

# RD-500 SERVICE NOTES

## DIGITAL PIANO

*First Edition*

### SPECIFICATIONS/仕様

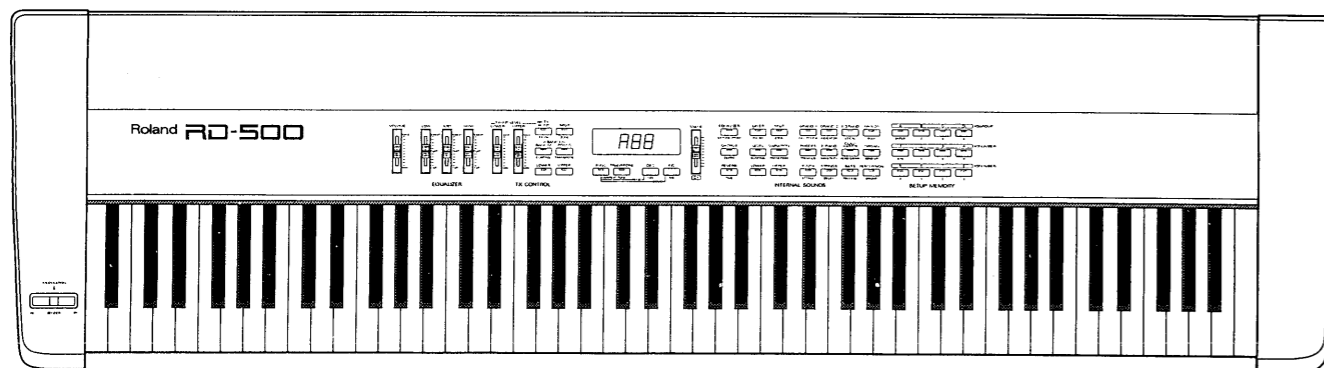
- ◎Keyboard/鍵盤.....: 88keys (Weighted-counterlever mechanism)/88鍵 (ハンマーアクション鍵盤)
- ◎Maximum Polyphony/最大同時発音数.....: 28voices/28音
- ◎Tone Groups/トーングループ.....: GRAND1, GRAND2, E.GRAND, MKS-20, RHODES, E.PIANO  
CLAV/HARPSI, ORGAN, SYNTH, STRINGS, BASS, PERCUSSION  
Total 121variations (including 1 rhythm set)/合計121音色 (1リズムセットを含む)
- ◎Setup Memory/セットアップ・メモリー.....: Preset: 1/プリセット: 1  
User: 31/ユーザー: 31
- ◎Effects/エフェクト.....: Chorus, Reverb, Equalizer/コーラス, リバーブ, イコライザー
- ◎Connectors/接続端子.....: Output Jacks (L (MONO)/R)/アウトプットジャック  
Fixed Output Jacks (L/R)/FIXEDアウトプットジャック  
Pedal Jacks (DAMPER/INT+TX, TX)/ペダルジャック  
MIDI Connector (IN, OUT, THRU)/MIDIコネクター  
Headphone Jack (Stereo)/ヘッドホン・ジャック
- ◎Power Supply/電源.....: AC100V, AC117V, AC230V or AC240V
- ◎Power Consumption/消費電力.....: 16W (AC100V, AC117V), 17W (AC230V, AC240V)
- ◎Dimensions/外形寸法.....: 1419 (W) x 391 (D) x 141 (H) mm/1419 (幅) x 391 (奥行) x 141 (高さ) mm  
55-7/8 (W) x 15-7/16 (D) x 5-9/16 (H) inches
- ◎Weight/重量.....: 25kg  
55lbs 2oz
- ◎Accessories/標準付属品.....: DP-6 Pedal Switch/DP-6 ペダルスイッチ  
Owner's Manual/取扱説明書  
Owner's Manual Set Domestic (Japanese) : Pno.70231890  
Owner's Manual Set Export (English) : Pno.70232023  
Power Cord/電源コード  
△ AC Cord Set 100V DC-531-J01 (100V) : Pno.13499228  
△ AC Cord Set 230V EC-511-E07 (230V) : Pno.13499221  
△ AC Cord Set 240VA SC-078-J02 (240VA) : Pno.13499222  
△ AC Cord Set 240VE PHE8-Z-VCTFK-BS-CHE-22 (240VE) : Pno.13499223

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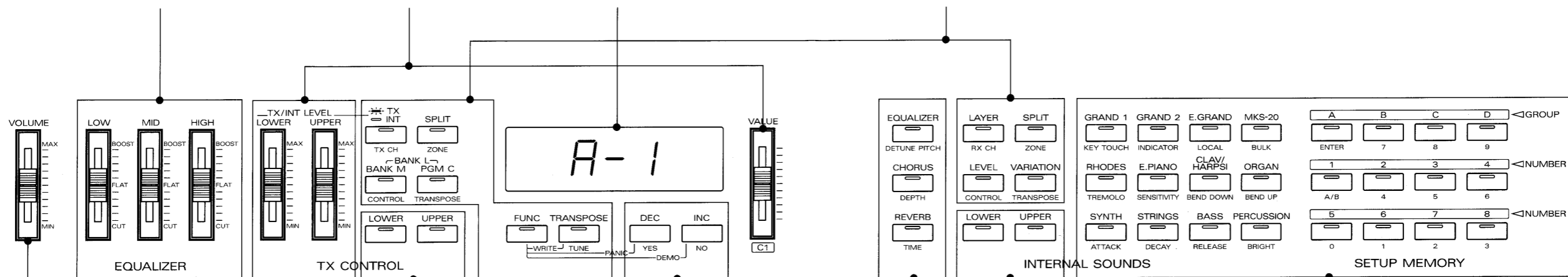
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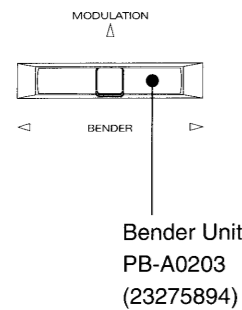
LOCATION OF CONTROLS/パネル配置図

- Slide VR RS30112CA (00239789)
- POT DUST COVER (00239323)
- DS-ESCT SX1H BLK (22225373)
- DS-KNOB S BLK/LCG (22485295)
- Slide VR RS30111 (13339484)
- POT DUST COVER (00239323)
- DS-ESCT SX1H BLK (22225373)
- DS-KNOB S BLK/LCG (22485295)
- DISPLAY COVER (00239301)
- MASK COVER (00239312)
- 7segment LED LB603VF (15029511)
- DS-Keytop MD2H BLK (22495278)
- TACT SW EVQ 213 05R (13169752)



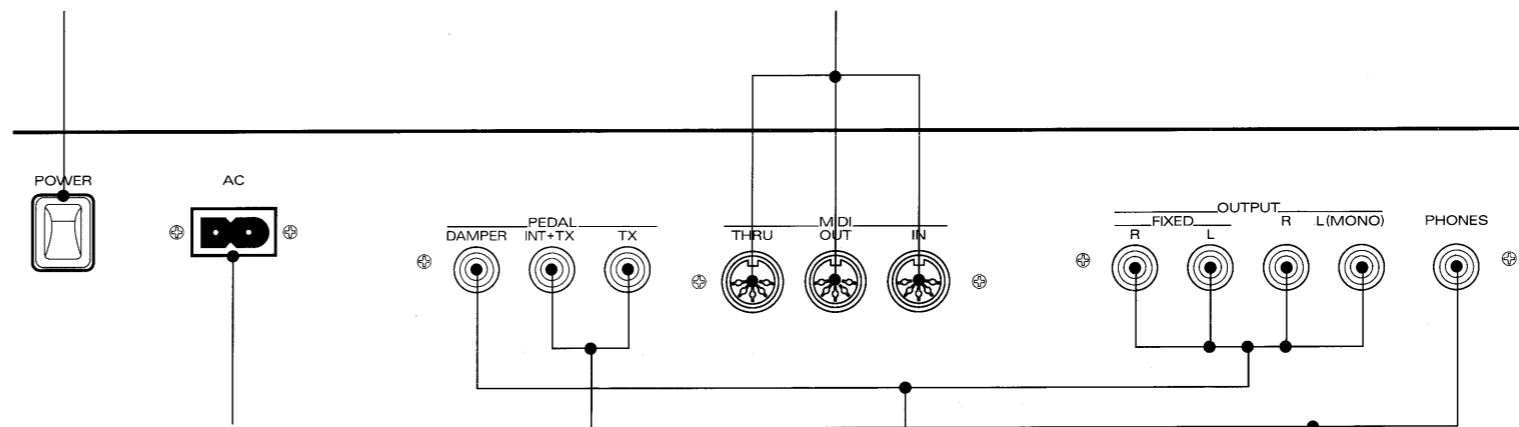
- Slide VR RS30112AD (00239790)
- POT DUST COVER (00239323)
- DS-ESCT SX1H BLK (22225373)
- DS-KNOB S BLK/LCG (22485295)

- DS-Keytop MD2H MCG (22495313)
- TACT SW EVQ 213 05R (13169752)
- DS-Keytop MX2H BLK (22495275)
- TACT SW EVQ 213 05R (13169752)
- DS-Keytop MD1H BLK (22495277)
- TACT SW EVQ 213 05R (13169752)
- DS-Keytop MD4H BLK (22495272)
- TACT SW EVQ 213 05R (13169752)



Bender Unit  
PB-A0203  
(23275894)

- △ AC SW EST206B 5A/125V (13149125)



- △ AC INLET INL-9 2.5A/250V 2P (23425743) except 117V use
- △ AC CORD 120V (00125489) 117V use only

- Jack 6.5Hi HLJ7101-01-3010 MONO (13449283)

- Jack 6.5Hi HLJ7001-01-3010 STEREO (13449284)

**EXPLODED VIEW/分解図**

**[PARTS]**

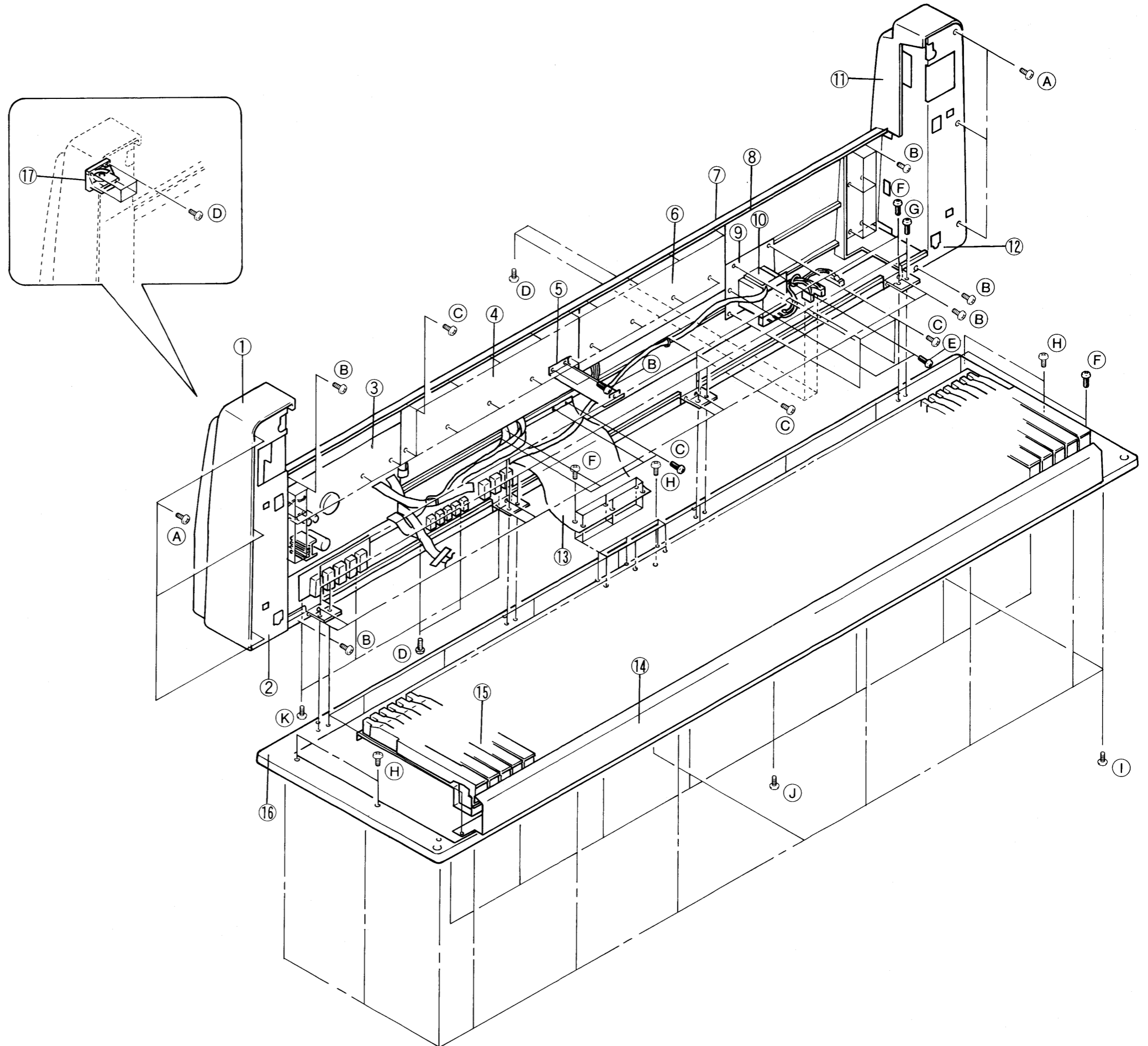
No.	PARTS No.	PARTS NAME
①	00239212	SIDE PANEL L
②	00239234	SIDE HOLDER L
③	70231990	MAIN BOARD ASSY
④	70232001	SWITCH-A BOARD ASSY
⑤	00239278	CENTER HOLDER
⑥	70231956	SWITCH-B BOARD ASSY
⑦	00239256	FRONT PANEL
⑧	00341778	KEY FELT
⑨	00239290	TRANS HOLDER
⑩	00344023	POWER TRANSFORMER 00344023
⑪	00239223	SIDE PANEL R
⑫	00239245	SIDE HOLDER R
⑬	00346689	SHIELD SHEET
⑭	00239267	BLIND
⑮	70232790	PA-488-E KBD ASSY
⑯	00239201	BOTTOM BOARD
⑰	23275894	BENDER UNIT PB-A0203

**[SCREW]**

Ⓐ	40012490	4x10mm Binding Head Tap-tight P type Fe BC
Ⓑ	40011112	3x10mm Binding Head Tap-tight B type Fe BC
Ⓒ	40011056	3x6mm Binding Head Tap-tight B type Fe Cm
Ⓓ	40011312	3x8mm Binding Head Tap-tight P type Fe BC
Ⓔ	40011123	4x8mm Binding Head Tap-tight B type Fe BC
Ⓕ	40012145	4x14mm Truss Head Tapping A1 Fe BC
Ⓖ	40128501	4x18mm Pan Head Double Sems Fe BC
Ⓗ	40128123	6x12mm Pan Head Tapping A1 Fe Cm
Ⓘ	40128512	4x25mm Pan Washer Head Tap-tight B type Fe BC
Ⓙ	40012034	4x18mm Truss Head Machine Fe BC
Ⓚ	40011501	3x8mm Pan Head Sems Fe BC

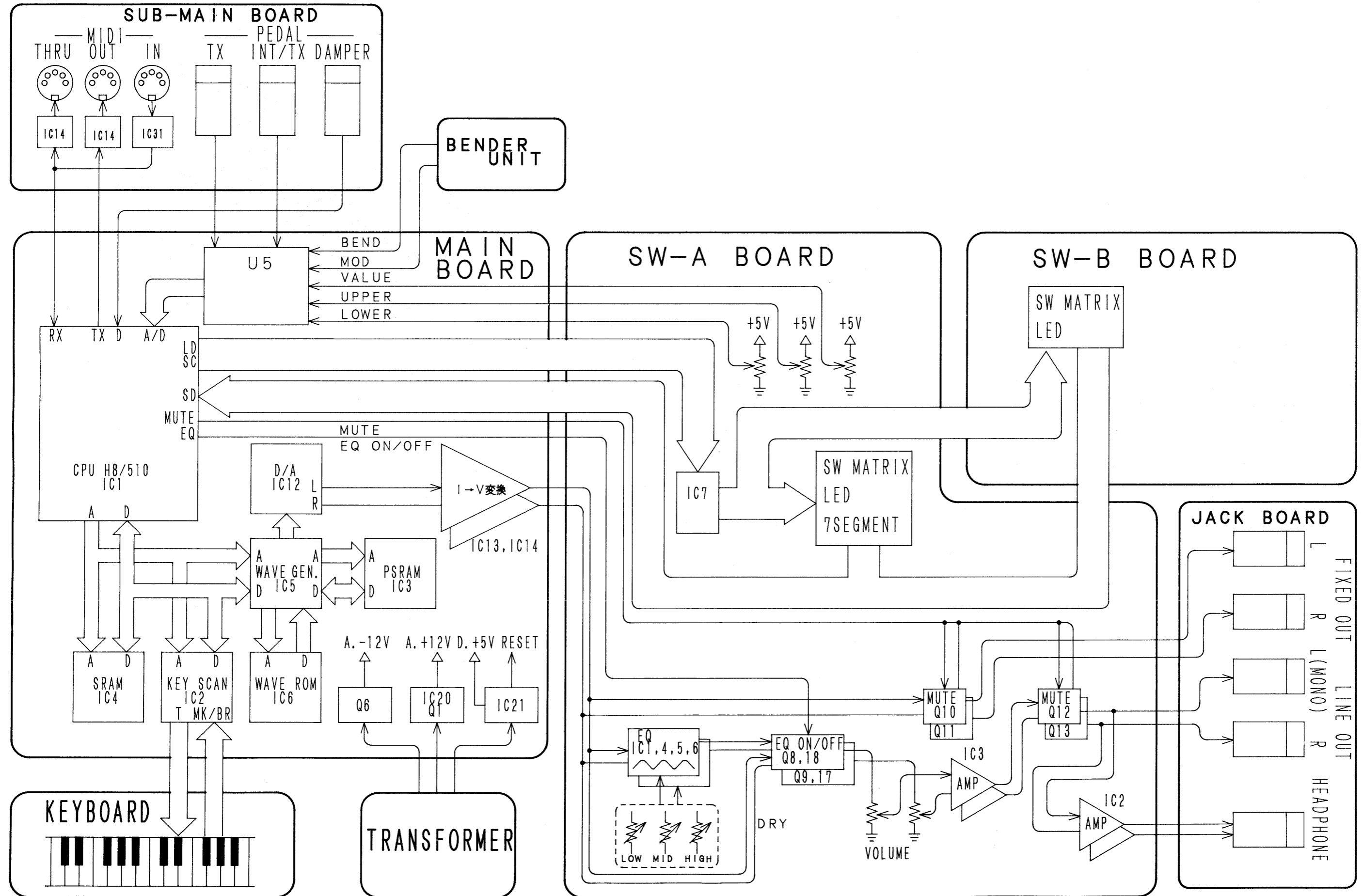
CAUTION: Please take great care when opening the unit: there is nothing to stop the top half of the instrument from falling all the way back.

注意：フロントパネルを開けるときは、パネルが後方へ倒れやすいので十分に注意して下さい。



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

A BLOCK DIAGRAM/ブロック図

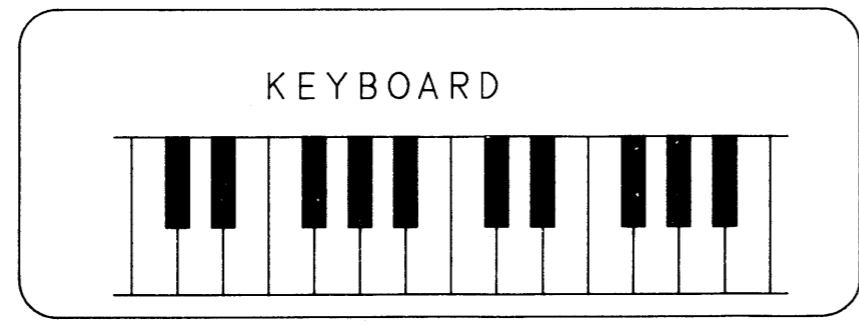
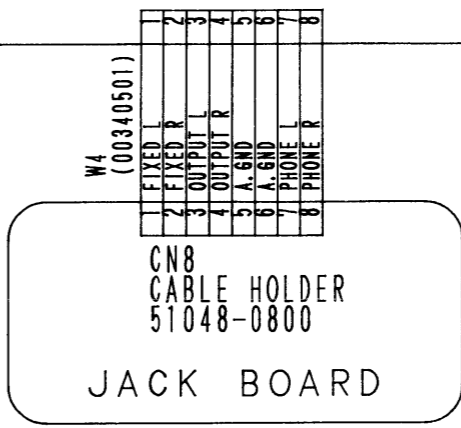
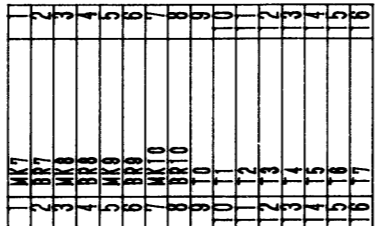
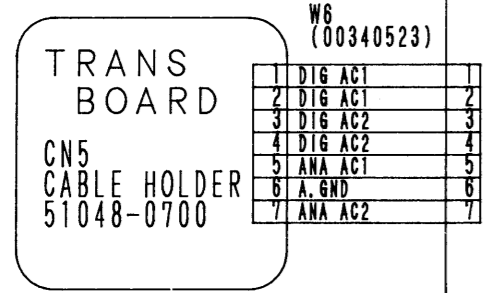
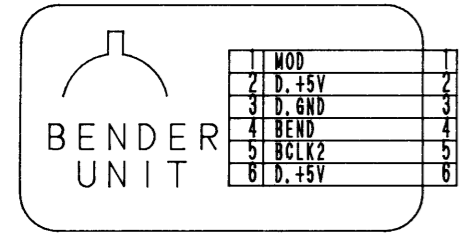
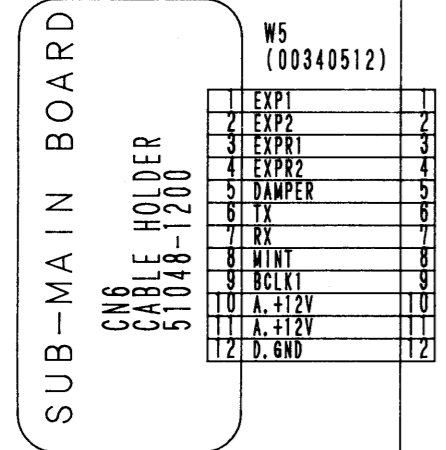
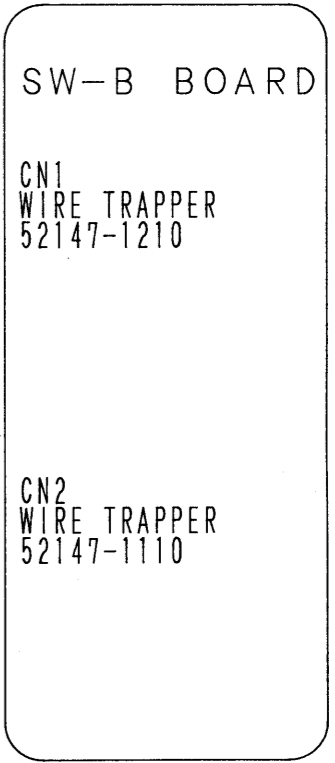
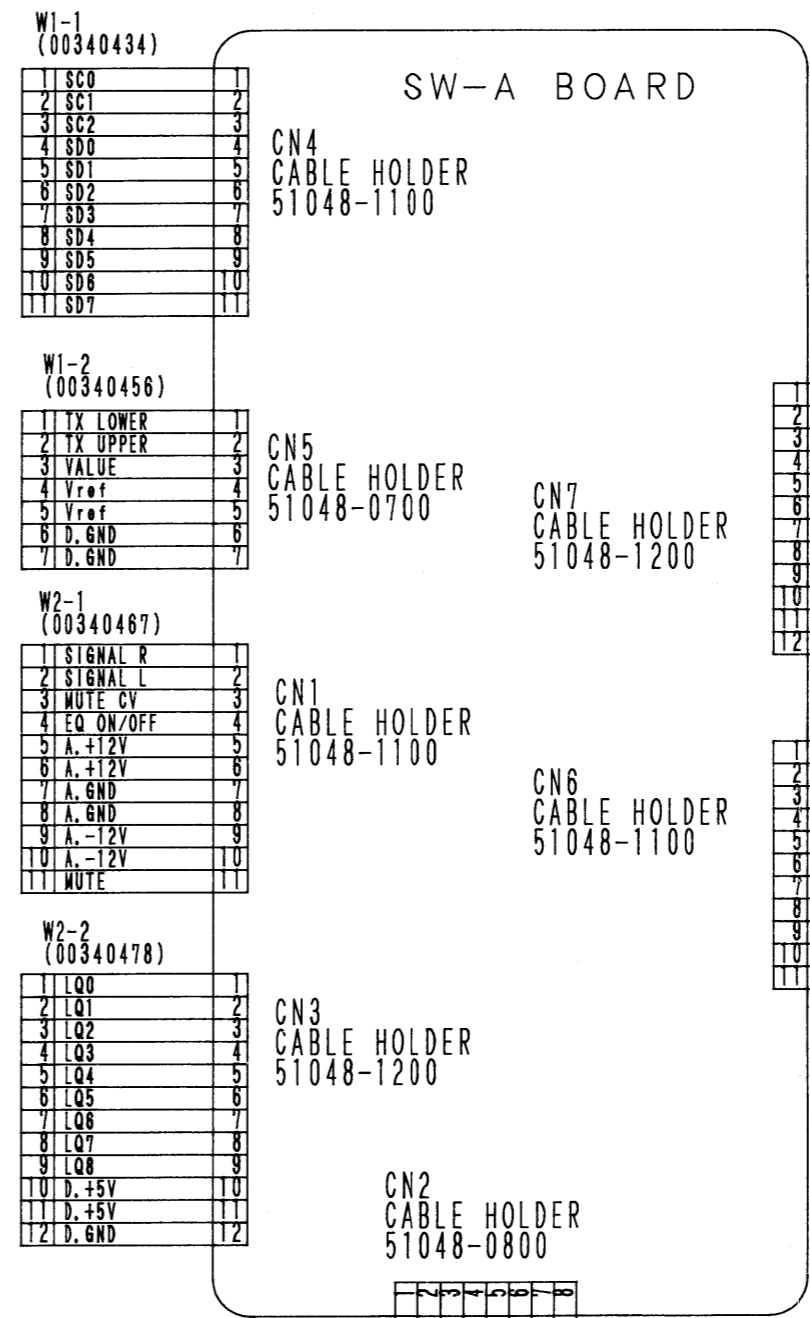
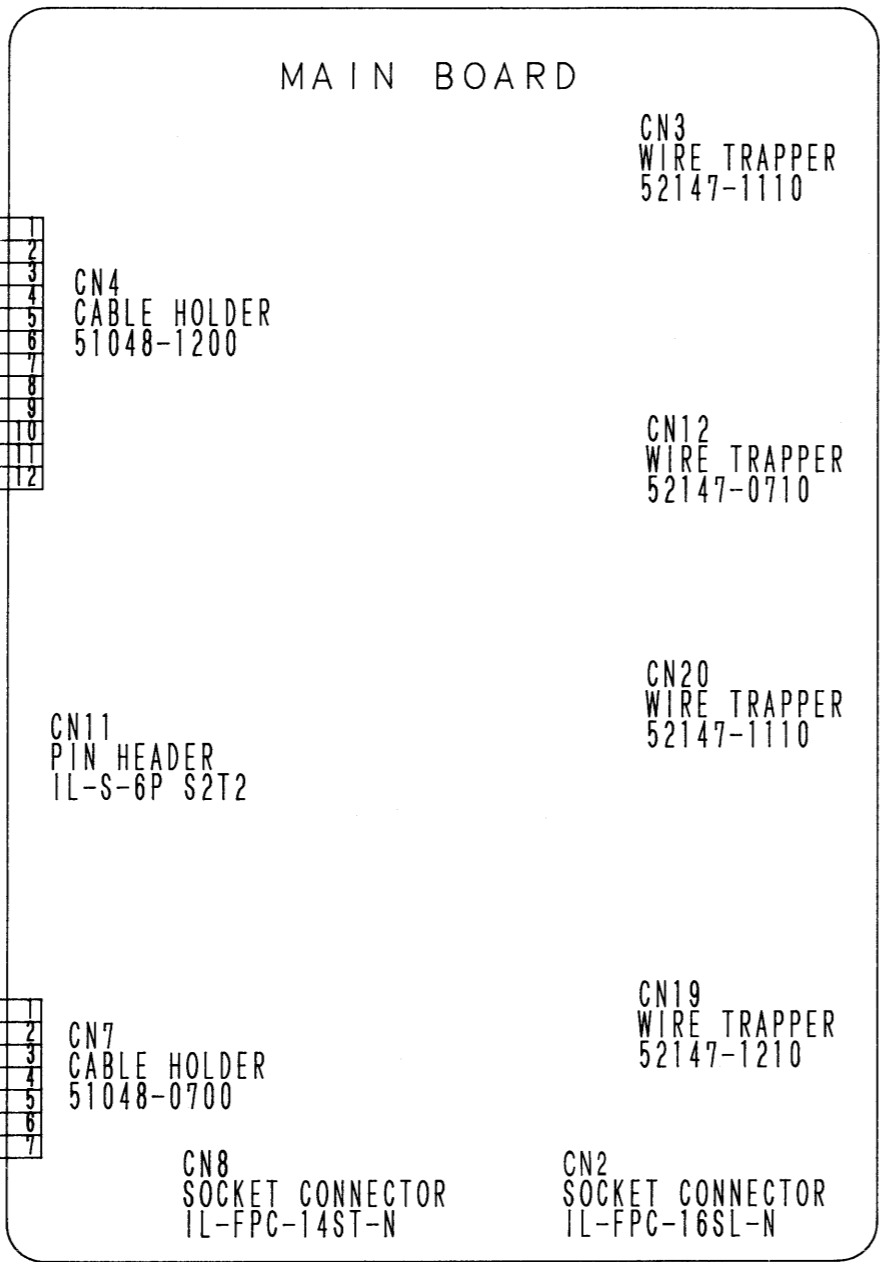


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WIRING DIAGRAM/ワイヤリング図



## PARTS LIST/パーツリスト

SAFETY PRECAUTIONS:	CONSIDERATIONS ON PARTS ORDERING
The parts marked $\Delta$ have safety-related characteristics. Use only listed parts for replacement.	When ordering any parts listed in the parts list, please specify the following items in the order sheet.
安全上の注意: $\Delta$ が付いている部品は、安全上特別な規格でつくられたものです。交換の際は、指定された部品番号以外の部品は使わないようにして下さい。	Ex. QTY PART NUMBER DESCRIPTION MODEL NUMBER 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.
	パーツ発注に関するお願い オーダーシートには、必ず下記の4項目は正確に記入して下さい。(例外は除く) 必要数 パーツナンバ 品名 使用機種 例) 10 22575241 Sharp Key C-20/50 15 2247017300 Knob (orange) DAC-15D もし記入漏れ、誤記等がある場合、必要部品が発送出来なかったり、大幅な遅れの原因になります。御協力をお願いします。

MB	MAIN BOARD	SAB	SWITCH-A BOARD	SBB	SWITCH-B BOARD
SMB	SUB-MAIN BOARD	TB	TRANS BOARD	JB	JACK BOARD

## CASING/ケース

00239256	FRONT PANEL
00239212	SIDE PANEL L
00239223	SIDE PANEL R
00239267	BLIND
00239201	BOTTOM BOARD
00239301	DISPLAY COVER
22225373	DS-ESCT SX1H BLK L=30
00341778	KEY FELT
00239289	HINGE

## CHASSIS/シャーシ

00239278	CENTER HOLDER		
00239234	SIDE HOLDER L		
00239245	SIDE HOLDER R		
00239290	TRANS HOLDER		
12199584	M1698	Grounding Terminal	SMB, JB

## KNOB, BUTTON/つまみ、ボタン

22495272	DS-KEYTOP MD4H BLK	GRAND1, GRAND2, E.GRAND, MKS-20, RHODES, E.PIANO CLAV/HARPSI, ORGAN, SYNTH, STRINGS, BASS, PERCUSSION A, B, C, D, 1, 2, 3, 4, 5, 6, 7, 8
22495275	DS-KEYTOP MX2H BLK	DEC, INC
22495277	DS-KEYTOP MD1H BLK	EQUALIZER, CHORUS, REVERB
22495278	DS-KEYTOP MD2H BLK	TX INT, SPLIT (TX CONTROL), BANK M, PGM C, LAYER SPLIT (INTERNAL SOUND), LEVEL, VARIATION
22495313	DS-KEYTOP MD2H MCG	LOWER, UPPER (TX CONTROL) LOWER, UPPER (INTERNAL SOUND)
22485295	DS-KNOB S BLK/LCG	VOLUME, LOW, MID, HIGH, LOWER, UPPER, VALUE

## SWITCH/スイッチ

$\Delta$ 13149125	EST206B 5A/125V	Power SW	
13169752	EVQ 213 05R	Tact SW	SAB, SBB

## JACK, SOCKET/ジャック、ソケット

13449284	HLJ7001-01-3010		JK2, 3 on SMB, JK5 on JB
13449283	HLJ7101-01-3010		JK5 on SMB, JK1, 2, 3, 4 on JB
13429274	YKF51-5041	for MIDI	JK1 on SMB
13429552	100-040-000	IC Socket	MB

## DISPLAY UNIT/表示ユニット

15029511	LB603VF	7segment LED	SAB
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## BENDER UNIT/ベンダーユニット

23275894	BENDER UNIT PB-A0203		
NOTE: Replacement BENDER UNIT should be made on a unit basis. No replacement available for individual parts. Replacement only by a unit.			
注: ベンダーユニットの交換は、ユニット単位で行って下さい。補修品はユニット単位。			

## KEYBOARD/鍵盤完成品

70232790	PA-488-E KBD ASSY		
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NOTE: See PA-488-E PARTS LIST for details.  
注: 詳細は、鍵盤パーツリストPA-488-Eを参照して下さい。

## PCB ASSY/基板完成品

$\square$ 70231990	MAIN BOARD ASSY (PWB 00340067) SUB MAIN BOARD (PWB 00340078) TRANS BOARD (PWB 00340089)		
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NOTE: Replacement MAIN BOARD ASSY includes SUB MAIN BOARD and TRANS BOARD. When exchanging a defective MAIN BOARD, exchange it together with SUB MAIN BOARD and TRANS BOARD because it has been connected (soldered) with SUB MAIN BOARD and TRANS BOARD via wirings.

注: 補修用のMAIN BOARD ASSYは、SUB MAIN BOARDとTRANS BOARDを含みます。MAIN BOARDにはSUB MAIN BOARDとTRANS BOARDがワイヤリングで接続(ハンダ付け)されているので、MAIN BOARDを交換するときはSUB MAIN BOARDとTRANS BOARDも同時に交換して下さい。不良MAIN BOARDをサービスセンターへ返却する時は、SUB MAIN BOARD, TRANS BOARDを切り離さないようにして下さい。

70232001	SWITCH-A BOARD ASSY (PWB 00239834) JACK BOARD (PWB 00239845)		
NOTE: Replacement SWITCH-A BOARD ASSY includes JACK BOARD. 注: 補修用のSWITCH-A BOARD ASSYは、JACK BOARDを含みます。			
70231956	SWITCH-B BOARD ASSY (PWB 00340189)		
<b>IC/集積回路</b>			
15169550T0	TC74HC138P	3-to-8-line Decoder/Demultiplexer	IC7 on SAB
15189190	M5216L	Dual Operational Amplifier	IC2 on SAB
15189189	UPC4570HA	Dual Operational Amplifier	IC1, 3, 4, 5, 6 on SAB
15199221	AN78M12F	+12V Voltage Regulator	IC22 on MB
00236067	AN79M12F	-12V Voltage Regulator	IC15 on MB
15199247	NJM78L05UA	+5V Voltage Regulator	IC25, 33 on MB, IC8 on SMB
15199263	SI-3050R	+5V Voltage Regulator	IC23 on MB
00232567	PCM69AU-1/T2	D/A Converter	IC9 on MB
15259111	BU4551BF T-2	Quad 2-input Analog Multiplexer/Demultiplexer	U5 on MB
15259883	TC7S00F (TE85L)	NAND Gate	IC27 on MB
15259884	TC7S08F (TE85L)	AND Gate	IC16 on MB
15249111	TC7WU04F (TE12L)	Hex Inverters	IC13, 17, 32 on MB
15289116	NJM2082M-TE3	Dual Operational Amplifier	U3, 4, 6 on MB
15289111	TL062CPS	Dual Operational Amplifier	U1 on MB
15289105	UPC4570G-T2	Dual Operational Amplifier	U7 on MB, U2 on SMB
15279531	LC36256AML-70-TLM	SRAM 256k 70nS	IC1, 2 on MB
15179389	HM65256BLSP-12	Pseudo SRAM 256k 120nS	IC12 on MB
15269214	SN74LS05NS	Hex Inverters	IC14 on MB
15259870T0	TC74HC4078F-T2	8-input OR/NOR Gate	IC28 on MB
15199776	HD6415108F10	CPU H8/510	IC18 on MB
15239229	TC6116AF	Custom Sound Generator (GP-4)	IC3 on MB
15239124	SSC1000	Key Scan Gate Array	IC11 on MB
00342978	M5M23160-519FP	MASK ROM	IC4 on MB
00343012	M5M23160-520FP	MASK ROM	IC5 on MB
00343023	M5M23160-521FP	MASK ROM	IC6 on MB
00343034	M5M23160-522FP	MASK ROM	IC7 on MB
00124267	HN27C4096HG-85	EP ROM (blank)	IC24 on MB
00451234	HN27C4096HG-85	EP-ROM (programmed)	IC24 on MB

## TRANSISTOR/トランジスター

$\Delta$ 15129151	2SC1815GR	SAB
15129152	2SC2878-A	SAB
15129198	DTA124ES	SBB
15119141	DTA114ES	SAB
15129168	DTC124ES	SAB
15119163	RN2227	SAB, SBB
15309101	2SA1037KR	MB
15319101	2SC2412KR	MB
15329503	DTA124EK	MB
15329510D0	DTC144EK	MB

## DIODE/ダイオード

15019126	1SS133		SAB, SBB
$\Delta$ 15019288	DBA40C 2.6A/200V	Bridge	MB
15019245	1B4B41	Bridge	MB
15019281	1SR35100A		MB
15339114	RB420D		MB
15339142	RB705D		MB
15339108	DA204K		MB

## RESISTOR/抵抗

13919162M0	RGLD 4x104J	Resistor Array	SAB
13919142	RGLD 8x104J	Resistor Array	SAB

## POTENTIOMETER/可変抵抗

00239789	RS30112CA 10KBx2	LOW, MID, HIGH	SAB
00239790	RS30112AD 10KBx2	VOLUME	SAB
13339484	RS30111 10KB	LOWER, UPPER, VALUE	SAB

## CAPACITOR/コンデンサー

13639157S0	16MV4700HW		MB
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## INDUCTOR, COIL, FILTER/インダクター、コイル、フィルター

12449355	FBR07HA850TB00		MB, BSAB, SBB
12449323	ESD-R-25SD	Data Line Filter	

## CRYSTAL, RESONATOR/クリスタル、発振子

15299132	X'TAL MA506 20.000MHZ		MB
15299143	X'TAL MA506 23.200MHZ		MB

## OPTICAL DEVICE/光関連部品

00019523	SEL6410E	LED (Green)	SAB, SBB
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15039245	SEL6210S	LED (Red)	SAB, SBB
15289125	PC410T	Photo Coupler	MB

## CONNECTOR/コネクタ

----Cable Holder----			
13429296	51048-0700	7pin	CN7 on MB, CN5 on SAB, CN5 on TB
13429297	51048-0800	8pin	CN2 on SAB, CN 8 on JB
13429300	51048-1100	11pin	CN1, 4, 6 on SAB
13429301	51048-1200	12pin	CN4 on MB, CN6 on SMB, CN3, 7 on SAB

## Wire Trapper----

13369602	52147-0710	7pin	CN12 on MB
13369606	52147-1110	11pin	CN3, 20 on MB, CN2 on SBB
13369607	52147-1210	12pin	CN19 on MB, CN1 on SBB

## Pin Header----

13369524	IL-S-6P-S2T2-EF-K35		CN11 on MB
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## Socket Connector----

13379151	IL-FPC-14ST-N		CN8 on MB
13379157	IL-FPC-16SL-N		CN2 on MB

## WIRING, CABLE/ワイヤリング、ケーブル

## Ribbon Cable----

00340434	W1-1	CN3 on MB <-> CN4 on SAB
00340456	W1-2	CN12 on MB <-> CN5 on SAB
00340467	W2-1	CN20 on MB <-> CN1 on SAB
00340478	W2-2	CN19 on MB <-> CN3 on SAB
00340489	W3-1	CN1 on SBB <-> CN7 on SAB
00340490	W3-2	CN2 on SBB <-> CN6 on SAB
00340501	W4	CN2 on SAB <-> CN8 on JB
00340512	W5	CN4 on MB <-> CN6 on SMB
00340523	W6	CN7 on MB <-> CN5 on TB

## Other----

23505778	JV-1000 WIRING W9-1		
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## TRANSFORMER/トランス

$\Delta$ 00344023	POWER TRANSFORMER 00344023		
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## AC CORD (Installed)/ACコード (据え付け式)

$\Delta$ 00125489	AC CORD 120V (117V use only)		
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NOTE: For other voltage versions, refer to the section of ACCESSORIES for AC CORD (detachable).  
注: 117V以外については、ACCESSORIESの項目を参照して下さい。

## AC INLET/ACインレット

$\Delta$ 23425743	AC INLET INL-9 2.5A/250V 2P	(except 117V use)	
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## BATTERY/電池

$\Delta$ 00238990	LITHIUM BATTERY CR2032 210mAh/3V		
00238956	CR2032BH	Battery Holder	MB

## SCREW/ねじ類

40011312	3x8mm Binding Head Tap-tight P type Fe BC		
40012490	4x10mm Binding Head Tap-tight P type Fe BC		
40011056	3x6mm Binding Head Tap-tight B type Fe Cm		
40011112	3x10mm Binding Head Tap-tight B type Fe BC		
40011123	4x8mm Binding Head Tap-tight B type Fe BC		
40128512	4x25mm Pan Washer Head Tap-tight B type Fe BC		
40128123	6x12mm Pan Head Tapping A1 Fe Cm		
40012145	4x14mm Truss Head Tapping A1 Fe BC		
40012034	4x18mm Truss Head Machine Fe BC		
40011501	3x8mm Pan Head Sems Fe BC		
40128501	4x18mm Pan Head Double Sems Fe BC		
22165173	PA-4 Stop Screw		

## MISCELLANEOUS/その他

00239323	POT DUST COVER		
00239312	MASK COVER		
00346689	SHIELD SHEET		
40017378	COATING CLIP CS-7		
12469230	HP-1500 HEATSINK		MB
00239178	PAD L		
00239189	PAD R		
00239156	PACKING CASE		

## ACCESSORIES/付属品

70231890	OWNER'S MANUAL SET DOMESTIC (JAPANESE)		
70232023	OWNER'S MANUAL SET EXPORT (ENGLISH)		
$\Delta$ 13499228	AC CORD SET 100V DC-531-J01 (100V)		
$\Delta$ 13499221	AC CORD SET 230V EC-511-E07 (230V)		
$\Delta$ 13499222	AC CORD SET 240VA SC-078-J02 (240V A)		
$\Delta$ 13499223	AC CORD SET 240VE PHE8-Z-VCTFK-BS-CHE22 (240V E)		
*****	DP-6 PEDAL BK		

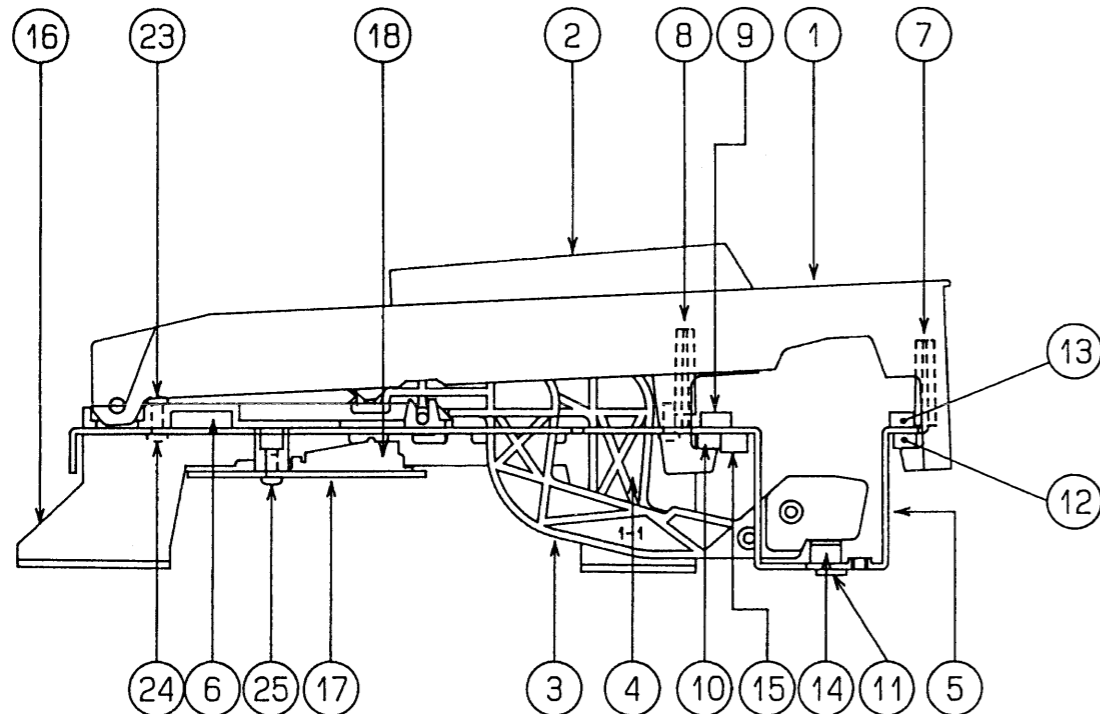
## OPTION/別売品

*****	RH-80/120	Stereo Headphone	
*****	EV-5	Expression Pedal	

**KEYBOARD PARTS LIST/鍵盤パーツリスト**

PA-488-E (88keys)  
ASS'Y 70232790

NO.	PART NO.	PART NAME	
1	32575292	PA-4 N-KEY A	
	32575293	PA-4 N-KEY B	
	32575294	PA-4 N-KEY C	
	32575295	PA-4 N-KEY D	
	32575296	PA-4 N-KEY E	
	32575297	PA-4 N-KEY F	
	32575298	PA-4 N-KEY G	
	32575299	PA-4 N-KEY A'	
32575300	PA-4 N-KEY C'		
2	32575291	PA-4 S-KEY	
3	22565454	PA-4 W-KEY HAMMER	256-454
4	22565455	PA-4 B-KEY HAMMER	256-455
5	22815692	PA-4 CHASSIS 88P	
6	22565450	PA-4 SUB CHASSIS A	256-450
	22565451	PA-4 SUB CHASSIS B	256-451
7	22155784	PA-4 GUIDE BUSING A	
8	00019912	PA-4 GUIDE BUSING S-KEY	PA-4
9	22265499	PA-4 CUSHION B	CHASSIS 88P-B ASSY
10	22265539	PA-4 CUSHION D	22815880
11	22265585	PA-4 CUSHION H	
12	22265565	PA-4 CUSHION F	
13	22265536	PA-4 CUSHION C	
14	22265501	PA-4 CUSHION 88K L OROTEX (Yellow)	
15	22265500	PA-4 CUSHION 88K U OROTEX (Blue)	
16	22125820	PA-4 STAND D	
17	7626522000	PA-488-A PCB 24P LOW ASS'Y	
	7628722000	PA-488-D PCB 32P MID ASS'Y	
	7628723000	PA-488-D PCB 32P HI ASS'Y	
18	22185247	PA-4 RUBBER SWITCH 12P	
19	23475965	FUJI CARD 14 x 70-A5, OBB-P1, 25-H8	
20	23475342	FUJI CARD 8 x 60-A5, OBB-P1, 25-H8	
21	00344012	FUJI CARD 16 x 730-A6, OBBR-P1, 25-HBL10	
22	00344034	FUJI CARD 14 x 710-A6, OBBR-P1, 25-HBL10	
23	40012256	TAP TITE SCREWS B TITE 3 x 8 BINDING HEAD ☆	
24	40011067	TAP TITE SCREWS B TITE 3 x 10 BINDING HEAD ☆	
25	40011267	TAP TITE SCREWS P TITE 3 x 6 ☆	



**KEYBOARD DISASSEMBLY/鍵盤分解手順**

**PA-4: Installing the key**

Locate the key as shown in Fig. 1 and push the dotted area in the direction of arrow A.

**PA-4 Keyの取り付け方**

・Keyを図1のように置き、点線部分を矢印Aの方向に押す。

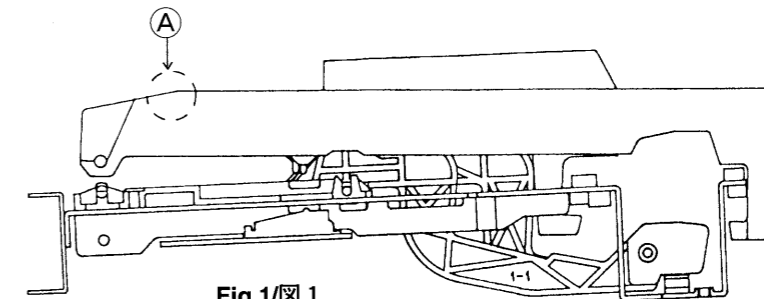


Fig.1/図1

**PA-4: Removing the Key**

Hold down the end of the key and insert long-nose pliers into the hatched U-groove in the shaft and push it in the direction of arrow A along the key base below.

**PA-4 Keyの取り外し方**

・鍵の先端を押さえながら、軸部側のU字溝斜線部にラジオペンチを差し込み、下のKey Baseに沿わせるように、矢印Aの方向へ押し込む。

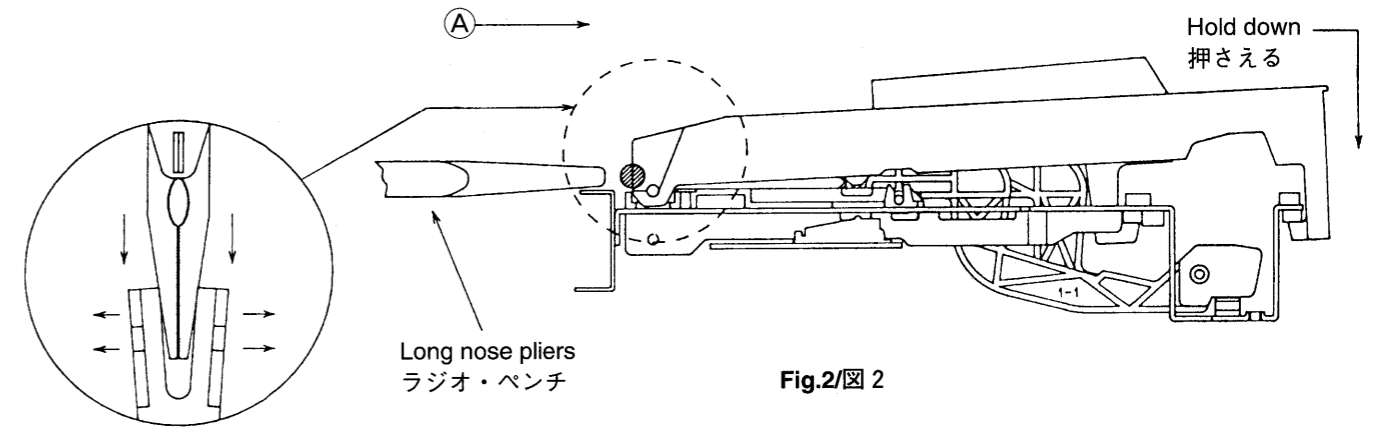


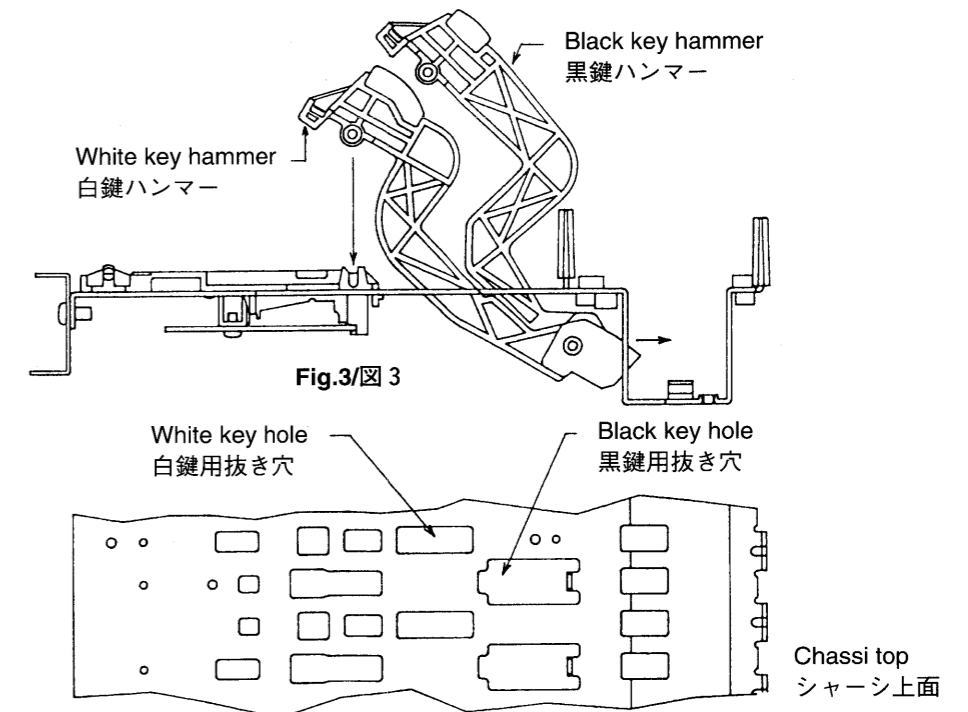
Fig.2/図2

**PA-4: Installing the Hammers**

As shown in Fig.1, pass the hammers into respective holes in the chassis and fit them into the U-grooves in the key base.

**PA-4ハンマーの取り付け方**

・図3のように、ハンマーをそれぞれのシャーシ抜き穴に通して、Key Base U溝に落とし込む。

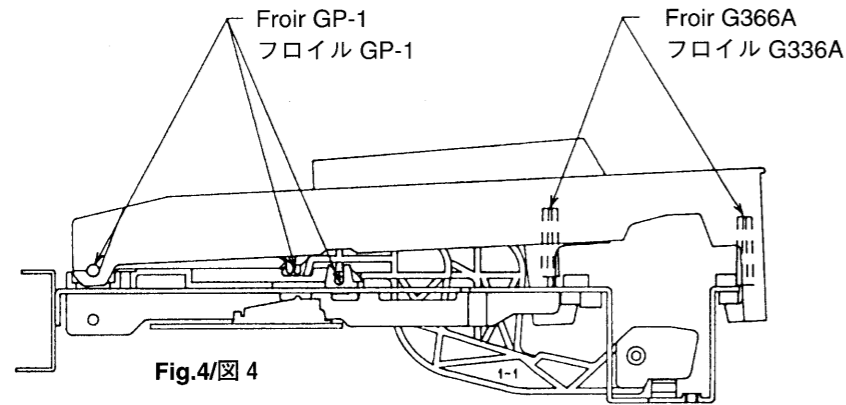


**PA-4: Greasing Points**

After the keys and hammers have been changed, the predetermined grease must be applied to the points indicated in Fig. 4.

**PA-4グリス塗布箇所**

・鍵、ハンマーを交換した際には、必ず図4に示す箇所に所定のグリスを塗布すること。

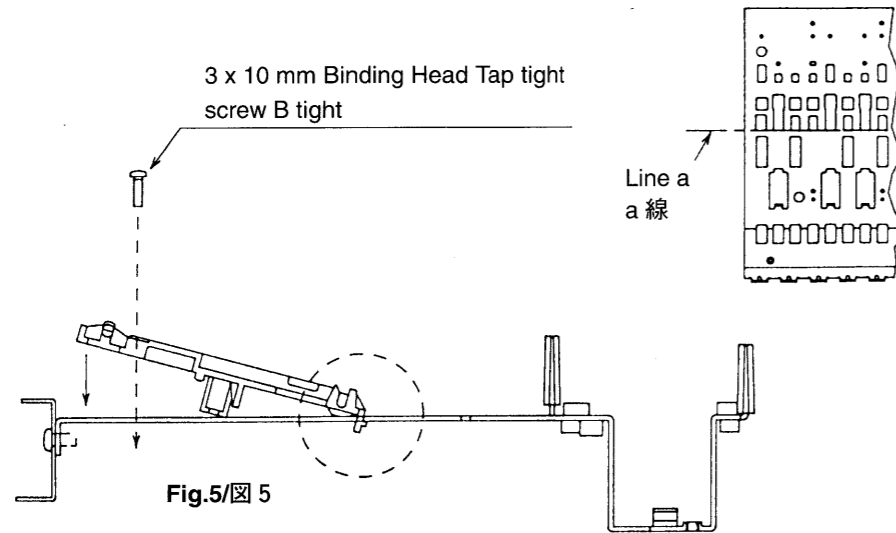


**PA-4: Installing the Key Base**

As shown in Fig. 5, press the key base on line a of the holes in the chassis and tighten it with screws.

**PA-4 KEY BASEの取り付け方**

・図5のようにKey Baseをシャーシ抜き穴のa線に突き当て、ネジ止めをする。



**PA-4: Installing the Board**

As shown in Fig. 6, press the board against hook b of the key base and tighten it with screws. \*For the rubber contact layout, see the separate drawing.

Tighten the screws in order, starting from the round hole (positioning hole).

Where possible, tighten the screws by hand.

(Note that the screws are easily damaged.)

When an electric screwdriver is used, tighten the screws to 1 or less torque.

**PA-4基板の取り付け方**

・図6のように、基板をKey Baseフック部bに突き当て、ネジ止めをする。\*ゴム接点配置は、別紙図面参照のこと。  
 ・ネジ止めは、丸穴（位置決め穴）から順に止めること。  
 ・ネジ止めをする際は、なるべく手で締め付けること。（ねじバカになりやすいので、注意すること）  
 ・電気ドライバーを使用の際は、トルク目盛り1以下で締め付けること。

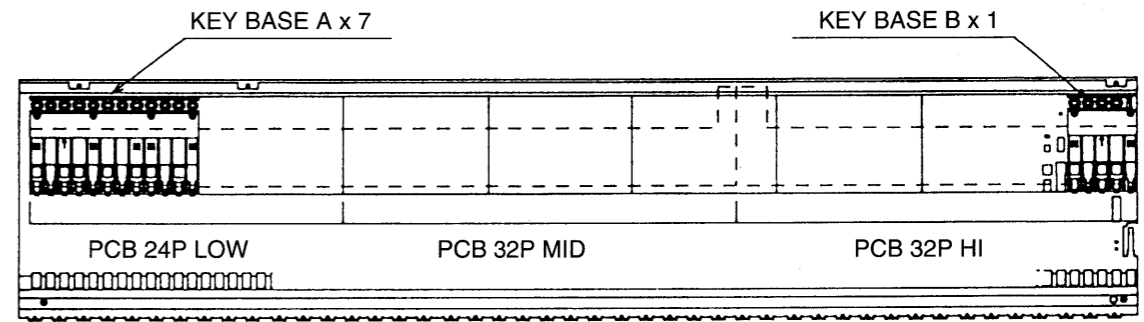
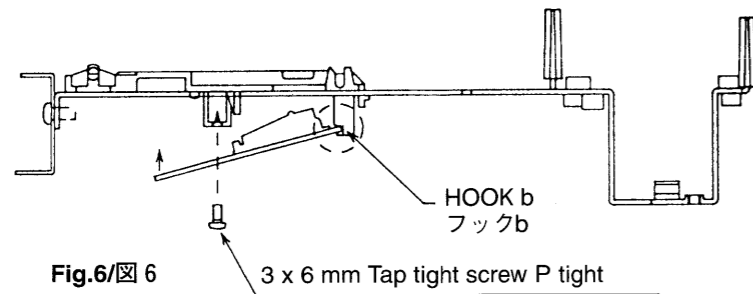


Fig.7/図7

**PA-4: Installing the Card**

When the board relay card has been removed, assemble it to the body after folding it as shown Fig.8.

**PA-4 カード取り付け方**

・基板中継カードを取り外した場合は、図8のように折り曲げてから、本体に組込むこと。

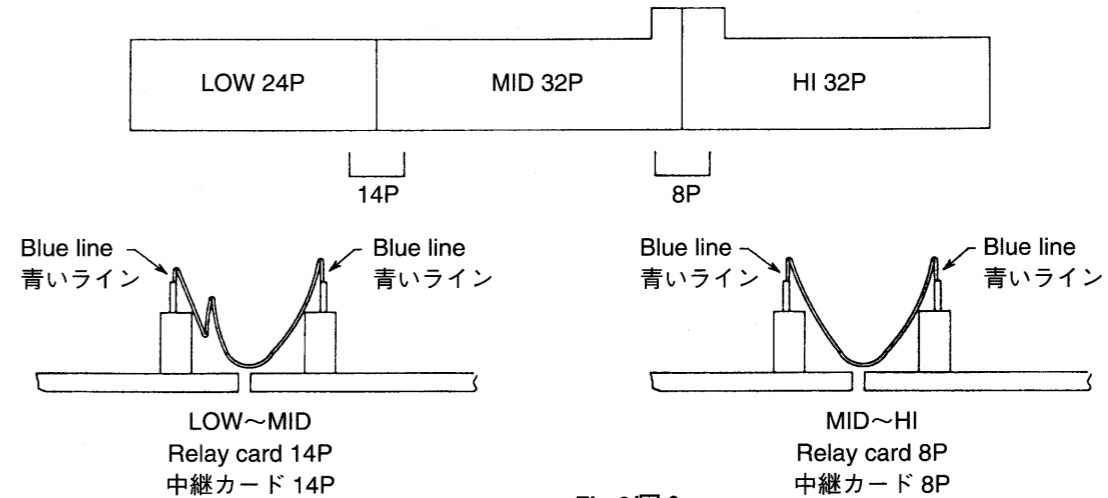


Fig.8/図8

When removing the keyboard from the body, remove it from connectors in the main board.

・本体から鍵盤を取り外す場合は、メインボード側のコネクターから取り外すこと。

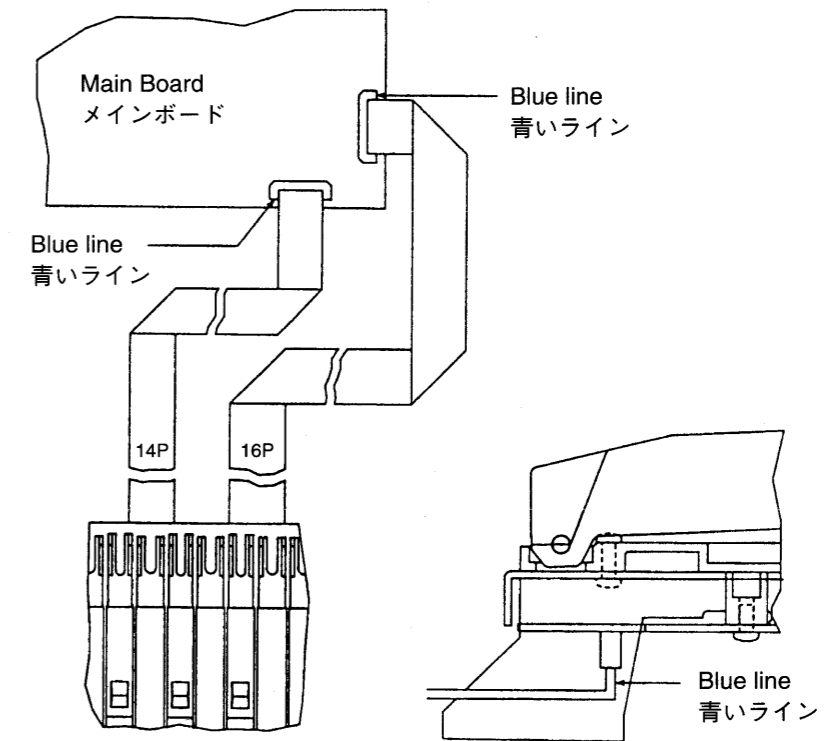
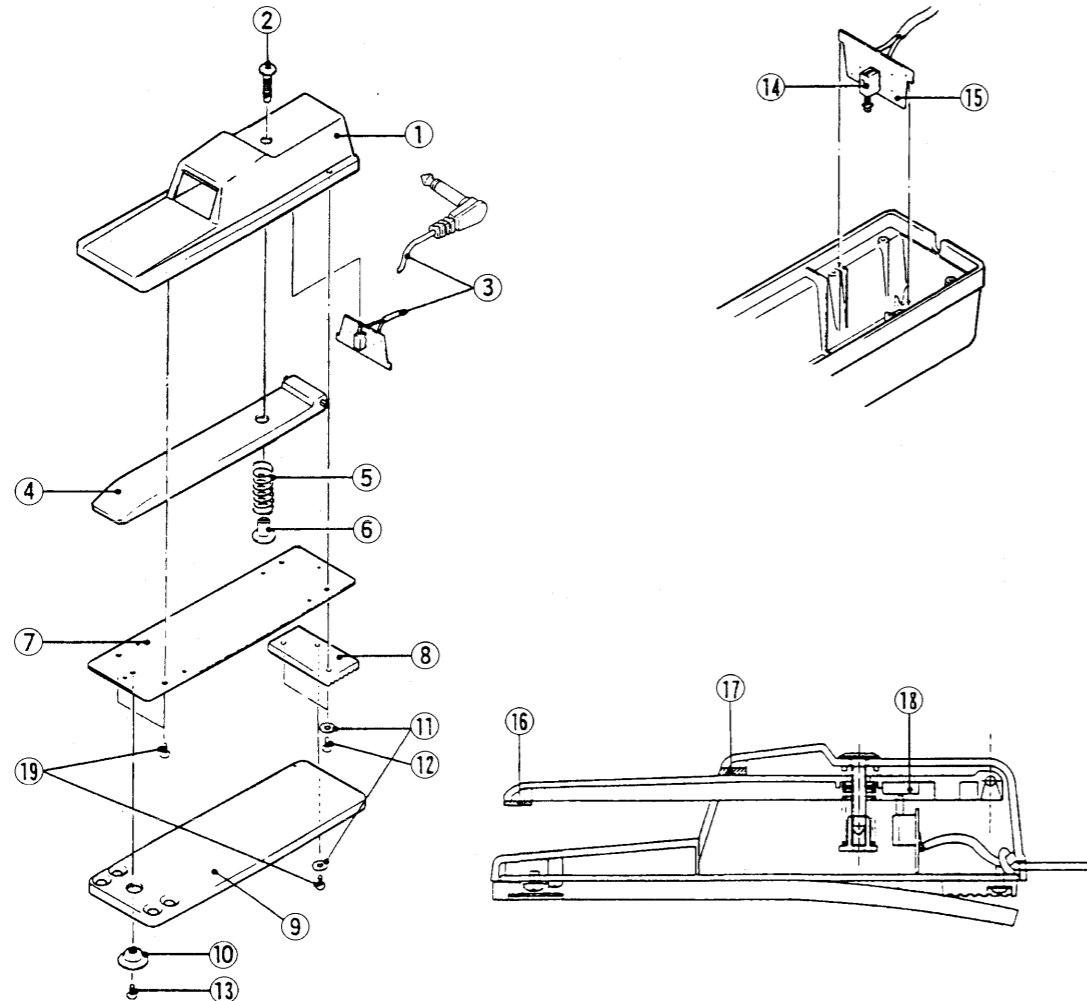


Fig.9/図9



**PEDAL UNIT PARTS LIST/ペダルユニットパーツリスト DP-6**

NO.	PART NO.	DESCRIPTION
1	G2017604	DP-6 Case BLK DP-6 ケース 黒
2	2228736600	DP-6 Joint Bolt M6 BLK ジョイント・ボルト M6 黒
3	G3487117	Cable L-0 1.5M BLK 接続コード L-0 1.5M 黒
4	2218751100	DP-5 Pedal #511 DP-5 ペダル #511
5	22177130	DP-5 Spring DP-5 スプリング
6	22157532	DP-6 Joint Nut M6 x 12 DP-6 ジョイント・ナット M6 x 12
7	22817344	DP-5 Chassis DP-5 シャーシ
8	22267211	MP-600 Cushion MP-600 クッション
9	22357324	DP-5 Bottom Rubber DP-5 底板ゴム
10	22137707	VK-6.9 Washer VK-6.9 ワッシャー
11	*****	Flat Washer t0.8 x 3 x 10 平ワッシャー t0.8 x 3 x 10
12	*****	Tapping Screw Bind Head 3 x 10 B1 BC
13	*****	Tapping Screw Bind Head 4 x 10 B1
14	13129331	Push Switch ESB-6069 スイッチ ESB-6069
15	22917731	DP-6 PCB DP-6 プリント基板
16	2226710200	Switch Felt #102 スイッチ・フェルト #102
17	22267141	DP-5 Felt DP-5 フェルト
18	22267327	DP-5 Cushion DP-5 クッション
19	*****	Tapping Screw Bind Head 3 x 8 B1 BC



**TEST MODE/テスト・モード**

**Equipment required**

Connect the following deives to the socket specified.  
 EV-5 (Expression Pedal) -> INT+TX, TX  
 DP-6 (Damper Pedal) -> DAMPER  
 MA-12 (Monitor Speaker) -> OUTPUT L, OUTPUT R

**用意するもの**

以下のものを用意し、指定されたジャックに接続して下さい。  
 EV-5 (Expression Pedal) -> INT+TX, TX  
 DP-6 (Damper Pedal) -> DAMPER  
 MA-12 (Monitor Speaker) -> OUTPUT L, OUTPUT R

- To enter the test mode  
While simultaneously pressing SYNTH, E.GRAND, MKS-20 and NUMBER 8 (Fig.1), turn on power.

- テストモードへの入り方  
SYNTH, E.GRAND, MKS-20, NUMBER8を同時に押しながらか(図1参照)電源スイッチを入れると、テストモードに入ります。

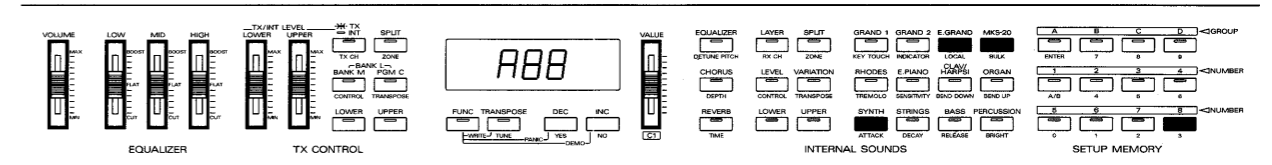


Fig.1/図1

- RAM Check  
Upon entering the test mode, the program automatically starts RAM checking. When the test is successful, the program proceeds to the next step. Otherwise it shows an error message on the 7-SEG LED as shown in Fig.2, and won't proceed to the next step. Pressing INC while in the error forces the program to jump to test 5. Switch and LED check.

- RAMチェック  
テストモードに入ると自動的にRAMチェックが始まります。もし異常が発見されれば、7セグメントLEDの表示が図2のようになり、テストは止まりますが、INCを押すと「5. スイッチ・LEDチェック」へ移行できます。異常がなければ、自動的に次へ移行します。

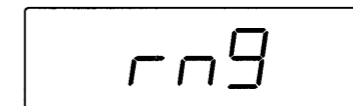


Fig.2/図2

- Battery Check  
When the test is successful, the program proceeds to the next step. Otherwise it shows an error message on the 7-SEG LED as shown in Fig.3, and won't proceed to the next step. Pressing INC while in the error forces the program to jump to test 5. Switch and LED check.

- バッテリーチェック  
バッテリーチェックで異常が発見されると、7セグメントLEDの表示が図3のようになり、テストは止まりますが、INCを押すと「5. スイッチ・LEDチェック」へ移行できます。異常がなければ自動的に次へ移行します。

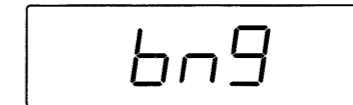


Fig.3/図3

- Identifying Version Number  
The test program shows the current ROM version on the 7-SEG LED as shown in Fig.4. Pressing INC forces the program to proceed to the next test.

- バージョンの確認  
7セグメントLEDにROMのバージョンが表示されます(図4参照)。INCを押すと、次へ移行します。

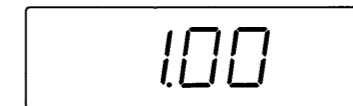


Fig.4/図4

5. Switch and LED Check

All LEDs turn on. Press the buttons one by one and the corresponding LED will turn off associated with a piano tone. For checking the 7-SEG LED, press INC and the upper segments will turn off; next, press DEC and the lower segments turn off. Simultaneous pressing of INC and TRANSPOSE goes to the next test.

5. スイッチ・LEDチェック

最初にすべてのLEDが点灯します。各ボタンを押すと、対応したLEDが消灯すると同時にピアノの音が発音されます。また7セグメントLEDは、INCを押すと上半分が消え、DECを押すと下半分が消えます。INCとTRANSPOSEを同時に押すと、次へ移行します。

6. A/D Check

(a) Slider Check

Move LOWER slider from minimum to maximum position. The 7-SEG LED will show the name of the slider being operated, as shown in Fig.6. The number of lighting LEDs of the 11 LEDs shown in Fig.5 will increase as the slider travels. When the maximum level is reached a vibraphone tone sounds. Repeat the step for the UPPER and VALUE sliders.

6. A/Dチェック

(a) スライダーチェック

LOWER, UPPER, VALUEの各スライダーを操作すると図5に示した11個のLEDが操作量に応じて順番に点灯します。最大値まで達すると、ビブラフォンの音が発音されます。操作中のスライダー名称が7セグメントLEDに表示されます(図6参照)。

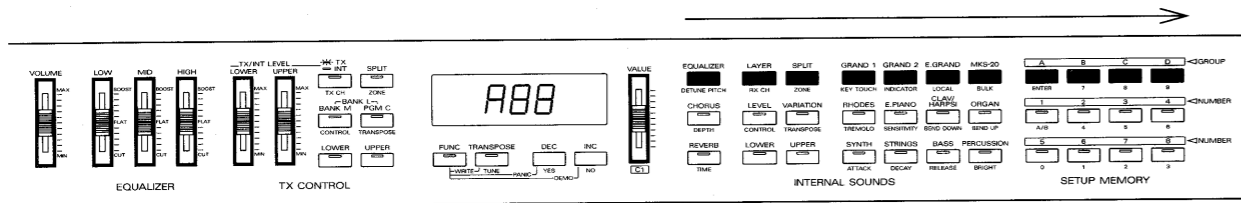


Fig.5/図5

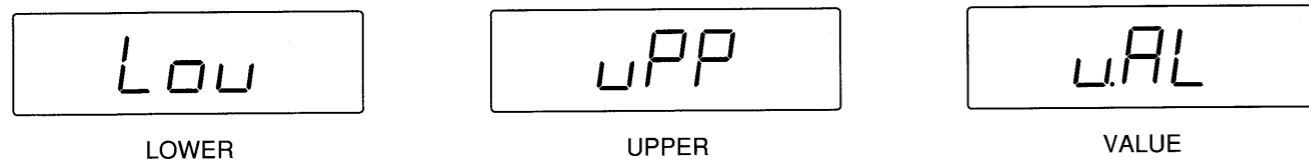


Fig.6/図6

(b) Pedal Check

Operate the pedal connected to INT+TX socket. The LEDs shown in Fig.5 indicate the level and the 7-SEG LED shows the name of the pedal as shown in Fig.7. The vibraphone tone will be heard as the maximum level is reached. Repeat the step for the pedal connected to TX socket.

(b) ペダルチェック

INT+TXおよびTXのジャックに接続したペダルを操作すると、(a)と同様の結果が得られます。操作中のペダル名称が7セグメントLEDに表示されます(図7参照)。

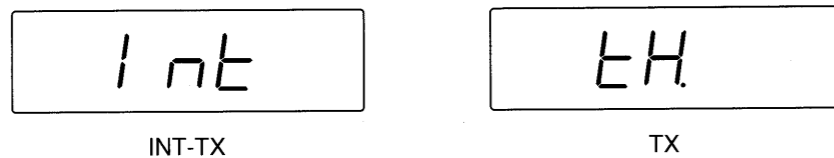


Fig.7/図7

(c) Modulation Check

Push in the bender lever and the similar sequence described in step (a) above will take place. For the 7-SEG LED indication, see Fig.8.

(c) モジュレーションチェック

ベンダーレバーを奥へ押すと、(a)と同様の結果が得られます。このとき7セグメントLEDの表示は、図8のようになります。

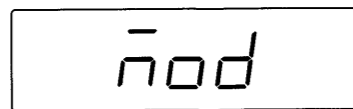


Fig.8/図8

(d) Bender Check

Press the bender lever to the left (right) and the left half (right half) LEDs shown in Fig.9 turn on one by one as the lever travels. Also check the lighting status of the 7-SEG LED by referring to Fig.10.

(d) ベンダーチェック

ベンダーレバーを左(または右)に動かすと、図9のLEDの左半分(または右半分)が順に点灯します。このとき7セグメントLEDの表示は図10のようになります。

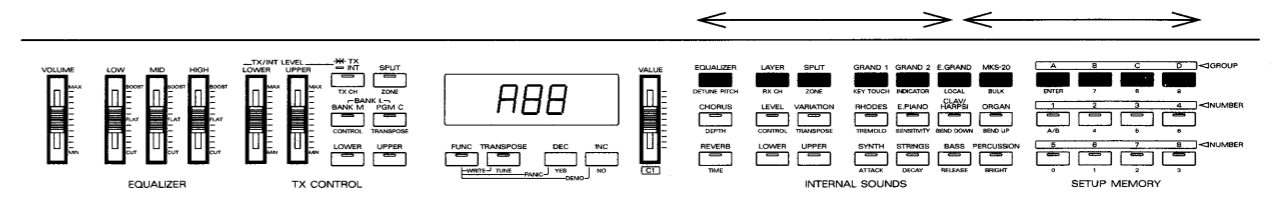


Fig.9/図9

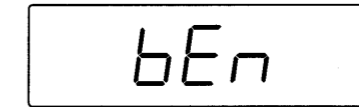


Fig.10/図10

This completes the A/D check. Press INC to proceed to the next test.

以上でA/Dチェックは終わりです。INCを押すと次へ移行します。

7. MIDI Check

The initial state of the 7-SEG LED is as shown in Fig.11 followed by the state shown in Fig.12. Hook up MIDI IN and MIDI OUT sockets via a MIDI cable and the 7-SEG LED changes state as shown in Fig.13. Press INC to proceed to the next test.

7. MIDIチェック

最初に7セグメントLEDの表示が図11のようになり、次に図12のように変わります。ここでMIDI INとMIDI OUTの端子をMIDIケーブルでループすると、図13のように表示されます。INCを押すと、次に移行します。

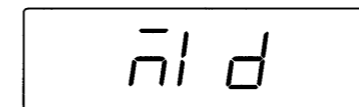


Fig.11/図11

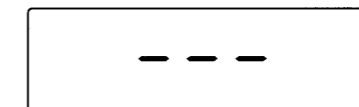


Fig.12/図12

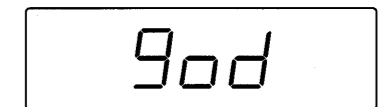


Fig.13/図13

8. Sound Check

Press a button shown in Fig.14 and the corresponding tone will sound. Repeat for the remaining buttons.

8. 発音チェック

図14の各ボタンを押すと、それぞれに対応した音色が鳴ります。

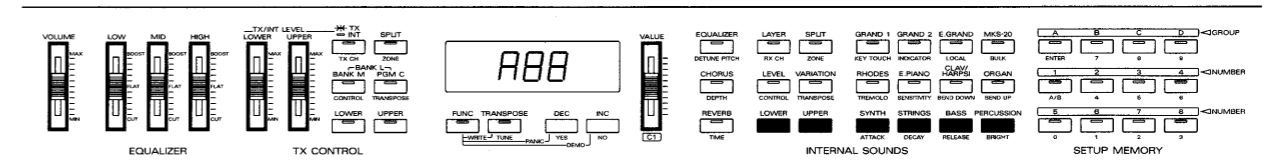


Fig.14/図14

Button	Tone
LOWER	-> PIANO
UPPER	-> VIBRAPHONE
SYNTH	-> ORGAN
STRINGS	-> STRINGS
BASS	-> Chorusing E.PIANO
PERCUSSION	-> Reverberating VIBRAPHONE

Press INC to proceed to the next test.

ボタン	音色
LOWER	-> PIANO
UPPER	-> VIBRAPHONE
SYNTH	-> ORGAN
STRINGS	-> STRINGS
BASS	-> コーラスのかかったE.PIANO
PERCUSSION	-> リバーブのかかったVIBRAPHONE

INCを押すと、次へ移行します。

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

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

9. Equalizer Check

The state of the 7-SEG LED is as shown in Fig.15. Sweeping sound will be heard from the speaker. Adjust LOW, MID and HIGH sliders of EQUALIZER and verify that the corresponding frequency components are boosted and cut. Press INC to proceed to the next test.

9. イコライザーチェック

7セグメントLEDの表示が図15のようになりチェック用のスイープ波形が、スピーカーから出力されます。EQUALIZER LOW, MID, HIGHの各スライダーを動かして、それぞれの周波数成分がブーストまたはカットされることを確認して下さい。INCを押すと、次へ移行します。

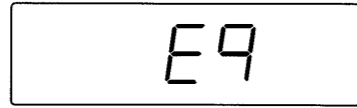


Fig.15/図15

10. Hold Switch Check

The state of the 7-SEG LED is as shown in Fig.16. Insert an open plug (mono) into a socket shown below and check that the corresponding LED is on. Pull out the plug and verify that the lighting LED turns off. Repeat the step for the remaining sockets.

10. HOLDスイッチチェック

7セグメントLEDの表示が図16のようになります。各ジャックに空プラグ(MONO)を接続すると、それぞれに対応したLEDが点灯します。プラグを外すと、LEDが消灯します。

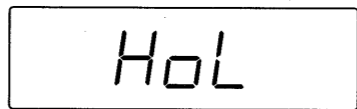
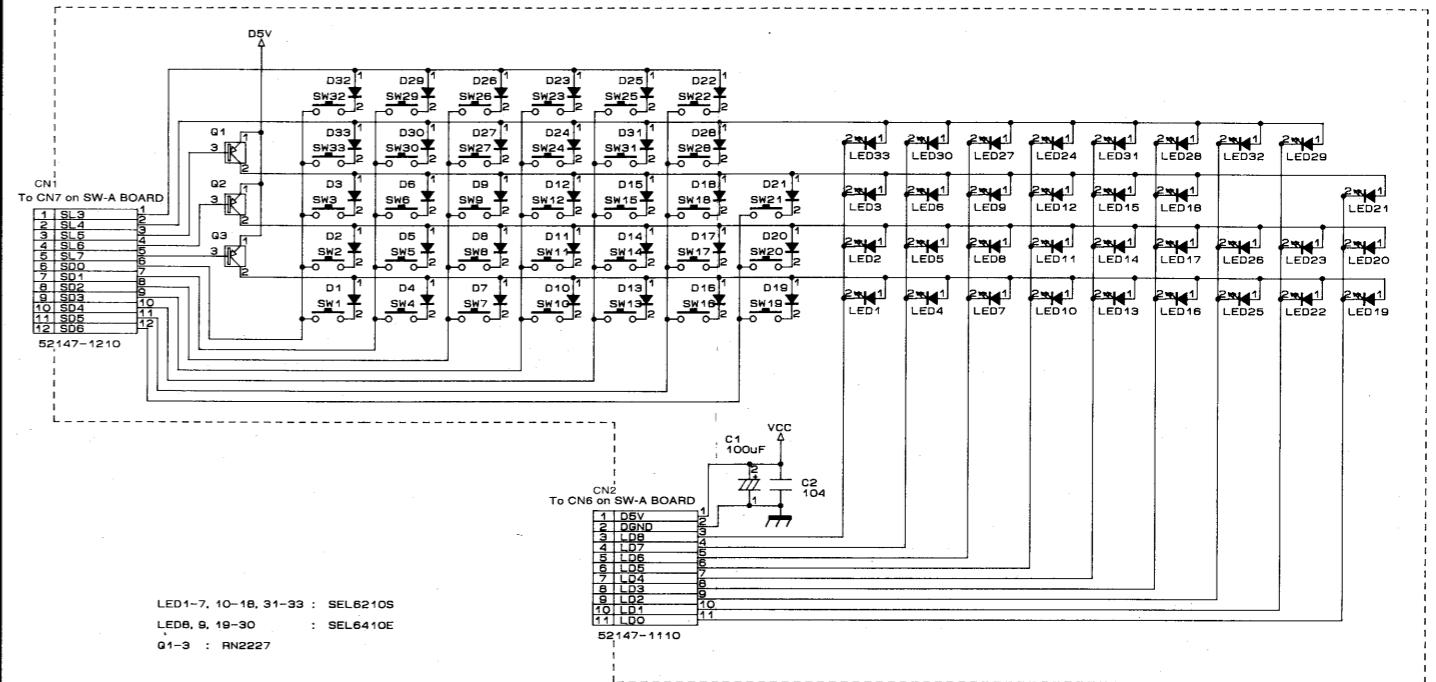


Fig.16/図16

Pedal LED  
INT+TX -> CHORUS  
TX -> REVERB  
DAMPER -> EQUALIZER

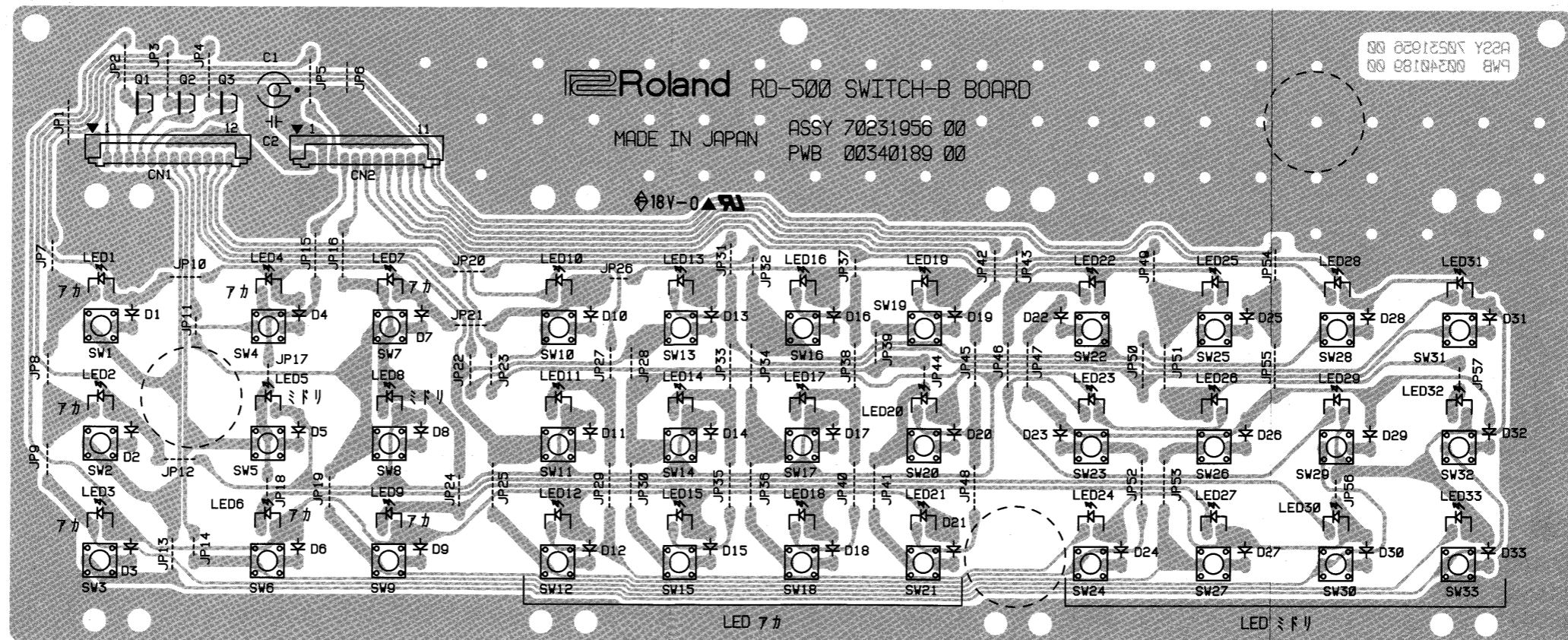
ペダル LED  
INT+TX -> CHORUS  
TX -> REVERB  
DAMPER -> EQUALIZER

SWITCH-B BOARD ASS'Y



SWITCH-B BOARD ASS'Y

ASSY 70231956  
(pwb 00340189)



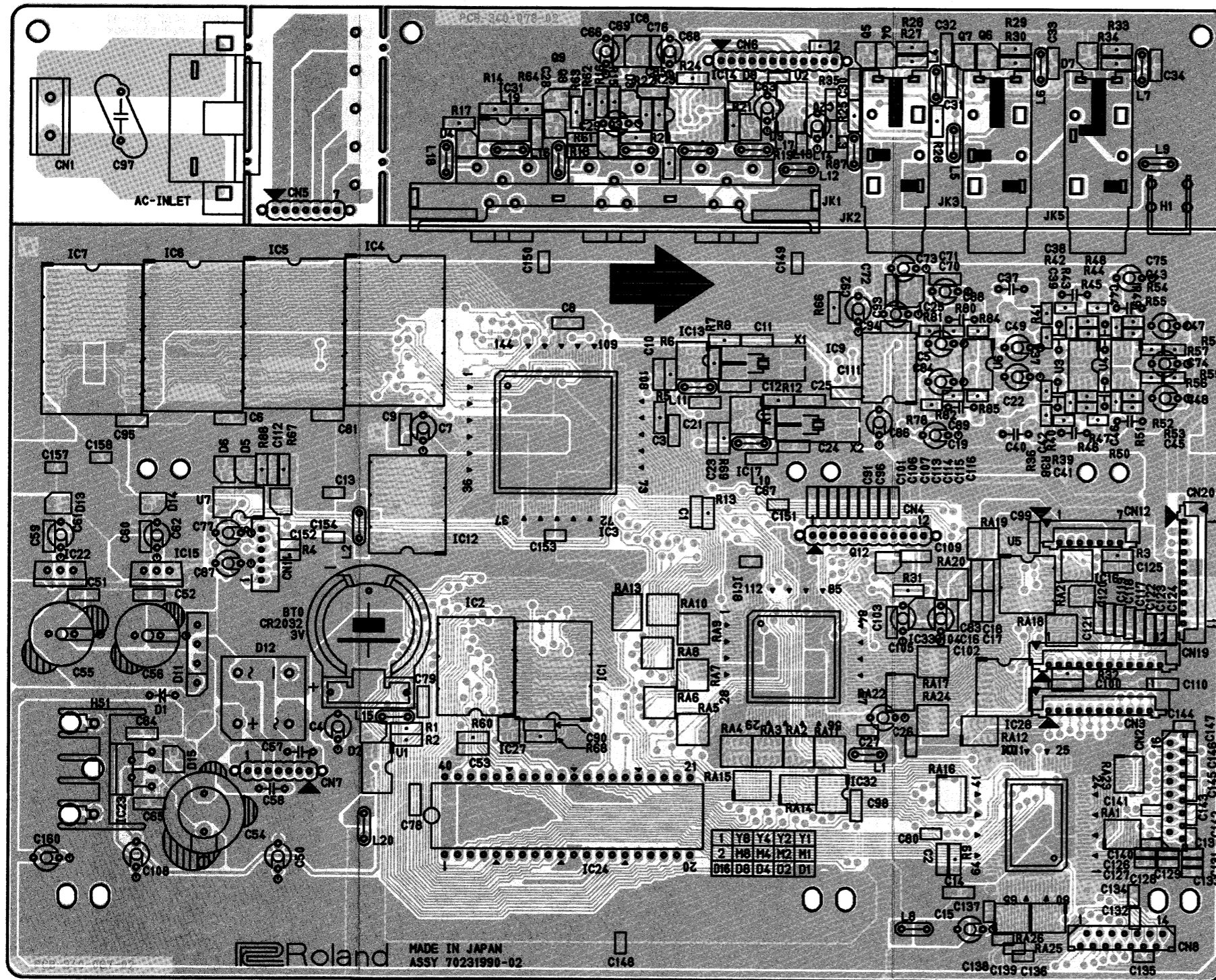
View from component side

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 29 30

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**TRANS BOARD ASS'Y**  
(pwb 00340089)

**SUB MAIN BOARD ASS'Y**  
(pwb 00340078)



View from component side

**E MAIN BOARD ASS'Y**  
ASSY 70231990  
(pwb 00340067)

For Nordic Countries

### Apparatus containing Lithium batteries

#### ADVARSEL!

Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.  
Udskiftning må kun ske med batteri af samme fabrikat og type.  
Lever det brugte batteri tilbage til leverandøren.

#### ADVARSEL!

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

#### VARNING!

Explosionsfara vid felaktigt batteribyte.  
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparatillverkaren.  
Kassera använt batteri enligt fabrikantens instruktion.

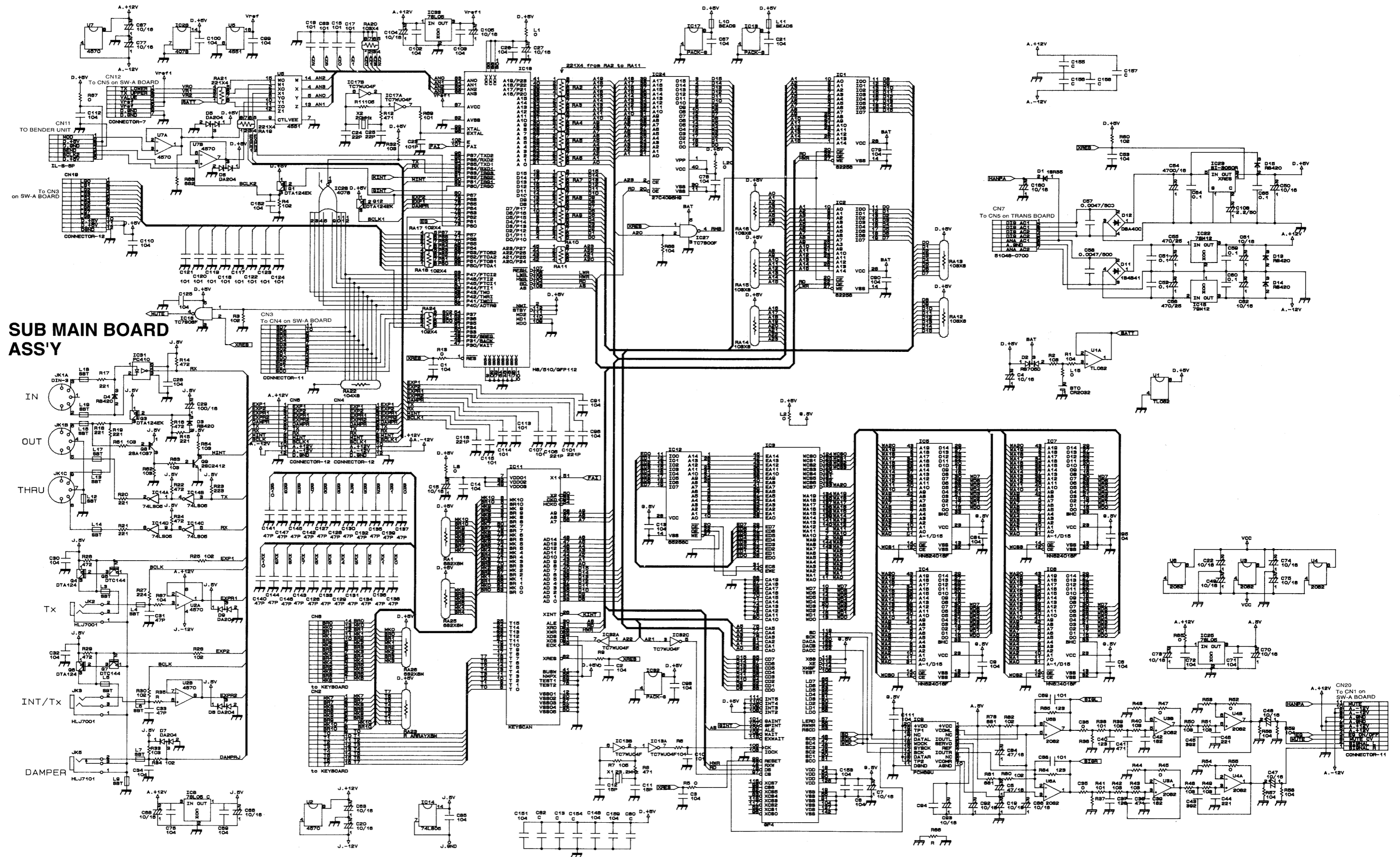
#### VAROITUS!

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

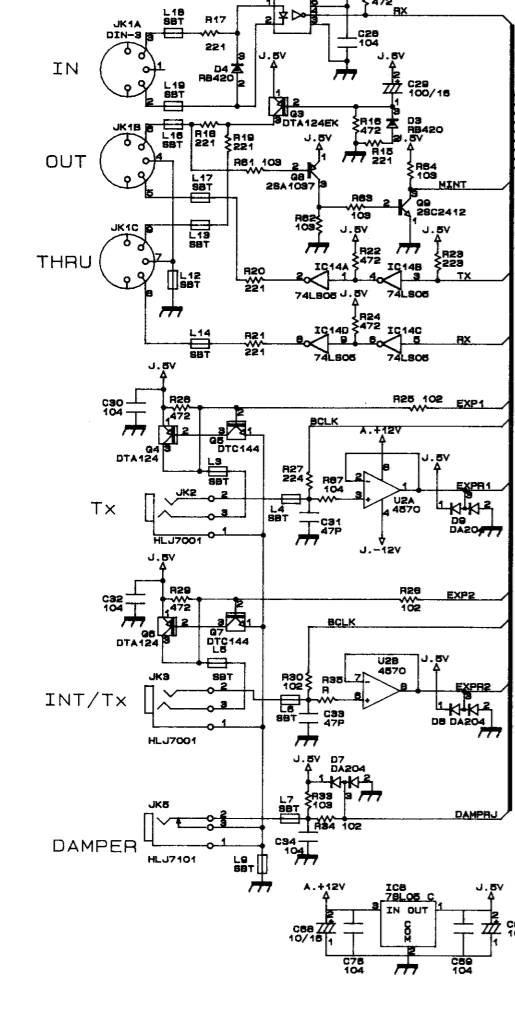
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**E MAIN BOARD ASS'Y**



**SUB MAIN BOARD ASS'Y**

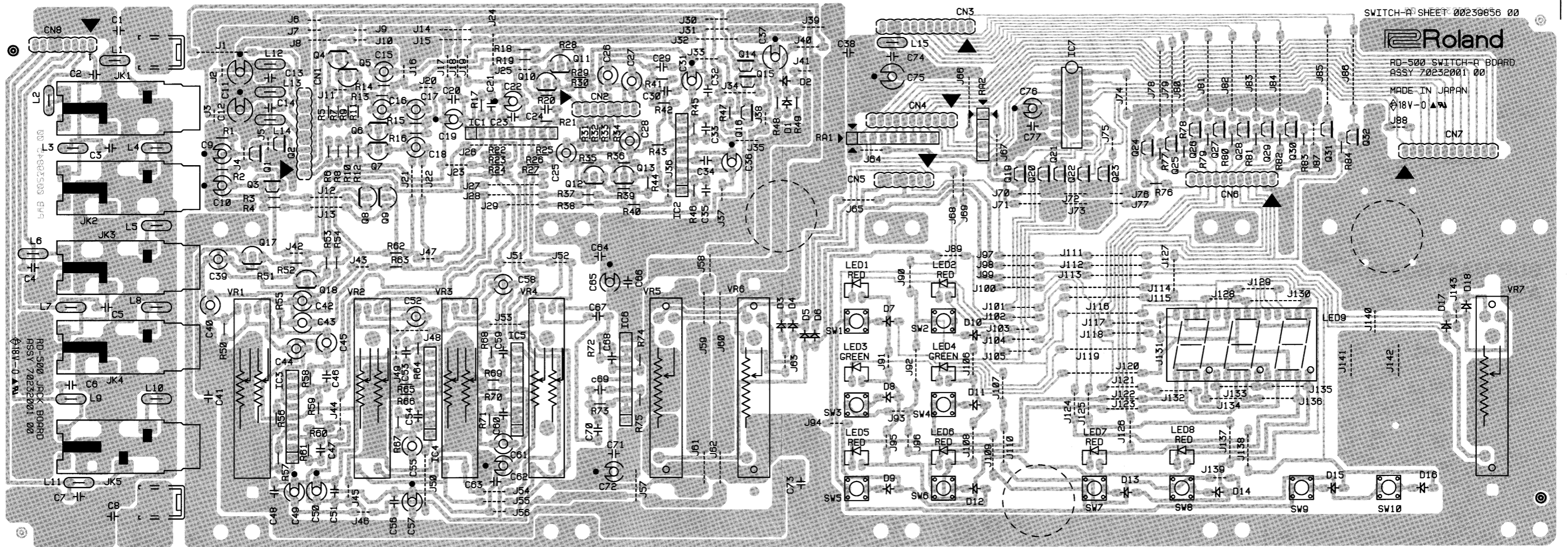


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**SWITCH-A BOARD ASS'Y**

ASSY 70232001  
(pwb 00239834)



View from component side

**JACK BOARD ASS'Y**

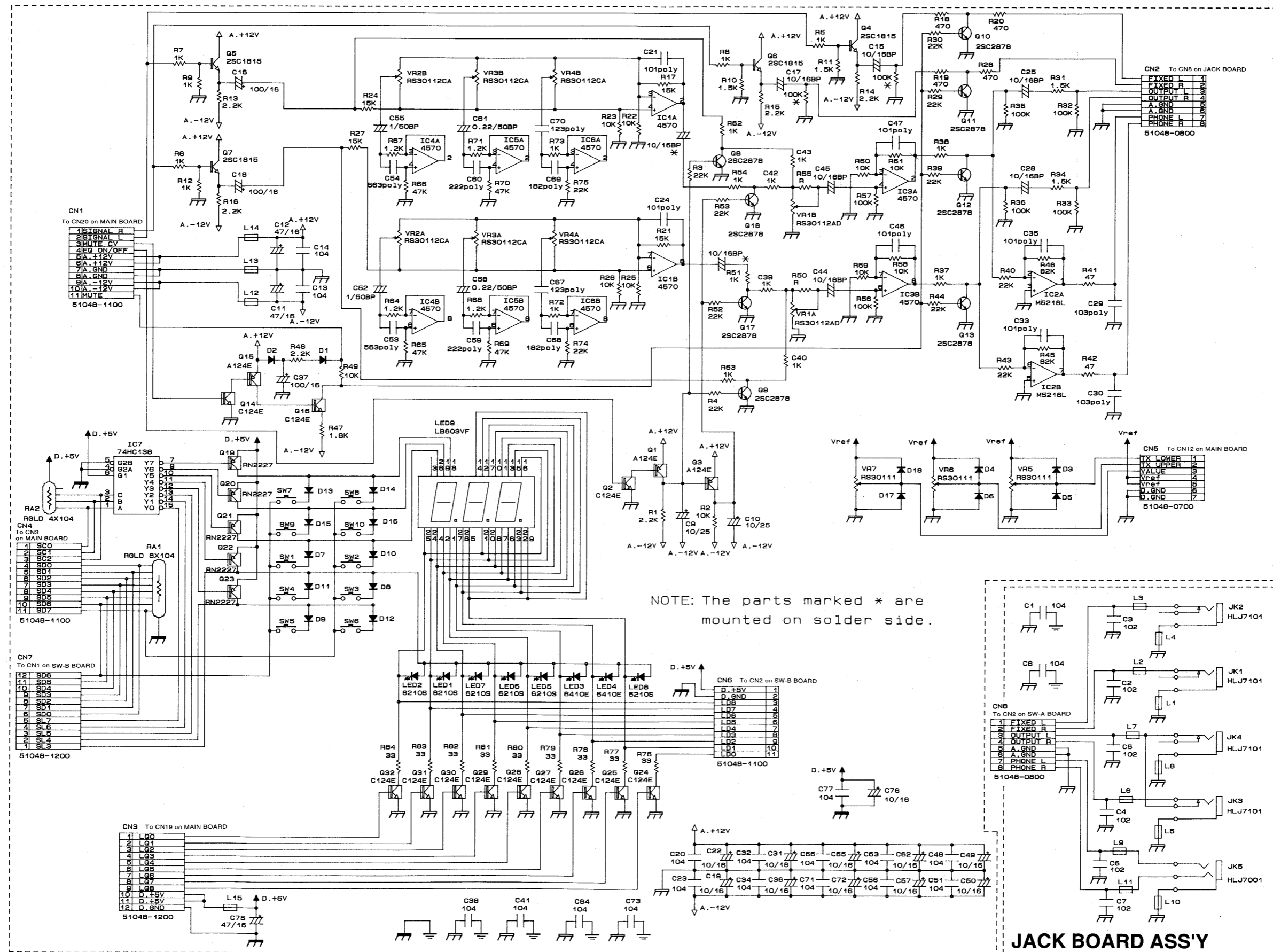
(pwb 00239845)



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### SWITCH-A BOARD ASS'Y



### JACK BOARD ASS'Y