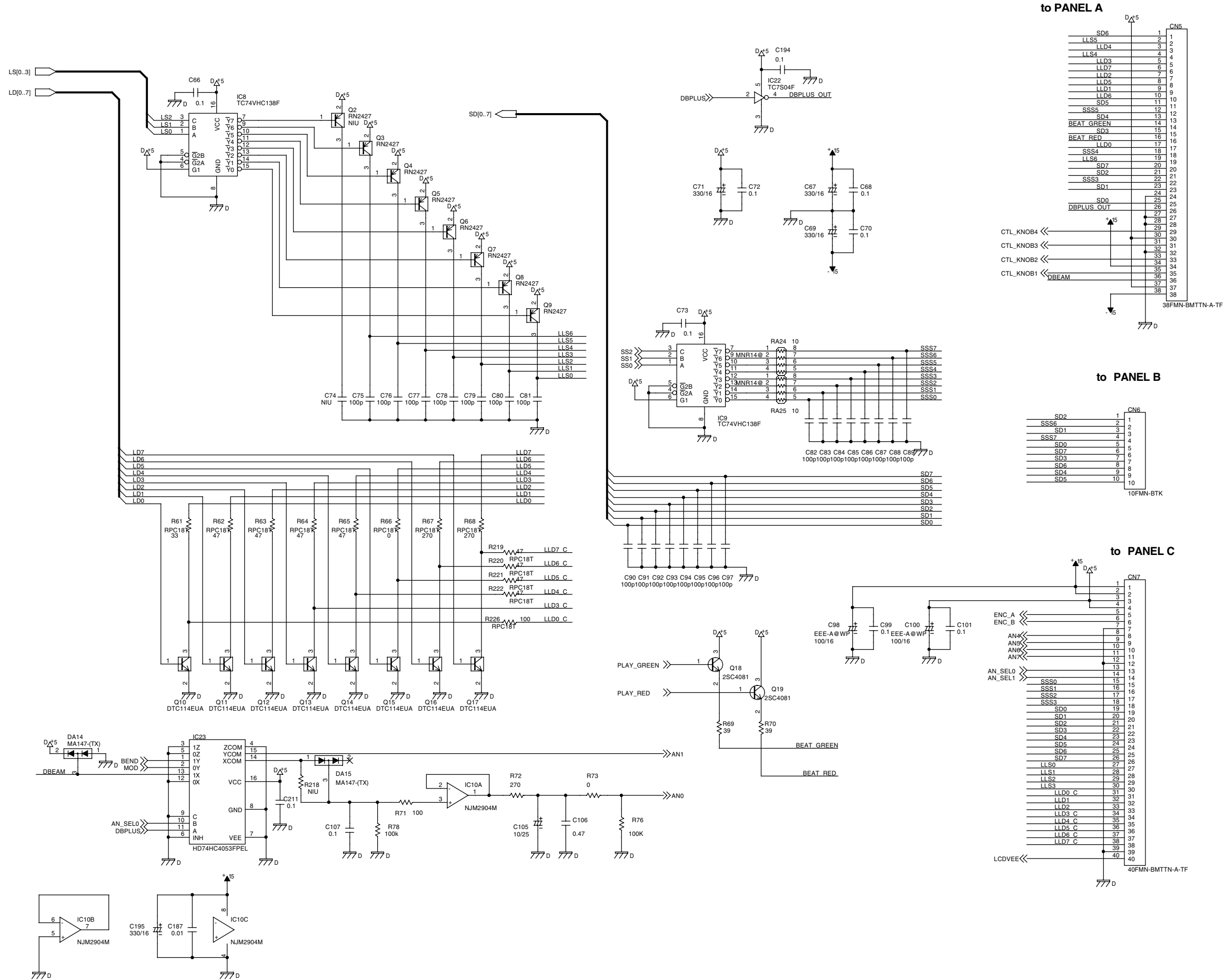
CIRCUIT DIAGRAM(JACK 1)



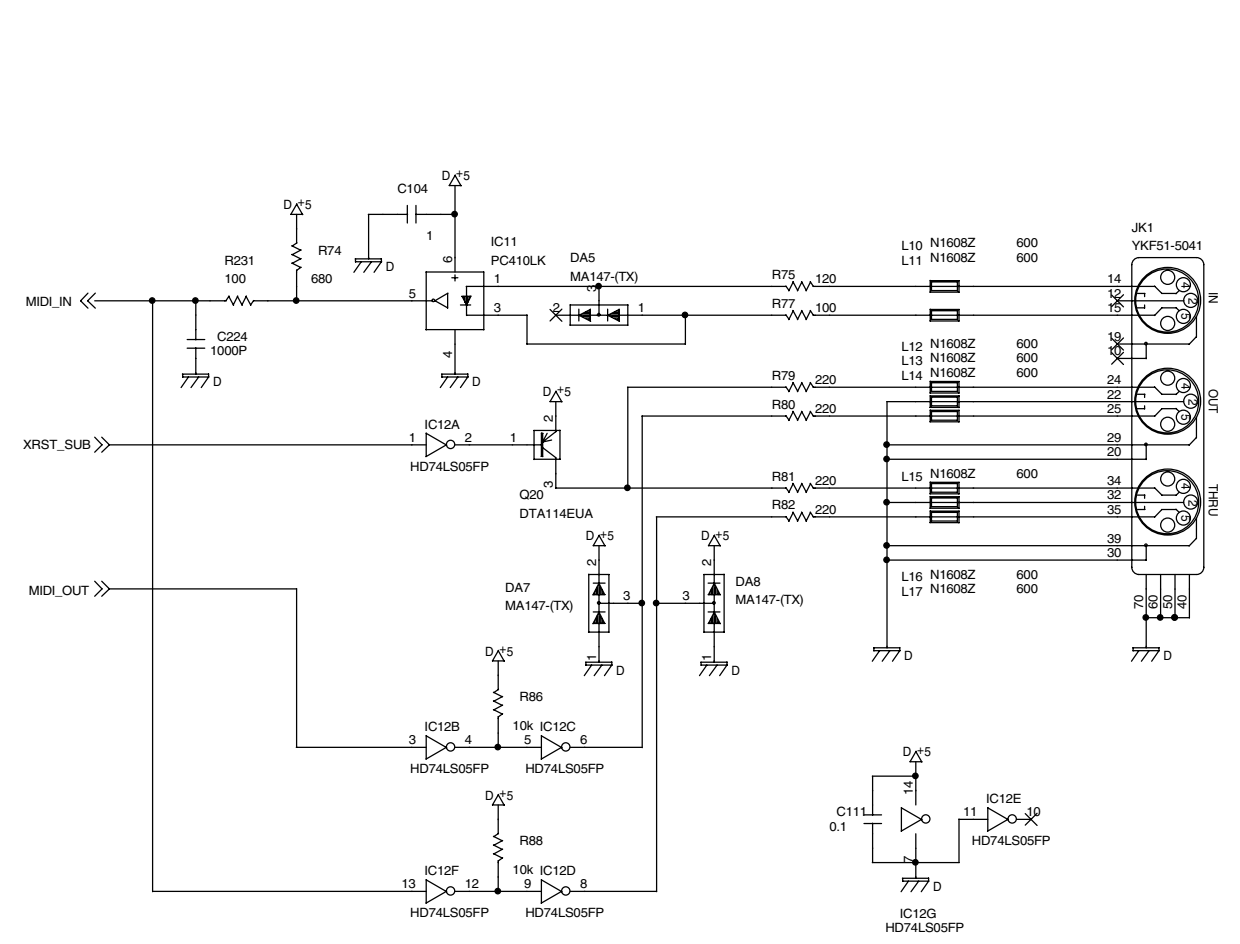
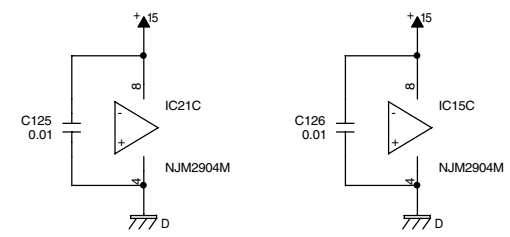
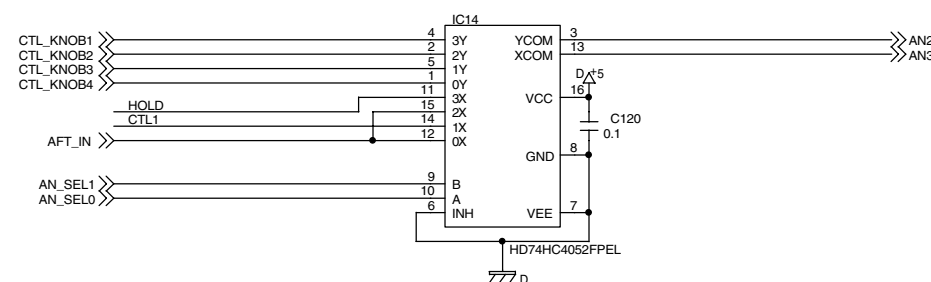
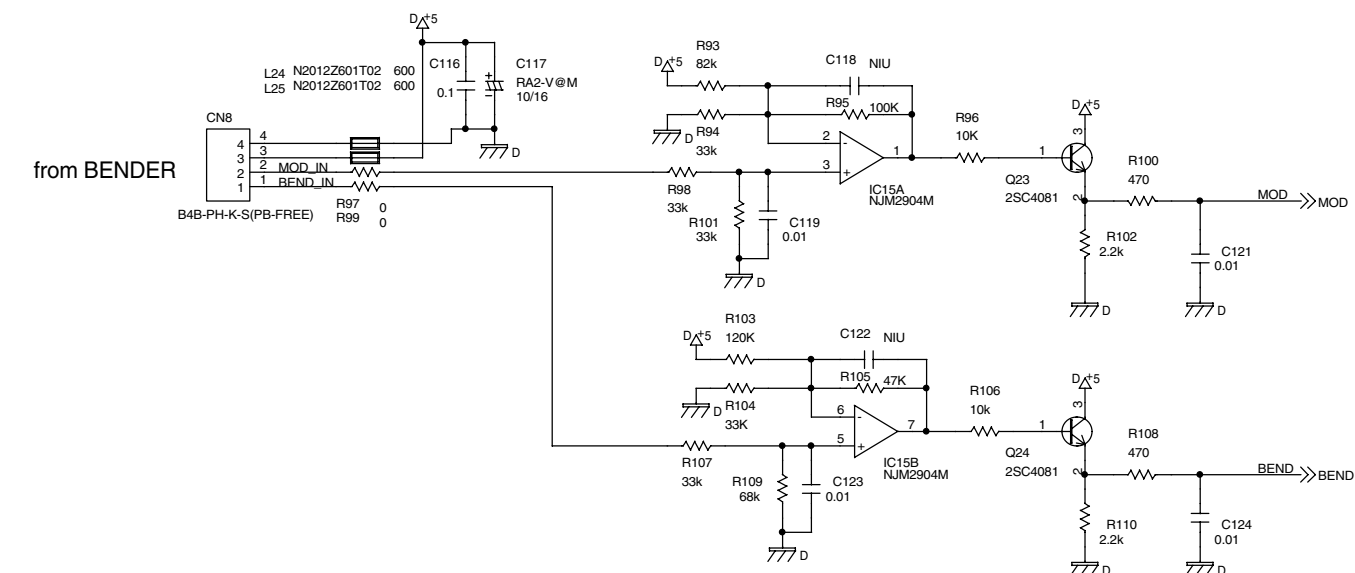
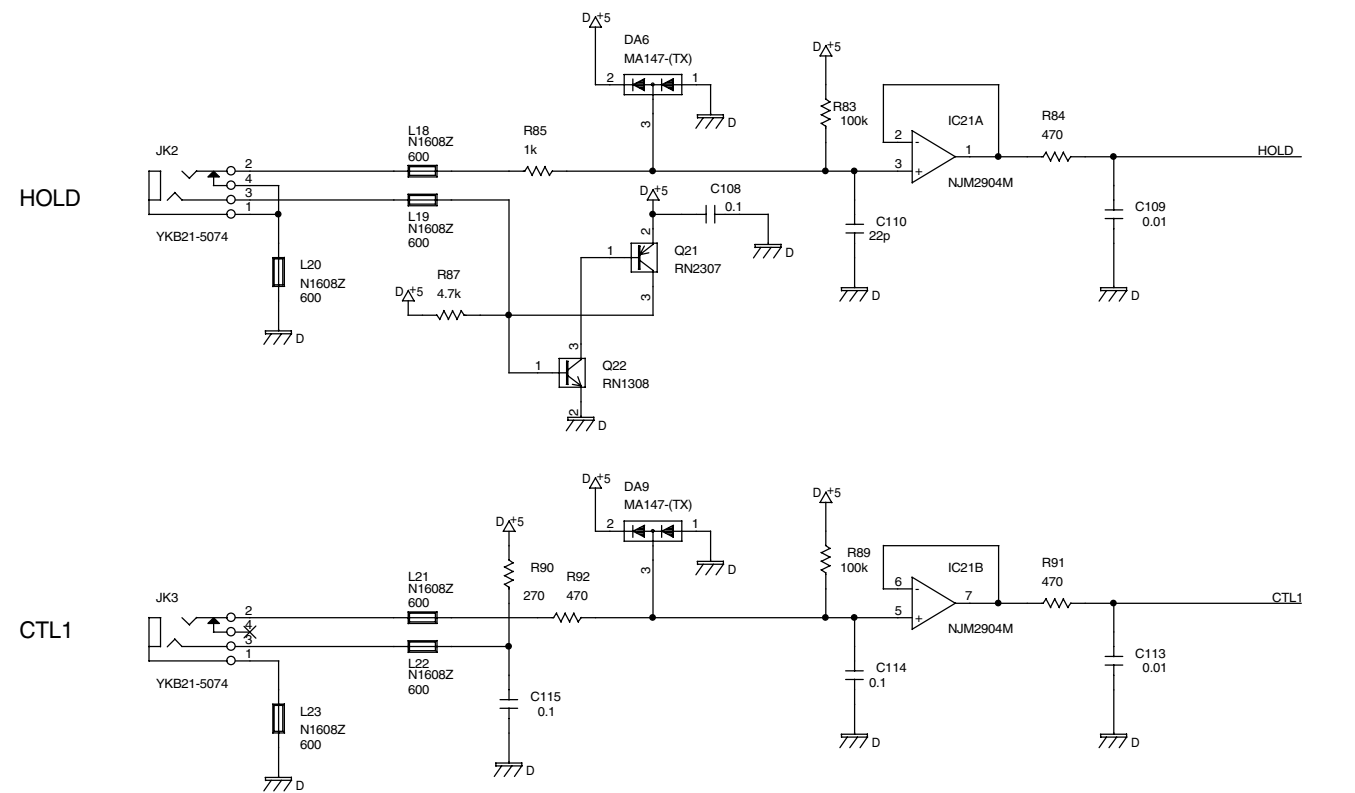
CIRCUIT DIAGRAM(JACK 2)



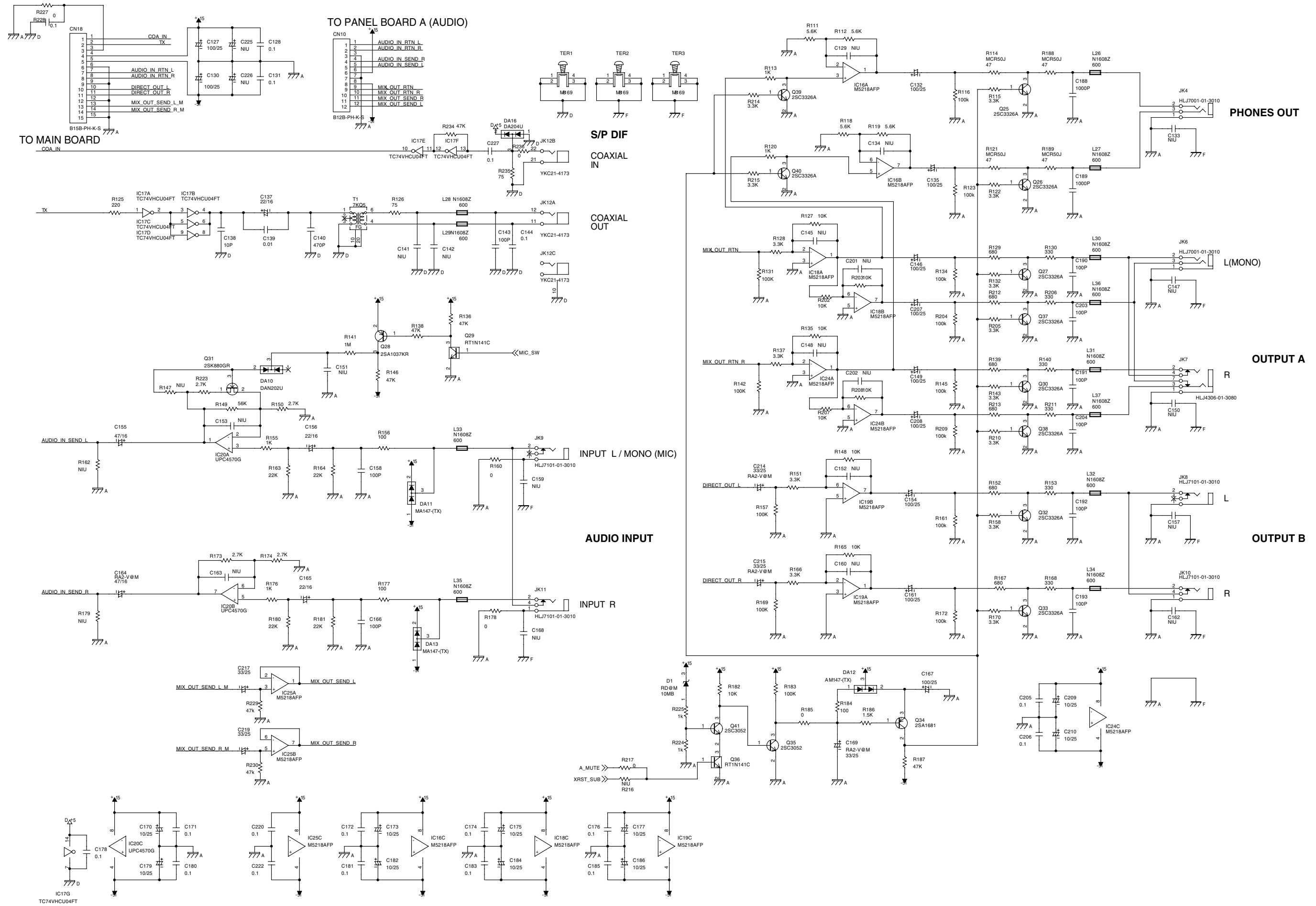
CIRCUIT DIAGRAM(JACK 3)



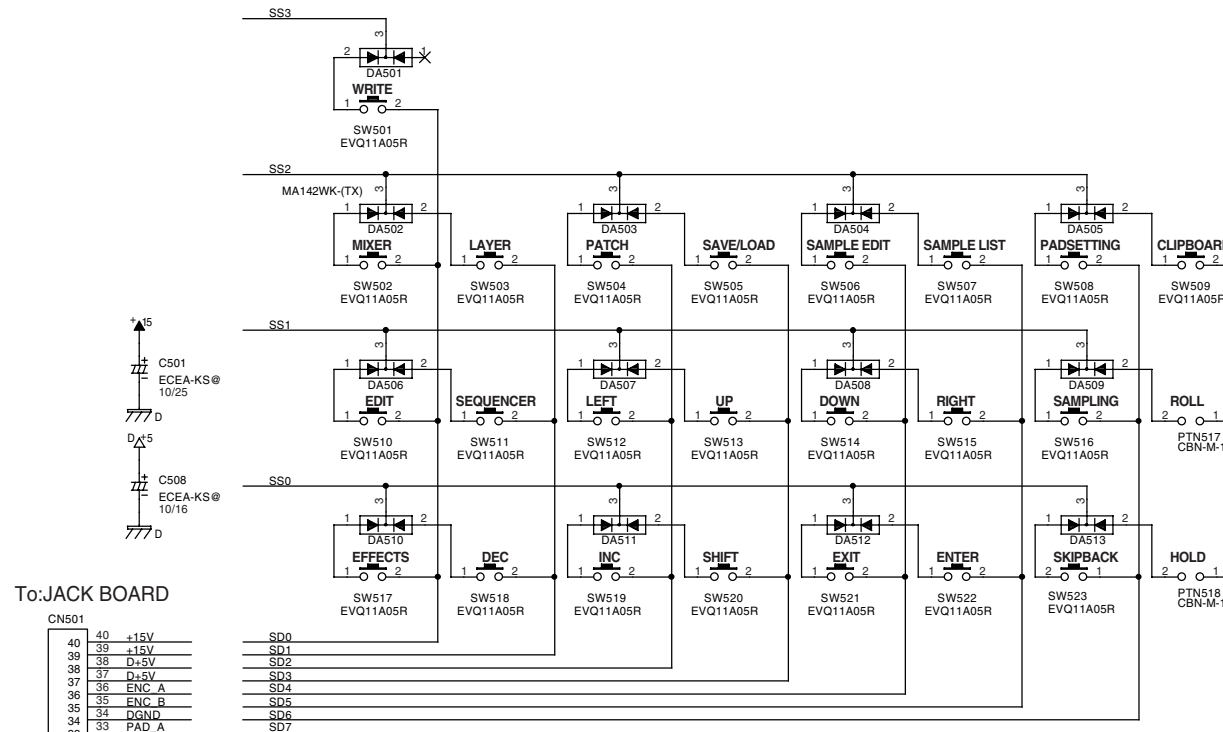
CIRCUIT DIAGRAM(JACK 4)



CIRCUIT DIAGRAM(JACK 5)



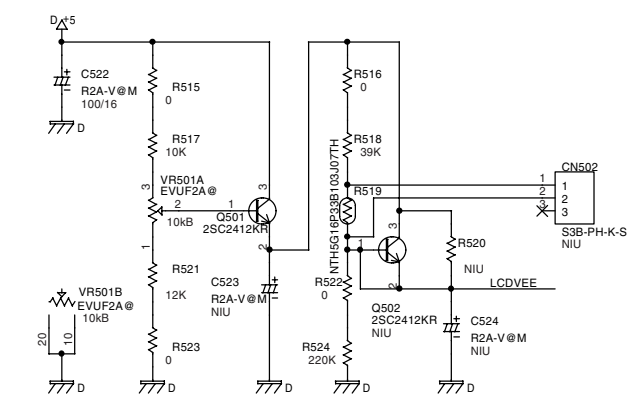
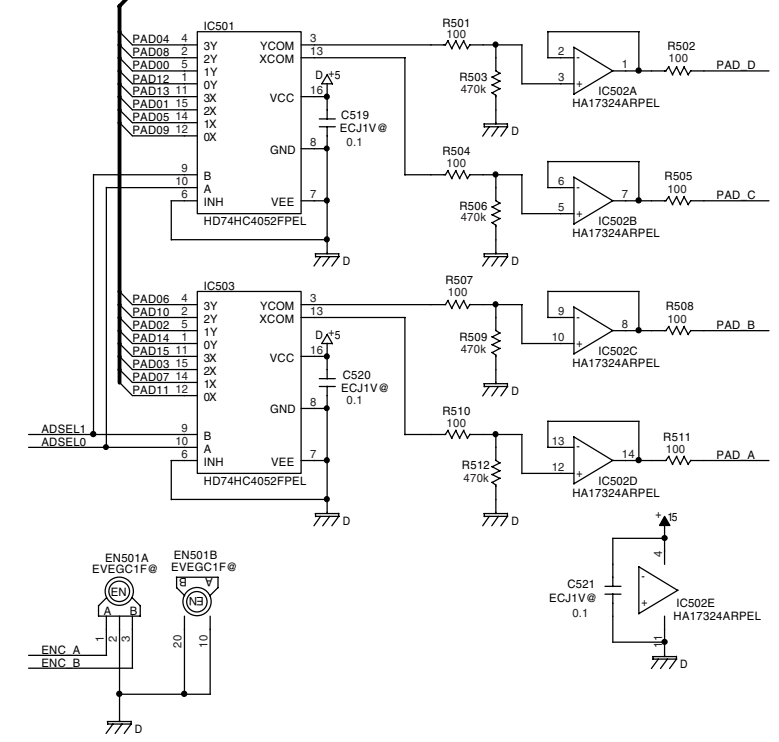
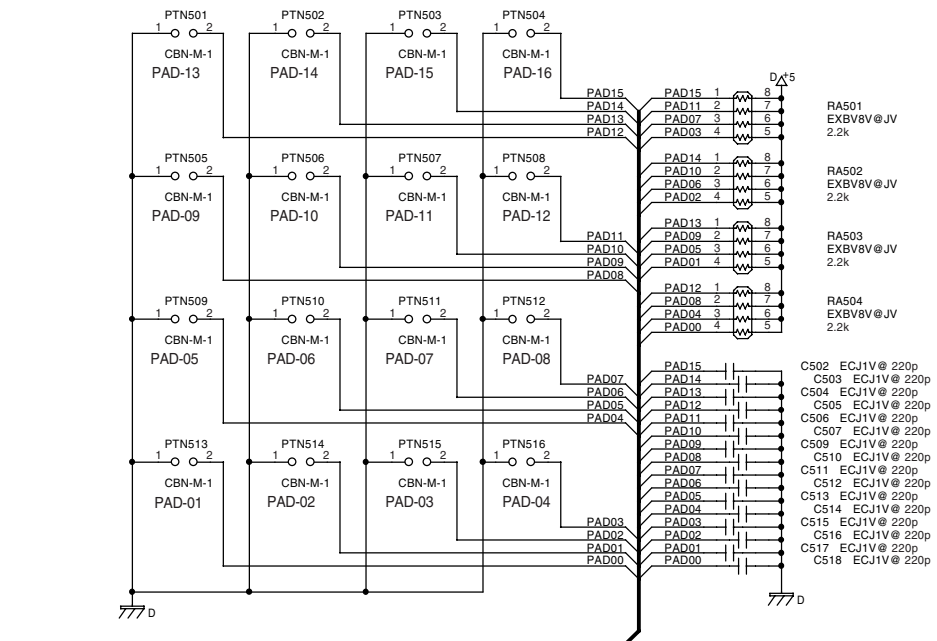
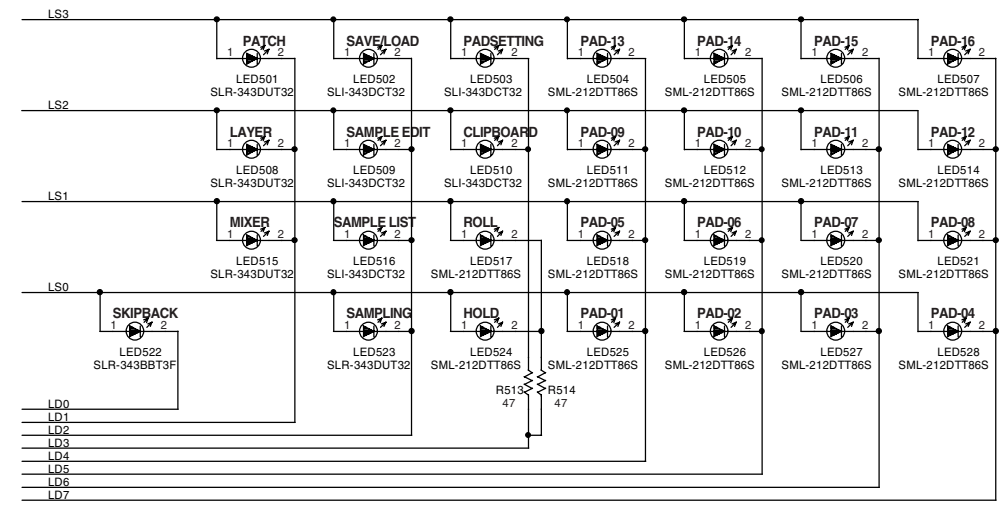
CIRCUIT DIAGRAM(PANEL-C KEYTOP)



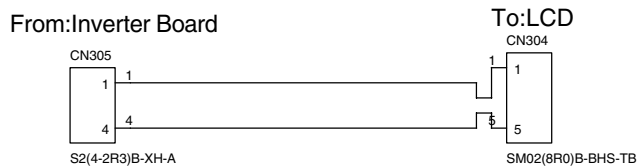
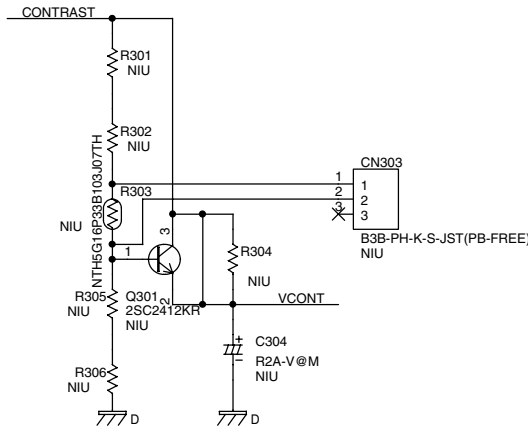
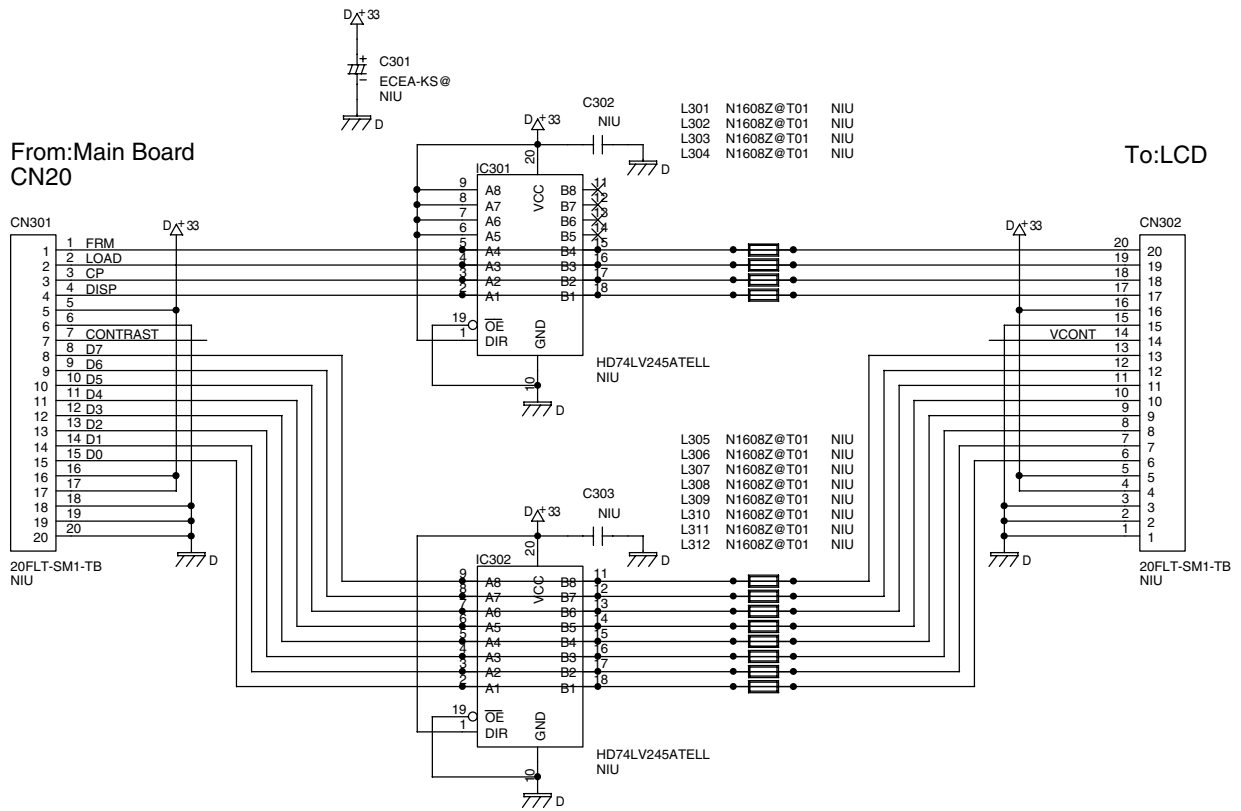
To:JACK BOARD

CN501	40	+15V
	39	+15V
	38	D+5V
	37	D+5V
	36	ENC_A
	35	ENC_B
	34	DGND
	33	PAD_A
	32	PAD_B
	31	PAD_C
	30	PAD_D
	29	DGND
	28	ADSEL0
	27	ADSEL1
	26	SS0
	25	SS1
	24	SS2
	23	SS3
	22	SD0
	21	SD1
	20	SD2
	19	SD3
	18	SD4
	17	SD5
	16	SD6
	15	SD7
	14	LS0
	13	LS1
	12	LS2
	11	LS3
	10	LD0
	9	LD1
	8	LD2
	7	LD3
	6	LD4
	5	LD5
	4	LD6
	3	LD7
	2	DGND
	1	LCDVVE

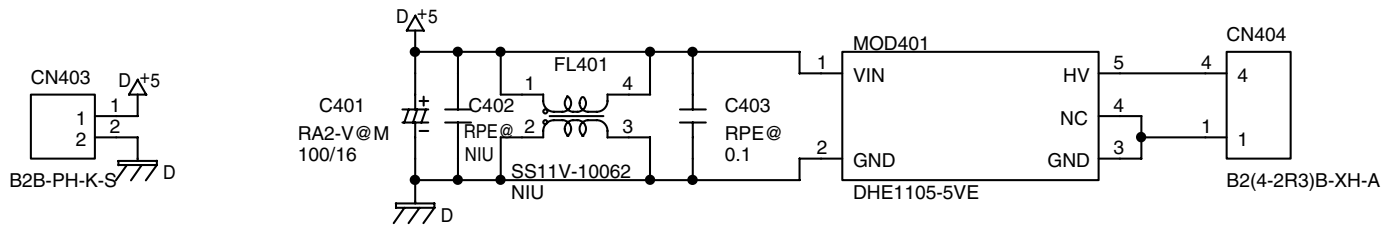
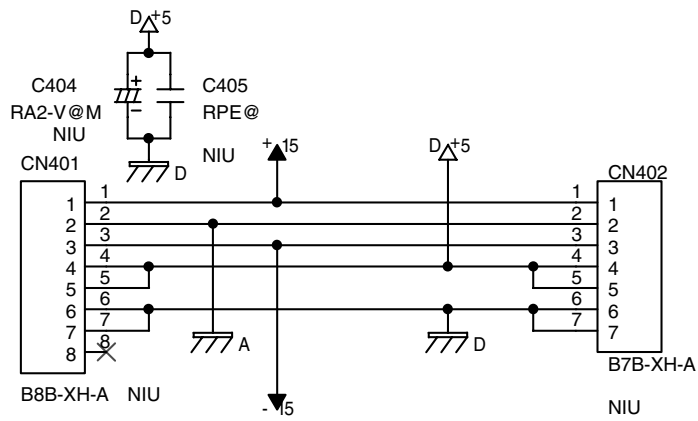
40FMN-SMT-A-TF



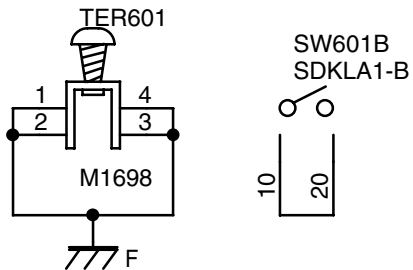
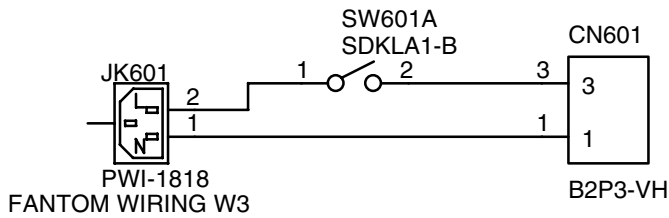
CIRCUIT DIAGRAM(LCD)



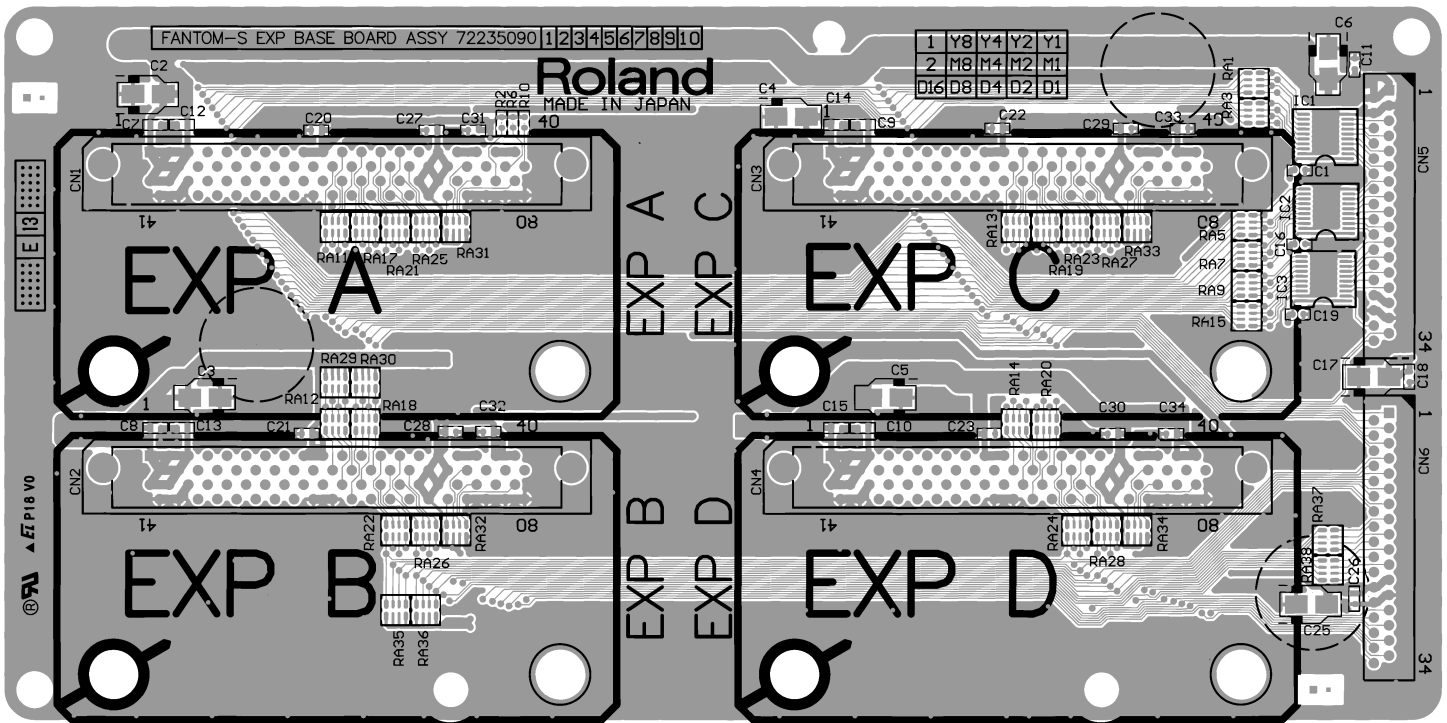
CIRCUIT DIAGRAM(INVERTER)



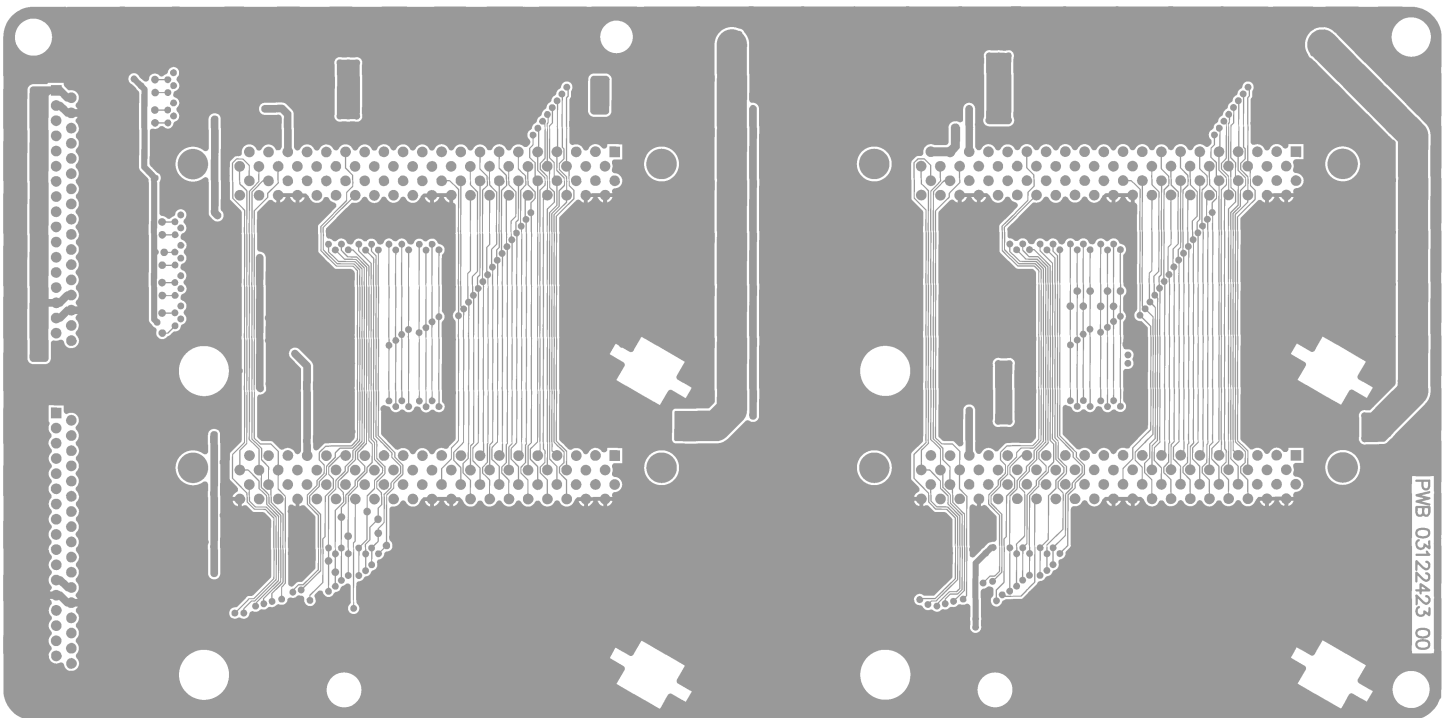
CIRCUIT DIAGRAM(INLET)



CIRCUIT BOARD(EXP BASE)

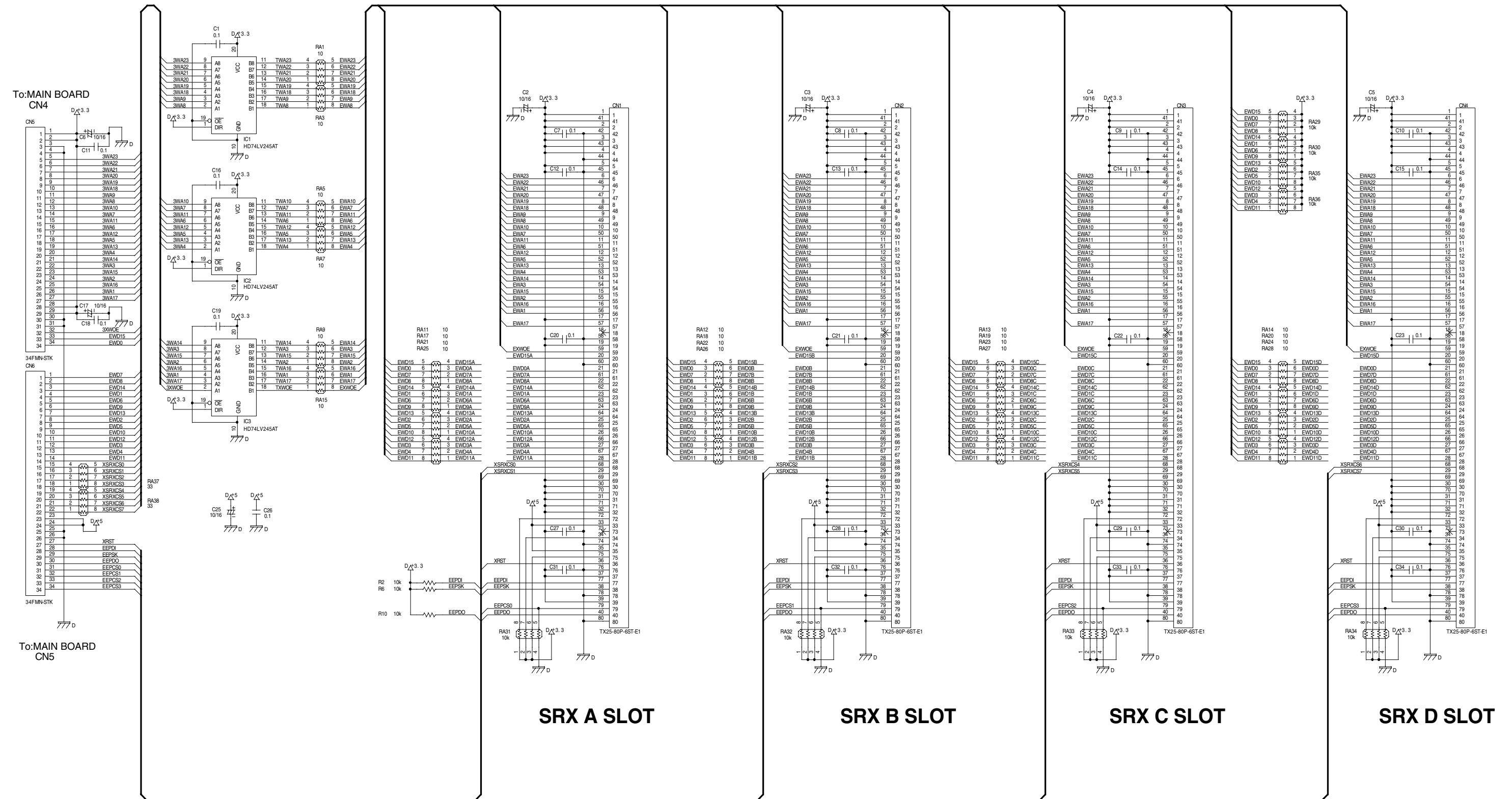


View from components side



View from foil side

CIRCUIT DIAGRAM(EXP BASE)



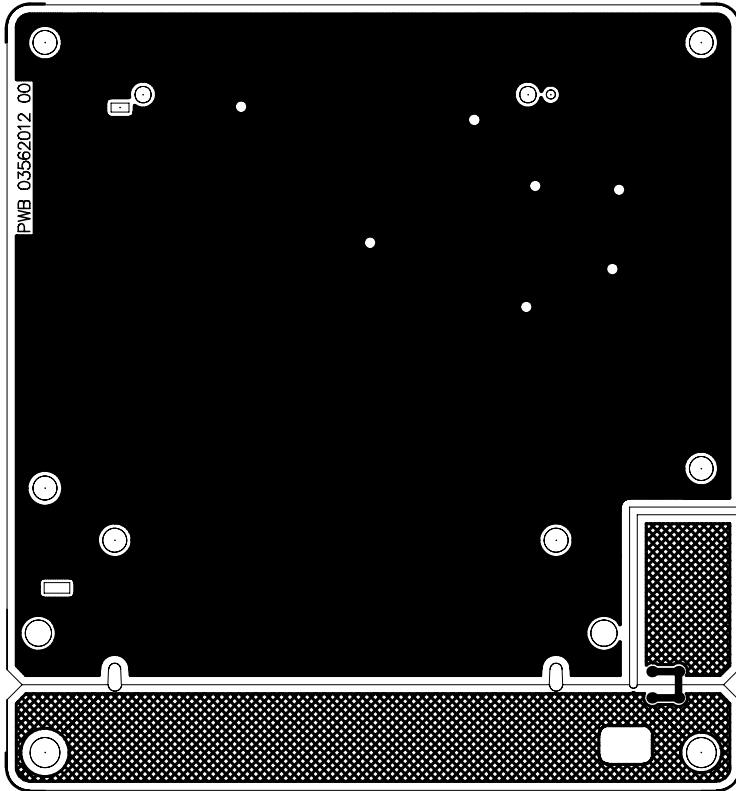
SRX A SLOT

SRX B SLOT

SRX C SLOT

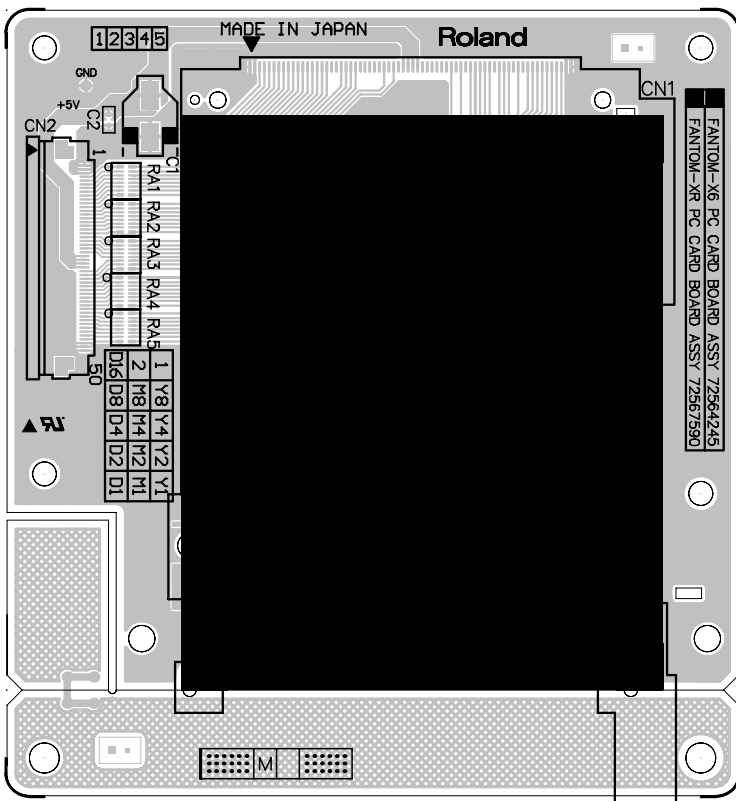
SRX D SLOT

CIRCUIT BOARD(PC CARD 1)



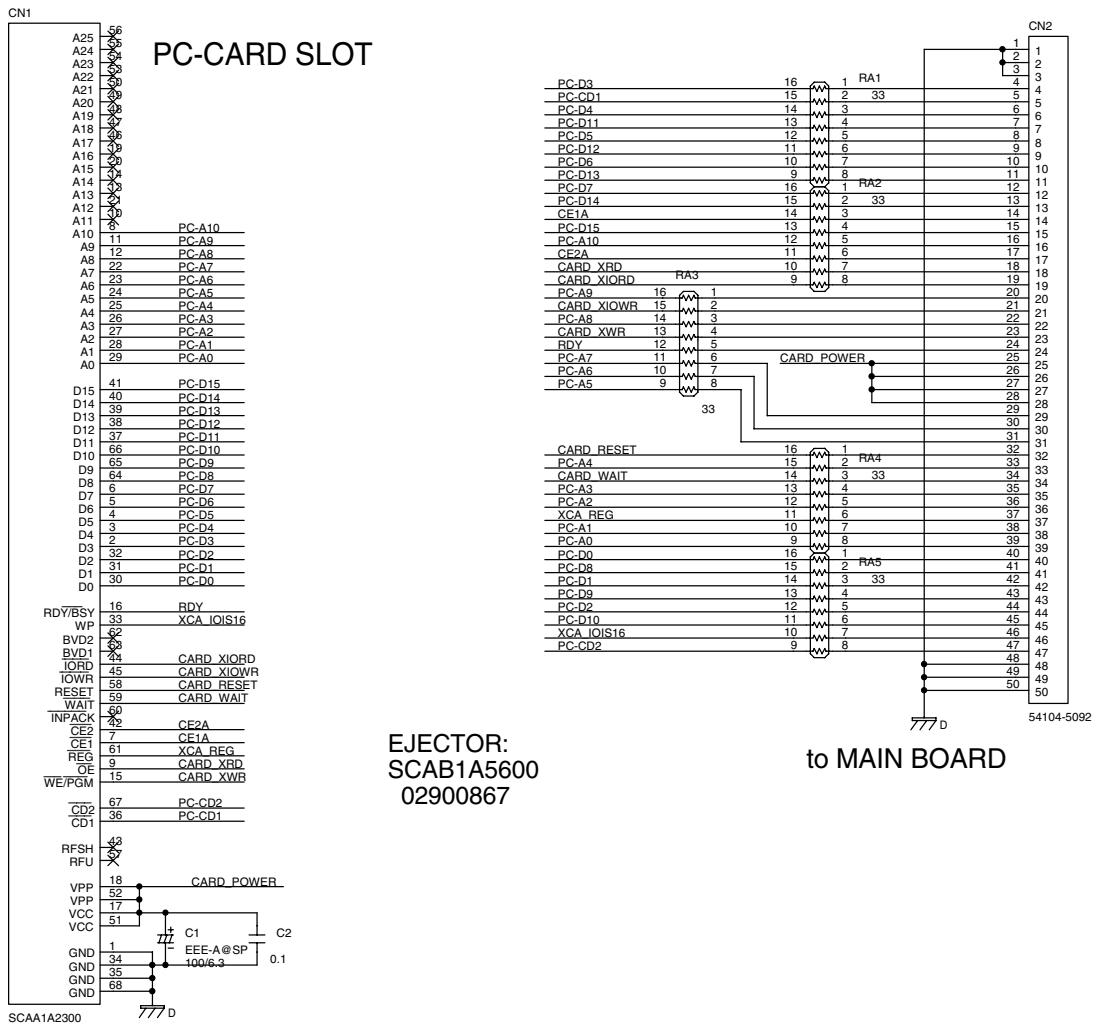
View from foil side

CIRCUIT BOARD(PC CARD 2)



View from components side

CIRCUIT DIAGRAM(PC CARD)



ERROR MESSAGES

If an incorrect operation is performed, or if processing could not be performed as you specified, an error message will appear. Refer to the explanation for the error message that appears, and take the appropriate action.

Message	Meaning	Action
Cannot Edit Preset Sample!	This is a preset sample, and therefore cannot be edited.	—
Card Not Ready!	A memory card is not inserted in the slot.	Insert a memory card into the slot.
Data not found	The data for placement is not specified.	—
Empty Pattern	The Pattern has no data in it, so the Pattern Call message cannot be recorded in Step Recording.	—
Empty Sample!	The sample contains no data.	Select a sample that contains data.
Empty Song!	The song has not been recorded, and therefore cannot be played.	Select a song that contains data.
File Name Duplicate	A file with the same name already exists.	Delete the file bearing the same name from the disk, and if overwriting and saving the data, merely save the file. If you do not want to delete the file with the same name from the disk, either save the file with a different name.
Illegal File!	The Fantom-X cannot use this file.	—
Memory Damaged!	The contents of memory may have been damaged.	Please perform the Factory Reset operation. If this does not resolve the problem, please contact your dealer or the nearest Roland Service Center.
Memory Full!	Saving is not possible because there is insufficient space in the user area or memory card.	Delete unneeded data.
MIDI Offline!	There is a problem with the MIDI cable connection.	Check that the MIDI cable has not been disconnected or broken.
No More Note Numbers!	A maximum of 16 different note numbers can be used in one style of the arpeggio/rhythm function.	Please delete unneeded notes.
No More Sample Numbers!	The sample cannot be divided any further. Since fewer than 256 consecutive sample numbers are vacant, no further sampling is possible.	Erase unneeded samples in order to allocate 256 or more consecutive sample numbers.
No More Song Numbers!	No more songs can be saved. A maximum of 256 songs can be handled simultaneously for both the user bank and card bank.	Please delete unneeded songs.
Now Playing!	Since the Fantom-X is playing, this operation cannot be executed.	Stop playback before you execute the operation.
Permission Denied!	The file is protected.	—
Playback Tempo Range Over	Tempo values exceed the allowable limit, and data is created in which the closest time available within the allowable range is specified.	—
Recording Parameter Error	You are attempting to begin recording after a looped segment.	You are attempting to begin recording within or before a looped segment.
Rec Over Flow	Since a large amount of recorded data was input all at once, it could not be processed correctly.	Reduce the amount of recorded data.
Sample Length Too Short!	The sample is too short, and cannot be edited correctly.	If the sample is extremely short, editing may not produce the desired result.
Sample Memory Full!	Since there is insufficient sample memory, no further sampling or sample editing is possible.	Erase unneeded samples.
Song Full	Since the maximum number of notes that can be recorded in a song or pattern has been exceeded, no further recording/editing is possible.	Use the track edit Delete or Erase commands to remove unneeded data from the song/pattern that you are recording/editing.
Song Format Error	This song is damaged.	This song cannot be used.
Song Not Found	The selected song cannot be found.	—
Too Many Sample Selected!	The operation cannot be executed, since marks are assigned to more than one sample.	Either clear the marks, or mark only one sample.
Unformatted!	The memory card is in an unsupported format.	Format the memory card.
You Cannot Assign	The sample cannot be assigned to a pad.	Assign To Pad requires that all pads be playing a rhythm set. Assign a rhythm set to the Pad part. Turn off the RPS function. Turn off the rhythm switch. Turn off the ARPEGGIO/RHYTHM function.
You Cannot Copy This Message	This message cannot be copied.	—
You Cannot Erase This Message	This message cannot be erased.	—
You Cannot Move This Message	This message cannot be moved.	—
You Cannot Quick Play S-MRC Song	This is a SuperMRC song; it cannot be played back in Quick Play.	Save the data as an MRC Pro song.
Rhythm Note Range Over!	The pad selected for Assign To Pad is outside the range of the rhythm set.	Select a pad that is within the range of the rhythm set.