VG-8EX
V-GUITAR SYSTEM

SERVICE NOTES
First Edition
Issued by RJA

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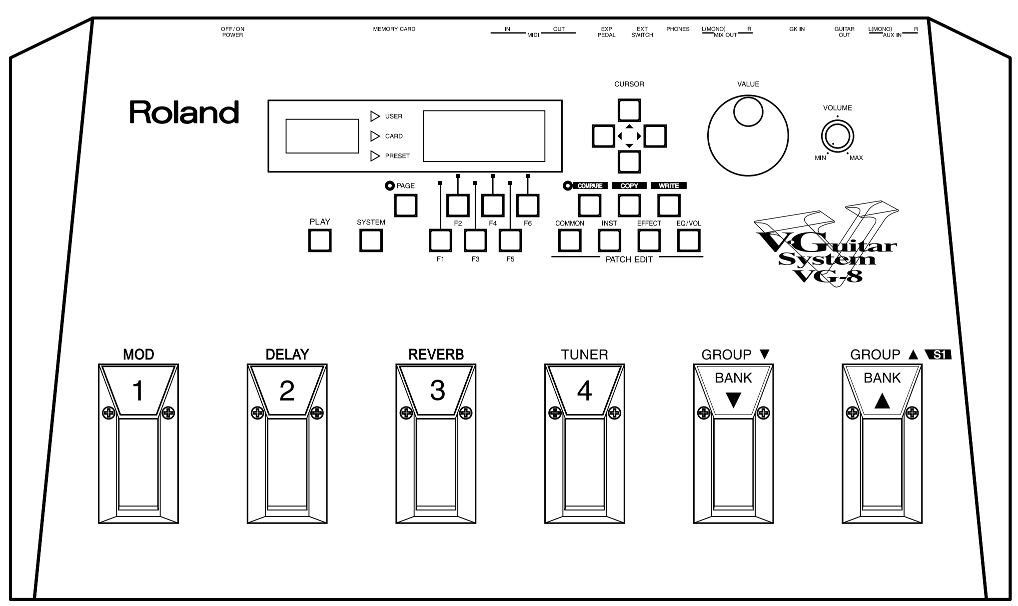


SPECIFICATIONS

◉**Internal Memory** •••• : System Setup : 1
: Patches : 160 Preset Patches, 64 User Patches

◉**Memory Card(M-512E)**
•••• : System Setup : 1
: Patches : 64 Patches

◉**Effects**•••• : Moduration, Delay, Reverb, Equalizer

◉**Output**
[MIX OUT]•••• : Normal Output Level : -10dBm(at Balanced use), -16dBm(at Unbalanced use)
: Output Impedance : 600 Ohm(at Balanced use), 300 Ohm(at Unbalanced use)
: Output Noise Level : Less than -84dBm (0dBm=0.775Vrms)
[GUITAR OUT] •••• : Normal Output Level : -20dBm
: Output Impedance : 2k Ohm

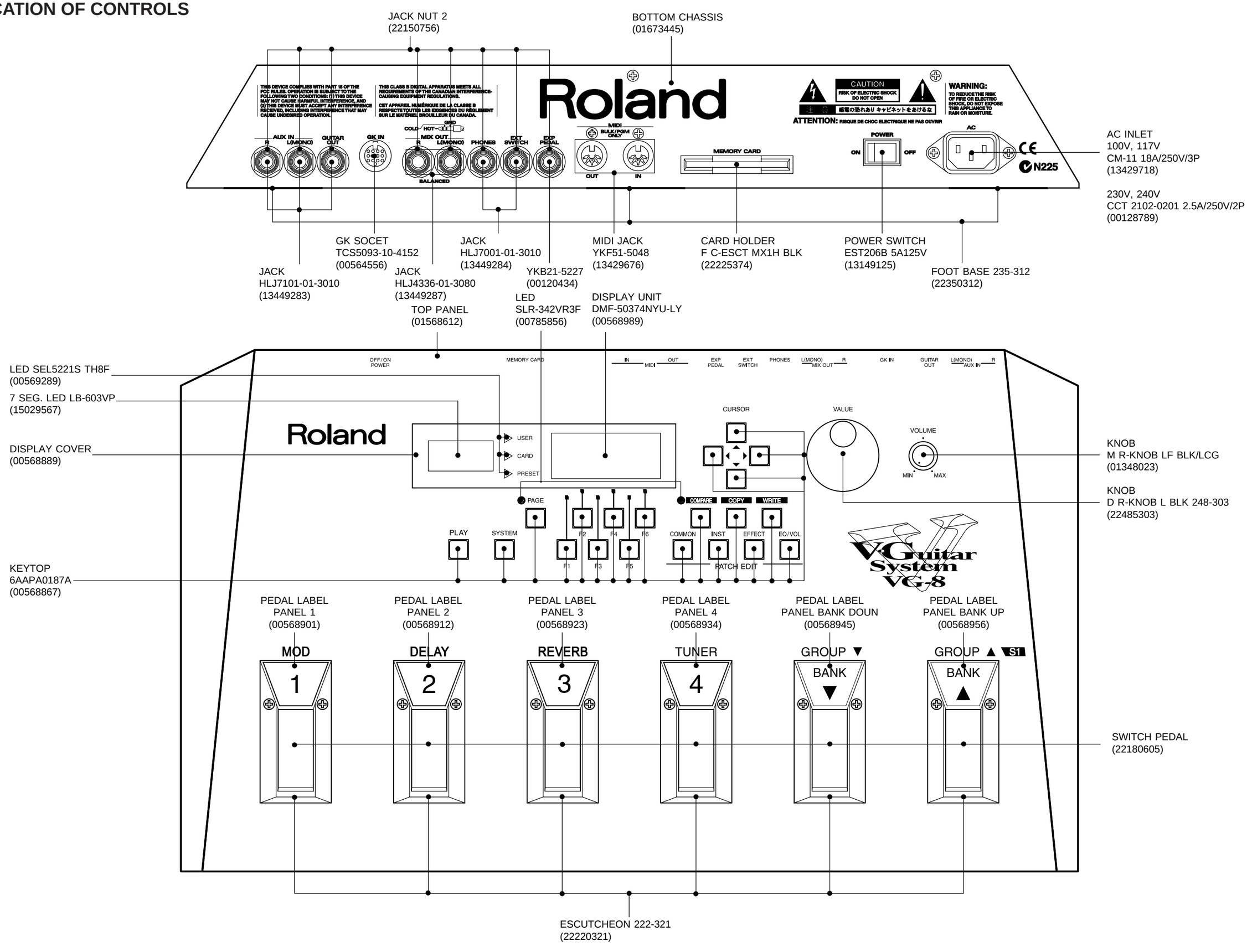
◉**Display** •••• : LED : 7segments, 3lines(LED)
: LCD : 160 x 64 Dots(backlight)

◉**Power Supply** •••• : AC100V, 117V, 230V, 240V
◉**Current Draw** •••• : 230mA
◉**Demensions** •••• : 19-7/8(W) x 11-5/8(D) x 3(H)inches
: 504(W) x 293(D) x 76(H)mm
◉**Weight**•••• : 101lbs6oz / 4.7kg
◉**Accessories** •••• : Owner's Manual Set(Japanese) : PNo.71128356

: Owner's Manual Set(English)		: PNo.71129578
AC Cord	100V	: PNo.23495112
AC Cord	117V	: PNo.13499109
AC Cord	230V	: PNo.13499221
AC Cord	230V E	: PNo.13499221
AC Cord	240V A	: PNo.13499222
EURO Converter PLUG ECP01-5A(230VE ONLY)		: PNo.00905234
GK Connecting Cable (C-13A :5m)		: PNo.00349067

◉**Options** : Synthsizer Driver GK-2A
GK Connecting Cable (C-13B :10m)

LOCATION OF CONTROLS



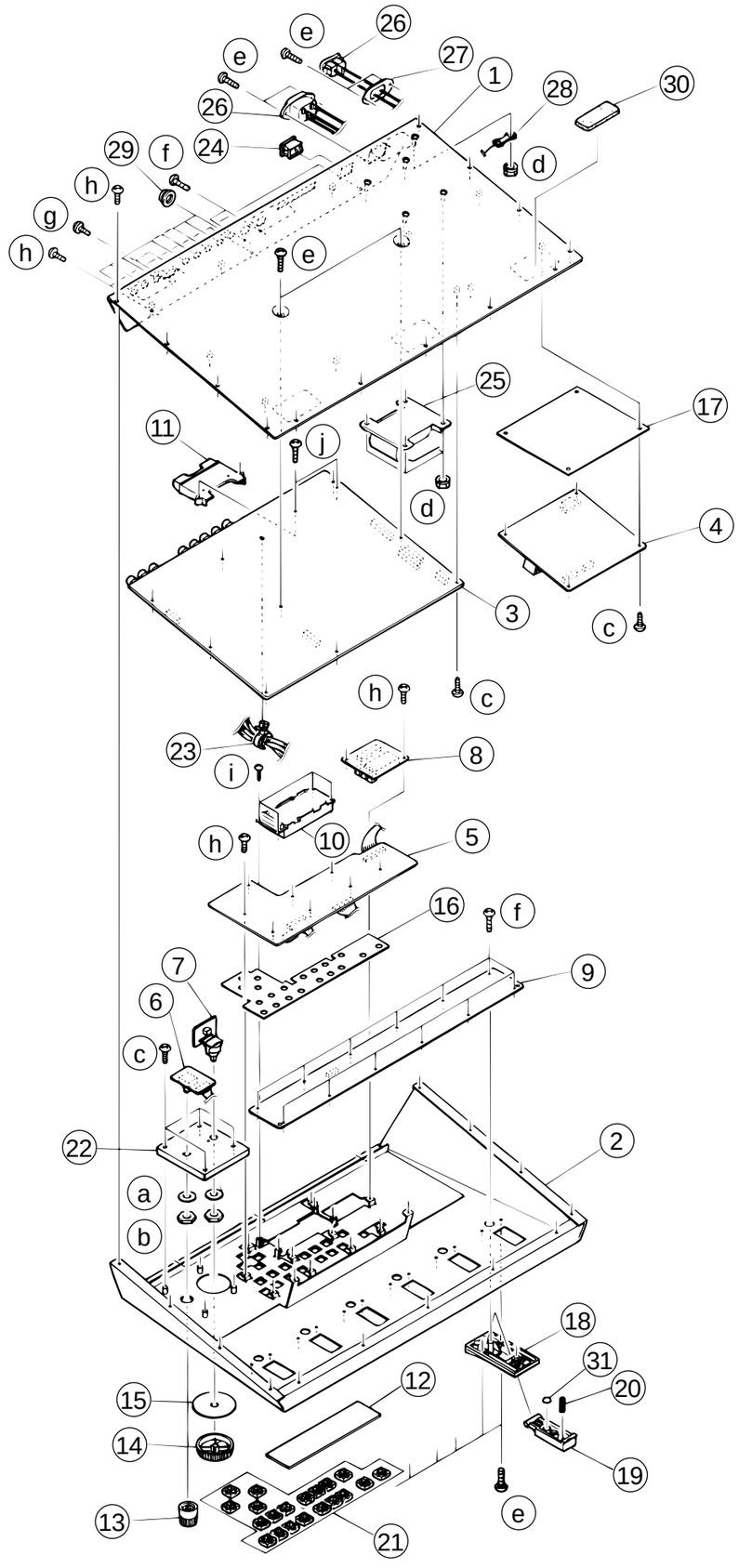
EXPLODED VIEW

[PARTS]

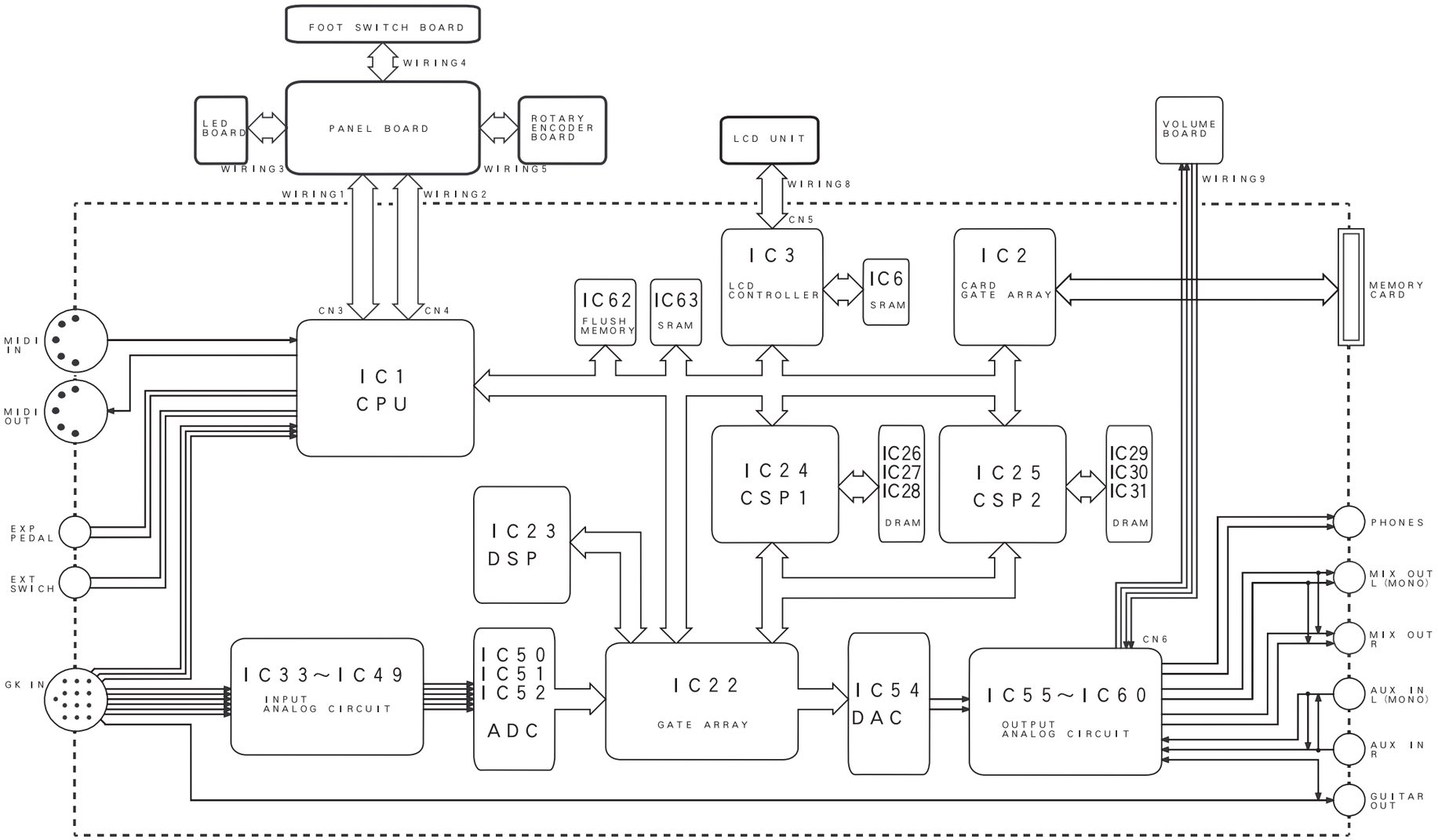
No.	PART No.	PART NAME	
①	01673445	Bottom Chassis	
②	01568612	Top Panel	
E ③	70450045	Main Board Assy	(PCB 00568278)
④	70451690	Power Board Assy	(PCB 00568289)
⑤	70450023	Panel Board Assy	(PCB 00567712)
⑥	71128389	R.Encoder Board Assy	(PCB 00568201)
⑦	70451678	Volume Board Assy	(PCB 00568234)
⑧	70451656	LED Board Assy	(PCB 00568189)
⑨	70451689	Foot SW Board Assy	(PCB 00568256)
⑩	00568989	DMF-50374NYU-LY	
⑪	22225374	F C-ESCT MX1H BLK	(Card Holder)
⑫	00568889	Display Cover	
⑬	01348023	M R-KNOB LF BLK/LCG	(Volume Knob)
⑭	22485303	D R-KNOB L BLK 248-303	(Rotaly Encoder Knob)
⑮	00784534	Pot Dust Cover	
⑯	00677412	SW Cover	
⑰	00677401	Insulating Sheet	
⑱	22220321	Escutcheon 222-321	
⑲	22180605	Switch Pedal	
⑳	22170103	Support Spring	(for Switch Pedal)
㉑	00568867	Key Top 6AAPA0187A	
㉒	00784523	VR Holder	
㉓	00671445	Clip Clamp	(Wiring Holder)
㉔	13149125	Power Switch EST206B 5A/125V	
⚠ ㉕	22453551N0	TRANSFORMER 100V	
⚠	22453552C0	TRANSFORMER 120V	
⚠	22453553D0	TRANSFORMER 230V/240V	
㉖	13429718	CM-11 18A/250V/3P AC Inlet(100V,117V)	
	00128789	CCT 2102-0201 2.5A/250V/2P AC Inlet(230V,240VE,240VA)	
㉗	00231434	Inlet Holder	
㉘	00673934	WIRING 11	(AC Inlet <--> Chassis)
㉙	22150756	Jack Nut 2	
㉚	22350312	Base 235-312	
㉛	40129301	Rubber Foot #35	(for Switch Pedal)

[SCREW]

Ⓐ	17048154	M9 Washer ZC
Ⓑ	17048153	M9 Nut Thin Type ZC
Ⓒ	40012512	3x6mm Binding Head S-tite ZC
Ⓓ	40011745	M4 Spring Nut ZC
Ⓔ	40011101	3x8mm Binding Head B-tite BZC
Ⓕ	40011312	3x8mm Binding Head P-tite BZC
Ⓖ	40011302	3x8mm Single SEMS BZC
Ⓗ	40011090	3x6mm Binding Head B-tite BZC
Ⓘ	40011278	3x8mm Binding Head P-tite ZC
Ⓙ	17048155	2x4mm Binding Head B-tite ZC



BLOCK DIAGRAM



CIRCUIT DESCRIPTION

String vibrations induced to GK-2A pickup are level adjusted at the input analog circuit and fed to the A/D converter (ICs 50-52) which outputs the digital equivalents to the gate array IC22. From IC22, waveform data is sent to CSP1 IC24 and CSP2 IC25 where waveform data is modified as desired. From IC22, pitch and envelope data are sent to DSP IC23.
ICs 23, 24 and 25 return the processed data back to gate array IC22 from which data are sent to DAC IC54 and then routed to analog singal output circuiuts.

The CPU IC1 directs CSP1 and CSP2 and performs other controls on LCD, LED, switches, memory card, VALUE dial, expression pedal, and the like.
System/patch parameters are stored in the battery backed up SRAM IC63.
Flush memory IC62 stores main program and preset patches. These data are updated upon performing MIDI revision procedure.

PARTS LIST

SAFETY PRECAUTIONS:
The parts marked ⚠ 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: Consider about the natural environment carefully before through the old lithium battery away when you exchange to the new one.

MB -----> Main Board Assy. REB -----> Rotary Encoder Board Assy. PWB -----> Power Board Assy.
PNB -----> Panel Board Assy. VRB -----> Volume Board Assy.
LDB -----> LED Board Assy. FSB -----> Foot Switch Board Assy.

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

CASING

#	01568612	Top Panel
	00568889	Display Cover
	22350312	Foot Base 235-312
	22225374	F C-ESCT MX1H BLK (Card Holder)
	22220321	Escutcheon 222-321
	22180605	Switch Pedal
	22170103	Support Spring (for Switch Pedal)
	40129301	Rubber Foot #35 (for Switch Pedal)

CHASSIS

#	01673445	Bottom Chassis
	00784523	VR Holder

KNOB, BUTTON

	00568867	Key Top 6AAPA0187A (Power Switch)
	22485303	D R-KNOB L BLK 248-303 (Rotaly Encoder)
	01348023	M R-KNOB LF BLK/LCG (Volume)

SWITCH

⚠	13149125	EST206B 5A/125V	Power Switch
	13129772	SKQEAA	

JACK, SOCKET

	00564556	TCS5093-10-4152	GK IN JK4
	13429676	YKF51-5048	MIDI IN/OUT JK1
	13449287	HLJ4336-01-3080	Dual Stereo Jack JK9
	13449283	HLJ7101-01-3010	Monaural Jack JK5.JK6.JK7
	13449284	HLJ7001-01-3010	Stereo Jack JK2.JK8
	00120434	YKB21-5227	Stereo Jack JK4
⚠	13429718	CM-11 18A/250V/3P	AC Inlet(100V/117V)
⚠	00128789	CCT 2102-0201 2.5A/250V/2P	AC Inlet(230V/240V)

DISPLAY UNIT

00568989	DMF-50374NYU-LY	LCD UNIT

PCB ASSY

E	70450045	Main Board Assy	(PCB 00568278)

*Note: Only Main Board "VG-8 Ver.1.**" will be supllied from service center.*
Be sure to execute the "SYSTEM VERSION UP" when you use for "VG-8EX"

	70450023	Panel Board Assy	(PCB 00567712)
	70451656	LED Board Assy	(PCB 00568189)
#	71128389	R.Encoder Board Assy	(PCB 00568201)
	70451678	Volume Board Assy	(PCB 00568234)
	70451689	Foot SW Board Assy	(PCB 00568256)
	70451690	Power Board Assy	(PCB 00568289)

Note: Replacement Main Board Assy does not include the Lithium Battery. Because lithium battery does not use for the back-up of factory presets. Order proper the lithium battery separately if necessary.
00238990 CR2032 Lithium Battery

00238990 CR2032 Lithium Battery

IC

#	01122512	uPD70433GD-12-5BB	CPU
	15239222	TC140G12AF-0061	Gate Array
	00900812	RA03-002(TC170C110AF-002)	Custom DSP
	00564523	TMP320P16PGL	Custom DSP
	15229848	uPD65005GF-062-3B8	Card Gate Array
	15199944	SED1335F0B	LCD Controller
#	01670201	28F400B5-B60	4M Flash Memory (Programed,only for VG-8EX)
	01123289	SRM2B256SLMX55	256K SRAM
	00128890	HY6264ALJ-70	64K SRAM
#	01342990	LH64256CK-50	1M DRAM
	00343556	LC7886MN-TRM	A/D Convertor
	00232567	PCM69AU-1	D/A Convertor
	15289105	uPC4570G2	Dual Operational Amplifier
	15189261	M5218AFP-600E	Dual Operational Amplifier
	00349023	NJM062M	Dual Operational Amplifier
	15289123	M51953AFP-600C	Reset Controller
	00673812	ICL7660SCBA	DC-DC Convertor
	15259109	TC4053BF	Triple 2ch Multiplexer
	15259110	TC4066BF	Quad Analog Switch
	00564545	TC74VHC04F	Hex Inverter
	00567534	TC74VHC138F	Decoder
	00236845	TC74VHC245F	Octal Bus Transceiver
	00564534	TC74VHC574F	Octal D-Type Flip-Flop
	15259708T0	TC74HC08AF	Quad 2-Input AND Gate
	15259720T0	TC74HC74AF	Dual D-Type Flip-Flop
	15259823T0	TC74HC574AF	Octal D-Type Flip-Flop
	15259869T0	TC74HC4075AF	Triple 3-Input OR Gate
	15249116T0	TC7W00F-TE12L	Dual 2-Input NAND Gate
	00232645	TC7W14F-TE12L	Triple Schmitt Inverter
	00671878	TC7SH86F-TE85L	Single EX-OR Gate
	15289125	PC410	Photo Coupler
	15199173	M5291P	Switching Regulator IC
	15199294	AN7705F	+5V Voltage Regulator
	00569023	AN7807F	+7V Voltage Regulator
	00569034	AN7907F	-7V Voltage Regulator

TRANSISTOR

#	01568890	2SA1931	
	15309101	2SA1037KR-T146	
	15319101	2SC2412KR-T146	
	15329507	DTA114EK-T146	
	15329503	DTA124EK-T146	
	15329510D0	DTC144EK-T146	
	15329536	RN1442-TE85L	
	15149134	TD62785P	Transistor Array
	00019112	TD62381P	Transistor Array

DIODE

	15339126	RB471E-T149	Shottky Diode
	15039178	RK-33	Shottky Diode
	15339105	DAN202K-T146	Diode Array
	15339108	DA204K-T146	Diode Array
#	01568901	GBPC102	Bridge Diode
	15039172	S4VB20-4001L15 3.9A/200V	Bridge Diode
	00569289	SEL5221S TH8F	LED(RED) D21.D22.D23 on PNB
	00785856	SLR342VR3F	LED(RED) D24.D25 on PNB
	15029567	LB603VP	7-Segments LED(RED)

RESISTOR

#	01120267	RSSX 1/2 0.22 OHMJ	0.22ohm 1/2W

CAPACITOR

00568301	SRG25VB2200	2200µF/25V
00568312	SRG16VB2200	2200µF/16V
00568323	10SA100M	100µF/10V OS-CON
00127301	LLA50VB1	1µF/50V Low Leakage

ROTARY ENCODER

01124478	EC16B24104 L=15	Rotary Encoder

POTENTIOMETER

13289202	RK14K12D 10KB	Volume

INDUCTOR

	12449268	BL02RN2-R62T2-F	EMI Filter
	13529105M1	DSS310-55D223S	EMI Filter L206 on PWB
	12449427	HP-011Z	Choke Coil L207 on PWB

CRYSTAL

#	01568889	MA-406 8MHz TE24	X2 on MB
	00901912	MA-406 24.576MHz TE24	X1 on MB
	01342145	MA-406 25MHz TE24	X3 on MB
	00564590	SG-531PH 35MHz	Oscillator X4 on MB
	15299218	SG-531YH 65.152MHz	Oscillator X5 on MB

CONNECTOR

13369663	S3B-PH-K-S		CN3 on REB
13369504	B8B-PH-K-S		CN6 on MB
13369564	B12B-PH-K-S		CN4 on MB
13369563	B14B-PH-K-S		CN3 on MB
13369562	B15B-PH-K-S		CN5 on MB
13369667	S7B-PH-K-S		CN4 on PNB
13369668	S8B-PH-K-S		CN8 on VRB
13369675	S15B-PH-K-S		CN5 on LDB
13369593	B5B-XH-A		CN2 on MB
13369556	B8B-XH-A		CN7 on MB
13429233	7508095A	Card Connector	CN1 on MB
13439439	5569-06A1		CN201 on PWB

WIRING

00568167	WIRING 1		CN1 on PNB
00568178	WIRING 2		CN2 on PNB
00568190	WIRING 3		CN6 on PNB
00568267	WIRING 4		CN101 on FSB
00568223	WIRING 5		CN7 on PNB
00568334	WIRING 6		CN202 on PWB
00568345	WIRING 7		CN203 on PWB
00568990	WIRING 8	LCD <--> MB	
00569012	WIRING 9	VRB <--> MB	
00673912	WIRING 10	AC Inlet <--> AC Switch	
00673934	WIRING 11	AC Inlet <--> Chassis	

TRANSFORMER

⚠	22453551N0	TRANSFORMER 100V
⚠	22453552C0	TRANSFORMER 120V
⚠	22453553D0	TRANSFORMER 230V/240V

BATTERY

00238990	CR2032	Lithium Battery

SCREW

40011090	3x6mm Binding Head B-tite BZC	
40011101	3x8mm Binding Head B-tite BZC	
40011312	3x8mm Binding Head P-tite BZC	
40011278	3x8mm Binding Head P-tite ZC	
40012512	3x6mm Binding Head S-tite ZC	
17048155	2x4mm Binding Head B-tite ZC	(for LCD unit)
40011302	3x8mm Single SEMS BZC	
17048153	M9 Nut Thin Type ZC	
17048154	M9 Washer ZC	
40011745	M4 Spring Nut ZC	

MISCELLANEOUS

00568901	Pedal Label(1)
00568912	Pedal Label(2)
00568923	Pedal Label(3)
00568934	Pedal Label(4)
00568945	Pedal Label(BANK DOWN)
00568956	Pedal Label(BANK UP)
22150756	Jack Nut 2
12569420	CR2032 Battery Holder
00677412	SW Cover
00784534	Pot Dust Cover
00891423	LED Spacer
00677401	Insulating Sheet
00231434	Inlet Holder
00671445	Clip Clamp (Wiring Holder)
00568356	Heat Sink PR1616-25-PB
17048151	Radiation Sheet 2067A-5051
40016378	Rag Terminal TER61-0171
00673478	Packing Case
00673467	Pad (1set = L,R 2pieces)
00789389	Pad C (top pad)

ACCESSORIES

#	71128356	Owner's Manual Set Japanese	
#	71129578	Owner's Manual Set English	
⚠	23495112	DC-015-J01	100V
⚠	13499109	UC-909-J06	117V
⚠	13499221	EC-511-E07	230V/230VE
⚠	13499222	SC-078-J02	240V A
⚠	00905234	EURO COVERTER PLUG ECP01-5A (230VE ONLY)	
	00349067	C-13A(SMK)	GR Cable 5m(13P)

OPTIONS

********	C-13B	GR Cable 10m(13P)
********	GK-2A	GUITAR PICKUP

TEST MODE

CAUTION
Before entering the test mode, be sure to save the user data referring to section, “Data save and load”.

◉**Tools required**
MIDI cable ·····(for MIDI test)
EV-5 or FV-300L ·····(for EXP pedal test)
FS-5U (2 units) ·····(for EXT switch test)
PCS-31 (branching cable for FS-5U) ····(for EXT switch test)
Guitar with GK-2A (or GK-2 or GC-10) ··(for GK test)
C-13A (GR cable)·····(for GK test)
M-512E (RAM card)·····(for RAM test)
Headphones (or monitor speaker)·····(for GK test)
Oscilloscope·····(for LINE test)

◉**Test Items**
1. LED test
2. Switch test
3. Dial test
4. EXP pedal test
5. LCD test
6. EXT switch test
7. Battery test
8. MIDI test
9. RAM test
10. GK test
11. CSP test
12. LINE test

◉**Entering/exiting test mode**
◉Entering the test mode
While simultaneously pressing [PLAY], [PAGE] and [SYSTEM] buttons, turn power on.
LCD will show “JIG MODE” screen on which the system revision number is displayed.
If necessary, adjust LCD contrast by using VALUE dial (contrast setting can be made only while in “JIG MODE” screen).
Press [F1] and the LCD changes screen to “JIG MENU 1”.

◉The JIG MENU screen has three pages: “JIG MENU 1”, “JIG MENU 2” and “JIG MENU 3”. Pages can be switched by pressing [PAGE] button.

CAUTION
This test mode uses “JIG MENU 1” and “JIG MENU 2” only.
Do not use “JIG MENU 3” which is invalid while in the test mode.

◉Exiting test mode
Simply turn off power.

◉**Starting/ending a test, general**
◉Starting a test
In a “JIG MENU” screen, press function key ([F1] - [F6]) to select the specified test.

◉Ending the test
Press [SYSTEM] button and the LCD returns back to “JIG MENU” screen.

◉**After entring the test mode**

[1] LED test
● Purpose:
Test all LEDs by turning them on and off.

● Test steps:
1. Press [PAGE] button. “JIG MENU 1” screen will appear.
2. Press [F1] “LED” and the screen changes to “LED Check”.
The screen looks like Fig. 1.

(Fig.1)

3. Press [F1] “ALL”.
Verify that all panel LEDs are lighting.
4. Press [F3] “SEQ”.
All LEDs are turned on and off, but only one at a time.[F5] button adjusts the on period of each LED.
Simultaneously lighting 2 or more LEDs show error condition.

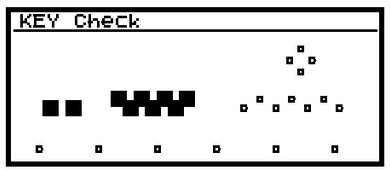
If error:
Check IC1, IC2 and CN1 of panel board; and LED board.

● To end the test:
Press [SYSTEM] and the LCD returns to “JIG MENU 1” screen.

[2] Switch test
● Purpose:
Test panel switches and foot switch.

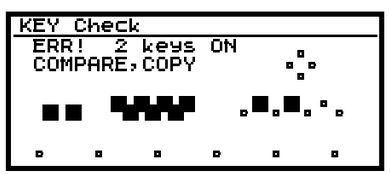
● Test steps:
1. Press [PAGE] button. “JIG MENU 1” screen will appear.
2. Press [F2] “KEY” and the screen changes to “KEY Check”.
The screen shows switch layout.

3. Press panel switches and foot switches one by one.
   The switch pressed is marked with black box on the screen as shown in Fig.2.



(Fig.2)

Releasing the switch enlarges the box. Make sure that the mark appears only for the switch being tested.
If two or more switches are activated and deactivated at the same time, LCD will show error message as shown in Fig.3.



(Fig.3)

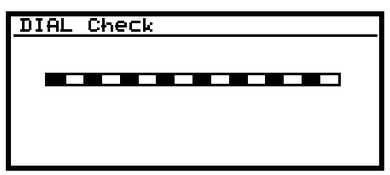
If error:
Check switch matrix on panel board and foot switch board.

● To end the test:
The last switch tested will automatically return the screen to “JIG MENU 1”.
To pause the test in the middle, turn VALUE dial. “JIG MENU 1” screen will appear.

[3] Dial test

● Purpose:
Test VALUE dial.

● Test steps:
1. Press [PAGE] button. “JIG MENU 1” screen will appear.
2. Press [F3] “DIAL” and the screen changes to “DIAL Check”.
   The screen looks like Fig. 4.



(Fig.4)

3. Turning VALUE dial, verify the movement direction of black boxes shown in Fig. 4.

CW: right
CCW: left

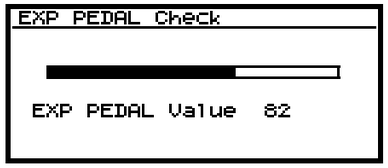
If error:
Check R. ENCODER board and IC11 of main board.

● To end the test:
Press [SYSTEM] and the LCD will return to “JIG MENU 1” screen.

[4] EXP pedal test

● Purpose:
Test expression pedal.

● Test steps:
1. Connect EV-5 to EXP PEDAL socket.
2. Press [PAGE]. “JIG MENU 1” screen will appear.
3. Press [F4] “EXP.PDL” and the screen changes to “EXP PEDAL Check”.
4. Fully swing EV-5. “EXP PEDAL Value” on the screen (Fig. 5) should read 0 through 127.



(Fig.5)

If error:
Check JK3 and associated components on main board.

● To end the test:
Press [SYSTEM] and the LCD returns to “JIG MENU 1” screen.

[5] LCD test

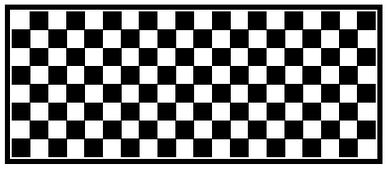
● Purpose:
Test all LCD dots and contrast.

● Test steps:
1. Press [PAGE] button. “JIG MENU 1” screen will appear.
2. Press [F5] “LCD” and the screen changes to “LCD Check”.
3. Adjust LCD to most convenient contrast by turning VALUE dial.

Press [F1] “WHITE”. Verify that the all screen dots are white.
(If no good, see “If error” below.)

Press [F3] “BLACK”. The all dots turn black.
(If no good, see “If error” below.)

Press [F5] “MOSAIC”. LCD shows chekered pattern as shown in Fig.6.
(If no good, see “If error” below.)



(Fig.6)

Press [F6] “TEST”. VRAM (IC6) is tested and the result is displayed on the screen.

If good, “LCD Check OK” (Fig. 7)
If no good, “LCD Error XXXX (XXXX: address at which the error is found)
(See “If error” below.)

(Fig.7)

Contrast: Turn VALUE dial CW and CCW and verify smooth contrast change.
(If no good, see “If error” below.)

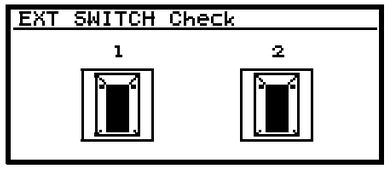
If error:
During the test [F1], [F3] or [F5]: check ICs 3 and 6 and CN5 on main board.
During the test [F6]: check IC6 on main board.
During the Contrast test: check IC19 and associated components on main board.

● To end the test:
Press [SYSTEM] and the LCD returns to “JIG MENU 1” screen.

[6] EXT switch test

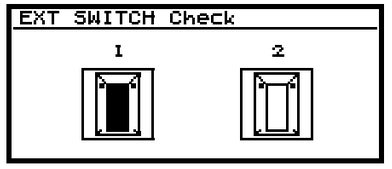
● Purpose:
Test EXT switch.

● Test steps:
1. Connect two FS-5Us to EXT SWITCH socket through PCS-31 cable.
   Slide PORALITY switch on FS-5U toward socket.
2. Press [PAGE]. “JIG MENU 1” screen will appear.
3. Press [F6] “EXT.SW”. The screen changes to “EXT SWITCH Check” and shows two FS-5Us. Without pressing FS-5Us, verify that the top of switches on the screen are black as shown in Fig. 8.



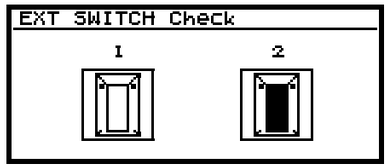
(Fig.8)

4. Press the FS-5U connected to the red plug of PCS-31 cable and verify that the SW 2 on the screen is turned white (Fig. 9).



(Fig.9)

5. Press the FS-5U connected to the white plug of PCS-31 cable and verify that the SW 1 on the screen is turned white (Fig. 10).



(Fig.10)

If error:
Check JK2 and associated components on main board.

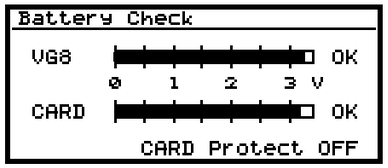
● To end the test:
Press [SYSTEM] and the LCD returns to “JIG MENU 1” screen.

[7] Battery test

● Purpose:
Test the voltage of internal battery and memory card battery; and write protect switch of the card.

● Test steps:
1. Insert the memory card (w/battery) into MEMORY CARD slot.

2. Press [PAGE] button. “JIG MENU 2” screen will appear.
3. Press [F1] “BATTERY” and the screen changes to “BATTERY Check”.
   The screen shows the battery voltages on the bar graphs and the test results (OK or NG) as shown in Fig. 11.



(Fig.11)

4. While switching the write protect switch of the card, verify the correct message on the screen: “CARD Protect OFF (ON)”.

If error:
VG-8EX battery NG: check BT1, IC18 and associated components of main board.
Card battery NG: check the battery and IC2, CN1 and associated components of main board.
Protect switch: check IC2, CN1 and associated components of main board.

● To end the test:
Press [SYSTEM] and the LCD returns to “JIG MENU 2” screen.

[8] MIDI test

● Purpose:
Test MIDI IN and MIDI OUT circuits of VG-8EX

● Test steps:
1. Hook up MIIDI IN and MIDI OUT of VG-8EX through the MIDI cable.
2. Press [PAGE] button. “JIG MENU 2” screen will appear.
3. Press [F2] “MIDI” and the screen changes to “MIDI Check”.
4. Press [F1] “START”.
   The screen will show the test result.

If good: “MIDI Check OK”
If no good: “MIDI Check Error”

If error:
Check IC21 and IC14 and associated components on main board.

● To end the test:
Press [SYSTEM] and the LCD returns to “JIG MENU 2” screen.

[9] RAM test

● Purpose:
Test SRAM IC63 and memory card.

● Test steps:
1. Insert the memory card (M-512E) into MEMORY CARD slot.
2. Press [PAGE] button. “JIG MENU 2” screen will appear.
3. Press [F3] “RAM” and the screen changes to “RAM Check”.
4. Press [F1] “RAM” to start the test of SRAM (IC63).
   The screen will show the test result (Fig. 12):

If good: “RAM Check OK”
If no good: “RAM Error XXXX” (XXXX = address at which error is found)

(Fig.12)

5. With the write protect switch at OFF, press [F3] “CARD” to start the test of memory card.
   The screen will show the test result (Fig. 13):
   If the protect switch is ON, the test won't start and LCD will display “Protected” for several seconds.

“Card Check OK”
“Card Error XXXX” (XXXX = address at which error is found)

(Fig.13)

If error:
RAM Error: check IC63 and associated components of main board.
Card Error: check IC2 and CN1 and associated components of main board.

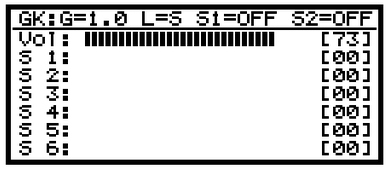
● To end the test:
Press [SYSTEM] and the LCD returns to “JIG MENU 2” screen.

[10] GK test

● Purpose:
Test GK IN circuit.

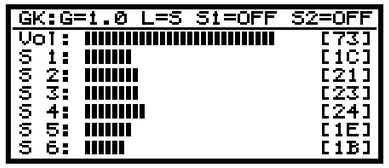
● Test steps:
1. Connect the guitar (with GK-2A or GK-2) or GC-10 to GK IN socket thruogh the C-13A cable.

2. Press [PAGE] button. “JIG MENU 2” screen will appear.
3. Press [F4] “GK” and the screen changes as shown in Fig. 14.



(Fig.14)

4. On the GK-2A, turn [SYNTH VOL] from CCW to CW and verify that “Vol” bar graph on the screen changes from 00 to 7F.
5. Repeatedly press [S1] and [S2] on GK-2A and verify that “S1=” and “S2=” on the top line of the screen switch between “ON” and “OFF”.
6. Play the guitar and check level change on each string bar graph on the screen (Fig. 15).



(Fig.15)

Pressing [F1] will change the input gain either to 0.5, 1.0, 2.0 or 2.5. The current gain setting is shown on the top line of the screen, e.g. “G = 1.0” as shown in Fig. 15.

7. Connect headphones to PHONES socket.
   Play the guitar and check the output sound.
   Press [F3] button to change output mode. The “L= “ on the top line of the screen showes the current mode: “L=L” (LEFT),” L=R” (RIGHT), “L=S” (STEREO).
   Verify that the output sound match the output modes.

If error:
Check: IC48, IC49, IC50, IC51, IC54, IC22 and IC23 and associated components (analog input circuit) on main board.

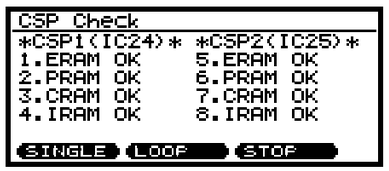
● To end the test:
Press [SYSTEM] and the LCD returns to “JIG MENU 2” screen.

[11] CSP test

● Purpose:
Test CSP1 (IC24) and CSP2 (IC25).

● Test steps:
1. Press [PAGE] button. “JIG MENU 2” screen will appear.
2. Press [F5] “CSP”.
3. Press [F1] “SINGLE” and the following memories will be test in sequence: CSP1 external memories (IC26, IC27, IC28); CSP1 internal memory; CSP2 external memories (IC29, IC30, IC31); CSP2 internal memory. The screen shows the results as shown in Fig. 16.

”OK”: good, othewiser error (see If error, below).



(Fig.16)

Note:
Pressing [F3] “LOOP” performs CSP test 100 times.
The number of tests is indicated by “COUNT” on the top line of the screen (Fig. 17). COUNT will stop increment as the test stops upon occurence of error.

(Fig.17)

If error:
CSP1 ERAM: check IC24, IC26, IC27 and IC28 and associated components on main board.
CSP1 PRAM, CRAM and IRAM: check IC24 of main board.
CSP2 ERAM: check IC25, IC29, IC30 and IC31 and associated components on main board.
CSP2 PRAM, CRAM, IRAM: check IC25 of main board.

● To end the test:
Press [SYSTEM] and the LCD returns to “JIG MENU 2” screen.

[12] LINE test

● Purpose:
Test MIX OUT signals using oscilloscope.
Signal path: CSP1 (IC24) (sinewave) --> CSP2 (IC25) --> IC22 --> DAC (IC54) -> output analog circuits --> MIX OUT

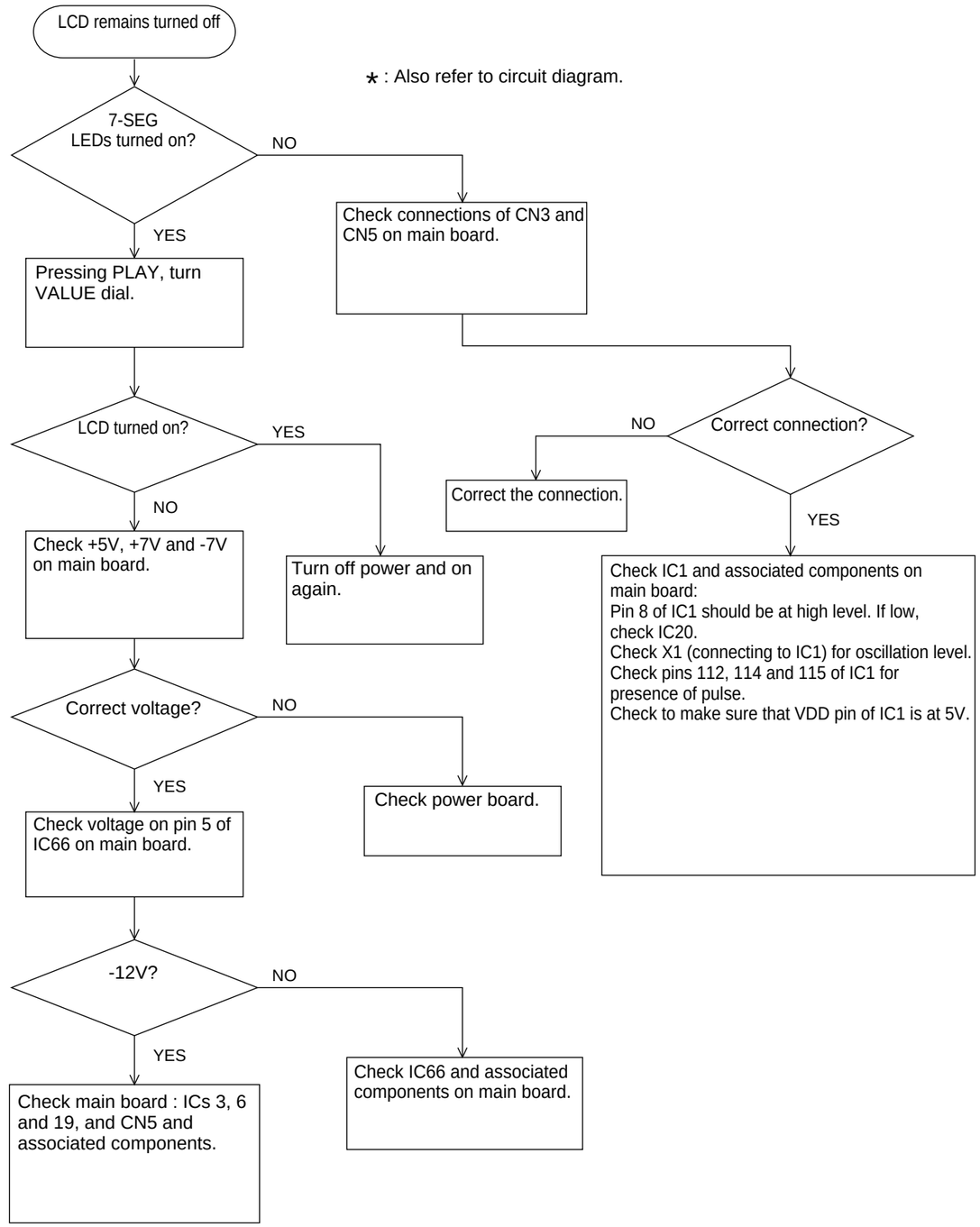
● Test steps:
1. Insert open STEREO plug into both MIX OUT sockets. Turn VOLUME FCW.
2. Press [PAGE] button. “JIG MENU 2” screen will appear.
3. Press [F6] “LINE”.
4. On the scope, oberve waveforms on TIP and RING of the plug inserted into MIX OUT L. Each sine wave level should be at approx. 5.2 Vp-p and opposite phase to the other.
5. Repeat step 4. for MIX OUT R.
6. Turn VOLUME fully CCW and verify that the levels drop to 0V.

If error:
Check IC22, IC23, IC24, IC25 and IC54 on main board.

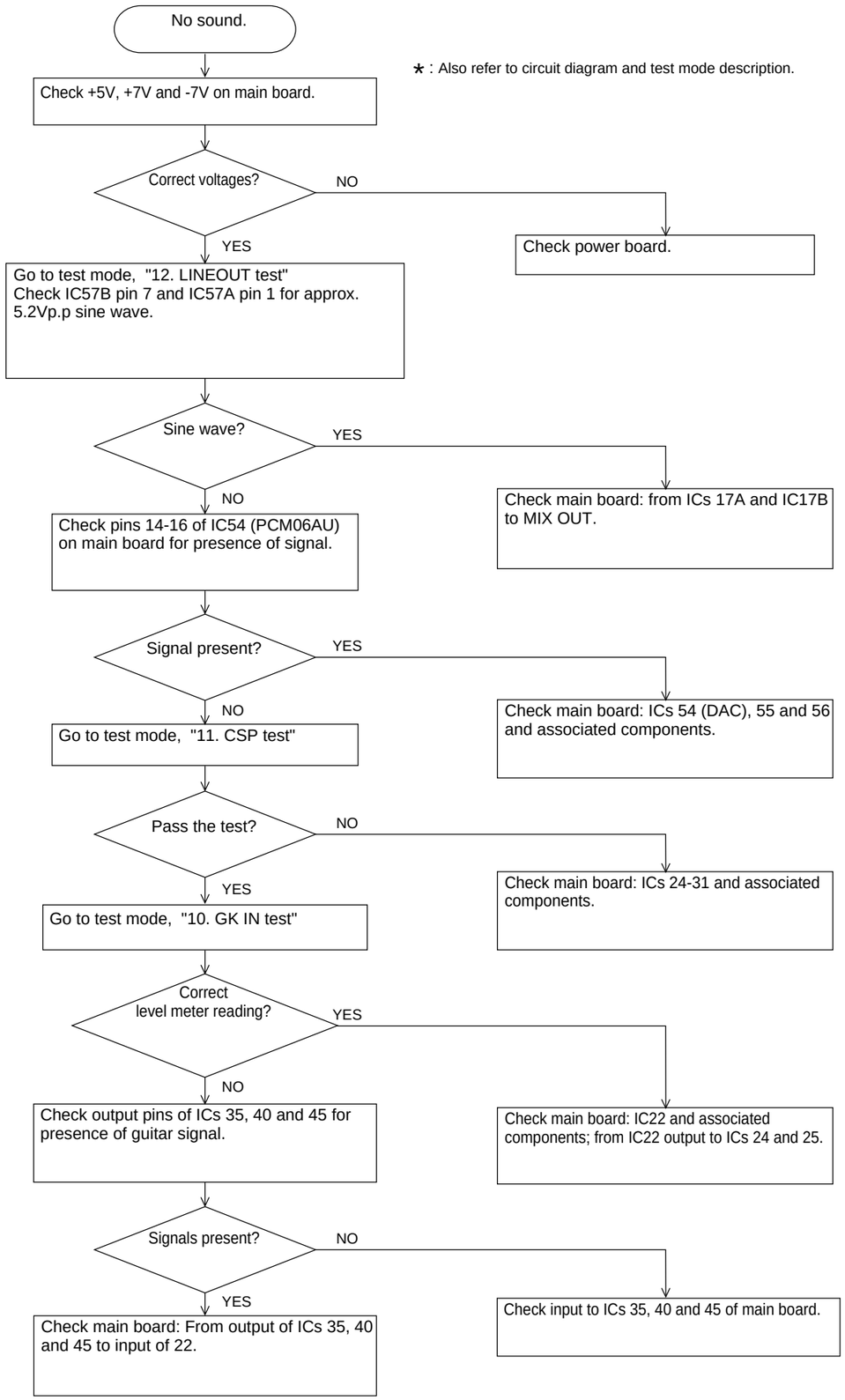
● To end the test:
Press [SYSTEM] and the LCD returns to “JIG MENU 2” screen.

TROUBLESHOOTING

LOGIC TREE A



LOGIC TREE B



∗ : Also refer to circuit diagram and test mode description.

DATA SAVE AND LOAD

1. Saving data onto backup memory card (M-512E)

(a) Saving user patches (UA11-UB84) and system data to memory card

(1) Insert a memory card into MEMORY CARD slot on VG-8EX
(2) Set the write protect switch on the card to off.
(3) Turn power on and press [SYSTEM] button.
(4) Press [F6] "CARD" to enter "Card Transfer" mode.
(5) Using [CURSOR] buttons, select "Function". Using [VALUE] dial, select "VG-8EX -> CARD".
(6) Using [CURSOR] buttons, select "Target". Using [VALUE] dial, select "Patch&System".
(7) Press [F1] "XFER". LCD will show: "Are You Sure?" or "Format This Card. Are You Sure?" (If not a VG-8EX format card)
(8) Press [F1] "OK". LCD will show "Completed".
(9) Set the write protect switch on the card to on and pull out the card.

(b) Loading user patches (UA11-UB84) and system data back to VG-8EX memory

(1) Insert the memory card into MEMORY CARD slot on VG-8EX.
(2) Turn power on and press [SYSTEM] button.
(3) Press [F6] "CARD" to enter "Card Transfer" mode.
(4) Using [CURSOR] buttons, select "Function". Using [VALUE] dial, select "CARD -> VG-8EX".
(5) Using [CURSOR] buttons, select "Target". Using [VALUE] dial, select "Patch&System".
(6) Press [F1] "XFER". LCD will show "Are You Sure?".
(7) Press [F1] "OK". LCD will show "Completed".

(8) Pull out the card.

2. Creating backup copy using bulk dump feature

(a) Trasferring user patches (UA11-UB84) and system data from VG-8EX to a sequencer

Note: Use a sequencer having exclusive inforamtion receive/record capability.

(1) Hook up VG-8EX MIDI OUT socket and sequencer MIDI IN socket through theMIDI cable.
(2) <VG-8EX> Turn on power and press [SYSTEM] button.
(3) <VG-8EX> Press [F3] "MIDI" to enter "System MIDI" mode.
(4) <VG-8EX> Using [CURSOR] buttons, select "Bulk Dump". Using [VALUE] dial, select "Patch&System".

(5) <Sequencer>
Set the sequencer ready to receive and record exclusive information.
Start the recording. Wait for several minutes, and then proceed to the next step.
(6) <VG-8EX>
Press [F1] "BULK". LCD will show "Sending...", indicating the start of bulk data transfer.
(7) <VG-8EX>
When the bulk data is transferred, LCD will show "Completed".
(8) <Sequencer>
Stop recording.

(9) Data saving is completed.

(b) Loading user patches (UA11-UB84) and system data back to VG-8EX memory

(1) Hook up VG-8EX MIDI IN socket and sequencer MIDI OUT socket through the MDI cable.
(2) <VG-8EX>
Turn on power.
(3) <Sequencer>
Send the backup data by playing the song containing the VG-8EX backup data. Start with the beginning of the song.
(4) <VG-8EX>
LCD will show "EXCL" at upper right on the screen.
(5) <VG-8EX>
When complete song data is received, LCD will turn off "EXCL".
(6) Data loading is completed.

LOADING THE FACTORY PRESENT DATA

Important Notice!!
When replacing the backup battery or SRAM (IC63), take the following initialization and sysyem version up procedure after replacing.

CAUTION
This preset loading procedure erases user patches (UA11-UB84) and system parameters. Save the user data onto a memory card (M-512E) or a sequencer capable of receiving and recording MIDI exlusive information.
For saving procedure, refer to DATA SAVE AND LOAD. (P.12~13).

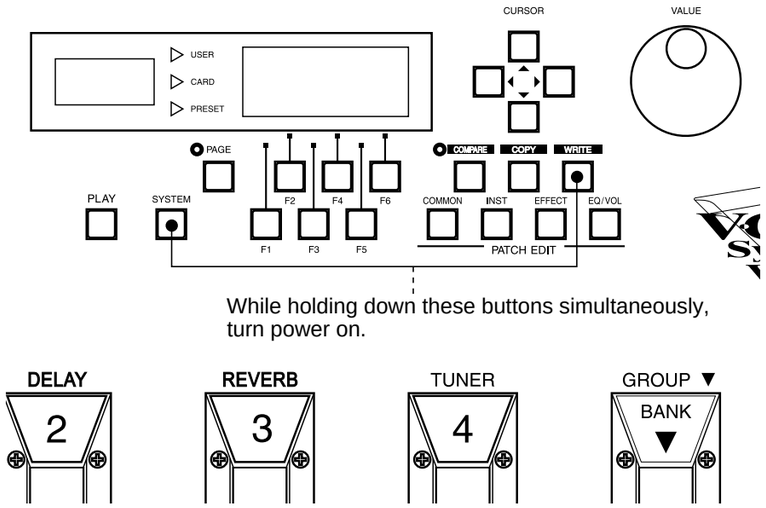
1. While holding down [F1], [F3] and [F5] simultaneously, turn power on. The LCD will show "Memory Initialize".
2. Press [F6] "All" and the user patches and system parameters are replaced with the factory settings.
3. LCD will show "Completed", indicating the end of initialization.

SYSTEM VERSION UP

Important Notice !!
To perform SYSTEM VERSION UP in SERVICE MODE, a VG8S-1 is necessary as a key.
But any VG8S-1 (even a used one) can be used for this purpose.

◉**Tools required**
MIDI sequencer (SMF-compatible)
MIDI cable
VG-8EX VER.UP. DISK (17048923)
VG8S-1

(1) Connect MIDI OUT socket of VG-8EX to MIDI IN socket of the sequencer through the MIDI cable.
(2) Insert VG8S-1 (as a key) into the VG-8EX card slot. While holding down the [SYSTEM] and [WRITE] buttons, turn the power on.
(3) The LCD will show "System expand. Are You Sure?". Press [F3] buttton and select "MIDI".
(4) Insert VG-8EX VER.UP DISK into the sequencer disk slot. Play VG1.MID, VG2.MID and VG3.MID in that order.
(5) When all the received system data are recognized, the LCD will show "Completed! Please power off and remove card.".
(6) While holding down the [PLAY] and [SYSTEM] buttons,turn the power on. Verify the VG-8EX version number.
Now the system is revised.



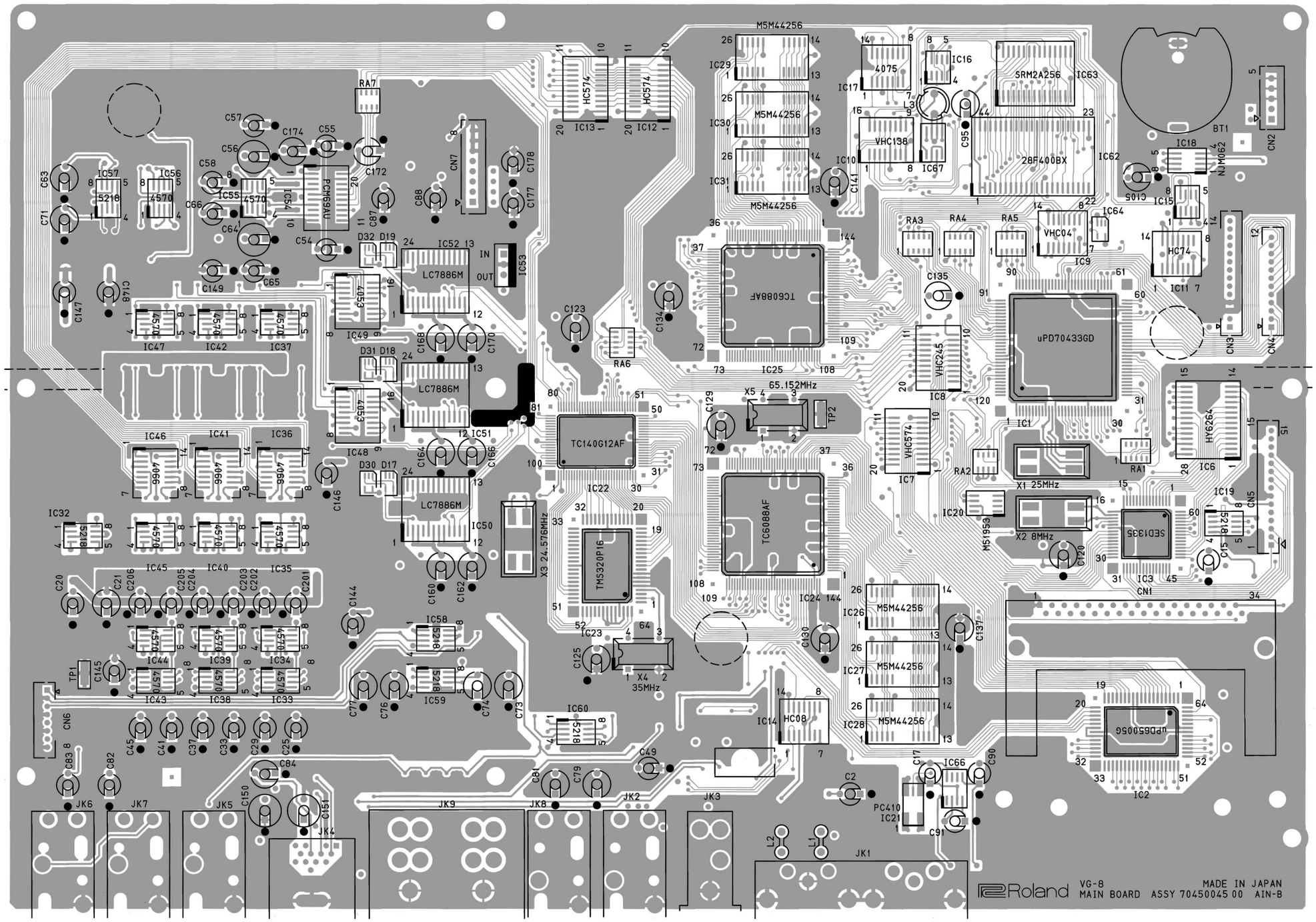
IDENTIFYING SYSTEM REVISION NUMBER

While holding down both [PLAY] and [SYSTEM] buttons, turn power on. The LCD will show the system revision number.

Roland VG-8EX
system version *.**

E MAIN BOARD ASS'Y

ASSY 70450045
(pcb 00568278)



View from component side

For Nordic Countries

Apparatus containing Lithium batteries

ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering
Udskiftning må kun ske med batteri af samme fabrikat og type.
Lavér det brugte batteri tilbage til leverandoren.

ADVARSEL!

Lithiumbatteri - Eksplosjonsfare.
Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleverandøren.

VARNING!

Explosionsfara vid felakigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt tabrikantents instruktion.

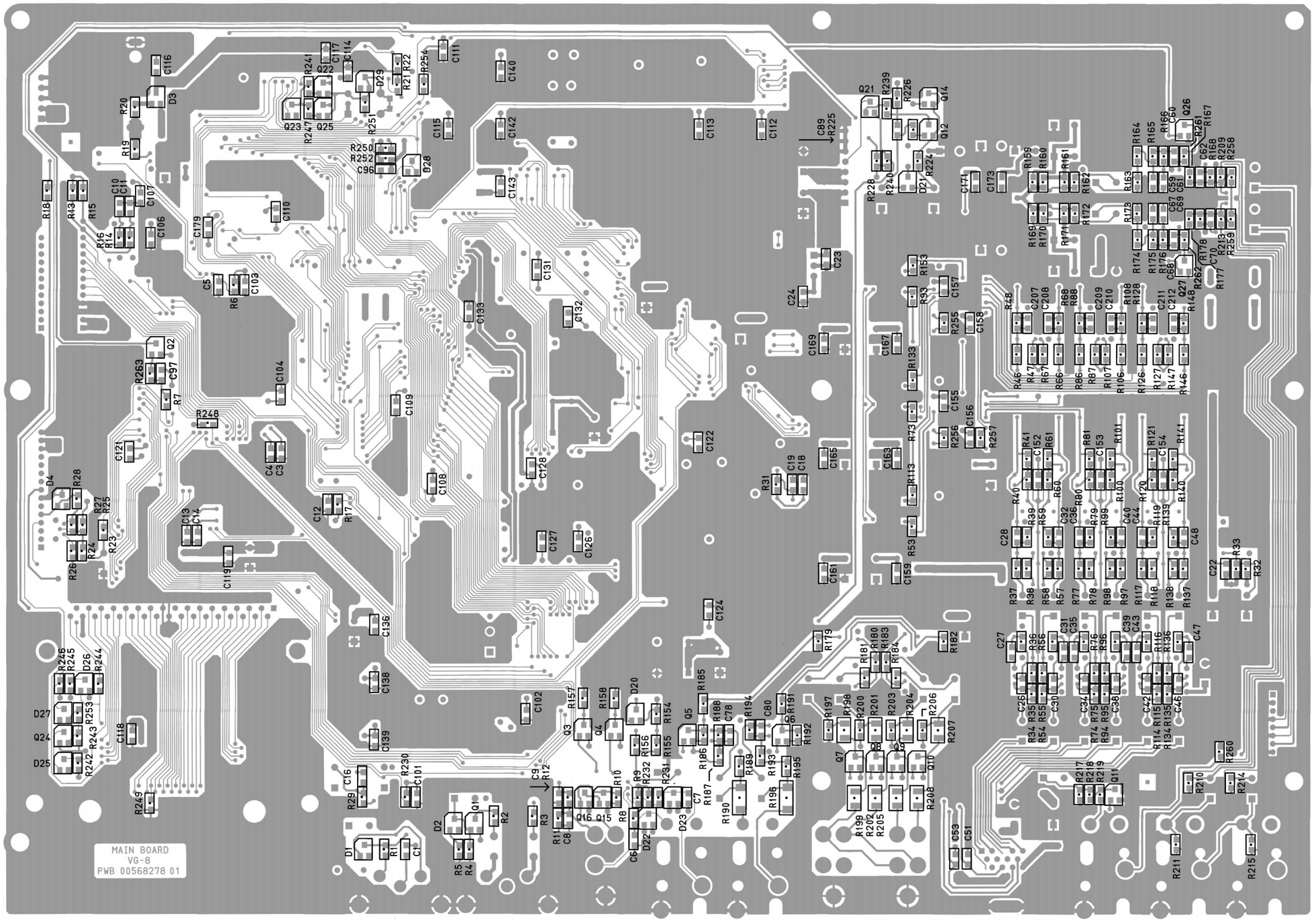
VAROITUS!

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

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

E MAIN BOARD ASS'Y
ASSY 70450045
(pcb 00568278)



View from foil side

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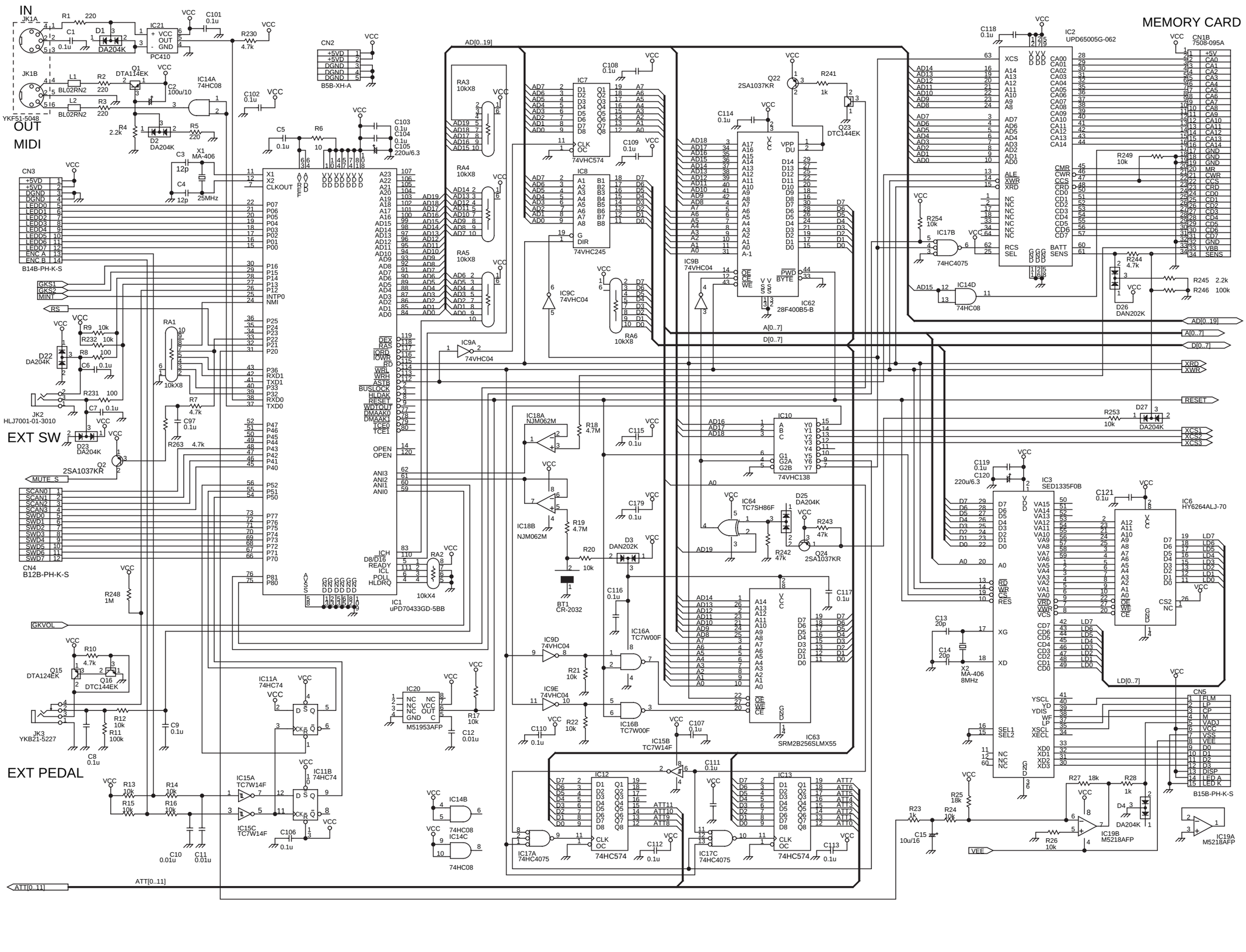
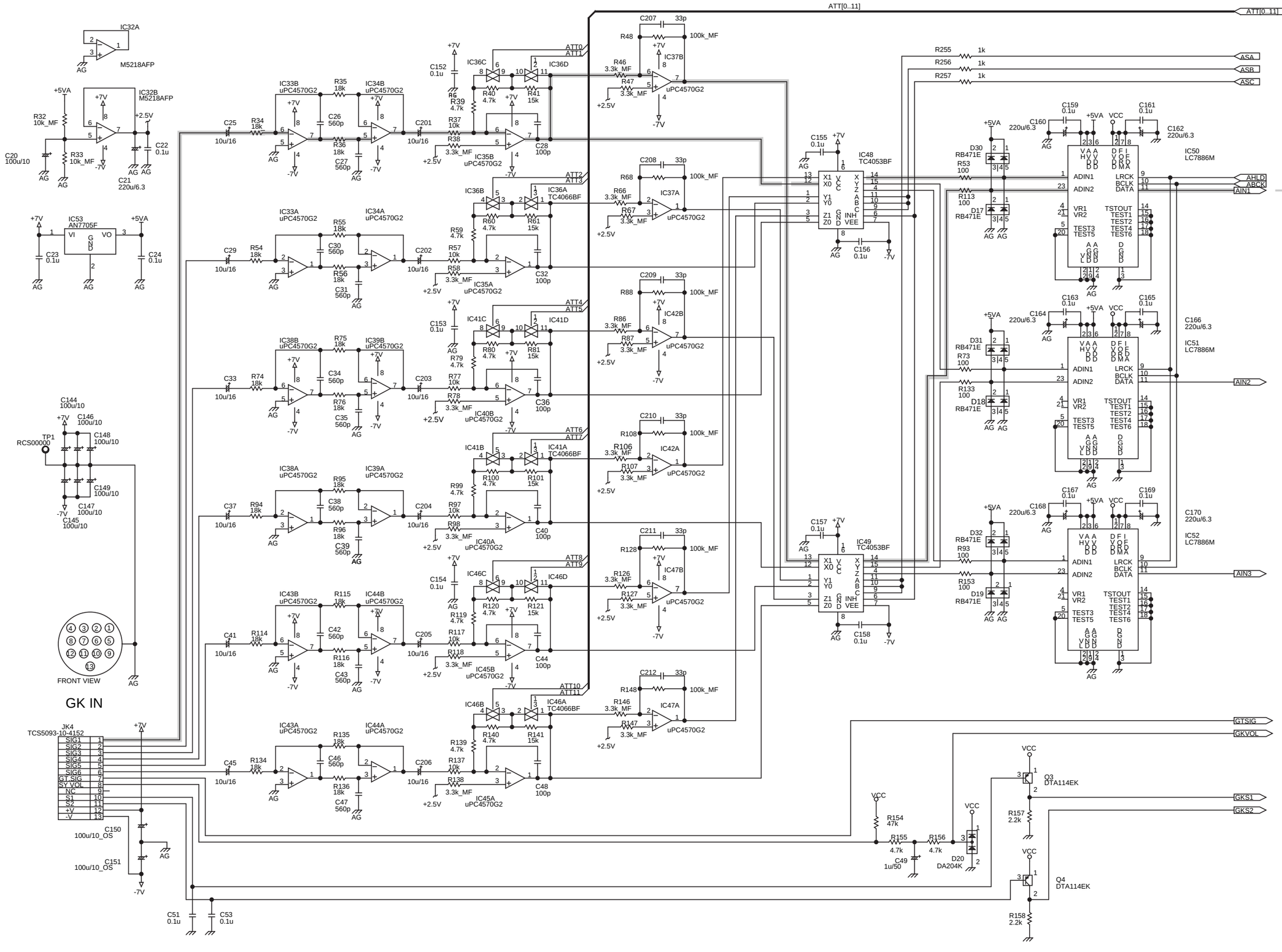
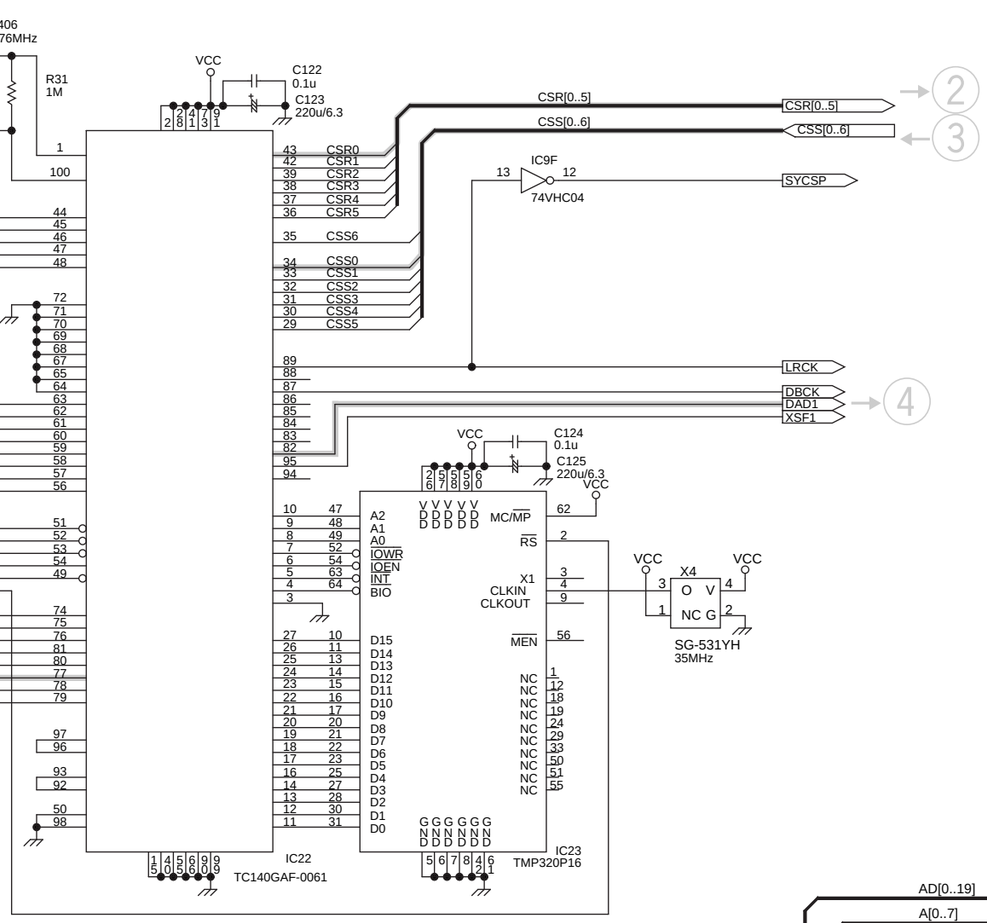
E MAIN BOARD ASS'Y (CPU BLOCK)



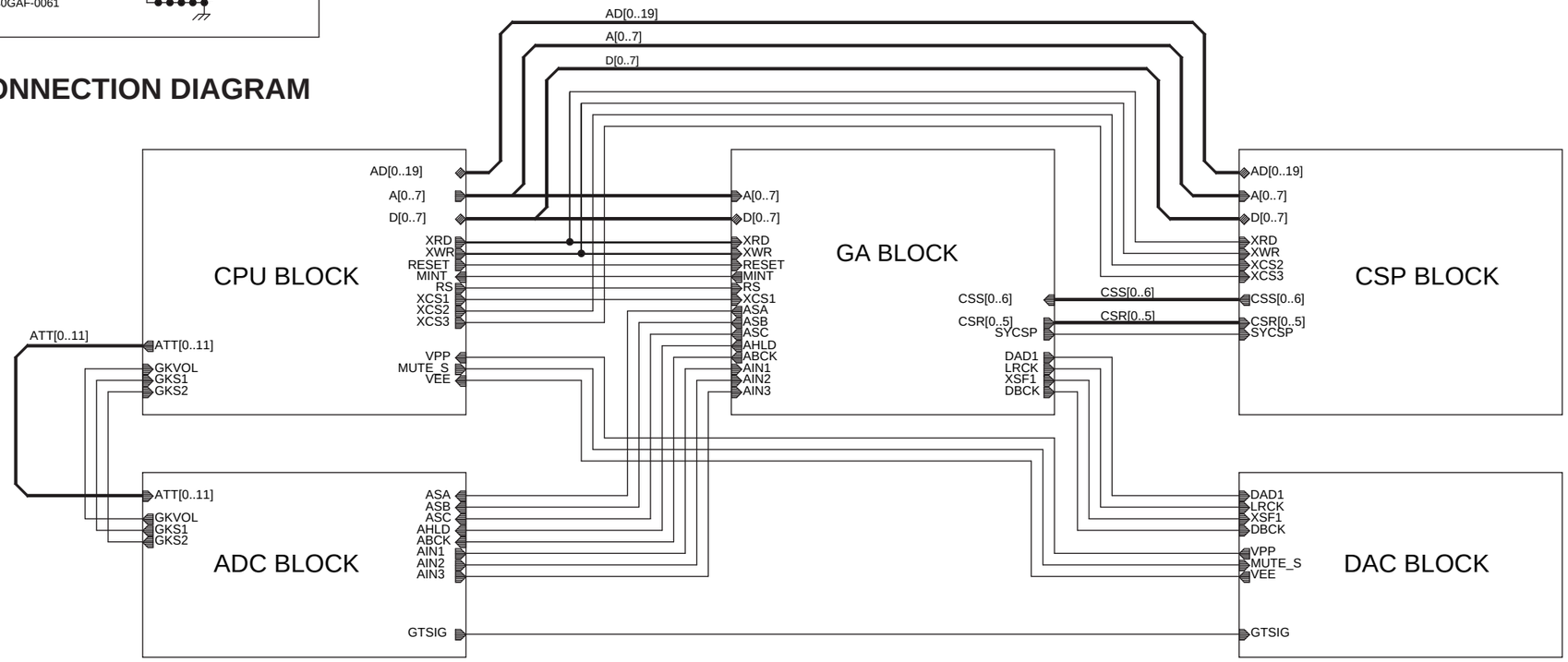
E MAIN BOARD ASS'Y (ADC BLOCK)



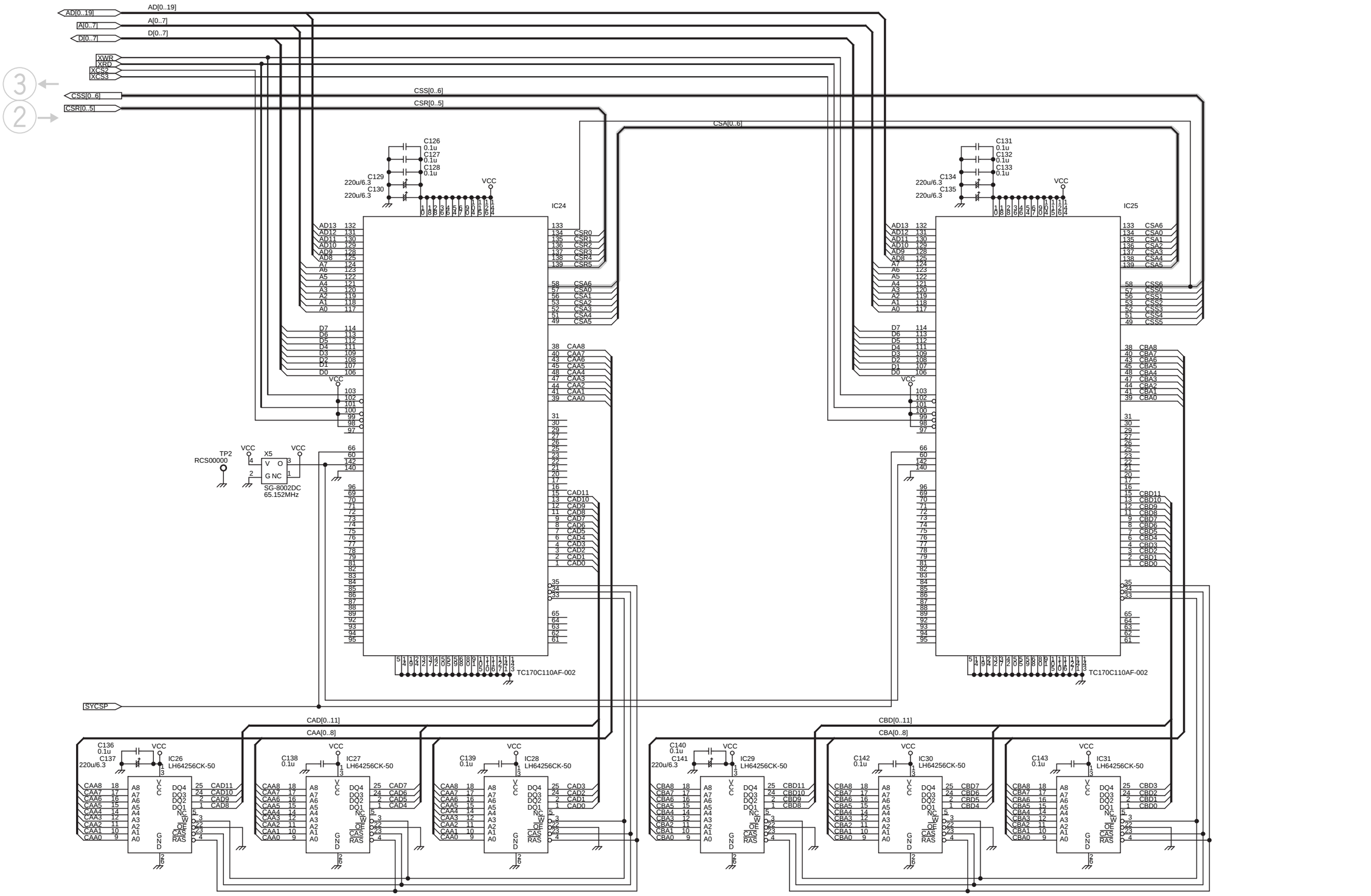
E MAIN BOARD ASS'Y (GA BLOCK)



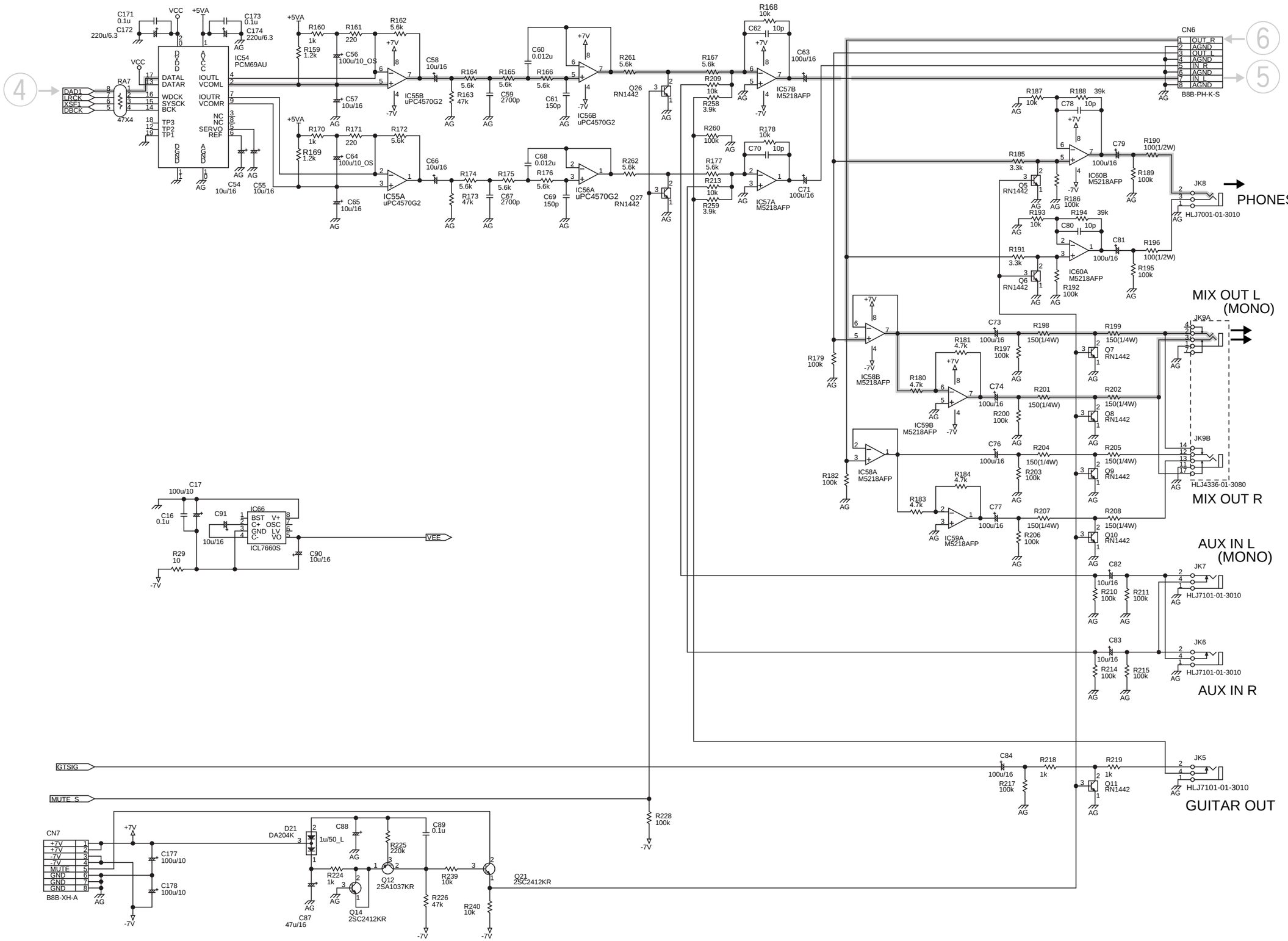
VG-8EX MAIN BOARD INTERCONNECTION DIAGRAM



E MAIN BOARD ASS'Y (CSP BLOCK)



E MAIN BOARD ASS'Y (DAC BLOCK)



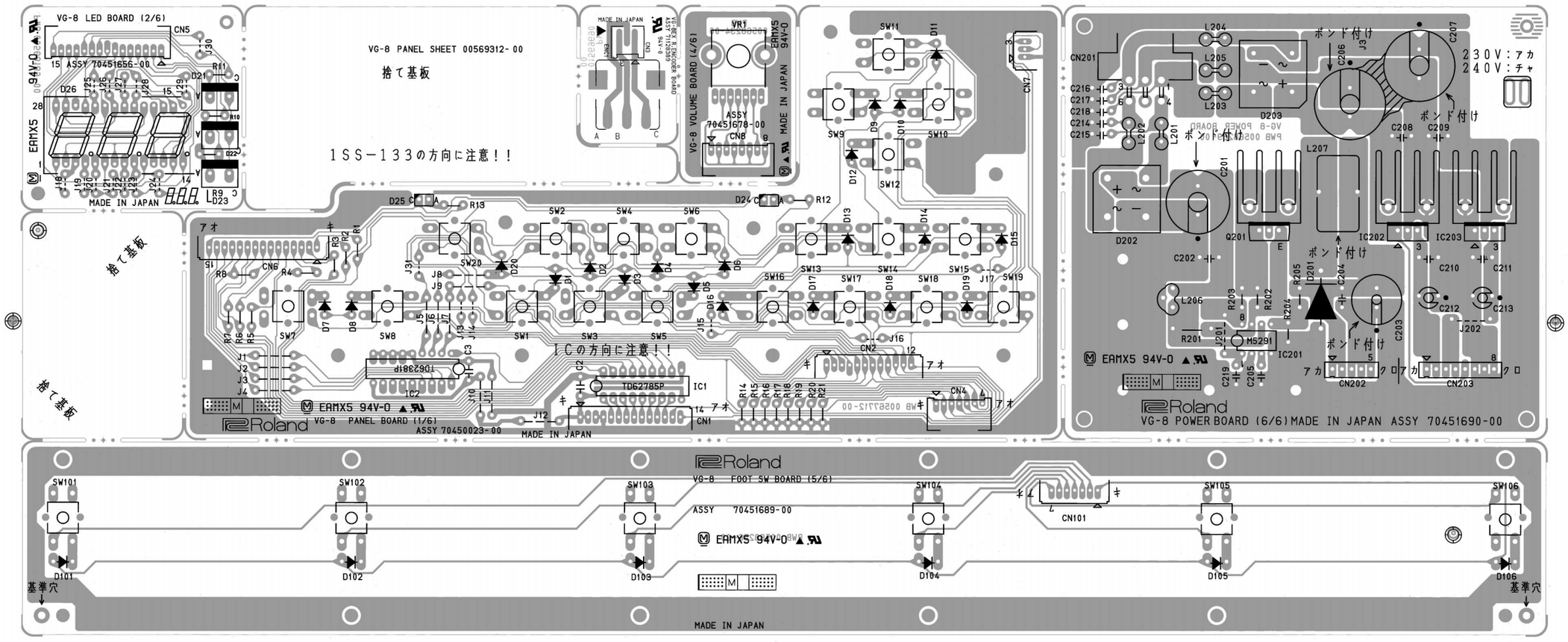
R.ENCODER BOARD ASS'Y
ASSY 71128389
(pcb 00568201)

LED BOARD ASS'Y
ASSY 70451656
(pcb 00568189)

VOLUME BOARD ASS'Y
ASSY 70451678
(pcb 00568234)

PANEL BOARD ASS'Y
ASSY 70450023
(pcb 00567712)

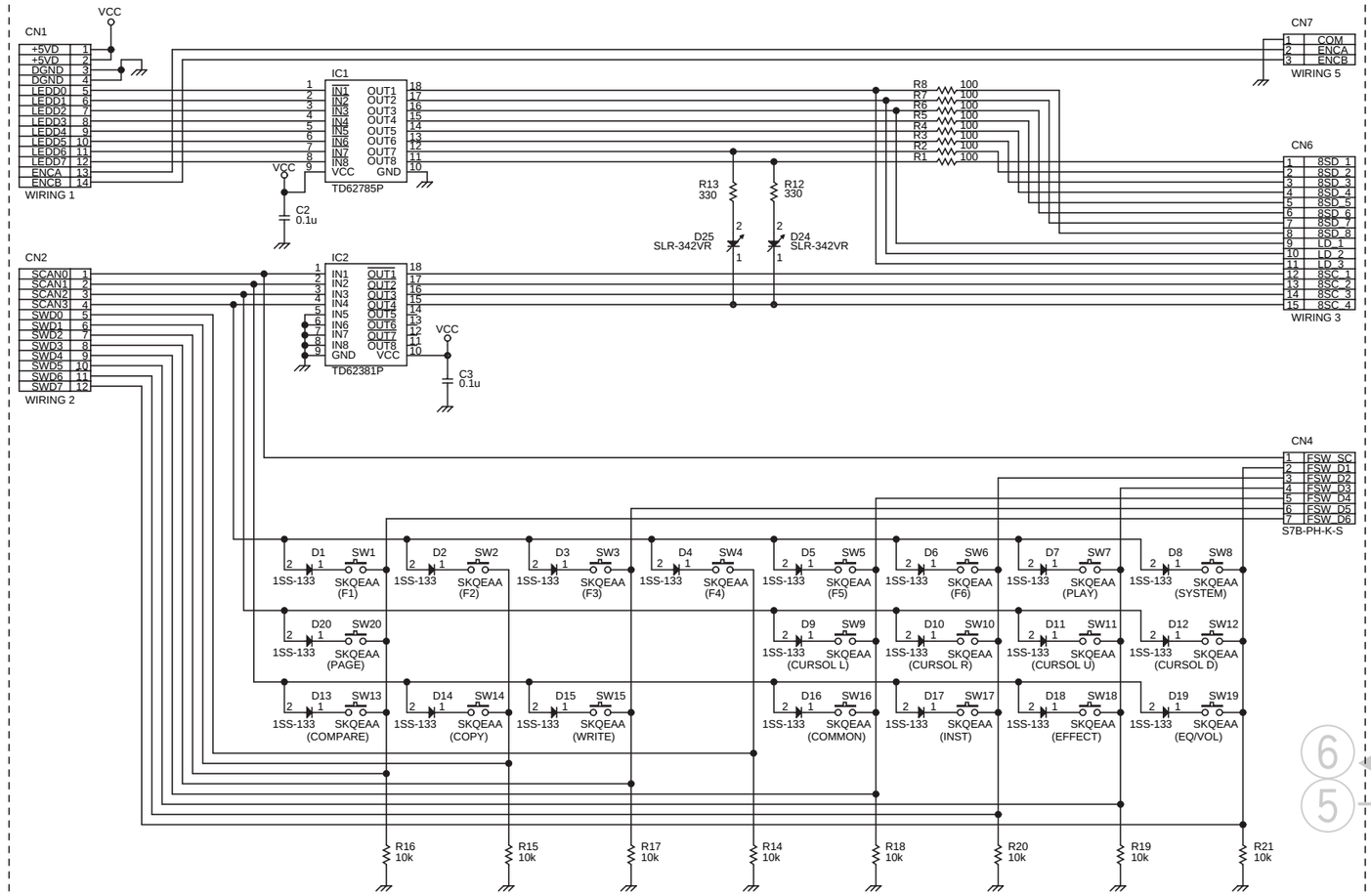
POWER BOARD ASS'Y
ASSY 70451690
(pcb 00568289)



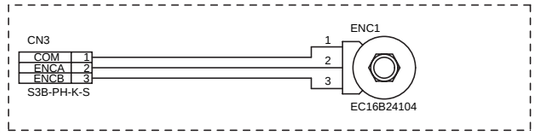
View from component side

FOOT SW BOARD ASS'Y
ASSY 70451689
(pcb 00568256)

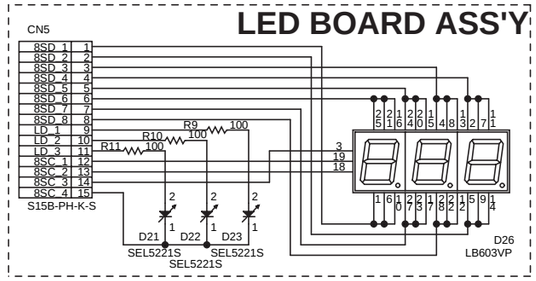
PANEL BOARD ASS'Y



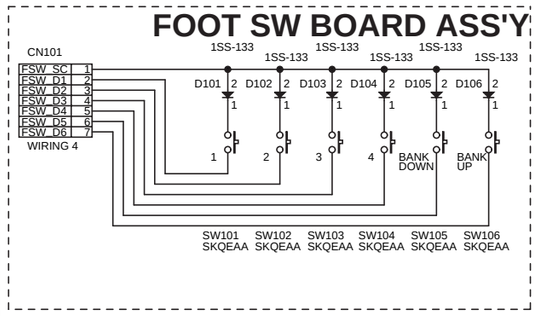
P.ENCODER BOARD ASS'Y



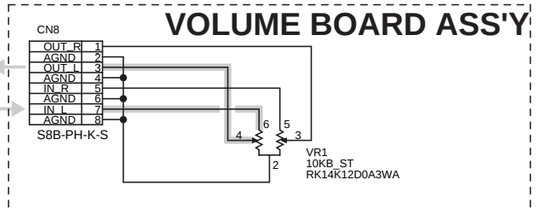
LED BOARD ASS'Y



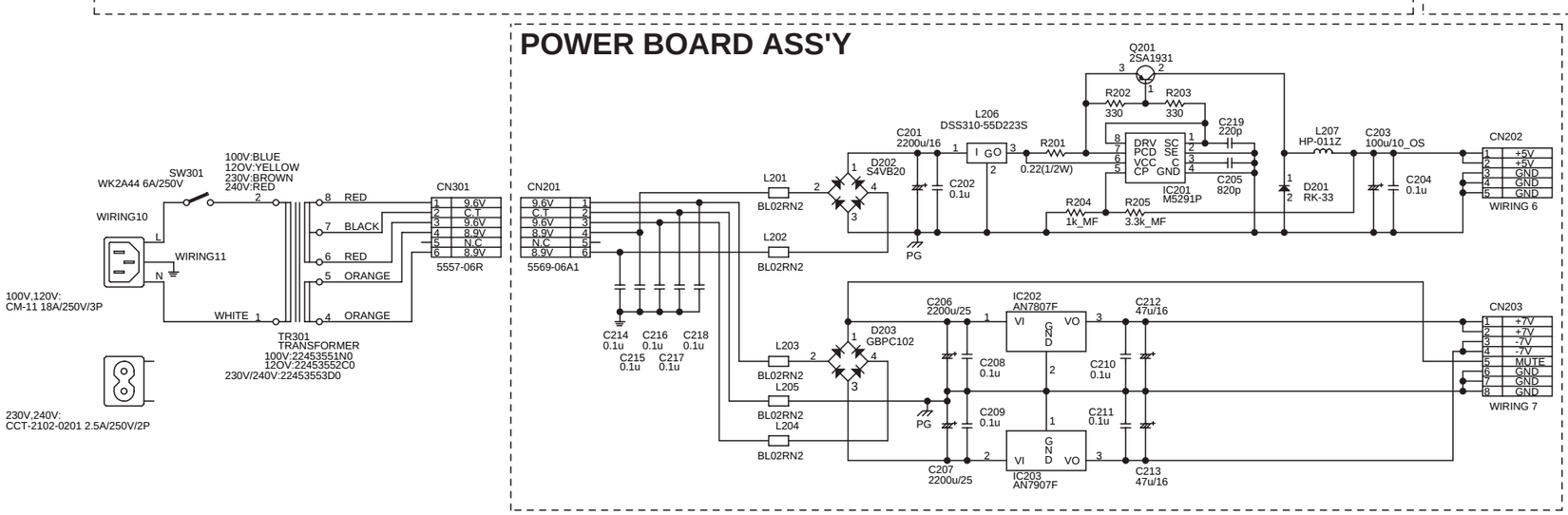
FOOT SW BOARD ASS'Y



VOLUME BOARD ASS'Y



POWER BOARD ASS'Y



LCD UNIT