

# XP-60

## MUSIC WORKSTATION

# SERVICE NOTES

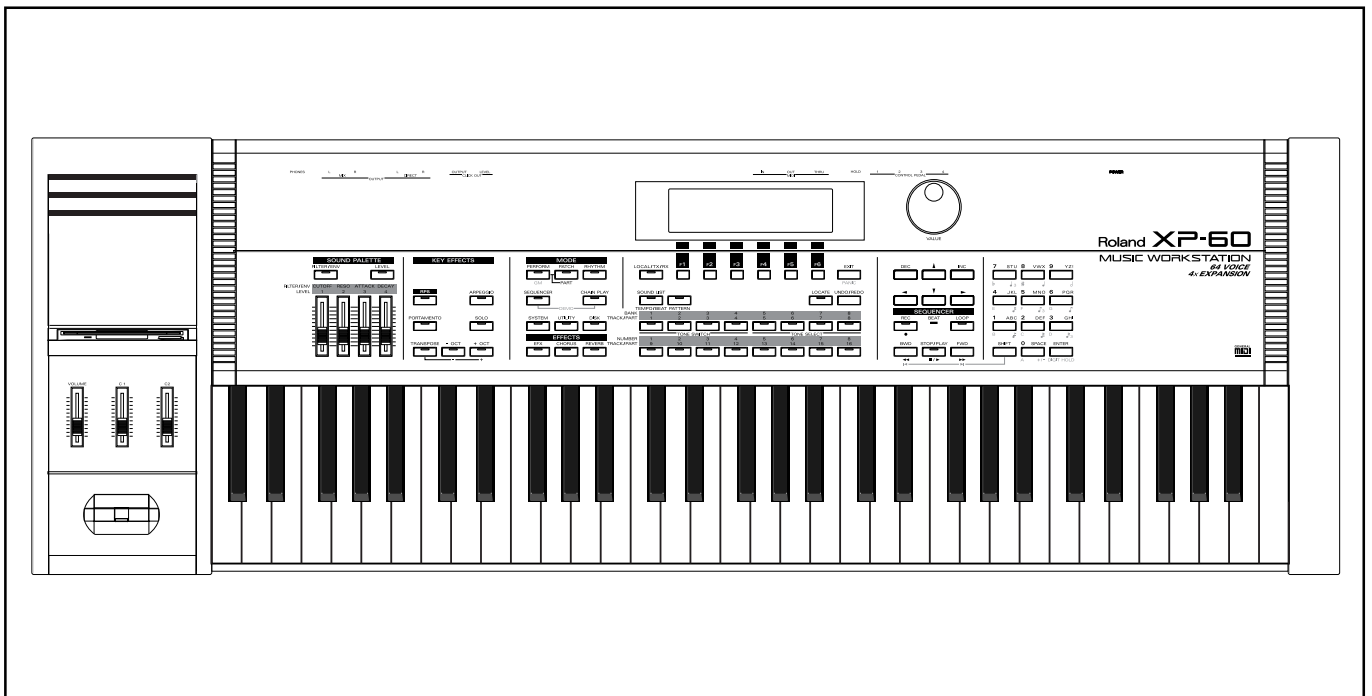
*First Edition*

**Issued by RJA**

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# SPECIFICATIONS

## [Synthesizer Section]

- Parts ..... : 16(Part 10 is Rhythm Part.)
- Maximum Polyphony ..... : 64 voices
- Effects
  - EFX ..... : 40 sets
  - Reverb ..... : 1 set(8 types)
  - Chorus ..... : 1 set
- Preset Memory
  - Patches ..... : 512
  - Performances ..... : 64
  - Rhythm Sets ..... : 8
- User Memory
  - Patches ..... : 128
  - Performances ..... : 32
  - Rhythm Sets ..... : 2
- Wave Expansion Board(sold separately) ..... : Max.4 Boards(A to D)
  - \* Each Wave Expansion Board includes Patches/Rhythm Sets that make use of the waves on the board.

## [Sequencer Section]

- Tracks
  - Phrase Tracks(16 MIDI Channels per track) ..... : 16
  - Pattern Tracks(16 MIDI Channels per track) ..... : 1
  - Tempo Track ..... : 1
  - Beat Track ..... : 1
  - \* A maximum of 100 patterns can be created in a Pattern Track.
- Internal Memory
  - Songs ..... : 1
  - Note Capacity ..... : approx. 60,000 notes
  - Song Length ..... : 9998 measures
- 3.5 Inch Micro Floppy Disk (2DD/2HD)
  - Disk Format ..... : 720K bytes(2DD), 1.44M bytes(2HD)
  - Note Storage ..... : approx. 90,000 notes(2DD), 180,000 notes(2HD)
  - Song Files ..... : max. 99
- Loadable File Types
  - MRC Pro Songs
  - Standard MIDI Files(format 0)
  - Standard MIDI Files(format 1)
  - S-MRC Songs(from MC series sequencer)
  - Sound data files
- Formats Files Can Be Saved IN
  - MRC Pro Songs
  - Standard MIDI Files(format 0)
  - Standard MIDI Files(format 1)
  - Sound data files
- Resolution ..... : 96 ticks per quarter note
- Recording Method ..... : Realtime/Step
- Maximum Simultaneous Input Notes(during realtime recording) ..... : 64 notes
- Maximum Simultaneous Output Notes ..... : 64 notes
- Tempo
  - quarter note=10 to 250
  - quarter note=5 to 500(with the Tempo Track)
- Time Signatures ..... : 1—32/16, 1—32/8, 1—32/4, 1—32/2

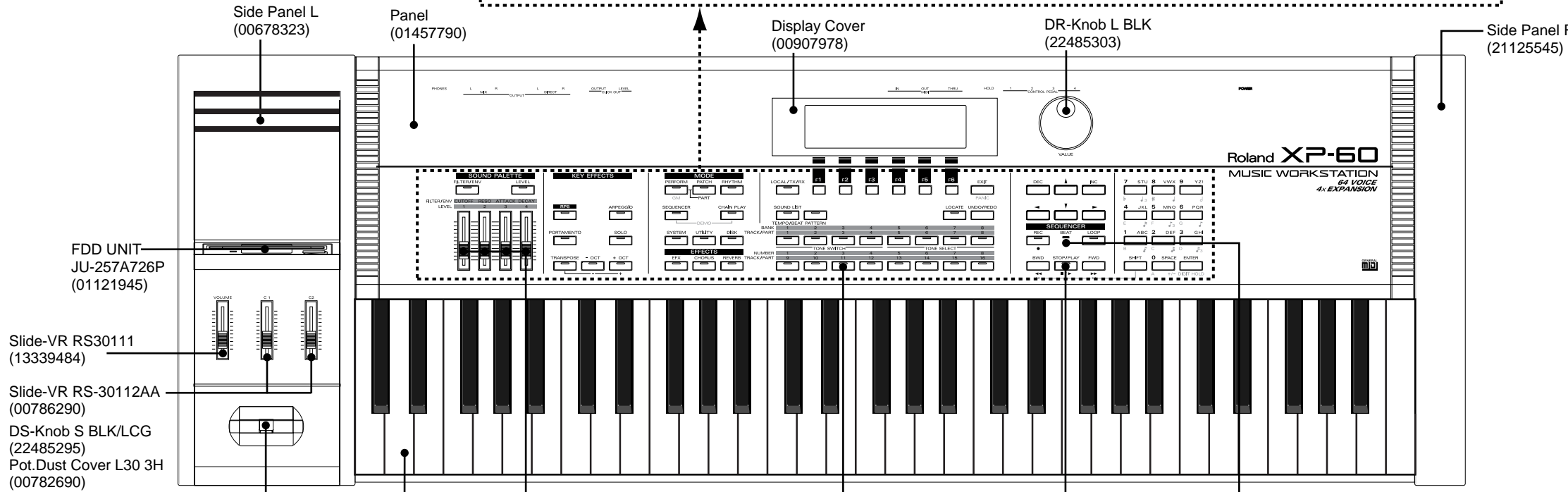
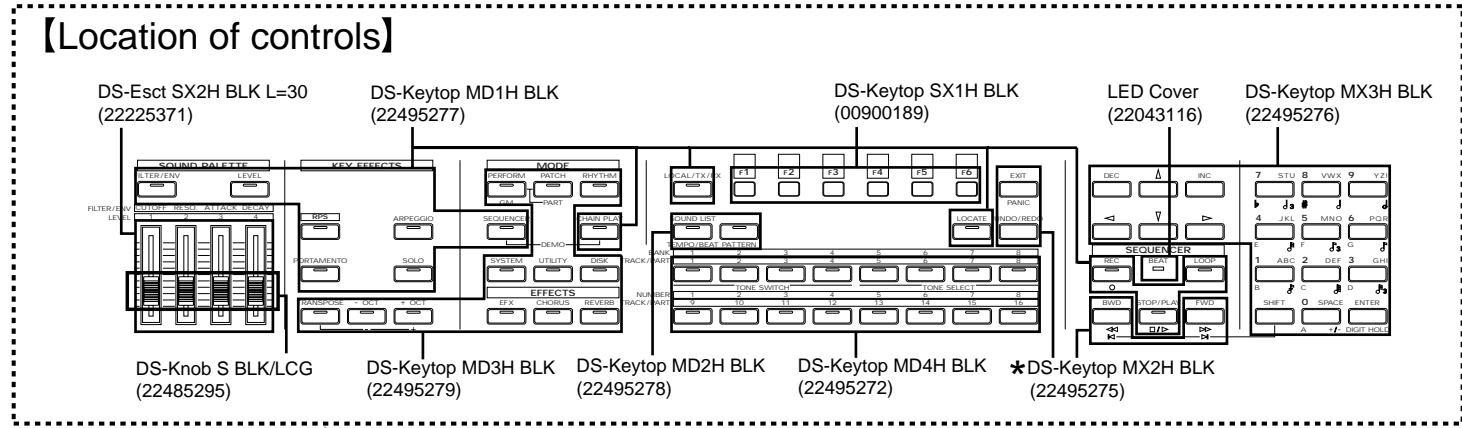
## [Others]

- Keyboard ..... : 61 keys(with velocity and channel aftertouch)
- Display ..... : 320×80 Full dots(Backlight LCD)
- Connectors
  - MIX Output Jacks(stereo)
  - DIRECT Output jacks(stereo)
  - Headphone jack(stereo)
  - Hold Pedal jack
  - Control Pedal jacks(1,2,3,4)
  - MIDI Connectors(IN, OUT, THRU)
  - Click Output jack
- Power Consumption ..... : 20W(AC117V),20W(AC230V),20W(AC240V), 20W (AC100V)
- Dimensions ..... : 1028×349×107mm(40-1/2×13-3/4×4-1/4inches)
- Weight ..... : 10.7kg/23lbs 10oz
- Accessories
  - Owner's Manual Set ..... : English (PNo.71122801)
  - ..... : Japanese(PNo.71018934)
  - Demonstration Disk ..... : (PNo.01457923)
  - Dance Kit Disk ..... : (PNo.01016056)
  - Power Cable(Not included with XP-80 designed for 117V power supply)
    - ..... : 100V DC-382-J01 VFF2P(PNo.13499219)
    - ..... : 230V EC-511-E07 H03VVH2-F 2P(PNo.13499221)
    - ..... : 240V SC-078-J02 ES206-75HMA (PNo.13499222)
  - Euro Converter Prug(230VE version only) ..... : (PNo.00905234)
- Options
  - Stereo Headphone ..... : RH-20/80/120
  - Pedal Switch ..... : DP-2/6,BOSS FS-5U
  - Expression Pedal ..... : EV-5
  - Audio connection cable ..... : PJ-1M/2/3
  - MIDI/SYNC cable ..... : MSC07/15/25/50/100
  - Wave expansion board ..... : SR-JV80 Series
  - Micro floppy disk ..... : MF-2DD/MF-2HD

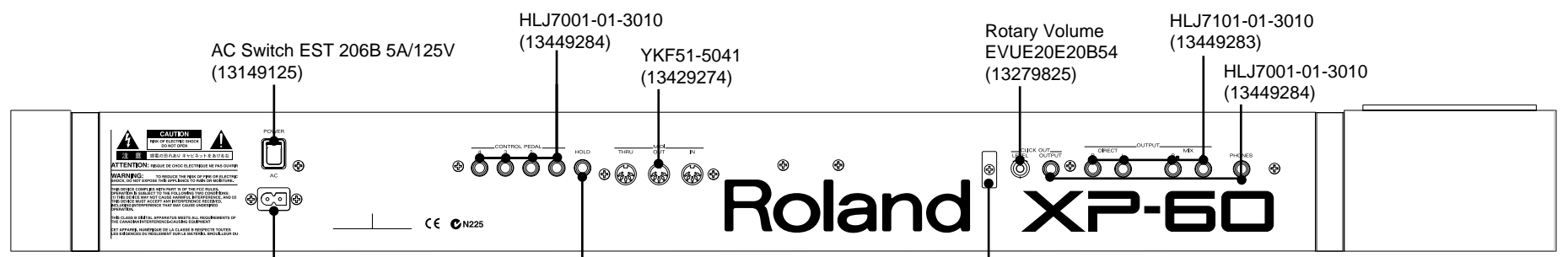
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

# A PANEL LAYOUT

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



- Bender unit**  
Bender turboless PB-H0201 (70564101)
- Keyboard unit**  
SK-861-L (71122589)
- Slide-VR RS30111** (13339484)
- Pot. Dust Cover L30 4H** (00907989)
- Tact SW x71**  
EVQ 213 05R (13169752)
- LED RED x42**  
LNJ801 LPDJA (00782478)
- LED GREEN**  
LNJ301MPUJA (LED 23 on SAB) (01010856)
- LED 2 Colors**  
GL3ED8 (LED 45 on SAB) (15029342)



# Roland XP-60

**[Front]**

**[Rear]**

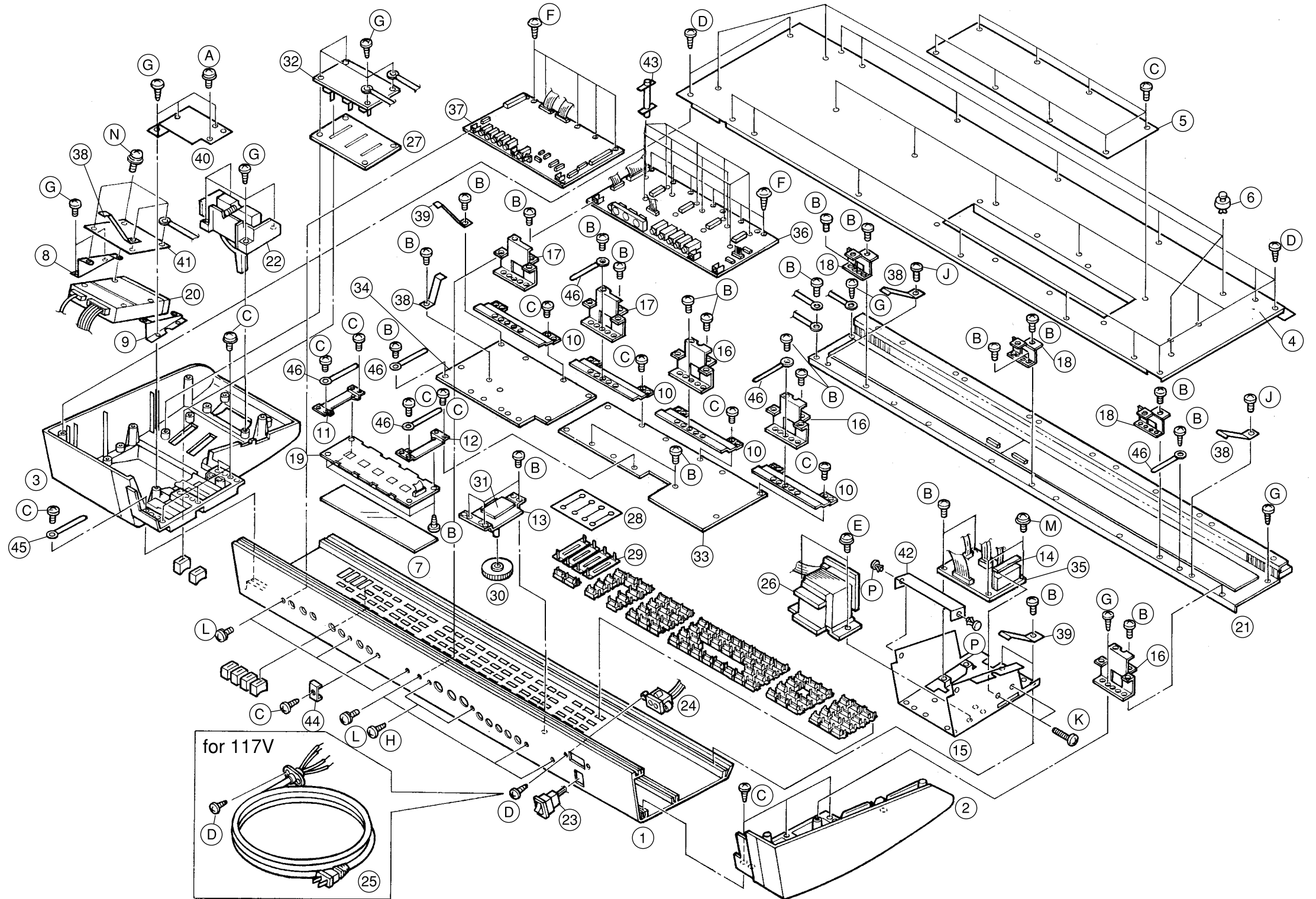
\* Use MX2H(PNo.22495275) divide in two.

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

# A EXPLODED VIEW

No.	Part Name	Part No.
①	PANEL	01457790
②	SIDE PANEL R	21125545
③	SIDE PANEL L	00678323
④	BOTTOM COVER	01457801
⑤	EXP COVER 4H	00782045
⑥	FOOT FF-018 BLK	12359139
⑦	DISPLAY COVER	00907978
⑧	FDD HOLDER L	22205905
⑨	FDD HOLDER R	22205906
⑩	PANEL HOLDER	00785534
⑪	DISPLAY HOLDER L	00907956
⑫	DISPLAY HOLDER R	00907967
⑬	ENCODER HOLDER	00782067
⑭	IC HOLDER	00782734
⑮	TRANS HOLDER	01457845
⑯	KEYBOARD HOLDER	00782078
⑰	KEYBOARD HOLDER B	01457812
⑱	KEYBOARD HOLDER C	01457823
⑲	LCD LCM32080YGV	15029559
⑳	FDD JU-257A726P	01121945
㉑	SK-861-L KEYBOARD ASSY	71122589
㉒	PB-H0201 BENDER TURBOLESS	70564101
㉓	EST206B 5A/125V	13149125
㉔	INL-9 2.5A/250V 2P	23425743
㉕	UP-880-J01 SJT2P 18/60	00125489
㉖	22455703U0 UNIVERSAL	22455703U0
㉗	POT DUST COVER L30 3H	00782690
㉘	POT DUST COVER L30 4H	00907989
㉙	D S-ESCT SX2H BLK L=30	22225371
㉚	D R-KNOB L BLK	22485303
㉛	XP-50 PWB ENCORDER ASSY	70564045
㉜	XP-50 PWB VR BOARD ASSY	70564045
㉝	XP-80 PWB SWITCH A ASSY	70567067
㉞	XP-80 PWB SWITCH B ASSY	70567123
㉟	XP-80 PWB PS BOARD ASSY	70567089
㊱	XP-60 PWB EXP BASE ASSY	71126978
㊲	XP-60 PWB MAIN ASSY	71018956
㊳	XP-80 LEAF	01120545
㊴	C-20/50 LEAF SPRING PANEL	22175316
㊵	XP-50 SHIELD SHEET A	00786989
㊶	XP-80 SHIELD SHEET C	01019612
㊷	XP-60 INSULATING SHEET	01565778
㊸	PCB SPACER WLS-14-094V0	12189810
㊹	CORD HOOK	22365714
㊺	coating clip CS-7	40017378
㊻	coating clip CS-4	40017356

SCREWS		
Ⓐ	Pan Taptight B with washer 3×8mm ZC	40011034
Ⓑ	Binding Taptight B 3×6mm ZC	40011056
Ⓒ	Binding Taptight B 3×8mm BZC	40011101
Ⓓ	Binding Taptight B 4×8mm BZC	40011123
Ⓔ	Binding Taptight B 4×6mm ZC	40012290
Ⓕ	VWH Taptight B 3×8mm ZC	40013690
Ⓖ	Pan Taptight P 3×8mm ZC	40011189
Ⓗ	Pan Taptight P 3×8mm BZC	40011201
Ⓙ	Binding Taptight S 3×6mm ZC	40012512
Ⓚ	Binding Taptight S 3×12mm BZC	40015956
Ⓛ	Sems 3×8mm BZC	40011501
Ⓜ	Double-Sems 3×6mm ZC (small washer)	40013056
Ⓝ	Double-Sems 3×6mm ZC	40017934
Ⓟ	NYLON RIVET NRP-355 BLACK	40016601



# PARTS LIST

**SAFETY PRECAUTION:**  
 The parts marked  $\Delta$  have safety-related characteristics.  
 Use only listed parts for replacement.

**CONSIDERATIONS ON PARTS ORDERING**  
 When ordering any parts listed in the parts list, please specify the following items in the order sheet.

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

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

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

- |     |   |               |     |   |               |
|-----|---|---------------|-----|---|---------------|
| MB  | → | MAIN ASSY     | EXB | → | EXP BASE ASSY |
| PB  | → | PS BOARD ASSY | ENB | → | ENCODER BOARD |
| SAB | → | SWITCH A ASSY | VB  | → | VR BOARD      |
| SBB | → | SWITCH B ASSY |     |   |               |

## CASING

- # 01457801 BOTTOM COVER
- 00907978 DISPLAY COVER
- 00782045 EXP COVER 4H
- 22365714 CODE HOOK
- 12359139 FOOT FF-018 BLK
- # 01457790 PANEL
- 00678323 SIDE PANEL L
- 21125545 SIDE PANEL R

## CHASSIS

- 22205905 FDD HOLDER L
- 22205906 FDD HOLDER R
- 00782067 ENCODER HOLDER
- 22043116 LED COVER
- 00907989 POT DUST COVER L30 4H
- 00782690 POT DUST COVER L30 3H
- 00907956 DISPLAY HOLDER L
- 00907967 DISPLAY HOLDER R
- 00785534 PANEL HOLDER
- # 01457845 TRANS HOLDER
- 00782734 IC HOLDER
- 00238956 BATTERY HOLDER CR2032BH
- 00782078 KEYBOARD HOLDER
- # 01457812 KEYBOARD HOLDER B
- # 01457823 KEYBOARD HOLDER C

## KNOB,BUTTON

- 22225371 D S-ESCT SX2H BLK L=30
- 22485303 D R-KNOB L BLK
- 22485295 D S-KNOB S BLK/LCG
- 22495272 D S-KEYTOP MD4H BLK
- 22495275 D S-KEYTOP MX2H BLK
- 22495276 D S-KEYTOP MX3H BLK
- 22495277 D S-KEYTOP MD1H BLK
- 22495278 D S-KEYTOP MD2H BLK
- 22495279 D S-KEYTOP HD3H BLK
- 00900189 D S-KEYTOP SX1H BLK

## SWITCH

- |                   |                 |           |                              |
|-------------------|-----------------|-----------|------------------------------|
| 13169752          | EVQ 213 05R     | TACT SW   | SW22-72 on SAB/SW1-21 on SBB |
| $\Delta$ 13149125 | EST206B 5A/125V | AC SWITCH |                              |

**JACK**

13449283	HLJ7101-01-3010	MONO	JK1,2,4,5 on MB/ JK5 on EXB
13449284	HLJ7001-01-3010	STEREO	JK3,6 on MB/JK1-4 on EXB
13429274	DIN YKF51-5041	MIDI	JK6 on EXB

**DISPLAY UNIT**

15029559	LCM32080YGV	LCD SHARP
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**BENDER UNIT**

70564101	PB-H0201	BENDER TURBOLESS
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**KEYBOARD UNIT**

# 71122589	SK-861-L	KEYBOARD ASSY
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**DISK DRIVE UNIT**

01121945	JU-257A726P
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**PWB ASSY**

# <input type="checkbox"/> 71018956	PWB MAIN ASSY	
# 71126978	PWB EXP BASE ASSY	
70567089	PWB PS BOARD ASSY	NOTE :PWB PS BOARD ASSY includes the TRANS BOARD
70564045	VR SHEET TOTAL	NOTE : VR SHEET TOTAL includes the ENCODER BOARD
70567067	PWB SWITCH A ASSY	
70567123	PWB SWITCH B ASSY	

**IC**

01457901	HD6437034AD75F	CPU	IC12 on MB
00129278	SSC1080F0B	KEYSCAN	IC2 on MB
00343823	M60205-0601FP	SH/GATE ARRAY	IC13 on MB
01122412	TC551001CFL-70	SRAM	IC17 on MB
00128890	HY6264ALJ-70TE2	SRAM	IC19 on MB
00784301	LH64256BK-70	DRAM	IC14,15 on MB
00897078	RA01-005	TONE GENERATOR	IC5 on MB
# 01561156	LHMN5KYW	WAVE ROM B	IC36 on MB
# 01561167	LHMN5KYY	WAVE ROM A	IC37 on MB
01564056	TC5316200CFHA03	MASK ROM	IC10 on MB
00232567	PCM69AU-1/T2	DAC	IC39,41 on MB
00901878	UPD72070	FDC	IC48 on MB
15199944	SDE1334FOB	LCD CONTROLER	IC18 on MB
15249111	TC7WU04F(TE12L)		IC4 on MB
15259864T0	YC74HC4052AF(EL)		IC47 on MB
15259884	TC7S08F(TE85L)		IC52 on MB
15259885	TC7S32F(TE85L)		IC50 on MB
15249112	TC7W32F(TE12L)		IC53 on MB
15249121	TC7W04F(TE12L)		IC49 on MB
00127490	TC7W08F(TE12L)		IC46 on MB
00232634	TC7W74F(TE12L)		IC20 on MB
15259740T0	TC74HC139AF(EL)		IC34 on MB
15259778T0	TTC74HC245AF(EL)		IC30-33 on MB
15249119	TC74HCT245AF(EL)		IC38 on MB
15259809T0	TC74HC393F(EL)		IC51 on MB
15259708T0	TC74HC08AF(EL)		IC25 on MB
00231890	TC74VHC08F-EL	CMOS	IC35 on MB
15289106	M5238AFP-600C	OP AMP	IC6,40,44 on MB
15189261	M5218AFP-600E	OP AMP	IC26 on MB
15289105	UPC4570G2-T2	BP OP AMP	IC9,23,27,28 on MB
15289109	M5216FP-600D	BP OP AMP	IC16 on MB
15289117	NJM5532MD	BP OP AMP	IC42,43 on MB
15199937	M51953BFP-600C		IC8 on MB
15289402	TA78L05F(TE12L)	RGL+5V	IC29.45 on MB

△ 15199230	PQ05RF21	RGL+5V	IC3 on PB
△ 01129078	AN7715F	REG+15V	IC2 on MB
△ 15199134	AN7915F	REG-15V	IC1 on PB
15169305H0	HD74LS08P		IC4 on EXB
15169539	TC74HC139P		IC3,5 on EXB
15189189	UPC4570HA	OP AMP	IC1,2 on EXB
15229706S0	PC910X	PHOTO COUPLER	IC6 on EXB
15169550T0	TC74HC138P		IC1,4 on SBB
15169556T0	TC74HC574P		IC2 on SBB
01340045	TC7SH32FU		IC1001 on MB

**TRANSISTOR**

15309101	2SA1037KR T146	SOP	Q1 on MB
15309103	2SA1202Y-TE12L	SOP	Q10 on MB
15319101	2SC2412KR-T146	SOP	Q4,5,6,100 on MB
15319102	2SC2882-Y-TE12L	SOP	Q9 on MB
15319105	2SC3326A-TE85L	SOP	Q2,3,11-14 on MB
15329104	2SK368GR-TE85L	SOP FET	Q21-24 on MB
15329503	DTA124EK-T146	SOP DIGITAL	Q20,101 on MB
00679312	RN1402-TE85L	SOP DIGITAL	Q7 on MB
15329516	DTC114EK-T146	SOP DIGITAL	Q102 on MB
15129156	2SC2603-T11E	DIP	Q17,18 on MB
15119144	2SA1048GR-TPE4	DIP	Q9,11-14 on SBB
15119170	RN2226-TPE4	DIP DIGITAL	Q1-6 on EXB
00909234	RN2224-TPE4	DIP DIGITAL	Q7,8 on EXB
00785945	RN1224-TPE4	DIP DIGITAL	Q9-16 on EXB
15129184	RN1207-TPE4	DIP DIGITAL	Q15-18 on SBB
15129215	RN2207-TPE4	DIP DIGITAL	Q10 on SBB

**DIODE**

15019126	1SS133 T-77	SWITCHING	
△ 15019245	1B4B41 1A/100V	BRIDGE	D5 on PB
△ 15039166	S2VB20	BRIDGE	D4 on PB

**DIODE ARRAY**

15339105	DAN202K T146	CHIP	DA6, 9, 10 on MB
15339108	DA204K T146	CHIP	DA1-5,7,8 on MB

**LED**

00782478	LNJ801LPDJA	LED RED	LED22,24-44 on SAB LED1-21 on SBB
01010856	LN301MPUJA	LED GREEN	LED23 on SAB
15029342	GL3ED8	LED 2 COLORS	LED45 on SAB

**RESISTOR**

15409107	MCR50JZH102	1/2W	R104,105 on MB
15399711	MCR25JZH221	1/4W	R49,50,167 on MB
15399730	MCR25JZH330	1/4W	R600 on MB
01010367	MCR25JZH472	1/4W	R403 on MB
15399301	RPC10T 0R0	0 Ohm	L3,4,8,15-19,27-31,44,45,57,59,60, R77,78,287-291,294,297,400,C800,R1001-1003 on MB

**RESISTOR ARRAY**

00781412	CN2B4TE100J 10×4	CHIP	RA8,9,29-32,37-45 on MB
15399932	MNR34J5AJ101	CHIP	RA10,12-21,33,34 on MB
15399936	MNR34J5AJ102	CHIP	RA50 on MB
15399917	MNR3415AJ103	CHIP	RA5,11,28,36,49,51 on MB
15399931	MNR34J5AJ221	CHIP	RA6,7,23-25 on MB
00126490	MNR34J5AJ470	CHIP	RA46 on MB
15399965	RCE9A103JAG7A	CHIP	RA1,3,4,26,27,47,48 on MB
15399968	RCE9A104JA	CHIP	RA22, 35 on MB
15399975	RDE9A223JA	CHIP	RA2 on MB
13919142	RGLD 8×104J	SIP	RA1,2 on SBB

**POTENTIOMETER**

13279825	EVUE20E20B54	ROTARY VR	VR1 on MB
13339484	RS30111	SLIDE VR10KB	VR1-4 on SBB, VR2,3 on VB
00786290	RS30112AA	SLIDE VR10KBX2	VR1 on VB

**CRYSTAL**

00894023	MA-406 20.000MHZ TE24	CRYSTAL	X2 on MB
00891801	MA406 24.000MHZ TE24	CRYSTAL	X3 on MB
00901912	MA-406 24.576MHZ TE24	CRYSTAL	X1 on MB

**ENCODER**

00783523	EVQ-WQ5F1524B	ROTARY ENCODER	EN1 on VB
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**CAPACITOR**

15369142S0	16CV10BS	CHIP CHEMICAL 10/16	C37,40-42,44,102,103,145-148,176178,181,182, 186-190,193,194,204,214,215,217 on MB
15369151S0	16CV10BS	CHIP CHEMICAL	C89,90 on MB
15369145S0	16CV100BS	CHIP CHEMICAL	C132,133 on MB
01010389	16VC220BS	CHIP CHEMICAL	C117,140,141 on MB
15169210S0	50CV1BS	CHIP CHEMICAL	C97,118 on MB
15369212S0	50CV2R2BS	CHIP CHEMICAL	C224 on MB
15169183S0	35CV4R7BS	CHIP CHEMICAL	C43 on MB
15369105S0	6.3VC100BS	CHIP CHEMICAL	C119,130,138,139,223 on MB
15369104S0	6.3VC47BS	CHIP CHEMICAL	C38,39,159,185,201,244 on MB
01014478	ECEV1HA0R1SR	CHIP CHEMICAL	C137 on MB
15369164S0	25CV22BS CHIP	CHEMICAL	C700 on MB
01010867	ECHU1H151JB5	CHIP POLYEST	C196,205,206,22-222,227,228 on MB
13519637M0	ECKR1H472KB5	CERAMIC	C14,15 on PB
13519452	DD306-959-F104Z25	CERAMIC	C1,2,5,8,9,11,13-15,18-20,23,25,26,31,42 on EXB, C8,10 on PB
13529132	RPE132-901F104Z50	MTL.LAY.CERA	C1,9,11,12,17 on PB, C2 on VB, C1-5,7-10 on SB
⚠ 13669509	25MV6800HC	CHEMICAL	C3 on PB
⚠ 13669408	16MV10000HC	CHEMICAL	C4,5 on PB
⚠ 00677767	6.3MV2200HC	CHEMICAL	C2 on PB
⚠ 13639175J0	SME25VB2200	CHEMICAL	C13 on PB
13669279S0	16MV10UW+T	CHEMICAL	C1 on VB
13639699S0	6.3MV100UW+T	CHEMICAL LOW	C6,16 on EXB
13639678S0	16MV10SWB+T	CHEMICAL	C6,11 on SBB
13669280S0	16MV47UW+T	CHEMICAL LOW	C22 on EXB

**CAPASITOR ARRAY**

00340301	CGSD8×101MSIP		CA1,2 on MB
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**FILTER, BEADS**

00907856	BLM21A601SPT	FERRITE BEAD	L4,5,9,11-14,21,22,24,26,32-35,41-43,46,47 on MB
00891689	SBT-0260TF	EMI FILTER	L20,58 on MB, L11-19, 21,22,24-26,28,32 on EXB
00233267	SNT-D30TF	EMI FILTER	L10,23 on MB

**CONNECTOR**

13379151	IL-FPC-14ST-N	FCC	CN9 on MB
13379152	IL-FPC-16ST-N	FCC	CN8 on MB
13379153	IL FPC-18ST-N	FCC	CN13 on MB
00780990	52045-3510	FCC	CN15 on MB, CN10 on EXB
13369877	PS-34PE-D4T1-B1-K	PIN HEADER	CN1 on MB
13429833	52411-0402	PIN HEADER	CN2 on MB
13369599	52147-0410	WIRE TRAP	CN7 on MB
13369601	52147-0610	WIRE TRAP	CN12 on MB, CN2 on EXB
13369602	52147-0710	WIRE TRAP	CN14 on MB
13369605	52147-1010	WIRE TRAP	CN6 on MB
13369606	52147-1110	WIRE TRAP	CN11,6 on MB
13369607	52147-1210	WIRE TRAP	CN12 on MB
13369925	53253-0310	WAFER	CN1 on PB
13369926	53253-0410	WAFER	CN4 on MB, CN3 on EXB, CN2,3 on PB, CN4 on SBB
13369928	53253-0610	WAFER	CN3 on MB, CN1 on EXB, CN6,7 on PB
13369930	53253-0810	WAFER	CN5 on MB, CN4 on PB, CN9 on SAB, CN6 on SBB



13369933	53253-1110	WAFER	CN10 on SAB, CN7 on SBB
13369934	53253-1210	WAFER	CN8 on SAB, CN5 on SBB
13429296	51048-0700	CABLE HOLDER	CN1 on SBB
13429299	51048-1000	CABLE HOLDER	CN1 on VB, CN3 on SBB
13429301	51048-1200	CABLE HOLDER	CN8,9 PB, CN2 on SBB
13429292	51048-0300	CABLE HOLDER	CN2 on VB
13429297	51048-0800	CABLE HOLDER	CN5 on EXB

**WIRING,CABLE**

00907912	XP-80 WIRING W-1	8P	SAB-SBB
00907923	XP-80 WIRING W-2	11P	SAB-SBB
00907934	XP-80 WIRING W-3	12P	SAB-SBB
00907867	XP-80 WIRING W3-A	4P	PB-SBB
00907878	XP-80 WIRING W3-B	6P	PB-MB
00782845	XP-50 WIRING W3-1	4P	BENDER UNIT - MB
# 01565245	WIRING W-1	34P	FDD UNIT-MB
00783223	XP-50WIRING W3-1	4P	PB-EXB
00783278	XP-50WIRING W3-5	6P	PB-EXB
00783245	XP-50WIRING W3-3	8P	PB-MB
23505764	JV-1000 WIRING W1-7	3P	PB-FDD UNIT
23505771	JV-1000 WIRING W5-1	4P	EXB-MB
△ 23505778	JV-1000 WIRING W9-1		100V,230V,240V ONLY
00782501	RIBON CABLE 3×410-P2.0		ENB-MB
00789978	RIBON CABLE 6×600-P2.0		EXB-MB
01012089	RIBON CABLE 7×550-P2.0		SBB-MB
00890089	RIBON CABLE 8×150-P2.0		EXB-MB
00890434	RIBON CABLE 10×350-P2.0		SBB-MB
00782490	RIBON CABLE 10×385-P2.0		VB-MB
00782512	RIBON CABLE 12×120-P2.0		PB-TRANS BOARD
00890745	RIBON CABLE 12×250-P2.0		SBB-MB
00783001	FUJI CARD 35×80-A6.0BBR-P1.25-HBL10		MB-EXB
00787023	FUJI CARD 16×500-A6.0BB-P1.25		MB-KEYBOARD UNIT
00787034	FUJI CARD 18×500-A6.0BB-P1.25		MB-KEYBOARD UNIT
01010656	FUJI CARD 14×125-A6.0BB-P1.25		LCD UNIT-MB

**TRANSFORMER**

△ 22455703U0	PWR TRTANS 22455703U0	UNIVERSAL
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**AC INLET**

△ 23425743	AC INLET INL-9 2.5A/250V 2P	100V,230V,240V
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**AC CORD**

△ 00125489	AC CORD ASSY 120V UP-880-J01 SJT2P 18/60	ONLY 120V (INSTALLED)
------------	--	-----------------------

**BATTERY**

00238990	CR2032 210MAH/3V	LITHIUM BATTERY
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**SCREW**

40011056	BINDING TAPTIGHT B 3×6MM ZC
40011090	BINDING TAPTIGHT B 3×6MM BZC
40011101	BINDING TAPTIGHT B 3×8MM ZC
40011123	BINDING TAPTIGHT B 4×8MM BZC
40012290	BINDING TAPTIGHT B 4×6MM ZC
40011267	BINDING TAPTIGHT S 3×6MM ZC
40015956	BINDING TAPTIGHT S 3×12MM ZC
40013690	VWH TAPTIGHT B 3×8MM ZC
40011189	PAN TAPTIGHT P 3×8MM ZC
40011201	PAN TAPTIGHT P 3×8MM BZC
40011034	PAN TAPTIGHT B WITH WASHER 3×8MM ZC
40011501	SEMS 3×8MM BZC
40017934	DOUBLE SEMS 3×6MM ZC
40013056	DOUBLE SEMS 3×6MM ZC (SMALL WASHER)
40012890	DOUBLE SEMS 3×16MM ZC

**PACKING CASE**

# 01457856	PACKING CASE
# 01457867	PAD L
# 01457889	PAD R
# 01565789	CORD PAD
# 01565790	CENTER PAD

**MISCELLANEOUS**

40017378	CS-7	COATING CLIP
40017356	CS-4	COATING CLIP
40016512	T-18S	INSULOCK TIE 8M/M
40016523	T-18R	INSULOCK TIE 10M/M
12449323	ESD-R-25SD	FERRITE-CORE
12199584	M1698	GROUNDING TERMINAL
12189810	WLS-14-094V0	PWB SPACER
40016601	NPR-355 BLACK	NYRON RIVET
22175316	LEAF SPRING PANEL	
01120545	XP-80 LEAF	
22365101	LFC-30N-0	MINI FLAT CABLE CLIP
00786989	XP-50 SHIELD SHEET A	
01010834	XP-80 SHIELD SHEET B	
01019612	XP-80 SHEALD XHEET C	
40126812	CAUTION LABEL BARRIER	

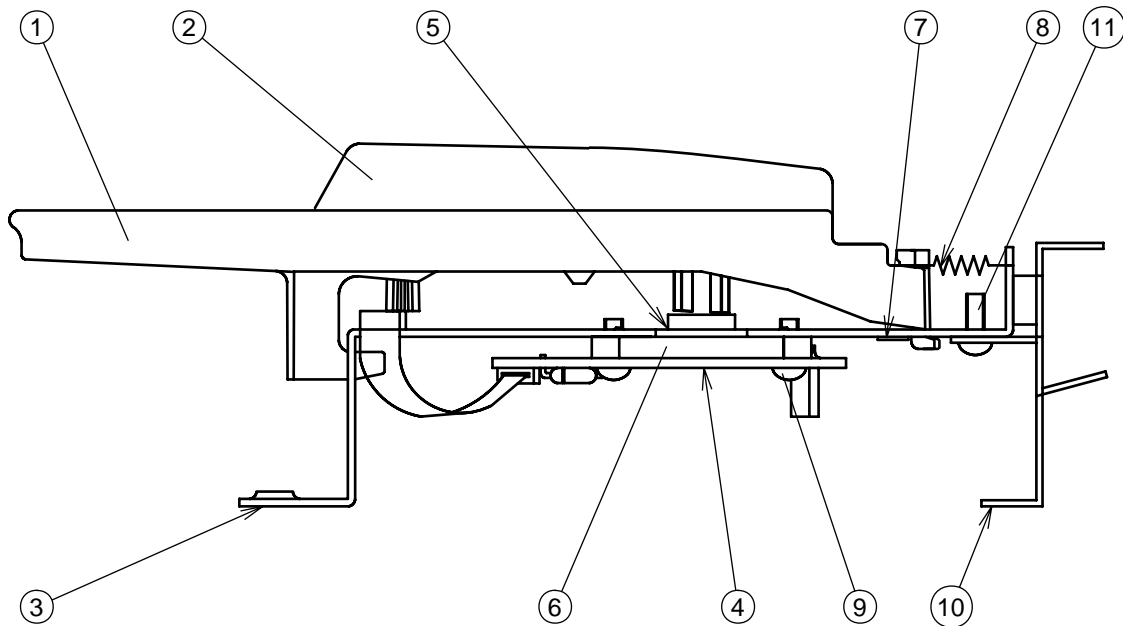
**ACCESSORIES (Standard)**

△ 13499219	AC CORD SET 100V DC-382-J01 VFF2P
△ 13499221	AC CORD SET 230V EC-511-E07 H03VVH2-F 2P
△ 13499222	AC CORD SET 240VA SC-078-J02 ES206-75HMA
△ 00905234	EURO CONVERTER PLUG ECP01-5A
# 71122801	OWNER'S MANUAL SET ENGLISH
# 71018934	OWNER'S MANUAL SET JAPANESE
# 01457923	DEMO DISK
01016056	DANCE KIT DISK

# KEYBOARD PARTS LIST (SK-861-L)

## XP-60(SK-861-L) PARTS LIST

No.	PARTS No.	PARTS NAME	
1	32575349W0	SK-8 N-KEY CF	(WEIGHT)
	32575348W0	SK-8 N-KEY EB	(WEIGHT)
	32575350W0	SK-8 N-KEY D	(WEIGHT)
	32575351W0	SK-8 N-KEY G	(WEIGHT)
	32575347W0	SK-8 N-KEY A	(WEIGHT)
	32575353W0	SK-8 N-KEY C'F'	(WEIGHT)
2	32575355W0	SK-8 S-KEY	(WEIGHT)
3	*****	SK-8 CHASSIS 61P-E ASSY	
	22815838	SK-8 CHASSIS 61P-C	
	22265529	SK-861 CUSHION 61KEY B	
	32155199	SK-8 GUIDE	
	01236767	SK-861 AFTERTOUC	
4	70890767	SK-8A61 PWB HI-AFT ASSY	
	70890778	SK-8A61 PWB LOW ASSY	
5	01015134	SK-8A RUBBER SWITCH 12P	
	01015145	SK-8A RUBBER SWITCH 13P	
6	22205597	SK-8 PCB SPACER 12P	
	22205598	SK-8 PCB SPACER 13P	
7	00018978	SK-8 STOPPER 12P	
	00018989	SK-8 STOPPER 13P	
8	40017134	SK-8 SPRING	
9	40012256	BINDING TAPTIGHT B 3×10mm ZC	
10	00782078	XP-50 KEYBOARD HOLDER	
	01457812	XP-60 KEYBOARD HOLDER B	
	01457823	XP-60 KEYBOARD HOLDER C	
11	40011067	BINDING TAPTIGHT B 3×8mm ZC	



# KEYBOARD DISASSEMBLY

## 1. ATTACHING THE PCBs

### Required Parts

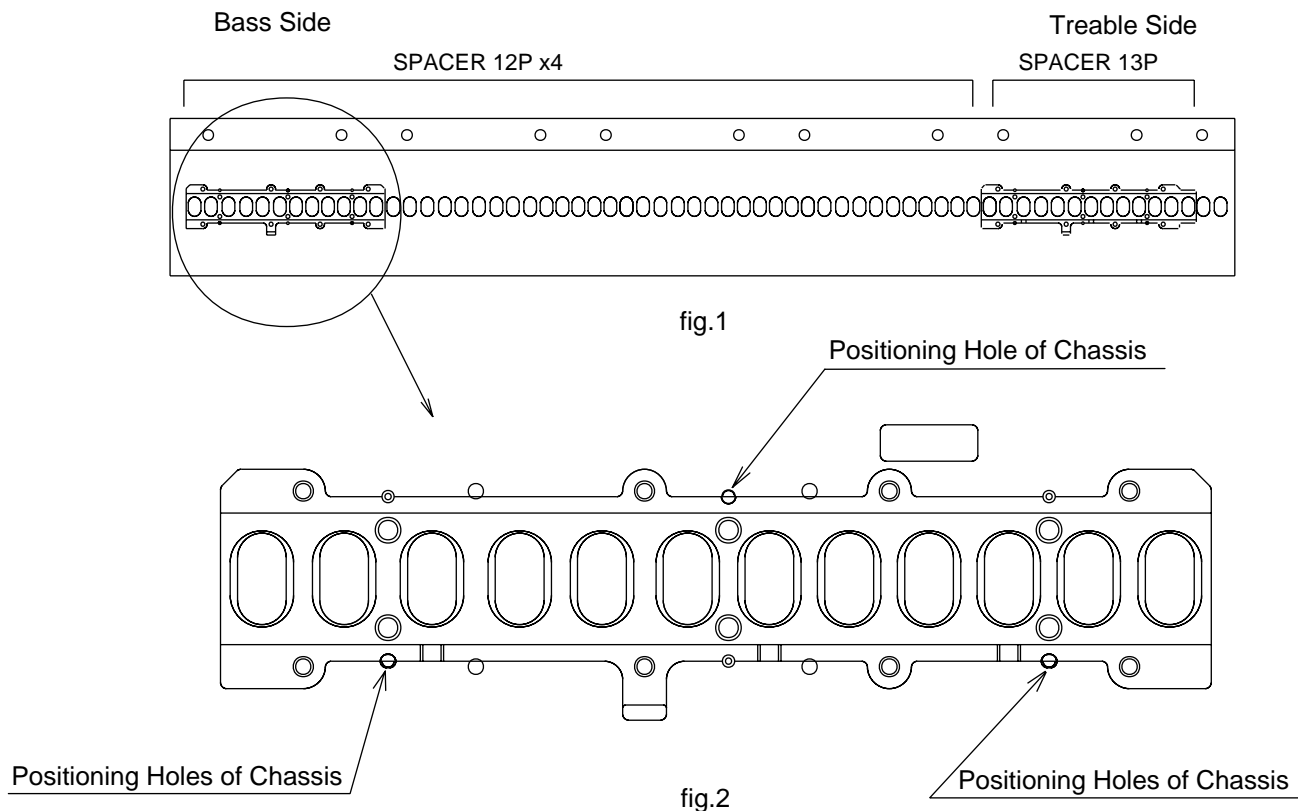
PARTS No,	PARTS NAME	Qty.
70890767	SK-8A61 PWB HI-AFT ASSY	1
70890778	SK-8A61 PWB LOW ASSY	1
01015134	SK-8A RUBBER SWITCH 12P	4
01015145	SK-8A RUBBER SWITCH 13P	1
22205597	SK-8 PCB SPACER 12P	4
22205598	SK-8 PCB SPACER 13P	1
40012256	BINDING TAPTIGHT B 3x10mm ZC	24

1) First, turn the chassis over on the other side, being careful not to reverse the right and left ends.

Next, as shown in fig. 1, place SPACER 12P (4 pieces) on the chassis from the left end (the bass side of keyboard), aligning them with the positioning holes provided on the chassis.

(Refer to fig. 2.)

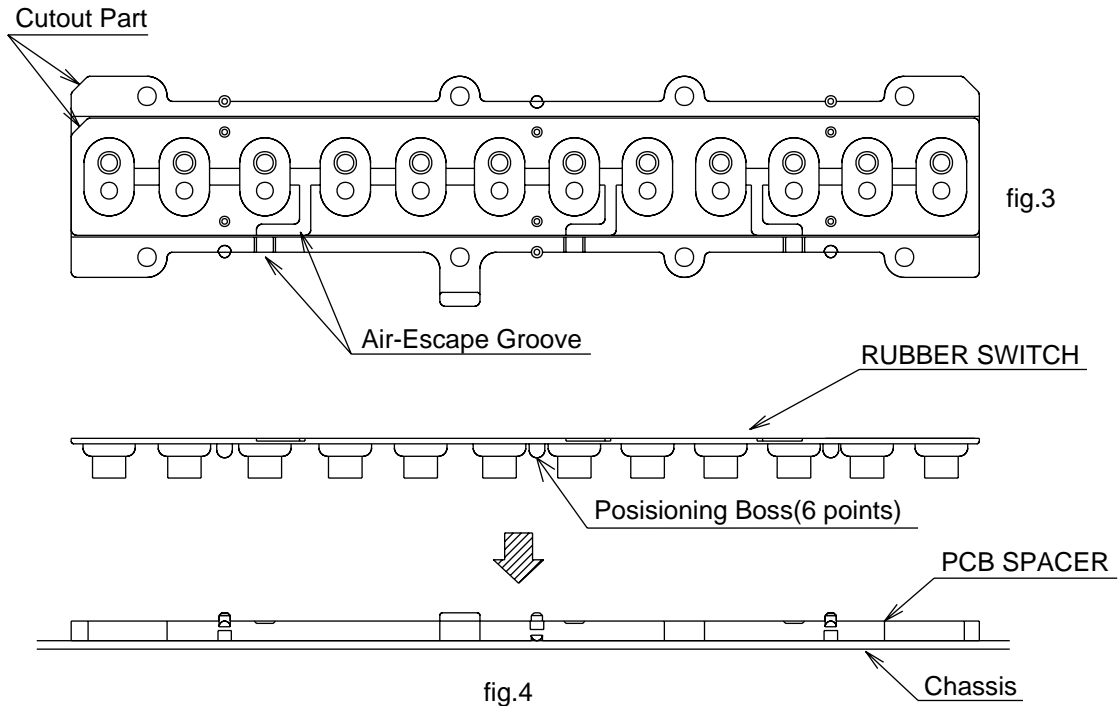
In the same way, place SPACER 13P on the right side of the chassis (the treble side).



- 2) Next, aligning the positioning bosses of RUBBER SWITCH with the circular holes of SPACER, and as done for the spacer, place four RUBBER SWITCH 12PL, and one RUBBER SWITCH 13P in order, starting on the lower tone side.

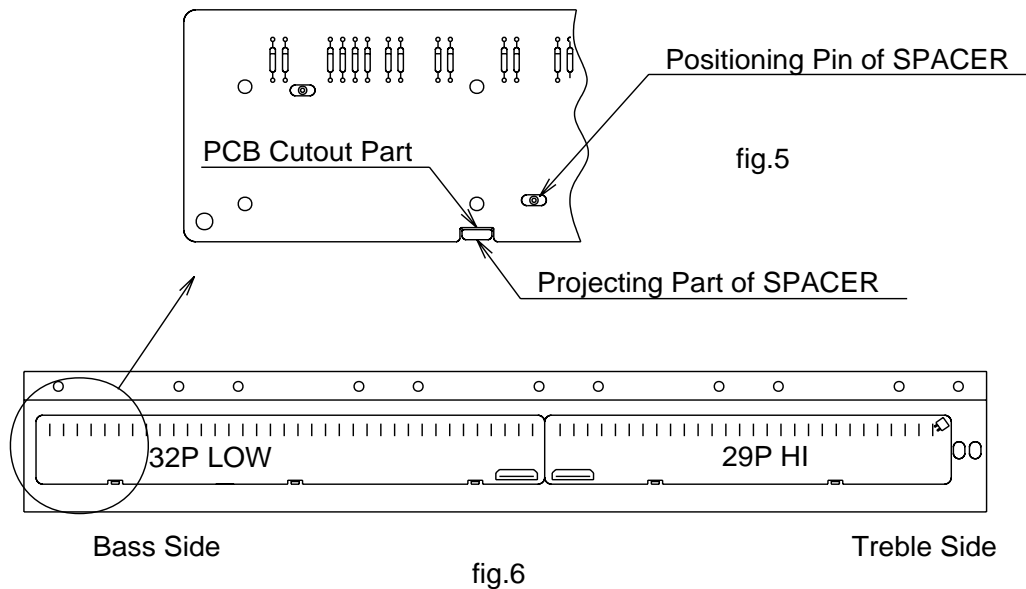
In this procedure, make sure that RUBBER SWITCH and SPACER are positioned with their cutout parts and ascape grooves aligned, respectively.

(Refer to fig. 3 and fig. 4.)



- 3) Next, using the cutout part of PCB and the projecting part of SPACER as positioning guide, place PCB so that the positioning pin of SPACER fits into the positioning hole of PCB. (Refer to fig. 5)

As fig. 6 shows, PCBs consist of three boards, "LOW" and "HI".



4) Then, tighten the LOW and HI PCBs with the Tap Tight Screws. First tighten the near-center Screws 1, then the end Screws 2 on the other side. (This order must be followed. Otherwise the PCBs may not be flush with the Spacers.)

Then tighten the remaining Screws 3 of the LOW and HI PCBs. (For the above, refer to Fig. 7.)

Finally, tighten the Screws in the area adjacent to the LOW and HI PCBs.

Since the PCBs may have been warped by soldering, etc., it is recommended to gently hole down the center and tighten the Screws.

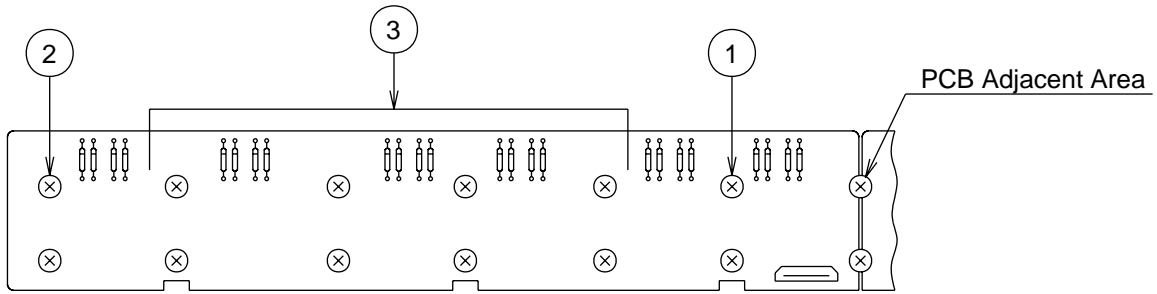


fig.7 (ex. 32P LOW)

**2. REMOVAL AND REINSTALLATION OF THE KEYS**

Before removing the keys, first take the stopper off the rear side of the chassis, then take away the spring.

When reinstalling the keys, carefully apply the stopper as shown in fig. 8.

Bring the stopper into close contact with the ends of the white key shafts and press the stopper in the area of the double-coated tape to secure it. (Refer fig. 8.)

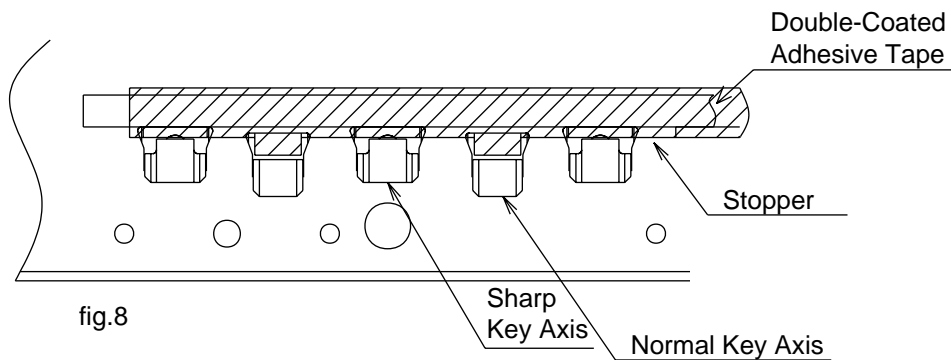


fig.8

Viewed from the rear side of the chassis.

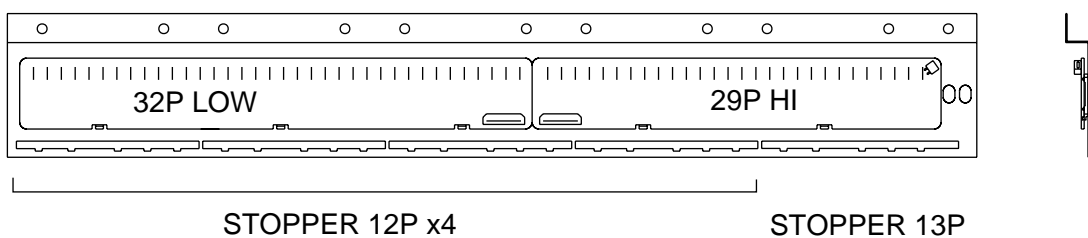
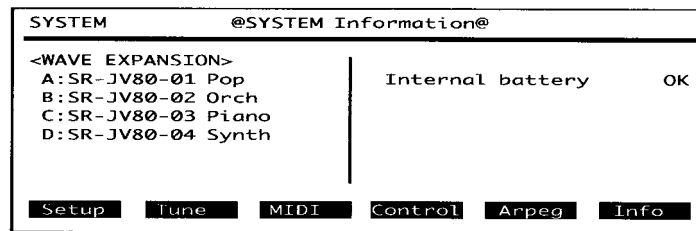


fig.9

## IDENTIFYING THE VERSION NUMBER

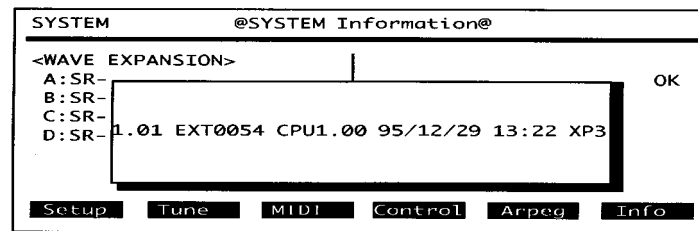
Press SYSTEM button, next press F6 button LCD shows [Fig.1].

Fig.1



Then press F6 button, while pressing 0(TenKey) button. LCD shows [Fig.2].

Fig.2



The left side [1.01] mean the version of program ROM, the Center [CPU1.00] mean the version of CPU.

## USER DATA SAVE AND LOAD

1. Press the DISK button to access the disk menu display.
2. Press the tenkey to make the desired function select, and press the ENTER button to access the display for that function.

### 1 : LOAD

This function loads Song data, Data files or S-MRC Song data form disk into the XP-60.  
Select File Type and File Name.

### 2 : SAVE

This function saves a song or data file with the name you specify.  
Select File Type and Input File Name.

3. Press the F6 button to execute the function.

## FACTORY PRESET

1. Press the UTILITY button to access the Utility menu display.
2. Press the 8(tenkey), and press the ENTER button to access the display for factory preset function.
3. Press the F6.

## VERSION UP THE FLASH ROM

XP-60 use FLASH ROM in the early lots. S/N from Z\*\*0100 to Z\*\*1099.

These following that, how to update FLASH ROM.

### Required item

Two 2HD FDs for update of XP-60.

XP-60 Ver. UP DISK SET (PNO. 17048904).

### Method

1. Load DISK 1 into the disk drive.
2. Power on.
3. LCD Backlight on , and display shows nothing in a few seconds.
4. Display shows "Now Erasing Flash ROM".(for about 30 seconds)
5. Display shows "Now Writing Flash ROM". LED of Disk drive lighting.(for about 40 seconds)
6. Display shows "Please Insert The 2nd Disk". LED of STOP/PLAY lighting orange.
7. Pull out DISK 1, then load DISK 2.
8. Display shows "Now Writing Flash ROM". LED of Disk drive lighting.(for about 40 seconds)
9. Display shows "Flash ROM Has Been Successfully Updated". LED of STOP/PLAY lighting green.
10. Pull out DISK 2, then power off.

NOTE : When display shows error message, or any LED light red, check IC7 and IC10 on main board. (solder not complete)

NOTE : When update program ROM, the Bender & Modulation must be readjusted.

For details, refer to the [Bender & Modulation Adjust] item in the test mode. (p.20)

When updating the programmed MASK ROM from LOT 11 onwards (S/N Z\*\*1100-), replace the MASK ROM(01564056) or MAIN BOARD ASSY(71018956).



## HOW TO ENTER THE TEST MODE

Power on while pressing EFX button, UTILTY button and RHYTHM button.

Keep on pressing these 3 buttons until the display in [fig 3] appears. (approximately 10 seconds.)

Fig.3

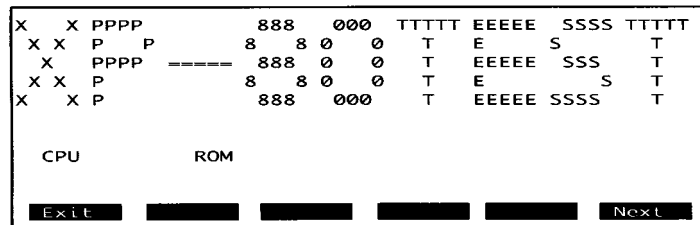


If error message appear on LCD, then checking that device.

Message	CHECK
"XP NG"	IC5 on MB
"BATTERY NG"	BT1 on MB
"CPU RAM NG"	IC12 on MB
"DSP Internal RAM R/W error."	IC5 on MB
"DSP External RAM R/W error."	IC14,15 on MB
"DRAM NG"	IC21,22 on MB
"SRAM NG"	IC17 on MB

Memory test is complete. LCD show [Fig.4].

Fig.4



## TEST MODE

### Required Items

- DP-2 (FOOT PEDAL)
- EV-5 (EXPRESSION PEDAL)
- MIDI cable
- Headphone
- 3.5 inch 2DD FD (erasable)
- 3.5 inch 2HD FD (erasable)
- 4x SR-JV80 series (WAVE EXPANSION BOARD)

NOTE : These 2 disks are PROTECT OFF.

NOTE : Connect 4 SR-JV on the EXP BASE BOARD before the power ON.

You can use any EXPANSION BOARDS (SR-JV80 series) out of order.

The four boards (SR-JV) can be a same series.

NOTE : User data might accidentally be erased when you enter the TEST MODE.  
So you should backup copy the user data on another disk.

NOTE : When you enter the test mode, the Bender & Modulation must be readjusted.  
For details, refer to the [Bender & Modulation Adjust] item in the test mode. (p.20)

**TEST ITEMS**

These following 8 tests are available for XP-60.  
Refer to the each TEST ITEM for details.

	Ten key	Bank SW
1. EXP Test	1	1
2. MIDI Test	2	2
3. DISK Test	3	3
4. Bender & Modulation Adjust	4	4
5. A/D Test	5	5
6. Switch & LED Test	6	6
7. LCD Test	7	7
8. SOUND Test	8	8

NOTE : Each test item corresponds to the 10 key and Bank switch.  
To execute the test, press the corresponding key or switch.  
Refer to the following table about the other switch operation in the Test Mode.

F6	Moves next test items. Only when exit the SW & LED test, press and the hold the ENTER button then press the F6 button.
F1	Moves to the previous test items.
EXIT	Exits the test item and jumps to the initial page of TEST MODE [Fig 4]. Press again, to jump to the last page of TEST MODE [Fig 12].

# 1. EXP test

NOTE : Connect 4 SR-JV on the EXP BASE BOARD  
 before turn the power ON.  
 You can use any EXPANSION BOARDS (SR-  
 JV80 series) out of order.  
 4 SR-JV can be a same series.

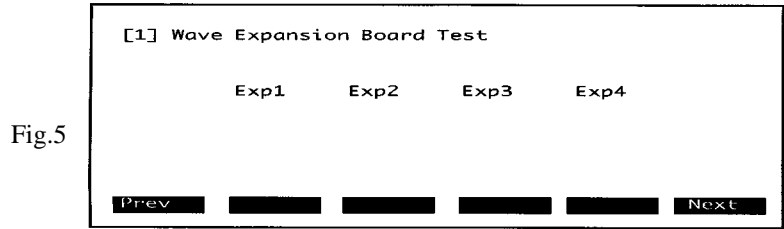
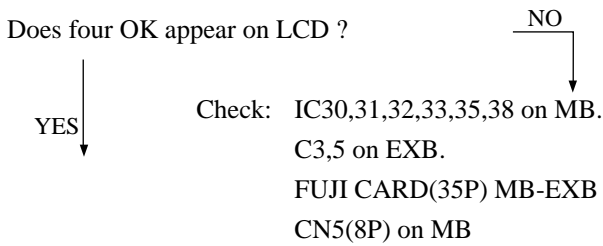


Fig.5

Display shows [Fig.5].



EXP test is complete.  
 When the test was successful, move to next test item.

# 2. MIDI TEST.

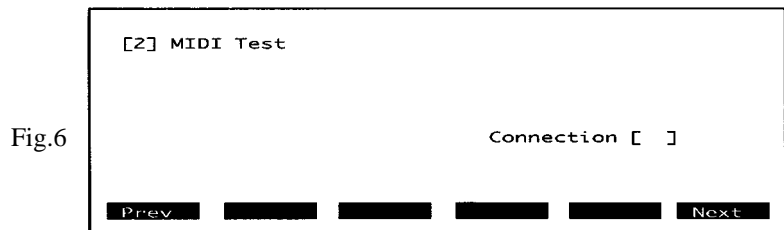
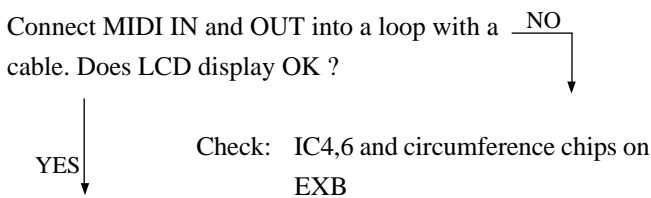


Fig.6

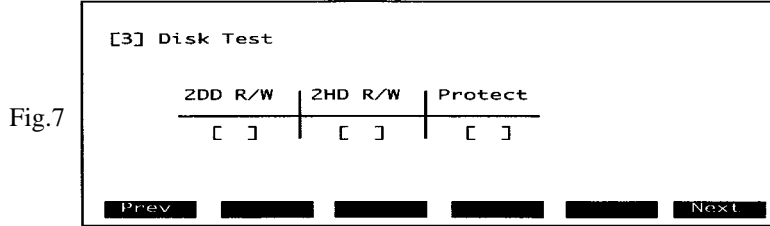
Display shows [Fig.6].



MIDI test is complete.

### 3. DISK TEST.

NOTE : These 2 disks are PROTECT OFF.



Display shows [Fig.7].

Load a blank 2DD disk into the disk drive.

Is OK displayed under the "2DD R/W"?

NO

Load a blank 2HD disk into the disk drive.

Does OK display under the "2HD R/W"?

NO

Load a diskset to protect on.

Does OK display under the "Protect"?

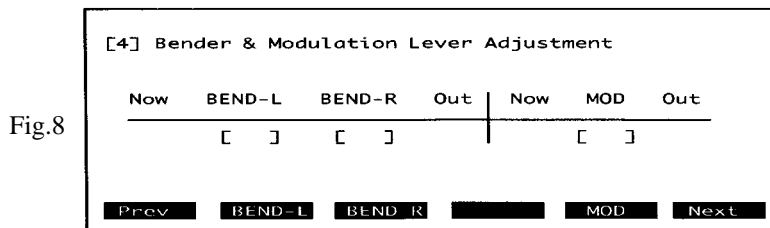
NO

YES

Check: IC48 on MB, FDD UNIT, W8-A(34P) FDD-MB

DISK test is complete.

### 4. Bender & Modulation Adjust



A display as in [Fig.8] appears.

This sets bender and modulation nonsensitive areas.

NOW : Variable. (from 0 to 3F4)

LFT : Tilt Bender Lever all the way to the left, and slowly return. Then press [F2].

RGT : Tilt Bender Lever all the way to the right, and slowly return. Then press [F3].

This sets the "OUT" value to "0" when the "NOW" value is between "LFT" and "RGT".

OUT:Variable. (from -256 to +255)

NOW:Variable. (from 0 to 3F0)

MOD:Push Bender Lever to MODULATAION, then return.  
Next press the [F5] button.

OUT:Variable. (from 0 to 127)

This set the "OUT" value to "0" when the "NOW" value is less than the "MOD" value.

### 5. A/D test

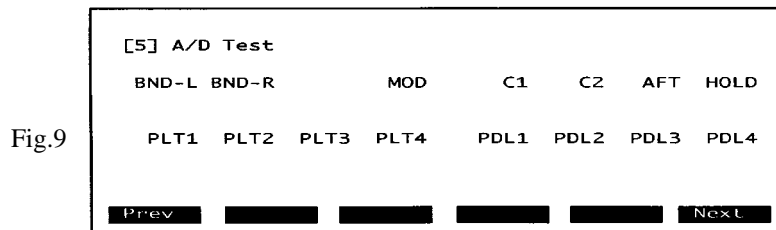
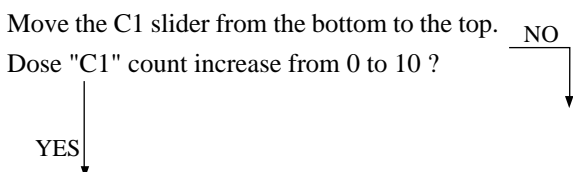
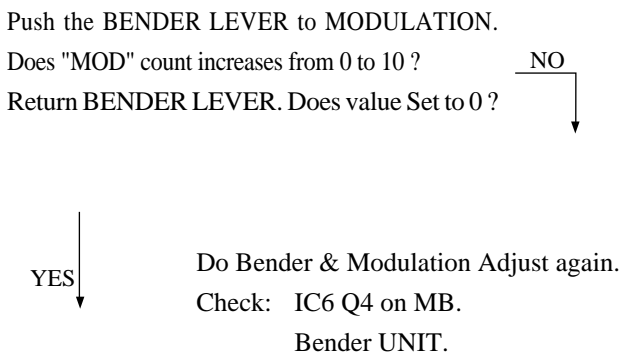
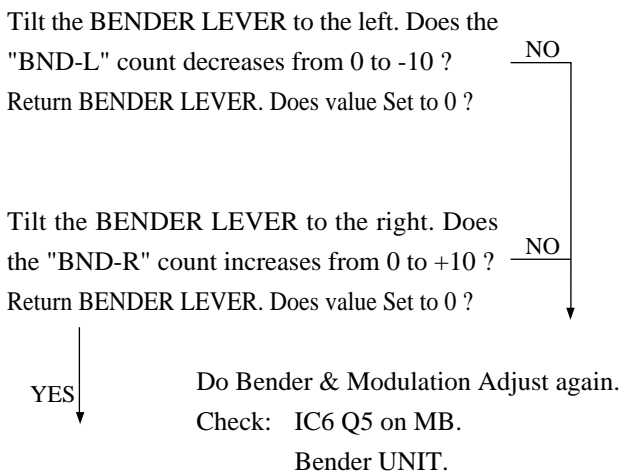
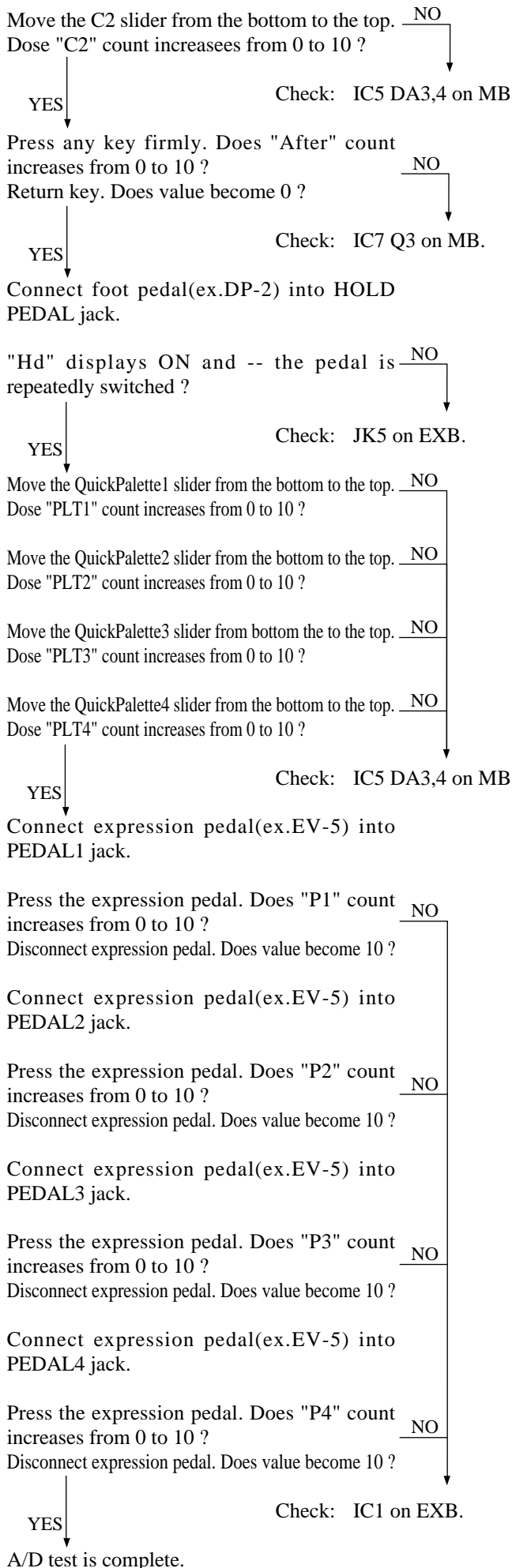


Fig.9

LCD shows [Fig.9].





## 6. SW & LED TEST.

NOTE : When the amp is connected to the OUTPUT jack,  
piano sound when a button is pressed.  
Scale sounds in sequence when the panel switches  
are pressed in order.

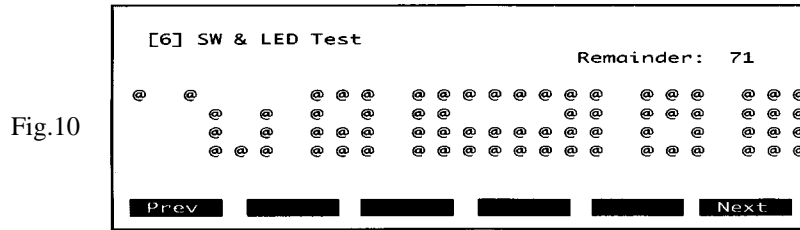


Fig.10

Display shows [Fig.10].

Do all LED light on ? (44 units) NO  
 YES ↓ Check: IC 1,2,4 Q1-16 on SBB,  
Ribon Cable(11P)(12P) SBB-MB

Press buttons. Check going off its LED or name on LCD.  
Only SW 23(STOP/PLAY) must be pressed twice, NO  
because LED 45(BEAT) is 2 colored (red,green) LED. ↓  
 YES ↓ Check: LED SW D on SB

SW & LED test is complete.  
When the test was successful, move to next test item.

## 7. LCD TEST.

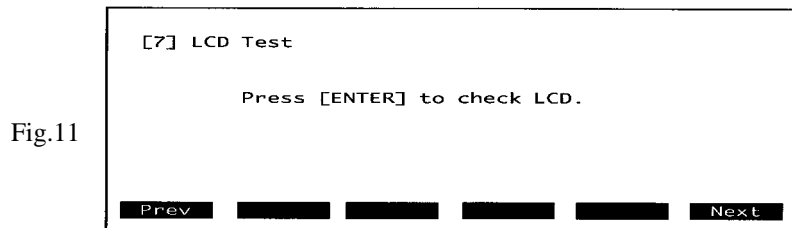


Fig.11

Display shows [Fig.11].

LED (TRAC/PART, 4) light on.

Press ENTER. All dots turn on green. NO  
 Press ENTER. All dots turn on dark. NO  
 YES ↓ Check: IC18,19 on MB

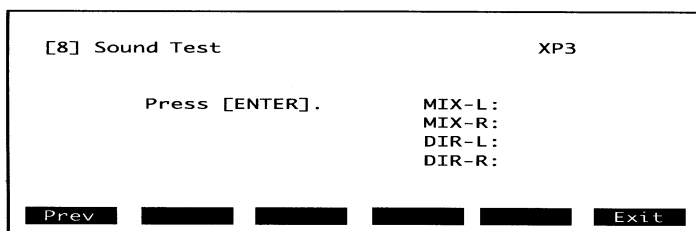
Turn encoder right and left, does LCD change  
contrast bright and dark ? NO  
And the LED moves on both side ? ↓  
 YES ↓ Check: IC13 on MB  
Ribon Cable(3P) ENB-MB

LCD test is complete.

## 8. SOUND TEST.

Connect headphone cable into PHONES jack. Move volume slider suitably.

Fig.12



Display shows [Fig.12].

Press ENTER. Display shows "MIX-L:Sine".

Listen to the sound coming from the left side of headphone.

Is a sine wave sound heard from left side of headphone ? NO

Press ENTER. Display shows "MIX-R:Square".

Listen to the sound coming from the right side of headphone.

Is a square wave sound heard from right side of headphone ? NO

YES ↓

Check: IC16,27,39,40,42Q2,3,13,14,  
21,22 on MB  
CN16(10P) on MB

Connect headphone cable into DIRECTOUT L jack.

Press ENTER. Display shows "DIR-L:Sine".

Listen to the sound of headphone.

Is a sine wave sound heard from headphone ? NO

Connect headphone cable into DIRECTOUT R jack.

Press ENTER. Display shows "DIR-R:Square".

Listen to the sound of headphone.

Is a square wave sound heard from headphone ? NO

YES ↓

Check: IC28,41,43,44 Q11,12,23,24 on MB

Press ENTER.

SOUND test is complete.



## HOW TO EXIT THE TEST MODE

Fig.13

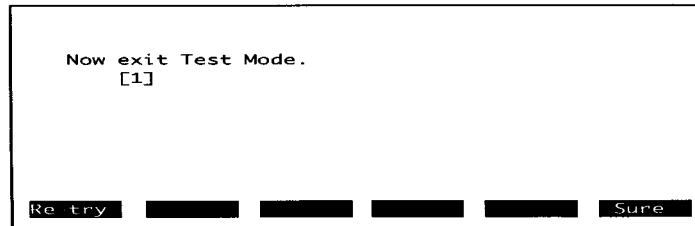
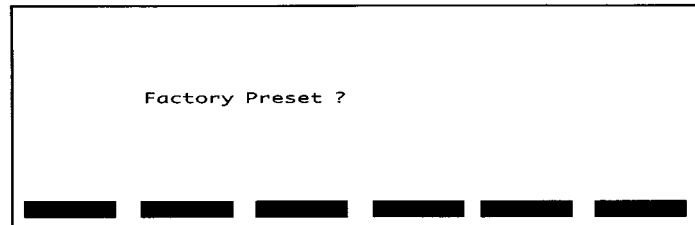


Fig.14



Press EXIT during test.

Then display shows like [Fig.13], if you have not finished all test items, press corresponding button to finish all test items.

Press F6.

Then display shows [Fig.14].

NOTE : If you press F6, it will erase USER DATA, and load factory preset data.

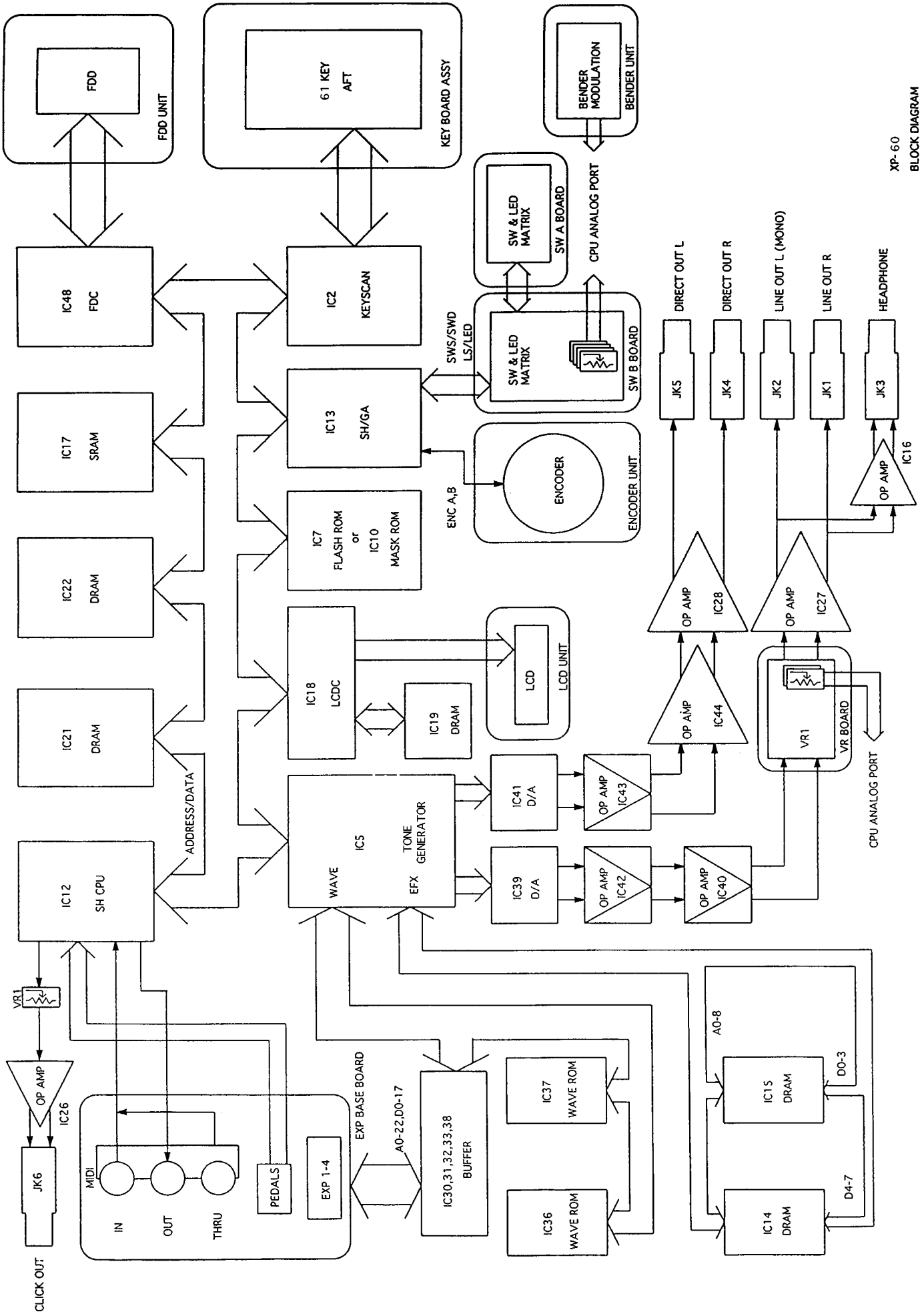
Press F1, if you didn't save user data to another disk (back up).

Press F6, When the operation is completed, the XP-60 set to PATCH PLAY MODE.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

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

# BLOCK DIAGRAM



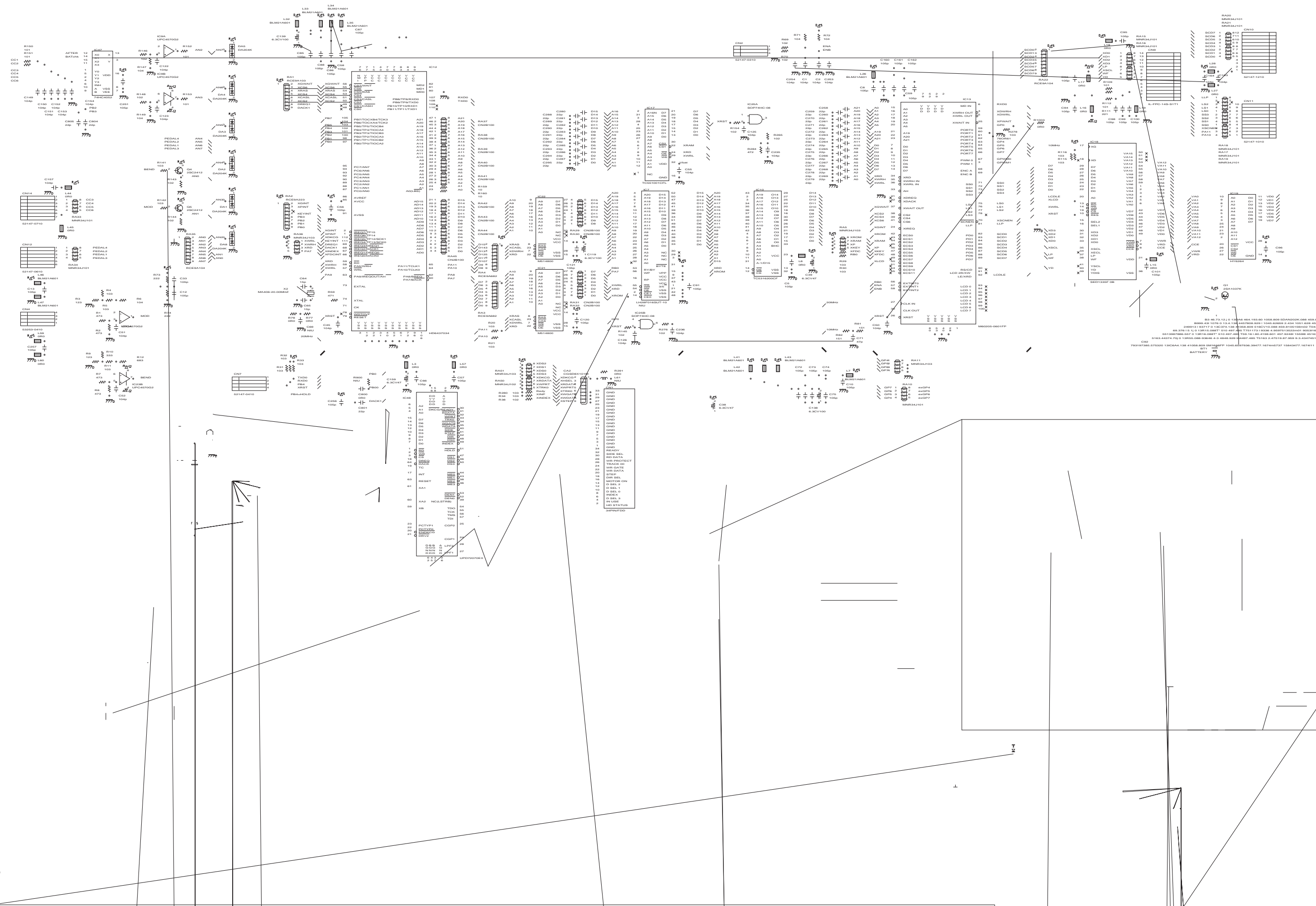
XP-60  
BLOCK DIAGRAM



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

# A CIRCUIT DIAGRAM (1/3) (MAIN)

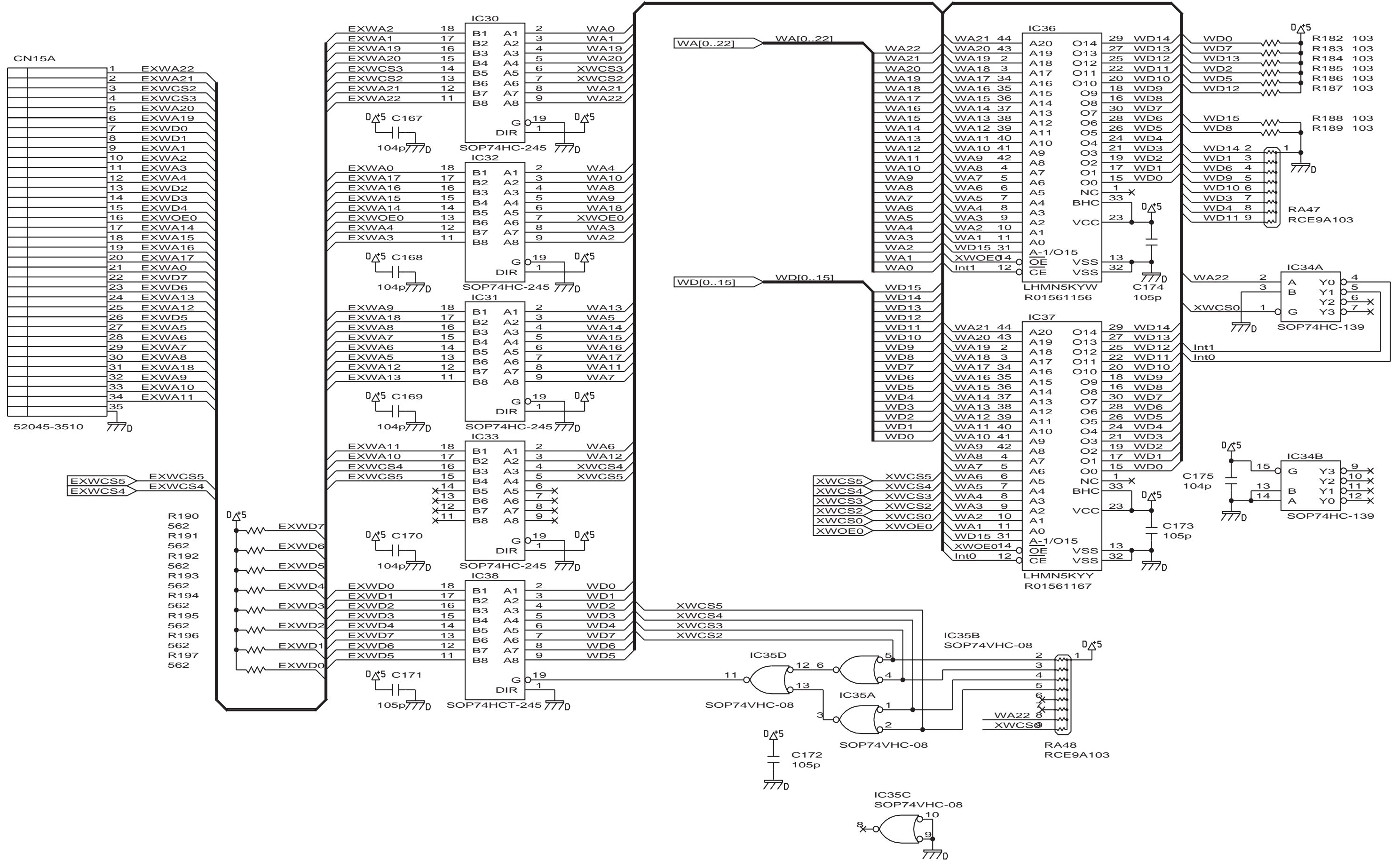
B  
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R  
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U  
V



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

# A CIRCUIT DIAGRAM (2/3) (MAIN)

B  
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U  
V

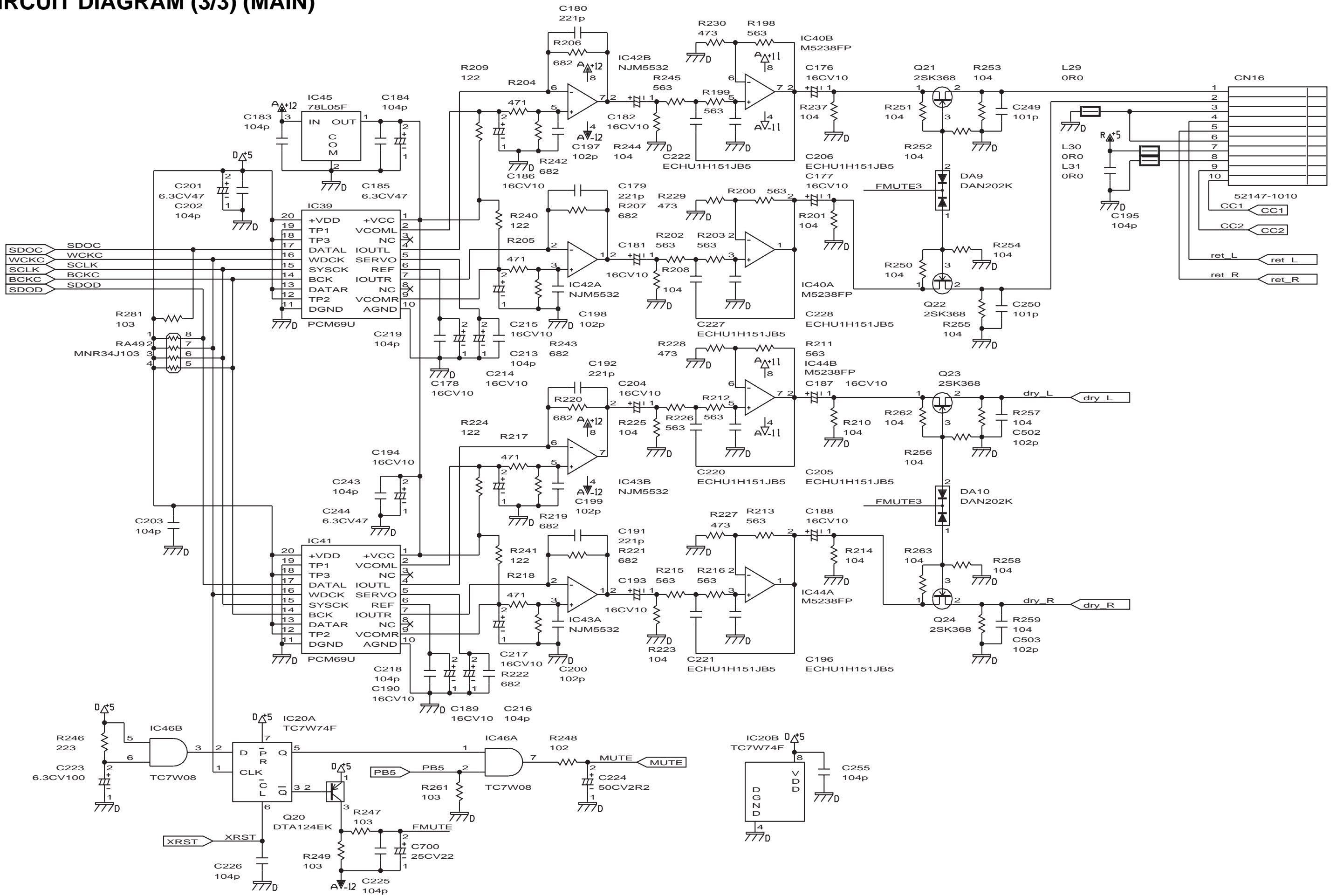




1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

# A CIRCUIT DIAGRAM (3/3) (MAIN)

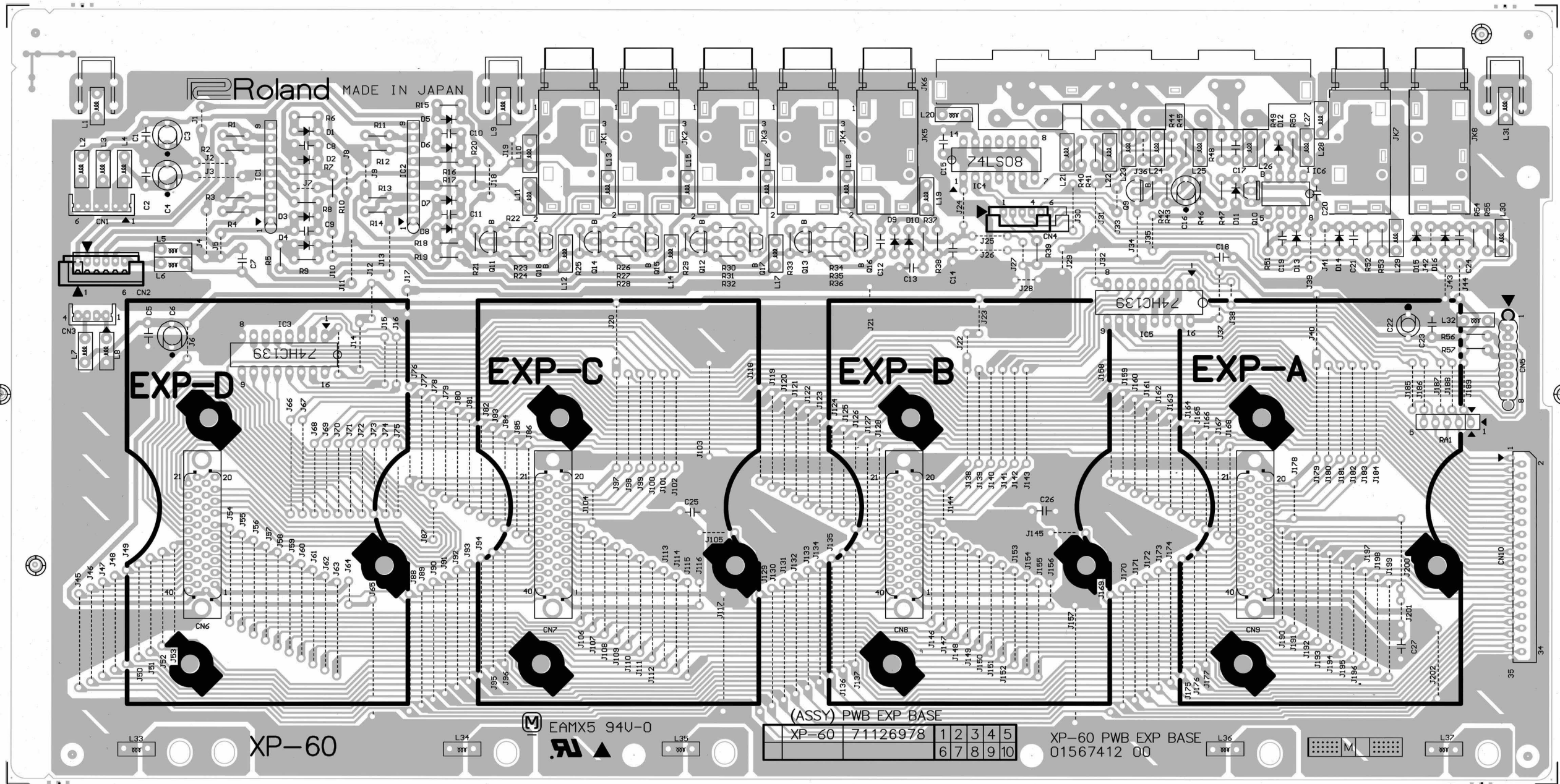
B  
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U  
V



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

# A CIRCUIT BOARD (EXP)

B  
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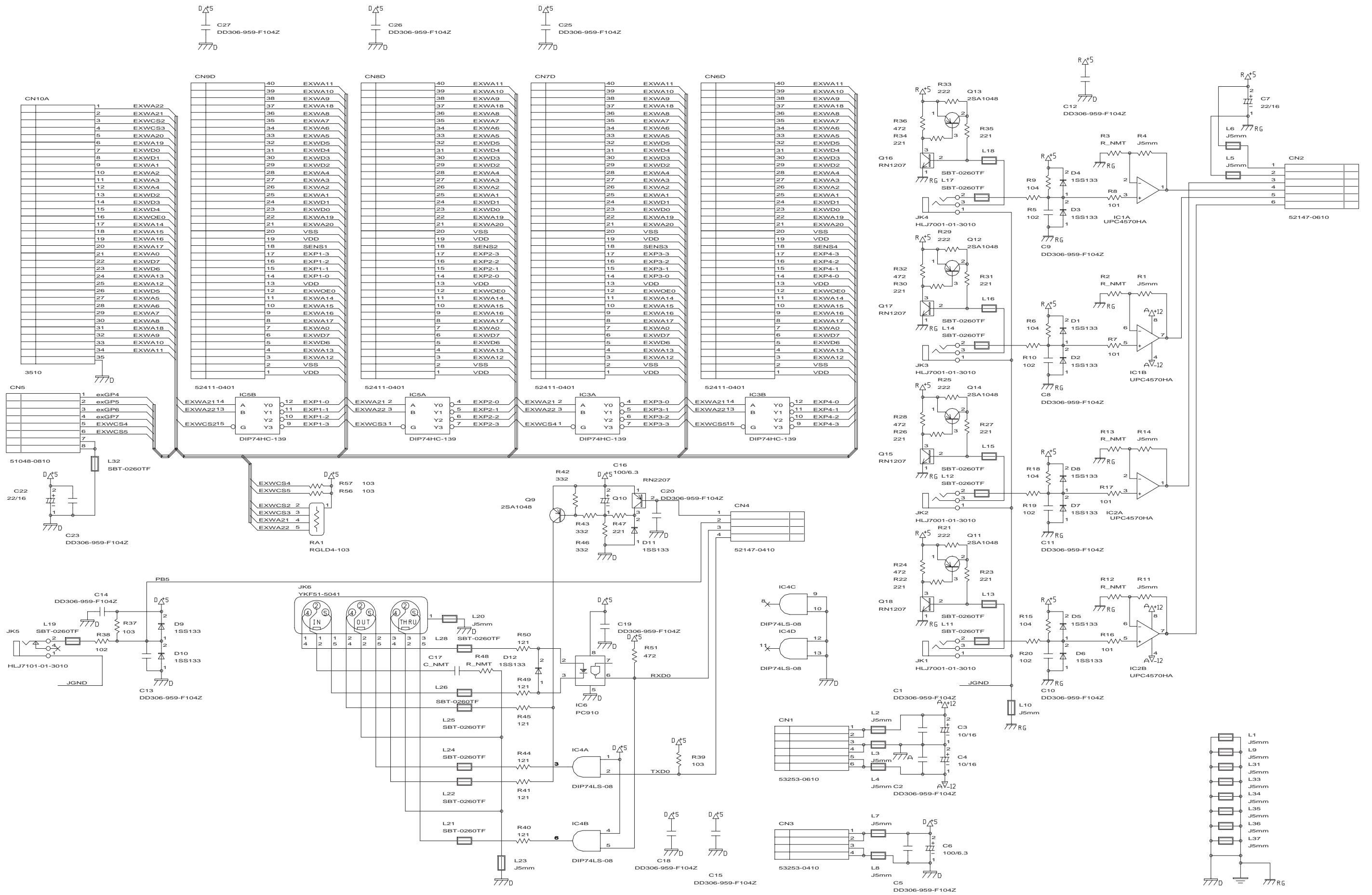


View from components side.

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 29 30 31 32 33 34 35 36 37 38 39 40

# A CIRCUIT DIAGRAM (EXP)

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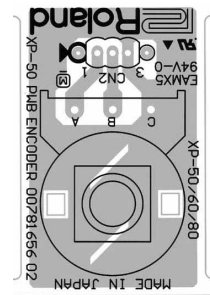
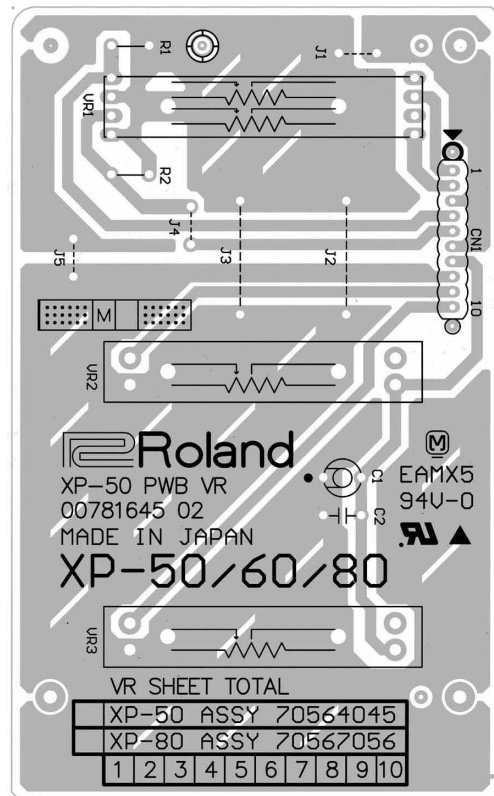


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

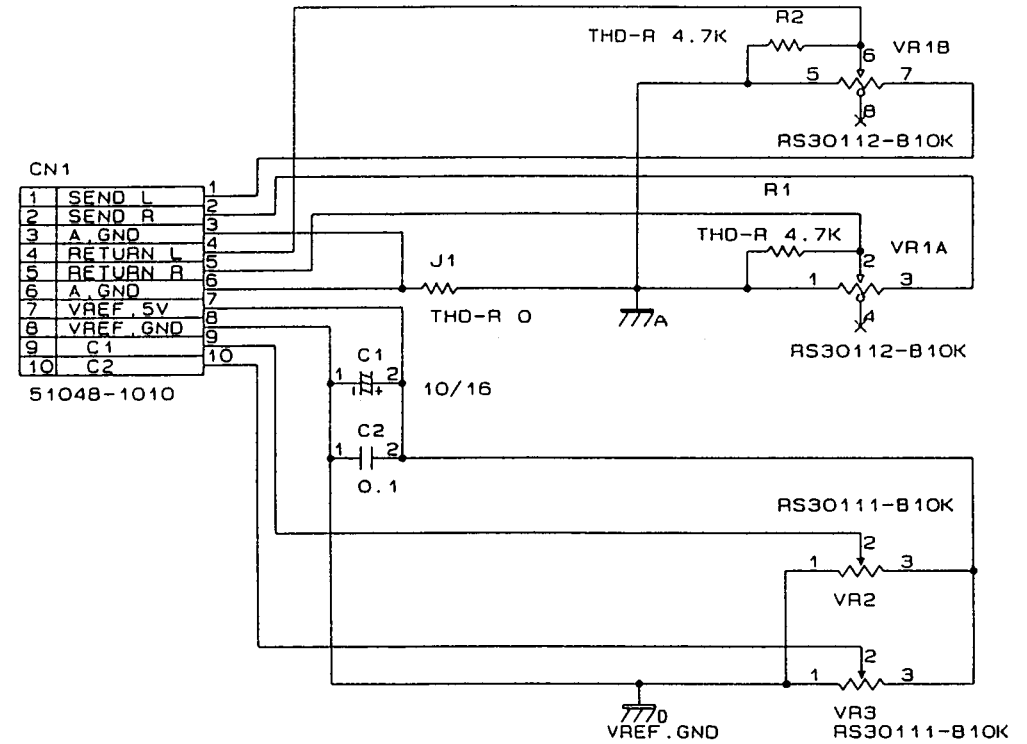
**A CIRCUIT BOARD (SIDE PANEL, ENCODER)**

**CIRCUIT DIAGRAM (SIDE PANEL, ENCODER)**

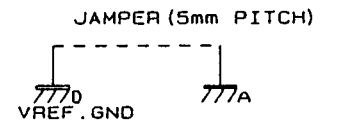
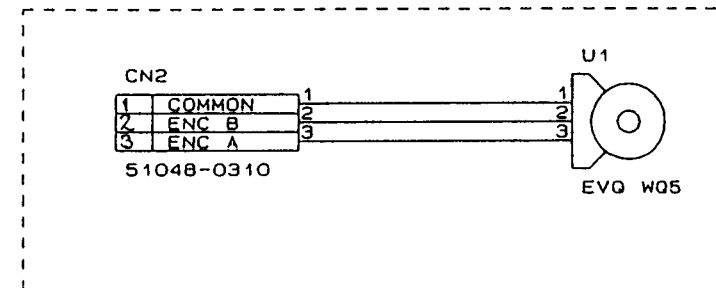
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View from components side.

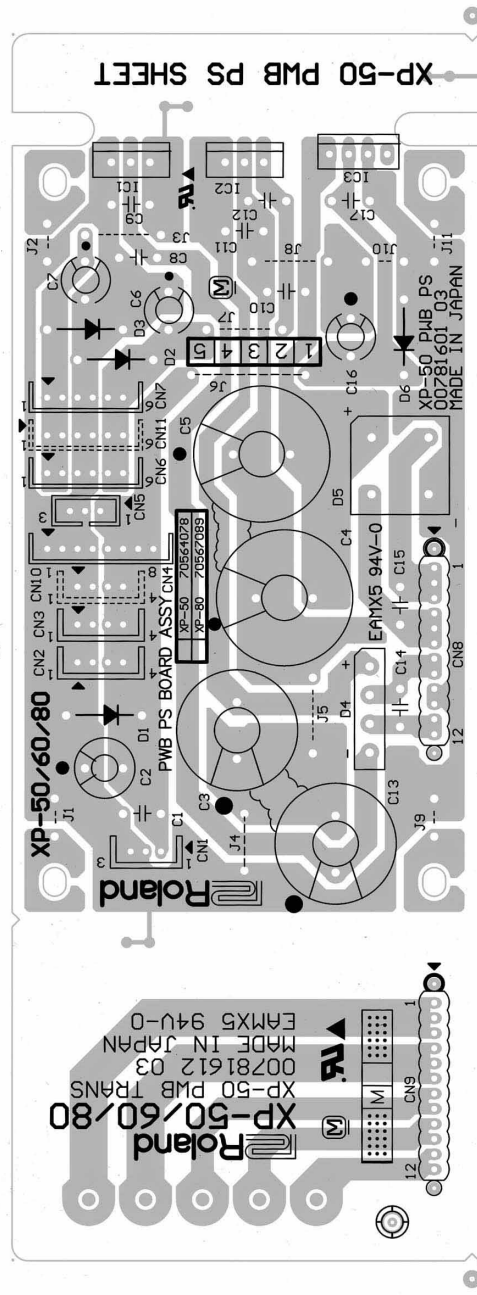


**ENCODER BOARD**



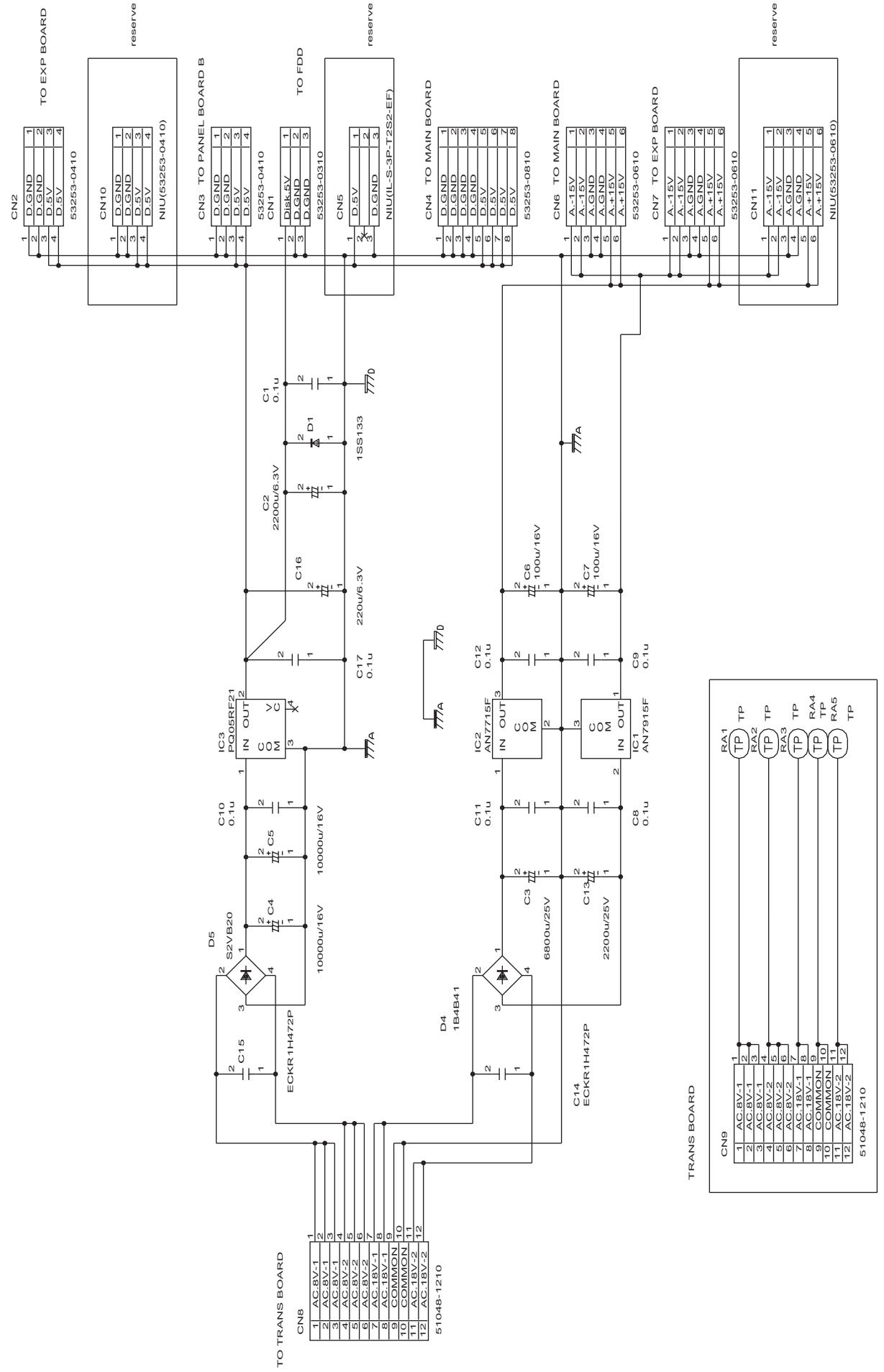
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

**A CIRCUIT BOARD (PS, TRANS)**



View from components side.

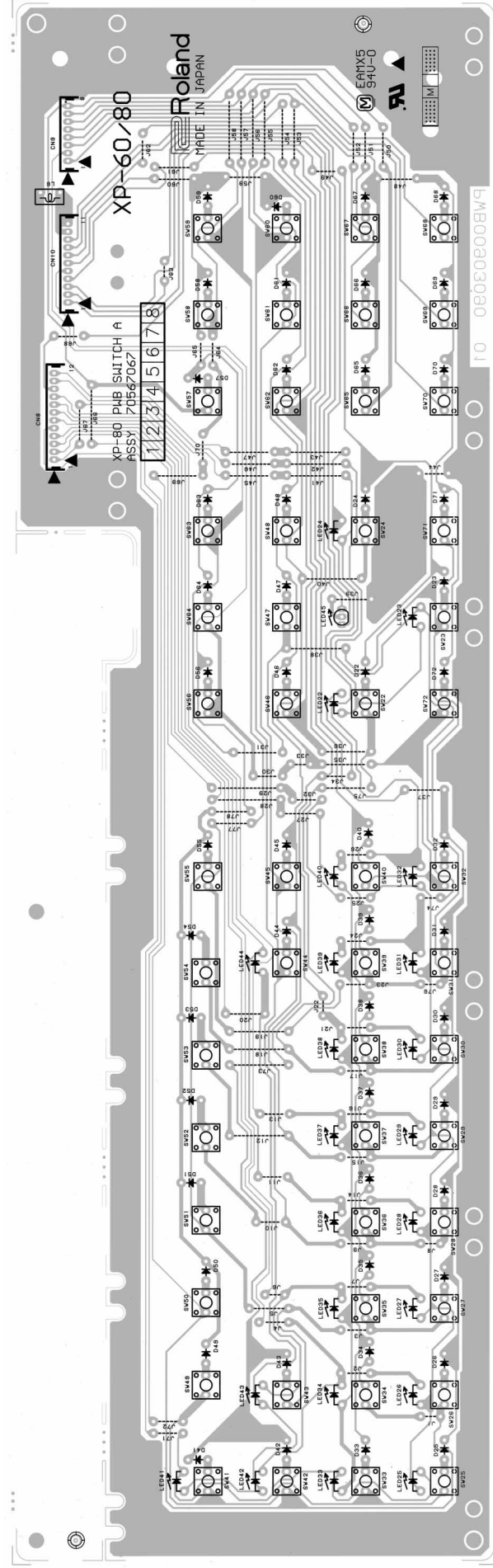
**CIRCUIT DIAGRAM (PS, TRANS)**



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

A CIRCUIT BOARD (SWITCH A)

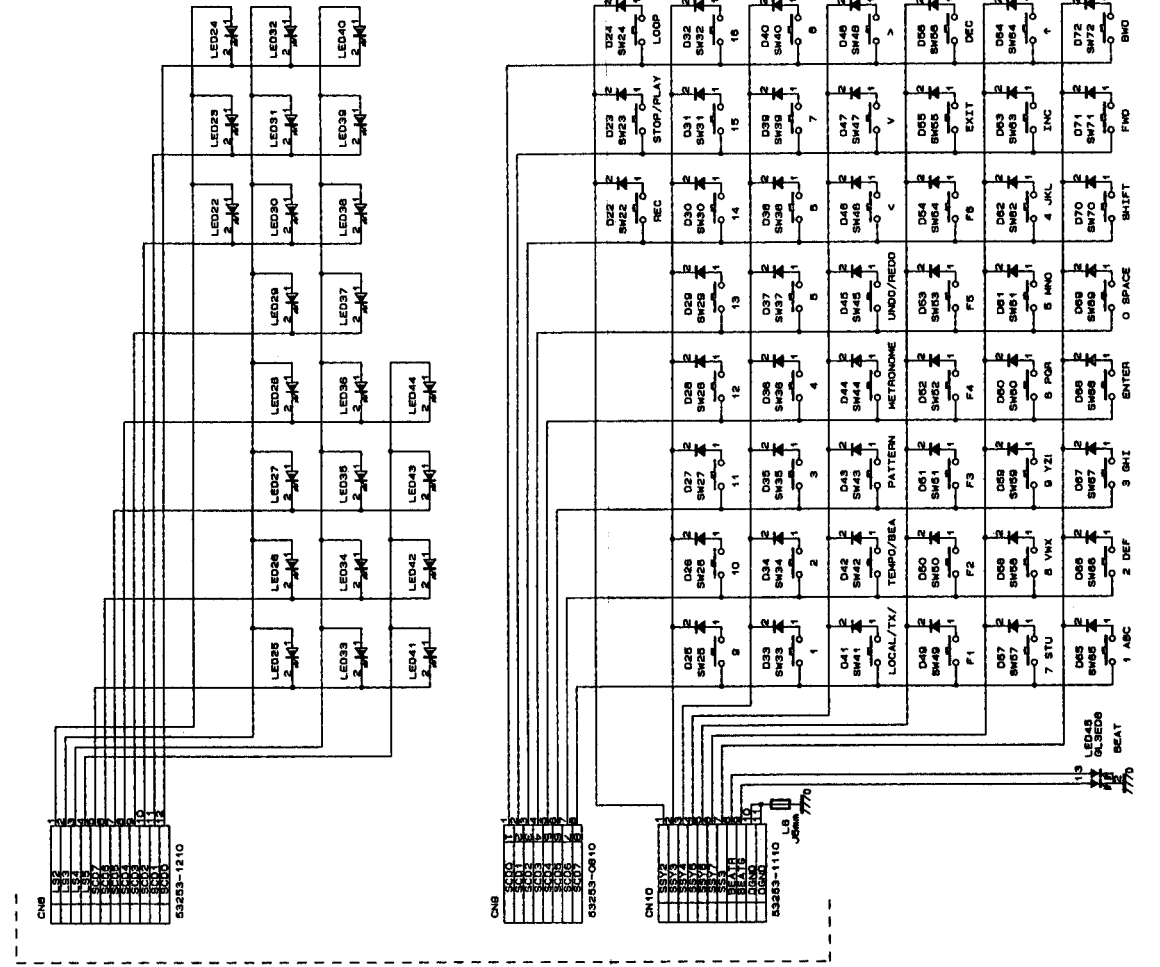
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View from components side.

CIRCUIT DIAGRAM (SWITCH A)

S1-SW and 24-LED on "SWITCH-A" Board



TO PANEL-B BOARD

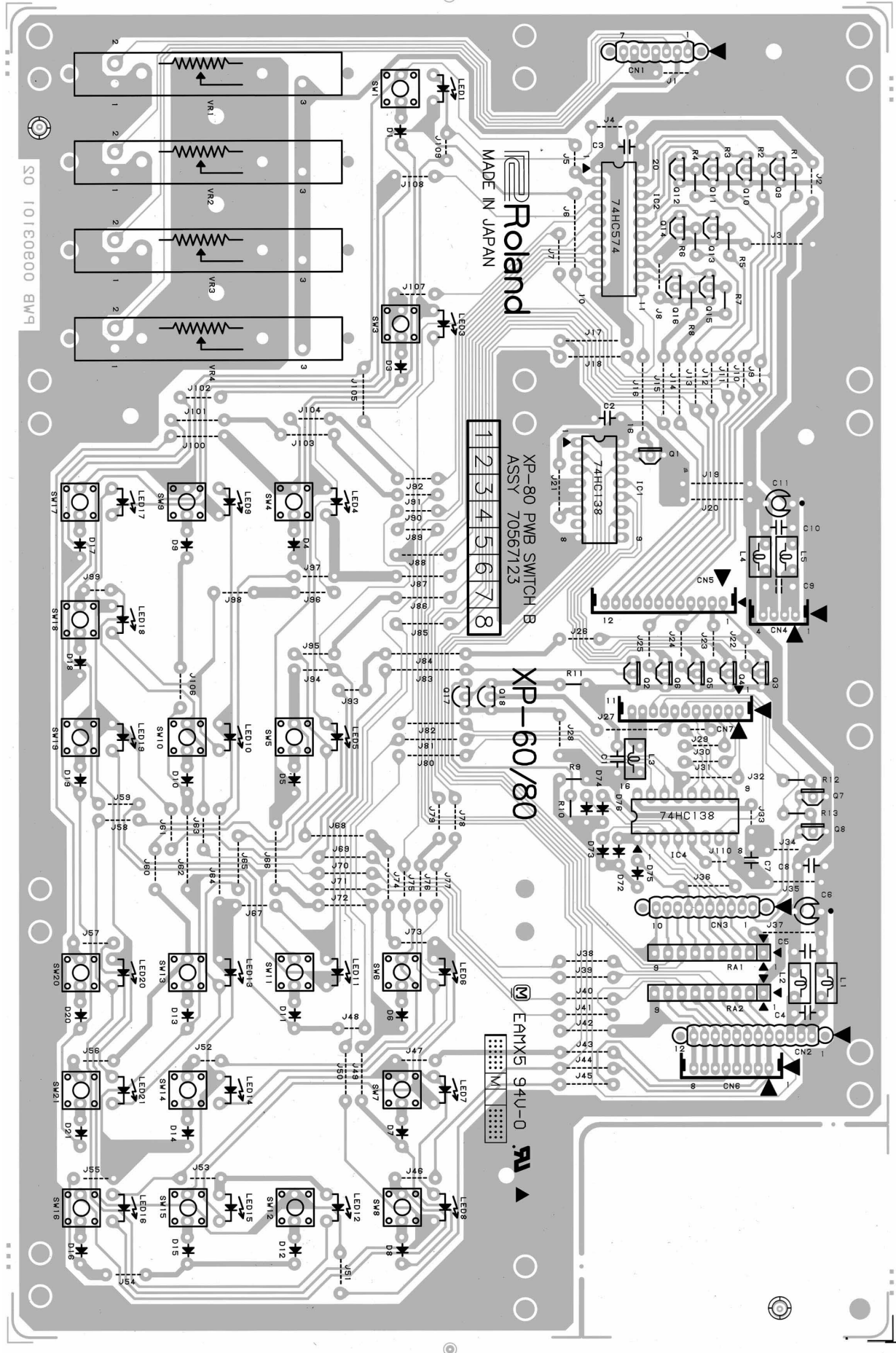
Tact Switch	Diode (Glass)	LED RED	LED GREEN	LED 45
EY021306 Panasonic Radial Taping	18133 Panasonic Radial Taping	LNJ301LPDJA Radial Taping	LNJ301MPDJA LED28 ONLY Radial Taping	6L3E08 2 COLOR

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

# A CIRCUIT BOARD (SWITCH B)

# CIRCUIT DIAGRAM (SWITCH B)

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U  
V



View from components side.

