

VS-840/840S

DIGITAL STUDIO WORKSTATION

SERVICE NOTES

First Edition

Issued by RJA

SPECIFICATIONS

- **Tracks**
Track: 8 V-Track: 64 (8 V-Tracks per each Track)
* Up to 4 tracks can be recorded simultaneously, and up to 8 tracks can be played back simultaneously.

- **Maximum Useful Capacity**
Zip Disk: 100 M bytes

- **Internal Memory**
Songs: 200 (each disk)

- **Equalizer**
HI, MID, LOW

- **Recording Mode**
Multitrack 1 (MT1)
Multitrack 2 (MT2)
Live 1 (LV1)
Live 2 (LV2)

- **Signal Processing**
AD Conversion: 20 bit, 64 times oversampling
DA Conversion: 20 bit, 128 times oversampling
Internal Processing: 24 bit (mixer section)

- **Sample Rate**
44.1 kHz, 32.0 kHz

- **Frequency Response**
Sample Rate
44.1 kHz: 20 Hz to 21.0 kHz (+1/-1.5 dB)
32.0 kHz: 20 Hz to 15.5 kHz (+1/-1.5 dB)

- **Total Harmonic Distortion**
0.08 % or less
(INPUT SENS = -10 dBm, 1 kHz at nominal output level, recording mode: MT1)

- **Recording Time (at 100 M bytes, 1 track)**
Recording mode Sample rate
MT1 44.1 kHz 32.0 kHz
37 minutes 50 minutes
MT2 50 minutes 68 minutes
LV1 60 minutes 82 minutes
LV2 75 minutes 103 minutes

* The above-listed recording times are approximate. Times may be slightly shorter depending on the number of songs that were created.

- **Nominal Input Level (Variable)**
INPUT Jack 1 (Guitar(Hi-Z)type): -50 to +4 dBm
INPUT Jack 1 to 4 (1/4 inch phone type): -50 to +4 dBm
INPUT Jack 3 to 4 (RCA phono type): -50 to +4 dBm

- **Input Impedance**
INPUT Jack 1 (Guitar(Hi-Z)type): 1 M ohms
INPUT Jack 1 to 4 (1/4 inch phone type): 20 k ohms
INPUT Jack 3 to 4 (RCA phono type): 20 k ohms

- **Nominal Output Level**
MON/AUX Jack: -10 dBm
MASTER OUT Jack: -10 dBm

- **Output Impedance**
MON/AUX Jack: 1.6 k ohms
MASTER OUT Jack: 1.6 k ohms
PHONES Jack: 100 ohms

- **Recommended Load Impedance**
MON/AUX Jack: 20 k ohms or greater
MASTER OUT Jack: 20 k ohms or greater
PHONES Jack: 8-50 ohms

- **Residual Noise Level**
MON/AUX Jack: -91 dBm or less
MASTER OUT Jack: -91 dBm or less
(input terminated with 1 k ohms, INPUT SENS: +4 dBm, IHF-A, typ.)

- **Interface**
DIGITAL OUT: Coaxial (conforms to S/P DIF)
Optical type

- **Display**
69.0 x 25.0 mm (LCD with Back Light)

- **Connectors**
MIDI Connectors (IN, OUT)
DIGITAL OUT Connectors (Coaxial type, Optical type)
FOOT SWITCH Jack (1/4 inch phone type)
PHONES Jack (Stereo 1/4 inch phone type)
INPUT Jack 1 (Guitar (Hi-Z) 1/4 inch phone type)
INPUT Jack 1 to 4 (1/4 inch phone type)
INPUT Jack 3 to 4 (RCA Phono type)
MON/AUX Jack A, B (RCA Phono type)
MASTER OUT Jack L, R (RCA Phono type)
SCSI Connector (VS-840S only)

- **Power Supply**
AC 117 V, AC 230 V, AC 240 V

- **Power Consumption**
20 W

- **Dimensions**
410 (W) x 307 (D) x 88 (H) mm
16-3 / 16 (W) x 12-1 / 8 (D) x 3-1 / 2 (H) inches

- **Weight**
4.5 kg/9 lbs 15 oz (VS-840)
4.7 kg/10 lbs 6 oz (VS-840S)

- **Accessories**
AC CORD 117V SP301-IS14SJT 18/3 (00894378)
230V SP22-IS14 HD5V-V-F3G1.0 (00894389)
230VE KP-610 GTBS-3 KS-31A (00907001)
AC CORD 230VA SC-114-J01 ES303-10HMA (23495124)
VS-840 OWNER'S MANUAL SET (English) (70909278)
VS4S-1 OWNER'S MANUAL (English) (VS-840S only) (71120301)
ZIP-DISK DEMO SONGS (71017756)
ZIP ATTENTION CARD (English) (01569823)

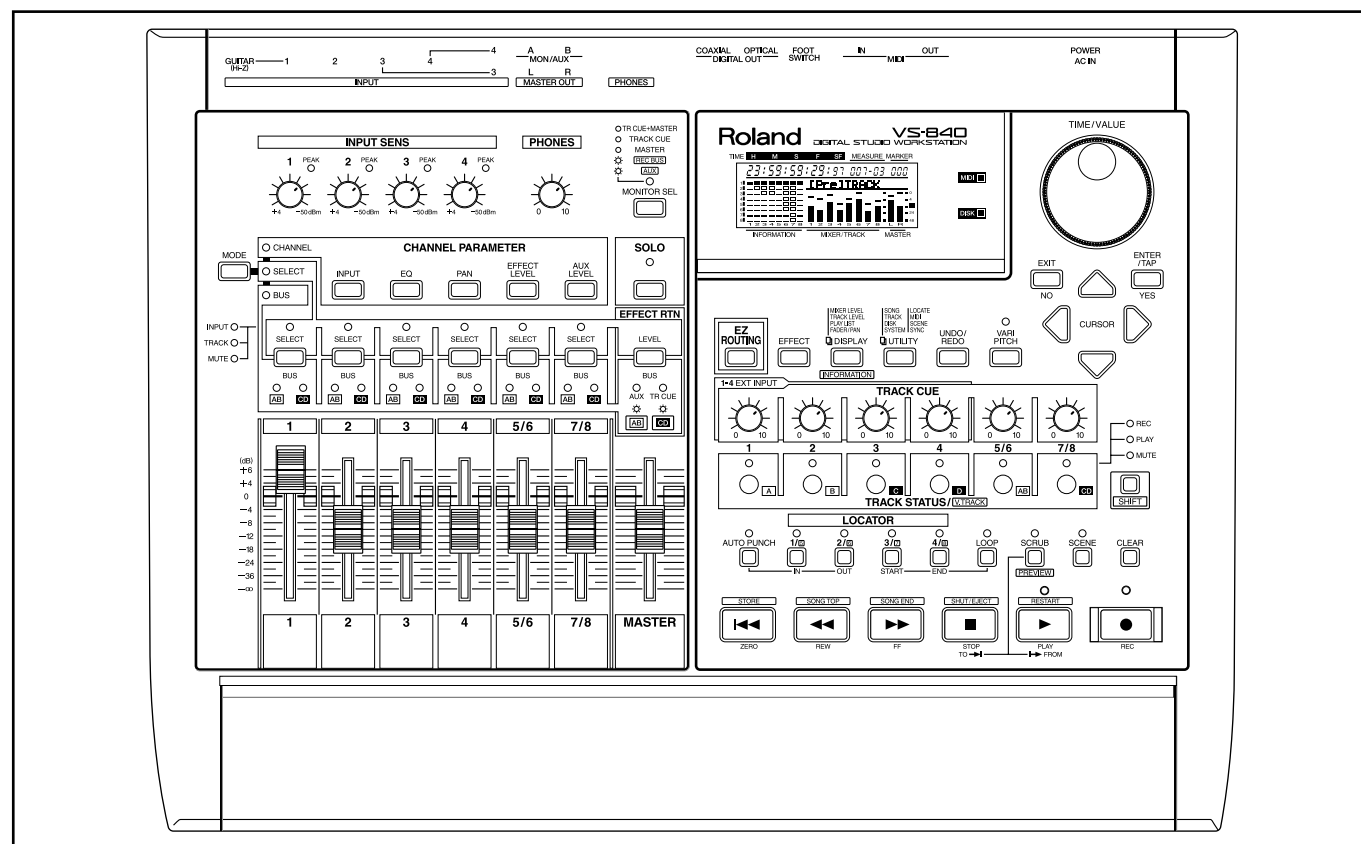
- **Options**
VS-840 SCSI Board : VS4S-1 (VS-840 only)

0dBm=0.775V rms

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

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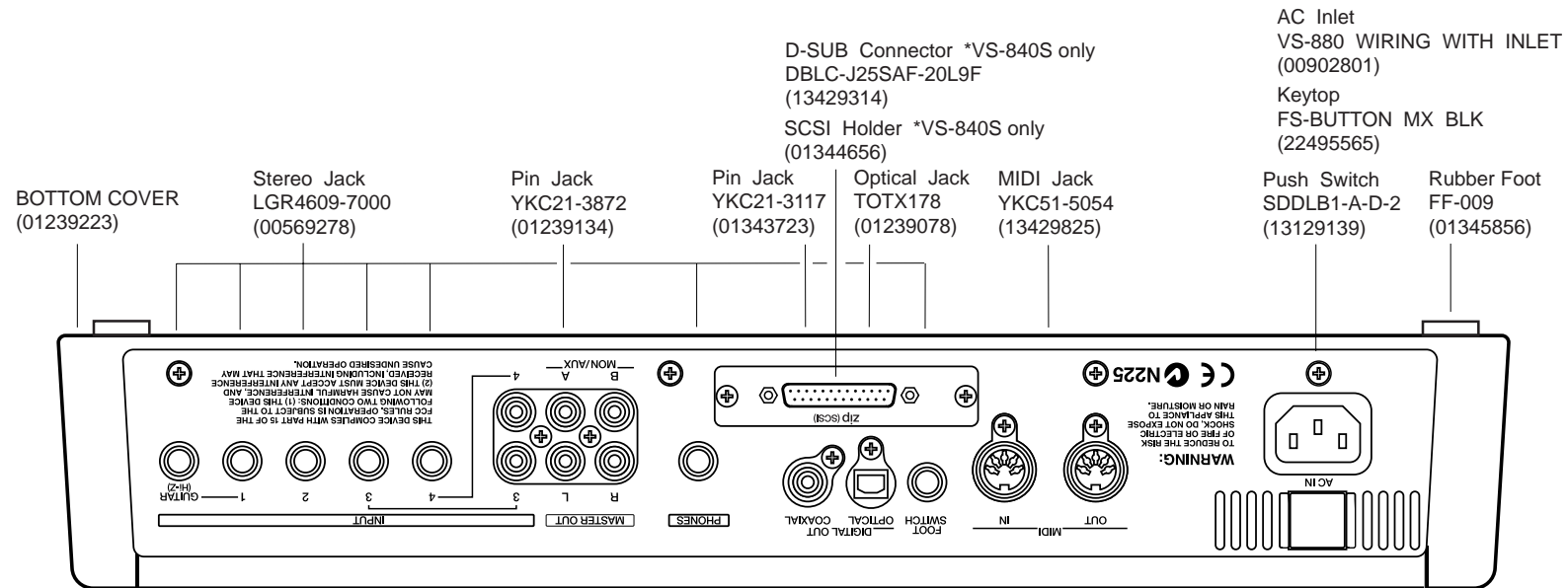
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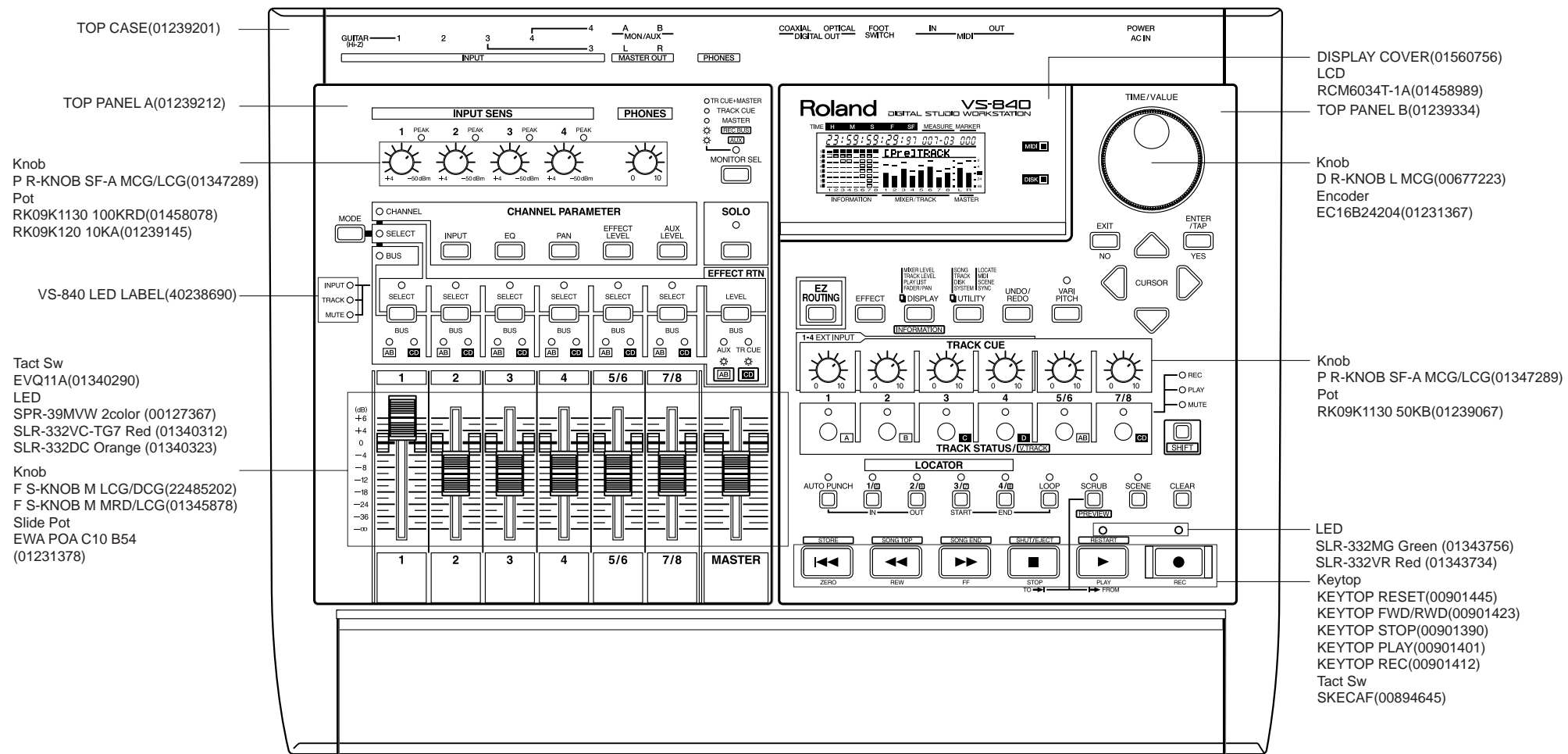
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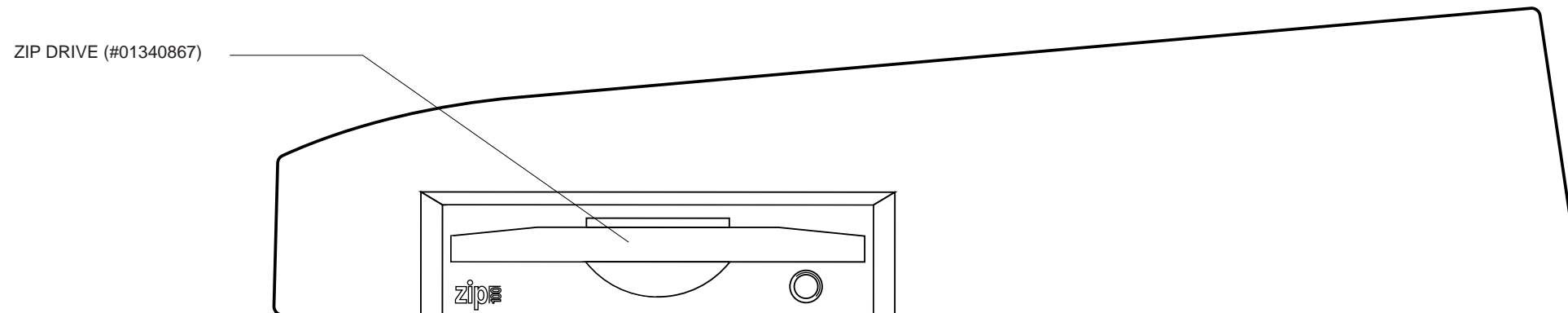
LOCATION OF CONTROLS



(REAR VIEW)



(TOP VIEW)

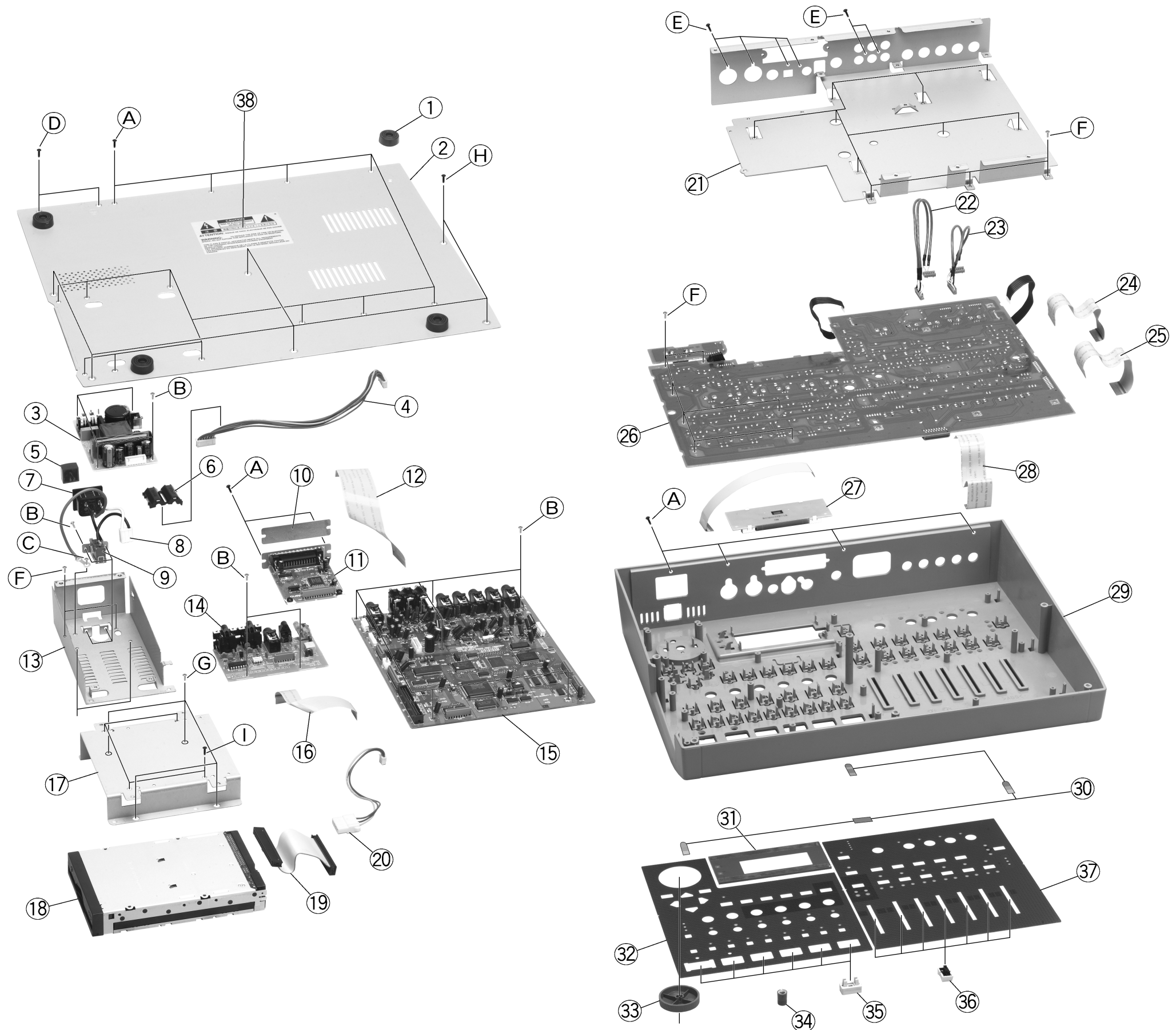


(SIDE VIEW)

EXPLODED VIEW

[PARTS]

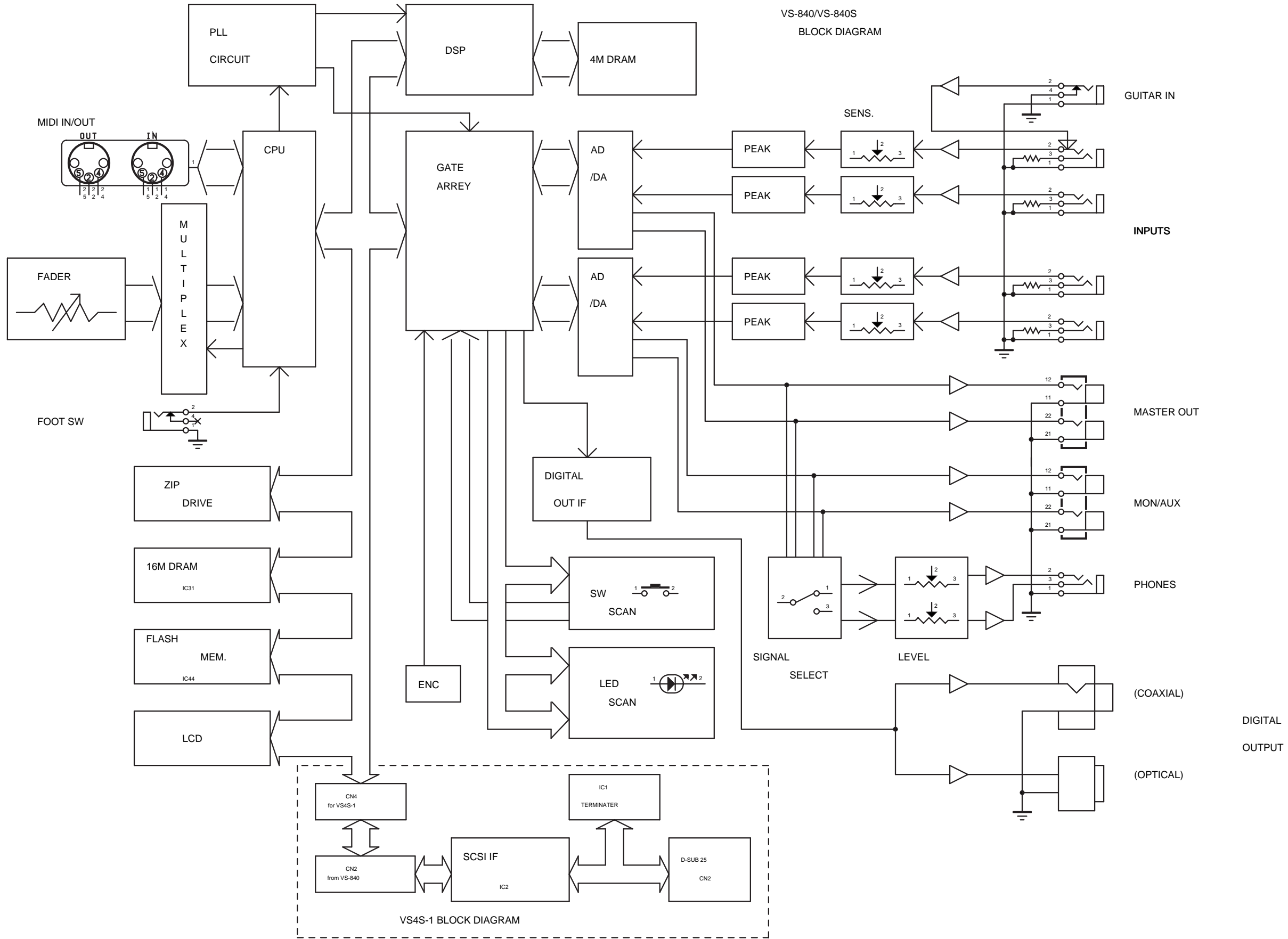
No.	Part Code	Part Name
(A)	40012534	SCREW BINDIG S-TITE M3x6 BZC
(B)	40012512	SCREW BINDIG S-TITE M3x6 ZC
(C)	40012523	SCREW BINDIG S-TITE M4x6 ZC
(D)	40011356	SCREW PAN S-TITE W/INTERNAL TOOTH WASHER M4x8 BZC
(E)	40011312	SCREW BINDIG P-TITE M3x8 BZC
(F)	40011278	SCREW BINDIG P-TITE M3x8 ZC
(G)	40011289	SCREW BINDIG P-TITE M3x10 ZC
(H)	40238501	SCREW BINDIG P-TITE M4x8 BZC
(I)	40011490	SCREW PAN SEMS M3x6 BZC
①	01345856	FF-009
②	01239223	BOTTOM COVER
③	01451678	KW1AA265
④	01239301	VS-840 WIRING PS-MAIN
⑤	22495565	F S-BUTTON MX BLK
⑥	01455867	ESD-SR-12
⑦	△ 00902801	VS-840 INLET WITH GND WIRING
⑧	△ 01239178	VS-840 WIRING PS-INLET
⑨	△ 13129139	SDDL1-A-D-2
⑩	01239267	EXP COVER (VS-840 only)
⑪	71017390	VS4S-1 SCSI BOARD ASSY (VS-840S only)
⑫	01453367	FUJI CARD 25X120-A6.0BBR-P1.25-HBL10
⑬	01239189	PWR SPLY HOLDER
⑭	71122767	IF BOARD (on SW SHEET ASSY)
⑮	70902056	MAIN BOARD ASSY
⑯	01010656	FUJI CARD 14X125-A6.0BB-P1.25
⑰	01239256	DD HOLDER
⑱	01340867	ZIP DRIVE
⑲	01239312	VS-840 WIRING IDE
⑳	01239501	VS-840 WIRING ZIP POWER
㉑	01239245	SHIELD COVER
㉒	01239289	VS-840 WIRING INPUT(8-6)SHIELD
㉓	01342078	VS-840 WIRING INPUT(9-7)SHIELD
㉔	13479963	FUJI CARD 16X120-A6.0BB-P1.25-HBL10
㉕	01453367	FUJI CARD 25X120-A6.0BBR-P1.25-HBL10
㉖	71122767	SW BOARD (on SW SHEET ASSY)
㉗	71122767	ENC BOARD (on SW SHEET ASSY)
㉘	01458989	RCM6034T-1A
㉙	01342090	FUJI CARD 18X120-A6.0BB-P1.25-HBL10
㉚	01239201	TOP CASE
㉛	40238690	VS-840 LED LABEL
㉜	01560756	DISPLAY COVER
㉝	01239334	TOP PANEL B
㉞	00677223	D R-KNOB L MCG
㉟	01347289	P R-KNOB SF-A MCG/LCG
㊱	00901423	KEYTOP FWD/RWD
㊲	00901401	KEYTOP PLAY
㊳	00901412	KEYTOP REC
㊴	00901445	KEYTOP RESET
㊵	00901390	KEYTOP STOP
㊶	01345878	F S-KNOB M MRD/LCG
㊷	22485202	F S-KNOB M LCG/DCG
㊸	01239212	TOP PANEL A
㊹	40238545	CAUTION LABEL SHOCK HAZARD & ICES



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

A BLOCK DIAGRAM

B
C
D
E
F
G
H
I
J
K
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U



PARTS LIST

<p>SAFETY PRECAUTIONS: The parts marked Δ have safety-related characteristics. Use only listed parts for replacement.</p>	<p>CONSIDERATIONS ON PARTS ORDERING When ordering any parts listed in the parts list, please specify the following items in the order sheet.</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">QTY</th> <th style="text-align: left;">PART NUMBER</th> <th style="text-align: left;">DESCRIPTION</th> <th style="text-align: left;">MODEL NUMBER</th> </tr> </thead> <tbody> <tr> <td>Ex. 10</td> <td>22575241</td> <td>Sharp Key</td> <td>C-20/50</td> </tr> <tr> <td>15</td> <td>2247017300</td> <td>Knob (orange)</td> <td>DAC-15D</td> </tr> </tbody> </table> <p>Failure to completely fill the above items with correct number and description will result in delayed or even undelivered replacement.</p>	QTY	PART NUMBER	DESCRIPTION	MODEL NUMBER	Ex. 10	22575241	Sharp Key	C-20/50	15	2247017300	Knob (orange)	DAC-15D
QTY	PART NUMBER	DESCRIPTION	MODEL NUMBER										
Ex. 10	22575241	Sharp Key	C-20/50										
15	2247017300	Knob (orange)	DAC-15D										

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

MB ==> MAIN BOARD	IB ==> IF BOARD	SCB ==> SCSI BOARD
SB ==> SW BOARD	EB ==> ENC BOARD	

CASING			
#	01239201	TOP CASE	
#	01239223	BOTTOM COVER	
#	01560756	DISPLAY COVER	
#	01239245	SHIELD COVER	
#	01239212	TOP PANEL A	MIXER PART
#	01239334	TOP PANEL B	RECORDER PART
HOLDER			
#	01239256	DD HOLDER	
#	01239189	PWR SPLY HOLDER	
#	01344656	SCSI HOLDER	*VS-840S only
#	01239267	EXP COVER	*VS-840 only
KNOB, BUTTON			
	00901423	KEYTOP FWD/RWD	FWD/RWD
	00901401	KEYTOP PLAY	PLAY
	00901412	KEYTOP REC	REC
	00901445	KEYTOP RESET	ZERO
	00901390	KEYTOP STOP	STOP
	22495565	F S-BUTTON MX BLK	POWER
#	01347289	P R-KNOB SF-A MCG/LCG	INPUT SENS/PHONES/TRACK CUE
	00677223	D R-KNOB L MCG	TIME/VALUE (ROTARY ENCODER)
	01345878	F S-KNOB M MRD/LCG	MASTER FADER
	22485202	F S-KNOB M LCG/DCG	OTHER FADERS
SWITCH			
#	00894645	SKECAF	TACT SWITCH
#	01340290	EVQ11A	TACT SWITCH
Δ	13129139	SDDL81-A-D-2 (TV5 5A/250V)	AC PUSH SWITCH
JACK, SOCKET			
#	01239134	YKC21-3872	INPUT/MON/AUX/MASTER OUT
	00569278	LGR4609-7000	INPUT/PHONES/FOOT SW
	13429825	YKF51-5054	MIDI
#	01343723	YKC21-3117	DIGITAL OUT (COAXIAL)
Δ	00902801	INLET (WITH GND WIRING)	JK1 on IB
DISPLAY UNIT			
#	01458989	RCM6034T-1A	LCD UNIT
<i>NOTE : Replacement LCD UNIT should be made on a unit basis. No replacements available for individual parts. Replacement only by a unit.</i>			
ZIP DRIVE			
#E	01340867	ZIP DRIVE	
<i>NOTE : Replacement ZIP DRIVE should be made on a unit basis. No replacements available for individual parts. Replacement only by a unit.</i>			
PCB ASSY			
#E	70902056	MAIN BOARD ASSY	
#	71122767	SW SHEET ASSY (Include SB,IB,EB ASSY)	
<i>NOTE : Replacement SW SHEET ASSY includes the following parts.</i>			
#	*****	ENC BOARD	
#	*****	IF BOARD	
#	*****	SW BOARD	
#	71017390	SCSI BOARD ASSY	*VS-840S only
POWER SUPPLY UNIT			
# Δ	01451678	KW1AA265	SWITCHING REGULATOR
<i>NOTE : Replacement SWITCHING REGULATOR should be made on a unit basis. No replacements available for individual parts. Replacement only by a unit.</i>			
IC			
#	01341789	HD6432655F	CPU
	00892556	TC170C140AF-003	CUSTOM DSP
#	01231334	SLA919FF0J	CUSTOM GATE ARRAY
#	01231434	HM5118160J-6	16M DRAM
#	01120523	HM514800DJ6Z	4M DRAM

#	00899812	LH28F800SUT-70	8M FLASH ROM	IC44 on MB
	01238101	AK4520AVF-E2	AD/DA	IC38.IC39 on MB
	15259865T0	TC74HC4053AF	ANALOG MULTIPLEXER	IC20.IC45 on MB
	15259883	TC7S00F	NAND GATE	IC14 on MB
	15259885	TC7S32F	OR GATE	IC13 on MB
	15249111	TC7WU04F	INVERTER	IC12 on MB
	15249121	TC7W04F	INVERTER	IC33 on MB
	00127490	TC7W08F	AND GATE	IC15 on MB
	15249112	TC7W32F	OR GATE	IC30 on MB
#	01341578	TC74VHC14F	SCHMITT TRIGGER INVERTER	IC29 on MB
#	01341567	TC74VHC163F	COUNTER	IC16.IC17.IC18 on MB
	15259738T0	TC74HC138AF	DECODER	IC9 on MB
	00231878	TC74VHC00F	INVERTER	IC11 on MB
	00567534	TC74VHC138F	DECODER	IC22.IC24 on MB
	00236845	TC74VHC245F	BUS TRANSCEIVER	IC7.IC8 on MB
	00564534	TC74VHC574F	D-FLIP FLOP	IC23 on MB
	15169548T0	TC74HC14P	SCHMITT TRIGGER INVERTER	IC3 on IB
#	15289105	UPC4570G2	OP.AMP	ALL OP.AMP on MB
	15199251	TA78L005AP	REGULATOR	IC46 on MB
	15199231	UPC78L05J	REGULATOR	IC47 on MB
	00121078	TC9271F	DIF TRANSMITTER	IC28 on MB
#	01124367	TLC2933IPW	PLL	IC5 on MB
	00564690	TC9246F	PLL	IC3 on MB
	15289123	M51953AFP-600C	RESET IC	IC2 on MB
#	01239101	TD62083AF	TRANSISTOR ARRAY	IC25 on MB
#	01239123	TD62787AF	TRANSISTOR ARRAY	IC34 on MB
	00893356	NCR53CF92	SCSI I/O	IC2 on SCB
	15249111	TC7WU04F	INVERTER	IC3 on SCB
	00893990	BH9595FP	SCSI ACTIVE TERMINATOR	IC1 on SCB
OPTICAL DEVICE				
#	01239078	TOTX178	DIGITAL OUT (OPTICAL)	IC1 on IB
	15229706S0	PC910X	PHOTO COUPLER	IC2 on IB
#	01340323	SLR-332DC	LED (ORANGE)	on SB
#	01340312	SLR-332VC-TG7	LED (RED)	on SB
#	01343734	SLR-332VR	LED (RED)	D97 on SB
#	01343756	SLR-332MG	LED (GREEN)	D68 on SB
	00127367	SPR-39MVW	LED (RED/GREEN)	on SB
#	01343767	SLR-332VC-TC7	LED (RED)	D71 on EB
#	01343778	SLR-332MC	LED (GREEN)	D75 on EB
TRANSISTOR				
#	15309109	2SA1162-GR	PNP	Q25 on MB
#	15319118	2SC2712-GR	NPN	Q24 on MB
	15319107	2SC4116-GR	NPN	Q15-Q22,Q26 on MB
	15329103T0	2SK880-GR	FET	Q8-Q12 on MB
	15329533	RN2307	PNP	Q2.Q13.Q14 on MB
#	15239102	DTC314TK	NPN	Q4-Q7 on MB
	15329521	RN1307	NPN	Q1.Q23 on MB
	15119132	2SA1015-GR	PNP	Q1 on IB
DIODE				
	15339119T0	1SS352	SWITCHING DIODE	ALL DIODE on MB
	15019126	1SS133	SWITCHING DIODE	ALL SWITCHING DIODE on SB,IB
	00128045	S2S6M-4001P12.5	SCHOTTKY DIODE	D1 on SCB
RESISTOR				
#	01341878	RSS1 L12.5 680J 1/2W		R120 on MB
#	01129856	RSS2 L15 221J 1/2W		R188 on MB
	00126112	EXB8V101JV	RESISTOR ARRAY	RA1-RA16,RA26 on MB
	00126134	EXB-A10E103J	RESISTOR ARRAY	RA21-RA25 on MB
POTENTIOMETER				
#	01458078	RK09D1130 100KRD	ROTARY POT	INPUT SENS
#	01239067	RK09K1130 50KB	ROTARY POT	TRACK CUE
#	01239145	RK09K120 10KA	ROTARY POT	PHONES
#	01231378	EWA-POAC10B54 50KB	SLIDE POT	FADER
CAPACITOR				
	13519452	DD306-959F104Z25 0.1uF/25V	CERAMIC	C137 on MB
#	01341423	ECST1EY474R 0.47uF/25V	TANTALUM	C26 on MB
	00347223	ECST0JY106R 10uF/6.3V	TANTALUM	OTHER ALL TANTALUM CAPACITOR
INDUCTOR				
	13529145	DSS306-55FZ103N100	EMI FILTER	EMI1.EMI2 on MB
	00903167	N20122601	FERRITE BEAD	
	13529247	DSS306-91FZ103N100	EMI FILTER	FL3-FL7 on IB
	12449268	BL02RN2-R62	FERRITE BEAD	FL1,FL2 on IB
	01340834	EXC ML20A390	FERRITE BEAD	L1.L2 on SCB
#	01455867	ESD-SR-12	FERRITE CORE	on WIRING PS-MAIN
CRYSTAL				
	00894023	MA-406 20.000MHZ	X'TAL	X1 on MB
#	01342145	MA-406 25.000MHZ	X'TAL	X1 on SCB
ROTARY ENCODER				
#	01231367	EC16B24204 (L=15)	ROTARY ENCODER	EN1 on EB
TRANSFORMER				
	12449615	PT-10244-615	PULSE TRANS.	T1 on IB L3 on SCB
CONNECTOR				
	13379153	IL-FPC-18ST-N		CN5.CN6 on MB
	13379151	IL-FPC-14ST-N		CN14 on MB
	13379152	IL-FPC-16ST-N		CN7 on MB
	13369595	B3B-XH-A		CN15 on MB
	13369592	B7B-XH-A		CN12 on MB
	00453467	IL-FPC-25ST-N		CN4 on MB CN1 on SCB
	13439297	IL-S-8P-S2T2-EF		CN13 on MB
	13439345	IL-S-9P-S2T2-EF		CN11 on MB
	01231345	PS-40PE-D4T1-B1		CN2 on MB
	13369793	52030-1610		CN1 on MB
	13369600	52147-0510		CN8 on MB
	13369601	52147-0610		CN10 on MB
	13379157	IL-FPC-16SL-N	ANGLE	CN2 on SB
	13379158	IL-FPC-18SL-N	ANGLE	CN1.CN4 on SB
	13439351	IL-S-6P-S2L2-EF	ANGLE	CN6 on SB
	13439352	IL-S-7P-S2L2-EF	ANGLE	CN5 on SB
#	00453467	IL-FPC-25ST-N		CN1 on SCB

13429314	DBLC-J25SAF-20L9F	D-SUB 25PIN	CN2 on SCB
WIRING			
	23503682	KM-25B WIRING A	RIBBON CABLE
	01236934	5X125-P2.0	RIBBON CABLE
#	01345590	6X60-P2.0	RIBBON CABLE
#	01239301	VS-840 WIRING PS-MAIN	CN3 on SB
#	01239501	VS-840 WIRING ZIP POWER	CN7 on SB
#	01239312	VS-840 WIRING IDE	CN9 on SB
#	01239289	VS-840 WIRING INPUT(8-6)SHIELD	SWITCHING REGULATOR-CN12 on MB
#	01342078	VS-840 WIRING INPUT(9-7)SHIELD	CN15 on MB-ZIP
#	01342090	18X120-A6.0BB-P1.25-HBL10	CN2 on MB-ZIP
#	00902801	VS-880 WIRING WITH INLET	CN13 on MB-CN6 on SB
#	01239178	VS-840 WIRING PS-INLET	CN11 on MB-CN5 on SB
#	01239290	VS-840 WIRING SW-INLET	CN5 on MB-CN1 on SB
#	01010656	14X125-A6.0BB-P1.25	
#	13479963	16X120-A6.0BB-P1.25-HBL10	CN14 on MB-CN10 on IB
#	01453367	25X120-A6.0BBR-P1.25-HBL10	CN7 on MB-CN2 on SB
			CN4 on MB-CN1 on SCB
SCREWS			
	40012523	SCREW BINDING S-TITE M4x6 ZC	
	40011356	SCREW PAN S-TITE W/INTERNAL TOOTH WASHER M4x8 BZC	
	40012534	SCREW BINDING S-TITE M3x6 BZC	
#	40012512	SCREW BINDING S-TITE M3x6 ZC	
#	40238501	SCREW BINDING P-TITE M4x8 BZC	
	40011278	SCREW BINDING P-TITE M3x8 ZC	
	40011312	SCREW BINDING P-TITE M3x8 BZC	
	40011289	SCREW BINDING P-TITE M3x10 ZC	
	40011490	SCREW PAN SEMS M3x6 BZC	
PACKING			
#	01342067	VS-840 PAD SET	
#	01457590	VS-840 PAD C	
#	01239167	VS-840 PACKING CASE	
#	40239545	VS-840S SEAL	*VS-840S only for PACKING CASE
MISCELLANEOUS			
	13429295	51048-0600	CABLE HOLDER
	13429294	51048-0500	CABLE HOLDER
#	01453956	VS4S-1 SHIELD SHEET	CN8 on EB CN3.CN9 on SB
	40016589	NRP-355 BLACK	CN7 on SB
	40016512	T-18S 80M/M	
#	40238223	LH-36-7	for FIXING FERRITE CORE
	01345856	FF-009	for LED (RED/GREEN)
#	40238690	VS-840 LED LABEL	for TOP PANEL A & B
#	40238545	CAUTION LABEL SHOCK HAZARD & ICES	for BOTTOM COVER
ACCESSORIES			
#	00894367	AC CORD 100V	SP18A+IS14 VCTF2x0.75
#	00894378	AC CORD 117V	SP301+IS14SJT 18/3
#	00894389	AC CORD 230V	SP22+IS14 H05VV-F3G1.0
#	00907001	AC CORD 230VE	KP-610 GTBS-3 KS-31A
#	23495124	AC CORD 230VA	SC-114-J01 ES303-10HMA
#	71017756	ZIP-DISK	DEMO SONGS
#	70902023	VS-840 MANUAL SET	JAPANESE
#	70909278	VS-840 MANUAL SET	ENGLISH
#	71019856	VS4S-1 MANUAL	JAPANESE *VS-840S only
#	71120301	VS4S-1 MANUAL	ENGLISH *VS-840S only
#	01569812	ZIP ATTENTION CARD	JAPANESE
#	01569823	ZIP ATTENTION CARD	ENGLISH
#	40232334		(JAPAN ONLY)

CHECKING THE SOFTWARE VERSION NUMBER

Holding down MONITOR SEL and SOLO buttons, turn on VS-840.
The version number will appear on the LCD panel.

TEST MODE

■In the test mode, the following circuits are checked.

Digital block:
CPU
16M DRAM (for CPU)
8M flash ROM
DSP
4M DRAM (for DSP)
Gate array
A/D , D/A
LED matrix
Switch matrix
Digital out
Timing generator (PLL block)
Digital volume control
SCSI IF block (VS-840S only)

Analog block:
Input -> Input Sens -> A/D
|
-> Peak LED drive

D/A ->> Mute ->>> Output
|
-> Phones select -> Phones VR -> Phones amp -> Phones out

■Setting up VS-840 for test

INPUT SENS - 1, 2, 3, 4 : MIN.
PHONES : MAX.
FADER - 1, 2, 3, 4, 5/6, 7/8, MASTER : MIN.
TRACK CUE - 1, 2, 3, 4, 5/6, 7/8 : MIN.

NOTICE : Insert a Blank ZIP DISK (P/No. 01343023) formatted by VS-840 into the internal drive before testing.
If it is necessary to check the connection with an external ZIP Drive ,connect it before the VS-840S is turned on.

■Starting the test program

Holding INPUT, EQ and EFFECT LEVEL buttons simultaneously, turn on VS-840.

The test program will display the test options:

0: Auto Check
1: Memory Check
2: GA Check
3: DSP Check
4: LCD Check
5: SW Check
6: LED Check
7: Encoder Check
8: Fader Check (incl. Track Cue)
9: MIDI Check
10: SCSI Check (VS-840S only)
11: Audio Check

Select the desired test option with TIME/VALUE dial (normally, 0: Auto) and then press REC button.

0: Auto Check
Test program 1: Starts with memory check and will display "OK" for 2

seconds if the test is successful. And then will proceed to the next test, if possible. The program will display "Error" if a test fails and then abort the test.

To force the program to proceed to the next test, press REC button.

1: Memory Check

External DRAM (16M) and CPU RAM
The program writes data (0xAA, 0x55) into each memory location and then reads back the data for verification.

If the test is successful, the program displays "OK" and proceeds to the test 2.

2: GA Check

The program checks the data transfer line between the gate array and CPU.

If the test is successful, the program displays "OK" and proceeds to the test 3.

3: DSP Check

The program checks the DSP internal memory and 4M DRAM.

If the test is successful, the program displays "OK" and proceeds to the test 4.

4: LCD Check

Verify that all segments are uniformly turned on.

Press PLAY button to start the contrast test.

Verify that entire LCD screen automatically changes from dark to light and then back to dark.

Press REC button to start the test 5.

5: SW(itch) Check (including foot switch)

Press the button whose name is displayed on the LCD. If the button is OK, the next button name is displayed. Press the corresponding button.

Repeat the test until REC button is indicated. The program proceeds to the test 6.

6: LED Check

Verify that the LEDs are fully turned on at the same intensity.

Press the following buttons and verify state change of the LEDs.

[ZERO] : off
[REW] : solid light in red
[FF] : solid light in green
[STOP] : solid light in orange
[PLAY] : solid light

The program will proceed to the test 7.

7: Encoder Check

Turn the TIME/VALUE dial clockwise 10 clicks or more.

Turn the dial counterclockwise 10 clicks or more.
The program will display "OK" and proceed to the test 8.

8: Fader Check (incl. Track Cue)

Turn the potentiometers - faders 1 through 7/8, TRACK CUE 1 through 7/8 from minimum level to maximum level, one by one as indicated on the LCD.

When all potentiometers pass the test, the program displays "OK" and proceeds to the test 9.

9: MIDI Check

Connect MIDI IN and OUT through a MIDI cable. The test data is automatically verified.

The program will display "OK" and proceed to the test 10.

10: SCSI Check (skip if VS-840)

Insert a blank ZIP DISK (for test) into the ZIP drive (ID No.6, ZIP-EXT-1S/2S) and then connect the drive to SCSI IF connector. The program starts data verification.

After verification, the program displays "OK" and proceeds to the test 11.

11: Audio Check

Note: First read through procedures in this test to minimize repetition of steps.

Set an audio generator: 200 Hz, rectangular, 1.5 Vpp.

Set INPUT SENS to +4 dBm; CH and MASTER faders to "0 dB".

Input the signal to INPUT sockets 1, 2, 3 and 4 one by one and observe the signal at the corresponding OUT socket on an oscilloscope.

Verify that:

Signal at MASTER OUT L and R are identical to that on INPUT 3 and 4, respectively.

Signal at MON/AUX A and B are identical to that on INPUT 1 and 2, respectively.

Repeat the above steps but set the generator frequency at 500 Hz.

Note: INPUT 1 and GUITAR IN (high Z) are internally connected in parallel with INPUT 1 given priority over GUITAR IN.

INPUT 3 and 4 are internally connected in parallel with pin socket with the standard socket given priority over pin socket.

· Check the following with MUTE OFF/PHONES (AUX).

INPUT SENS: While monitoring output, turn INPUT SENS knob fully CW and CCW and verify smooth peak level change.

Verify that AUX signal is sent to PHONES output. Turning PHONES knob CW and CCW, verify smooth level change.

PEAK LED

Check that the LED turns on at around the middle of INPUT SENS travel range.

Press REC button.

MUTE OFF/PHONES (MST)

Insert headphones and verify that the master signal is sent to the PHONES out.

· Check Residual noise
Set the product:
INPUT SENS: +4dBm
CH SELECT: INPUT (orange)
INPUT CH: Open

Connect an appropriate noise metering instrument e.g. noise meter to the corresponding OUT: MASTER R and L, MONI/AUX A and B.

With the meter connected to one of the OUTs specified above, verify that meter readings are less than -87 dBm (IHF-A).

Repeat noise reading for the OUT: MASTER R and L, MONI/AUX A and B.

Press REC button.

MUTE ON/PHONES (MST)

Verify that the signal indicated on the LCD is muted.

■Exiting the test program

Simply turn off VS-840.

Turn on VS-840. It should start with the opening screen and necessary startup information.

■Checking in operation mode

Checking ZIP drive

Insert the Demo ZIP DISK (P/No. 71017756) into VS-840 ZIP drive ,and play the Demo Song.

Checking VARI PITCH

Press SHIFT and VARI PITCH buttons. Turning TIM/VALUE dial and verify pitch change.

Checking ZIP DISK injection

Stop the test disk. Press the ZIP drive inject button and remove the ZIP DISK.

This completes the tests in this section.

SAVING USER DATA & RELOADING SAVED DATA

Prepare a Blank ZIP DISK (P/No. 01343023) formatted by VS-840.

Before troubleshooting, back up user data onto the ZIP DISK, and reload the saved data afterward by following the procedure below.

■Saving user area data backup file

1. Holding down PLAY, REC and TRK3 buttons, turn on VS-840.

2. The LCD will display the message "User FILE Wr?" Insert the ZIP DISK into the drive and then press YES button. The backup file will be created on the disk. Remove the disk.

■Loading user area data backup file

1. After completing troubleshooting (e.g. replacement of a PCB), insert the ZIP DISK and then turn on VS-840.

2. The LCD will display the message "User Area Load?". Press YES button to load the backup data.

■Deleting user area data backup file

1. Insert the ZIP DISK containing the backup file into the drive. Holding down PLAY, REC and TRK4, turn on VS-840.
2. The LCD will display the message "User FILE Del?". To delete the file, press YES button.

VS-840 SYSTEM SOFTWARE UPDATE

* CAUTION!!

Do not turn off the VS-840 during it's system software updating. If not, the program in the flash memory is destroyed. In this case, perform the compelling version-up procedure in order to recover it.

■The VS-840 system software is supplied in the standard MIDI file (SMF) data format. (P/No. 17048692)

Each system disk contains the following SMF data. Load these data to VS-840, starting with Disk 1 (VS-840-1.MID).

VS-840 System Ver.** SMF Disk 1	VS-840 System Ver.** SMF Disk 2
VS-840-1.MID	VS-840-5.MID
VS-840-2.MID	VS-840-6.MID
VS-840-3.MID	VS-840-7.MID
VS-840-4.MID	VS-840-8.MID

Update the VS-840 by following the procedure described below.

1. Connect the MIDI OUT of a MIDI sequencer capable of playing back SMF data in sequence (e.g. SB-55) to MIDI IN of VS-840, through a MIDI cable.
2. Holding MODE, INPUT and ENTER buttons, turn on VS-840.
3. The message "Receive MID-EX?" will be displayed. Press YES button.
4. Verify that "Now Waiting" is displayed. Playback all SMFs in the order of number.
5. The message "Version Up?" will appear. Press YES button.
6. The message "User Area Update?" will appear. Press YES button.
7. When the message "END!!! Please POWER OFF/ON" appears. Turn off and then on VS-840.

This completes updating.

■Initialization, User area, VS-840 system software update using the ZIP DISK. (P/No. 17048691)

VS-840 can also be updated by using the System Data ZIP DISK. When using the ZIP DISK, VS-840 can be upgraded either of the following two ways.

1. Using standard version-up procedure
This procedure keeps the user data unchanged (no initialization).
2. To initialize the user data or loading the factory presets, the compelling version-up procedure must be followed

· Standard version-up procedure

1. Insert the latest System Data ZIP DISK into VS-840 ZIP drive. Turn on VS-840.
2. The message "Version up?" appears. Press YES button.
3. When the message "Are you sure?" appears, press YES button.
The program displays "SYSTEM WRITE", indicating it starts version-up sequence.
4. Upon "END!!! Please POWER OFF/ON" message, turn off and then on VS-840.

This completes updating.

· Compelling version up

1. Holding down TR1, TR2, TR3, TR4 and RIGHT buttons, turn on VS-840.
2. The message "Clear Flash?" will appear. Press YES button.
3. The message "Are you sure?" will appear. Press YES button.
4. The program displays "SYSTEM WRITE", indicating that it is clearing flash memory.
5. Upon "END!! Please POWER OFF/ON" message, turn off VS-840.
6. Insert the System Data ZIP DISK into the drive. Holding down PLAY, REC and ENTER buttons, turn on VS-840.
7. The program displays "BAD FLASH!!" and then "SYSTEM WRITE", indicating that it is starting compelling version-up sequence.
8. Upon "END!!!! Please RESET!" message, turn off and then on VS-840.

This completes compelling updating.

■To recover the unit after Error Message has been displayed

When error message "Don't match CPU" or "Can't Version Up" has been displayed and locks up from the power off during Eject or Shut down, you need to re-load the System program. Please refer to the following procedure.

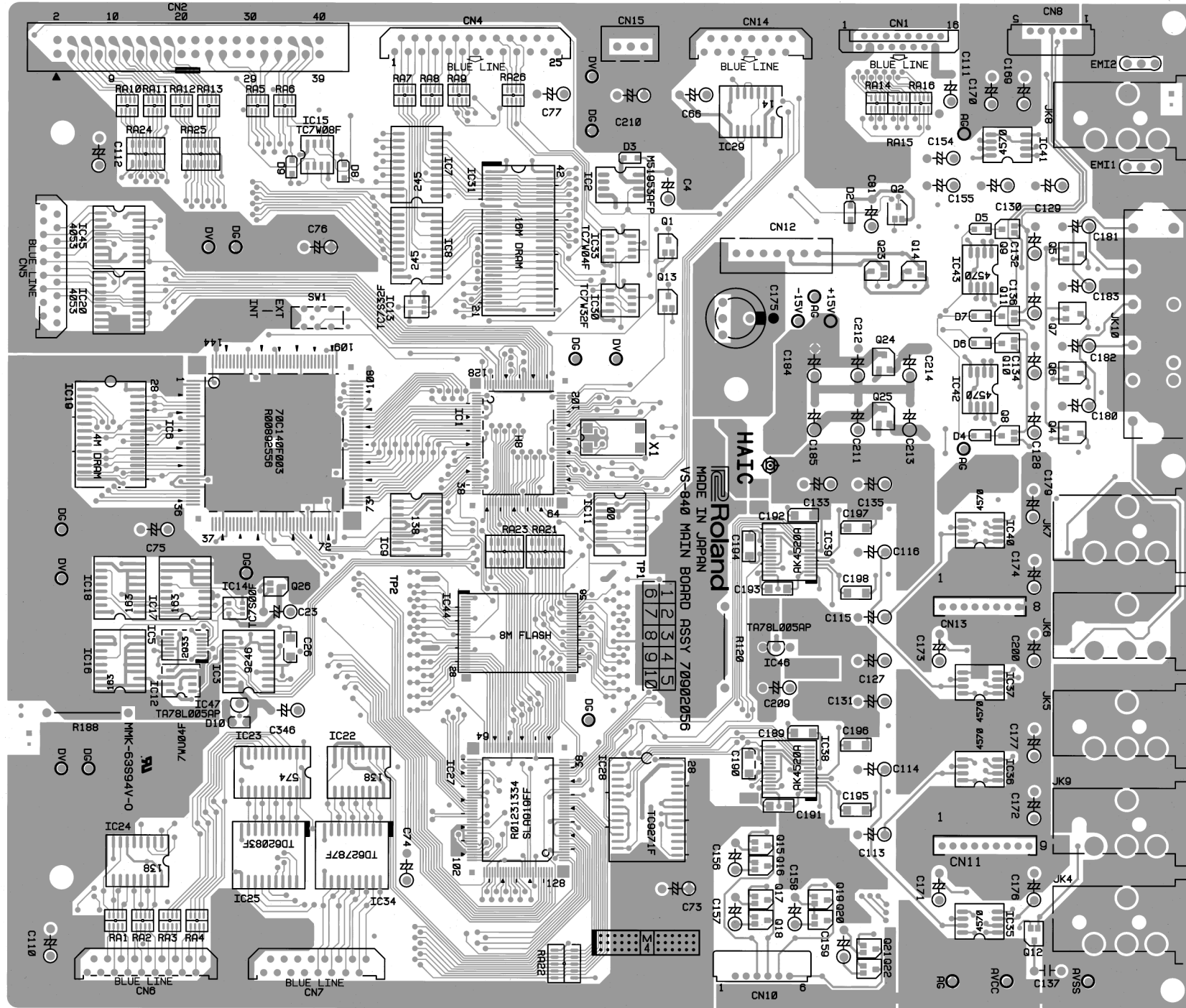
1. Insert the System Data ZIP DISK into the VS-840 drive and then turn on the VS-840.
2. The display may show "BAD FLASH!!" and then "SYSTEM WRITE.". The compelling version-up starts.
3. After "END!!!! Please, RESET!" is displayed, turn the power off and on again.
4. Complete.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

A CIRCUIT DIAGRAM & BOARD

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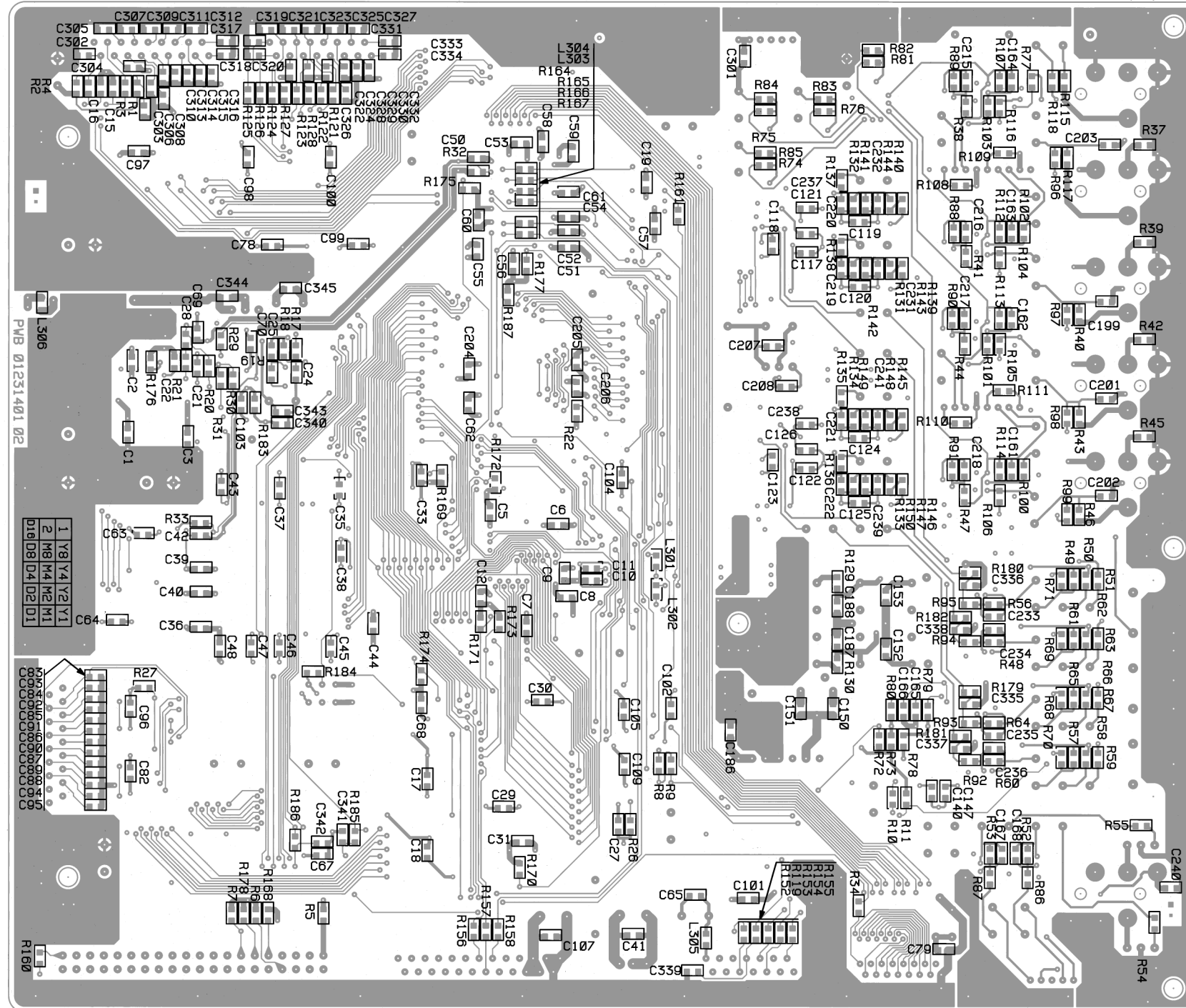
MAIN BOARD ASSY (70902056)
component side



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

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MAIN BOARD ASSY (70902056)
solder side



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

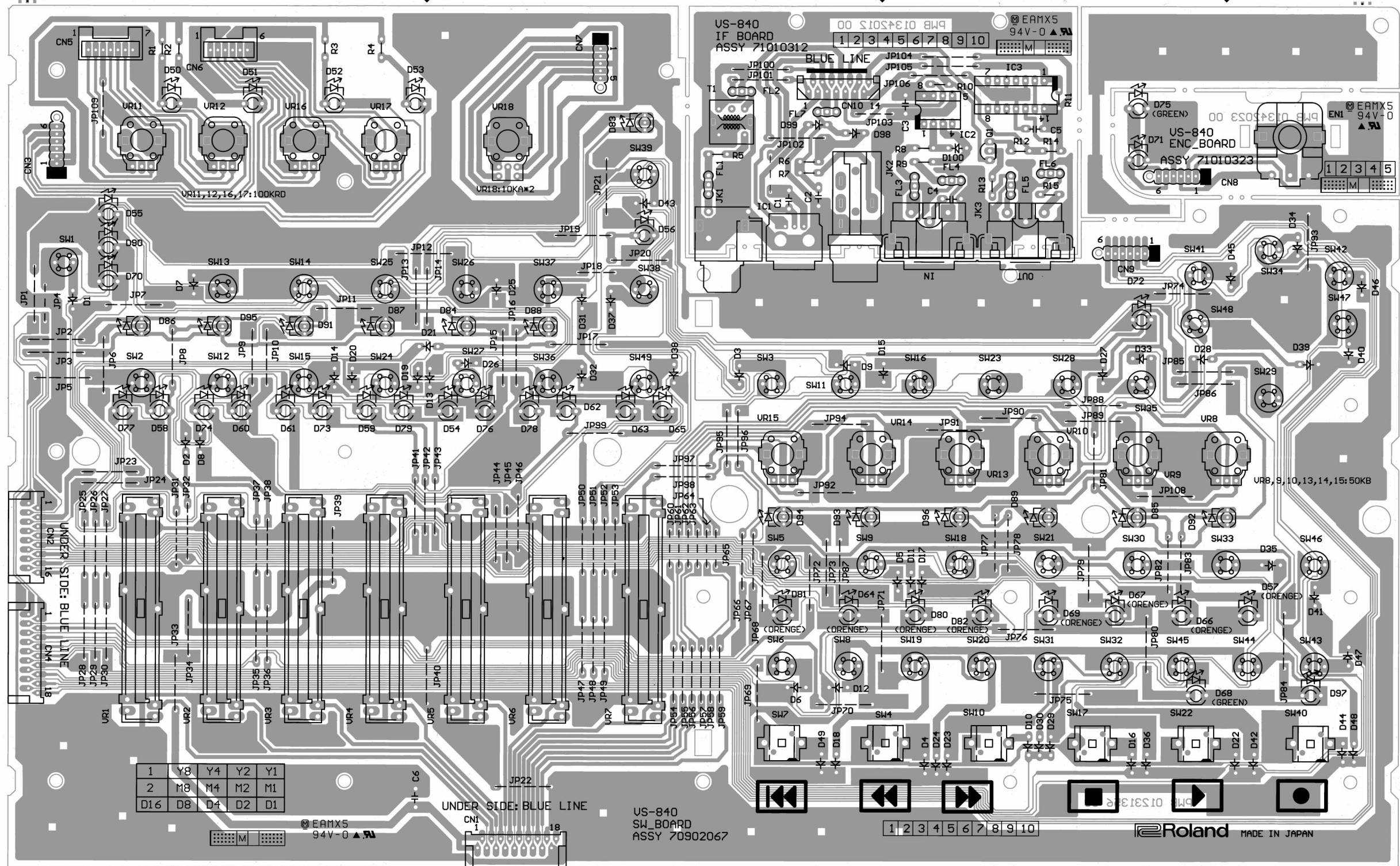
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SW SHEET ASSY (71122767)
(INC. SW BOARD, IF BOARD, ENC BOARD)
component side

SW BOARD

IF BOARD

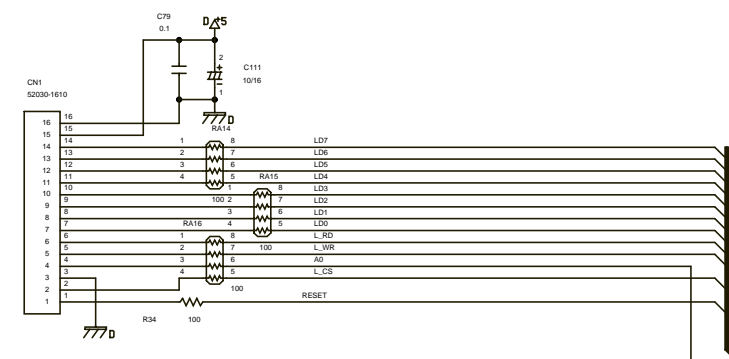
ENC BOARD



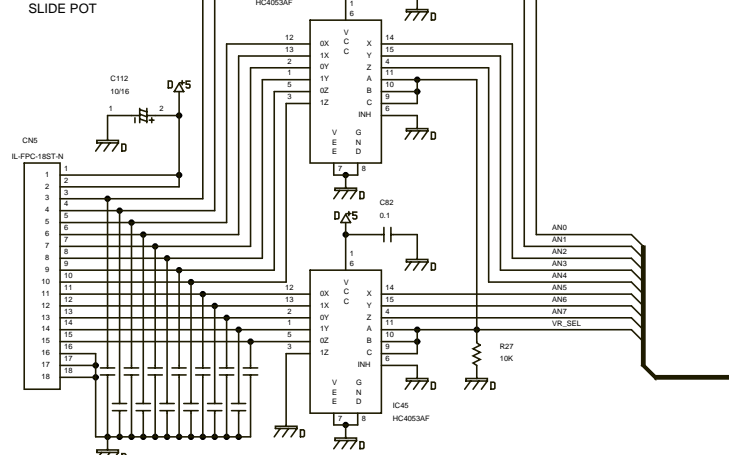
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42

E MAIN BOARD ASSY (DIGITAL BLOCK)

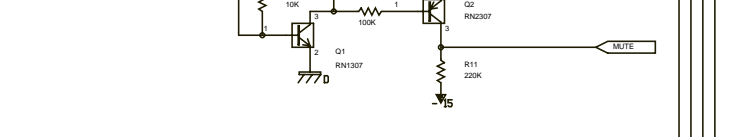
for LCD



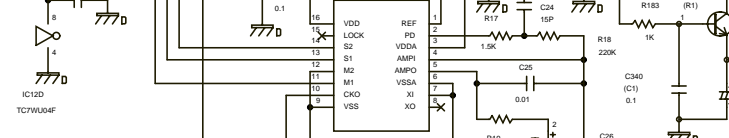
to POT, SLIDE POT



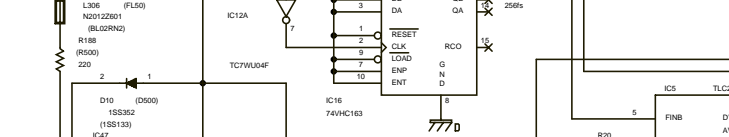
MUTE



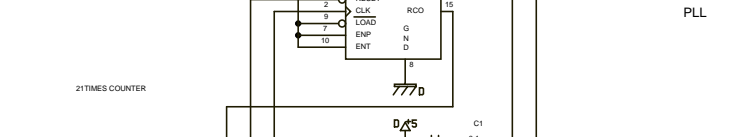
IC100



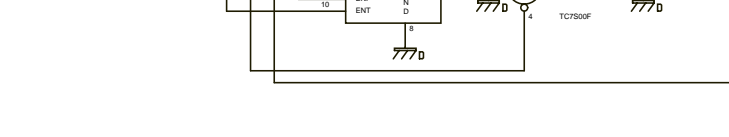
IC101



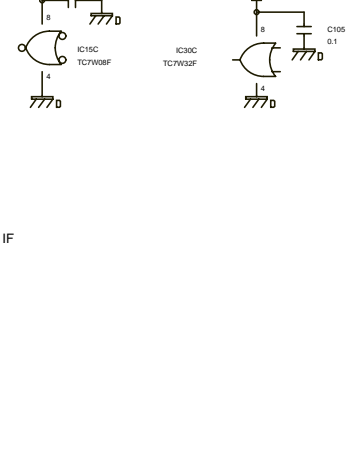
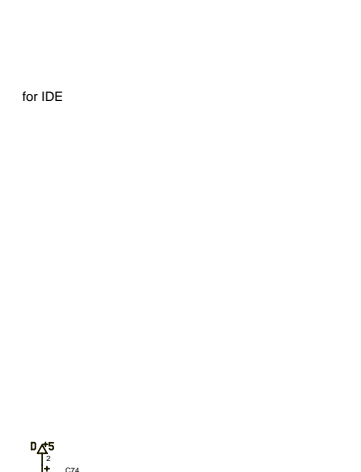
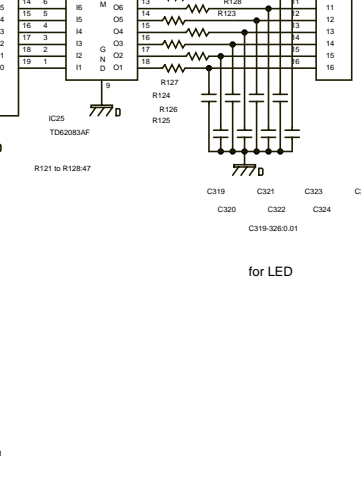
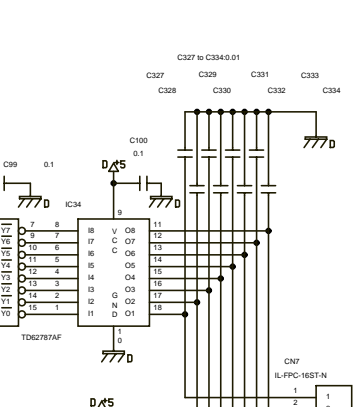
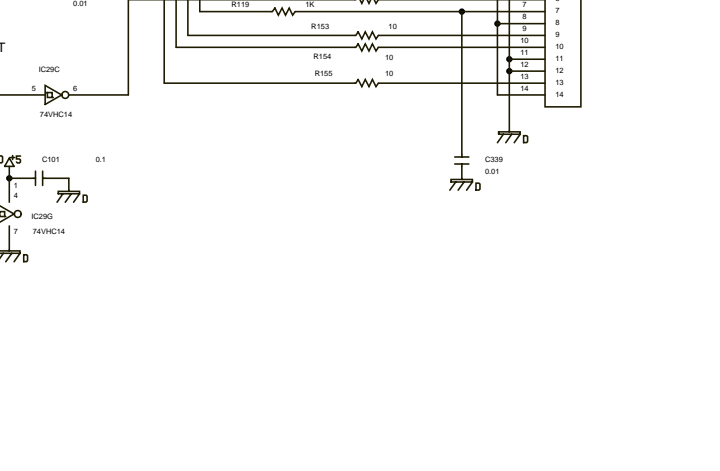
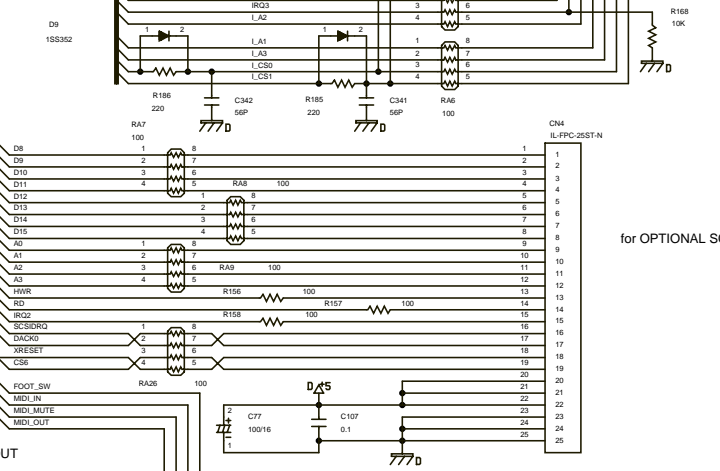
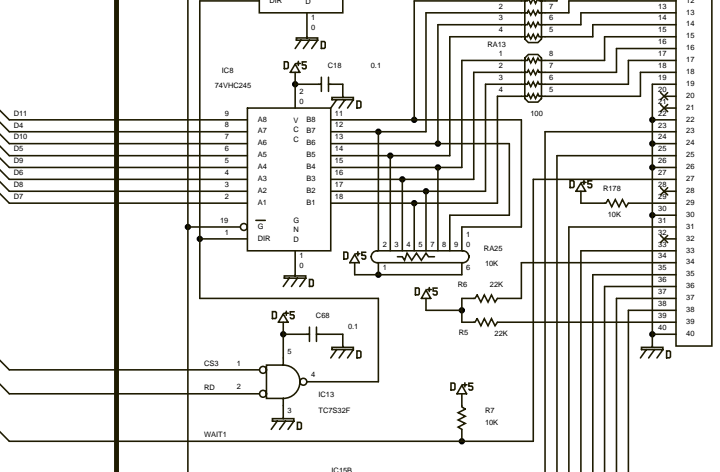
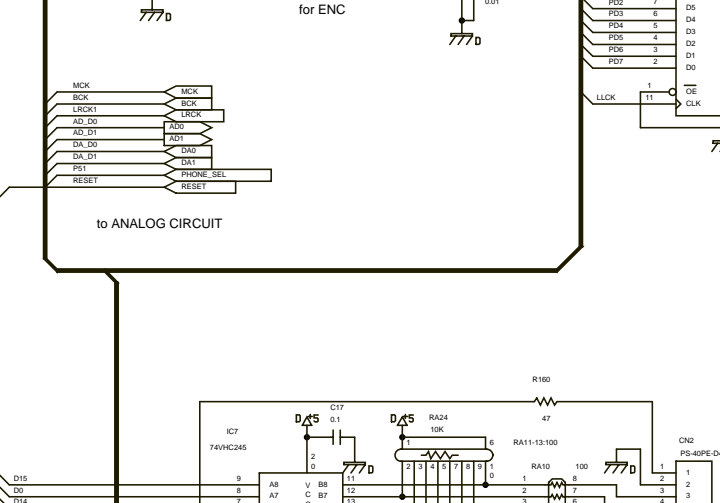
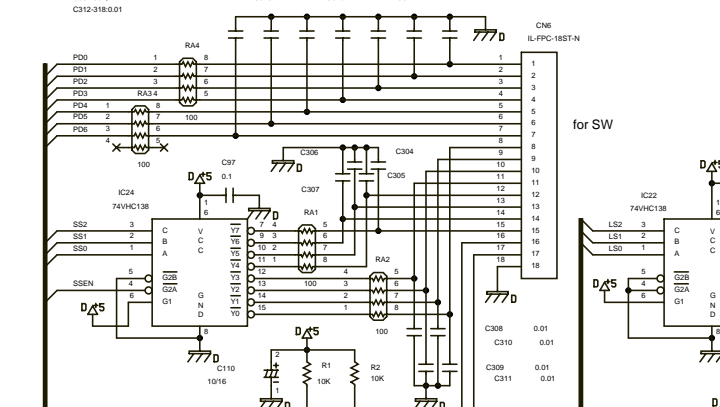
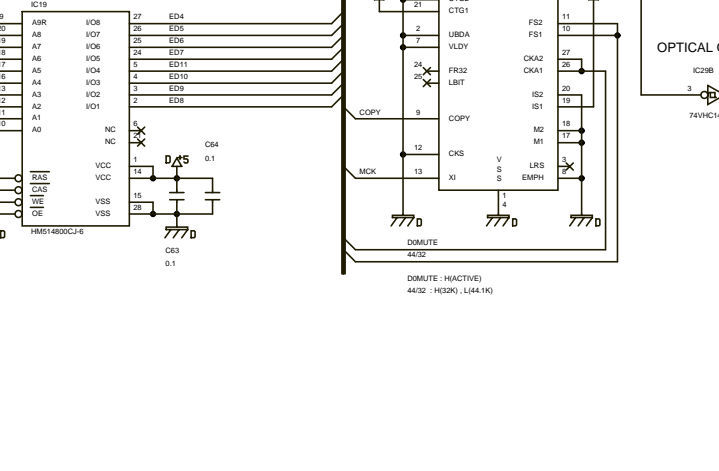
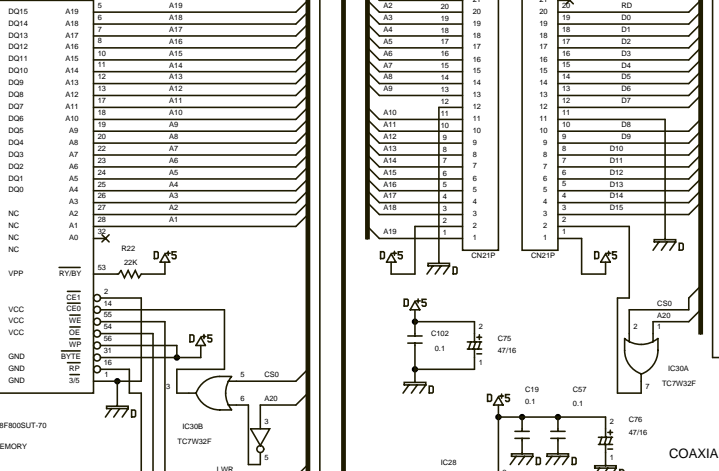
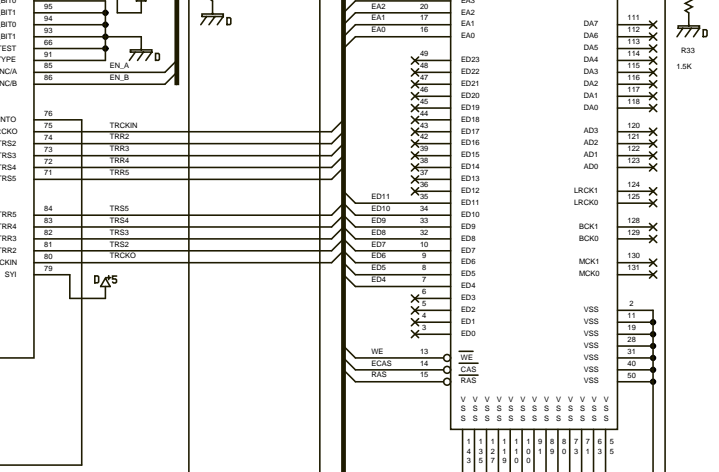
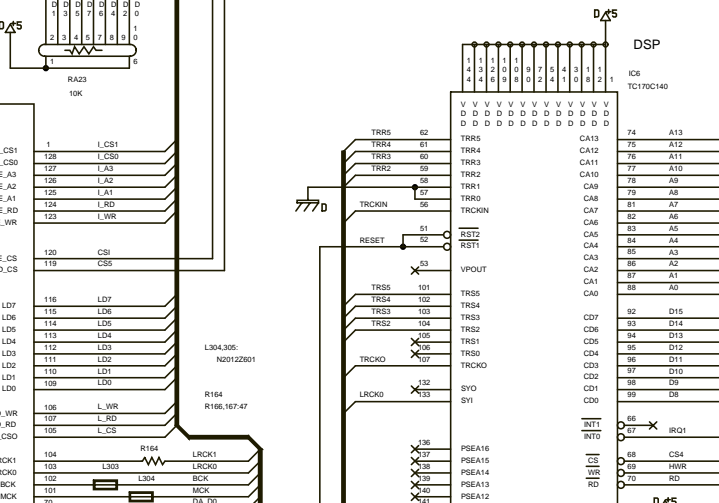
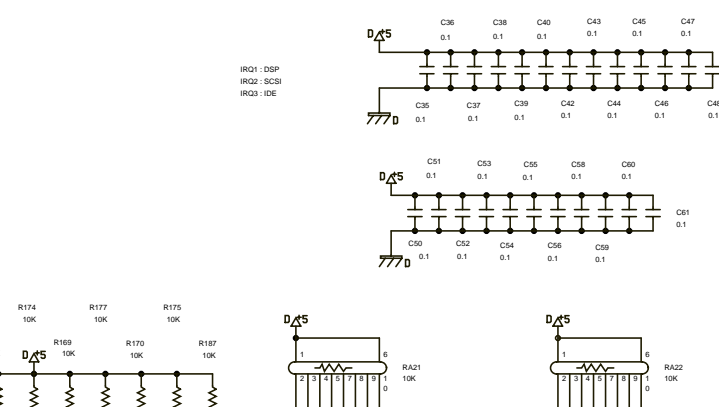
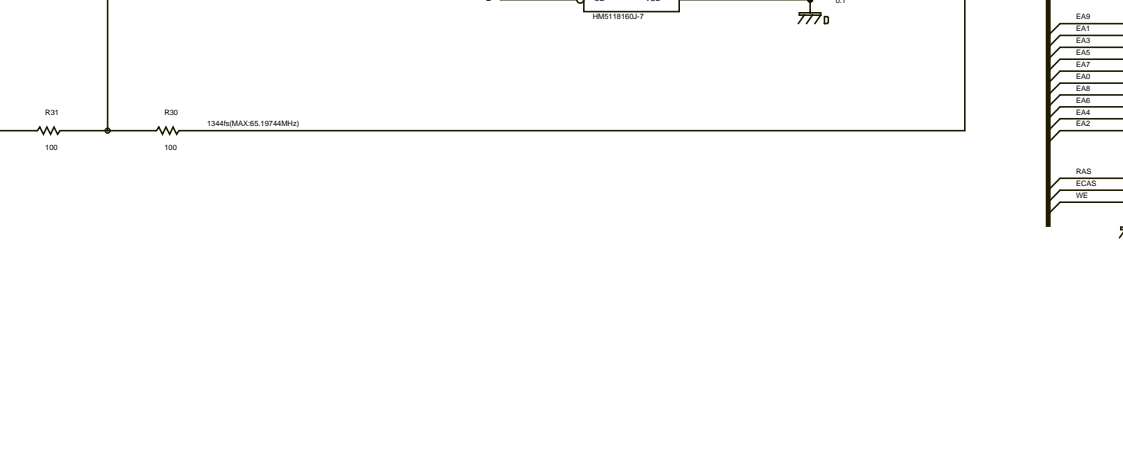
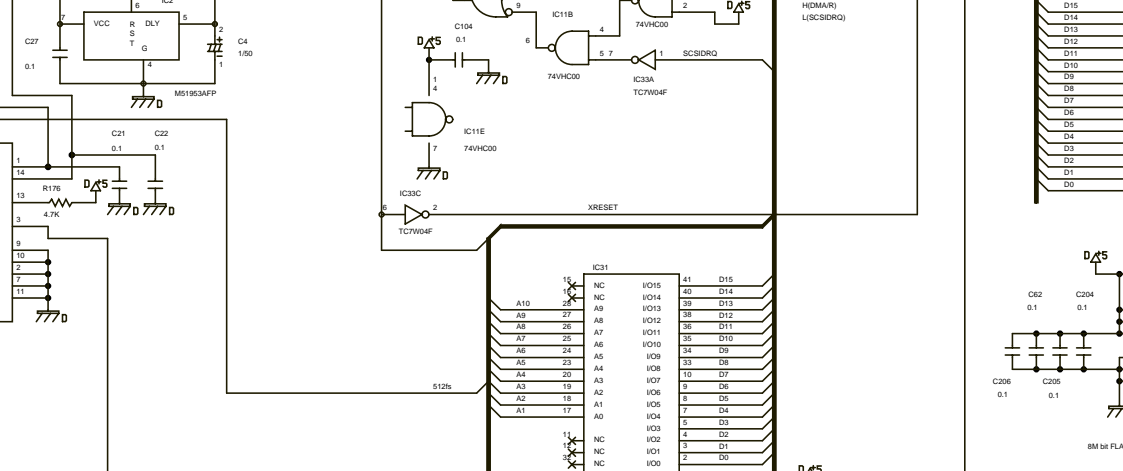
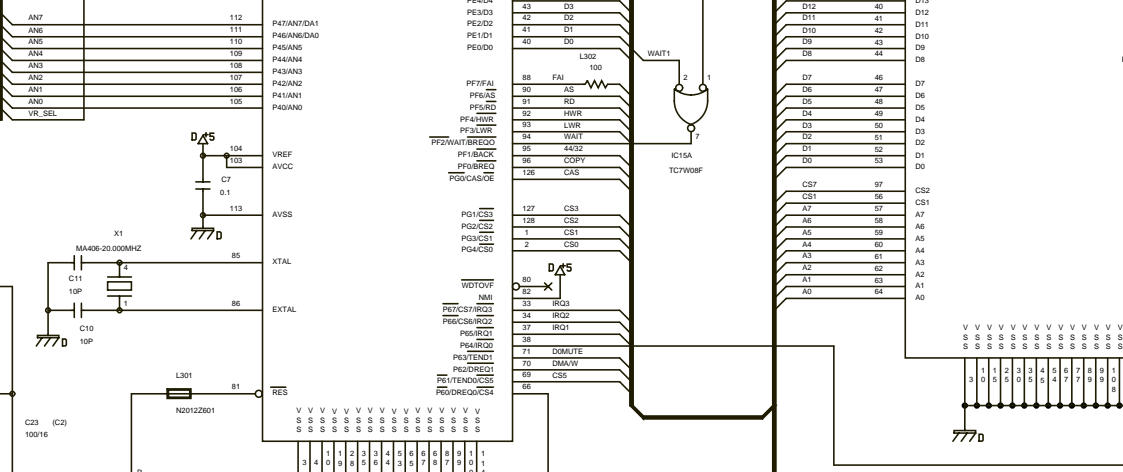
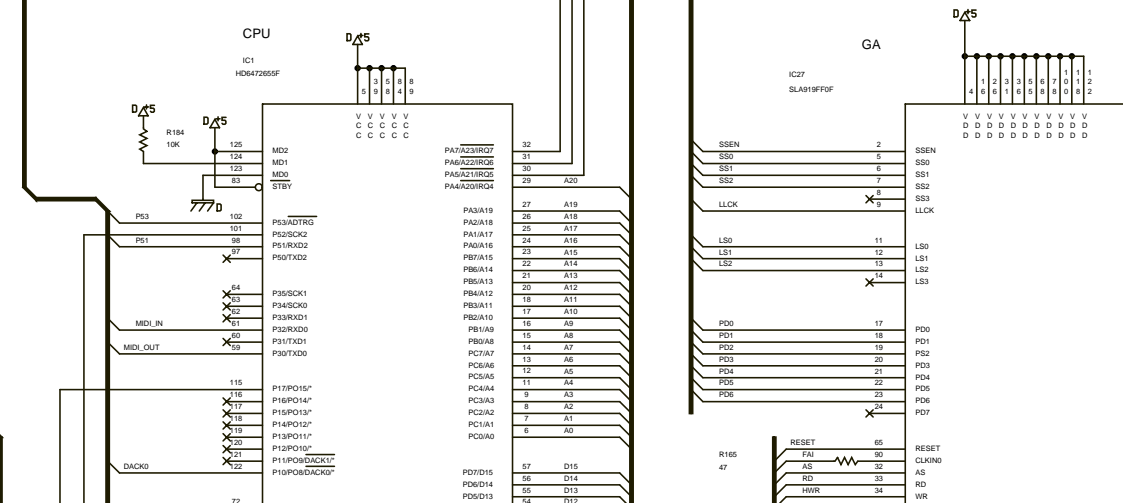
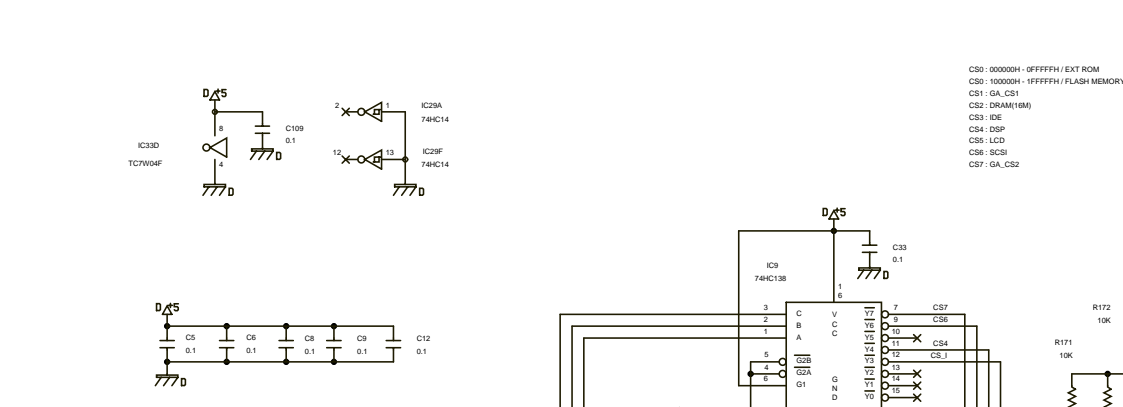
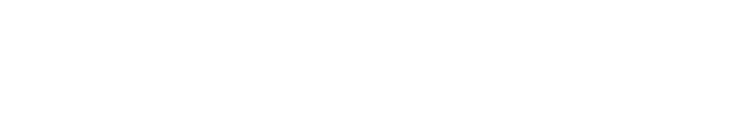
31TIMES COUNTER



PLL



IC104



for IDE

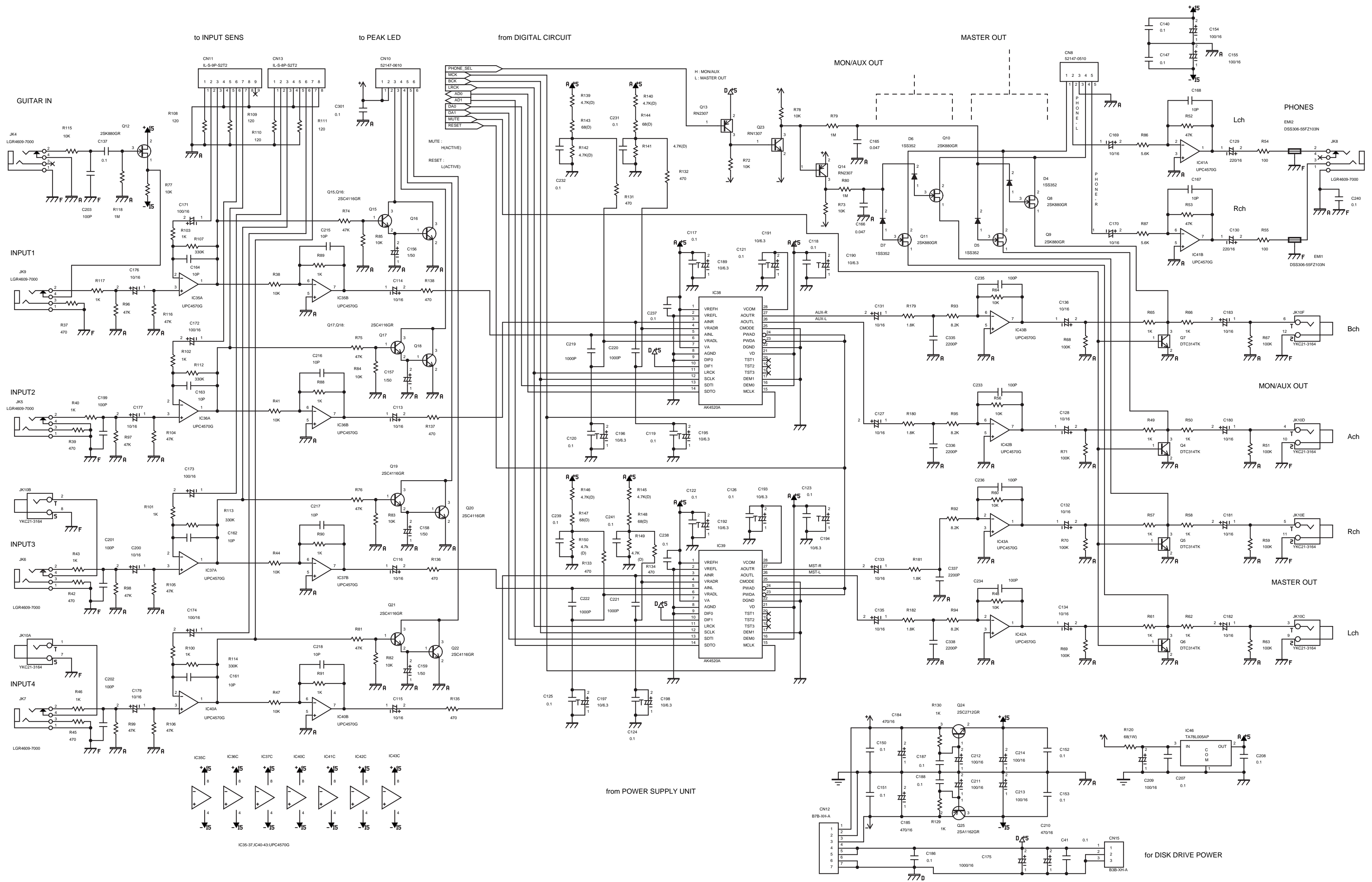
for OPTIONAL SCSI IF

to IF BOARD

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42

A [E] MAIN BOARD ASSY (ANALOG BLOCK)

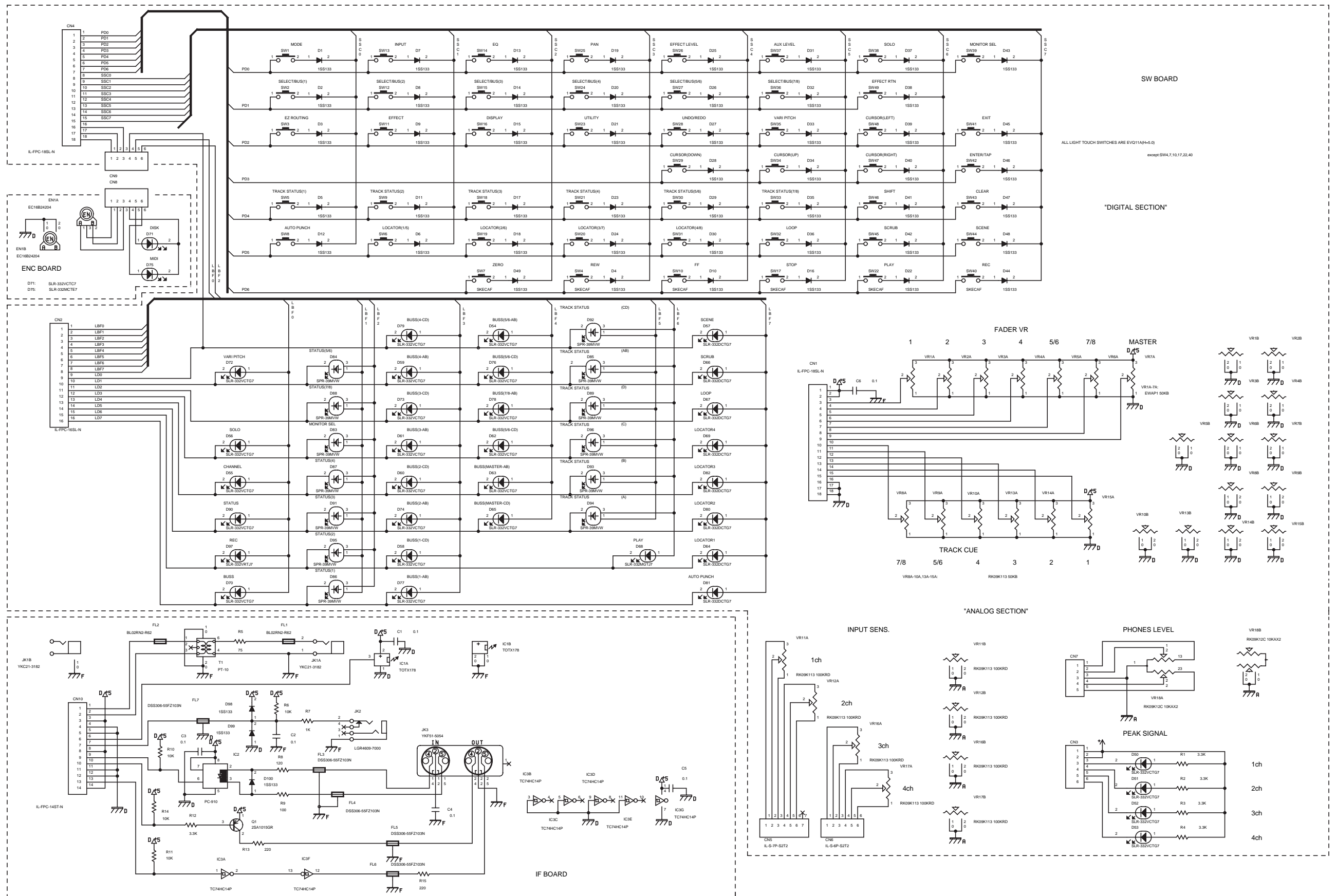
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SW SHEET ASSY

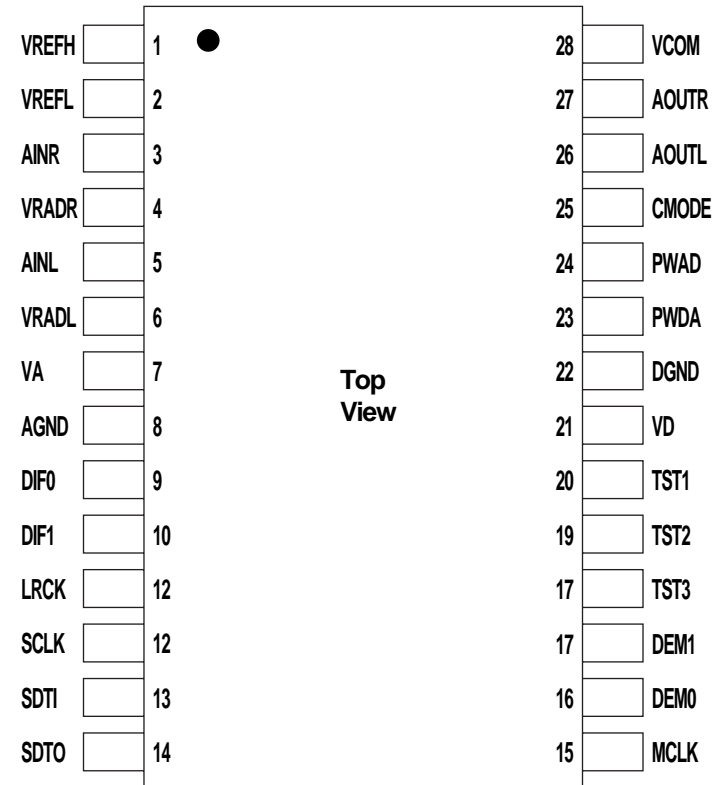


IC DATA

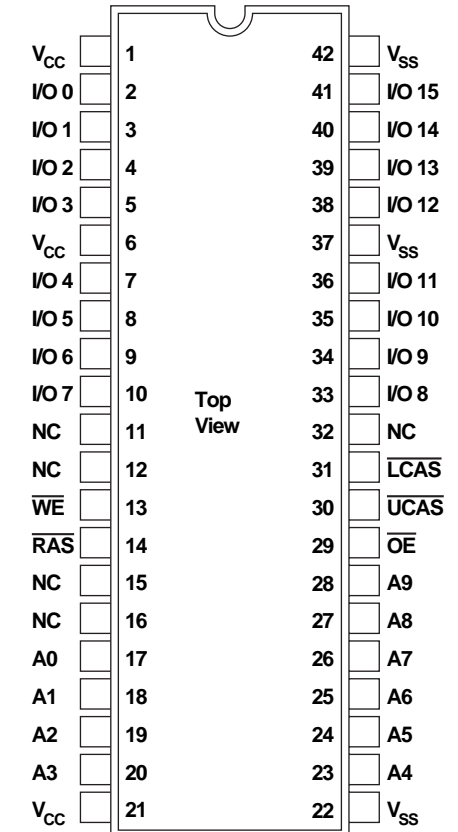
CPU
HD6432655F (01341789)
IC1 on MB



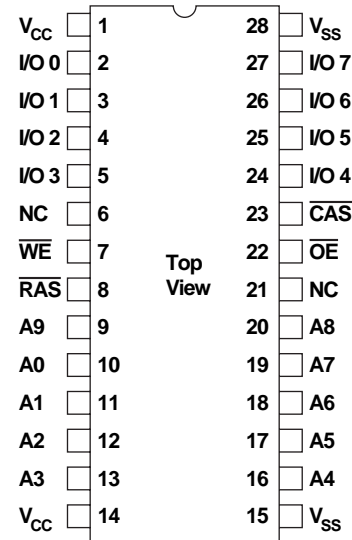
AD/DA
AK4520AVF-E2(01238101)
IC38, IC39 on MB



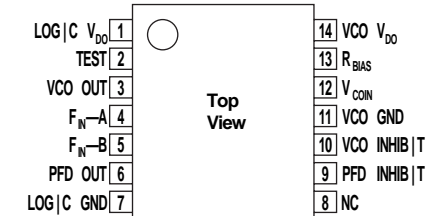
16M DRAM
HM5118160J-6 (01231434)
IC31 on MB



4M DRAM
HM 514800 DJ6Z (01120523)
IC19 on MB

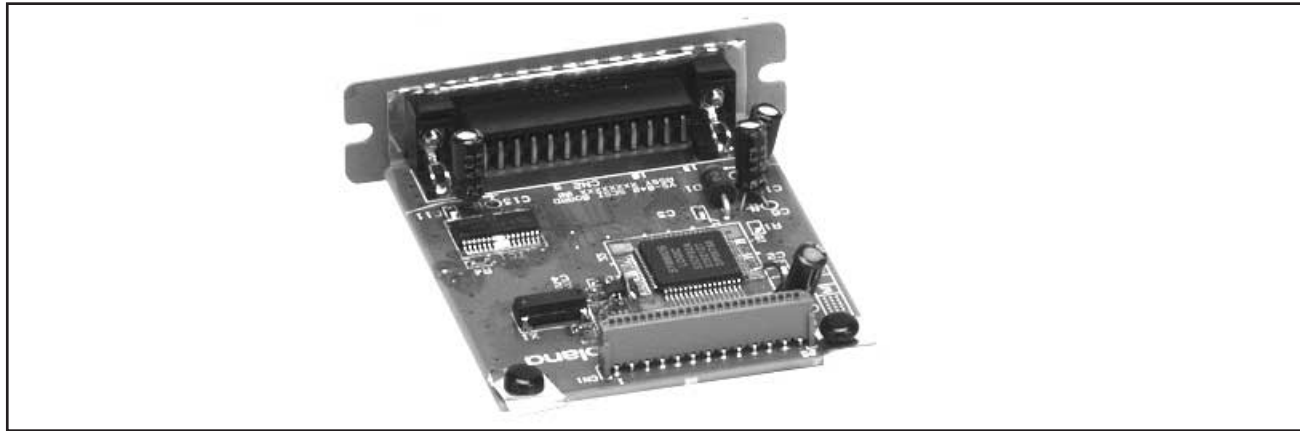


PLL
TLC2933IPW(01124367)
IC5 on MB



VS4S-1

SCSI BOARD FOR VS-840

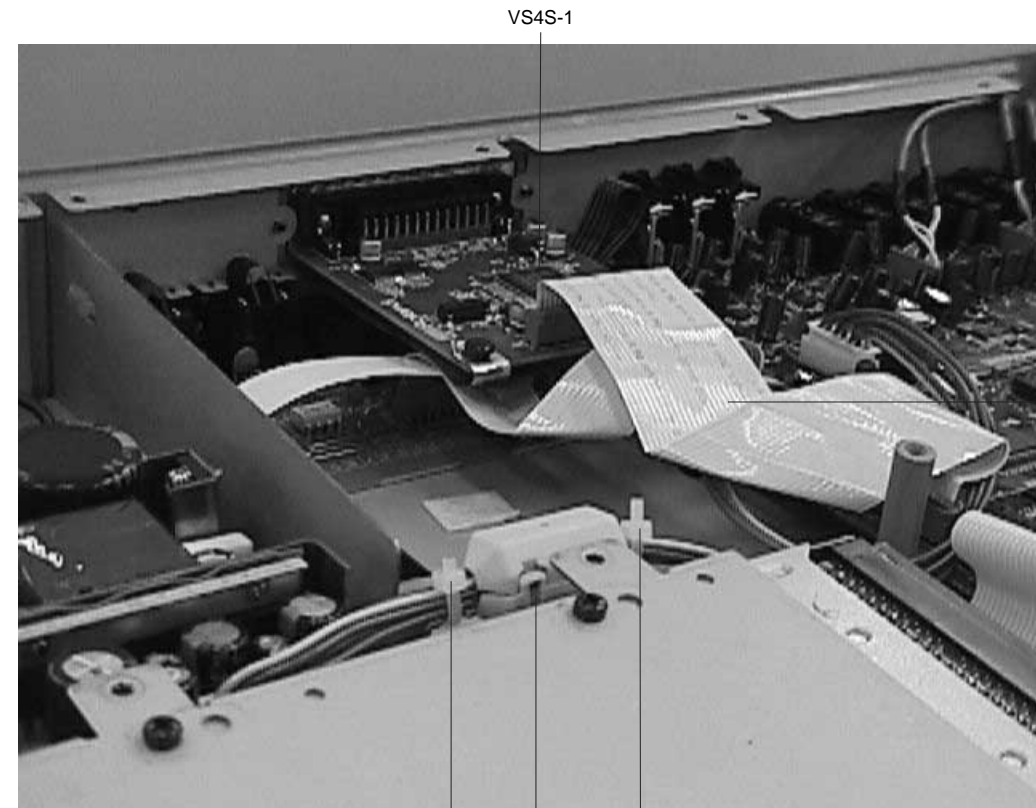


SPECIFICATIONS VS4S-1 (OPTION SCSI BOARD)

- Expands the functionality of the VS-840
Installing the VS4S-1 into the VS-840, songs created on the VS-840 can be saved on an external Zip drive.
- SPECIFICATIONS : Conforms of SCSI-2
INTERFACE : D-SUB 25PIN CONNECTOR x1

INSTALLING THE VS4S-1

1. Disconnect the power cable from VS-840.
2. Remove the EXP cover and bottom cover from VS-840.
Insert the supplied fuji-card into VS4S-1 connector. Be sure both contacts are facing each other.
Insert the VS4S-1 into the opening in VS-840 (fuji-card first).
3. Secure the VS4S-1 with screws. Insert the other end of the fuji-card into CN4 of the main board.
4. Attach the supplied core on the wiring connecting the switching power supply and main board.
Slide the core as close as possible to the power supply and clamp the core with the cable tie.
5. Checking operation
Consulting VS4S-1 instruction manual, connect the ZIP drive to VS-840 and power up the system.
Make sure that UTILITY_SCSI is restarting.
6. When the system properly operates, attach the bottom cover.



VS4S-1

INSULOK TIE

CORE

FUJI CARD
Locate the VS4S-1 Board connector at guide line (blue line) to be connector side accurately.

PARTS LIST (VS4S-1)

CIRCUIT DIAGRAM & BOARD (VS4S-1)

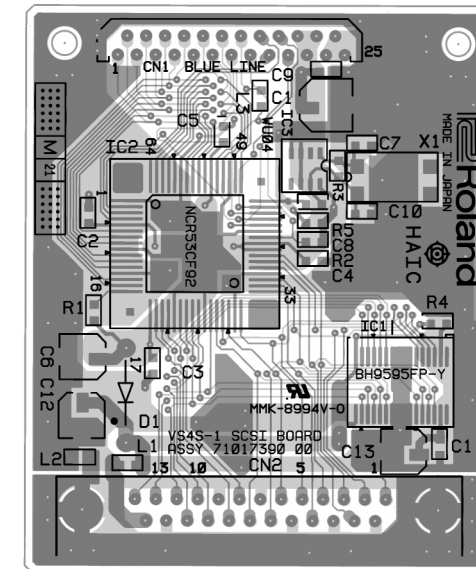
<p>SAFETY PRECAUTIONS: The parts marked Δ have safety-related characteristics. Use only listed parts for replacement.</p>	<p>CONSIDERATIONS ON PARTS ORDERING When ordering any parts listed in the parts list, please specify the following items in the order sheet.</p> <table border="1"> <thead> <tr> <th>QTY</th> <th>PART NUMBER</th> <th>DESCRIPTION</th> <th>MODEL NUMBER</th> </tr> </thead> <tbody> <tr> <td>Ex. 10</td> <td>22575241</td> <td>Sharp Key</td> <td>C-20/50</td> </tr> <tr> <td>15</td> <td>2247017300</td> <td>Knob (orange)</td> <td>DAC-15D</td> </tr> </tbody> </table> <p>Failure to completely fill the above items with correct number and description will result in delayed or even undelivered replacement.</p>	QTY	PART NUMBER	DESCRIPTION	MODEL NUMBER	Ex. 10	22575241	Sharp Key	C-20/50	15	2247017300	Knob (orange)	DAC-15D
QTY	PART NUMBER	DESCRIPTION	MODEL NUMBER										
Ex. 10	22575241	Sharp Key	C-20/50										
15	2247017300	Knob (orange)	DAC-15D										

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

MB	====>	MAIN BOARD	SCB	====>	SCSI BOARD
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HOLDER				
#	01344656	VS-840 SCSI HOLDER		
PCB ASSY				
#	71017390	VS4S-1 BOARD ASSY	SCSI BOARD	
IC				
	00893356	NCR53CF92	SCSI I/O	IC2 on SCB
	15249111	TC7WU04F	INVERTER	IC3 on SCB
	00893990	BH9595FP	SCSI ACTIVE TERMINATOR	IC1 on SCB
DIODE				
	00128045	S2S6M-4001P12.5	SCHOTTKY DIODE	D1 on SCB
INDUCTOR				
	00903167	N2012Z601	FERRITE BEAD	L1, L2 on SCB
#	01340834	EXC ML20A390	FERRITE BEAD	on WIRING PS-MAIN
	01455867	ESD-SR-12	FERRITE CORE	
CRYSTAL				
#	01342145	MA-406 25.000MHZ	X'TAL	X1 on SCB
CONNECTOR				
	00453467	IL-FPC-25ST-N		CN1 on SCB
	13429314	DBLC-J25SAF-20L9F	D-SUB 25PIN	CN2 on SCB
WIRING				
#	01453367	25X120-A6.0BBR-P1.25-HBL10	FUJI CARD	CN4 on MB-CN1 on SCB
MISCELLANEOUS				
#	40016512	T-18S 80MM		for FIXING FERRITE CORE
#	01453956	VS4S-1 SHIELD SHEET		
#	40016589	NRP-355 BLACK	NYLON RIVET	
PACKING				
#	01453356	VS4S-1 PAD		
#	01453345	VS4S-1 PACKING CASE		
#	01458101	VS4S-1 OUTER PACKING CASE		
MISCELLANEOUS				
#	71019856	VS4S-1 MANUAL	JAPANESE	
#	71120301	VS4S-1 MANUAL	ENGLISH	

**SCSI BOARD (71017390)
component side**



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

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