

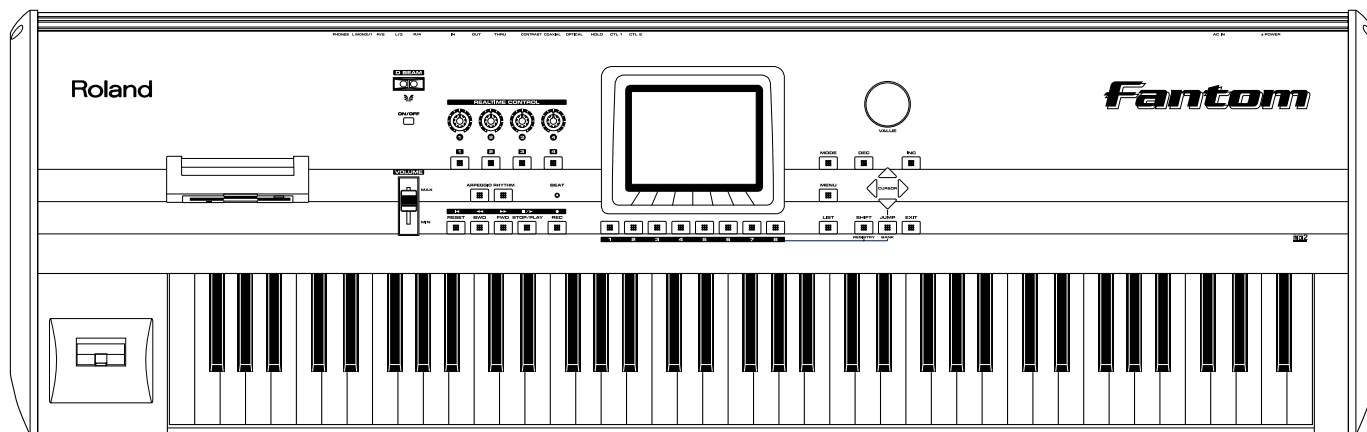


SERVICE NOTES

Issued by RJA

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SPECIFICATIONS

Fantom (FA-76): Synthesizer Keyboard (Conforms to General MIDI 2 System)

- Keyboard
76 keys (with velocity and channel aftertouch)

<Synthesizer Section>

- Multitimbre Parts
16 parts
- Maximum Polyphony
64 voices
- Wave Memory
64 M bytes (16-bit linear equivalent)
Waveforms: 1,083 (XV-5080 equivalent)
- Expansion Slot
Wave Expansion Board SR-JV80 Series : 1 slot
Wave Expansion Board SRX Series : 2 slots
- Preset Memory
Patches : 640 (128 x 5 banks) + 256 (General MIDI 2 Patches)
Rhythm Sets : 16 + 9 (General MIDI 2 Rhythm Sets)
Multitimbres : 16
Performances : 64
- User Memory
Patches : 128
Rhythm Sets : 16
Multitimbres : 16
Performances : 64
- Effects
Multi-Effects (M-FX): 90 types (Patch mode)
- * *Three different multi-effects (only 50 types) can be used simultaneously in Performance/Multitimbre mode.*
Chorus : 2 types
Reverb : 4 types
System Equalizer : 2 band per each 4 outputs

<Sequencer Section>

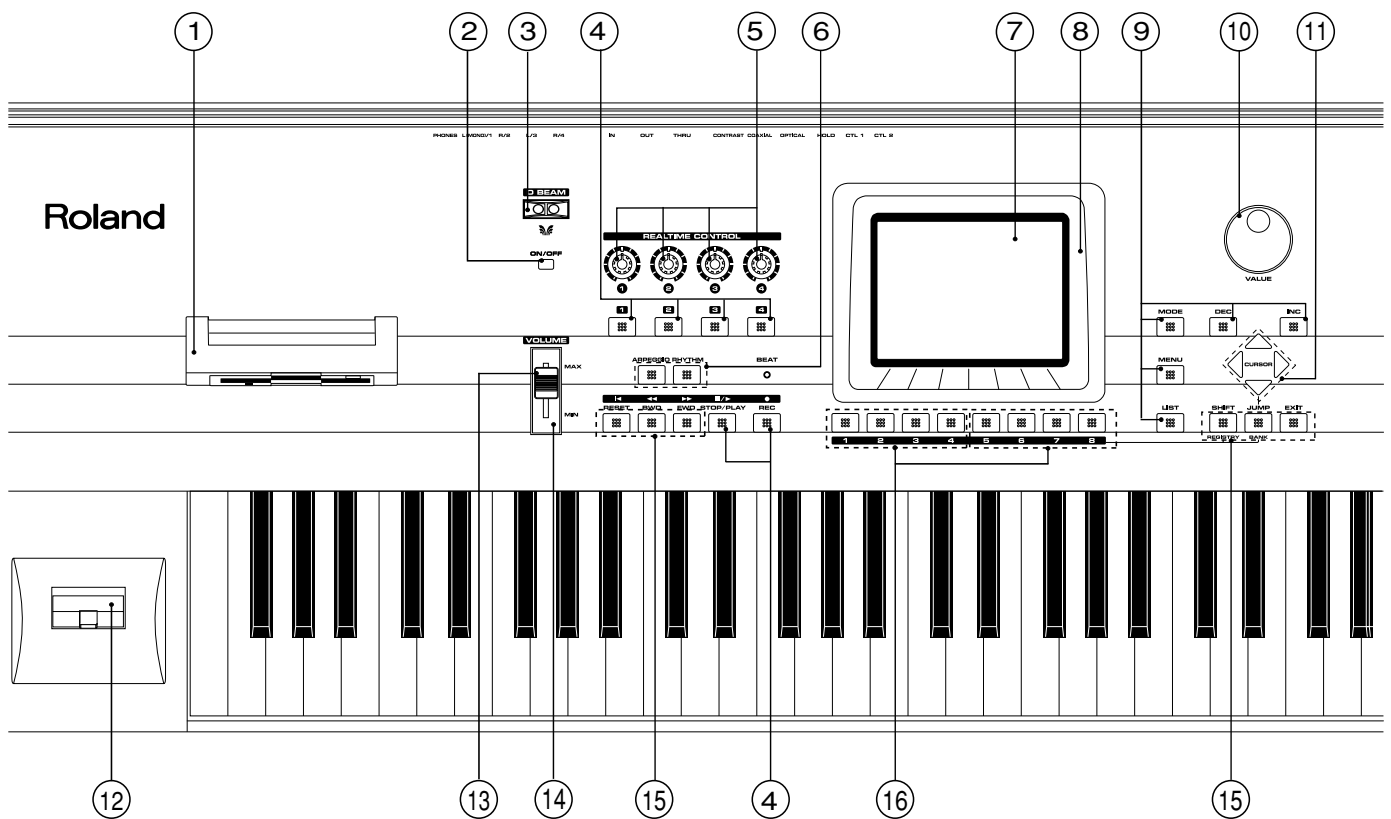
- Tracks
Phrase Tracks (16 MIDI channels per track) : 16
Pattern Track (16 MIDI channels per track) : 1
Tempo Track : 1
Beat Track : 1
- * *The Pattern Track can hold up to 100 patterns.*
- Resolution
480 TPQN
- Song Data (Internal Memory)
Song : 1
Note Capacity : approx. 120,000 notes
Song Length : 9,998 measures
- Recording Methods
Realtime Recording, Step Recording
- External Storage Device
3.5 inch Floppy Disk : 1.44 M bytes (2HD), 720 K bytes (2DD)
Note Storage : approx 120,000 notes (2HD)
approx 60,000 notes (2DD)
Song Files : max. 99
- File Formats
MRC Pro Songs
Standard MIDI Files (format 0, 1)

<Others>

- Arpeggiator
88 styles
- Rhythm Pattern
50 styles per each 12 patterns
- Display
320 x 240 dots Graphic LCD w/backlit
- Controllers
Pitch Bend/Modulation Lever
D Beam Controller
Realtime Control Knobs (1, 2, 3, 4)
Realtime Control Buttons (1, 2, 3, 4)
- 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)
(or Individual Jacks 1-4)
Hold Pedal Jack (Half Pedal possible)
Control Pedal Jacks (1, 2) (assignable)
MIDI Connectors (IN, OUT, THRU)
Digital Audio Outputs:
S/P DIF Connectors (COAXIAL, OPTICAL) (24-bit, 44.1 kHz)
AC Inlet
- Power Supply
AC 117 V, AC 230 V, AC 240 V
- Power Consumption
16 W
- Dimensions
1,268 (W) x 400 (D) x 115 (H) mm
49-15/16 (W) x 15-3/4 (D) x 4-9/16 (H) inches
- Weight
14.8 kg / 32 lbs 11 oz
- Accessories
Owner's Manual English (#71900812)
AC Cord 120V (#00894378)
AC Cord 230V (#00894389)
AC Cord 240VA (#23495124)
AC Cord 240VE (#00907001)
Demo Floppy Disk (#02781878)
- Options
Wave Expansion Board : SRX Series, SR-JV80 Series
Keyboard Stand : KS-12
Pedal Switch : DP-2/6
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.*

LOCATION OF CONTROLS (TOP)



LOCATION OF CONTROLS PARTS LIST (TOP)

No.	Part Code	Part Name	Q'ty
1	02568790	FDD ESCT	1
	02670267	FDD JU-226A032FC	1
2	01125890	D S-KEYTOP SD1H-A CLR	1
	01783801	TACT SWITCH SKHJFF WITH LED AMBER	1
3	01343089	D-BEAM CONTROLLER ESCT BLK	1
4	01783923	N S-KEYTOP MD1H	6
	01340290	TACT SWITCH EVQ11A H=5.0	6
5	02452912	J R-KNOB SF-A BLK/LCG	4
	01787545	9M/M ROTARY POT. EVUF2KFK3B14 10KB	4
6	01783934	N S-KEYTOP MD2H	1
	01340290	TACT SWITCH EVQ11A H=5.0	2
7	02673990	DISPLAY COVER	1
	01124234	LCD UNIT LM320191	1
8	02568767	DISPLAY ESCT	1
9	01783967	N S-KEYTOP MX1H	5
	01340290	TACT SWITCH EVQ11A H=5.0	5
10	22485303	D R-KNOB L BLK248-303	1
	01905467	ROTARY ENCODER EVE GC1 F20 24B	1
11	01234090	D T-KEYTOP MX4B BLK	1
	01340290	TACT SWITCH EVQ11A H=5.0	4
12	71905023	PB-H0203 BENDER TURBOLESS	1
13	32485261	D S-KNOB M BLK/LCG	1
	13359366	SLIDE POT. EWANA0X05B14	1
14	02018790	D S-ESCT MX1H BLK L=30	1
15	01783989	N S-KEYTOP MX3H BLK	2
	01340290	TACT SWITCH EVQ11A H=5.0	6
16	01783990	N S-KEYTOP MX4H	2
	01340290	TACT SWITCH EVQ11A H=5.0	8

LOCATION OF CONTROLS (REAR)



LOCATION OF CONTROLS PARTS LIST (REAR)

[Parts]

No.	Part Code	Part Name	Q'ty
1	32490595	P S-KEY MX BLK	1
	01676512	PUSH SWITCH SDKLA1-B	1
2	02675701	WIRING W3 (AC INLET+GND WIRING)	1
3	13449284	6.5MM JACK HLJ7001-01-3010	4
4	00569278	6.5MM JACK LGR4609-7100	1
5	02565390	OPTICAL CONNECTOR TX GP1FA501TZ	1
6	01343723	RCA(PIN) YKC21-3117 (ORANGE)	1
7	02676878	9M/M ROTARY POT. EVUE20E15B14	1
8	13429274	DIN CONNECTOR YKF51-5041	1
9	13449283	6.5MM JACK HLJ7101-01-3010	2
10	13449258	6.5MM JACK HLJ4306-01-3080	1

[Screws]

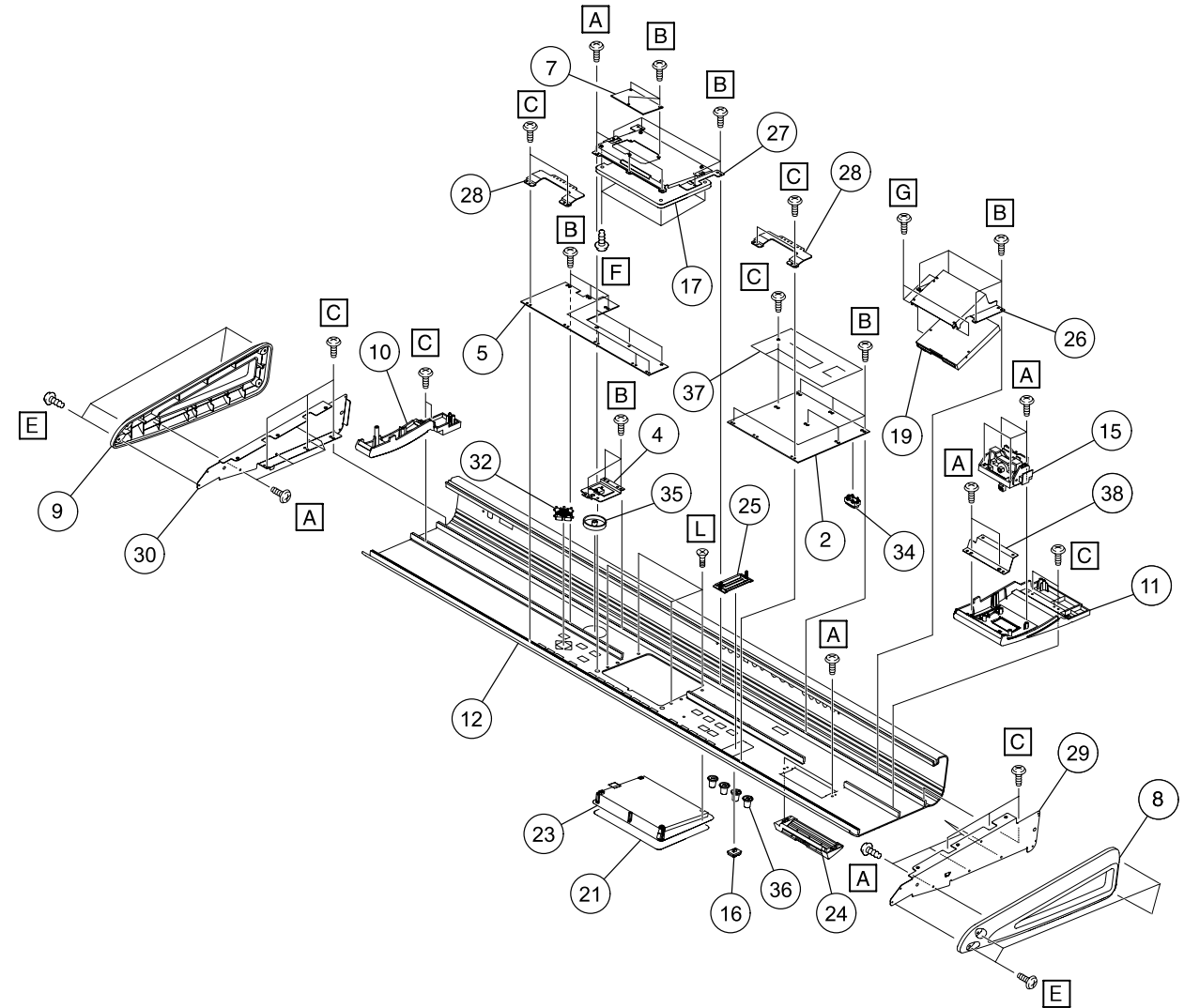
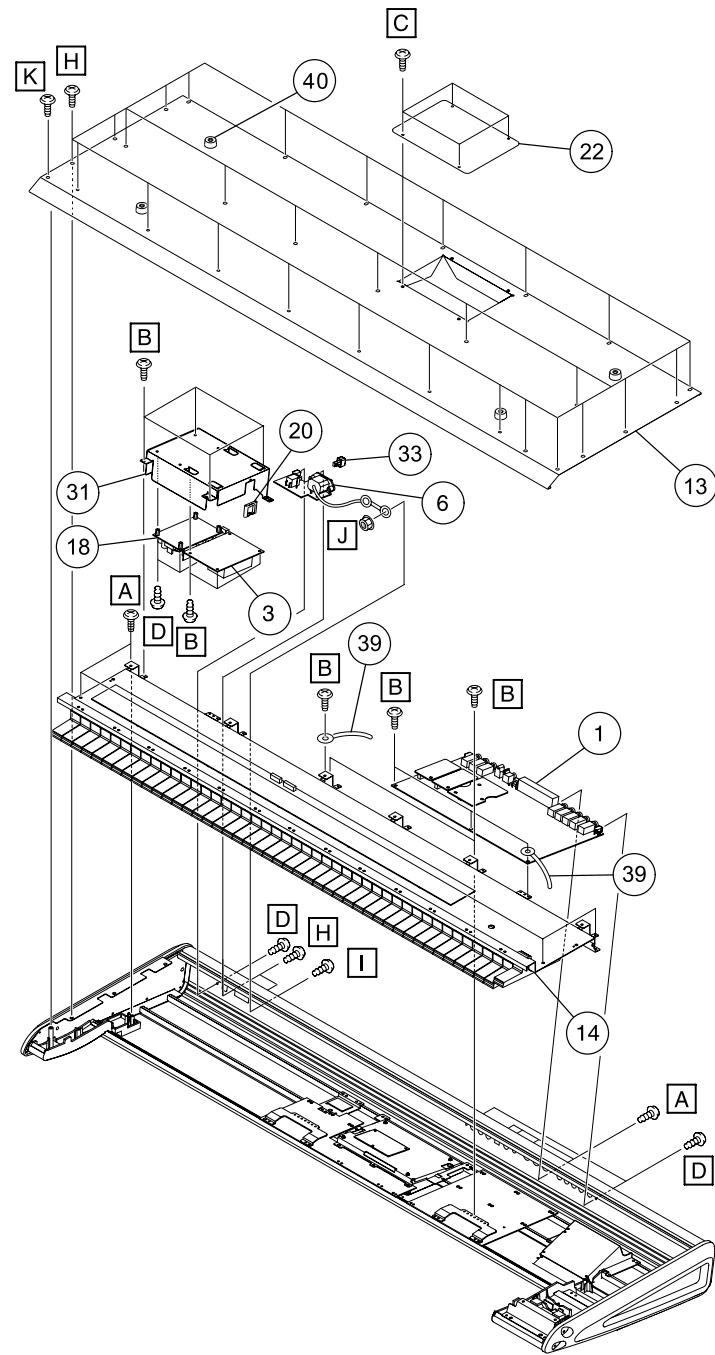
No.	Part Code	Part Name	Q'ty
a	40011490	SCREW M3x6 PAN MACHINE W/SW BZC	3
b	40011312	SCREW 3x8 BINDING TAPTITE P BZC	4
c	40010334	SCREW M4x8 BINDING HEAD BZC	1
	40011745	HEX NUT M4 W/S FE ZC	1
d	40011123	SCREW 4x8 BINDING TAPTITE B BZC	2

EXPLODED VIEW PARTS LIST

EXPLODED VIEW

[Parts]

No.	Part Code	Part Name	Q'ty
1	71896578	MAIN BOARD ASSY	1
2	71896590	PANEL-A KEYTOP ASSY	1
3	71896645	INVERTER BOARD ASSY	1
4	71900278	ENCODER UNIT ASSY	1
5	71896612	PANEL-B KEYTOP ASSY	1
6	71896634	INLET BOARD ASSY	1
7	71896667	LCD RELAY BOARD ASSC _x	1
8	02454045	SIDE COVER L	1
9	02454056	SIDE COVER R	1
10	02454034	END BLOCK	1
11	02454023	BENDER PANEL	1
12	02568345	TOP PANEL	1
13	02673923	BOTTOM COVER W/FOOT FF-018BLK	1
14	71901090	SK-976-B KEYBOARD ASSY	1
15	71905023	PB-H0203 BENDER TURBOLESS	1
16	32485261	D S-KNOB M BLK/LCG	1
17	01124234	LCD UNIT LM320191	1
18	01785823	SWITHING REGULATOR A1DU2L3B034	1
19	02670267	FDD UNIT JU-226A032FC	1
20	01455523	CORD BUSHING EDS-1717U	1
21	02673990	DISPLAY COVER	1
22	02673934	EXP COVER	1
23	02568767	DISPLAY ESCT	1
24	02568790	FDD ESCT	1
25	02018790	D S-ESCT MX1H BLK L=30	1
26	02673978	FDD HOLDER	1
27	02673989	DISPLAY HOLDER	1
28	02674034	PANEL HOLDER	2
29	02673956	SIDE HOLDER L	1
30	02673967	SIDE HOLDER R	1
31	02674001	PWR SPLY HOLDER	1
32	01234090	D T-KEYTOP MX4B BLK	1
33	32490595	P S-KEY MX BLK	1
34	01125890	D S-KEYTOP SD1H-A CLR	1
35	22485303	D R-KNOB L BLK248-303	1
36	02452912	J R-KNOB SF-A BLK/LCG	4
37	02781867	INSULATING SHEET	1
38	02673945	STAY	1
39	40017356	COATING CLIP CS-4	2
40	12359139	FOOT FF-018BLK	4



[Screws]

No.	Part Code	Part Name	Q'ty
A	40011312	SCREW 3x8 BINDING TAPTITE P BZC	27
B	40011056	SCREW 3x6 BINDING TAPTITE B ZC	40
C	40011101	SCREW 3x8 BINDING TAPTITE B BZC	19
D	40011490	SCREW M3x6 PAN MACHINE W/SW BZC	7
E	40454045	FLAT FLANGE SOCKET TAPTITE B NI	8
F	40012512	SCREW M3x6 BINDING TAPTITE S ZC	4
G	40453601	SCREW M2.5x4 PAN MACHNE W/SW ZC	3
H	40011123	SCREW 4x8 BINDING TAPTITE B BZC	30
I	40010334	SCREW M4x8 BINDING HEAD BZC	1
J	40011745	HEX NUT M4 W/S FE ZC	1
K	40012501	SCREW 4x12 BINDING TAPTITE P FE BZC	1
L	40012790	SCREW 3x8 FLAT TAPTITE P BZC	4

PARTS LIST

SAFETY PRECAUTIONS:

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

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

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)

MB -> MAIN BOARD ASSY, PAB -> PANEL-A BOARD ASSY, PBB -> PANEL-B BOARD ASSY, IVB -> INVERTER BOARD ASSY, ILB -> INLET BOARD ASSY, LRB -> LCD RELAY BOARD ASSY

CASING				Q'ty	
#	02454023	BENDER PANEL		1	
#	02673923	BOTTOM COVER		1	
	02018790	D S-ESCT	MX1H BLK L=30	1	
	01343089	ESCUTCHEON	D-BEAM CONTROLLER ESCT BLK	1	
#	02673990	DISPLAY COVER		1	
#	02568767	DISPLAY ESCT		1	
#	02454034	END BLOCK		1	
#	02673934	EXP COVER		1	
#	02568790	FDD ESCT		1	
#	02454045	SIDE COVER L		1	
#	02454056	SIDE COVER R		1	
#	02568345	TOP PANEL		1	
	12359139	RUBBER FOOT	FF-018 BLK	4	
CHASSIS					
#	02673989	DISPLAY HOLDER		1	
#	02673978	FDD HOLDER		1	
#	02674034	PANEL HOLDER		2	
#	02674001	PWR SPLY HOLDER		1	
#	02673956	SIDE HOLDER L		1	
#	02673967	SIDE HOLDER R		1	
#	02673945	STAY	BENDER	1	
KNOB, BUTTON					
	22485303	D R-KNOB(ALPHA-DIAL)	L BLK 248-303	1	
	01125890	D S-KEYTOP	SD1H-A CLR	1	
	32485261	SLIDE KNOB	M BLK/LCG	1	
	01234090	D T-KEYTOP	MX4B BLK	1	
	02452912	J R-KNOB	SF-A BLK/LCG	4	
	01783923	N S-KEYTOP	MD1H	6	
	01783934	N S-KEYTOP	MD2H	1	
	01783967	N S-KEYTOP	MX1H	5	
	01783989	N S-KEYTOP	MX3H BLK	2	
	01783990	N S-KEYTOP	MX4H	2	
	32490595	P S-KEY	MX BLK	1	
SWITCH					
Δ	01676512	SDKLA1-B	PUSH SWITCH	SW2 on ILB	1
	01340290	EVQ11A H=5.0	TACT SWITCH	SW102,SW103,SW104,SW105,SW106,SW107,SW108,SW109,SW110,SW111,SW112 on PAB. SW16,SW15,SW14,SW13,SW12,SW11,SW4,SW17,SW5,SW9,SW7,SW18,SW10,SW3,SW2,SW1,SW6,SW8,SW20,SW19 on PBB	11 +20
	01783801	SKHJFF WITH LED AMBER	TACT SWITCH	SW101 on PAB	1
JACK, EXT TERMINAL					
	13449258	HLJ4306-01-3080	6.5MM JACK	JK4 on MB	1
	13449284	HLJ7001-01-3010	6.5MM JACK	JK9,JK3,JK10,JK2 on MB	4
	13449283	HLJ7101-01-3010	6.5MM JACK	JK5,JK6 on MB	2
	00569278	LGR4609-7100	6.5MM JACK	JK8 on MB	1
	01343723	YKC21-3117(ORANGE)	RCA(PIN) JACK	JK7 on MB	1
	02565390	GP1FA501TZ TX	IC (OPTICAL CONNECTOR)	CN13 on MB	1
	13429274	YKF51-5041	MIDI SOCKET	JK1 on MB	1
DISPLAY UNIT					
	01124234	LM320191	LCD UNIT		1
NOTE: Replacement LM320191 should be made on a unit base.					

DISK DRIVE UNIT

△ #	02670267	JU-226A032FC	FDD	1
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NOTE: Replacement JU-226A032FC should be made on a unit base.

POWER SUPPLY UNIT

△	01785823	A1DU2L3B034	SWITCHING REGULATOR	1
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NOTE: Replacement A1DU2L3B034 should be made on a unit base.

BENDER UNIT

#	71905023	PB-H0203	BENDER TURBOLESS	1
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NOTE: Replacement PB-H0203 should be made on a unit base.

KEYBOARD ASSY

#	71901090	KEYBOARD ASSY	SK-976-B	1
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NOTE: See 'KEYBOARD PARTS LIST' for details.

PCB ASSY

#	71896578	MAIN BOARD ASSY		1
	NOTE: 'MAIN BOARD ASSY' includes the following parts.			
	12189810	PCB SPACER	WLS-14-094VO	3
	02019034	PWB SPACER	RSPLS-12L	2
	01902756	PWB SPACER	RSPS-12L	2
	12199584	GROUNDING TERMINAL	M1698	2
				TER2,TER1 on MB
#	71896601	PANEL-A BOARD ASSY		1
	NOTE: 'PANEL-A BOARD ASSY' includes the following parts.			
	01455901	LED SPACER	LH-36-9	1
	12169368	LED SPACER	LDS-40B	1
	02230578	LED SPACER	LDS-50R	1
#	71896623	PANEL-B BOARD ASSY		1
#	71896645	INVERTER BOARD ASSY		1
	NOTE: 'INVERTER BOARD ASSY' includes the following parts.			
	40342856	COATING CLIP	CP-1S	2
#	*****	ENCODER UNIT ASSY		1
	NOTE: 'ENCODER UNIT ASSY' includes the following parts.			
	02674045	ENCODER HOLDER		1
#	71896656	ENCODER BOARD ASSY		1
#	71896634	INLET BOARD ASSY		1
	NOTE: 'INLET BOARD ASSY' includes the following parts.			
#	02678478	WIRING	WIRING W1	1
				CN11 on Inlet Board
△ #	02675701	WIRING W3(AC INLET + GND WIRING)	WIRING ASSY	1
				JK1 on ILB
#	12199584	GROUNDING TERMINAL	M1698	1
				TER1 on ILB.
#	71896667	LCD RELAY BOARD ASSY		1

IC

	02454289	HD6417709AF133	IC (32BIT CPU)	IC3 on MB	1
	02455212	SIL50282F32H000	IC (KEY SCAN)	IC24 on MB	1
△	02234167	AK4393-VF-E2	IC (DAC)	IC59,IC62 on MB	2
	02454867	TC58FVB321FT-10	IC (FLASH MEMORY)	IC5 on MB	1
#	02568489	GM71V18163CT-6	IC (DRAM)	IC37 on MB	1
	02673812	HY57V641620HGT-P	IC (SDRAM)	IC7,IC4 on MB	2
	01906689	BR24C08F-E2	IC (EEPROM)	IC12 on MB	1
	02010023	UPD23C128040LGY-849-MJH	IC (MASK ROM)	IC48 on MB	1
	02010056	UPD23C128040LGY-850-MJH	IC (MASK ROM)	IC51 on MB	1
#	02568456	FDC37C78	IC (FDC)	IC25 on MB	1
	02451912	HD74LV00ATELL	IC (CMOS)	IC75 on MB	1
#	02675645	HD74LV04ATELL	IC (CMOS)	IC6 on MB	1
	02451690	HD74LV08ATELL	IC (CMOS)	IC64,IC66 on MB	2
#	02675656	HD74LV11ATELL	IC (CMOS)	IC11 on MB	1
#	02675678	HD74LV139ATELL	IC (CMOS)	IC53,IC54,IC52,IC50,IC30 on MB	5
	02451712	HD74LV14ATELL	IC (CMOS)	IC41 on MB	1
#	02675667	HD74LV21ATELL	IC (CMOS)	IC49 on MB	1
#	02675689	HD74LV245ATELL	IC (CMOS)	IC47,IC42,IC45,IC15,IC38,IC40 on MB	6
#	02675690	HD74LV541ATELL	IC (CMOS)	IC39,IC36 on MB	2
	15259865T0	TC74HC4053AF(EL)	IC (CMOS)	IC72 on MB	1
	01901623	TC74LVXC3245FS	IC (CMOS)	IC18,IC17 on MB	2
	01783523	TC74VHCT245AFT(EL)	IC (CMOS)	IC44,IC23,IC16,IC14,IC46 on MB	5
#	02675634	TC74VHCT32AFT(EL)	IC (CMOS)	IC8 on MB	1
	15249104	TC7S04F(TE85L)	IC (CMOS)	IC35,IC27 on MB	2
	01901989	TC7SET04F(TE85L)	IC (CMOS)	IC9 on MB	1
	01348956	TC7SH00FU(TE85L)	IC (CMOS)	IC71 on MB	1
	01348945	TC7SH32FU(TE85L)	IC (CMOS)	IC74 on MB	1
	15249111	TC7WU04F(TE12L)	IC (CMOS)	IC32,IC10 on MB	2
	15259706T0	TC74HCU04AF(EL)	IC (HS CMOS)	IC69 on MB	1
	15289117	NJM5532MD-TE1	IC (OP AMP)	IC60,IC65,IC57,IC63,IC61 on MB	5
	01785012	HA17324	IC (BIPOLAR OP AMP)	IC103 on PAB	1

IC					
	15289109	M5216FP-600D	IC (BIPOLAR OP AMP)	IC58 on MB	1
	15289141	M5223AFP-600C	IC (BIPOLAR OP AMP)	IC73,IC70,IC29 on MB	3
	15189197	NJM5532DD	IC (BIPOLAR OP AMP)	IC101 on PAB	1
	15189186	UPC4570C	IC (BIPOLAR OP AMP)	IC102 on PAB	1
#	02568478	M66273FP	IC (LCD DRIVER)	IC13 on MB	1
	01785178	TC9271FS	IC (DIF/TRANSMITTER)	IC68 on MB	1
	15289125	PC-410KT 178FAY	IC (PHOTO COUPLER)	IC22 on MB	1
	01455956	TC223C660CF-503	IC (RA08-503)	IC31 on MB	1
	15199137	AN7805F	IC (REGULATOR)	IC56 on MB	1
	15199286	AN78L05M-(E1)	IC (REGULATOR)	IC55 on MB	1
	00458312	NJM2360M	IC (REGULATOR)	IC20 on MB	1
	02230056	PQ07VZ5M2ZP	IC (REGULATOR)	IC2 on MB	1
	01678512	UPC2933T-T2	IC (REGULATOR)	IC43,IC1 on MB	2
	15199937	M51953BFP-600C	IC (RESET)	IC67 on MB	1
	15269219H0	HD74LS05FPEL	IC (TTL)	IC21 on MB	1

TRANSISTOR					
	15309113	2SA1213-O(Te12R.C)	TRANSISTOR	Q28 on MB	1
△	15119156	2SA1358-Y	TRANSISTOR	Q2 on IVB	1
	00901523	2SA1681 (SC-62)(POW SW)	TRANSISTOR	Q24 on MB	1
	15119134	2SA933STPR	TRANSISTOR	Q101 on PAB	1
	15129151	2SC1815-GR(TPE2)	TRANSISTOR	Q1 on LRB	1
	15319114	2SC2873-Y(Te12R.C)	TRANSISTOR	Q27 on MB	1
	15319105	2SC3326-A	TRANSISTOR	Q18,Q20,Q23,Q22,Q21,Q19,Q17,Q16 on MB	8
	01121289	2SC4081 T106 QRS	TRANSISTOR	Q34,Q5,Q8,Q25,Q31,Q32 on MB	6
	15129626	2SD1468S TP Q	TRANSISTOR	Q102 on PAB	1
	00239801	DTA114EU T-106	TRANSISTOR	Q2,Q6 on MB	2
	15129164	DTC114ESTP	TRANSISTOR	Q3 on IVB	1
	00239812	DTC114EUT106	TRANSISTOR	Q4,Q7,Q13,Q14,Q15 on MB	5
	15329521	RN1307(TE85R)	TRANSISTOR	Q26 on MB	1
	15329531	RN1308-TE85R	TRANSISTOR	Q30 on MB	1
	15329533	RN2307(TE85R)	TRANSISTOR	Q29 on MB	1
	02451378	RN2427	TRANSISTOR	Q10,Q11,Q9,Q12 on MB	4

DIODE					
	15019126	1SS133 T-77	SWITCHING DIODE	D106,D116,D104,D117,D115,D114,D113,D112,D102,D110, D109,D108,D107,D105,D103,D111,D118,D101 on PAB. D21 on IVB. D1,D2,D10,D9,D11,D8,D7,D6,D12,D5,D13, D14,D15,D16,D17,D18,D4,D3,D20,D19 on PBB	18+1 +20
△	01017512	RB411D T146	SCHOTTKY DIODE	D5,D3 on MB	2
	01900612	TPS611	DIODE	Q103 on PAB	1
#	02675734	UDZS TE-17 12B	ZENER DIODE	D2 on MB	1
	00782478	LNJ801LPDJA	LED (RED)	LED104 on PAB	1
	01783790	LNJ801TPSJA AMBER	LED (AMBER)	LED106,LED105,LED107,LED101,LED103,LED108 on PAB	6
	01010856	LNJ301MPUJA	LED (GREEN)	LED102 on PAB	1
	00127367	SPR-39MVW	LED (RED/GREEN)	LED109 on PAB	1
	01900623	TLN205	LED	LED110 on PAB	1
	01897178	MA142WA-(TX)	DIODE ARRAY	DA5,DA6,DA9 on MB	3
	15339130	MA142WK-(TX)	DIODE ARRAY	DA4,DA2,DA3 on MB	3
	01897189	MA147-(TX)	DIODE ARRAY	DA12,DA14,DA8,DA10,DA11,DA13,DA7 on MB	7

RESISTOR					
	15399581	RPC18T 221 J	CARBON RESISTOR	R263,R247 on MB	2
#	15399605	RPC18T 222 J	CARBON RESISTOR	R317 on MB	1
	15399561	RPC18T 330 J	CARBON RESISTOR	R139,R138,R137 on MB	3
	13749799T0	SR25TR 122J	CARBON RESISTOR	R106 on PAB	1
	13749773T0	SR25TRE 101 J	CARBON RESISTOR	R114,R117,R122,R123,R130,R125 on PAB	6
	13749797T0	SR25TRE 102 J	CARBON RESISTOR	R127,R124,R113,R105 on PAB. R1 on IVB. R5 on LRB	4+1+
	13749821T0	SR25TRE 103 J	CARBON RESISTOR	R108,R109,R118,R116 on PAB. R4 on IVB	4+1
	13749845T0	SR25TRE 104 J 1/4W	CARBON RESISTOR	R128 on PAB. R6 on IVB	1+1
	13749869T0	SR25TRE 105 J	CARBON RESISTOR	R120 on PAB	1
	13749779T0	SR25TRE 181 J	CARBON RESISTOR	R126 on PAB	1
	13749805T0	SR25TRE 222 J	CARBON RESISTOR	R121 on PAB	1
	13749813T0	SR25TRE 472 J	CARBON RESISTOR	R3 on LRB	1
	13749837T0	SR25TRE 473 J	CARBON RESISTOR	R103 on PAB	1
	13749791T0	SR25TRE 561 J	CARBON RESISTOR	R119,R129 on PAB	2
	13749190	SR50TR 100 J	CARBON RESISTOR	R101,R102 on PAB	2
	15399952	MCR50JZH470 1/2W	CHIP RESISTOR	R159,R160,R167,R166 on MB	4
	01011856	RPC05T 0R0 J	MTL.FILM RESISTOR	R55,R143,R42,R49,R50,R57,R59,R103,R105,R109,R112, R114,R140,R31,R142,R40,R145,R147,R151,R155,R156, R266,R268,R274,R275,R276,R277,R292,R295,R141,R1, R9,R29,R11,R13,R15,R44 on MB	37
	00908389	MCR100JZH J 331	MTL.FILM RESISTOR	R232,R236,R233,R235 on MB	4
	00346134	MCR25 JZH J 1R0	MTL.FILM RESISTOR	R60 on MB	1
	00567023	RPC05T 101 J	MTL.FILM RESISTOR	R228,R121,R65 on MB	3
	00567156	RPC05T 102 J	MTL.FILM RESISTOR	R239,R153,R152,R127,R120,R85,R81,R76,R3,R300, R227 on MB	11

RESISTOR

	00567289	RPC05T 103 J	MTL.FILM RESISTOR	R225,R310,R308,R306,R273,R272,R271,R270,R257,R74, R7,R8,R10,R12,R22,R45,R244,R53,R231,R75,R77,R93, R128,R134,R136,R149,R150,R122,R46,R92 on MB	30
	00567412	RPC05T 104 J	MTL.FILM RESISTOR	R264,R32,R124,R226,R237,R248,R253 on MB	7
	00567556	RPC05T 105 J	MTL.FILM RESISTOR	R130,R41 on MB	2
#	00567689	RPC05T 106 J	MTL.FILM RESISTOR	R180,R200 on MB	2
	00567034	RPC05T 121 J	MTL.FILM RESISTOR	R66 on MB	1
	00567290	RPC05T 123 J	MTL.FILM RESISTOR	R126 on MB	1
	00567178	RPC05T 152 J	MTL.FILM RESISTOR	R229 on MB	1
	00567056	RPC05T 181 J	MTL.FILM RESISTOR	R67 on MB	1
	00567312	RPC05T 183 J	MTL.FILM RESISTOR	R133,R71 on MB	2
	00566912	RPC05T 220 J	MTL.FILM RESISTOR	R82,R54,R78,R131 on MB	4
	00567067	RPC05T 221 J	MTL.FILM RESISTOR	R61,R64,R63,R62 on MB	4
	00567190	RPC05T 222 J	MTL.FILM RESISTOR	R250,R262 on MB	2
	00567323	RPC05T 223 J	MTL.FILM RESISTOR	R256 on MB	1
	00567456	RPC05T 224 J	MTL.FILM RESISTOR	R118 on MB	1
	00567078	RPC05T 271 J	MTL.FILM RESISTOR	R2,R4 on MB	2
	00567201	RPC05T 272 J	MTL.FILM RESISTOR	R30 on MB	1
	00567334	RPC05T 273 J	MTL.FILM RESISTOR	R255,R125,R119 on MB	3
	00566934	RPC05T 330 J	MTL.FILM RESISTOR	R301,R302,R146,R289,R290,R291,R293,R294,R17, R36,R47 on MB	11
	00567089	RPC05T 331 J	MTL.FILM RESISTOR	R43,R98 on MB	2
	00567345	RPC05T 333 J	MTL.FILM RESISTOR	R318,R258,R249,R245,R242,R84 on MB	6
	00566967	RPC05T 470 J	MTL.FILM RESISTOR	R80,R20,R23,R35,R316,R79,R21,R87,R88,R89,R100, R104,R307,R19,R39,R24 on MB	16
	00567112	RPC05T 471 J	MTL.FILM RESISTOR	R265,R260,R259,R254,R252,R251,R246,R238,R132, R123 on MB	10
	00567245	RPC05T 472 J	MTL.FILM RESISTOR	R68,R72,R144,R240,R313,R314,R52 on MB	7
	00567378	RPC05T 473 J	MTL.FILM RESISTOR	R230,R267 on MB	2
	00567389	RPC05T 563 J	MTL.FILM RESISTOR	R83 on MB	1
	00566990	RPC05T 680 J	MTL.FILM RESISTOR	R26,R25,R18,R38 on MB	4
	00567390	RPC05T 683 J	MTL.FILM RESISTOR	R261,R243 on MB	2
	00567001	RPC05T 750 J	MTL.FILM RESISTOR	R234 on MB	1
	00567401	RPC05T 823 J	MTL.FILM RESISTOR	R241 on MB	1
	15399373	RPC10T 101 J 1/10W	MTL.FILM RESISTOR	R188,R175,R193,R206,R214,R220 on MB	6
	15399397	RPC10T 102 J 1/10W	MTL.FILM RESISTOR	R162,R170 on MB	2
	15399421	RPC10T 103 J 1/10W	MTL.FILM RESISTOR	R223,R169,R178,R189,R197,R207,R217,R161 on MB	8
	15399405	RPC10T 222 J 1/10W	MTL.FILM RESISTOR	R209,R202,R194,R186,R181,R173,R168,R212 on MB	8
	15399409	RPC10T 332 J 1/10W	MTL.FILM RESISTOR	R179,R224,R218,R208,R198,R190 on MB	6
	15399391	RPC10T 561 J	MTL.FILM RESISTOR	R210,R184,R182,R172,R171,R201,R211,R199 on MB	8
	15399415	RPC10T 562 J 1/10W	MTL.FILM RESISTOR	R157,R164 on MB	2
	15399393	RPC10T 681 J 1/10W	MTL.FILM RESISTOR	R219,R174,R187,R192,R205,R213 on MB	6
	15399419	RPC10T 822 J 8.2K OHM 1/10W	MTL.FILM RESISTOR	R222,R195,R185,R183,R177,R176,R203,R204,R215, R216,R221,R196,R165,R158 on MB	14
	01457145	EXBE10C103J	RESISTOR ARRAY	RA27,RA64,RA63,RA54,RA50,RA72,RA39,RA57, RA25,RA24,RA21,RA17,RA14,RA12,RA42,RA77, RA102,RA107,RA120,RA121,RA7,RA74,RA51 on MB	23
#	02780312	RA4C1632-0R0-J	RESISTOR ARRAY	RA10,RA9,RA6 on MB	3
#	02679356	RA4C1632-102-J	RESISTOR ARRAY	RA47 on MB	1
#	02679290	RA4C1632-103-J	RESISTOR ARRAY	RA82,RA2,RA4,RA97,RA49,RA19,RA86,RA88, RA89,RA90,RA91,RA29 on MB	12
#	02780323	RA4C1632-220-J	RESISTOR ARRAY	RA46,RA23,RA22,RA20,RA38,RA40,RA41,RA43, RA26,RA45,RA92,RA44,RA33,RA36,RA37 on MB	15
#	02679323	RA4C1632-330-J	RESISTOR ARRAY	RA106,RA132,RA131,RA108,RA35,RA103,RA101, RA130,RA96,RA95,RA94,RA85,RA18,RA16,RA15, RA13,RA11,RA5,RA3,RA87 on MB	20
#	02679312	RA4C1632-470-J	RESISTOR ARRAY	RA8,RA32,RA30,RA55,RA129,RA128,RA126, RA127,RA52 on MB	9
#	02679334	RA4C1632-472-J	RESISTOR ARRAY	RA93,RA28 on MB	2
#	02679345	RA4C1632-680-J	RESISTOR ARRAY	RA125,RA124,RA123,RA122 on MB	4
	15229941	10KD-5	THERMISTOR RESISTOR	R2 on LRB	1

POTENTIOMETER

#	02676878	EVUE20E15B14	9M/M ROTARY POT.	VR1 on MB	1
	01787545	EVUF2KFK3B14 10KB	9M/M ROTARY POT.	VR105,VR104,VR103,VR102 on PAB	4
	13359366	EWA-NPOX05B14 10KB	SLIDE POT.	VR101 on PAB	1

CAPACITOR

	13519661	DD104-989SL150J50	CERAMIC CAPACITOR	C121,C122 on PAB	2
	02018701	DD104-989SL680J50	CERAMIC CAPACITOR	C117,C107 on PAB	2
	13519452	DD306-959F104Z25(100NF/25V Z)	CERAMIC CAPACITOR	C120,C118,C108,C124,C110,C115,C111,C119,C123, C125,C126,C127,C114 on IVB. C3,C4 on PAB	13 +2
	01674167	ECUV1H100DCV	CERAMIC CAPACITOR	C346,C345 on MB	2
	01674334	ECUV1H101JCV	CERAMIC CAPACITOR	C144,C145,C141,C150,C143,C347,C151,C146,C147, C148,C149,C140,C142 on MB	13
	01674189	ECUV1H120JCV	CERAMIC CAPACITOR	C42,C43 on MB	2
	01674201	ECUV1H180JCV	CERAMIC CAPACITOR	C122,C121 on MB	2
	01674423	ECUV1H471JCV	CERAMIC CAPACITOR	C35,C34 on MB	2
	01674434	ECUV1H561JCV	CERAMIC CAPACITOR	C85 on MB	1
	01672412	GRM39CH150J50PT	CERAMIC CAPACITOR	C176,C177 on MB	2
	00567945	GRM39B103K50PT	CERAMIC CAPACITOR	C352,C344,C156,C207,C359,C360,C361,C365,C367, C369,C368,C208 on MB	12

CAPACITOR

	00567867	GRM39B222K50PT	CERAMIC CAPACITOR	C175 on MB	1
	01349312	GRM39F105Z10PT	CERAMIC CAPACITOR	C155,C196,C197,C198,C331 on MB	5
	00567978	GRM39F104Z25PT	CERAMIC CAPACITOR	C188,C172,C174,C178,C179,C186,C65,C189,C190, C191,C171,C180,C417,C418,C419,C420,C421,C423, C16,C79,C15,C78,C202,C83,C210,C82,C348,C206, C370,C366,C364,C363,C356,C354,C372,C351,C373, C334,C333,C329,C315,C305,C293,C274,C228,C229, C231,C353,C221,C204,C205,C209,C2,C214,C215, C217,C218,C371,C220,C203,C222,C223,C224,C225, C226,C227,C407,C406,C376,C375,C219,C163,C30, C14,C28,C26,C25,C24,C23,C68,C162,C31,C164,C165, C166,C18,C167,C168,C169,C170,C6,C67,C161,C50, C53,C54,C55,C56,C57,C58,C52,C29,C59,C33,C48, C47,C46,C45,C44,C41,C40,C39,C38,C37,C51,C63, C69,C96,C66,C94,C92,C90,C98,C88,C97,C232,C234, C64,C233,C3,C7,C11,C12,C13,C17,C157,C70,C72, C73,C74,C75,C76,C60,C160,C95,C159,C154,C152, C235,C123,C262,C104,C103,C102,C101 on MB	155
#	15349375M0	GRM2161X1H471JZ01D	CERAMIC CAPACITOR	C292,C267,C270,C281,C296,C297,C260,C276 on MB	8
	15359733M0	GRM40F103Z50PT	CERAMIC CAPACITOR	C272,C265,C290,C295,C301,C313,C253,C279 on MB	8
	15359707R0	GRM40F104Z50PT85 0.1UF/50V	CERAMIC CAPACITOR	C264,C349,C342,C340,C243,C244,C246,C241,C247, C239,C250,C284,C257,C322,C286,C302,C304,C308, C252,C320,C278,C324,C326,C328,C332,C335,C337, C318 on MB	28
	01455845	16CV22NP	CHEMICAL CAPACITOR	C339 on MB	1
	13639546M0	ECEA1CKA100B 10UF/16V	CHEMICAL CAPACITOR		4
	01900823	RA2-16V100M-T2	CHEMICAL CAPACITOR	C258,C283,C263,C287,C259,C288 on MB	6
	01900834	RA2-16V101M-T2	CHEMICAL CAPACITOR	C104,C113,C106,C112,C109 on PAB. C2 on IVB.	5+1
				C277,C275,C269,C261,C256,C248,C266,C285,C299, C254,C310,C294 on MB	+12
	02014890	RA2-16V221MT2	CERAMIC CAPACITOR	C350 on MB	1
	02014912	RA2-25V100MT2	CERAMIC CAPACITOR	C245,C242 on MB	2
	02127812	RA2-25V470MT2	CERAMIC CAPACITOR	C343,C338 on MB	2
#	02675745	ROS-25V101M-T2	CHEMICAL CAPACITOR	C341,C336 on MB	2
	01564778	RV2-16V100MZ7-R 10UF/16V	CHEMICAL CAPACITOR	C19,C20,C27,C32,C61,C62,C230,C211,C200,C181, C173,C100,C89,C71,C355,C212 on MB	16
	01783467	RV2-16V101MZ7-R	CHEMICAL CAPACITOR	C84,C113 on MB	2
#	02345078	RV2-25V100M-R	CHEMICAL CAPACITOR	C387,C386 on MB	2
#	02345056	RV2-35V220M-R	CHEMICAL CAPACITOR	C80 on MB	1
	02345234	RV2-6V101M-R	CHEMICAL CAPACITOR	C216,C213,C5,C8,C1,C4 on MB	6
#	02345212	RV2-6V330M-R	CHEMICAL CAPACITOR	C385,C49 on MB	2
	01784478	RV2-6V470MZ7-R	CHEMICAL CAPACITOR	C201,C158 on MB	2
	02124923	RV3-25V470MZ7-R	CHEMICAL CAPACITOR	C311,C314,C316 on MB	3
	00239412	AMZV0050J122 0200	POLYEST. CAPACITOR	C268,C309,C298,C282 on MB	4
	00239390	AMZV0050J561 0200	POLYEST. CAPACITOR	C312,C300,C289,C271 on MB	4

INDUCTOR, COIL, FILTER

	01672889	SBC3-221-681	CHOKO COIL	L9 on MB	1
	12449268	BL02RN2-R62T2	FERRITE-BEAD	L44 on MB	1
	01565578	N1608Z601T01	FERRITE-BEAD	L3,L23,L38,L36,L2,L29,L28,L27,L26,L39,L24,L37,L22, L21,L20,L19,L18,L8,L7,L6,L5,L4,L25,L41,L1,L42,L43, L30,L40 on MB	29
	01455623	N2012Z102T01	FERRITE-BEAD	L13,L17,L12,L11,L15,L16,L14,L10 on MB	8
#	02678467	SS11V-10062	LINE-FILTER COIL	FL1 on IVB	1

CRYSTAL, RESONATOR

#	02673123	MA-406 16.500MHZ	CRYSTAL	X2 on MB	1
#	02673134	MA-406 16.9344MHZ	CRYSTAL	X4 on MB	1
	00891801	MA-406 24.000MHZ TE24	CRYSTAL	X3 on MB	1

ENCODER

	01905467	EVE GC1 F20 24B	ROTARY ENCODER	EN1 on Encoder Board	1
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CONNECTOR

	01909601	12FE-BT-VK-N	CONNECTOR	CN6,CN5 on LRB. CN9 on MB	2+1
	02564678	12FE-ST-VK-N	CONNECTOR	CN1 on PBB. CN2 on MB	1+1
	01908645	16FE-BT-VK-N	CONNECTOR	CN4 on MB	1
	01908667	22FE-BT-VK-N	CONNECTOR	CN6 on MB	1
#	02012034	26FMN-BTK	CONNECTOR	CN5 on MB	1
	02120212	28FE-BT-VK-N	CONNECTOR	CN8 on MB	1
#	02239556	28FE-ST-VK-N	CONNECTOR	CN101 on PAB	1
	13429833	52411-0402 40P	CONNECTOR	CN7 on MB	1
	13369541	B10B-PH-K-S JST	CONNECTOR	CN102 on PAB. CN12 on MB	1+1
#	02673145	B2(4-2.3)B-XH-A	CONNECTOR	CN12 on IVB. CN9,CN8 on LRB	1+2
	13369567	B4B-PH-K-S JST (4P)	CONNECTOR		1
	13369592	B7B-XH-A(7P) JST	CONNECTOR	CN10 on IVB	1
	13369556	B8B-XH-A JST	CONNECTOR	CN7 on IVB. CN14 on MB	1+1
	13369663	JST S3B-PH-K-S(3P)	CONNECTOR	CN2 on PBB. CN3 on Encoder Board	1+1
	02010078	TX25-80P-6ST-E1	CONNECTOR	CN11,CN10 on MB	2

WIRING, CABLE

	02341734	3x100-P2.0-PHR-PHR-F	WIRING	1
#	02342067	4x450-P2.0-PHR-PHR-F	WIRING	1
#	02679390	7x150-P2.5-XHP-XHP-F	WIRING	1
#	02679401	8x950-P2.5-XHP-XHP-F	WIRING	1
#	02343823	10x200-P2.0-PHR-PHR-F	WIRING	1
#	02679412	WIRING W2	WIRING	1
#	02679389	BNCD-P=1.00-K-26-200	BAN CARD	1
	02120678	BNCD-P=1.25-K-12-100	BAN CARD	1
#	02679378	BNCD-P=1.25-K-12-550	BAN CARD	1
#	02673523	BNCD-P=1.25-K-16-130	BAN CARD	1
	02017901	BNCD-P=1.25-K-22-260	BAN CARD	1
#	02679367	BNCD-P=1.25-K-28-320	BAN CARD	1

TRANSFORMER

	02457412	DHE1105-5VB	INVERTOR MODULE	MOD1 on IVB	1
	02019478	(7KQ5) 19832A	PULSE TRANS	T1 on MB	1

AC INLET

△ #	02675701	WIRING W3(AC INLET + GND WIRING)	WIRING ASSY	JK1 on ILB	1
		NOTE: Replacement AC INLET should be made on an assy base.			
		NOTE: 'WIRING W3' includes the following parts.			
	*****	PWI1818 (INL-7) 10A/250V 3P	AC INLET		1

SCREW

#	40453601	SCREW M2.5x4	PAN MACHNE W/SW ZC	3
	40011056	SCREW 3x6	BINDING TAPTITE B ZC	40
	40012512	SCREW 3x6	BINDING TAPTITE S ZC	4
	40011490	SCREW M3x6	PAN MACHINE W/SW BZC	7
#	40454045	SCREW 3x8	FLAT TAPTITE B NI FLANGE SOCKET	8
	40011101	SCREW 3x8	BINDING TAPTITE B BZC	19
	40011312	SCREW 3x8	BINDING TAPTITE P BZC	27
	40012790	SCREW 3x8	FLAT TAPTITE P BZC	4
	40010334	SCREW 4x8	BINDING BZC	1
	40011123	SCREW 4x8	BINDING TAPTITE B BZC	30
	40012501	SCREW M4x12	BINDING TAPTITE P FE BZC	1
	40011745	HEX NUT M4	SPRING NUT FE ZC	1

PACKING

#	02675578	PACKING CASE		1
#	02675612	LOWER PAD CENTER		1
#	02675589	LOWER PAD L		1
#	02675590	LOWER PAD R		1
#	02675623	MANUAL PAD		1
#	02675601	UPPER PAD CENTER		1
#	02781889	UPPER PAD L		1
#	02781890	UPPER PAD R		1

MISCELLANEOUS

	40122812	ACETATE TAPE	NITTO NO.5 BLK W15MM 30M	1
	40017356	COATING CLIP	CS-4	2
	01455523	CORD BUSHING	EDS-1717U	1
#	40122901	DOUBLE-FACED TAPE	#501F W10MM 20M 20P (CM)	2
#	02781867	INSULATING SHEET		1
	12169368	LED SPACER	LDS-40B	1
	01455901	LED SPACER	LH-36-9	1
	02230578	LED SPACER	LDS-50R	1
	12189810	PCB SPACER	WLS-14-094VO	3
#	40453589	POP LABEL EXP	(117/230/240V ONLY)	1
	02019034	PWB SPACER	RSPLS-12L	2
	01902756	PWB SPACER	RSPS-12L	2

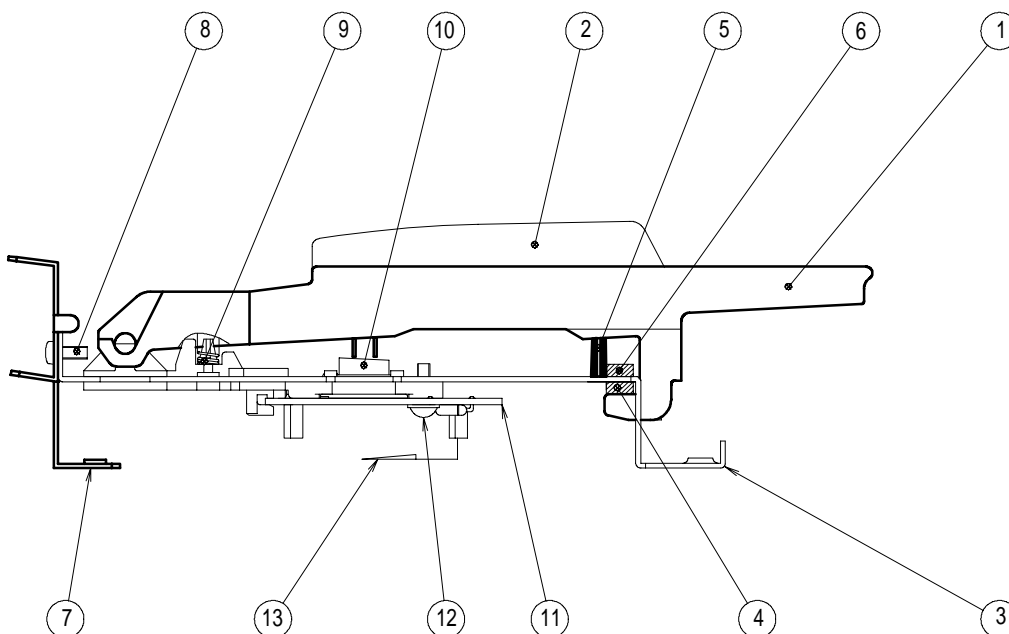
ACCESSORIES (STANDARD)

#	71896534	OWNER'S MANUAL	JAPANESE	1
#	71900812	OWNER'S MANUAL	ENGLISH	1
△ #	02670401	AC CORD SET	100V YA-101/YP-3N/YC-13	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
#	02781878	FLOPPY DISK DEMO		1
	40232334	WARRANTY CARD	(JAPAN ONLY)	1

KEYBOARD ASSY (SK-976-B) PARTS LIST

SK-976-B KEYBOARD ASSY PARTS LIST

No.	PART CODE	PART NAME	Q'ty	
1	00893723W0	SK-9 NATURAL KEY C F (WEIGHT)	13	
	00893734W0	SK-9 NATURAL KEY E B (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	
	71901123	SK-9 CHASSIS 76P-B 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 AFTERTOUCHE	1
	7	02674012	FANTOM KBD HOLDER	6
		02674023	FANTOM PWB HOLDER	2
	8	40011067	SCREW 3x8 BINDING TAPTITE B ZC	14
9	01231534	SK-9 SPRING-WT2	76	
10	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	
11	70672901	SK-976 PWB LOW ASSY	1	
	71901101	SK-976 PWB MID-AFT ASSY	1	
	71901112	SK-976 PWB HI-AFT ASSY	1	
12	40233545	SCREW 3x10 VWH TAPTITE B ZC	19	
13	23475965	FUJI CARD 14x70-A5.0BB-P1.25-HBL8	1	



KEYBOARD ASSY (SK-976-B) DISASSEMBLY

<Attaching the RUBBER SWITCHES and the circuit board>

To fasten the SK-9 circuit board, be sure to use 3x10mm Brazier Washer Head Taptite B type FeCM screws (P/No. 40233545).

1) Turn the chassis over as shown in Fig.1.

Next on the left side (the low note area of the keyboard), place RUBBER SWITCHES on the chassis in the order of 8PL, 12PL (four pieces), 13P, and 7PH.

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)

Left side

Right side

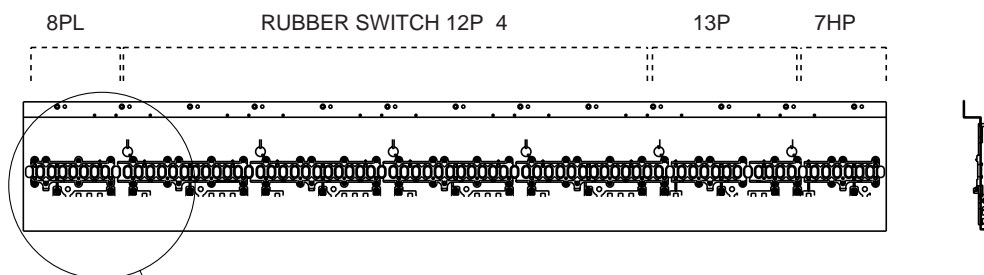


Fig. 1

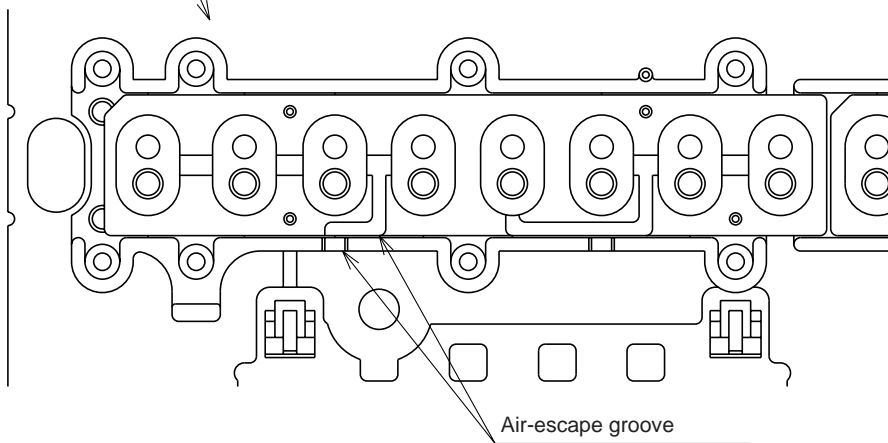


Fig. 2

- 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 three PCBs, LOW, MID and HI, as shown in Fig.4.
 The chassis positioning reference pins are located near the connector each of the LOW, MID and HI PCBs.

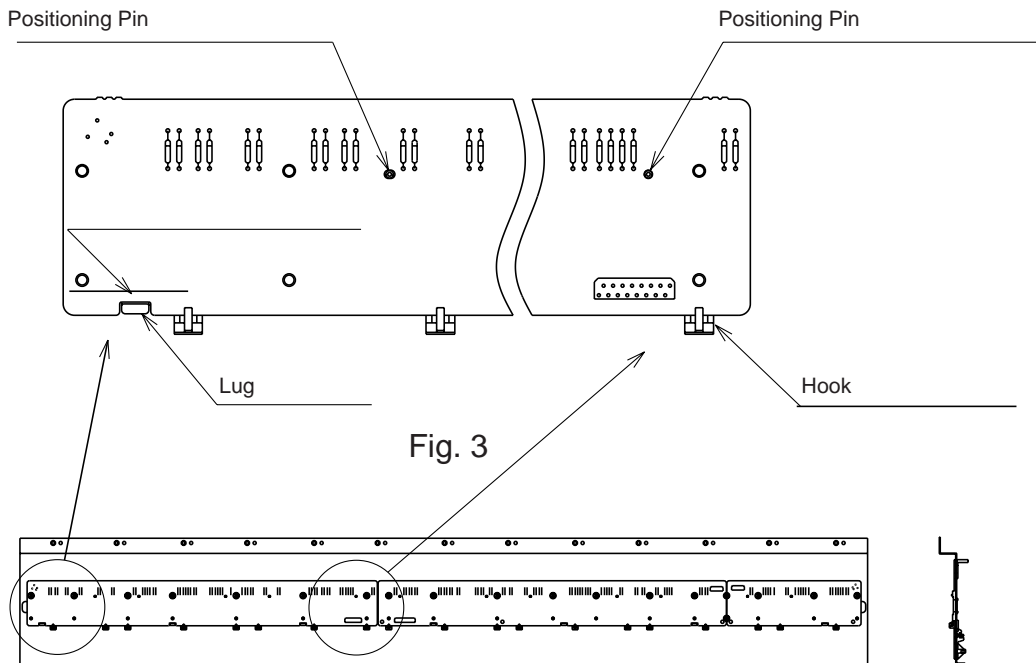
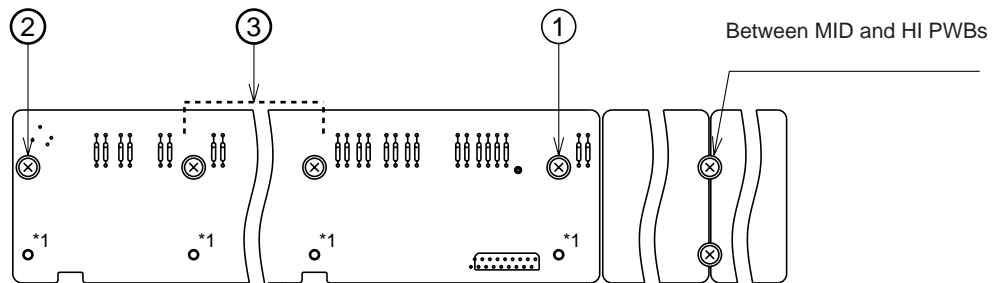


Fig. 3

Fig. 4

- 3) Then, using the screws, fasten the LOW, MID 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 screws while holding down the middle of the PCB lightly.
 Finally, screw down the adjacent area between the MID and HI PCBs.



⊗ : Screw position* 1: Use of these screw holes is not necessary, but if the chassis hooks are broken use these holes for inserting 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.)

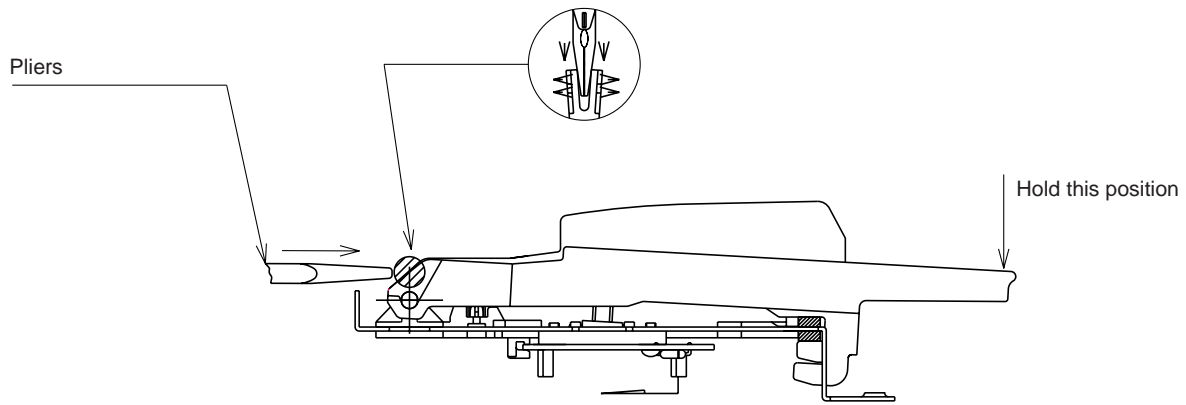


Fig. 6

<Key installation>

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

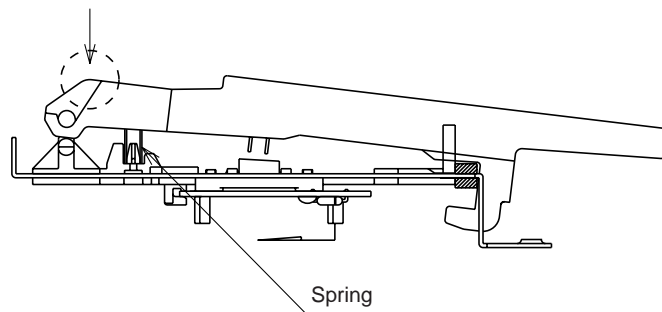
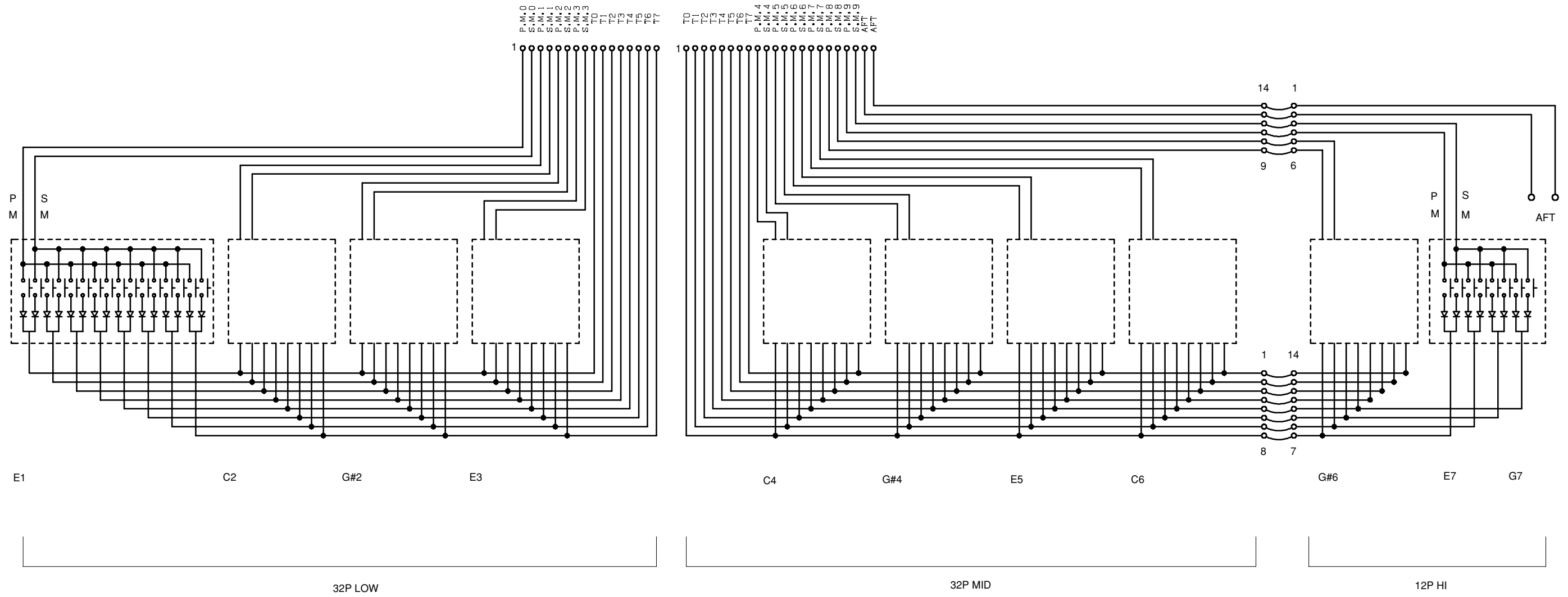


Fig. 7

KEYBOARD ASSY (SK-976-B) CIRCUIT DIAGRAM



IDENTIFYING THE VERSION NUMBER

1. Power on the main unit while pressing the [REALTIME CONTROL 1], [REALTIME CONTROL 3] and [REC] buttons, and the top page of the Test Mode appears to display the version number of the program. Keep the buttons pressed down until the top page appears.
2. Press the [EXIT] button to exit Test Mode.
 - * If you want to continue with Test Mode, refer to the "Test Mode" section.
 - * User data will not be lost in the operation to display the Test Mode top page.
 - * The user data will be maintained until the Test Mode item "18.Factory Rest" is performed.

SAVING USER DATA & RELOADING SAVED DATA

- * Saving and loading user data requires a 3.5 2DD or 2HD disk formatted for the Fantom.

Equipment items

- 2HD and 2DD floppy disk, one each (DOS-formatted on the Fantom or on a PC)

How to Save the User Settings

Save the data files storing patches, rhythm sets, multitimbres and performance and system settings on a disk.

1. Insert a disk into the disk drive.
2. Press the [MENU] button to display the Menu window.
3. Press the [CURSOR UP] or [CURSOR DOWN] button to select 'Disk Utility', then press the [8 (Select)] button.
4. Press the [2 (Save)] button. The Select Command window is displayed.
5. Press the [CURSOR UP] or [CURSOR DOWN] button to select 'Save Sound File', then press the [8 (Select)] button.
6. Assign a name to the file (within eight characters). "SOUND_00" is automatically prefixed to any file name. Press the [5 (Name)] button to display the Name window, then use this window to assign a file name.
7. Press the [8 (Execute)] button to execute naming. When naming is completed, "Complete!" momentarily appears.

- * To cancel the operation, press the [EXIT] button.

- Selecting the 'Save Sound File' format enables the patches, rhythm sets, multitimbres and performance settings as well as the system and favorite list settings to be saved on a single disk as one data file. The file name extension ".SVD" is automatically attached.
- An attempt to save data under an existing file name causes the "File ***** Already Exists! Over Write OK?" confirmation message to be displayed. To overwrite and save the file, press the [7(OK)] button. To cancel saving, press the [8 CANCEL] button.
- An attempt to save data on a disk that is not formatted on the Fantom causes the "Unformatted Disk" message to be displayed. Format the disk on the Fantom.

How to Load the User Settings

Load data files (".SVD" files) stored on a disk in the internal memory.

- * Files are loaded by overwriting the internal memory. If you have any important data stored in the internal memory, save it on a disk before loading any data.
1. Insert a disk into the disk drive.
 2. Press the [MENU] button to display the Menu window.
 3. Press the [CURSOR UP] or [CURSOR DOWN] button to select 'Disk Utility', then press the [8 (Select)] button.
 4. Press the [CURSOR UP] or [CURSOR DOWN] button to select a desired file to be loaded, then press the [1 (Load)] button.
 5. Press the [8 (Execute)] button to execute loading. When loading is completed, "Complete!" momentarily appears.
- * To cancel the operation, press the [EXIT] button.

TEST MODE

Equipment items

- 2HD and 2DD floppy disk, one each (DOS-formatted on the Fantom or on a PC)
- Expression Pedal
- D Beam adjustment device (a square wooden or paper board with 8 cm-long edges)
- Headphones
- Analog audio replaying equipment, such as a monitor speaker
- Wave Expansion Board SR-JV80 Series x1pc
- Wave Expansion Board SRX Series x2pcs
- Oscilloscope
- Noise Meter
- Audio cable x 2pcs, MIDI cable x 1pc
- Connection Cable PCS-31 x2pcs
- COAXIAL Cable x1pc
- OPTICAL Cable x1pc
- A VM-3100 unit or other mixer with at least six channels, and equipment with coaxial and optical inputs (DS-90, for example)

Explanation of the Menu Items

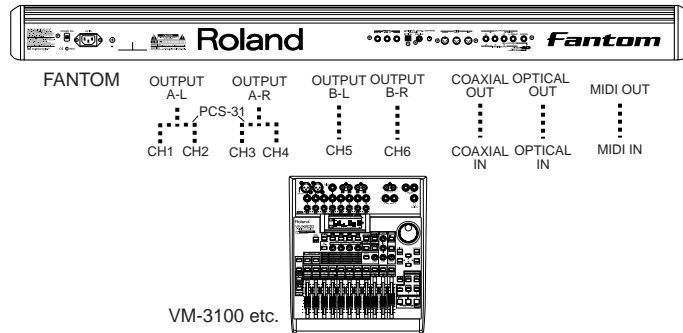
The Fantom provides the following tests:

See the respective sections for the details of the tests.

- 0.Test Mode Top page (Identifying the version number)
- 1.Shock Test
- 2.Memory Test
- 3.Expansion Board Test
- 4.MIDI Test
- 5.Sound Test
- 6.LCD Test
- 7.Encoder Test
- 8.A/D Test1 (Bender & Modulation)
- 9.A/D Test2 (Volume x4)
- 10.A/D Test3 (After Touch)
- 11.A/D Test4 (HOLD, CTL1, CTL2)
- 12.Disk(FDD) Test
- 13.D-Beam Adjustment
- 14.D-Beam Check
- 15.Switch & LED Test
- 16.Keyboard Test
- 17.Noise Check
- 18.Factory Reset

Test setup:

- * Before entering Test Mode, Wave Expansion Boards (one SR-JV80 Series board and two SRX Series boards) must be inserted into all the slots.
- * User data will be maintained until the operation under "18.Factory Reset" is performed even after entering Test Mode.
save the data on a disk or transmit it to an external MIDI device and save beforehand Only when you are to perform a Factory Reset (See "Saving and Loading User Data).
- Connect the Fantom to the mixer as follows.



How to enter Test Mode

Power on the unit while pressing the [REALTIME CONTROL 1], [REALTIME CONTROL 3] and [REC] buttons, and the top page of the Test Mode appears. Press and hold these buttons down until the top page is displayed.

Moving through test items

- Press the [8] button on the top page to go test item 1 Shock Test.
- For test items 2 - 5 and 7 - 15, completion of each test automatically invokes the next test item.
- Proceed with Test Mode by starting with the top page until "1.Shock Test" is completed, and a number of memory check operations are performed automatically.
If each memory check has succeeded, proceed to "4.MIDI Test."
- Pressing the [SHIFT] and [8]/[SHIFT] and [1] buttons in conjunction forces the program to jump to the previous or following test item even if the current test is not completed.
- Press the [MENU] button in Test Mode to return to the top page. (Press the [Shift] and [MENU] buttons to return to the top page from "15. Switch & LED Test.")
- * See the descriptions of the test items in the following sections for details of the screen displays.

Jumping to a test item

- On the top page, press the [CURSOR UP] / [CURSOR DOWN] button to move the cursor to any desired item, then press the [JUMP] button to directly select that test item.

How to exit Test Mode

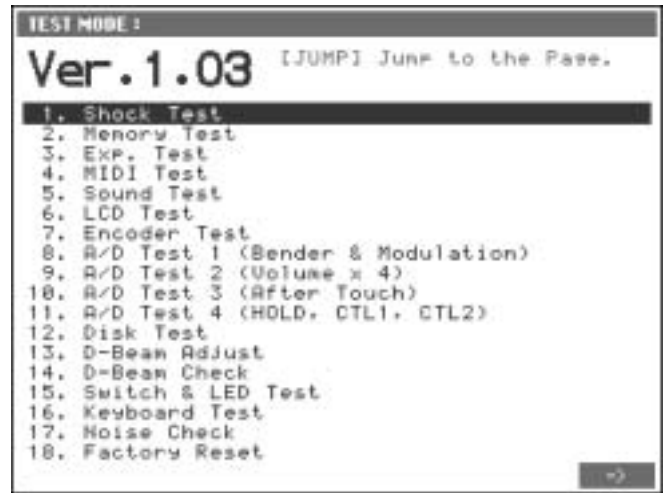
- Return to the top page and press the [EXIT] button.

Details of test items

0. Test Mode Top page (Identifying the version number)

1. Check the version number of the Program ROM.
2. To update to the latest version number, perform updating.

* For the updating procedure, see "How to Update System."



3. Press the [8] button and proceed with the next test.

1. Shock Test

1. The DEMO Play is played back. Check for any scratching noise on the Master Volume.
2. Press the [PLAY/STOP] button to stop playback and press the [PLAY/STOP] button again to start it.
3. Check to see if audio output is muted while the [INC] button is pressed down.



4. Press the [8] button and proceed with the next test.

2. Memory Test

1. The flash memory, SDRAM, EEPROM, WAVE ROM, XV and DSP RAM are automatically checked.
2. If "OK" is returned for all these tests, then the program automatically proceeds to the next test item.

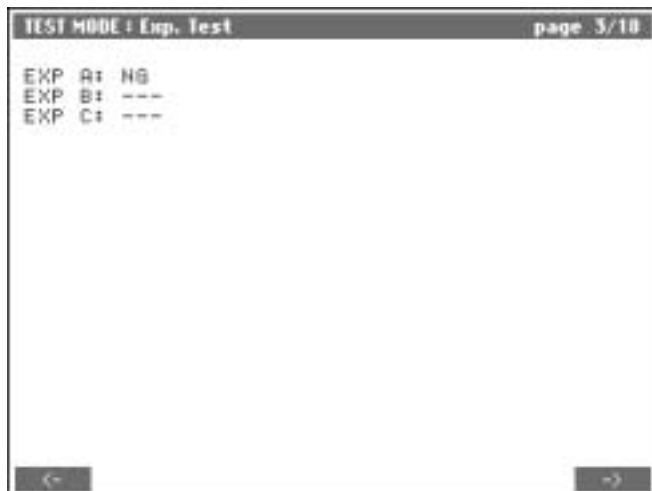


* If "OK" is not displayed, check the following for the relevant test items.

- FLASH : MAIN BOARD IC5
- SDRAM : MAIN BOARD IC4, IC7
- EEPROM : MAIN BOARD IC12
- WAVE ROM : MAIN BOARD IC42, IC44, IC45, IC46, IC47, IC48, IC49, IC51, IC54
- XV : MAIN BOARD IC31
- DSP RAM : MAIN BOARD IC36, IC37, IC38, IC39, IC40

3. Expansion Board Test

1. Check the slots for Wave Expansion Boards.
 - * Before starting this test, insert Wave Expansion Boards (one SR-JV80 Series board and two SRX Series boards) into all the slots. If you need to insert a Wave Expansion Board now, turn off the power before doing so and then return to Test Mode. If a board is inserted with the power on, it cannot be read correctly. Moreover, it may damage the board.
2. Each slot is automatically checked.
3. If the tests on all the slots are completed with "OK" displayed, the program automatically proceeds to the next test item.



- * If "OK" is not displayed, check the following as specified by slot.
 - A : MAIN BOARD IC30, CN7
 - B : MAIN BOARD IC42, IC44, IC45, IC46, IC47, IC49, IC53, CN10
 - C : MAIN BOARD IC42, IC44, IC45, IC46, IC47, IC49, IC50, CN11

4. MIDI Test

1. Check MIDI connection.
2. Connect MIDI IN and MIDI OUT with a MIDI cable.
3. Confirm that "CONNECT : OK" is displayed.
4. Remove the MIDI cable from MIDI IN and MIDI OUT. Confirm that "DISCONNECT : OK" is displayed.
5. If "OK" is displayed each time, the program automatically proceeds to the next test item.



* If "OK" is not displayed, check MAIN BOARD JK1, IC21 and IC22.

5. Sound Test (OUT1, 2 = Balance / OUT3, 4 = Unbalance / DIGITALCOAXIAL, OPTICAL)

- * This test item assumes that a VM-3100 is connected.
- * MIDI is used to control the VM-3100 to its optimal settings for each check item.

1. Entering Sound Test displays the following screen.



2. Press the [8] button.
3. Check output of OUTPUT A-L (Hot) and OUTPUT A-L (Cold). The Phantom outputs 440 Hz sine waves to OUTPUT A-L (Hot) and OUTPUT A-L (Cold). Check the waveform with an oscilloscope, then press the [8] button to proceed to the next step.
4. Check output of OUTPUT A-R (Hot) and OUTPUT A-R (Cold). The Phantom outputs 440 Hz sine waves to OUTPUT A-R (Hot) and OUTPUT A-R (Cold). Check the waveform with an oscilloscope, then press the [8] button to proceed to the next step.

5. Check output of OUTPUT B-L and OUTPUT B-R.
The Fantom outputs 440 Hz saw-tooth waves to the OUTPUT B-L side and 440 Hz triangular waves to the OUTPUT B-R side.
Check the waveform with an oscilloscope, then press the [8] button to proceed to the next step.
6. Check output of DIGITAL OUT COAXIAL (L/R).
The Fantom outputs 440 Hz sine waves to the DIGITAL OUT COAXIAL L side and 440 Hz square waves to the R side.
Check the waveform with an oscilloscope, then press the [8] button to proceed to the next step.
7. Check output of DIGITAL OUT OPTICAL (L/R).
The Fantom outputs 440 Hz sine waves to the DIGITAL OUT OPTICAL L side and 440 Hz square waves to the R side.
Check the waveform with an oscilloscope, then press the [8] button to proceed to the next test item.



* If there are any abnormalities with output, check the following as specified by section.

- OUTPUT A(L) : MAIN BOARD IC57, IC59, IC61, IC63, Q18, Q19, JK3
 PANEL A IC101
- OUTPUT A(R) : MAIN BOARD IC57, IC59, IC61, IC63, Q20, Q21, JK4
 PANEL A IC101
- OUTPUT B(L) : MAIN BOARD IC60, IC62, IC65, Q22, JK5
- OUTPUT B(R) : MAIN BOARD IC60, IC62, IC65, Q23, JK6
- COAXIAL : IC68, IC69, T1, JK7
- OPTICAL : IC68, CN13

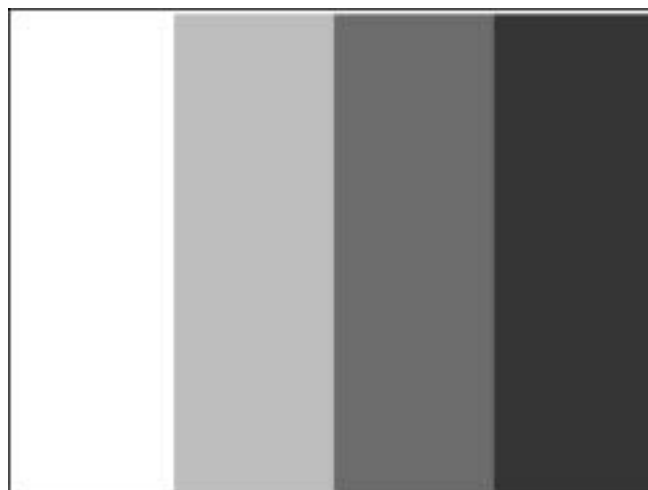
6. LCD Test

1. Check the LCD.
The startup screen is shown below.

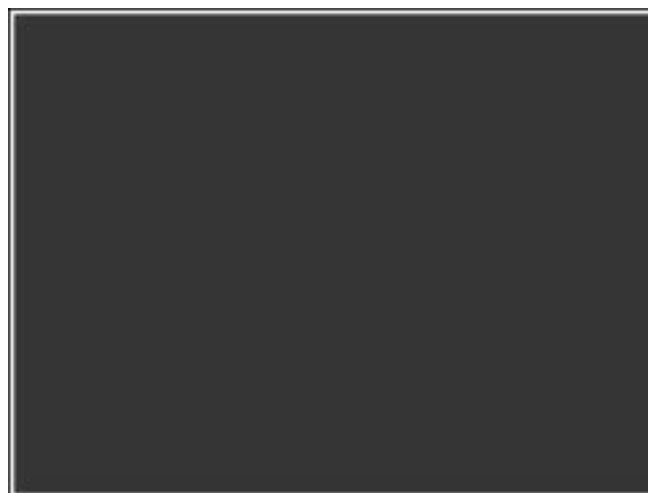


2. Press the [8] button.

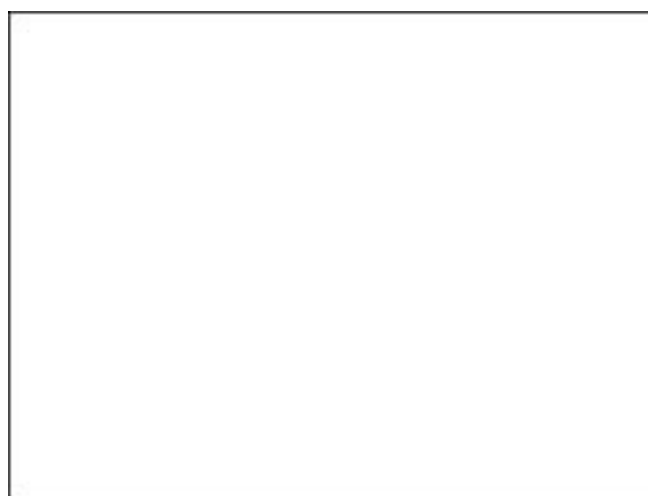
3. The screen shows patterns in four contrasts.
Turn the contrast knob to obtain the optimal contrast.
4. Confirm that pressing the [INC] button turns off the backlight of the LCD and pressing it once again turns it on.



5. Press the [8] button.
6. In the Display All Dots mode, check for any missing dots and uneven density.



7. Press the [8] button.
8. In the Display No Dots mode, check for permanently displayed dots and conspicuous unwanted elements.



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

* If any LCD failure occurs, check the following.
MAIN BOARD IC13, L36, L37, L38, L39, L40, L41, L42, L43, CN2
LCD-RELAY BOARD CN5, CN6

7. Encoder Test

1. Check the encoder.
2. Rotate the encoder clockwise and counterclockwise, one turn each. "OK" is displayed on the LCD screen if a value of '+24' is obtained when the encoder is rotated clockwise and a value of '-24' when rotated counterclockwise, accompanied by a confirmation sound.



3. If "OK" is displayed for both rotations, the program automatically proceeds to the next test item.
 - * If "OK" is not displayed, check MAIN BOARD IC41.

8. A/D Test 1 (Bender & Modulation)

1. Check the bender and modulation actions.
 - * Confirm that the bender is not tilted before entering this screen. (This is required to enable the A/D value at the time of screen entry to be read as the median point voltage.)
2. Tilt the Bend lever from side to side as far as it will go.
3. "OK" is displayed on the screen and a confirmation sound is output if:
 - Tilting the lever to the left gives a value of '-128.'
 - Tilting the lever to the right gives a value of '+127.'
 - Replacing the lever gives a value of '0.'
4. Tilt the Bend lever all the way over to the modulation side as far as it will go, then release it.
5. "OK" is displayed on the screen and a confirmation sound is output if tilting the lever to the modulation side gives a value of '127' and replacing the lever gives a value of '0.'
6. If "OK" is displayed for all these items, the program automatically proceeds to the next test item.



* If "OK" is not displayed, check MAIN BOARD IC73, BENDER UNIT should be checked.

9. A/D Test 2 (VOLUME x4)

1. Check volume of REALTIME CONTROL's [1] - [4] knobs.
2. Move the four REALTIME CONTROL VR knobs all the way from side to side sequentially from [1] to [4].
3. "OK" is displayed if a value of '0' is obtained at the leftmost position and '127' at the rightmost position, then '0' when moved to the leftmost position again each time a knob is moved.
4. Operate the knobs in the correct order, or "OK" is not displayed. A sweep sound is output while a knob is operated and a confirmation sound is output when the right value is obtained.
5. When "OK" is displayed for all the knob positions checked, the program automatically proceeds to the next test item.



* If "OK" is not displayed, check the following.
 MAIN BOARD IC72
 PANEL A BOARD VR102, VR103, VR104, VR105, IC103

10. A/D Test3 (After Touch)

1. Check Aftertouch actions by dividing the keyboard into three sections.
 - L : Low range, E1 - B3 (SK-976 PWB Low ASSY)
 - M : Medium range, C4 - G6 (SK-976 PWB MID-AFT ASSY)
 - H : High range, G#6 - G7 (SK-976 PWB HI-AFT ASSY)
2. Press any key in each keyboard section deeply and release it.
3. "OK" is displayed if a maximum value of '127' and a minimum value of '0' are obtained, accompanied by a confirmation sound.
4. When "OK" is displayed for all the checks, the program automatically proceeds to the next test item.



* If "OK" is not displayed, check MAIN BOARD IC29.

11. A/D Test4 (HOLD ,CTL1 ,CTL2)

1. Check the hold pedal jack and the control pedal jack.
2. Insert an expression pedal into the pedal jack.
3. Press down the expression pedal, then release it. Confirm that the value changes between '0' and '127'.
4. For each check, "OK" is displayed if a maximum value of '127' and a minimum value of '0' are obtained, accompanied by a confirmation sound.
5. When "OK" is displayed for all the checks, the program automatically proceeds to the next test item.



* If "OK" is not displayed, check the following as specified by section.
 HOLD : MAIN BOARD JK8, IC70
 CTL1 : MAIN BOARD JK9, IC70, IC72
 CTL2 : MAIN BOARD JK10, IC70, IC72

12. Disk (FDD) Test

1. Check the operation of the floppy disk drive.
 * Prepare 2HD and 2DD floppy disks (DOS-formatted on the Fantom or a PC).
2. Insert a 2HD disk (protect OFF) into the drive.
3. Press the [8] button.
 Write/Read operations are checked and "2HD:OK" is displayed if it operates normally.
4. Remove the 2HD disk and "Insert 2DD Disk" is displayed.
 Insert a 2DD disk (protect ON) into the drive.
5. Press the [8] button. The drive is checked to see if it recognizes the protection setting and reads normally.
 If the test succeeds, "2DD:OK" is displayed.
6. Remove the 2DD disk after testing of the two disks succeeds.
 The program automatically proceeds to the next test.



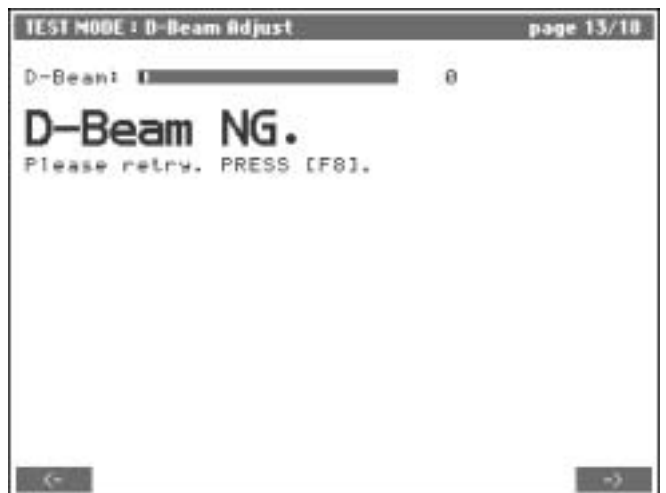
* If "OK" is not displayed, check MAIN BOARD IC6, IC8, IC25, IC74 and CN5.

13. D Beam Adjustment

1. D Beam adjustment is performed on this screen.
 * This adjustment provides optimal D Beam control by using two points set at 40 cm and 5 cm above the Beam.



2. First, hold a D Beam adjusting device (a square wooden or paper board with 8-cm long edges) over a location at 5 cm above the D Beam and press the [8] button.
 For reference, a length of 5 cm approximates the breadth of two white keys.
3. Next, hold a D Beam adjusting device (a square wooden or paper board with 8-cm long edges) over a location at 40 cm above the D Beam and press the [8] button.
 For reference, a length of 40 cm approximates the breadth of seventeen white keys.
4. Failure in correct setting of these two positions displays "NG" on the screen.
 Press [8] to return to the setting screen and re-set the positions.



5. When adjustment is completed, the program automatically proceeds to the next test item.

14. D Beam Check

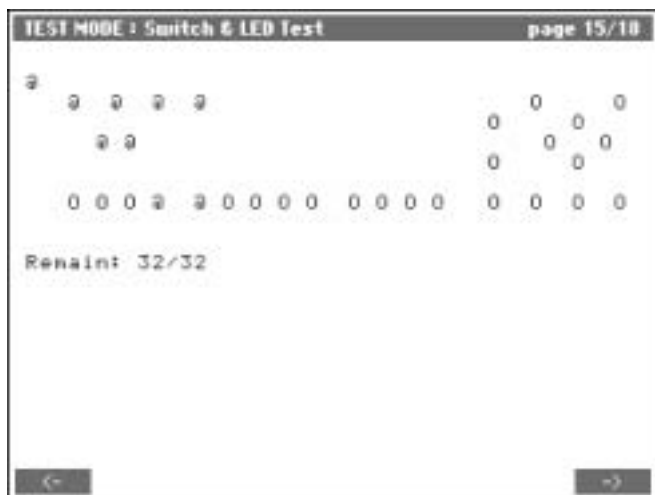
1. Hold a D Beam adjusting device (a square wooden or paper board with 8-cm long edges) over the D Beam to move it up and down between the two points set at 5 cm and 40 cm above the D Beam.
2. "OK" is displayed on the screen and a confirmation sound is output if a maximum value of '127' (for the position at 5 cm above the D Beam) and a minimum value of '0' (for the position at 40 cm above the D Beam) are obtained.
3. If "OK" is displayed for both positions, the program automatically proceeds to the next test item.



* If "OK" is not displayed, check the following.
 PANEL-A LED110, Q103, IC102
 MAIN BOARD IC23, D5

15. Switch & LED Test

1. Check the switches and LED's.
2. Starting this test causes all the LED's to come on.
3. Pressing a switch with its LED on should make it blink then go off.
4. Confirm that the status of the LED of BEAT changes from "off," on in "green" and then on in "red."
5. The display indicates the number of switches that have not been pressed yet.



6. [D-BEAM ON/OFF] - [REALTIME CONTROL 1] - [REALTIME CONTROL 2] - [REALTIME CONTROL 3] - [REALTIME CONTROL 4] - [ARPEGGIO] - [RHYTHM] - [RESET] - [BWD] - [FWD] - [STOP/PLAY] - [REC] - [F1] - [F2] - [F3] - [F4] - [F5] - [F6] - [F7] - [F8] - [MODE] - [DEC] - [INC] - [MENU] - [CURSOR L] - [CURSOR UP] - [CURSOR R] - [CURSOR DOWN] - [LIST] - [SHIFT] - [JUMP] - [EXIT]
7. Use a headphones or the speaker for checking.

8. When all the switches have been pressed and confirmed to be operating normally, the program automatically proceeds to the next test item.
 - * Pressing more than one switch at the same time results in failure of the test.
 - * If any LED does not come on or go off, or if the screen display is not true, check the following.
 MAIN BOARD IC75, Q9, Q10, Q11, Q12, Q13, Q14, Q15, R137, R138, R139
 PANEL A BOARD all LED, SW, Diode
 PANEL B BOARD all LED, SW, Diode
9. Pressing the [SHIFT] and [MENU] buttons at the same time forces the top page to be displayed.

16. Keyboard Test (8-note check/2-note check/velocity check)

1. Entering Keyboard Test displays the following screen.



2. Perform 8-note and velocity checks. Check by playing the keyboard.
3. On the LCD screen, the note number of the pressed key and its velocity value are displayed.
4. Also check to see if the volume changes according to the force used for pressing the key.
5. Pressing the [MODE] button should change the tone from 'PIANO' to 'ORGAN'.



6. Perform 2-note check. Check by playing the keyboard.
 - * If the keyboard does not produce correct sounds, check the following.
 The keyboard body and its connector
 MAIN BOARD CN4, CN6, RA49, RA50, RA51, RA54, RA57, IC24

17. Noise Check

1. Measure residual noise with a noise meter.
2. Set the input filter of the noise meter to 'DIN-AUDIO'.
3. Confirm that the value is "-93.0 dBm" or less.



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

18. Factory Reset

1. Invoking Factory Reset displays the following screen.



2. Press the [8] button to perform a Factory Reset.
 - * *Be sure to perform a Factory Reset at the end of the Test Mode operation.*
3. Completing it displays the following screen.



4. Press the [MENU] button to return to the top page.
Press the [EXIT] button on the top page terminates Test Mode.

RESTORING THE FACTORY SETTINGS (Factory Reset)

This operation resets all data recorded in the system to the settings as of shipping.

* *Performing a Factory Reset when any data are saved in the system causes all the data to be lost. Save important data that you have created on a separate disk. (See "Saving and Loading User Data.")*

1. Press the [MENU] button to display the Menu window.
2. Press the [CURSOR UP] or [CURSOR DOWN] button to select "Factory Reset", then press the [8 (Select)] button.
The Factory Reset window is displayed.
3. Press the [8 (Execute)] button to perform a Factory Reset.
A "COMPLETE!" message on the screen indicates that the Factory Reset operation is completed.

PROCEDURE FOR UPDATING THE SOFTWARE

The Fantom uses a flash memory for the program ROM, which can be updated by either of the following two methods:

1. Updating with a floppy disk by using the floppy disk drive of the main unit. (The time required is about 3 minutes.)
2. Updating with external MIDI data. (The time required is about 30 minutes.)

* *Whenever an update is performed, a Factory Reset must be performed.*
If you have important data written in the user memory, save the data before performing an update. (See "Saving and Loading User Data".)

Updating by Floppy Disk Drive

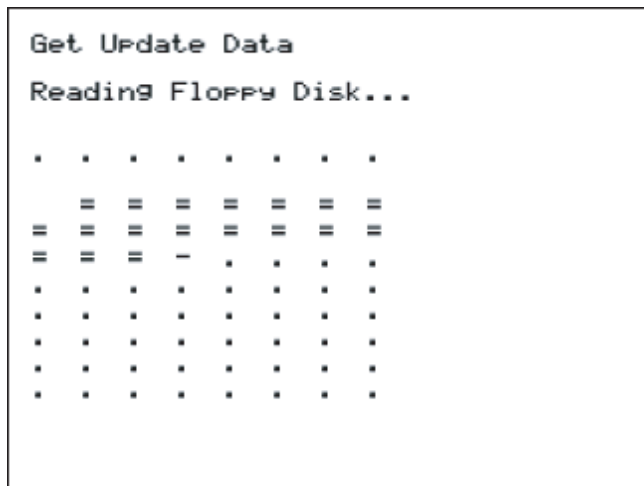
Equipment items

- Update Disk Set 2HDx2 for FDD (#17041076)

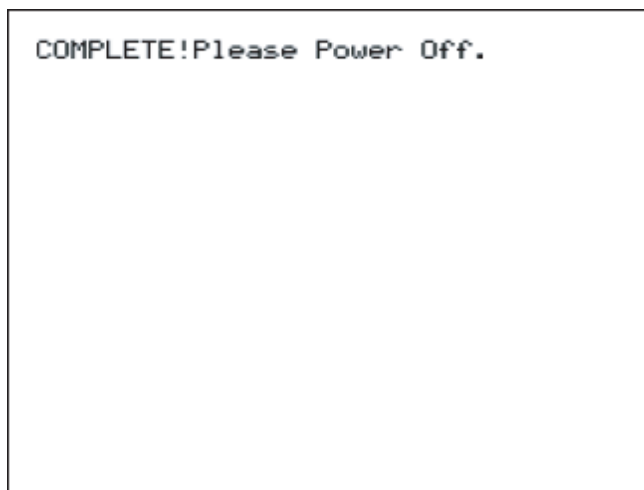
1. Turn the power switch on while pressing the cursor [UP] button and the [8] button at the same time to enter the update screen.



2. Press the [1] button to enter the floppy disk update screen.
3. Insert the update disk in the floppy drive, then press the [8] button to start updating.



4. When the "Get Update Data. PLEASE INSERT NEXT DISK." message appears, remove a first disk and insert a second one.
Repeat the same operation for a second disk.
5. When updating is completed, the "Complete!" message appears with the [BEAT] indicator blinking in green.



6. Turn off the main unit, then power on once again to perform a Factory Reset.

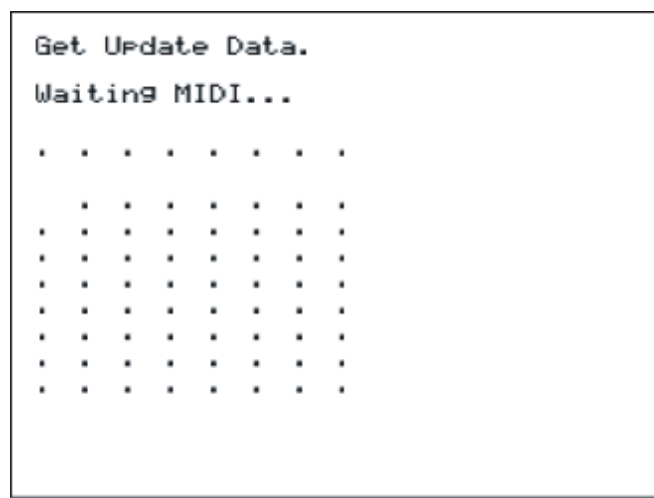
Updating by MIDI

Equipment items

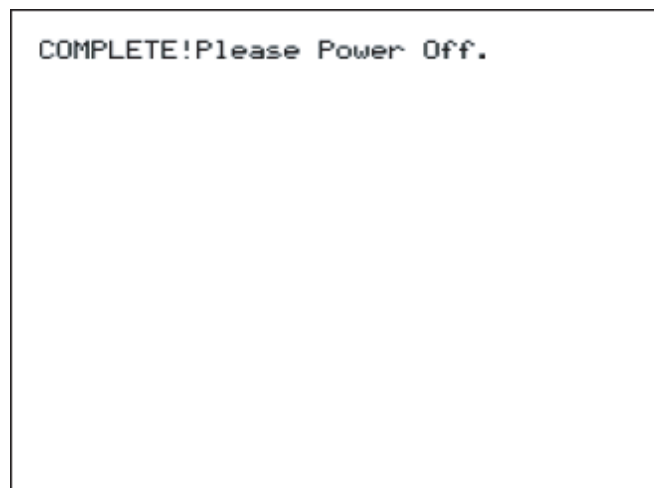
- MIDI sequencer which can replay SMF data (such as MC-80)
- Update Disk Set 2HDx3 for MIDI (#17041077)
- MIDI cable

Procedure

1. Connect MIDI OUT of the external sequencer to MIDI IN of the Fantom unit, using a MIDI cable.
As for a sequencer supporting a chain play function, set SMF for chain play.
2. Power on the unit while pressing the cursor [UP] button and the [8] button at the same time, then press the [2] button to enter the screen for updating with MIDI data.
3. Press the [8] button and the "Waiting" message is displayed, indicating the waiting mode for receiving MIDI data.

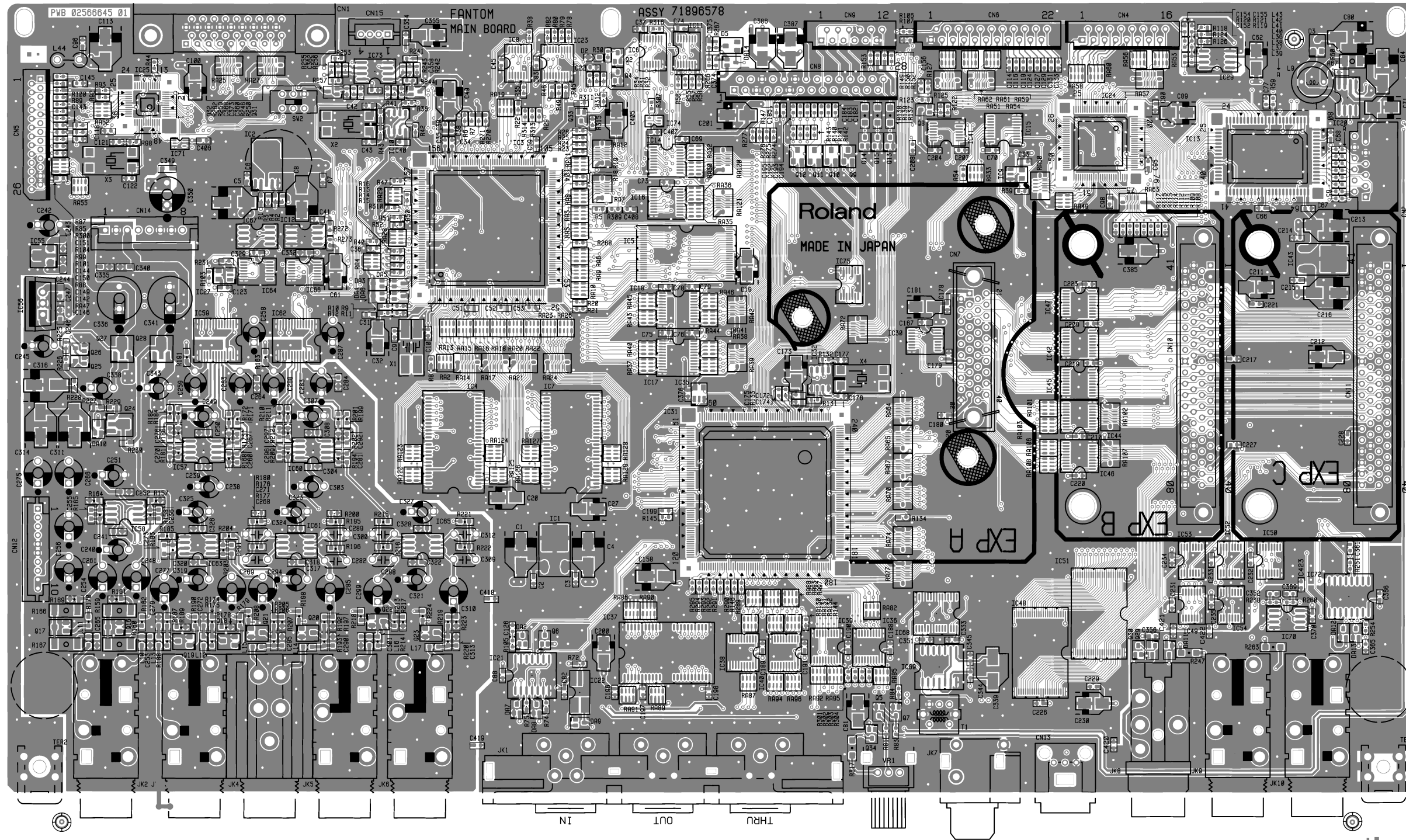


4. After confirming the displayed message indicating that the Fantom is waiting for MIDI data reception, play back all the ".mid" files stored in the Fantom Update Disk from an external sequencer.
(Play back the files by starting with p00001.mid, sequentially proceeding to p00032.mid.)
The LED of the [REC] button blinks during MIDI data reception and the "Waiting" sign on the screen is replaced with "Receiving."
Upon completion of data transfer from one file, the message returns to "Waiting," prompting you to play back the next file.
Using a sequencer with a chain play function such as an MC-80 simplifies the update process.
Loading ".svc" file (chain file) from the Disk and playing back starts automatic playback of all the ".mid." files in the Disk.
5. When updating is completed, the "Complete!" message appears with the [BEAT] indicator blinking in green.



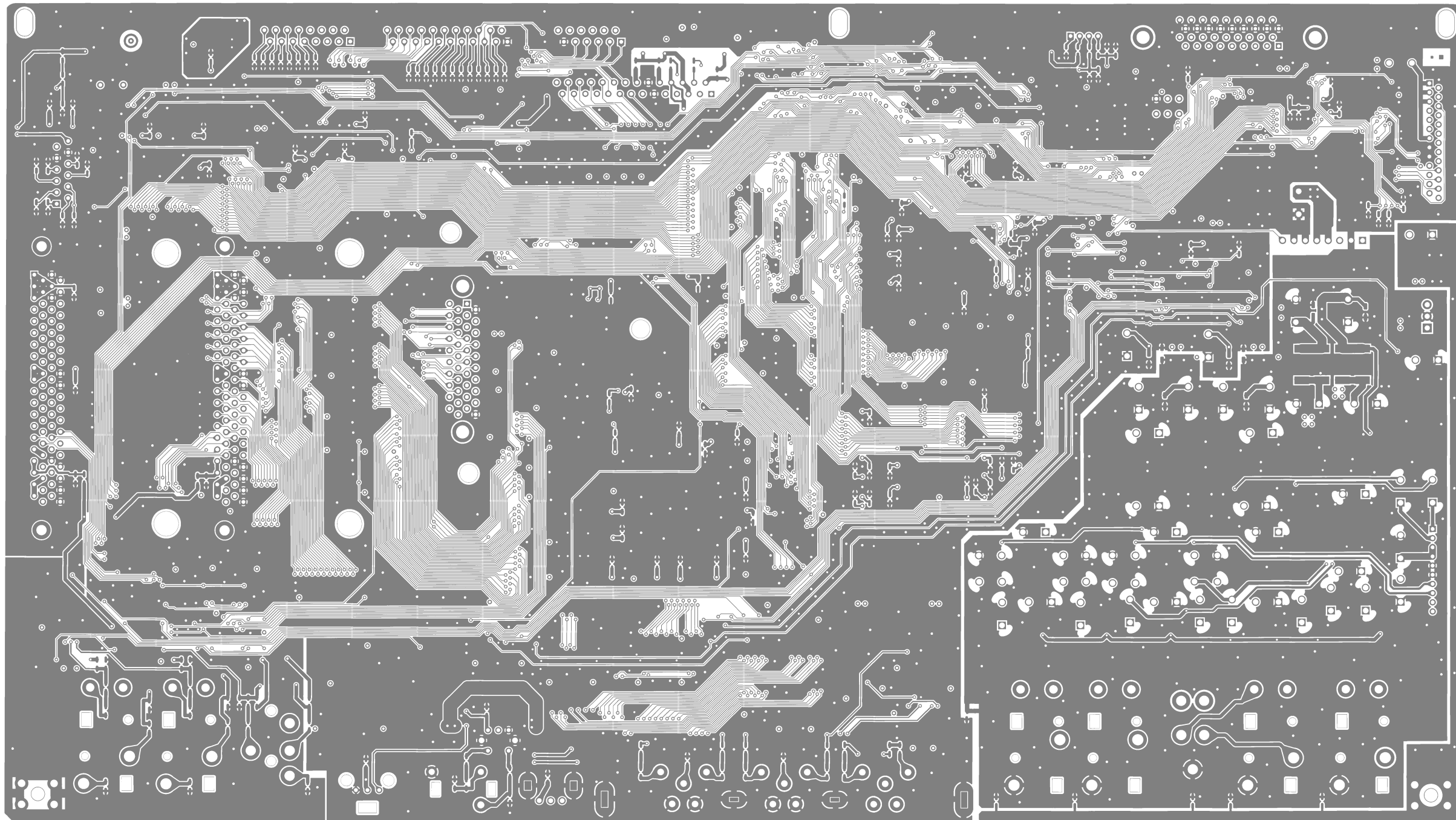
6. Turn off the main unit, then power on again to perform a Factory Reset.

CIRCUIT BOARD (MAIN)



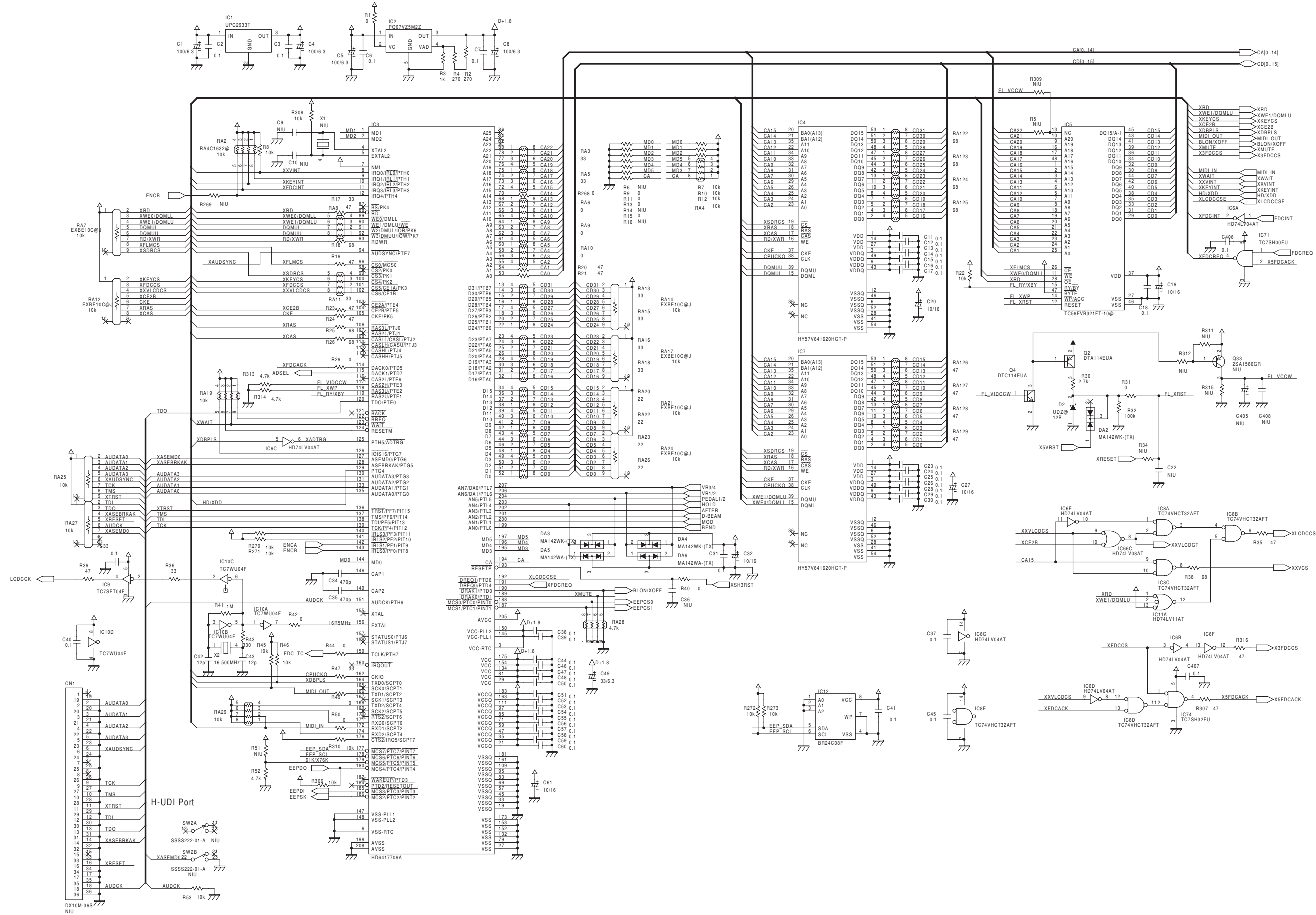
View from components side

CIRCUIT BOARD (MAIN)

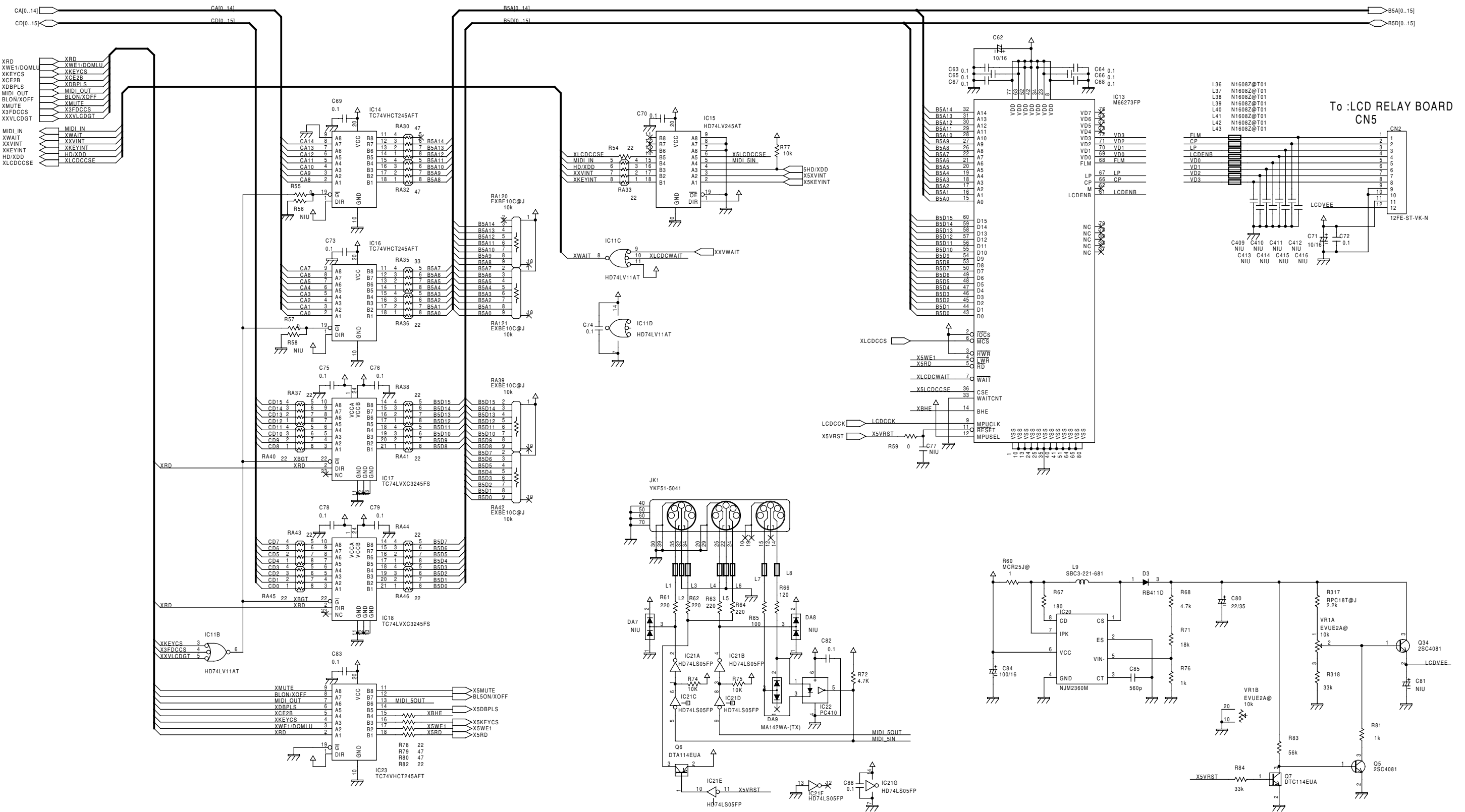


View from foil side

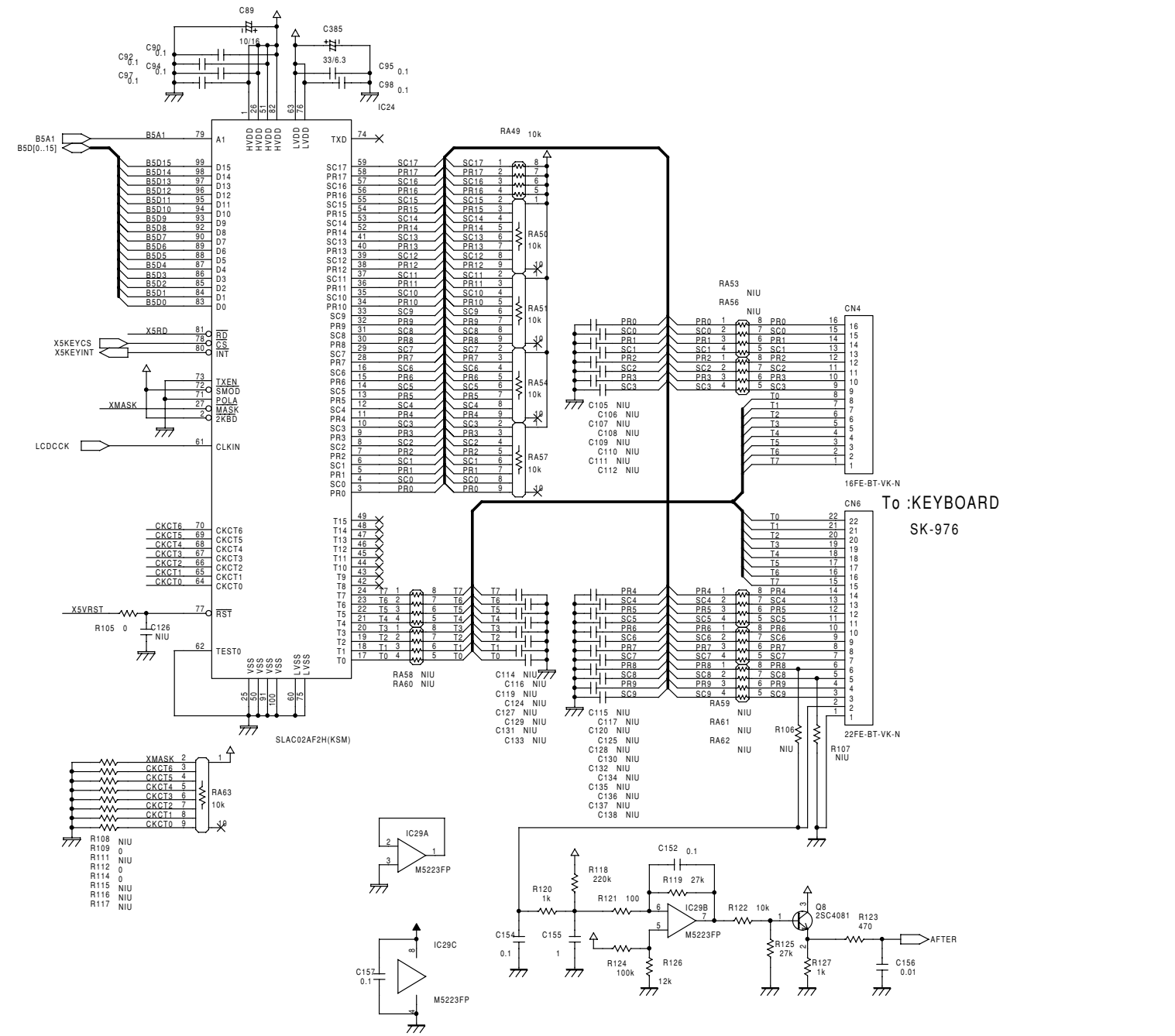
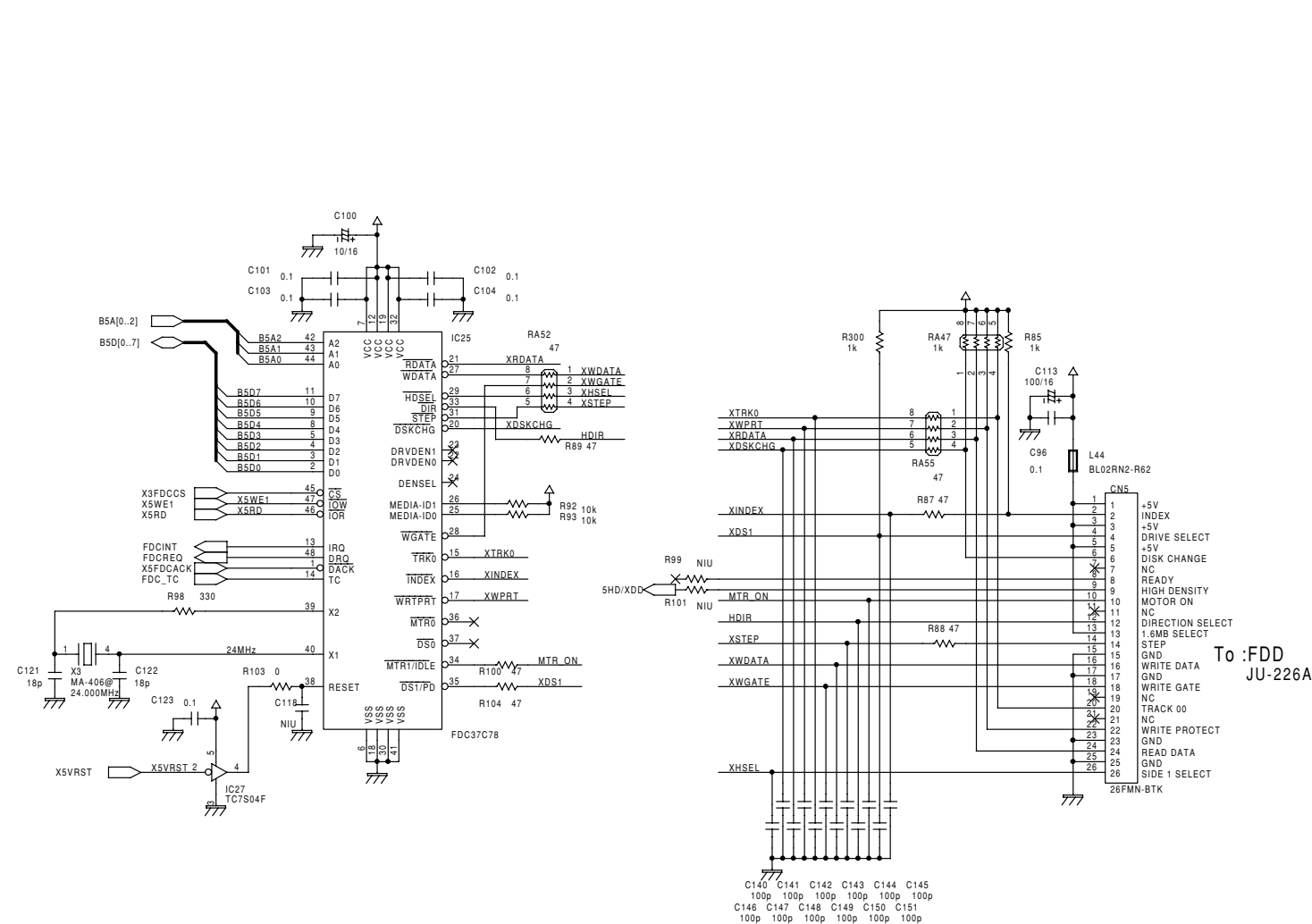
CIRCUIT DIAGRAM (MAIN 1/7)



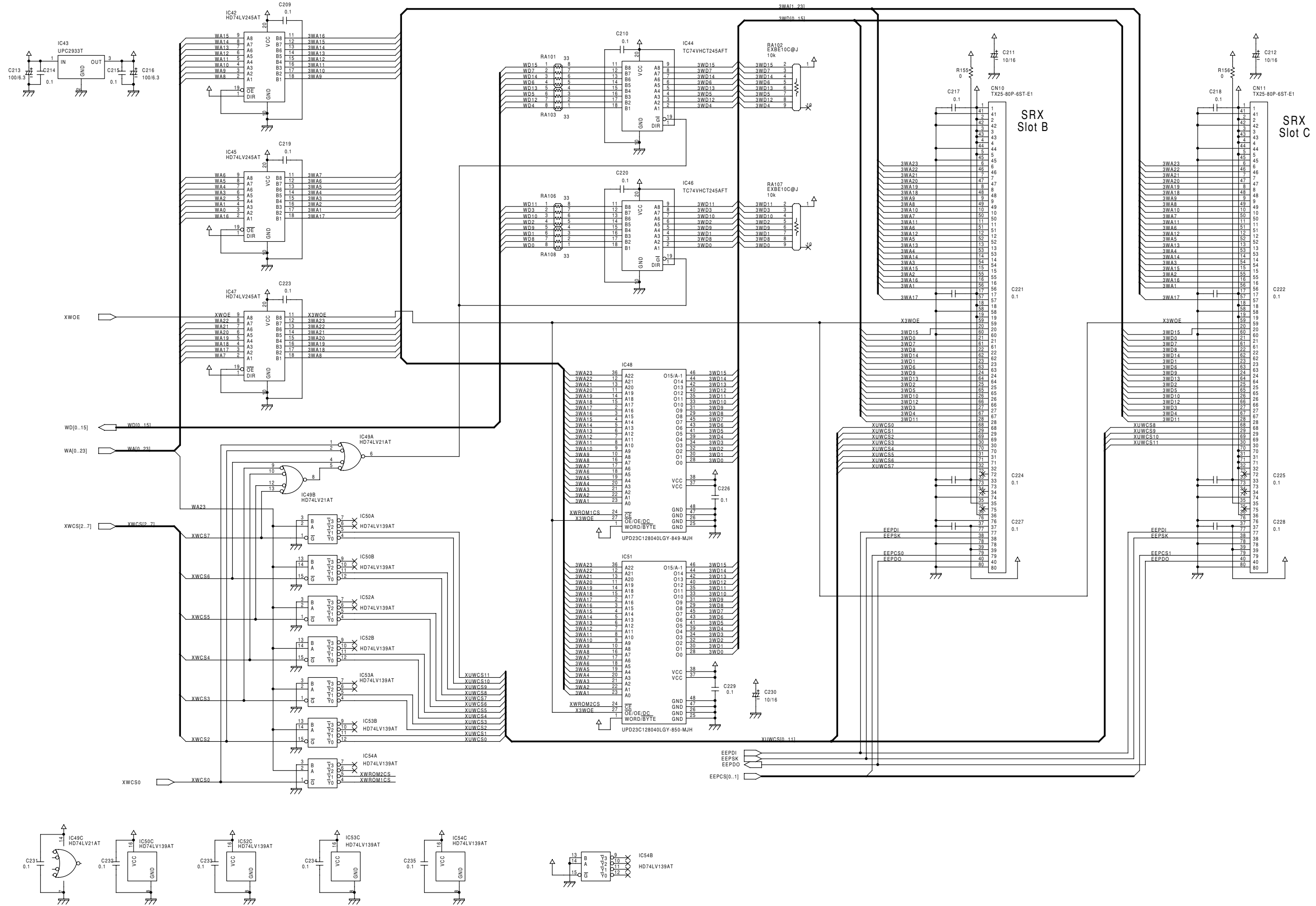
CIRCUIT DIAGRAM (MAIN 2/7)



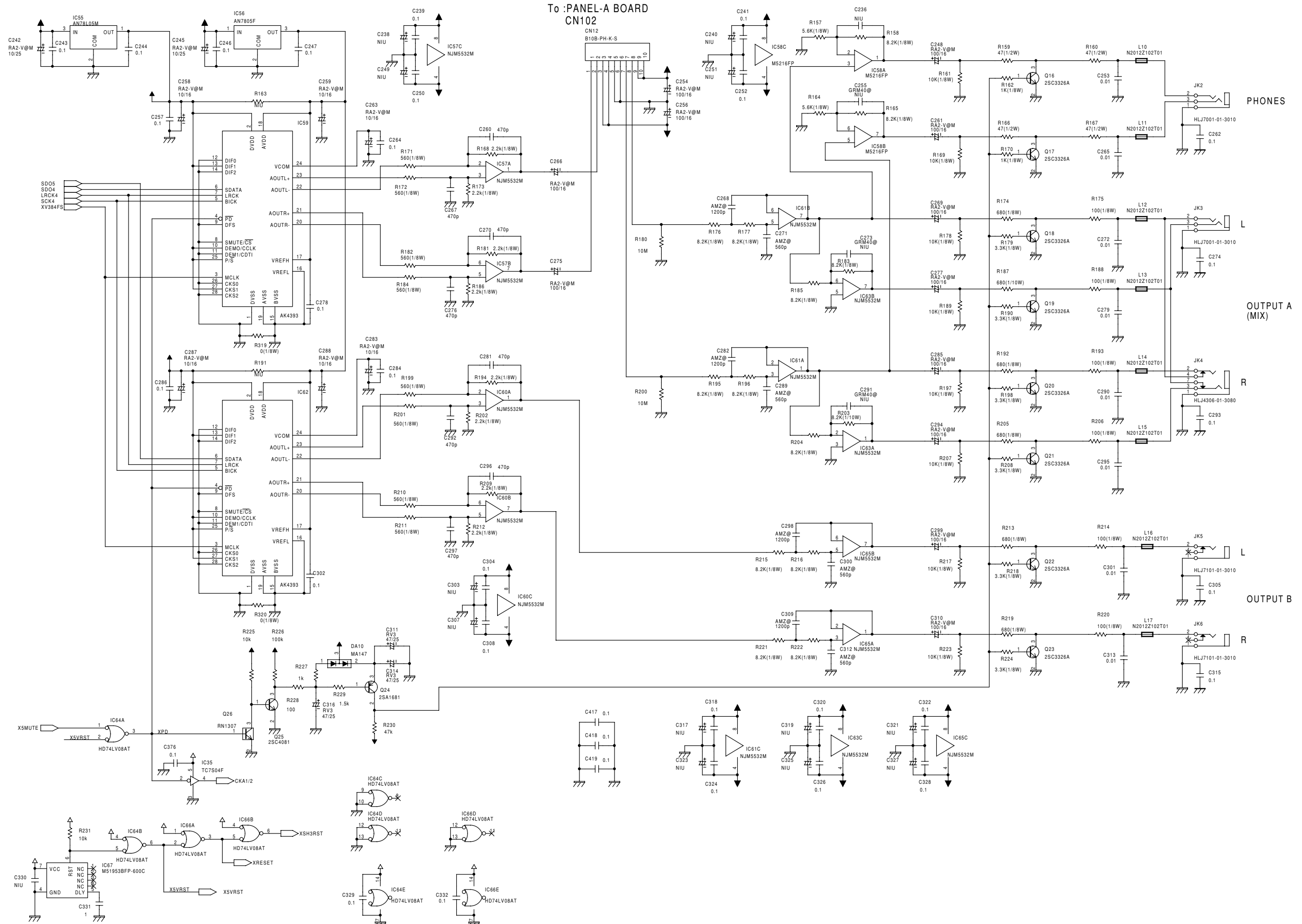
CIRCUIT DIAGRAM (MAIN 3/7)



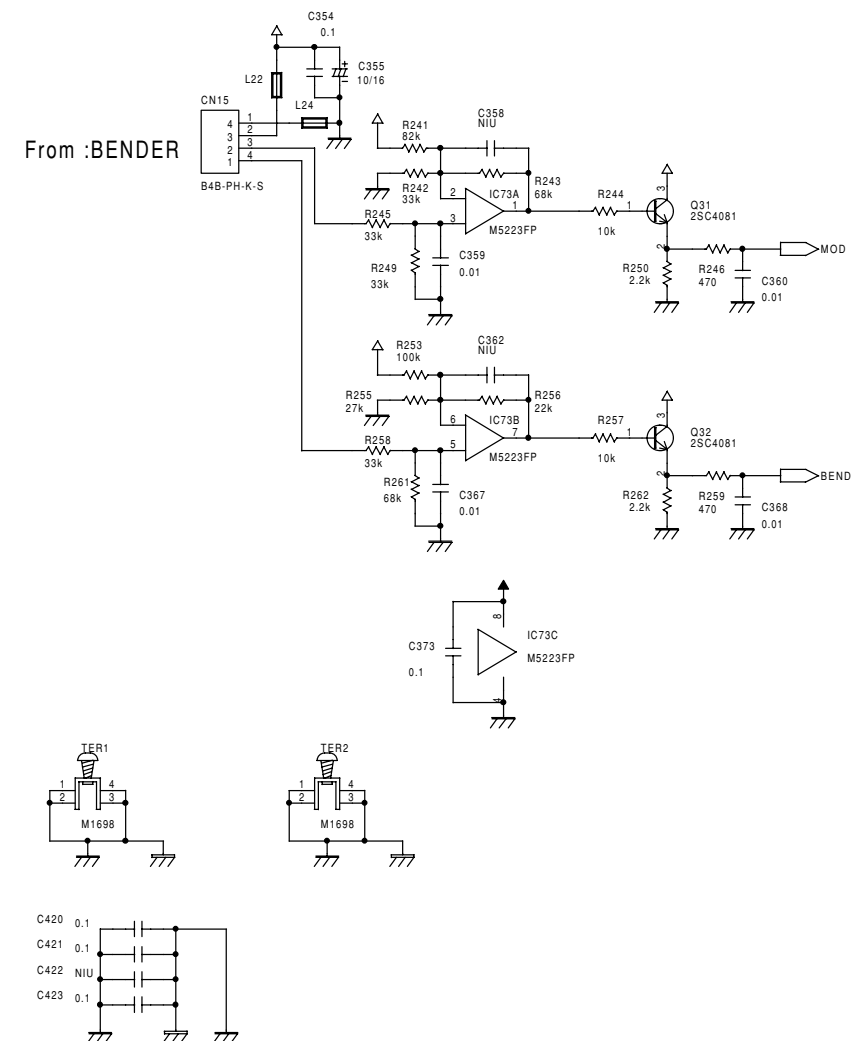
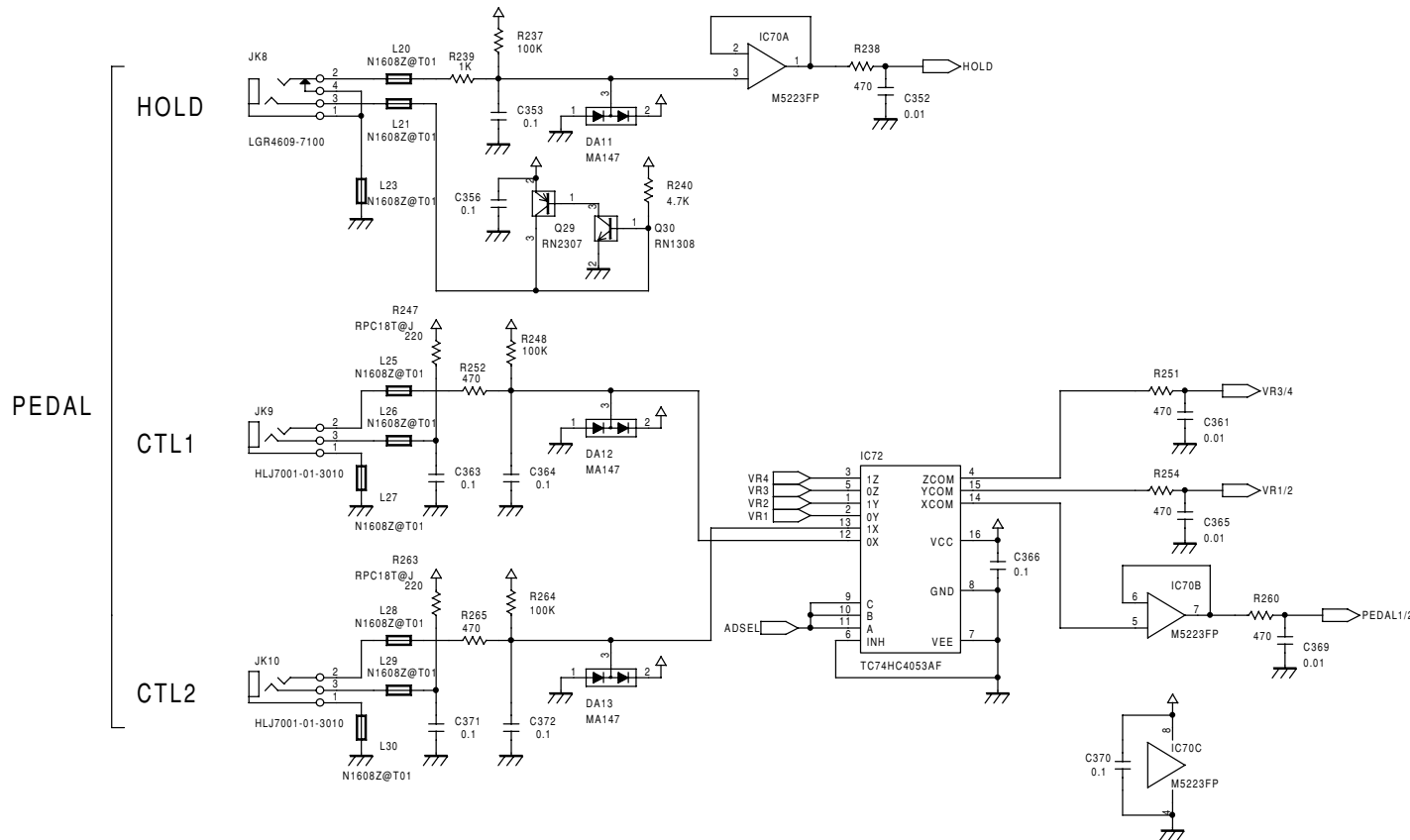
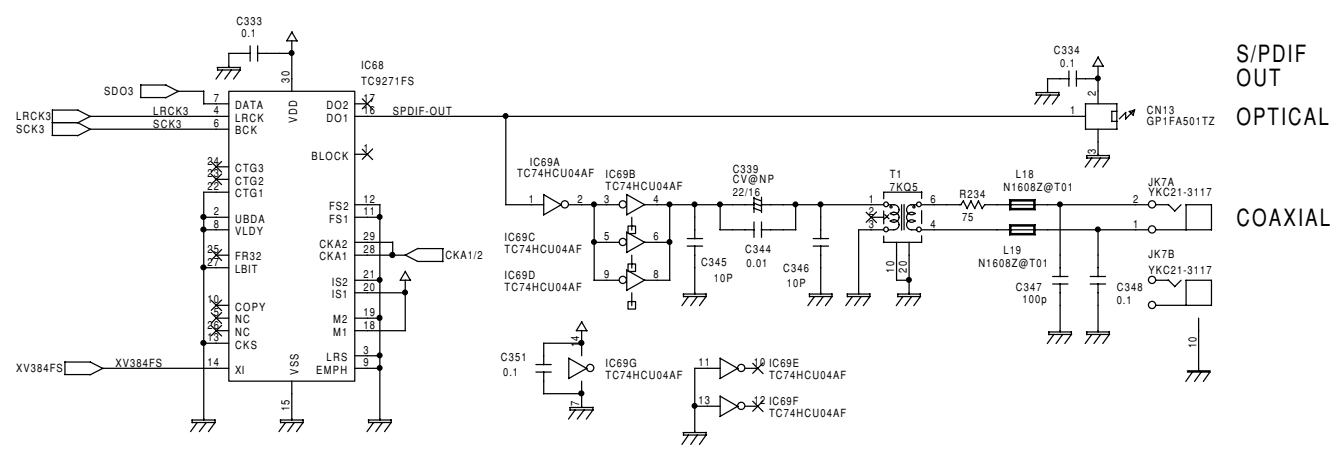
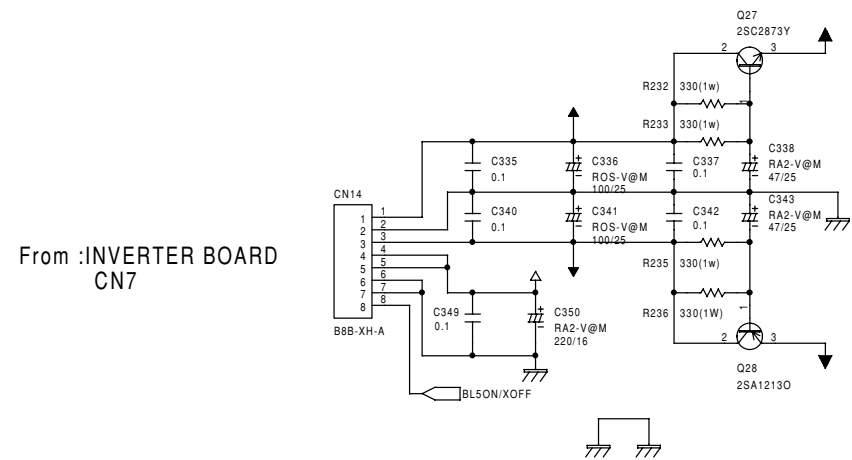
CIRCUIT DIAGRAM (MAIN 5/7)



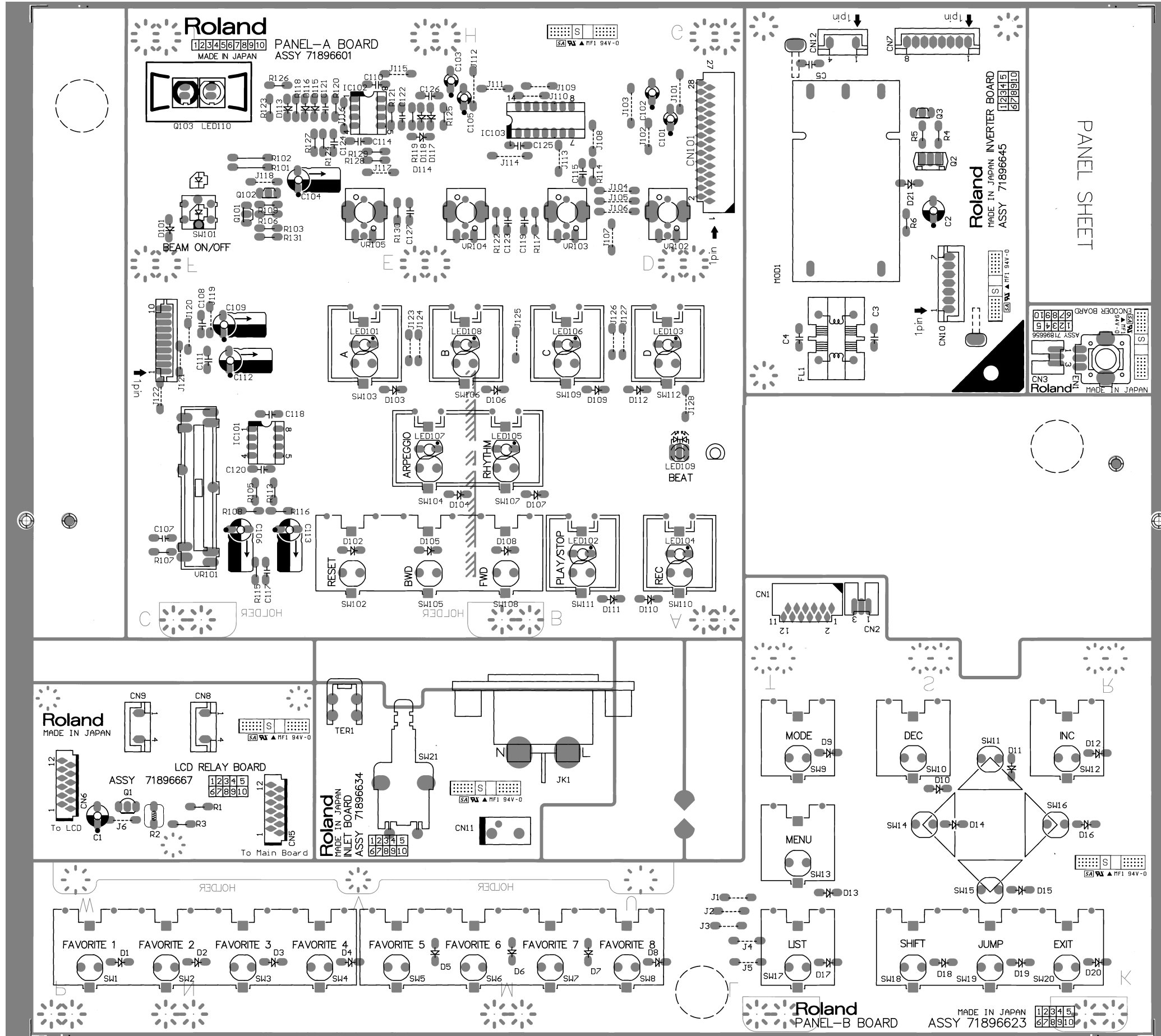
CIRCUIT DIAGRAM (MAIN 6/7)



CIRCUIT DIAGRAM (MAIN 7/7)

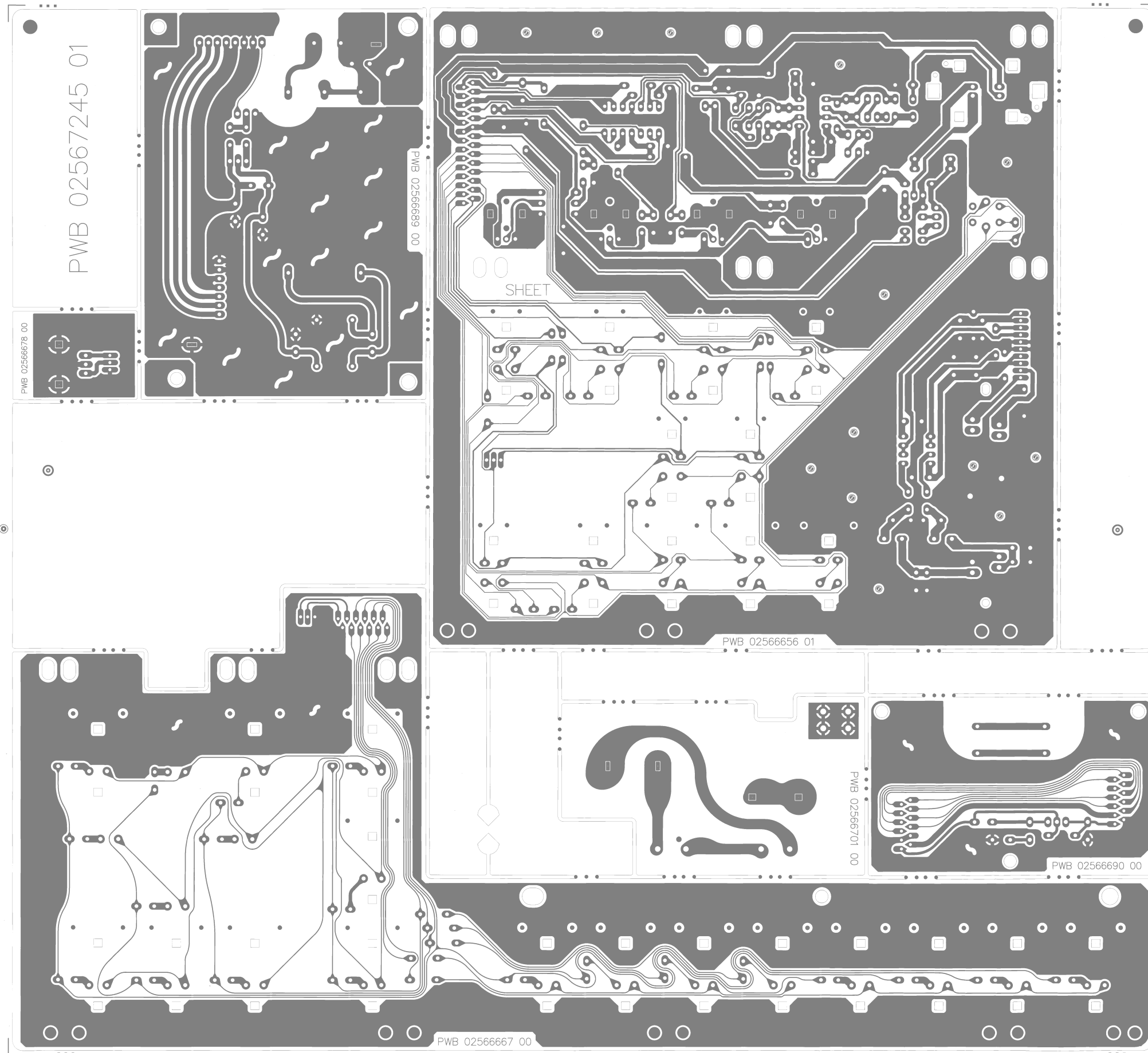


CIRCUIT BOARD (PANEL A/B, INVERTER, ENCODER, INLET, LCD)



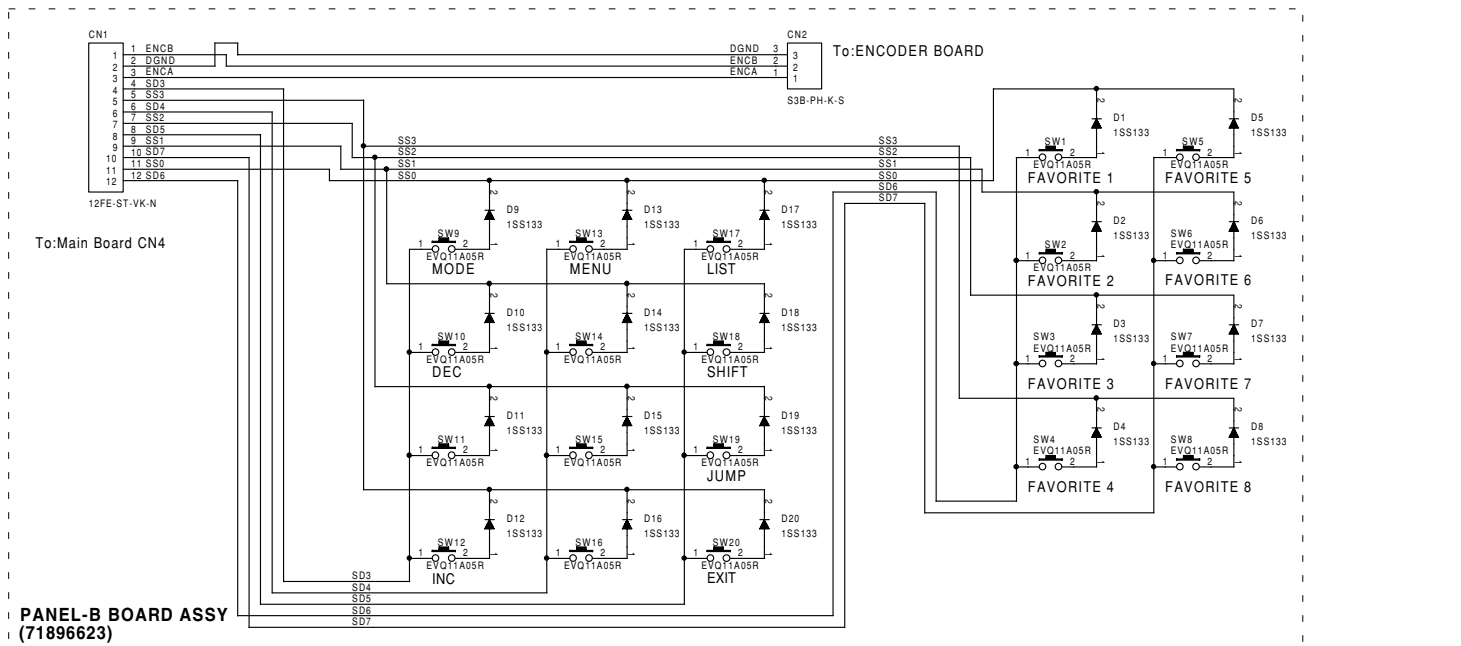
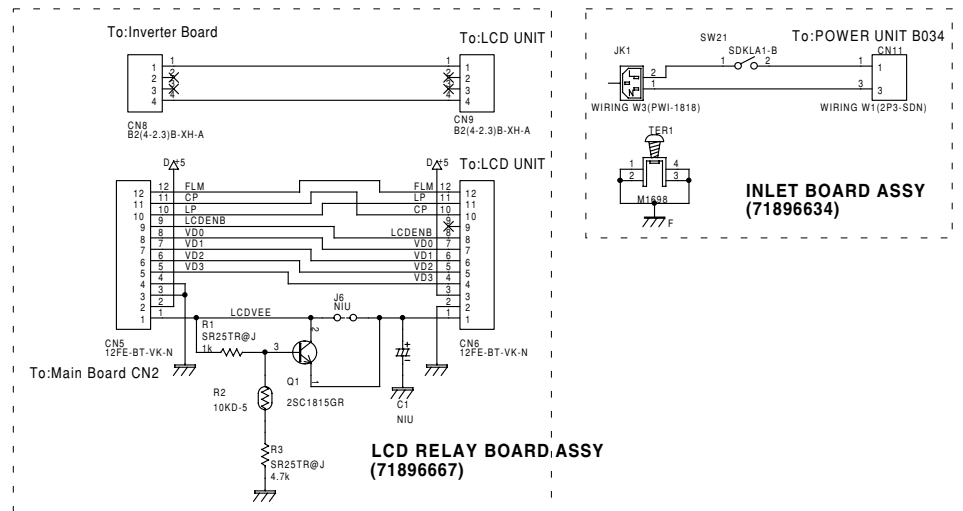
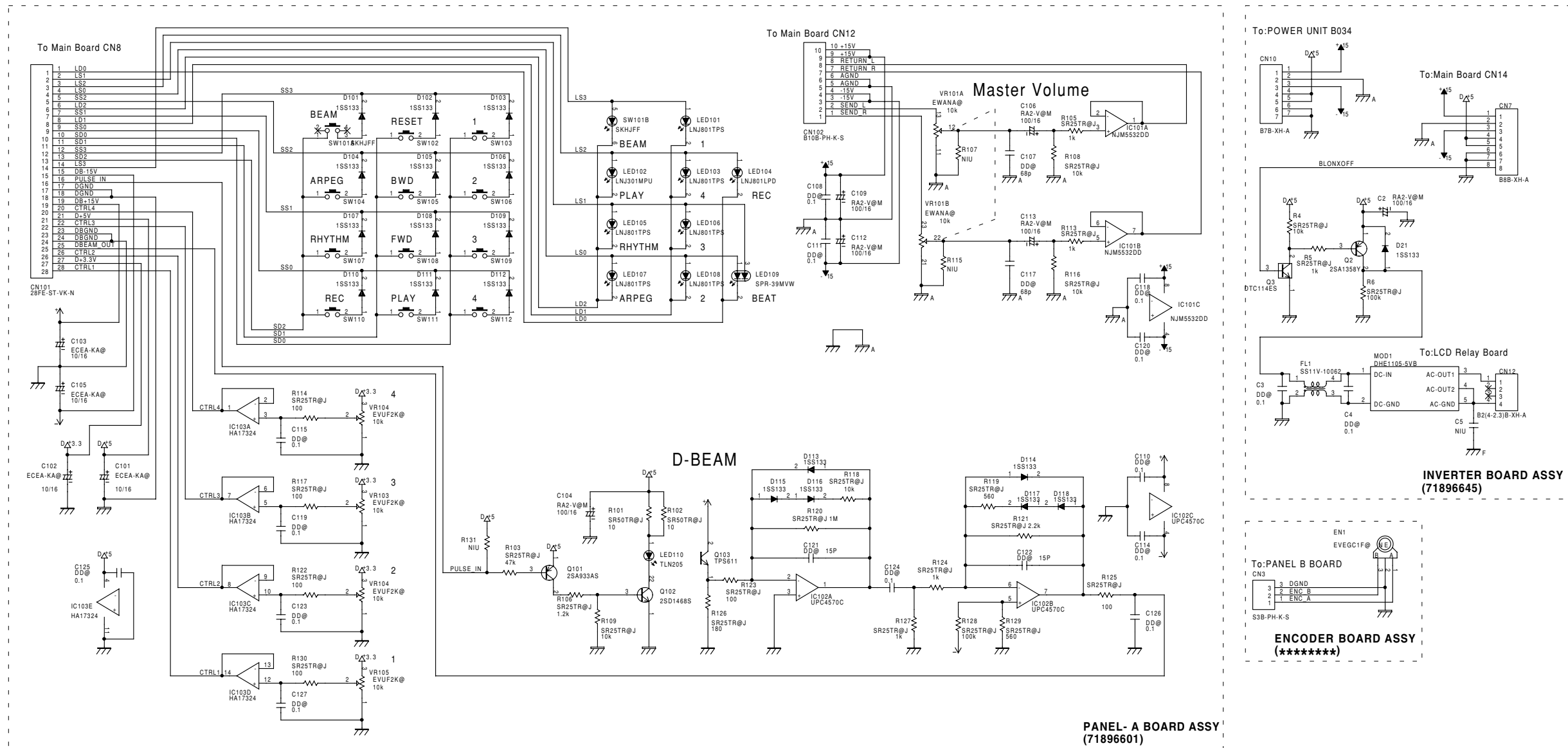
View from components side

CIRCUIT BOARD (PANEL A/B, INVERTER, ENCODER, INLET, LCD)



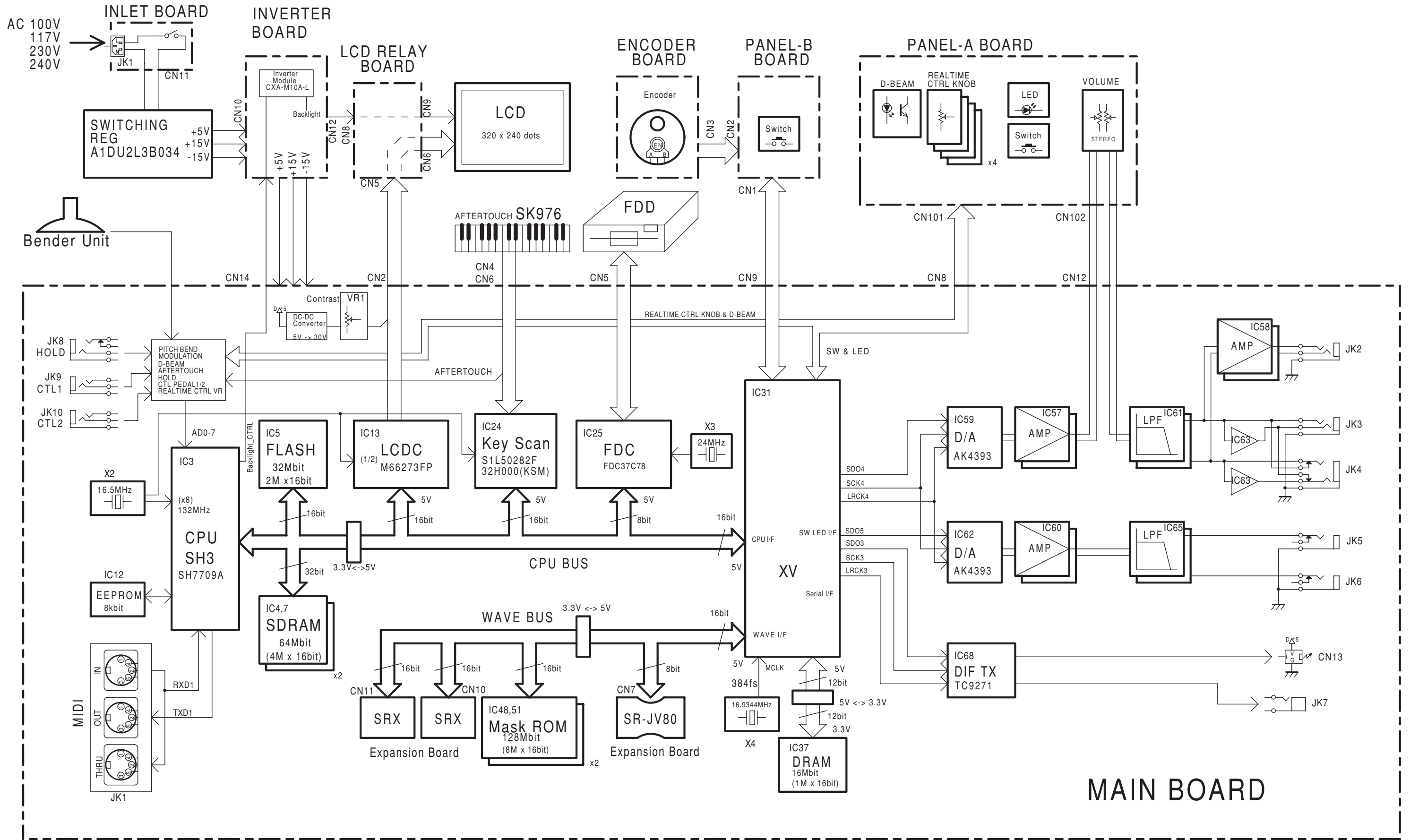
View from foil side

CIRCUIT DIAGRAM (PANEL A/B, INVERTER, ENCODER, INLET, LCD)

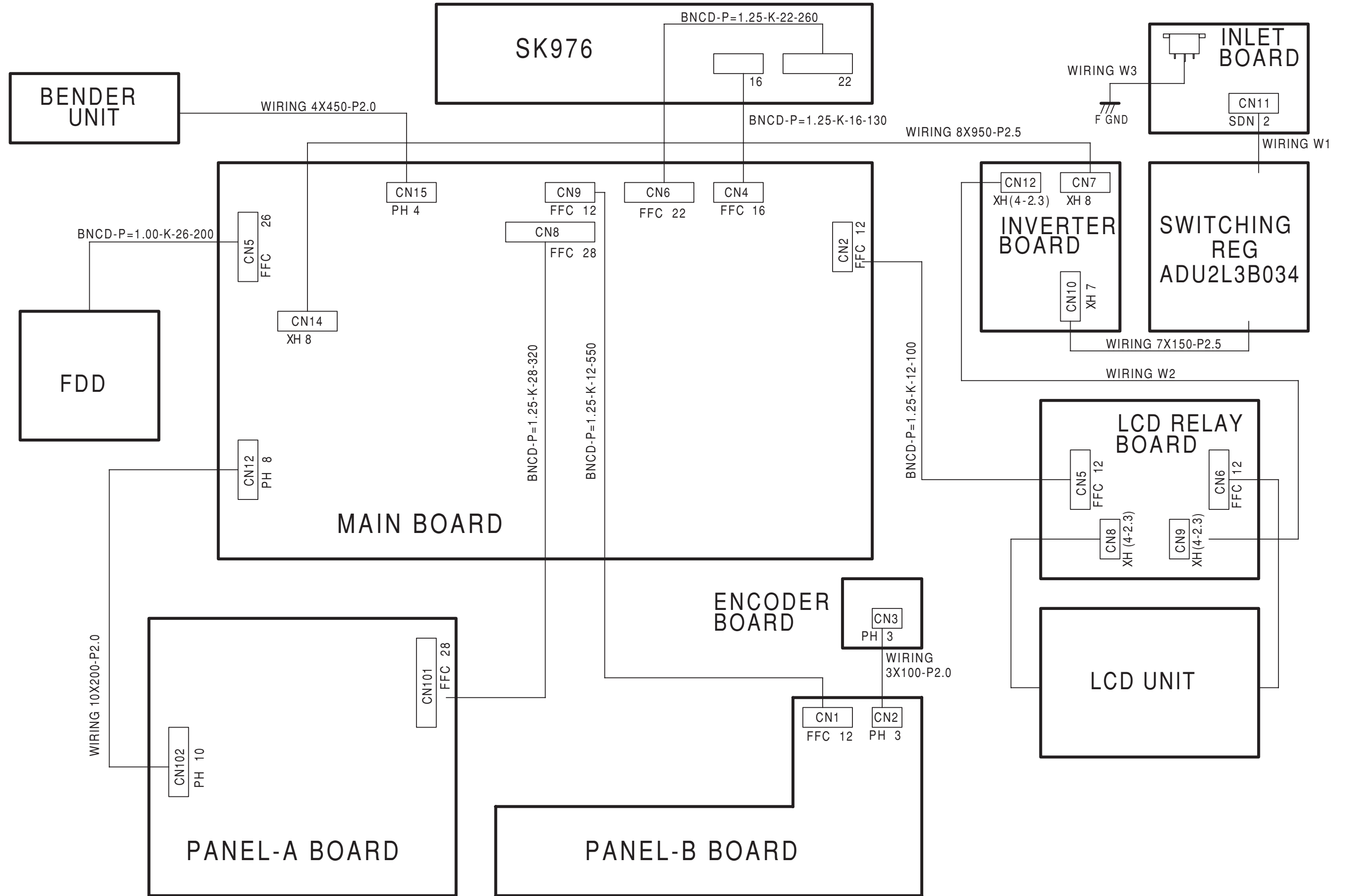


"NIU" means not in use

BLOCK DIAGRAM



WIRING DIAGRAM



ERROR MESSAGES

This section gives the error messages in alphabetical order.

BULK DUMP: Check Sum Error

Meaning: The check sum of a received System Exclusive message was incorrect.

Action: Set the correct Check Sum value.

BULK DUMP: Receive Data Error

Meaning: A MIDI message was received incorrectly.

Action: If the same error message is displayed repeatedly, the problem lies with the MIDI messages that are being transmitted to the Fantom.

BULK DUMP: User Memory Write Protected

Meaning: The Exclusive parameter (System Exclusive Protect) is turned ON, and Exclusive messages cannot be received.

Action: Turn the Exclusive parameter OFF.

Destination Disk Incorrect

Meaning: The operation you are attempting to execute does not support this disk.

Action: Do not select this disk as the object of the operation.

Disk Full

Meaning: The disk is full.

Action: Either delete unneeded files, or prepare another disk.

Disk Not Ready

Meaning: The disk is not ready.

Action: Insert another disk.

Disk Read Error

Meaning: An error occurred during read of the disk.

Action: This disk cannot be used.

Disk Write Error

Meaning: An error occurred during writing to the disk.

Action: This disk cannot be used.

File Format Error

Meaning: The Fantom cannot handle this file.

File I/O Error

Meaning: It was not possible to save/load a file.

Action: Try the operation once again. If the same message appears, that file has been damaged. Delete the damaged file.

File Name Duplicate

Meaning: A file with the same name already exists.

Action: 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 or save it to a different disk.

File Not Found

Meaning: The specified file was not found.

Action: Insert the disk that contains the specified file, and try the operation once again.

File Read Error

Meaning: The data is damaged, and cannot be loaded.

Action: Do not use this file.

Master Disk

Meaning: This disk is a master disk.

Action: Master disks cannot be used to save data or be formatted.

MIDI Buffer Full

Meaning: Due to an inordinate volume of MIDI messages received, the Fantom has failed to process them properly.

Action: Reduce the amount of MIDI messages to be transmitted.

MIDI Communication Error

Meaning: A problem has occurred with the MIDI cable connections.

Action: Check that MIDI cables are not broken or pulled out.

Source Disk Incorrect

Meaning: The operation you are attempting to execute does not support this disk.

Action: Do not select this disk as the object of the operation.

Too Many Files

Meaning: The maximum number of files that can be created has been exceeded.

Action: Delete unneeded files.

Unformatted Disk

Meaning: This disk cannot be used by the Fantom.

Action: Format the disk on the Fantom.

Unknown Disk Error

Meaning: A disk error of unknown causes has occurred.

Action: Contact your dealer or a nearby Roland service center for service.

User Memory Damaged

Meaning: The data in user memory has been lost.

Action: Use the Factory Reset function to initialize the memory to the factory settings.

Write Protected

Meaning: The floppy disk is write protected.

Action: Provide a different disk that can be written.

You Cannot Quick Format This Disk

Meaning: It is not possible to format using "Quick Format Floppy Disk."

Action: Format the disk using "Full Format Floppy Disk."

