VS-2480 SERVICE NOTES

First Edition

Issued by RJA

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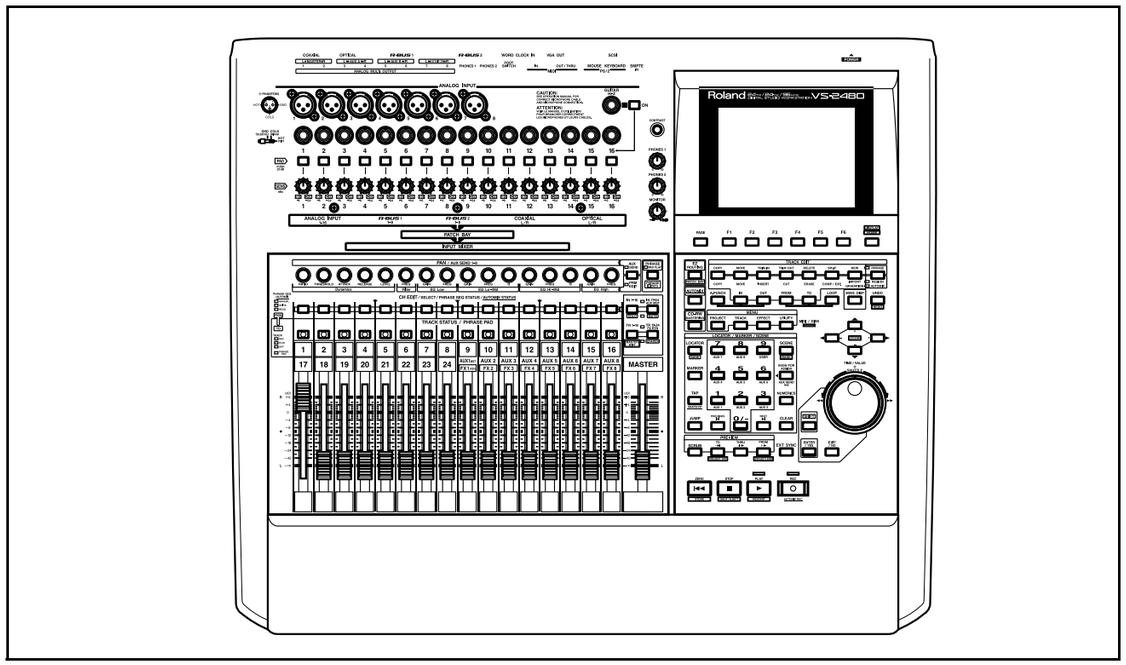


SPECIFICATIONS

VS-2480 : 24Tr, 24bit, 96kHzSampling Digital Studion Workstation

- Tracks
  Tracks:24
  V-Tracks:384 (16 V-Tracks per each Track)

- Sample Rate
  96.0k / 88.2k / 64.0k / 48.0k / 44.1k / 32.0k Hz

  *Adjustable range with vari-pitch function
  22.00k Hz - 98.00k Hz (at 96k Hz)
  22.00k Hz - 50.00k Hz (at 48k Hz)

- Recording Mode
  Mastering 24-bit (M24)
  Multitrack Pro (MTP)
  CD Writing (CDR)
  Mastering 16-bit (M16)
  Multitrack 1 (MT1)
  Multitrack 2 (MT2)
  Live 1 (LIV)
  Live 2 (LV2)

- Maximum Simultaneous Recording / Playback Tracks
  Sample Rate 48k/44.1k/32k Hz
  16 tr. Rec / 16 tr. Play (M24,M16,CDR)
  16 tr. Rec / 24 tr. Play (MTP,MT1/2,LIV,LV2)

  Sample Rate 96k/88.2k/64k Hz
  8 tr. Rec / 8 tr. Play (M24,M16,CDR)
  8 tr. Rec / 12 tr. Play (MTP,MT1/2,LIV,LV2)

  * Depending on the organization of the song data or the disk drive performance etc.,the number of tracks which can be simultaneously recorded or played back may be limited.

- Maximum Useful Capacity
  1024G bytes: 10G bytes(Capacity) x 13(Partition) x 8(Disk Drive)

- Recording Time ※
  (at 10G B Partition, conversion in 1 track, unit : minutes)

Recording Mode	Sample Rate					
	96k Hz	88.2k Hz	64k Hz	48k Hz	44.1k Hz	32k Hz
M24	662	721	993	1,324	1,442	1,987
MTP	1,989	2,165	2,983	3,977	4,329	5,966
M16	994	1,082	1,491	1,989	2,165	2,983
CDR	994	1,082	1,491	1,989	2,165	2,983
MT1	1,989	2,165	2,983	3,977	4,329	5,966
MT2	2,651	2,885	3,976	5,302	5,771	7,953
LIV	3,181	3,462	4,772	6,362	6,925	9,543
LV2	3,977	4,329	5,966	7,955	8,658	11,932

*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.
In "CDR" recording mode, two tracks are always used in a pair (channel link is on), so recording time is half the above-listed.

• Frequency Response
96.0k Hz : 20 Hz - 40k Hz (+0 dB/-2 dB)
88.2k Hz : 20 Hz - 40k Hz (+0 dB/-2 dB)
48.0k Hz : 20 Hz - 22k Hz (+0 dB/-2 dB)
44.1k Hz : 20 Hz - 20k Hz (+0 dB/-2 dB)
32.0k Hz : 20 Hz - 14k Hz (+0 dB/-2 dB)

• Total Harmonic Distortion
(INPUT SENS : 0 dBu, 1k Hz at nominal output level)
0.005 % or less (Recording Mode : MTP)
0.003 % or less (Recording Mode : M16)
0.002 % or less (Recording Mode : M24)

• Songs
200 songs for each format (VS-2480/1880/890/880/1680/880EX/VSR-880) in each partition

*The total songs are limited to 500.

• Marker
1000 per project

• Locator
100 (10 x 10 banks) per project

• Scene
100 (10 x10 banks) per project

• Undo/Redo
999 Undo / 1 Redo

• Nominal Input Level (variable)
Input 1-8 :-64 - +14 dBu : (maximum +26 dBu : balanced, maximum +20 dBu : unbalanced)
Input 9-16 :-64 - +14 dBu : (maximum +26 dBu : balanced, maximum +20 dBu : unbalanced)
Guitar (Hi-Z) :-64 - +14 dBu : (maximum +20 dBu)

• Input Impedance
Input 1-8 : 40k ohm (balanced)
Input 9-16 : 40k ohm (balanced)
Guitar (Hi-Z) : 1M ohm

• Nominal Output Level
Master Out : +4 dBu (balanced)
AUX A (L, R) : +4 dBu (balanced)
AUX B (L, R) : +4 dBu (balanced)
Monitor Out : +4 dBu (balanced)

• Output Impedance
Master Out : 600 ohm
AUX A (L, R) : 600 ohm
AUX B (L, R) : 600 ohm
Monitor Out : 600 ohm
Phones : 22 ohm

• Recommended Load Impedance
Master Out : 10k ohm or greater
AUX A (L, R) : 10k ohm or greater
AUX B (L, R) : 10k ohm or greater
Monitor Out : 10k ohm or greater
Phones : 8 - 600 ohm

• Residual Noise Level
(input terminated with 1k ohm, INPUT SENS : LINE, IHF-A, typ.)
Master Out : -88 dBu or less
AUX A : -88 dBu or less
AUX B : -88 dBu or less
Monitor Out : -88 dBu or less

• EQ
4band (2 shelving + 2 peaking)
*Useful simultaneously at up to 48ch in both Input Mixer and Track Mixer.

• Dynamics Processor
Compressor, Expander
*Useful simultaneously at up to 48ch in both Input Mixer and Track Mixer.

• Compressor+Expander
* Useful simultaneously at up to 24ch in Input Mixer or Track Mixer.
If this type is used at Input or Track Mixer, Compressor or Expander cannot be used in the other Mixer.

• Effects
Maximum 8 stereo (One pre-installed + 3 more optional VS8F-2)

• Display
320 x 240 dots Graphic LCD (with backlit)

• Interface
SCSI : 25-pin D-sub
Digital I/O : Coaxial,Optical (conforms to S/P DIF)
VGA Out : 15-pin miniD-sub
PS/2 : MiniDIN 6pin
MIDI : DIN 5pin

• Connectors
SCSI Connector(DB-25 type)
MIDI Connectors(DIN 5pin type)
Input Jack 1-8(XLR type, balanced, pahntom power)
Input Jack 1-16(1/4 inch phone type, TRS balanced)
Guitar(Hi-Z)Jack(1/4 inch phone type)
Digital In Connectors(Coaxial type, Optical type)
Digital Out Connectors(Coaxial type, Optical type)
Foot Switch Jack(1/4 inch phone type)
Word Clock In jack(BNC type)
SMPTE In Jack(RCA phone type)
PS/2 Mouse Connector(mini DIN 6pin type)
PS/2 Keyboard Connector(mini DIN 6pin type)
VGA Out Connector(Mini DB-15 type)
R-BUS Connectors(DB-25 type)
Master Out Jack L/R
(1/4 inch phone type, TRS balanced)
Monitor Out Jack L/R
(1/4 inch phone type, TRS balanced)
AUX A Send Jack L/R(1/4 inch phone type, TRS balanced)
AUX B Send Jack L/R
(1/4 inch phone type, TRS balanced)
Headphones Jack(Stereo 1/4 inch phone type)

• Power Supply
AC117 V, AC230 V or AC240 V

●電源
AC 100 V (50/60 Hz)

• Power Consumption
80 W (including internal hard disk)

• Dimensions
620(W) x 520(D) x 138(H) mm

• Weight
12 kg (Excluding internal hard disk)

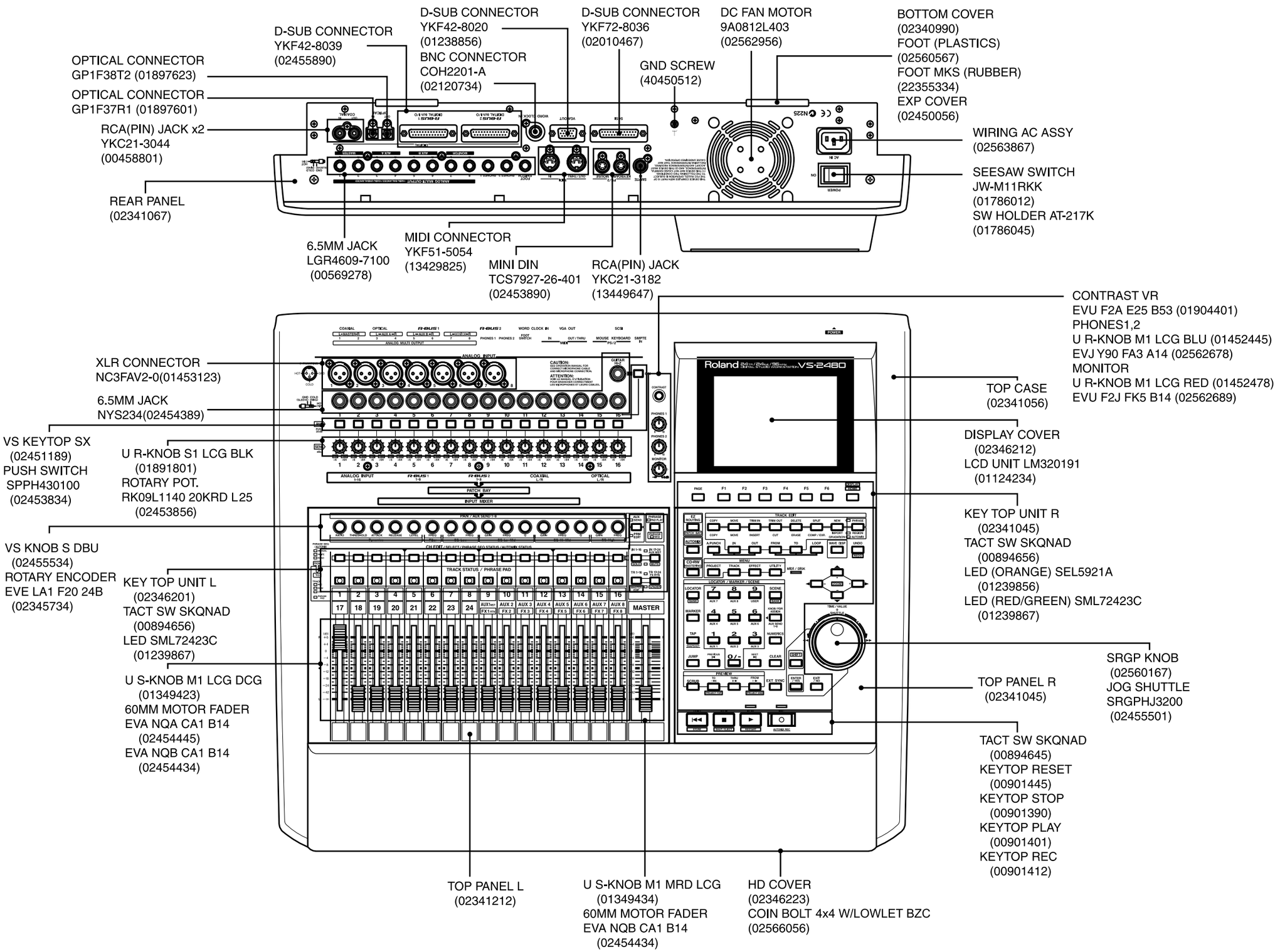
• Accessories
Owner's Manual English (#71672734)
AC Cord 120 V (#00894378)
AC Cord 230 V (#00894389)
AC Cord 240 VA (#23495124)
AC Cord 230 VE (#00907001)
PS/2 MOUSE (#02346478)
DEMO CD (#02569756)
R-BUS User Guide 2 English (#02674901)
Short Cut Seal (#40452245)

• Options ※
Internal Hard Disk Drive Unit : HDP35 Series
24-bit Effect Expansion Board : VS8F-2
CD-RW Drive : CDR-88RW-3
Channel Edit Controller : VE-7000
Level Meter Bridge : MB-24
Level Meter Bridge Adaptor : VS24-MBA
Bi-amp Monitor : DS-90A, DS-50A
Dynamic Microphone : DR-20
8CH A/D-D/A Converter : ADA-7000
AES/EBU Interface : AE-7000
R-BUS Cable : RBC-1 (1m), RBC-5 (5m)
Footswitch : FS-5U (BOSS)
Pedal Switch : DP-2

* 0 dBu = 0.775 Vrms

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

LOCATION OF CONTROLS



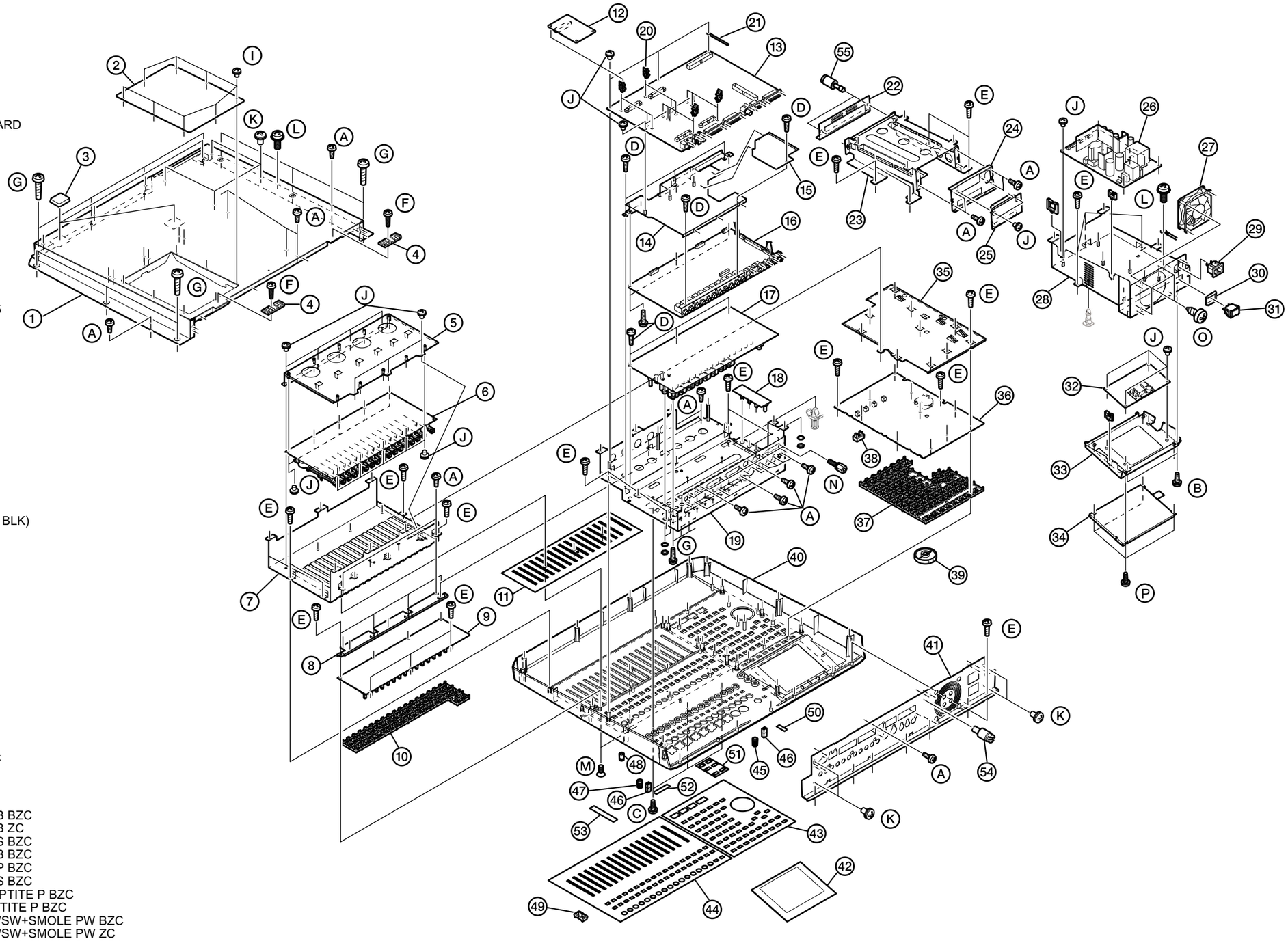
EXPLODED VIEW

[Parts]

No.	Part Code	Part Name
1	02340990	BOTTOM COVER
2	02450056	EXP COVER
3	22355334	FOOT MKS
4	02560567	FOOT
5	02564834	FADER HOLDER
6	71561767	FADER BOARD
7	02346245	FADER ANGLE
8	02563512	PANEL BOARD ANGLE
9	71561756	PANEL L BOARD
10	02346201	KEYTOP UNIT L
11	02565189	BLIND SHEET
12	71019234	VS8F-2 EFFECT EXPASION BOARD
13	71561789	MAIN BOARD
14	02454690	MAIN BOARD ANGLE
15	02675756	JACK SHIELD PLATE
16	71672801	JACK BOARD
17	71561778	ANALOG BOARD
18	71782767	VOLUME BOARD
19	02341201	CHASSIS
20	00899890	PWB SPACER KGES-12
21	40017401	COATING CLIP CS-7U
22	02346223	HD COVER
23	02341001	HDD HOLDER
24	02456623	CONNECTOR HOLDER
25	71782823	IDE CONNECTOR BOARD
26	02562889	SWITHING REGULATOR SWP05
27	02562956	DC FAN MOTOR 9A0812L403
28	02341090	PWR SPLY HOLDER
29	02563867	WIRING AC ASSY
30	01786045	SW HOLDER AT-217K
31	01786012	SEESAW SWITCH JW-M11RKK
32	71783012	LCD CONT BOARD
33	02341223	LCD HOLDER
34	01124234	LCD UNIT LM320191
35	02563523	SHIELD PANEL
36	71782778	PANEL R BOARD
37	02346190	KEYTOP UNIT R
38	00901401	KEYTOP PLAY
	00901412	KEYTOP REC
	00901445	KEYTOP RESET
	00901390	KEYTOP STOP
39	02560167	SRGP KNOB (for JOG-SHUTTLE BLK)
40	02341056	TOP CASE
41	02341067	REAR PANEL
42	02346212	DISPLAY COVER
43	02341045	TOP PANEL R
44	02341212	TOP PANEL L
45	01452445	U R-KNOB M1 LCG BLU
	01452478	U R-KNOB M1 LCG RED
46	02451189	VS KEYTOP SX
47	01891801	U R-KNOB S1 LCG BLK
48	02455534	VS KNOB S DBU
49	01349423	U S-KNOB M1 LCG DCG
	01349434	U S-KNOB M1 MRD LCG
50	40450789	TRACK EDIT SEAL
51	40450767	FADER SEAL
52	40450778	PHRASE SEAL
53	40450790	TRACK SEAL
54	40450512	GND SCREW
55	02566056	COIN BOLT 4x4 W/LOWLET BZC

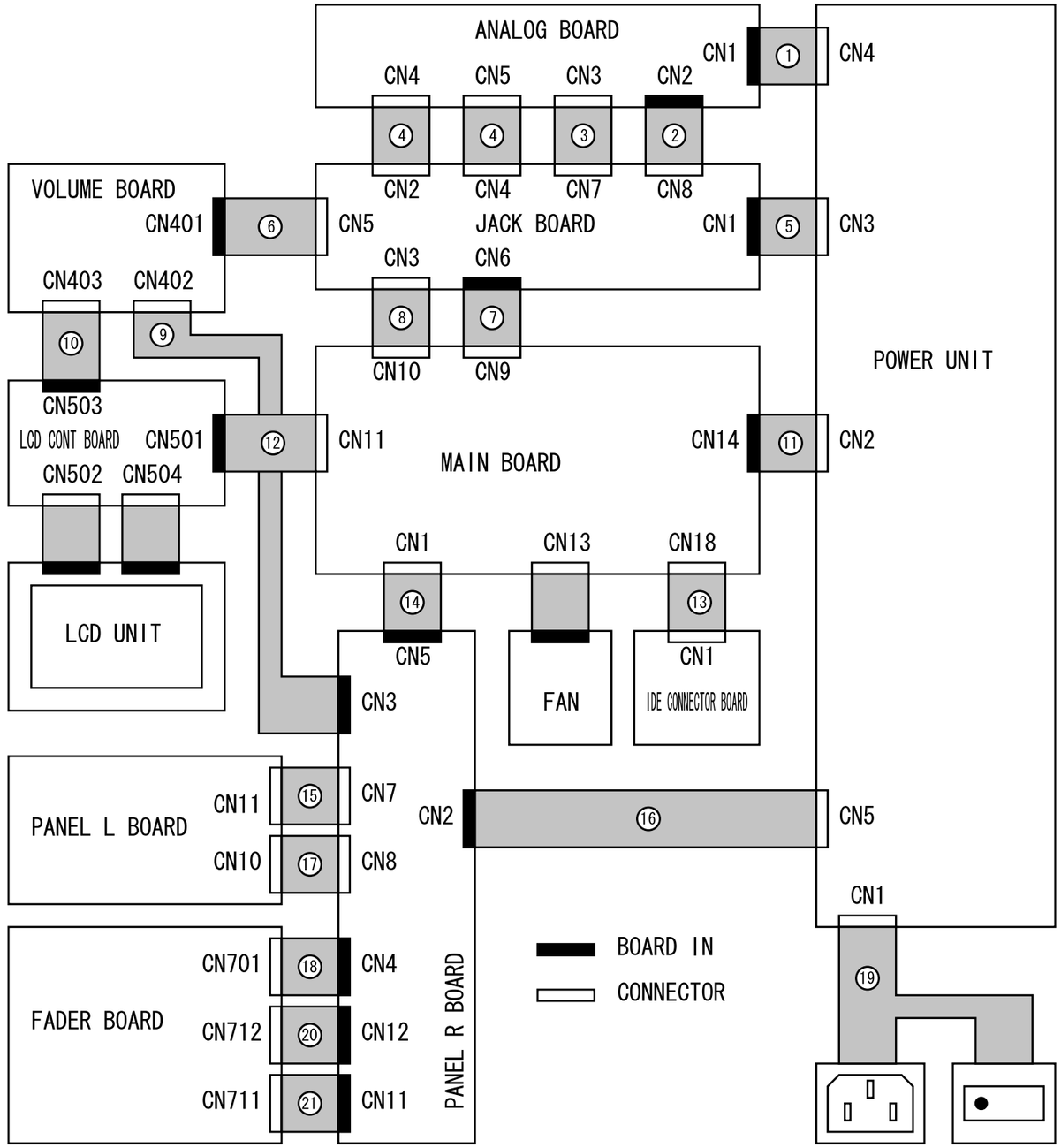
[Screws]

No.	Part Code	Part Name
A	40011090	SCREW 3x6 BINDING TAPTITE B BZC
B	40011056	SCREW 3x6 BINDING TAPTITE B ZC
C	40012534	SCREW 3x6 BINDING TAPTITE S BZC
D	40011101	SCREW 3x8 BINDING TAPTITE B BZC
E	40011312	SCREW 3x8 BINDING TAPTITE P BZC
F	40019123	SCREW 3x8 BINDING TAPTITE S BZC
G	40451612	SCREW 4x10 PAN MACHINE TAPTITE P BZC
H	40011201	SCREW 3x8 PAN MACHINE TAPTITE P BZC
I	40342712	SCREW M3x6 PAN MACHINE W/SW+SMOLE PW BZC
J	40013056	SCREW M3x6 PAN MACHINE W/SW+SMOLE PW ZC
K	40344623	SCREW M4x8 PAN MACHINE W/SW+SMOLE PW BZC
L	40342989	SCREW M4x8 BINDING MACHINE W/EXT.TW BZC
M	40010501	SCREW 3x6 FLAT MACHINE BZC
N	40344134	HEX POST 4-40x7.9 NI
O	40016512	SCREW 5x10 BINDING TAPTITE A BZC
P	40012512	SCREW 3x6 BINDING TAPTITE S ZC



WIRING DIAGRAM

1	02563890	WIRING 2X200-P2.5-XHP-SCN
2	02563945	WIRING 4X120-P2.5-XHP-SCN
3	02563834	BNCD-P=1.25-K-10-70
4	02563845	BNCD-P=1.25-K-16-70
5	02563934	WIRING 5X240-P2.5-XHP-SCN
6	02563990	VS-2480 WIRING W1
7	02563901	WIRING 13X100-P2.0-KR-DA
8	02563856	BNCD-P=1.25-K-40-70
9	02563956	WIRING 3X100-P2.0-KR-DA
10	02563989	WIRING 3X120-P2.0-KR-DS
11	02563889	WIRING 6X520-P2.5-XHP-SCN
12	02563978	WIRING 10X200-P2.0-KR-DS
13	02564034	VS-2480 WIRING HDD
14	02563967	WIRING 7X120-P2.0-KR-DA
15	02563823	BNCD-P=1.25-K-32-500
16	02563878	WIRING 4X210-P2.5-XHP-SBN
17	02563812	BNCD-P=1.25-K-30-500
18	02563912	WIRING 10X60-P2.0-KR-DA
19	02563867	VS-2480 WIRING AC ASSY
20	02564045	WIRING 4X60-P2.0-PHR-SAN
21	02563923	WIRING 14X60-P2.0-KR-DA



PARTS LIST

SAFETY PRECAUTIONS:
The parts marked ⚠ have safety-related characteristics. Use only listed parts for replacement.

SAFETY PRECAUTIONS:
Wen ordering any parts listed in thr 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)

MAB -> MAIN BOARD, ANB -> ANALOG BOARD, VLB -> VOLUME BOARD, JKB -> JACK BOARD
PLB -> PANEL L BOARD, PRB -> PANEL R BOARD, FDB -> FEDER BOARD, LCB LCD CONT BOARD

CASING

#	02340990	BOTTOM COVER		1
#	02346212	DISPLAY COVER		1
#	02450056	EXP COVER		1
#	02346223	HD COVER		1
#	02341067	REAR PANEL		1
#	02563523	SHIELD PANEL		1
#	02341056	TOP CASE		1
#	02341212	TOP PANEL L		1
#	02341045	TOP PANEL R		1

CHASSIS

#	02341201	CHASSIS			1
#	02346245	FADER ANGLE			1
#	02564834	FADER HOLDER			1
#	02675756	JACK SHIELD PLATE		S/No.ZO51900 -up	1
#	02341223	LCD HOLDER			1
#	02563512	PANEL BOARD ANGLE			1
#	02341090	PWR SPLY HOLDER			1
	01786045	SW HOLDER	AT-217K		1

KNOB, BUTTON

	00901390	KEYTOP	STOP(WHIT GREY)	1
	00901401	KEYTOP	PLAY(WHIT GREY)	1
	00901412	KEYTOP	REC(RED)	1
	00901445	KEYTOP	RESET(WHIT GREY)	1
#	02346201	KEYTOP UNIT L		1
#	02346190	KEYTOP UNIT R		1
	02560167	SRGP KNOB	FOR JOG-SHUTTLE BLK	1
	01452445	U R-KNOB	M1 LCG BLU	2
	01452478	U R-KNOB	M1 LCG RED	1
	01891801	U R-KNOB	S1 LCG BLK	16
	01349423	U S-KNOB	M1 LCG DCG GRY/BLK	16
	01349434	U S-KNOB	M1 MRD LCG	1
#	02451189	VS KEYTOP SX		17
#	02455534	VS KNOB S DBU	ENCORDER	16

SWITCH

	01786012	JW-M11RKK	SEESAW SWITCH	1
	00894656	SKQNAD	TACT SWITCH	SW2 on MAB. SW8,SW17,SW16,SW15,SW14, SW13,SW12,SW18,SW10,SW9,SW6,SW5,SW4, SW3,SW2,SW1,SW38,SW11,SW36,SW7,SW37, SW19,SW35,SW34,SW33,SW32,SW31,SW30, SW29,SW21,SW20,SW22,SW23,SW24,SW25, SW26,SW27,SW28 on PLB. SW9,SW19,SW18,SW16,SW14,SW13,SW12, SW20,SW10,SW8,SW7,SW6,SW5,SW4,SW3, SW2,SW1,SW17,SW11,SW46,SW62,SW57,SW60, SW21,SW59,SW15,SW58,SW42,SW45,SW43 SW47,SW48,SW49,SW50,SW51,SW52,SW53, SW54,SW55,SW56,SW44,SW31,SW22,SW23, SW63,SW24,SW25,SW26,SW27,SW28,SW29, SW61,SW30,SW41,SW32,SW33,SW34,SW35, SW36, SW37,SW38,SW39,SW40 on PRB 38 +1 +63
#	02453834	SPPH430100	PUSH SWITCH	SW10,SW17,SW16,SW15,SW14,SW13,SW4, SW11,SW1,SW9,SW8,SW7,SW6,SW5,SW3, SW2,SW12 on ANB 17
	00894645	SKECAF WITHOUT LED	TACT SWITCH	SW66,SW65,SW64,SW67 on PRB 4

JACK、EXT TERMINAL

	00569278	LGR4609-7100	6.5MM JACK	JK9,JK6,JK2,JK1,JK4,JK8,JK10,JK15,JK5,JK7, JK3 on JKB	11
#	02454389	NYS234	6.5MM JACK	JK4,JK21,JK24,JK25,JK22,JK20,JK2,JK6,JK8,JK10, JK12,JK14,JK16,JK17,JK18,JK19,JK23 on ANB	17
	13449647	YKC21-3182	PIN JACK	JK11 on JKB	1
	00458801	YKC21-3044 0/0	PIN JACK (ORG)PIN x2	JK1 on MAB	1
	02120734	COH2201-A	BNC CONNECTOR	JK2 on MAB	1
	01238856	YKF42-8020 (TO PC DISPLAY OUT)	CONNECTOR	CN12 on MAB	1
#	02453890	TCS7927-26-401	DIN CONNECTOR	JK12,JK13 on JKB	2
	02010467	YKF42-8036	D-SUB CONNECTOR	CN17 on MAB	1
#	02455890	YKF42-8039	D-SUB CONNECTOR	CN3,CN4 on MAB	2
	13429825	YKF51-5054 2PZ	MIDI CONNECTOR	JK14 on JKB	1
	01453123	NC3FAV2-0	XLR CONNECTOR	JK3,JK13,JK11,JK9,JK7,JK5,JK15,JK1 on ANB	8
#	02563745	57-10500-27	50PIN CONNECTOR	CN2 on ICB	1

DISPLAY UNIT

	01124234	LM320191	LCD UNIT	1

POWER SUPPLY UNIT

#	02562889	SWP05	SWITCHING REGULATOR	1
	NOTE: Replacement SWITCHING REGULATOR should be made on a unit base.			

PCB ASSY

#	71561789	MAIN BOARD		1
	NOTE: 'MAIN BOARD' includes the following parts.			
#	02563889	WIRING	6x520-P2.5-XHP-SCN	CN14 on MAB 1
	00899890	PWB SPACER	KGES-12	12
#	71561778	ANALOG BOARD		1
	NOTE: 'ANALOG BOARD' includes the following parts.			
#	02563890	WIRING	2x200-P2.5-XHP-SCN	1
#	02563945	WIRING	4x120-P2.5-XHP-SCN	1
#	71782767	VOLUME BOARD		1
	NOTE: 'VOLUME BOARD' includes the following parts.			
#	02563990	WIRING	W1	CN401 on VLB 1
#	71672801	JACK BOARD		1
	NOTE: 'JACK BOARD' includes the following parts.			
#	02563934	WIRING	5x240-P2.5-XHP-SCN	1
#	02563901	WIRING	13x100-P2.0-KR-DA	1
#	02454690	MAINBOARD ANGLE		1
#	02454701	JACK HOLDER		1
	40011101	SCREW 3x8	BINDING TAPTITE B BZC	3
#	71561756	PANEL L BOARD		1
	NOTE: 'PANEL L BOARD' includes the following parts.			
#	02566067	PWB CUSHION		1
#	71782778	PANEL R BOARD		1
	NOTE: 'PANEL R BOARD' includes the following parts.			
#	02564045	WIRING	4x60-P2.0-PHR-SAN	1
#	02563967	WIRING	7x120-P2.0-KR-DA	CN5 on PRB 1
#	02563923	WIRING	14x60-P2.0-KR-DA	CN11 on PRB 1
#	02563956	WIRING	3x100-P2.0-KR-DA	CN3 on PRB 1
#	02563912	WIRING	10x60-P2.0-KR-DA	CN4 on PRB 1
#	02563878	WIRING	4x210-P2.5-XHP-SBN	CN12 on PRB 1
#	71561767	FADER BOARD		1
#	71783012	LCD CONT BOARD		1
	NOTE: 'LCD CONT BOARD' includes the following parts.			
#	02563978	WIRING	10x200-P2.0-KR-DS	1
#	02563989	WIRING	3x120-P2.0-KR-DS	1
#	********	HDD HOLDER ASSY		1
	NOTE: 'HDD HOLDER ASSY' includes the following parts.			
#	02456623	CONNECTOR HOLDER		1
#	02341001	HDD HOLDER		1
	40011056	SCREW 3x6	BINDING TAPTITE B ZC	4
	40013056	SCREW M3x6	PAN MACHINE W/SW+PW ZC	2
#	71782823	IDE CONNECTOR BOARD		1

IC

	02129089	TMS320VC5402	IC (CPU DSP)	IC62 on MAB 1
	01672867	M38881M2-069FP	IC (CPU)	IC107 on MAB 1
	01679156	HD6417014 RF28	IC (32BIT CPU)	IC1 on PRB 1
#	02454289	HD6417709AF133	IC (32BIT CPU)	IC5 on MAB 1
#	02453878	AK4528VF	IC (AD/DA)	IC28,IC3,IC33,IC13,IC23,IC18,IC36,IC8 on JKB 8
	01342978	TC160G22AF-1253	IC (CUSTOM)	IC5 on PRB 1
#	02455712	GM71VS16163CLT-6	IC (DRAM)	IC84 on MAB 1
#	02673812	HY57V641620HGT-P	IC (DRAM)	IC2,IC10 on MAB 2
#	02458978	XCB56364FU100	IC (DSP)	IC57,IC56,IC53,IC59,IC50,IC52,IC58,IC51 on MAB 8
#	02454867	TC58FVB321FT-10	IC (FLASH MEMORY)	IC3 on MAB 1
#	02568323	MBM29F400BC-90PFTN	IC (FLASH MEMORY)	IC2 on PRB 1
	02344912	M7G1120-0104FP	IC (GATE ARRAY)	IC8 on PRB 1
	15189266	NE-5532AN	IC (BIPOLAR OP AMP)	IC18,IC21,IC15,IC22,IC1,IC19,IC16,IC13,IC10,IC9, IC7,IC6,IC4,IC3,IC12,IC24 on ANB. IC30,C25 on JKB 16 +2
	15289105	UPC4570G2-E2	IC (BIPOLAR OP AMP)	IC2,IC23,IC20,IC17,IC14,IC11,IC5,IC8 on ANB. IC4,IC34,IC1,IC2,IC24,IC5,IC31,IC35,IC32,IC29, IC26,IC22,IC21,IC20,IC19,IC9,IC6,IC27,IC7,IC10, IC11, IC12,IC14,IC16,IC17,IC15 on JKB 8 +26
	15289141	M5223FP-600D	IC (BIPOLAR OP AMP)	IC18 on MAB 1
	00231889	TC74VHC32F(EL)	IC (CMOS)	IC103,IC69 on MAB 2
	00232634	TC7W74F(TE12L)	IC (CMOS)	IC109 on MAB. IC12 on PRB 1 +1
	00236878	TC74VHC74F-EL	IC (CMOS)	IC87 on MAB 1
	00236889	TC74VHC157F(EL)	IC (CMOS)	IC13 on MAB 1

	00564534	TC74VHC574F(EL)	IC (CMOS)	IC723,IC724,IC725,IC726,IC721 on FDB. IC211 on MAB	5 +1
	00567534	TC74VHC138F(EL)	IC (CMOS)	IC722 on FDB. IC3 on PLB	1 +1
	00670290	TC74VHC139F(EL)	IC (CMOS)	IC61 on MAB	1
	00789689	TC74VHCT244AF(EL)	IC (CMOS)	IC6,IC16,IC43 on MAB	3
	00893967	TC74VHC153F(EL)	IC (CMOS)	IC40,IC38,IC37,IC39 on MAB. IC4 on PRB	4 +1
	00893978	TC74VHC393F(EL)	IC (CMOS)	IC65 on MAB	1
	01121834	TC7W74FU TE12L	IC (CMOS)	IC102 on PRB	1
	01122267	TC74VHCT245F(EL)	IC (CMOS)	IC104,IC79,IC98,IC101 on MAB	4
	01348890	TC7SHU04FU(TE85L)	IC (CMOS)	IC46,IC44,IC47,IC45 on MAB	4
#	01455301	TC7WH04FU(TE12L)	IC (CMOS)	IC63,IC201 on MAB	2
	01455312	TC7WH74FU	IC (CMOS)	IC206 on MAB	1
	01455323	TC7W34FU(TE12L)	IC (CMOS)	IC122 on MAB	1
	01670734	TC74VHC541F	IC (CMOS)	IC727 on FDB	1
	01786690	TC7SET08F(TE85L)	IC (CMOS)	IC202,IC95,IC120,IC121 on MAB	4
	01901967	TC74VHCT74AF(EL)	IC (CMOS)	IC208 on MAB	1
	01901989	TC7SET04F(TE85L)	IC (CMOS)	IC117,IC78 on MAB	2
	01907689	TC7WH157FU(TE12L)	IC (CMOS)	IC77 on MAB	1
	02015190	TC7SZ08F(TE85L)	IC (CMOS)	IC64 on MAB	1
	02120367	TC74VHC11F(EL)	IC (CMOS)	IC111 on MAB	1
	02232356	TC7WH125FU(TE12L)	IC (CMOS)	IC205 on MAB	1
	02234234	TC74VHCT574AF(EL)	IC (CMOS)	IC73,IC72,IC71,IC70,IC68,IC67 on MAB	6
	02234245	TC7WHU04FU(TE12L)	IC (CMOS)	IC207 on MAB	1
#	02563578	TC74VHCT139AF(EL)	IC (CMOS)	IC15,IC97 on MAB	2
#	02563612	TC7SET00F(TE85L)	IC (CMOS)	IC113,IC106,IC116 on MAB	3
#	02564056	TC7WH34FU(TE12L)	IC (CMOS)	IC210 on MAB	1
	15249104	TC7S04F(TE85L)	IC (CMOS)	IC7 on MAB. IC14,IC7,IC3 on PRB	1 +3
	15249111	TC7WU04F(TE12L)	IC (CMOS)	IC33,IC99,IC85 on MAB	3
	15249121	TC7W04F(TE12L)	IC (CMOS)	IC21,IC93 on MAB. IC9 on PRB	2 +1
	15259738T0	TC74HC138AF(EL)	IC (CMOS)	IC15 on PRB	1
	15259769T0	TC74HC238AF(EL)	IC (CMOS)	IC2 on PLB. IC13 on PRB	1 +1
	15259819T0	TC74HC564AF(TP2)	IC (CMOS)	IC1 on PLB. IC11 on PRB	1 +1
	15259864T0	TC74HC4052AF(EL)	IC (CMOS)	IC701,IC702,IC703 on FDB	3
	15259884	TC7S08F(TE85L)	IC (CMOS)	IC102 on MAB. IC103,IC6 on PRB	1 +2
	02017045	TC74VHCT541AFT(EL)	IC (COMS)	IC37 on JKB	1
	15259701T0	TC74HC00AF(EL)	IC (HS-CMOS)	IC611 on JKB	1
	15259706T0	TC74HCU04AF(EL)	IC (HS-CMOS)	IC24 on MAB	1
#	02019601	TC203G60AF-0014	IC (I/F)	IC42 on MAB	1
#	02344478	TC200G08AF-0028	IC (I/F)	IC60 on MAB	1
#	02454334	SED1356F0A	IC (LCD-DRIVER)	IC76 on MAB	1
	01899734	BA6208F-E2	IC (MOTOR DRIVER)	IC710,IC719,IC718,IC717,IC716,IC720,IC715, IC714,IC713,IC712,IC711,IC709,IC708,IC707, IC706,IC705,IC704 on FDB	17
	01897601	GP1F37R1	IC (OPTICAL CONNECTOR RX)	IC31 on MAB	1
	01897623	GP1F38T2	IC (OPTICAL CONNECTOR TX)	IC28 on MAB	1
	15289125	PC-410KT 178FAY	IC (PHOTO COUPLER)	IC612 on JKB	1
	00564690	TC9246F(ELP)	IC (PLL)	IC48,IC49,IC82 on MAB	3
#	02563534	ICS512MT	IC (PLL)	IC204 on MAB	1
	00458312	NJM2360M	IC (REGULATOR)	IC501 on LCB	1
#	02230056	PQ07VZ5M2ZP	IC (REGULATOR)	IC22 on MAB	1
#	02453967	PQ1R18	IC (REGULATOR)	IC66 on MAB	1
	15199286	AN78L05M-(E1)	IC (REGULATOR)	IC203 on MAB	1
#	02454878	M62220FP-600C	IC (REGULATOR) DC-DC IC	IC92 on MAB	1
	15199937	M51953BFP-600C	IC (RESET)		1 +1
	00893990	BH9595FP-TP	IC (SCSI ACTIVE TERMINATOR)	IC108 on MAB	1
#	02455923	SPC7214F0B	IC (CPU PERIPH)SCSI CONTROLLER	IC100 on MAB	1
#	02561401	ICS2008AV	IC (SMPTE REC/GEN)	IC110 on MAB	1
	01341567	TC74VHC163F(EL)	IC (TTL COUNTER)	IC91,IC88 on MAB	2
	01341578	TC74VHC14F(EL)	IC (TTL SCHMITT TRIGGER INV.)	IC34,IC32,IC29,IC35 on MAB	4
	01458390	TC74LVX244F(EL)	IC (TTL)		3
	01458401	TC74LVX4245FS(EL)	IC (TTL)	IC4,IC8 on MAB	2
#	02563589	TC74LCX74F(EL)	IC (TTL)	IC80 on MAB	1
#	02563590	SN74ALS151NSR	IC (TTL)	IC86,IC75,IC90,IC209 on MAB	4
	00121078	TC9271F(ELP)	IC	IC27 on MAB	1
	01347489	RTC-4543 SA-A	IC	IC20 on MAB	1
	01904656	IMISM530AYBD	IC	IC101 on PRB	1
	02015678	LC89055W-RA8	IC	IC25,IC30 on MAB	2
#	02561389	MK1412ATR	IC	IC74 on MAB	1

TRANSISTOR

	01902012	2SA1244Y(TE16L)	TRANSISTOR	Q6 on MAB	1
	01121278	2SA1576A T106 QRS	TRANSISTOR	Q603 on JKB	1
	15309105	2SA1587-GR(TE85L)	TRANSISTOR	Q42,Q44,Q26,Q25,Q23,Q22,Q21,Q19,Q27,Q15, Q17,Q13,Q1,Q2,Q3,Q5,Q6,Q7,Q9,Q10,Q18,Q48, Q14,Q29, Q46,Q45,Q43,Q47,Q41,Q40,Q39,Q31, Q11,Q30,Q38,Q33,Q34,Q35,Q36,Q37 on ANB	40
#	02454390	2SA1588-GR(TE85L)	TRANSISTOR	Q604 on JKB	1
	15309604	2SB1197KR T-146	TRANSISTOR	Q11,Q16,Q15,Q14,Q12,Q10,Q9,Q13 on PLB. Q10,Q17,Q16,Q15,Q14,Q13,Q11,Q12 on PRB	8 +8
	01121289	2SC4081 T106 QRS	TRANSISTOR	Q8,Q32,Q16,Q20,Q12,Q28,Q24,Q4 on ANB	8
	01239990	2SC4117-GR(TE85L)	TRANSISTOR	Q501 on LCB. Q1,Q3,Q4,Q2,Q5 on MAB	1 +5
	15319115	2SC4213-A(TE85L)	TRANSISTOR	Q15,Q6,Q7,Q8,Q9,Q10,Q11,Q12,Q14,Q19,Q20, Q17,Q18,Q16,Q5,Q2,Q13,Q3,Q4,Q1 on JKB	20
	15329103T0	2SK880-GR(TE85R)	FET TRANSISTOR	Q49 on ANB	1
	00239801	DTA114EU T-106	TRANSISTOR	Q611 on JKB	1
	15329518	DTA114TKT146	TRANSISTOR	Q5,Q1,Q3,Q4,Q8,Q6,Q2,Q7 on PLB. Q7,Q5,Q4, Q8,Q6,Q1,Q2,Q3,Q9 on PRB	8 +9
	00239812	DTC114EUT106	TRANSISTOR	Q602 on JKB	1

DIODE

	00783034	1SS294(TE85L)	DIODE	D501 on LCB	1
#	02454412	CRG02 (TE85L)	RECTIFIER DIODE	D602,D601 on JKB	2
#	02454856	RB081L-20 TE25	SCHOTTKY DIODE	D2 on MAB	1
	01780045	RB051L-40	SCHOTTKY DIODE	D1,D3 on MAB	2
	15019126	1SS133 T-77	SWITCHING DIODE		1
	01019534	1SS355 TE-17	SWITCHING DIODE	D612 on JKB ,D202,D203,D201 on MAB. D44, D32,D39, D34,D35,D36,D37,D38,D33,D40,D41,D48, D43,D18,D45,D46,D47,D31,D42,D14,D11,D20,D13, D30,D15,D16,D17,D19,D27,D12,D29,D21,D28,D26, D25,D24,	38 +1 +3 +9
	01121323	DA204U T106	DIODE ARRAY	D23,D22 on PLB,D16,D13,D15,D17,D18,D19,D5, D14,D3,D12,D2,D4,D7,D6,D8,D9,D11 on PRB DA17 on ANB ,DA2,DA1 on JKB. DA16,DA17,DA15, DA14,DA13,DA11,DA8,DA24,DA7,DA9,DA26,DA32, DA31,DA30,DA29,DA22,DA27,DA18,DA25,DA10, DA23,DA6, DA21,DA20,DA19,DA28,DA4,DA12,	
	01679012	DAP202U T106	DIODE ARRAY	DA3,DA1,DA5 on MAB DA7,DA1,DA2,DA3,DA4,DA9,DA6,DA13,DA8,DA16, DA10,DA11,DA12,DA15,DA14,DA5 on ANB	1 +2 +31 16
	01121334	DAN202U T106	DIODE ARRAY	DA2 on MAB	1
	01239856	SEL5921A TP15	LED (ORANGE)	LED27,LED39,LED32,LED28,LED29,LED30,LED31, LED34,LED36,LED26,LED38,LED21,LED40,LED41, LED42,LED43,LED37,LED15,LED44,LED35,LED10, LED11, LED12,LED23,LED14,LED25,LED16,LED17, LED18,LED19,LED20,LED22,LED24,LED13, LED46, LED47,LED48,LED49,LED33,LED45 on PRB	40
	01239867	SML72423C TP15	LED (RED/GREEN)CLR	LED2,LED7,LED10,LED11,LED8,LED9,LED6,LED5, LED3,LED1,LED18,LED12,LED4,LED36,LED16, LED37,LED13,LED35,LED34,LED33,LED32,LED31, LED30,LED29,LED28,LED27,LED19,LED38,LED26, LED14,LED15,LED17,LED20,LED21,LED22,LED23, LED24,LED25 on PLB,LED1,LED201,LED9,LED8, LED7,LED6,LED5,LED4,LED3,LED202,LED2 on PRB	38 +11

RESISTOR

	01903523	ERTJ1VR153J	THERMISTOR RESISTOR	R506 on LCB	1
	01898345	ERY43SA125VA	THERMISTOR RESISTOR	R620 on JKB. R115,R25 on MAB	1 +2
#	15399561	RPC18T 330 J	CARBON RESISTOR	R10 on PLB	1
	15399565	RPC18T 470 J	CARBON RESISTOR	R1,R3,R7,R5 on PLB. R18 on PRB	4 +1
#	15399555	RPC18T 180 J	CARBON RESISTOR	R2,R4,R6,R8 on PLB. R20,R19,R24,R23,R22,R26, R25,R21 on PRB	4 +8
	13749770T0	SR25TRE 750 J	CARBON RESISTOR		1
	15399953	MCR100-220J 1W	RESISTOR (CHIP)	R7 on PRB	1
	15399750	MCR100 39 1W	RESISTOR	R103 on MAB	1
	00567245	RPC05T 472 J	MTL.FILM RESISTOR	R701 on FDB. R135,R69,R76,R101,R100,R127, R79,R125,R130,R128,R216,R65,R129,R131,R132, R133,R134,R126,R136 on MAB	1 +19
	00567156	RPC05T 102 J	MTL.FILM RESISTOR	R505 on LCB. R73,R107,R111,R81,R80,R105,R77, R71,R67,R66,R7,R78 on MAB. R16 on PRB	1 +12 +1
	00567190	RPC05T 222 J	MTL.FILM RESISTOR	R503 on LCB	1
	00567312	RPC05T 183 J	MTL.FILM RESISTOR	R504 on LCB	1
	00567056	RPC05T 181 J	MTL.FILM RESISTOR	R502 on LCB	1
	00120289	RR1220P-104-D 100K OHM (CHIP)	MTL.FILM RESISTOR	R303,R454,R207,R213,R214,R235,R237,R243,R244, R183,R274,R175,R304,R333,R334,R363,R364,R393, R394, R423,R424,R453,R273,R85,R3,R4,R25,R27, R33,R34,R55,R57,R205,R64,R184,R87,R93,R94, R115,R117,R123,R124,R145,R147,R153,R154,R63, R177 on ANB. R112,R403,R232,R231,R202,R201, R172,R171,R142,R413,R141,R111,R82,R81,R52, R51,R22,R21 on JKB	50 +18
	15419725	RR1220P-223D 22KOHM (CHIP)	MTL.FILM RESISTOR	R474,R203,R54,R53,R24,R23,R83,R84,R113,R114, R143,R144,R173,R473,R413,R444,R294,R443, R414,R354,R353,R174,R323,R383,R293,R264, R263,R234,R233,R204,R384,R324 on ANB	32
	15419727	RR1220P-153-D 15K OHM (CHIP)	MTL.FILM RESISTOR	R346,R256,R15,R286,R315,R466,R345,R255,R375, R376,R405,R406,R435,R436,R465,R316,R106,R16, R45, R46, R75,R285,R105,R226,R135,R136,R165, R166,R195,R196,R225,R76 on ANB	32
	15419726	RR1220P-393-D	MTL.FILM RESISTOR	R311,R221,R341,R432,R431,R402,R401,R372,R371, R342,R312,R282,R281,R252,R461,R222,R101,R11, R12,R41,R42,R251,R72,R462,R102,R131,R132, R161,R162,R191,R192,R71 on ANB. R271,R391, R381, R371,R361,R301,R241,R211,R181,R151, R121,R91,R61,R31,R1,R331 on JKB	32 +16
	01122089	RR1220Q-220-D 22 OHM (CHIP)	MTL.FILM RESISTOR	R28,R58,R88,R328,R238,R388,R148,R478,R178, R208,R268,R298,R118,R358,R415,R448 on ANB	16
	00897245	RR1220P-222-D 2.2K (D)	MTL.FILM RESISTOR	R190,R129,R130,R159,R189,R100,R160,R99,R70, R69,R40,R39,R219,R9,R310,R10,R399,R460, R459, R430,R280,R400,R220,R370,R369,R340,R339,R309, R279,R250,R249,R429 on ANB	32
	00564234	RR1220P-473-D 47K OHM (CHIP)	MTL.FILM RESISTOR	R56,R176,R164,R163,R134,R116,R104,R103,R86, R193,R73,R146,R44,R43,R26,R14,R13,R434,R463, R464,R433,R74,R314,R404,R403,R374,R373,R133, R343,R194,R313,R284,R283,R254,R223,R206,R236, R344, R224,R253 on ANB. R349,R259,R289, R319 on JKB	40 +4
#	02455912	RR1220P-623-D	MTL.FILM RESISTOR	R20,R110,R81,R51,R231,R21,R80,R111,R260,R410, R230,R201,R200,R171,R170,R141,R261,R290, R381, R380,R351,R350,R321,R440,R291,R50, R140,R411,R441,R470,R471,R320 on ANB	32
	15419701	RR1220P-103-D 10K OHM (CHIP)	MTL.FILM RESISTOR		35 +52
	00897234	RR1220P-183-D (CHIP)	MTL.FILM RESISTOR	R38,R247,R248,R277,R278,R308,R188,R398,R217, R67,R68,R97,R98,R307,R337,R218,R397,R368, R338,R458,R37,R8,R7,R428,R427,R127,R128, R157,R158,R457,R367,R187 on ANB	32
#	02126478	RR1220P-684-D	MTL.FILM RESISTOR	R232,R472,R442,R412,R382,R352,R322,R262,R202, R172,R142,R112,R82,R52,R22,R292 on ANB	16
	15419715	RR1220R-105-D	MTL.FILM RESISTOR	R482 on ANB	1
	01018212	RR1220Q-330-D	MTL.FILM RESISTOR		16
	01013878	RR1220Q-100-D	MTL.FILM RESISTOR	R276,R229,R245,R246,R379,R469,R456,R455,R439, R426,R425,R409,R259,R395,R275,R366,R365,R349, R336,R335,R319,R306,R305,R289,R199,R396,R36, R216,R215,R5,R6,R35,R49,R65,R66,R79,R95, R169,R19, R96,R185,R186,R156,R155, R139,R126, R125,R109 on ANB. R326,R146,R86,R266, R26, R401,R206,R411 on JKB	32 +8
	01451423	MCR25JZH J 682 1/4W	MTL.FILM RESISTOR	R2,R1,R31,R211,R91,R182,R32,R181,R62, R92, R212,R121,R122,R151,R152,R61 on ANB	16
	01788834	RR1220P-622-D	MTL.FILM RESISTOR	R71,R312,R42,R342,R222,R41,R12,R11,R341,R72, R101,R102,R282,R132,R251,R161,R162,R191, R252,R192,R221,R281,R311,R131 on JKB	24
	15399707	MCR25 JZH J 151	MTL.FILM RESISTOR	R140,R107,R108,R109,R110,R137,R139,R198,R168, R167,R169,R170,R80,R197,R50,R138,R48,R17, R78, R79,R19,R47,R18,R230,R229,R228,R227,R200, R199,R49,R77,R20 on JKB	32
	15419707	RR1220P-472-D 4.7KOHM (CHIP)	MTL.FILM RESISTOR	R212,R302,R272,R362,R382,R332,R242,R392, R182,R152,R122,R92,R62,R32,R2,R372 on JKB	16
	15399421	RPC10T 103 J 1/10W	MTL.FILM RESISTOR	R605,R612 on JKB	1
	15419729	RR1220P-822-D	MTL.FILM RESISTOR	R284,R313,R343,R163,R44,R43,R14,R13,R74,R103, R104,R314,R134,R73,R344,R164,R193,R194,R223, R224,R253,R254,R283,R133 on JKB	24

	00348767	RR1220P-471-D 470 OHM (CHIP)	MTL.FILM RESISTOR	R285,R315,R345,R255 on JKB	4
	15399457	RPC10T 334 J 1/10W	MTL.FLIM RESISTOR	R602 on JKB	1
	15399381	RPC10T 221 J 1/10W	MTL.FILM RESISTOR	R614,R630 on JKB	2
	15399375	RPC10T 121 J	MTL.FILM RESISTOR	R611 on JKB	1
	01018234	RR1220P-331-D	MTL.FILM RESISTOR	R36,R276,R66,R95,R96,R35,R125,R126,R65,R155, R185,R186,R215,R6,R386,R216,R245,R246,R275, R156, R395,R376,R396,R5,R385,R305,R375,R366, R365,R336,R335,R306 on JKB. R17 on MAB	32 +1
	15399469	RPC10T 105 J 1/10W	MTL.FILM RESISTOR	R621,R615 on JKB	2
	15419717	RR1220P-273-D 27K 1/10W	MTL.FILM RESISTOR	R351,R261,R291,R321 on JKB	4
	01344723	MCR25 JZH J 220 OHM 1/4W	MTL.FILM RESISTOR	R353,R323,R293,R263 on JKB	4
	15399437	RPC10T 473 J 1/10W	MTL.FILM RESISTOR	R604 on JKB	1
	15419702	RR1220P-102-D 1K OHM 1/10W	MTL.FILM RESISTOR	R347,R317,R287,R257 on JKB. R89 on MAB	4 +1
	15399405	RPC10T 222 J 1/10W	MTL.FILM RESISTOR	R53,R23,R83,R54,R234,R348,R318,R258,R233, R204,R203,R174,R173,R144,R143,R288,R24, R113,R84,R114 on JKB	20
	15399453	RPC10T 224 J 1/10W	MTL.FILM RESISTOR	R603 on JKB	1
	15399373	RPC10T 101 J 1/10W	MTL.FILM RESISTOR	R613,R622 on JKB	2
	00567178	RPC05T 152 J	MTL.FILM RESISTOR	R61,R70,R96 on MAB. R102 on PRB	3 +1
	00567556	RPC05T 105 J	MTL.FILM RESISTOR	R102,R39,R108 on MAB	3
	00567289	RPC05T 103 J	MTL.FILM RESISTOR		40 +12
	00567378	RPC05T 473 J	MTL.FILM RESISTOR	R18 on MAB	1
	00566867	RPC05T 100 J	MTL.FILM RESISTOR	R219,R208,R2 on MAB	3
	00567390	RPC05T 683 J	MTL.FILM RESISTOR	R55,R58,R57,R56 on MAB	4
	00567456	RPC05T 224 J	MTL.FILM RESISTOR	R91,R68,R60 on MAB	3
#	00567645	RPC05T 475 J	MTL.FILM RESISTOR	R9,R209 on MAB	2
	01013889	RR1220P-181-D	MTL.FILM RESISTOR	R16 on MAB	1
#	01455856	RR1220Q-680-D	MTL.FILM RESISTOR	R90 on MAB	1
	00567323	RPC05T 223 J	MTL.FILM RESISTOR	R123,R116,R124 on MAB	3
	00567045	RPC05T 151 J	MTL.FILM RESISTOR	R93,R94,R95 on MAB	3
	00567256	RPC05T 562 J	MTL.FILM RESISTOR	R112 on MAB	1
	00567267	RPC05T 682 J	MTL.FILM RESISTOR	R113 on MAB	1
	00564189	RR1220P-152-D 1.5KOHM (CHIP)	MTL.FILM RESISTOR	R88 on MAB	1
	01897878	RPC05T 512 J	MTL.FILM RESISTOR	R41,R23,R40,R22 on MAB	4
	00566934	RPC05T 330 J	MTL.FILM RESISTOR	R153,R149,R150,R152,R162,R155,R164,R156, R157,R158,R159,R160,R161,R154,R163,R151 on MAB	16
	00566967	RPC05T 470 J	MTL.FILM RESISTOR	R46,R47,R48,R49,R51,R53,R45,R50,R44,R43,R37, R36,R35,R34,R33,R32,R30,R54,R29,R28,R27,R26, R31,R52 on MAB	24
	00567278	RPC05T 822 J	MTL.FILM RESISTOR	R38,R21 on MAB	2
	00567001	RPC05T 750 J	MTL.FILM RESISTOR	R19,R20,R24,R42 on MAB	4
	00567023	RPC05T 101 J	MTL.FILM RESISTOR	R72,R205,R210,R211,R212,R214,R97,R221,R62, R220 on MAB. R101 on PRB	10 +1
	00567067	RPC05T 221 J	MTL.FILM RESISTOR	R59 on MAB	1
	01011856	RPC05T 0R0 J	MTL.FILM RESIST0R	R218,R74,R213,R217,R63,R98 on MAB	6
	00567034	RPC05T 121 J	MTL.FILM RESISTOR	R92,R106 on MAB	2
	00904701	RR1220P-302-D 3KOHM (D-RANK)	MTL.FILM RESISTOR	R6 on PRB	1
	01013890	RR1220P-221-D 220 OHM 1/10W	MTL.FILM RESISTOR	R5 on PRB	1
#	02564078	BPR28F 0.05 OHM K	MTL.PLATE RESISTOR	R223 on MAB	1
	15399965	RCE9A103JAG7A (10KOHM X8)	RESISTOR ARRAY	RA1,RA8,RA4,RA7,RA9,RA12,RA13,RA14,RA15, RA16,RA17 on MAB. RA2,RA4,RA6,RA7,RA12, RA17,RA18,RA1 on PRB	11 +8
	15399917	MNR34J5ABJ103	RESISTOR ARRAY	RA18,RA201 on MAB. RA16,RA15,RA3,RA13, RA14,RA11,RA10, RA9,RA5,RA8 on PRB	2 +10
	15399932	MNR34J5ABJ101 100OHM	RESISTOR ARRAY	RA203,RA202 on MAB	2
	01788489	CNB2B9ZTE332 J	RESISTOR ARRAY	RA19 on PRB	1
#	15399933	MNR34J5ABJ331	RESISTOR ARRAY	RA2,RA1 on PLB. RA20,RA21 on PRB	2 +2

POTENTIOMETER

#	02673856	RK09L1140 20KRD L25 RR1	9M/M ROTARY POTENTIOMETER		16
#	02562689	EVU F2J FK5 B14	9M/M ROTARY POTENTIOMETER	VR403 on VLB	1
	01904401	EVU F2A E25 B53	9M/M ROTARY POTENTIOMETER	VR404 on VLB	1
#	02562678	EVJ Y90 FA3 A14	12M/M ROTARY POTENTIOMETER	VR402,VR401 on VLB	2
#	02454434	EVA NQB CA1 B14	60M/M MOTOR FADER	VR712,VR716,VR717,VR714,VR710,VR708, VR706,VR704,VR702 on FDB	9
#	02454445	EVA NQA CA1 B14	60M/M MOTOR FADER	VR701,VR703,VR705,VR707,VR709,VR711, VR715,VR713 on FDB	8

CAPACITOR

	15359741	ECUV1H101JCG 100PF/50V	CAPACITOR	C624,C623,C622,C621,C620 on JKB	6
	13639510M0	ECEA0JM101B 100UF/6.3V	CERAMIC CAPACITOR	C741,C740,C739 on FDB	3
	02129534	ECJ1VB1H102K	CERAMIC CAPACITOR	C91,C258,C256,C92,C90,C93 on MAB	6
	01674612	ECJ1VB1H103K	CERAMIC CAPACITOR	C754,C758,C757,C755,C750,C753,C752,C751,C749, C747,C746,C745,C744,C743,C742,C756,C748 on FDB. C133,C53,C196,C132,C95,C102,C130, C156,C155,C57,C154,C65,C67,C157,C131 on MAB. C23,C22 on PRB	17 +15 +2
	01674578	ECJ1VB1H682K	CERAMIC CAPACITOR	C103 on PRB	1
	01674701	ECJ1VF1E104Z 0.1UF/16VK	CERAMIC CAPACITOR		27 +4 +158 +58
#	02568812	ECJ2FB1C474K	CERAMIC CAPACITOR		3
	01674167	ECUV1H100DCV	CERAMIC CAPACITOR	C71,C207,C228,C206,C70,C229 on MAB. C11, C6 on PRB	6 +2
	01674334	ECUV1H101JCV	CERAMIC CAPACITOR	C232 on MAB	1
	15359707	ECUV1H104KN 0.1	CERAMIC CAPACITOR		42 +34
	13519611M0	ECCR1H150J5	CERAMIC CAPACITOR	C94,C191,C101 on MAB	3
	01674278	ECUV1H470JCV	CERAMIC CAPACITOR	C801 on JKB	1
	01674423	ECUV1H471JCV	CERAMIC CAPACITOR	C29,C31 on MAB ,C13 on PRB	2 +1
	01674434	ECUV1H561JCV	CERAMIC CAPACITOR	C625 on JKB,C501 on LCB,C254 on MAB	1 +1 +1
	01674445	ECUV1H681JCV	CERAMIC CAPACITOR	C102 on PRB	1
	02127812	RA2-25V470MT2	CERAMIC CAPACITOR	C395,C392,C88,C396,C391,C87,C388,C184,C92, C84,C83,C91,C187,C188,C191,C195,C196,C283, C284,C387,C287,C292,C192,C291,C183,C288 on ANB C516,C508,C507,C506,C524,C505,C513, C511,C526,C517,C518,C521,C522,C523,C514, C512,C504,C515,C528,C534,C525,C532,C531, C533,C503,C527,C486,C501,C502 on JKB	26 +28
#	02568334	RA3-6V223M	CERAMIC CAPACITOR	C310 on MAB	1
	15359614	ECUV1H220JCN	CERAMIC CAPASITOR	C230,C350,C330,C310,C270,C250,C370,C210, C170,C150,C130,C110,C70,C50,C10,C30 on ANB. C198,C227,C47,C48,C77,C78,C197,C168,C138, C137,C108,C107,C17,C18,C167,C228 on JKB	16 +16
	00674423	ECA0JM102B 1000U/6.3V	CHEMICAL CAPACITOR		1
	13639570	ECA1EM101B	CHEMICAL CAPACITOR	C722,C723,C724,C725,C726,C727,C728,C730, C729 on FDB	9
#	02453856	ECEA0JPZ221B	CHEMICAL CAPACITOR	C201,C21,C141,C261,C321,C401,C411,C81 on JKB	8
#	02453801	ECEA1APZ471B	CHEMICAL CAPACITOR	C368,C328,C308,C348,C268,C248,C228,C208, C148,C128,C108,C68,C48,C28,C8,C168 on ANB	16
	01909667	ECEA1CPZ101B	CHEMICAL CAPACITOR		4
	01345956	ECEA1CPZ470B 47PF/16V	CHEMICAL CAPACITOR	C182,C285,C93,C94,C113,C133,C153,C181,C185, C186,C189,C190,C193,C194,C90,C282,C386,C502, C501,C394,C393,C281,C389,C290,C385,C382,C381, C173,C293,C289,C286,C390,C13,C89,C294,C33, C53,C81, C82,C85,C86,C73 on ANB	32 +32
#	02562478	ECEA1HPZ101B	CHEMICAL CAPACITOR	C27,C263,C207,C205,C203,C147,C145, C143, C87,C83,C25,C23,C613,C265,C85,C519,C614, C611,C520,C612,C510,C509,C485,C484,C483, C323,C415,C413,C407,C405,C403,C327,C325, C417,C267 on JKB	
	01346001	ECEA1HPZ220B 22UF/50V	CHEMICAL CAPACITOR	C164,C14,C16,C44,C46,C74,C76,C104,C106,C344, C136,C166,C194,C196,C134,C224,C226,C254, C284,C314 on JKB	16
				C141,C142,C161,C162,C201,C202,C122,C222, C21,C221,C121,C102,C101,C62,C61,C42,C241, C22,C341,C2,C1,C41,C362,C261,C262,C301,C302, C321,C322,C402,C242,C361,C342 on ANB	33
#	02454889	ECEV0JA221WP	CHEMICAL CAPACITOR	C198,C104,C97 on MAB	3
	01909690	RA2-16V471MC-T2	CHEMICAL CAPACITOR	C602 on JKB	1
	02230667	RA2-35V4R7MT2	CHEMICAL CAPACITOR	C601 on JKB	1
#	02453812	RA2-50V471M-T4	CHEMICAL CAPACITOR	C500 on ANB	1
	01904690	RA2-63V100M-T2	CHEMICAL CAPACITOR	C52,C152,C132,C72,C32,C12,C172,C112 on ANB	8
	01902590	RA2-6V101MC-T2	CHEMICAL CAPACITOR		1
#	02231223	RFS-16V152MK6ES	CHEMICAL CAPACITOR	C503,C504 on ANB. C481 on JKB	2 +2
#	02345145	RV2-16V101M-R	CHEMICAL CAPACITOR		3
#	02344978	RV2-50V2R2M-R	CHEMICAL CAPACITOR		1
#	02345234	RV2-6V101M-R	CHEMICAL CAPACITOR	C505,C502 on LCB. C143,C174,C234,C225,C127, C222, C117, C138,C112,C148,C153,C42,C204, C304,C165,C168,C189,C212,C243,C45,C36,C28, C55,C61,C74,C75,C122,C24,C162,C14,C76,C241, C11,C77,C10,C6,C1,C238,C84,C26 on MAB. C5,C1 on PLB. C63,C70,C68 on PRB	2 +2 +40 +3
#	02564867	RV-35V470MG68-R	CHEMICAL CAPACITOR	C504,C503 on LCB	2
#	02565545	RV-6V331MG68-R	CHEMICAL CAPACITOR		3 +1 +6
	13639514M0	ECA0JM331B	CHEMICAL CAPASITOR	C737,C738 on FDB	2
	01784156	ECHU1C104JX5	POLYEST. CAPACITOR	C51,C31,C11,C71,C111,C131,C151,C171,C211, C231,C251,C271,C331,C351,C371,C401, C311 on ANB	17
	02018178	ECHU1C223JX5	POLYEST. CAPACITOR	C317,C287,C257,C347 on JKB	4
	01898434	ECHU1H101JX5	POLYEST. CAPACITOR	C403 on ANB. C255,C271,C285,C301,C331,C242, C302, C315,C272,C75,C62,C61,C45,C32,C31, C2, C1,C241,C91,C15,C105,C392,C391,C382,C381, C372,C371,C362,C361,C92,C332,C225,C121,C122, C135,C151,C152,C165,C181,C182,C195,C211, C212,C345 on JKB	1 +44
	01899345	ECHU1H121JX5	POLYEST. CAPACITOR	C166,C125,C126,C127,C145,C146,C107,C5,C66, C205,C206,C207,C147,C106,C45,C67,C65,C47,C46, C225,C6,C167,C7,C25,C26,C27,C105,C325,C165, C367,C366,C365,C347,C346,C345,C226,C326,C307, C306,C305,C267,C266,C265,C247,C246,C245, C227,C327 on ANB	48
	01784145	ECHU1H152JX5	POLYEST. CAPACITOR	C183,C3,C33,C63,C93,C153,C213,C243,C273, C303,C333,C363,C373,C383,C393,C123 on JKB	16
	01905534	ECHU1H221JX5	POLYEST. CAPACITOR	C283,C132,C253,C252,C223,C222,C193,C163, C282,C133,C192,C103,C102,C73,C72,C43,C42, C13,C12,C313,C312,C162,C342,C343 on JKB	24
	01896589	SK4-0J106MZ4-RA	TANTALUM CAPACITOR		24

INDUCTOR, COIL, FILTER

	01893634	LQH4N151K04	COIL	L501 on LCB	1
	00907856	BLM21A601SPT	FERRITE-BEAD	C204,C404,C402,C326,C324,C322,C266,C264, C406,C206,C82,C202,C146,C144,C142,C86, C84,C26,C22, C262,L2,C24,C412,L1,L3,L4,L5,L6, L7,L8, L10, C416,C414,L9 on JKB. L5,L3,L201, L4 on MAB	10 +3
	01904001	TSL1315S-101	CHOKE COIL	L6 on MAB	1
	01783601	BLM21B601SPT	FERRITE-BEAD		1
#	02562845	E2012C101	EMI FILTER	C194,C195,C192 on MAB	3

CRYSTAL, RESONATOR

#	02562812	MA-406 14.31818MHZ	CRYSTAL	X5 on MAB. X1 on PRB	1 +1
	00901912	MA-406 24.576MHZ TE24	CRYSTAL	X2 on MAB	1
	00894023	MA-406 20.000MHZ TE24	CRYSTAL	X6 on MAB	1
#	02563556	SG-8002JC-66.6M-PHCL	OSCILLATOR	X4,X1 on MAB	2
	01561956	SG-8002JC-50M-PHCL	OSCILLATOR	X3 on MAB	1

ENCODER

	02345734	EVE LA1 F20 24B	ROTARY ENCODER	EN2,EN6,EN5,EN4,EN3,EN10,EN1,EN8,EN7, EN16,EN15,EN9,EN14,EN11,EN12,EN13 on PLB	16
	02455501	JOG-SHUTTLE SRGPHJ3200	ROTARY ENCODER	EN1 on PRB	1

CONNECTOR

	01909589	10FE-BT-VK-N	CONNECTOR	CN3 on ANB. CN7 on JKB	1 +1
	01908645	16FE-BT-VK-N	CONNECTOR	CN4,CN5 on ANB. CN4,CN2 on JKB	2 +2
	13369541	B10B-PH-K-S JST	CONNECTOR	CN501 on LCB. CN11 on MAB	1
	13369582	B13B-PH-K-S JST	CONNECTOR	CN6,CN5 on JKB. CN9 on MAB	1 +1
	13369570	B2B-PH-K-S (2P)	CONNECTOR	CN13 on MAB	1
	13369594	B4B-XH-A	CONNECTOR	CN2 on PRB	1
	13369503	B7B-PH-K-S JST	CONNECTOR	CN1 on MAB	1
	13369663	JST S3B-PH-K-S(3P)	CONNECTOR		2
	13369674	S14B PH-K-S	CONNECTOR	CN711 on FDB	1
	01349645	S2(4-2.3)B-XH-A	CONNECTOR	CN504 on LCB	1
	13369664	S4B-PH-K-S(4P)	CONNECTOR	CN712 on FDB	1
	13369670	S10B-PH-K-S	CONNECTOR 10P	CN701 on FDB	1
	02237512	75501-0X0-B	CONNECTOR P/N	CN1 on ICB. CN2,CN18 on MAB. CN1 on PRB	1 +2 +1
	01341990	52045-1245	FFC/FPC CONNECTOR	CN502 on LCB	1
#	02453867	52045-4045	FFC/FPC CONNECTOR	CN3 on JKB. CN10 on MAB	1 +1
	01786289	52492-3020	FFC/FPC CONNECTOR	CN10 on PLB. CN8 on PRB	1 +1
#	02450156	52492-3220	FFC/FPC CONNECTOR	CN11 on PLB. CN7 on PRB	1 +1
	13379104	TX14-40R-6ST-MH1	B TO B CONNECTOR	CN6,CN7,CN8,CN5 on MAB	4

WIRING, CABLE

#	02563812	BAN CARD	BNCD-P=1.25-K-30-500		1
#	02563823	BAN CARD	BNCD-P=1.25-K-32-500		1
#	02563834	BAN CARD	BNCD-P=1.25-K-10-70		1
#	02563845	BAN CARD	BNCD-P=1.25-K-16-70		2
#	02563856	BAN CARD	BNCD-P=1.25-K-40-70		1
#	02563867	WIRING	AC ASSY		1
#	02564034	WIRING	HDD		1

TRANSFORMER

	00900901	CXA-M10AL 560000030	INVERTER MODULE	IC502 on LCB	1
	02019478	(7KQ5) 19832A	PULSE TRANS	L1 on MAB	1

SCREW

	40011056	SCREW 3x6	BINDING TAPTITE B ZC	7
	40011090	SCREW 3x6	BINDING TAPTITE B BZC	13
	40012512	SCREW 3x6	BINDING TAPTITE S ZC	4
	40012534	SCREW 3x6	BINDING TAPTITE S FE BZC	3
	40010501	SCREW M3x6	FLAT HEAD FE BZC	3
	40013056	SCREW M3x6	PAN MACHINE W/SW+PW ZC	34
	40342712	SCREW M3x6	PAN MACHINE W/SW+SMALL PW BZC	8
	40011101	SCREW 3x8	BINDING TAPTITE B BZC	20
	40011201	SCREW 3x8	PAN TAPTITE P BZC	16
	40011312	SCREW 3x8	BINDING TAPTITE P BZC	41
#	40019123	SCREW 3x8	BINDING TAPTITE S BZC	2
	40342989	SCREW M4x8	PAN W/EX.TOOTH WASHER	2
	40344623	SCREW M4x8	PAN SEMS SCREW W/SW+SMALL BZC	8
#	40451612	SCREW 4x10	PAN TAPTITE P BZC	10
#	40451412	SCREW 5x10	BINDING TAPTITE A BZC	4
	40344134	SCREW M4-40x7.9	HEX SOCKET NI	8
#	02566056	COIN BOLT 4x4	W/LOWLET BZC	2
#	40450512	GND SCREW		1

PACKING

#	02126012	PACKING CASE	0157-1A	1
#	02566101	ACCESSORY PAD	0157-2D	1
#	02566090	LOWER PAD	0157-2A	1
#	02566123	PAD	0157-2F	1
#	02566589	PAD	0157-2E	1
#	02566078	UPPER PAD L	0157-2B	1
#	02566089	UPPER PAD R	0157-2C	1
#	02674489	OUTER PACKING CASE		1

MISCELLANEOUS

#	02565189	BLIND SHEET			1
	40238545	CAUTION LABEL	SHOCK HAZARD & ICES		1
	40017401	COATING CLIP CS-7U			1
#	02562956	DC FAN MOTOR	9A0812L403		1
#	40450767	FADER SEAL			1
#	02560567	FOOT			2
	22355334	FOOT MKS	235-334		3
	40016512	INSULOK TIE	80M/M T-18S		2
	00238990	LITHIUM BATTERY	CR2032 220MAH/3V		1
	12569420	LITHIUM BATTERY HOLDER	(HL32-A2) FOR CR2032	BT1 on MAB	1
#	40450778	PHRASE SEAL			1
#	40450789	TRACK EDIT SEAL			1
#	40450790	TRACK SEAL			1
	40014589	WARNING SEAL	102-103		1

ACCESSORIES (STANDARD)

#	71672467	OWNER'S MANUAL SET	JAPANESE	1
#	71672734	OWNER'S MANUAL SET	ENGLISH	1
	00894367	AC CORD SET 100 V	SP18A+IS14 VCTF2X0.75	1
	00894378	AC CORD SET 120 V	SP301+IS14 SJT18/3	1
	00894389	AC CORD SET 230 V	SP22+IS14 H05VV-F3G1.0	1
	00907001	AC CORD SET 230 VE	KP-610 GTTBS-3 KS-31A	1
	23495124	AC CORD SET 240 VA	SC-144-JO1 ES303-10HMA	1
#	02346478	PS/2 MOUSE	LOGITECH SAW59A	1
#	02569756	DEMO CD		1
	71019234	VF8F-2 EFFECT EXPANSION BOARD		1
#	02674890	R-BUS USER GUIDE 2	JAPANESE	1
#	02674901	R-BUS USER GUIDE 2	ENGLISH	1
#	40452245	SHORT CUT SEAL		1
	40232334	WARRANTY CARD	(JAPAN ONLY)	1

INDENTIFYING VERSION NUMBER

Turn on the power of the machine by pressing the [CH EDIT] and [TRACK STATUS] buttons of CH1 at the same time.
The LCD shows the following screen.

```
          Version Information
Boot
        Version       :   1.000
        Create Date   :   01/03/2001
        Create Time   :   13:42:49
System
        Version       :   1.000
        Create Date   :   01/03/2001
        Create Time   :   13:42:49

Sub System
        Version       :   1.000

Check Sum
        Total         :   C148h
        Boot          :   3421h
        System        :   AFE2h
        Parameter     :   E089h

        Sub System    :   DAECh

              [ ENTER ]
```

[Fig.1]

Boot: The version number and the date of creation of the boot area of the program on the main board.
System: The version number and the date of creation of the system area of the program on the main board.
Sub System: The version number of the system area of the program on the panel R board.
Check sum : The checksum of each program area.
"Total" does not include the checksum of any sub-system.

NOTE : The VS-2480 has the rewritable program areas on the main board and the panel R board.
Be sure to keep both of them up-to-date.

SAVING SYSTEM PARAMETERS

When you replace the board of the VS02480 of your customer fore repair, save the system parameters, effects, user patches and other data to a MIDI sequencer or other in advance. Reinstall them in the machine after you completed the repair.

Send the parameters through MIDI OUT

1. Turn on the power of the machine by pressing the [CH EDIT] buttons of CH2 and CH3 at the same time.

2. The LCD shows "Send SysPrmMIDI?"
Press the [ENTER/YES] button, and the system parameters and user data are sent in the MIDI Exclusive format.

Restore the system parameters

1. Turn on the power of the machine by pressing the [TRACK STATUS] buttons of CH2 and CH3 and the [CH EDIT] button of CH5 at the same time.

2. After "SYSTEM Update ?" was shown on the LCD, press the [ENTER/YES] button.

3. If "Waiting MIDI-EX" was shown, the machine is ready to receive the MIDI data. Send the data you had saved in the MIDI sequencer or other.

4. "01/01 Recieve:003F****" is shown while the machine is receiving the data.

5. "-P-- Update SysPRM ?" is shown after all the data was received.
Press the [ENTER/YES] button.
The data transfer is completed if "Please Reboot OK" was displayed.

TEST MODE

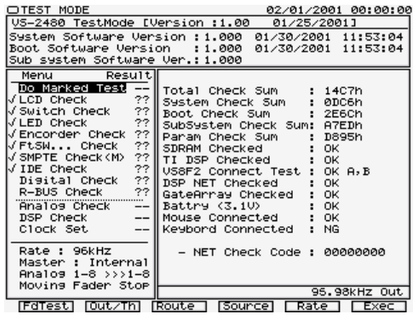
Required items
- VS8F-2 x 3
- A device which has R-BUS
- Foot Switch
- A device which has Digital out
- A device which has SMPTE out
- Audio Cable
- Tester

1. How to Activate the Test Mode
To activate the Test mode, turn on the machine by pressing the [PAGE] and [F1] buttons under the LCD.

2. How to Exit the Test Mode
To exit the Test mode, turn off the machine.

3. Basic Operations
After the inspection program has started, the screen shown in (Fig. 1) is displayed on the LCD.
The current version of the program is shown at the top of the LCD.
The test menus and current mode of the audio I/O check are shown on the lower left of the LCD.
The contents of the menu selected are shown at the lower right of the LCD.
You can select each test menu with the [TIME/VALUE] control and execute it by pressing the [F6] button.

4. Explanation of the Start-up Inspections (Fig. 1)
The inspection items shown at the lower right of the LCD when you started the machine are explained below:



[Fig.1]

[SDRAM Checked]
Shows the SDRAM inspection results.
If an error is displayed, you cannot activate the Test mode.

[TI DSP Checked]
Shows the inspection results of the IC62 on the main board.
"OK" appears if there is no problem otherwise, "NG" appears.

[VS8F2 Connect Test]
Shows the inspection results of the VS8F-2 connections.
The names of the connectors connected to the VS8F-2 board are displayed.
"A,B,C,D" is shown if all the connectors are connected.
"OK" appears if there is no connection problem.
"NG" appears if there is connection error or no connector is connected.

[DSP NET Checked]
Shows the inspection results of the IC50, 51, 52, 53, 56, 57, 58 and 59 on the main board and VS8F-2.
"OK" appears if there is no problem, otherwise, "NG" appears.

[GateArray Checked]
Shows the inspection results of the IC42 and 65 on the main board.
"OK" appears if there is no problem, otherwise, "NG" appears.

[Battery]
Shows the inspection results of the lithium battery on the main board.
If there is no problem, "OK" and the current voltage of the battery are shown.
If there is a problem, "NG" and the current voltage of the battery are shown.
If the board has no battery mounted, "<NoBattry>" appears.

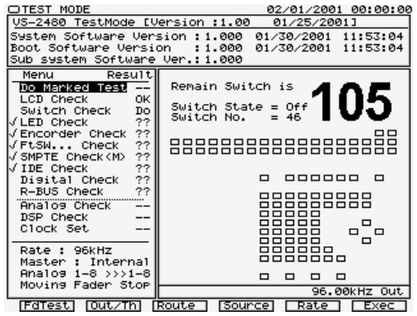
[Mouse Connected]
Shows the inspection results of the mouse connection.
"OK" appears if the mouse is connected and operates normally.
"NG" appears if no mouse is connected or there is a connection error.

[Keyboard Connected]
Shows the inspection results of the keyboard connection.
"OK" appears if the keyboard is connected and operates normally.
"NG" appears if no keyboard is connected or there is a connection error.

5. Explanation of the Inspection Items

[01:LCD Check]
Check the LCD screens.
Every time you press the switch, the white, black or letter screen changes to another.

[02:Switch Check] (Fig. 2)
Check the operation of the switches on the panel board.
Check 'ON/OFF' of all the switches on the board.
If two or more switches were pressed at the same time during the check, the LED blinks to warn you.

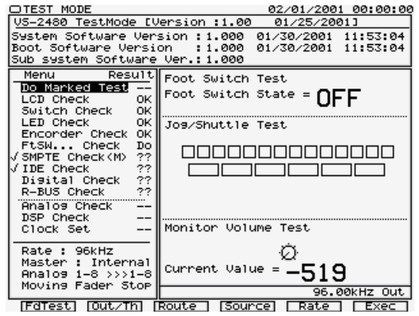


[Fig.2]

[03:LED Check]
Check the operation of the LEDs on the panel board.
Check that all the LEDs on the board light up.
Every time you press the [PLAY] button, the LEDs light up one by one.
Every time you press the [STOP] button, the lighting process is reversed.
When the check is completed successfully, all the LEDs should be lit.

[04:Encorder Check]
Check the operation of the encoders on the panel board.
Turn each of the sixteen encoders on the fader three clicks or more to the right and left.

[05:FtSW...Check] (Fig. 3)
Check the operation of the foot-switch, jog-shuttle and monitor volume.
"ON" or "OFF" appears as you press the foot-switch or release it, respectively.
Turn the jog of the jog-shuttle three clicks or more to the right and left.
Turn the shuttle all the way to the right and left.
Check that the displayed value changes from "-910" to "+60" as you turn the monitor volume.



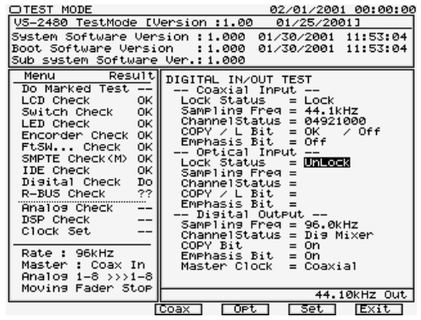
[Fig.3]

[06:SMPTE Check]
Check the operation of MIDI IN/OUT and SMPTE IN.
Press the [F2] (OUT/Th) button so that "OUT" appears at the lower right of the display.
Connect MIDI IN and MIDI OUT with a MIDI cable.
Connect a device which outputs SMPTE signals to SMPTE IN.
Press the [F5] (EXEC) button to start the inspection.

[07:IDE Check]
Inspects the operation of the IDE hard-disk drive.

Caution : This inspection rewrites the hard disk.
So, be sure to back up the data on the hard disk before starting inspection.

[08:Digital Check] (Fig. 4)
Check the operation of Digital AUDIO (both Coaxial and Optical).
Connect a device to Coaxial IN/OUT.
Press the [F3] (Coax) button.
Check that Digital In sound is output from Digital Out and that the Coaxial's LOCK Status is 'LOCK'.
Connect a device to Optical IN/OUT.
Press the [F4] (Opt) button.
Check that Digital In sound is output from Digital Out and that the Optical's LOCK Status is 'LOCK'.

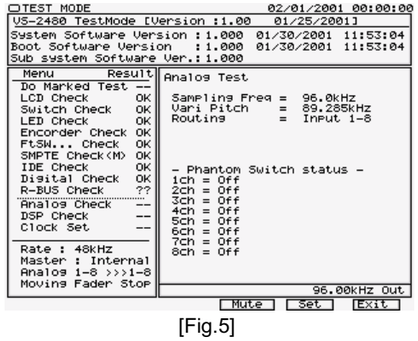


[Fig.4]

[09:R-BUS Check]
Inspects the R-BUS connection.

Note : This function is used only during the shipping test at the factory.
You need not use it when servicing in the field.

[10:Analog Check] (Fig. 5)
Check the Analog I/O operation.
Move "Sampling Freq" on the screen to "Routing" with the cursor key and change its value with the [TIME/VALUE] control.
Set Sampling Freq to ’96.0 kHz’ and Routing to ’Input1-8’.
Press the [F5] (Set) button.
Check here that Inputs 1 through 8 sound is output from the corresponding Outputs 1 through 8 in a one-to-one relationship.
Set Sampling Freq to ’44.1 Hz’ and Routing to ’Input 9-16’.
Press the [F5] (Set) button.
Check here that Inputs 9 through 16 sound is output from the corresponding Outputs 1 through 8 in a one-to-one relationship.
Set Sampling Freq to ’Vari’.
Press the [F5] (Set) button.
Check that sound comes from the Output.
Move the cursor to "Phantom Switch status" and turn the Phantom Switch to ’ON’.
Check here that the voltage between pin 1 and 2 of the XLR connector is 38V or more.

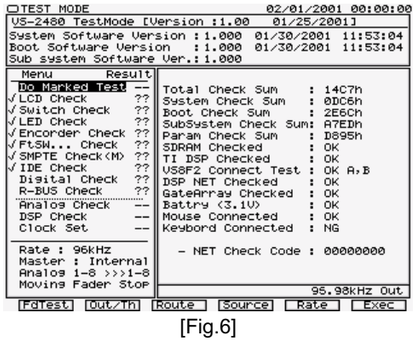


[Fig.5]

[11:DSP Check]
Inspects the operation of the DSPs on the main and effect boards.
OK appears if there is no problem otherwise, "NG" appears.

[12:Clock Set]
Set the built-in clock.
Move the cursor to the item you want to adjust.
You can change the value by turning the TIME/VALUE dial.
Press the [F5] (Set) button to set date and time you have just entered.
Check that the date and time shown at the upper right corner of the LCD are what you entered.

[13:Fader Test] (Fig. 6)
Inspects the operation of the motor faders.
Press the [F1] (FdTest) button.
The display changes to "Moving Fader EXEC" and the fader test starts.
The fader will move from the left to the +6, 0 and -∞ dB positions, in this order.
Don’t touch the fader during the test.
If normal, "OK" is shown in the bottom left of the LCD; otherwise, "NG" is shown.



[Fig.6]

[14:R-BUS Check] (Fig. 6)
Check the R-BUS’s I/O operation.
Connect an R-BUS device (ADA-7000 is recommended) to R-BUS1.
Set the master clock of the R-BUS device to "R-BUS".
Press the [F5] (Rate) button several times to set the "Rate" shown at the lower left of the screen to ’44.1 kHz’.
Press the [F4] (Source) button several times to set the "Master" shown at the lower left of the screen to ’Internal’ .
Press the [F3] (Route) button several times to set the "Routing" shown at the lower left of the screen to "R-BUS1 >>>>>>1-8’.

Then input a sound from an R-BUS device connected to R-BUS1.
It is output from another R-BUS device connected to R-BUS1 in a one-to-one relationship via the VS-2480.
Check that the sound is output from every track.
Connect an R-BUS device to R-BUS2.
Press the [F3] (Route) button several times to set the "Routing" shown at the lower left of the screen to "R-BUS2 >>>>>>1-8’.
Then input a sound from an R-BUS device connected to R-BUS2.
It is output from another R-BUS device connected to R-BUS2 in a one-to-one relationship via the VS-2480.
Check that the sound is output from every track.

SETTING THE INTERNAL CLOCK

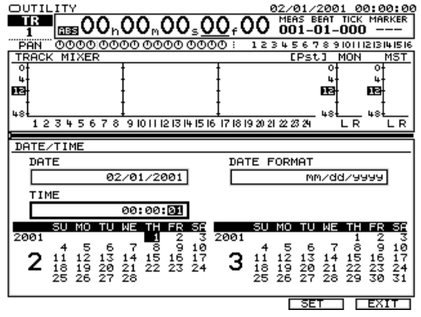
The VS-2480 has a built-in clock.
Since the clock is battery driven, you have to reset the time whenever you replace the battery as follows:

1. Press the [UTILITY] button.

2. Select [17.DATE/TIME] with the cursor, and press the [ENTER] button.

3. Move the cursor, and set each time value.

4. Press the [F5] (Set) button to set the time you have just entered.



DATE EDIT
Set year, month and date by the Christian era.

TIME EDIT
Set the current time by 24 hours.

DATE FORMAT
Select the way of indicating year, month and date.
mm/dd/yyyy: month/date/year
dd/mm/yyyy: date/month/year
yyyy/mm/dd: year/month/date
mmm.dd,'yy: month/date/year
dd mmm 'yy: date/month/year

PROCEDURE FOR UPDATING THE SOFTWARE

SYSTEM SOFTWARE UPDATING USING THE SMF (Update CD-ROM (SMF) P/No.17041060)

The latest system program of the VS-2480 is stored in standard MIDI file (SMF) format.

The system consists of 32 files.
The filenames start with "VS-248000.MID" and end at "VS-248031.MID"; check them.

To update the system, follow the procedure below:

1. Connect the MIDI OUT connector of a MIDI sequencer which can replay SMF data to the MIDI IN connector of the VS-2480 via a MIDI cable.
   It will be helpful to use a MIDI sequencer like an SB-55 or MC-80 which can replay SMF data continuously.

2. Turn on the machine by pressing the [TRACK STATUS] buttons for CH2 and CH3 and the [CH EDIT] button for CH5 at the same time.

3. The LCD displays "SYSTEM Update?" Press the [ENTER/YES] button.

4. Then "Waiting MIDI-EX" appears, which means that the machine is ready to receive the MIDI data.
   Replay the data in order starting from VS248000.MID using a sequencer or other device.

5. While the machine is receiving the data, the following is displayed:

```
01/32 Receive : 00******
Ver
   1.000
 ->1.001
```

After receiving is completed data, an "--S- Update SysPRG?" message appears.

Select the area to be updated by pressing a function button.
[F1] updates the boot program.
If this button is pressed, "B*** Update SysPRG ?" is displayed.

[F2] updates the parameters block
If this button is pressed, "*P** Update SysPRG?" is displayed.

[F3] updates the system program.
If this button is pressed, "**S* Update SysPRG?" is displayed.
This occurs just after data receiving is completed.

[F4] updates the sub-system program.
If the button is pressed, "***s Update SysPRG?" is displayed.
The "BPSs Update SysPRG?" message is displayed if you chose to update all areas.

6. Press the [ENTER/YES] button.
   When "Please Reboot OK" is displayed, updating is completed.

SYSTEM SOFTWARE UPDATING USING ZIP DISK] (Update Zip Disk P/No.17041061)

You can update the VS-2480's system with an Updated Zip disk by following the procedure below.

Caution : You cannot update the system if the VS-2480 and the Zip disk are the version or less.

How to Update the Main System

1. Connect the VS-2480 and a Zip drive with an SCSI cable, and turn on the Zip drive.

2. Insert the Zip disk in the drive.

3. Turn on the VS-2480.

4. The LCD shows the following:

```
Update Main System Program ?

Ver.X.XXX (Boot x.xxx)

YES / NO
```

5. Press the [YES] button, and the following is displayed:

```
-- Keep User Setting ? --

[EZ ROUTING User Routing]
[    EFFECT User Patch    ]
[      ARARM User Data    ]

[ NO] is Init User Setting

YES / NO
```

6. Press the [YES] button if you need to store user data, or [NO] if not.
   The following screen appears and asks you for confirmation.
   Press the [YES] button if there is no problem.

```
-- Init User Setting Sure ? --

[EZ ROUTING User Routing]
[    EFFECT User Patch    ]
[      ARARM User Data    ]

YES / NO
```

7. If the Zip disk has any sub-system program, the screen to update the sub-system will be shown.
   Press the [YES] button if you want to update the sub-system, or [NO], if you don't.

```
Update Sub System Program ?

YES / NO
```

8. The update is completed if "Please Reboot OK" was displayed.

INITIALIZING THE DISK (DRIVE INITIALIZE)

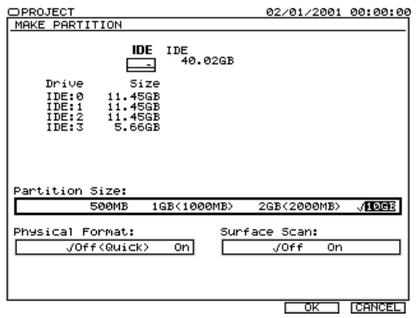
The VS-2480 can't accept a brand-new disk directly or one which has been used in another computer.
For the VS-2480 to be able to accept such a disk, you have to format it (initialization) and set the partitions.
Formatting the disk (built-in hard disk and Zip disk, for example) causes all contents to be lost.
Before formatting, check if the contents need to be saved or not.
If they do, back them up on a Zip or CD-R disk.

1. Press the [PROJECT] button.

2. Position the cursor on the disk drive you want to format.

3. Press the [PAGE] button to select 'Page4'.

4. Press the [F2] (FmtDrv) button.
   The display changes to the Make Partition screen.



- Physical Formatting :
  Select how to format the disk as follows:

Off (Quick)
  The disk is only formatted logically (Logical formatting).
  When the disk is formatted, all data is lost.
  This option is usually selected.

On
  The disk is formatted physically (Physical formatting).
  Select this when reformatting a disk which caused an error during surface scanning.
  Note that it takes quite a long time to complete formatting.
  When the disk is formatted, all data is lost.

- Surface Scanning :
  Use this switch to specify whether or not to do a write/read check of the disk after formatting.
  When 'On' is selected, all disk areas are checked.
  Note that it takes quite a long time to complete the check.

- Partition Size :
  Select the partition size.
  Options "500 MB", "1 GB(1000 MB)" and "2 GB (2000 MB)" are provided for compatibility with previous models in the VS series.
  We strongly recommend that you select "10 GB".

- [F5] (OK)
  Executes disk formatting and makes partitions.

- [F6] (CANCEL)
  Cancels partition making and displays the Project Conditions menu.

5. Position the cursor on "Surface Scan" using the cursor buttons, and turn the TIME/VALUE dial to select 'On'.
   The read/write check of all disk areas is done.
   If you want to omit this check, select 'Off'.
   Note that the check done here is not a strict check of the disk.

6. Position the cursor on "Partition Size" using the cursor buttons, and turn the TIME/VALUE dial to select the partition size.
   Select '10GB' usually.

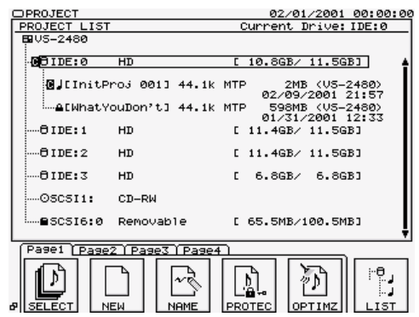
7. Press the [F5] (OK) button.
   The LCD displays "Initialize *****,OK ?"
   "*****" stands for the ID number of the drive you are going to initialize.
   For example, "SCSI5" is displayed in the case of a Zip drive.
   To cancel the drive, press the [F6] (CANCEL) button.

8. Press the [ENTER/YES] button.
   This starts drive initialization, to check the disk and make partitions.

SAVING DATA IN AN EXTERNAL SCSI DEVICE (SAVING THE PROJECT BACKUP)

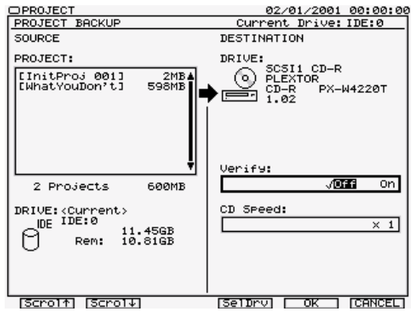
1. Press the [PROJECT] button on an ordinary screen to go to the Project Conditions screen.

2. Move the cursor to the partition you want to backup, then press the [F6] (LIST) button.



3. Position the cursor on the project you want to backup, and mark it by pressing the [ENTER/YES] button.
   If you want to backup more than one project, repeat the marking.

4. Press the [PAGE] button to select 'Page 3', then press the [F3] (BACKUP) button.
   The Project Backup screen appears.



- [F1] (Scroll up), [F2] (Scroll down)
  If the list of the backed-up projects occupies more than one screen, press the Scroll button. The display scrolls, and you can view and check all the projects.

- [F4] (SelDrv)
  Selects the drive on which to backup the projects.
  Turn the TIME/VALUE dial to specify the destination for copying.

- [F5] (OK)
  Executes backing up.

- [F6] (CANCEL)
  Cancels backing up and displays the Project Conditions screen.
  All parameters set to backup the projects are discarded.

- Verify
  If set to 'On', the system checks if the data written can be read out normally or not.
- CD Speed
  Selects the speed at which the data is written onto the CD-R disk.
  This parameter appears only when a CD-R/RW drive has been specified for the destination.

5. Select the destination for backing up.
   Press the [F4] (SelDrv) button, and the Drive Select screen appears.
   Turn the TIME/VALUE dial to position the cursor on the external SCSI device onto which the data is to be backed up, then press the [F5] (SELECT) button.

Caution : If a CD-RW disk containing existing data is selected as the destination, "Finalized CD!" or "Not Blank CD!" is displayed.

If you press the [ENTER/YES] button, all the existing contents on the CD-RW are erased.
If you press the [EXIT/NO] button, no contents are erased.
In this case, you cannot backup the data to the CD-RW disk specified.

6. Press the [F5] (OK) button.
   If the "STORE Current?" ("Do you store current project?) dialog box appeare, press the [EXIT/NO] button.

7. If the project had so large a volume for the disk to take, the disk is ejected and a "Please Insert Disk" message is displayed.
   Insert another disk and press the [ENTER/YES] button.
   At this point, the system checks the available space on the data storing media.
   So we recommend that you number the disks to identify their order easily.

8. After backing up is completed, the disk is ejected and the display returns to the Project Condition screen.
   You can use backing up to store the contents of your HDD on Zip, MO or CD-R/RW disks.
   If you use your HDD for the Test mode, be sure to save its contents on other media be forehand.

Note : You can only backup on a partition-by-partition basis.
If the HDD had more than one partition, backup each of them on different media.

RELOADING DATA FROM AN EXTERNAL SCSI DEVICE (RECOVERING THE PROJECT BACKED UP)

You can recover projects backed up on external removable disks on the VS-2480's built-in hard disk, where you can replay and edit them.

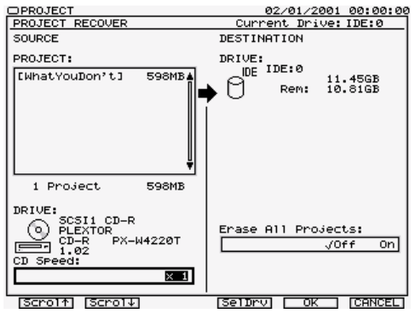
1. Press the [PROJECT] button on the ordinary screen to go to the Project Conditions screen.

2. Position the cursor on the drive where the project to be backed up is stored.

3. Press the [F6] (LIST) button.
   The list of the backed-up data is displayed.

4. Position the cursor on the data you are going to back up and mark it by pressing the [ENTER] button.

5. Press the [PAGE] button to select 'Page3', then press the [F2] (Recovr) button.
   The display changes to the Project Recovery screen.



- [F1] (Scroll up), [F2] (Scroll down)
  If the list of the backed-up projects occupies more than one screen, press the Scroll button. The display scrolls, and you can view and check all the projects.

- [F4] (SelDrv)
  Selects the drive to recover the projects to.
  Turn the TIME/VALUE dial to specify the destination for recovery.

- [F5] (OK)
  Executes recovery.

- [F6] (CANCEL)
  Cancels recovery and displays the Project Conditions screen.
  All parameters set to recover the projects are discarded.

- Erase All songs
  If set to 'On', recovery is done after initializing the destination drive.
  Select "Off" if you want to execute recovery while keeping the existing projects in the destination.
- CD Speed
  Selects the speed at which data is read from the CD-R disk on which the projects to be backed up are stored.
  This parameter is shown only when a CD-R/RW drive has been specified as the source.

6. Select the destination for recovery.
   Press the [F4] (SelDrv) button, and the Drive Select screen appears.
   To cancel Drive Select, press the [F6] (CANCEL) button.

7. Press the [F5] (OK) button.
   The "STORE Current?" dialog box appears.
   Press the [EXIT/NO] button.

8. The disk is ejected and an "Insert Disk #" ("#" stands for the disk number) message is shown if the data had been backed up on more than one disk.
   Insert the disk as instructed, and press the [ENTER/YES] button.
   After recovery is completed, the display returns to the Project Condition screen.

LIST OF ERROR MESSAGES

- Sub System Not Response
  No response is received from the panel R board.

- Sub System Communication Error
  An error occurred during serial communication with the panel R board.

- Sub System Initialize Error : xx
  An error occurred in the results of the self-diagnosis of the panel R board.

• Error Ccodes (xx) and Their Meaning
  01: Communication error -- Cannot receive the Port/ Code(01).
  02: Parity error -- A parity error occurred in SCI.
  03: Framing error -- A framing error occurred in SCI.
  04: Overrun error -- An overrun error occurred in SCI.
  05: Rx buffer full -- Data overflowed the receiving buffer on the panel.
  06: Illegal request -- The contents of the received message are incorrect.
  07: Illegal Flash ROM -- An unknown flash ROM was detected.
  08: FLASH ROM erase block failed -- The erase-block operation on the flash ROM failed.
  09: FLASH ROM write failed -- The write-in operation on the flash ROM failed.
  0A: FLASH ROM check-sum error -- The checksum calculated in updating the flash ROM is incorrect.
  0B: FLASH ROM broken -- The flash ROM was found to be broken during start-up.

• Error : System Section Error
  The system software may be defective.

• RAM Check Error
  The SDRAM on the main board has a fault.

• Error : Flash Memory Does Not Exist
  Cannot recognize the flash ROM on the main board.
  The flash ROM may be defective.

• Error : Flash Memory Erase Error
  The contents of the flash ROM cannot be erased.
  The flash ROM may be defective.

• Error : Flash Memory Write Error
  Cannot write to the flash ROM on the main board.
  The flash ROM may be defective.

• Error : Flash Memory Verify Error
  A difference was found between the contents of the flash ROM on the main board and those of the update program.

• Bad Block Detected!
  A bad block was found in the IDE hard disk.

• Address Mark Not Found!
  ID Not Found!
  The disk cannot be read normally.
  The contents of the disk may be defective.

• Can't Communicate!
  Communicate cannot be made with the IDE or SCSI drive.
  The drive may have failed.

• Uncorrectable Data Error!
  Message Error!
  An error occurred in communication with an SCSI device.

• Track 0 Not Found!
  Calibration of the hard-disk drive head failed.
  The hard-disk drive has failed or there is a problem with thermal run-away.

• Arbitration Failed!
  Check Condition!
  Drive Status Error!
  Normal communication with the disk drive failed.

• SCSI Not Available!
  The SCSI portion of the main board failed.

• SCSI ID Error!
  The SCSI ID numbers of more than one disk drive are overlapped.
  Reset these numbers so that they don't overlap.

• Wait for free BUS!
  Another SCSI host controller is connected to the machine.
  This error may occur when the VS-2480 is connected to a personal computer via the SCSI interface.

• Phase Mismatch!
  Illegal Phase!
  There is an abnormality in the SCSI data line.

• Medium Error!
  There is an error in the removable medium.

• Hardware Error!
  The SCSI drive has failed.

• Illegal Request!
  The VS-2480 cannot use this disk drive.

• No IDE Drive!
  The machine has no built-in hard-disk drive.

• IDE Not Available!
  No response was received from the IDE drive.
  The hard-disk drive has failed or there is a problem with thermal run-away.

• Unusable Sector!
  You are using a medium which has no 525-byte sectors.

• Unknown Drive Error!
  There is an error in the drive.

• Lack of IDE Memory!
  The built-in IDE hard disk does not have enough free space to accommodate the image data.

• EMERGENCY Error!
  An unrecoverable error has occurred.

• Drive Time-out!
  No response was received from the drive.
  The hard-disk drive has failed or there is a problem with thermal run-away.

• !!! Warning !!!
  Clock/Calendar Backup Battery Low.
  The lithium battery is flat.

• No Drives Found.
  [ENTER] to Re-Check the Drives.
  Cannot recognize any built-in or external drives.

• No Formatted Drives Found.
  Jump to Force Initialize Drive.
  The drive connected has not been formatted.

• Too Complicated Error!
  Can't Recover Drive!!
  There is an error in the removable medium.

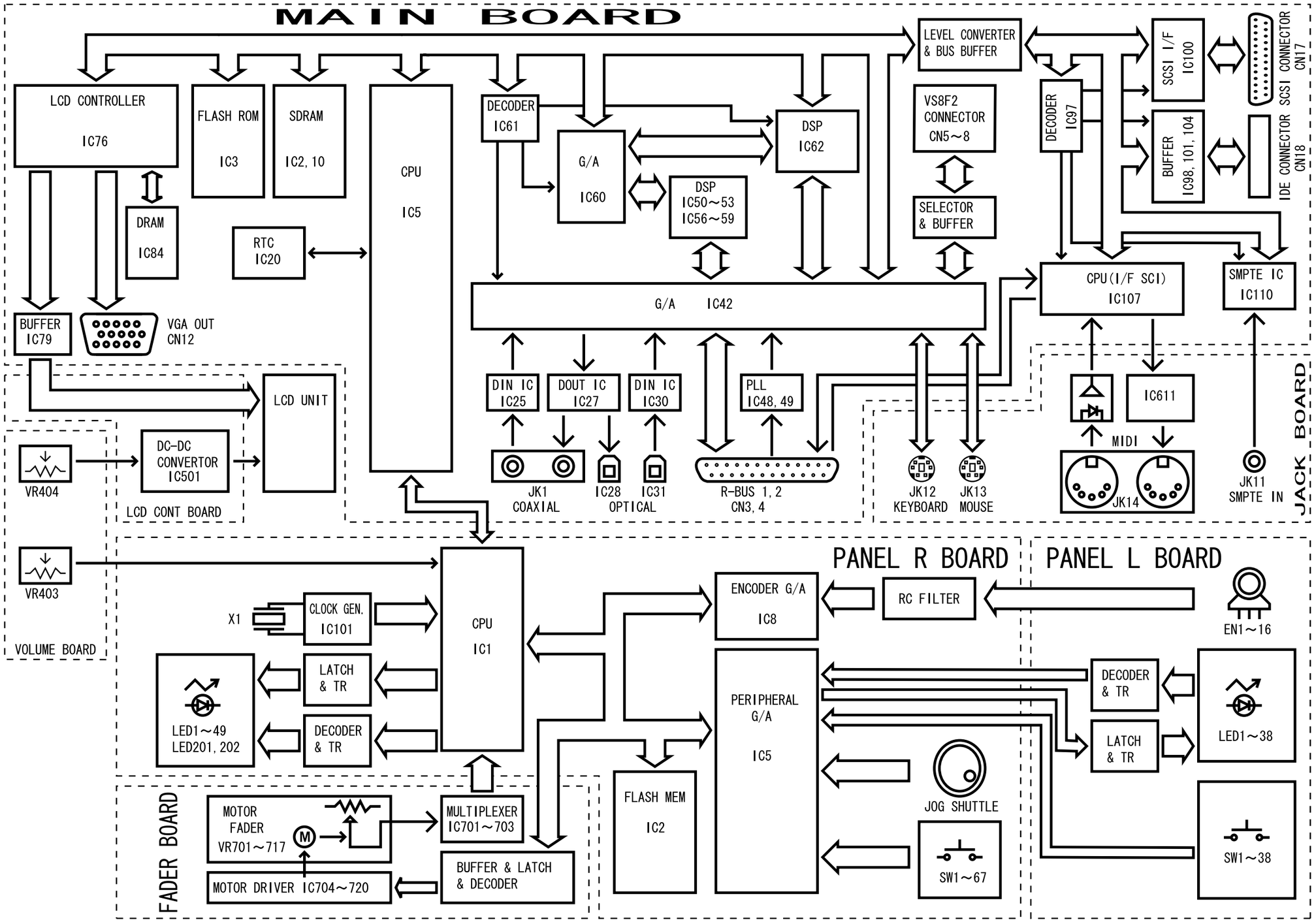
• Drive Not Formatted!
  Make Partition!
  The hard disk or the removable disk has not been formatted.

• Blank Disk!
  You are trying to execute the CD player function on a CD-R disk which does not contain any performance data.
  Insert CD software you bought on the market or another CD-R disk which contains.

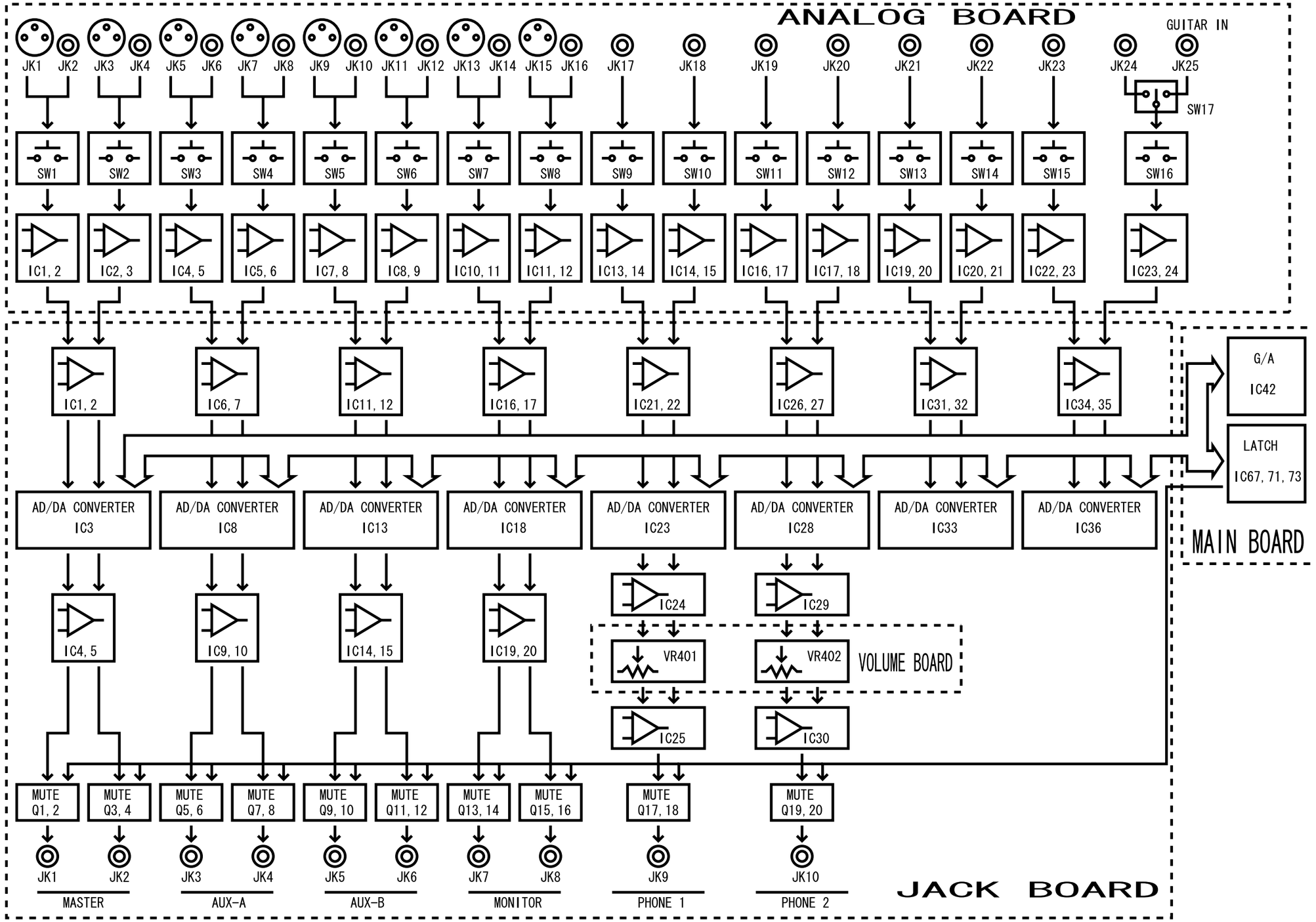
• TOC Error!
  TOC Read Error!
  Reading from the CD-R disk failed.
  The CD-R drive or disk has an abnormality.

• No CD-R Drive!
  Cannot recognize the CD-R drive.

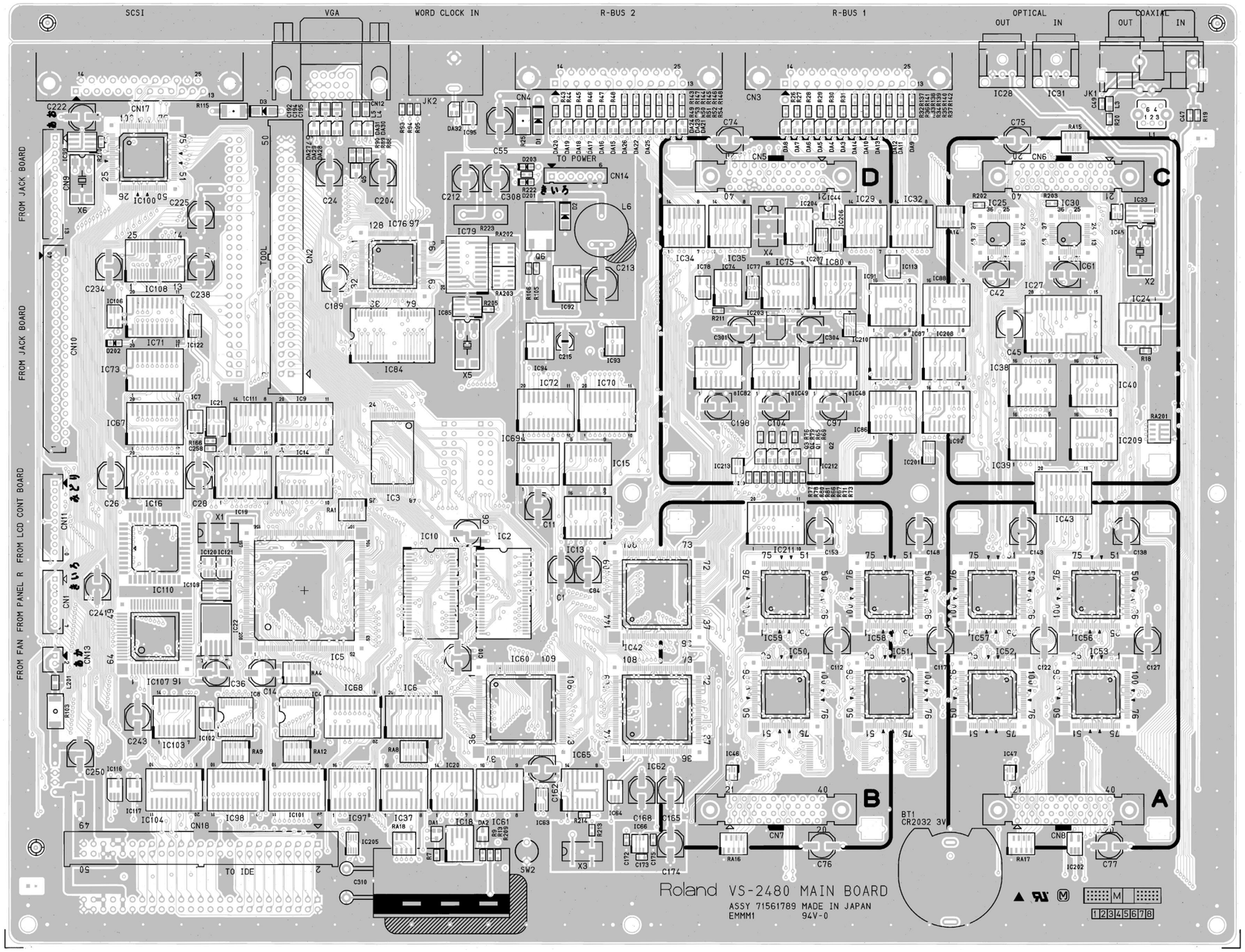
BLOCK DIAGRAM
MAIN/JACK/PANEL R /PANEL L/FADER BOARD



BLOCK DIAGRAM
ANALOG/JACK/VOLUME BOARD



CIRCUIT BOARD
MAIN BOARD ASSY (71561789)

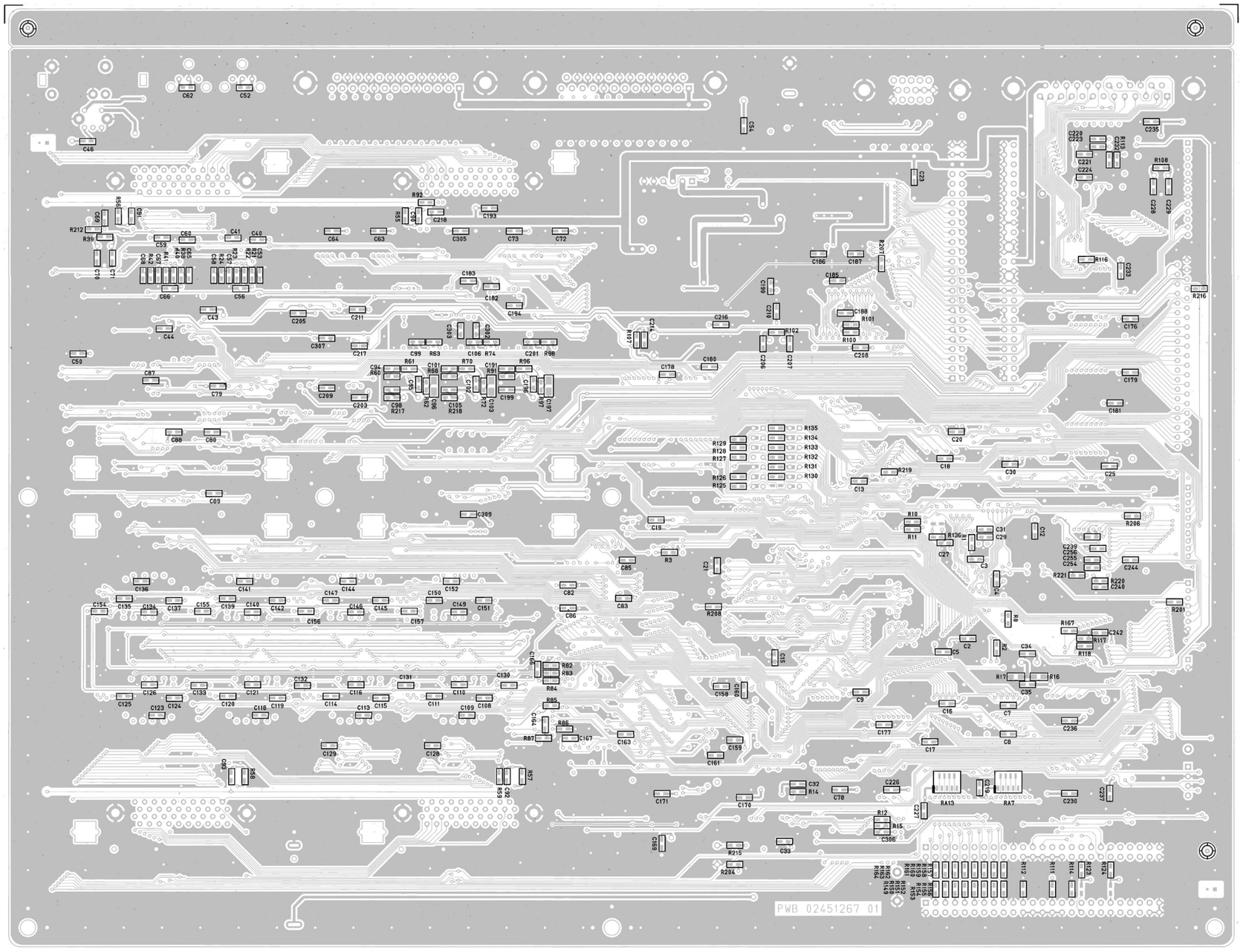


View from component side.

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

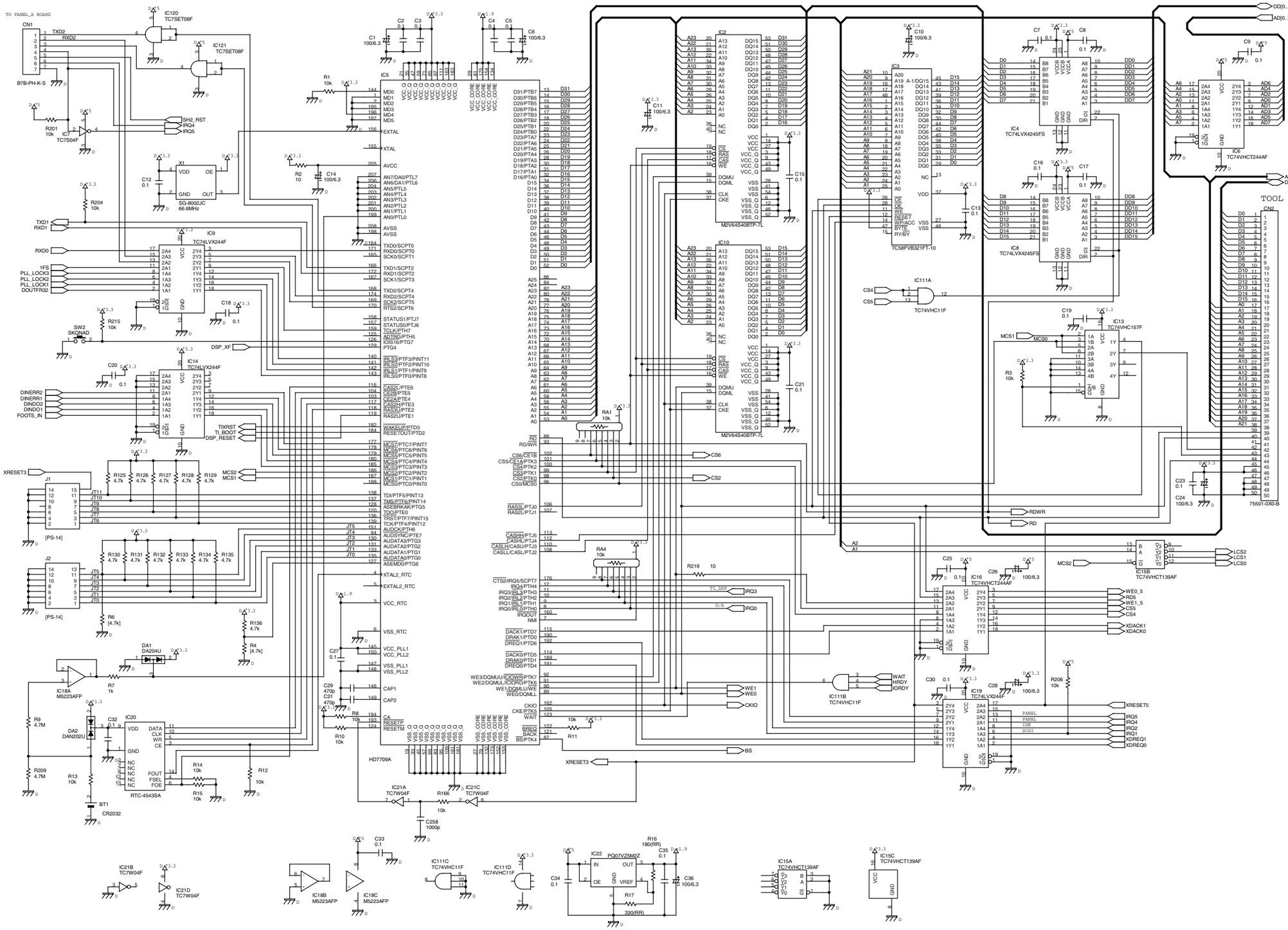
A B C D E F G H I J K L M N O P Q R S T U

CIRCUIT BOARD
MAIN BOARD ASSY (71561789)

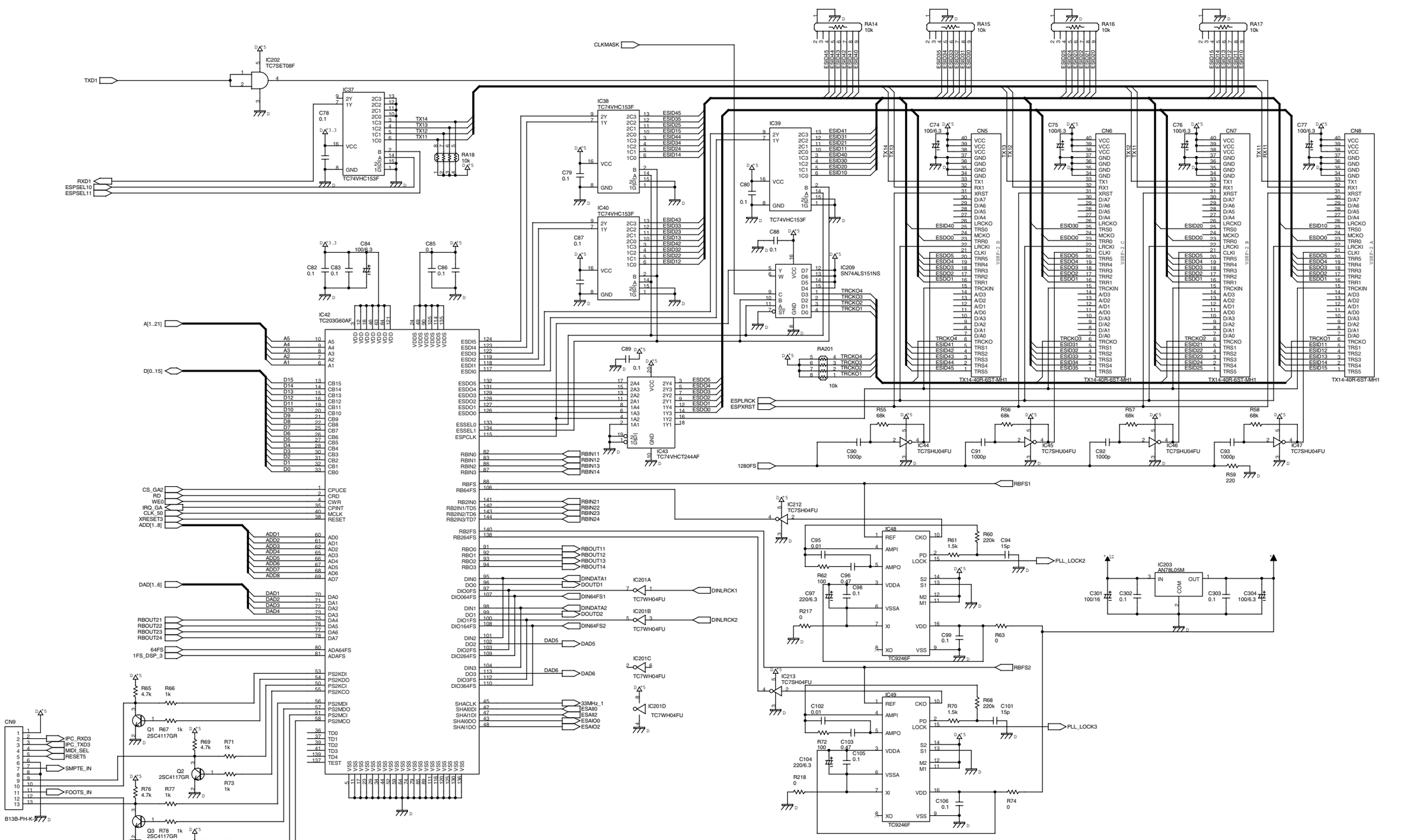


View from foil side.

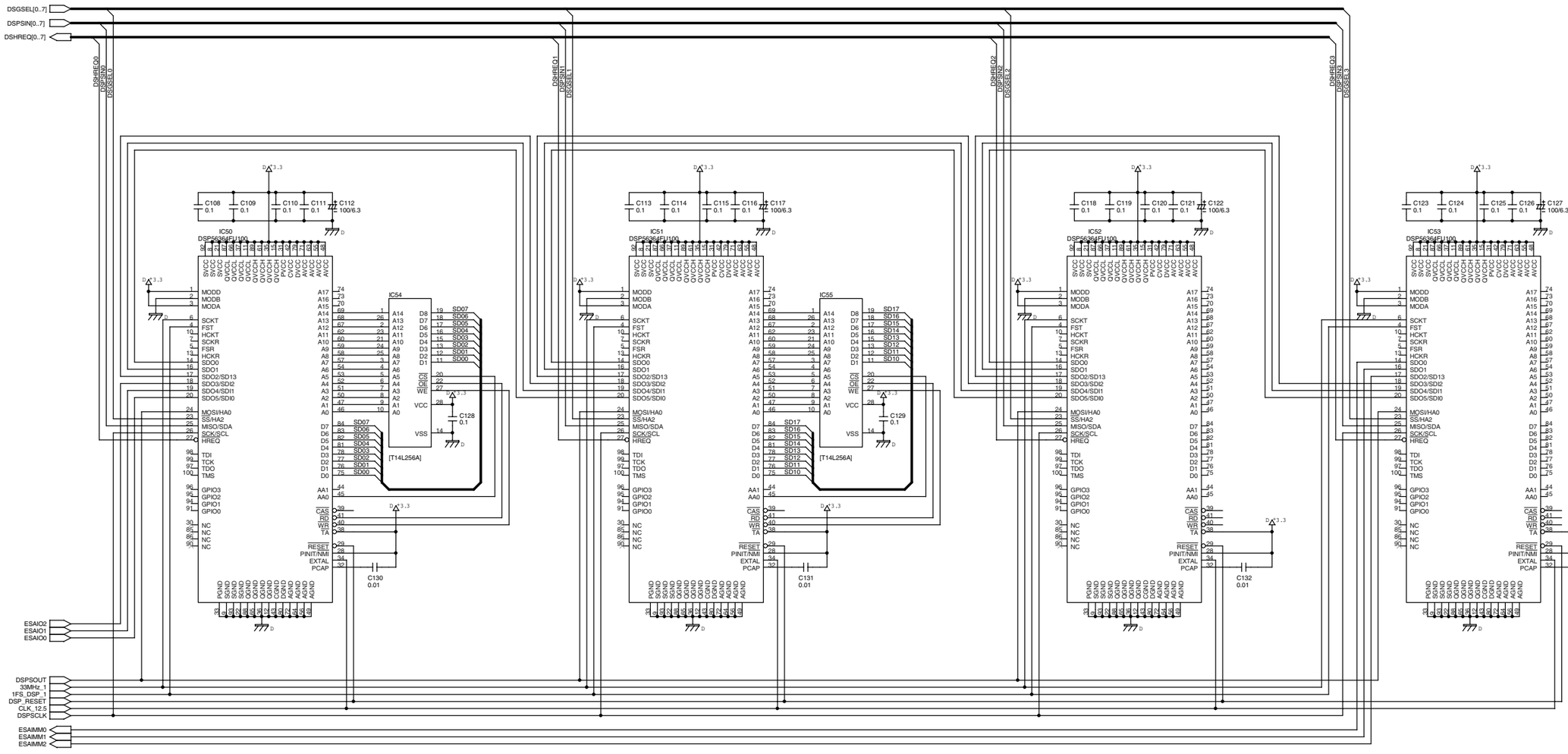
CIRCUIT DIAGRAM
MAIN BOARD (1/9)



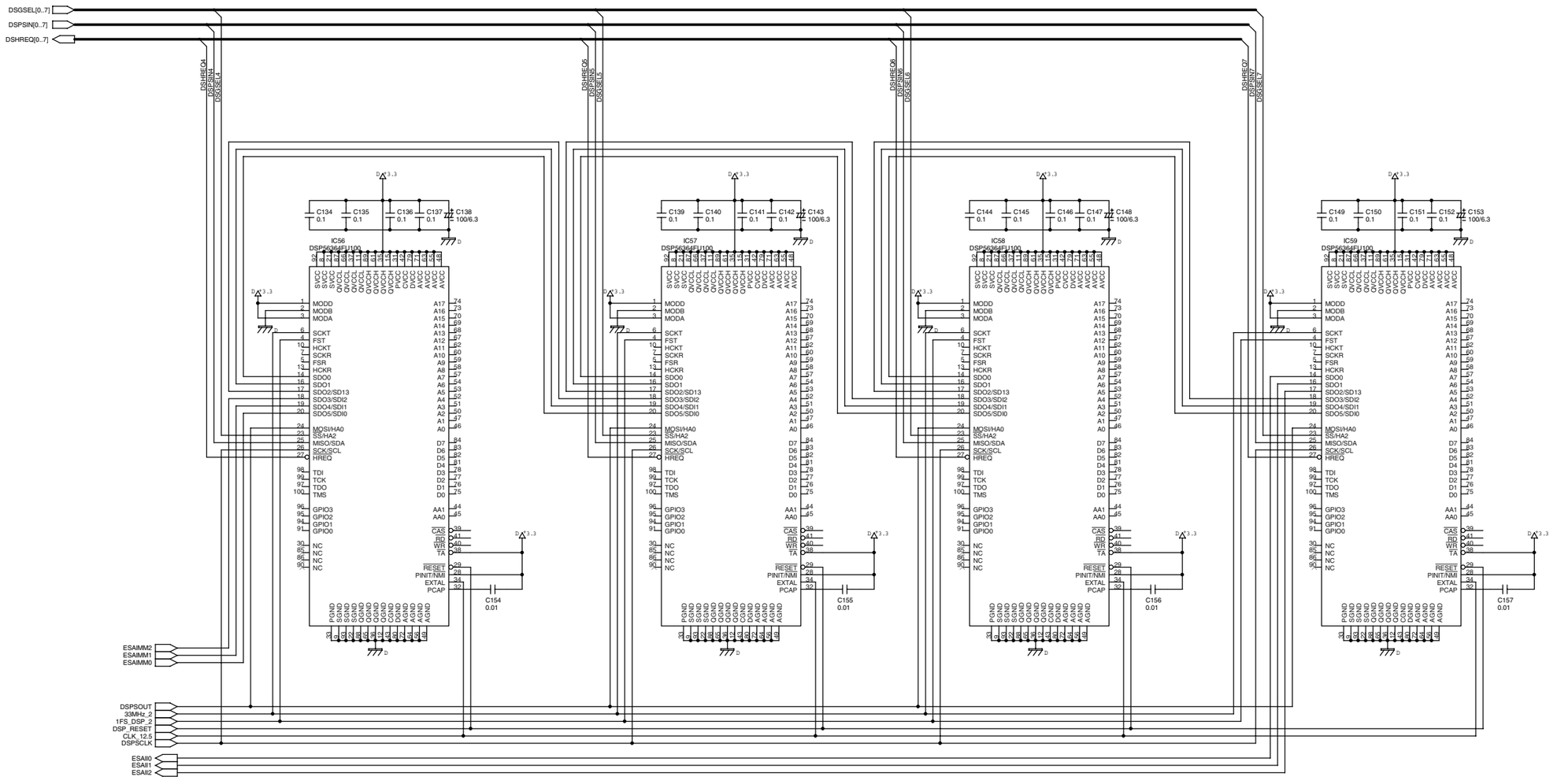
CIRCUIT DIAGRAM
MAIN BOARD (2/9)



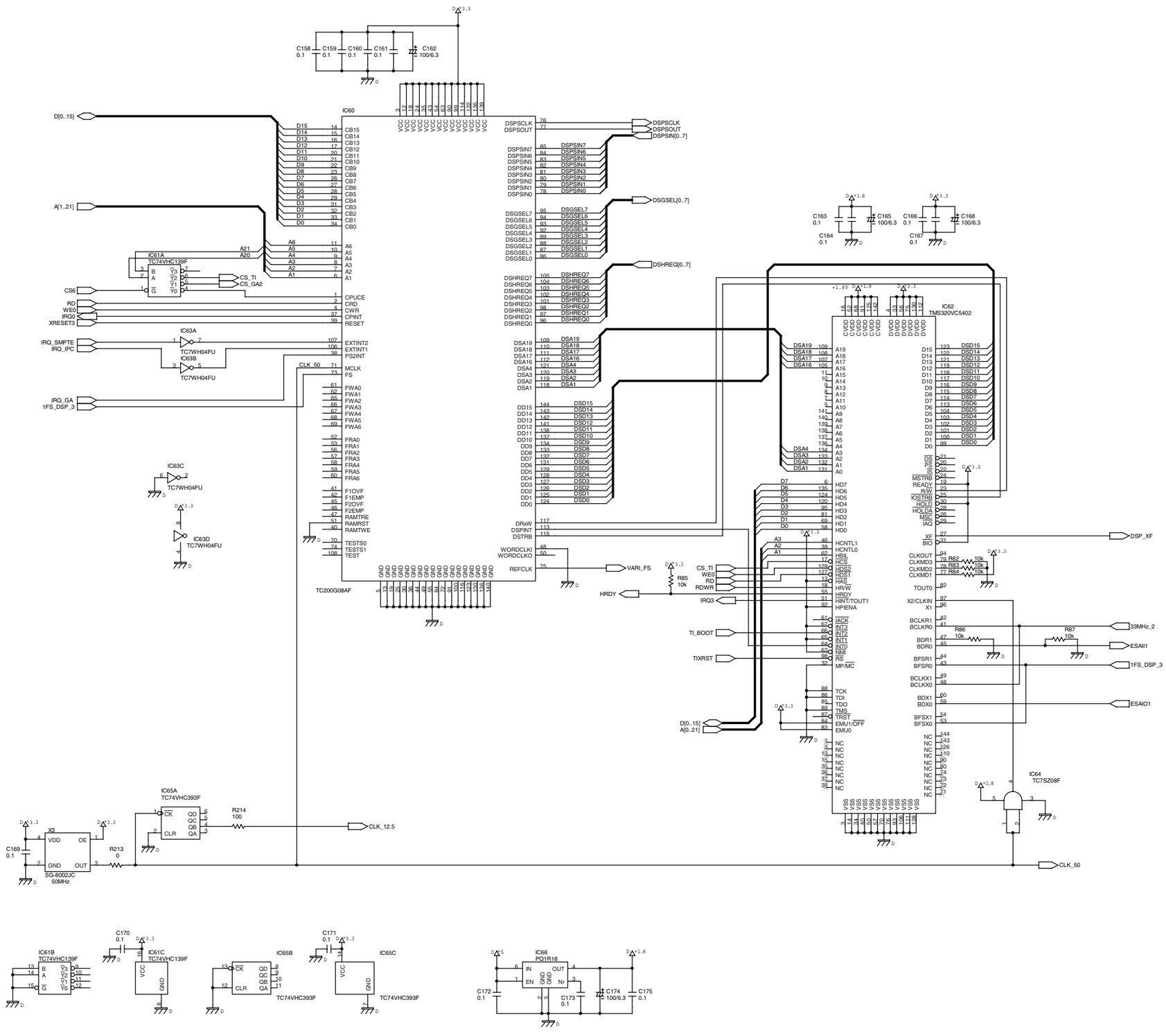
CIRCUIT DIAGRAM
MAIN BOARD (3/9)



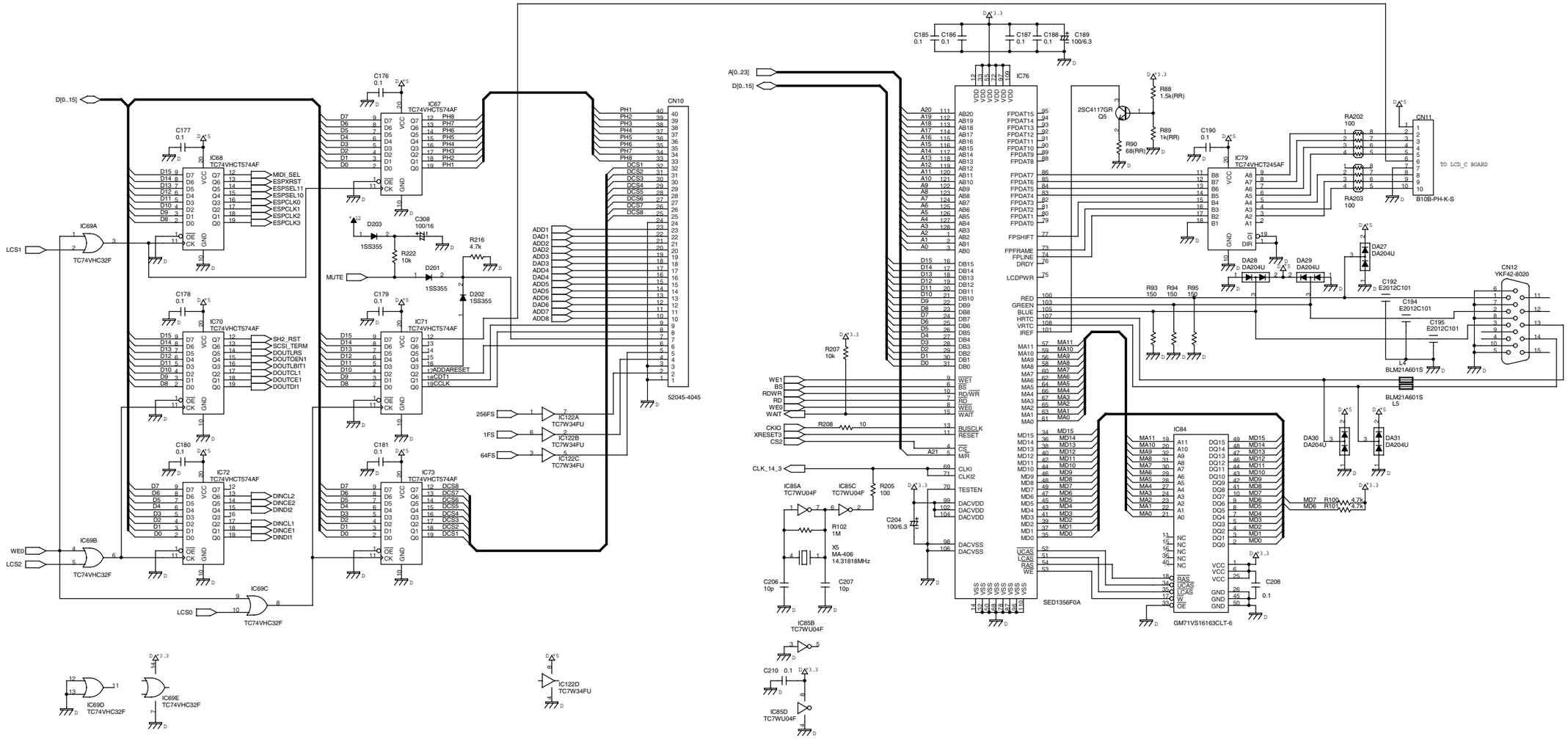
CIRCUIT DIAGRAM
MAIN BOARD (4/9)



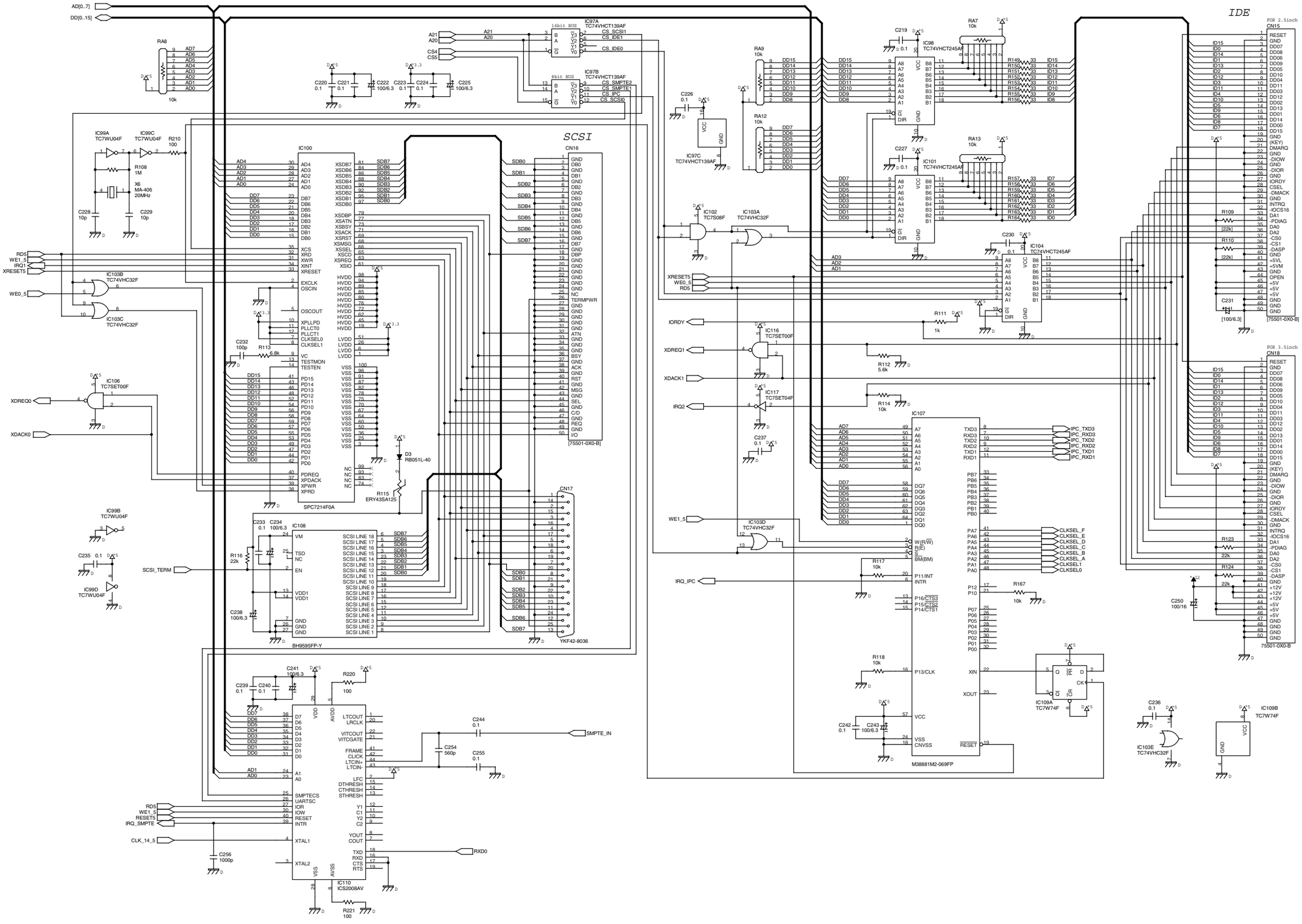
CIRCUIT DIAGRAM
MAIN BOARD (5/9)



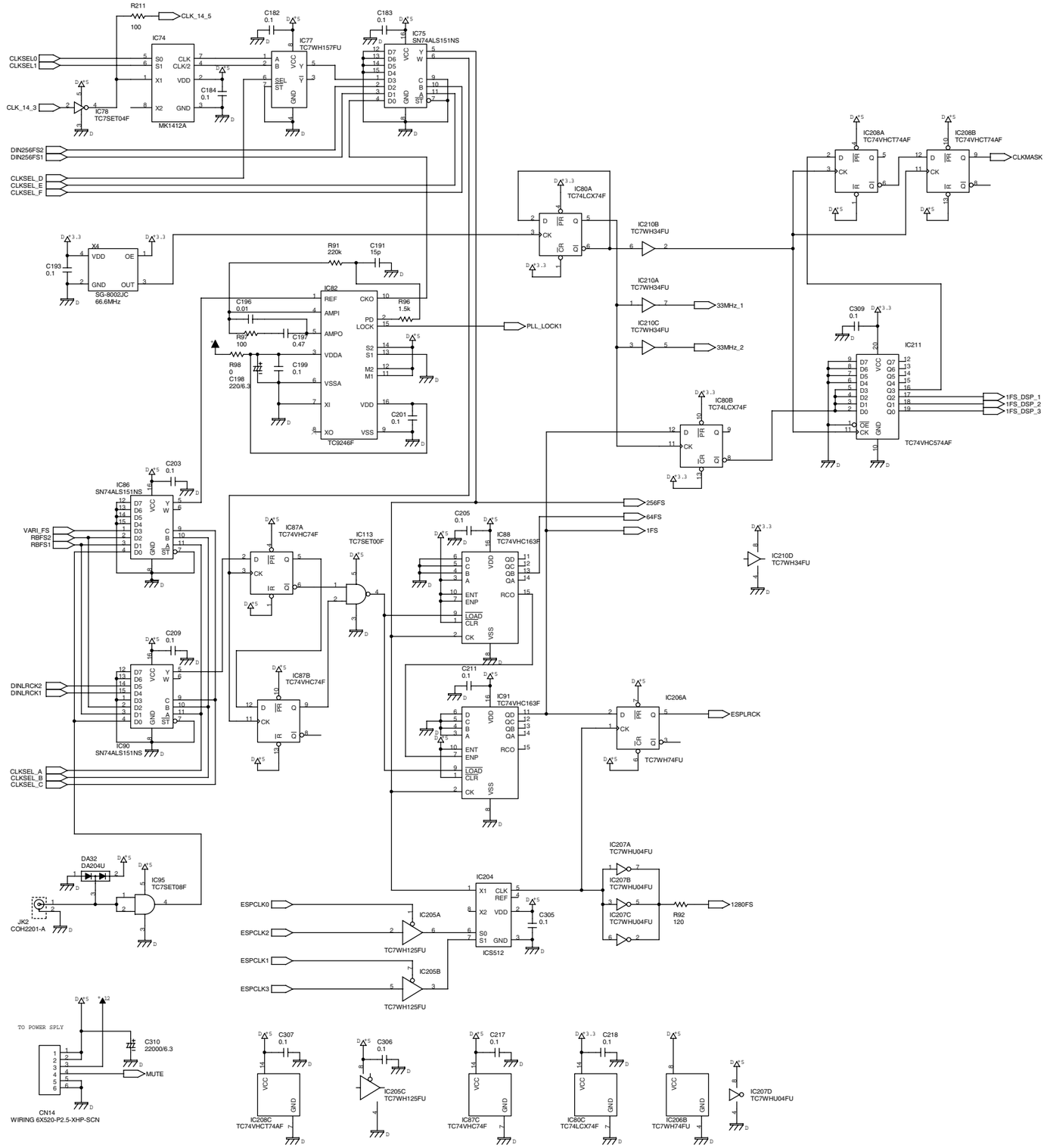
CIRCUIT DIAGRAM
MAIN BOARD (6/9)



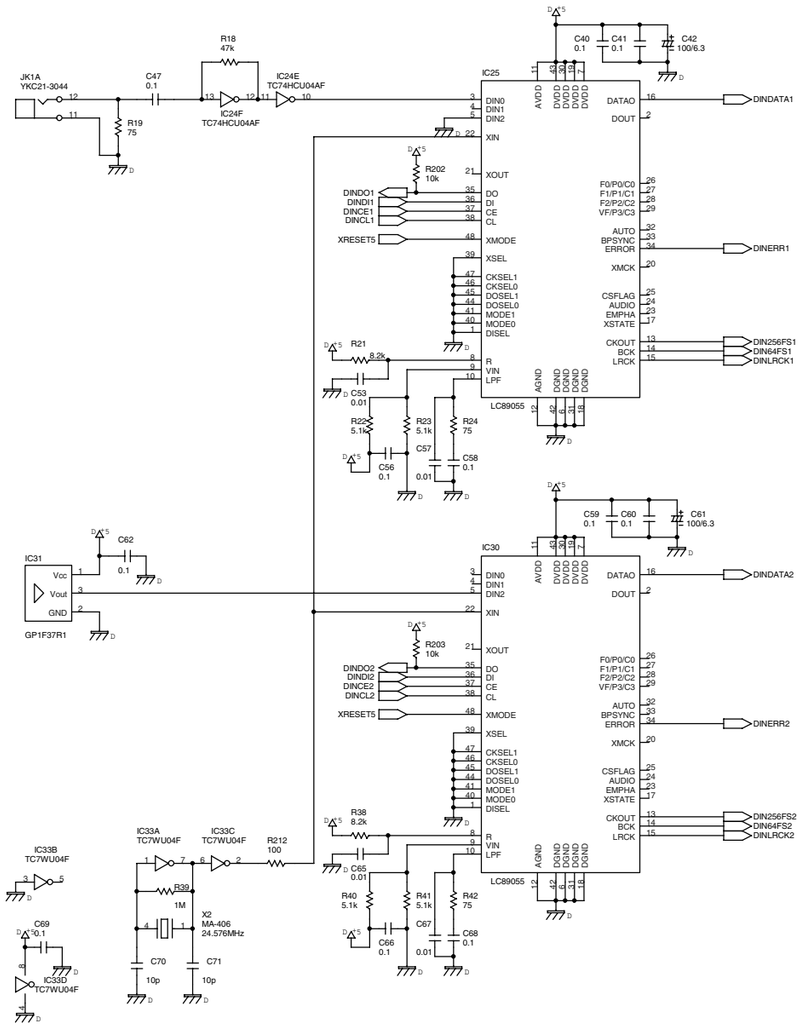
CIRCUIT DIAGRAM
MAIN BOARD (7/9)

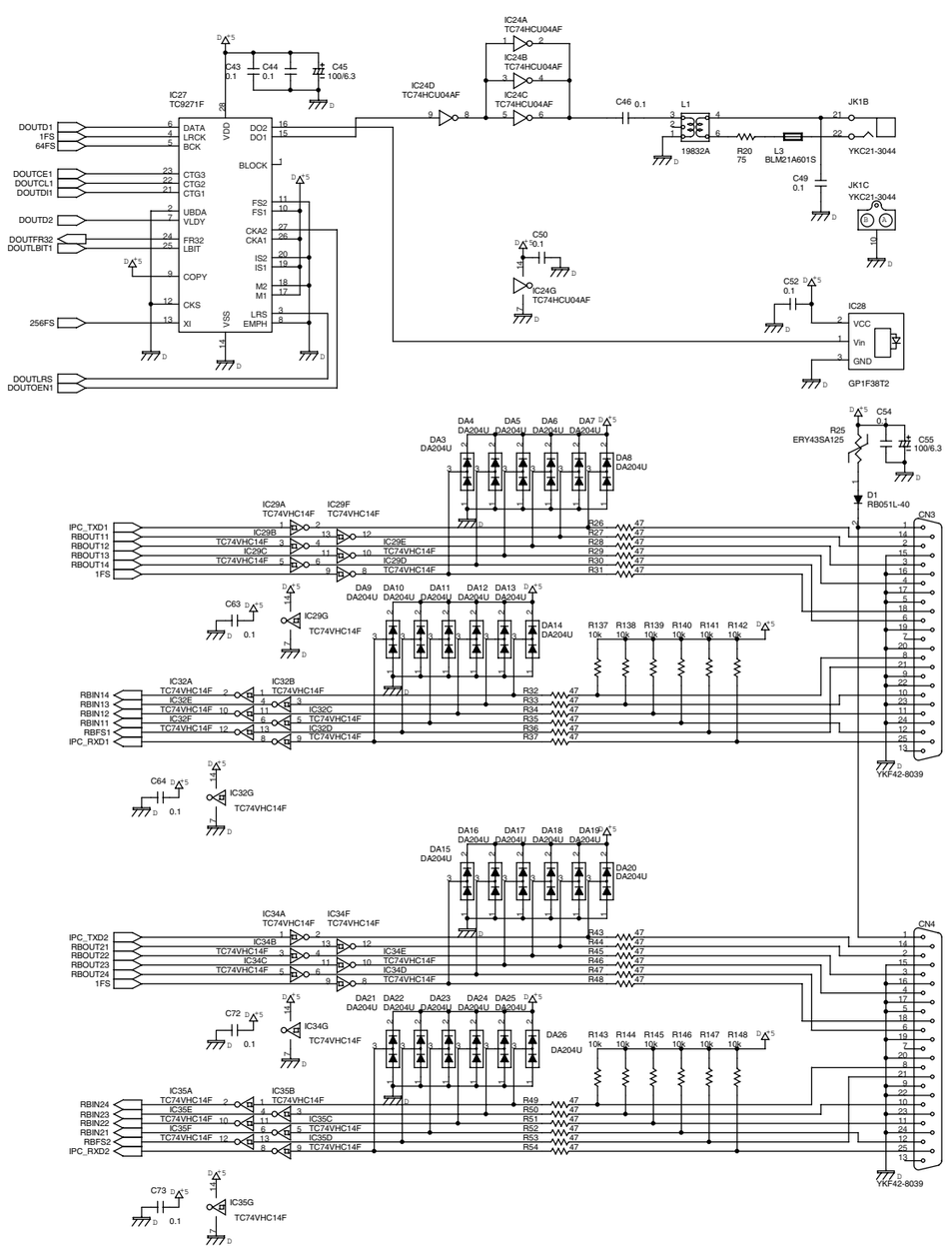


CIRCUIT DIAGRAM
MAIN BOARD (8/9)

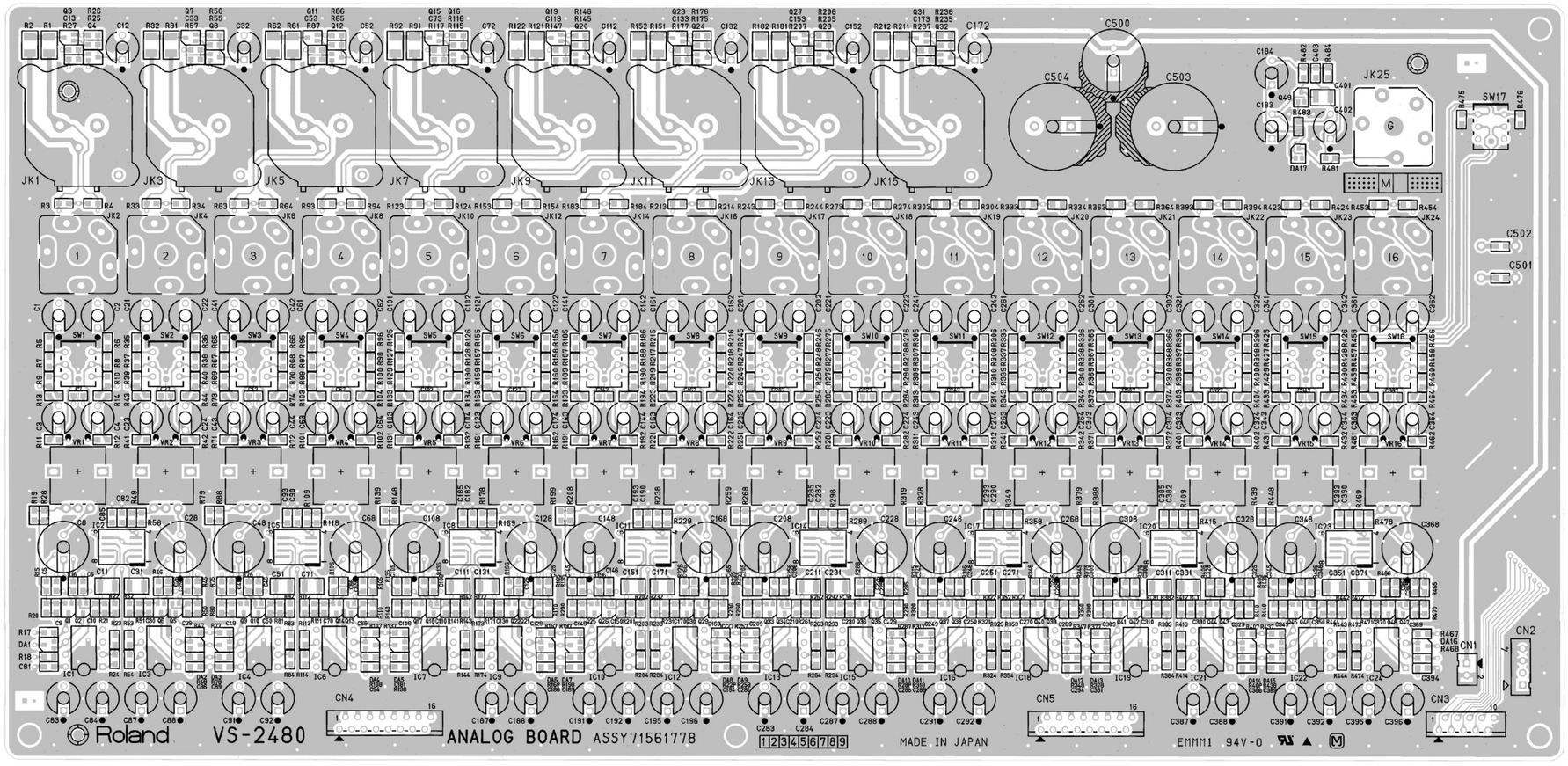


CIRCUIT DIAGRAM
MAIN BOARD (9/9)





CIRCUIT BOARD
ANALOG BOARD ASSY (71561778)

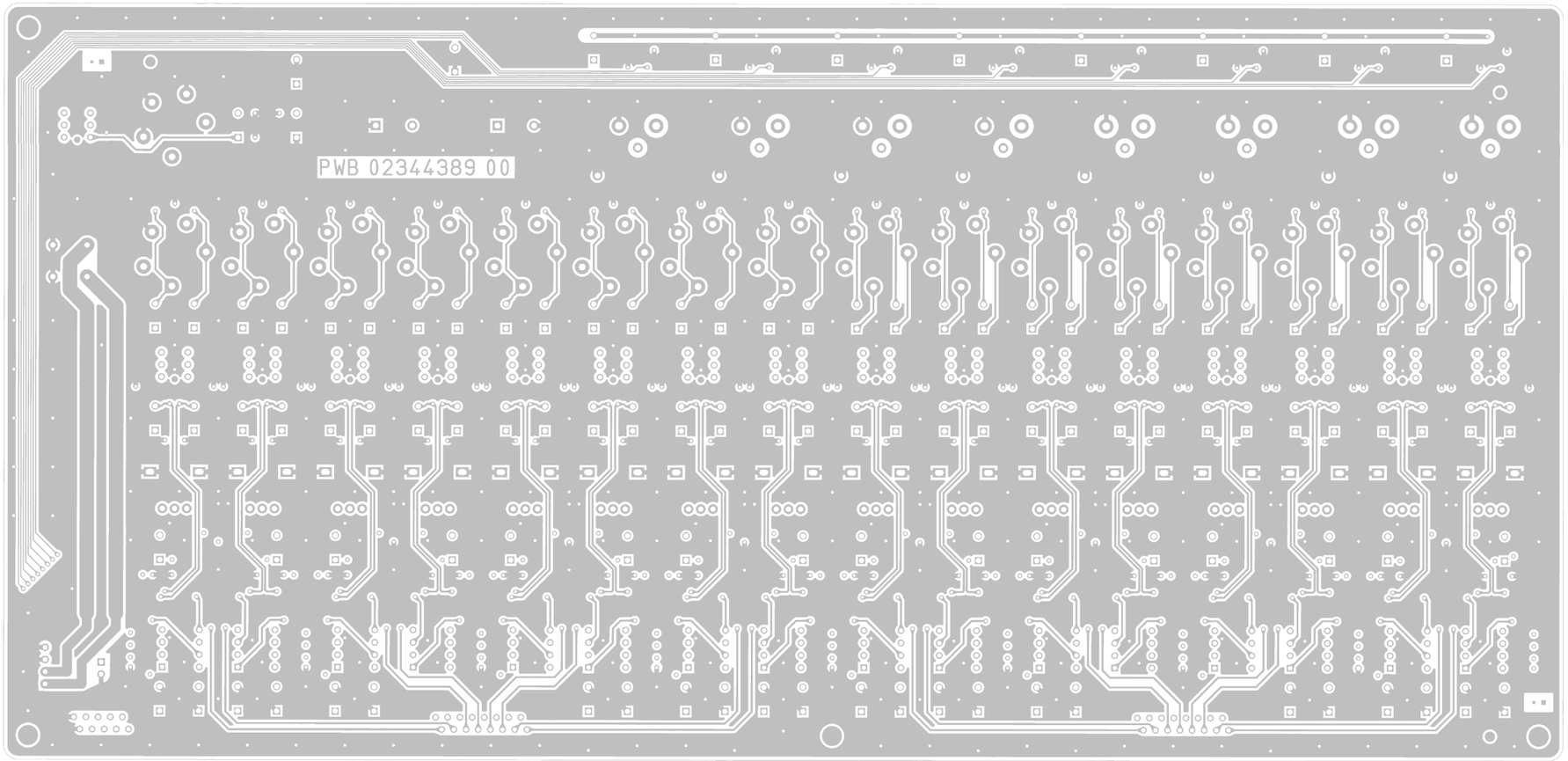


View from component side.

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

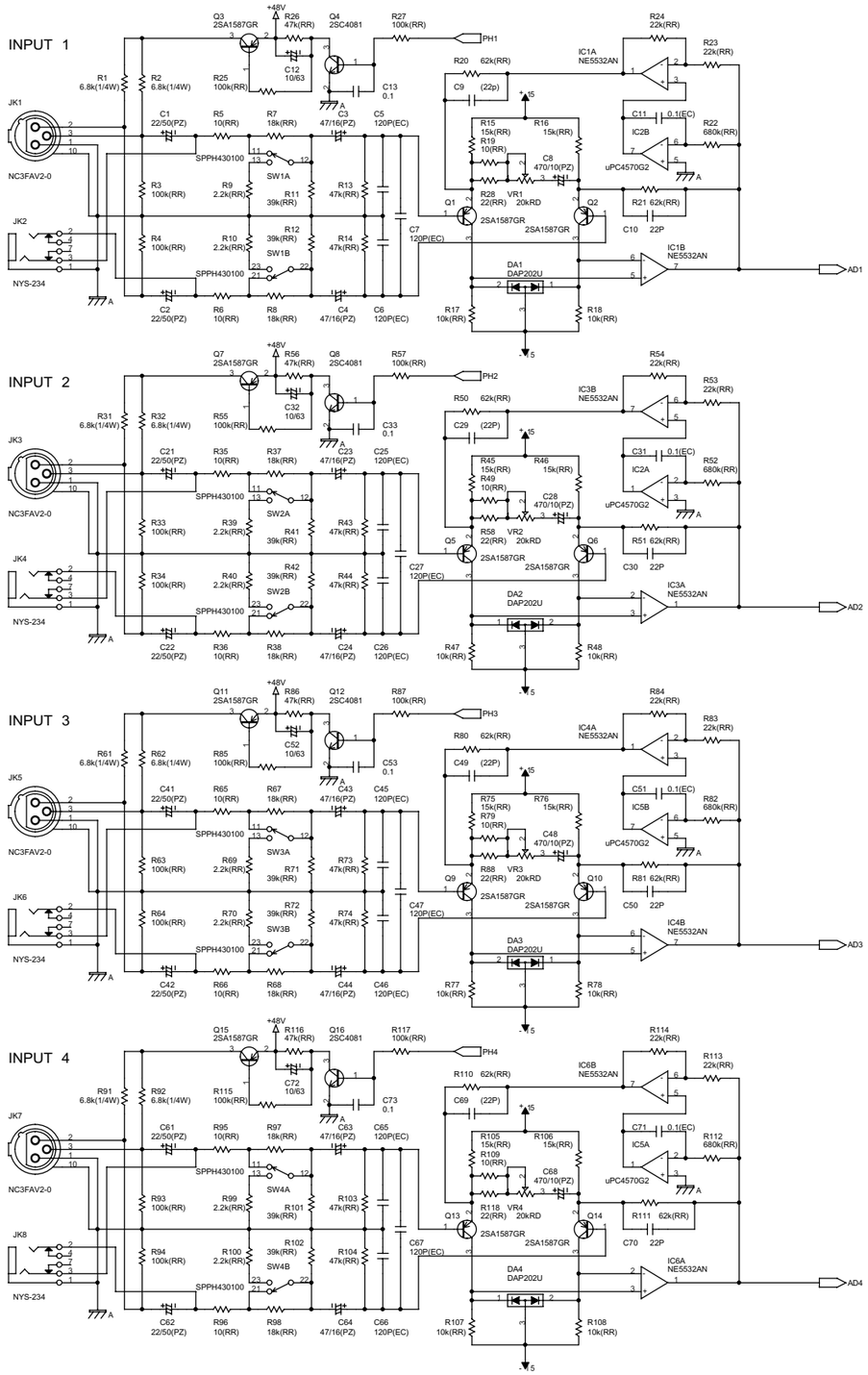
A B C D E F G H I J K L M N O P Q R S T U

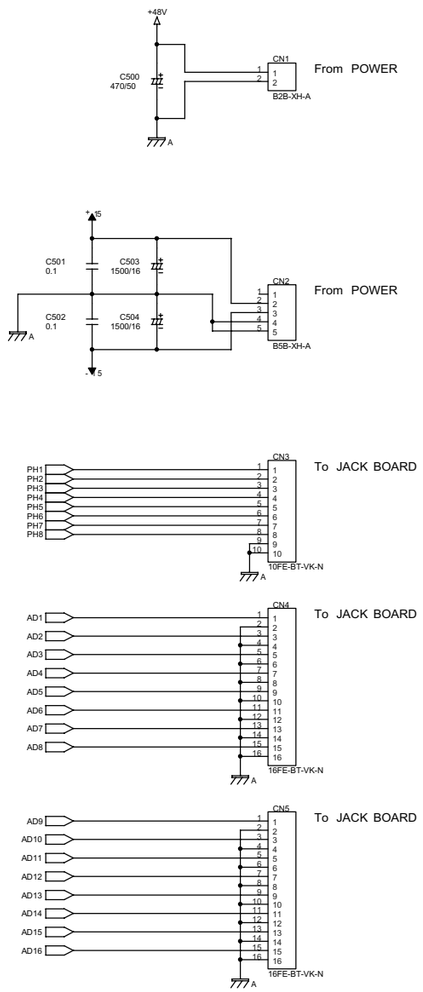
CIRCUIT BOARD
ANALOG BOARD ASSY (71561778)

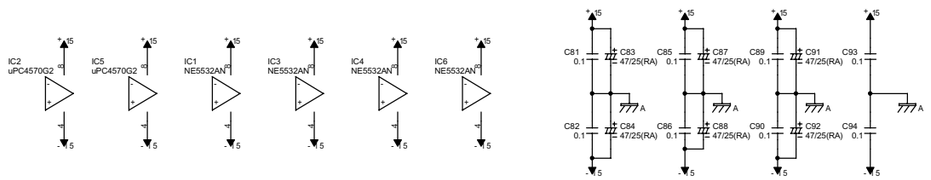


View from foil side.

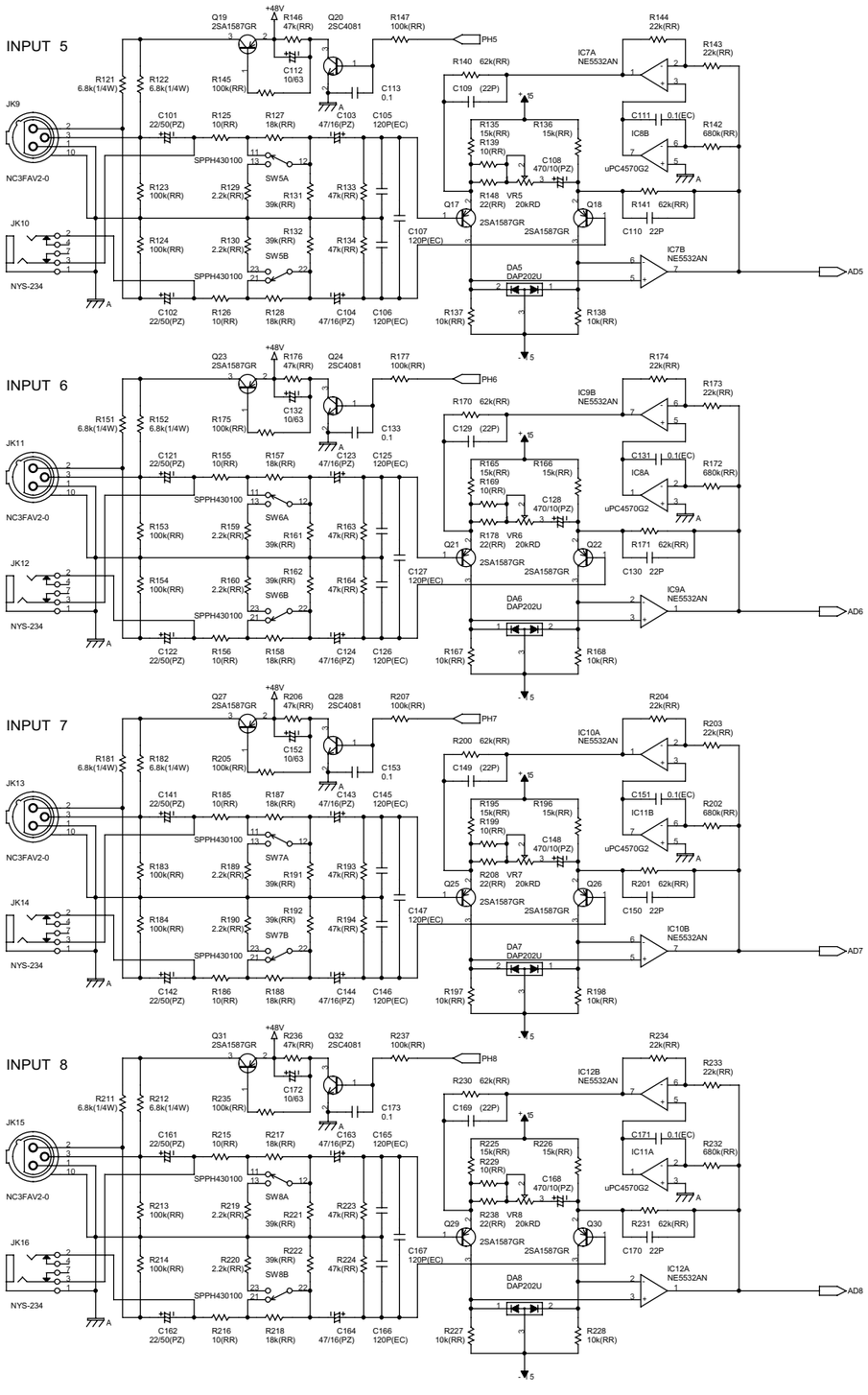
CIRCUIT DIAGRAM
ANALOG BOARD (1/4)



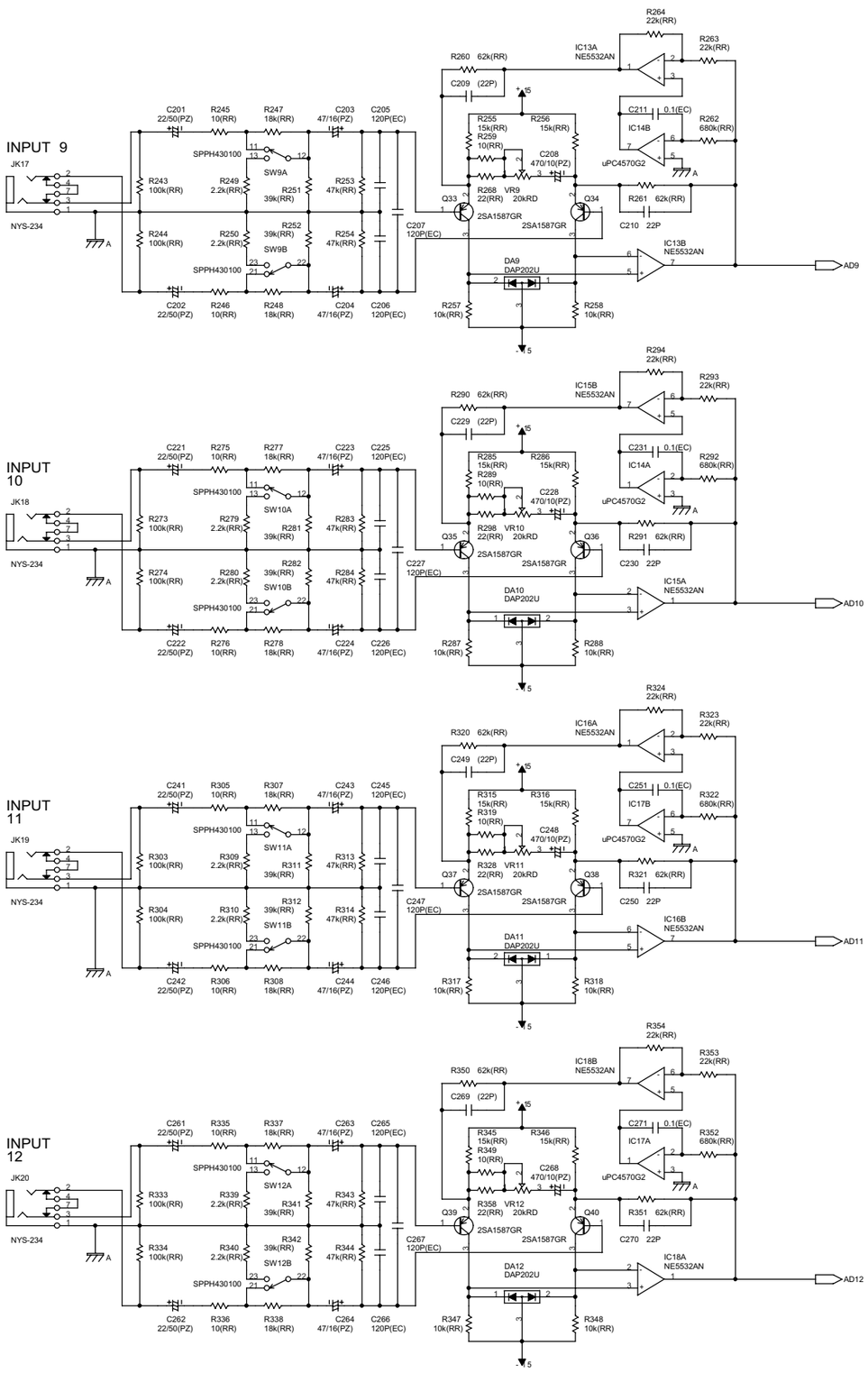




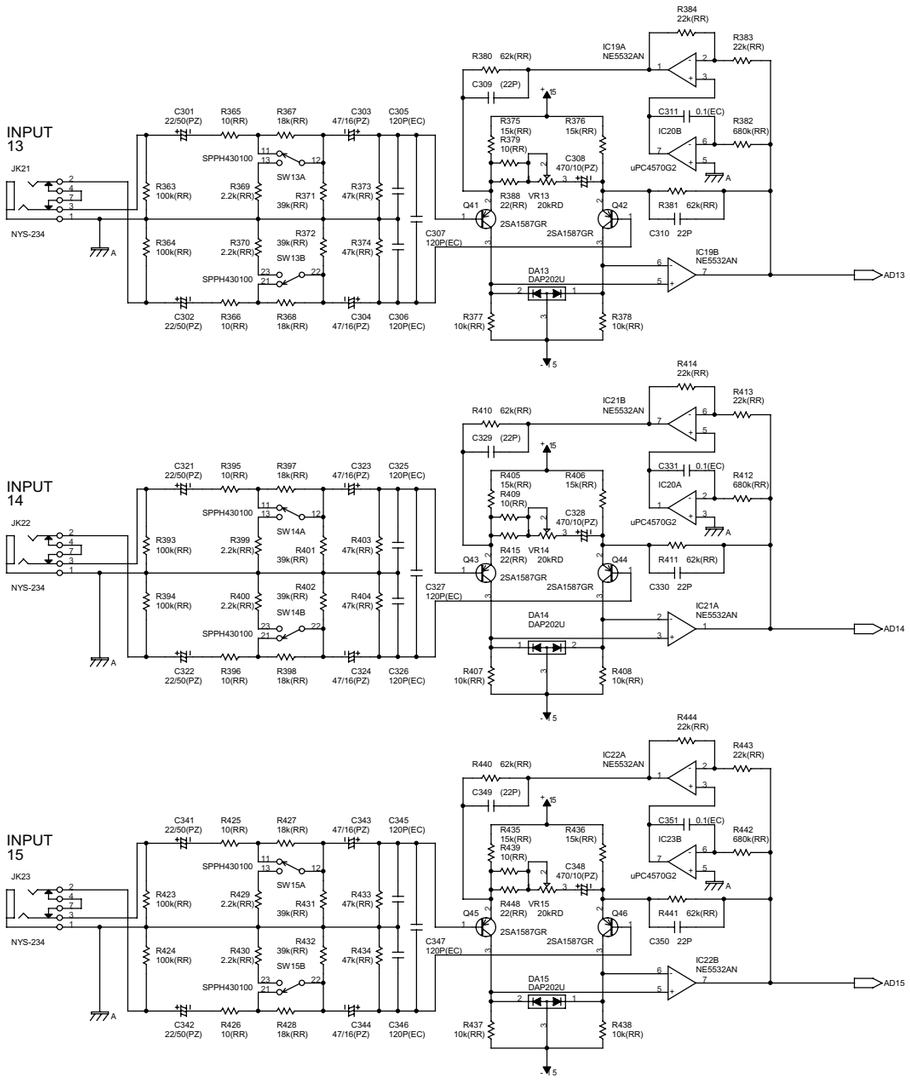
CIRCUIT DIAGRAM
ANALOG BOARD (2/4)



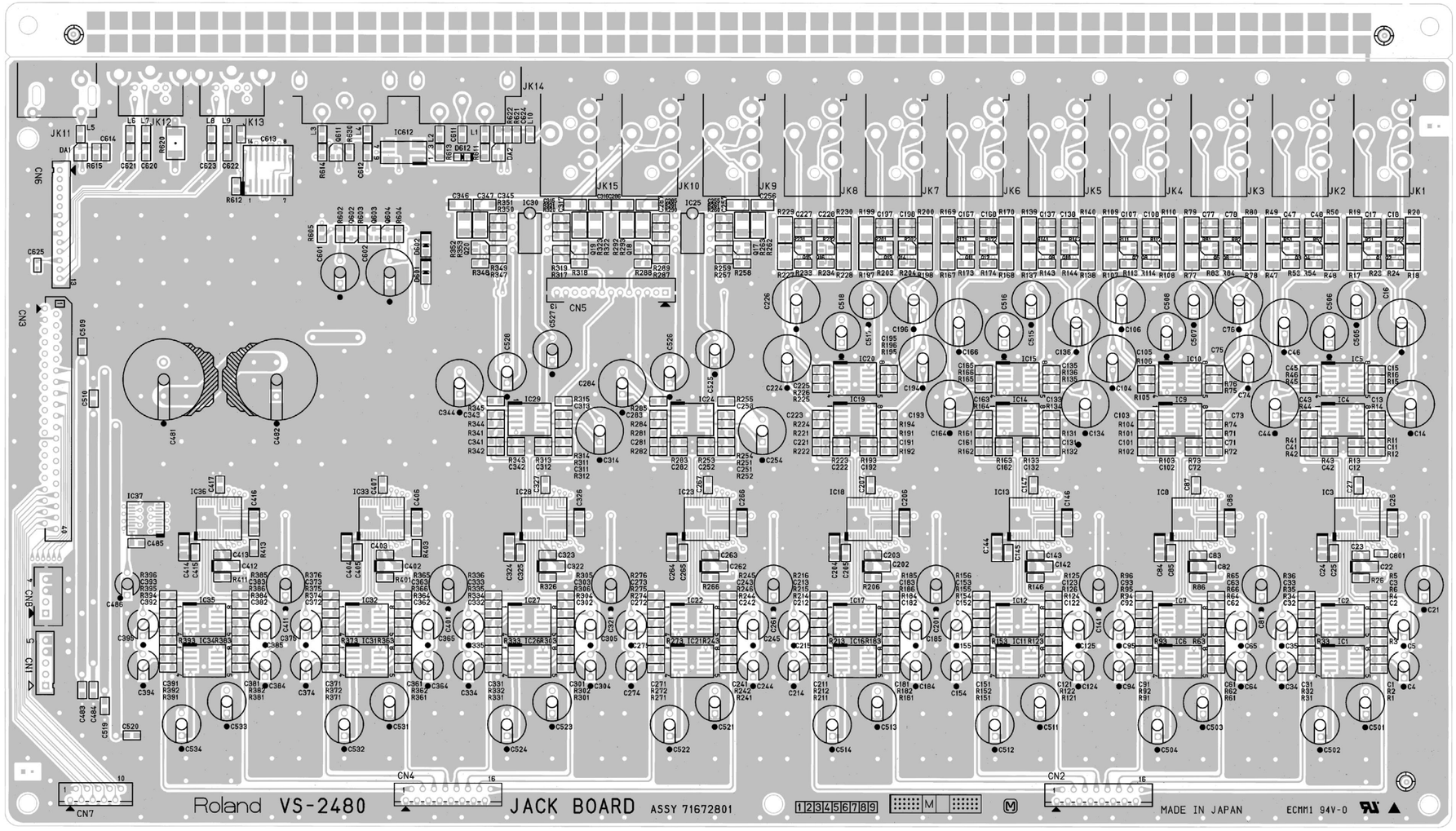
CIRCUIT DIAGRAM
ANALOG BOARD (3/4)



CIRCUIT DIAGRAM
ANALOG BOARD (4/4)



CIRCUIT BOARD
JACK BOARD ASSY (71672801)

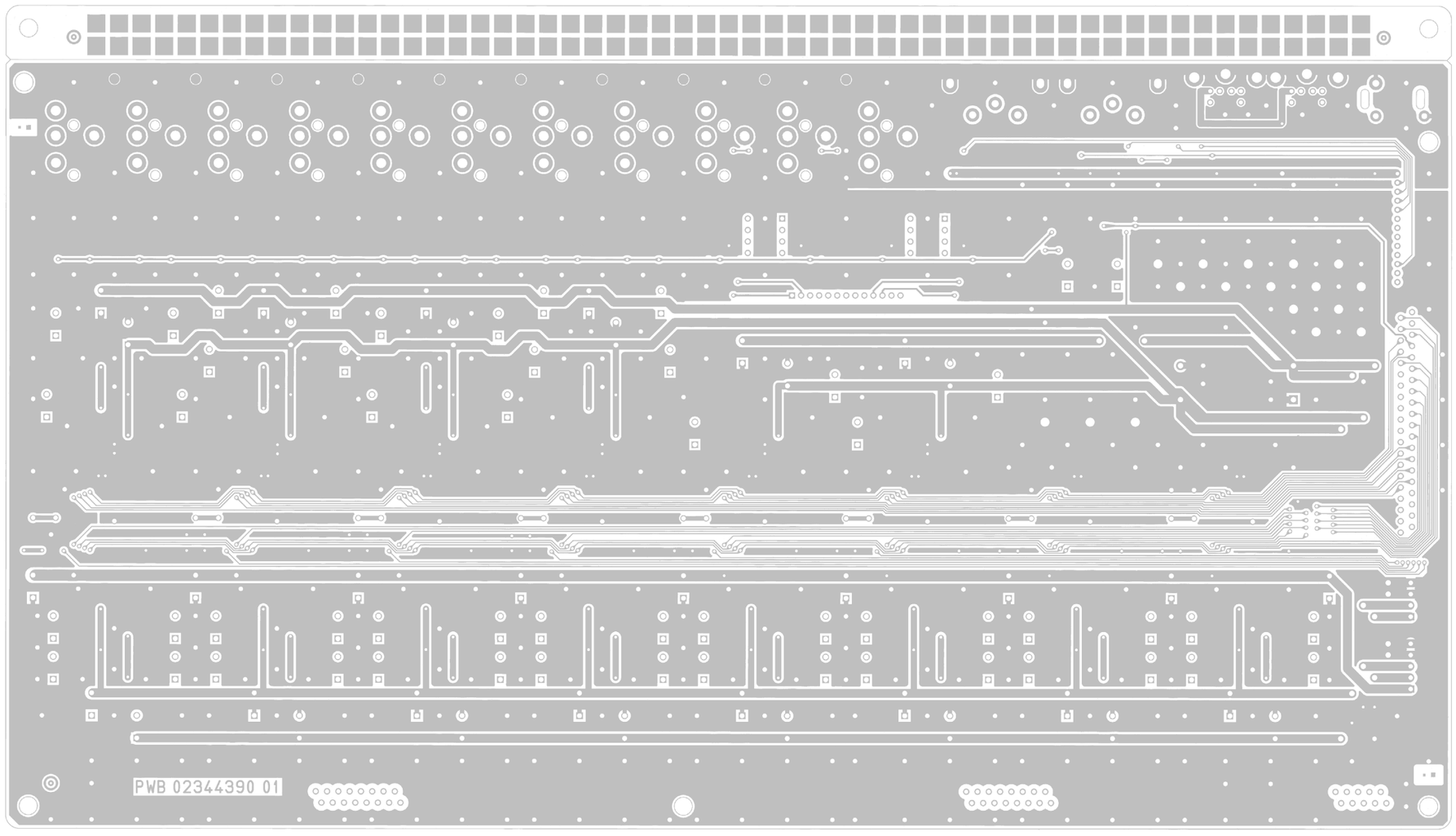


View from component side.

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

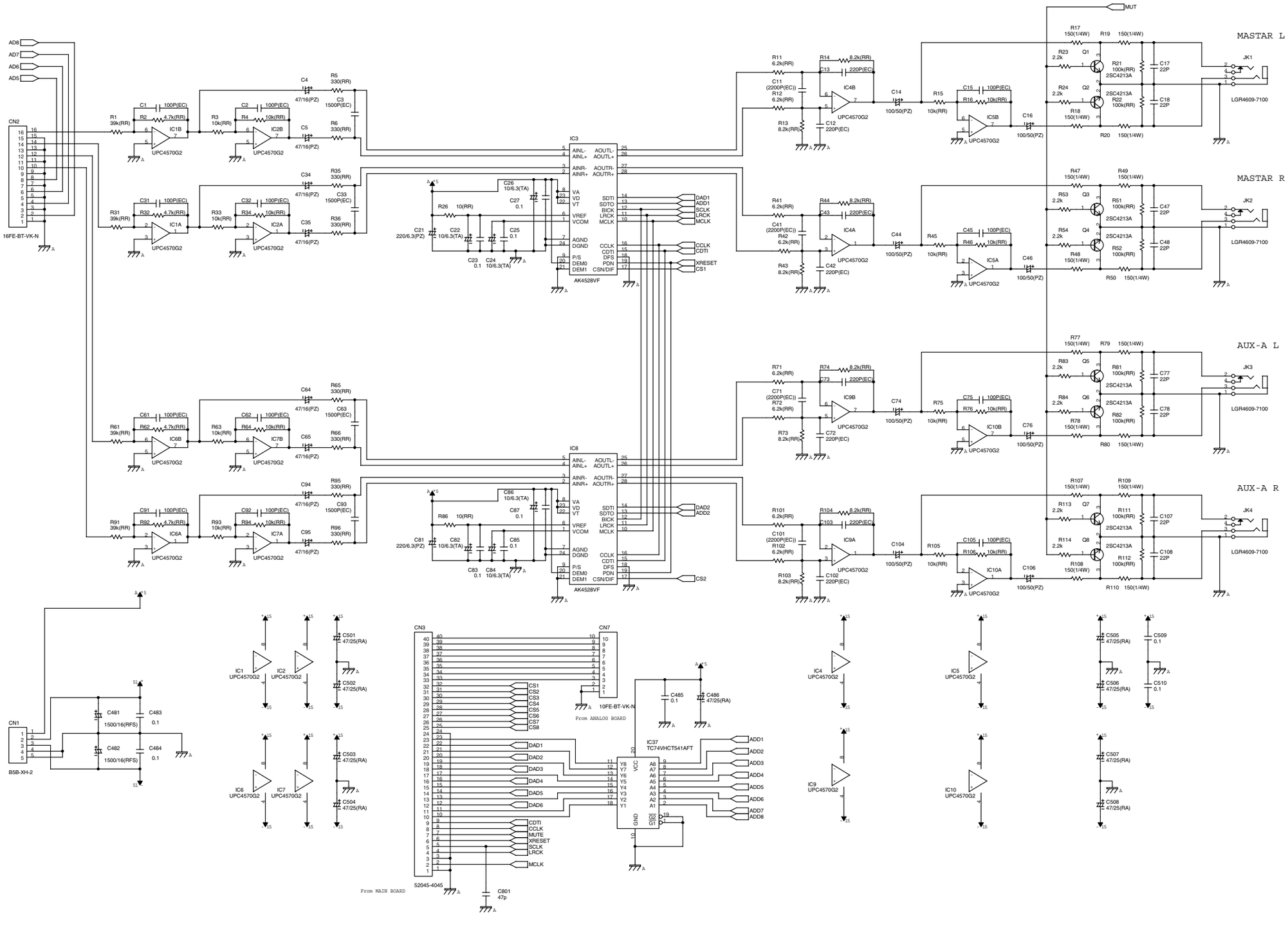
A B C D E F G H I J K L M N O P Q R S T U

CIRCUIT BOARD
JACK BOARD ASSY (71672801)

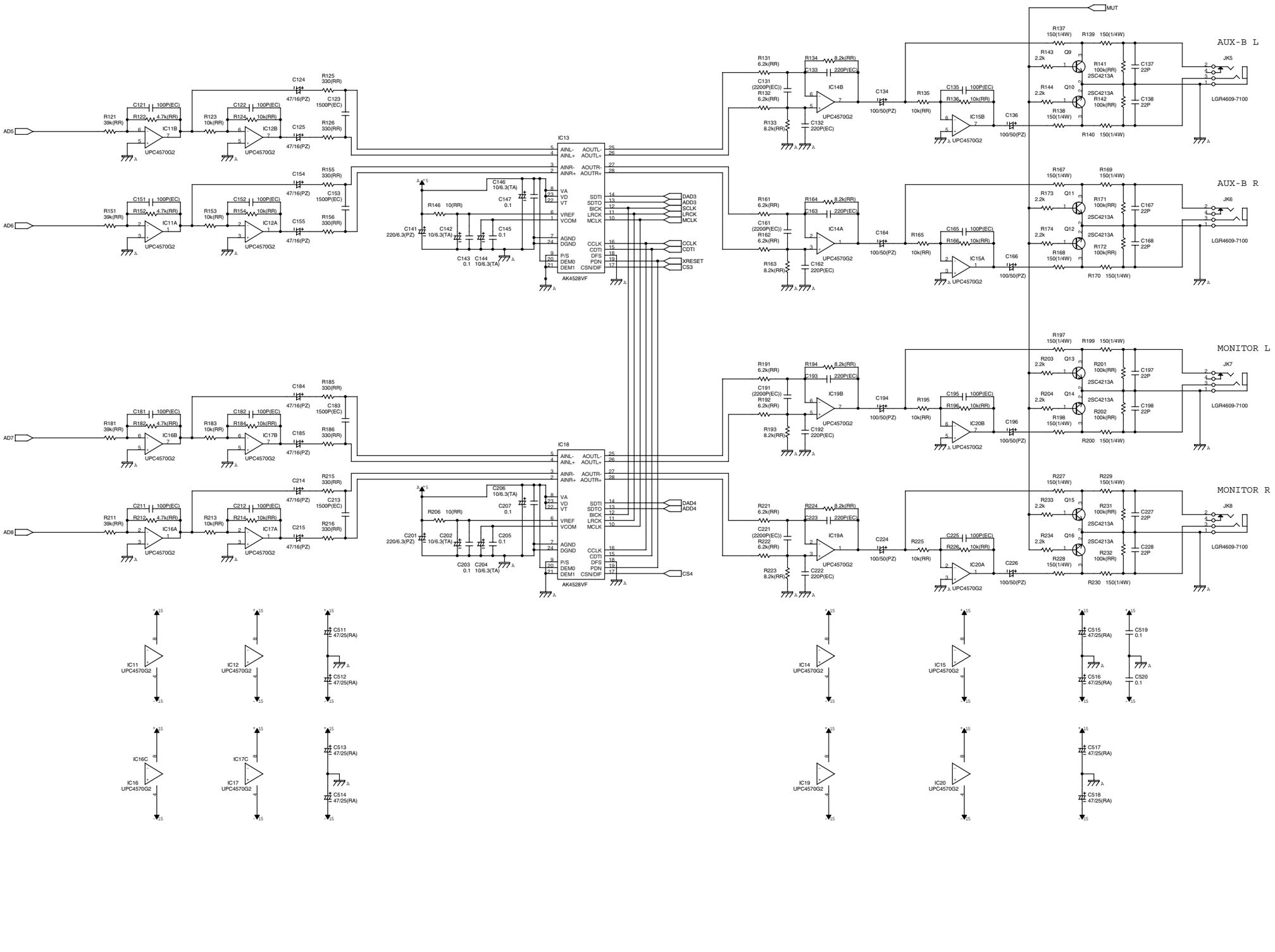


View from foil side.

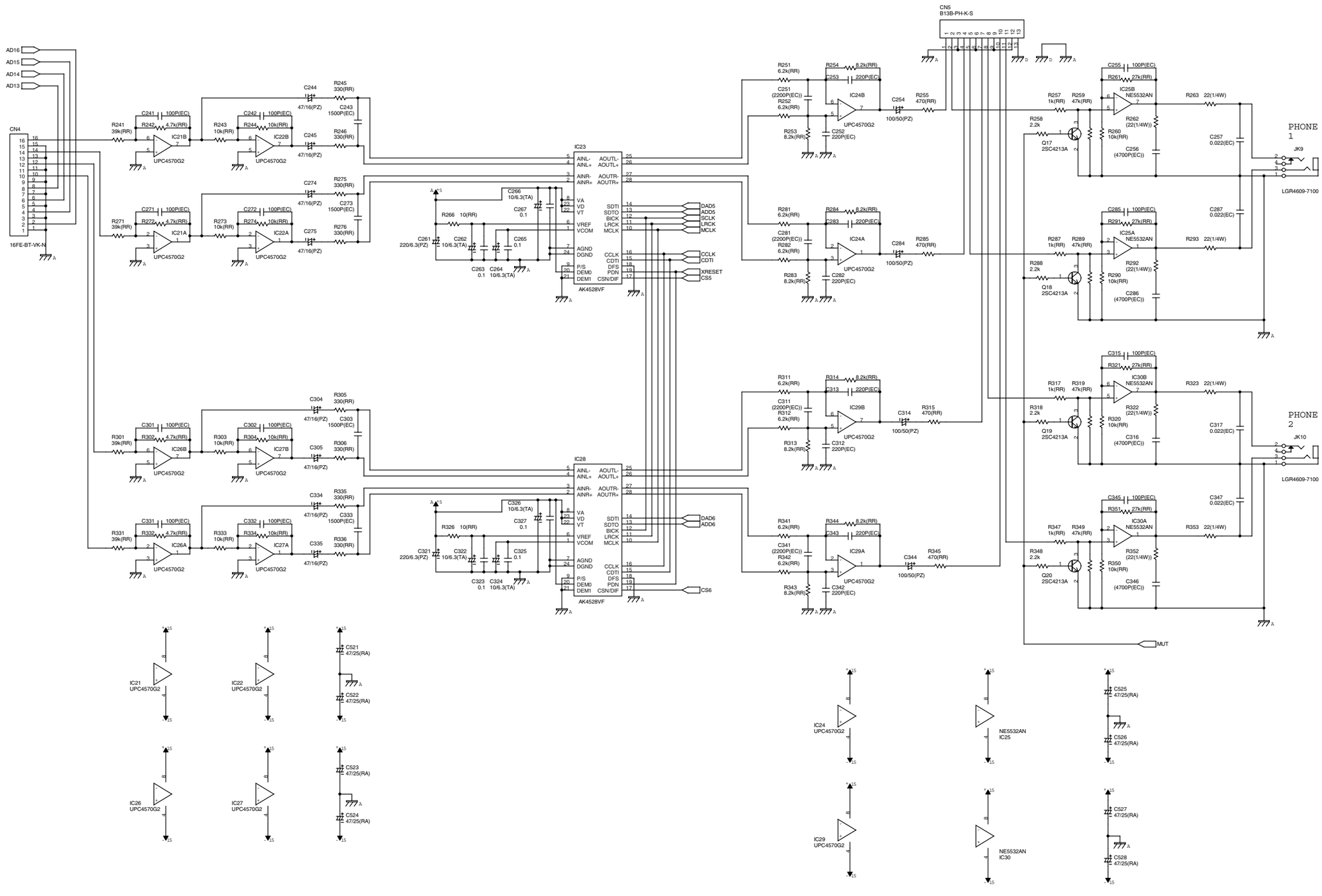
CIRCUIT DIAGRAM
JACK BOARD (1/4)



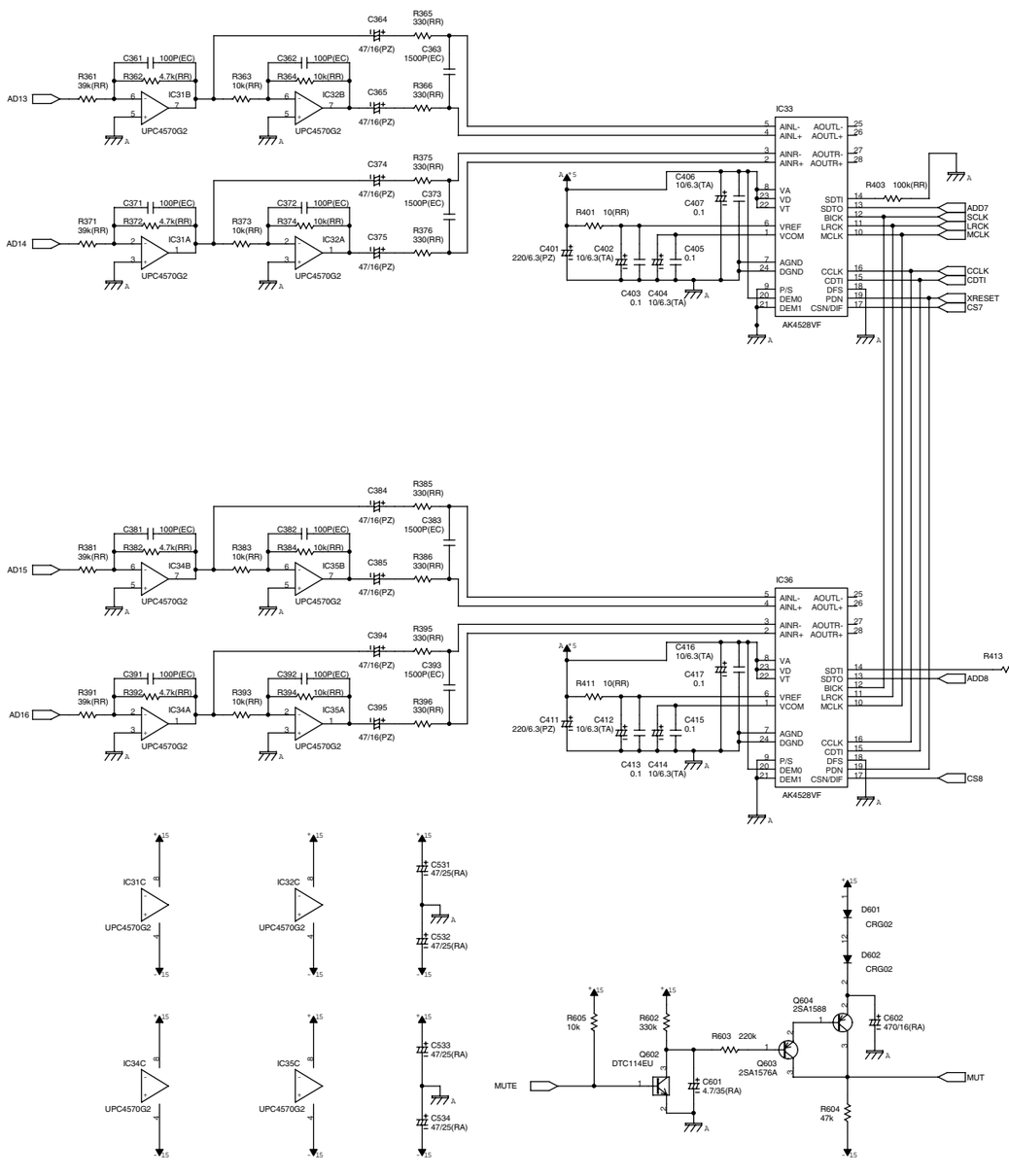
CIRCUIT DIAGRAM
JACK BOARD (2/4)

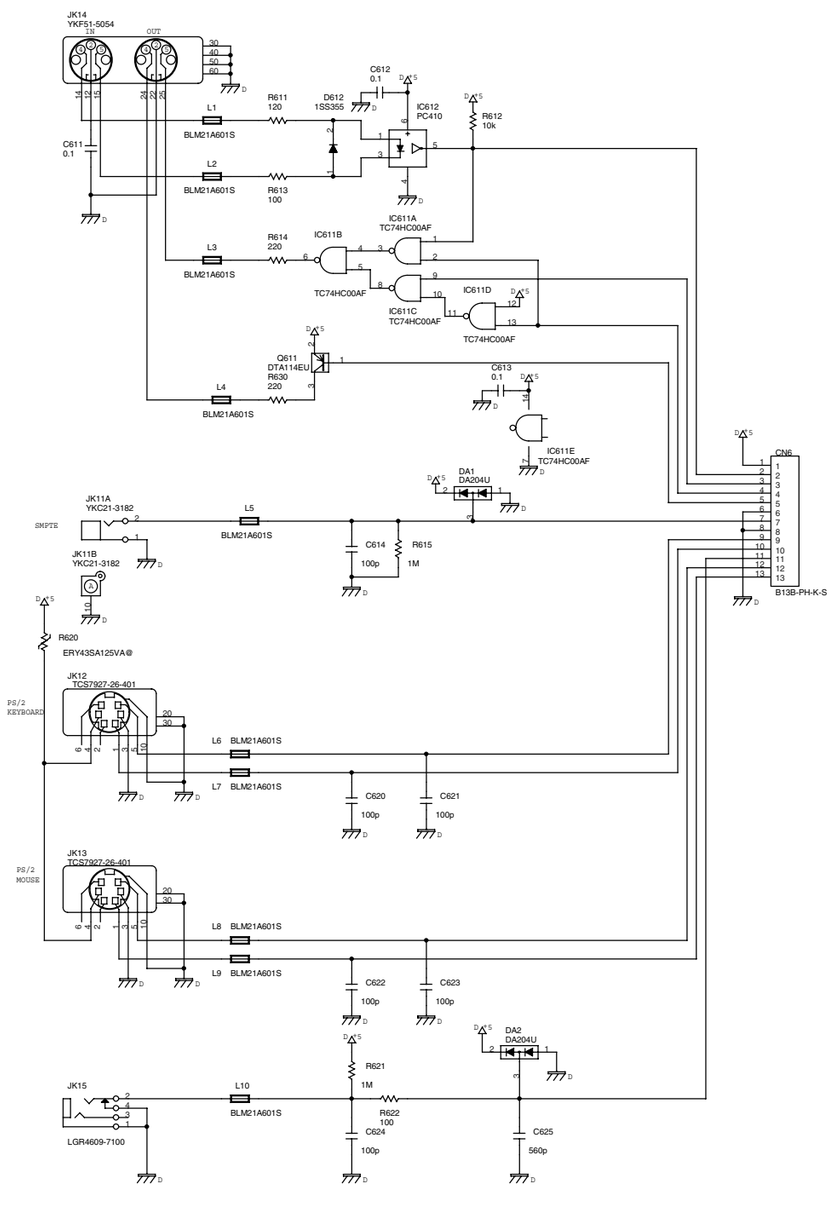


CIRCUIT DIAGRAM
JACK BOARD (3/4)

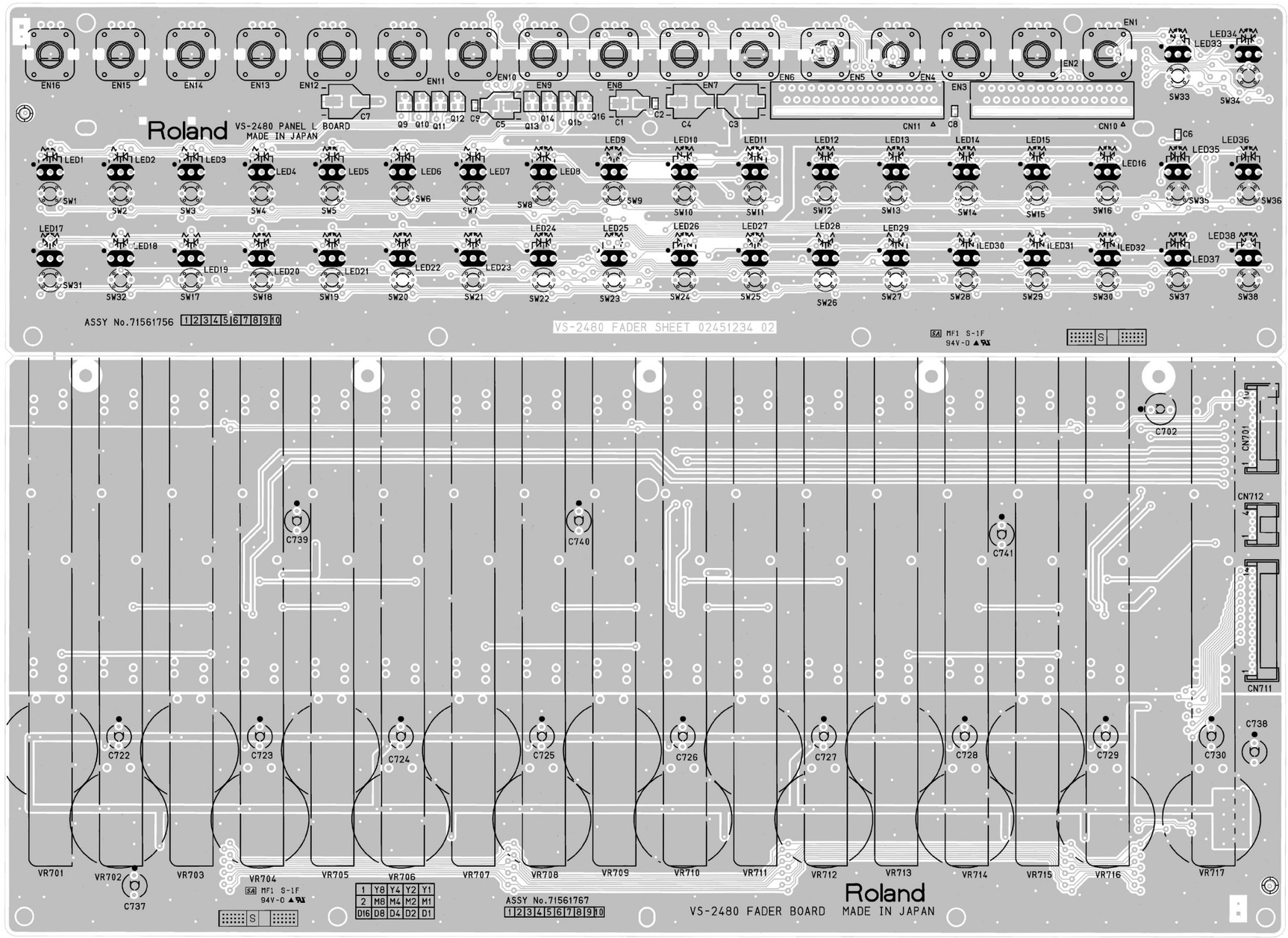


CIRCUIT DIAGRAM
JACK BOARD (4/4)



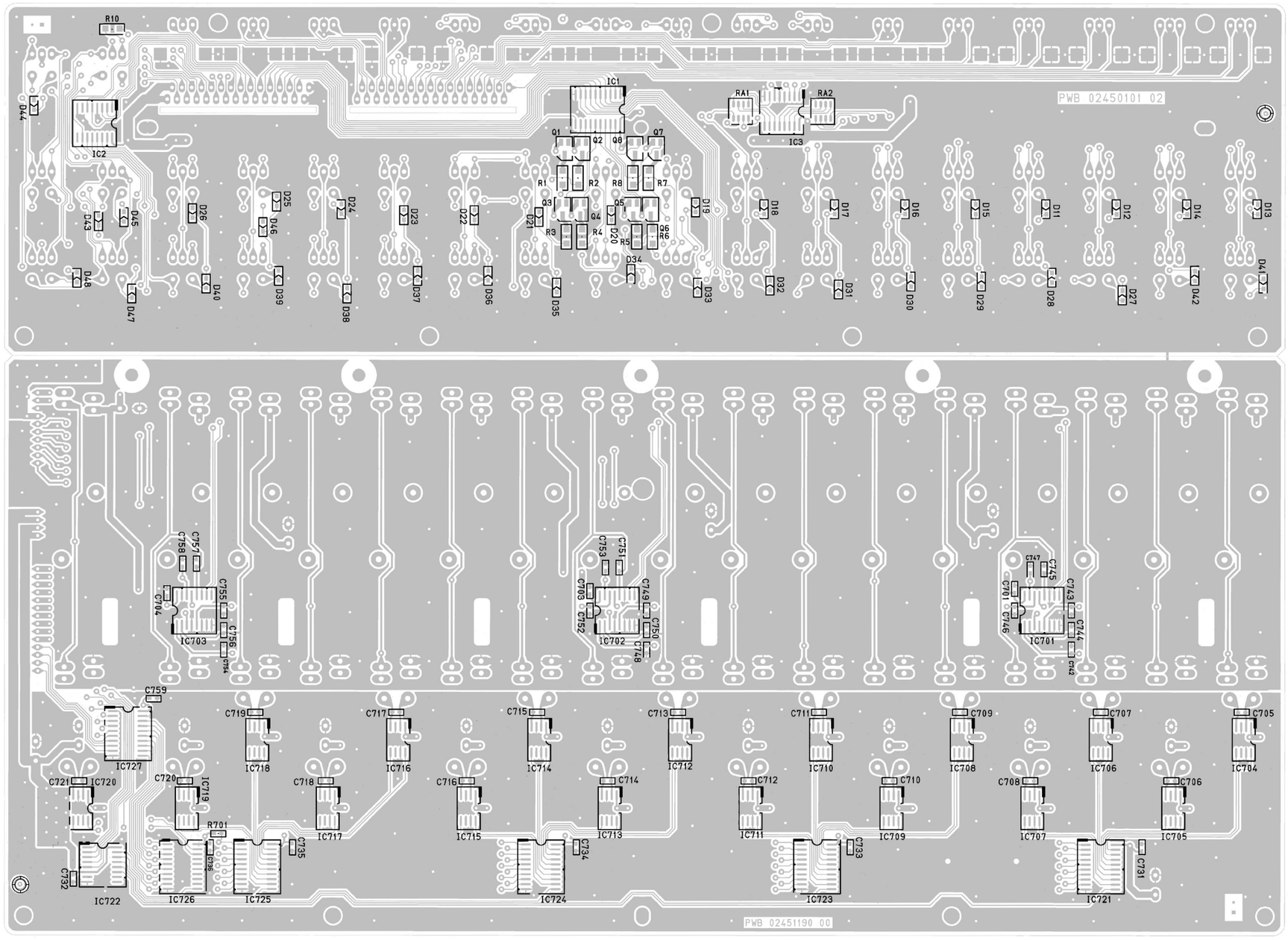


CIRCUIT BOARD
FADER BOARD/PANEL L BOARD (71561767)



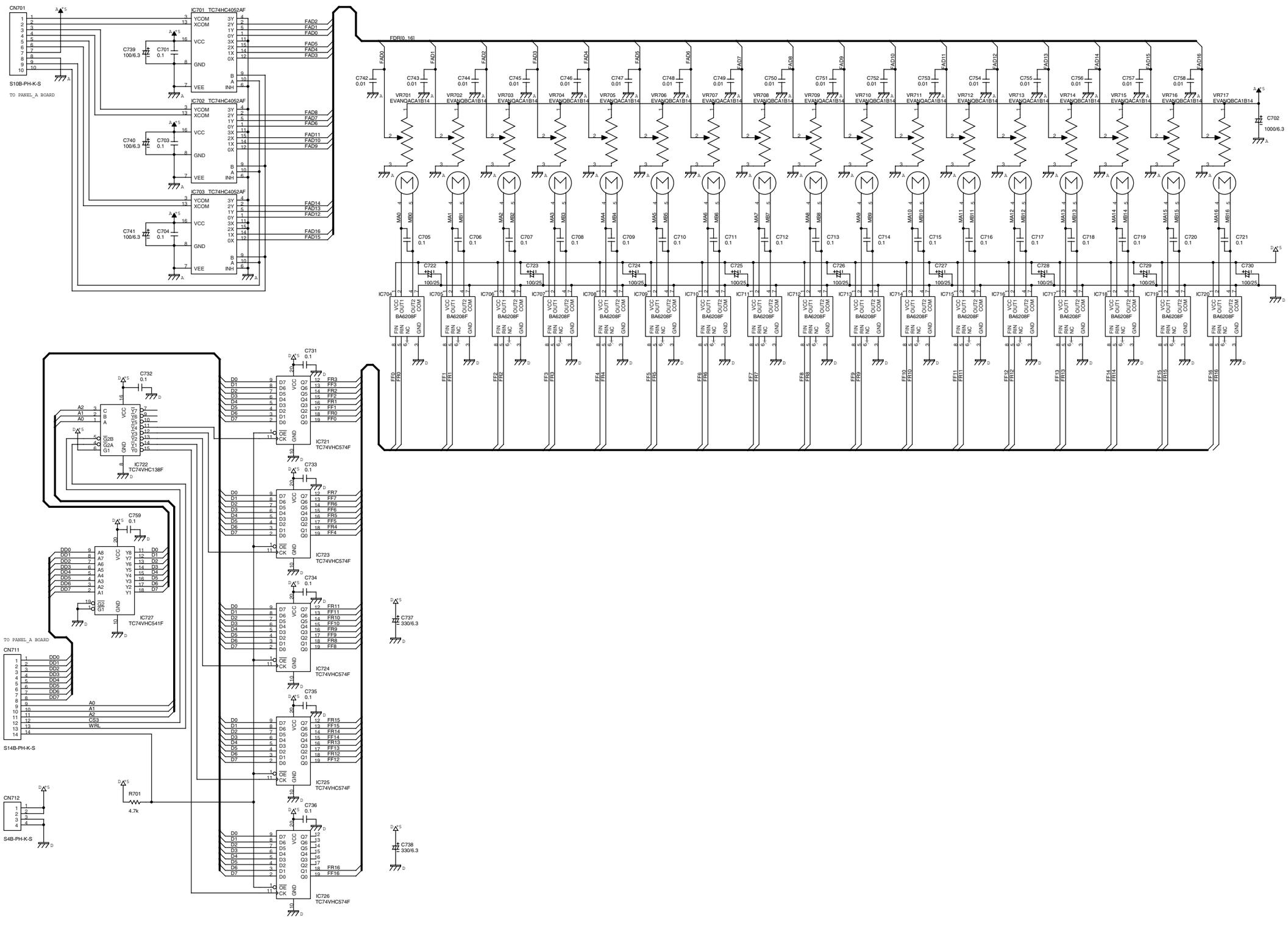
View from component side.

CIRCUIT BOARD
FADER BOARD/PANEL L BOARD (71561767)

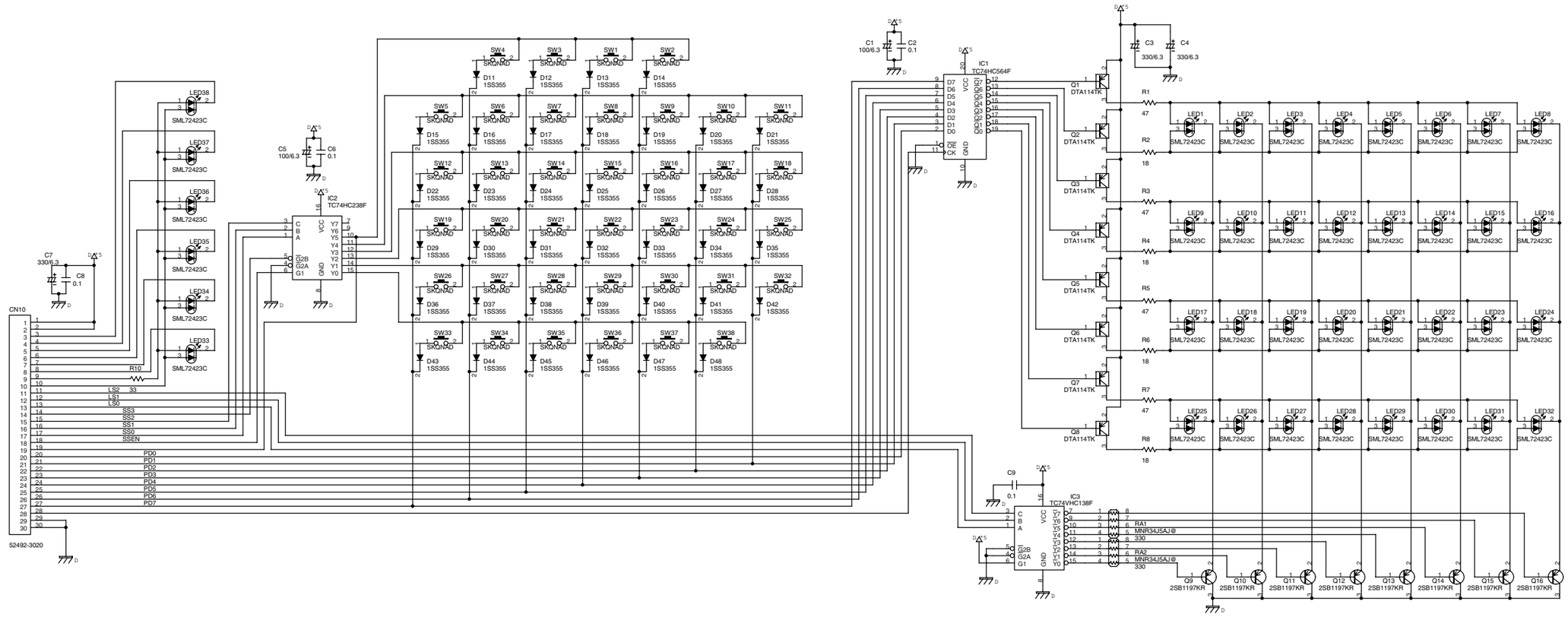


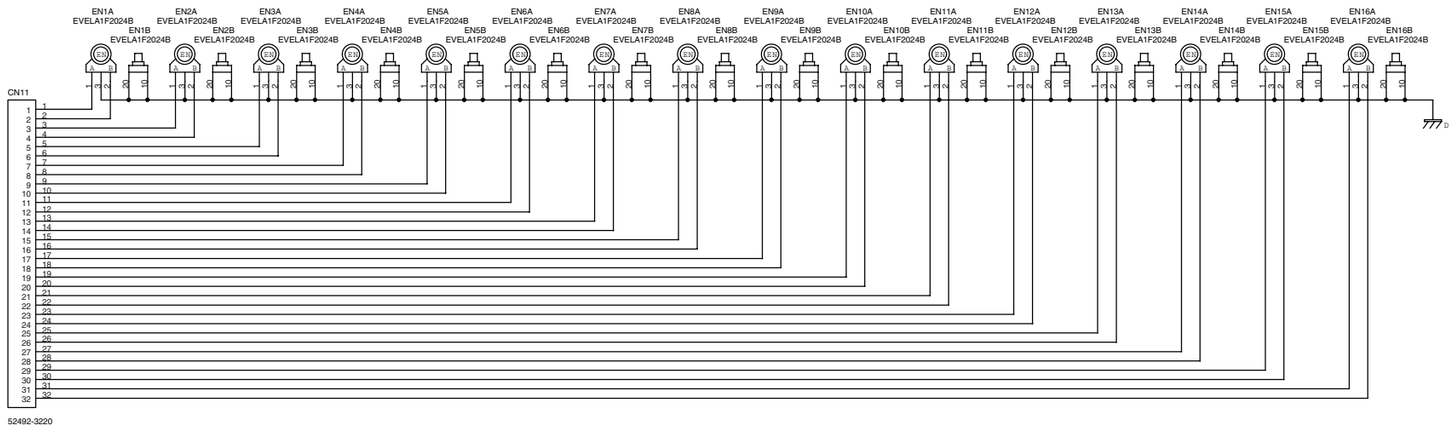
View from foil side.

CIRCUIT DIAGRAM
FADER BOARD

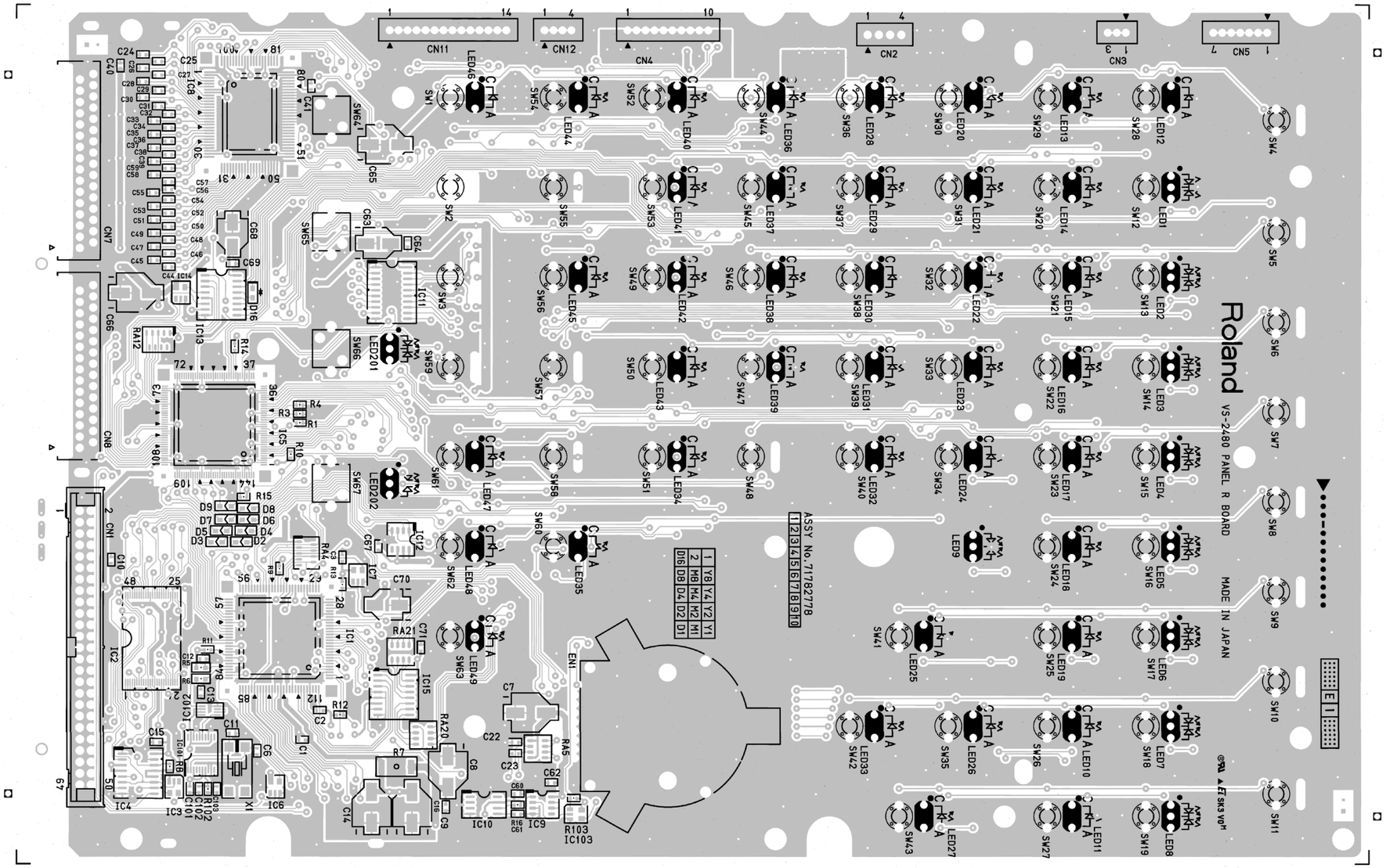


CIRCUIT DIAGRAM
PANEL L BOARD



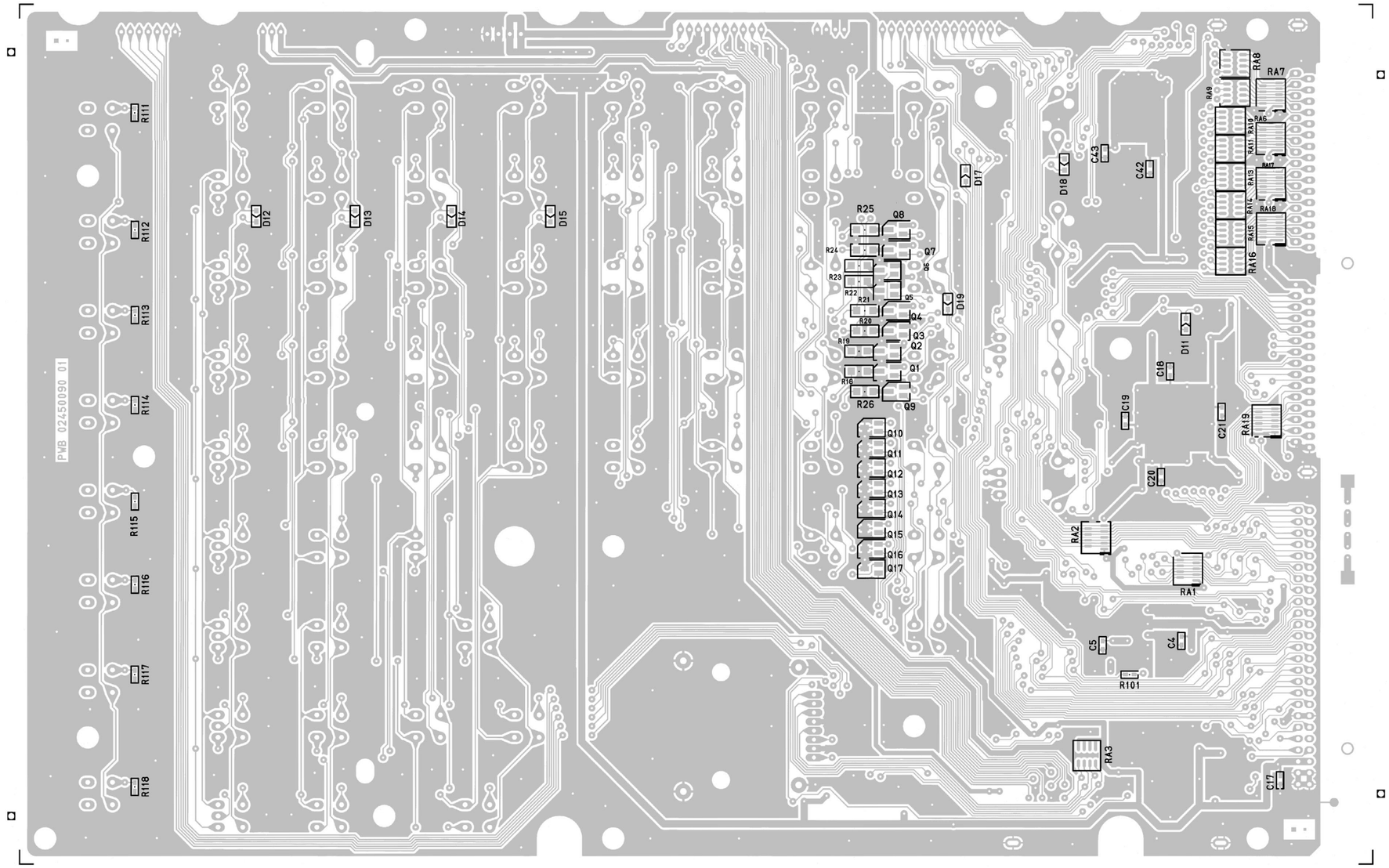


CIRCUIT BOARD
PANEL R BOARD (71782778)



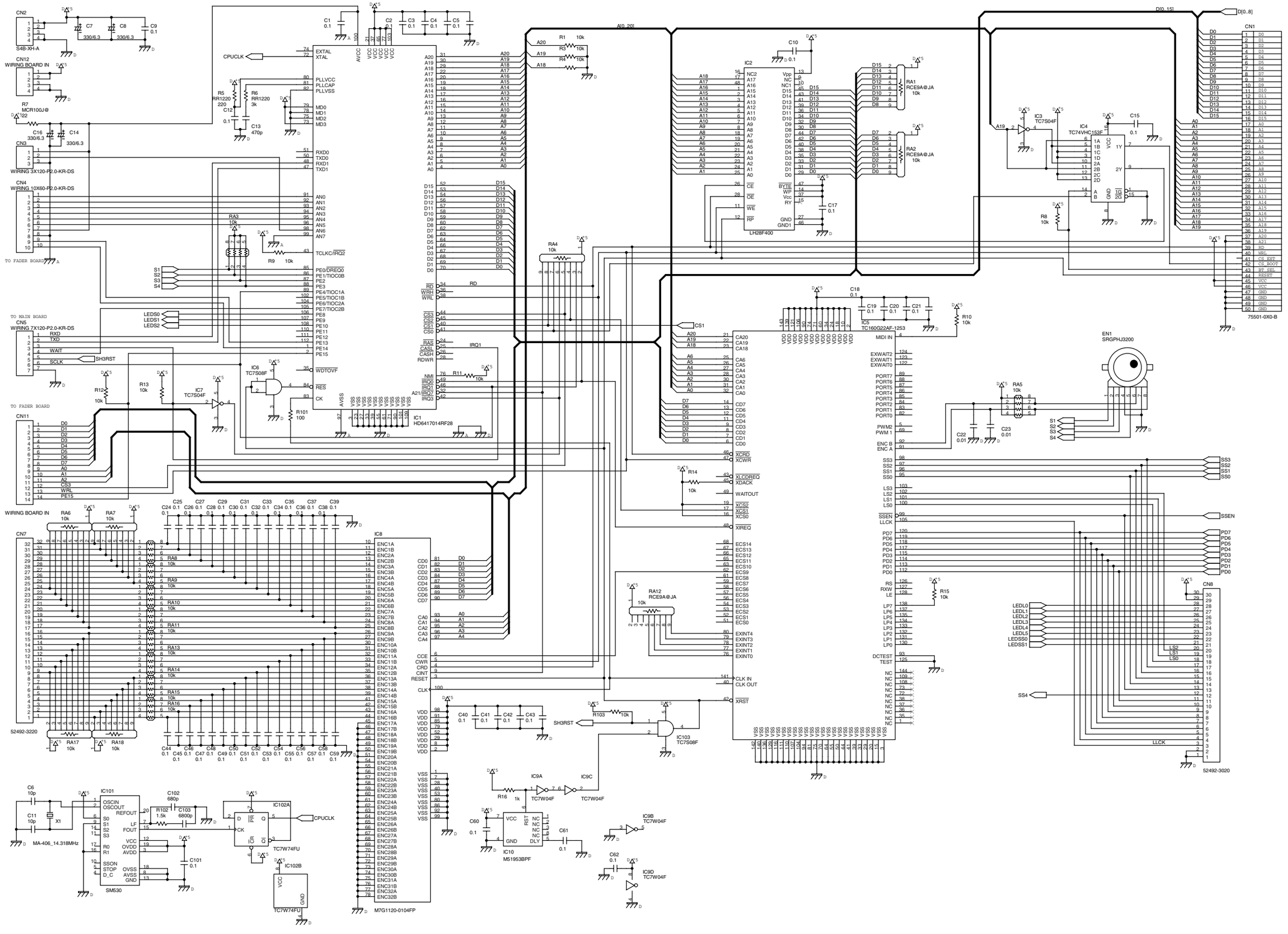
View from component side.

CIRCUIT BOARD
PANEL R BOARD (71782778)

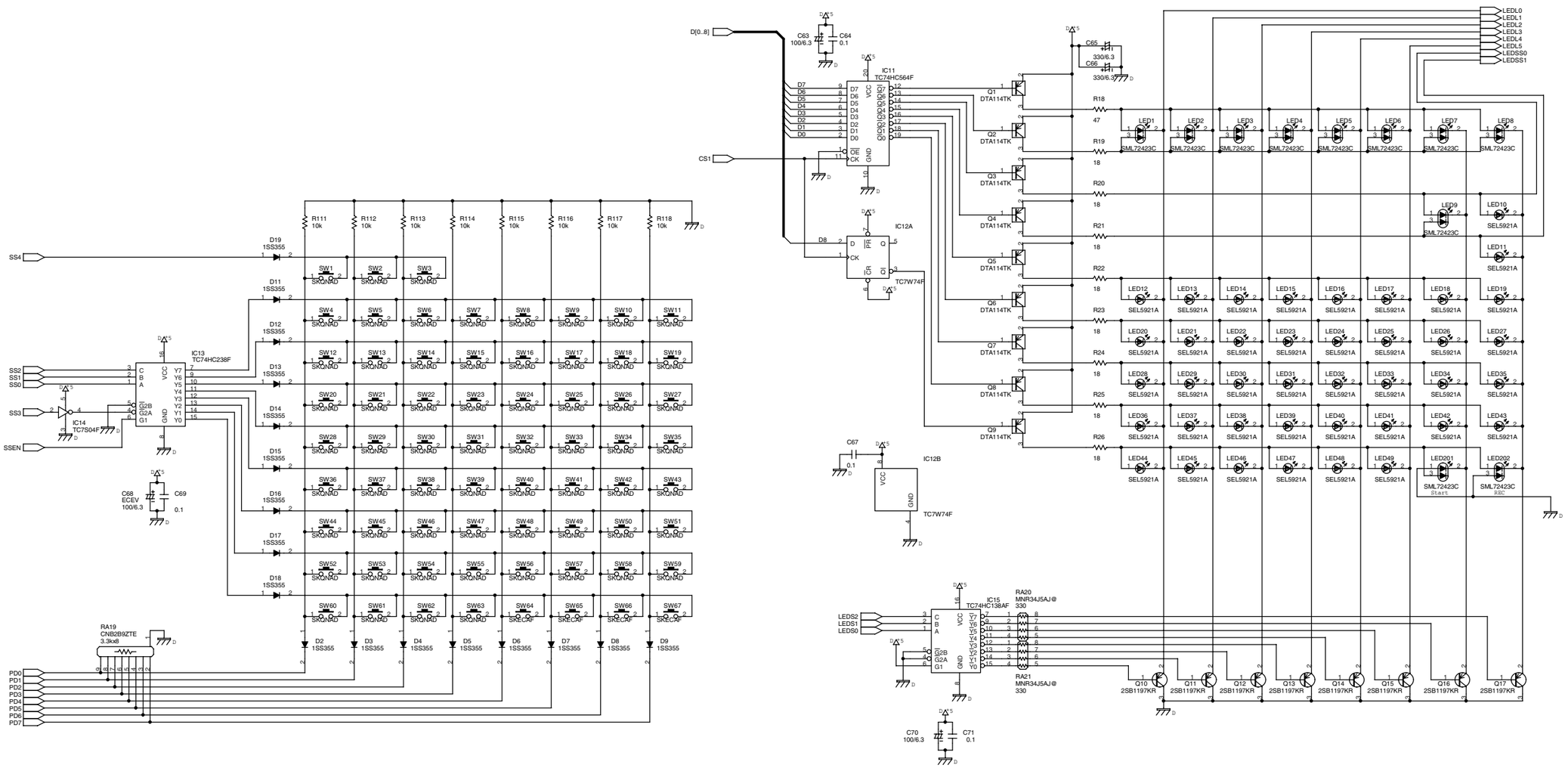


View from foil side.

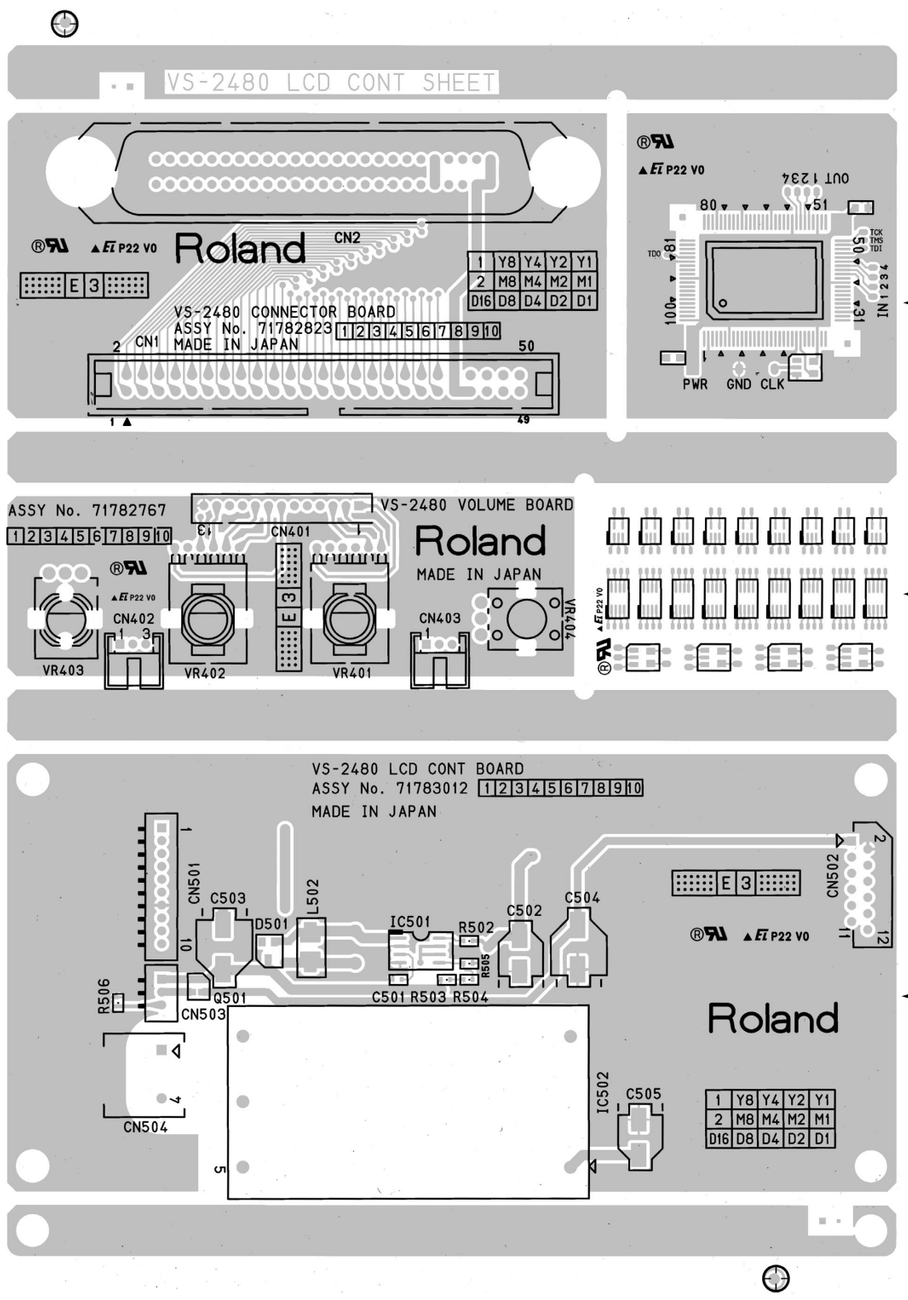
CIRCUIT DIAGRAM
PANEL R BOARD (1/2)



CIRCUIT DIAGRAM
PALEL R BOARD (2/2)



CIRCUIT BOARD
LCD CONT BOARD ASSY (71783012)

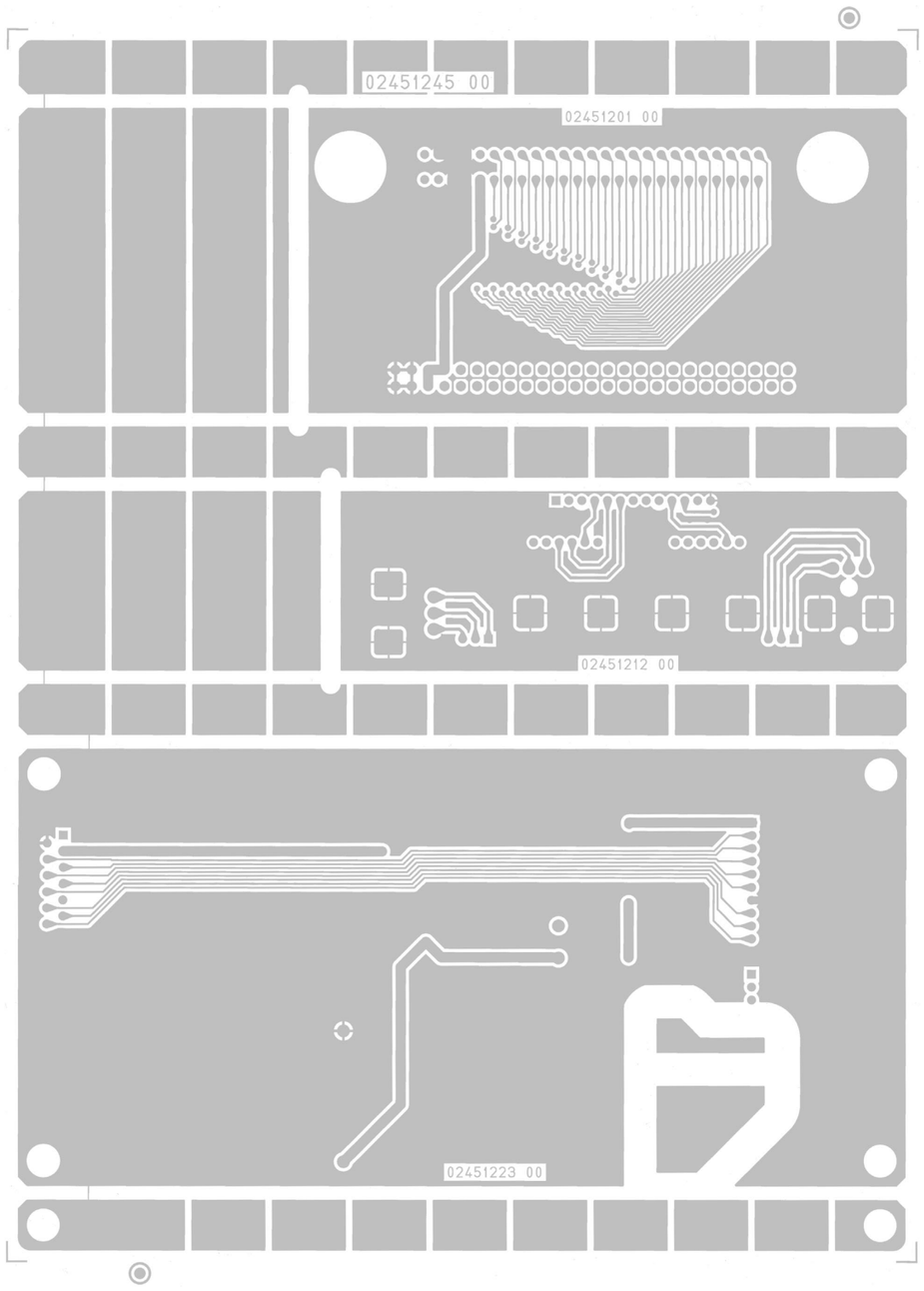


CONNECTOR BOARD (71782823)

VOLUME BOARD (71782767)

LCD CONT BOARD (71783012)

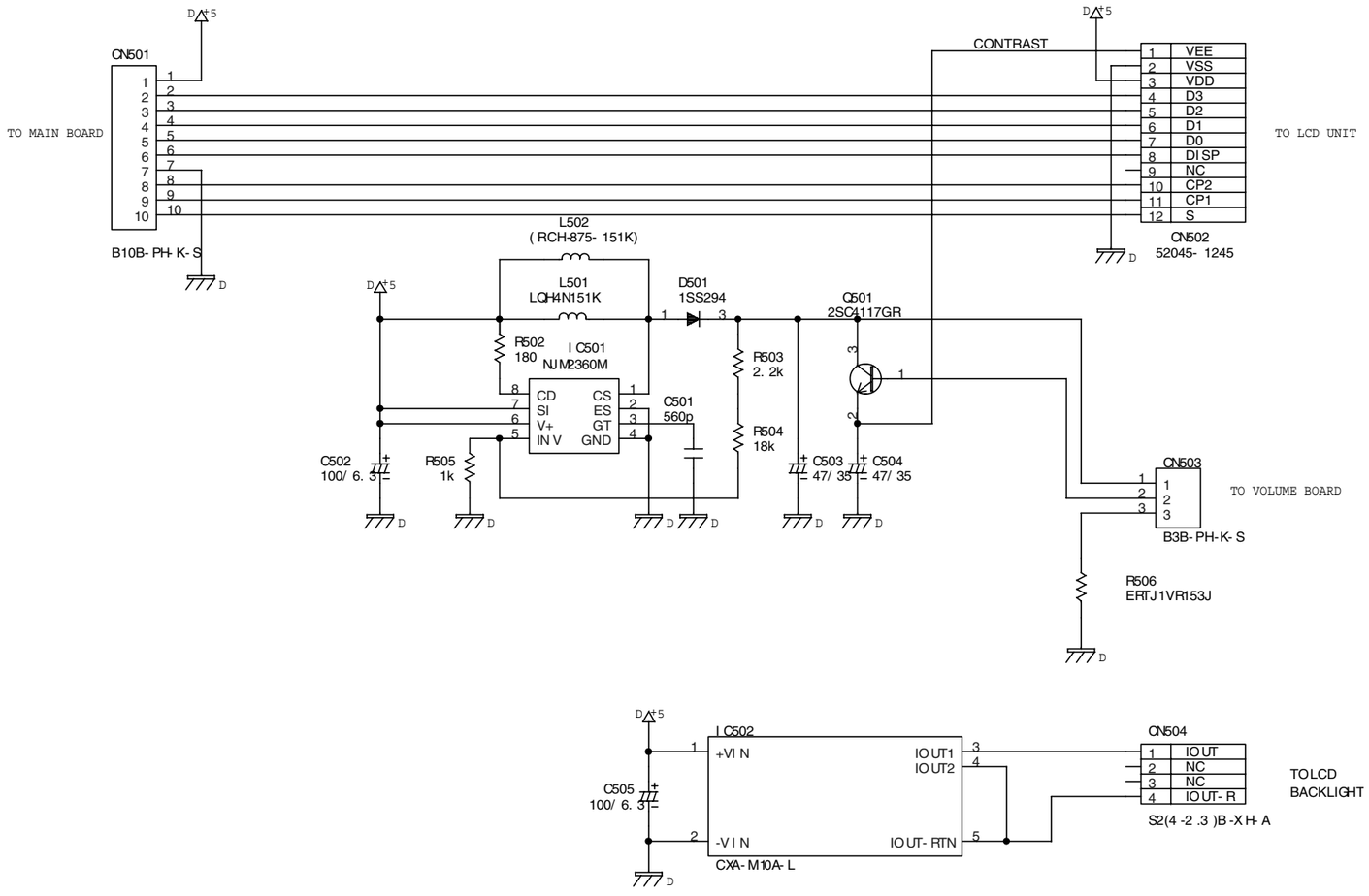
View from component side.



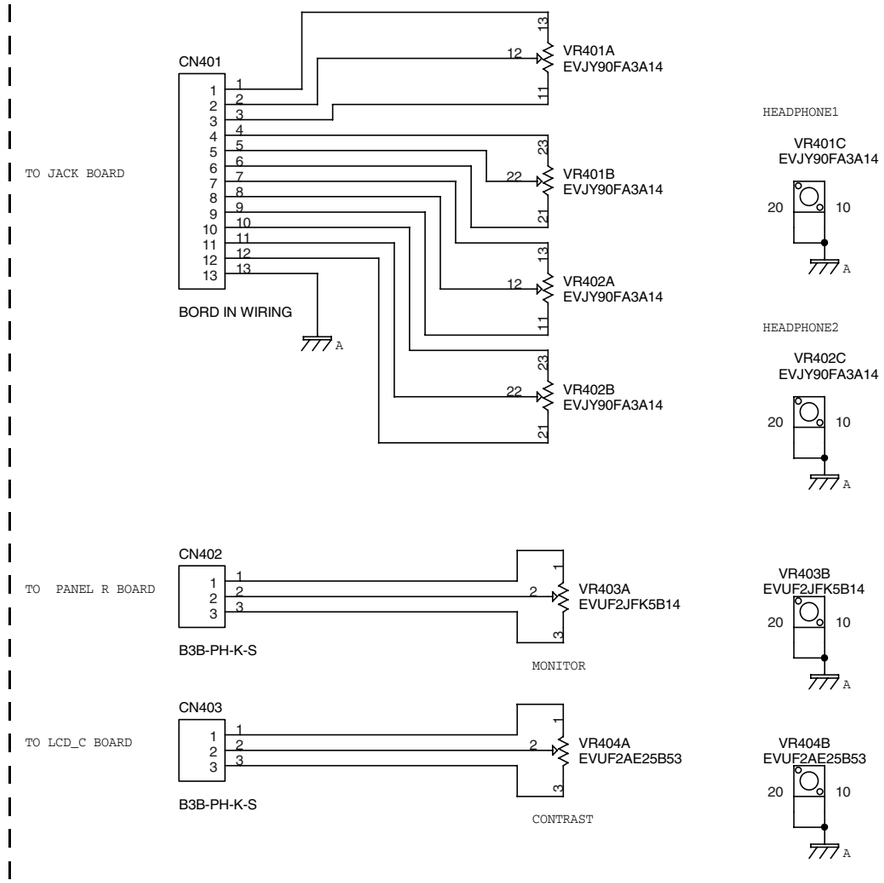
View from foil side.

CIRCUIT DIAGRAM
LCD CONT BOARD/VOLUME BOARD

LCD CONT BOARD



VOLUME BOARD



CIRCUIT DIAGRAM
CONNECTOR