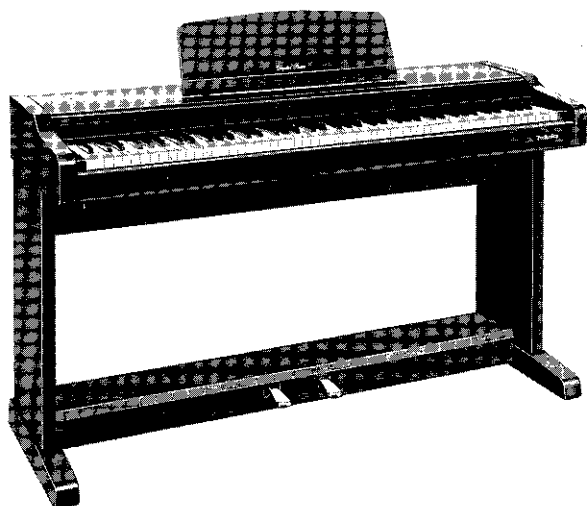


Service Manual

PCM Digital Piano SX-PX101

(M), (MC), (XM), (EN), (EH), (EF), (EZ), (EW), (EA),
(EP), (EK), (XL), (XR), (XS), (XD), (X), (XT)



AREAS

(M): U.S.A.	(EK): the United Kingdom
(MC): Canada	(XL): New Zealand
(XM): Mexico	(XR): Australia
(EN): Norway, Sweden, Denmark, Finland	(XS): Malaysia, Singapore, South Africa
(EH): Holland	(XD): Saudi Arabia, Kuwait
(EF): France, Italy, Belgium	(X): the Middle East, Indonesia, Hong Kong, the Philippines,
(EZ): Germany	Thailand
(EW): Switzerland	(XT): Taiwan
(EA): Austria	
(EP): Spain, Portugal, Greece	

■ Specifications

KEYBOARD	88 KEYS (MAX. POLYPHONIC 32 NOTES)
SOUNDS	GRAND PIANO, UPRIGHT PIANO, E PIANO 1, E PIANO 2, HARPSI, PIPE ORGAN
PEDAL	SOFT, SUSTAIN
DIGITAL CELESTE	○
DIGITAL REVERB	○ (ROOM, STAGE, HALL)
TRANPOSE	G~C~F#
DEMO	○
MIDI	MULTI TIMBRE, LOCAL CONTROL, OMNI ON, PROGRAM CHANGE, TRANPOSE
MODE SET	PIANO TUNING, MINIMUM RANGE, SOSTENUTO
OTHERS	POWER SWITCH, MAIN VOLUME, MIDI TERMINALS (IN, OUT, THRU), PEDAL IN, LINE OUT (R/R+L, L), AUX IN (R/R+L, L), PHONESx2, AC IN, INITIAL KEY
OUTPUT	25 W × 2
SPEAKERS	14 cm × 2
POWER REQUIREMENT	145 W, 90 W (NORTH AMERICA AND MEXICO)
	AC120/220/240V 50/60 Hz
	AC120V 60 Hz (NORTH AMERICA AND MEXICO) AC230V 50/60 Hz (EUROPE EXCEPT FOR UNITED KINGDOM)
DIMENSIONS (W×H×D)	137.3 cm × 97.3 cm × 45.3 cm (54-1/16" × 38-5/16" × 17-27/32")
NET WEIGHT	44.0 kg (97.0 lbs)
ACCESSORIES	MUSIC STAND, AC CORD, STAND

* Specifications are subject to change without notice for further improvement.

Technics

CONTENTS

■ PART I (INTRODUCTION)

SAFETY PRECAUTION	I-1
HOW TO ASSEMBLE THE PIANO	I-2
KEYBOARD RANGES	I-3
OPTIONS	I-3
ARRANGEMENT OF CONTROL PANEL	I-4
BASIC FUNCTIONS	I-4
TERMINALS	I-6
PARTS LOCATION	I-7
INITIAL SETTING	I-7
DISASSEMBLY INSTRUCTIONS	I-8
SYMPTOMS WHICH APPEAR TO BE SIGNS OF TROUBLE	I-10
ABOUT THE SELF-DIAGNOSTIC FUNCTION	I-11
MIDI IMPLEMENTATION CHART	I-13
PRECAUTIONS BEFORE SERVICING	I-14

■ PART II (SCHEMATIC DIAGRAM)

WIRING CONNECTION DIAGRAM	II-1
BLOCK DIAGRAM	II-2
MAIN MAIN CIRCUIT BOARD	II-5

MAIN MAIN CIRCUIT DIAGRAM	II-8
ACP AS HP AC POWER SUPPLY & AMP & POWER SUPPLY AND HEADPHONES CIRCUIT BOARD	II-12
ACP AS HP AC POWER SUPPLY & AMP & POWER SUPPLY AND HEADPHONES CIRCUIT DIAGRAM	II-16
CP CONTROL PANEL CIRCUIT DIAGRAM	II-18
CP CONTROL PANEL CIRCUIT BOARD	II-20
MKB1 MKB2 MANUAL KEYBOARD 1 & 2 CIRCUIT	II-23
JACK JACK CIRCUIT	II-26

■ PART III (REPLACEMENT PARTS LIST)

REPLACEMENT PARTS LIST (P.C.B. and Wiring Parts)	III-1
CABINET PARTS LOCATION	III-5
REPLACEMENT PARTS LIST (Cabinet Parts)	III-7
PACKING	III-9

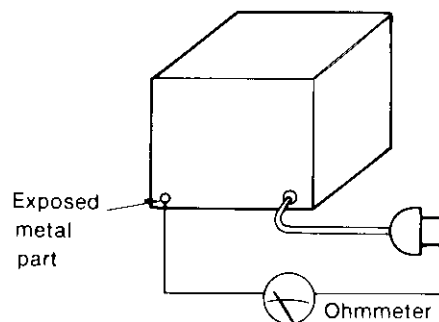
SAFETY PRECAUTION (This "safety precaution" is applied only in U.S.A.)

• Safety Precaution

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

• Insulation Resistance Test

1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screw heads, connectors, control shafts, handle brackets, etc..
Measurements should range from 4MΩ to infinity to all exposed parts.

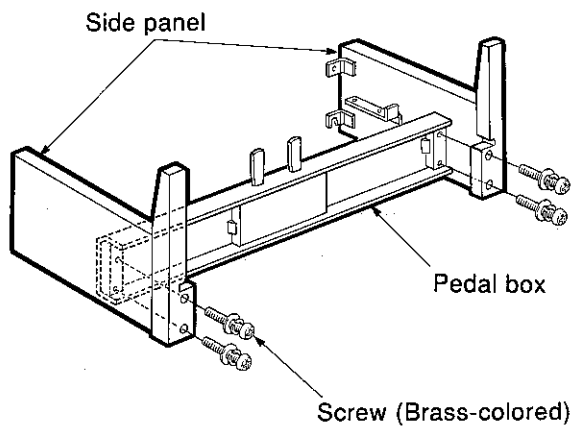


Resistance = 4MΩ to ∞

HOW TO ASSEMBLE THE PIANO

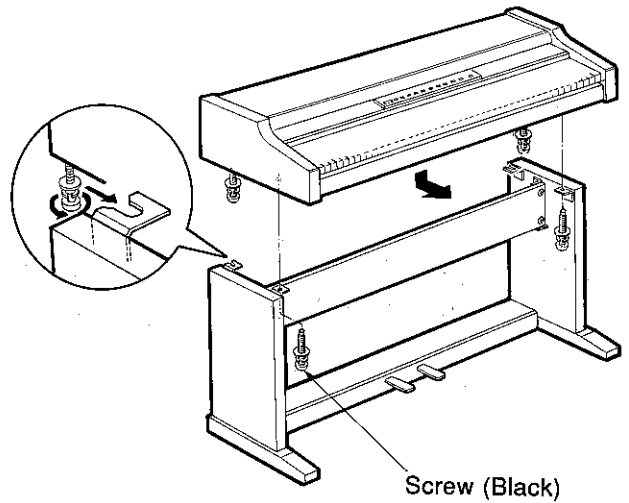
- To prevent the piano unit from falling off the stand, secure it firmly with the screws.

- 1** Assemble the side panels and the pedal box with the 4 brass-colored screws.



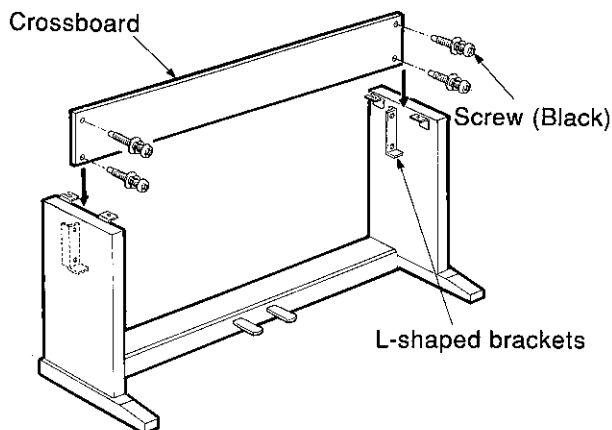
[Fig. 1]

- 3** Place the piano unit on the stand and secure it to the stand.



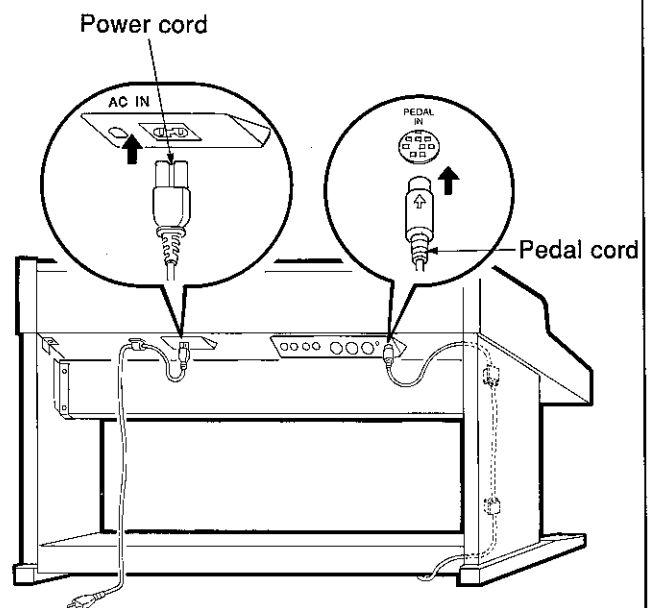
[Fig. 3]

- 2** Place the stand upright. Secure the crossboard to the front of the L-shaped brackets with the 4 black screws.



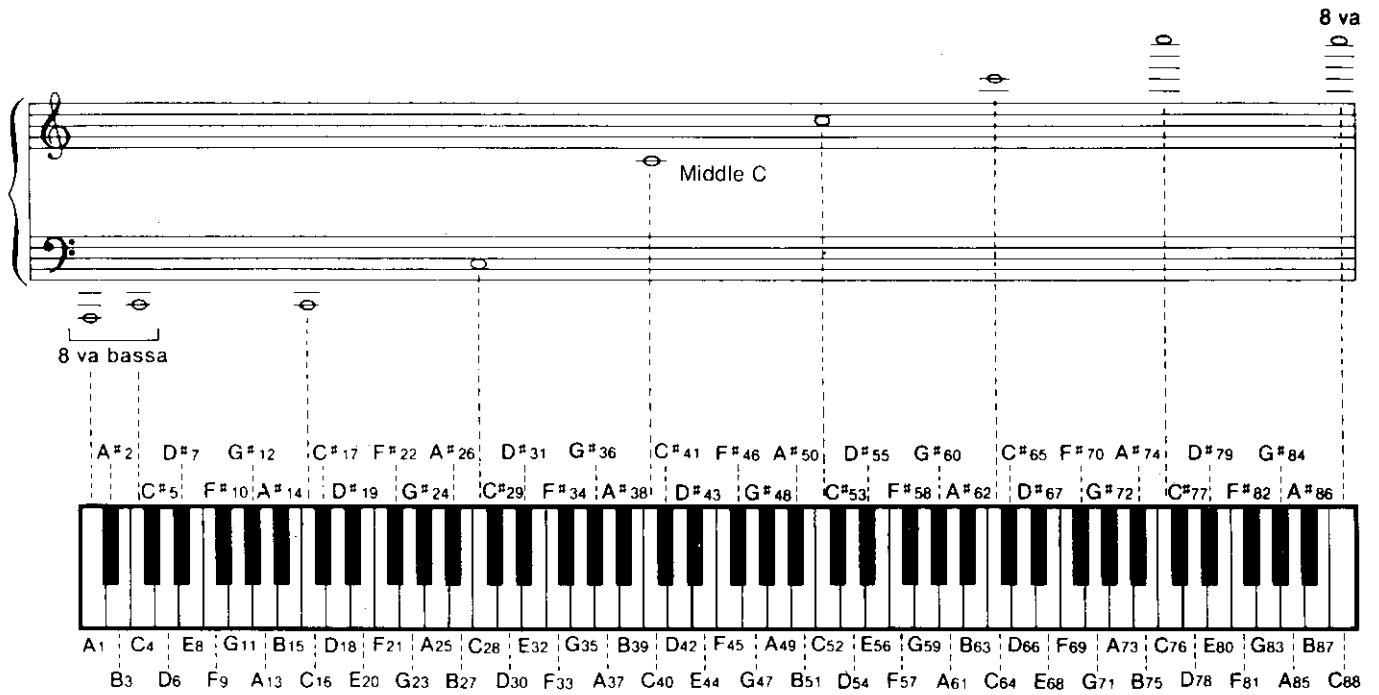
[Fig. 2]

- 4** Connect the pedal cord and power cord to their sockets located rear of the piano unit as shown below.

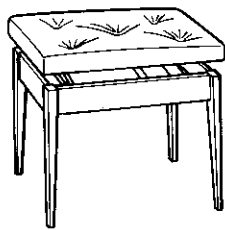


[Fig. 4]

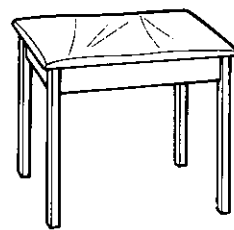
KEYBOARD RANGES



OPTIONS

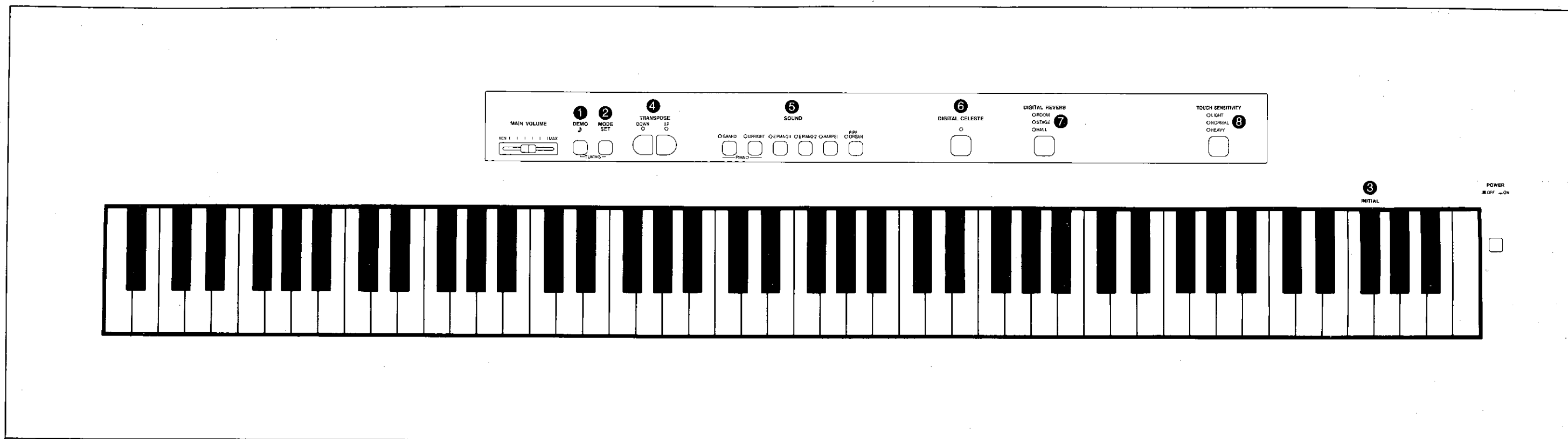


SZ-CP1
Bench



SZ-CP2
Bench

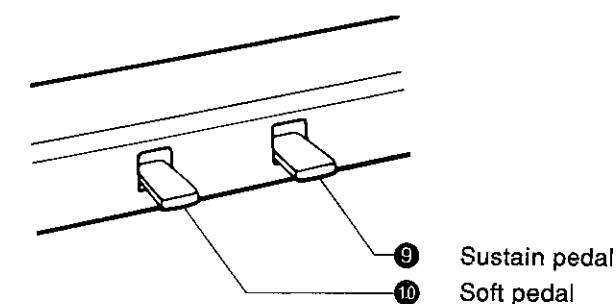
ARRANGEMENT OF CONTROL PANEL



BASIC FUNCTIONS

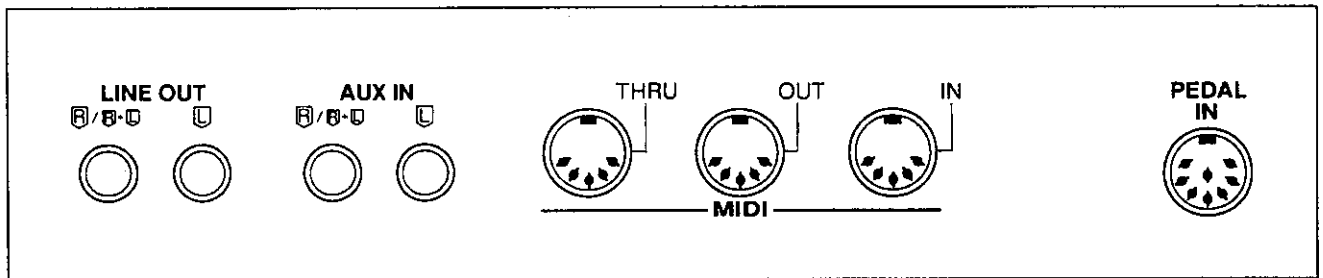
- 1 DEMO**
Automatic demonstration performances stored in the piano's memory introduce the various sounds available. Listen to all the demonstration tunes in order, or listen to the demo tune of a specific sound.
- 2 MODE SET, 3 INITIAL KEY**
Used when selecting functions to set or adjust, including type of piano tuning, minimum range (volume), sostenuto, initialization, plus all settable MIDI functions.
• If the INITIAL KEY is pressed while the MODE SET button is depressed, the settings of the buttons, etc. will return to the initialized settings made by the manufacturer.
- 4 TRANSPOSE**
C is the standard setting, but you can raise or lower the key of the entire instrument within a one-octave range with these two buttons. The buttons are also used for adjusting the volume balance of mixed sounds.
- 5 SOUND**
Select from 6 different sounds for the piano. You can mix sounds by selecting two simultaneously. All sounds feature Touch Response.
- 6 DIGITAL CELESTE**
Apply a celeste effect to give the sound greater depth. The setting is memorized independently for each sound.
- 7 DIGITAL REVERB**
Add a reverb effect to the sound. Choose one of three different echo types. The setting is memorized independently for each sound.
- 8 TOUCH SENSITIVITY**
Choose **LIGHT**, **NORMAL** or **HEAVY** keyboard touch (Touch Response) to match your type of playing.

- 9 Sustain pedal**
The sound is sustained when a key is released while this pedal is depressed. For **GRAND PIANO** and **UPRIGHT PIANO** sounds, the tones of the 17 rightmost keys are automatically sustained.
- 10 Soft pedal**
Press the pedal for softer, muted sound. It can also be used as a sostenuto pedal. When used as a sostenuto pedal, and **PIPE ORGAN** is selected, the tones continue to sound for as long as the pedal is depressed.



TERMINALS

(On the back of piano)



LINE OUT (output level 1.5 Vrms, 600 Ω)

By plugging into an external high-power amplifier, the sound can be reproduced at a high volume. Or connect a tape recorder and use them as recording terminals. To output monaural sound, connect the external equipment to the **R/R+L** terminal. (Do not connect the **L** terminal.)

AUX IN (input level 0.5 Vrms, 6 k Ω)

Other instruments such as a rhythm machine or sound module can be connected to the piano so that the sound is output from the piano. To receive monaural sound, connect the other instrument to the **R/R+L** terminal. (Do not connect the **L** terminal.)

PEDAL IN

Connect the cord from the included stand to this terminal.

MIDI (Musical Instrument Digital Interface)

MIDI is the standard specification that enables connection to equipment such as synthesizers and personal computers. Data transmission and reception are possible between the Technics Digital Ensemble and instruments provided with MIDI terminals.

IN: The terminal that receives data from external equipment.

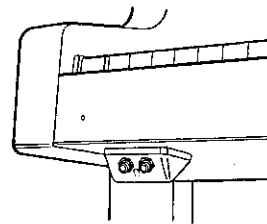
OUT: The terminal that transmits data from the piano to external equipment.

THRU: The terminal that transfers data from the **IN** terminal directly to other equipment.

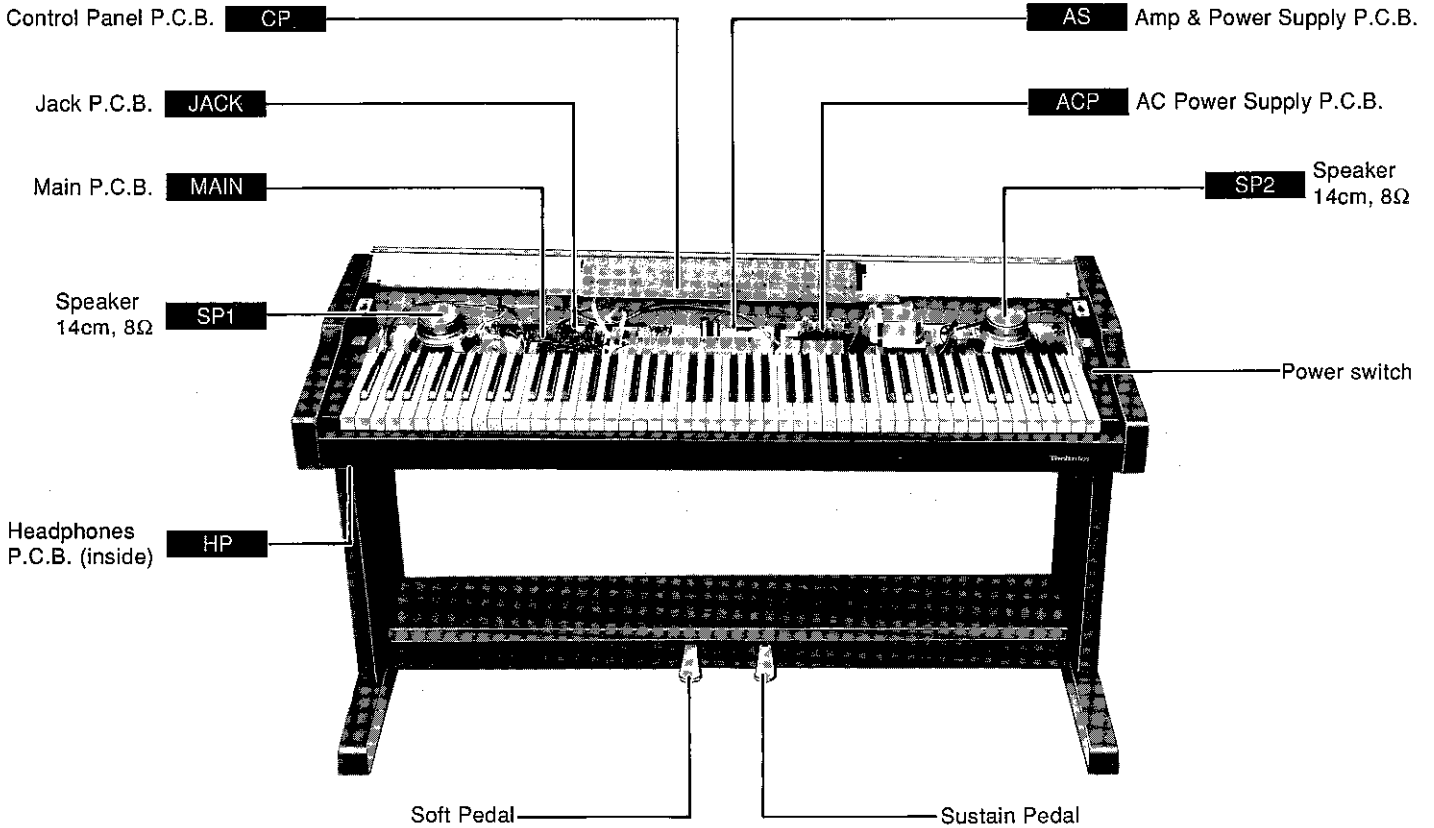
- Use a 5-pin DIN cord (less than 15m long) for these connections.

PHONES (Ω) $\times 2$

For silent practice headphones may be used. When plugged in, the speaker system is automatically switched off, and sound is heard only through the headphones.



PARTS LOCATION



[Photo-1]

INITIAL SETTING

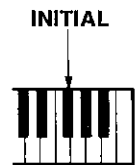
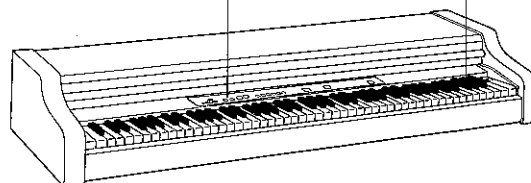
The initial setting function is used to return to the original factory settings, and to reset the customer settings and misoperations. The selected sound and various functions, MIDI settings are initialized with this operation.

■ INITIAL SETTING

Press the **INITIAL** key while the **MODE SET** button is pressed. Or turn on the **POWER** switch while pressing the **INITIAL** key.

1 **MODE SET** While pressing the **MODE SET** button.

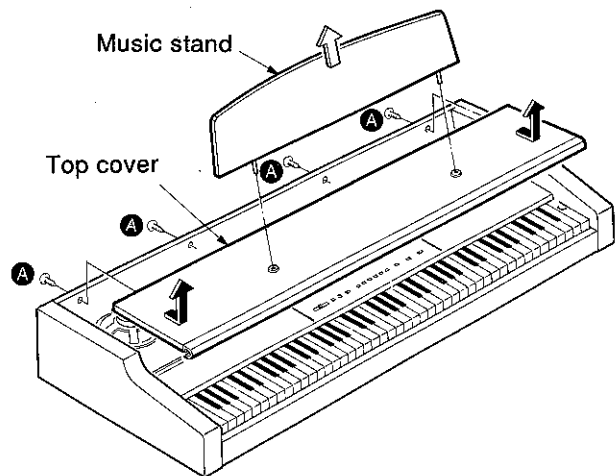
2 Press the **INITIAL** key.



DISASSEMBLY INSTRUCTIONS

1 Removing the top cover

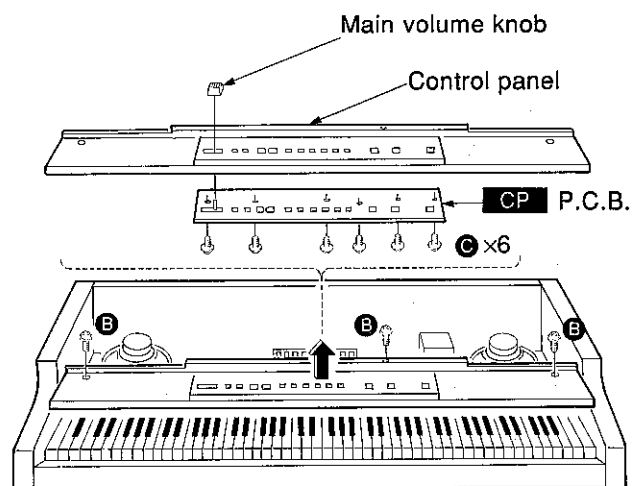
1. Remove the music stand.
2. Remove the top cover holding screws (A 4 pcs.).
3. Slide the top cover forward and lift up.



[Fig. 5]

2 Removing the control panel

1. Remove the control panel holding screws (B 3 pcs.).
2. Remove the control panel as shown in Figure 6.



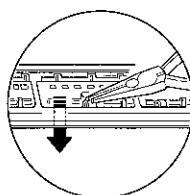
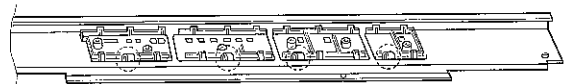
[Fig. 6]

3 Removing the CP P.C.B.

1. Remove the control panel (see step 2).
2. Remove the main volume knob.
3. Remove the CP P.C.B. mounting screws (C 6 pcs.).

4 Removing the control panel ornament

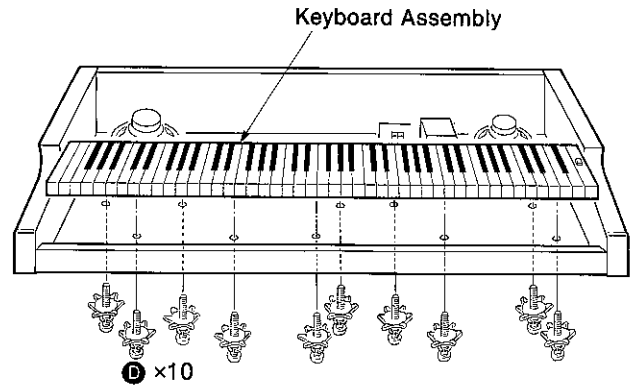
1. Remove the control panel (see step 2).
2. Remove the CP P.C.B. (see step 3).
3. Release the control panel ornament holding claws.



[Fig. 7]

5 Removing the keyboard assembly

1. Remove the control panel (see step 2).
2. Remove the keyboard ass'y holding screws located on the bottom of the cabinet (ⓐ10pcs.).



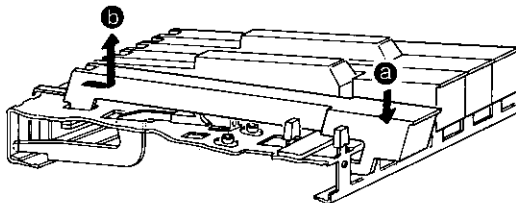
[Fig. 8]

6 Key(s) Disassembly

1. Remove the keyboard assembly (see step 5).
2. To release the key claw.
 - ⓐ Press the front of the key downward slightly.
 - ⓑ Press the rear of the key forward gently.
3. To remove the key, lift as shown in Figure 9.

NOTE:

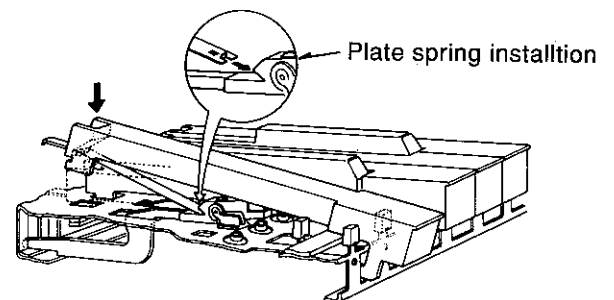
- The key claw is easily broken. Do not apply undue force. Should a key claw break, it can still be used; however, a replacement is recommended.
- If a black key is to be replaced it is necessary to remove both adjacent white keys.



[Fig. 9]

Assembly

1. Insert the front part of the key into the chassis.
2. Insert the plate spring into the hammer notch as shown in Figure 10.
3. While slowly lowering the key into the chassis, insert the plate spring into the notch at the rear of the key.
4. Carefully insert the key into the opening in the chassis and slide the key towards the rear to lock it in place.



[Fig. 10]

7 Removing the printed circuit boards.

• Remove the top cover (see step 1).

MAIN P.C.B.

1. Disconnect the connectors.
2. Remove the MAIN P.C.B. mounting screws (E 2 pcs.).
3. Release the claws of the P.C.B. holders.

AS P.C.B.

1. Disconnect the connectors.
2. Remove the AS P.C.B. mounting screws (F 2 pcs.).
3. Release the claws of the P.C.B. holder.

JACK P.C.B.

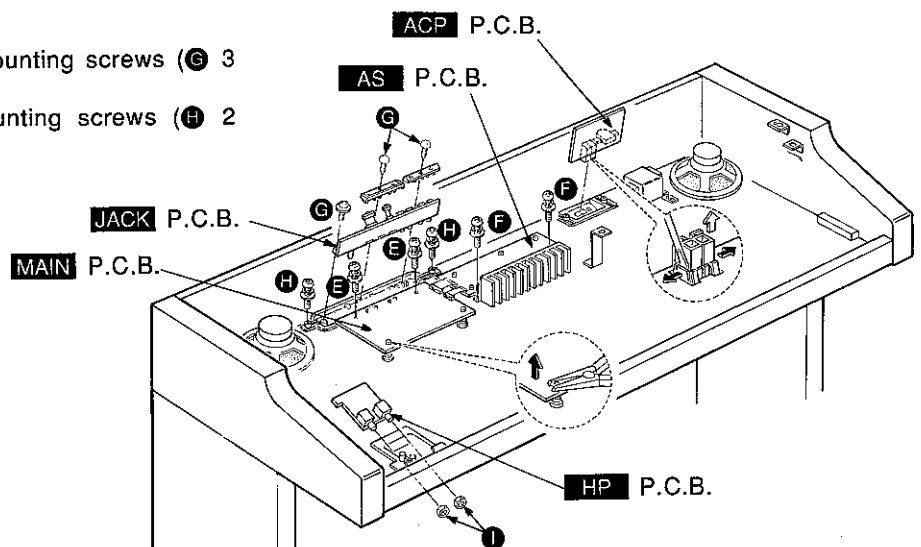
1. Disconnect the connectors.
2. Remove the JACK P.C.B. mounting screws (G 3 pcs.).
3. Remove the jack panel mounting screws (H 2 pcs.).

ACP P.C.B.

1. Release the claws of the AC IN connector bracket.

HP P.C.B.

1. Remove the keyboard assembly (see step 5).
2. Remove the headphone jack mounting nuts (I 2 pcs.).



[Fig. 11]

SYMPTOMS WHICH APPEAR TO BE SIGNS OF TROUBLE

Phenomenon	Remedy
No sound is produced when the keyboard is played.	<ul style="list-style-type: none"> • No sound is produced if the MAIN VOLUME is set to MIN. Use the sliding control to set the volume to an appropriate level. • If the MIDI LOCAL CONTROL is set to off, set it to on.

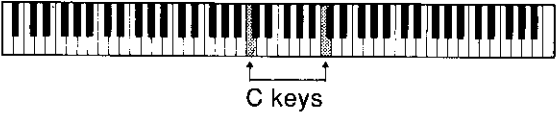

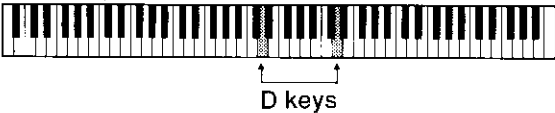
■ About the back-up memory

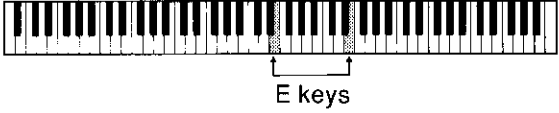
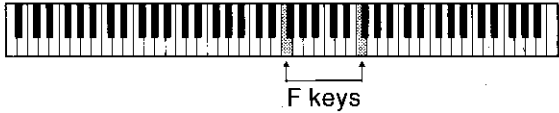
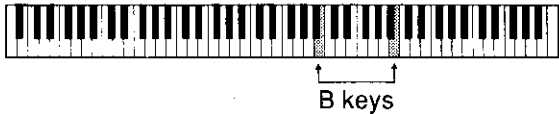
The selected sound and various functions, MIDI settings remain in the memory for about 30 minutes after the **POWER** is turned off. If you wish to return all memories and settings to their initialized status,

while pressing the **MODE SET** button, press the **INITIAL** key on the keyboard. Or, press the **POWER** on and hold the **INITIAL** key at the same time.

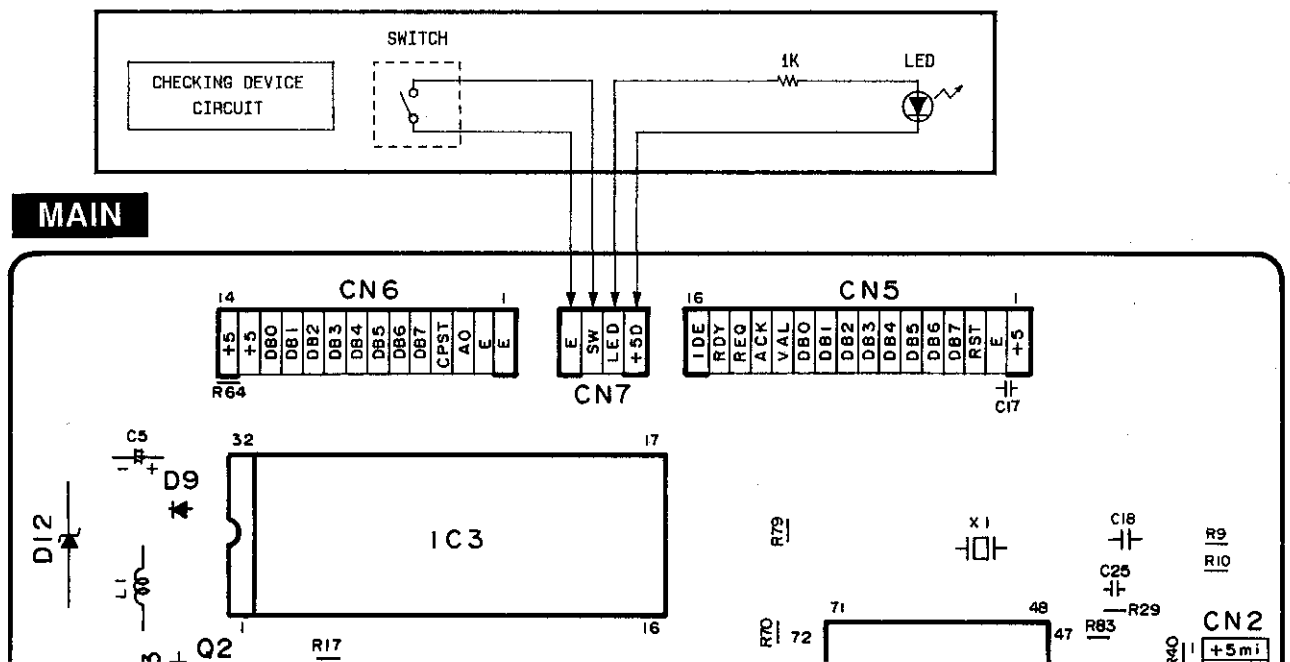
ABOUT THE SELF-DIAGNOSTIC FUNCTION

This model has some self-diagnostic capabilities. When set to the self-diagnostic mode, operation of various components can be verified by following the procedures in the chart below.

No.	PCB	Component(s) Under Test	Procedure									
1	MAIN	<p>RAM (IC4), ROM (IC3) check</p> <p>When the power switch is turned on, the LED of the CHECKING DEVICE flashes on and off. The first 4 flashes are for the RAM check, and the latter 4 flashes are for the ROM check. The flash number corresponds to the RAM number and ROM number; since one RAM and one ROM are used in this model, flash 1 of the first 4 flashes corresponds to the RAM (IC4) check, and flash 1 of the second 4 flashes corresponds to the ROM (IC3) check. If the part is defective, the flash time for that part becomes longer.</p> <p>Examples</p> <table border="0"> <tr> <td data-bbox="320 779 592 810">1. RAM OK, ROM OK</td> <td data-bbox="708 779 724 801">→</td> <td data-bbox="884 696 1362 1016"> </td> </tr> <tr> <td data-bbox="320 853 660 884">2. RAM OK, ROM defective</td> <td data-bbox="708 853 724 875">→</td> <td data-bbox="884 853 1362 965"> </td> </tr> <tr> <td data-bbox="320 927 660 958">3. RAM defective, ROM OK</td> <td data-bbox="708 927 724 949">→</td> <td data-bbox="884 927 1362 1039"> </td> </tr> </table> <p>Note: — indicates long flash time.</p>	1. RAM OK, ROM OK	→		2. RAM OK, ROM defective	→		3. RAM defective, ROM OK	→		<p>1. Connect the CHECKING DEVICE (refer to page I-12) to CN7 on the MAIN PCB, and turn on the CHECKING DEVICE switch.</p> <p>2. Turn on the power switch.</p>
1. RAM OK, ROM OK	→											
2. RAM OK, ROM defective	→											
3. RAM defective, ROM OK	→											
2	MAIN	<p>Gate array (IC2) check</p> <p>Monitor pins 46~48 (DL6~DL4) of IC2 on an oscilloscope, and check whether incremental data (see figure) is output.</p>	<p>While pressing two C keys simultaneously, turn on the power switch.</p>  <p>C keys</p> 									
3	CP	<p>Gate array (IC1) check</p> <p>When the power switch is turned on, the LED of the CHECKING DEVICE flashes. The LED flashes 4 times, the first flash corresponding to the IC1 check. If IC1 is defective, the first flash will be longer.</p> <table border="0"> <tr> <td data-bbox="320 1839 459 1870">1. IC1 OK</td> <td data-bbox="549 1839 564 1861">→</td> <td data-bbox="788 1839 986 1861"> </td> </tr> <tr> <td data-bbox="320 1912 523 1944">2. IC1 defective</td> <td data-bbox="549 1912 564 1935">→</td> <td data-bbox="788 1912 986 2047"> </td> </tr> </table> <p>Gate Array (IC1)</p>	1. IC1 OK	→		2. IC1 defective	→		<p>1. Connect the CHECKING DEVICE to CN7 on the MAIN PCB. (The Checking Device switch should be off.)</p> <p>2. While pressing two D keys simultaneously, turn on the power switch.</p>  <p>D keys</p>			
1. IC1 OK	→											
2. IC1 defective	→											

No.	PCB	Component(s) Under Test	Procedure
4	MAIN	Wave ROM (IC7) check	1. While pressing two E keys simultaneously, turn on the power switch. 2. Select the GRAND PIANO sound. 
		When set to the self-diagnostic mode, the Wave ROM outputs a sine wave. If no sound is produced, or if the sound is distorted, when a key is pressed, the Wave ROM is defective.	
5	CP	Control panel LED check	While pressing two F keys simultaneously, turn on the power switch. 
		Press the buttons on the control panel and confirm that the corresponding LEDs light.	
6	MKB	Keyboard ROM (IC2) check	While pressing two B keys simultaneously, turn on the power switch. 
		If the keyboard ROM (IC2) is OK, one confirming beep will sound. If it is defective, several consecutive error beeps will sound.	

■ Connection between serving CHECKING DEVICE and MAIN PCB



MIDI IMPLEMENTATION CHART

Function		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	1~16 1~16	1~16 1~16	memorized
Mode	Default Messages Altered	3 × —	1, 3 × —	memorized
Note Number	True voice	*21~108 —	0~127 *0~127	
Velocity	Note ON Note OFF	○ × (9nH: V=0)	○ ×	
After Touch	Key's Ch's	× ×	× ×	
Pitch Bender		×	×	
Control Change	7 64 66 67 93	× ○ ○ ○ ○	**○ ○ ○ ○ ○	volume sustain pedal sostenuto pedal soft pedal chorus (digital celeste)
Prog Change	True #	○× 0~127	○× 0~5	
System Exclusive		×	×	
System Common	Song Pos Song Sel Tune	× × ×	× × ×	
System Real Time	Clock Commands	× ×	× ×	
Aux Messages	Local ON/OFF All Notes OFF Active Sense Reset	× × ○ ×	× ○ ○ ×	
Notes	○× Whether or not the data for each of these items is transmitted or received can be set. * Changes depending on the TRANPOSE setting. ** Effective only in the MULTI TIMBRE mode.			

PRECAUTIONS BEFORE SERVICING

■ Precautions for measuring of the output waveforms.

1. The waveform was measured with a "National Digital Storage Oscilloscope VP-5730A". Therefore the waveforms of musical tone signals shown may differ somewhat due to the difference in the timing of triggering.
2. Since the 1/10 test probe is used, the indicated voltage value on the bottom part of each waveform photo is 1/10 of the actual value (e.g. 0.2V/cm should be 2.0V/cm).
3. To measure the waveforms, first set this unit to the self-diagnostic mode (refer to page I-12, No. 4). The WAVE ROM output will then be output as a sine wave to facilitate the servicing check.

■ Important safety notice:

Components identified by a \triangle mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

■ Symbolic Marks

The symbolic marks for resistors and capacitors which used in this circuits are classified as following TABLE-1 and TABLE-2.

1. RESISTORS

- Resistors without symbolic mark are FIXED CARBON FILM RESISTORS (ERD-type).
- All resistors are 1/4WATT, $\pm 5\%$ TOLERANCE unless otherwise designated in the schematic diagrams.

(TABLE-1)

SYMBOL	SPECIFICATION	SYMBOL	SPECIFICATION
Ⓣ	Fixed Carbon Film Resistors "FLAME-PROOF" (ERD—F—type)	Ⓣ	Fixed Metal Film Resistors "FLAME-PROOF" (ERX—type)
Ⓣ	Fixed Wire Wound Resistors "FLAME-PROOF" (ERF—type)	Ⓣ	Fuse Type Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERQ—type)
Ⓣ	Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERG—type)	Ⓣ	Fuse Type Fixed Carbon Film Resistors "FLAME-PROOF" (ERD2FC—type)
Ⓣ	Fixed Metal Film Resistors (Precision and High Stability) (ERO—type)		

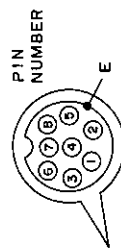
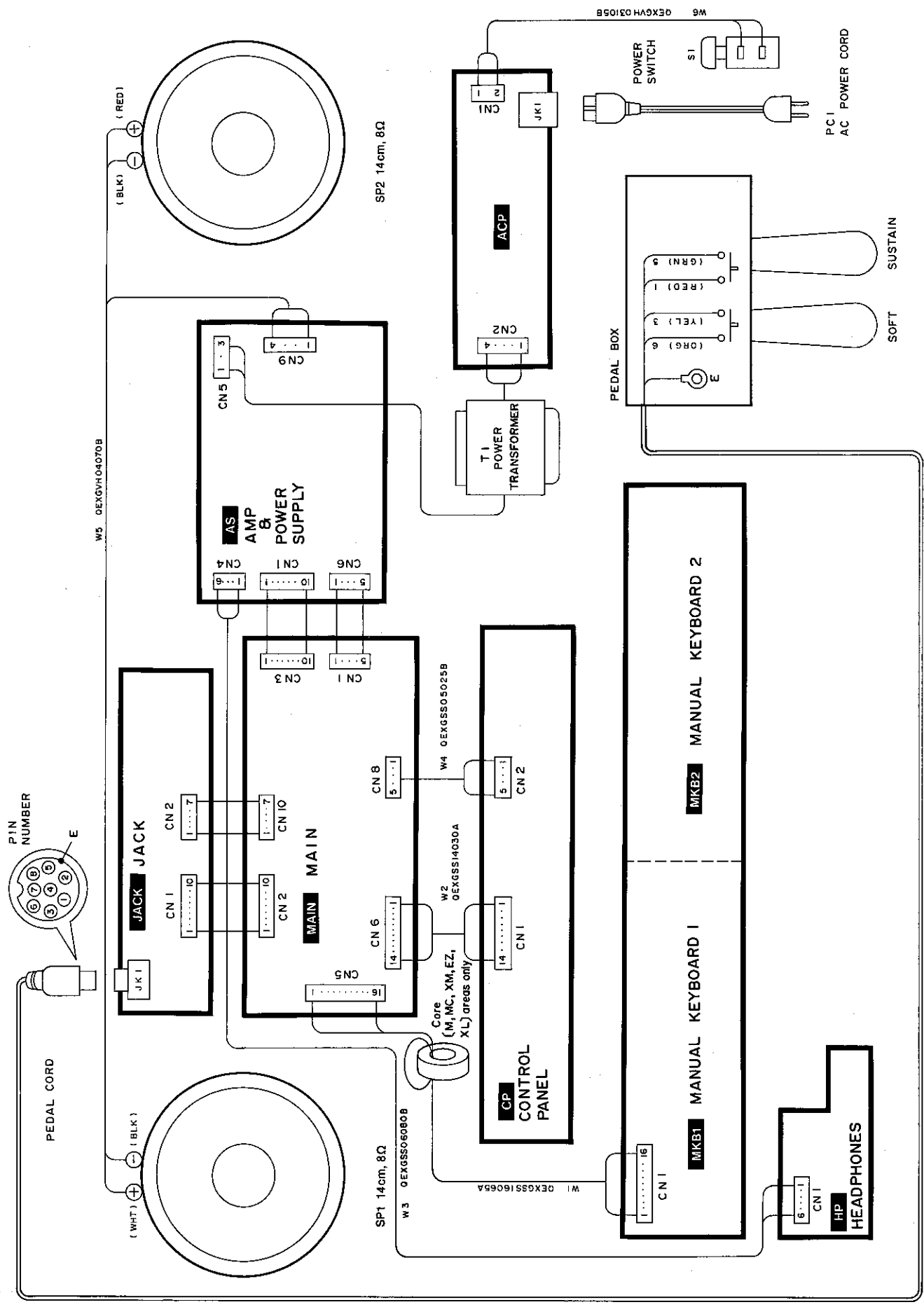
2. CAPACITORS

- Capacitors without symbolic mark are POLYESTER CAPACITORS. (ECQM-type, ECQG-type, $\pm 10\%$ Tolerance)
- Polarized capacitors without symbolic mark are Aluminum Electrolytic Capacitors. (ECEA—type, $\pm 20\%$ Tolernace)

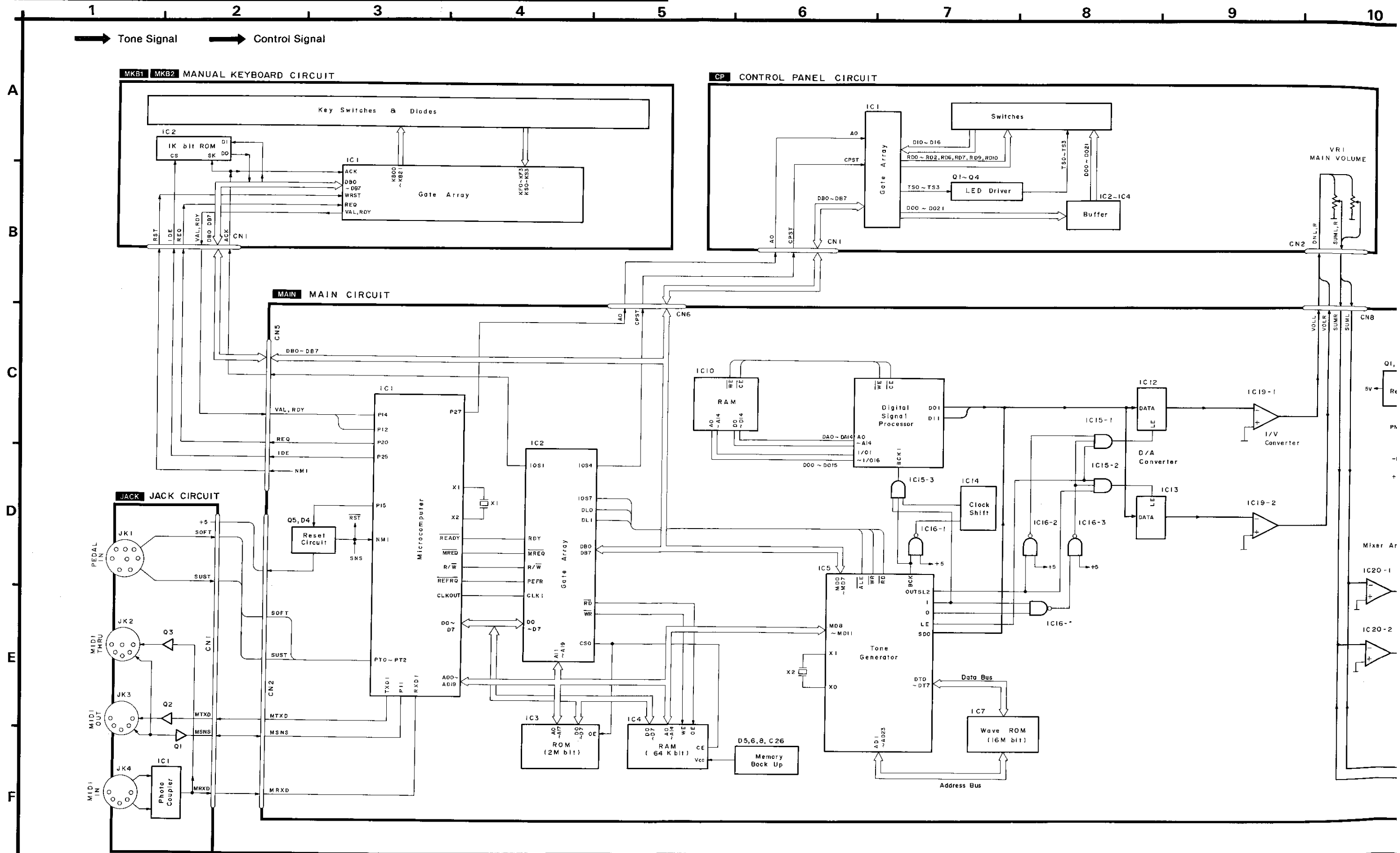
(TABLE-2)

SYMBOL	SPECIFICATION	TYPE
Ⓝ	Non-Polarized Electrolytic Capacitors	ECEA_KN_type
Ⓝ	Non-Polarized Electrolytic (for Network System)	ECEA_Y_type
Ⓜ	Aluminum Electrolytic Capacitors (Low leakage current type)	ECEA_M_type
Ⓩ	Aluminum Electrolytic Capacitors (Low impedance type)	ECEA_Z_type
Ⓣ	Tantalum Solid Electrolytic Capacitors	ECS_type
Ⓣ	Metalized Plastic Film Capacitors (TF Series)	ECQV_type
	Polyester Film Capacitors	ECQB_type
○	Temperature Compensating Ceramic Capacitors	ECC_type
	High-Dielectric Constant Ceramic Capacitors	ECK_type ECR_type
	Ceramic Capacitors (Cylinder type)	ECBA_type
	Metalized Polyester Film Capacitors for Across the Line	ECQ_EW_type
	Aluminum Electrolytic Capacitors for Smoothing Circuit	ECES_type
	Multilayer Ceramic Chip Capacitors	ECUV_type

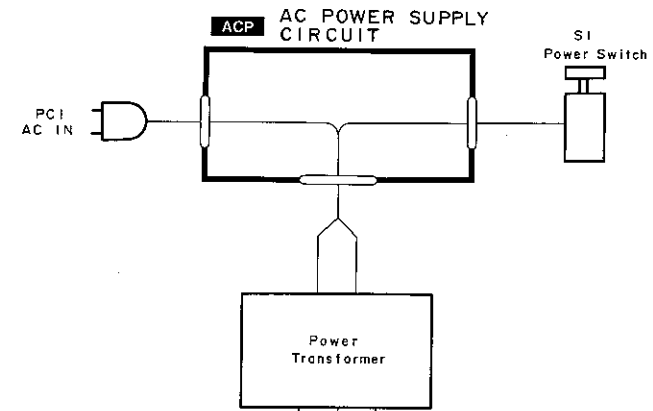
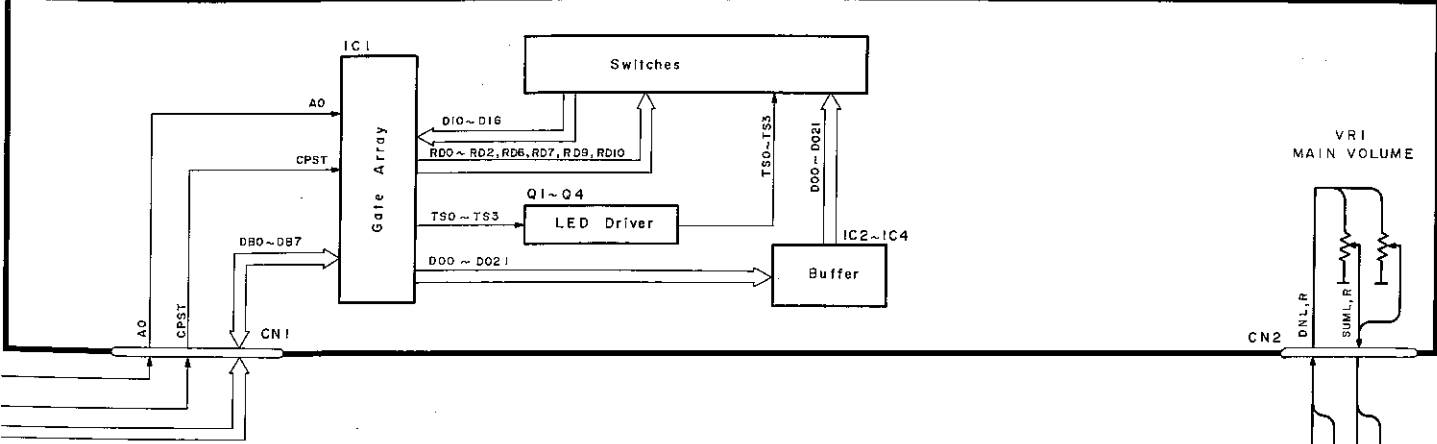
WIRING CONNECTION DIAGRAM



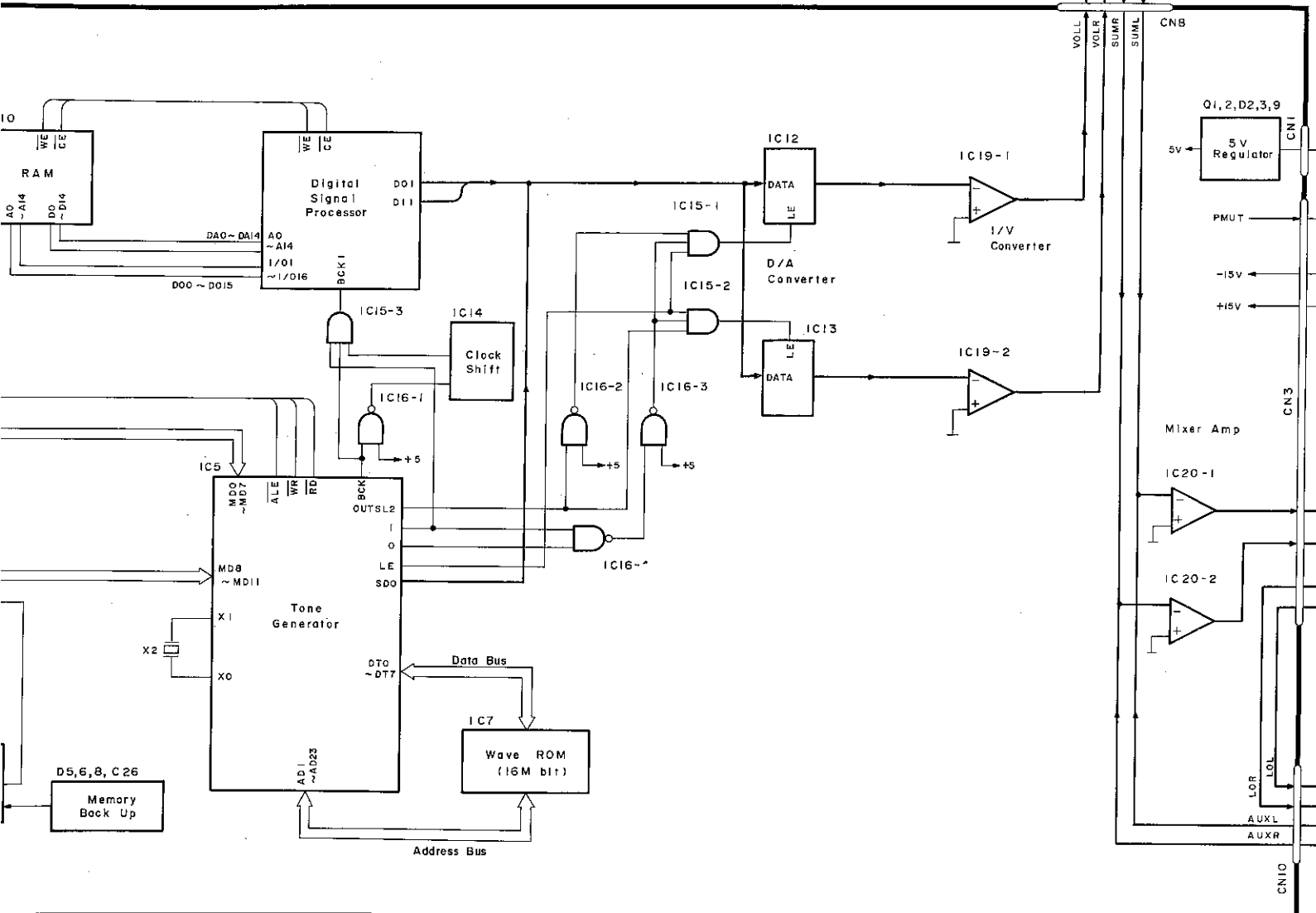
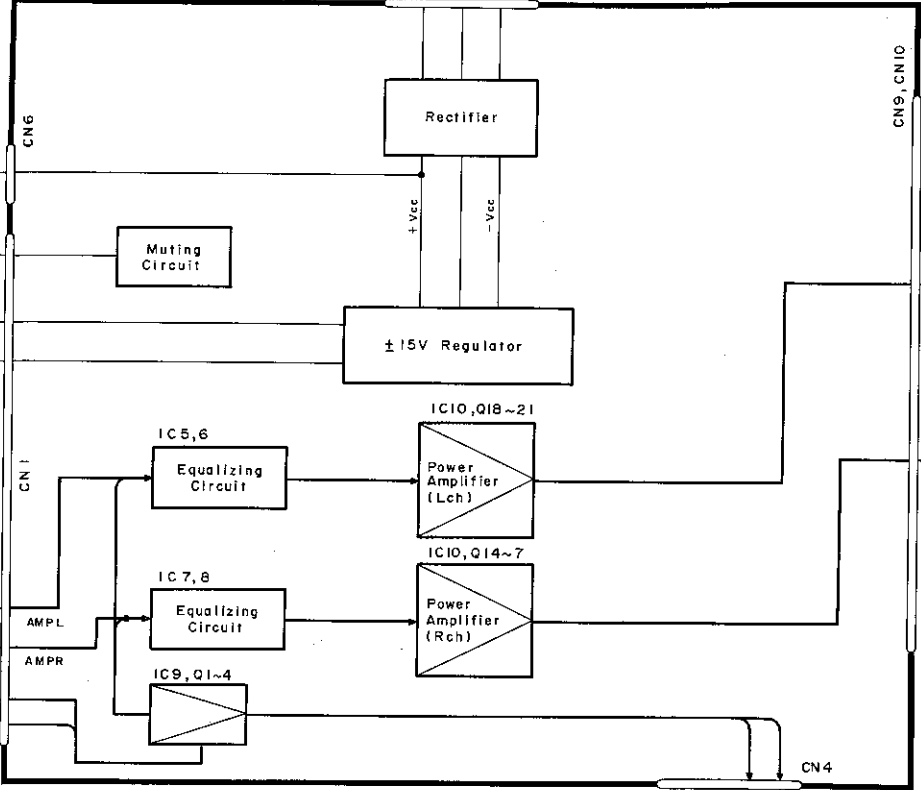
BLOCK DIAGRAM



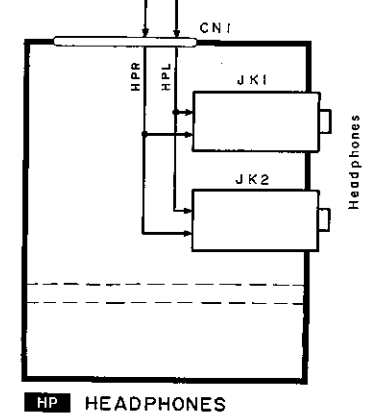
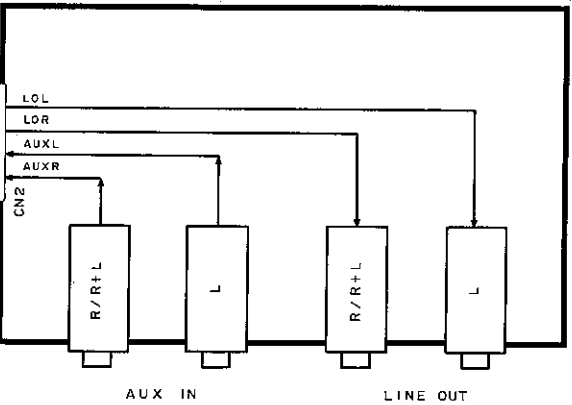
CP CONTROL PANEL CIRCUIT



AS AMP & POWER SUPPLY CIRCUIT



JACK

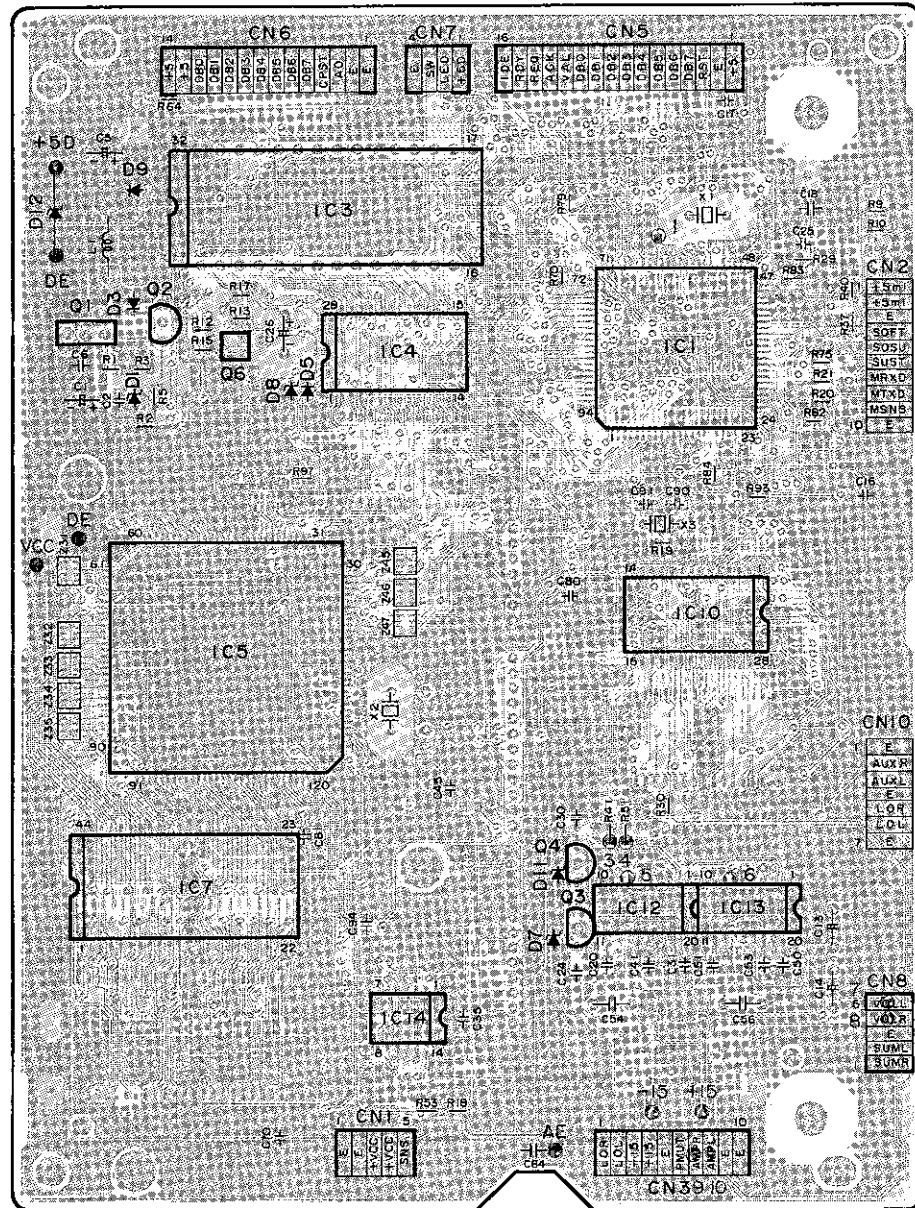


1 2 3 4 5 6 7 8 9 10

A
B
C
D
E
F

MAIN COMPONENT SIDE

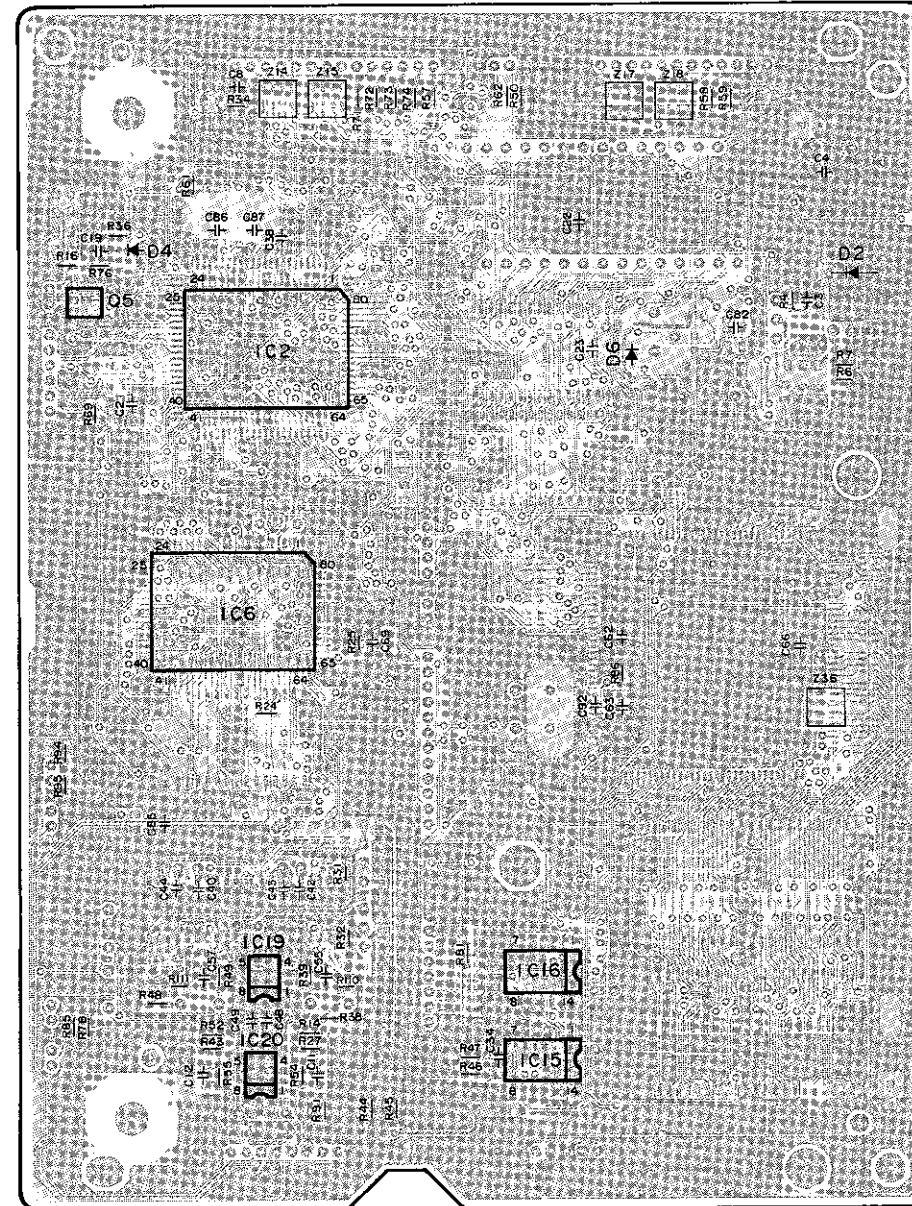
Component Side
Foil Side



MAIN FOIL SIDE

Component Side
Foil Side

SXPG214621



MAIN

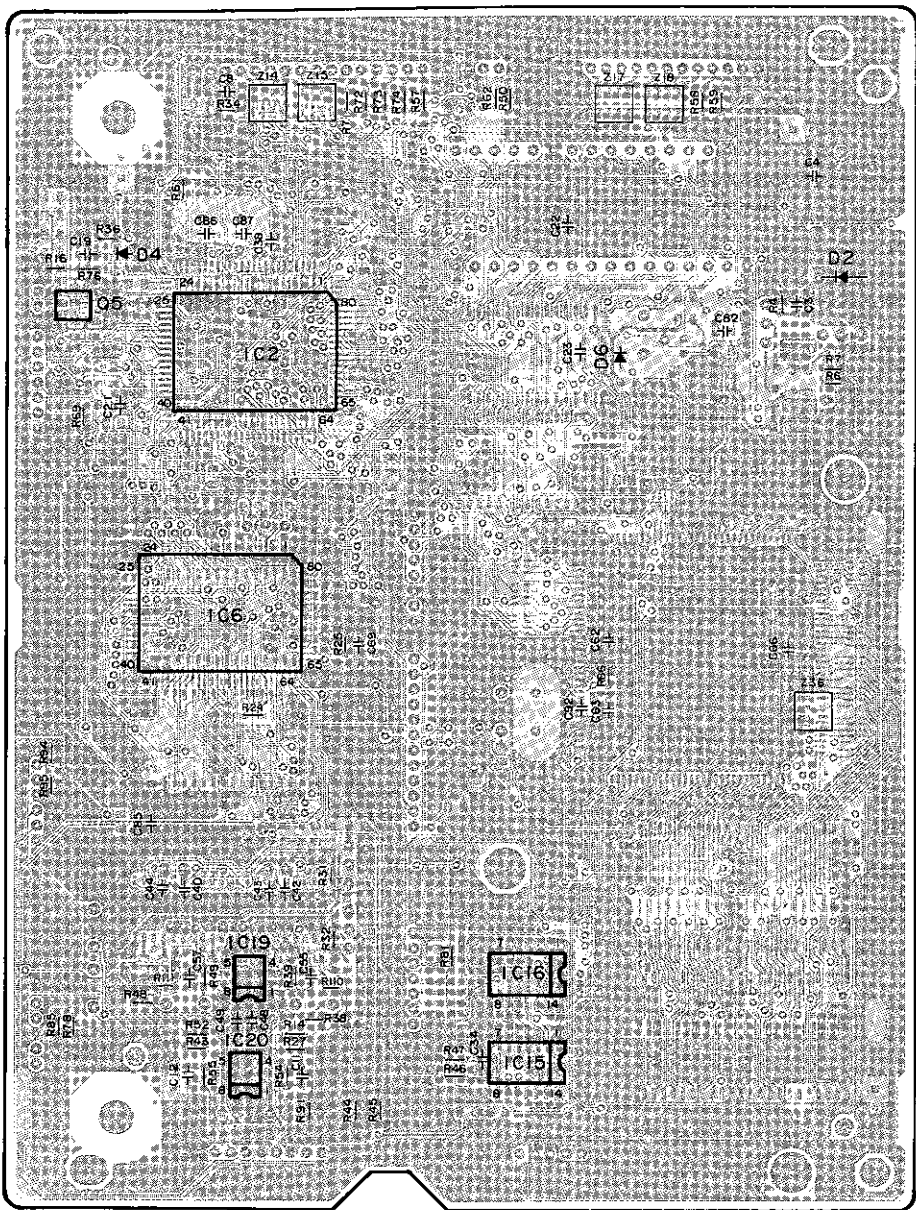
NOTES:

- IC'S
 - IC1: SVIGD70320GJ
 - IC2: D65012GF-A79
 - IC3: QSIGBX103AX
 - IC4: HM6264ALF10L
 - IC5: TC25540AF006
 - IC6: D6382GF-3B9
 - IC7: QSIGU3C08309
 - IC10: HM65256BLF10
 - IC12, 13: PCM1702U
 - IC14: D74HC164GS
 - IC15: D74HC11GS
 - IC16: D74HC00GS
 - IC19, 20: M5218AFP
- TRANSISTORS
 - Q1: 2SA1643
 - Q2, 3: 2SC1815GR
 - Q4: 2SA1015-GR
 - Q5: 2SB709ARTW
 - Q6: 2SD601AQTW
- DIODES
 - D1: MA8047HTW
 - D2: MA701ATW
 - D3-6, 9: MA110TW
 - D7, 11: MA8062MTW
 - D8: MA8056MTW
 - D12: MA2062LF

MAIN FOIL SIDE

Component Side
Foil Side

SXPG214621



MAIN

NOTES:

• IC'S

- IC1: SVIGD70320GJ
- IC2: D65012GF-A79
- IC3: QSIGBX103AX
- IC4: HM6284ALF10L
- IC5: TC25540AF006
- IC6: D6382GF-3B9
- IC7: QSIGU3C08309
- IC10: HM65256BLF10
- IC12, 13: PCM1702U
- IC14: D74HC164GS
- IC15: D74HC11GS
- IC16: D74HC00GS
- IC19, 20: M5218AFP

• TRANSISTORS

- Q1: 2SA1643
- Q2, 3: 2SC1815GR
- Q4: 2SA1015-GR
- Q5: 2SB709ARTW
- Q6: 2SD601AQTW

• DIODES

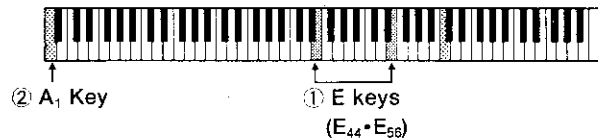
- D1: MA8047HTW
- D2: MA701ATW
- D3~6, 9: MA110TW
- D7, 11: MA8062MTW
- D8: MA8056MTW
- D12: MA2062LF

Measuring Condition

Check Point ③~⑩

Set to the self-diagnostic mode followings.

- While pressing two E keys (①) simultaneously, turn on the power switch.
- SOUND..... GRAND PIANO
- Main Volume..... Max
- Keyboard A₁ (②)

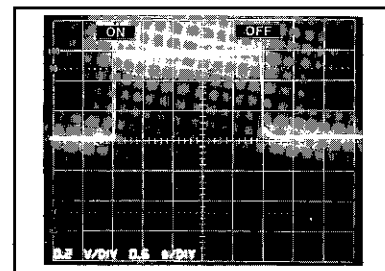


Check Point ①

Set the initial setting mode (Refer to page I - 7)

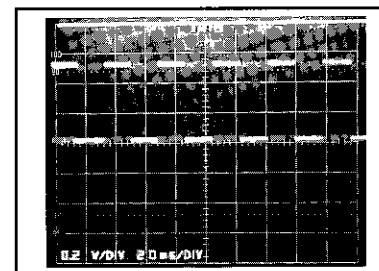
- SOUND..... GRAND PIANO
- Main Volume..... Max

① RESET

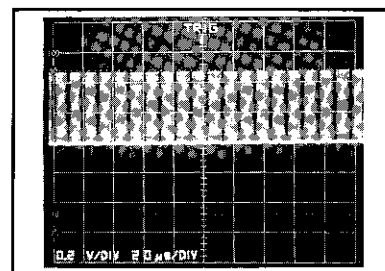


• Power SW ON → OFF

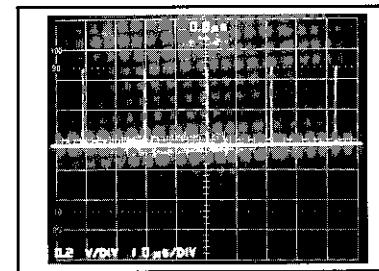
③



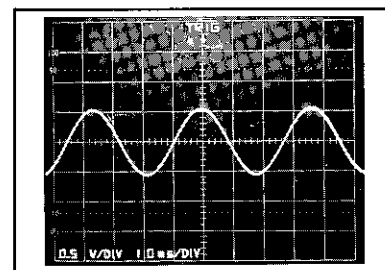
④



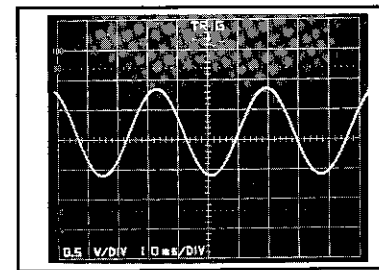
⑤, ⑥

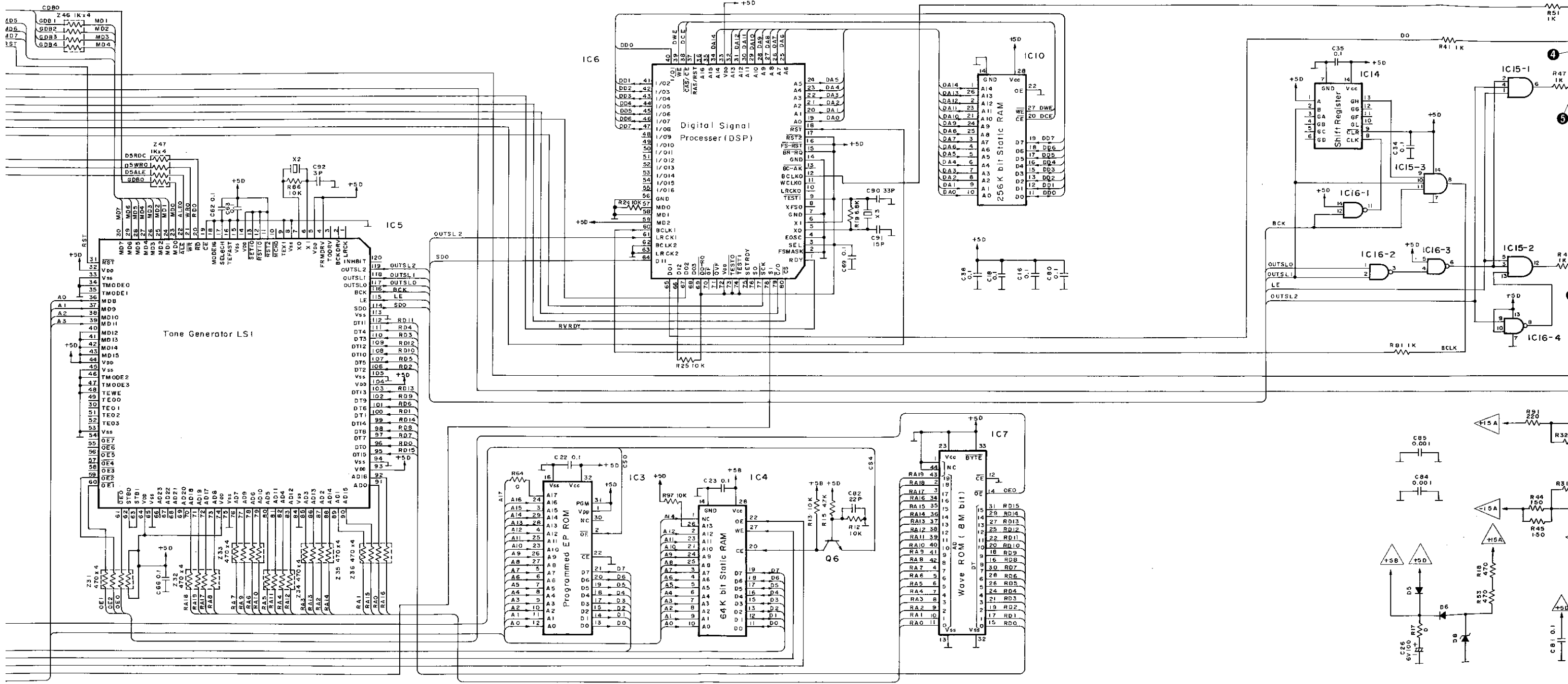


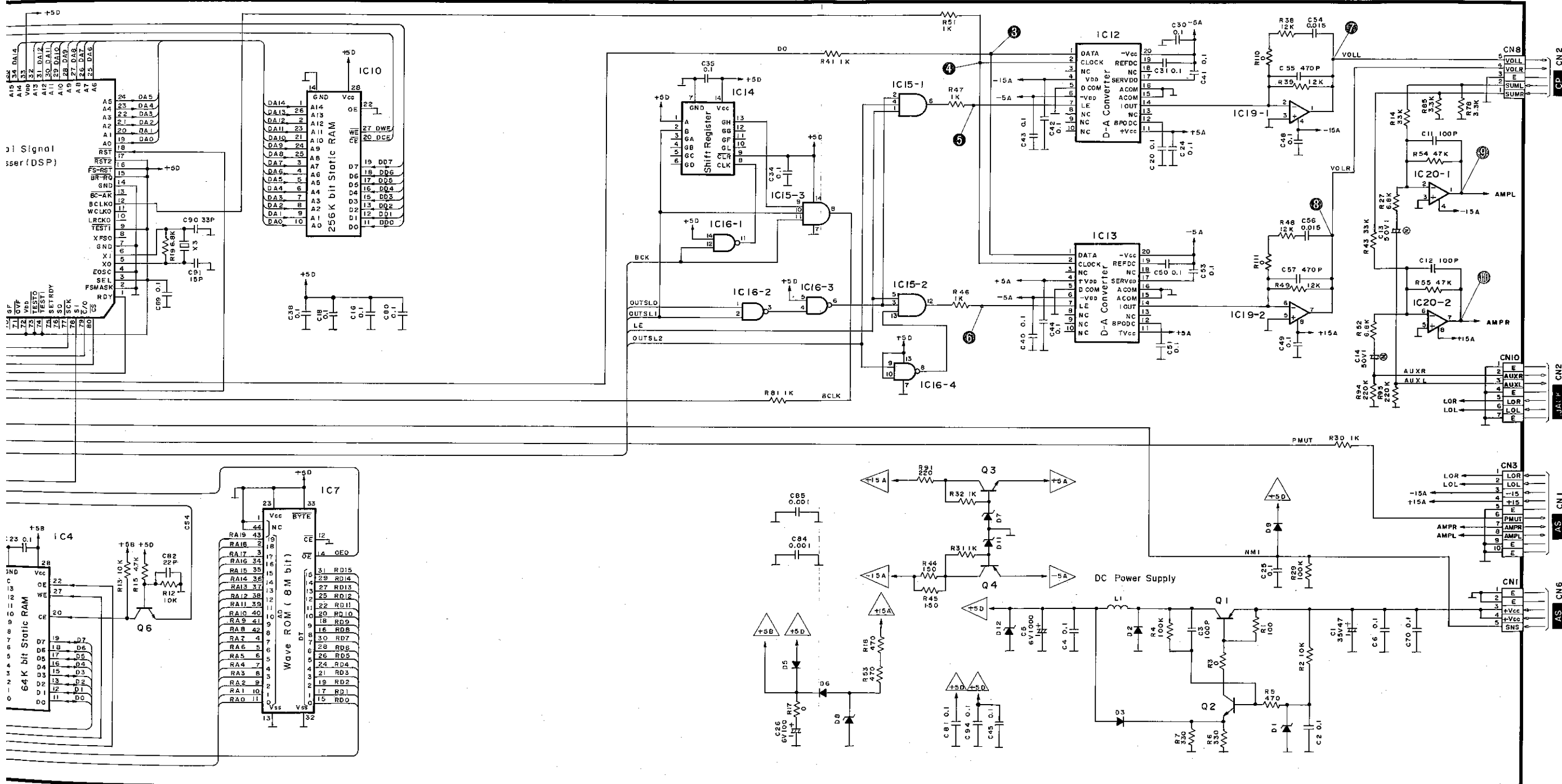
⑦, ⑧



⑨, ⑩

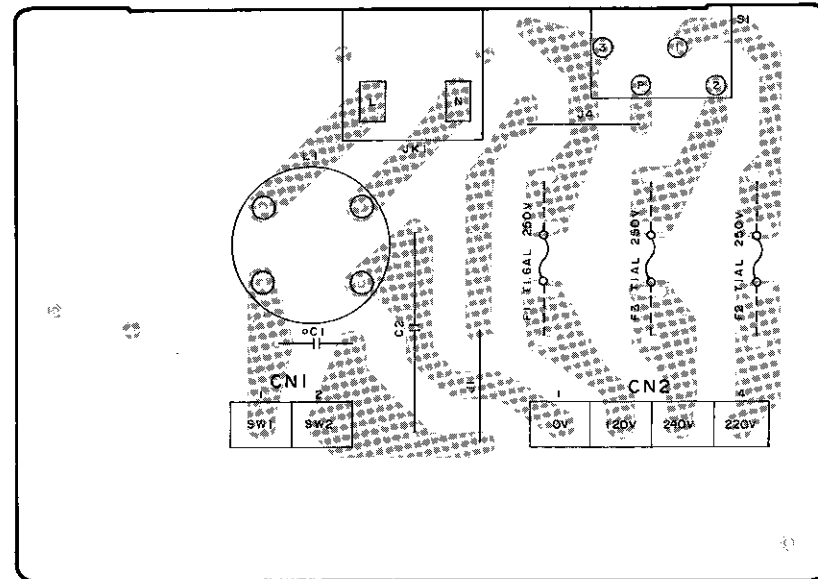






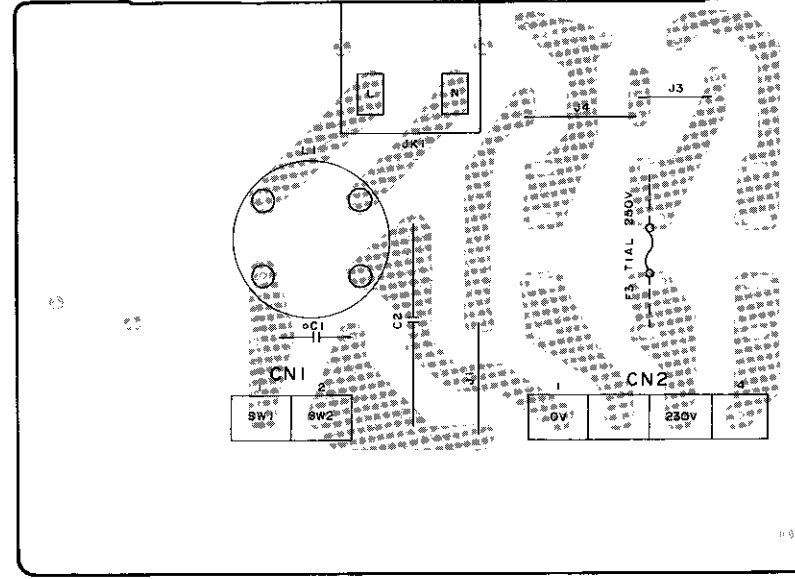
A

ACP [M] [MC] [XM] areas SXP215531



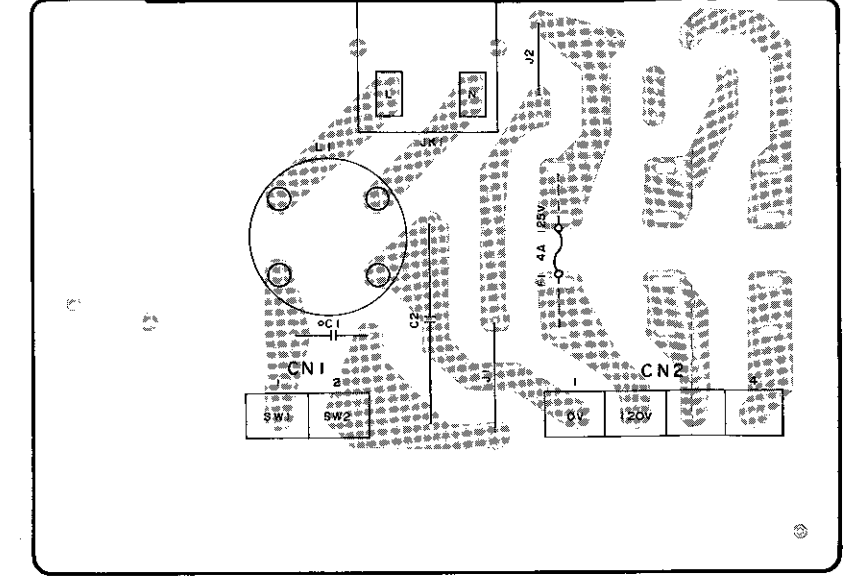
ACP
NOTE:
• FUSE
F1: XBA1C40NU100

ACP [EK] [X] [XR] [XS] [XD] [XT] areas SXP21554



ACP
NOTE:
• FUSE
F1: XBA2C16TBO
F2, 3: XBA2C10TBO

ACP Other areas SXP215511

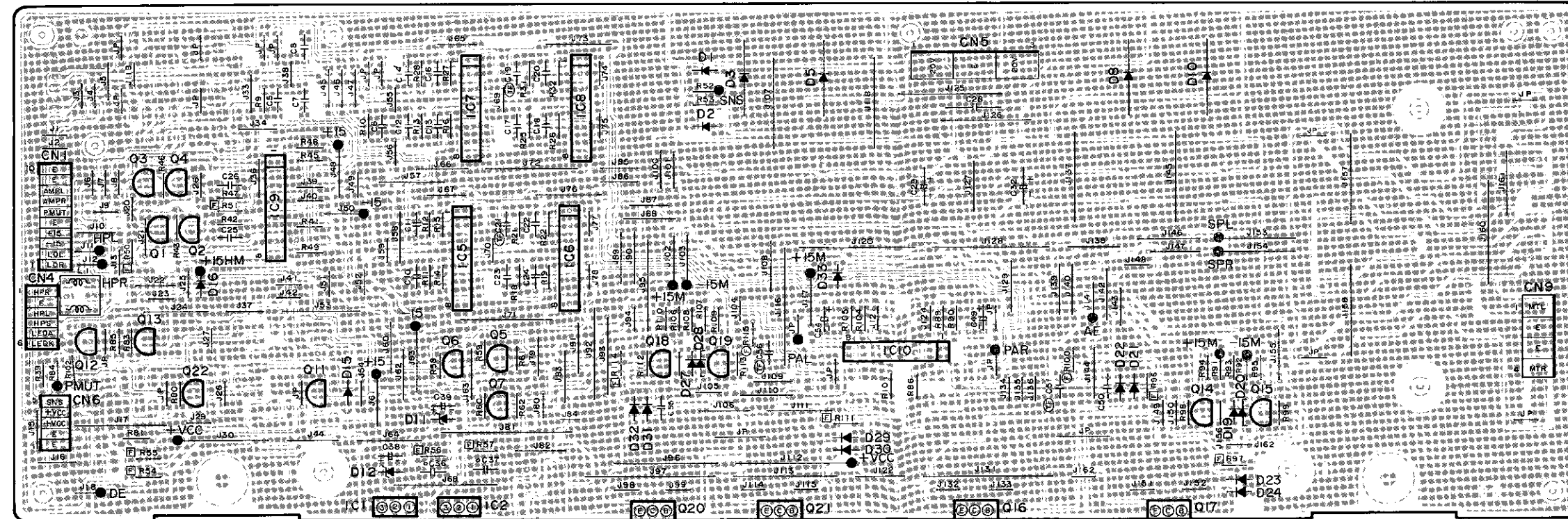


ACP
NOTE:
• FUSE
F3: XBA2C10TBO

D

AS

SXP214721



AS
NOTES:
• IC'S
IC1: SVIGM5F7815
IC2: SVIGM5F7915
IC5~10: SVIGM5218L
• TRANSISTORS
Q1, 3: 2SC3940ARS
Q2, 4: 2SA1534AR
Q5, 6, 13, 15, 2SA1015-GR
19, 22:
Q7, 11, 12, 2SC1815GR
14, 18:
Q16, 20: 2SB946P
Q17, 21: 2SD1271P
• DIODES
D1, 2: SVDGERA1502
D3, 5, 8, 10: SVDS3V20
D11, 12: MA4180TA
D15, 19, 20, MA165TA5
27, 28:
D16, 33: EKO4
D21~24, MA167TA
29~32:

POWER SUPPLY AND HEADPHONES CIRCUIT BOARD

5

6

7

8

9

10

11

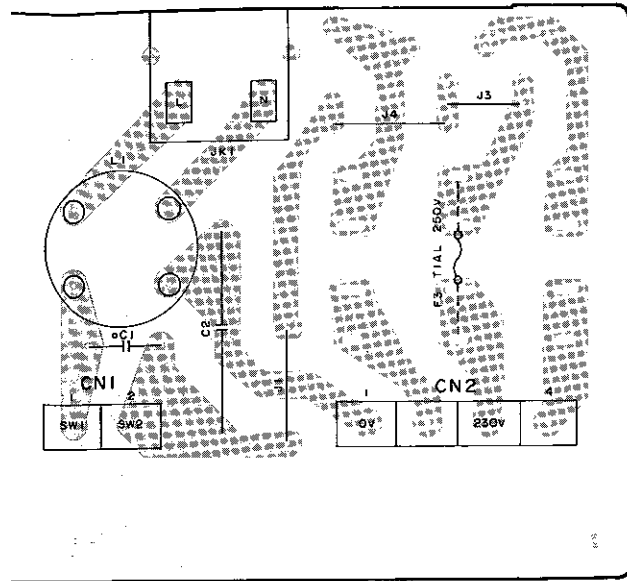
12

13

14

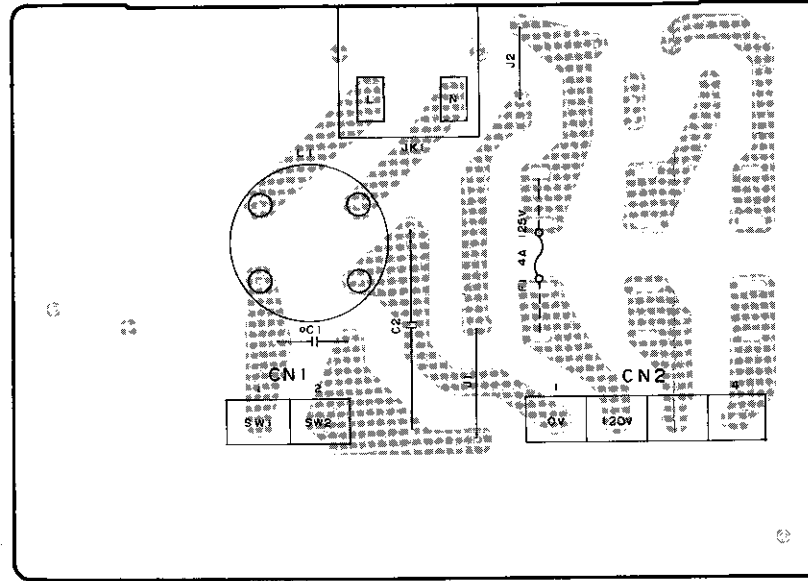
[X] [XR] [XS] [XD] [XT] areas

SXP21554



ACP Other areas

SXP21551



ACP

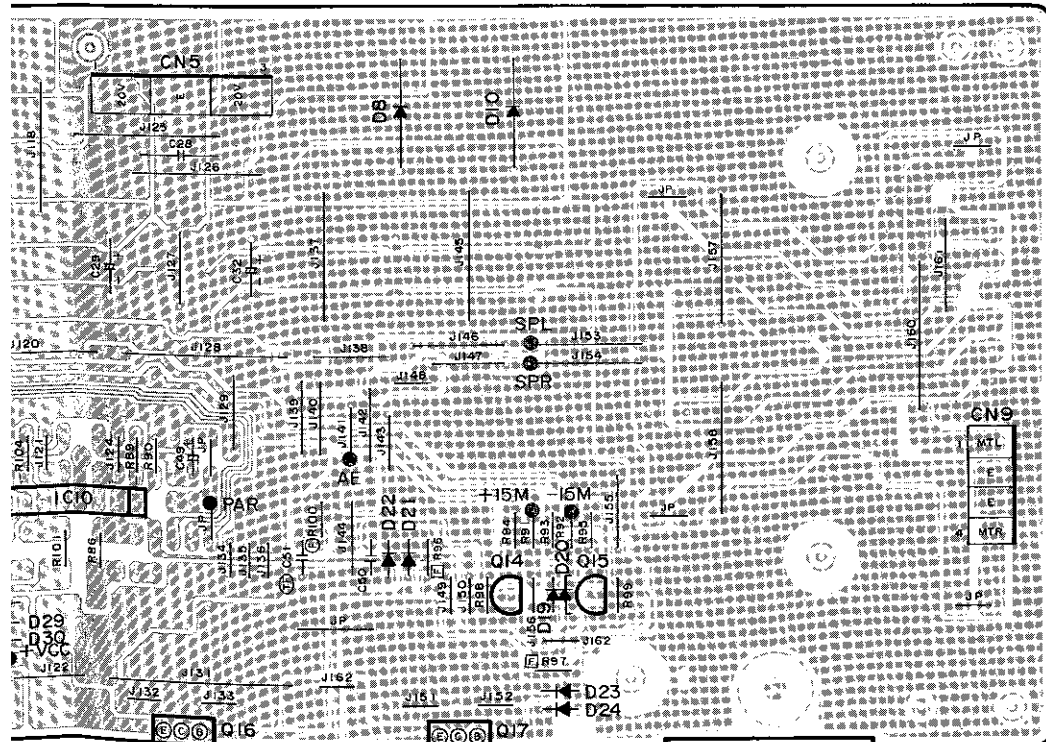
NOTE:

• FUSE

F3: XBA2C10TBO

IO
IO

SXP214721



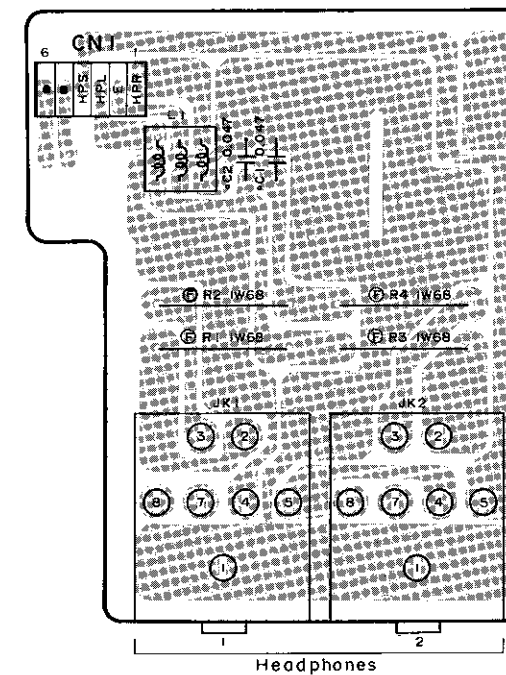
AS

NOTES:

- IC'S
 - IC1: SVIGM5F7815
 - IC2: SVIGM5F7915
 - IC5~10: SVIGM5218L
- TRANSISTORS
 - Q1, 3: 2SC3940ARS
 - Q2, 4: 2SA1534AR
 - Q5, 6, 13, 15, 19, 22: 2SA1015-GR
 - Q7, 11, 12, 14, 18: 2SC1815GR
 - Q16, 20: 2SB946P
 - Q17, 21: 2SD1271P
- DIODES
 - D1, 2: SVDGERA1502
 - D3, 5, 8, 10: SVDS3V20
 - D11, 12: MA4180TA
 - D15, 19, 20, 27, 28: MA165TA5
 - D16, 33: EKO4
 - D21~24, 29~32: MA167TA

HP

SXP210821



1



Measuring Condition

Check Point ③~⑤

Set to the self-diagnostic mode followings.

- While pressing two E keys (①) simultaneously, turn on the power switch.
- SOUND..... GRAND PIANO
- Main Volume..... Center
- Keyboard A₁ (②)



② A₁ Key

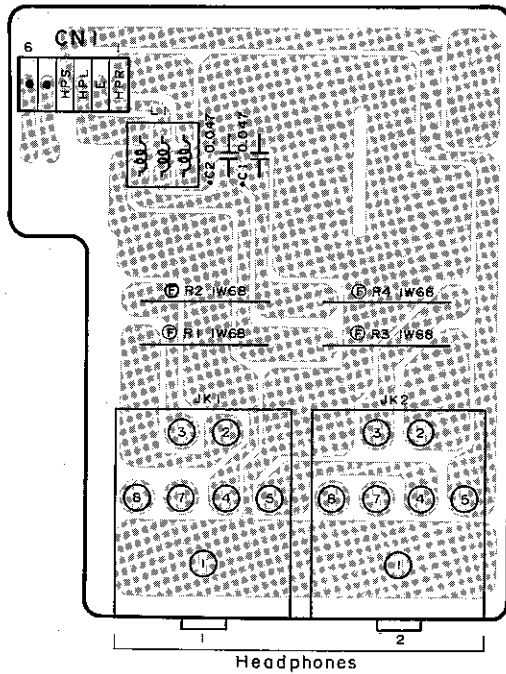
① E keys

Check Point ①, ②

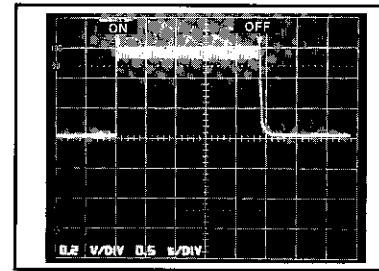
Set the initial setting mode (Refer to page I - 7)

HP

SXPG210821

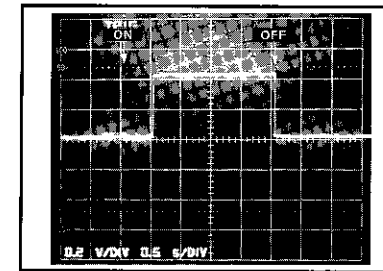


① SNS



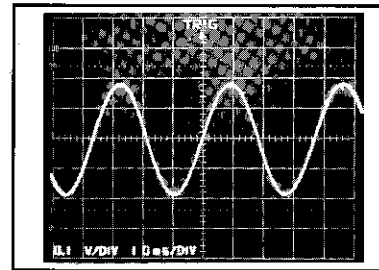
• Power SW ON → OFF

② PMUT

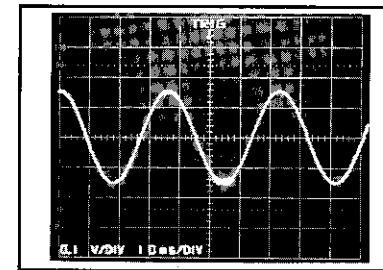


• Power SW ON → OFF

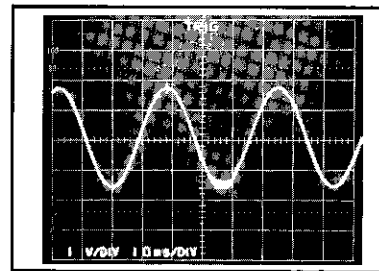
③ HPL, HPR

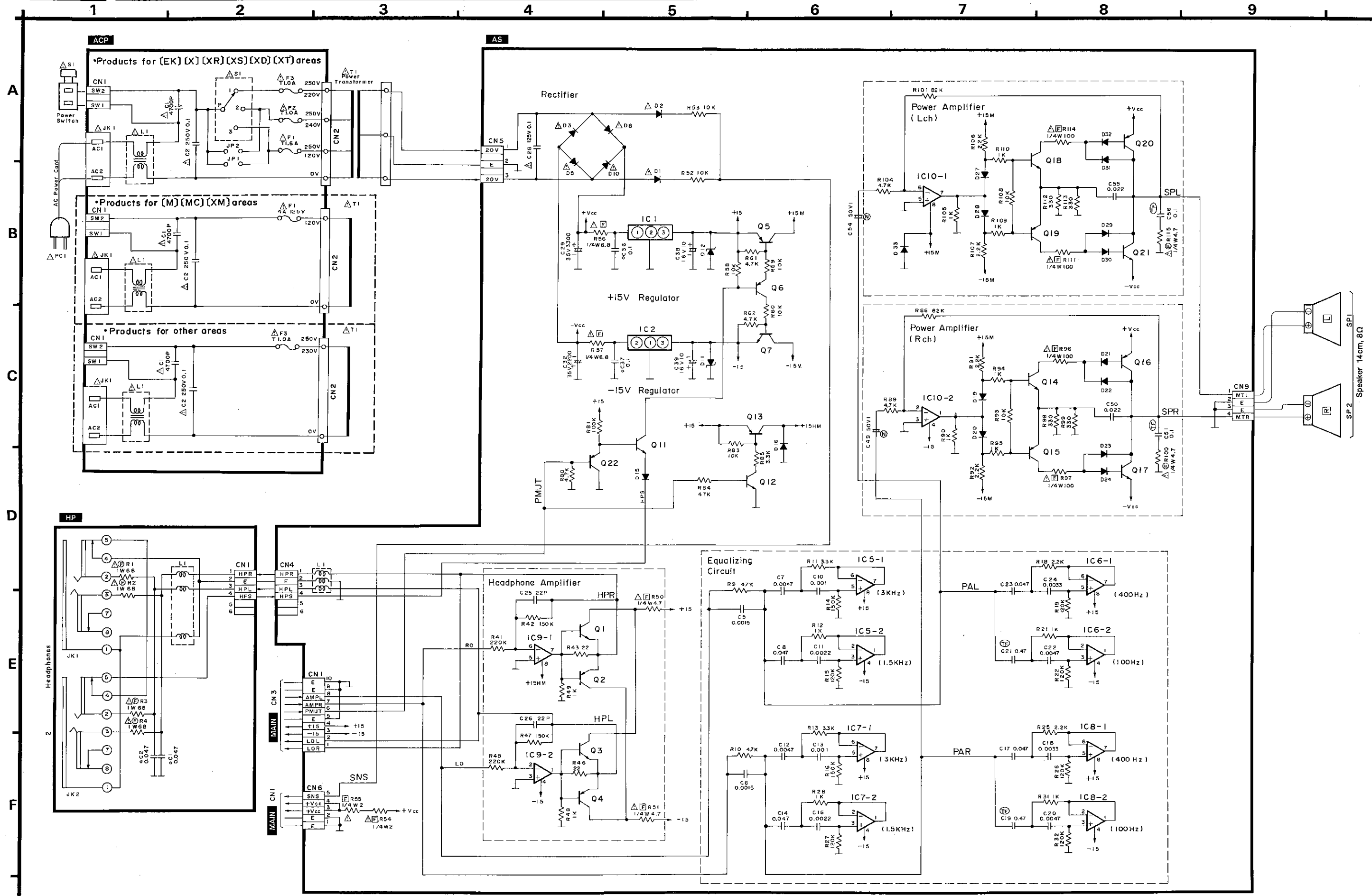


④ PAL, PAR



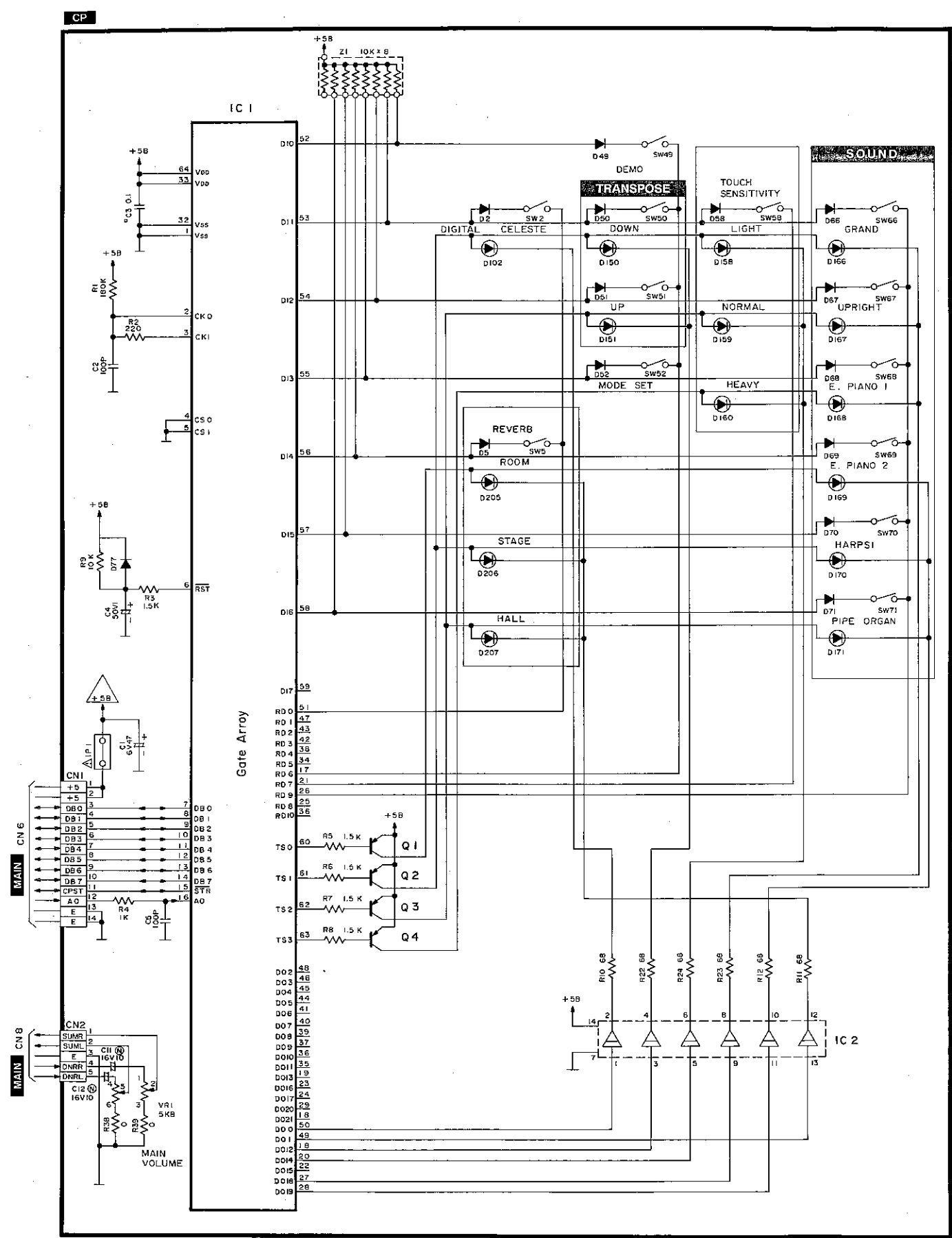
⑤ SPL, SPR







A
B
C
D
E
F



1 2 3 4 5 6 7 8 9 10

A

CP

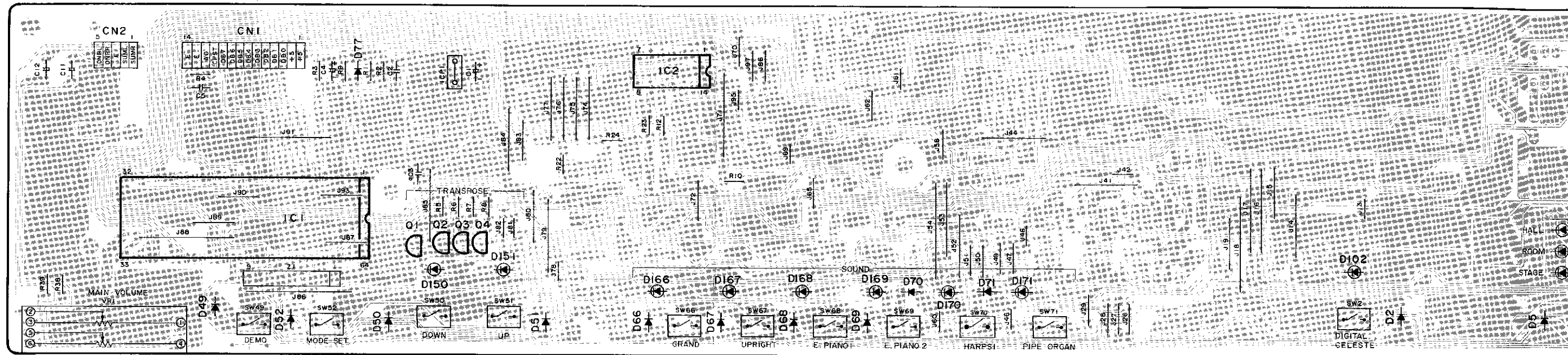
B

C

D

E

F

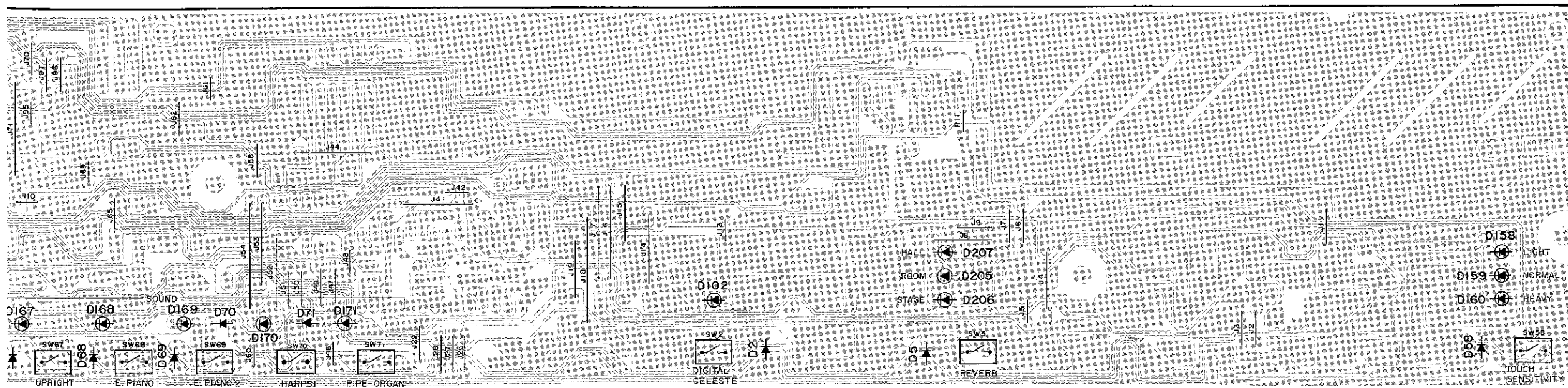


CP

NOTES

- IC'S
 IC1: SVIGM603A121
 IC2: HD74LS07P
- TRANSISTORS
 Q1~4: 2SA1015-GR
- DIODES
 D2, 5, 49~52, MA165TA5
 58, 66~69, 70,
 71, 77:
 D102, 150, 151, LN282R
 158~160,
 166~169, 170,
 171, 205~207:

SXPG214821



1 2 3 4 5 6 7 8 9 10

A

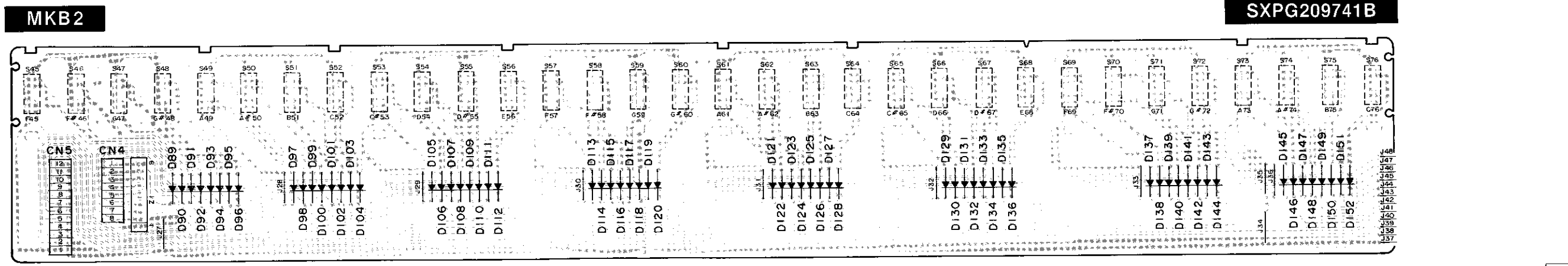
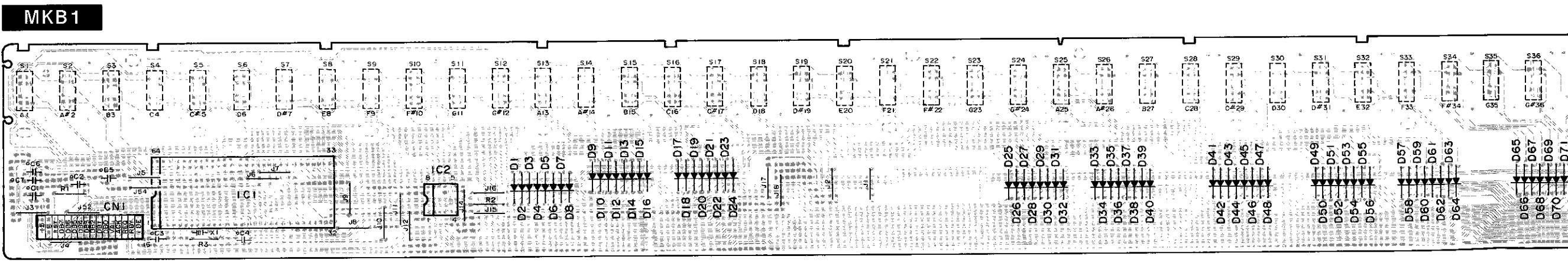
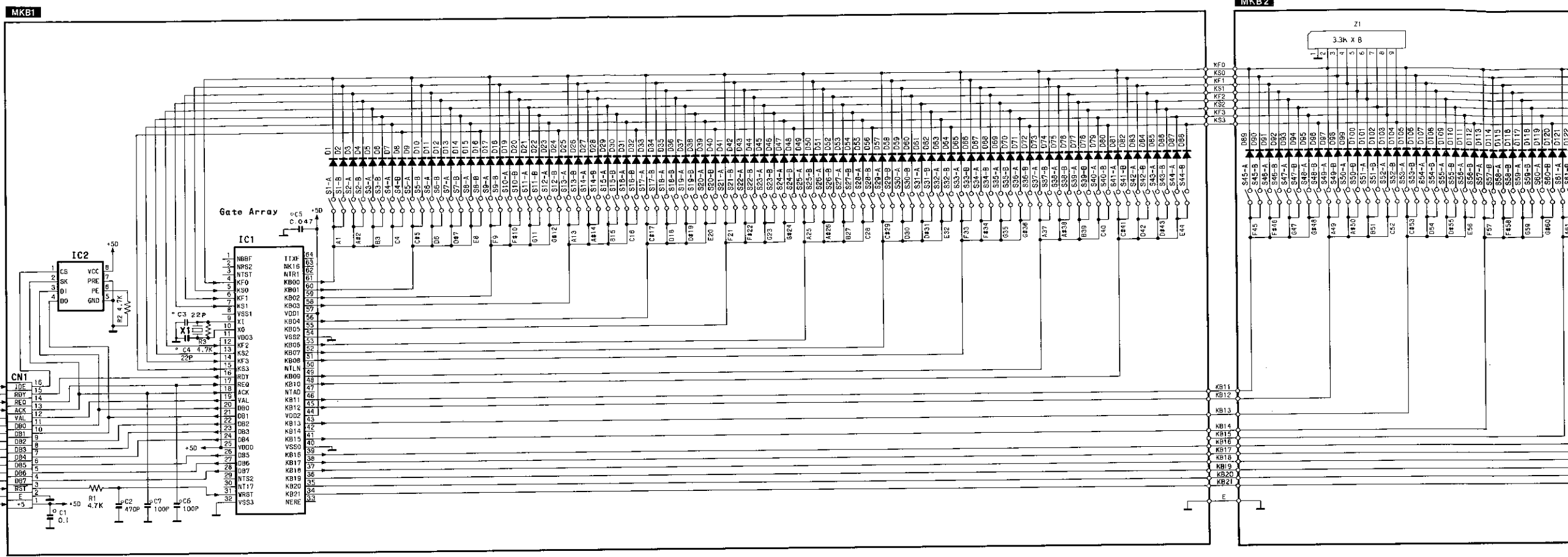
B

C

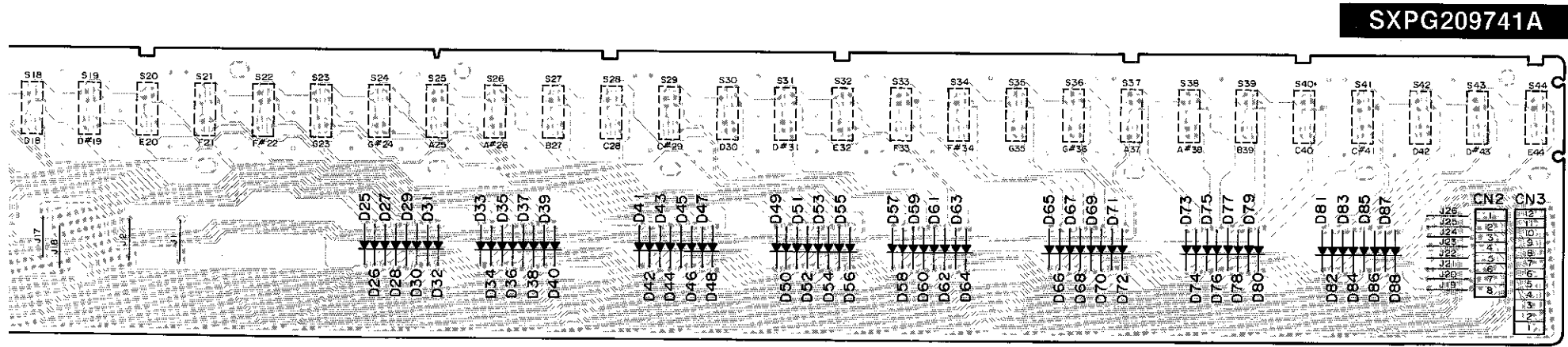
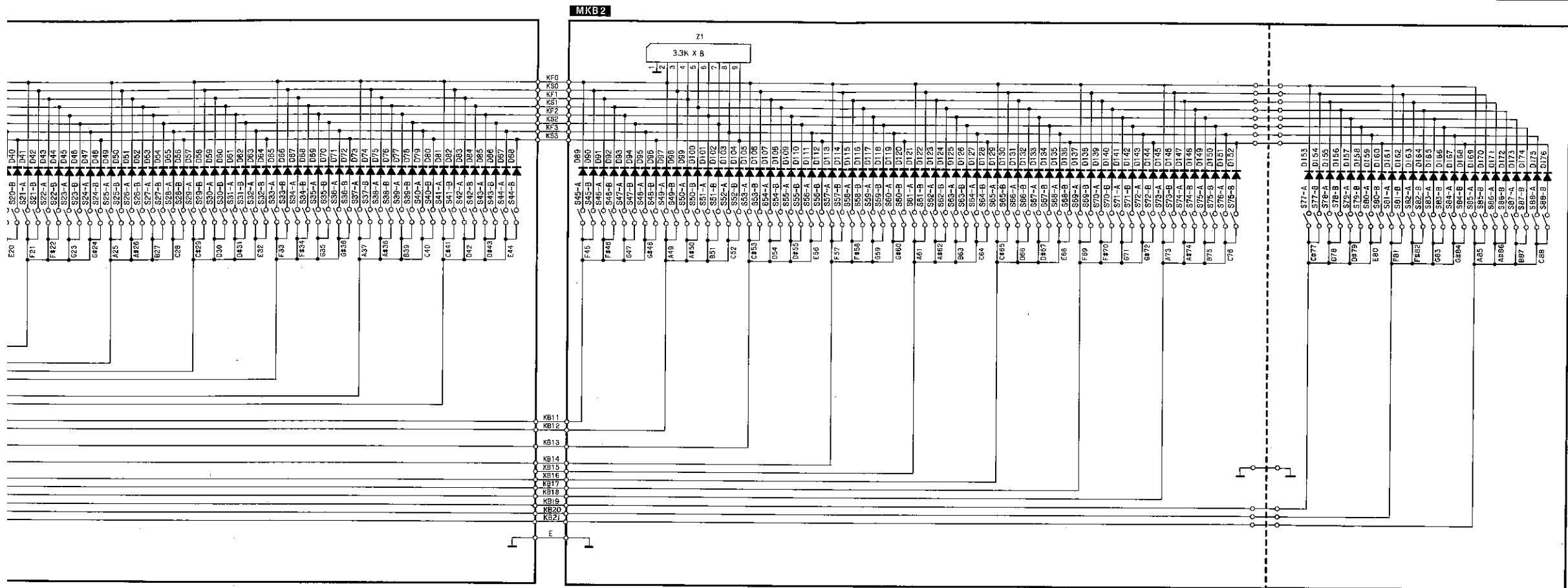
D

E

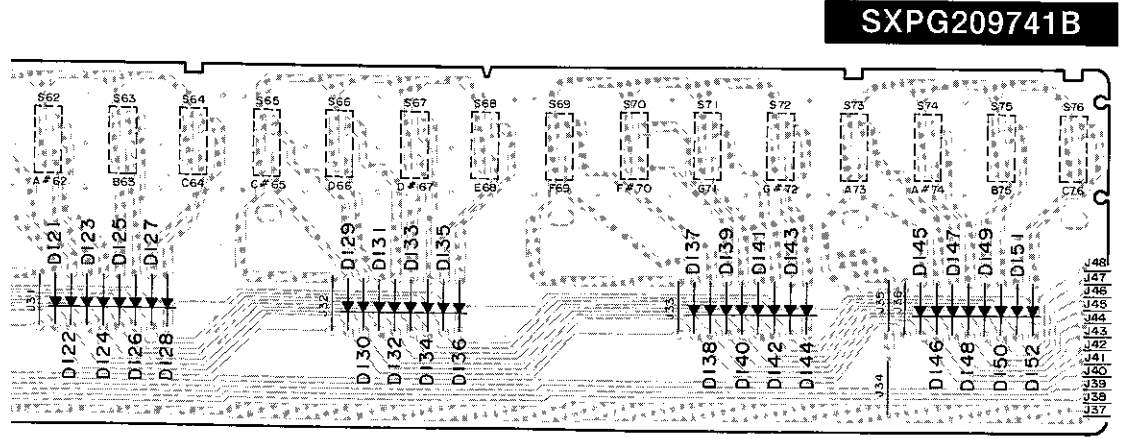
F



SXPG209741B



- MKB1**
- NOTES:**
- IC'S MSM7U042016
 - IC1: BR93LC46
 - DIODES MA162A
 - D1~88:



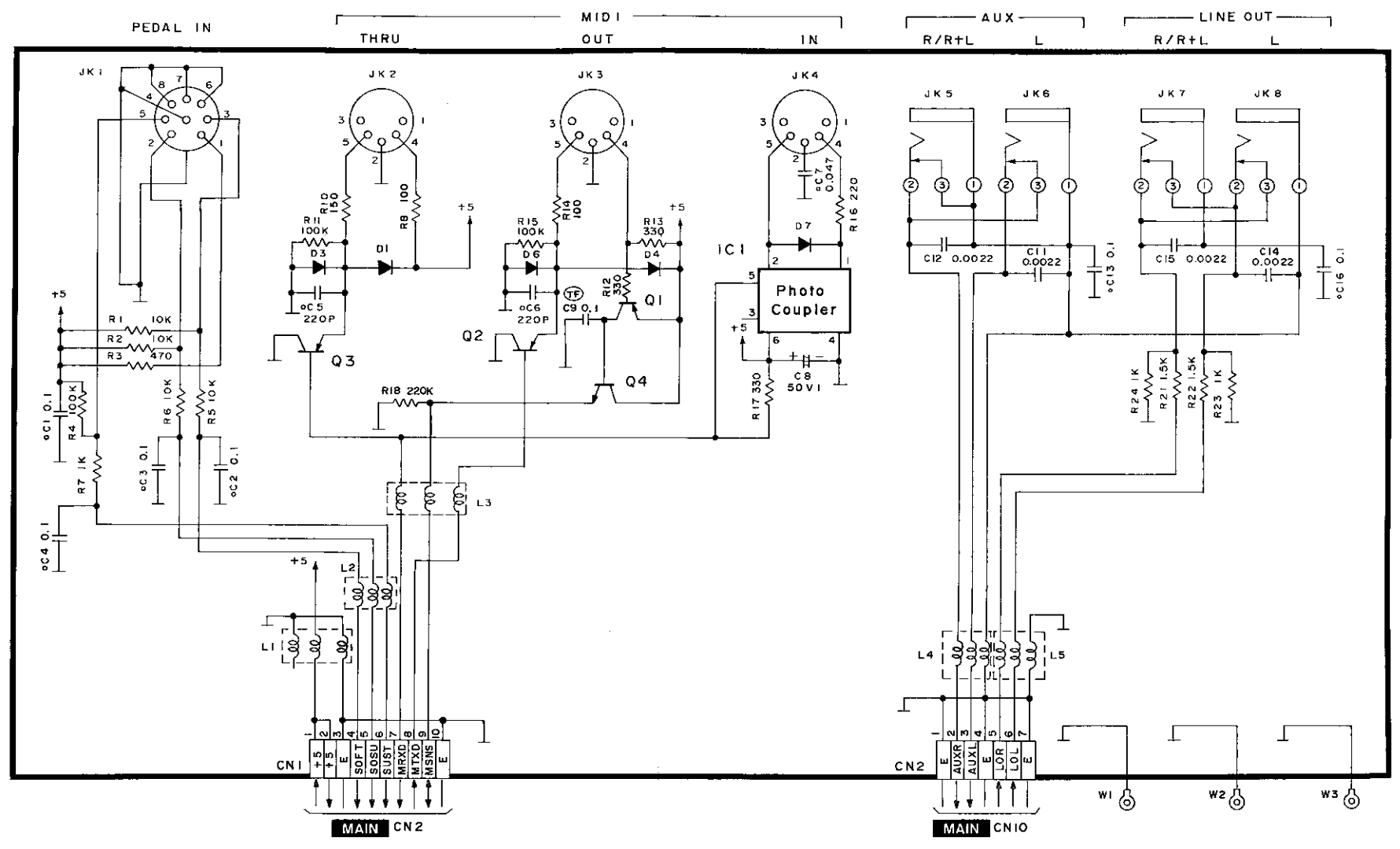
- MKB2**
- NOTES:**
- DIODES MA162A
 - D1~88:

JACK

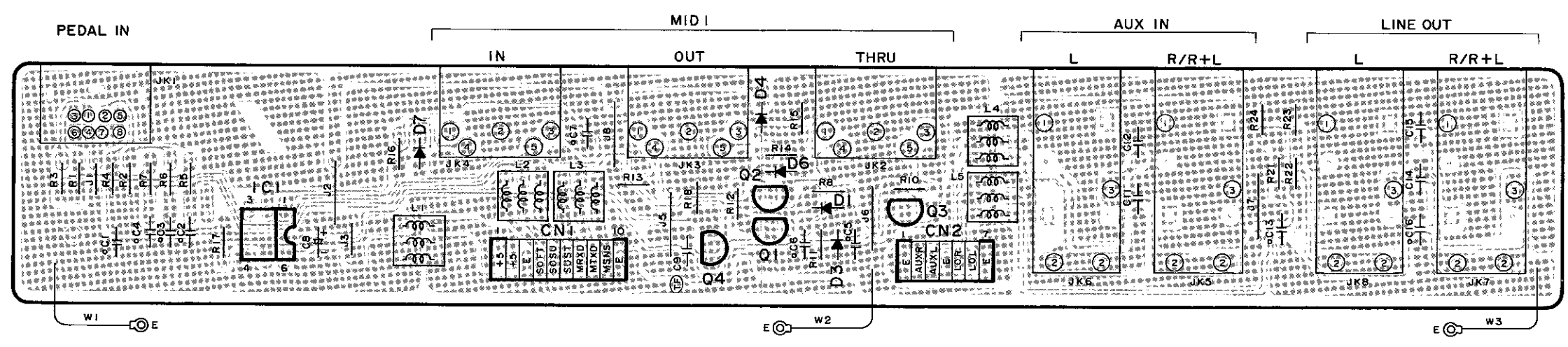
JACK CIRCUIT

1 2 3 4 5 6 7 8 9

A
B
C
D
E
F



SXPG214911



- JACK**
NOTES:
 • IC: SVIGTLP513
 • TRANSISTORS: Q1~3: 2SA1015-GR
 • DIODES: D1~7: MA165TA5

REPLACEMENT PARTS LIST P.C.B. and Wiring Parts

Notes:

1. The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention.
After the end of this period, the assembly will no longer be available.

2. Important safety notice
Components identified by \triangle mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "S" mark is service standard parts and may differ from production parts.
4. \circ mark are new parts.
5. For part No. with area mark, check the area when placing an order.

PRINTED CIRCUIT BOARD

	RTL	Area	Part No.	Description	P/S
\circ	RTL	Others M MC XM EK X XR XS XD XT	SXPG214621	MAIN	1
\circ	RTL		SXPG215511	ACP	1
\circ	RTL		SXPG215531	ACP	1
\circ	RTL		SXPG215541	ACP	1
\circ	RTL		SXPG214721	AS	1
\circ	RTL		SXPG210821	HP	1
\circ	RTL		SXPG214821	CP	1
\circ	RTL		SXPG209741A	MKB1	1
\circ	RTL		SXPG209741B	MKB2	1
\circ	RTL		SXPG214911	JACK	1

	Ref. No.	Part No.	Description	P/S
OSCILLATORS				
\circ	X1	QSXG1A1400A	14 MHz, Quartz Oscillator	1
\circ	X2	QSXG1I4915A	49 MHz, Quartz Oscillator	1
\circ	X3	QSXG2F2500A	25 MHz Ceramic Oscillator	1
COMPONENT COMBINATIONS				
\circ	Z14, 15, 17, 18	EXBS8V222J	2.2k Ω \times 4	4
\circ	Z31~36	EXBS8V471J	470 Ω \times 4	6
\circ	Z45~47	EXBS8V102J	1k Ω \times 4	3
COIL				
	L1	QLCGTJR10KA	Coil	1
RESISTORS				
	R1	ERJ6GEYJ101V	100 Ω	1
	R2	ERJ6GEYJ103V	10k Ω	1
\circ	R3	ERJ6GEY0R00V	0 Ω	1
	R4	ERJ6GEYJ104V	100k Ω	1
\circ	R5	ERJ6GEYJ471V	470 Ω	1
\circ	R6, 7	ERJ6GEYJ331V	330 Ω	2
	R9, 10	ERJ6GEYJ103V	10k Ω	2
	R12, 13	ERJ6GEYJ103V	10k Ω	2
\circ	R14	ERJ6GEYJ333V	33k Ω	1
	R15	ERJ6GEYJ472V	4.7k Ω	1
	R16	ERJ6GEYJ102V	1k Ω	1
\circ	R17	ERJ6GEY0R00V	0 Ω	1
\circ	R18	ERJ6GEYJ471V	470 Ω	1
	R19	ERJ6GEYJ682V	6.8k Ω	1
	R20, 21	ERJ6GEYJ103V	10k Ω	2
	R24	ERJ6GEYJ103V	10k Ω	1
	R25	ERJ6GEYJ103V	10k Ω	1
	R27	ERJ6GEYJ682V	6.8k Ω	1
	R29	ERJ6GEYJ104V	100k Ω	1
	R30~32	ERJ6GEYJ102V	1k Ω	3
\circ	R34	ERJ6GEYJ224V	220k Ω	1
	R36	ERJ6GEYJ104V	100k Ω	1
	R37	ERJ6GEYJ472V	4.7k Ω	1
\circ	R38, 39	ERJ6GEYJ123V	12k Ω	2
	R40	ERJ6GEYJ472V	4.7k Ω	1
	R41	ERJ6GEYJ102V	1k Ω	1
\circ	R43	ERJ6GEYJ333V	33k Ω	1
\circ	R44, 45	ERJ6GEYJ151V	150 Ω	2
	R46, 47	ERJ6GEYJ102V	1k Ω	2
\circ	R48, 49	ERJ6GEYJ123V	12k Ω	2
	R50	ERJ6GEYJ103V	10k Ω	1
	R51	ERJ6GEYJ102V	1k Ω	1
	R52	ERJ6GEYJ682V	6.8k Ω	1
\circ	R53	ERJ6GEYJ471V	470 Ω	1
	R54, 55	ERJ6GEYJ473V	47k Ω	2
	R57	ERJ6GEYJ102V	1k Ω	1
	R58, 59	ERJ6GEYJ222V	2.2k Ω	2
	R61, 62	ERJ6GEYJ103V	10k Ω	2
\circ	R64	ERJ6GEY0R00V	0 Ω	1
	R69	ERJ6GEYJ103V	10k Ω	1

MAIN MAIN CIRCUIT

	Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS				
	IC1	SVIGD70320GJ	16 bit Microcomputer	1
	IC2	D65012GF-A79	Gate Array	1
\circ	IC3	QSIGBX103AX	2M bit Programmed EP ROM	1
	IC4	HM6264ALF10L	64K bit Static RAM	1
	IC5	TC25540AF006	Tone Generator LSI	1
	IC6	D6382GF-3B9	Digital Signal Processor	1
\circ	IC7	QSIGU3C08309	8M bit Wave ROM	1
	IC10	HM65256BLF10	256 K bit Pseudo Static RAM	1
\circ	IC12, 13	PCM1702U	D-A Converter	2
\circ	IC14	D74HC164GS	Shift Register	1
\circ	IC15	D74HC11GS	3 input AND GATES	1
\circ	IC16	D74HC00GS	Quad 2 input NAND GATES	1
	IC19, 20	M5218AFP	Operational Amplifier	2
TRANSISTORS				
	Q1	2SA1643	Transistor	1
S	Q2, 3	2SC1815GR	Transistor	2
S	Q4	2SA1015-GR	2SA933STRS (SUB. Part)	1
	Q5	2SB709ARTW	Transistor	1
\circ	Q6	2SD601AQTW	Transistor	1
DIODES				
\circ	D1	MA8047HTW	Zener, 4.7V	1
\circ	D2	MA701ATW	Diode	1
	D3~6, 9	MA110TW	Diode	5
\circ	D7, 11	MA8062MTW	Zener, 6.2V	2
	D8	MA8056MTW	Zener, 5.6V	1
	D12	MA2062LF	Zener, 6.2V	1

Ref. No.	Part No.	Description	P/S
R70	ERJ6GEYJ222V	2.2kΩ	1
R71~74	ERJ6GEYJ102V	1kΩ	4
R75, 76	ERJ6GEYJ103V	10kΩ	2
R78	ERJ6GEYJ332V	3.3kΩ	1
R79	ERJ6GEYJ103V	10kΩ	1
R81	ERJ6GEYJ102V	1kΩ	1
R82~84	ERJ6GEYJ103V	10kΩ	3
R85	ERJ6GEYJ332V	3.3kΩ	1
R86	ERJ6GEYJ103V	10kΩ	1
R91	ERJ6GEYJ221V	220Ω	1
R93	ERJ6GEYJ103V	10kΩ	1
R94, 95	ERJ6GEYJ224V	220kΩ	2
R97	ERJ6GEYJ103V	10kΩ	1
R110, 111	ERJ6GEY0R00V	0Ω	2

CAPACITORS

C1	ECEA1VU470	47μF, 35V	1
C2	ECUV1H104ZFX	0.1μF	1
C3	ECUV1H101JG	100pF	1
C4	ECUV1H104ZFX	0.1μF	1
C5	ECEA0JU102	1000μF, 6.3V	1
C6, 8	ECUV1H104ZFX	0.1μF	2
C11, 12	ECUV1H101JG	100pF	2
C13, 14	ECEA1HKN010	1μF, 50V	2
C16~19	ECUV1H104ZFX	0.1μF	4
C20~25	ECUV1H104ZFX	0.1μF	6
C26	ECEA0JKA101	100μF, 6.3V	1
C30, 31	ECUV1H104ZFX	0.1μF	2
C34, 35	ECUV1H104ZFX	0.1μF	2
C38	ECUV1H104ZFX	0.1μF	1
C40~45	ECUV1H104ZFX	0.1μF	6
C48, 49	ECUV1H104ZFX	0.1μF	2
C50, 51	ECUV1H104ZFX	0.1μF	2
C53	ECUV1H104ZFX	0.1μF	1
C54	ECQB1H153JF	0.015μF	1
C55	ECUV1H471JG	470pF	1
C56	ECQB1H153JF	0.015μF	1
C57	ECUV1H471JG	470pF	1
C62, 63	ECUV1H104ZFX	0.1μF	2
C66	ECUV1H104ZFX	0.1μF	1
C69, 70	ECUV1H104ZFX	0.1μF	2
C80, 81	ECUV1H104ZFX	0.1μF	2
C82	ECUV1H220JN	22pF	1
C84, 85	ECUV1H102JX	0.001μF	2
C86, 87	ECUV1H030CCN	3pF	2
C90	ECUV1H330JCN	33pF	1
C91	ECUV1H150JCN	15pF	1
C92	ECUV1H030CCN	3pF	1
C94	ECUV1H104ZFX	0.1μF	1

ACP AC POWER SUPPLY CIRCUIT

Ref. No.	Part No.	Description	P/S
LINE FILTER			
L1	Δ SLTGLF3	Line Filter	1
JACK			
JK1	Δ SJVD0203B	AC Inlet	1
SWITCH			
S1	Δ SSRG100A	Voltage Selector, EK X XR XS XD XT	1

Ref. No.	Part No.	Description	P/S
FUSES			
F1	Δ XBA1C40NU100	4A, 125V, M MC XM	1
F1	Δ XBA2C16TB0	T1.6A, 250V, EK X XR XS XD XT	1
F2	Δ XBA2C10TB0	T1.0A, 250V EK X XR XS XD XT	1
F3	Δ XBA2C10TB0	T1.0A, 250V, except M MC XM areas	1

CAPACITORS

C1	Δ ECKCVA1472MF	4700pF, Line Capacitor	1
C2	Δ ECQU2A104MN	0.1μF, 250V, Across-the Line Capacitor	1

AS AMP & POWER SUPPLY CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
IC1	SVIGM5F7815	+15V Voltage Regulator	1
IC2	SVIGM5F7915	-15V Voltage Regulator	1
S IC5~10	SVIGM5218L	Operational Amplifier	6
TRANSISTORS			
Q1, 3	2SC3940ARS	Transistor	2
Q2, 4	2SA1534AR	Transistor	2
S Q5, 6, 13, 15, 19, 22	2SA1015-GR	2SA933STRS (SUB. Part)	6
S Q7, 11, 12, 14, 18	2SC1815GR	Transistor	5
Q16, 20	2SB946P	Transistor	2
Q17, 21	2SD1271P	Transistor	2
DIODES			
D1, 2	Δ SVDGERA1502	Rectifier	2
D3, 5, 8, 10	Δ SVDS3V20	Rectifier	4
D11, 12	MA4180TA	Zener, 18V	2
D15, 19, 20, 27, 28	MA165TA5	Diode	5
D16, 33	EK04	Diode	2
D21~24	MA167TA	Diode	4
D29~32	MA167TA	Diode	4
COIL			
L1	QLQGT3T150SA	Coil	1

RESISTORS

R9, 10	ERDS2TJ472	4.7kΩ	2
R11	ERDS2TJ332	3.3kΩ	1
R12	ERDS2TJ102	1kΩ	1
R13	ERDS2TJ332	3.3kΩ	1
R14	ERDS2TJ154	150kΩ	1
R15	ERDS2TJ124	120kΩ	1
R16	ERDS2TJ154	150kΩ	1
R18	ERDS2TJ222	2.2kΩ	1
R19	ERDS2TJ124	120kΩ	1
R21	ERDS2TJ102	1kΩ	1
R22	ERDS2TJ124	120kΩ	1
R25	ERDS2TJ222	2.2kΩ	1
R26, 27	ERDS2TJ124	120kΩ	2
R28, 31	ERDS2TJ102	1kΩ	2
R32	ERDS2TJ124	120kΩ	1
R41	ERDS2TJ224	220kΩ	1

HP HEADPHONES CIRCUIT

Ref. No.	Part No.	Description	P/S
R42	ERDS2TJ154	150kΩ	1
R43	ERDS2TJ220	22Ω	1
R45	ERDS2TJ224	220kΩ	1
R46	ERDS2TJ220	22Ω	1
R47	ERDS2TJ154	150kΩ	1
R48, 49	ERDS2TJ102	1kΩ	2
R50, 51	△ ERD2FCVJ4R7	4.7Ω, 1/4W, Fuse Type	2
R52, 53	ERDS2TJ103	10kΩ	2
R54, 55	△ ERQ14AJ2R0	2Ω, 1/4W, Fuse Type	2
R56, 57	△ ERD2FCVJ6R8	6.8Ω, 1/4W, Fuse Type	2
R58~60	ERDS2TJ103	10kΩ	3
R61, 62	ERDS2TJ472	4.7kΩ	2
R80	ERDS2TJ472	4.7kΩ	1
R81	ERDS2TJ104	100kΩ	1
R83	ERDS2TJ103	10kΩ	1
R84	ERDS2TJ473	47kΩ	1
R85	ERDS2TJ332	3.3kΩ	1
R86	ERDS2TJ823	82kΩ	1
R89	ERDS2TJ472	4.7kΩ	1
R90	ERDS2TJ102	1kΩ	1
R91, 92	ERDS2TJ222	2.2kΩ	2
R93	ERDS2TJ103	10kΩ	1
R94, 95	ERDS2TJ102	1kΩ	2
R96, 97	△ ERD2FCVG101	100Ω, 1/4W, Fuse Type	2
R98, 99	ERDS2TJ331	330Ω	2
R100	△ ERD25FVJ4R7	4.7Ω, 1/4W, Flame-Proof	1
R101	ERDS2TJ823	82kΩ	1
R104	ERDS2TJ472	4.7kΩ	1
R105	ERDS2TJ102	1kΩ	1
R106, 107	ERDS2TJ222	2.2kΩ	2
R108	ERDS2TJ103	10kΩ	1
R109, 110	ERDS2TJ102	1kΩ	2
R111	△ ERD2FCVG101	100Ω, 1/4W, Fuse Type	1
R112, 113	ERDS2TJ331	330Ω	2
R114	△ ERD2FCVG101	100Ω, 1/4W, Fuse Type	1
R115	△ ERD25FVJ4R7	4.7Ω, 1/4W, Flame-Proof	1
CAPACITORS			
C5, 6	ECQB1H153JF	0.015μF	2
C7	ECQG1H472KZ	0.0047μF	1
C8	ECQB1H473JF	0.047μF	1
C10	ECQG1H102KZ	0.001μF	1
C11	ECQG1H222KZ	0.0022μF	1
C12	ECQG1H472KZ	0.0047μF	1
C13	ECQG1H102KZ	0.001μF	1
C14	ECQB1H473JF	0.047μF	1
C16	ECQG1H222KZ	0.0022μF	1
C17	ECQB1H473JF	0.047μF	1
C18	ECQG1H332KZ	0.0033μF	1
C19	ECQV1H474JZ	0.47μF	1
C20	ECQG1H472KZ	0.0047μF	1
C21	ECQV1H474JZ	0.47μF	1
C22	ECQG1H472KZ	0.0047μF	1
C23	ECQB1H473JF	0.047μF	1
C24	ECQG1H332KZ	0.0033μF	1
C25, 26	ECCF1H220J	22pF	2
C28	△ ECQE1A104M6	0.1μF, 125V	1
C29	ECEA1VU332	3300μF, 35V	1
C32	ECEA1VU222	2200μF, 35V	1
C36, 37	ECRF1H104ZF	0.1μF	2
C38, 39	ECEA1CKA100	10μF, 16V	2
C49	ECEA1HKN010	1μF, 50V	1
C50	ECQB1H223JF	0.022μF	1
C51	ECQV1H104JM	0.1μF	1
C54	ECEA1HKN010	1μF, 50V	1
C55	ECQB1H223JF	0.022μF	1
C56	ECQV1H104JM	0.1μF	1

Ref. No.	Part No.	Description	P/S
COIL			
L1	QLQGT3T150SA	Coil	1
JACKS			
JK1, 2	SJJG100A	Jack	2
RESISTORS			
R1~4	△ ERG1ANJP680S	68Ω, 1W, Flame-Proof	4
CAPACITORS			
C1, 2	ECKR1E473ZV	0.047μF	2

CP CONTROL CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
IC1	SVIGM603A121	Gate Array	1
IC2	HD74LS07P	Hex Buffers	1
TRANSISTORS			
S Q1~4	2SA1015-GR	2SA933STRS (SUB. Part)	4
DIODES			
D2, 5, 49~52, 58, 66~69, 70, 71, 77	MA165TA5	Diode	14
D102, 150, 151, 158, 159, 160, 166~169, 170, 171, 205~207	LN282R	LED (Red)	15
COMPONENT COMBINATION			
Z1	EXBPI8103JM	10kΩ × 8	1
SWITCHES			
S2, 5, 49~52, 58, 66~69, 70, 71	EVQ21507K	Push Switch	13
IC PROTECTOR			
IP1	△ ICP-N10T104	IC Protector	1
VARIABLE RESISTOR			
VR1	QRVG25P01B53	5kΩ B, Main Volume	1
RESISTORS			
R1	ERDS2TJ184	180kΩ	1
R2	ERDS2TJ221	220Ω	1
R3	ERDS2TJ152	1.5kΩ	1
R4	ERDS2TJ102	1kΩ	1
R5~8	ERDS2TJ152	1.5kΩ	4
R9	ERDS2TJ103	10kΩ	1
R10~12	ERDS2TJ680	68Ω	3
R22~24	ERDS2TJ680	68Ω	3
R38, 39	ERDS2T0	0Ω, 1/4W	2

Ref. No.	Part No.	Description	P/S
CAPACITORS			
C1	ECEA0JKA470	47μF, 6.3V	1
C2	ECBA1H101KB	100pF	1
C3	ECRF1H104ZF	0.1μF	1
C4	ECEA1HKA010	1μF, 50V	1
C5	ECBA1H101KB	100pF	1
C11, 12	ECEA1CKN100	10μF, 16V	2

MKB1 MANUAL KEYBOARD 1 CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
IC1	MSM7U042016	Gate Array	1
IC2	BR93LC46	1K bit Programmed EEPROM	1
DIODES			
S D1~88	MA162A	MA150IR (SUB. Part)	88
OSCILLATOR			
X1	SVQGA20MX040	20MHz, Ceramic Oscillator	1
RESISTORS			
R1~3	ERDS2TJ472	4.7kΩ	3
CAPACITORS			
C1	ECRF1H104ZF	0.1μF	1
C2	ECCW1H471J5	470pF	1
C3, 4	ECCW1H220J5	22pF	2
C5	ECKR1E473ZV	0.047μF	1
C6, 7	ECCW1H101J5	100pF	2

MKB2 MANUAL KEYBOARD 2 CIRCUIT

Ref. No.	Part No.	Description	P/S
DIODES			
S D89~176	MA162A	MA150IR (SUB. Part)	88
COMPONENT COMBINATION			
Z1	EXBPI8332JM	3.3kΩ × 8	1

JACK JACK CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUIT			
IC1	SVIGTLP513	Photo Coupler	1
TRANSISTORS			
S Q1~3	2SA1015-GR	2SA933STRS (SUB. Part)	3
S Q4	2SC1815GR	Transistor	1

Ref. No.	Part No.	Description	P/S
DIODES			
D1, 3, 4, 6, 7	MA165TA5	Diode	5
COILS			
L1~5	QLQGT3T150SA	Coil	5
JACKS			
JK1	QJSG002AA	PEDAL IN	1
JK2~4	SJSG1370A	MIDI THRU, OUT, IN	3
JK5~8	QJJG003AA	LINE OUT, AUX IN	4
WIRES			
○ W1~3	QEXGRA01005A	Wire	3
RESISTORS			
R1, 2	ERDS2TJ103	10kΩ	2
R3	ERDS2TJ471	470Ω	1
R4	ERDS2TJ104	100kΩ	1
R5, 6	ERDS2TJ103	10kΩ	2
R7	ERDS2TJ102	1kΩ	1
R8	ERDS2TJ101	100Ω	1
R10	ERDS2TJ151	150Ω	1
R11	ERDS2TJ104	100kΩ	1
R12, 13	ERDS2TJ331	330Ω	2
R14	ERDS2TJ101	100Ω	1
R15	ERDS2TJ104	100kΩ	1
R16	ERDS2TJ221	220Ω	1
R17	ERDS2TJ331	330Ω	1
R18	ERDS2TJ224	220kΩ	1
R21, 22	ERDS2TJ152	1.5kΩ	2
R23, 24	ERDS2TJ102	1kΩ	2
CAPACITORS			
C1~4	ECRF1H104ZF	0.1μF	4
C5, 6	ECCF1H221J	220pF	2
C7	ECKF1E473ZV	0.047μF	1
C8	ECEA1HKA010	1μF, 50V	1
C9	ECQV1H104JM	0.1μF	1
C11, 12	ECBA1C222MR	0.0022μF	2
C13	ECRF1H104ZF	0.1μF	1
C14, 15	ECBA1C222MR	0.0022μF	2
C16	ECRF1H104ZF	0.1μF	1

WIRING PARTS

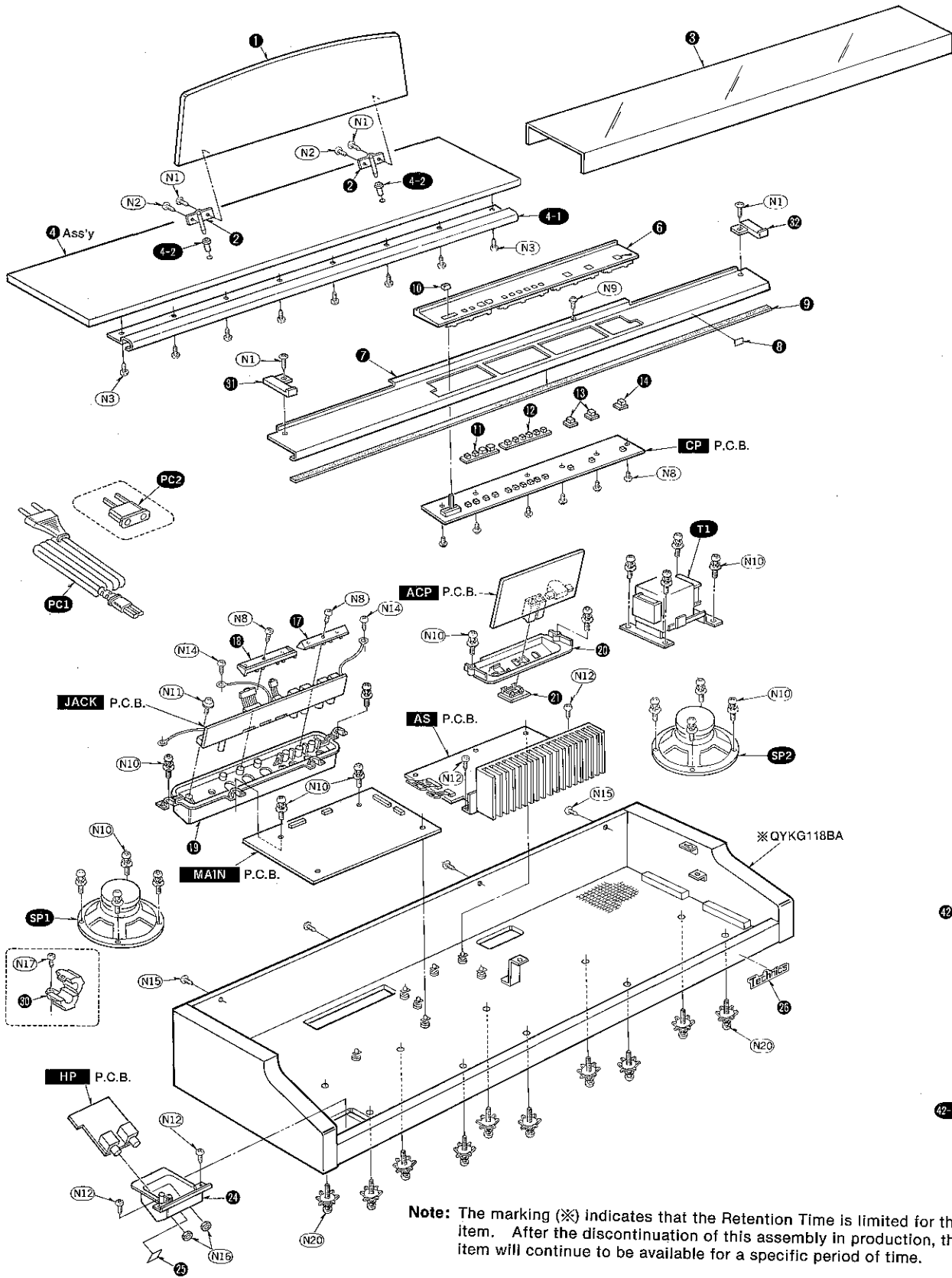
Ref. No.	Part No.	Description	P/S
○ W1	QEXGSS16065A	Connector with Wire	1
○ W2	QEXGSS14030A	Connector with Wire	1
○ W3	QEXGSS06080B	Connector with Wire	1
○ W4	QEXGSS05025B	Connector with Wire	1
○ W5	QEXGVH04070B	Connector with Wire	1
○ W6	QEXGVH03105B	Connector with Wire	1

CABINET PARTS LOCATION

1 2 3 4 5 6 7 8 9 10

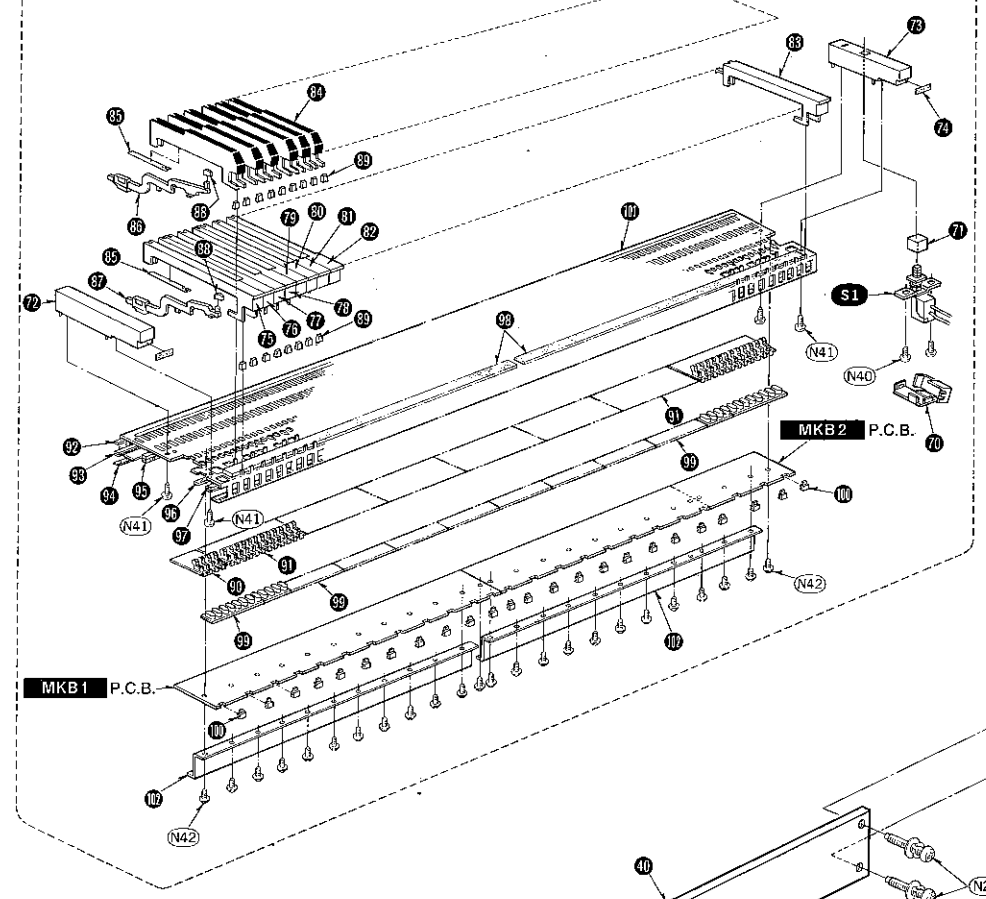
A
B
C
D
E
F

CABINET

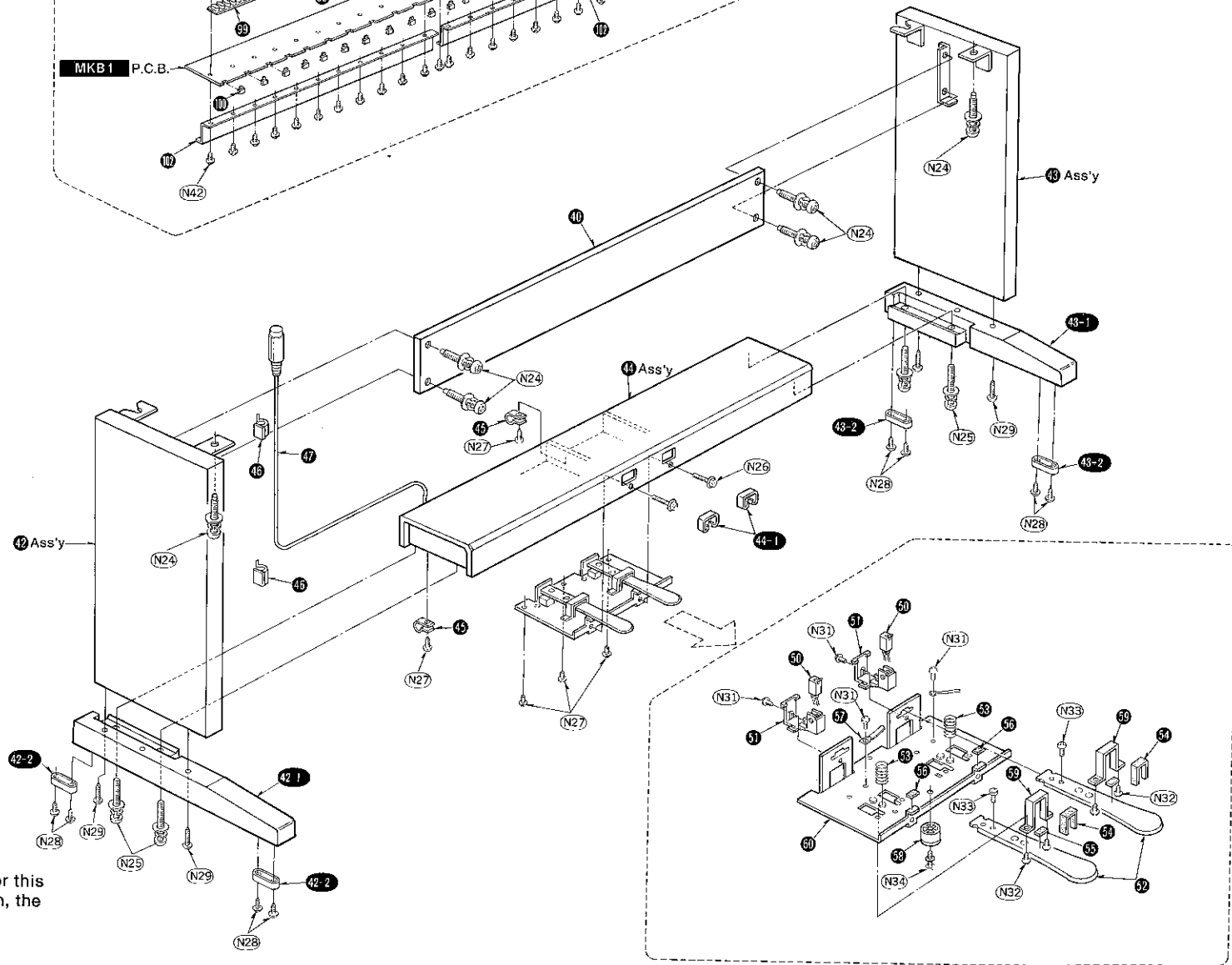


Note: The marking (※) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time.

MANUAL KEYBOARD



STAND



REPLACEMENT PARTS LIST Cabinet and Chassis Parts

Notes:

- The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention.
After the end of this period, the assembly will no longer be available.
- mark are new parts.

- Important safety notice
Components identified by △ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- For part No. with area mark, check the area when placing an order.
- The raw material indication for synthetic resin
In order to facilitate classification of parts of synthetic resin manufacture and to promote the recycling of natural resources, a raw material symbol for such parts is indicated in the Ref. No./Material column.

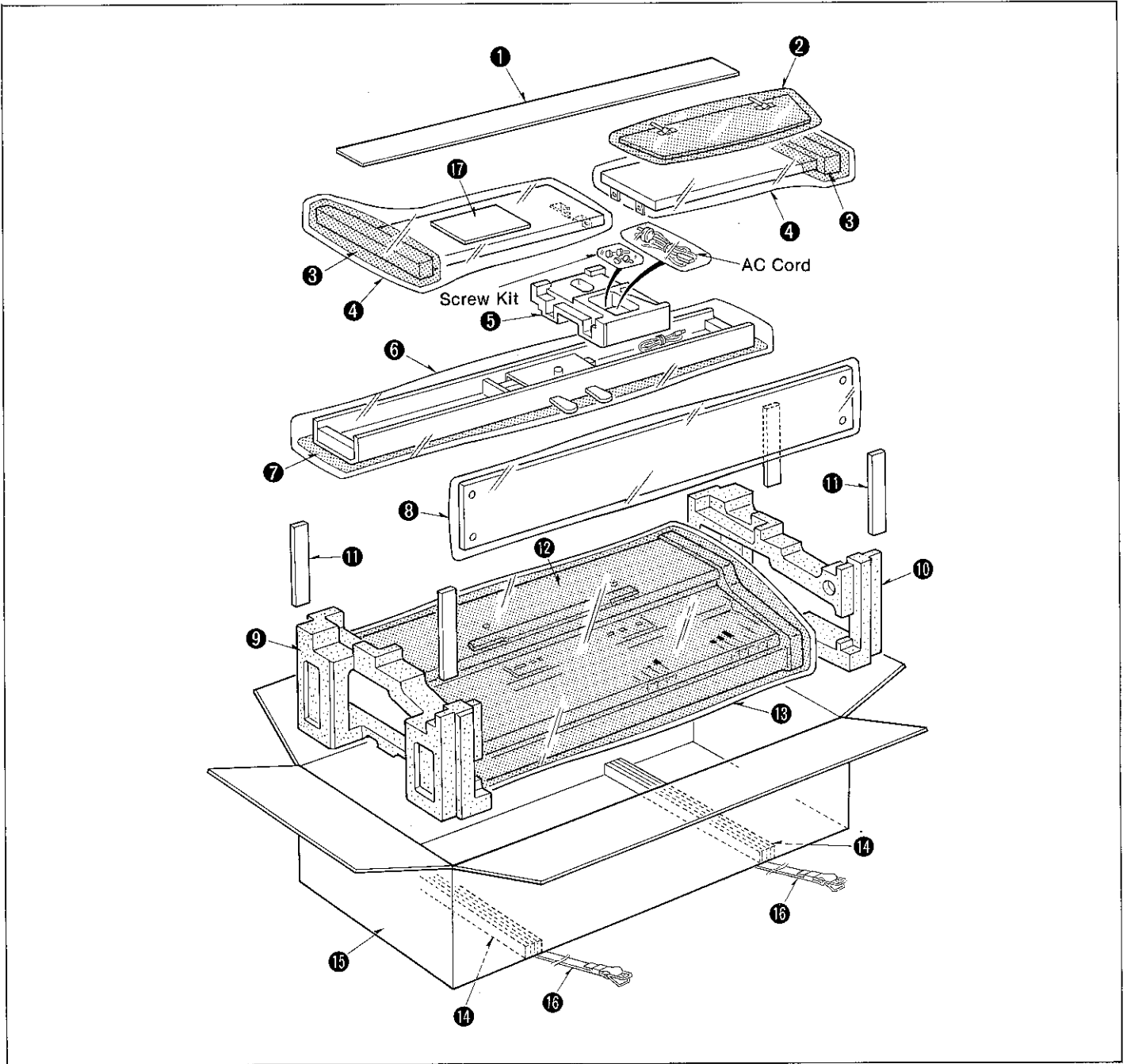
■ CABINET & CHASSIS PARTS

Ref. No.	Part No.	Description	P/S
SWITCH			
S1	△ ESB823V	Power Switch	1
SPEAKERS			
○ SP1, 2	EAS14PL93B	14cm, 8Ω	2
TRANSFORMER			
○ T1	△ QTPG1M024A	Power Transformer, Others	1
○ T1	△ QTPG1M022A	Power Transformer, M MC XM	1
○ T1	△ QTPG1M025A	Power Transformer, EK X XR XS XD XT	1
POWER CORD & PLUG			
PC1	△ SJAG65	AC Power Cord, Others	1
PC1	△ SJAG61	AC Power Cord, XL XR only	1
○ PC1	△ QJAG013AA	AC Power Cord, M MC XM only	1
PC1	△ VJA0733	AC Power Cord, EK XD only	1
PC2	△ SJP5213-1	Attachment Plug, X XT only	1
CABINET PARTS			
1	QGAG1023BA	Music Rack	1
2	SBLG230A	Stay	2
○ 3	QFCG022AA	Keycover, EK EA X XS XD XT XR XL	1
4	QKQGA059BA	Top Cover Ass'y	1
4-1	QKKG0101AA	Ornament	1
4-2	QMRG7021AB	Sleeve	2
○ 6	PS QGPG0054AB	CP Ornament	1
○ 7	QGPG0055AA	Control Panel	1
○ 8	QQLG066AA	Initial Label	1
○ 9	QMFG1107AA	Felt (Red)	1
10	SBNG7050A	Knob	1

Ref. No.	Part No.	Description	P/S
○ 11	QGUG1191AA	Button	1
○ 12	QGUG1231AA	Button	1
○ 13	QGUG1230AA	Button	1
○ 14	QGUG1229AA	Button	1
○ 17	PS QMRG7028AC	Bracket	1
○ 18	PS QMRG7029AC	Bracket	1
○ 19	PS QGKG0076BB	External Jack Panel	1
○ 20	PS QGKG0096CB	AC Jack Panel, Others	1
○ 20	PS QGKG0096DA	AC Jack Panel, EK X XR XS XD XT	1
21	△ PS SJS9231A	AC Inlet Cover, Others	1
21	△ PS SJS9334A	AC Inlet Cover, M MC XM XL XR	1
24	PS QGKG0080AA	Headphone Jack Case	1
25	SGKG3040B	Label (Headphone)	1
26	SGBG160B	Badge	1
30	QLZG006A	Core, M MC XM EZ only	1
○ 31	ABS QMRG7044AA	Keycover, Stopper L EK EA X XS XD XT XR XL	1
○ 32	ABS QMRG7045AA	Keycover, Stopper R EK EA X XS XD XT XR XL	1
STAND			
○ 40	QKQGD040AA	Crossboard	1
○ 42	QKQGB223AA	Left Plank Ass'y	1
42-1	QKSGB006AA	Leg, Left	1
42-2	SHRG2130B	Foot	2
○ 43	QKQGB224AA	Right Plank Ass'y	1
43-1	QKSGB007AA	Leg, Right	1
43-2	SHRG2130B	Foot	2
○ 44	QKQGM039AAK	Pedal Box Ass'y	1
44-1	QKKG0036AAK	Ornament	2
45	SHRG1230A	Cord Clamper	2
46	PP SHRG9620A	Cord Clamper	3
○ 47	QJLG006AA	Pedal Cord	1
50	SRDSMLS-2	Switch	2
51	QMWG8005AB	Switch Cover	2
52	STBG3120A	Pedal	2
53	SUSG441A	Spring	2
54	SHSG2750A	Felt	2
55	SHSG2770A	Felt	2
56	SHSG2790A	Felt	2
57	SUWG219	Binder	1
58	QKAG0005AA	Foot	1
59	STBG4090A	Arm Guide	2
60	STBG6174A	Chassis	1

Ref. No.	Part No.	Description	P/S	Ref. No.	Part No.	Description	P/S
MANUAL KEYBOARD				SCREWS & WASHERS			
70	PP SHRG8390A	Cover, Power SW.	1	N1	XTT4+10AFZ	Screw	4
71	QGUG1040AA	Button, Power Switch	1	N2	XTB3+10AFZ	Screw	2
72	PS QGPG0042AB	End Cover Panel, Left	1	N3	XTT4+10A	Screw	8
73	PS QGPG0041BD	End Cover Panel, Right	1	N8	XTW3+10Q	Screw	8
74	QMFG1104AA	Felt	2	N9	XTW3+10JFZ	Screw	1
75	AS QMWG1001AA	White Key (First Octave A Key)	1	N10	XYN4+F25	Screw with Washer	14
76	AS QMWG1002AA	White Key (B Key)	8	N11	XTWSG2	Screw with Washer	1
77	AS QMWG1003AA	White Key (C Key)	7	N12	XTB35+12A	Screw	4
78	AS QMWG1004AA	White Key (D Key)	7	N13	XYN4+F16	Screw with Washer	4
79	AS QMWG1005AA	White Key (E Key)	7	N14	SNEG2860A	Screw	3
80	AS QMWG1006AA	White Key (F Key)	7	N15	XTT4+30AFZ	Screw	4
81	AS QMWG1007AA	White Key (G Key)	7	N16	XNS12FZ	Nut	2
82	AS QMWG1008AA	White Key (A Key)	7	N17	XTB3+10A	Screw	1
83	AS QMWG1009AA	White Key (Top Octave C Key)	1	N20	QHDG021AA	Screw with Washer	10
84	AS QMWG2001AA	Black Key	36	N24	QHDG016AB	Screw with Washer	8
85	SUSG534A	Spring	88	N25	XYN6+F40	Screw with Washer	4
86	QMWG8019AA	Hammer (Black Key)	36	N26	XYN4+F16FZ	Screw with Washer	2
87	QMWG8017AA	Hammer (White Key)	52	N27	XTB35+14A	Screw	5
88	SHGG9121A	Rubber Cap (Hammer)	88	N28	XTB4+16A	Screw	8
89	PA SHRG9900B	Key Guide Rubber	88	N29	XTT4+25AFZ	Screw	4
90	ABS QMWG8022AA	Fulcurum (4 pcs. on one)	1	N31	XTW3+8C	Screw	4
91	ABS QMWG8021AA	Fulcurum (12 pcs. on one)	7	N32	XTW3+8E	Screw	4
92	SHRGA9080A	Sponge	2	N33	XSN4+6	Screw	2
93	QMFG1073AA	Felt	2	N34	XYN4+C25	Screw with Washer	1
94	SHSG3461A	Felt	1	N40	XTV3+10C	Screw	2
95	QMFG1101AA	Felt	2	N41	XTB4+12A	Screw	4
96	QMFG1061AA	Felt	2	N42	XTW3+10T	Screw	24
97	QMFG1060AA	Felt	2				
98	QMFG1086AA	Felt	2				
99	QMWG6006AA	Rubber Switch (8 pcs. on one)	11				
100	SHRG9751A	P.C.B. Holder	24				
101	QMWG3003BA	Chassis	1				
102	SUWG3154A	Angle	2				

PACKING



PACKING PARTS

Ref. No.	Part No.	Description	P/S	Ref. No.	Part No.	Description	P/S
PACKING PARTS							
○ 1	QPNG0358AA	Top Cardboard	1	○ 15	QPGG0232AA	Carton Band	1
2	PE SPHG1490A	Protection Sheet	1	○ 16	SPSG40A	Band	2
3	PE SPHG1730A	Protection Sheet	1	OPERATING INSTRUCTION MANUAL			
4	PE SPHG2050A	Polyethylene Bag	2	○ 17	QQFGPX103AA	Operating Instruction Manual, EV	1
○ 5	PS QPNG0357AA	Pad	1	○ 17	QQFGPX103BA	Operating Instruction Manual, M	1
6	PE QPFG026AA	Polyethylene Bag	1	○ 17	QQFGPX103CA	Operating Instruction Manual, Others	1
7	PE QPHG020AA	Protection Sheet	1	○ 17	QQFGPX103DA	Operating Instruction Manual, EA E2	1
8	PE QPHG033AA	Polyethylene Bag	1	○ 17	QQFGPX103EA	Operating Instruction Manual, EV	1
○ 9	PS QPNG0355AA	Pad	1				
○ 10	PS QPNG0356AA	Pad	1				
○ 11	QPQG023AA	Prop	4				
○ 12	PE QPHG058AA	Protection Sheet	1				
13	PE SPHG2200A	Polyethylene Bag	1				
14	QPNG0380AA	Pad	2				

