

VS-880EX SERVICE NOTES

DIGITAL STUDIO WORKSTATION

First Edition
Issued by RJA

SPECIFICATIONS

VS-880EX Digital Studio Workstation

●Tracks
Tracks: 8
V-Tracks: 128 (8 Tracks x 8 V-Tracks x 2 Banks)
NOTE: Up to 8 tracks can be recorded simultaneously, and up to 8 tracks can be played back simultaneously.

●Maximum Useful Capacity
32 G bytes: 1 G bytes (capacity) x 4 (Partition) x 8 (Disk Drive)

●Internal Memory
Songs: 200 (each partition)

●Equalizer
HI, MID, LOW (8 channels) / HI, LOW (16 channels)

●Recording Mode

MAS (Mastering)
MT1 (Multitrack 1)
MT2 (Multitrack 2)
LIV (Live)

●Signal Processing

AD Conversion: 20 bits, 64 times oversampling
DA Conversion: 20 bits, 128 times oversampling
Internal Processing: 24 bits (mixer section)

●Sample Rate

48.0kHz, 44.1kHz, 32.0kHz
NOTE: Sample rate can be adjusted around 21.96~50.48 kHz (maximum) by using vari-pitch function.

●Frequency Response

Sample Rate
48.0 kHz: 20 Hz--22 kHz (+0.2 dB/-0.2 dB)
44.1 kHz: 20 Hz--20 kHz (+0.2 dB/-0.2 dB)
32.0 kHz: 20 Hz--14 kHz (+0.2 dB/-0.2 dB)

●Total Harmonic Distortion

0.004 % or less (INPUT SENS: 0 dBu, 1 kHz at nominal output level, recording mode: MAS)

●Recording Time (at 2 G bytes, conversion in 1 track)

Recording Mode/Sample Rate
48.0 kHz 44.1 kHz 32.0 kHz
MAS: 185 + 185 min. 202 + 202 min. 278 + 278 min.
MT1: 371 + 371 min. 404 + 404 min. 557 + 557 min.
MT2: 495 + 495 min. 539 + 539 min. 742 + 742 min.
LIV: 594 + 594 min. 646 + 646 min. 891 + 891 min.
NOTE: The above-listed recording times are approximate.
Times may be slightly depending on the specifications of the disk drive and on the number of songs that were created.

●Nominal Input Level (variable)

Input1-6: -50-- +4 dBu
(maximum +26 dBu:Balanced, maximum +20 dBu:Unbalanced)

●Input Impedance

Input1-6: 30 k ohms

●Nominal Output Level

Master Out: 0 dBu
AUX A: 0 dBu
AUX B: 0 dBu

●Output Impedance

Master Out: 1 k ohm
AUX A: 1 k ohm
AUX B: 1 k ohm
Headphones: 22 ohms

●Recommended load Impedance

Master Out: 10 k ohms or greater
AUX A: 10 k ohms or greater
AUX B: 10 k ohms or greater
Headphones: 8~50 ohms

●Residual Noise Level

(input terminated with 1 k ohm, INPUT SENS = LINE,IHF-A, typ.)
Master Out: -85 dBu or less
AUX A: -85 dBu or less
AUX B: -85 dBu or less

●Interface Connectors

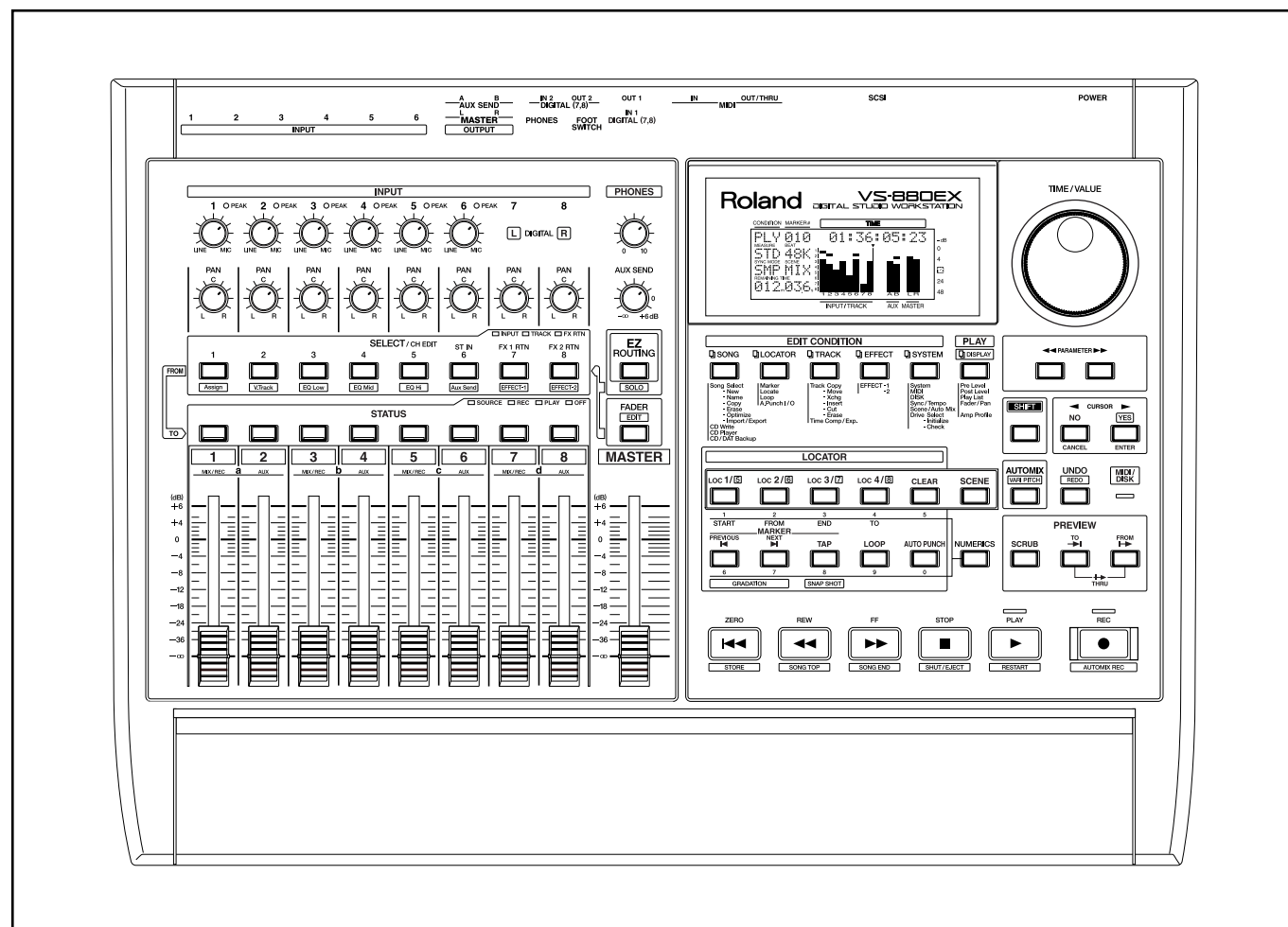
SCSI: DB-25 type
Digital I/O: Coaxial, Optical (conforms to S/P DIF)

●Display

70.6 x 24.5 mm, LCD (with backlit)

TABLE OF CONTENTS

SPECIFICATIONS	1~2
LOCATION OF CONTROLS	3
EXPLODED VIEW.....	4
BLOCK DIAGRAM	5
PARTS LIST	6~7
IDENTIFYING THE VERSION NUMBER	8
TEST MODE	8~9
VS-880EX SYSTEM SOFTWARE UPDATA USING THE SMF	9
SAVING SYSTEM PARAMETERS	9
MAIN BOARD REPLACING PROCEDURE	10
IC DATA	11
CIRCUIT DIAGRAM & BOARD	12~20



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●Connectors

SCSI Connector (DB-25 type)
 MIDI Connectors (IN, OUT/THRU)
 Input Jack 1--6 (1/4 inch phone type, TRS balanced)
 Digital In Connectors (Coaxial type, Optical type)
 Digital Out Connectors (Coaxial type, Optical type)
 Foot Switch Jack (1/4 inch phone type)
 Headphones Jack (Stereo 1/4 inch phone type)
 AUX A Send Jack (RCA phono type)
 AUX B Send Jack (RCA phono type)
 Master Out Jack L/R (RCA phono type)

●Power Supply

AC117V, AC230V, AC240V

●Power Consumption

18W (Including internal hard disk)

●Dimension

17-1/8 (W) x 12-1/2 (D) x 3-9/16 (H) inches

●Weight

10 lbs 6 oz (Including internal hard disk)

●Accessories

OWNER'S MANUAL SET (English)		(#71125323)
AC Cord	117V SP301+IS14SJT 18/3	(#00894378)
	230V SP22+IS14 H05VV-F3G1.0	(#00894389)
	240VE KP-610,GTBS-3,KS-31A	(#00907001)
	240VA SC-114-J01 ES303-10HMA	(#23495124)

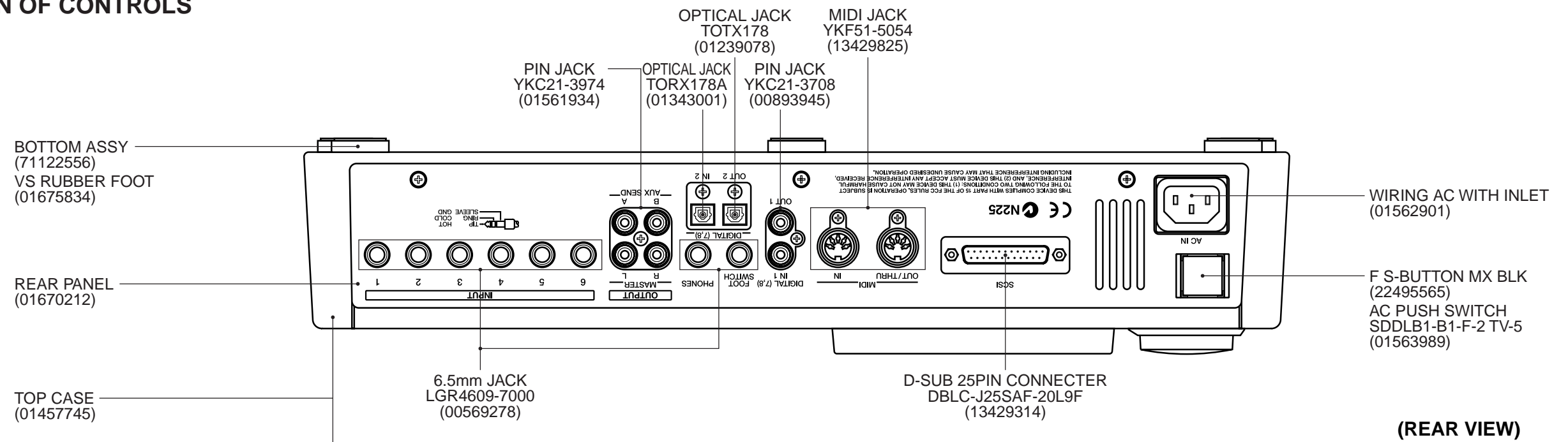
●Options

Internal Hard Disk Drive Unit: HDP88 Series
 Video MIDI Sync Interface: SI-80S
 Zip Drive:
 Zip Disk:
 Dynamic Microphone : DR-20
 FOOT SW : FS-5U(BOSS)
 PEDAL SW : DP-2
 Stereo Headphone : RH-100

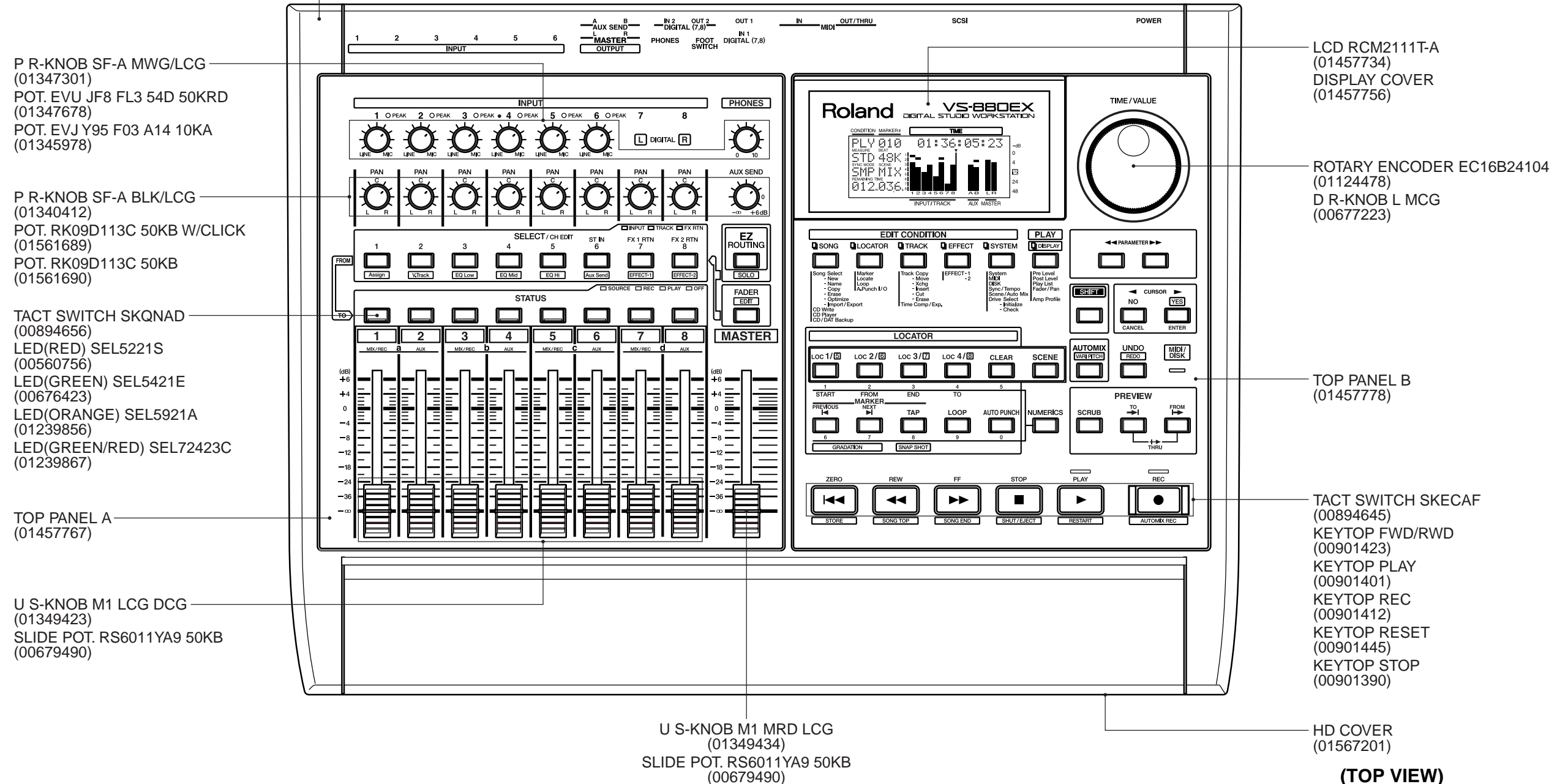
(0 dBu = 0.775 V rms)

* In the interest of product development, the specifications for this product are subject to change without prior notice.

LOCATION OF CONTROLS



(REAR VIEW)



(TOP VIEW)

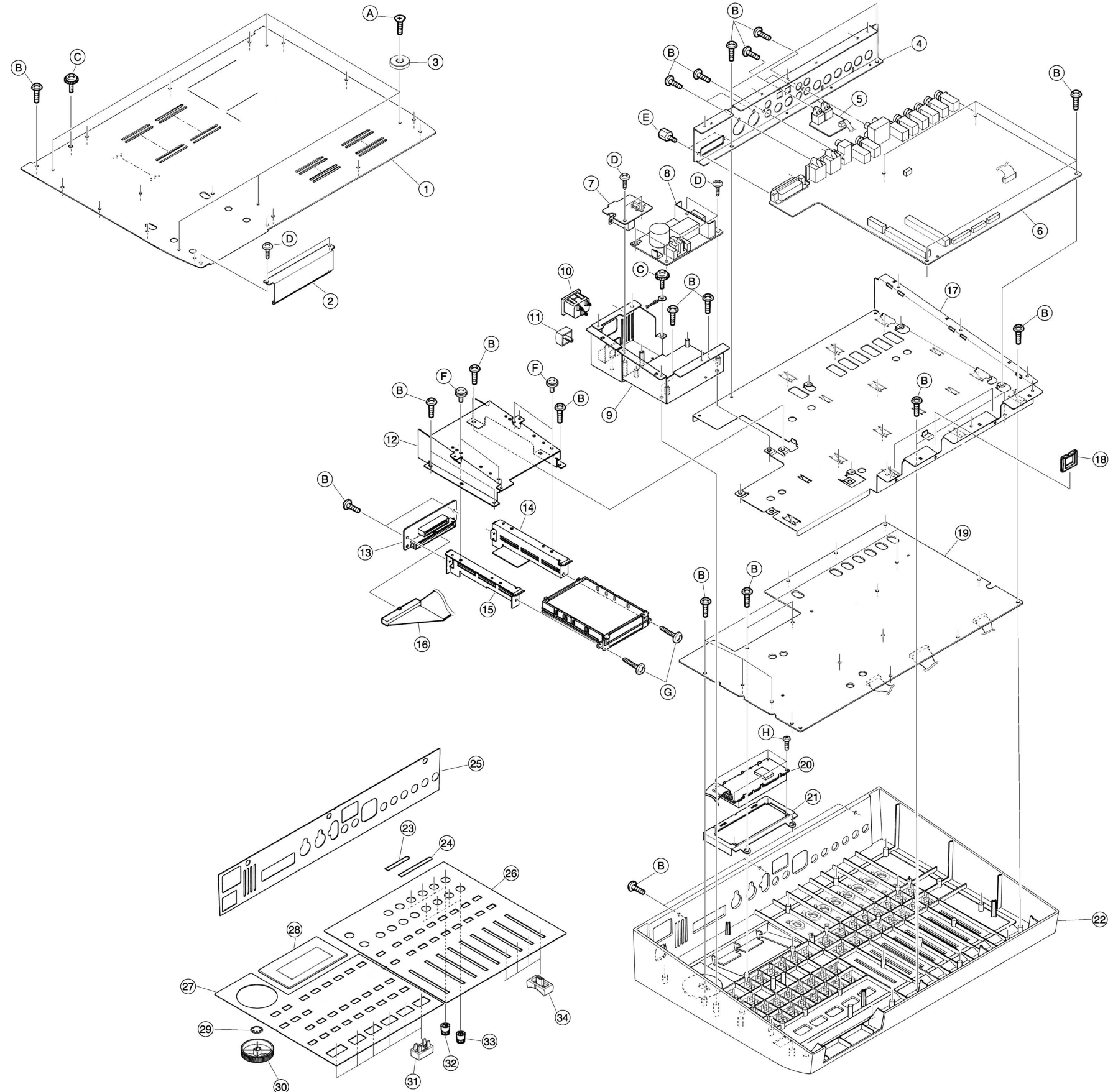
EXPLODED VIEW

[PARTS]

No.	PART No.	PART NAME
①	71122556	BOTTOM ASSY NOTE: Replacement BOTTOM ASSY includes the following parts.
	*****	BOTTOM COVER
	01675834	VS RUBBER FOOT
	40238545	CAUTION LABEL SHOCK HAZARD & ICES
②	01567201	HD COVER
③	01675834	VS RUBBER FOOT
④	01562489	PWB HOLDER
⑤	71124012	DIGITAL I/O BOARD
⑥	71123978	MAIN BOARD
⑦	71230923	PS SWITCH BOARD NOTE: Replacement PS SWITCH BOARD includes the following parts.
	01563989	PUSH SWITCH SDDL1-B1-F-2 TV-5
⑧	01451678	SWITCHING REGULATOR KW1AA265
⑨	01561990	PWB SPLY HOLDER
⑩	01562901	WIRING AC WITH INLET
⑪	22495565	F S-BUTTON MX BLK
⑫	00897834	HD HOLDER
⑬	71124001	CONNECTOR BOARD
⑭	00897812	ANGLE HD-R
⑮	00897823	ANGLE HD-L
⑯	01562001	WIRING HDD
⑰	01562856	SUB CHASSIS
⑱	01455523	CORD BUSHING EDS-1717U
⑲	71122623	PANEL BOARD
⑳	01457734	LCD UNIT RCM2111T-A
㉑	01672756	LCD HOLDER
㉒	01457745	TOP CASE
㉓	17048421	SELECT SEAL (SHORT)
㉔	17048422	STATUS SEAL (LONG)
㉕	01670212	REAR PANEL
㉖	01457767	TOP PANEL A
㉗	01457778	TOP PANEL B
㉘	01457756	DISPLAY COVER
㉙	*****	SE RING(SE-9)
㉚	00677223	D R-KNOB L MCG
㉛	00901423	KEYTOP FWD/RWD
	00901401	KEYTOP PLAY
	00901412	KEYTOP REC
	00901445	KEYTOP RESET
	00901390	KEYTOP STOP
㉜	01347301	P R-KNOB SF-A MWG/LCG
㉝	01340412	P R-KNOB SF-A BLK/LCG
㉞	01349423	U S-KNOB M1 LCG DCG
	01349434	U S-KNOB M1 MRD LCG

[SCREW]

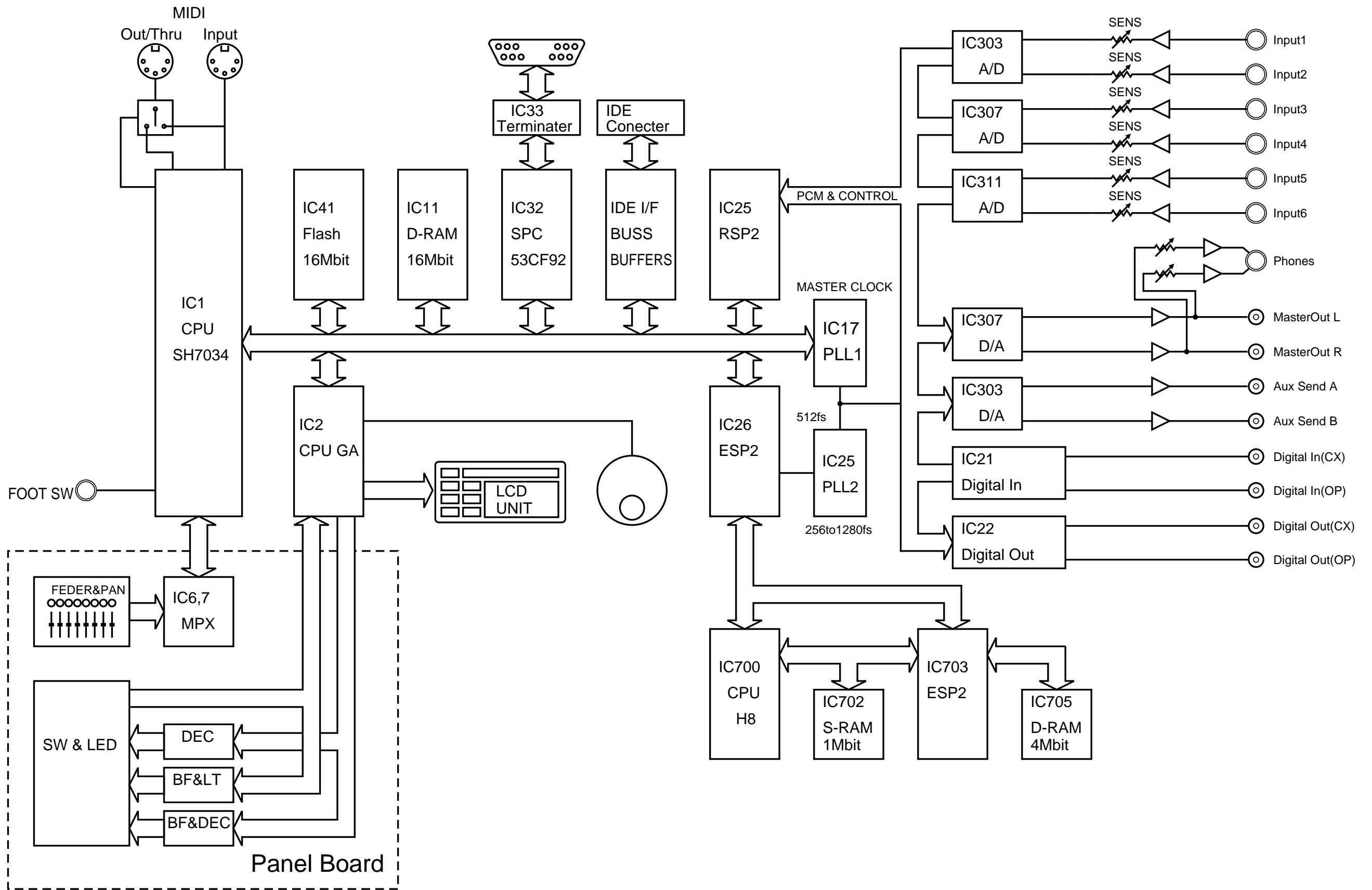
Ⓐ	40011156	3x8mm Flat Taptight B BZC
Ⓑ	40011101	3x8mm Binding Taptight B BZC
Ⓒ	*****	4x8mm LO2 BZC
Ⓓ	40012534	3x6mm Binding Taptight S BZC
Ⓔ	*****	BOSS NUT M2.6/M7.3 L5.2
Ⓕ	40012945	3x6mm Pan Machine Screw W/SW+PW BZC
Ⓖ	40015956	3x12mm Binding Taptight S BZC
Ⓗ	*****	2x5mm Pan Machine Screw ZC



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
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F
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H
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PARTS LIST

SAFETY PRECAUTIONS:

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

CONSIDERATIONS ON PARTS ORDERING

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

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

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

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

Warning! : There is the possibility that you will burn your hands when you touch Power Supply parts soon after the power supply is turned off.

MB -> MAIN BOARD PB -> PANEL BOARD CB -> CONNECTOR BOARD
DB -> DIGITAL I/O BOARD SB -> PS SWITCH BOARD

CASING

#	01457745	TOP CASE	
			NOTE: Changed the TOP CASE when used the following parts.
#		17048421	SELECT SEAL
#		17048422	STATUS SEAL
#	71122556	BOTTOM ASSY	
			NOTE: Replacement BOTTOM ASSY includes the following parts.
#		*****	BOTTOM COVER
		01675834	RUBBER FOOT
		40238545	CAUTION LABEL SHOCK HAZARD & ICES
#	01457767	TOP PANEL A	
#	01457778	TOP PANEL B	
#	01670212	REAR PANEL	
#	01457756	DISPLAY COVER	
#	01567201	HD COVER	
	00897834	HD HOLDER	
	00897823	ANGLE HD-L	
	00897812	ANGLE HD-R	

CHASSIS

#	01562856	SUB CHASSIS	
#	01561990	PWB SPLY HOLDER	
#	01562489	PWB HOLDER	
#	01672756	LCD HOLDER	
#	01455523	EDS-1717U	CORD BUSHING on SUB CHASSIS

KNOB,BUTTON

	00901423	KEYTOP FWD/RWD	
	00901401	KEYTOP PLAY	
	00901412	KEYTOP REC	
	00901445	KEYTOP RESET	
	00901390	KEYTOP STOP	
	00677223	D R-KNOB L MCG	VALUE
	01347301	P R-KNOB SF-A MWG/LCG	INPUT/PHONES
	01340412	P R-KNOB SF-A BLK/LCG	PAN/AUX SEND
	01349423	U S-KNOB M1 LCG DCG	TRACK
	01349434	U S-KNOB M1 MRD LCG	MASTER
	22495565	F S-BUTTON MX BLK	

SWITCH

	00894645	SKECAF	TACT SWITCH	SW46-SW51 on PB
	00894656	SKQAD	TACT SWITCH	SW1-SW45,SW52 on PB
# Δ	01563989	SDDL1-B1-F-2 TV-5	PUSH SWITCH	SW900 on SB

JACK, SOCKET

	00569278	LGR4609-7000	6.5MM	JK2,JK300-JK305,JK310 on MB
	13429825	YKF51-5054 (DUAL)	MIDI	JK1 on MB
	00893945	YKC21-3708	RCA(PIN)	JK5 on MB
#	01561934	YKC21-3974	RCA(PIN)	JK306 on MB
	13429314	DBLC-J25SAF-20L9F	D-SUB	JK4 on MB
	01239078	TOTX178	TOS LINK(TX)	JX801 on DB
	01343001	TORX178A	TOS LINK(RX)	JX800 on DB

DISPLAY UNIT

#	01457734	RCM2111T-A	LCD UNIT
			NOTE: Replacement DISPLAY UNIT should be made on a unit basis. No replacements available for individual parts. Replacement only by a unit.

PCB ASSY

# \square	71123978	MAIN BOARD
#	71122623	PANEL BOARD
#	71124012	DIGITAL I/O BOARD
# Δ	71230923	PS SWITCH BOARD
#	71124001	CONNECTOR BOARD

POWER SUPPLY UNIT

Δ 01451678 KW1AA265 SWITCHING REGULATOR

NOTE: Replacement POWER SUPPLY (SWITCHING REGULATOR) should be made on a unit basis. No replacements available for individual parts. Replacement only by a unit.

IC

#	00784645	HD6433238A80F	CPU	IC700 on MB
	01562490	HD6437034AC00F	CPU	IC1 on MB
	00893356	SYM53CF92	SIO	IC32 on MB
	00785101	RSP2 (RF5C332)	CUSTOM IC	IC26 on MB
	00892556	TC170C140AF-003 (ESP2)	CUSTOM IC	IC28.IC703 on MB
	00343823	M60205-0601FP	CUSTOM IC	IC2 on MB
#	01561945	LH28F160S5T-L70	FLASH MEMORY	IC41 on MB
	01122412	TC551001CF-70L	SRAM	IC702 on MB
	01347745	TMS418169A-60	DRAM	IC11 on MB
#	01238234	TC514260DJS-50(YEL)	DRAM	IC705 on MB
	01238101	AK4520AVF-E2	AD/DA	IC303.IC307.IC311 on MB
	00560478	LC8903Q	DIGITAL AUDIO RECEIVER	IC21 on MB
	00893990	BH9595FP	SCSI ACTIVE TERMINATOR	IC33 on MB
	00121078	TC9271F(ELP)	DIF/TRANSMITTER	IC22 on MB
	01124367	TLC2933IPW	PLL	IC25 on MB
	00564690	TC9246F(ELP)	PLL	IC17 on MB
	15259701T0	TC74HC00AF(EL)	CMOS	IC4.IC7 on MB
	15259778T0	TC74HC245AF(EL)	CMOS	IC29.IC30.IC37.IC38 on MB
	00893967	TC74VHC153F(EL)	CMOS	IC18.IC43 on MB
	01121834	TC7W74FU TE12L	CMOS	IC47.IC48 on MB
	01121845	TC7W04FU TE12L	CMOS	IC10.IC13.IC36 on MB
#	01569689	TC7W32FU(TE12L)	CMOS	IC9 on MB
	01349578	TC7W08FU(TE12L)	CMOS	IC40 on MB
	00675778	TC74VHC573F(EL)	CMOS	IC39 on MB
	00236845	TC74VHC245F(EL)	CMOS	IC31 on MB
	00893978	TC74VHC393F(EL)	CMOS	IC15.IC19.IC20 on MB
	01340045	TC7SH32FU(TE85L)	CMOS	IC49.IC50 on MB
	01348890	TC7SHU04FU(TE85L)	CMOS	IC45 on MB
	01348901	TC7SH04FU(TE85L)	CMOS	IC42.IC51-IC54 on MB
	01348912	TC7SH08FU(TE85L)	CMOS	IC46 on MB
	01568845	TC7SH86FU(TE85L)	CMOS	IC701 on MB
#	01567190	TC74VHC04F(EL)	CMOS	IC44 on MB
	15169596	TC74HC4051AP	CMOS	IC6.C7 on PB
	15169550T0	TC74HC138AP	CMOS	IC1.IC2 on PB
	15169556T0	TC74HC574AP	CMOS	IC4 on PB
	00564545	TC74VHC04F(EL)	CMOS	IC800 on DB
	15289109	M5216FP-600D	BIPOLAR OP AMP	IC321 on MB
	15189261	M5218AFP-600E	BIPOLAR OP AMP	IC6 on MB
	15289105	UPC4570G2-T2	BIPOLAR OP AMP	IC301.IC305.IC309.IC316.IC317.IC320 on MB
	15189266	NE-5532AN	BIPOLAR OP AMP	IC300.IC304.IC308 on MB
	15199286	AN78L05M-(E1)	REGULATOR IC	IC302.IC306.IC310 on MB
	15289123	M51953AFP-600C	RESET IC	IC8 on MB

TRANSISTOR

	15309101	2SA1037KR T146		Q328 on MB
	01239990	2SC4117-GR(TE85L)		Q300-Q311 on MB
	15329507	DTA114EKT146	DIGITAL TRANSISTOR	Q1 on MB
	15329516	DTC114EKT146	DIGITAL TRANSISTOR	Q2.Q326.Q327 on MB
	15329505	DTC314TKT146	DIGITAL TRANSISTOR	Q316.Q317.Q322.Q323.Q324.Q325 on MB
	00894667	TD62083AP	TRANSISTOR ARRAY	IC5 on PB
	15149150	TD62787AP	TRANSISTOR ARRAY	IC3 on PB

DIODE

#	01672812	EC21QS06 L	SCHOTTKY DIODE	D7 on MB
	15019126	1SS133 T-77	SWITCHING DIODE	D1-D52 on PB
	15339105	DAN202K T146	DIODE ARRAY	D1.D2.D5.D6.D300 on MB

RESISTOR

#	01454890	MCR50 JZH J 220	FILM RESISTOR	R528.R534 on MB
	15399989	MCR50 JZH 680	FILM RESISTOR	R340.R377.R414 on MB
	01458689	SPRX2 L15 0.1 J	FILM RESISTOR	R550 on MB
#	01566412	CND2B10VTE103J	RESISTOR ARRAY	RA1-RA7 on MB
#	01566423	CND2B10VTE102J	RESISTOR ARRAY	RA8.RA9 on MB
	15399932	MNR34J5ABJ101	RESISTOR ARRAY	RA10-RA15 on MB

POTENTIOMETER

	01347678	EVU JF8 FL3 54D 50KRD	9M/M ROTARY POT.	VR300-VR305 on MB
	01345978	EVJ Y95 F03 A14 10KA	12M/M ROTARY POT.	VR306 on MB
#	01561689	RK09D113C 50KB (W/CLICK)	9M/M ROTARY POT.	VR9-VR16 on PB
#	01561690	RK09D113C 50KB	9M/M ROTARY POT.	VR18 on PB
	00679490	RS6011YA9	60M/M SLIDE POT.	VR1-VR8.VR17 on PB

CAPACITOR

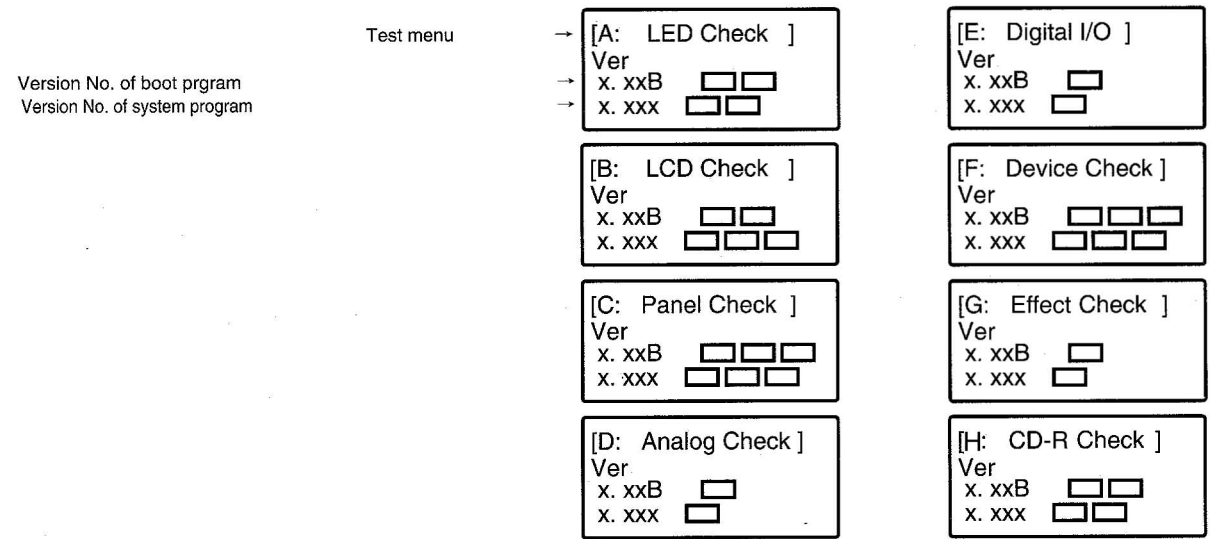
	01346012	ECHU1H121JB5	POLYESTER.	C302-C304.C315-C317.C332-C334.C345-C347.C362-C364.C375-C377. on MB
	01015912	ECHU1H222JB5	POLYESTER.	C312.C325.C342.C355.C372.C385 on MB
	00239490	AMZV0050J103 0200	POLYESTER.	C131 on MB
#	01672323	ROS-16V152M	CHEMICAL	C509.C510 on MB
	13639610J0	SME50V822TP	CHEMICAL	C457.C458.C461.C462 on MB
	13639614	SME50V4R7TP	CHEMICAL	C507 on MB
	01458690	6.3MV10000HC	CHEMICAL	C550.C551 on MB
	01345956	ECEA1CPZ470B	CHEMICAL	C511-C513.C515-C518.C520 on MB
	00908201	ECEA1EPZ101B	CHEMICAL	C474.C477.C480.C483.C494.C499 on MB
	00568801	ECEA1EPZ470B	CHEMICAL	C308.C311.C321.C324.C338.C341.C351.C354.C368.C371.C384.C381 on MB
	01346001	ECEA1HPZ220B	CHEMICAL	C300.C301.C313.C314.C330.C331.C343.C344.C360.C361.C373.C374 on MB
#	01454889	RA2-16V470MT2	CHEMICAL	C521.C522.C525.C526.C527.C530 on MB
	13639529J0	SME10VB47TP	CHEMICAL	C28 on MB
	13639535J0	SME10VB470TP	CHEMICAL	C329.C359.C389 on MB
	13639552J0	SME16VB330TP	CHEMICAL	C326.C356.C386 on MB
	13639549J0	SME16VB47TP	CHEMICAL	C66.C68 on MB
	13649646	SME16VB470TP	CHEMICAL	C307.C320.C337.C350.C367.C380.C508 on MB
#	13639603J0	SME50VB2R2TP	CHEMICAL	C19 on MB
	13639512J0	SME6.3VB100TP	CHEMICAL	C7.C9.C27.C30.C31.C63.C421.C425.C428.C430.C434.C437.C439.C443.C446.C460.C464.C468. C713.C714 on MB
#	13639513J0	SME6.3VB220TP	CHEMICAL	C42.C81-C88.C134on MB
#	01562934	16MV47HWN-T	CHEMICAL BP	C132 on MB
	13639698	ECEA0JKS101B	CHEMICAL	C1-C3 on PB. C800 on DB

INDUCTOR,COIL,FILTER			
	00891689	SBT-0260TF	EMI FILTER
	01233345	N2012Z121T02	FERRITE BEAD
	12449401	BLM41A151SPT	FERRITE BEAD
			FL1-FL4 on MB
			FL8-FL12 on MB
			FL7 on MB
CRYSTAL			
#	00894023	MA-406 20.000MHZ TE24	X'TAL
	01561956	SG-8002JC-50M-PHCL	OSCILLATOR
			X1.X700 on MB
			X3 on MB
ROTARY ENCODER			
	01124478	EC16B24104 L=15	ROTARY ENCODER
			EN1 on PB
OPTICAL DEVICE			
	15289125	PC-410KT 178	PHOTO COUPLER
	00560756	SEL5221S TP15	LED(RED)
	00676423	SEL5421E TP15	LED(GREEN)
	01239856	SEL5921A TP15	LED(ORANGE)
	01239867	SML72423C TP15	LED(RED/GREEN)
			IC3 on MB
			D88-D95 on PB
			D72-D73 on PB
			D77-D87 on PB
			D53-D71 on PB
CONNECTOR			
	13369851	PS-50PE-D4T1-B1-K	CONNECTOR
	13369880	52328-1410	CONNECTOR
	13369567	B4B-PH-K-S JST	CONNECTOR
	13369516	B9B-PH-K-S JST	CONNECTOR
	13369541	B10B-PH-K-S JST	CONNECTOR
	13369563	B14B-PH-K-S JST	CONNECTOR
#	00894567	FX2C2-52P-1.27DSAL	CONNECTOR
Δ	01672234	S2P3-VH	CONNECTOR
			CN6.CN10 on MB. CN601 on CB
			CN3 on MB
			CN8 on MB
			CN1 on MB
			CN9 on MB
			CN4 on MB
			CN601 on CB
			CN900 on SB
WIRING,CABLE			
#	01561989	WIRING MAIN	CN310 on MB
#	01561712	WIRING PANEL 14S	CN1 on PB
#	01561723	WIRING PANEL 10S	CN2 on PB
#	01561734	WIRING PANEL 9S	CN3 on PB
#	01561756	WIRING DIGITAL I/O	CN800 on MB
#	Δ 01562901	WIRING AC WITH INLET	
#	01562001	WIRING HDD	
TRANSFORMER			
	12449615	PT-10244-615	PULSE TRANS
			T1 on MB
SCREW			
	40012534	3x6mm Binding Taptight S BZC	
	40011101	3x8mm Binding Taptight B BZC	
	40019123	3x8mm Binding Taptight S BZC	
	40011156	3x8mm Flat Taptight B BZC	
	40012945	3x6mm Pan Machine Screw W/SW+PW BZC	
	40015956	3x12mm Binding Taptight S BZC	
	*****	4x8mm LO2 BZC	
	*****	2x5mm Pan Machine Screw ZC	
PACKING			
#	01457723	PACKING CASE	
#	01677856	PAD UPPER	for PACKING
#	01677867	PAD LOWER	for PACKING
#	01677878	ACCESSORY BOX	for PACKING
MISCELLANEOUS			
#	01672767	UC-300287 L=25	EMI GASKET
	01455512	UC-300287 L=15	EMI GASKET
	40126812	CAUTION LABEL BARRIER	
#	01675834	RUBBER FOOT	
ACCESSORIES(Standard)			
#	71122489	OWNER'S MANUAL SET	JAPANESE
#	71125323	OWNER'S MANUAL SET	ENGLISH
Δ	00894367	AC CORD SET 100V	SP18A+IS14 VCTF2X0.75
Δ	00894378	AC CORD SET 120V	SP301+IS14 SJT18/3
Δ	00894389	AC CORD SET 230V	SP22+IS14 H05VV-F3G1.0
Δ	00907001	AC CORD SET 240VE	KP-610,GTBS-3,KS-31A
Δ	23495124	AC CORD SET 240VA	SC-114-J01 ES303-10HMA
	40232334		(JAPAN ONLY)

TEST MODE

1. Entering test mode

Holding down [EDIT] and [STATUS] button on the CH5, turn on power.
The unit is now in the test mode.



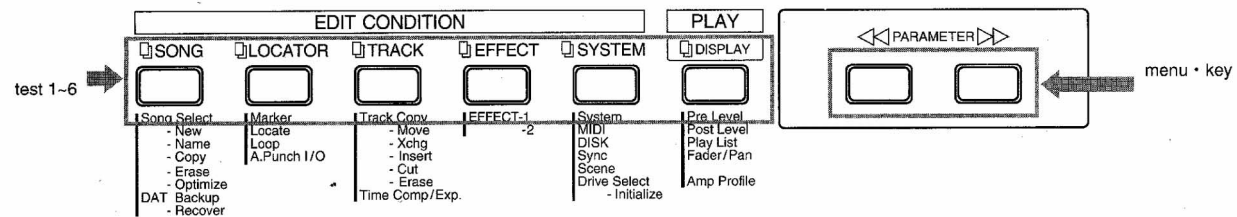
Version No. of boot prgram
Version No. of system program

2. Selection of the test from a menu

The test menu screen show the test menu A. Pressing [PARAMETER] button [>>] cycles menus B to H and then back to A (button [<<] in reversal order).

Each menu is divided into several tests .
Select the desired test option by using [PARAMETER] buttons.
Square boxes on the test screen shows the available tests in the selected menu.

A set can be selected by pressing a button [SONG], [LOCATOR], [TRACK], [EFFECT], [SYSTEM] or [DISPLAY] (SONG corresponds to test 1, LOCATOR, test 2 and so forth,).



Press the desired test select button and the selected box turns back.
The LCD shows the test name and the prompt "Rdy" .
To start the test, press the select button again.
To select a test of a different test menu, press [PARAMETER] [<<] or [>>] button, and the desired test select button.

3. Test options

- [A:LED Check]
 - [1:LED Scan] Turns on and then off LEDs one by one.
 - [2:LED Blink] Flashes all LEDs simultaneously (except 4 LEDs under INPUT SENS).
 - [3:LED All On] Turns on all LEDs simultaneously (except 4 LEDs under INPUT SENS).
 - [4:LED ManuScan] Turns on LEDs one by one as TIME/VALUE dial is turned.
- [B:LCD Check]
 - [1:LCD Black] Turns on all LCD dots simultaneously.
 - [2:LCD White] Turns off all LCD dots simultaneously.
 - [3:LCD Check1] Turns on LCD in a check pattern.
 - [4:LCD Check2] Turns on LCD in a check pattern but in the reverse video of that of check 1 above.
 - [5:LCD Check3] Displays all ASCII character codes one by one on the LCD.
To exit the test, press a parameter or test select button.

- [C:Panel Check]
 - [1:Sw(Exit=Enc)] Test all switches on panel board.
Press switches except for power switch one by one. Simultaneous pressing of two of more buttons causes error which is indicated by flashing of all LEDs. After testing all switches, turn TIME/VALUE dial. the display should show "Ok!", or "Err" and the number of switches untested or unrecognized.
 - [2:Encoder] Turn TIME/VALUE dial clockwise and counterclockwise and verify corresponding readings (-25 and +25 at extremes) on the LCD.
 - [3:Fader] Slide up and down the faders 1 to 8.
The LCD draws bar graphs representing setting of the faders.
Each channel LED lights green when the fader is at the button (0), orange at the middle (64) of the stroke and red at the top position (127).
 - [4:Pan&Aux] Turn PAN knobs one by one.
The LCD increases and decreases the bar graph of the channel as its PAN control is turned.
All the channel LEDs turn on in the color shown below as PAN knob of a channel just reaches the following setting.
Green at L (0), Orange at C (64), Red at R (127).
This also applies to the bar graph for the AUX SENS. All PAN LEDs also change colors as the AUX SENS knob reaches specific setting.
 - [5:Foot Sw] Plug in the foot switch into FOOT SWITCH jack.
Turn on and off the switch and verify corresponding ON and OFF indication on the LCD.
 - [6:Contrast] Turn TIME/VALUE dial and verify that the LCD contrast becomes highest at +7 and lowest at -8.

- [D:Analog Check]
 - [1:A/D -> D/A] Feed the analog signals to INPUT jacks (1-4). These signals are sent to outputs 1-4 (MASTER OUT L, R; AUX L, R), respectively.
Change the analog signals to INPUT jacks 5 (or 6). The input signal 5 (or 6) is sent to outputs 1&3 (or 2&4). Inputs to INPUT A 1 and 2 ; 5 and 6 are also sent to DIGITAL OUT jack in the time sharing format.
In this test, 5 parameters can be set for specific test purposes.
Parameter setting shown at the left of LCD can be changed by pressing one of buttons, LOC1, LOC2, LOC3, LOC4 and SCENE whenever they are lighting. (Leftmost lighting LED correspond to the first parameter.)
The selected parameter setting is displayed on the LCD following the parameter name.

- R-DAC mode (COD): OFF (MAS), HI (MT1), STD (MT2), LG5 (LIV), LNG (-)
The R-DAC processed sound is output to MASTER OUTs and DIGITAL OUT.
- INPUT select (SEL): In 1 2 3 4, In 5 6
Change the analog signals to INPUT jacks 1-4.
These signals are sent to outputs 1-4 (MASTER OUT L, R; AUX L, R), respectively.
Feed the analog signals to INPUT jacks 5 (or 6).
The input signal 5 (or 6) is sent to outputs 1&3 (or 2&4).
- MUTE (MUT): OFF, ON
Set to ON when muting the signals to MASTER OUTs, AUX OUTs and DIGITAL OUT.
- FS (): 48kHz, 44.1kHz, 32kHz
Select sampling frequency at A/D and D/A stages.
- Variable pitch (): 22-50kHz
Use to fine turn the sampling rate.
Can be manually adjusted by turning TIME/VALUE dial.

- [2:D/A SinWave] Test communications between Effect Chip (IC703), ESP and RSP2.
And displays "1" under Effect Chip (IC703) (ESP and RSP2), respectively, on the LCD, when test is successful, otherwise "0".
After several seconds, test sine wave is output to MASTER L, R; AUX L, R; and DIGITAL OUT.
The following 4 parameters can be set.

- Sine wave frequency: 100Hz, 500Hz, 1kHz, 2kHz, 5kHz, 10kHz
Select one of the frequencies (by pressing LOC1).
- Sine wave level (LEV): 0Fh-7Fh
Adjust the output level of the sine wave signal (by pressing LOC2).

	3. Sine wave mute (MUT): OFF, ON Set to ON when muting the output (LOC3).
	4. FS(_ no display): 48kHz, 44.1kHz, 32kHz (on large window) Select desired sampling frequency for sine wave output (LOC4).
[E:Digital I/O]	
[1:Digital In]	Connect DIGITAL INPUT jack to digital output of a CD player and play song. When the test is successful, the display shows "OK!"; status (ON or OFF) of emphasis (EMP) and copy flag (CPY); and category (xxH). Otherwise, shows "Err". DIGITAL INPUT signal is sent to MASTER L, R AUX L, R; and also to DIGITAL OUT with the same flags (FS, CPY, EMP) as input. The following two parameters can be set.
	1. R-DAC mode (COD): OFF, MT1, MT2, LV1 The R-DAC processed sound is output to MASTER OUTs and DIGITAL OUT.
	2. INPUT SELECT [SEL] Cx Op When the DIGITAL INPUTs are changed, the display will show the selected input at the upper-right corner.
[2:Digital Out]	Sends signals coming from INPUTs A 1 and 2 to ANALOG OUTPUTs (MASTER L, R; AUX L, R) and DIGITAL OUT. The following 4 parameters can be set.
	1. EMPHASIS (EMP): ON, OFF Set the emphasis flag of digital output to ON or OFF.
	2. COPY (CPY): ON, OFF Set the copy flag of digital output to ON or OFF.
	3. MUTE (MUT): ON, OFF Select whether MASTER OUTs, AUX OUTs and DIGITAL OUT are to be blocked.
	4. FS (_): 48kHz, 44.1kHz, 32kHz Set the sampling rate of digital and analog outputs.
[F:Device Check]	
[1:SCSI]	Connect a disk drive unit to SCSI connector. (external, internal) The drive unit must have been formatted on the VS-880EX. This test first initializes SCSI chip and writes test data into and reads from the drive unit. The display shows "OK!" when test is successful. Otherwise shows "Err".
[2:IDE]	Install a disk drive unit into front panel expansion slot (if not installed). The drive unit must also be formatted on the VS-880EX. Test data is written into and read back from the drive unit. The display shows "OK!" when test is successful. Otherwise shows "Err".
[3:MIDI IN/OUT]	Feed the MIDI signal to MIDI IN. The display shows the input data. Verify that the input signal is output to MIDI OUT as it is.
[4:MIDI IN/THRU]	Feed the MIDI signal to MIDI IN. The display shows the input data. Verify that the input signal is output to MIDI OUT as it is (hardware thru, although no difference from 3. MIDI IN/OUT is recognizable).
[5:Rsp2 Check1]	Tests the operation of RSP2 (IC25 on MAIN BOARD).
[6:Rsp2 Check2]	Tests the operation of RSP2 with different values from that of Check1. The display shows "OK!" when the test is successful. Otherwise, it shows "Err".
[G:EFFECT Check]	
[1:EFFECT Chk1]	Test the operation of effect control CPU (IC700). If the connection is correct, the display shows "OK!". Otherwise it shows "Err".
[2:EFFECT Chk2]	Test the operation of effect circuit. If the connection is correct, the display shows "OK!". Otherwise it shows "Err".
[H:CD-R Check]	Test the operation of CD-R drive unit. (This test is FACTRY only.) This TEST is FACTRY only.

VS-880EX SYSTEM SOFTWARE UPDATE USING THE SMF

The latest system software of the VS-880EX is stored to the floppy disks named "VS-880EX System Ver.1.xx SMF" as the standard MIDI file format (SMF format).

Check the following SMF's included to the floppy disks.

VS-880EX System Ver.1.xx SMF disk 1
880EX_01. MID
880EX_02. MID
880EX_03. MID
880EX_04. MID

VS-880EX System Ver. 1.xx SMF disk 2
880EX_05. MID
880EX_06. MID
880EX_07. MID
880EX_08. MID

VS-880EX System Ver. 1.xx SMF disk 3
880EX_09. MID
880EX_10. MID
880EX_11. MID
880EX_12. MID

VS-880EX System Ver. 1.xx SMF disk 4
880EX_13. MID
880EX_14. MID
880EX_15. MID
880EX_16. MID

Update VS-880EX system software by following the procedure described below.

1. Connect a MIDI cable between two connectors; MIDI OUT connector of the MIDI Sequencer that can play back SMF data and MIDI IN connector of VS-880EX. It is convenient to use the MIDI Sequencer such as an SB-55 sound brush that can play back some SMF's continuously.
2. While holding down [SH EDIT (SEL)] and [STATUS] on the track 7, turn on the VS-880EX's power.
3. A message "SYSTEM Update?" will be displayed. Press [YES].
4. Check a message "Waiting MIDI-EX" is displayed, play back all SMF data from "880EX_01. MID" to "880EX_16. MID" in order.
5. After finish playing back all SMF's, a message "Update SysPRG?" will be displayed.
Press [YES].
6. A message "Please Reboot OK" will be displayed. The system software of your VS-880EX was already updated.
Restart the VS-880EX.

SAVING SYTEM PARAMETERS

Before repairing the unit and exchanging the board, save the user system parameters and Effects User Patch to and external memory device, e.g. a sequencer, and load back the save data to the VS-880EX that the repairing has been done.

Send the parameters through MIDI OUT
Pressing two keys [CH 7] and [Status 7] with left hand, and [SYSTEM] button with right hand thumb, turn on power(SYSTEM key may be pressed after turning on power within 2 seconds).
The display shows "Send SysPrmMIDI?".

Press [YES] button to start. The data in the system parameters are sent out in MIDI exclusive format.

Restore the system parameters

To receive the system parameters & write it to Flash, refer to the chapter [VS-880EX SYSTEM SOFTWARE UPDATE USING THE SMF] in this service note. Depending on the receiving method, the displays will look different on the LCD. For example, when "-P-" and prompt "Update SysPRM/" are displayed, press [YES] button to write only the system parameters into the flash memory.

HARD DISK DRIVE UNIT

One IDE-type hard disk (2.5 inch size) can be installed inside the VS-880EX, and up to 7 disk drives can be connected to the SCSI connector.

- Checking the performance of the optional IDE drive using the demonstration song.

The VS-880EX demonstration song also can be used to check the performance of the IDE type hard disk drive (2.5 inch type) that can be installed into the VS-880EX using as an HDP88-DL.

First, install the 2.5 inch type IDE hard drive that you want to check the performance into the VS-880EX with HDP88-DL. Then recover the demonstration song to the VS-880EX.

After you finish the recover operation, play back the demonstration song.

If the following condition occurs, the hard disk drive in the VS-880EX can not be used for the VS-880EX.

1. VS-880EX will not be able to playback the demonstration song.
2. A message "Disk Too Slow !" will be displayed.
3. MIDI/DISK indicator will always light while playing back the demonstration song.

If you can playback the demonstration song on the VS-880EX without occurring the above condition, you will be able to use that hard disk drive installed into the VS-880EX. However, you may get a message of "Disk Too Slow !" in some cases, and correct playback will not be possible concerning the condition of the speed of writing to or reading from the disk drive, number of playback tracks at a time, ...etc.

RJA only checks the detailed performance of the hard disk drive that has the playing back performance of the demonstration song of the VS-880EX normally. Contact RJA staffs, then send the hard disk drive with its specification sheet to RJA.

(SER. Label describes as follows.)

	2100 ←	Capacity
9802-10501	↑ ↑ ↑	
		SER. NO.
		not used
		Feb. 98

MAIN BOARD REPLACING PROCEDURE

●MAIN BOARD replacing procedure

1. Remove the knobs from the front panel:(a),(b)
(9 slider knobs and 10 round knobs).
Remove the top panel A(c): slide in a flat blade tool e.g. tip of a screwdriver below the top panel and then carefully lift the panel.

Notes:

- 1) Main board cannot be removed before the top panel A(c) is removed.
- 2) Once the panel is removed, keep adhesive surfaces away from dust.
- 3) Top panel A(c) for replacement is available from Roland service representative.

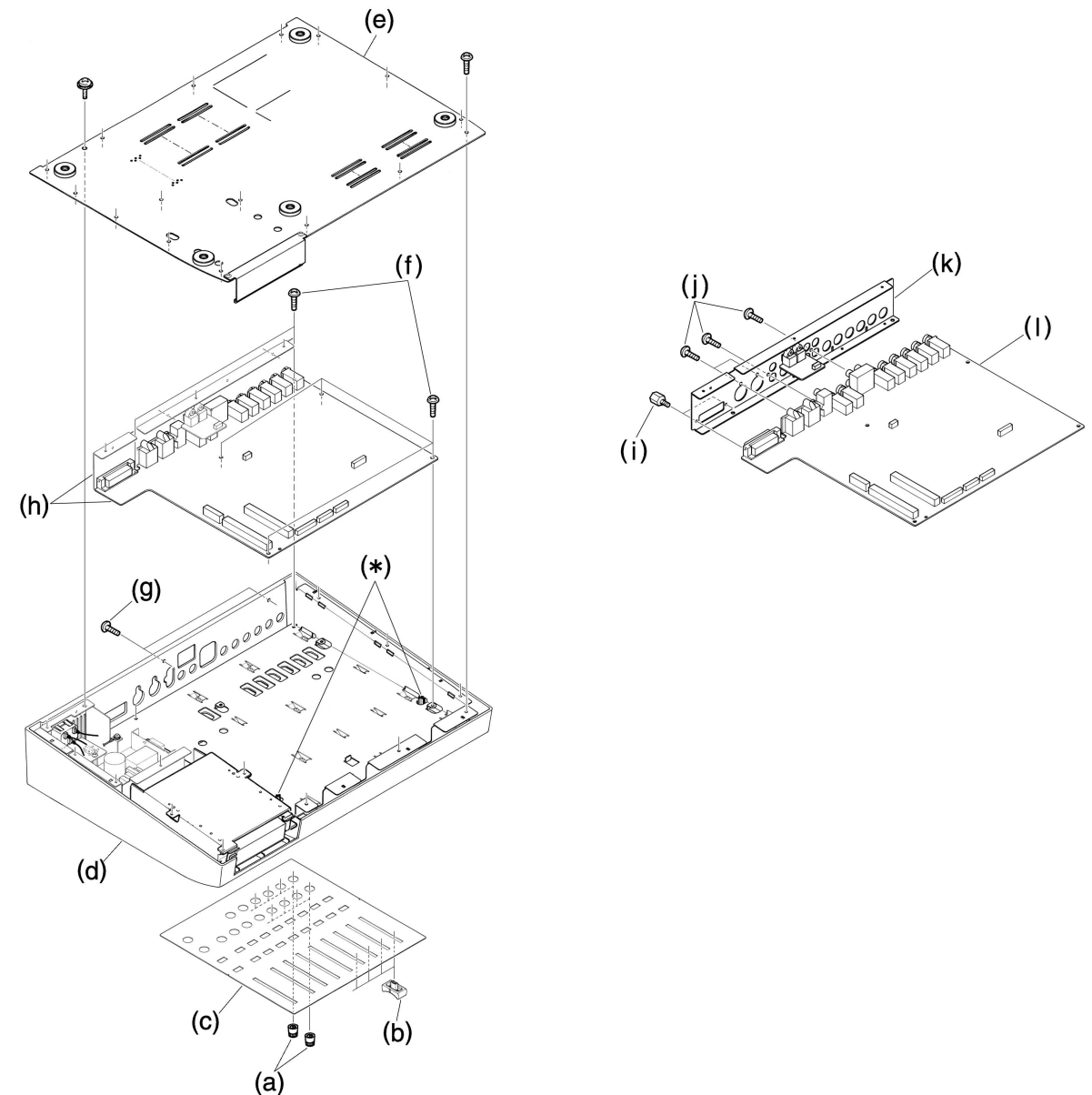
2. Turn over the body (d) and remove the bottom cover (e) by removing 17 screws.
3. Remove CN2 from power supply unit, and remove CN3, CN6, CN4, CN9 and CN1 from main board.
4. Remove screws: 6 from main board (f), 2 from rear panel (g).
Remove the rear panel together with main board and digital I/O board.(h)
To do this, slightly shift the main board to disengage it from notches (marked * in the figure).

5. Remove screws (i),(j) and then main board(l) from rear panel(k).

6. Install the repaired or new main board by fitting the notches (*).

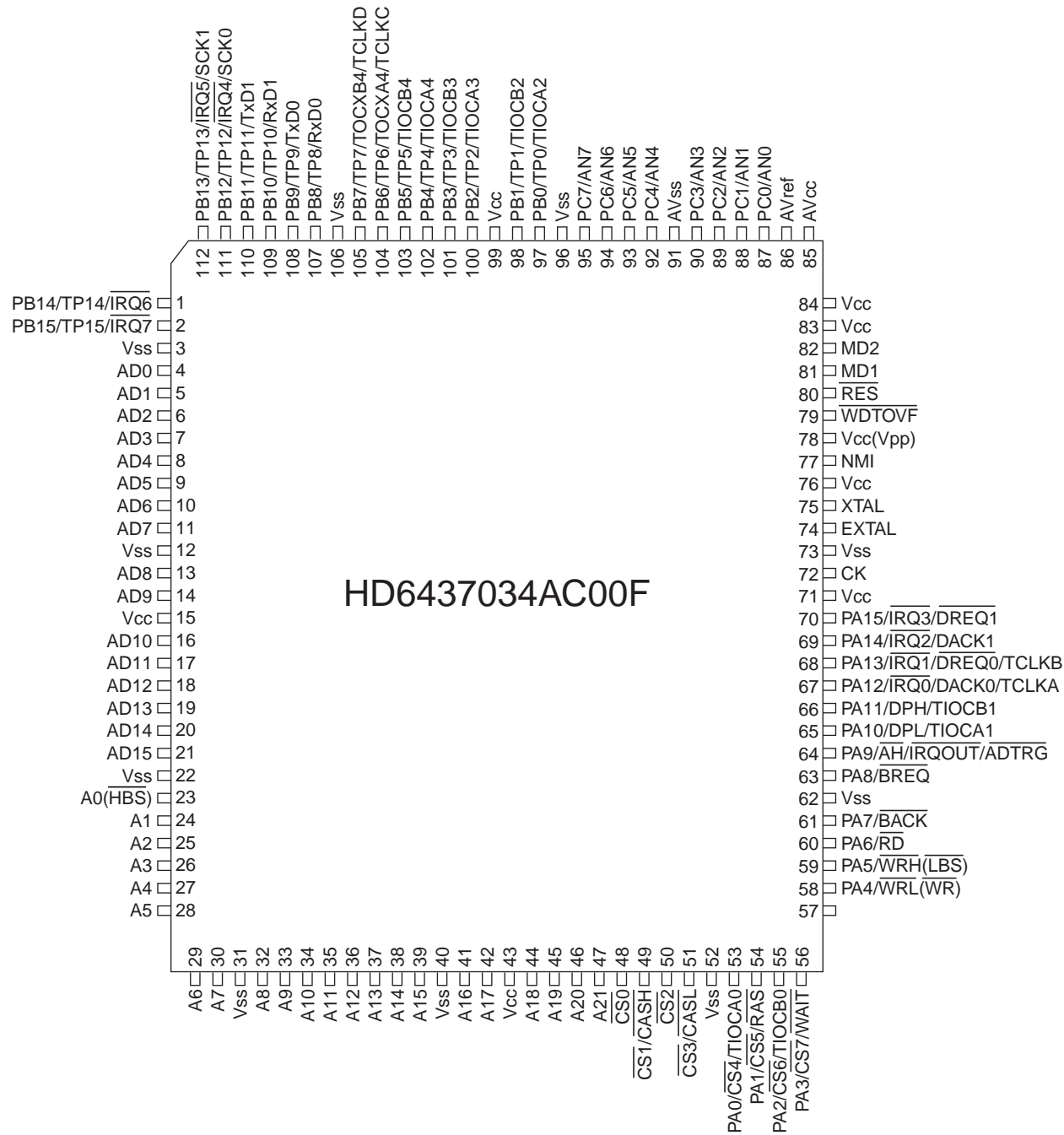
Repeat steps 1 to 5 in the reverse order.

After attaching the top panel A(c), evenly depress the surface using soft cloth for tight adhesion.

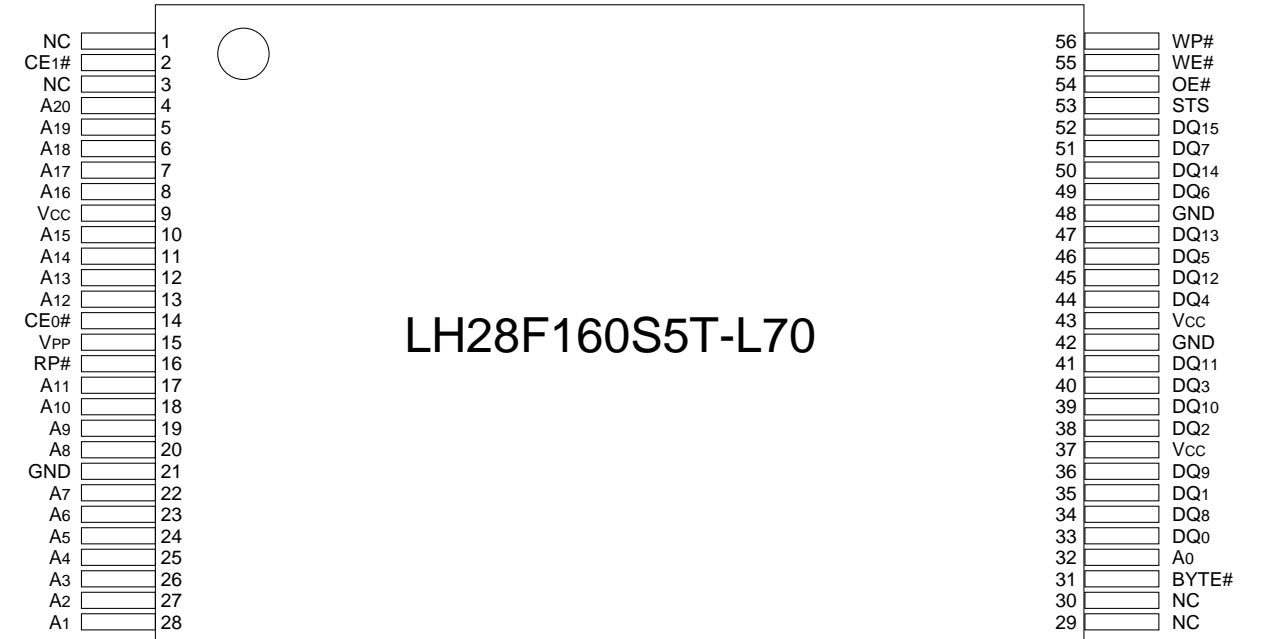


IC DATA

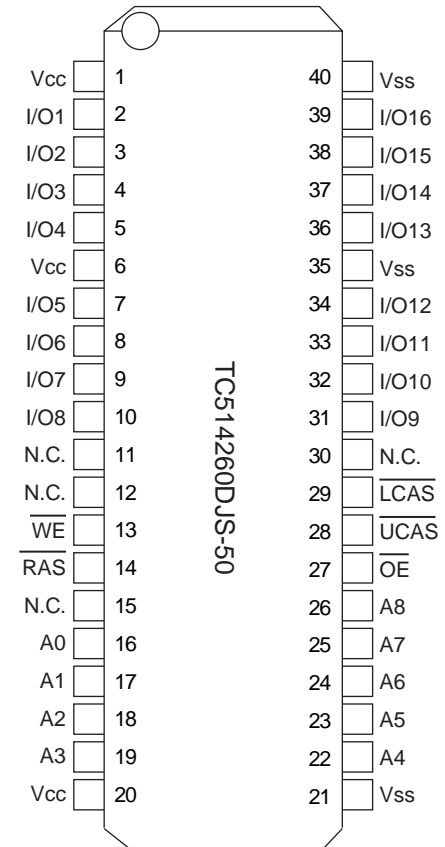
HD6437034AC00F (01562490)
IC1 on MB



LH28F160S5T-L70(01561945)
IC41 on MB



TC514260JS-50 (01238234)
IC705 on MB



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A CIRCUIT BOARD

B MAIN BOARD ASSY (71123978)/PS SWITCH BOARD ASSY (71230923)/
DIGITAL I/O BOARD ASSY (71124012)/CONNECTOR BOARD ASSY (71124001)

MAIN BOARD ASSY (71123978)



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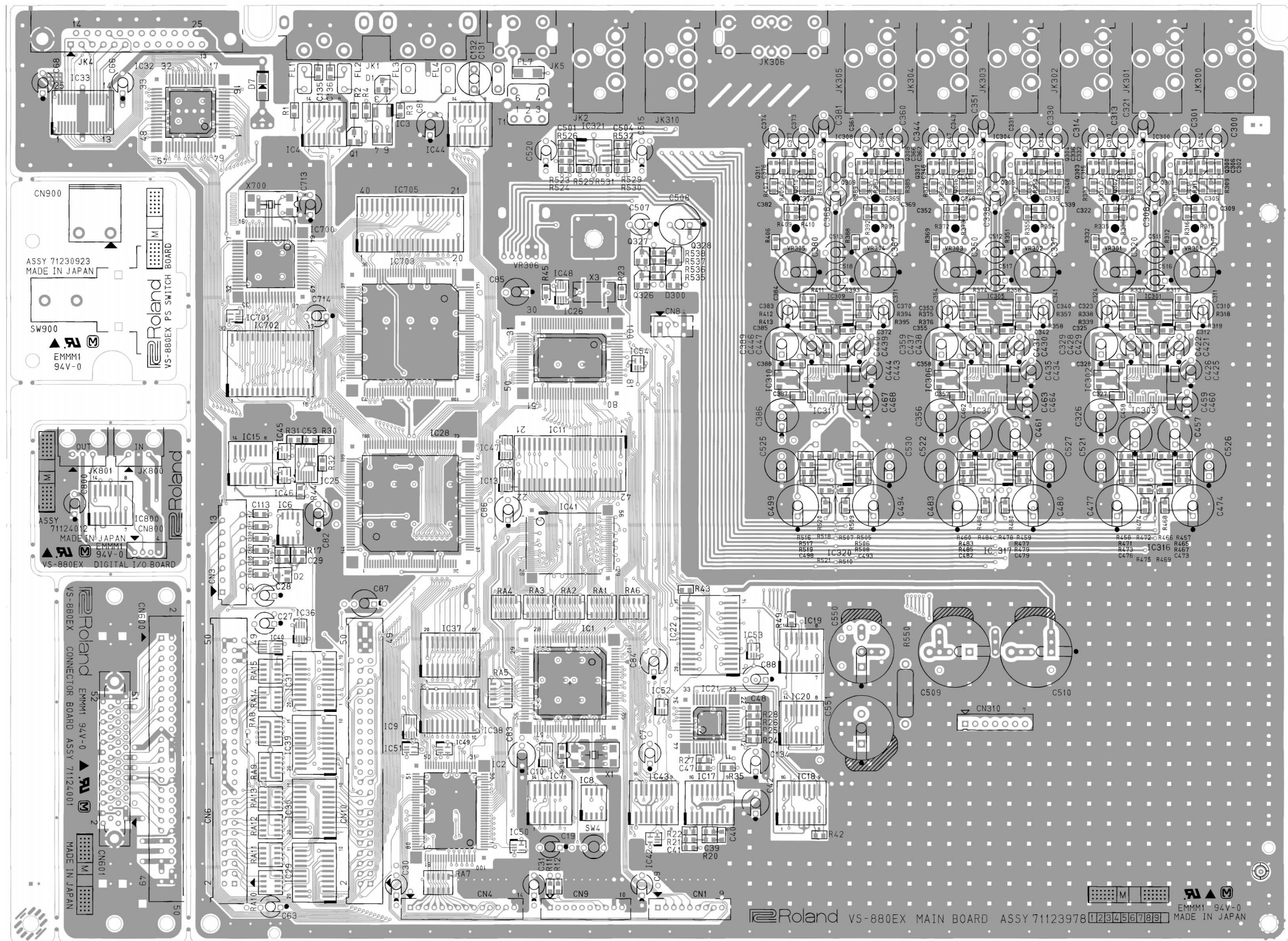
PS SWITCH BOARD
ASSY (71230923)



DIGITAL I/O BOARD
ASSY (71124012)



CONNECTOR BOARD
ASSY (71124001)



Roland VS-880EX MAIN BOARD ASSY 71123978 123456789 MADE IN JAPAN

View from component side

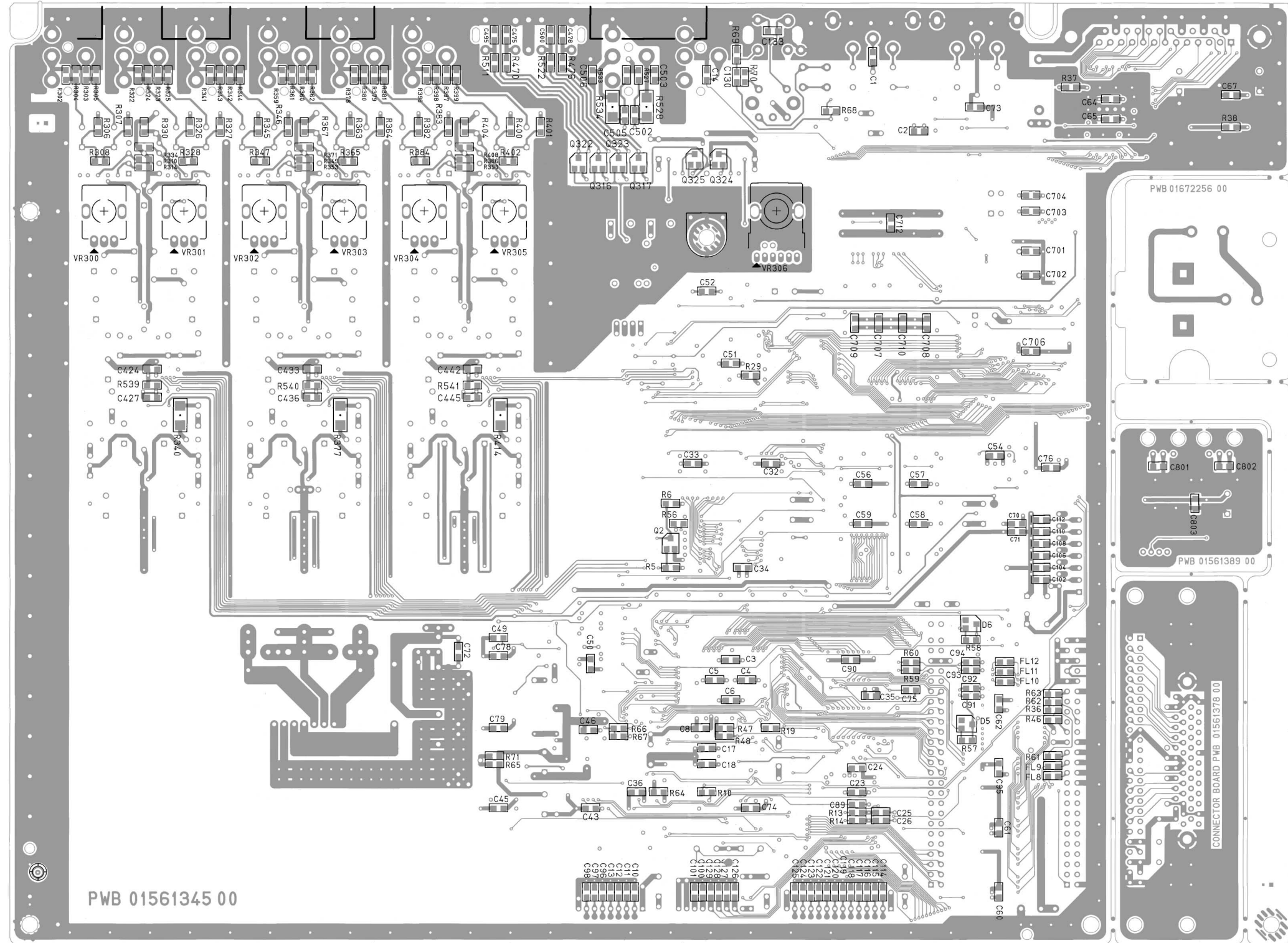
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A MAIN BOARD ASSY (71123978)/PS SWITCH BOARD ASSY (71230923)/
DIGITAL I/O BOARD ASSY (71124012)/CONNECTOR BOARD ASSY (71124001)

MAIN BOARD ASSY (71123978)



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PS SWITCH BOARD ASSY (71230923)

DIGITAL I/O BOARD ASSY (71124012)

CONNECTOR BOARD ASSY (71124001)

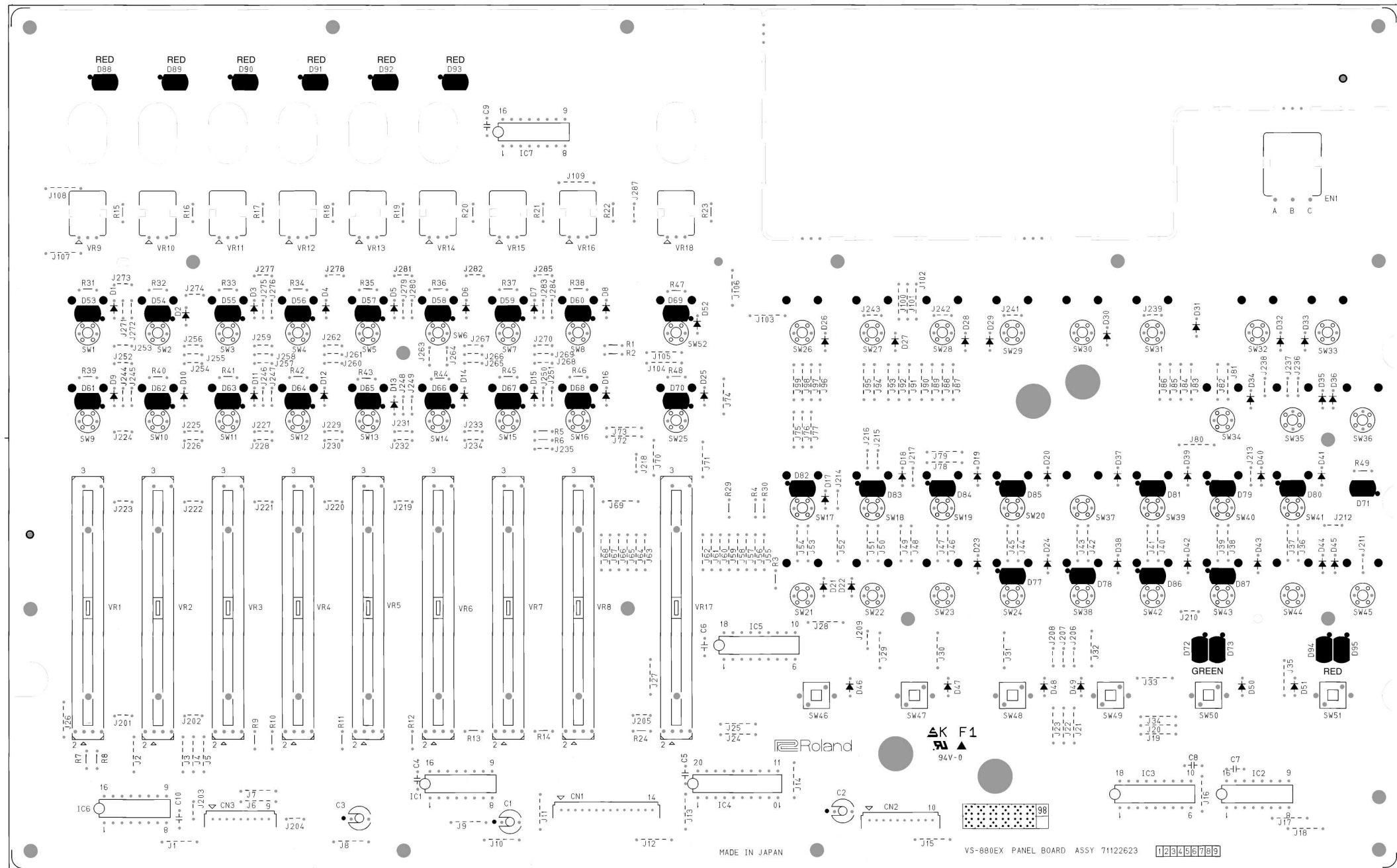
PWB 01561345 00

View from foil side

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A PANEL BOARD ASSY (71122623)

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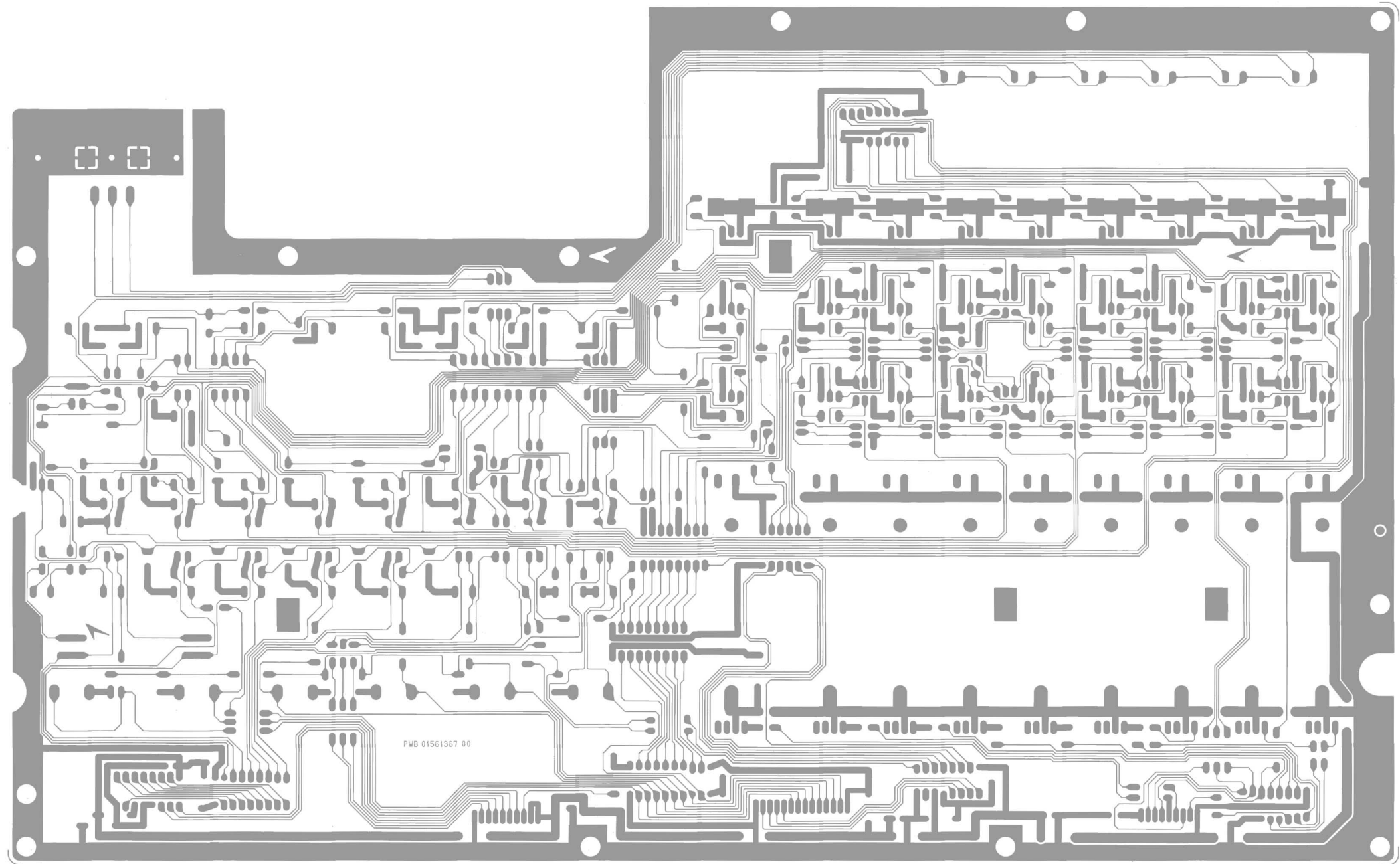


View from component side

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A PANEL BOARD ASSY (71122623)

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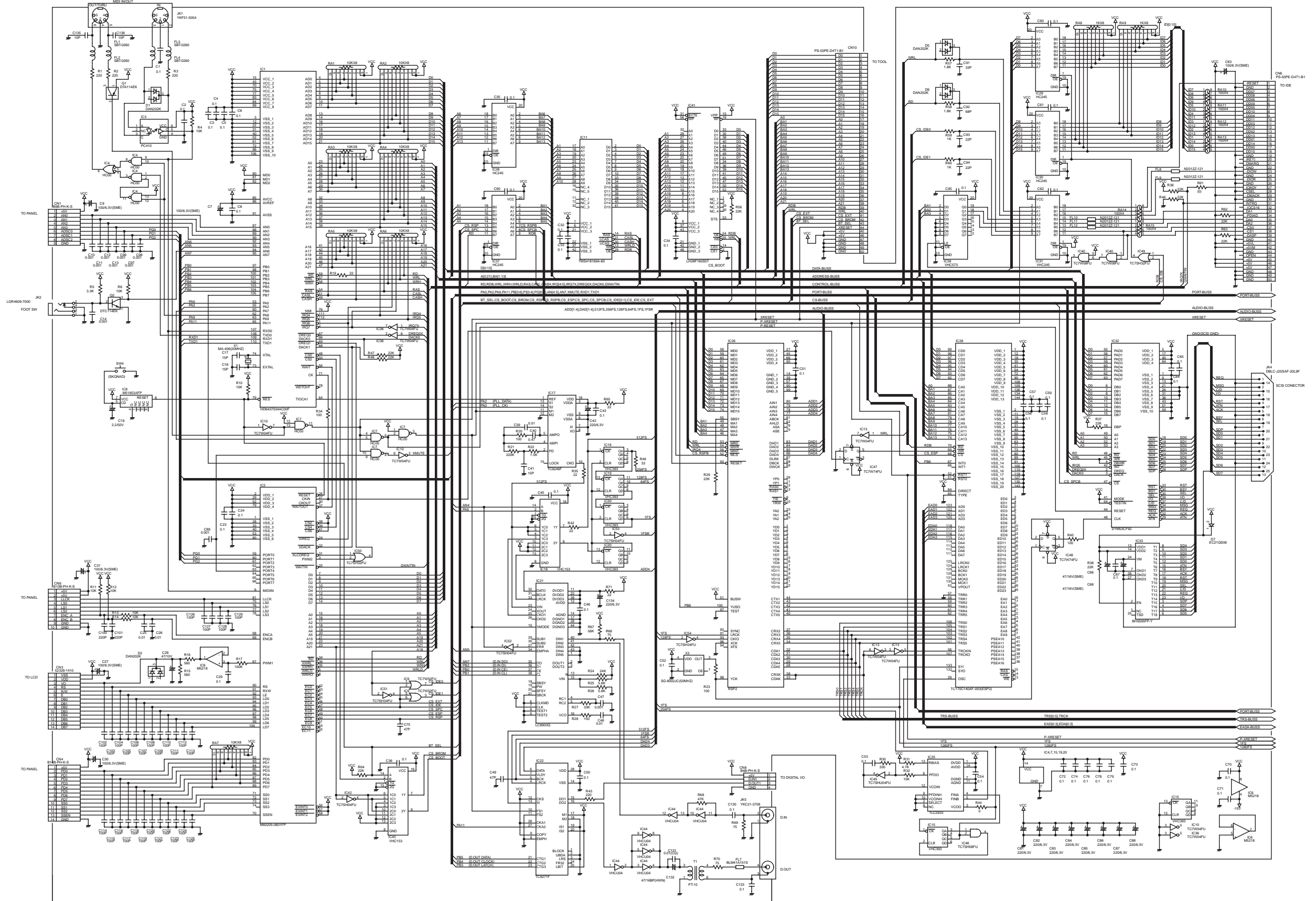


View from foil side

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A **CIRCUIT DIAGRAM**
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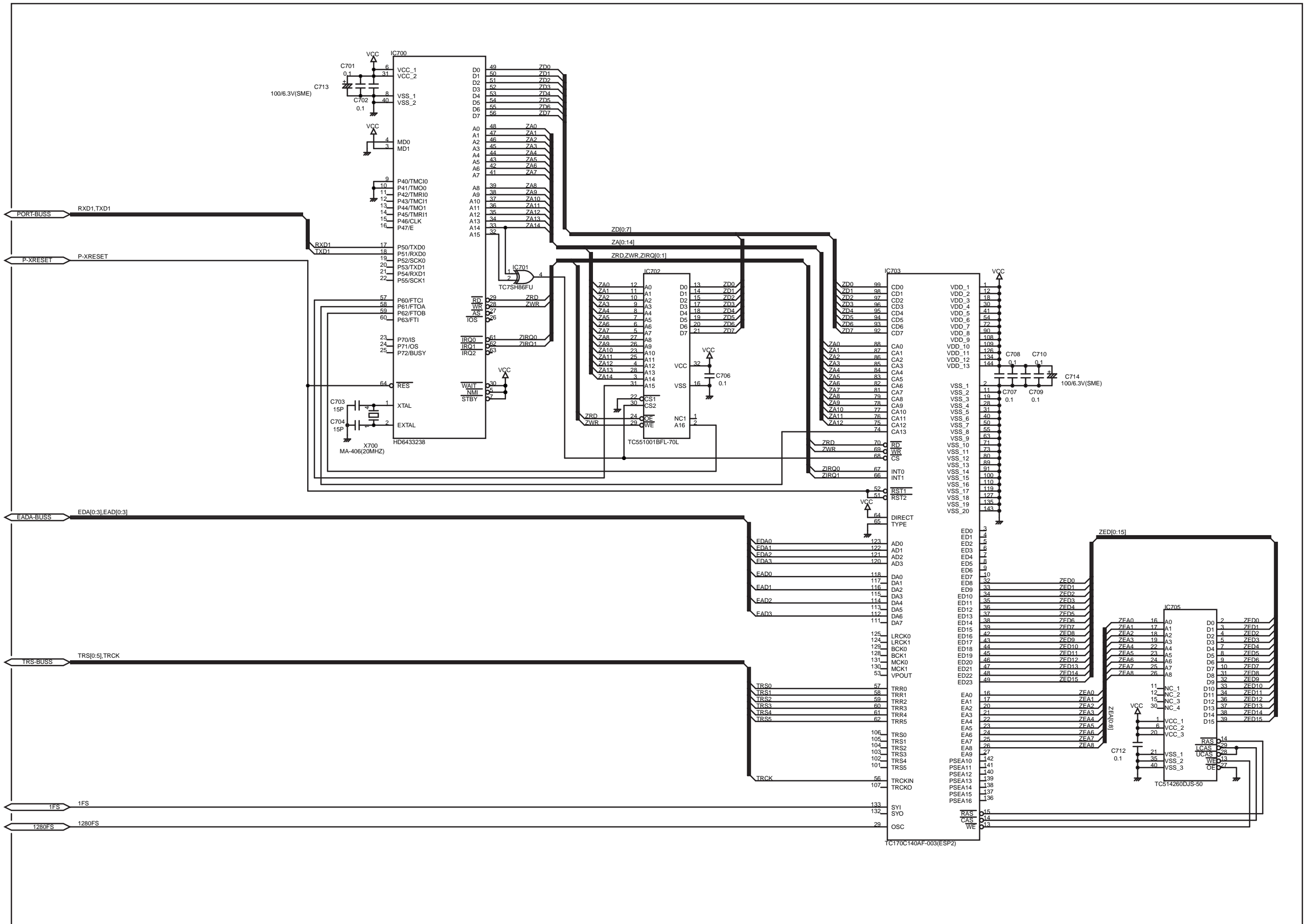
MAIN BOARD 1/3 (71123978)



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A MAIN BOARD 3/3 (71123978)

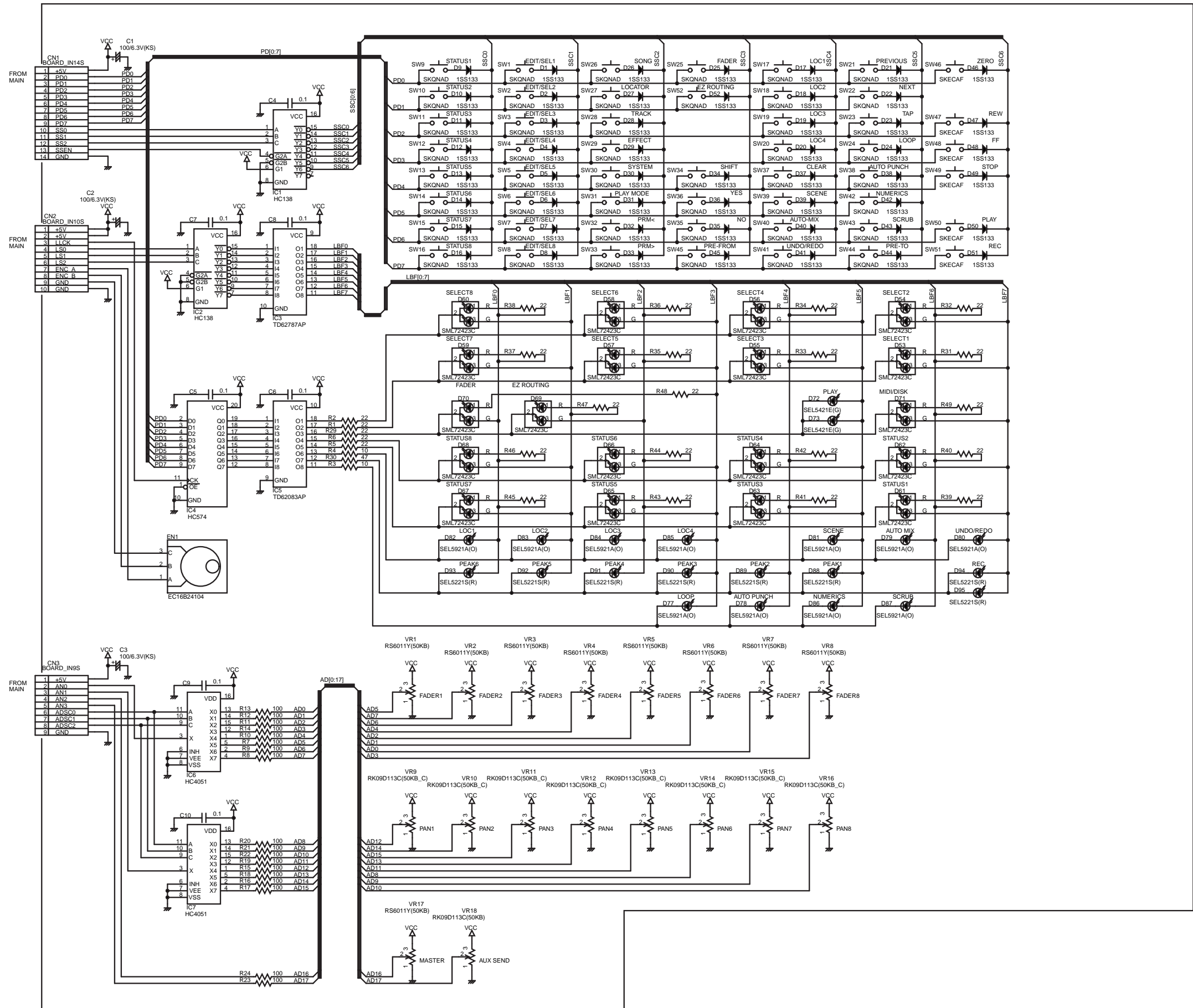
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A PANEL BOARD (71122623)

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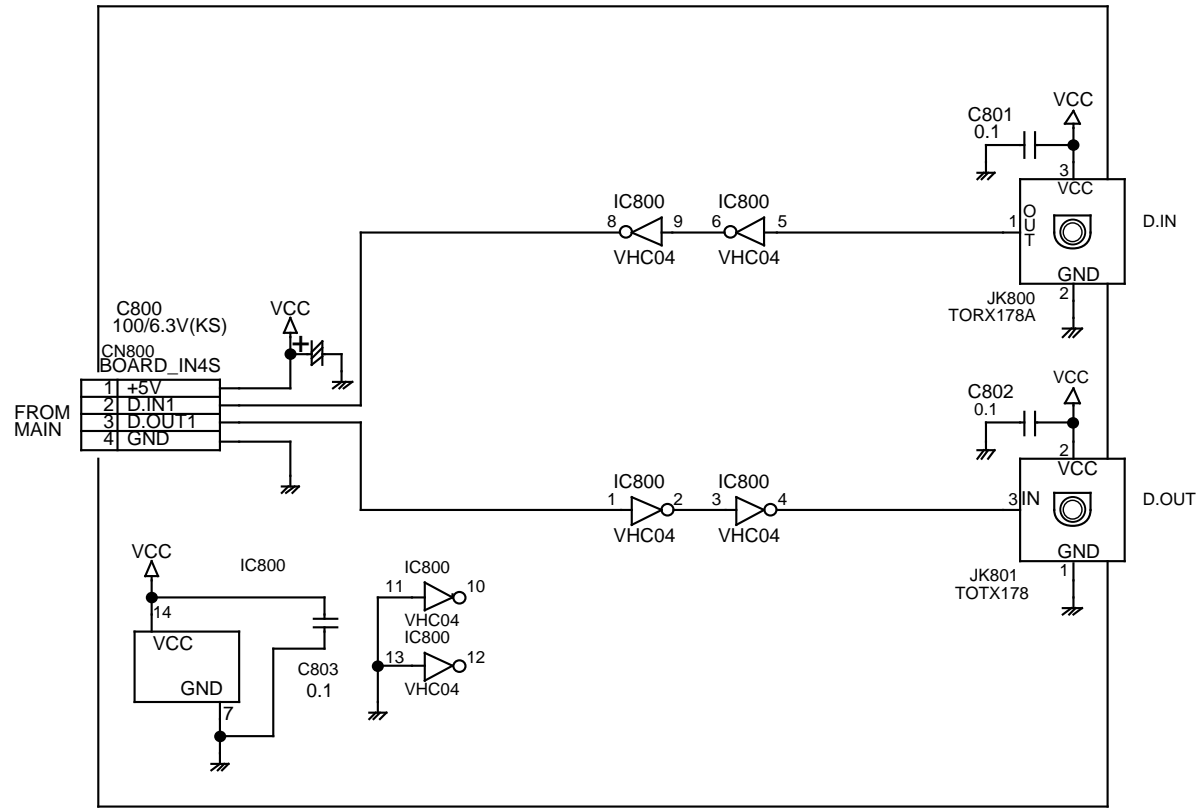


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A DIGITAL I/O BOARD (71124012)

CONNECTOR BOARD (71124001)

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PS SW BOARD (71230923)

