

U-20 RS-PCM KEYBOARD

SERVICE NOTES

First Edition

SPECIFICATIONS/仕様

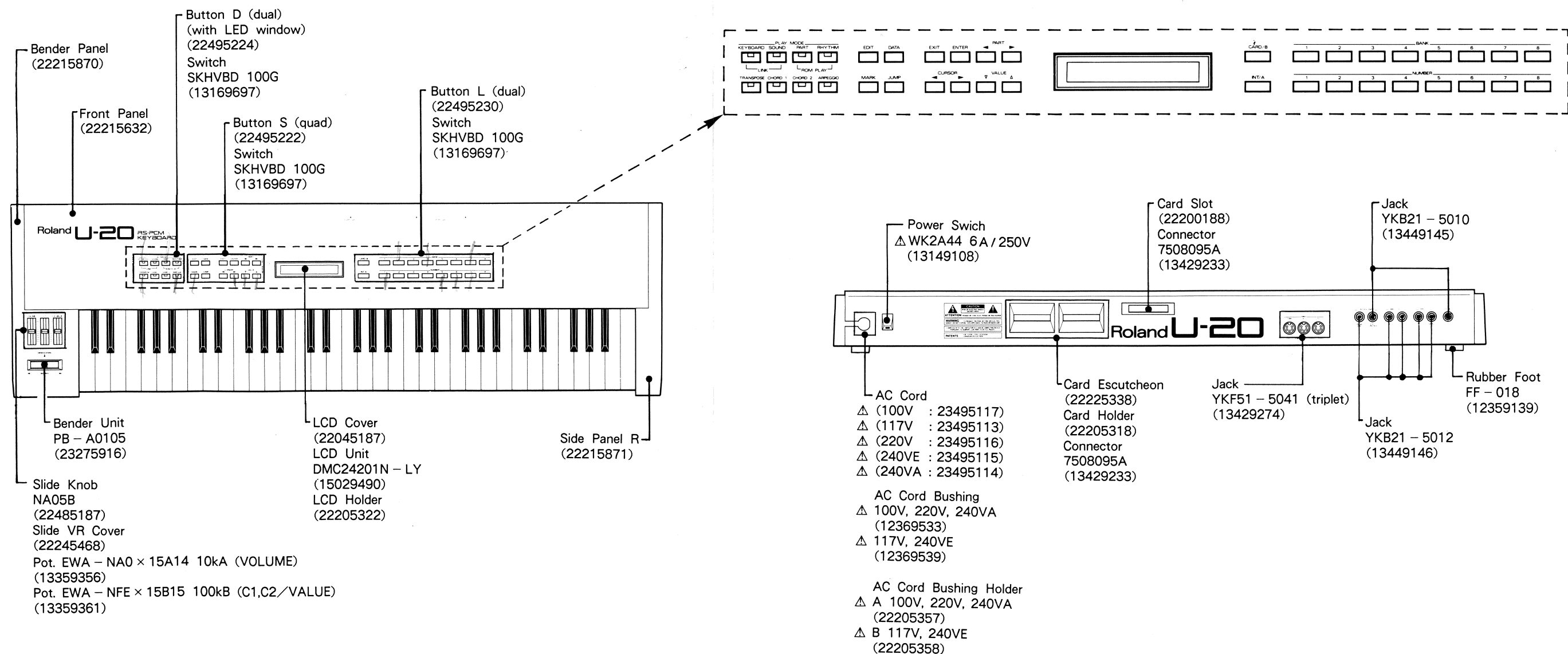
KEYBOARD	61 notes (with velocity sensitivity and channel aftertouch)	DISPLAY	2 line 24 character (with backlight)
SOUND GENERATOR	RS – PCM Sound Generation maximum Simultaneous Notes : 30 Notes	DIMENSIONS	985 (W) x 310 (D) x 85 (H) mm 38 – 3/4" x 12 – 1/6" x 3 – 1/4" inch (W x D x H)
INTERNAL MEMORY		WEIGHT	10 kg (22 lbs)
Setup :	1	POWER CONSUMPTION ---	100 V : 15 W Other Voltage : 20 W
Keyboard Patches :	64	ACCESSORIES	Owner's Manual — : English (26025696) x 1 : Japanese (26025695) x 1
Chord Sets :	8		Sound Patch Chart
Sound Patches :	64		Connection Cable (PJ – 1M) (23430675S) x 1
Timbres :	128		
Rhythm Sets (64 Keys : B1 – D7) :-	4		
Internal Tones :	128		
RAM CARD (M – 256E)			
Setup :	1		
Keyboard Patches :	64		
Chord Sets :	8		
Sound Patches :	64		
Timbres :	128		
Rhythm Sets (64 Keys : B1 – D7) :-	4		

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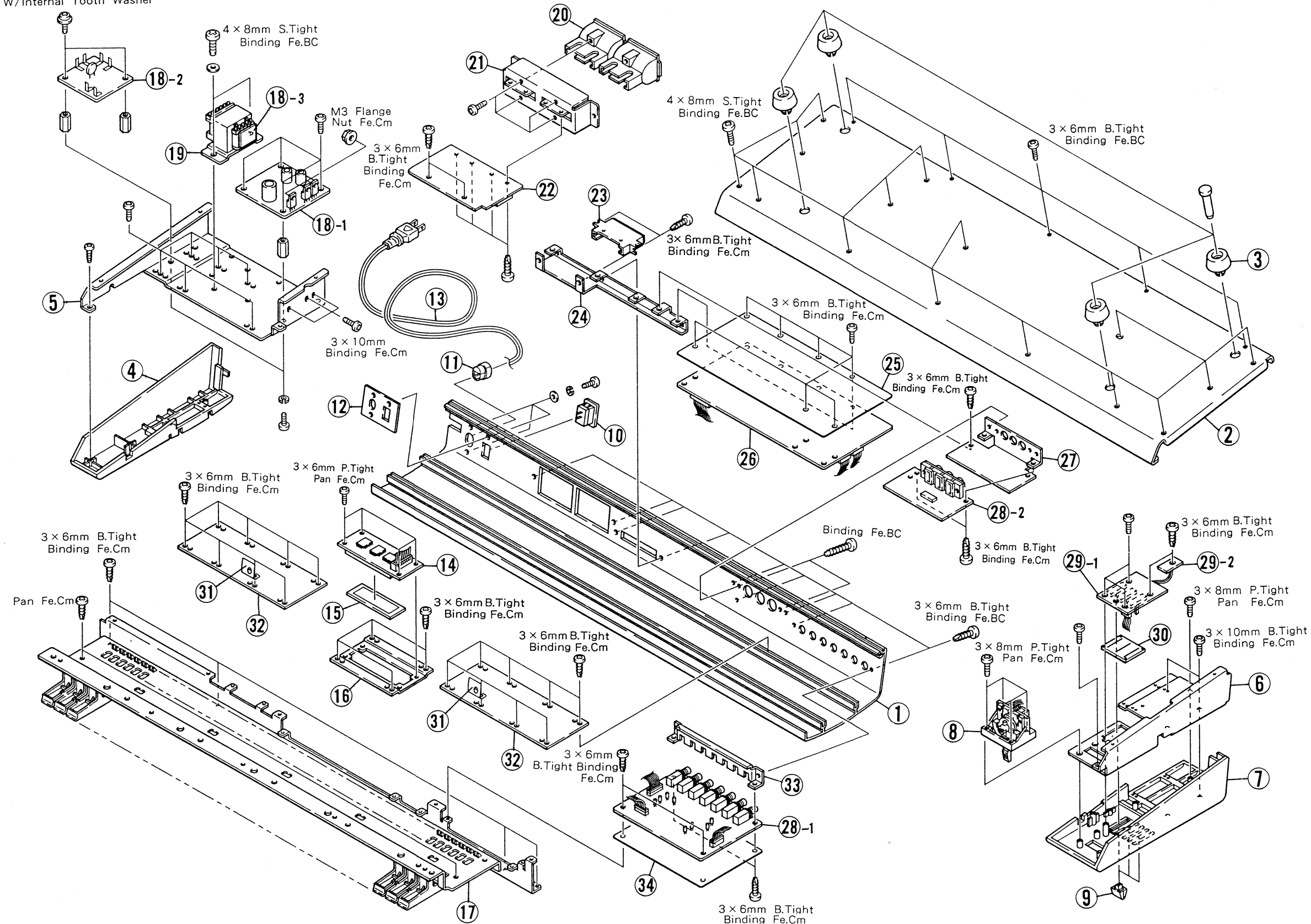
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KEYBOARD EXPLODED VIEW
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MAIN BOARD
JACK BOARD/MIDI BOARD
BENDER BOARD/CARD BOARD
SWITCH BOARD/POWER SUPPLY BOARD
IC DATA

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3 x 6mm S.Tight Binding Fe.BC
W/Internal Tooth Washer



No.	PART NAME	PART No.
1	Front Panel	22215632
2	Bottom Cover	22025437
3	Rubber Foot	12359139
4	Side Panel R	22215871
5	Power Transformer Holder	22205316
6	Bender Holder	22205315
7	Bender Panel	22215870
8	Bender Unit	23275916
9	Knob	22485187
10	Power Switch Δ	13149108
11	AC Cord Bushing Δ 100V,220V 117V, 240VE, 240VA	12369533 12369539
12	AC Cord Bushing Holder Δ 100V, 220V, 240VA 117V, 240VE	22205357 22205358
13	AC Cord Δ 100V 117V 220V 240VE (with 13A Fuse) 240VA	23495117 23495113 23495116 23495115 23495114
14	LCD Unit	15029490
15	LCD Cover	22045187
16	LCD Holder	22205322
17	Keyboard	7621320000
18-1	Power Supply Board	7621308000
18-2	Primary Board	
18-3	Jamper Board	
19	Power Transformer Δ	22455512U0
20	Card Escutcheon	22225338
21	Card Holder	22205318
22	Card Board	7621330000
23	Card Slot	22200188
24	Main Holder	22205319
25	Main Shield Paper	22255290
26	Main Board	7621390000
27	MIDI Holder	22205340
28-1	Jack Board	7621317000
28-2	MIDI Board	
29-1	Bender Board	7621331000
29-2	Jamper Board	
30	Slide VR Cover	22245468
31	Grounding Reaf	23455314
32	Switch Board	7621314000
33	Jack Holder	22205317
34	Jack Shield Paper	22255289

KEYBOARD EXPLODED VIEW/鍵盤分解圖

KEY REMOVAL

1. Remove the stopper.

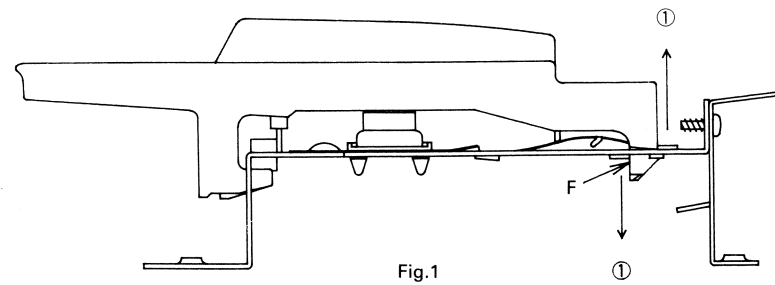


Fig.1

2. Pulling the key in the direction of arrow ②, disengage the key fulcrum from the chassis. See Fig.3 and 4 for disengaged status.

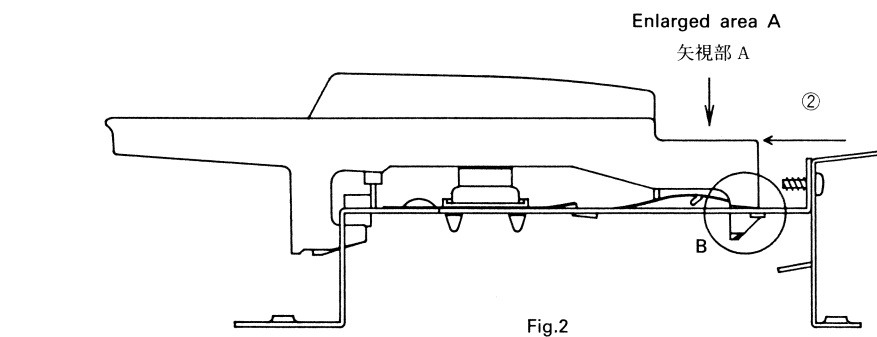


Fig.2

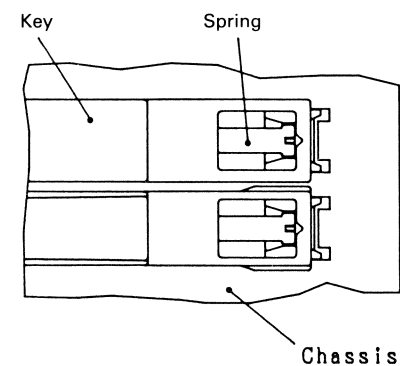


Fig.3

矢視部 A 詳細

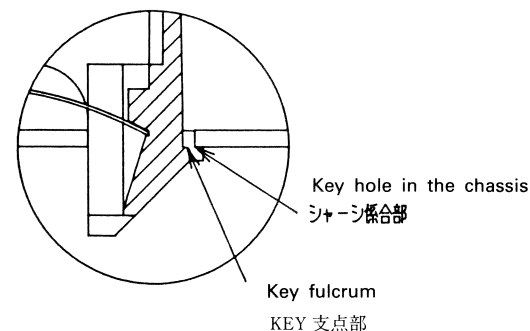


Fig.4

B 部詳細

3. Taking care not to distort the spring, lift the key in the direction of ③.

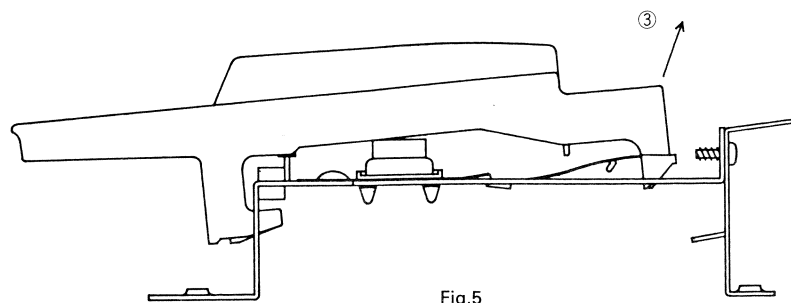


Fig.5

KEY の取りはずし方

1. ストッパーをはずす。

2. KEYを手前(方向2)に引きKEY支点をシャーシ係合部から離す。
Fig 3, Fig 4 は、離された状態を示す。

3. KEY を引き上げる。(方向3)
この時スプリングを変形させない様、注意すること。

KEY INSTALLATION

1. Place the spring onto the chassis as show in Fig.6.

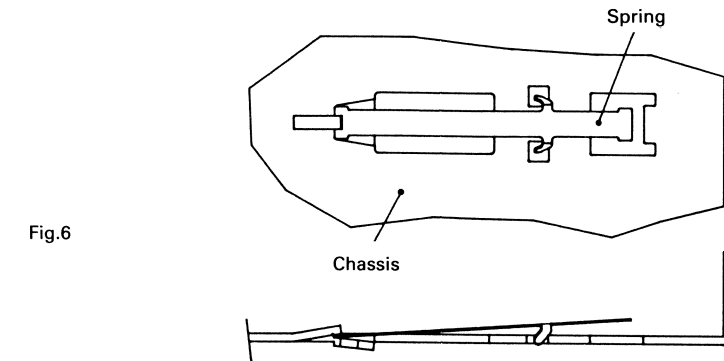


Fig.6

2. Referring to Fig.8, press the key in the direction of ④.

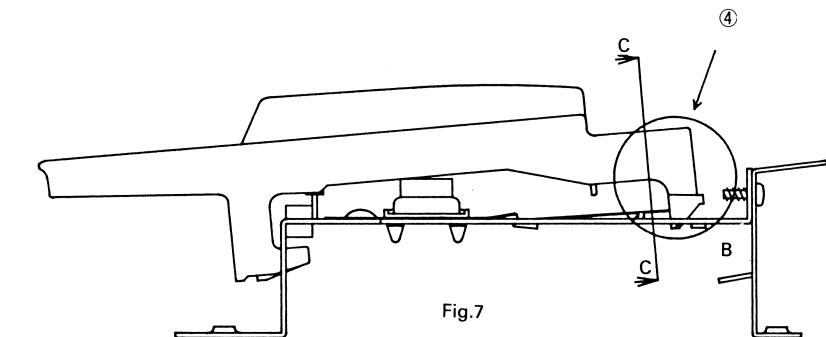


Fig.7

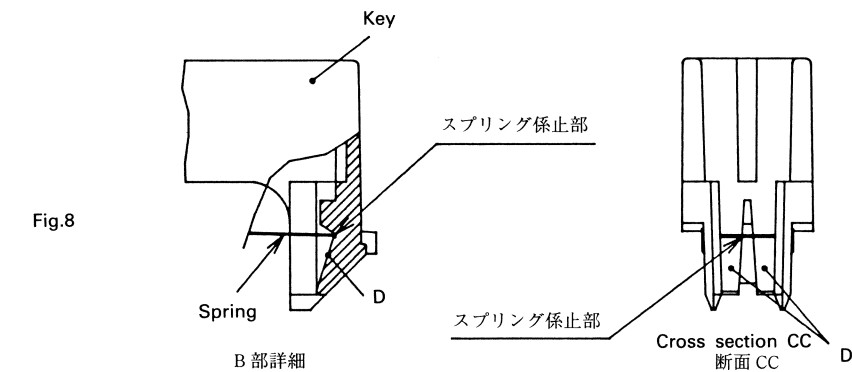


Fig.8

Caution:

Firmly rest the spring on the spring dent (Fig.8). Don't let the spring stop at the slope D or the key touch will differ from the previous sensitivity.

3. Verify that there is on clearance between the key fulcrum and portion F in the chassis. Attach the stopper (Fig. 1) on the portion F.

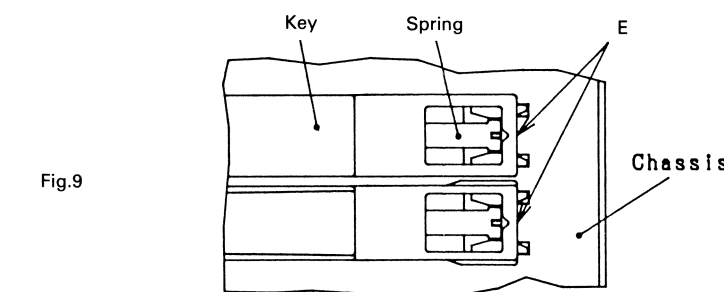


Fig.9

KEY の取り付け方

1. Fig. 6 に示す様スプリングをシャーシに置く。

2. スプリングをKEY スプリング係止部にあて (Fig. 8 参考)
方向4にKEYを押し込む。

注) スプリングを Fig. 8 に示すスプリング係止部に確実に係止しないと(斜面 D に止まる事がある)KEY タッチが変化してしまう。

3. KEY 支点部とシャーシ係合部間 (F) に隙間の無い事を確認し、ストッパーは Fig. 1 に示す (F) に沿って貼る。

①CONTACT BOARD INSTALLATION

First align the $\phi 2.1\text{mm}$ hole between C3 and C3# of the contact board with a half pierce of the chassis. Next align the slot ($\phi 2.1 \times 4 \text{ mm}$) of remaining octaves with half pierces, respectively. Make sure the joint of the CIC cable and te board end are on the left end of the lowest G of the chassis.

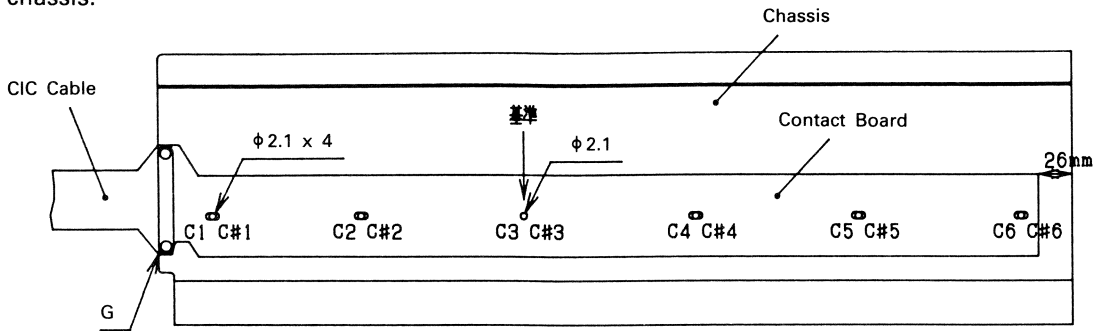


Fig.10

②CONTACT BOARD INSTALLATION

Place the contact rubber sheet on the contact board. Align contact projections with holes in the board. Press the hole in top face of the projection with a small rod (like clip shown in Fig.11) so that the projection is held in a hole of the chassis. Note that the left end of a rubber contact should be placed over the right end of the left side rubber sheet (see H in Fig.11).

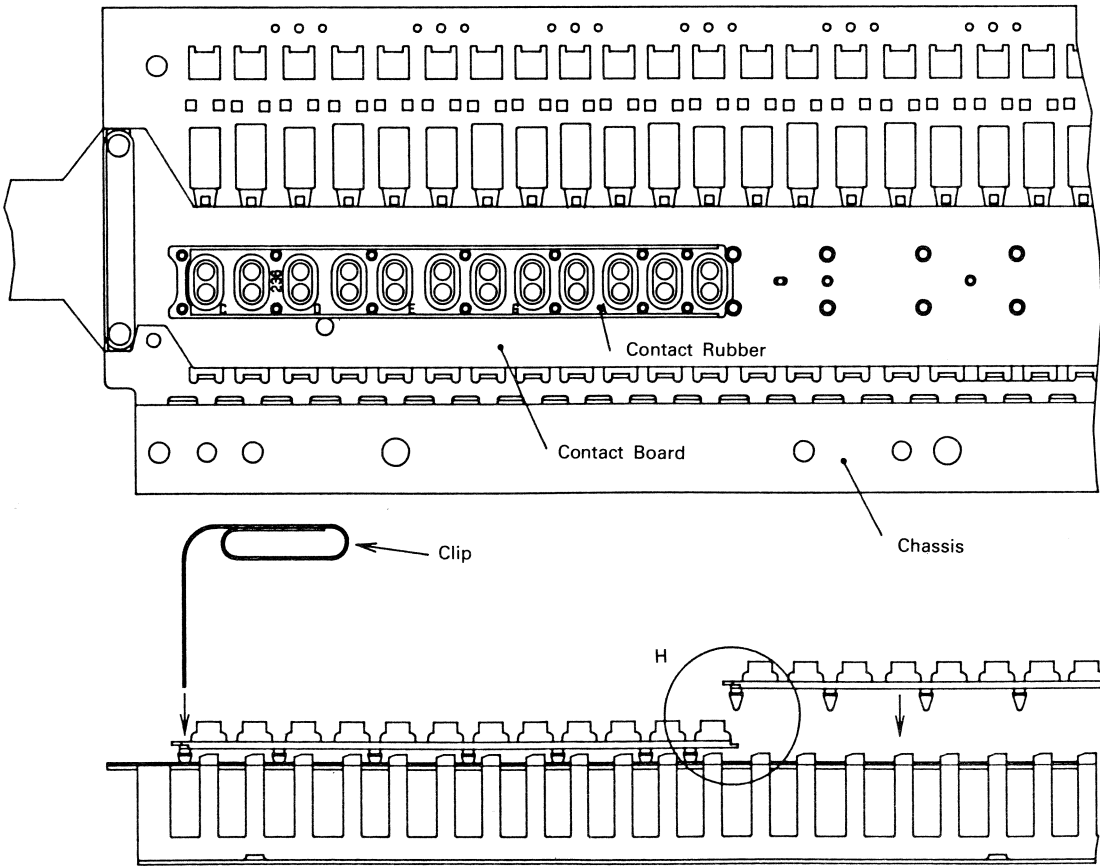


Fig.11

CAUTION: When removing a contact rubber sheet, gently pull it off the board or sheet will break off.

①基板の取り付け方

まずC3とC#3キーの間にある $\phi 2.1\text{mm}$ の基板の丸穴をシャーシのハーフピアスに合わせ、次に1オクターブに1コずつある $\phi 2.1 \times 4 \text{ mm}$ の長穴を合わせて行く。この時CICケーブルと基板のつなぎ目がシャーシ低音部左端(G)と一致する事を確認する。

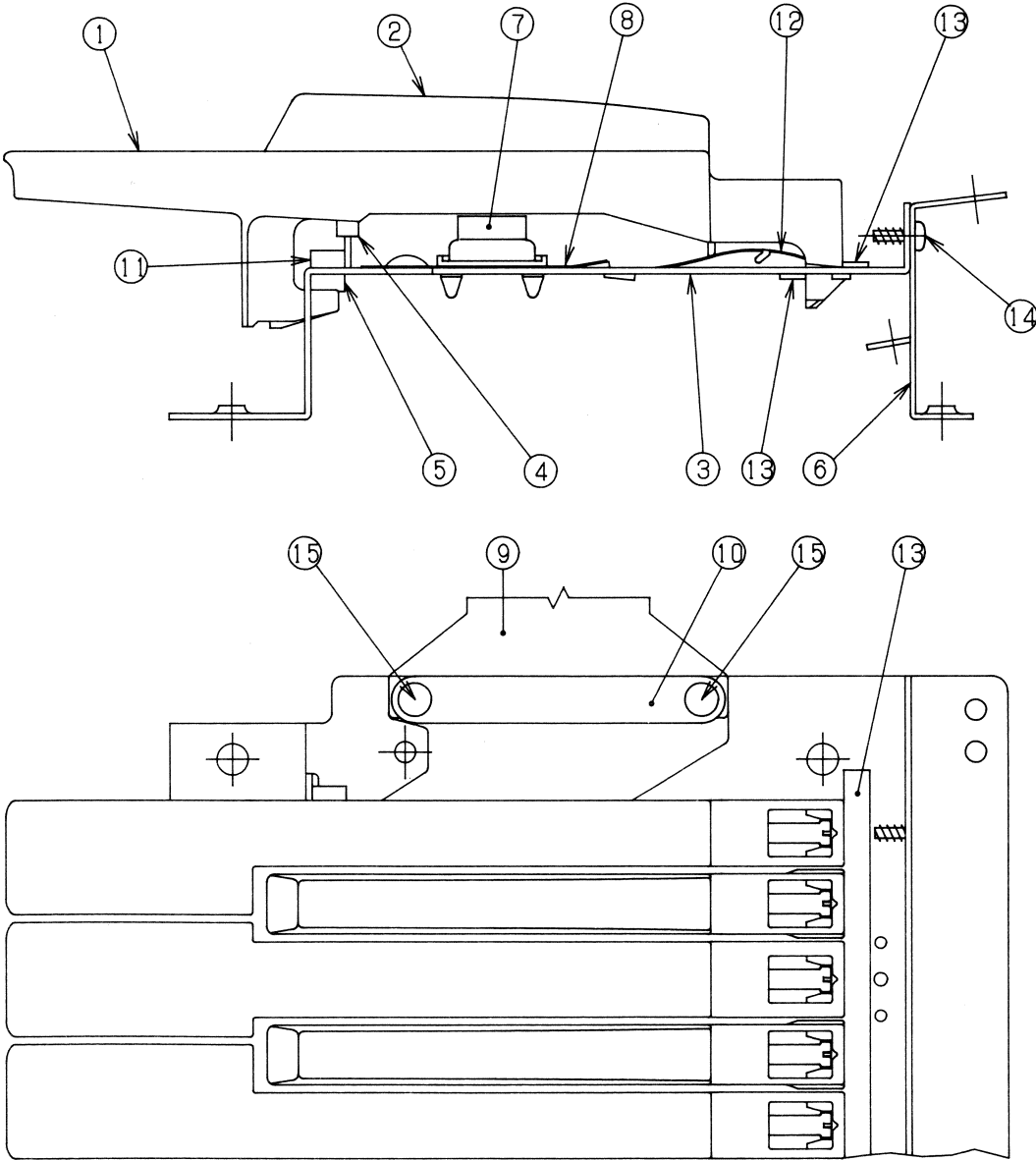
②基板の取り付け方

接点ゴムの足を基板の穴に合わせて置き、先端のとがっていない細い棒状の物で接点ゴム上面の穴を押さえシャーシに係止する。治具としてクリップを図の様に伸ばした物を使用すると良いでしょう。またゴム接点の左端は、その左側の接点ゴム右端に重ねる様係止する。(H部参考)

注：接点ゴムを取りはずす時、無理に引っ張るとゴム足が切れることがあるので慎重に扱うこと。

U-20 (SK-761-BWCA) PARTS LIST

NO.	PARTS NO.	PARTS NAME	
1	22575254	SK-7 NATURAL KEY C/F	257-254
	22575256	" E/B	257-256
	22575258	" D	257-258
	22575259	" G	257-259
	22575253	" A	257-253
	22575255	" C' /F'	257-255
2	22575261	SK-7 SHARP KEY	257-261
3	22815653	SK-7 CHASSIS 61P	281-653 SK-761 CHASSIS 281-653CA ASSY
4	22155775	SK-7 GUIDE BUSH	215-775 281-677 22815677
5	22265493	SK-7 FELT 61KEY	226-493
6	22125285	ANGLE	212-285
7	22185236	SK-7 CONTACT LUBBER 12PW	218-236 SK-761 CONTACT LUBBER
	22185237	SK-7 CONTACT LUBBER 13PW	218-237 7621422000
8	22925669	SK-7 CONTACT BOARD 61P	SK-761-BWCA CONTACT BOARD ASSY
9	23475276	CIC CABLE	347-276 7621322000
10	22205309	SK-761 CONNECTOR HOLDER	220-309
11	23165695	SK-761 CA-01 AFTERTOUC ASSY	
12	22175203	SK-7 SPRING	217-203
13	22135430	SK-761 STOPPER	213-430
14		TAPPING SCREWS 3X6 B1	★
15		NYLON RIVET NRP-355	★



WIRING/ワイヤリング

fig. 1

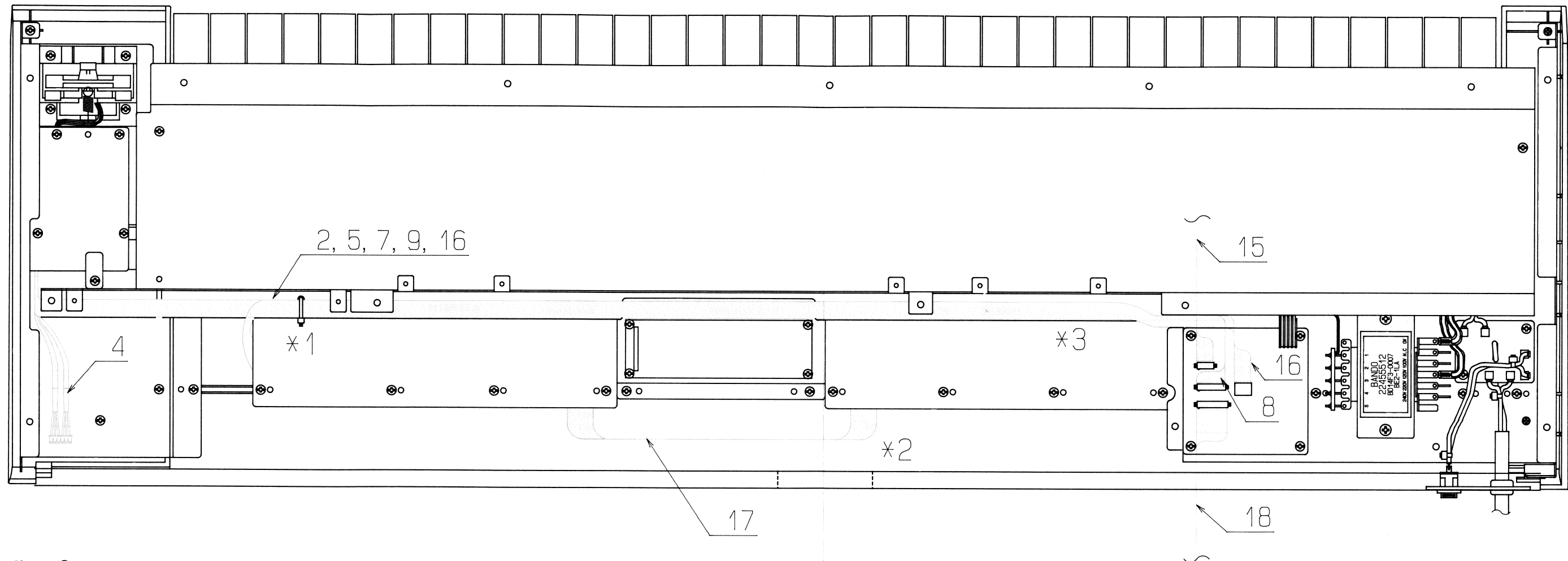
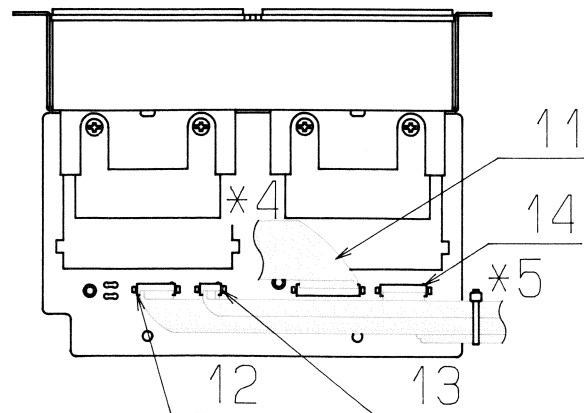


fig. 2



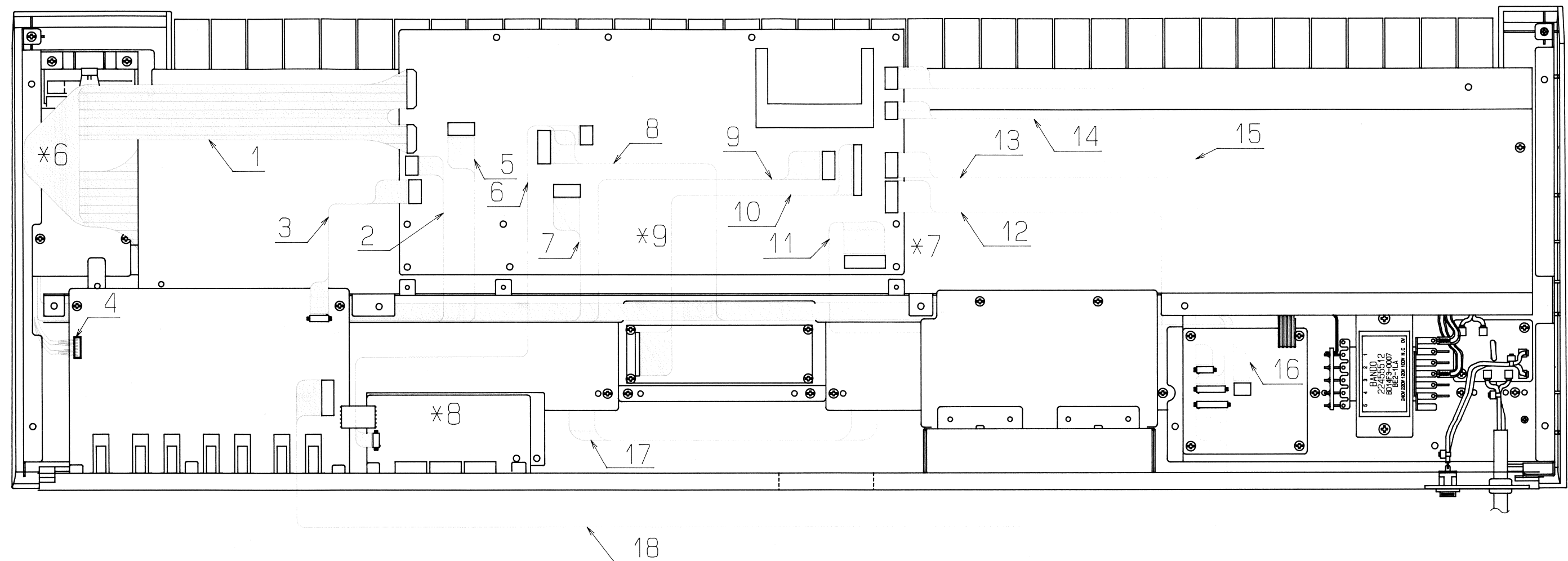
- * 1. Clamp the 5 wires on the keyboard angle in the order of 16, 9, 7, 5 and 2 from the panel side.
- * 2. Bend the wiring toward the panel surface so that it does not catch on the card insertion port.
- * 3. Trail wires 8 and 16 along the keyboard angle.
- * 4. Do not the wiring catch on the card and connector insertion ports.
- * 5. Clamp in the order of 12, 13 and 14 from beneath.

- * 1. ワイヤリング5本をパネル側から16、9、7、5、2の順番で鍵盤のアングルにクランプします。
- * 2. ワイヤリングがカード挿入口に掛からないようワイヤリングをパネル面側に折り曲げます。
- * 3. 8と16を鍵盤のアングルに沿ってはわします。
- * 4. ワイヤリングがカード・コネクタの挿入口に掛からないこと。
- * 5. 下から12、13、14の順番でクランプする。

- 1: From keyboard to main board (flat cable)
- 2: From switch board to main board (5P white)
- 3: From jack board to main board (7P white)
- 4: From bender board to jack board (6P)
- 5: From switch board to main board (8P black)
- 6: From MIDI board to main board (5P black)
- 7: From bender board to main board (8P white)
- 8: From power supply board to main board (11P red)
- 9: From switch board to main board (9P red)

- 10: From LCD unit to main board (15P)
- 11: From card board to main board (14P red)
- 12: From card board to main board (10P black)
- 13: From card board to main board (8P white)
- 14: From card board to main board (4P red)
- 15: From power supply board to main board (6P black)
- 16: From bender board to power supply board (4P red)
- 17: From switch board L to switch board r (11P white)
- 18: From power supply board to jack board (12P black)

fig. 3



* 6. Bending is strictly prohibited. Be careful in twisting the wires.

* 7. When installing the main board, bend the wiring toward the center of the main board so that it does not touch the keyboard molding.

* 8. Install the MIDI board in the panel after installing the main board.

* 9. Clamp the wiring of the LCD unit at the center so it will not spread out loosely.

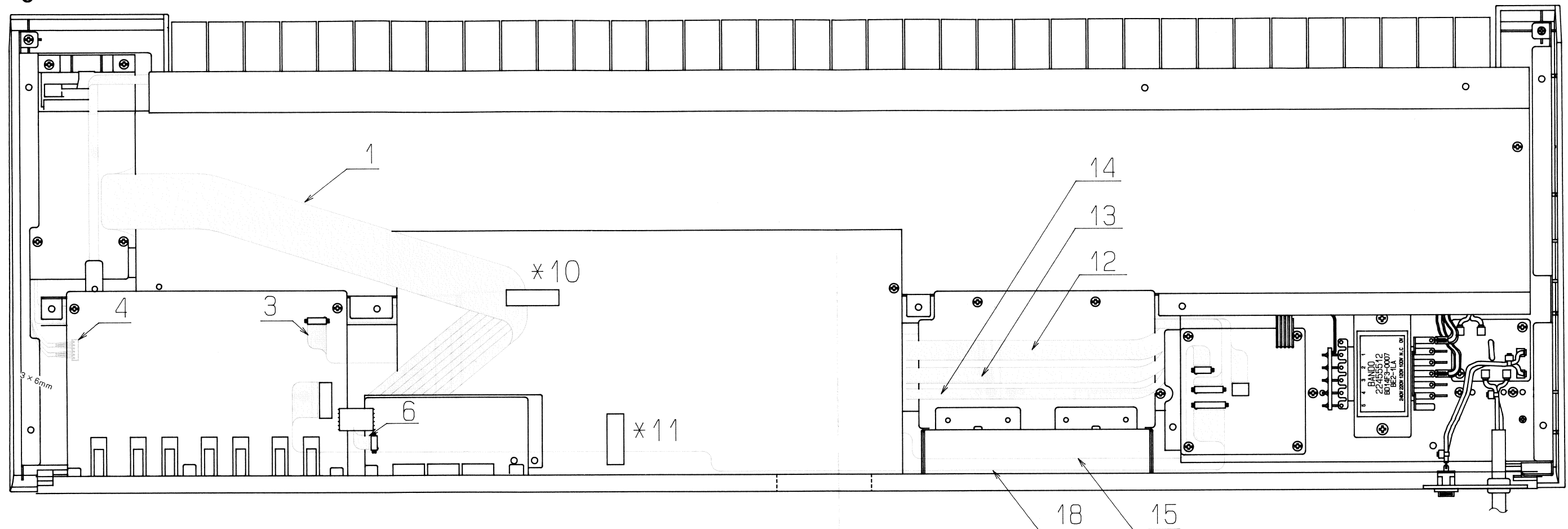
* 6. 折り曲げ厳禁 ねじり方に注意。

* 7. メイン・ボードを取り付けした際に、ワイヤリングが鍵盤のモールドにあたらないようにワイヤリングをメイン・ボード中央方向に折り曲げること。

* 8. MIDIボードはメイン・ボードを取り付けてからパネルに取り付けること。

* 9. LCDユニットのワイヤリングがバラバラにならぬよう中央でクランプのこと。

fig. 4



* 10. Attach with a piece of tape no longer than 60mm.
Bending is strictly prohibited.

* 11. Attach with a piece of tape no longer than 60mm.

* 10. 長さ 60 以内のテープで貼り付けること。折り曲げ厳禁

* 11. 長さ 60 以内のテープで貼り付けること。

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



TEST MODE

テスト・モード

To enter Test Mode,(1) first press **PART** and **RHYTHM** at the same time to activate ROM play Mode and (2) then press **ENTER** while pressing **MARK** and **JUMP**.

Test Modeに入るには、**PART**、**RHYTHM** を同時に押してROM Play Modeにし、**MARK**、**JUMP** を押しながら、**ENTER**を押す。

Version Number
バージョンナンバーの表示

```
====< U-20 TEST MODE >====  
U-20 U-.- 89/--/-- ----
```

↑ Version Number

Switch operation while in Test Mode

Test Mode中のスイッチ操作

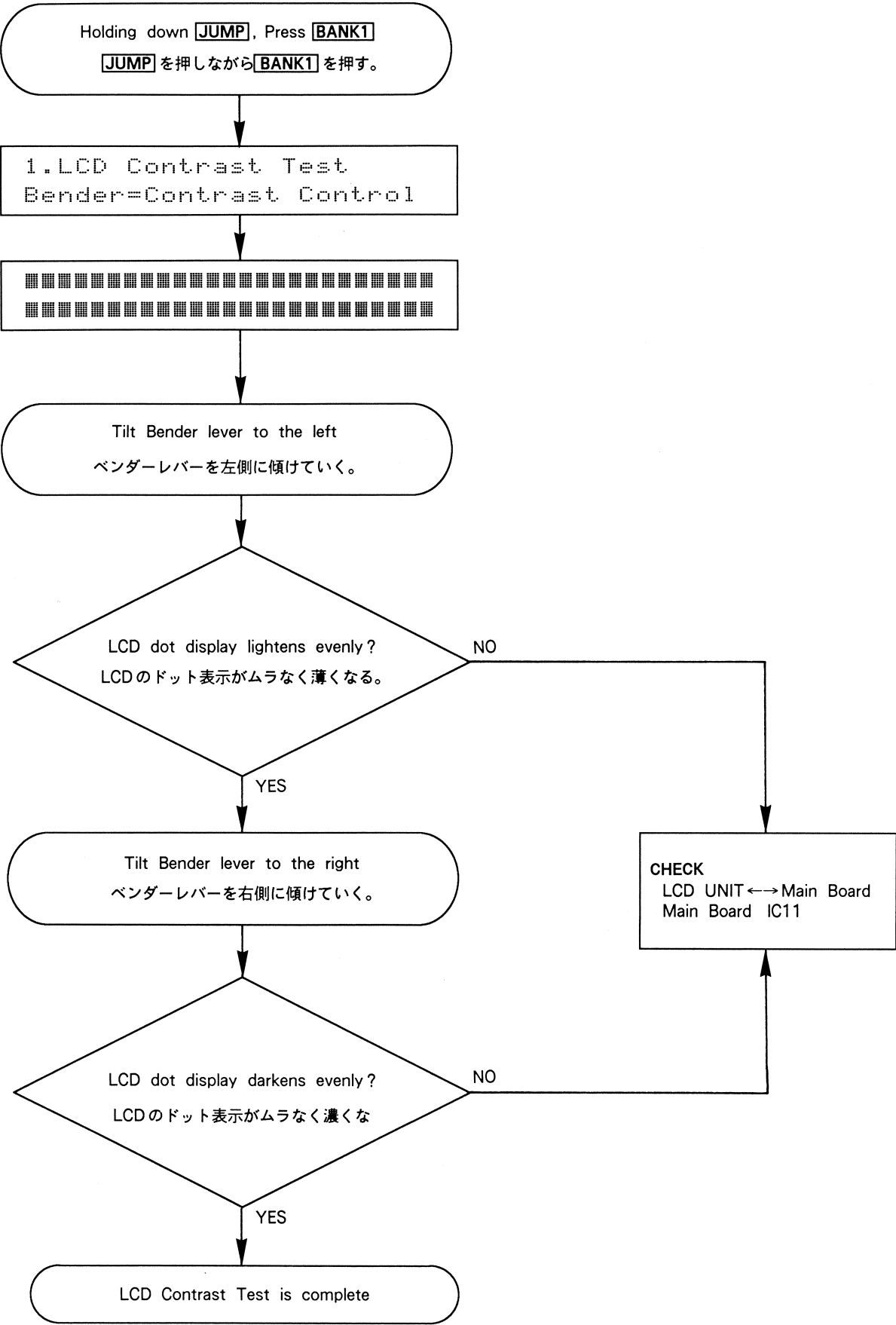
JUMP + CURSOR▶	Moves to next test item 次のテスト項目に移動
JUMP + ◀CURSOR	Moves to previous test item 1つ前のテスト項目に移動
JUMP + BANK1 - 8	Directly selects test items 1 - 8 テスト項目1 - 8をダイレクト選択
JUMP + NUMBER1 - 8	Directly selects test item 9 - 16 テスト項目9 - 16をダイレクト選択
JUMP + EXIT	Exits Test Mode テスト・モード 終了

List of Test Items

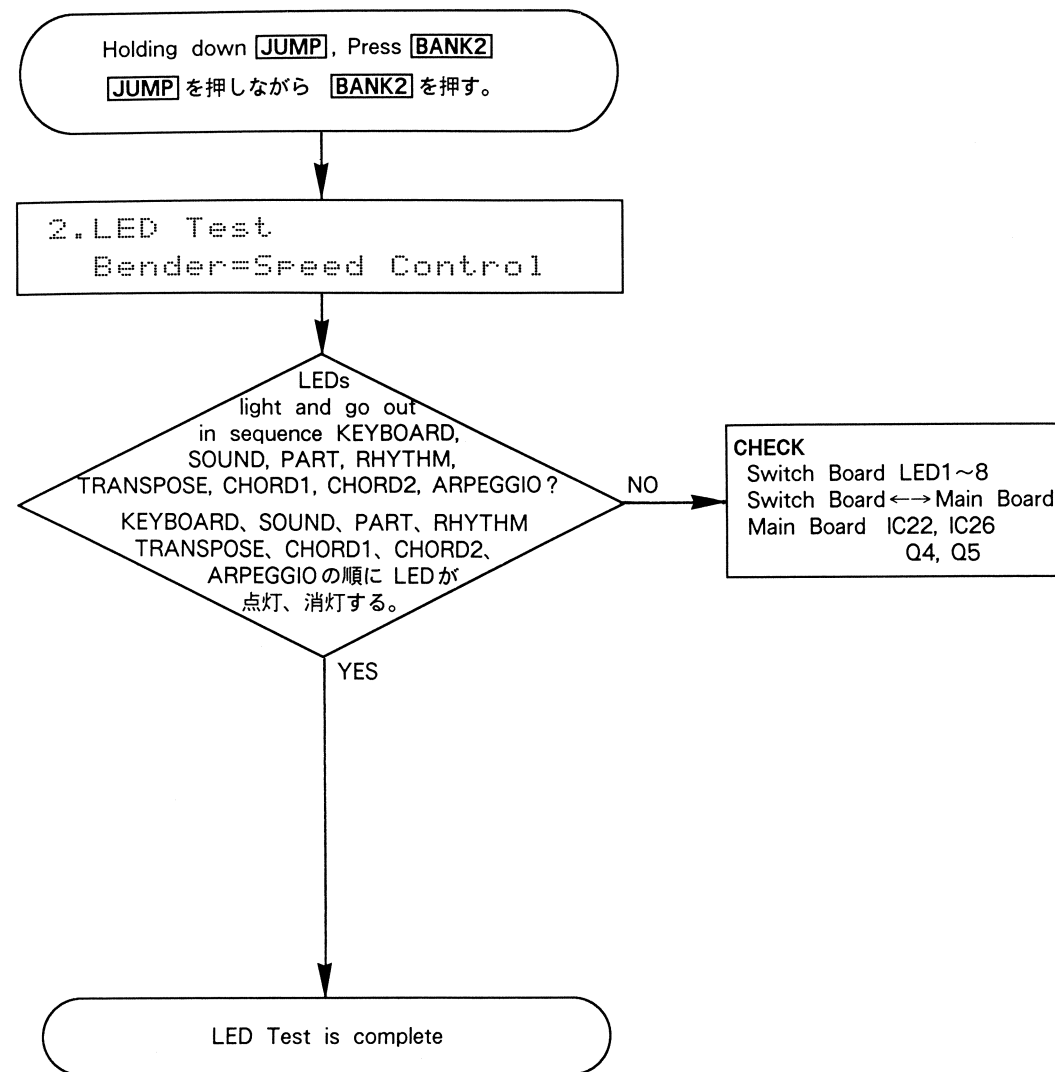
テスト項目一覧

1	LCD Contrast Test	JUMP + BANK 1
2	LED Test	JUMP + BANK 2
3	Internal RAM Test	JUMP + BANK 3
4	RAM Card Test	JUMP + BANK 4
5	PCM Card Test	JUMP + BANK 5
6	INT PCM ROM Test	JUMP + BANK 6
7	Key & Button Test	JUMP + BANK 7
8	A/D Test (1)	JUMP + BANK 8
9	A/D Test (2)	JUMP + NUMBER 1
10	MIDI Test	JUMP + NUMBER 2
11	Sound Test (1)	JUMP + NUMBER 3
12	Sound Test (2)	JUMP + NUMBER 4
13	DAC MSB Adjust	JUMP + NUMBER 5
14	Effect Test	JUMP + NUMBER 6
15	Memory Initialize	JUMP + NUMBER 7
16	Factory Data Load	JUMP + NUMBER 8

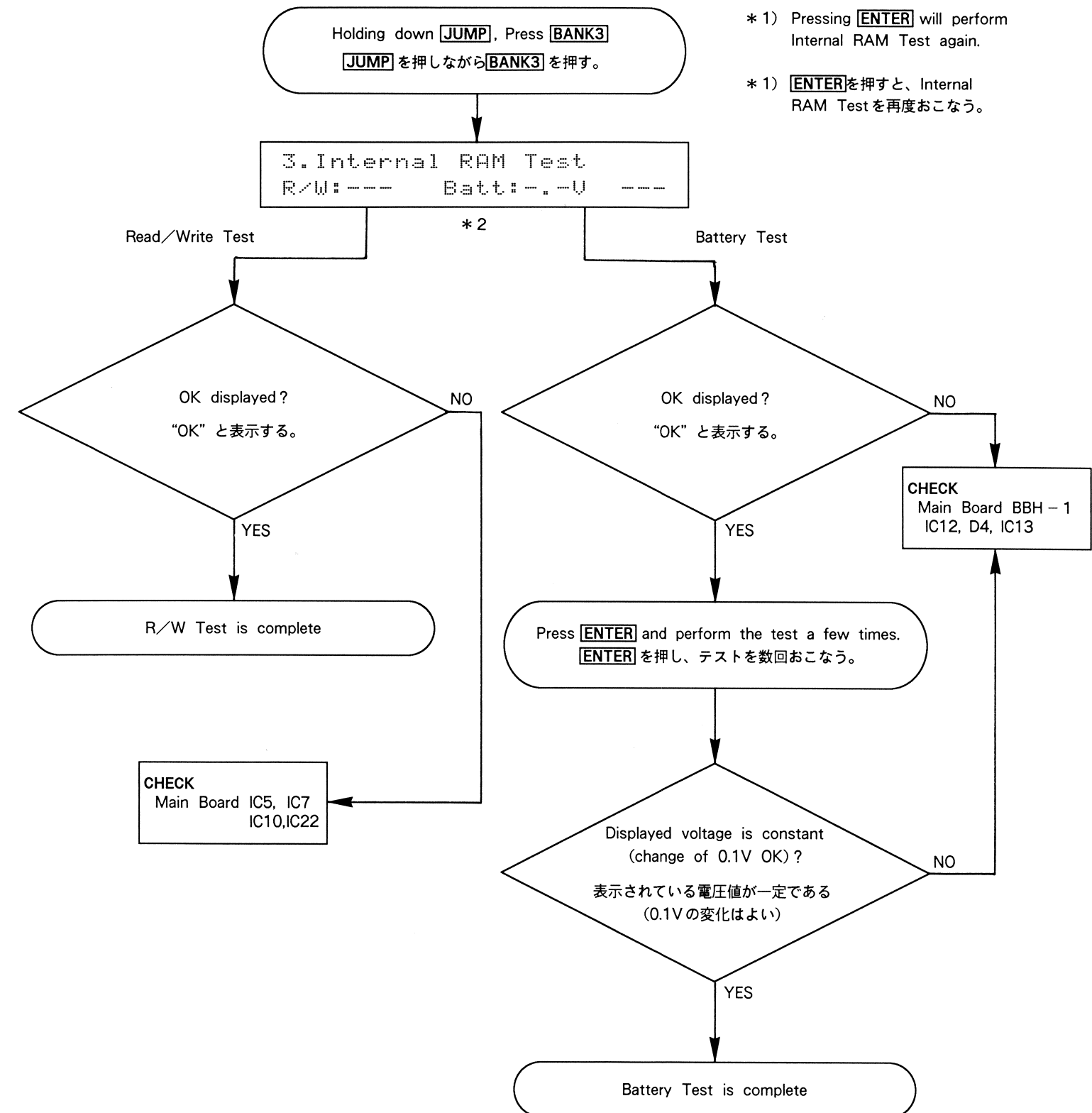
1.LCD Contrast Test



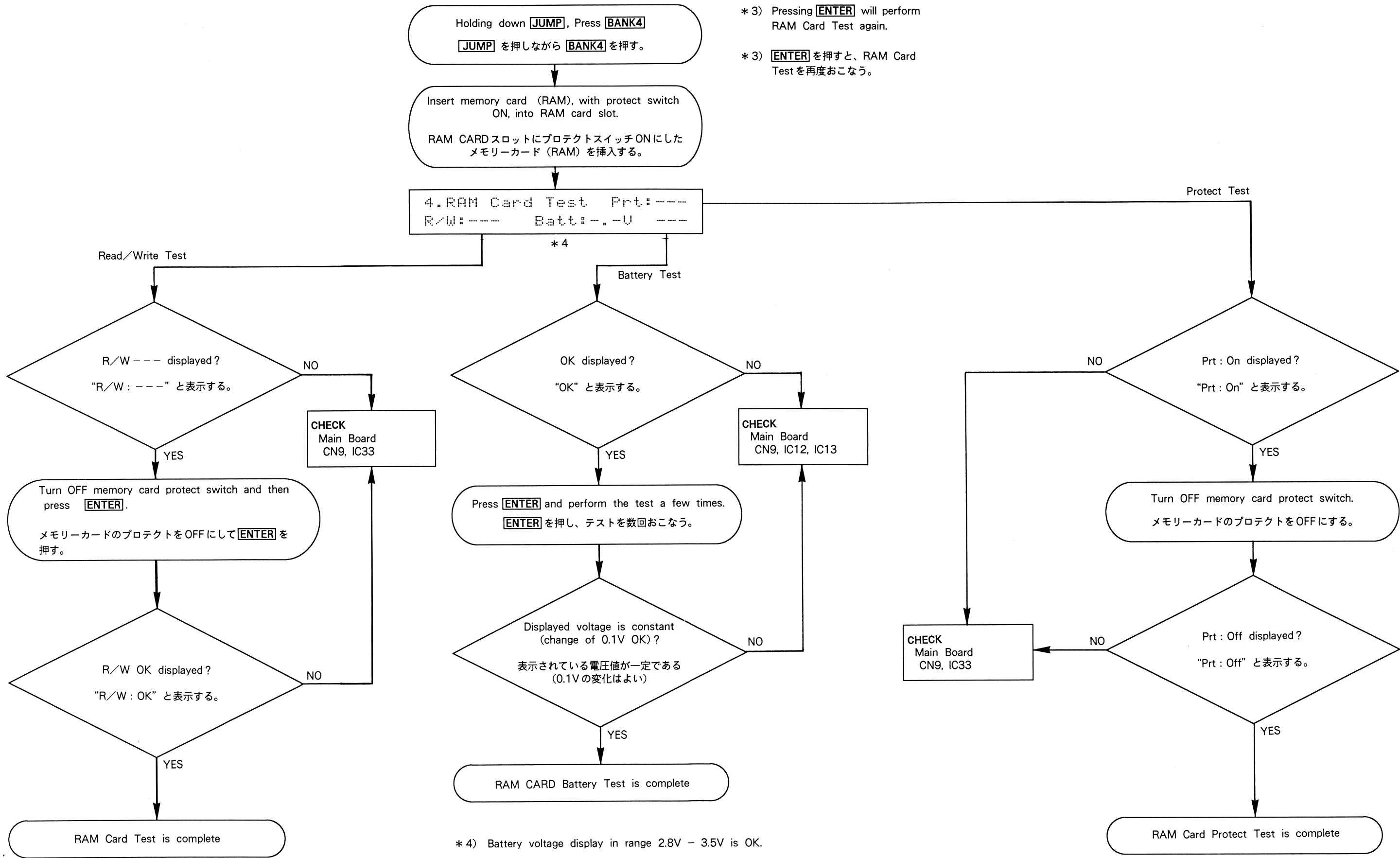
2. LED Test



3.Internal RAM Test



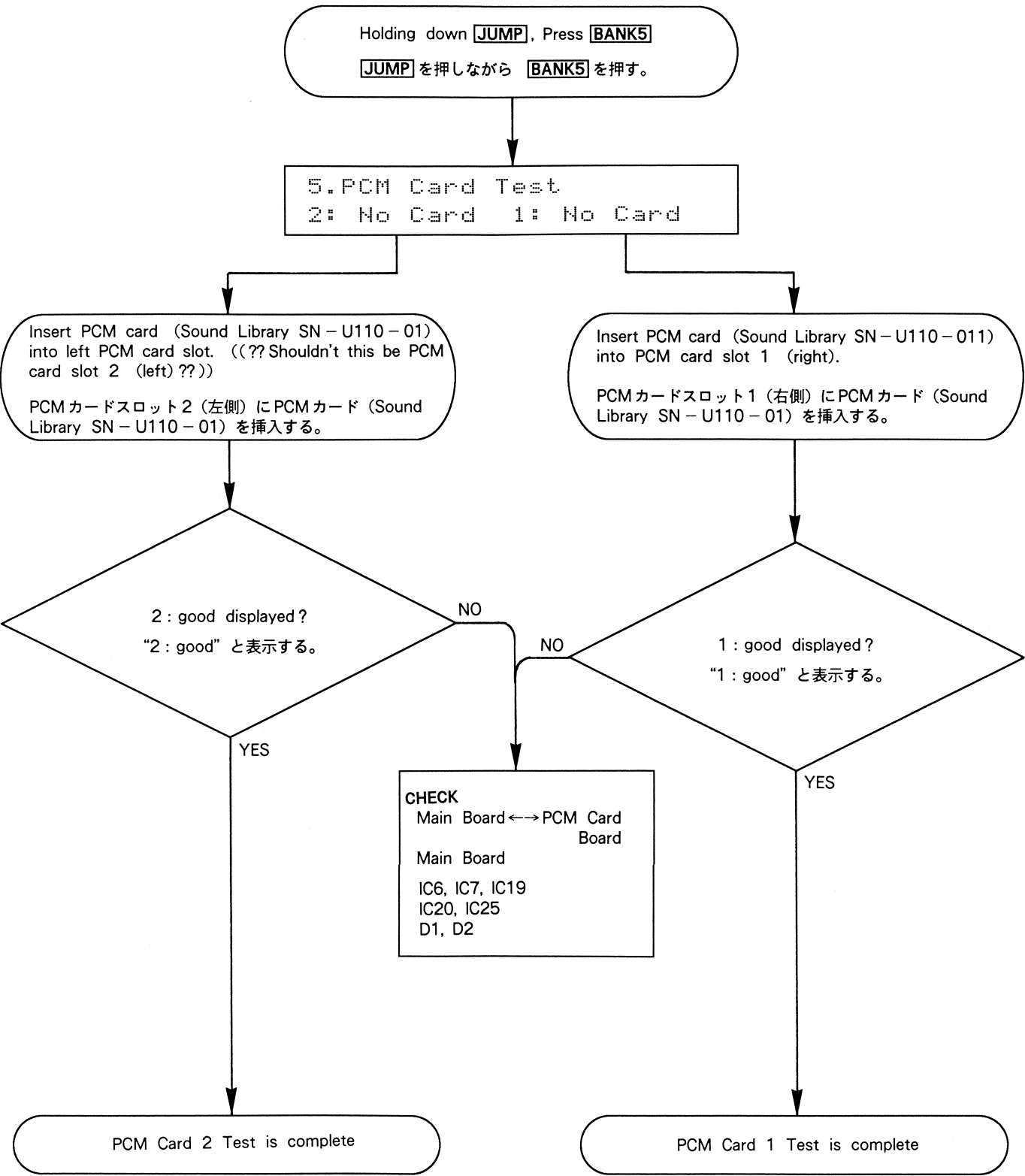
4.RAM Card Test



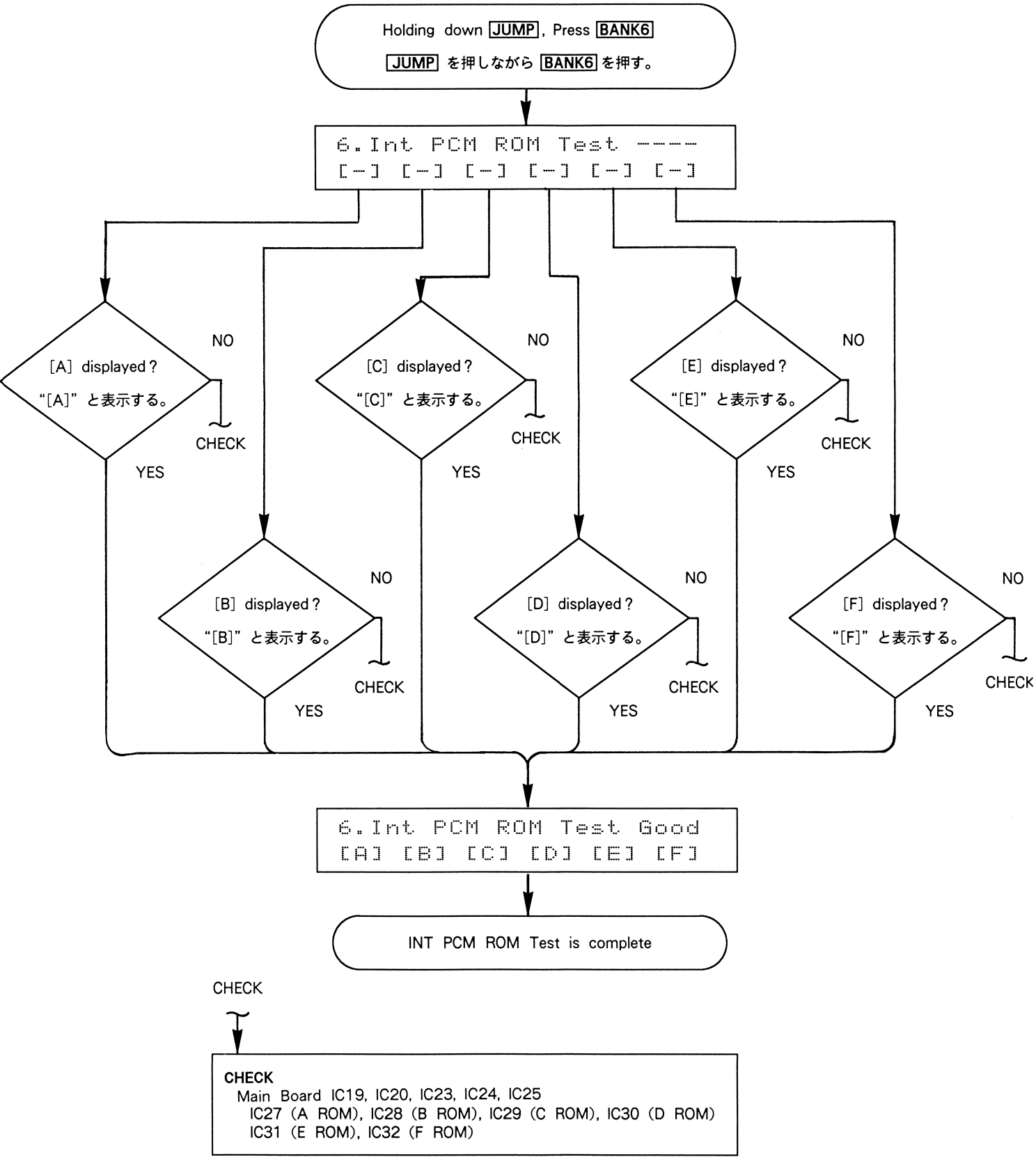
* 3) Pressing **ENTER** will perform RAM Card Test again.
* 3) **ENTER** を押すと、RAM Card Test を再度おこなう。

* 4) Battery voltage display in range 2.8V - 3.5V is OK.
* 4) バッテリーの電圧表示は、2.8V~3.5V の間で "OK" となる。

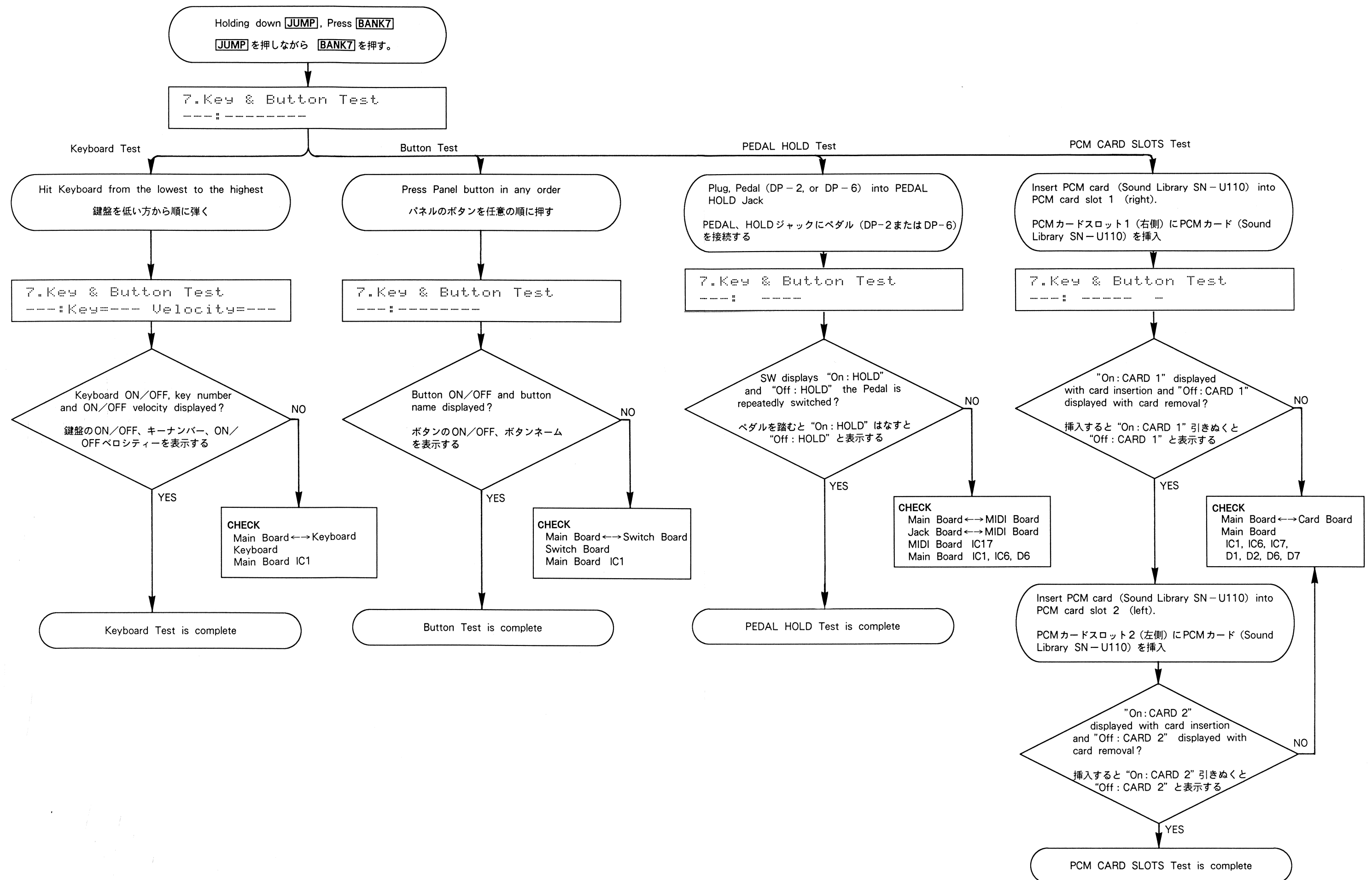
5.PCM Card Test



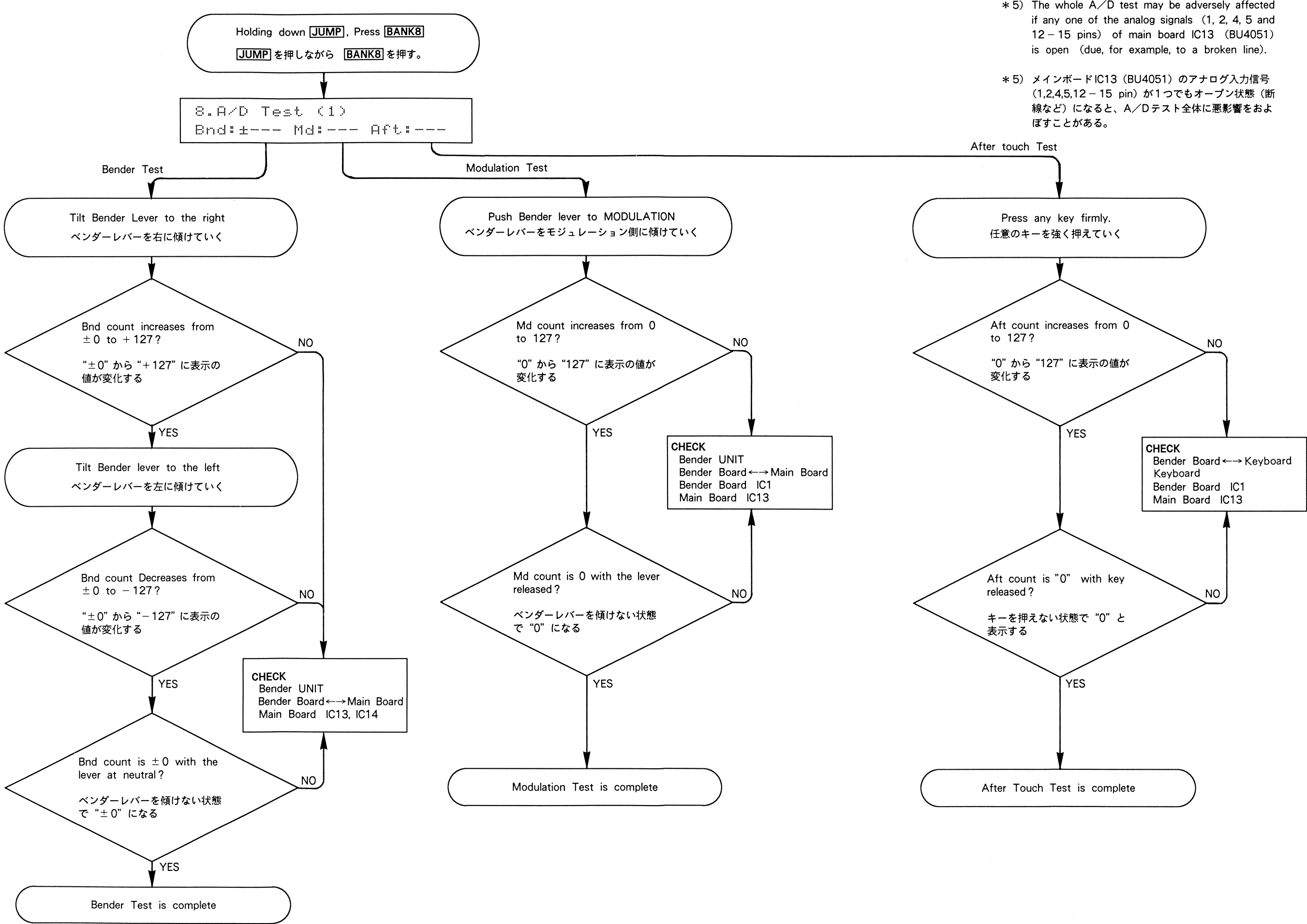
6.INT PCM ROM Test



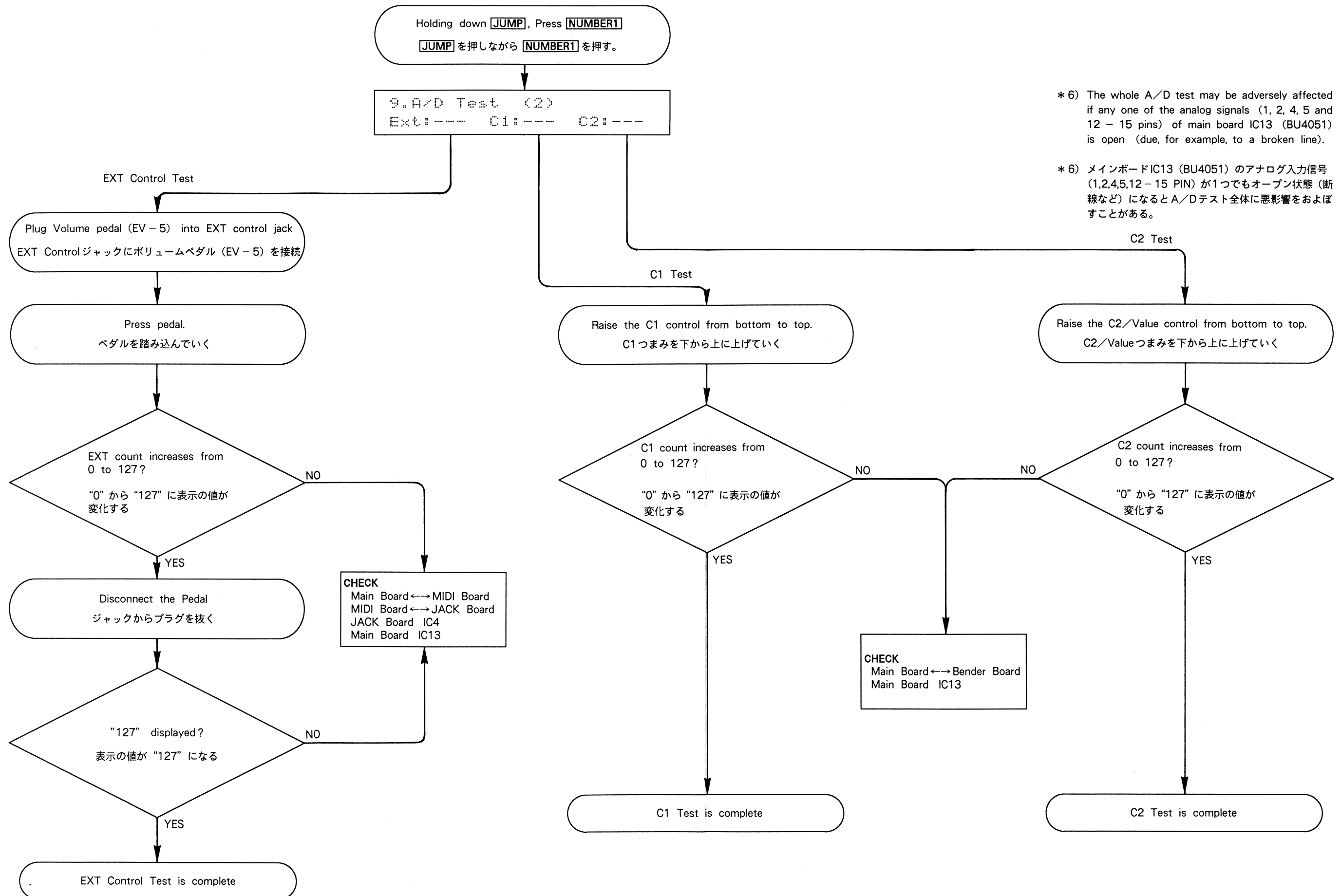
7.Key and Button Test



8.A/D Test (1)



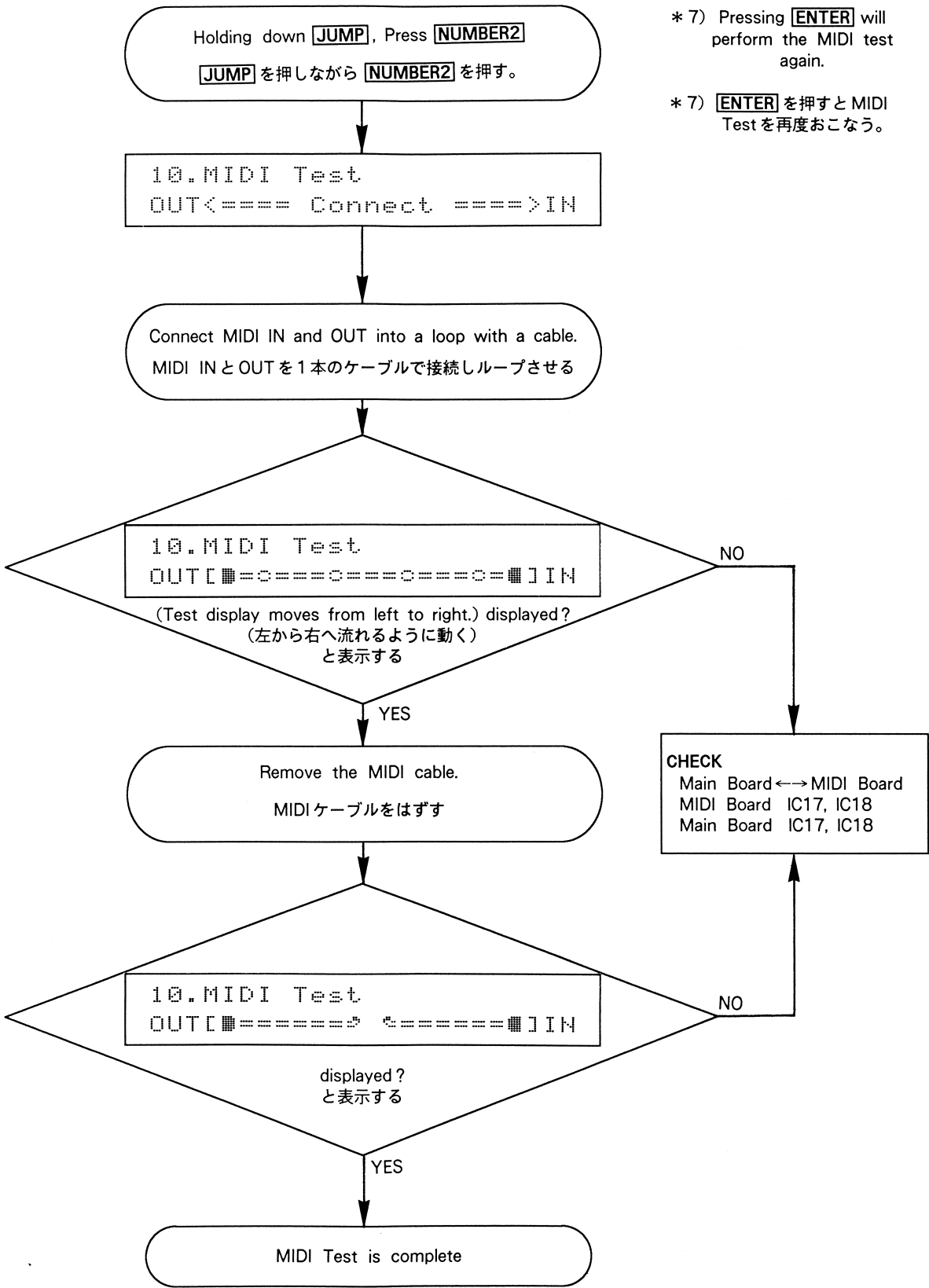
9.A/D Test (2)



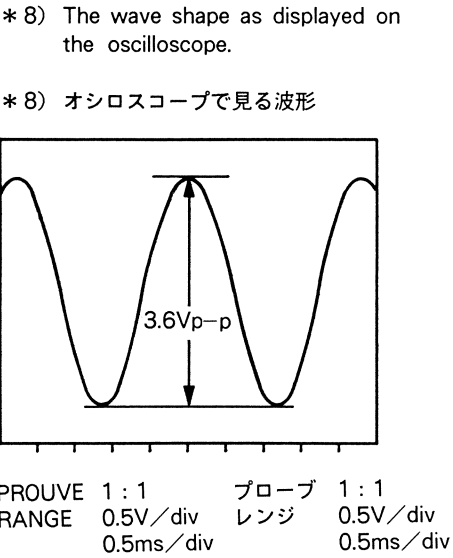
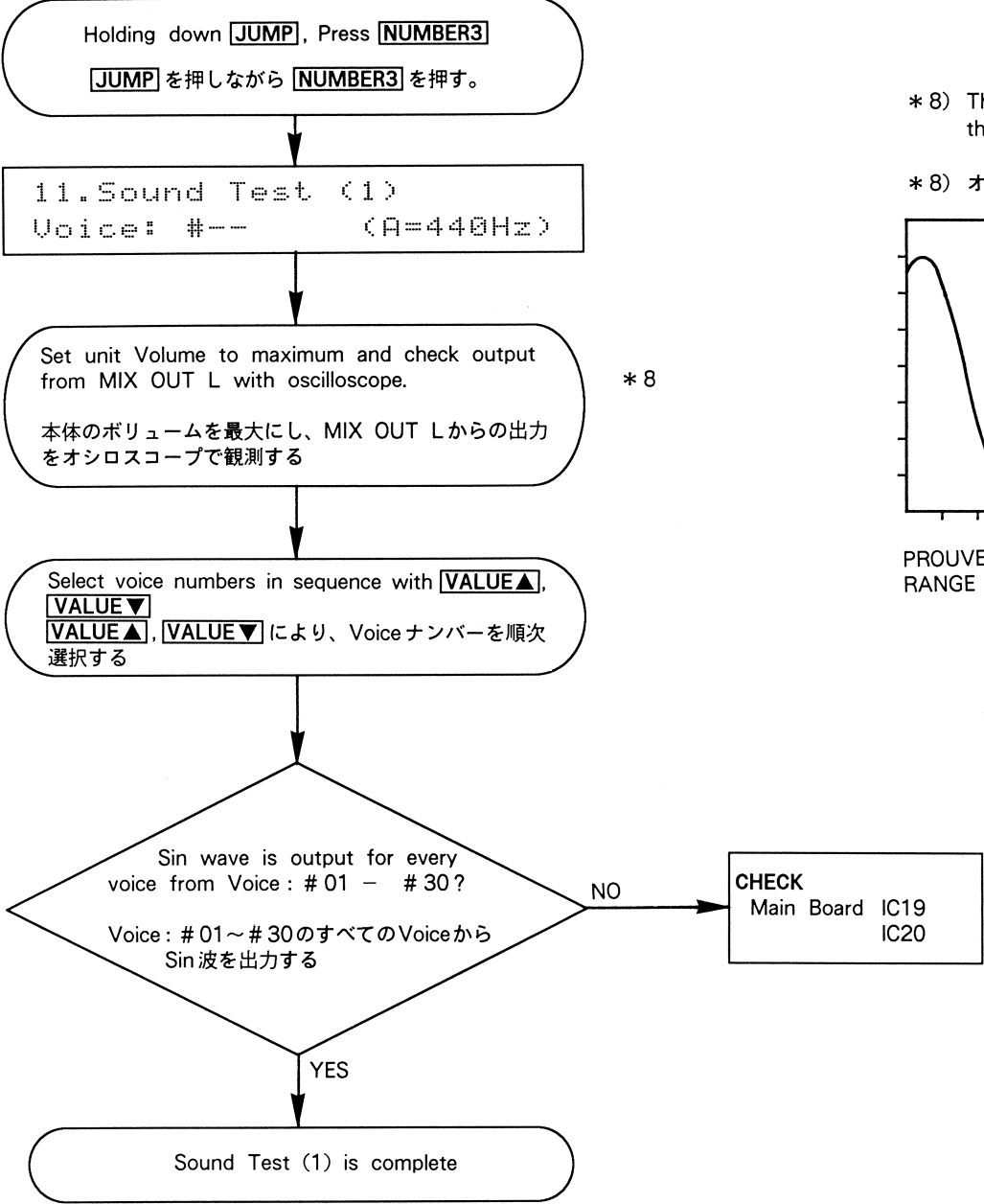
* 6) The whole A/D test may be adversely affected if any one of the analog signals (1, 2, 4, 5 and 12 - 15 pins) of main board IC13 (BU4051) is open (due, for example, to a broken line).

* 6) メインボードIC13 (BU4051) のアナログ入力信号 (1,2,4,5,12-15 PIN) が1つでもオープン状態 (断線など) になるとA/Dテスト全体に悪影響をおよぼすことがある。

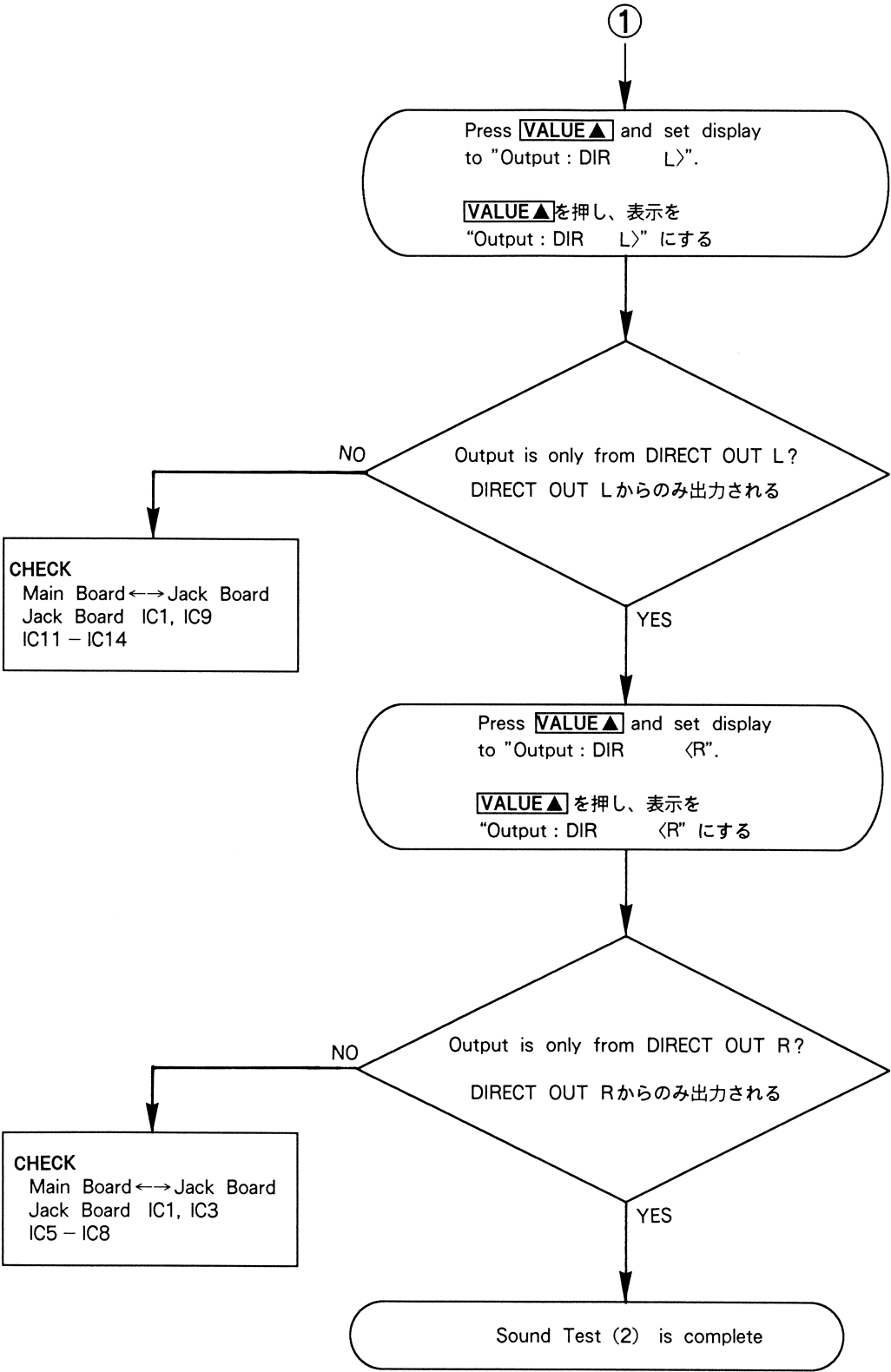
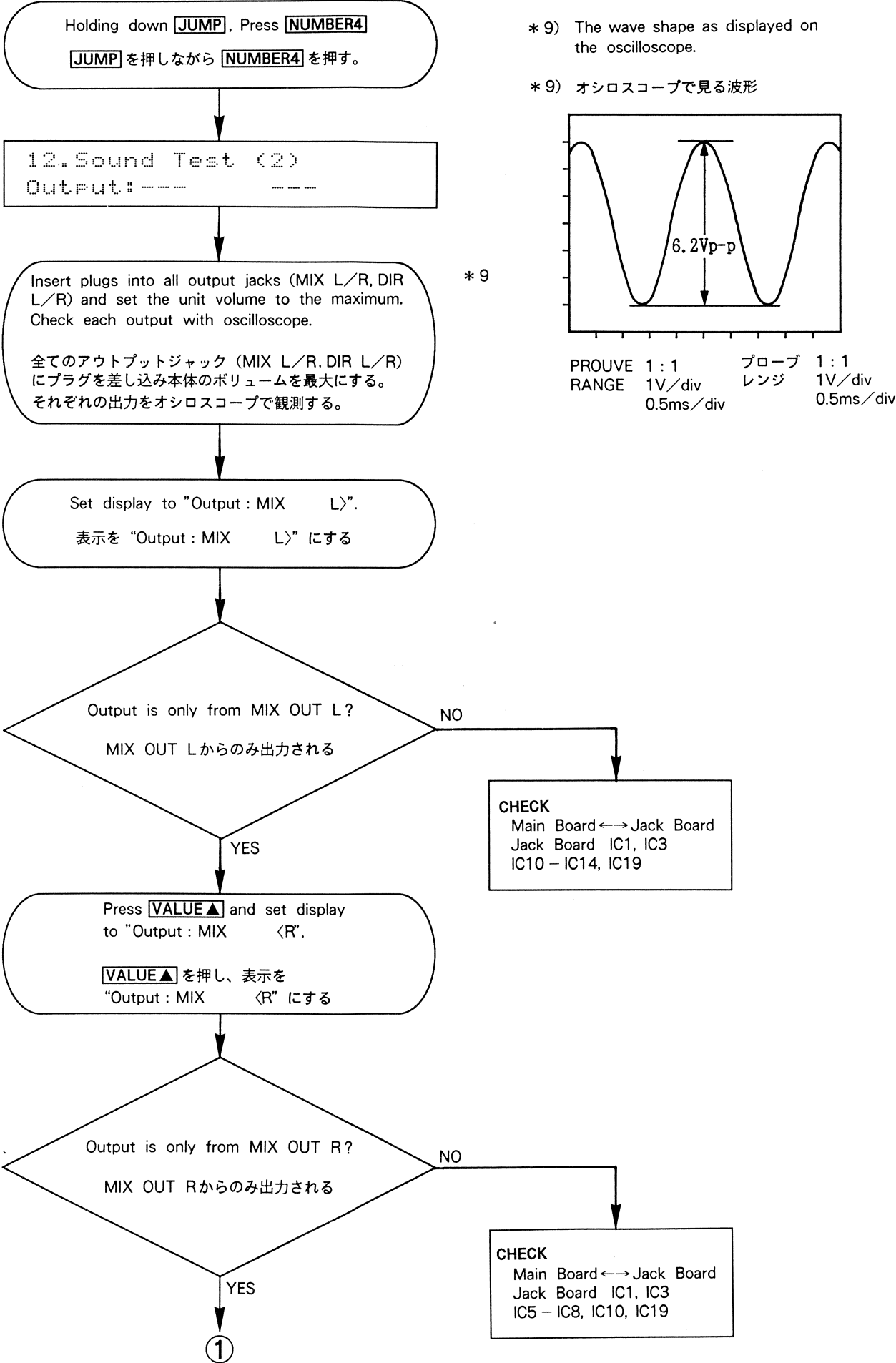
10. MIDI Test



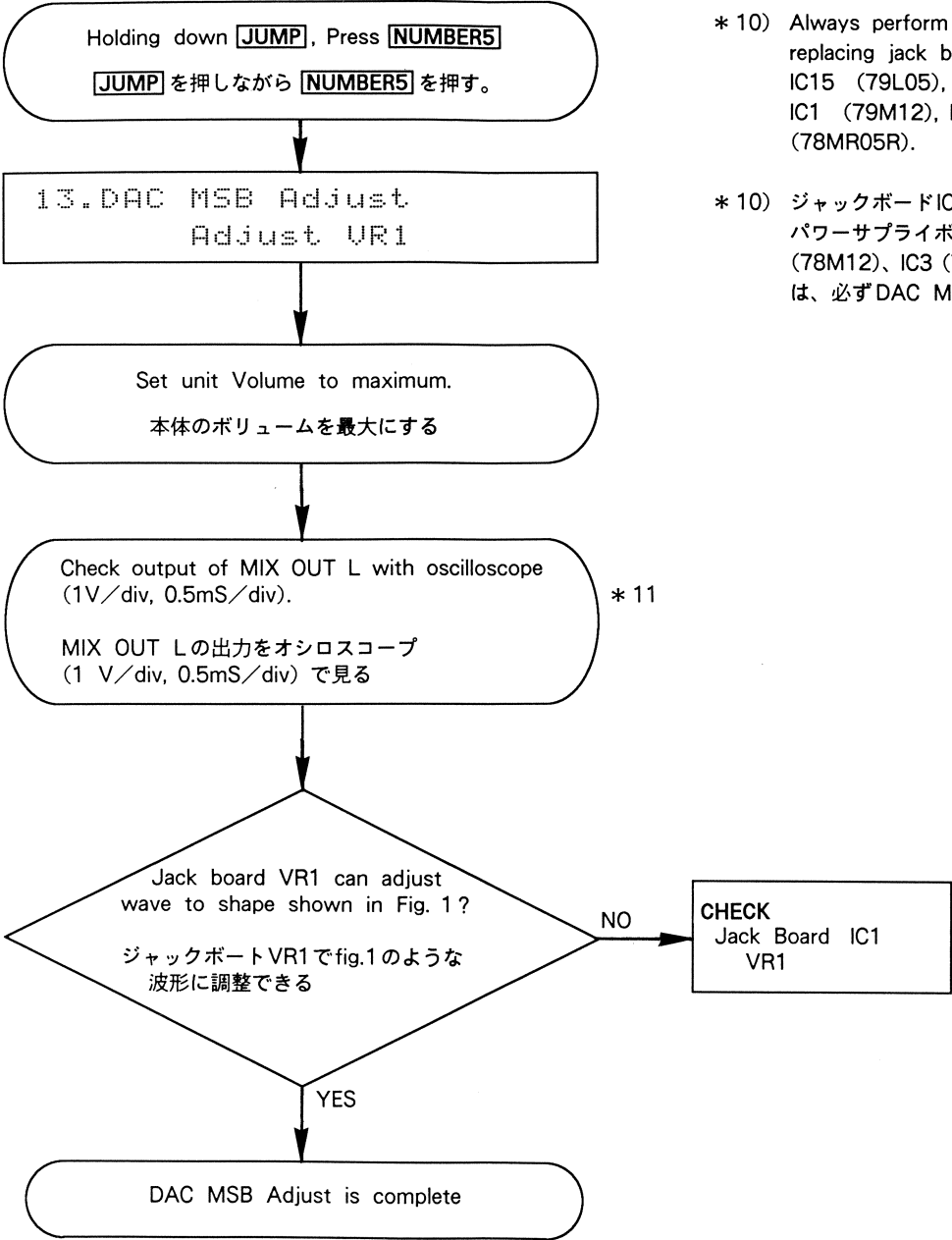
11. Sound Test (1)



12. Stound Test (2)

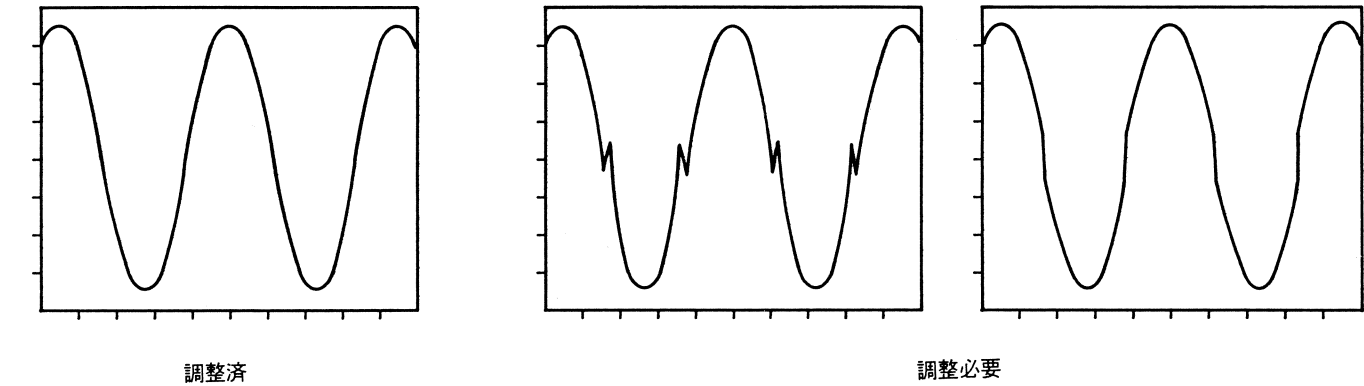


13. DAC MSB Adjust



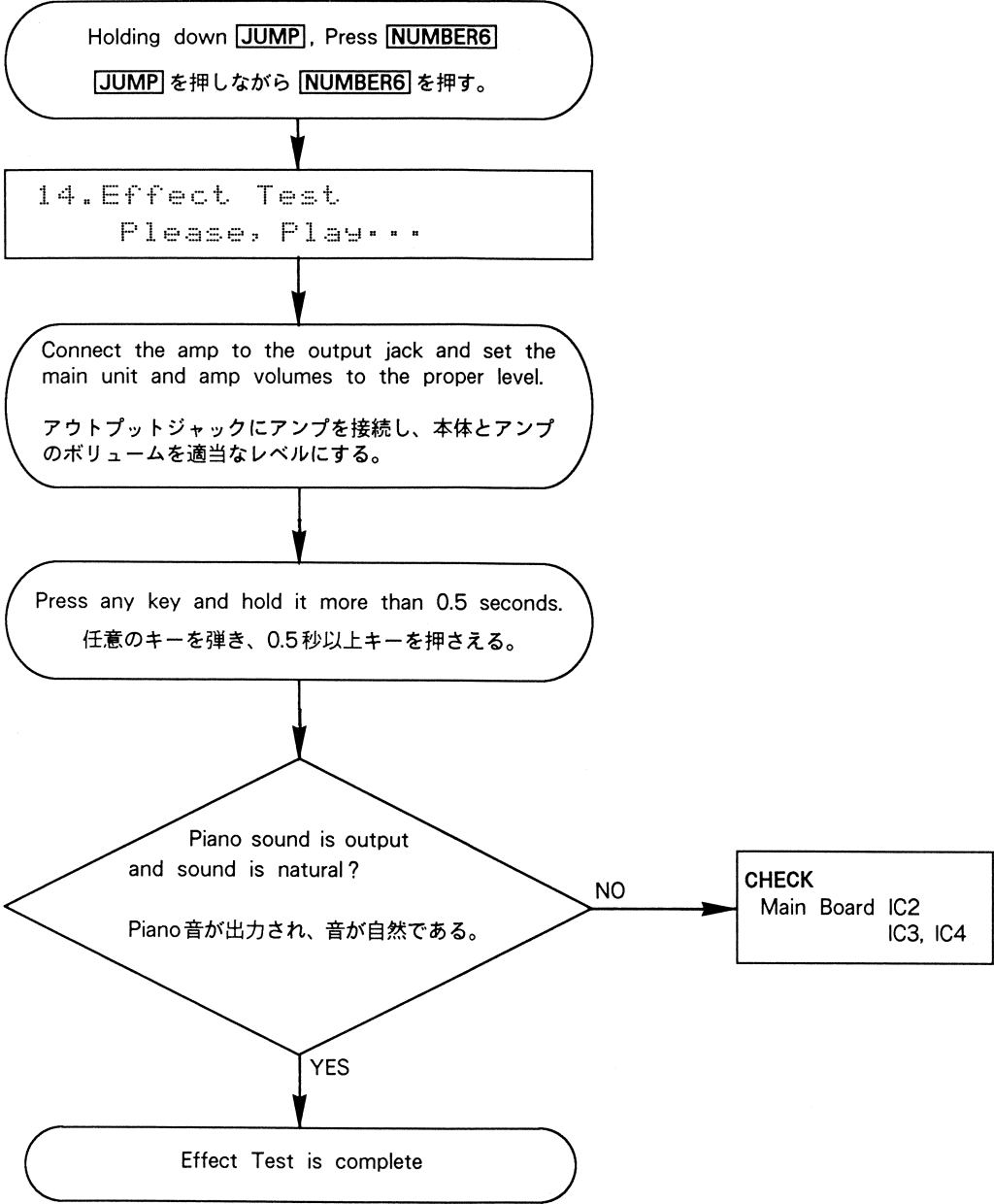
- * 10) Always perform DAC MSB Adjust when replacing jack boards IC1 (PCM56) or IC15 (79L05), or power supply boards IC1 (79M12), IC2 (78M12) or IC3 (78MR05R).
- * 10) ジャックボードIC1 (PCM56)、IC1 (79L05) パワーサプライボードIC1 (79M12)、IC2 (78M12)、IC3 (78MR05R) を交換した場合は、必ずDAC MSB Adjustをおこなう。

- * 11) The wave shape as displayed on the oscilloscope. (Probe 1:1 Range: 5mV/div 0.5mS/div)
- * 11) オシロスコープで見る波形 (プローブ 1:1 レンジ 5mV/div 0.5mS/div)

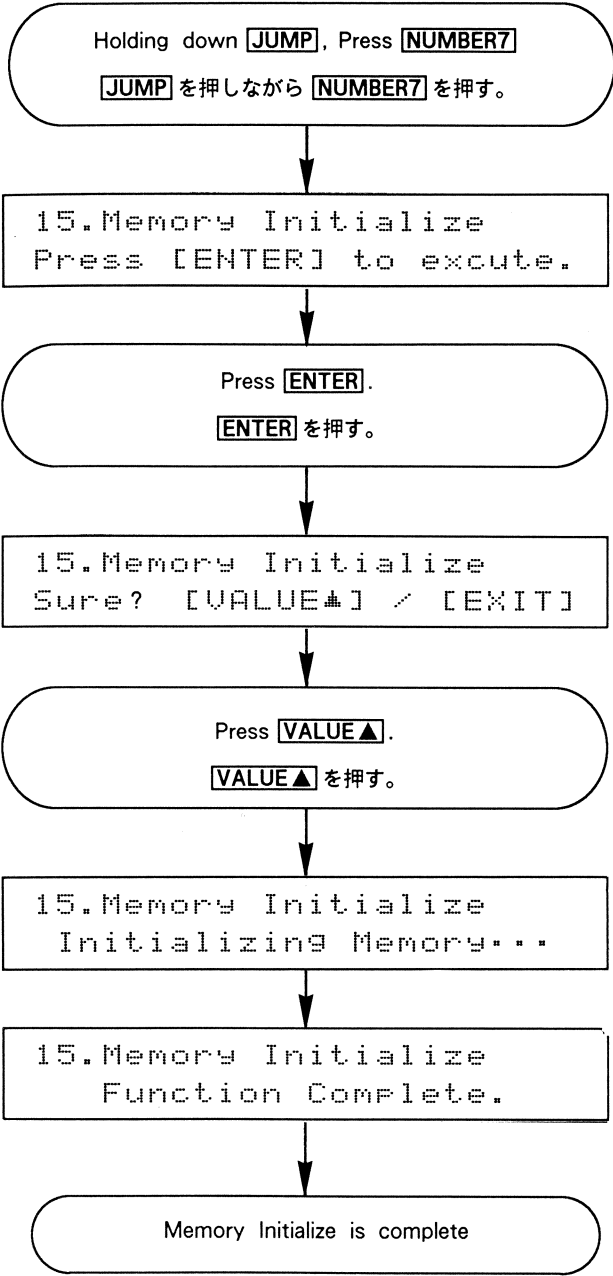


(Since the level is low for the performance of the oscilloscope, the wave shape may contain noise and be difficult to see.)
(レベルが小さいため、オシロスコープの性能で、ノイズを含んで波形が見つらなくなることがある)

14. Effect Test

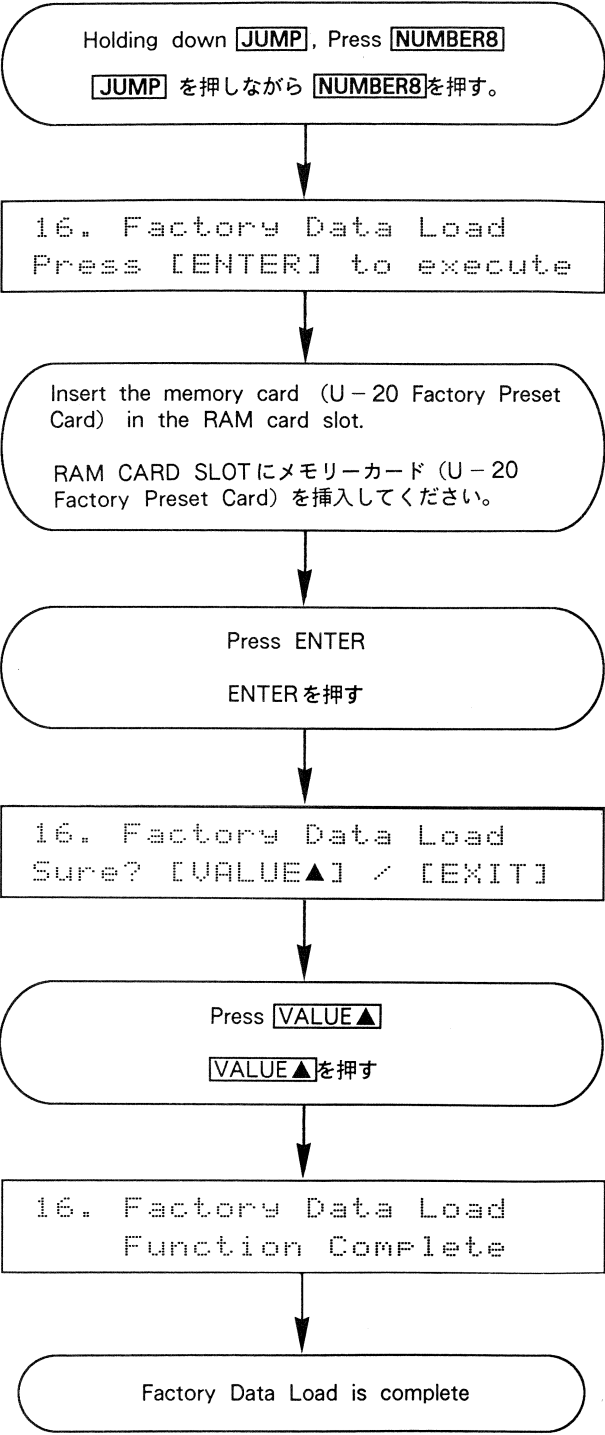


15. Memory Initialization



- * 11) Set all temporary contents to the initialization value.
(Data stored in the main unit (internal) will not be initialized.)
- * 11) テンポラリーの全ての内容を、イニシャライズ時の設定にします。(本体 (Internal) に記憶されているデータは、イニシャライズされません。)
- * 12) The contents of the working RAM may be destroyed when replacing the battery (BT1) or working RAM (main board IC5). In this case, perform a Factory Data Load at the same time as Memory Initialize with the procedure shown at left.
- * 12) バッテリー (BT1) や、ワーキングRAM (メインボードIC5) の交換などで、ワーキングRAMの内容が破壊されることがあります。その場合は、左記の手順により、メモリーのイニシャライズと同時にファクトリーデータのロードを行います。

16. Factory Data Load



- * 13) The contents of the working RAM may be destroyed when replacing the battery (BT1) or working RAM (main board IC5). In this case, perform a Factory Data Load at the same time as Memory Initialize with the procedure shown at left.
- * 13) バッテリー (BT1) や、ワーキングRAM (メインボードIC5) の交換などで、ワーキングRAMの内容が破壊されることがあります。その場合は、左記の手順により、メモリーのイニシャライズと同時にファクトリーデータのロードを行います。
- * 14) A RAM Card (M-256E) is used for the memory card, but an OTP ROM Card (M-256N) can also be used. If the OTP ROM Card (M-256N) is used, the message "RAM Card Battery Low!" may be displayed! However, the factory data can be loaded by pressing ENTER and then VALUE▲
- * 14) メモリーカードには、RAM Card (M-256E) を使用しますが、OTP ROM Card (M-256N) を使用することもできます。OTP ROM Card (M-256N) を使用した場合には、"RAM Card Battery Low!" と表示したままになることがありますが、ENTER を押し、VALUE▲ を押し、ファクトリーデータのロードを行います。

Program ROM Replacement Procedure

プログラムROMの交換手順

Follow the work procedure below in order to perform the work safely.

安全に作業を行う為に、以下の作業手順に従ってください。

1) Turn OFF the power supply switch and remove the power supply cord. Turn over the U-20 unit, loosen (1) 15 screws and (2) 5 screws and then remove the bottom cover from the unit. (Fig.1)

1) 電源スイッチを切り、電源コードを抜きます。U-20本体を裏返し、①ネジ15ヶと②ネジ5ヶをゆるめて、ボトムカバーを本体から取り外します。(図-1)

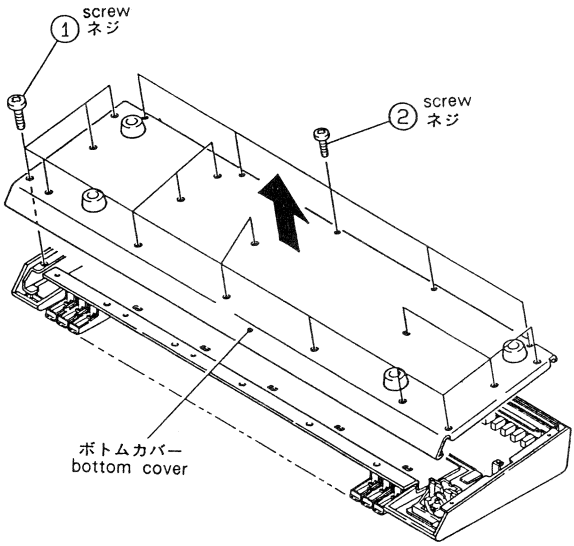


Fig.1 (図-1)

2) Loosen (3) 2 screws (short), (3) 2 screws (long) and (5) 1 screw on the rear panel and remove the MIDI board from the panel. Remove the wiring (12 pin) of the jack board and place the MIDI board on the jack board. (Fig.2)

2) パネルリヤー部の③ネジ (短) 2ヶと④ネジ (長) 2ヶと⑤ネジ 1ヶをゆるめMIDIボードをパネルからはずします。JACKボードのワイヤリング (12pin) をはずしてMIDIボードをJACKボードの上にのせます。(図-2)

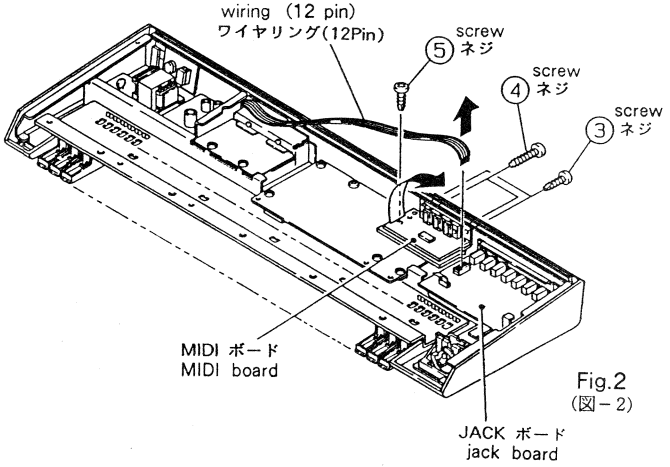


Fig.2 (図-2)

3) Loosen (6) 3 screws on the rear panel and (7) 3 installation screws on the main board and remove the main board from the panel and keyboard angle. Place the main board face up and to the keyboard side so that the part surface is visible. (Fig.3)

3) パネルリヤー部の⑥ネジ3ヶとMAINボードの取り付けネジ⑦3ヶをゆるめてパネル及び鍵盤アングルから外します。MAINボードの部品面が見えるように鍵盤側に仰向けにします。(図-3)

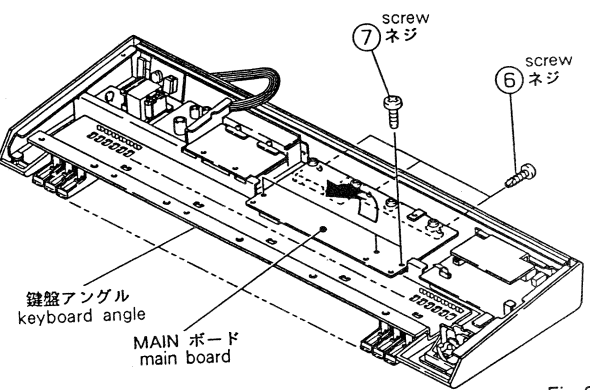


Fig.3 (図-3)

4) When the main board is positioned face up, the program ROM can be seen First verify that it is the program ROM of IC8 and then remove the ROM from the IC with a tool such as a ROM puller. (Fig.4)

4) MAINボードを仰向けにしますとプログラムROMが見えますのでIC8のプログラムROMであることを確認してから、ROM抜き機等でICソケットから引き抜きます。(図-4)

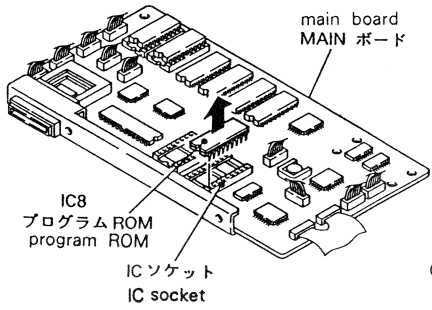


Fig.4 (図-4)

* When reassembling the unit after completion of ROM replacement, follow steps 1) - 4) in the opposite sequence for correct assembly.

* 交換作業が終了して組み立てる際は手順を4) ~ 1) の順に正しく組み立ててください。

ADVARSEL!

Lithiumbatteri. Eksplosionsfare.
Udskiftning må kun foretages af en sagkyndig,
og som beskrevet i servicemanual.

Lithium batteri må kun udskiftes med samme type og
fabrikat.

VARNING!

Lithiumbatteri. Explosionsrisk.
Får endast bytas av behörig servicetekniker.
Se instruktioner i servicemanualen.

Lithium batteri för endast ersättes med samme typ och
fabrikat.

ADVARSEL!

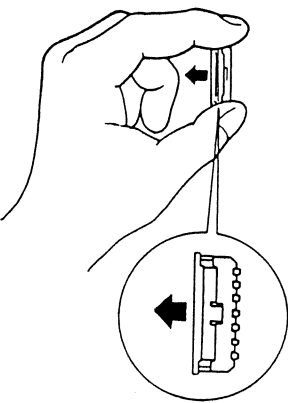
Lithiumbatteri. Fare for eksplotion.
Måbare skiftes av kvalifisert tekniker som
beskrevet i servicemanualen.

Lithium batteri må kun utskiftes med samme type og
fabrikat.

VAROITUS!

Lithiumparisto. Rajahdysvaara.
Pariston saa vaihtaa ainoastaan
alan ammottimies.

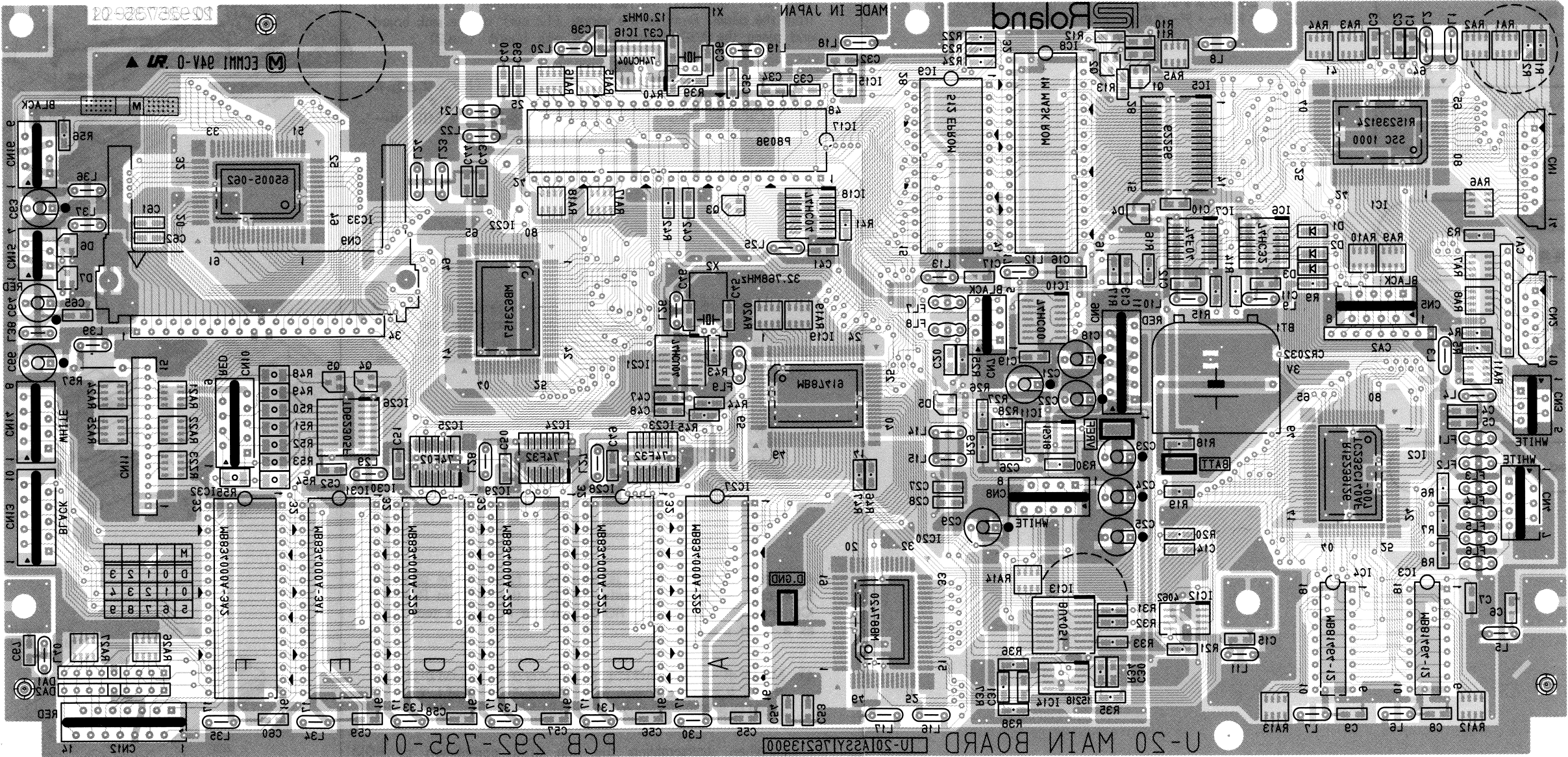
Kun vaihat lithium pariston KÄYTÄ saman valmistajan
samaa tyyppiä.



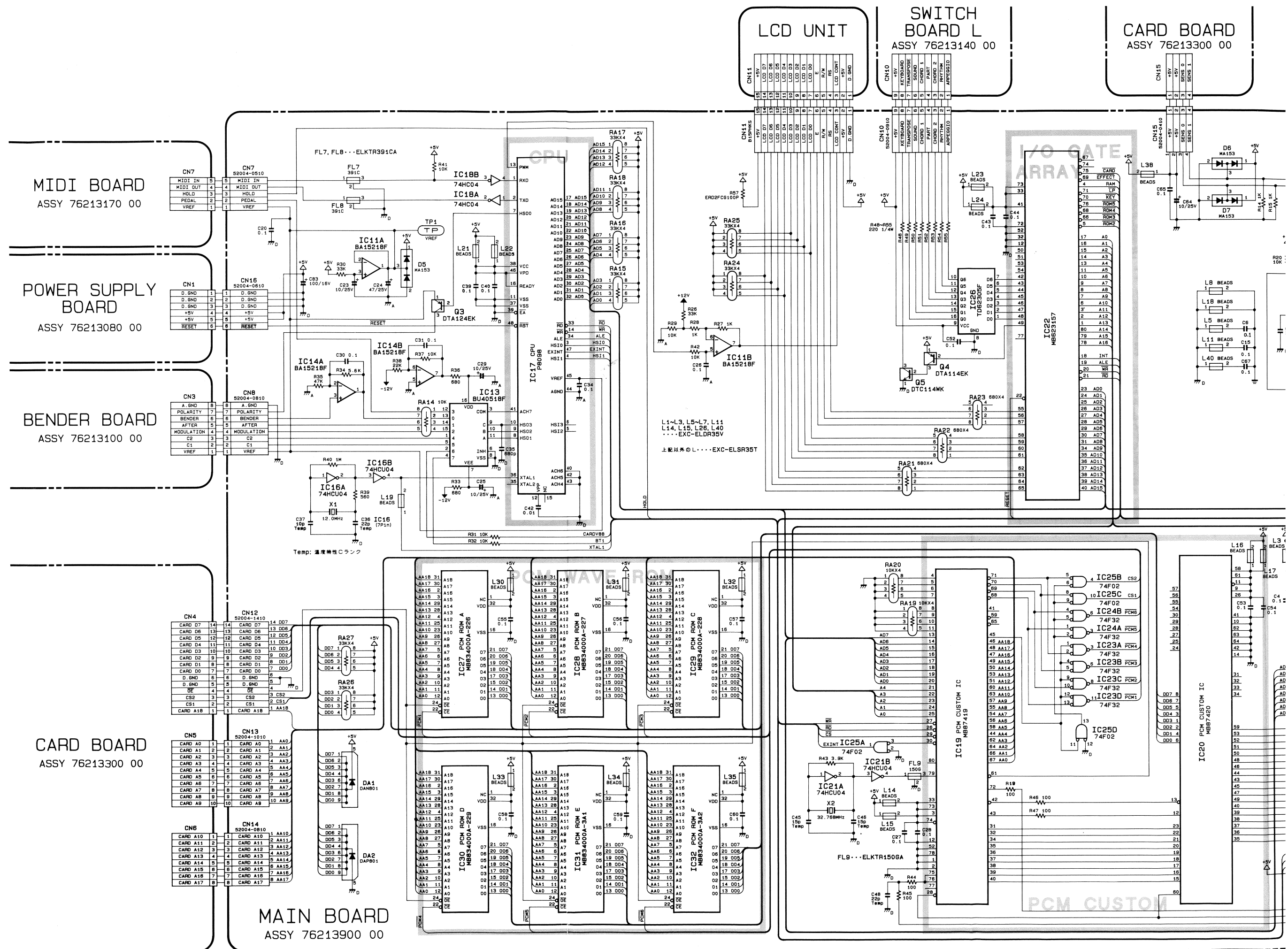
MAIN BOARD
ASSY 7621390000
(PCB 22925735)

IMPROVEMENTS
Connection/disconnection of CNs 1 and 2 on main board
when removing the cables, grey first, and vice versa.

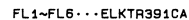
メインボードCN1、CN2の抜き差し方法
CN1、CN2のケーブルを抜き差しする時は、
グレー色の部分を引き出してから行う事。

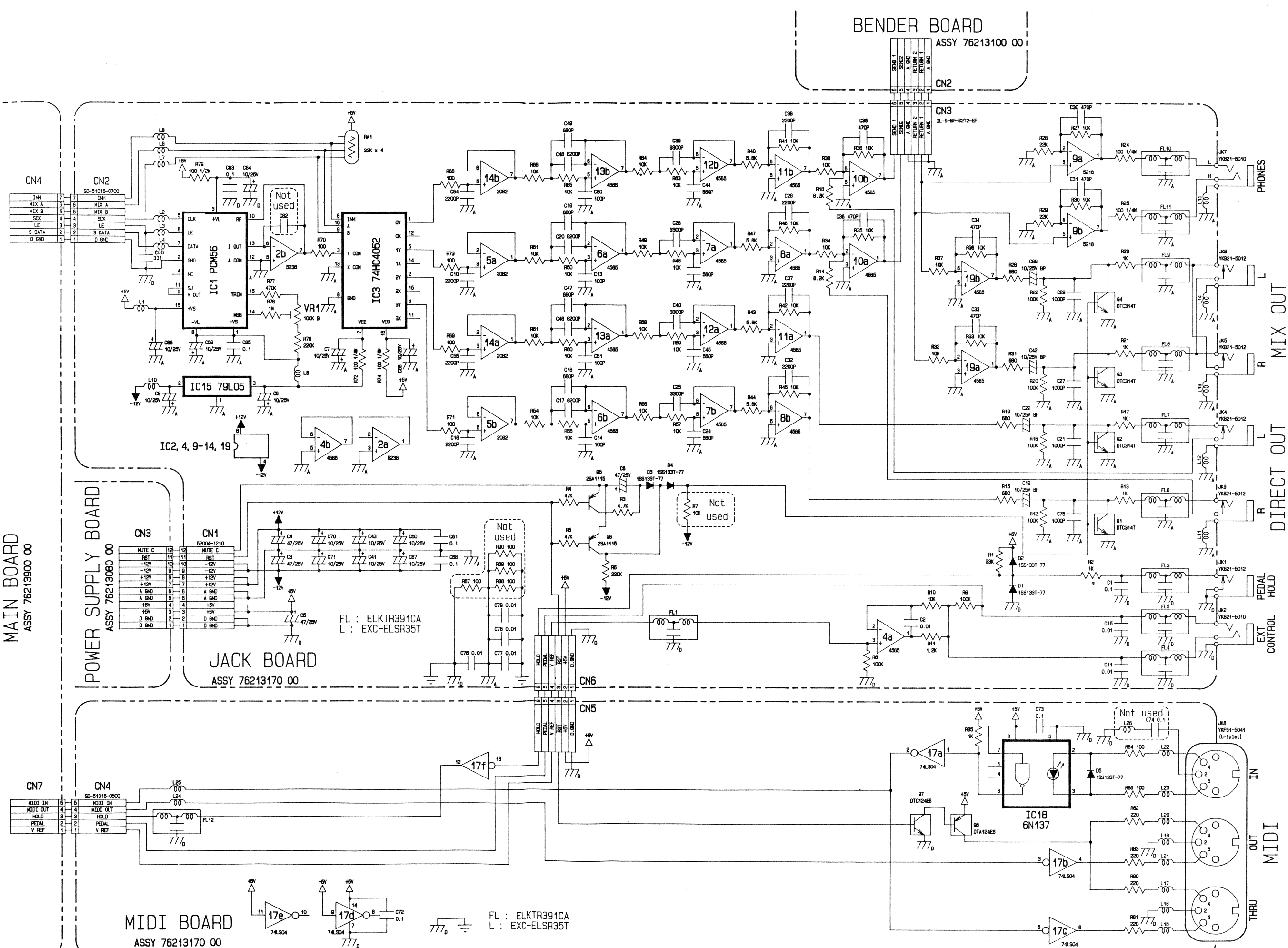


View from foil Side

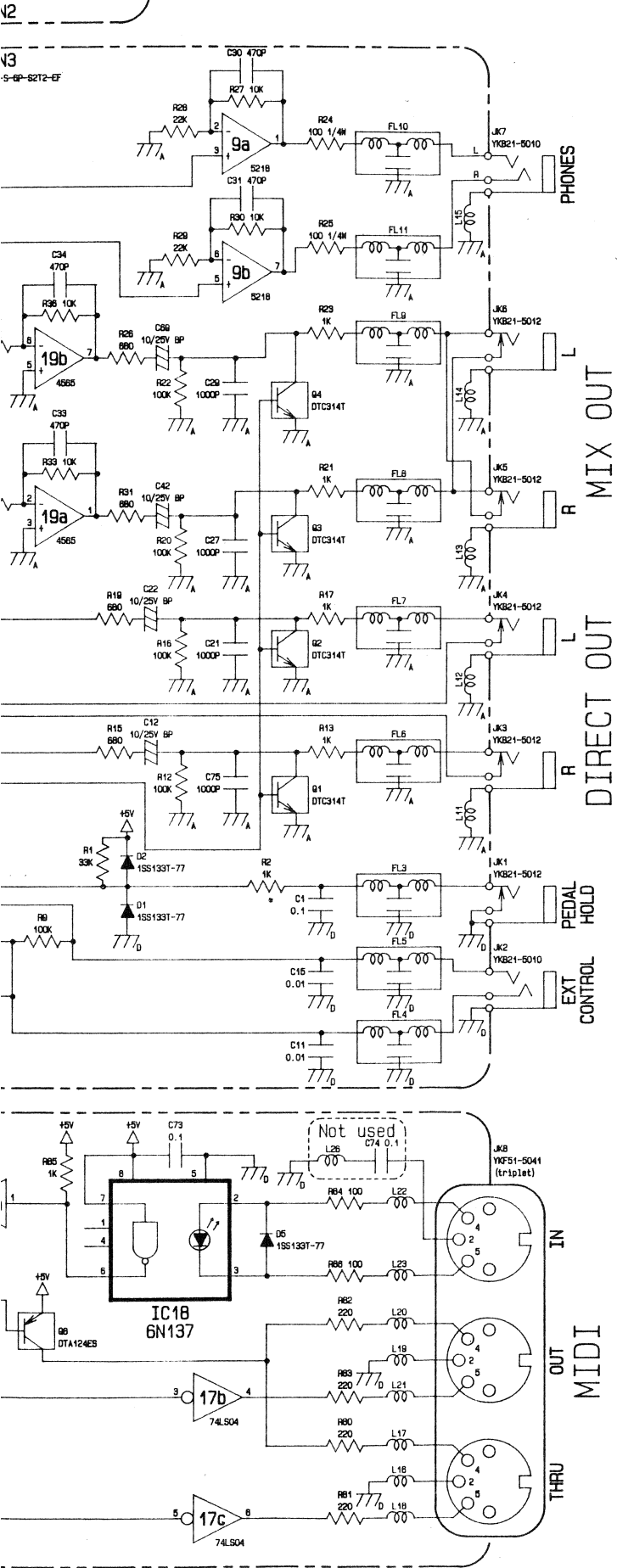






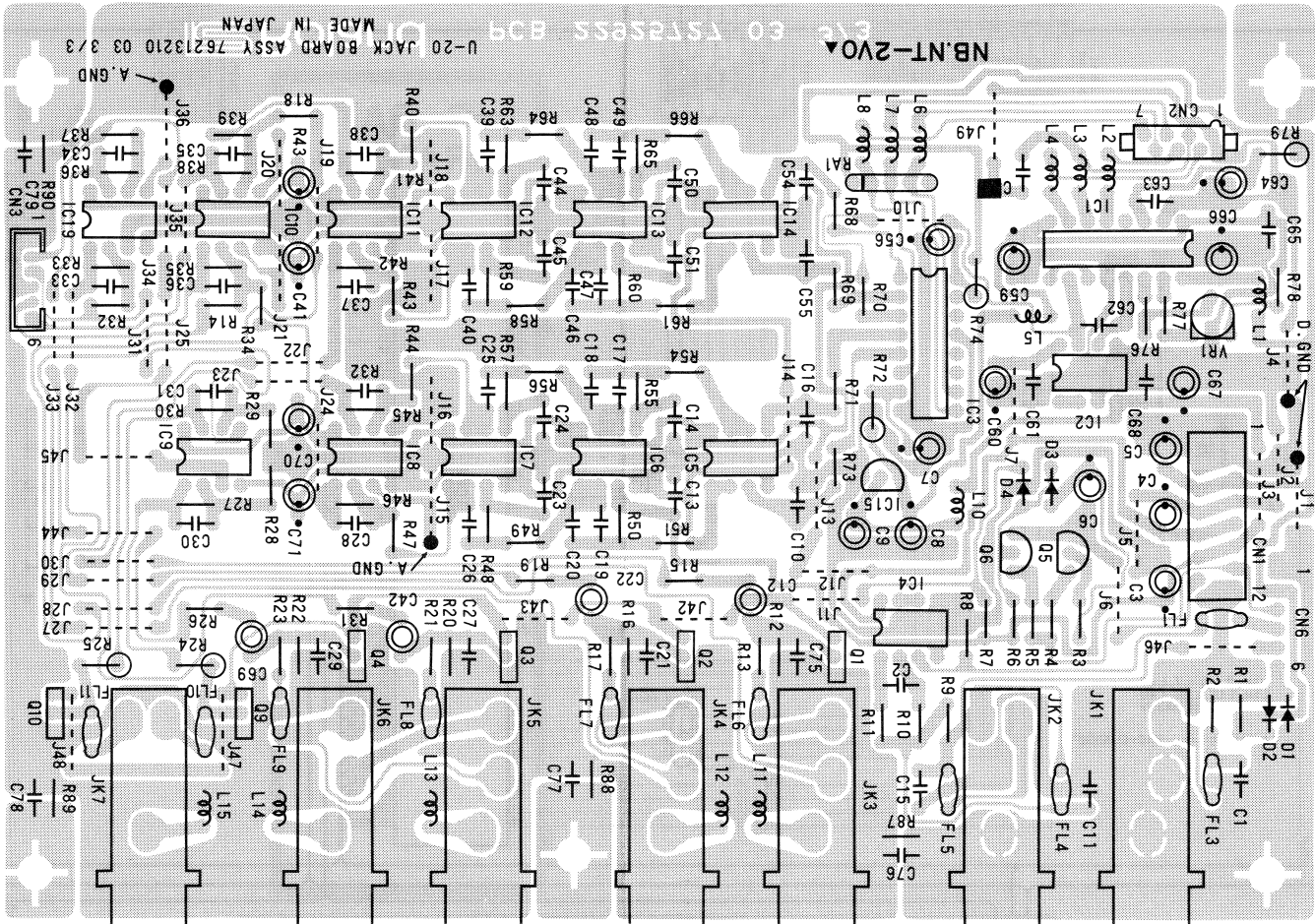


JARD
SSY 76213100 00



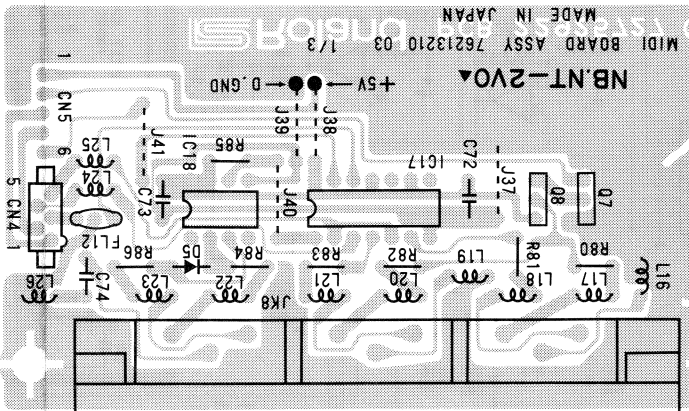
JACK BOARD
ASSY 7621317000
(PCB 22925727 3/3)

There is a mistake in the ASSY number on the PCB
基板上の ASSY ナンバーに誤りがあります。
Wrong (誤) ASSY 76213210 03
Right (正) ASSY 79213170 00



View from Component Side

MIDI BOARD
ASSY 7621317000
(PCB 22925727 1/3)

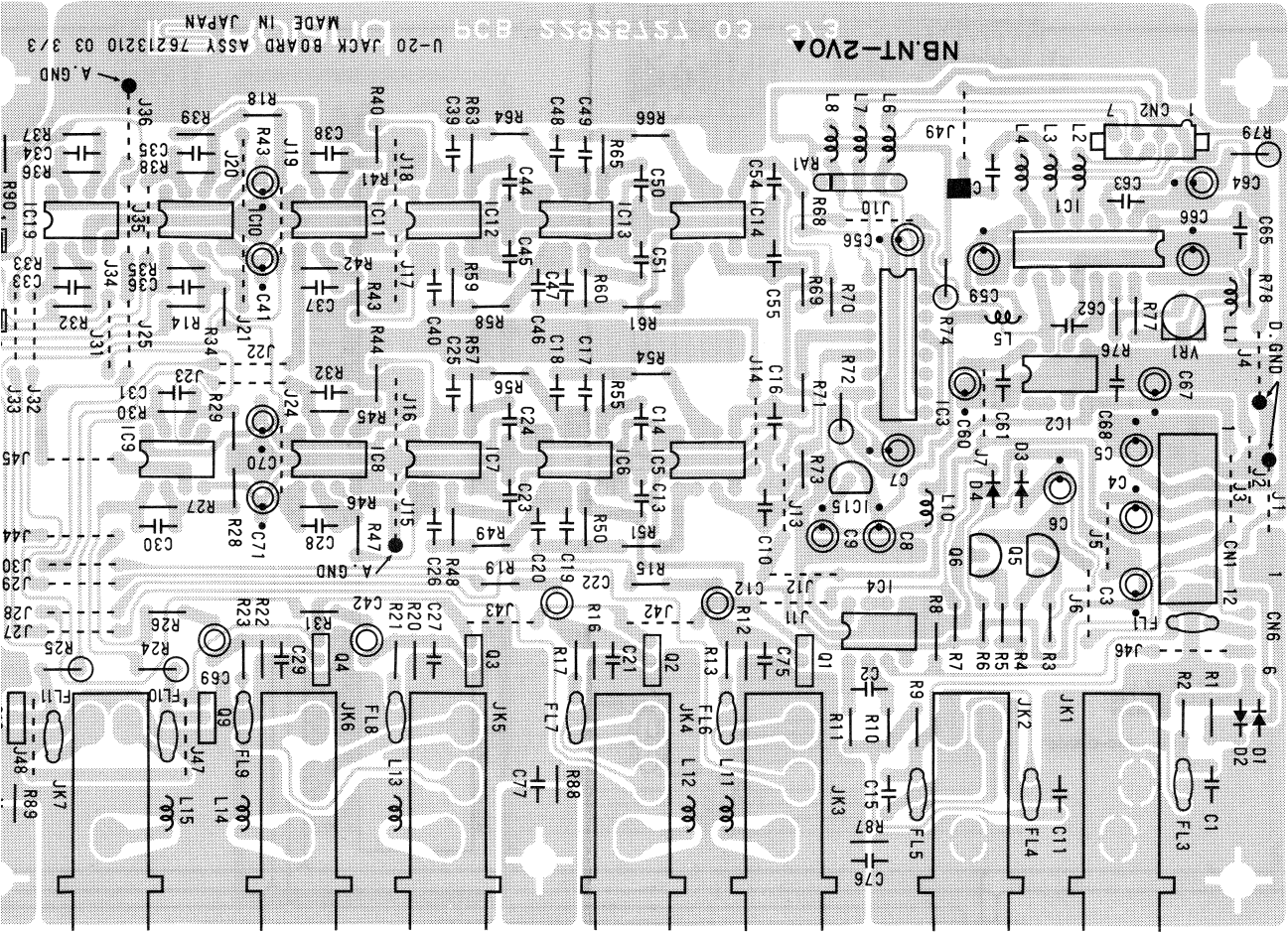


View from Component

3 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

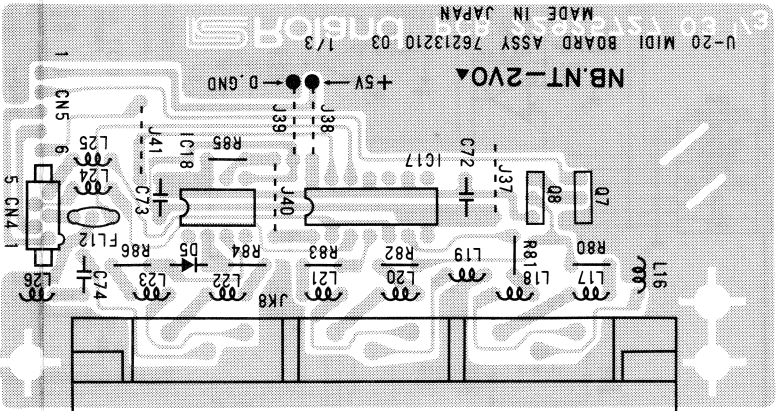
CK BOARD
Y 7621317000
B 22925727 3/3)

There is a mistake in the ASSY number on the PCB
基板上の ASSY ナンバーに誤りがあります。
Wrong (誤) ASSY 76213210 03
Right (正) ASSY 79213170 00



View from Component Side

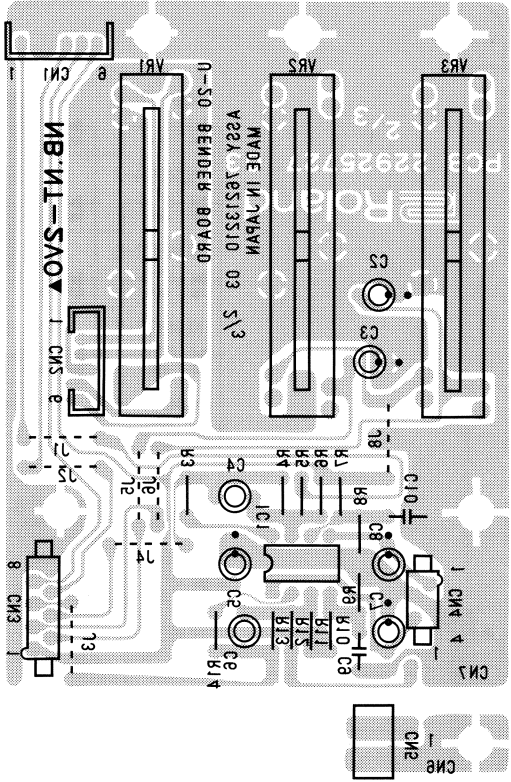
MIDI BOARD
ASSY 7621317000
(PCB 22925727 1/3)



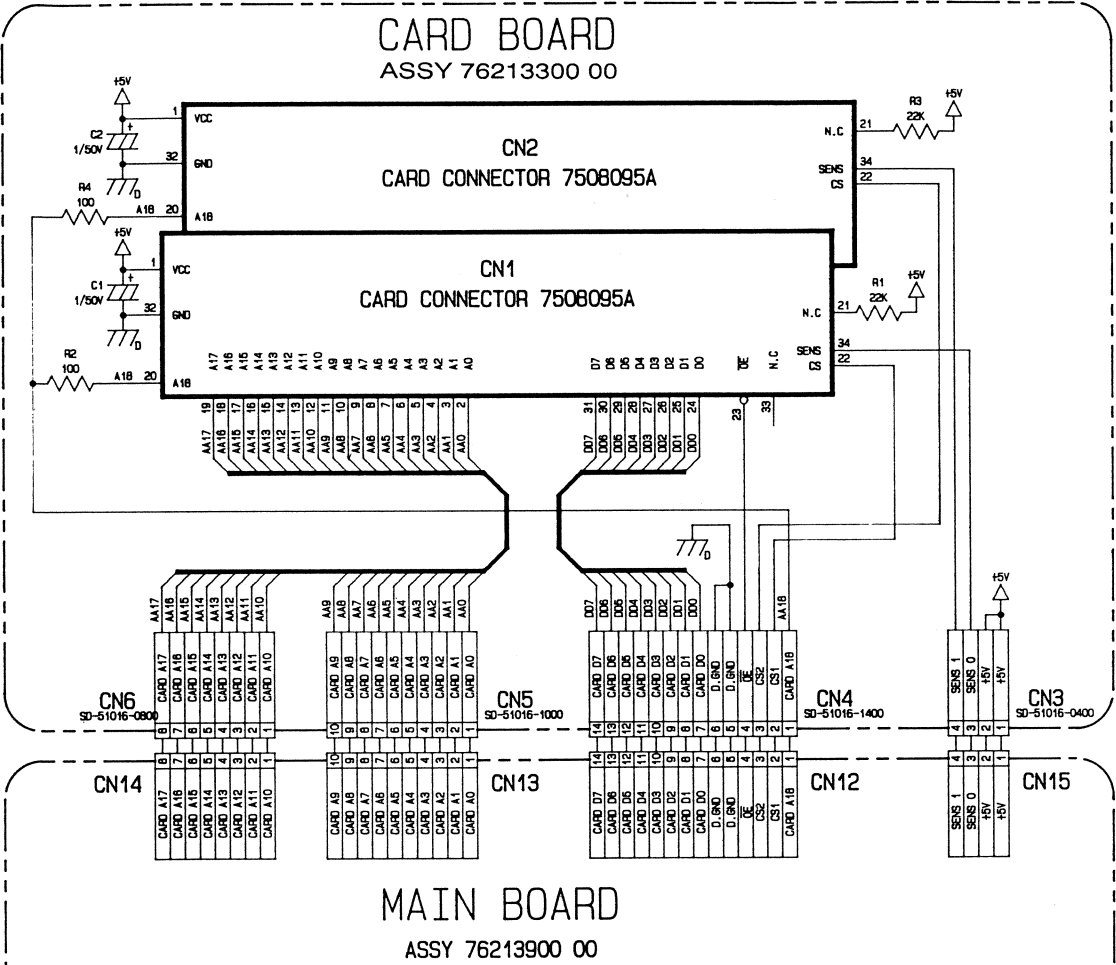
View from Component Side

BENDER BOARD
ASSY 7621310000
(PCB 22925727 2/3)

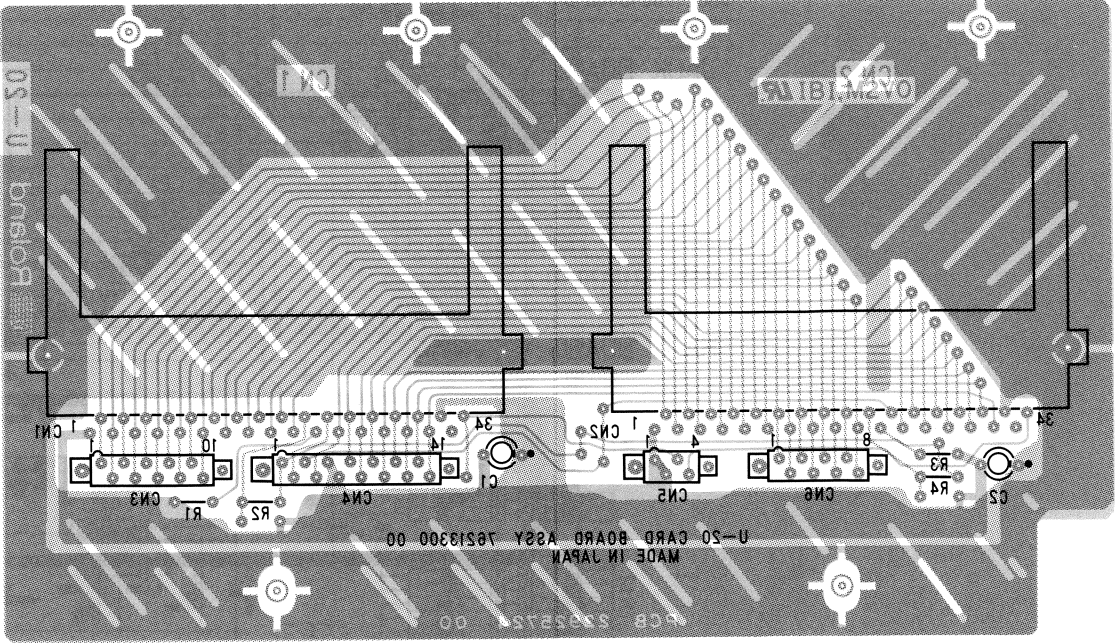
There is a mistake in the ASSY number on the PCB
基板上の ASSY ナンバーに誤りがあります。
Wrong (誤) ASSY 76213210 03
Right (正) ASSY 76213100 00



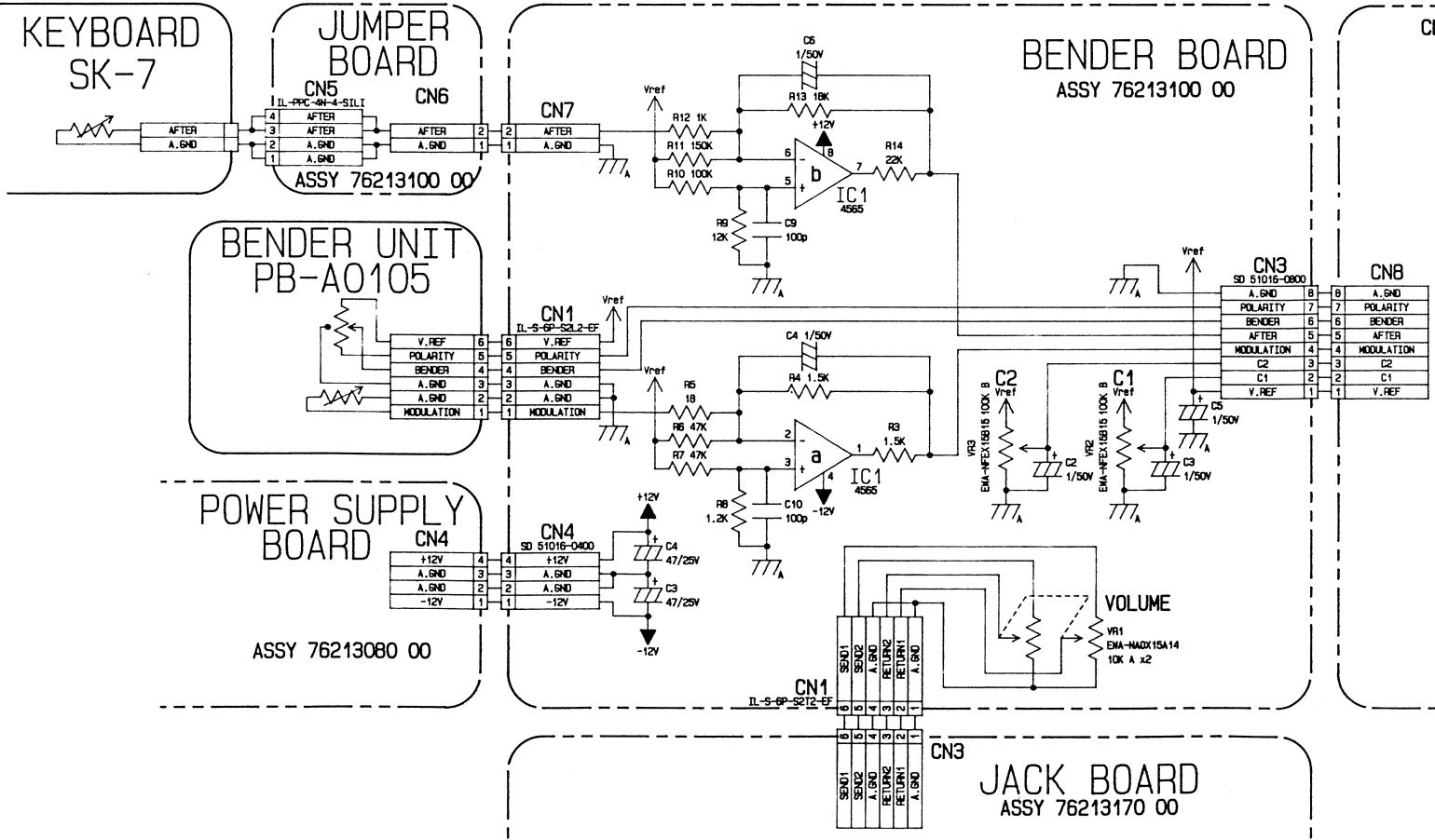
View from foil Side

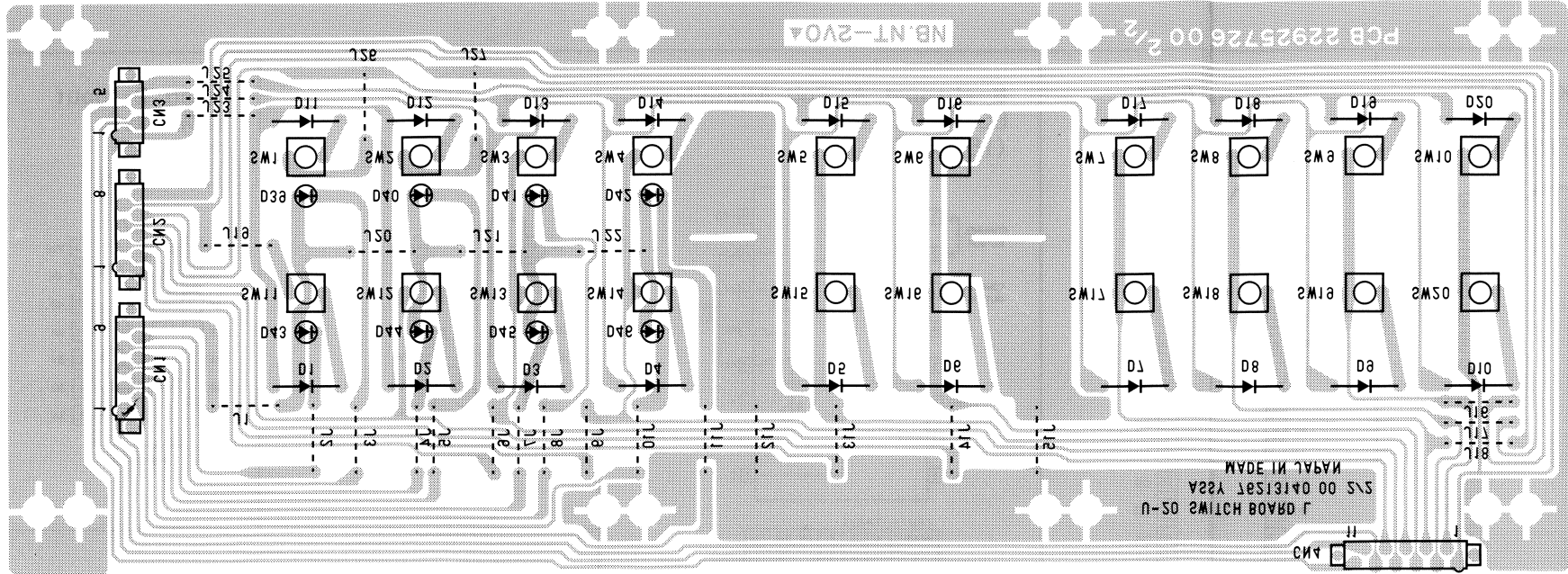


CARD BOARD
ASSY 7621330000
(PCB 22925724)



View from foil Side

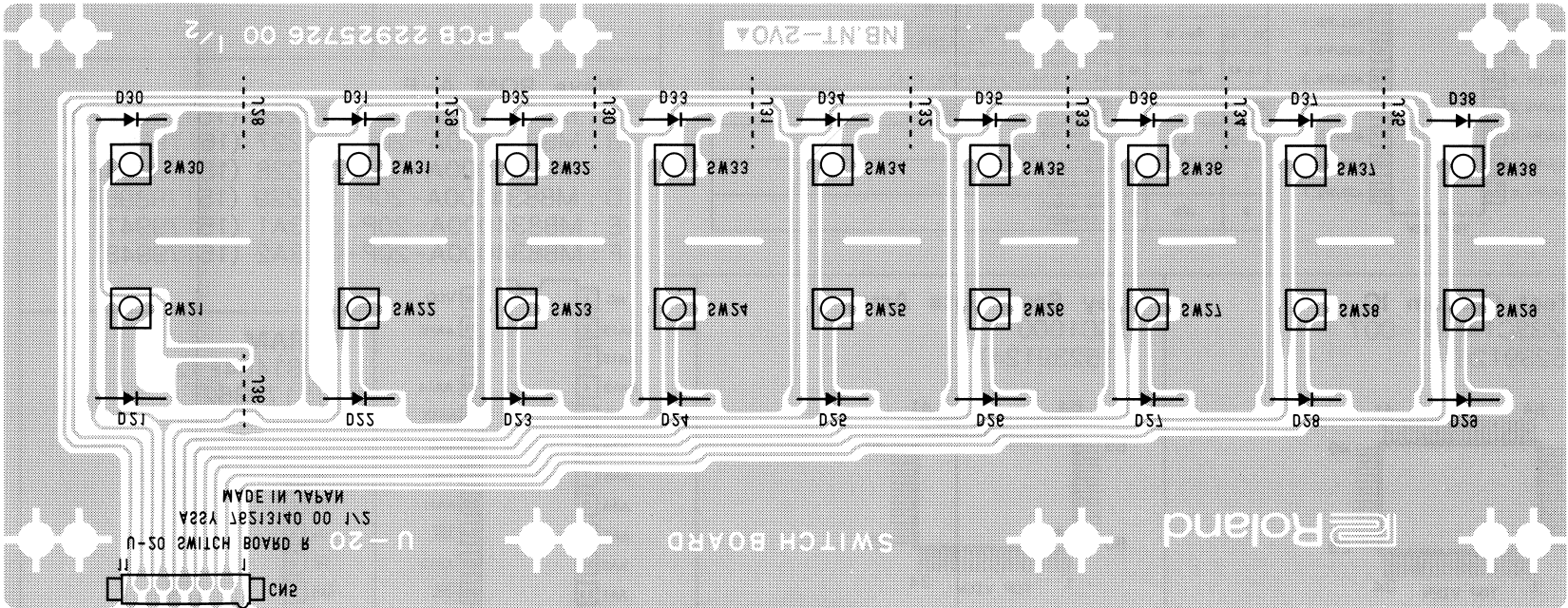




SWITCH BOARD L
ASSY 7621314000
(PCB 22925726)
PCB2292572600

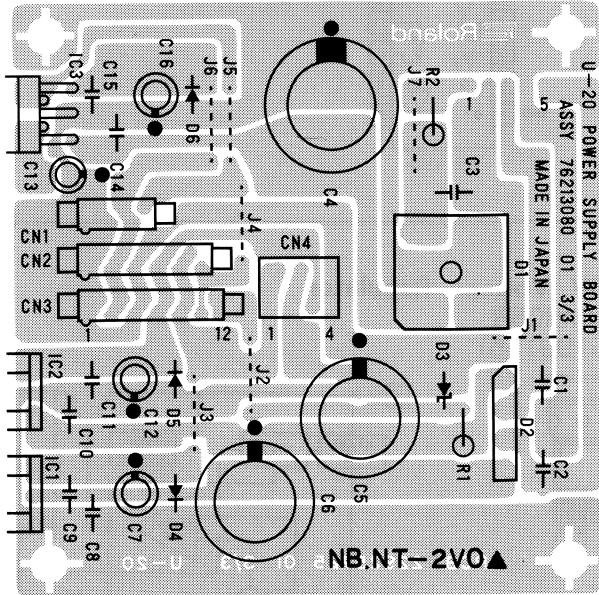
View from foil Side

SWITCH BOARD R
ASSY 7621314000
(PCB 22925726)



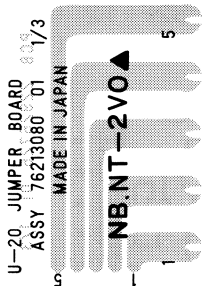
View from foil Side

POWER SUPPLY BOARD
ASSY 7621308000
(PCB 22925725 3/3)



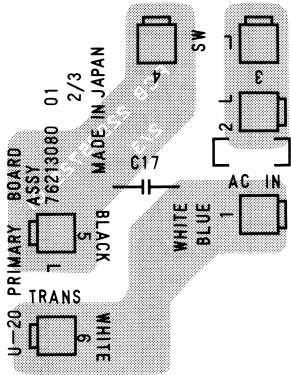
View from Component Side

JUMPER BOARD
ASSY 7621308000
(PCB 22925725 1/3)



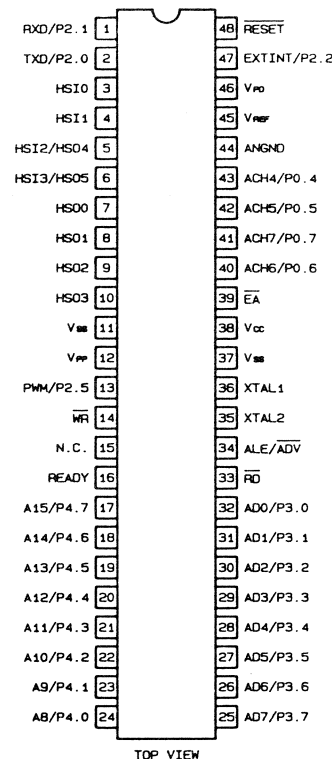
View from Component Side

PRIMARY BOARD
ASSY 7621308000
(PCB 22925725 2/3)

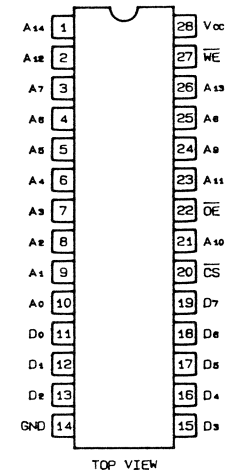
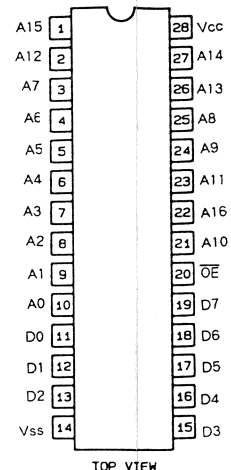
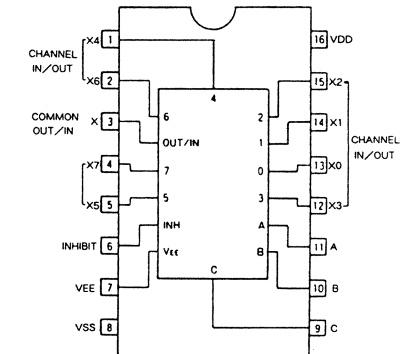


View from Component Side

IC DATA

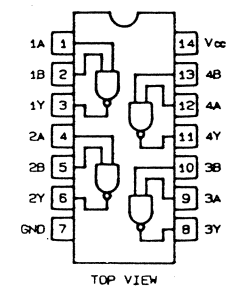
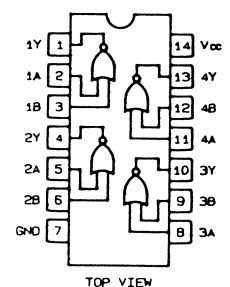
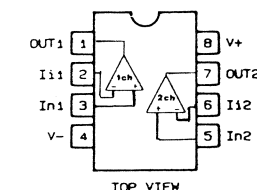
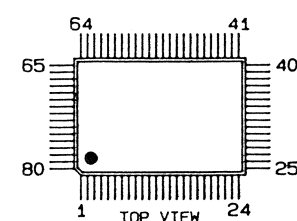
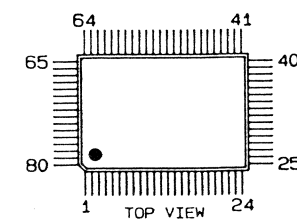
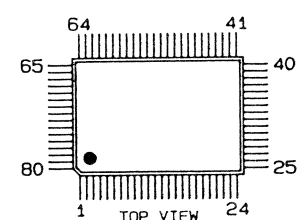
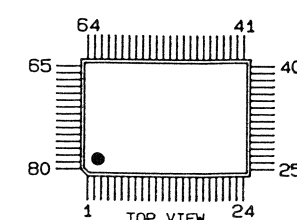
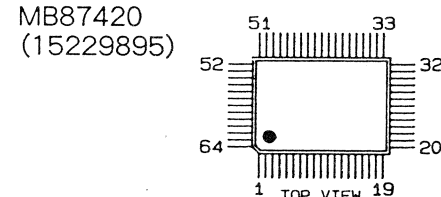
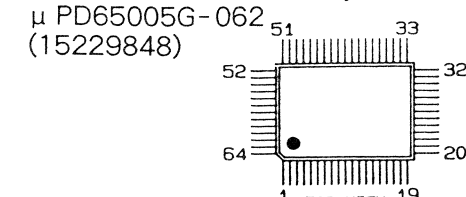
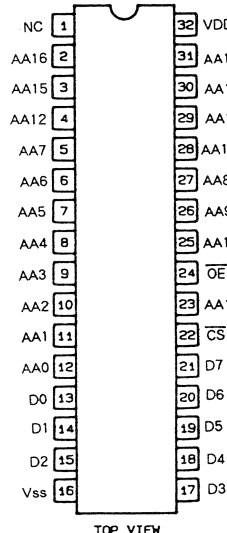
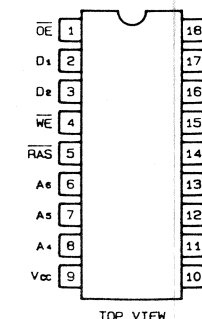
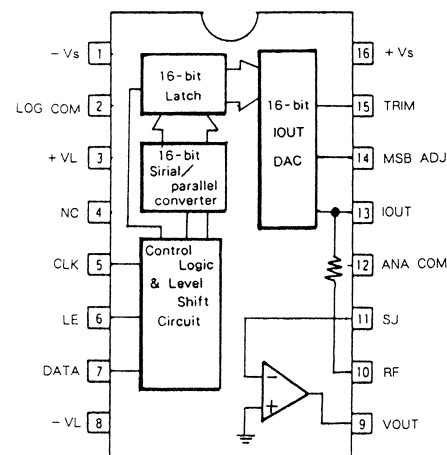
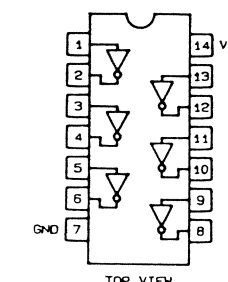
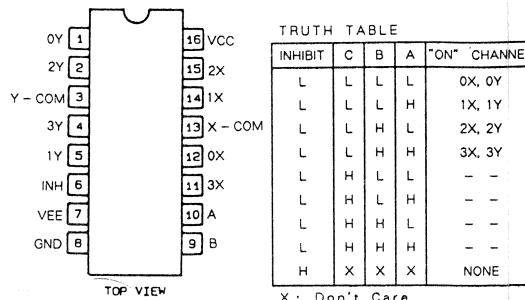
CPU
P8098
(15179286)

PIN NO.	PIN NAME	IO	DESCRIPTION
38	Vcc	-	Main supply voltage (5V). 主電源5V
11, 37	Vss	-	Digital circuit ground (0V). デジタル・グラウンド
46	VPD	-	RAM standby supply voltage (5V). RAMスタンバイ電源5V
45	VREF	-	Reference voltage for the AD converter (5V). A/Dコンバータの基準電圧
44	ANGND	-	Reference ground for the AD converter (5V). アナログ・グラウンド
12	Vpp	-	Programming voltage for the future EP ROM parts.
36	XTAL1	I	Input of the oscillator inverter and of the internal clock generator. クロック発振端子
35	XTAL2	O	Output of the oscillator inverter. クロック発振端子
48	RESET	I	Reset input to the chip. リセット入力端子
39	EA	I	Input for the memory select. メモリ選択入力
34	ALE/ADV	O	Address Latch Enable or Address Valid output. アドレス・ラッチ・イネーブル
33	RD	O	Read signal output to external memory. 外部メモリ呼び出し信号出力
14	WR	O	Write output to external memory. 外部メモリ書き込み信号出力
16	READY	I	Ready input to lengthen external memory cycles. スピードの遅いメモリの使用を可能にする入力端子
3, 4, 5	HSI	I	Input to High Speed Input Unit. 状態変化入力
5 - 10	HSO	O	Output from High Speed Output Unit. 指定時間に出力変化を起こせる出力端子
40 - 43	Port 0	I	4-bit high impedance input - only port. 4ビット・ハイ・インピーダンス入力専用ポート
13, 47	Port 2	IO	4-bit multi-functional port. 4ビット・マルチ・ファンクショナル・ポート
25 - 32	AD	IO	Address data bus. 下位8ビット・アドレス・データ端子
17 - 24	A	O	Address bus. 下位8ビット・アドレス端子
1	RXD	I	Serial input. シリアル入力
2	TXD	O	Serial output. シリアル出力

256K SRAM
HM62256LFP-12T
(15279508)Program ROM
LH5310
(15179950)8-channel Analog Multiplexer
BU4051BF T2
(15259101)

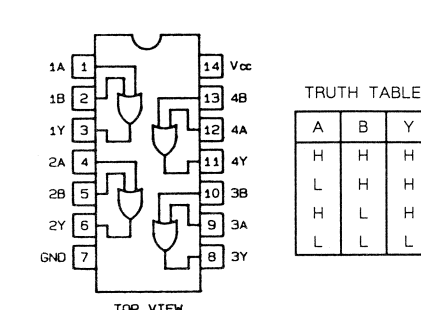
INHIBIT	A	B	C	ON SWITCH
L	L	L	L	X0
L	L	L	H	X1
L	L	H	L	X2
L	L	H	H	X3
L	H	L	L	X4
L	H	L	H	X5
L	H	H	L	X6
L	H	H	H	X7
H	X	X	X	NONE

X: Don't Care

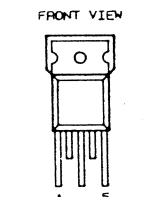
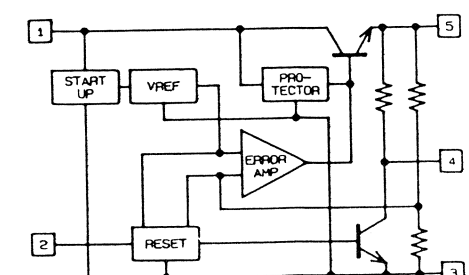
Quad 2-Input
NAND Gate
TC74HC00F-T2
(15259701T0)Quad 2-Input
NOR Gate
74F02SJL
(15269609)OP AMP
NJM4565DD (15189231)
BA15218 (15189209)
M5238P (15189193)
μ PC4062G (15289110)
NJM2082D (15189220)Effect Custom IC
TC23SC140AF-007
(15239126)Key Scan Gate Array
SSC1000
(15239124)PCM Custom IC
MB87419
(15229894)I/O Gate Array
MB623157 μ PF-G-BND
(15239130)PCM Custom IC
MB87420
(15229895)RAM CARD Gate Array
μ PD65005G-062
(15229848)Wave ROM A-F
A: MB834000A-20P-G-226 (15179892F0)
B: MB834000A-20P-G-227 (15179893F0)
C: MB834000A-20P-G-228 (15179894F0)
D: MB834000A-20P-G-229 (15179895F0)
E: MB834000A-20P-G-3A1 (15179947)
F: MB834000A-20P-G-3A2 (15179948)D RAM
MB81464-12
(15179362)D/A Converter
PCM56P
(15209122)Hex Inverter
TC74HCU04F-T2 (15259706T0)
TC74HC04F-T2 (15259704T0)
74F04SJL (15269609)
HD74LS04P (15169304H0)4-channel Analog Multiplexer
TC74HC4052
(15169605)

INHIBIT	C	B	A	"ON" CHANNEL
L	L	L	L	0X, 0Y
L	L	L	H	1X, 1Y
L	L	H	L	2X, 2Y
L	L	H	H	3X, 3Y
L	H	L	L	-
L	H	L	H	-
L	H	H	L	-
L	H	H	H	-
H	X	X	X	NONE

X: Don't Care

Quad 2-Input OR Gate
TC74HC32F-T2 (15259716T0)
74F32SJL (15269610)

A	B	Y
H	H	H
L	H	H
H	L	H
L	L	L

+5V Voltage Regulator
L78MR05R
(15199155)1. INPUT
2. DELAY CAPACITOR
3. GND
4. RESET OUTPUT
5. OUTPUT

Roland®

17059532

UPC

17059532



10991

Roland