# Service Manual

PCM Keyboard

SX-KN5000

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

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
(EH):	Holland, Belgium	(XD):	Saudi Arabia, Hong Kong, Kuwait
(EF):	France, Italy	(XT):	Taiwan
(EZ):	Germany	(X):	Thailand, Indonesia, Iran, U.A.E., Panama, Argentina, Peru, Brasil
(EW):	Switzerland		
(EA):	Austria		
(EP):	Spain, Portugal, Greece, South Africa	(XP):	Philippines
		(XW):	Singapore

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

■ Specifications

KEYBOARD	61 KEYS (WITH INITIAL/AFTER TOUCH)
SOUND GENERATOR	PCM
MAXIMUM NUMBER OF NOTES PRODUCED SIMULTANEOUSLY	64 NOTES
SOUNDS	290 SOUNDS +15 DRUM KITS GROUP : PIANO, GUITAR, STRINGS & VOCAL, BRASS, FLUTE, SAX & REED, MALLET & ORCH PERC, WORLD PERC, ORGAN & ACCORDION, ORCHESTRAL PAD, SYNTH, BASS, GM SPECIAL, DRUM KITS DIGITAL DRAWBAR (16', 5-1/3', 8', 4', 2-2/3', 2', 1-3/5', 1-1/3', 1', 2 SOUNDS) ACCORDION REGISTER (2 TYPES×10 SOUNDS)
EFFECTS	DIGITAL EFFECT, DSP EFFECT, SUSTAIN, DIGITAL REVERB, ACOUSTIC ILLUSION
PART SELECT	RIGHT 1, RIGHT 2, LEFT
TRANSPOSE	G-C-F#
RHYTHM	200 RHYTHMS ×4 VARIATIONS GROUP : STANDARD ROCK, R & ROLL & BLUES, POP & BALLAD, FUNK & FUSION, SOUL & MODERN DANCE, BIG BAND & SWING, JAZZ COMBO, U.S. TRAD, COUNTRY, LATIN, MARCH & WALTZ, PARTY TIME, SHOW TIME & TRAD DANCE, WORLD
CONTROLS	MAIN VOLUME, BALANCE, MUTE, CONDUCTOR, START/STOP, INTRO & ENDING 1, INTRO & ENDING 2, FILL IN 1, FILL IN 2, COUNT INTRO, SYNCHRO & BREAK, TEMPO/PROGRAM, TAP TEMPO, FADE IN/OUT, SPLIT POINT, R1/R2 OCTAVE
MANUAL SEQUENCE PADS	19 BANKS×6 (USER BANKS×2, STORAGE CAPACITY : APPROX. 1800 NOTES, COMPILE BANKS×2), STOP/RECORD
AUTO PLAY CHORD	ONE FINGER, FINGERED, PIANIST, MEMORY, ON BASS, MUSIC STYLE ARRANGER, SOUND ARRANGER
MUSIC STYLIST	O (MUSIC STYLIST/ONE TOUCH PLAY)
TECHNI-CHORD	O
PANEL MEMORY	10 BANKS × 8, SET, NEXT BANK, BANK VIEW
ENTERTAINER	O
SEQUENCER	16 TRACKS RESOLUTION : 96 PULSES PER QUARTER-NOTE STORAGE CAPACITY : APPROX. 40000 NOTES (10 SONGS MAX.) INPUT MODES : EASY RECORD, REALTIME RECORD, STEP RECORD FUNCTIONS : CREATE, EDIT

Technics

COMPOSER	5 PARTS : BASS, ACCOMP 1, ACCOMP 2, ACCOMP 3, DRUMS STORAGE CAPACITY : APPROX. 10000 NOTES INPUT MODES : EASY COMPOSER, REALTIME RECORD, STEP RECORD FUNCTIONS : PATTERN COPY, CUSTOM COPY, SEQ TO COMPOSER COPY, LOAD SINGLE COMPOSER, BEND RANGE SET MEMORY : 3 BANKS×10 (VARIATION 1-4, INTRO 1, 2, FILL IN 1, 2, ENDING 1, 2) CUSTOM : 20 MEMORIES
DISK	LOAD, SAVE, DIRECT PLAY, SONG MEDLEY, DISK TOOLS, PREFERENCES
CONTROL	INITIAL, FOOT CONTROLLERS, OVERALL TOUCH SENSITIVITY, DISPLAY TIME OUT, PANEL MEORY MODE, MUSIC STYLE ARRANGER MODE, WALLPAPER SETTING
SOUND	PART SETTING (VOLUME, SUSTAIN, EFFECT, PAN, KEY SHIFT, TUNING, PITCH BEND RANGE, OTHERS), MIXER, MASTER TUNING, KEY SCALING, TECHNI-CHORD, LEFT HOLD, REVERB, DSP EFFECT, REVERB & EQ PRESETS, EQUALIZER, ACOUSTIC ILLUSTION SOUND EDIT : EASY EDIT, TONE SELECT, TONE LAYER, PITCH, FILTER, AMPLITUDE, DIGITAL EFFECT, CONTROLLER 　　　　　　　2 BANKS×20 MEMORIES, 1 USER DRUM KIT
MIDI	PART SETTING, CONTROL MESSAGE, REALTIME MESSAGES, COMMON SETTING, P.MEM OUTPUT, MIDI PRESETS, INPUT/OUTPUT SETTING, SYSEX BULK DUMP, GENERAL MIDI, PROG. CHANGE MIDI OUT, COMPUTER CONNECTION, MIDI SETTINGS LOAD OPTION
EXTERNAL MEMORY	BUILT-IN 3.5 inch FLOPPY DISK DRIVE FOR 2HD (1.44 MB), 2DD (720 KB)
DISPLAY	LCD PAGE, CONTRAST, EXIT, DISPLAY HOLD
HELP	○
DEMO	○
TERMINALS	PHONES, LINE OUT (R/R+L, L), AUX IN (R/R+L, L), MIC, FOOT SW 1, 2, FOOT CONTROLLER, EXP PEDAL, MIDI (IN, OUT, THRU), COMPUTER
OUTPUT	66 W (18 W × 2 FOR MID/HIGH, 30 W × 1 FOR BASS)
SPEAKERS	12 cm×2, 6.5 cm×2 FOR MID/HIGH　14 cm×1 FOR BASS
POWER REQUIREMENT	195 W, 100 W (CANADA), 85 W (U.S.A. AND MEXICO)
	AC120/220/240 V 50/60 Hz AC120 V 60 Hz (NORTH AMERICA AND MEXICO) AC230-240 V 50/60 Hz (EUROPE, AUSTRALIA, NEW ZEALAND, SINGAPORE AND PHILLIPPINES)
DIMENSIONS (W × H × D)	106.2 cm×17.4 cm×41.4 cm (41-13/16"×6-27/32"×16-5/16") WITHOUT MUSIC STAND
NET WEIGHT	15.1 kg (33.3 lbs.) WITHOUT MUSIC STAND
ACCESSORIES	MUSIC STAND, AC CORD

•Specification are subject to change without notice for further improvement.

WARNING
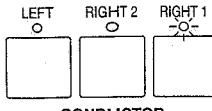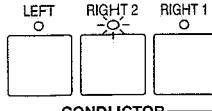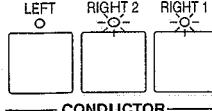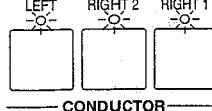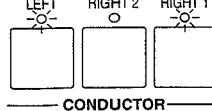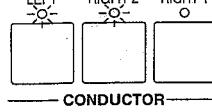
To prevent the risk of fire, smoke, or electrical shock and to ensure safe operation, please be sure to follow the safety guidelines below.

1. At places where special caution is required, the necessary safety precautions are clearly labeled or printed, for example, on the cabinet, or on the part concerned. Please follow these safety precautions, and also those listed in the Owner's Manual.

2. Parts which have a ⚠ mark in the circuit diagram or in the parts list are essential for safety. When replacing these parts, be sure to use only the specified parts.

3. Use the specified types for internal wiring (double-insulated wiring, etc.).

4. When replacing parts on the AC primary side (power transformer, electric switch, electrical cord, noise-prevention condenser, etc.), wind the lead wire and secure it by soldering.

5. Do not let the wiring come into contact with heat-emitting devices (fuse resistor, radiator plate, etc.).

6. When replacing the wiring, make sure that it is not in contact with the unfinished or rough edge of a part.

7. When replacing the power cord (except for the plug-in type), tug it from various directions to confirm that it does not slip out of place.

8. Spacing
If soldering was done on the AC primary circuit, confirm that the interval between the soldered terminals or between the terminal and surrounding metallic parts is at least the minimum required (between the primary circuit and the chassis: at least 6.5 mm; between primary circuit terminals: at least 4.0 mm; between primary circuit terminals and secondary circuit terminals: at least 6.5 mm.).

CONTENTS

SAFETY PRECAUTION

● **Safety Precaution**

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only the 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 prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with an 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 4 MΩ to infinity for all exposed parts.

Resistance = 4MΩ to ∞

INITIAL SETTING

■ The initial setting function is used to return to the original factory settings, and to reset the customer settings and misoperations.

1. Press the **POWER** button to turn off the instrument.

POWER

OFF ■ ■ ON

2. While pressing the three leftmost buttons in the **RHYTHM GROUP** section (**MARCH & WALTZ, PARTY TIME** and **SHOW TIME & TRAD DANCE**) at the same time, turn the **POWER** button on again.

NOTE:
All stored data in the **SEQUENCER** and **COMPOSER** and other setting are initialized with this operation (excluding RHYTHM CUSTOM and USER MIDI SETTINGS).

KEYBOARD RANGES

This keyboard features Touch Response, by which you control the volume by playing the keys harder or softer.

ARRANGEMENT OF CONTROL PANEL

❶ DEMO
Pre-recorded performances are used to demonstrate the individual appeal of the rhythms, sounds and other features.

❷ MANUAL SEQUENCE PADS
Add various phrases to your performance with the pad buttons.

❸ RHYTHM GROUP
Various rhythm patterns are available for each rhythm group. Other rhythm controls are **START/STOP**, **SYNCHRO & BREAK**, **INTRO & ENDING 1** and **2**, **COUNT INTRO** and **FILL IN 1** and **2**. The volume is adjusted with the **DRUMS** balance buttons below the display.

❹ COMPOSER
Create original rhythm patterns, either in realtime or with the step record method, or modify preset rhythms. Store up to 12 new rhythms in the reserved memory locations and recall them as you play, just like the preset rhythms.

❺ MUSIC STYLE ARRANGER
A tap of a button during your performance changes the rhythm and sounds to a simpler or flashier arrangement to match the feeling of the music.

❻ AUTO PLAY CHORD
An automatic accompaniment appropriate for the selected rhythm is produced when you play a chord. **MEMORY** allows you to continue the accompaniment even after the chord keys are released. The volume for each part of the **AUTO PLAY CHORD (DRUMS, BASS, ACCOMP 1, 2, 3)** is adjusted with the respective balance buttons below the display.

❼ ONE TOUCH PLAY
Select a rhythm and press the **ONE TOUCH PLAY** button until the panel settings change. The sounds and effects perfect for the selected rhythm are automatically set in seconds. Or press the **ONE TOUCH PLAY** button briefly to access the MUSIC STYLIST display. Choose one of the many music styles and the appropriate sounds, effects and even rhythm are set instantly.

❽ FADE IN/OUT
Begin your song with a slowly increasing volume, or end it by having the sound slowly fade away.

❾ DISPLAY (LCD screen)
Display performance information, function settings and other messages.
• Use the **CONTRAST** slider to adjust the display so that it is easy to read.

❿ TRANSPOSE
C is the standard setting, but you can raise or lower the key of the entire instrument with these two buttons. The transposed key is shown on the normal performance display.

⓫ EFFECT
Add various effects to the sounds.

⓬ CONDUCTOR
These buttons allow you to assign a different sound to each part, and then assign the desired part to the entire keyboard, assign a different part to each section of the keyboard, or mix parts. When the keyboard is divided into sections, change the dividing point with the **SPLIT POINT** button.

⓭ TECHNI-CHORD
Chord notes played on the left section of the keyboard are added to melody notes played on the right section. Choose from four harmonic styles.

⓮ SOUND GROUP
Various sounds are available for each sound group.

⓯ SEQUENCER
With this feature you can separately play and record the parts for an entire song. Then have the whole ensemble performance played back automatically. This is a true 16-track sequencer, with full realtime recording, step recording and editing features.

⓰ SOUND
This button is used for making the various sound, volume and effect settings for each part, as well as tuning and **TECHNI-CHORD** type etc., by reading the display.

⓱ CONTROL
The settable functions in this mode include initialization, foot switch function-assignment, display preferences, etc.

⓲ PANEL MEMORY
Set up the sounds and effects, and then store them in these 80 memories (10 BANKS × 8 memory locations) buttons for instant recall as you play. You can expand the range of storable settings to include the rhythm selection, tempo setting and more.

⓳ PITCH BEND
This wheel is moved up or down with your hand to create a continuous change in pitch. The wheel returns to the center position automatically when it is released.

⓴ MODULATION
Add vibrato to the sound by turning the wheel upwards.

Disk Drive
This Disk Drive allows you to store **SEQUENCER** performances and other data on 3.5-in. 2DD/2HD memory disk.

CONDUCTOR SETTINGS

The **CONDUCTOR** buttons are used to assign the parts (**RIGHT 1**, **RIGHT 2**, **LEFT**) to the keyboard in many different ways. For example, you can even split the keyboard into right and left sections (**SPLIT**), and assign a different sound to each section.

CONDUCTOR

CONDUCTOR settings	How sounds are assigned to the keyboard
LEFT ○ RIGHT 2 ○ RIGHT 1 -○- —— CONDUCTOR ——	All keys produce the **RIGHT 1** sound. **RIGHT 1**
LEFT ○ RIGHT 2 -○- RIGHT 1 ○ —— CONDUCTOR ——	All keys produce the **RIGHT 2** sound. **RIGHT 2**
LEFT ○ RIGHT 2 -○- RIGHT 1 -○- —— CONDUCTOR ——	All keys produce both the **RIGHT 1** sound and the **RIGHT 2** sound. **RIGHT 1 + RIGHT 2**
LEFT -○- RIGHT 2 -○- RIGHT 1 -○- —— CONDUCTOR ——	The left keys produce the **LEFT** sound and the right keys produce the **RIGHT 1** sound and the **RIGHT 2** sound. **LEFT** ǀ **RIGHT 1 + RIGHT 2**
LEFT -○- RIGHT 2 ○ RIGHT 1 -○- —— CONDUCTOR ——	The left keys produce the **LEFT** sound and the right keys produce the **RIGHT 1** sound. **LEFT** ǀ **RIGHT 1**
LEFT -○- RIGHT 2 -○- RIGHT 1 ○ —— CONDUCTOR ——	The left keys produce the **LEFT** sound and the right keys produce the **RIGHT 2** sound. **LEFT** ǀ **RIGHT 2**

TERMINALS

PHONES (⌒)
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.

EXP PEDAL
The optional SZ-E2 Expression Pedal (sold separately) can be connected to this terminal to control the volume.

FOOT SW 1, 2
An optional SZ-P1 Foot Switch (sold separately) can be connected to each terminal to control various functions.

FOOT CONTROLLER
An optional SZ-FC2 Foot Controller (sold separately) can be connected to this teminal to control various functions.

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 Keyboard and other instrument provided with MIDI terminals.

IN : The terminal that receives data from external equipment.

OUT : The terminal that transmits data from this instrument 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 15 m long) for these connections.

LINE OUT (Output level 1.5 Vrms, 600 Ω)
By connecting an external high-power amplifier, the sound can be reproduced at a high volume. 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 kΩ)
Other instruments such as a sound generator can be connected to this terminal, and the sound will be output from the Keyboard's speakers. To receive monaural sound, connect the other instrument to the **R/R+L** terminal. (Do not connect the **L** terminal.)

MIC
A microphone can be connected to this terminal for voice output through the speakers.
With the ENTERTAINER function, you can change various settings for a performance that uses a microphone.

COMPUTER
By connecting this terminal to the serial port of a computer, performance data can be exchanged. Use the switch to select the type of computer.
• Be sure that the power to this instrument is turned off when connecting to a computer or when changing the switch setting.

> **Caution:** Failure to turn off the power before changing the switch setting may result in malfunction.

• When no computer is connected, or when a MIDI interface is used, the switch should be set to **MIDI**.

<Connection to a Macintosh series computer>
Use an ACCESSORY CABLE (SZ-JJAP1: sold separately) to connect the **COMPUTER** terminal of this instrument to the modem port or printer port of a Macintosh Series computer. Set the switch to **MAC**.
• Set the MIDI interface clock of the Macintosh software to 1 MHz.
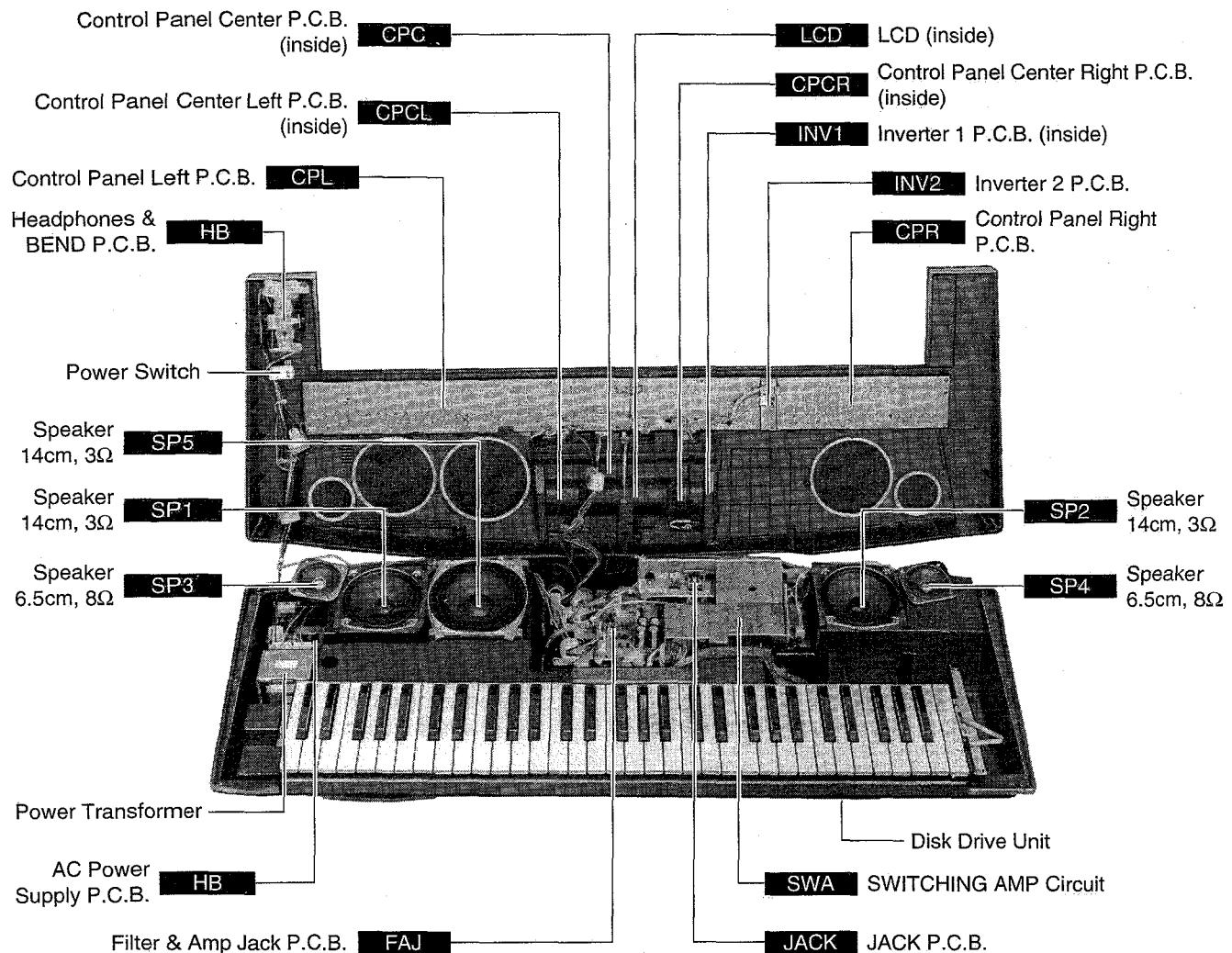
<Connection to a PC>
Use an ACCESSORY CABLE (SZ-JJAT1: sold separately) to connect the **COMPUTER** terminal of this instrument to the RS232C terminal of a PC. Set the switch to **PC2**.
• The MIDI driver included with the cable should be installed in the computer. (Refer to the manual accompanying the cable.)
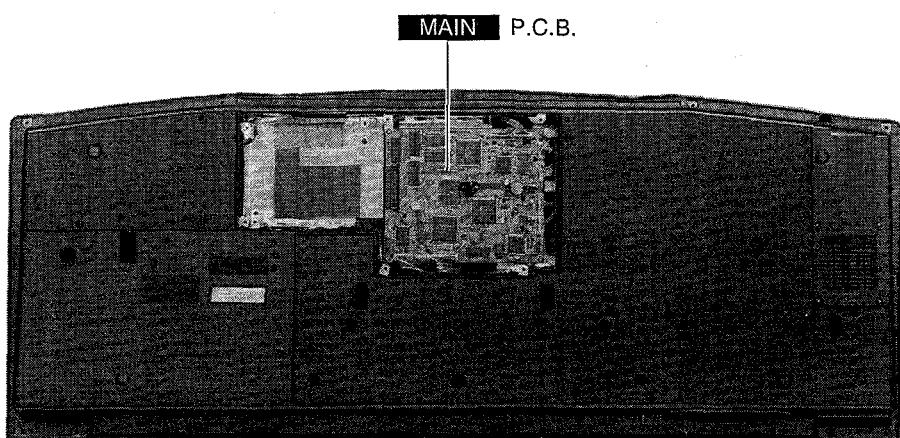
*All product and company names are trademarks or registered trademarks of their respective owners.

PARTS LOCATION

Control Panel Center P.C.B. (inside) — CPC

LCD — LCD (inside)

Control Panel Center Left P.C.B. (inside) — CPCL

CPCR — Control Panel Center Right P.C.B. (inside)

Control Panel Left P.C.B. — CPL

INV1 — Inverter 1 P.C.B. (inside)

Headphones & BEND P.C.B. — HB

INV2 — Inverter 2 P.C.B.

CPR — Control Panel Right P.C.B.

Power Switch

Speaker 14cm, 3Ω — SP5

Speaker 14cm, 3Ω — SP1

SP2 — Speaker 14cm, 3Ω

Speaker 6.5cm, 8Ω — SP3

SP4 — Speaker 6.5cm, 8Ω

Power Transformer

Disk Drive Unit

AC Power Supply P.C.B. — HB

SWA — SWITCHING AMP Circuit

Filter & Amp Jack P.C.B. — FAJ

JACK — JACK P.C.B.

[Photo-1]

MAIN — P.C.B.

[Photo-2]

DISASSEMBLY INSTRUCTIONS

1. **Opening the top cabinet**
   1. Turn the keyboard cabinet upside down as shown in Fig. 1, and remove the bottom screws (Ⓐ 14 pcs.).
   2. Place the keyboard bottomside down, and open the top cabinet .

Ⓐ×14

[Fig. 1]

2. **Removing the HB, CPL, INV2, CPR, ACP, FAJ and JACK printed circuit boards**
   - Open the top cabinet (see step ①).
   - Pull out the connectors on the printed circuit boards.

   HB P.C.B.
   - Remove the HB P.C.B. mounting screws (Ⓑ 2 pcs.).

   CPL P.C.B.
   1. Pull off the MAIN VOLUME knob and TEMPO/PROGRAM dial.
   2. Remove the CPL P.C.B. mounting screws (Ⓒ 12 pcs.).

   INV2 P.C.B. and CPR P.C.B.
   1. Remove the INV2 P.C.B. mounting screws (Ⓓ 2 pcs.).
   2. Remove the CPR P.C.B. mounting screws (Ⓔ 8 pcs.).
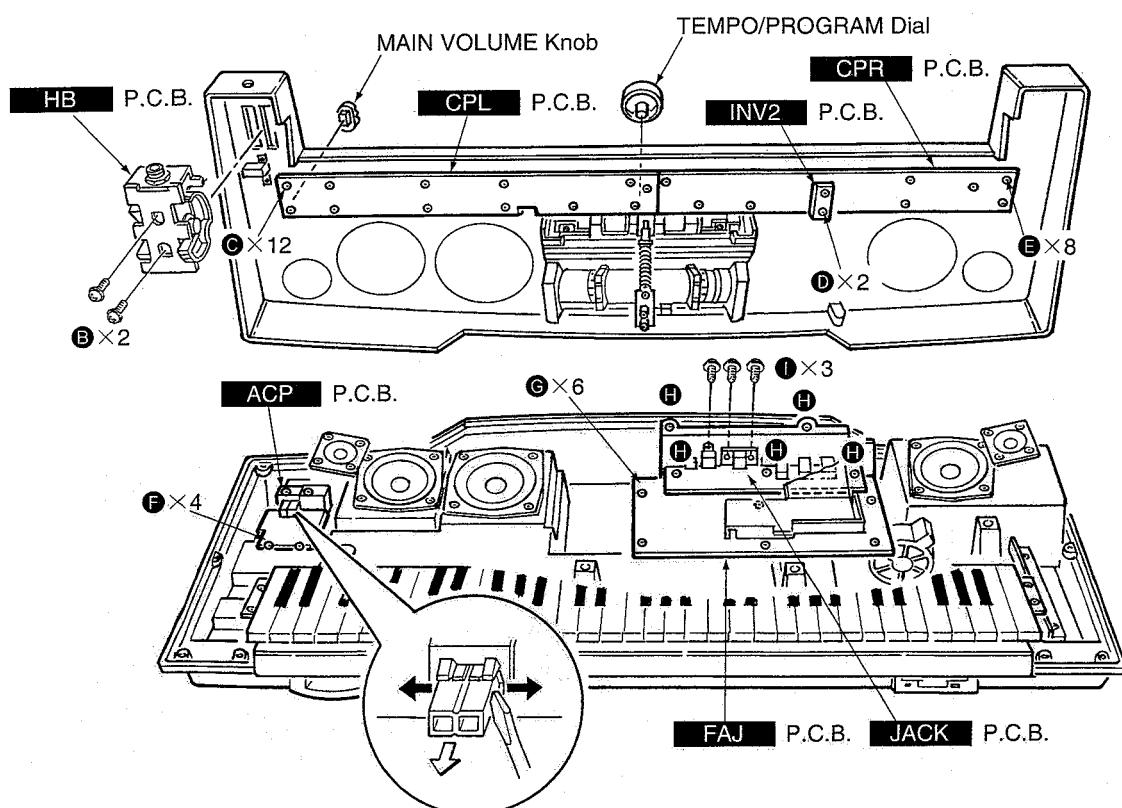
   ACP P.C.B.
   - Remove the ACP P.C.B. mounting screws (Ⓕ 4 pcs.).

   FAJ P.C.B.
   - Remove the FAJ P.C.B. mounting screws (Ⓖ 6 pcs.).
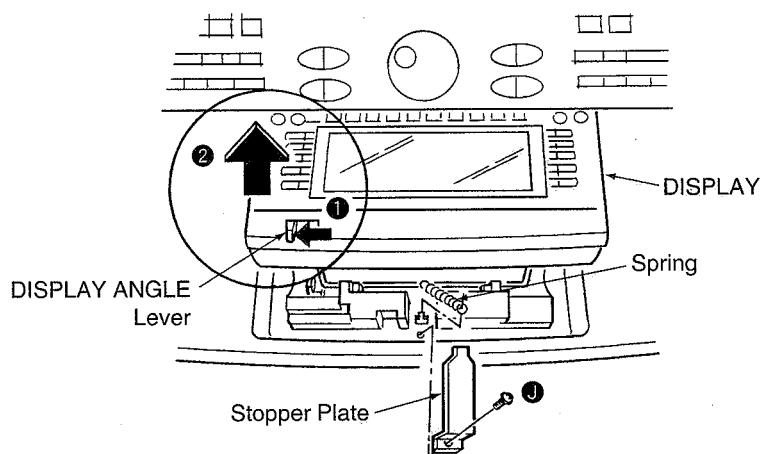
   JACK P.C.B.
   - Remove the JACK P.C.B. mounting screws (Ⓗ 5 pcs. and Ⓘ 3 pcs.).

MAIN VOLUME Knob   TEMPO/PROGRAM Dial

CPR P.C.B.

HB P.C.B.   CPL P.C.B.   INV2 P.C.B.

Ⓒ×12   Ⓔ×8

Ⓑ×2   Ⓓ×2

ACP P.C.B.   Ⓖ×6   Ⓘ×3

Ⓕ×4

FAJ P.C.B.   JACK P.C.B.

[Fig. 2]
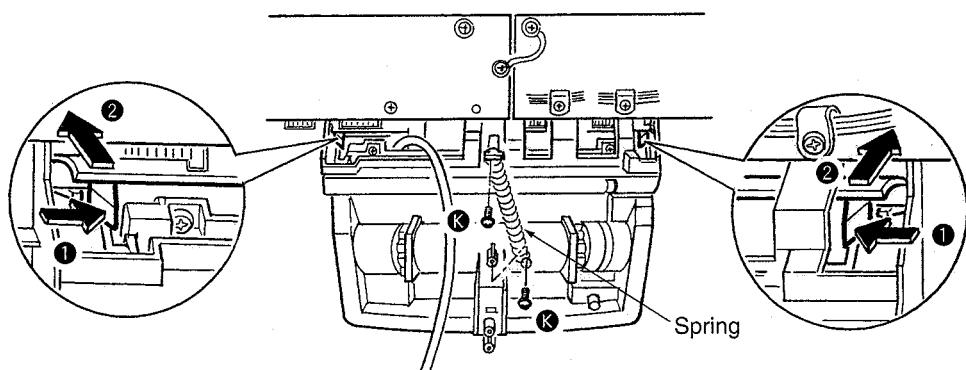
3 Removing the DISPLAY

- Open the top cabinet (see step 1).
- Pull out the connectors on the DISPLAY panel.

1. Slide the DISPLAY ANGLE lever (Fig. 3-❶) and lift up the DISPLAY (Fig. 3-❷).
2. Remove the stopper plate mounting screw (❶ 1 pc.) and remove the spring.
3. Turn the top cabinet upside down as shown in Fig. 4.
4. Remove the spring holding screws (❶ 2 pcs.).
5. Release the two claws (Fig. 4-❶) and push the DISPLAY backward (Fig. 4-❷).
6. Remove the DISPLAY.

DISPLAY

Spring

DISPLAY ANGLE Lever

Stopper Plate

[Fig. 3]

Spring
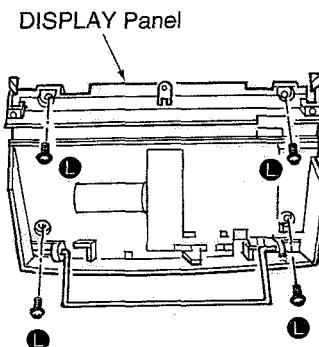
[Fig. 4]

4 Removing the DISPLAY panel

1. Remove the DISPLAY (see step ③).
2. Remove the DISPLAY panel mounting screws (🅛 4 pcs.).

DISPLAY Panel

[Fig. 5]

5 Removing the LCD and the INV1, CPC, CPCL and CPCR printed circuit boards

• Remove the DISPLAY panel (see step ④).

LCD
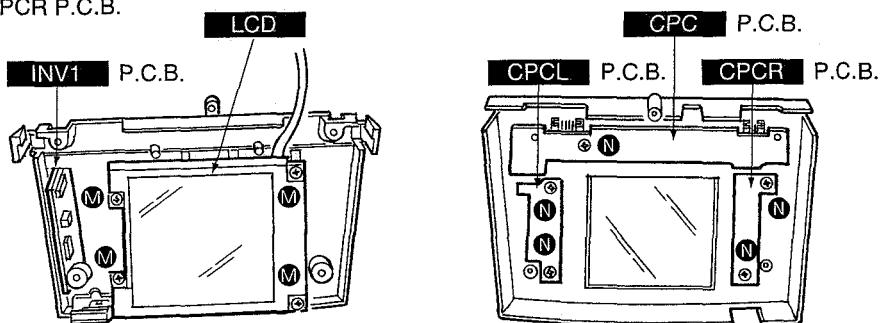
• Remove the LCD mounting screws (🅜 4 pcs.).

INV1 P.C.B.

• Pull out the INV1 P.C.B. and remove it.

CPC , **CPCL** and **CPCR** P.C.B.

• Remove the CPC, CPCL and CPCR P.C.B. mounting screws (🅝 5 pcs.).

LCD

INV1 P.C.B.

CPC P.C.B.

CPCL P.C.B.   **CPCR** P.C.B.
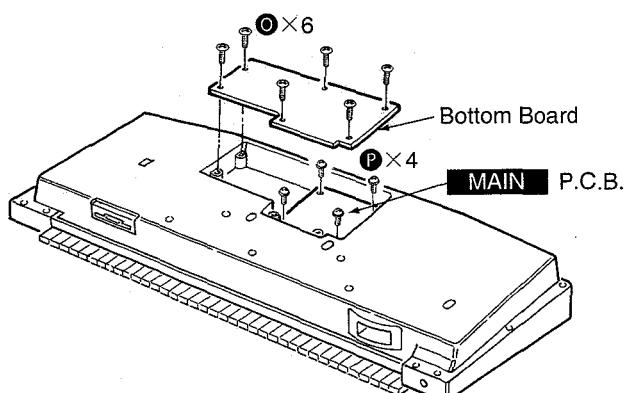
[Fig. 6]

6 Removing the MAIN printed circuit boards

MAIN P.C.B.
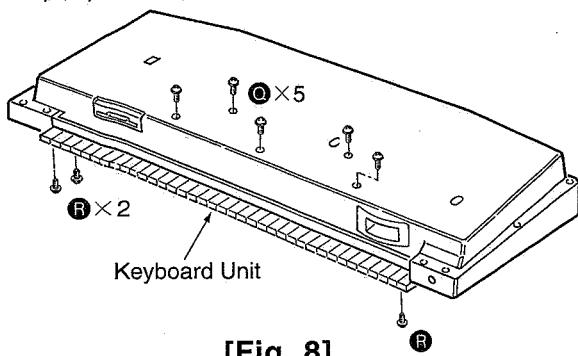
1. Remove the bottom board mounting screws (🅞 6 pcs.).
2. Remove the MAIN P.C.B. mounting screws (🅟 4 pcs.).

🅞×6

Bottom Board

🅟×4

MAIN P.C.B.

[Fig. 7]

I -11
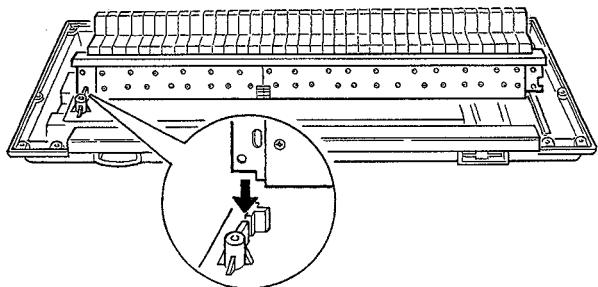
7 Removing the keyboard unit

1. Turn the keyboard cabinet upside down, and remove the bottom screws (Ⓐ 14 pcs.) as shown in Fig. 1.
2. Remove the keyboard unit mounting screws (Ⓠ 5 pcs.).
3. Place the keyboard cabinet bottomside down, and open the top cabinet.
4. Remove the keyboard unit holding screws (Ⓡ 3 pcs.).

Keyboard Unit

Ⓠ×5

Ⓡ×2

Ⓡ

[Fig. 8]
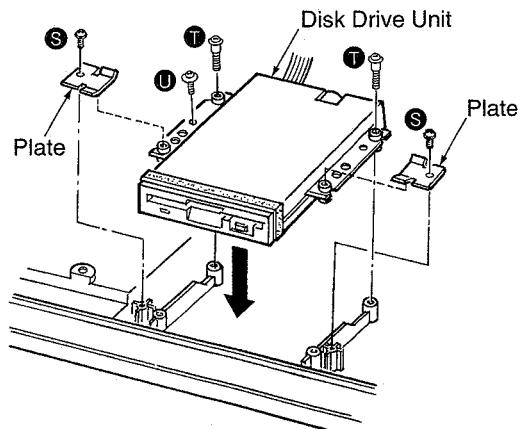
• As shown in Fig. 9, the keyboard unit can be anchored in the metal projection.

[Fig. 9]

8 Removing the Disk Drive Unit

1. Remove the keyboard unit (see step 7).
2. Remove the screws holding the two plates (Ⓢ 2 pcs.).
3. Remove the Disk Drive unit mounting screws (Ⓣ 2 pcs. and Ⓤ 1 pc.).

Disk Drive Unit

Plate

Plate
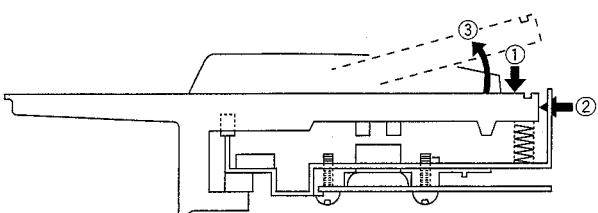
[Fig. 10]

9 Removing the keys (s)

1. Remove the keyboard unit (see step 7).
2. Press downward on the rear of the key (Fig. 11-①).
3. While pressing downward on the rear of the key, push the key forward and release it from the chassis (Fig. 11-②).
4. Lift the key and remove it from the chassis (Fig. 11-③).

NOTE:
To remove a black key, the white key to either side of it should be removed first.

[Fig. 11]

SYMPTOMS WHICH APPEAR TO BE SIGNS OF TROUBLE

The following changes in performance may occur in the Technics Keyboard but do not indicate trouble.

	Phenomenon	Remedy
Sounds and effects	The buttons, keys, etc. malfunction.	• Turn off the **POWER** button once, then turn it on again. If this procedure is not successful, turn off the **POWER** button once. Then, while pressing the three lower left buttons in the **RHYTHM GROUP** section (**MARCH & WALTZ, PARTY TIME** and **SHOW TIME & TRAD DANCE**) at the same time, turn the **POWER** button on again. (Note that, in this case, all programmable settings, functions and memories return to their factory-preset status.)
	No sound is produced when the keys are pressed.	• The **MAIN VOLUME** is at the minimum setting. Adjust the volume with the **MAIN VOLUME** control. • The volumes for the selected parts are set to the minimum levels. Use the balance buttons to set to the volumes of the relevant parts to appropriate levels. • The part is muted. • The LOCAL CONTROL for a part performed on the keyboard is set to OFF. Set the local control to ON.
	Only percussive instrument sounds are produced when the keyboard is played.	• In the **SOUND GROUP** section, the **DRUM KITS** button is on.
	The volume is very low when the keyboard is played.	• The volume setting in the **SEQUENCER** contens is very low. Follow the INITIAL procedure to reset the settings.
	Some sounds cannot be selected.	• When the GENERAL MIDI status is set to on. The sounds which can be selected and operation which can be executed are limited. Turn the GENERAL MIDI status off to return the instrument to its normal operation.
	The sound you hear is different from the sound you selected.	• This sometimes occurs when you play back **SEQUENCER** or **COMPOSER** data which was created on a different model, or when MIDI data is receivd from a connected instrument. Select the desired sounds again.
Rhythm	The rhythm does not start.	• The **DRUMS** volume is set to the minimum level. Use the balance buttons to set the **DRUMS** volume to an appropriate level. • In the **RHYTHM GROUP** section, a rhythm in **CUSTOM** with no stored pattern was selected. Select a different rhythm. • A **SEQUENCER PLAY** button is on. When you are not playing back the **SEQUENCER** perfomance, turn off the **SEQUENCER PLAY** button. • CLOCK is set to MIDI. Set CLOCK to INTERNAL. • The rhythm dose not work when the GENERAL MIDI mode is set to ON. Turn the GENERAL MIDI status OFF to return the instrument to its normal operation.

	Phenomenon	Remedy
AUTO PLAY CHORD	No sound is produced for the automatic accompaniment.	• In the **RHYTHM GROUP** section, a rhythm in **CUSTOM** with no stored pattern was selected. Select a different rhythm.
	No sound is produced for the automatic accompaniment, or only the sounds of some parts are produced.	• An **ACCOMP** part does not sound if its corresponding volume is set to the minimum level. Use the respective balance buttons to set the **ACCOMP 1, 2** and **3** volume to appropriate levels.
SEQUENCER	Storage is not possible.	• The remaining memory capacity of the **SEQUENCER** is 0. Follow the SONG CLEAR or TRACK CLEAR procedure to erase the memory.
	The playback measure indication is different from when the performance was recorded.	• The number of measures corresponds to the time signature of the rhythm selected at the start of recording. To change the rhythm in the middle of the song, record the rhythm change in the RHYTHM part.
COMPOSER	Storage is not possible.	• The remaining memory capacity of the **COMPOSER** is 0.
	Setting the time signature and number of measures is not possible.	• The time signature and number of measures cannot be changed for a pattern which is currently recorded in the **COMPOSER**. If you wish to change the time sigdnature and/or measure data, first follow the procedure to clear the memory.
	The playback timing of the rhythm pattern is different from the timing with which it was recorded.	• The QUANTIZE function was on when the pattern was recorded and timing was automatically corrected. Set the quantize level to a smaller note unit or to OFF when recording.
Disk Drive	The Disk Drive produces a noise during recording or playback.	• This occurs when the Disk Drive is reading a disk. It dose not indicate a problem.
	When the procedure to load from a disk is performed, the contents of the keyboard memory are erased.	• When performing the load operation from a disk, the keyboard memory changes to that of the data loaded from the disk. If you wish to preserve a song which is stored in the keyboard memory, save it on a disk before performing the load procedure.
MIDI	Data cannot be exchaged through MIDI terminals.	• The switch for the **COMPUTER** terminal is not set to **MIDI**. Turn off the power to this instrument and set the swicth to **MIDI**. • Match the channels on the transmitting side and the receiving side.
	The sound quavers or is distorted.	• When the **COMPUTER** terminal or both the **MIDI IN** and **OUT** terminals are connected to a computer, depending on the computer software the received data may be sent back to the instrument just as it is. Because of this the sound generated from the keys and the sound generated from the returned data are both produced, causing undesirable effects, such as the sounds canceling each other out, for example. In this case, either change the software settings to prevent received data from being returned, or set the MIDI LOCAL CONTROL to off.

Phenomenon		Remedy
Other	Noise from a radio or TV can be heard.	• This sometimes occurs when electrical equipment such as a radio or TV is used near the instrument. Try moving such electrical equipment further away from the instrument. • The sound may be coming from a nearby broadcast station or amateur radio station. If the sound is bothersome, consult your dealer or service center.
	The cabinet becomes warm during use.	• This instrument has a built-in power source that heats the cabinet to some degree. This is not an indication of trouble.

MEASUREMENTS AND ADJUSTMENTS

ADJUSTMENT	MEASURING CONDITIONS	EQUIPMENT	ADJUSTMENT P.C.B.	ADJ. POINT	CONNECT METER TO	METER READING
AFTER TOUCH SENSOR Sensitivity	any position	Oscilloscope	MKB2 P.C.B.	VR1	CN5-3pin	6.0V
	1. Press one of the any keys hardly and check the CN5-3pin voltage. The voltage will increase and became steady. 2. Adjust the voltage to 6.0V with VR1 at that time.					

ERROR DISPLAY

No.	Contents
00	The data on the disk that you are using is for a different product.
01	An error has occurred while the disk was loading. Please try again!
02	There is no disk in the Disk Drive.
03	The file that you tried to load is empty.
05	An error has ocurred while the disk was saving. Plese try again!
06	The disk that you are using is write protected. Plese remove the write protection and try again!
07	The disk that you are using is full. Please use another disk.
08	An error has occured while the disk was formatting. The disk that you are using may be faulty. Please try formatting another disk.
10	The data is already copy protected.
20	A problem has occurred with your **SEQUENCER** Data. This might be due to a damaged or faulty disk.
21	Memory full.
22	It is necessary to press PUNCH OUT to complete this procedure.
23	It is impossible to change the time signature because it has already been set in the existing tracks.
24	A rhythm track already exist. It is impossible to assign two tracks to rhythm.
25	It is only possible to change the velocity on a melody track.
26	It is only possible to merge melody tracks. Tracks such as rhythm, chord and contorol cannot be merged.
27	It is only possible to copy melody tracks. Tracks such as rhythm, chord and control cannot be copied.
28	This song is too long to saved as a MIDI file.
29	The MIDI file that you have tried to load exceeds the memory capacity of the KN 5000 and cannot be played. The **SEQUENCER** memory has been cleared.

No.	Contents
30	It is not possible to change the time signature or measur length of a **COMPOSER** pattern after it has been recorded. If you want to proceed, you must first clear the entire **COMPOSER** pattern.
31	The time signature of the pattern from which you are copying is different from the **COMPOSER** memory that you are using. Either: Change the time signature of the **COMPOSER** memory. Or: Copy from pattern that has the same time signature.
32	Memory full.
40	The Identification (ID) code of the sysytem exclusive data received by the KN5000 is for a different product.
41	An error has occurred during system exclusive data reception. The data from the transmitting device may be incomplete. Please try again!
42	An error has occurred during sysytem exclusive transmission. The data has not been received correctly. Please try again!
43	The file that you are trying to load was saved on a previous KN keyboard. It is only possible to load using the "ALL" option.
47	Please select a preset pattern.
54	Please select a USER bank.
55	Special tracks such as CHORD (APC), RHY and CTL exist in the song from which you are copying and are incompatible with the destination song because it is in the GM mode.
56	AUTO PUNCH recording has been unsuccessful because **SEQUENCER** operation was interrupted before the PUNCH OUT measure was reached.
58	The song that you have tried to load exceeds the KN5000's available memory and cannot be loaded. The selected song memory has been cleared. Please clear existing songs in the instrument's memory using SONG CLEAR to make more memory available, and try again.

ABOUT THE SELF-DIAGNOSTIC FUNCTION
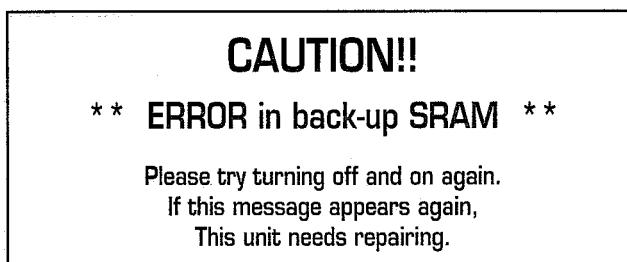
This model has some self-diagnostic capabilities. There are two types of self-diagnostic functions: the "power on self-test" which runs several tests when the power is turned on and notifies the user if an error is detected, and the "service mode" which is used when servicing the unit.

■ Power on self-test

This model runs the following three self-diagnostic tests when power is turned on. If an error is detected, a message is displayed on the LCD to notify the user.

1. **Back-up memory (SRAM/MAIN P.C.B.: IC21) check**
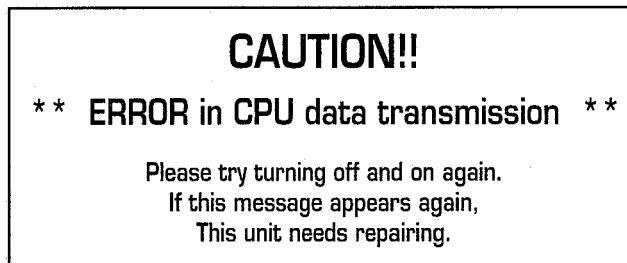
   When power is turned on, the model test-writes/reads data in an available area of the SRAM. If an error is detected, the following message is displayed on the LCD.

   ```
   CAUTION!!

   **  ERROR in back-up SRAM  **

   Please try turning off and on again.
   If this message appears again,
   This unit needs repairing.
   ```

   In this case, it is possible to consider a disconnection or short-circuit in the address/data bus or one of the strobe signal lines, in addition to IC21 being defective.

2. **Communication check between the Control Panel CPU (CPL P.C.B.: IC1/CPR P.C.B.: IC1) and the MAIN CPU (MAIN P.C.B.: IC5)**
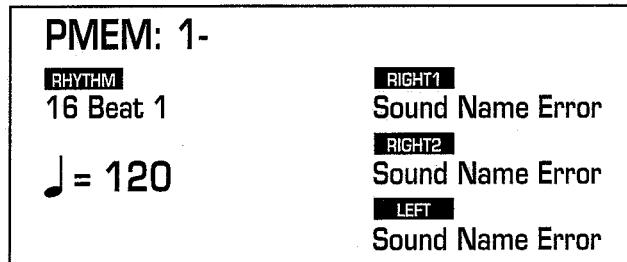
   When power is turned on, the model checks communications between the MAIN CPU and each Control Panel CPU. If an error is detected, the following message is displayed on the LCD.

   ```
   CAUTION!!

   **  ERROR in CPU data transmission  **

   Please try turning off and on again.
   If this message appears again,
   This unit needs repairing.
   ```

   If this error occurs, perform the Control Panel CPU check from within the service mode. Using the self-diagnostic function, it is possible to determine which CPU (CPL/CPR P.C.B.) is suffering trouble.

3. **Communication check between the MAIN CPU (Main P.C.B.: IC5) and SUB CPU (MAIN P.C.B.: IC27)**

   When power is turned on or when a communication error occurs between the MAIN CPU and the SUB CPU while using the instrument, the message "Sound Name Error" is displayed in the sound name display position.

   ```
   PMEM: 1-
   RHYTHM                RIGHT1
   16 Beat 1             Sound Name Error
                         RIGHT2
   ♩ = 120               Sound Name Error
                         LEFT
                         Sound Name Error
   ```
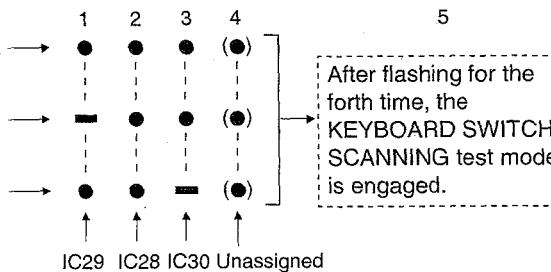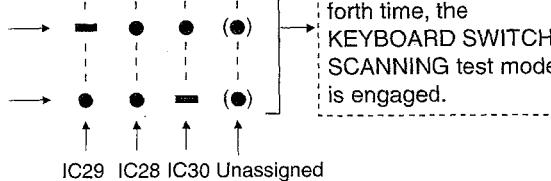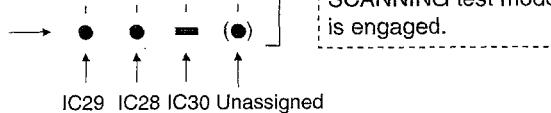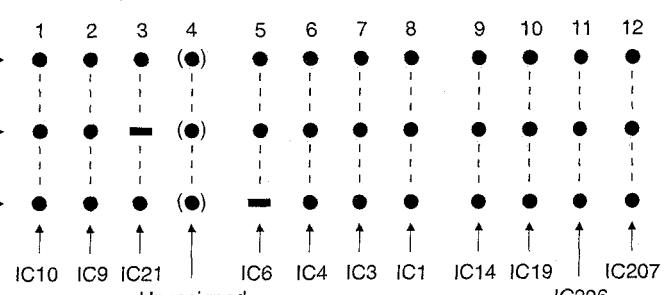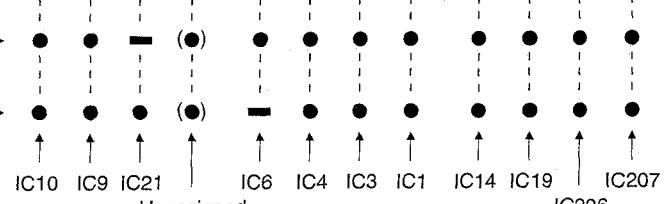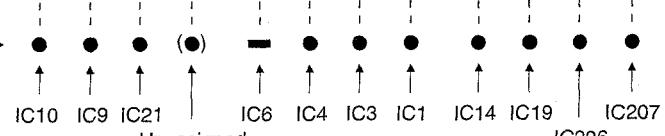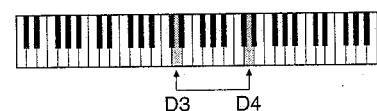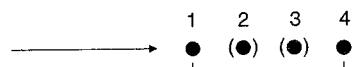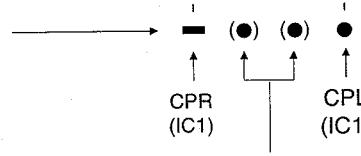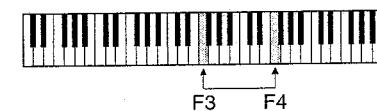
   If this message is displayed, it is likely that some sort of error has occurred in the control signal line used in communications between the MAIN CPU and SUB CPU. The error also occurs when the SUB CPU is not functioning properly.
   It will take about 30 seconds for this message to appear on the LCD. If nothing apears, wait a moment with the power on to confirm the message. When the message is finally displayed, run the following tests from the service mode.
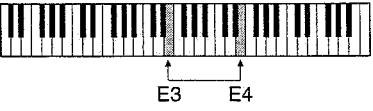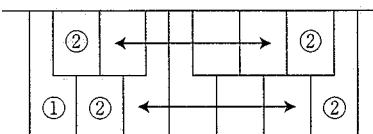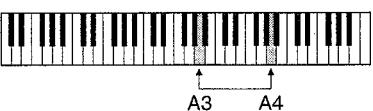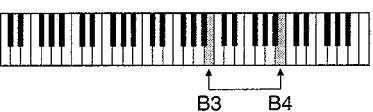
■ Service mode

The service mode makes it possible to determine whether the various test modes pass or fail.
The test modes in the following table are presented in an order based on circuit operation, but they are completely independent of one another. Select a mode as necessary, and run the test or check.
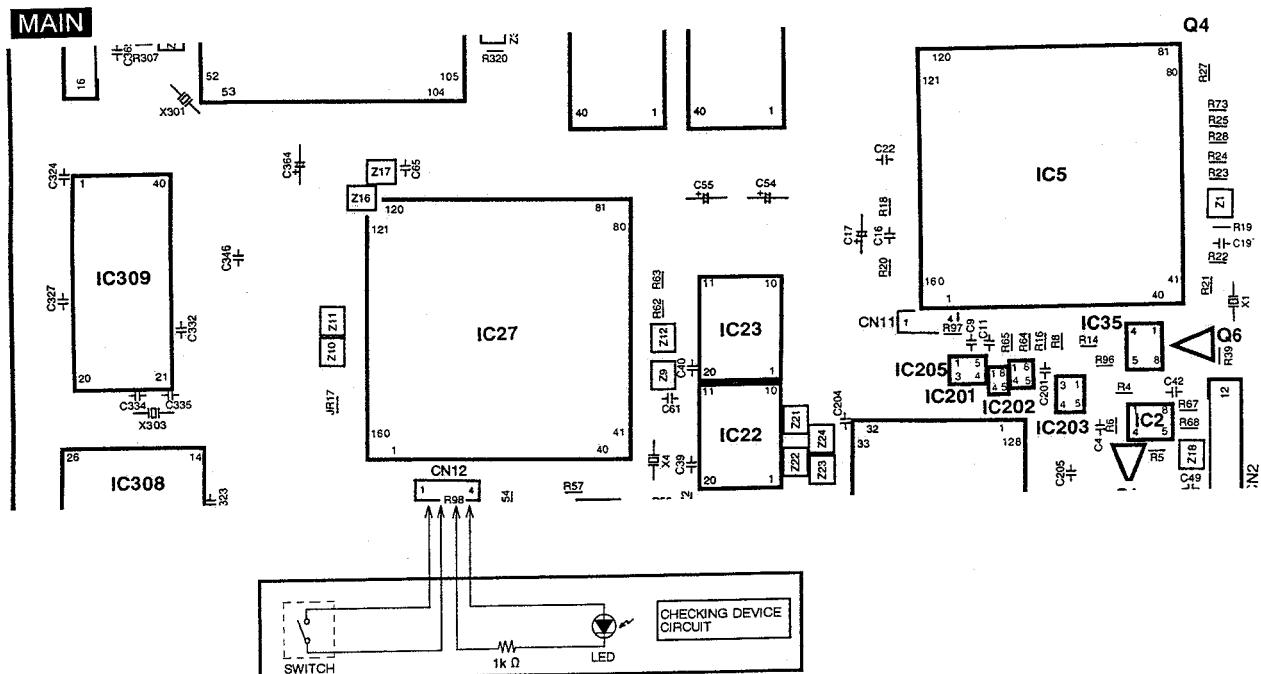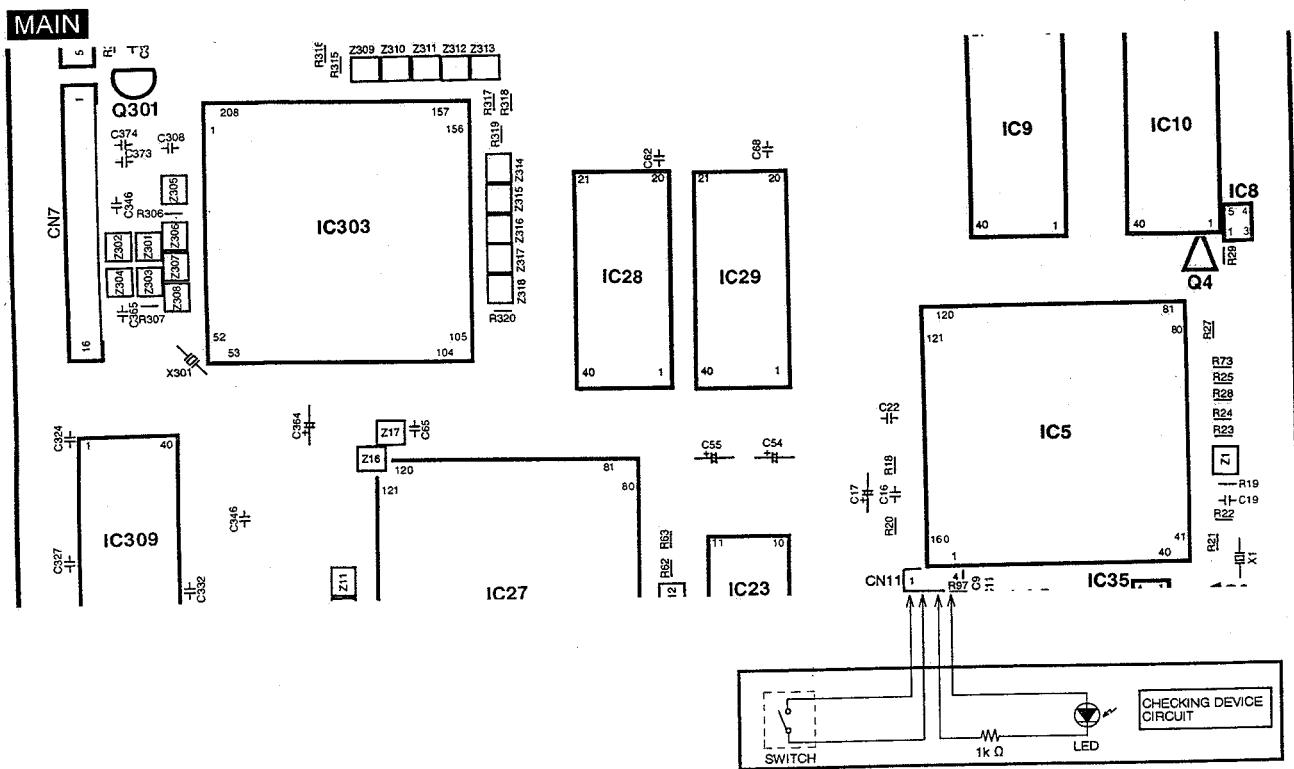
No.	Diagnostic Part/Diagnostic Device	Procedure of Service Mode
1	MAIN P.C.B.: SUB CPU peripheral device 1. DRAM (IC29) 2. DRAM (IC28) 3. BOOT ROM (IC30) 4. Unassigned 5. KEYBOARD SWITCH SCANNING	1. Connect the CHECKING DEVICE (refer to page I-21) to CN12 on the MAIN P.C.B., and turn on the CHECKING DEVICE switch. 2. Turn on the power switch.

• DRAM/BOOT ROM check

When the power switch is turned on, the LED of the checking device flashes 4 times and then engages the KEYBOARD SWITCH SCANNING test mode. The correspondence between the lighting sequence of the LEDs and the IC being checked is given below. When an IC is defective, the corresponding flash time will be longer.

Examples

1. DRAM (IC29, IC28), BOOT ROM (IC30) OK →

2. DRAM (IC29) defective,
   DRAM (IC28), BOOT ROM (IC30) OK

3. DRAM (IC29, 28) OK,
   BOOT ROM (IC30) defective

After flashing for the forth time, the KEYBOARD SWITCH SCANNING test mode is engaged.

IC29 IC28 IC30 Unassigned

NOTE : ● indicates short flash time
　　　　 ▬ indicates long flash time

• KEYBOARD SWITCH SCANNING test

When the power switch is turned on, the LED of the checking device flashes 4 times and then engages the KEYBOARD SWITCH SCANNING test mode. (see the above figure.)
Pressing any of the 61 keys will light the LEDs, while the LEDs will go out when the key is released. The KEYBOARD SWITCH SCANNING test determines whether the key switches and the Tone Generator LSI (MAIN P.C.B.: IC303) are working properly or not.

No.	Diagnostic Part/Diagnostic Device	Procedure of Service Mode
2	MAIN P.C.B.: MAIN CPU peripheral device 1. DRAM (IC10) 2. DRAM (IC9) 3. SRAM (IC21) 4. Unassigned 5. PROGRAM ROM (IC6) 6. PROGRAM ROM (IC4) 7. TABLE DATA ROM (IC3) 8. TABLE DATA ROM (IC1) 9. RHYTHM DATA ROM (IC14) 10. CUSTOM DATA ROM(IC19) 11. LCD CONTROLLER (IC206) 12. VIDEO RAM (IC207)	1. Connect the CHECKING DEVICE (refer to page I-21) to CN11 on the MAIN P.C.B., and turn on the CHECKING DEVICE switch. 2. Turn on the power switch.

When the power swich is turned on, the LED of the flashes 12 times . The order of the LED flashes corresponds to the IC number on the respective P.C.B.s as shown below. If an IC is defective, the corresponding flash time is longer.

Examples

1. MAIN P.C.B./
   MAIN CPU ICs OK

2. SRAM (IC21) defective

3. PROGRAM ROM (IC6)
   defective

IC10 IC9 IC21 | IC6 IC4 IC3 IC1 IC14 IC19 | IC207
　　　　　　Unassigned　　　　　　　　　　　IC206

NOTE : ● indicates short flash time
　　　　 ▬ indicates long flash time

I -18

No.	Diagnostic Part/Diagnostic Device	Procedure of Service Mode
3	LCD test	Press and hold the two G keys shown below, and then turn on the power switch.

G3   G4

While the message "LCD PANEL TEST" is displayed on the LCD, the entire screen is repeatedly switched in the order of white → black → "H" pattern → red → blue → green.
* "H" pattern is a big "H". It is used to check for crosstalk.

No.	Diagnostic Part/Diagnostic Device	Procedure of Service Mode
4	CPR/CPL P.C.B.: 1 chip Microcomputer (IC1) check	1. Connect the CHECKING DEVICE (refer to page I-21) to CN11 on the MAIN P.C.B., (The CHECKING DEVICE switch should be off). 2. Press and hold the two D keys shown below, and then turn on the power switch.

D3   D4

When the power swich is turned on, the LED of the flashes 4 times . The order of the LED flashes corresponds to the Microcomputer (IC) number on the respective P.C.B.s as shown below. If an IC is defective, the corresponding flash time is longer.

Examples

1. CPR (IC1), CPL (IC1) OK

1   2   3   4
● (●) (●) ●

2. CPR (IC1) defective, CPL (IC1) OK

━ (●) (●) ●

CPR   CPL
(IC1)   (IC1)
        Unassigned

NOTE : ● indicates short flash time
        ━ indicates long flash time

* The results of the above test are display on the LCD at the same time as well.

No.	Diagnostic Part/Diagnostic Device	Procedure of Service Mode
5	CPR/CPL P.C.B.: Control Panel switch and LED check	Press and hold the two F keys shown below, and then turn on the power switch.

F3   F4

First, all of the LEDs on the Control Panel will light up simultaneously. Check that they do. Then, press the buttons on the Control Panel and confirm that the corresponding LED lights. For buttons without LEDs, the 4 BEAT display LEDs by the START/STOP button will light up simultaneously.

No.	Diagnostic Part/Diagnostic Device	Procedure of Service Mode
6	MAIN P.C.B.: Wave ROM (IC304-307) check	Press and hold the two E keys shown below, and then turn on the power switch. E3 E4
	When set to the self-diagnostic mode, the Wave ROM output a sine wave. The Wave ROMs correspond to the keyboard keys as shown in the diagram to the right. When a key is pressed, the corresponding sine wave sound is produced. If no sound is produced, or if the sound is distored, the Wave ROM corresponding to the key is defective. * A more detailed explanation as to setting conditions and other matters will be displayed on the LCD for your reference.	The key number indictes the Wave ROM number. (①: IC304/305, ②: IC306/307)
7	MAIN P.C.B.: FDC IC (IC208) test	Press and hold the two A keys shown below, and then turn on the power switch. A3 A4
	The test results on the FDC IC will be displayed on the LCD. **NOTE:** This test only checks communications between the FDC IC and MAIN CPU. It does not test operation of the FDC IC itself, the route from the FDC IC to Floppy Disk Drive operation. To include the Floppy Disk Drive in testing, use the floppy disk SAVE/LOAD test described on the next head.	
8	Floppy Disk Drive: SAVE/LOAD test	1.Insert the floppy disk formatted into the Disk Drive. 2.Press and hold the two B keys shown below, and then turn on the power switch. B3 B4
	Pressing the " ▶ " on the LCD starts the floppy disk SAVE/LOAD test. The test is carried out repeatedly. Data is saved and loaded, and then the two data sets are compared. The number of times the test results "OK" or "NG" are counted and displayed on the LCD. To stop the test, press the " ■ " on the LCD. Even when the floppy disk drive is functioning properly, the test can result "NG". If this happens frequently, clean the magnetic heads of the Floppy Disk Drive with a cleaning disk. Then, change the disk used in testing with another disk and reperform the test. If the trouble is not solved, it is likely that the Disk Drive unit or some other part of the hardware is broken.	

■ Connection between serving CHECKING DEVICE and MAIN P.C.B.

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. 0.2 V/cm should be 2.0 V/cm).
3. To measure the waveforms, first set this unit to the self-diagnostic mode (refer to page I-20, No. 6). The Wave ROM output will then be output as a sine wave to facilitate the servicing check.

■ Important safety notice:

Components identified by a △ mark have special characteristics impotant for safety.
When replacing any of these components, use only manufacture'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 1/4 WATT, ±5 % TOLERANCE unless otherwise designated in 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)	F	Fuse Type Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERQ—type)
Ⓕ	Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERG—type)	F	Fuse Type Fixed Carbon File 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, ±10 % Tolerance)
   • Polarized capacitors without symbolic mark are Aluminum Electrolytic Capapcitors. (ECEA-type, ±20 % Tolerance)

(TABLE-2)
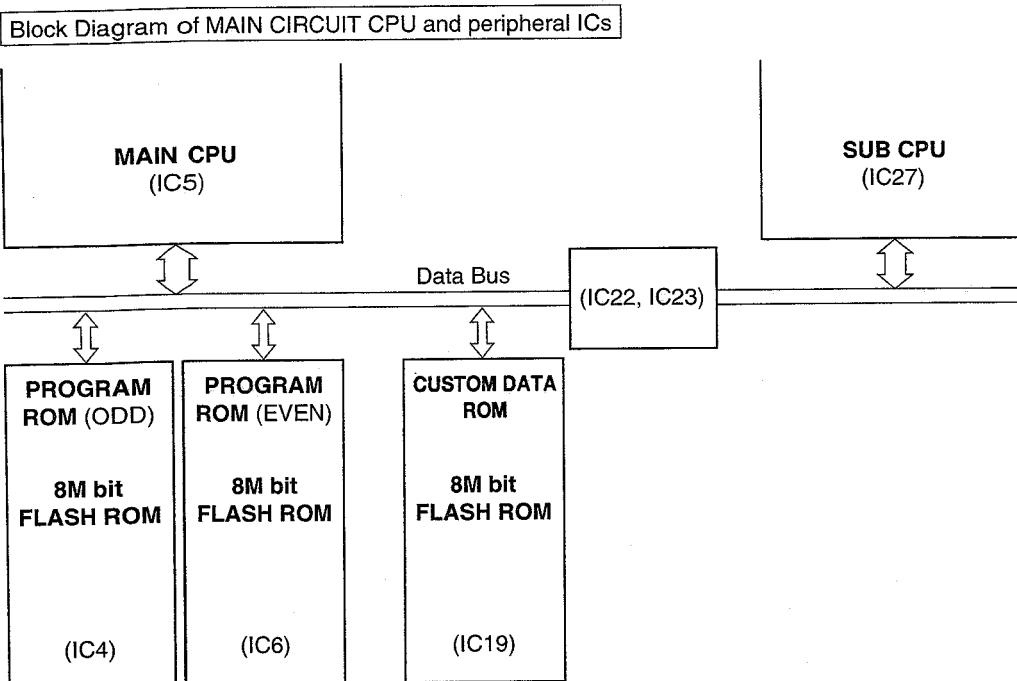
SYMBOL	SPECIFICATION	TYPE
Ⓝ	Non-Polarized Electrolytic Capacitors	ECEA_KN_type
Ⓨ	Non-Polarized Electrolytic (for Network system)	ECEA_Y_type
Ⓣ	Tantalum Solid Electrolytic Capacitors	ECS_type
ⓉⒻ	Metalized Plastic Film Capacitors (TF Series)	ECQV_type
○	Temperature Compensating Ceramic Capacitors	ECC_type
	High-Dielectric Constant Ceramic Capacitors	ECK_type ECR_type
	Axial Lead Ceramic Capacitors	ECB_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

PRECAUTIONS BEFORE SERVICING THE MAIN CIRCUIT

Note: This model employs a FLASH ROM (EEPROM) for the PROGRAM ROM/CUSTOM ROM. If changing any of these ICs, service the MAIN CIRCUIT as explained here following.

■ About the FLASH ROM

The FLASH ROM can be electrically erased and rewritten. This model is designed so that the repair technician can easily write and change programs and data in the FLASH ROM, by using a floppy disk.

Block Diagram of MAIN CIRCUIT CPU and peripheral ICs

```
┌─────────────────┐                              ┌─────────────────┐
│    MAIN CPU      │                              │    SUB CPU       │
│     (IC5)        │                              │     (IC27)       │
└─────────────────┘                              └─────────────────┘
        ⇕              Data Bus    ┌──────────────┐       ⇕
────────────────────────────────  │ (IC22, IC23) │  ─────────────
    ⇕         ⇕            ⇕       └──────────────┘
┌──────────┐┌──────────┐┌──────────────┐
│ PROGRAM  ││ PROGRAM  ││ CUSTOM DATA  │
│ ROM (ODD)││ROM (EVEN)││    ROM       │
│          ││          ││              │
│ 8M bit   ││ 8M bit   ││  8M bit      │
│FLASH ROM ││FLASH ROM ││ FLASH ROM    │
│          ││          ││              │
│          ││          ││              │
│  (IC4)   ││  (IC6)   ││   (IC19)     │
└──────────┘└──────────┘└──────────────┘
```

* FLASH ROM contents
  IC4: MAIN CPU program (ODD)
  IC6: MAIN CPU program (EVEN)
  IC19: Part of SUB CPU program and RHYTHM & ACCOMP data for the RHYTHM
        GROUP/CUSTOM function

■ Notes on replacing FLASH ROMs

The replacement parts include a FLASH ROM with a available memory and the "PROGRAM DISK" which contains the program to be written into the FLASH ROM. After replacing the FLASH ROM, always write the program into it from the floppy disk included in the replacement parts. For details on programming, see "How to write program/data into FLASH ROMs" page I-24.

The CUSTOM DATA ROM stores not only the SUB CPU program but also RHYTHM & ACCOMP data for the RHYTHM GROUP/ CUSTOM function. The initial RHYTHM & ACCOMP data is factory-set in the CUSTOM ROM at the time of shipping. The CUS-TOM DATA ROM can also store COMPOSER data that the user creates. However, user-data is lost when the CUSTOM ROM is replaced. After programming the CUSTOM DATA ROM, default the data in it with the INITIAL DISK attached to this product. For details on defaulting, see "How to write program/data into FLASH ROMs" page I-24.
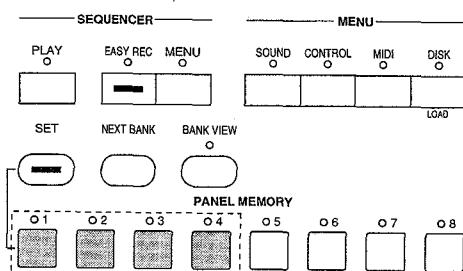
■ About the replacement parts

The same FLASH ROM with a available memory can be used for either the PROGRAM ROM (IC4/IC6) or CUSTOM DATA ROM (IC19). Moreover, the included "PROGRAM DISK" contains all programs. Therefore, the replacement parts can be used for IC4, IC6 and IC19 alike.

■ How to write program/data into FLASH ROMs

1. After replacing the PROGRAM ROM (IC4/IC6)

① Load the "PROGRAM DISK" included in the replacement parts into the Floppy Disk Drive.

② Hold down the **PANEL MEMORY** buttons **1, 2, 3** and **4**, and turn on the power switch.
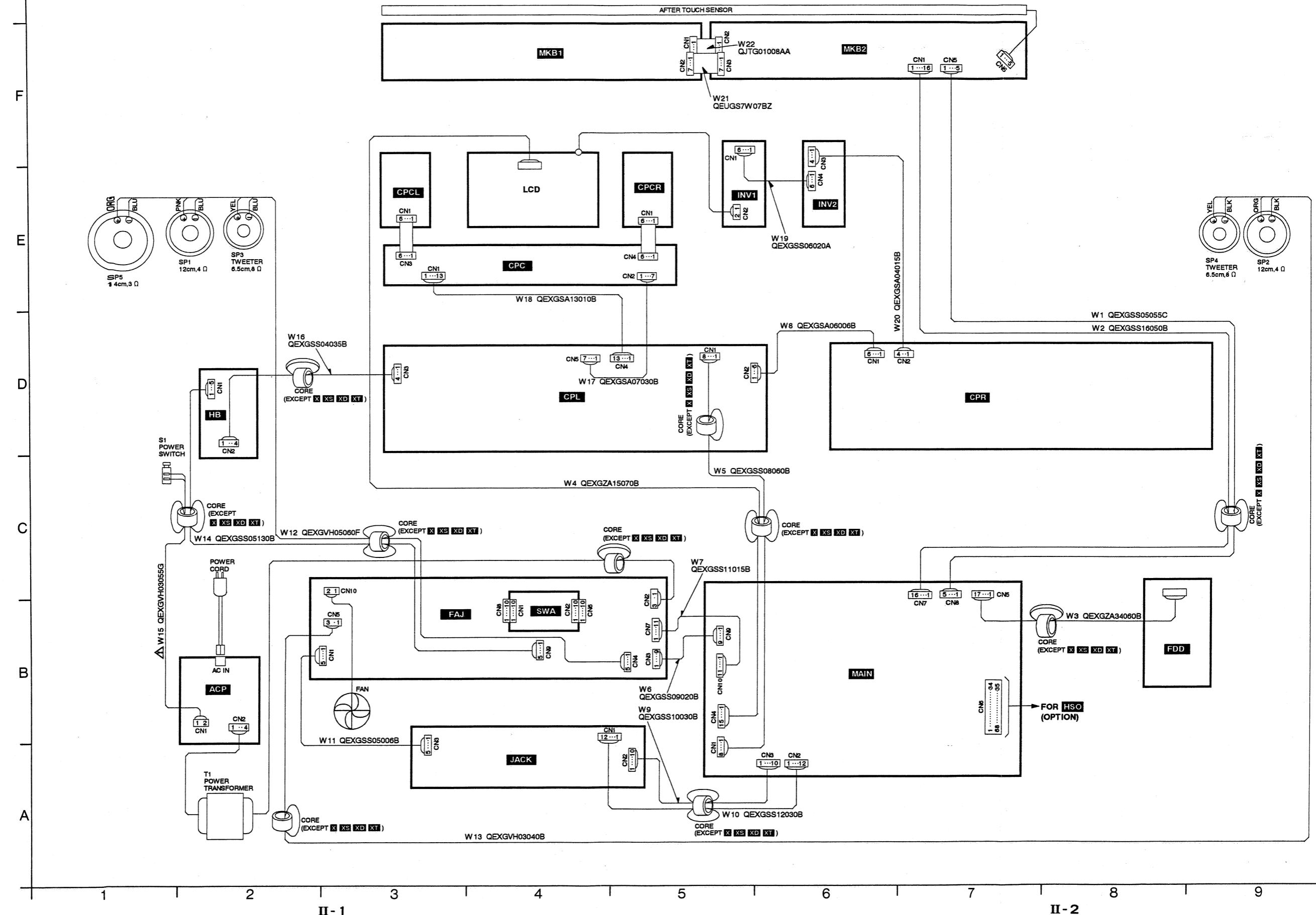
③ Check "Flash Memory Update" is displayed on the LCD. Only then, release the **PANEL MEMORY** buttons.
The program will be written into the FLASH ROM automatically.
When the operation is complete, "Completed!!" will be displayed on the LCD. Turn the power switch off and then back on again. Check the instrument is functioning properly.

2. After replacing the CUSTOM DATA ROM (IC19)

① Perform steps ① and ② as when changing the PROGRAM ROM (IC4/IC6).
Then, check "Completed!!" is displayed on the LCD.

② Turn the power switch off and then back on again.

③ Load the "INITIAL DISK" included with the model into the Floppy Disk Drive.
The LCD will change to the "DISK MENU" window.

④ Select "LOAD" to get the file select dialog box.

⑤ Move the highlighting cursor to "CTMINI" in "No. 01" and select "LOAD".
After doing this, "PLEASE WAIT ..." will appear on the LCD and the model will start defaulting program in the CUSTOM ROM.

⑥ When the operation is complete, "Completed!!" will be displayed on the LCD.
Turn the power switch off and then back on again. Check the instrument is functioning properly.

MIDI IMPLEMENTATION CHART

Keyboard [SX-KN5000] (Transmitted)

Function		RIGHT1, 2, LEFT, PART4–15	PART16	ACMP1	ACMP2, 3	BASS	DRUMS	CHORD	CONTROL	Remarks
Basic Channel	Default	1–16	1–16	1–16	1–16	1–16	1–16	1–16	1–16	Memorized
	Changed	1–16	1–16	1–16	1–16	1–16	1–16	1–16	1–16	
Mode	Default	3	3	3	3	3	3	3	3	OMNI OFF, POLY MODE
	Messages	×	×	×	×	×	×	×	×	
	Altered	–	–	–	–	–	–	–	–	
Note Number		0–119	0–119	0–119	0–119	0–119	0–119	0–119	–	Changes depending on the position of the transpose control, octave shift, and drums type.
	True voice	–	–	–	–	–	–	–	–	
Velocity	Note ON	○	○	○	○	○	○	○	–	
	Note OFF	×	×	×	×	×	×	×	–	
After Touch	Key's	×	×	×	×	×	×	×	–	
	Ch's	○×*	×	×	×	×	×	×	–	
Pitch Bend		○×*	×	○×*	○×*	○×*	×	○×*	×	
Control Change	0, 32	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	Bank select MSB, LSB
	1	○×*	×	○×*	○×*	○×*	×	○×*	×	Modulation
	6, 38	○×*	×	×	×	×	×	×	×	Data entry MSB, LSB
	7	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	Volume
	10	○×*	×	○×*	○×*	○×*	×	×	×	Panpot
	11	○×*	○×*	○×*	○×*	○×*	○×*	×	○×*	Expression
	64	○×*	×	○×*	○×*	○×*	×	×	×	Sustain
	80	×	×	○×*	×	×	×	×	×	Auto play chord
	82	×	×	×	×	×	○×*	×	×	Intro, fill In, ending
	83	×	×	×	×	×	×	×	○×*	Fade in/out
	91	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	Reverb
	93	○×*	○×*	×	×	×	×	×	×	DSP effect
	94	○×*	×	○×*	○×*	○×*	×	○×*	×	Digital effect
	100, 101	○×*	×	×	×	×	×	×	×	RPN LSB, MSB
	120	○	○	×	×	×	×	×	×	All sound off
	121	○×*	○×*	×	×	×	×	×	×	Reset all controllers
Prog Change		○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	Changes depending on program change mode and prog.cng to p.mem.
	True #	–	–	–	–	–	–	–	–	
System Exclusive		○								
System Common	Song Pos	○×*								
	Song Sel	○×* (0–19)								
	Tune	×								
System Real Time	Clock	○								
	Commands	○×*								Start/stop, continue
Aux Messages	Local ON/OFF	×	×	×	×	×	×	×	–	
	All Notes OFF	×	×	×	×	×	×	×	–	
	Active Sense	○								
	Reset	×								
Notes		○×*.........Whether or not the data for each of these items is transmitted can be set.								

Mode 1:	OMNI ON, POLY	Mode 2:	OMNI ON, MONO	○: Yes
Mode 3:	OMNI OFF, POLY	Mode 4:	OMNI OFF, MONO	×: No

Function		RIGHT1, 2, LEFT, PART4–15	PART16	ACMP1	ACMP2, 3	BASS	DRUMS	CHORD	CONTROL	Remarks
Basic Channel	Default	1–16	1–16	1–16	1–16	1–16	1–16	1–16	1–16	Memorized
	Changed	1–16	1–16	1–16	1–16	1–16	1–16	1–16	1–16	
Mode	Default	3	3	3	3	3	3	3	3	OMNI OFF, POLY MODE
	Messages	×	×	×	×	×	×	×	×	
	Altered	–	–	–	–	–	–	–	–	
Note Number		0–127	0–127	0–127	0–127	0–127	0–127	0–127	–	Changes depending on the position of the transpose control, octave shift, and drums type.
	True voice	0–127	0–127	0–127	0–127	0–127	0–127	0–127	–	
Velocity	Note ON	○	○	○	○	○	○	○	–	
	Note OFF	×	×	×	×	×	×	×	–	
After Touch	Key's	×	×	×	×	×	×	×	–	
	Ch's	○×*	×	×	×	×	×	×	–	
Pitch Bend		○×*	×	○×*	○×*	○×*	×	○×*	×	
Control Change	0, 32	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	Bank select MSB, LSB
	1	○×*	×	○×*	○×*	○×*	×	○×*	×	Modulation
	6, 38	○×*	×	×	×	×	×	×	×	Data entry MSB, LSB
	7	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	Volume
	10	○×*	×	○×*	○×*	○×*	×	×	×	Panpot
	11	○×*	○×*	○×*	○×*	○×*	○×*	×	○×*	Expression
	64	○×*	×	○×*	○×*	○×*	×	×	×	Sustain
	80	×	×	○×*	×	×	×	×	×	Auto play chord
	82	×	×	×	×	×	○×*	×	×	Intro, fill In, ending
	83	×	×	×	×	×	×	×	○×*	Fade in/out
	91	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	Reverb
	93	○×*	○×*	×	×	×	×	×	×	DSP effect
	94	○×*	×	○×*	○×*	○×*	×	○×*	×	Digital effect
	100, 101	○×*	×	×	×	×	×	×	×	RPN LSB, MSB
	120	○	○	○	○	○	○	○	×	All sound off
	121	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	Reset all controllers
Prog Change		○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	Changes depending on program change mode and prog.cng to p.mem.
	True #	0–127	0–127	0–127	0–127	0–127	0–127	0–127	–	
System Exclusive		○								
System Common	Song Pos	○×*								
	Song Sel	○×* (0–19)								
	Tune	×								
System Real Time	Clock	○								
	Commands	○×*								Start/stop, continue
Aux Messages	Local ON/OFF	×	×	×	×	×	×	×	–	
	All Notes OFF	○	○	○	○	○	○	○	–	
	Active Sense	○								
	Reset	×								
Notes		○×*.........Whether or not the data for each of these items is transmitted can be set.								

Mode 1: OMNI ON, POLY   Mode 2: OMNI ON, MONO   ○: Yes

Mode 3: OMNI OFF, POLY   Mode 4: OMNI OFF, MONO   ×: No

MEMO

WIRING CONNECTION Diagram

BLOCK (A) Diagram

BLOCK (B) Diagram

MAIN P.C. Diagram

WAVEFORM OF MAIN

■ Measuring Condition

Check Point ❶ ~ ❹ , ❽ ~ ⓫

Set to the self-diagnostic mode following.

● While pressing two C keys① simultaneously, turn on the power switch.

● SOUND............................No1
● Main Volume...................Max
● Keyborad.........................C3(②)
● Reverb............................OFF

① C Keys(C25 · C37)

② C25 Key

❶ SNS, ❷ RESET   ❸   ❹

POWER SW OFF

POWER SW ON

(2)

● POWER SW.................... ON → OFF

0.2 V/DIV 0.5 s/DIV 0.2 V/DIV 0.5 s/DIV   0.2 V/DIV 0.1 μs/DIV   0.2 V/DIV 0.1 μs/DIV

❽   ❾   ❿

0.2 V/DIV 0.5 μs/DIV   0.2 V/DIV 2.0 μs/DIV   0.2 V/DIV 0.1 μs/DIV

⓫

0.2 V/DIV 0.2 μs/DIV

MAIN

CPL CN1   LCD   FDD

CONTROL SECTION

CPU SECTION

TONE GENERATOR SECTION

HSO (OPTION)

CN6 | CN3 | CN2 | CN10 | CN8 | CN7 | CN9
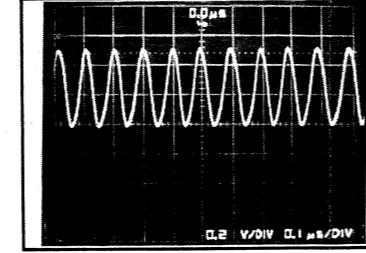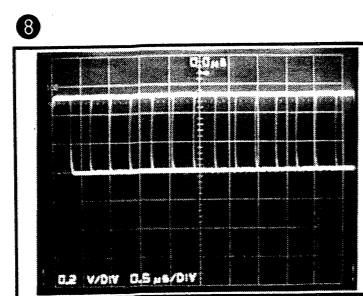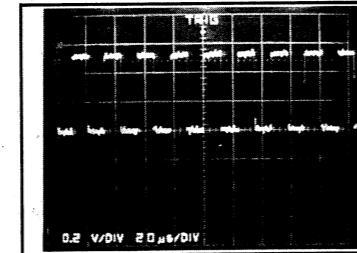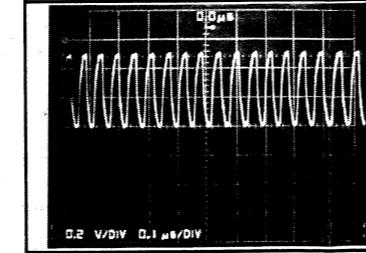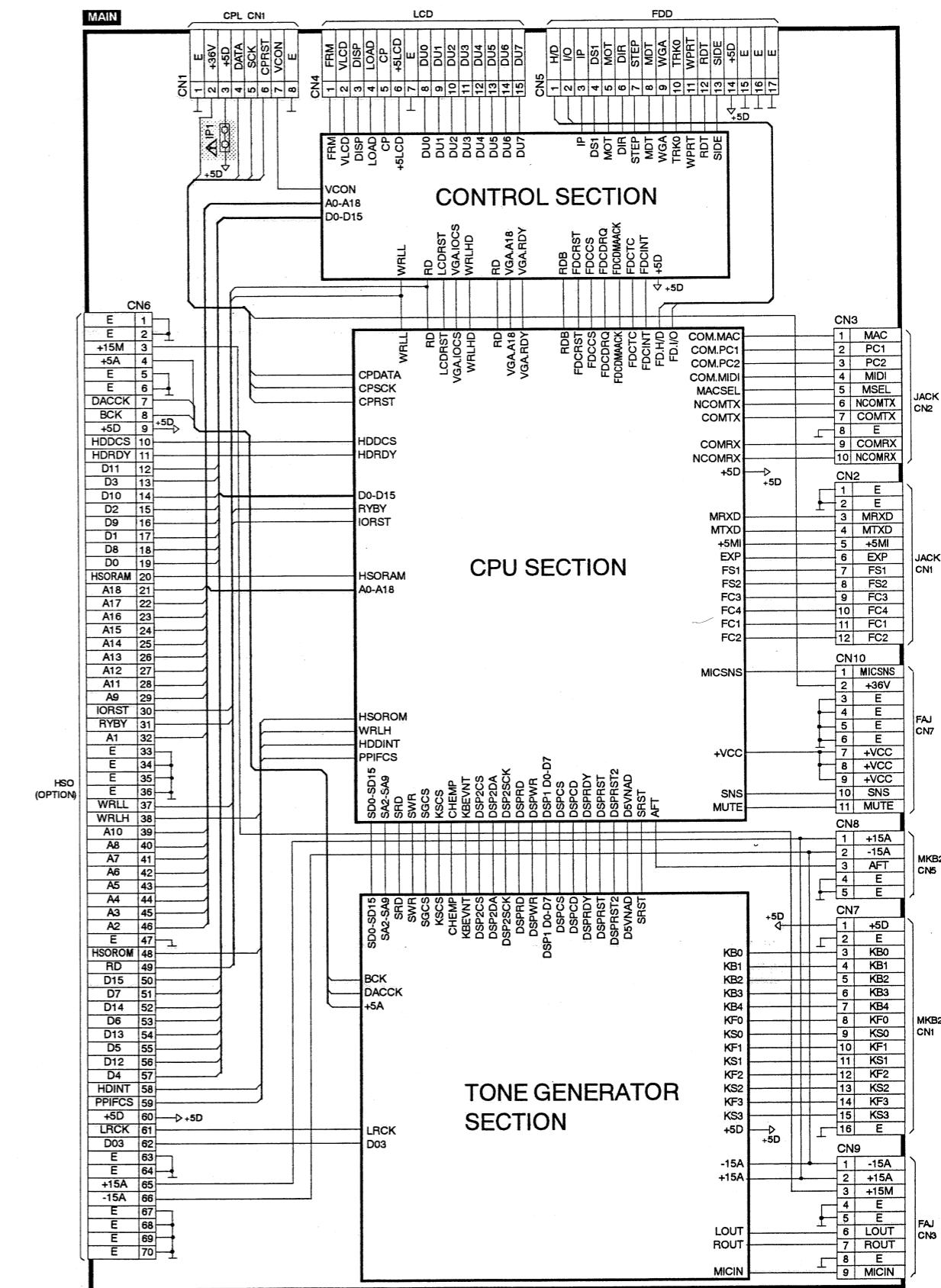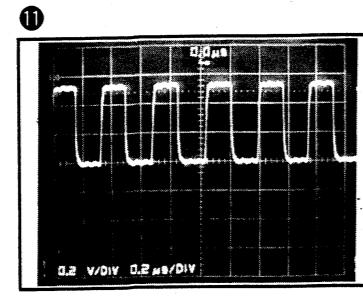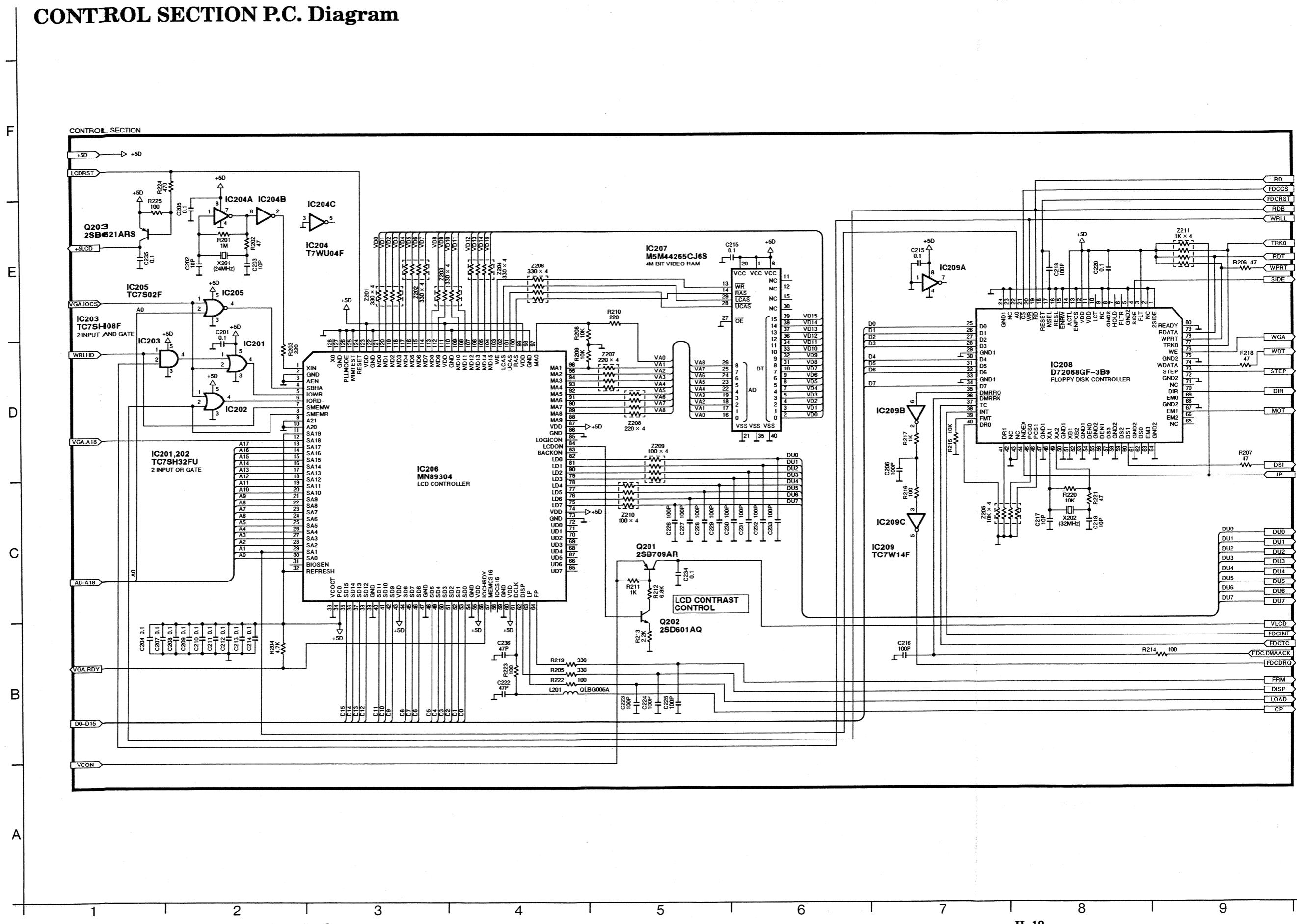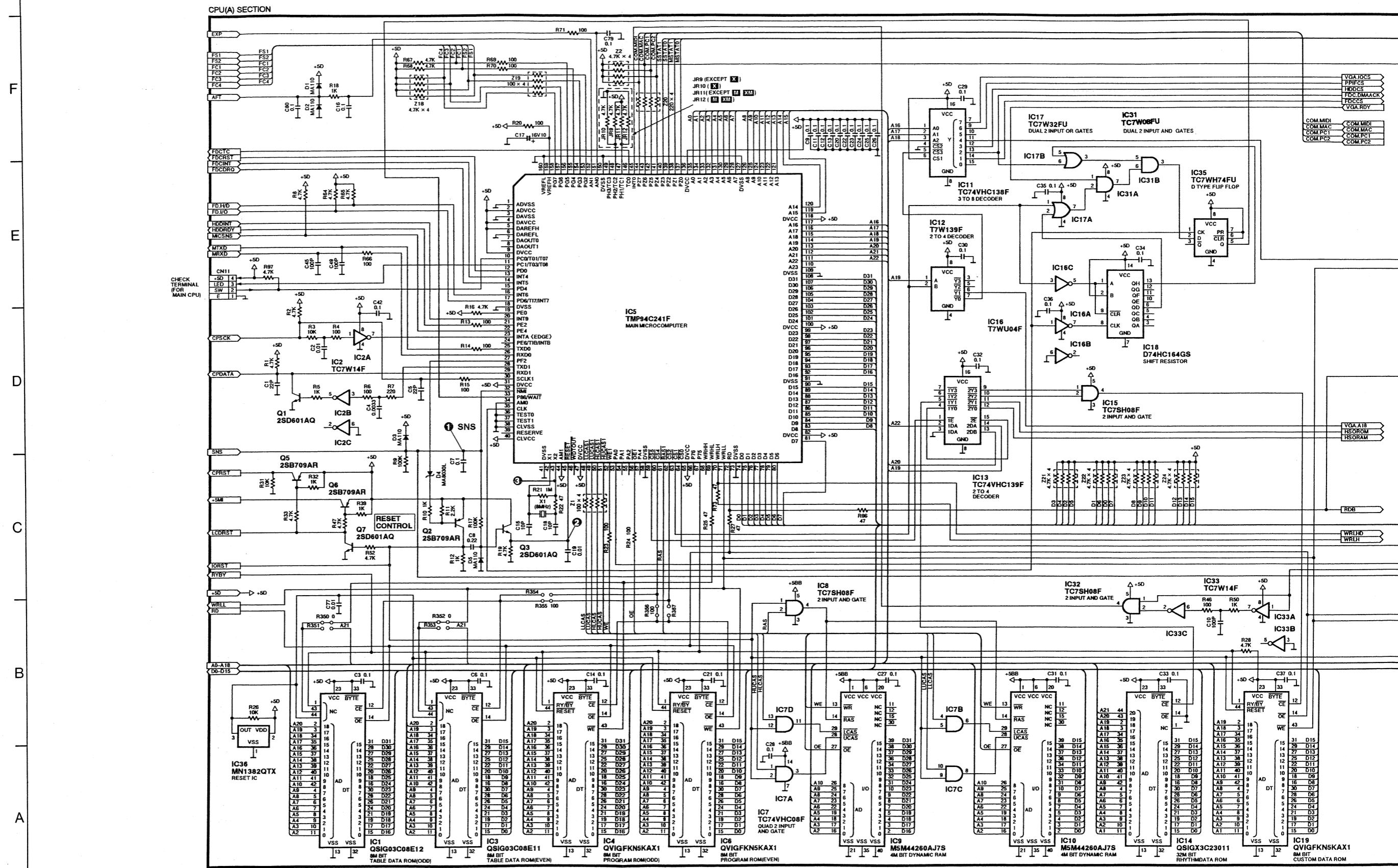
CONTROL SECTION P.C. Diagram

CPU SECTION (A) P.C. Diagram
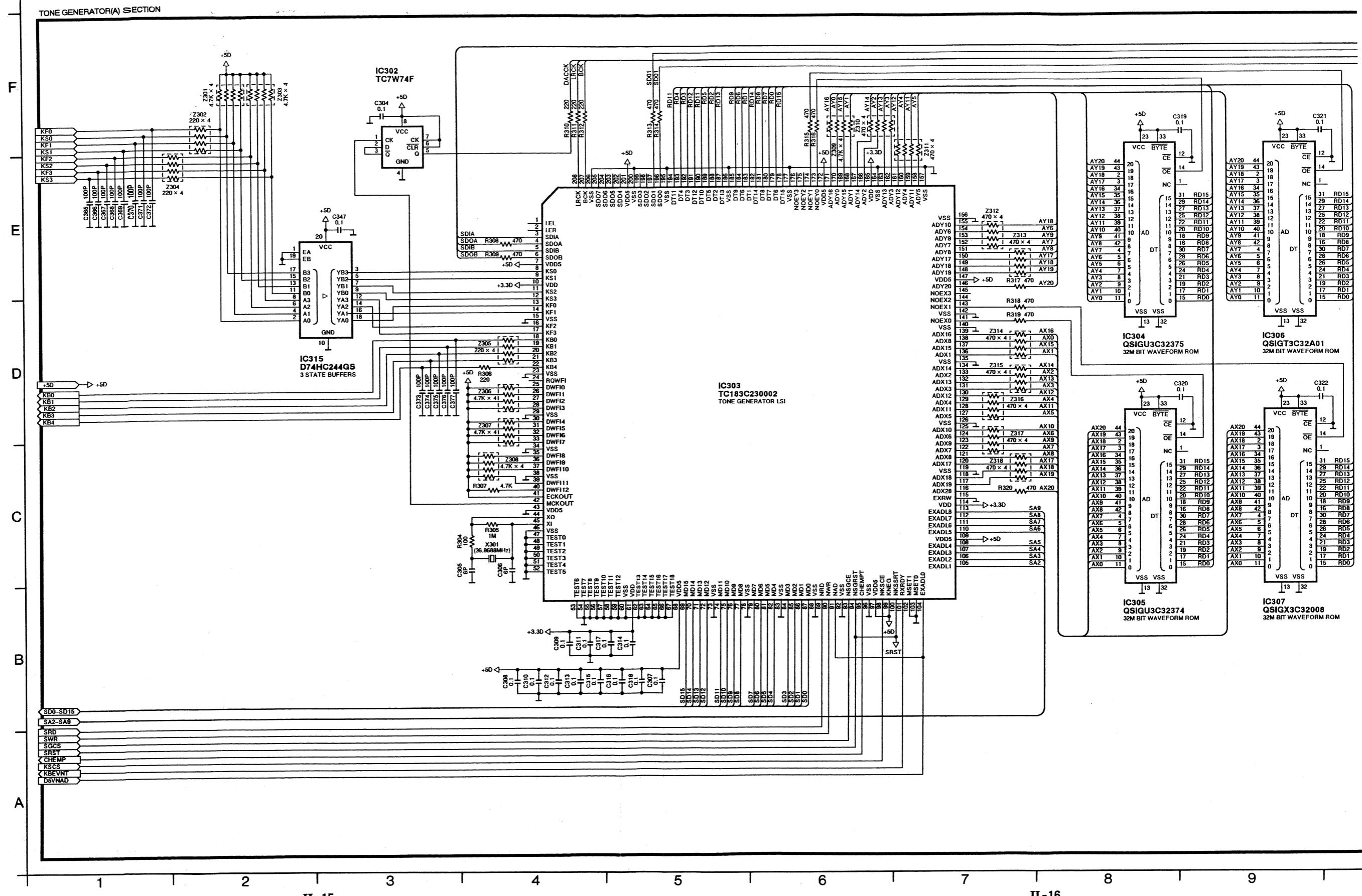
CPU SECTION (B) P.C. Diagram

TONE GENERATOR SECTION (A) P.C. Diagram

TONE GENERATOR(A) SECTION

IC302
TC7W74F

IC315
D74HC244GS
3 STATE BUFFERS

IC303
TC183C230002
TONE GENERATOR LSI

IC304
QSIGU3C32375
32M BIT WAVEFORM ROM

IC306
QSIGT3C32A01
32M BIT WAVEFORM ROM

IC305
QSIGU3C32374
32M BIT WAVEFORM ROM

IC307
QSIGX3C32008
32M BIT WAVEFORM ROM
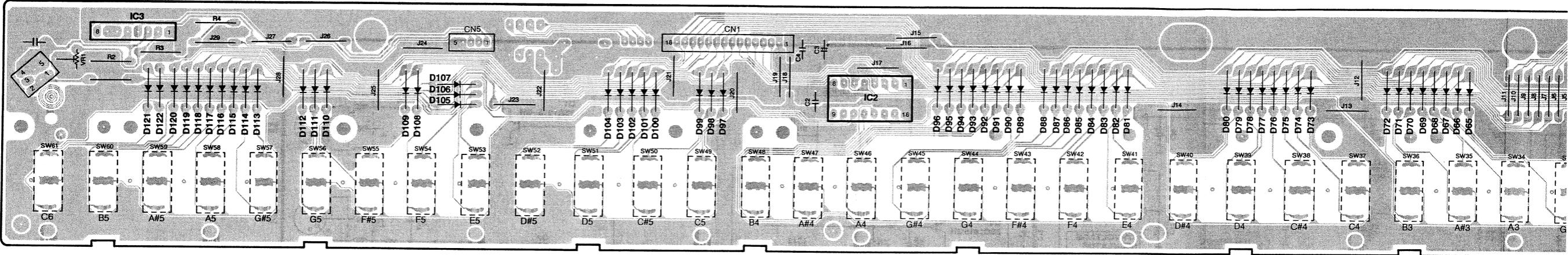
TONE GENERATOR SECTION (B) P.C. Diagram

MAIN P.C. Board

M **XM** (SXPG228221) **X** (SXPG228231)
MAIN   Others(SXPG228211) (COMPONENT SIDE)

MAIN(FOIL SIDE)
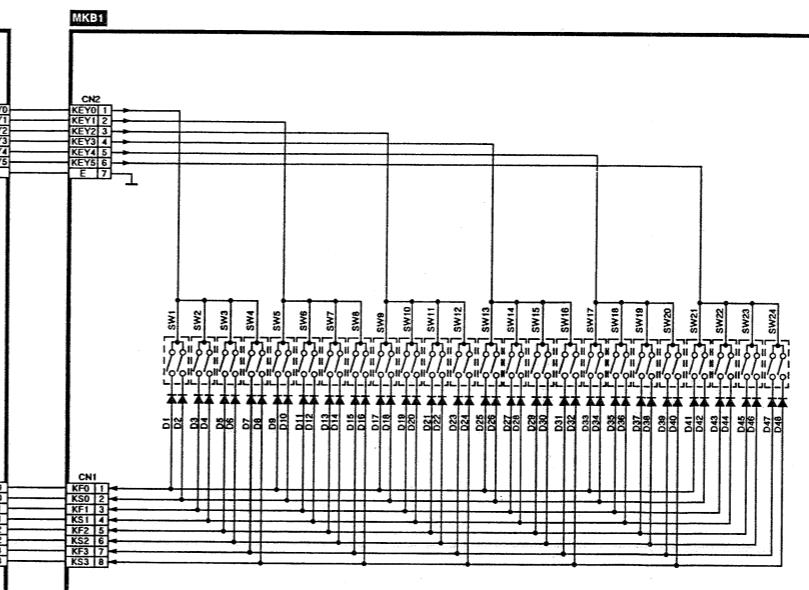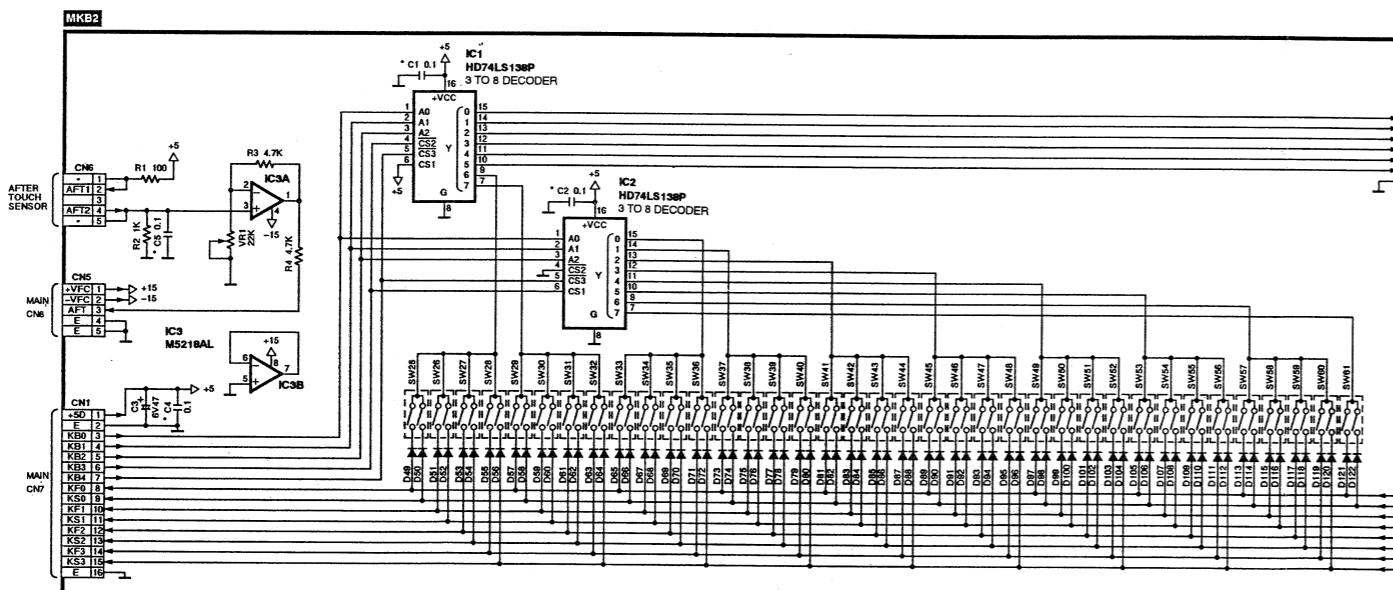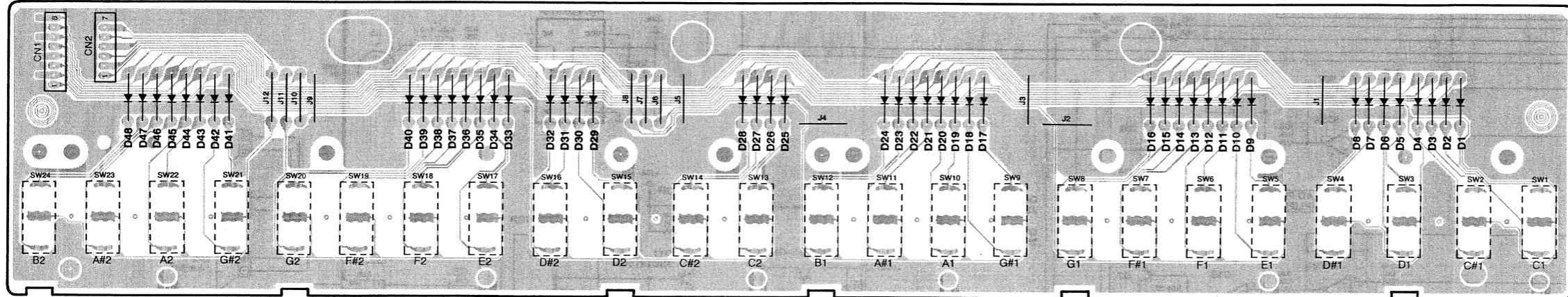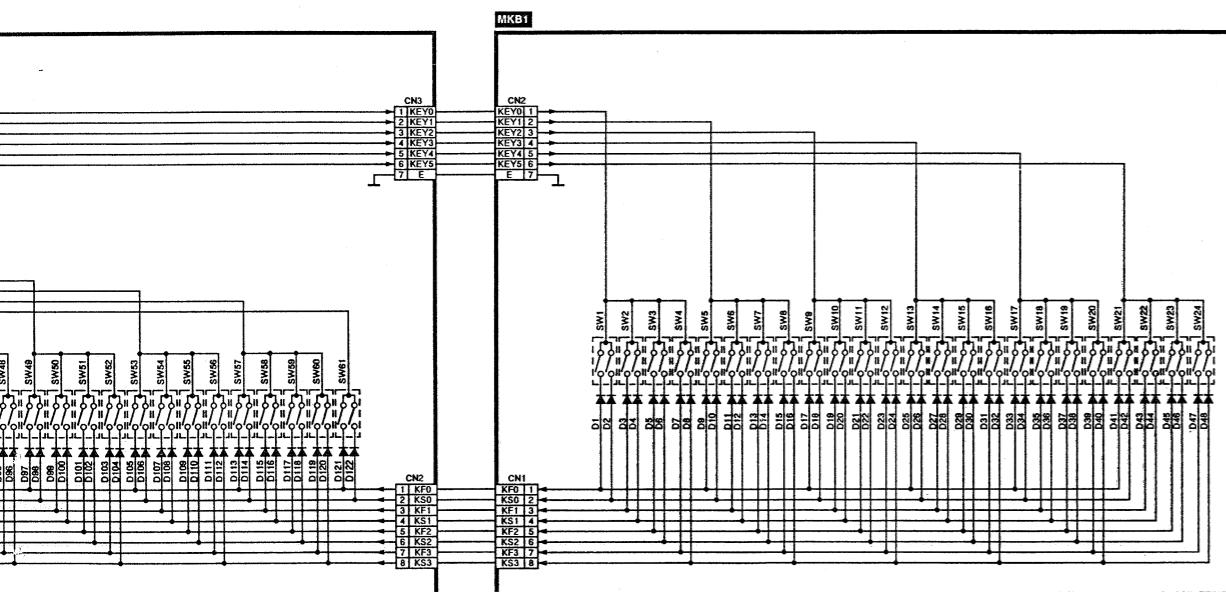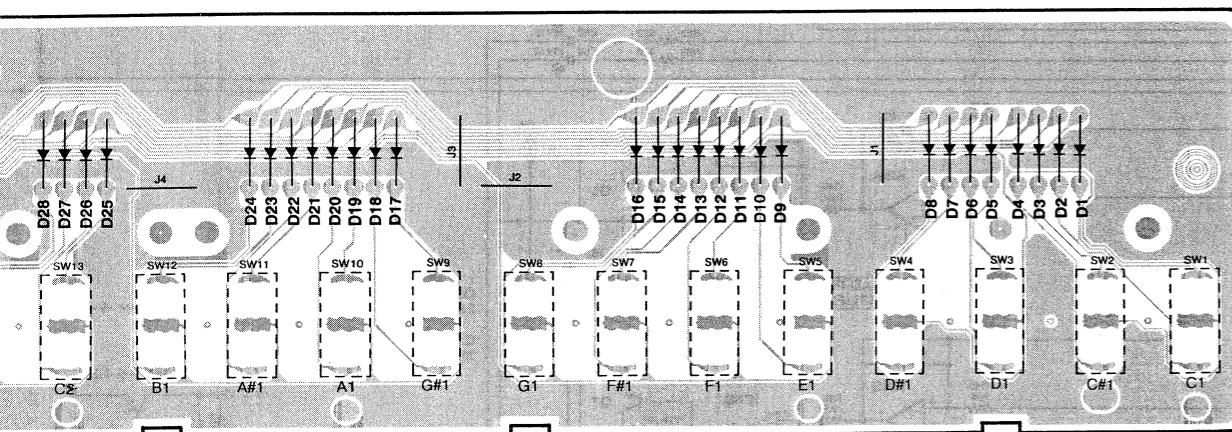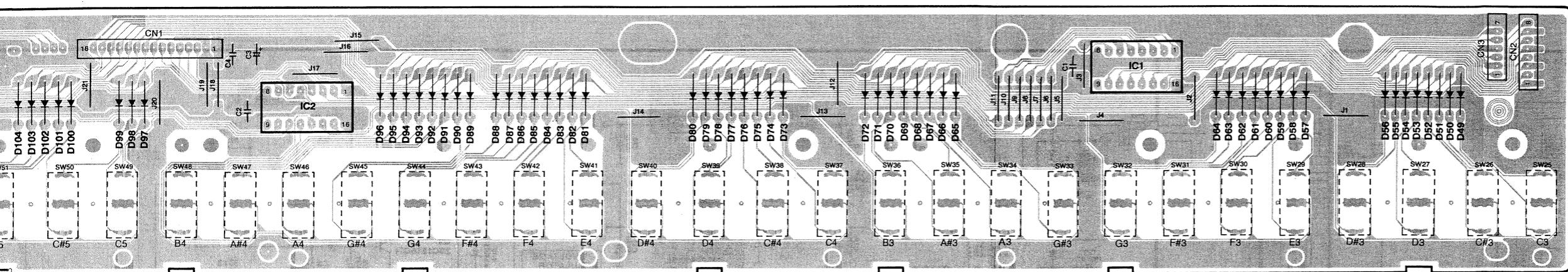
MKB1/MKB2

MKB2(SXPG222131)

MKB1(SXPG222011)
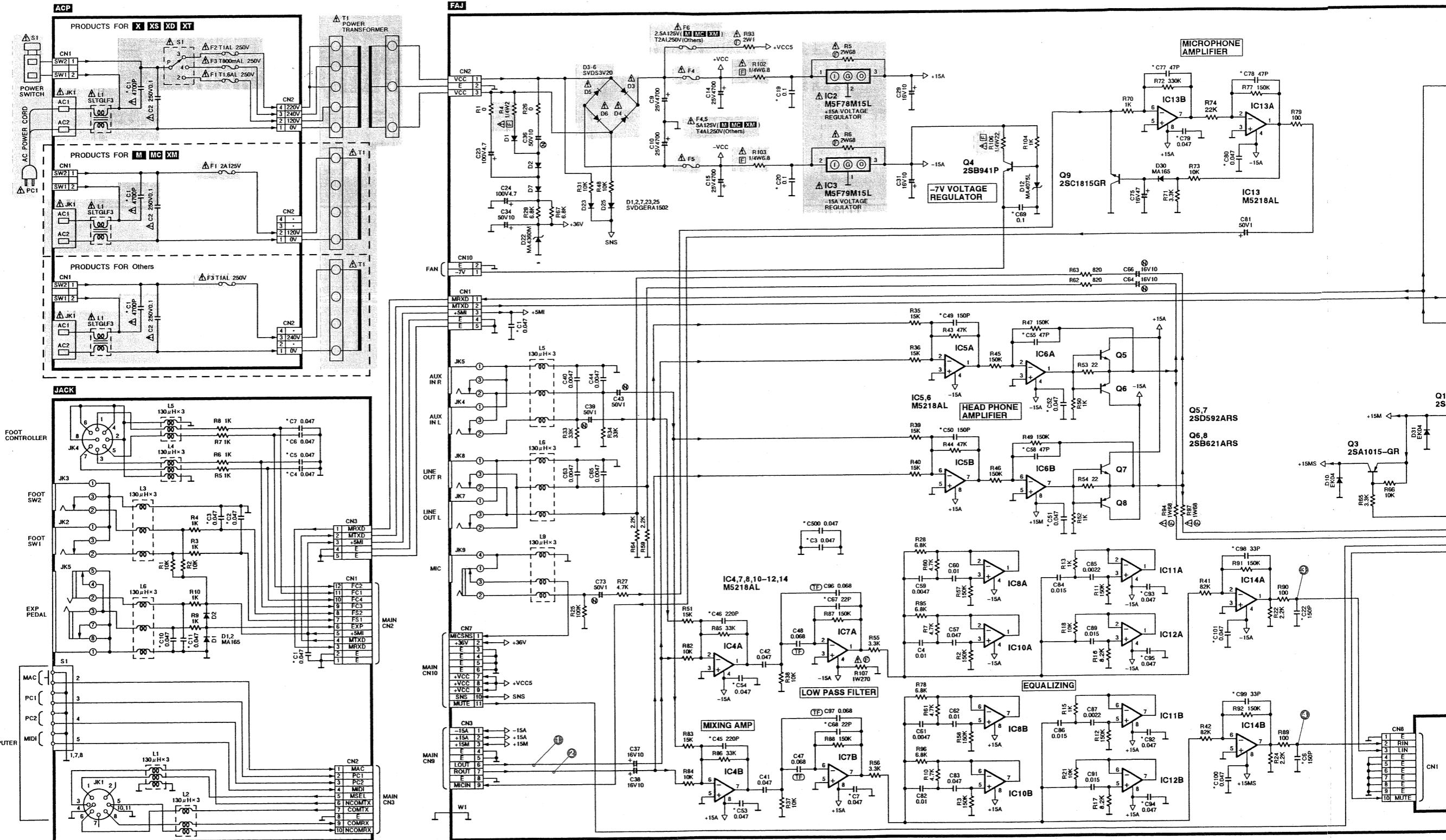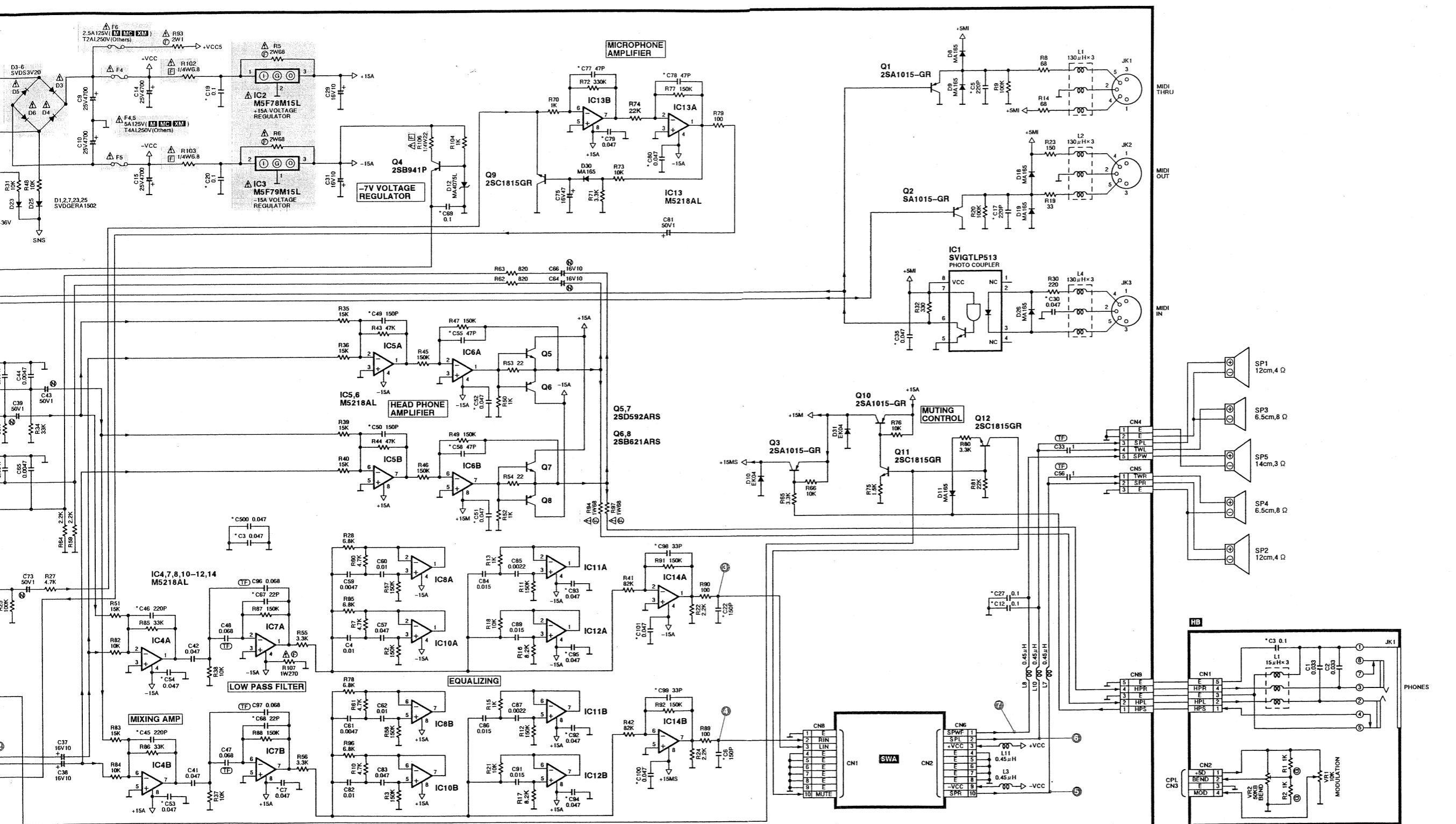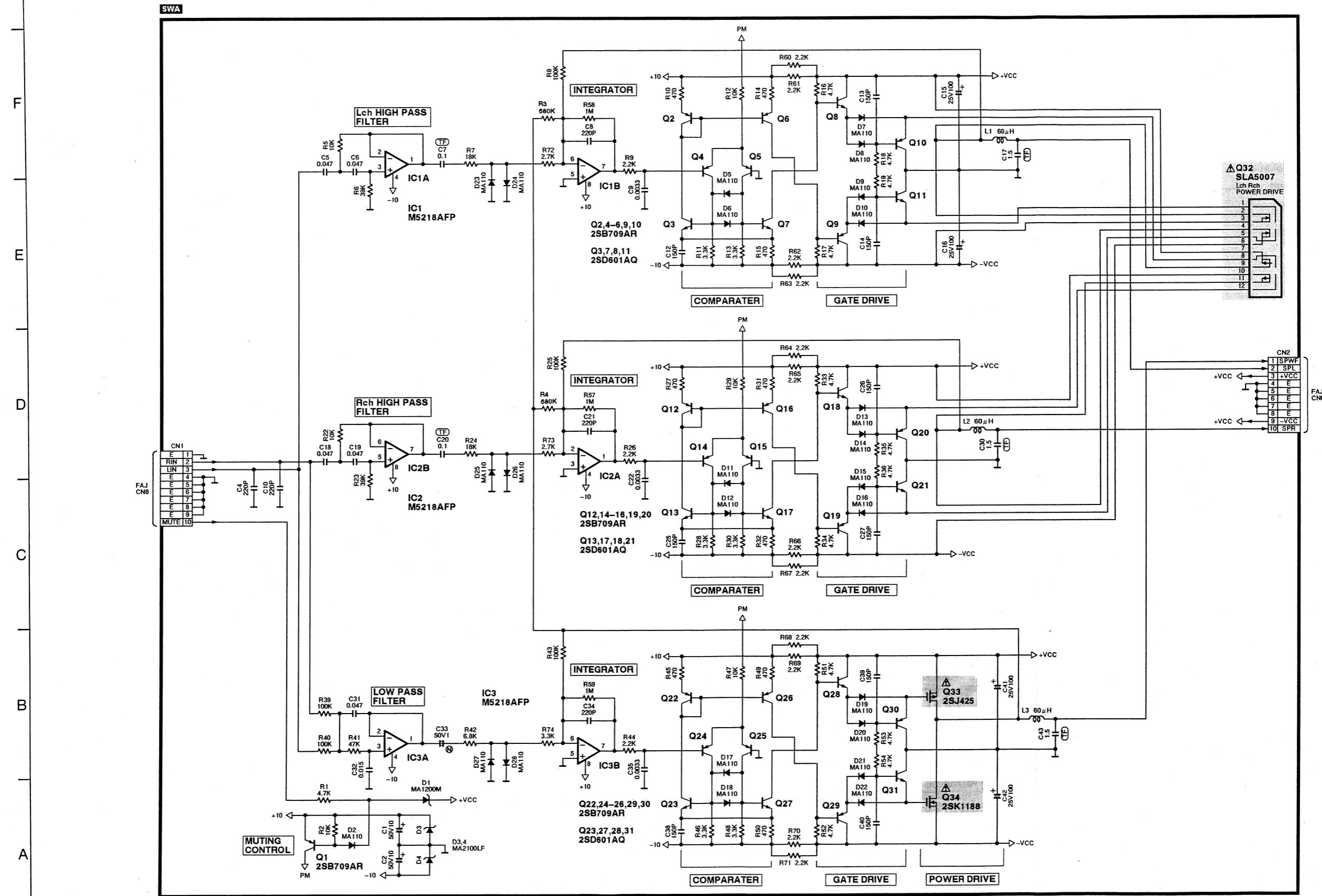
SWA P.C. Diagram

FAJ/ACP/JACK P.C. Board

WAVEFORM OF FAJ

■ Measuring Condition
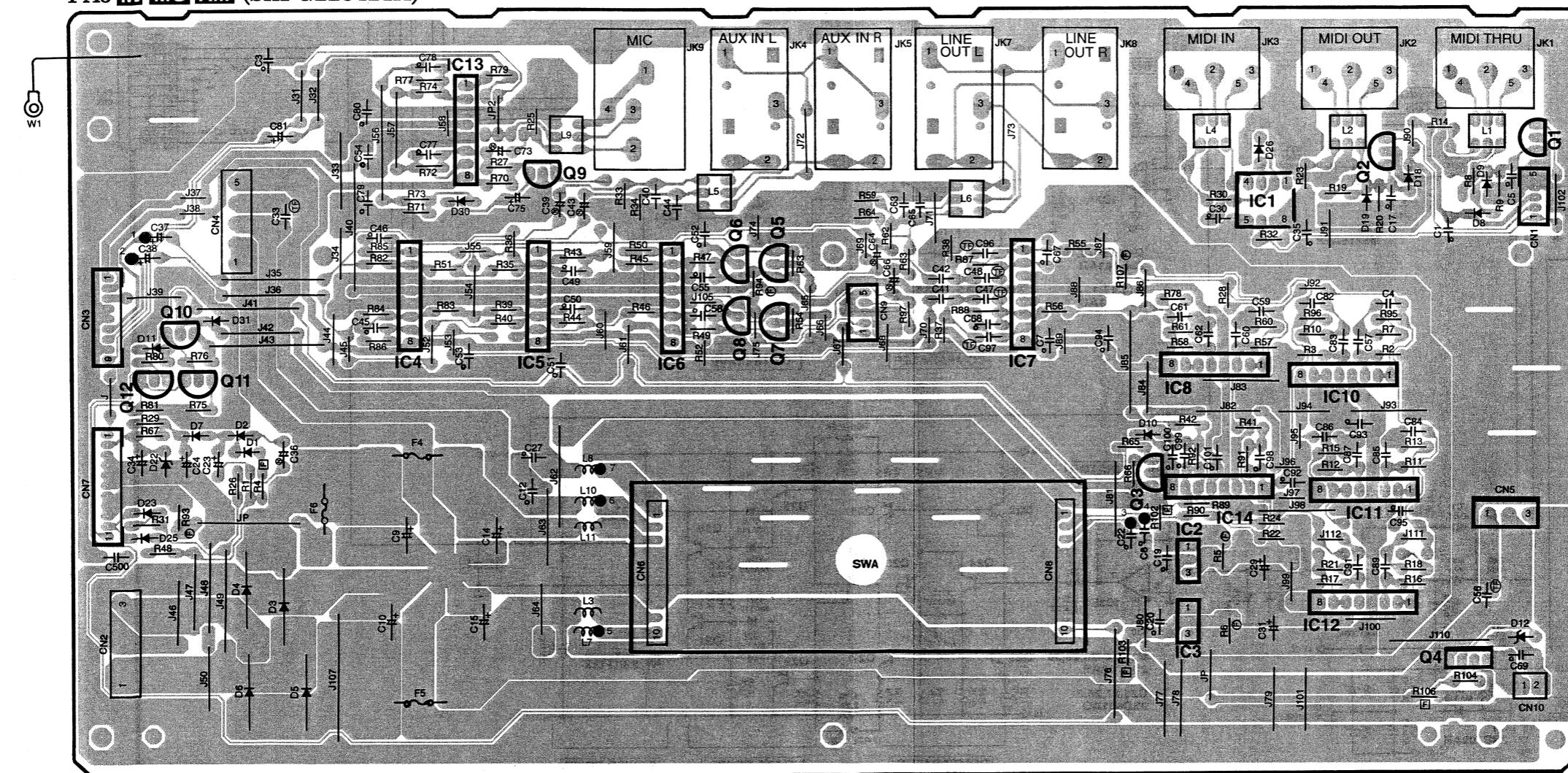
Check Point ❶ ~ ❹

Set to the self-diagnostic mode following.
- While pressing two C keys(①) simultaneously,turn on the power switch.
- SOUND............................PIANO
- Main Volume...................Max
- Keyborad........................C1(②)
- Reverb............................OFF

① C Keys(C25 · C37)

② C1Key

Check Point ❺ ~ ❼

Set to the self-diagnostic mode following.
- While pressing two C keys(①) simultaneously,turn on the power switch.
- SOUND..SAX & REED
- Main Volume...................................Max
- Reverb..OFF
- Keyborad(Check Point ❺ , ❻).......C3(③)
- Keyborad(Check Point ❼)..............C1(②)

① C Keys(C25 · C37)

② C1Key   ③ C25Key

Others(SXPG228411A)

FAJ M MC XM (SXPG228421A)

❶, ❷

❸, ❹

❺, ❻

❼
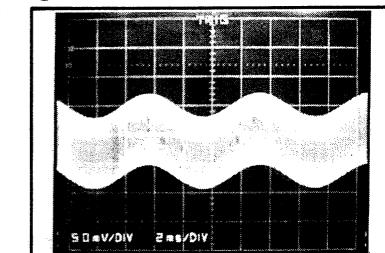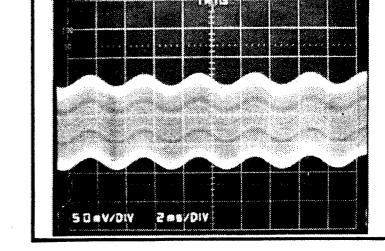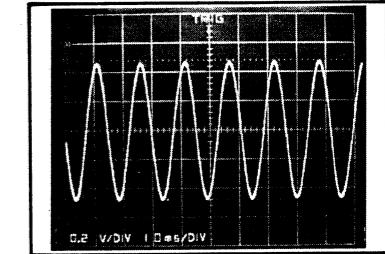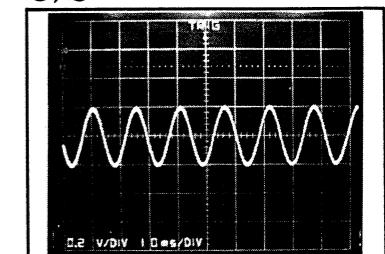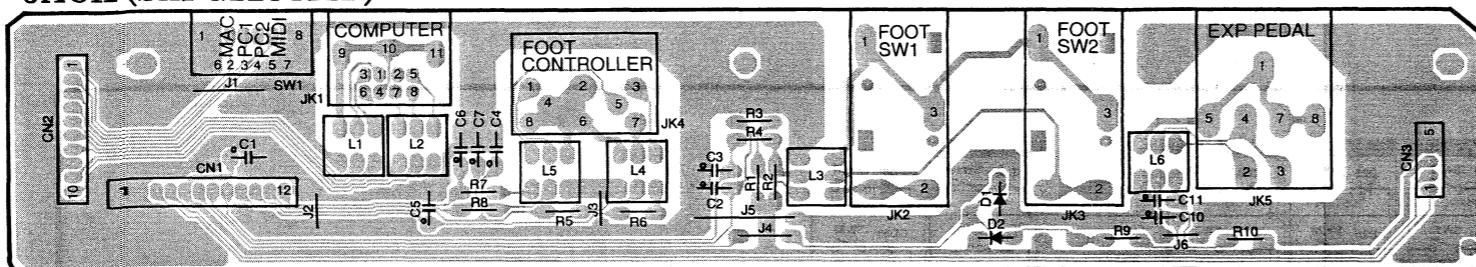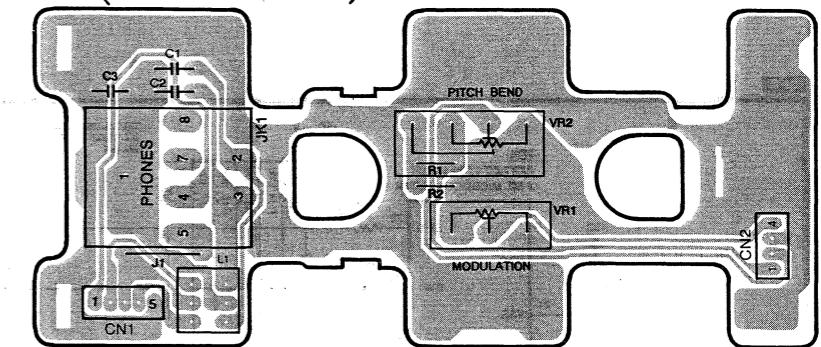
SWA/ACP/JACK/HB P.C. Board
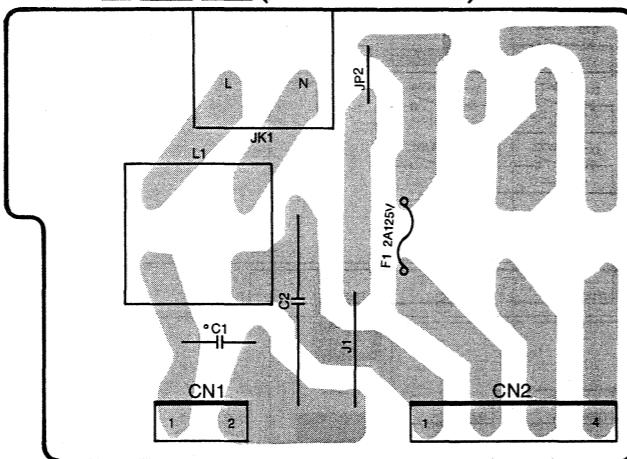
JACK(SXPG228411B)
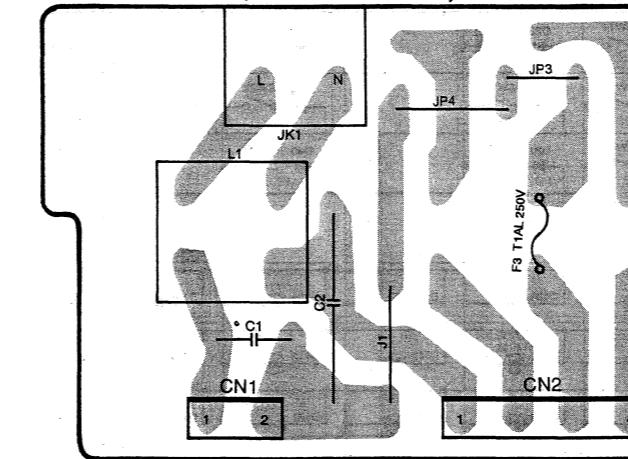
HB(SXPG216411B)
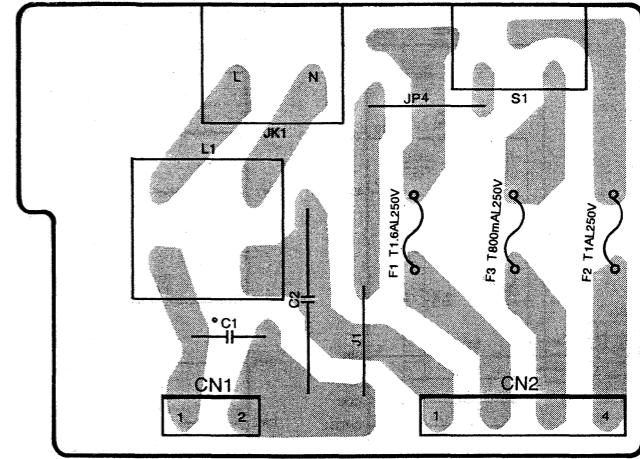
ACP M MC XM (SXPG228521)
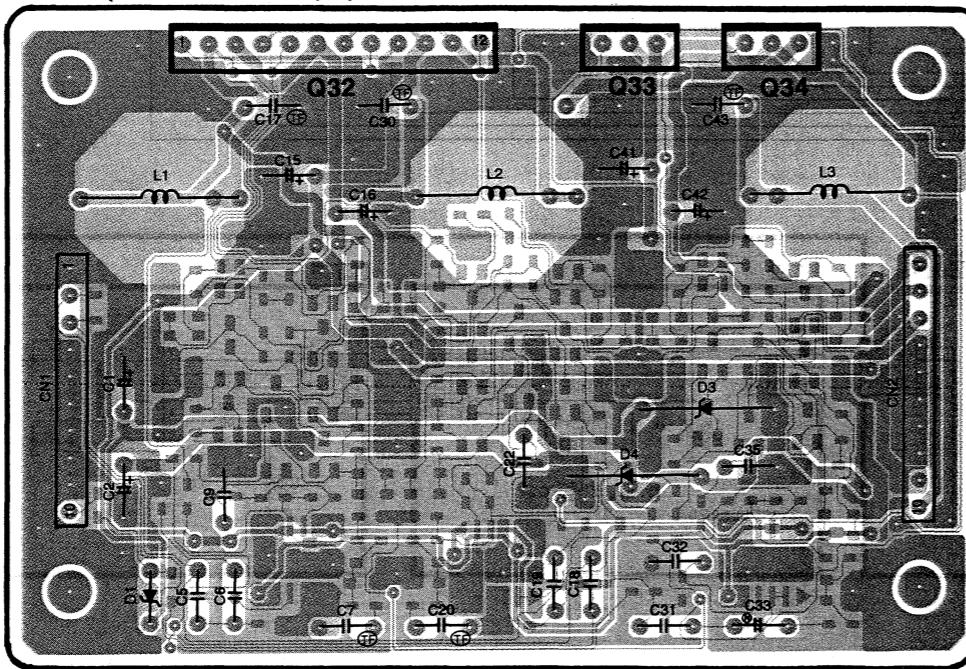
ACP Others(SXPG228511)
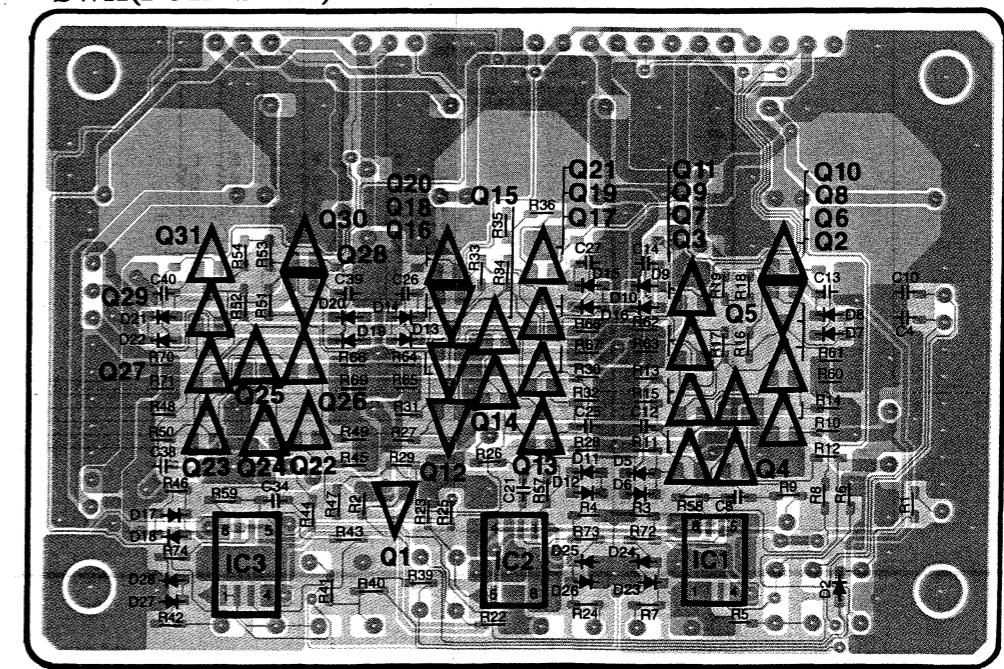
ACP X XS XD XT (SXPG228531)

SWA(SXPG228611) (COMPONENT SIDE)

SWA(FOIL SIDE)
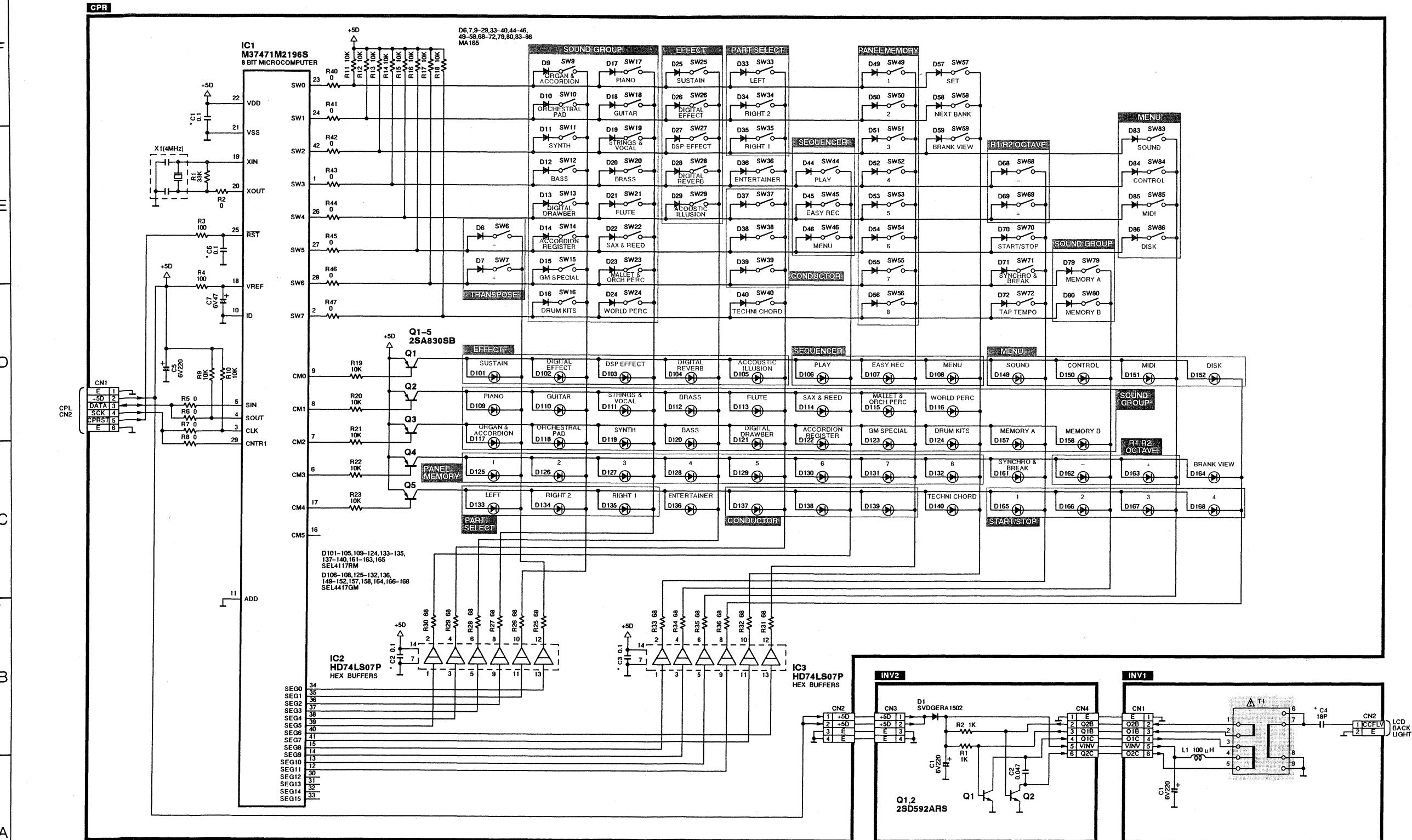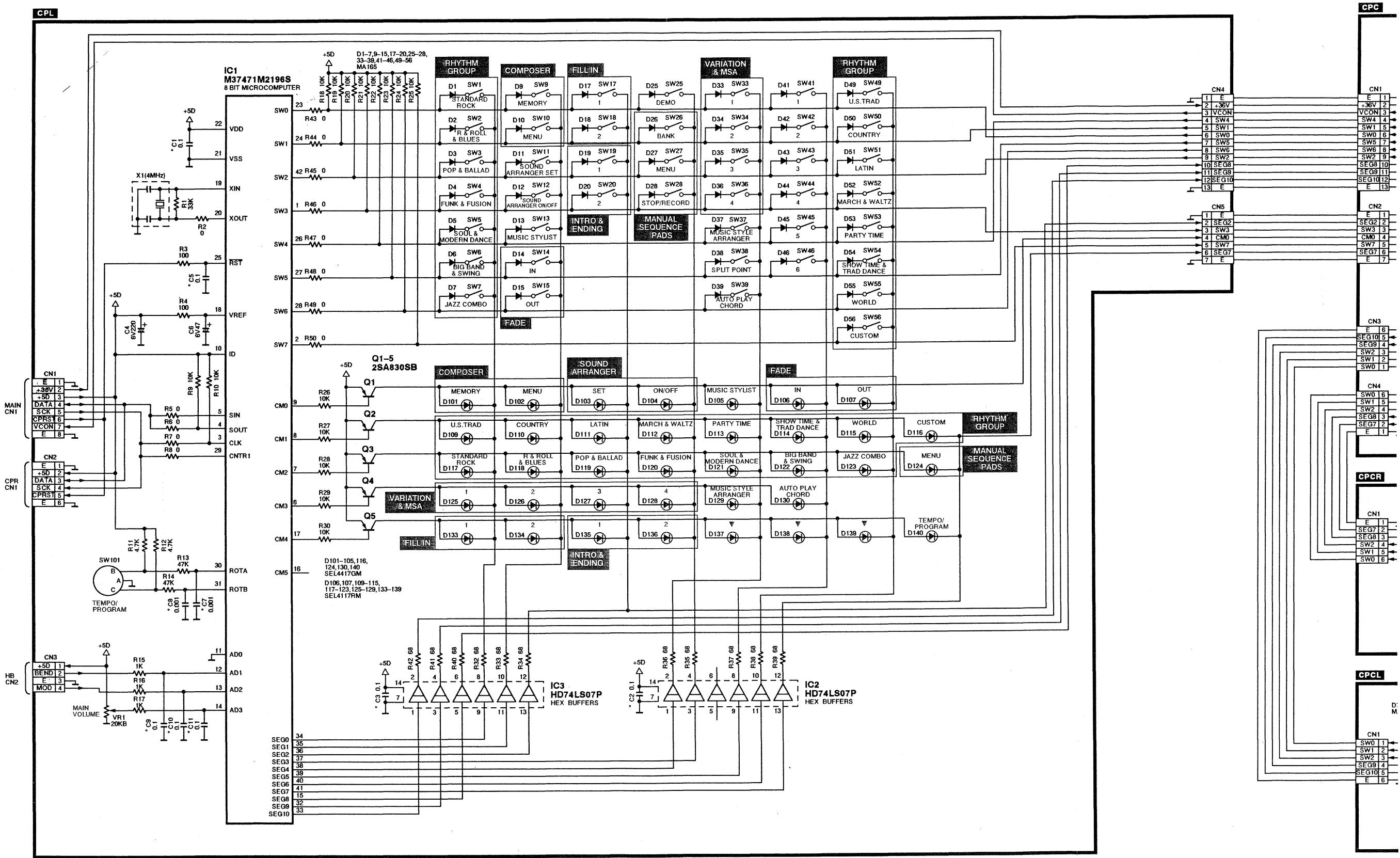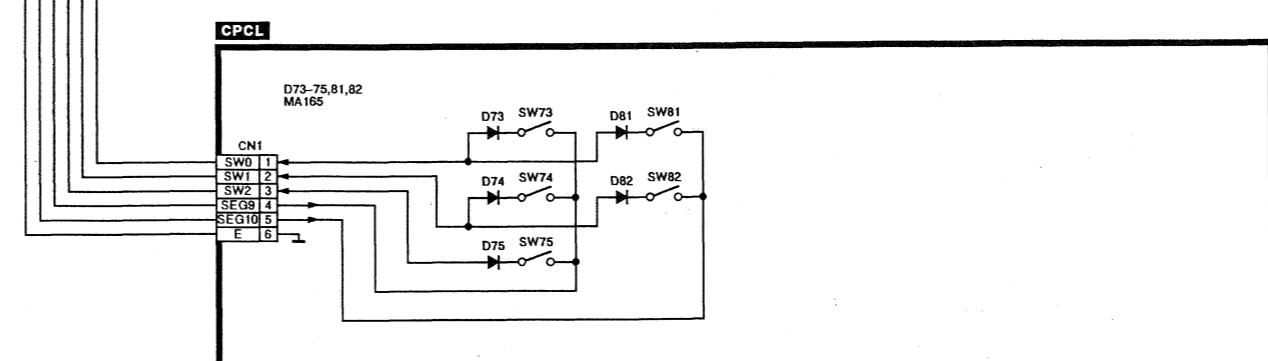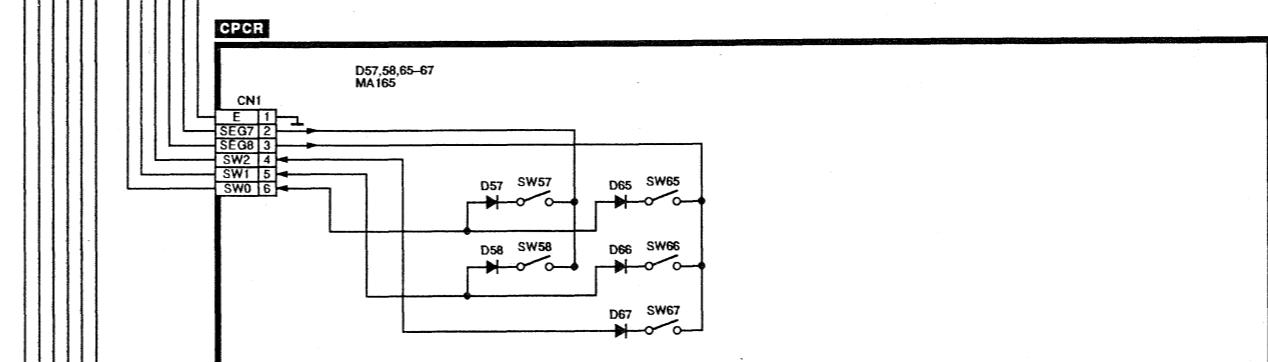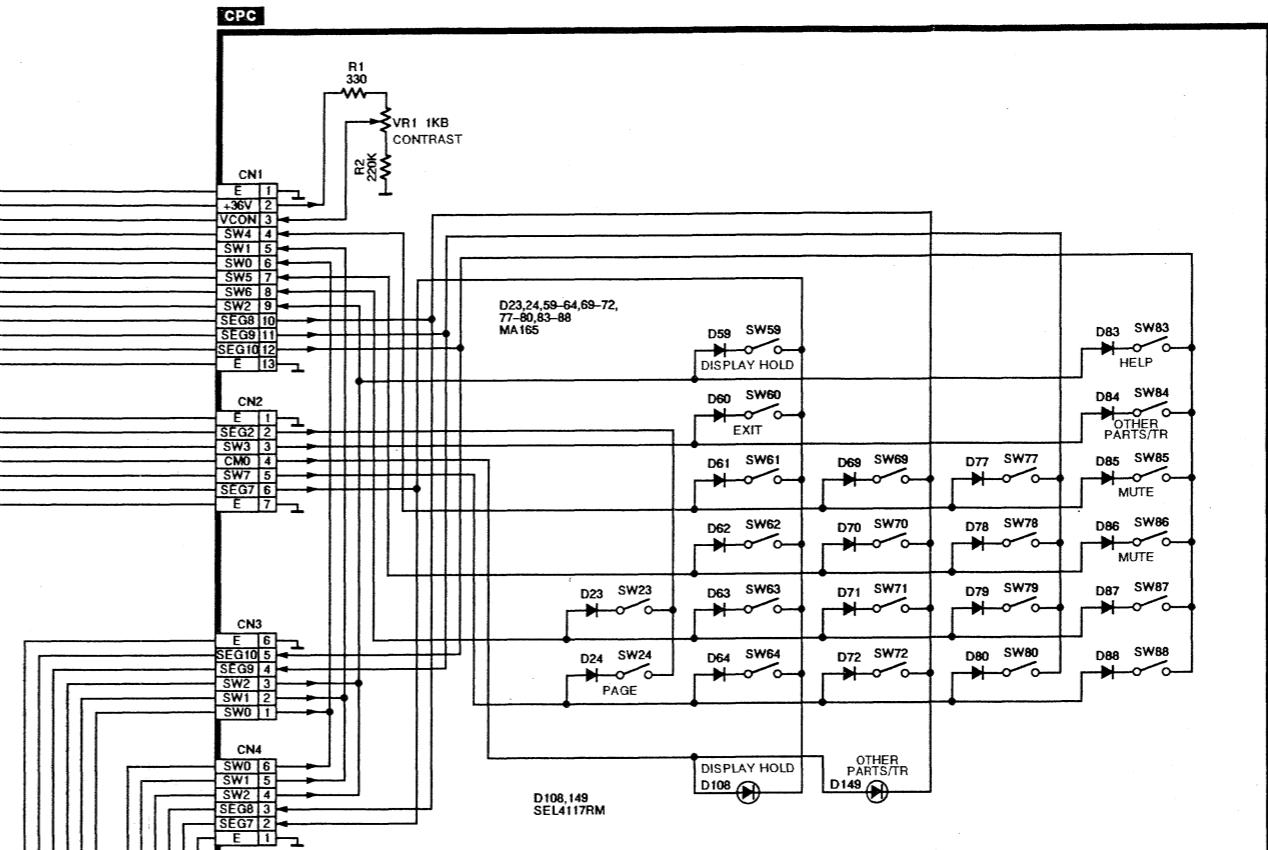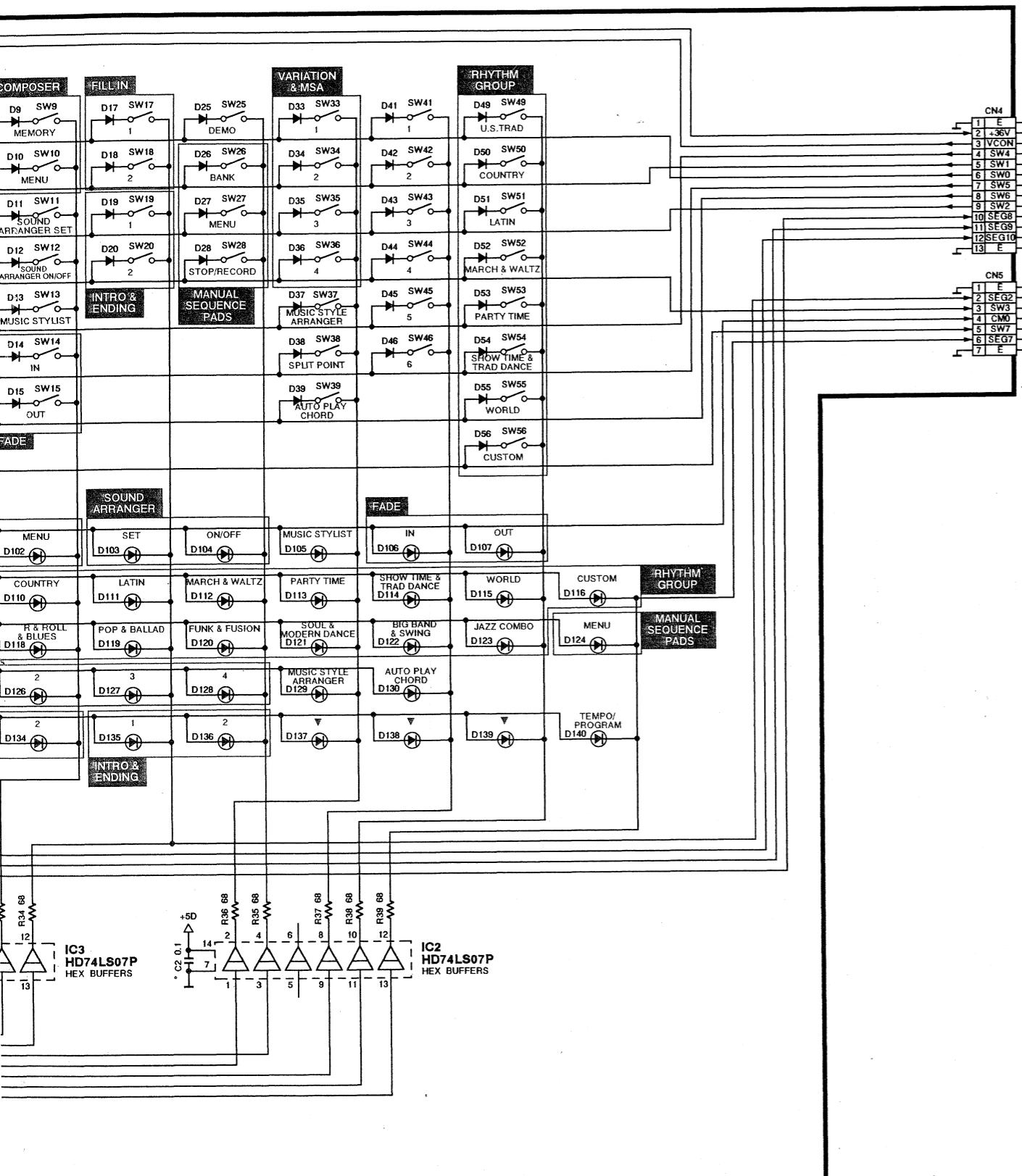
CPR/INV1/INV2 P.C. Diagram
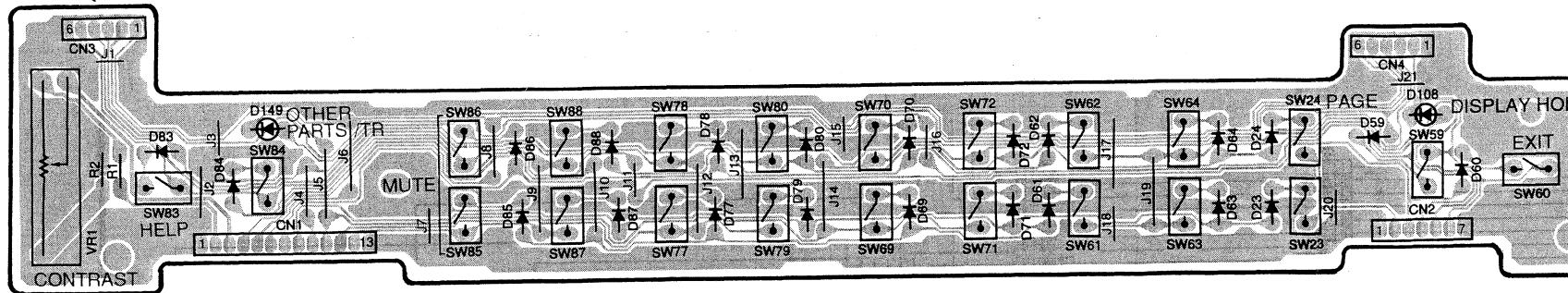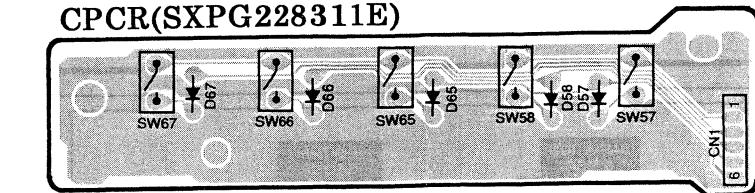
CPR/CPL/CPC/CPCR/CPCL/INV1/INV2 P.C. Board
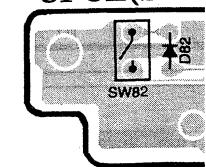
CPC(SXPG228311C)
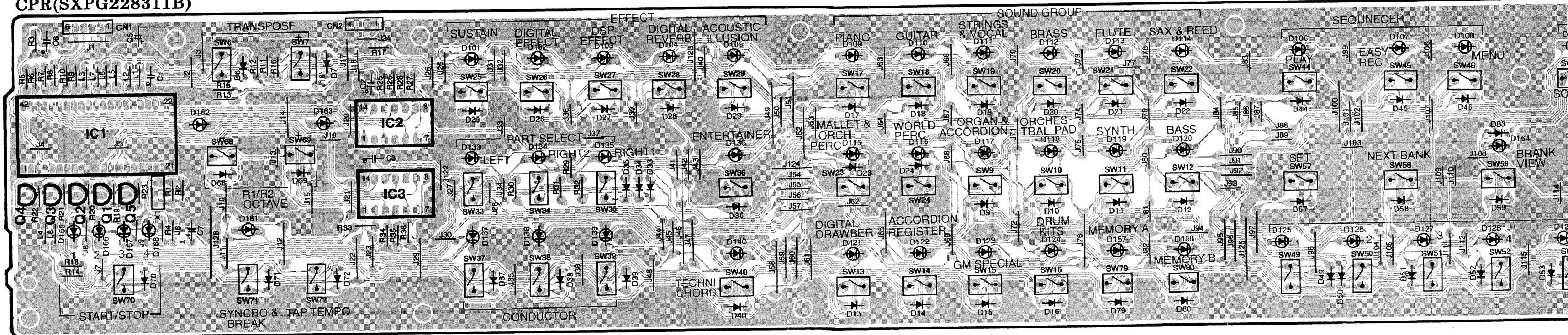
CPCR(SXPG228311E)
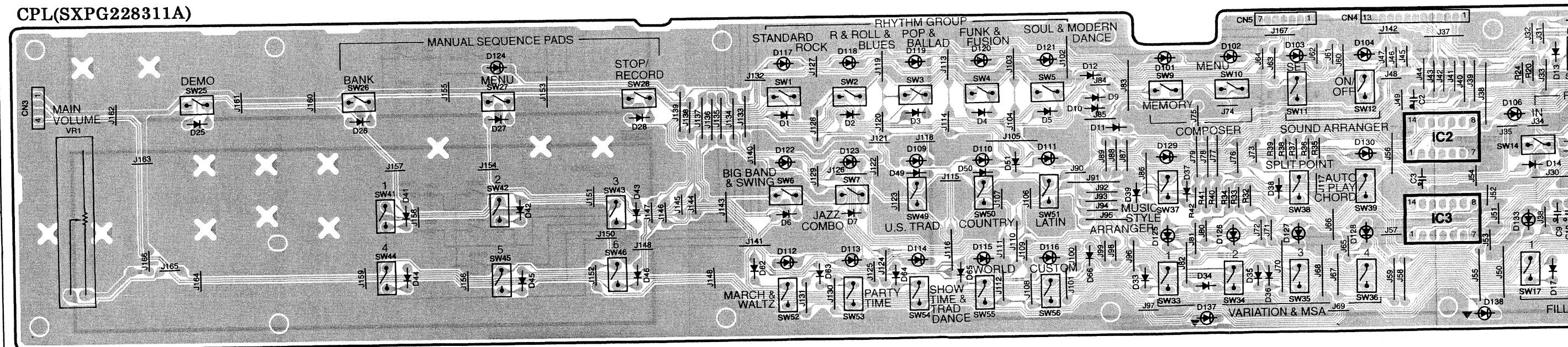
CPCL(SXP
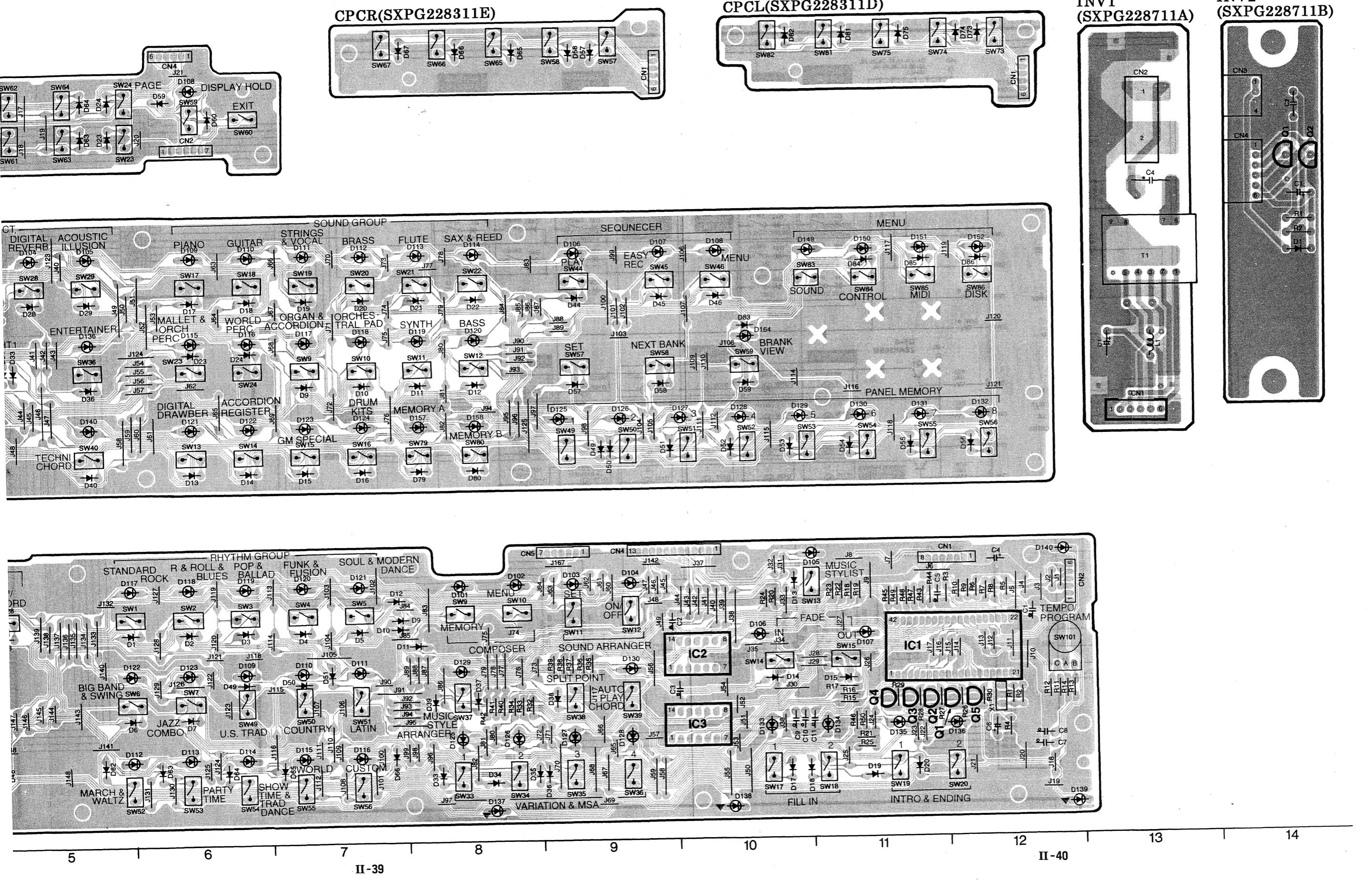
CPR(SXPG228311B)

CPL(SXPG228311A)

II-38

II-39

CPCR(SXPG228311E)

CPCL(SXPG228311D)

INV1
(SXPG228711A)

INV2
(SXPG228711B)

CN4
J21
SW62 SW64 SW24 PAGE D108 DISPLAY HOLD
SW17 D64 D24 SW59 D60 EXIT
J19 D63 D23 J20 SW60
J18
SW61 SW63 SW23
CN2

SW67 D67 SW66 D66 SW65 D65 SW58 D58 D57 SW57 CN1

SW82 D82 SW81 D81 SW75 D75 SW74 D74 D73 SW73 CN1

CN2
C4
T1
CN1

CN3
CN4

SOUND GROUP   SEQUENCER   MENU
DIGITAL ACOUSTIC PIANO GUITAR STRINGS BRASS FLUTE SAX & REED
REVERB ILLUSION   & VOCAL
D105 D109 D110 D111 D112 D113 D114
SW28 SW29 SW17 SW18 SW19 SW20 SW21 SW22
D28 D29
PLAY EASY MENU
SW44 REC SW45 SW46
D149 D150 D151 D152
SW83 SW84 SW85 SW86
SOUND CONTROL MIDI DISK

ENTERTAINER MALLET & WORLD ORGAN & ORCHES- SYNTH BASS
ORCH PERC ACCORDION TRAL PAD
PERC D115 D116 D117 D118 D119 D120
SW36 SW23 SW24 SW9 SW10 SW11 SW12
D36
SET NEXT BANK BRANK VIEW
SW57 SW58 SW59
D57 D58 D59

DIGITAL ACCORDION GM SPECIAL DRUM MEMORY A MEMORY B
DRAWBER REGISTER KITS
D121 D122 D123 D124 D157 D158
SW40 SW13 SW14 SW15 SW16 SW79 SW80
PANEL MEMORY
D125 D126 D127 D128 D129 D130 D131 D132
SW49 SW50 SW51 SW52 SW53 SW54 SW55 SW56
D49 D50 D51 D52 D53 D54 D55 D56
TECHNI CHORD
D40 D13 D14 D15 D16 D79 D80

RHYTHM GROUP
STANDARD R & ROLL & POP & FUNK & SOUL & MODERN
ROCK BLUES BALLAD FUSION DANCE
D117 D118 D119 D120 D121
SW1 SW2 SW3 SW4 SW5
MUSIC STYLIST
MENU
D101 D102 D103 D104 D105
SW9 SW10 SW11 SW12
MEMORY SET ON/OFF
IC1
TEMPO/ PROGRAM
SW101

BIG BAND JAZZ U.S. TRAD COUNTRY LATIN
& SWING COMBO
SW6 SW7 SW49 SW50 SW51
COMPOSER SOUND ARRANGER
SPLIT POINT AUTO PLAY CHORD
IC2
FADE OUT
SW15
IC3

MARCH & PARTY SHOW WORLD CUSTOM
WALTZ TIME TIME & TRAD DANCE
SW52 SW53 SW54 SW55 SW56
MUSIC STYLE ARRANGER SW37
VARIATION & MSA
FILL IN INTRO & ENDING
SW17 SW18 SW19 SW20

5   6   7   8   9   10   11   12   13   14

II-39   II-40

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 retension 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 △ 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. ○ mark are new parts.
5. For part No. with area mark, check the area when placing an order.
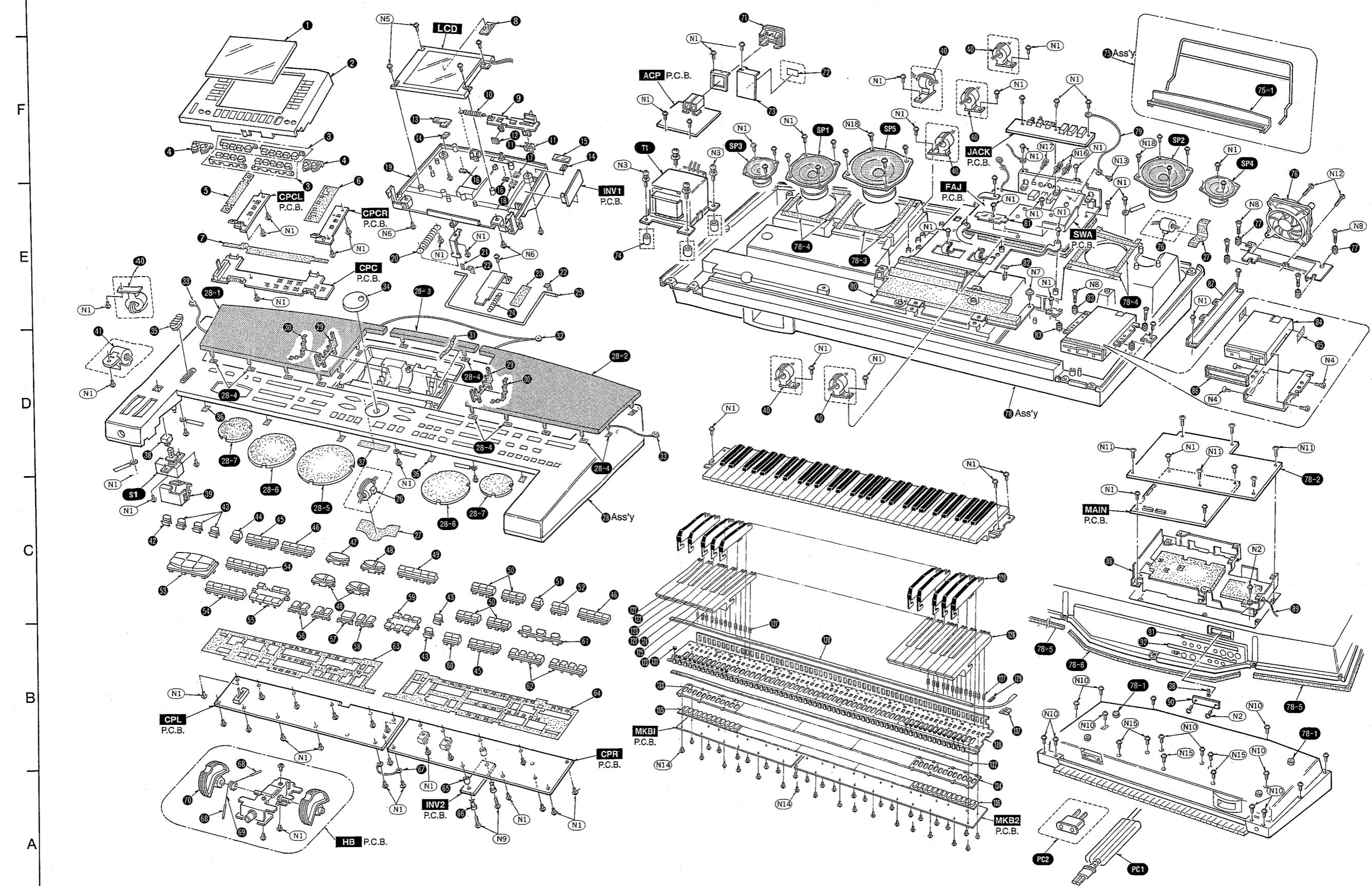
■PRINTED CIRCUIT BOARD
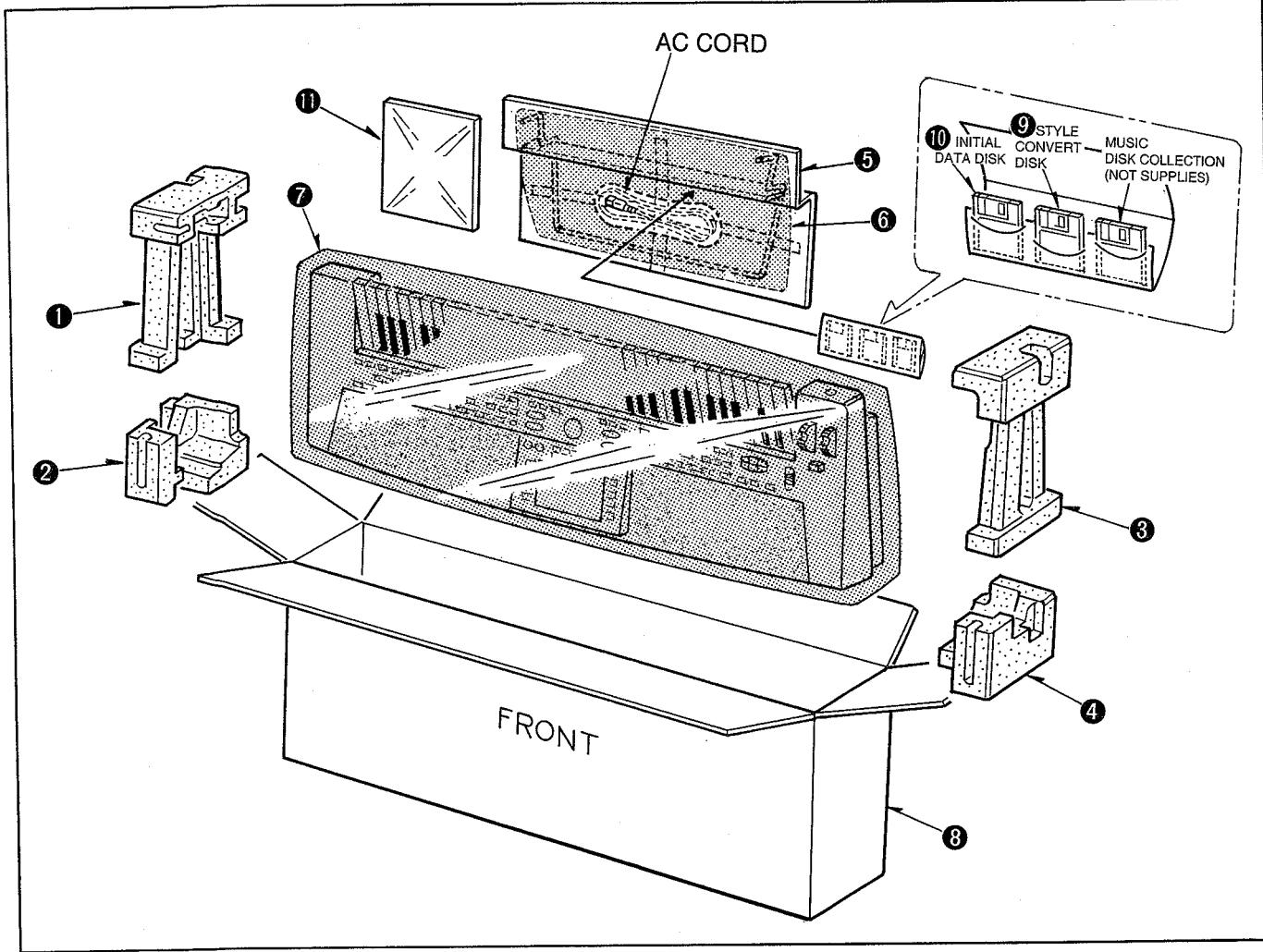
	RTL	Area	Part No.	Description	P/S
O	RTL	EN MC EZ EK EW EF EA EP EH XL XR XS XD XT XP XW	SXPG228211	MAIN	1
O	RTL	M XM	SXPG228221	MAIN	1
O	RTL	X	SXPG228231	MAIN	1
	RTL		SXPG222011	MKB1	1
O	RTL		SXPG222131	MKB2	1
O	RTL	EN EZ EK EW EF EA EP EH X XL XR XS XD XT XP XW	SXPG228411A	FAJ INCLUDE SWA WITH METAL CASE	1
O	RTL	M MC XM	SXPG228421A	FAJ INCLUDE SWA WITH METAL CASE	1
O	RTL		SXPG228611	SWA	1
O	RTL	EN EZ EK EW EF EA EP EH XL XR XP XW	SXPG228511	ACP	1
O	RTL	M MC XM	SXPG228521	ACP	1
O	RTL	X XS XD XT	SXPG228531	ACP	1
O	RTL		SXPG228411B	JACK	1
	RTL		SXPG216411B	HB	1
O	RTL		SXPG228311B	CPR	1
O	RTL		SXPG228711A	INV1	1
O	RTL		SXPG228711B	INV2	1
O	RTL		SXPG228311A	CPL	1
O	RTL		SXPG228311C	CPC	1
O	RTL		SXPG228311E	CPCR	1
O	RTL		SXPG228311D	CPCL	1
O			QSLG023AA	LCD	1

MAIN MAIN CIRCUIT

	Ref. No.	Part No.	Description	P/S
		INTEGRATED CIRCUITS		
O	IC1	QSIG03C08E12	8M BIT MASK ROM	1
	IC2	TC7W14F	INVERTER	1
O	IC3	QSIG03C08E11	8M BIT MASK ROM	1
O	IC4	QVIGFKN5KAX1	8M BIT FLASH ROM W/PROGRAM DISK	1
O	IC5	TMP94C241F	32 BIT MICROCOMPUTER	1
O	IC6	QVIGFKN5KAX1	8M BIT FLASH ROM W/PROGRAM DISK	1
O	IC7	TC74VHC08F	QUAD 2 INPUT AND GATE	1
O	IC8	TC7SH08F	2 INPUT AND GATE	1
	IC9	M5M44260AJ7S	4M BIT DYNAMIC RAM	1
	IC10	M5M44260AJ7S	4M BIT DYNAMIC RAM	1
O	IC11	TC74VHC138F	3 TO 8 DECODER	1
	IC12	T7W139F	2 TO 4 DECODER	1
O	IC13	TC74VHC139F	2 TO 4 DECODER	1
O	IC14	QSIGX3C32011	32M BIT RHYTHM DATA ROM	1
O	IC15	TC7SH08F	2 INPUT AND GATE	1

	Ref. No.	Part No.	Description	P/S
	IC16	T7WU04F	TRIPLE INVERTER	1
O	IC17	TC7W32FU	DUAL 2 INPUT OR GATES	1
	IC18	D74HC164GS	SHIFT RESISTOR	1
O	IC19	QVIGFKN5KAX1	8M BIT FLASH ROM W/PROGRAM DISK	1
	IC20	D74HC32GS	QUAD 2 INPUT OR GATE	1
O	IC21	M51008BF70LL	1M BIT STATIC RAM	1
	IC22, 23	D74HC374GS	D TYPE FLIP FLOP	2
	IC24	T7WU04F	TRIPLE INVERTER	1
	IC25	M5M34051FP	BUS TRANSCEIVER	1
	IC26	T7WU04F	TRIPLE INVERTER	1
O	IC27	TMP94C241F	32 BIT MICROCOMPUTER	1
O	IC28, 29	M5M44265CJ6S	4M BIT DYNAMIC RAM	2
O	IC30	QSIGX3C01001	1M BIT MASK ROM	1
O	IC31	TC7W08FU	DUAL 2 INPUT AND GATES	1
O	IC32	TC7SH08F	2 INPUT AND GATE	1
	IC33	TC7W14F	INVERTER	1
	IC34	BA10393F	COMPARATOR	1
O	IC35	TC7WH74FU	D TYPE FLIP FLOP	1
O	IC36	MN1382QTX	RESET IC	1
O	IC201, 202	TC7SH32FU	2 INPUT OR GATE	2
O	IC203	TC7SH08F	2 INPUT AND GATE	1
	IC204	T7WU04F	TRIPLE INVERTER	1
O	IC205	TC7S02F	2 INPUT NOR GATE	1
O	IC206	MN89304	LCD CONTROLLER	1
O	IC207	M5M44265CJ6S	4M BIT DYNAMIC RAM	1
	IC208	D72068GF-3B9	FLOPPY DISK CONTROLLER	1
	IC209	TC7W14F	INVERTER	1
	IC301	M5223FPE1	OPERATIONAL AMPLIFIER	1
	IC302	TC7W74F	INVERTER	1
	IC303	TC183C230002	TONE GENERATOR LSI	1
O	IC304	QSIGU3C32375	32M BIT WAVEFORM ROM	1
O	IC305	QSIGU3C32374	32M BIT WAVEFORM ROM	1
O	IC306	QSIGT3C32A01	32M BIT WAVEFORM ROM	1
O	IC307	QSIGX3C32008	32M BIT WAVEFORM ROM	1
O	IC308	M5M418128AJ6	1M BIT DYNAMIC RAM	1
	IC309	M5M44260AJ7S	4M BIT DYNAMIC RAM	1
O	IC310	MN19413	DIGITAL SIGNAL PROCESSOR	1
	IC311	D6383GF-3BA	DIGITAL SIGNAL PROCESSOR	1
	IC312	M5218AFP	OPERATIONAL AMPLIFIER	1
	IC313	PCM69AU	D-A CONVERTER	1
	IC314	M5218AFP	OPERATIONAL AMPLIFIER	1
	IC315	D74HC244GS	3 STATE BUFFERS	1

	Ref. No.	Part No.	Description	P/S
		TRANSISTORS		
	Q1	2SD601AQ	TRANSISTOR	1
	Q2	2SB709AR	TRANSISTOR	1
	Q3, 4	2SD601AQ	TRANSISTOR	2
	Q5, 6	2SB709AR	TRANSISTOR	2
	Q7	2SD601AQ	TRANSISTOR	1
	Q8	2SB952A	TRANSISTOR	1
S	Q9	2SC1815GR	TRANSISTOR	1
	Q201	2SB709AR	TRANSISTOR	1
	Q202	2SD601AQ	TRANSISTOR	1

Ref. No.	Part No.	Description	P/S
Q203	2SB621ARS	TRANSISTOR	1
Q301, 302	2SD592ARS	TRANSISTOR	2

DIODES

Ref. No.	Part No.	Description	P/S
D1~3	MA110	DIODE	3
D4	MA8030L	ZENER, 2.9V	1
D5~12	MA110	DIODE	8
D13, 14	MA151WK	DIODE	2
D15~18	MA110	DIODE	4
D19	MA8082M	ZENER, 8.2V	1
D20	MA8051L	ZENER, 5.1V	1
D21, 22	MA110	DIODE	2
D23	RK34LF	DIODE	1
D24 ⚠	MA2062LF	ZENER, 6.2V	1
D304	MA8056	ZENER, 5.6V	1
D305 ⚠	MA1062M	ZENER, 6.2V	1

OSCILLATORS

Ref. No.	Part No.	Description	P/S
X1	QSXG2F0800DA	8MHz, CERAMIC OSCILLATOR	1
X2	QSXG2F0100DA	1MHz, CERAMIC OSCILLATOR	1
X3	QSXG2FR614DA	614KHz, CERAMIC OSCILLATOR	1
X4	QSXG2F1000A	10MHz, CERAMIC OSCILLATOR	1
X201	QSXG2F2400A	24MHz, CERAMIC OSCILLATOR	1
X202	QSXG2F3200A	32MHz, CERAMIC OSCILLATOR	1
X301	QSXG1I3386A	33.8688MHz, CRYSTAL OSCILLATOR	1
X302	SVQGA20MX040	20MHz, CERAMIC OSCILLATOR	1
X303	QSXG2F2500A	25MHz, CERAMIC OSCILLATOR	1

COMPONENT COMBINATIONS

Ref. No.	Part No.	Description	P/S
Z1	EXBV8V101J	100Ω×4	1
Z2	EXBS8V472J	4.7KΩ×4	1
Z9~12	EXBV8V101J	100Ω×4	4
Z13~15	EXBS8V101J	100Ω×4	3
Z16, 17	EXBV8V101J	100Ω×4	2
Z18	EXBV8V472J	4.7KΩ×4	1
Z19	EXBS8V101J	100Ω×4	1
Z20	EXBS8V221J	220Ω×4	1
Z21~24	EXBV8V472J	4.7KΩ×4	4
Z201~204	EXBS8V331J	330Ω×4	4
Z205	EXBV8V103J	10KΩ×4	1
Z206	EXBV8V331J	330Ω×4	1
Z207, 208	EXBV8V221J	220Ω×4	2
Z209, 210	EXBS8V101J	100Ω×4	2
Z211	EXBS8V102J	1KΩ×4	1
Z301	EXBV8V472J	4.7KΩ×4	1
Z302	EXBV8V221J	220Ω×4	1
Z303	EXBV8V472J	4.7KΩ×4	1
Z304, 305	EXBV8V221J	220Ω×4	2
Z306~308	EXBV8V472J	4.7KΩ×4	3
Z309~318	EXBV8V471J	470Ω×4	10

COILS

Ref. No.	Part No.	Description	P/S
L1	QLQGT1B100MA	10µH	1
L2	SLCG3A121T	120µH	1
L201	QLBG005A	COIL	1

IC PROTECTOR

Ref. No.	Part No.	Description	P/S
IP1 ⚠	ICP-N38T104	IC PROTECTOR	1

RESISTORS

Ref. No.	Part No.	Description	P/S
JR9	ERJ6GEYJ472V	4.7KΩ, [EN][MC][EZ][EK][EW][EF][EA][EP][EH][XL][XR][XS][XD][XT][XP][XW][M][XM]	1
JR10	ERJ6GEYJ472V	4.7KΩ, [X]	1
JR11	ERJ6GEYJ472V	4.7KΩ, [EN][MC][EZ][EK][EW][EF][EA][EP][EH][XL][XR][XS][XD][XT][XP][XW][X]	1
JR12	ERJ6GEYJ472V	4.7KΩ, [M][XM]	1
R1, 2	ERJ6GEYJ472V	4.7KΩ	2
R3	ERJ6GEYJ103V	10KΩ	1
R4	ERJ6GEYJ101V	100Ω	1
R5	ERJ6GEYJ102V	1KΩ	1
R6	ERJ6GEYJ101V	100Ω	1
R7	ERJ6GEYJ221V	220Ω	1
R8	ERJ6GEYJ472V	4.7KΩ	1
R9	ERJ6GEYJ104V	100KΩ	1
R10	ERJ6GEYJ102V	1KΩ	1
R11	ERJ6GEYJ222V	2.2KΩ	1
R12	ERJ6GEYJ102V	1KΩ	1
R13~15	ERJ6GEYJ101V	100Ω	3
R16	ERJ6GEYJ472V	4.7KΩ	1
R17	ERJ6GEYJ104V	100KΩ	1
R18	ERJ6GEYJ102V	1KΩ	1
R19	ERJ6GEYJ472V	4.7KΩ	1
R20	ERJ6GEYJ101V	100Ω	1
R21	ERJ6GEYJ105V	1MΩ	1
R22	ERJ6GEYJ470V	47Ω	1
R23, 24	ERJ6GEYJ101V	100Ω	2
R25	ERJ6GEYJ470V	47Ω	1
R26	ERJ6GEYJ103V	10KΩ	1
R27	ERJ6GEYJ470V	47Ω	1
R28~30	ERJ6GEYJ472V	4.7KΩ	3
R31	ERJ6GEYJ103V	10KΩ	1
R32	ERJ6GEYJ102V	1KΩ	1
R33	ERJ6GEYJ472V	4.7KΩ	1
R34	ERJ6GEYJ105V	1MΩ	1
R37	ERJ6GEYJ101V	100Ω	1
R38	ERJ6GEYJ472V	4.7KΩ	1
R39	ERJ6GEYJ102V	1KΩ	1
R40~42	ERJ6GEYJ101V	100Ω	3
R43, 44	ERJ6GEYJ472V	4.7KΩ	2
R46	ERJ6GEYJ101V	100Ω	1
R47	ERJ6GEYJ472V	4.7KΩ	1
R48	ERJ6GEYJ105V	1MΩ	1
R49	ERJ6GEYJ470V	47Ω	1
R50	ERJ6GEYJ102V	1KΩ	1
R51	ERJ6GEYJ101V	100Ω	1
R52	ERJ6GEYJ472V	4.7KΩ	1
R53~57	ERJ6GEYJ101V	100Ω	5
R58	ERJ6GEYJ105V	1MΩ	1
R59	ERJ6GEYJ470V	47Ω	1
R60~63	ERJ6GEYJ101V	100Ω	4
R64, 65	ERJ6GEYJ472V	4.7KΩ	2
R66	ERJ6GEYJ101V	100Ω	1
R67, 68	ERJ6GEYJ472V	4.7KΩ	2
R69~71	ERJ6GEYJ101V	100Ω	3
R72	ERJ6GEYJ472V	4.7KΩ	1
R73	ERJ6GEYJ470V	47Ω	1
R75, 76	ERJ6GEYJ472V	4.7KΩ	2
R77~79	ERJ6GEYJ101V	100Ω	3
R80, 81	ERJ6GEYJ472V	4.7KΩ	2
R82	ERJ6GEYJ332V	3.3KΩ	1
R83	ERJ6GEYJ333V	33KΩ	1
○ R84 ⚠	ERG1SJ102	1KΩ, 1W, FLAME-PROOF	1
R85	ERJ6GEYJ154V	150KΩ	1
R86	ERJ6GEYJ221V	220Ω	1
R87	ERJ6GEYJ474V	470KΩ	1
R88	ERJ6GEYJ471V	470Ω	1
R89	ERJ6GEYJ683V	68KΩ	1
R90	ERJ6GEYJ472V	4.7KΩ	1

Ref. No.	Part No.	Description	P/S
R91	ERJ6GEYJ101V	100Ω	1
R92~95	ERJ6GEYJ151V	150Ω	4
R96	ERJ6GEYJ470V	47Ω	1
R97, 98	ERJ6GEYJ472V	4.7KΩ	2
R201	ERJ6GEYJ105V	1MΩ	1
R202	ERJ6GEYJ470V	47Ω	1
R203	ERJ6GEYJ221V	220Ω	1
R204	ERJ6GEYJ472V	4.7KΩ	1
R205	ERJ6GEYJ331V	330Ω	1
R206, 207	ERJ6GEYJ470V	47Ω	2
R208, 209	ERJ6GEYJ103V	10KΩ	2
R210	ERJ6GEYJ221V	220Ω	1
R211	ERJ6GEYJ102V	1KΩ	1
R212	ERJ6GEYJ682V	6.8KΩ	1
R213	ERJ6GEYJ222V	2.2KΩ	1
R214	ERJ6GEYJ101V	100Ω	1
R215	ERJ6GEYJ103V	10KΩ	1
R216	ERJ6GEYJ101V	100Ω	1
R217	ERJ6GEYJ102V	1KΩ	1
R218	ERJ6GEYJ470V	47Ω	1
R219	ERJ6GEYJ331V	330Ω	1
R220	ERJ6GEYJ103V	10KΩ	1
R221	ERJ6GEYJ470V	47Ω	1
R222, 223	ERJ6GEYJ101V	100Ω	2
R224	ERJ6GEYJ471V	470Ω	1
R225	ERJ6GEYJ101V	100Ω	1
R301~303	ERJ6GEYJ102V	1KΩ	3
R304	ERJ6GEYJ101V	100Ω	1
R305	ERJ6GEYJ105V	1MΩ	1
R306	ERJ6GEYJ221V	220Ω	1
R307	ERJ6GEYJ472V	4.7KΩ	1
R308, 309	ERJ6GEYJ471V	470Ω	2
R310~312	ERJ6GEYJ221V	220Ω	3
R313~320	ERJ6GEYJ471V	470Ω	8
R321, 322	ERJ6GEYJ472V	4.7KΩ	2
R324	ERJ6GEYJ105V	1MΩ	1
R325	ERJ6GEYJ470V	47Ω	1
R326	ERJ6GEYJ471V	470Ω	1
R327	ERJ6GEYJ105V	1MΩ	1
R328	ERJ6GEYJ470V	47Ω	1
R329~333	ERJ6GEYJ221V	220Ω	5
R334	ERJ6GEYJ472V	4.7KΩ	1
R335	ERJ6GEYJ102V	1KΩ	1
R336	ERJ6GEYJ682V	6.8KΩ	1
R337 ⚠	ERG1SJ101	100Ω, 1W, FLAME-PROOF	1
R338	ERJ6GEYJ472V	4.7KΩ	1
R339, 340	ERJ6GEYJ682V	6.8KΩ	2
R341~343	ERJ6GEYJ470V	47Ω	3
R344	ERJ6GEY0R00V	0Ω	1
R350	ERJ6GEY0R00V	0Ω	1
R352	ERJ6GEY0R00V	0Ω	1
R355, 356	ERJ6GEYJ101V	100Ω	2
CAPACITORS			
C1	ECUV1H220JCN	22pF	1
C2	ECUV1H103KBG	0.01µF	1
C3	ECUV1H104ZFX	0.1µF	1
C4	ECUV1H332KB	0.0033µF	1
C5	ECUV1H220JCN	22pF	1
C6, 7	ECUV1H104ZFX	0.1µF	2
C8	ECUV1C224KBX	0.22µF	1
C9	ECUV1H104ZFX	0.1µF	1
C10	ECUV1H101JG	100pF	1
C11~14	ECUV1H104ZFX	0.1µF	4
C15	ECUV1H100DCN	10pF	1
C16	ECUV1H104ZFX	0.1µF	1
C17	ECEA1CKA100	10µF, 16V	1
C18	ECUV1H100DCN	10pF	1

Ref. No.	Part No.	Description	P/S
C19	ECUV1H103KBG	0.01µF	1
C20~42	ECUV1H104ZFX	0.1µF	23
C43	ECUV1H101JG	100pF	1
C44	ECUV1H104ZFX	0.1µF	1
C45, 46	ECUV1H101JG	100pF	2
C47	ECUV1H104ZFX	0.1µF	1
C48, 49	ECUV1H101JG	100pF	2
C50	ECUV1H104ZFX	0.1µF	1
C51	ECUV1H101JG	100pF	1
C52	ECEA1CKA100	10µF, 16V	1
C53	ECUV1H104ZFX	0.1µF	1
C54, 55	EECS5R5V105	1F, 5.5V, MEMORY BACK-UP	2
C56~58	ECUV1H104ZFX	0.1µF	3
C59, 60	ECUV1H100DCN	10pF	2
C61~69	ECUV1H104ZFX	0.1µF	9
C70	ECA1EM101	100µF, 25V	1
C71	ECEA1CKN100	10µF, 16V	1
C72	ECEA1CKA100	10µF, 16V	1
C73	ECUV1H103KBG	0.01µF	1
C74	ECA0JM102	10000µF, 6.3V	1
C75	ECQV1H104JM	0.1µF	1
C76	ECUV1H104ZFX	0.1µF	1
C77	ECUV1H103KBG	0.01µF	1
C78	ECUV1H101JG	100pF	1
C79, 80, 201	ECUV1H104ZFX	0.1µF	3
C202, 203	ECUV1H100DCN	10pF	2
C204, 205	ECUV1H104ZFX	0.1µF	2
C206	ECUV1H101JG	100pF	1
C207~215	ECUV1H104ZFX	0.1µF	9
C216	ECUV1H101JG	100pF	1
C217	ECUV1H100DCN	10pF	1
C218	ECUV1H101JG	100pF	1
C219	ECUV1H100DCN	10pF	1
C220, 221	ECUV1H104ZFX	0.1µF	2
C222	ECUV1H470JG	47pF	1
C223~233	ECUV1H101JG	100pF	11
C234, 235	ECUV1H104ZFX	0.1µF	2
C236	ECUV1H470JG	47pF	1
C301, 303, 304	ECUV1H104ZFX	0.1µF	3
C305, 306	ECUV1H060DCN	6pF	2
C307~327	ECUV1H104ZFX	0.1µF	21
C328	ECUV1H100DCN	10pF	1
C329	ECUV1H104ZFX	0.1µF	1
C330	ECUV1H100DCN	10pF	1
C331~333	ECUV1H104ZFX	0.1µF	3
C334, 335	ECUV1H100DCN	10pF	2
C336	ECUV1H104ZFX	0.1µF	1
C338	ECEA0JKA470	47µF, 6.3V	1
C341, 343~350	ECUV1H104ZFX	0.1µF	9
C351	ECEA1CKN100	10µF, 16V	1
C352~355	ECUV1H104ZFX	0.1µF	4
C356, 357	ECUV1H681JG	680pF	2
C358, 359	ECQV1H104JM	0.1µF	2
C360~362	ECUV1H104ZFX	0.1µF	3
C363	ECEA0JKA101	100µF, 6.3V	1
C364	ECEA0JKA470	47µF, 6.3V	1
C365~377	ECUV1H101JG	100pF	13
C378, 379	ECUV1H102JX	0.001µF	2

MKB1 MANUAL KEYBOARD 1 CIRCUIT

Ref. No.	Part No.	Description	P/S
DIODES			
D1~48	MA165	DIODE	48

MKB2 MANUAL KEYBOARD 2 CIRCUIT

Ref. No.		Part No.	Description	P/S
INTEGRATED CIRCUITS				
IC1, 2		HD74LS138P	3 TO 8 DECODER	2
IC3		M5218AL	OPERATIONAL AMPLIFIER	1
DIODES				
D49~122		MA165	DIODE	74
VARIABLE RESISTOR				
VR1		EVSG0E1B223A	22KΩ B	1
RESISTORS				
R1		ERDS2TJ102	1KΩ	1
R2		ERDS2TJ472	4.7KΩ	1
R3		ERDS2TJ222	2.2KΩ	1
R4		ERDS2TJ472	4.7KΩ	1
CAPACITORS				
C1, 2		ECRF1H104ZF	0.1µF	2
C3		ECEA0JKA470	47µF, 6.3V	1
C4, 5		ECRF1H104ZF	0.1µF	2

FAJ FILTER, AMP AND JACK CIRCUIT

Ref. No.		Part No.	Description	P/S
INTEGRATED CIRCUITS				
IC1		SVIGTLP513	PHOTO COUPLER	1
IC2	⚠	M5F78M15L	+15V VOLTAGE REGULATOR	1
IC3	⚠	M5F79M15L	−15V VOLTAGE REGULATOR	1
IC4~8, 10~14		M5218AL	OPERATIONAL AMPLIFIER	10
TRANSISTORS				
S Q1~3		2SA1015-GR	2SA933STRS (SUB. PART)	3
Q4		2SB941P	TRANSISTOR	1
Q5		2SD592ARS	TRANSISTOR	1
Q6		2SB621ARS	TRANSISTOR	1
Q7		2SD592ARS	TRANSISTOR	1
Q8		2SB621ARS	TRANSISTOR	1
S Q9		2SC1815GR	TRANSISTOR	1
S Q10		2SA1015-GR	2SA933STRS (SUB. PART)	1
S Q11, 12		2SC1815GR	TRANSISTOR	2
DIODES				
D1, 2		SVDGERA1502	RECTIFIER	2
D3~6	⚠	SVDS3V20	RECTIFIER	4
D7		SVDGERA1502	RECTIFIER	1
D8, 9		MA165	DIODE	2
D10		EK04	DIODE	1
D11		MA165	DIODE	1
D12		MA4075L	ZENER, 7, 5V	1
D18, 19		MA165	DIODE	2
○ D22		MA4360M	ZENER, 36V	1
D23, 25		SVDGERA1502	RECTIFIER	2
D26, 30		MA165	DIODE	2
D31		EK04	DIODE	1
DIODES				
L1, 2		QLQGT3T131TA	130µH×3	2

Ref. No.		Part No.	Description	P/S
L3		QLBG002A	0.45µH	1
L4~6		QLQGT3T131TA	130µH×3	3
L7, 8		QLBG002A	0.45µH	2
L9		QLQGT3T131TA	130µH×3	1
L10, 11		QLBG002A	0.45µH	2
JACKS				
JK1		QJSG016AA	MIDI THRU	1
JK2		QJSG016AA	MIDI OUT	1
JK3		QJSG016AA	MIDI IN	1
JK4		QJJG003AA	AUX IN L	1
JK5		QJJG003AA	AUX IN R	1
JK7		QJJG003AA	LINE OUT L	1
JK8		QJJG003AA	LINE OUT R	1
JK9		SJJG210A	MIC	1
FUSES				
F4, 5	⚠	XBA2C40TB0	T4A, 250V, EN EZ EK EW EF EA EP EH XL XR XS XD XT XP XW X	2
F4, 5	⚠	XBA1C50NU100	5A, 125V, M MC XM	2
F6	⚠	XBA2C20TB0	T2A, 250V, EN EZ EK EW EF EA EP EH XL XR XS XD XT XP XW X	1
F6	⚠	XBA1C25NU100	2.5A, 125V, M MC XM	1
WIRE				
○ W1		QEXGRA01030A	WIRE	1
RESISTORS				
R1		ERDS2T0	0Ω, 1/4W	1
R2, 3		ERDS2TJ154	150KΩ	2
R4	⚠	ERQ14AJ2R0	2Ω, 1/4W, FUSE TYPE	1
○ R5, 6	⚠	ERG2SJ680	68Ω, 2W, FLAME-PROOF	2
R7		ERDS2TJ472	4.7KΩ	1
R8		ERDS2TJ680	68Ω	1
R9		ERDS2TJ104	100KΩ	1
R10		ERDS2TJ472	4.7KΩ	1
R11, 12		ERDS2TJ154	150KΩ	2
R13		ERDS2TJ102	1KΩ	1
R14		ERDS2TJ680	68Ω	1
R15		ERDS2TJ102	1KΩ	1
R16, 17		ERDS2TJ822	8.2KΩ	2
R18		ERDS2TJ103	10KΩ	1
R19		ERDS2TJ330	33Ω	1
R20		ERDS2TJ104	100KΩ	1
R21		ERDS2TJ103	10KΩ	1
R22		ERDS2TJ222	2.2KΩ	1
R23		ERDS2TJ151	150Ω	1
R24		ERDS2TJ222	2.2KΩ	1
R25		ERDS2TJ104	100KΩ	1
R26		ERDS2T0	0Ω, 1/4W	1
R27		ERDS2TJ472	4.7KΩ	1
R28, 29		ERDS2TJ682	6.8KΩ	2
R30		ERDS2TJ221	220Ω	1
R31		ERDS2TJ103	10KΩ	1
R32		ERDS2TJ331	330Ω	1
R33, 34		ERDS2TJ333	33KΩ	2
R35, 36		ERDS2TJ153	15KΩ	2
R37, 38		ERDS2TJ103	10KΩ	2
R39, 40		ERDS2TJ153	15KΩ	2
R41, 42		ERDS2TJ823	82KΩ	2
R43, 44		ERDS2TJ473	47KΩ	2

Ref. No.	Part No.	Description	P/S
R45~47	ERDS2TJ154	150KΩ	3
R48	ERDS2TJ103	10KΩ	1
R49	ERDS2TJ154	150KΩ	1
R50	ERDS2TJ102	1KΩ	1
R51	ERDS2TJ153	15KΩ	1
R52	ERDS2TJ102	1KΩ	1
R53, 54	ERDS2TJ220	22Ω	2
R55, 56	ERDS2TJ332	3.3KΩ	2
R57, 58	ERDS2TJ154	150KΩ	2
R59	ERDS2TJ222	2.2KΩ	1
R60, 61	ERDS2TJ472	4.7KΩ	2
R62, 63	ERDS2TJ821	820Ω	2
R64	ERDS2TJ222	2.2KΩ	1
R65	ERDS2TJ332	3.3KΩ	1
R66	ERDS2TJ103	10KΩ	1
R67	ERDS2TJ682	6.8KΩ	1
R70	ERDS2TJ102	1KΩ	1
R71	ERDS2TJ332	3.3KΩ	1
R72	ERDS2TJ334	330KΩ	1
R73	ERDS2TJ103	10KΩ	1
R74	ERDS2TJ223	22KΩ	1
R75	ERDS2TJ152	1.5KΩ	1
R76	ERDS2TJ103	10KΩ	1
R77	ERDS2TJ154	150KΩ	1
R78	ERDS2TJ682	6.8KΩ	1
R79	ERDS2TJ101	100Ω	1
R80	ERDS2TJ332	3.3KΩ	1
R81	ERDS2TJ223	22KΩ	1
R82	ERDS2TJ103	10KΩ	1
R83	ERDS2TJ153	15KΩ	1
R84	ERDS2TJ103	10KΩ	1
R85, 86	ERDS2TJ333	33KΩ	2
R87, 88	ERDS2TJ154	150KΩ	2
R89, 90	ERDS2TJ101	100Ω	2
R91, 92	ERDS2TJ154	150KΩ	2
○ R93 ⚠	ERX2SJ1R0E	1Ω, 2W, FLAME-PROOF	1
R94 ⚠	ERG1SJ680	68Ω, 1W, FLAME-PLOOF	1
R95, 96	ERDS2TJ682	6.8KΩ	2
R97 ⚠	ERG1SJ680	68Ω, 1W, FLAME-PLOOF	1
R102, 103 ⚠	ERD2FCVJ6R8	6.8Ω, 1/4W, FUSE TYPE	2
R104	ERDS2TJ102	1KΩ	1
R106 ⚠	ERD2FCVG220	22Ω, 1/4W, FUSE TYPE	1
○ R107 ⚠	ERG1SJ271	270Ω, 1W	1

CAPACITORS			
C1, 3	ECKF1E473ZV	0.047µF	2
C4	ECQB1H103JF	0.01µF	1
C5	ECCR1H221J	220pF	1
C6	ECCR1H151J	150pF	1
C7	ECKF1E473ZV	0.047µF	1
C9, 10	ECA1EM472	4700µF, 25V	2
C12	ECRF1H104ZF	0.1µF	1
C14, 15	ECA1EM472	4700µF, 25V	2
C17	ECCR1H221J	220pF	1
C19, 20	ECRF1H104ZF	0.1µF	2
C22	ECCR1H151J	150pF	1
○ C23, 24	ECA2AM4R7	4.7µF, 100V	2
C27	ECRF1H104ZF	0.1µF	1
C29	ECEA1CKA100	10µF, 16V	1
C30	ECKF1E473ZV	0.047µF	1
C31	ECEA1CKA100	10µF, 16V	1
C33	ECQV1H105JM	1µF	1
○ C34	ECEA1HKA100	10µF, 50V	1
C35	ECKF1E473ZV	0.047µF	1
○ C36	ECEA1HN100S	10µF, 50V	1
C37, 38	ECEA1CKA100	10µF, 16V	2
C39	ECEA1HKN010	1µF, 50V	1

Ref. No.	Part No.	Description	P/S
C40	ECQG1H472KZ	0.0047µF	1
C41, 42	ECQB1H473JF	0.047µF	2
C43	ECEA1HKN010	1µF, 50V	1
C44	ECQG1H472KZ	0.0047µF	1
C45, 46	ECCR1H221J	220pF	2
C47, 48	ECQV1H683JM	0.068µF	2
C49, 50	ECCR1H151J	150pF	2
C51~54	ECKF1E473ZV	0.047µF	4
C55	ECCR1H470J	47pF	1
C56	ECQV1H105JM	1µF	1
C57	ECQB1H473JF	0.047µF	1
C58	ECCR1H470J	47pF	1
C59	ECQG1H472KZ	0.0047µF	1
C60	ECQB1H103JF	0.01µF	1
C61	ECQG1H472KZ	0.0047µF	1
C62	ECQB1H103JF	0.01µF	1
C63	ECQG1H472KZ	0.0047µF	1
C64	ECEA1CKN100	10µF, 16V	1
C65	ECQG1H472KZ	0.0047µF	1
C66	ECEA1CKN100	10µF, 16V	1
C67, 68	ECCR1H220J	22pF	2
C69	ECRF1H104ZF	0.1µF	1
C73	ECEA1HKN010	1µF, 50V	1
C75	ECEA1CKA470	47µF, 16V	1
C77, 78	ECCR1H470J	47pF	2
C79, 80	ECKF1E473ZV	0.047µF	2
C81	ECEA1HKA010	1µF, 50V	1
C82	ECQB1H103JF	0.01µF	1
C83	ECQB1H473JF	0.047µF	1
C84	ECQB1H153JF	0.015µF	1
C85	ECQG1H222KZ	0.0022µF	1
C86	ECQB1H153JF	0.015µF	1
C87	ECQG1H222KZ	0.0022µF	1
C89, 91	ECQB1H153JF	0.015µF	2
C92~95	ECKF1E473ZV	0.047µF	4
C96, 97	ECQV1H683JM	0.068µF	2
C98, 99	ECCR1H330J	33pF	2
C100, 101, 500	ECKF1E473ZV	0.047µF	3

SWA SWITCHING AMP CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
IC1~3	M5218AFP	OPERATIONAL AMPLIFIER	3
TRANSISTORS			
Q1, 2	2SB709AR	TRANSISTOR	2
Q3	2SD601AQ	TRANSISTOR	1
Q4~6	2SB709AR	TRANSISTOR	3
Q7, 8	2SD601AQ	TRANSISTOR	2
Q9, 10	2SB709AR	TRANSISTOR	2
Q11	2SD601AQ	TRANSISTOR	1
Q12	2SB709AR	TRANSISTOR	1
Q13	2SD601AQ	TRANSISTOR	1
Q14~16	2SB709AR	TRANSISTOR	3
Q17, 18	2SD601AQ	TRANSISTOR	2
Q19, 20	2SB709AR	TRANSISTOR	2
Q21	2SD601AQ	TRANSISTOR	1
Q22	2SB709AR	TRANSISTOR	1
Q23	2SD601AQ	TRANSISTOR	1
Q24~26	2SB709AR	TRANSISTOR	3
Q27, 28	2SD601AQ	TRANSISTOR	2
Q29, 30	2SB709AR	TRANSISTOR	2
Q31	2SD601AQ	TRANSISTOR	1

	Ref. No.		Part No.	Description	P/S
○	Q32	⚠	SLA5007	FET ARRAY	1
○	Q33	⚠	2SJ425	FET	1
○	Q34	⚠	2SK1188	FET	1
	DIODES				
	D1		MA1200M	ZENER, 20V	1
	D2		MA110	DIODE	1
○	D3, 4		MA2100LF	ZENER, 10V	2
	D5~28		MA110	DIODE	24
	COILS				
○	L1~3		QLQGTG060A	60µH	3
	RESISTORS				
	R1		ERJ6GEYJ472V	4.7KΩ	1
	R2		ERJ6GEYJ103V	10KΩ	1
	R3, 4		ERJ6GEYJ684V	680KΩ	2
	R5		ERJ6GEYJ103V	10KΩ	1
	R6		ERJ6GEYJ393V	39KΩ	1
	R7		ERJ6GEYJ183V	18KΩ	1
	R8		ERJ6GEYJ104V	100KΩ	1
	R9		ERJ6GEYJ222V	2.2KΩ	1
	R10		ERJ6GEYJ471V	470Ω	1
	R11		ERJ6GEYJ332V	3.3KΩ	1
	R12		ERJ6GEYJ103V	10KΩ	1
	R13		ERJ6GEYJ332V	3.3KΩ	1
	R14, 15		ERJ6GEYJ471V	470Ω	2
	R16		ERJ6GEYJ472V	4.7KΩ	1
	R17~19		ERJ6GEYJ472V	4.7KΩ	3
	R22		ERJ6GEYJ103V	10KΩ	1
	R23		ERJ6GEYJ393V	39KΩ	1
	R24		ERJ6GEYJ183V	18KΩ	1
	R25		ERJ6GEYJ104V	100KΩ	1
	R26		ERJ6GEYJ222V	2.2KΩ	1
	R27		ERJ6GEYJ471V	470Ω	1
	R28		ERJ6GEYJ332V	3.3KΩ	1
	R29		ERJ6GEYJ103V	10KΩ	1
	R30		ERJ6GEYJ332V	3.3KΩ	1
	R31, 32		ERJ6GEYJ471V	470Ω	2
	R33~36		ERJ6GEYJ472V	4.7KΩ	4
	R39, 40		ERJ6GEYJ104V	100KΩ	2
	R41		ERJ6GEYJ473V	47KΩ	1
	R42		ERJ6GEYJ682V	6.8KΩ	1
	R43		ERJ6GEYJ104V	100KΩ	1
	R44		ERJ6GEYJ222V	2.2KΩ	1
	R45		ERJ6GEYJ471V	470Ω	1
	R46		ERJ6GEYJ332V	3.3KΩ	1
	R47		ERJ6GEYJ103V	10KΩ	1
	R48		ERJ6GEYJ332V	3.3KΩ	1
	R49, 50		ERJ6GEYJ471V	470Ω	2
	R51~54		ERJ6GEYJ472V	4.7KΩ	4
	R57~59		ERJ6GEYJ105V	1MΩ	3
	R60~71		ERJ6GEYJ222V	2.2KΩ	12
	R72, 73		ERJ6GEYJ272V	2.7KΩ	2
	R74		ERJ6GEYJ332V	3.3KΩ	1
	CAPACITORS				
○	C1, 2		ECA1HHG100	10µF, 50V	2
	C4		ECUV1H221JG	220pF	1
	C5, 6		ECQB1H473JF	0.047µF	2
	C7		ECQV1H104JM	0.1µF	1
	C8		ECUV1H221JG	220pF	1
	C9		ECQG1H332KZ	0.0033µF	1
	C10		ECUV1H221JG	220pF	1
	C12~14		ECUV1H151JG	150pF	3

	Ref. No.		Part No.	Description	P/S
○	C15, 16		ECA1EHG101	100µF, 25V	2
	C17		ECQV1H155JL	1.5µF	1
	C18, 19		ECQB1H473JF	0.047µF	2
	C20		ECQV1H104JM	0.1µF	1
	C21		ECUV1H221JG	220pF	1
	C22		ECQG1H332KZ	0.0033µF	1
	C25~27		ECUV1H151JG	150pF	3
	C30		ECQV1H155JL	1.5µF	1
	C31		ECQB1H473JF	0.047µF	1
	C32		ECQB1H153JF	0.015µF	1
○	C33		ECA1HEN010	1µF, 50V	1
	C34		ECUV1H221JG	220pF	1
	C35		ECQG1H332KZ	0.0033µF	1
	C38~40		ECUV1H151JG	150pF	3
○	C41, 42		ECA1EHG101	100µF, 25V	2
	C43		ECQV1H155JL	1.5µF	1

ACP AC POWER SUPPLY CIRCUIT

Ref. No.		Part No.	Description	P/S
LINE FILTER				
L1	⚠	SLTGLF3	LINE FILTER	1
JACK				
JK1	⚠	SJVD0203B	AC INLET	1
SWITCH				
S1	⚠	SSRG100A	VOLTAGE SELECTOR, X XS XD XT	1
FUSES				
F1	⚠	XBA2C16TB0	T1.6A, 250V, X XS XD XT	1
F1	⚠	XBA1C20NU100	2A, 125V, M MC XM	1
F2	⚠	XBA2C10TB0	T1.0A, 250V, X XS XD XT	1
F3	⚠	XBA2C10TB0	T1.0A, 250V, EN EZ EK EW EF EA EP EH XL XR XP XW	1
F3	⚠	XBA2C08TB0	T800mA, 250V, X XS XD XT	1
CAPACITORS				
C1	⚠	ECKCVA1472MF	4700pF, LINE CAPACITOR	1
C2	⚠	ECQU2A104MN	0.1µF, 250V, ACROSS-THE LINE CAPACITOR	1

JACK JACK CIRCUIT

Ref. No.	Part No.	Description	P/S
DIODES			
D1, 2	MA165	DIODE	2
COILS			
L1~6	QLQGT3T131TA	130µH×3	6

Ref. No.	Part No.	Description	P/S
JACKS			
JK1	QJSG017AA	COMPUTER	1
JK2	QJJG003AA	FOOT SW 1	1
JK3	QJJG003AA	FOOT SW 2	1
JK4	SJSG1390A	FOOT CONTROLLER	1
JK5	SJJG100A	EXP PEDAL	1
SWITCH			
S1	QSSGT010AA	SLIDE SWITCH	1
RESISTORS			
R1, 2	ERDS2TJ103	10KΩ	2
R3~10	ERDS2TJ102	1KΩ	8
CAPACITORS			
C1~7, 10, 11	ECKF1E473ZV	0.047µF	9

HB HEADPHONES, BEND CIRCUIT

Ref. No.	Part No.	Description	P/S
COIL			
L1	QLQGT3T150SA	15µHX3	1
JACK			
JK1	SJJG100A	HEADPHONE	1
VARIABLE RESISTORS			
VR1	EVA07115B14G	10KΩ B, MODULATION	
VR2	EVA07015B54G	50KΩ B, PITCH BEND	
RESISTORS			
R1, 2	ER0S2CKF1001	1KΩ, ±1%	2
CAPACITORS			
C1, 2	ECQB1H333JF	0.033µF	2
C3	ECRF1H104ZF	0.1µF	1

CPR CONTROL PANEL RIGHT CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
IC1	M37471M2196S	8 BIT MICROCOMPUTER	1
IC2, 3	HD74LS07P	HEX BUFFERS	2
TRANSISTORS			
Q1~5	2SA830SB	TRANSISTOR	5
DIODES			
D6, 7, 9~29, 33~40, 44~46, 49~59, 68~72, 79, 80, 83~86	MA165	DIODE	56
D101~105, 109~124, 133~135, 137~140, 161~163, 165	SEL4117RM	LED (RED)	32

Ref. No.	Part No.	Description	P/S
D106~108, 125~132, 136, 149~152, 157, 158, 164, 166~168	SEL4417GM	LED (GREEN)	22
OSCILLATOR			
X1	EF0EC4004A3	4MHz, CERAMIC OSCILLATOR	1
SWITCHES			
S6, 7, 9~29, 33~40, 44~46, 49~59, 68~72, 79, 80, 83~86	EVQ21507K	PUSH SWITCH	5
RESISTORS			
R1	ERDS2TJ333	33KΩ	1
R2	ERDS2T0	0Ω, 1/4W	1
R3, 4	ERDS2TJ101	100Ω	2
R5~8	ERDS2T0	0Ω, 1/4W	4
R9~23	ERDS2TJ103	10KΩ	15
R25~36	ERDS2TJ680	68Ω	12
R40~47	ERDS2T0	0Ω, 1/4W	8
CAPACITORS			
C1~3	ECRF1H104ZF	0.1µF	3
C5	ECA0JM221	220µF, 6.3V	1
C6	ECRF1H104ZF	0.1µF	1
C7	ECEA0JKA470	47µF, 6.3V	1

INV1 INVERTER 1 CIRCUIT

Ref. No.	Part No.	Description	P/S
TRANSFORMER			
T1	⚠ QTDG003A	TRANSFORMER	1
COIL			
L1	QLQGT1B101KA	100µH	1
CAPACITORS			
C1	ECA0JM221	220µF, 6.3V	1
S C4	ECCD3F180JGE	18pF	1

INV2 INVERTER 2 CIRCUIT

Ref. No.	Part No.	Description	P/S
TRANSISTORS			
Q1, 2	2SD592ARS	TRANSISTOR	2
DIODE			
D1	SVDGERA1502	RECTIFIER	1
RESISTORS			
R1, 2	ERDS2TJ102	1KΩ	2
CAPACITORS			
C1	ECA0JM221	220µF, 6.3V	1
C2	ECQB1H473JF	0.047µF	1

CPL CONTROL PANEL LEFT CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
IC1	M37471M2196S	8 BIT MICROCOMPUTER	1
IC2, 3	HD74LS07P	HEX BUFFERS	2
TRANSISTORS			
Q1~5	2SA830SB	TRANSISTOR	5
DIODES			
D1~7, 9~15, 17~20, 25~28, 33~39, 41~46, 49~56	MA165	DIODE	43
D101~105, 116, 124, 130, 140	SEL4417GM	LED (GREEN)	9
D106, 107, 109~115, 117~123, 125~129, 133~139	SEL4117RM	LED (RED)	28
OSCILLATOR			
X1	EF0EC4004A3	4MHz, CERAMIC OSCILLATOR	1
SWITCHES			
S1~7, 9~15, 17~20, 25~28, 33~39, 41~46, 49~56	EVQ21507K	PUSH SWITCH	43
S101	QSRGT002AA	ENCODER SWITCH	1
VARIABLE RESISTOR			
VR1	EVD07205B24G	20KΩ B, MAIN VOLUME	1
RESISTORS			
R1	ERDS2TJ333	33KΩ	1
R2	ERDS2T0	0Ω, 1/4W	1
R3, 4	ERDS2TJ101	100Ω	2
R5~8	ERDS2T0	0Ω, 1/4W	4
R9, 10	ERDS2TJ103	10KΩ	2
R11, 12	ERDS2TJ472	4.7KΩ	2
R13, 14	ERDS2TJ473	47KΩ	2
R15~17	ERDS2TJ102	1KΩ	3
R18~30	ERDS2TJ103	10KΩ	13
R32~42	ERDS2TJ680	68Ω	11
R43~50	ERDS2T0	0Ω, 1/4W	8
CAPACITORS			
C1~3	ECRF1H104ZF	0.1µF	3
C4	ECA0JM221	220µF, 6.3V	1
C5	ECRF1H104ZF	0.1µF	1
C6	ECEA0JKA470	47µF, 6.3V	1
C7, 8	ECBA1H102KB	0.001µF	2
C9~11	ECRF1H104ZF	0.1µF	3

CPC CONTROL PANEL CENTER CIRCUIT

Ref. No.	Part No.	Description	P/S
DIODES			
D23, 24, 59~64, 69~72, 77~80, 83~88	MA165	DIODE	22
D108, 149	SEL4117RM	LED (RED)	2

CPC CONTROL PANEL CENTER CIRCUIT

Ref. No.	Part No.	Description	P/S
SWITCHES			
S23, 24, 59~64, 69~72, 77~80, 83~88	EVQ21507K	PUSH SWITCH	22
VARIABLE RESISTOR			
VR1	QRVG20N01B13	1KΩ B, CONTRAST	1
RESISTORS			
R1	ERDS2TJ331	330Ω	1
R2	ERDS2TJ224	220KΩ	1

CPCR CONTROL PANEL CENTER RIGHT CIRCUIT

Ref. No.	Part No.	Description	P/S
DIODES			
D57, 58, 65~67	MA165	DIODE	5
SWITCHES			
S57, 58, 65~67	EVQ21507K	PUSH SWITCH	5

CPCL CONTROL PANEL CENTER LEFT CIRCUIT

Ref. No.	Part No.	Description	P/S
DIODES			
D73~75, 81, 82	MA165	DIODE	5
SWITCHES			
S73~75, 81, 82	EVQ21507K	PUSH SWITCH	5

■ WIRING PARTS

Ref. No.	Part No.	Description	P/S
W1	QEXGSS05055C	CONNECTOR WITH WIRE	1
W2	QEXGSS16050B	CONNECTOR WITH WIRE	1
W3	QEXGZA34060B	CONNECTOR WITH WIRE	1
W4	QEXGZA15070B	CONNECTOR WITH WIRE	1
W5	QEXGSS08060B	CONNECTOR WITH WIRE	1
W6	QEXGSS09020B	CONNECTOR WITH WIRE	1
W7	QEXGSS11015B	CONNECTOR WITH WIRE	1
W8	QEXGSA06006B	CONNECTOR WITH WIRE	1
W9	QEXGSS10030B	CONNECTOR WITH WIRE	1
W10	QEXGSS12030B	CONNECTOR WITH WIRE	1
W11	QEXGSS05006B	CONNECTOR WITH WIRE	1
W12	QEXGVH05060F	CONNECTOR WITH WIRE	1
W13	QEXGVH03040B	CONNECTOR WITH WIRE	1
W14	QEXGSS05130B	CONNECTOR WITH WIRE	1
W15	⚠ QEXGVH03055G	CONNECTOR WITH WIRE	1
W16	QEXGSS04035B	CONNECTOR WITH WIRE	1
W17	QEXGSA07030B	CONNECTOR WITH WIRE	1
W18	QEXGSA13010B	CONNECTOR WITH WIRE	1
W19	QEXGSS06020A	CONNECTOR WITH WIRE	1
W20	QEXGSA04015B	CONNECTOR WITH WIRE	1
W21	QEUGS7W07BZ	FLAT CABLE	1
W22	QJTG01008AA	JUMPER CONNECTOR	1

CABINET PARTS LOCATION

REPLACEMENT PARTS LIST......Cabinet and Chassis 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 retension 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. ○ mark are new parts.

3. 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.
4. For part No. with area mark, check the area when placing an order.
5. 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		EAS12P458A3	12cm, 4Ω	2
○	SP3, 4		QASG65PH03AK	6.5cm, 8Ω	2
	SP5		EAS14PL96A	14cm, 3Ω	1
			TRANSFORMER		
○	T1	⚠	QTPG1M050A	POWER TRANSFORMER, M MC XM	1
○	T1	⚠	QTPG1M051A	POWER TRANSFORMER, X XS XD XT	1
○	T1	⚠	QTPG1M052A	POWER TRANSFORMER, EN EZ EK EW EF EA EP EH XL XR XP XW	1
			POWER CORD & PLUG		
	PC1	⚠	QJAG013AA	POWER CORD, M MC XM	1
○	PC1	⚠	QJAG023AA	POWER CORD, XL XR	1
	PC1	⚠	SJAG65	POWER CORD, EN EZ EW EF EA EP EH X XS XT XP XW	1
	PC1	⚠	VJA0733	POWER CORD, EK XD	1
	PC2	⚠	SJP5213-1	ATTACHMENT PLUG, X XT XP	1
			CABINET PARTS		
○	1		QKWG030AA	LCD PANEL	1
○	2	ABS	QGPG0128ABK	LCD CASE, TOP	1
○	3		QGUG1452AAK	BUTTON	2
○	4		QGUG1451AAK	BUTTON	2
○	5		QMFG4199AAK	CUSHION	1
○	6		QMFG4195AAK	CUSHION	1
○	7		QMFG4196AAK	CUSHION	1
○	8		QMRG5112AA	CUSHION	1
○	9		QMRG7090AAK	LOCK LEVER	1
○	10		QMBG017AA	SPRING	1
○	11		QMFG4203AAK	CUSHION	2
○	12		QMFG4205AAK	CUSHION	1
○	13		QMRG2067AAK	SHEET	1
○	14		QMRG5175AAK	CUSHION	2
○	15		QMRG2066AAK	SHEET	1
○	16		QMRG5165AAK	CUSHION	2

	Ref. No.		Part No.	Description	P/S
○	17		QMRG5174AAK	CUSHION	1
○	18		QMRG2068AAK	SHEET	1
○	19	ABS	QGPG0129ABK	LCD CASE, BOTTOM	1
○	20		QMBG022AA	SPRING	1
○	21		QMFG4210AAK	CUSHION	1
○	22		QMFG4211AAK	CUSHION	2
○	23		QMFG4200AA	CUSHION	1
○	24		QMBG018AA	SPRING	1
○	25		QMQG0034AAK	LOCK BAR	1
○	26		QLZG020A	CORE, EN M MC XM EZ EK EW EF EA EP EH XL XR XP XW	2
○	27		QMRG5177AA	CUSHION	2
○	28		QYPG1075ABK	CONTROL PANEL ASS'Y	1
○	28-1		QGMG0019AAK	PANCHING NET, LEFT	1
○	28-2		QGMG0020AAK	PANCHING NET, RIGHT	1
○	28-3		QGMG0021AAK	PANCHING NET, CENTER	1
○	28-4		QMFG4190AAK	CUSHION	30
○	28-5		QKNG1033A01K	SPEAKER NET	1
○	28-6		QKNG1034A01K	SPEAKER NET	2
○	28-7		QKNG1035A01K	SPEAKER NET	2
○	29		QMGG051AA	CUSHION	2
○	30		QMFG4201AAK	CUSHION	2
○	31		QMFG1254AA	FELT	1
○	32		QEXGRA01030C	WIRE	1
○	33		QEXGRA01006E	WIRE	2
	34	ABS	QGUG3002BB	DIAL WHEEL	1
	35		SBNG7070B	KNOB, MAIN VOLUME	1
○	36		QMFG4080AAK	CUSHION	9
○	37		QMFG4202AAK	CUSHION	1
	38	ABS	QGUG1040AA	BUTTON, POWER SWITCH	1
	39	⚠ PP	SHRG8390A	COVER, POWER SW	1
	40		QLZG017A	CORE, EN M MC XM EZ EK EW EF EA EP EH XL XR XP XW	7
○	41		QLZG019A	CORE, EN M MC XM EZ EK EW EF EA EP EH XL XR XP XW	1
○	42		QGUG1448ABK	BUTTON	1
○	43		QGUG1448AAK	BUTTON	5
○	44		QGUG1435ACK	BUTTON	1
○	45		QGUG1438ACK	BUTTON	2
	46		QGUG1438AAK	BUTTON	2
○	47		QGUG1444AAK	BUTTON	1
○	48		QGUG1443AAK	BUTTON	3
	49		QGUG1439AAK	BUTTON	1
○	50		QGUG1437ACK	BUTTON	4
	51		QGUG1435ABK	BUTTON	1
	52		QGUG1436AA1K	BUTTON	1
○	53		QGUG1440AA1K	BUTTON	1
○	54		QGUG1439ACK	BUTTON	2

	Ref. No.		Part No.	Description	P/S
○	55		QGUG1441AAK	BUTTONE	1
○	56		QGUG1449AAK	BUTTON	2
○	57		QGUG1446AAK	BUTTON	1
○	58		QGUG1450AAK	BUTTON	1
○	59		QGUG1442AAK	BUTTON	1
○	60		QGUG1436AC1K	BUTTON	1
○	61		QGUG1447AA1K	BUTTON	1
○	62		QGUG1445AAK	BUTTON	2
○	63		QMFG4193AAK	CUSHION	1
○	64		QMFG4194AAK	CUSHION	1
○	65		QMRG1024AA	SPACER	2
○	66		QMRG1023AA	SPACER	2
○	67		QEXGRA01006D	WIRE	1
	68		SHGG5010A	TUBE	2
	69		SUSG570A	SPRING	1
	70	ABS	SBNG4050A	WHEEL KNOB	2
	71	⚠	SJS9231A	AC INLET COVER, EN EZ EK EW EF EA EP EH X XL XR XS XD XT XP XW	1
	71	⚠	SJS9334A	AC INLET COVER, M MC XM	1
○	72		QQLG167AA	LABEL, X XS XD XT	1
○	73		QMRG2063AAK	COVER, X XS XD XT	1
○	73		QMRG2061AAK	COVER, EN M MC XM EZ EK EW EF EA EP EH XL XR XP XW	1
	74		QMRG1020AA	SPACER, EN EZ EK EW EF EA EP EH XL XR XP XW	4
○	75		QYAG3006AAK	MUSIC STAND ASS'Y	1
	75-1	PS	[QMRG7065AAK	TABLE OF MUSIC BOOK	1
○	76		REM0072	FAN	1
	77		QMGG029AA	FLOATING RUBBER	4
○	78		QYKG226ABK	BOTTOM CABINET	1
	78-1		⌐ SHGG3130A	FOOT RUBBER	4
○	78-2		QKUG1045AAK	LID	1
○	78-3		QMRG5159AAK	CUSHION	4
○	78-4		QMRG5160AAK	CUSHION	8
	78-5		QMRG5135AAK	CUSHION	2
○	78-6		⌐ QMRG5162AAK	CUSHION	1
○	79		QEXGRA01005C	WIRE	1
○	80		QSCG098AK	SHIELD	1
○	81		QMRG2069AA	SHEET	1
○	82		QMFG4080AAK	CUSHION	1
	83		QMGG029AA	FLOATING RUBBER	4
○	84		QAUG016AA	FDD UNIT	1
	85		QMFG4019AA	CUSHION	2
○	86		QMFG4207AA	CUSHION	1
○	87		QMAG0201AAK	ANGLE	1
○	88		QSCG099AK	SHIELD	1
○	89		QEXGRA01010Q	WIRE	1
○	90		QMRG2057AAK	LID	1
○	91		QQLG161AAK	LABEL	1
○	92		QQLG160AAK	LABEL	1

		MANUAL KEYBOARD			
	120	AS	STBG2071A	BLACK KEY	25
	121	AS	STBG1101A	WHITE KEY (C & F KEY)	10
	122	AS	STBG1111A	WHITE KEY (D KEY)	5
	123	AS	STBG1121A	WHITE KEY (E & B KEY)	10
	124	AS	STBG1131A	WHITE KEY (G KEY)	5
	125	AS	STBG1141A	WHITE KEY (A KEY)	5
	126	AS	STBG1151A	WHITE KEY (TOP OCTAVE C KEY)	1
	127		SUSG271A	SPRING	61
	128		QMWG5003BA	AFTER TOUCH SENSOR	1

	Ref. No.		Part No.	Description	P/S
○	129		QMFG4176AAK	CUSHION	1
	130		QMWG3006BA	CHASSIS	1
	131		SHGG9052A	KEY GUIDE RUBBER	61
	132		QMFG1120CA	FELT	1
	133	ABS	QMWG8031DA	SPACER (12 PCS. ON ONE)	4
	134	ABS	QMWG8030CA	SPACER (13 PCS. ON ONE)	1
	135		QMWG6010BA	RUBBER SWITCH (12 PCS. ON ONE)	4
	136		QMWG6009BA	RUBBER SWITCH (13 PCS. ON ONE)	1
○	137		QMRG5172AAK	CUSHION	1

		SCREWS			
	N1		XTW3+12Q	SCREW	78
	N2		XTW3+10QFZ	SCREW	3
	N3		XYN4+F25	SCREW WITH WASHER, EN EZ EK EW EF EA EP EH XL XR XP XW	4
	N3		XYN4+F20	SCREW WITH WASHER, M MC XM X XS XD XT	4
	N4		XSS3+6FZ	SCREW	4
	N5		XTB3+12G	SCREW	4
	N6		XTW3+12QFZ	SCREW	5
	N7		QHDG025AA	SCREW WITH WASHER	1
○	N8		QHDG050AA	SCREW	6
○	N9		XTW3+25Q	SCREW	2
○	N10		XTW3+16JFZ	SCREW	15
○	N11		XTT4+16GFZ	SCREW	6
○	N12		XTB4+30C	SCREW	2
○	N13		XST3+4FU	SCREW	1
	N14		XTW3+10T	SCREW	37
○	N15		XTW3+16TFZ	SCREW	5
○	N16		XYN3+J8FZ	SCREW WITH WASHER	2
	N17		XYN3+C8FZ	SCREW WITH WASHER	1
	N18		XTV3+12G	SCREW	8

PACKING

AC CORD

FRONT

■PACKING PARTS

Ref. No.		Part No.	Description	P/S
PACKING PARTS				
1	PS	QPNG0634AAK	PAD	1
2	PS	QPNG0636AAK	PAD	1
3	PS	QPNG0633AAK	PAD	1
4	PS	QPNG0635AAK	PAD	1
5		QPGG0384AAK	PAD	1
6	PE	SPHG1490A	PROTECTION SHEET	1
7	PE	QPFG002AA	POLYETHYLENE BAG	1
8		QPGG0385AAK	PACKING CASE, PAPER	1
9		QFVG2019A	STYLE CONVERT DISK	1
10		QFVG2018A	INITIAL DATA DISK	1
OPERATTING INSTRUCTION MANUAL				
11		QQFGKN5000AA	OPERATING INSTRUCTION MANUAL, **EN**	1
11-1		QQTG0457A	DANSK	1
11-2		QQTG0458A	ENGLISH	1
11		QQFGKN5000BA	OPERATING INSTRUCTION MANUAL, **M**	1
11		QQFGKN5000CA	OPERATING INSTRUCTION MANUAL, **MC**	1
11-1		QQTG0458A	ENGLISH	1
11-2		QQTG0461A	FRANCAIS	1

Ref. No.	Part No.	Description	P/S
11	QQFGKN5000DA	OPERATING INSTRUCTION MANUAL, **EZ**	1
11	QQFGKN5000EA	OPERATING INSTRUCTION MANUAL, **EK XL XR XW XS XD XT**	1
11	QQFGKN5000FA	OPERATING INSTRUCTION MANUAL, **EW**	1
11-1	QQTG0461A	FRANCAIS	1
11-2	QQTG0460A	DEUTSCH	1
11-3	QQTG0462A	ITALIANO	1
11	QQFGKN5000GA	OPERATING INSTRUCTION MANUAL, **EF**	1
11-1	QQTG0461A	FRANCAIS	1
11-2	QQTG0462A	ITALIANO	1
11	QQFGKN5000HA	OPERATING INSTRUCTION MANUAL, **EA**	1
11	QQFGKN5000JA	OPERATING INSTRUCTION MANUAL, **EP X XP XM**	1
11-1	QQTG0458A	ENGLISH	1
11-2	QQTG0463A	ESPANOL	1
11	QQFGKN5000KA	OPERATING INSTRUCTION MANUAL, **EH**	1
11-1	QQTG0464A	NERDERLANDS	1
11-2	QQTG0461A	FRANCAIS	1
11-3	QQTG0460A	DEUTSCH	1