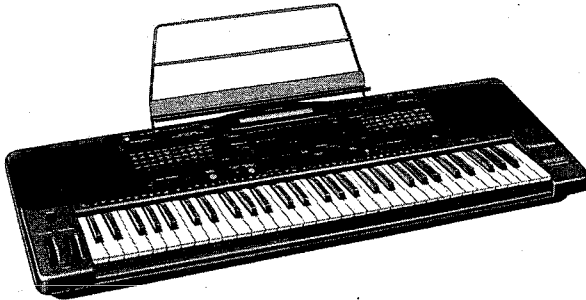


Service Manual

PCM Keyboard

SX-KN1000

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



AREAS

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

Specifications

KEYBOARD			61 KEYS (TOUCH SENSITIVE KEYBOARD)
SOUND GENERATOR			PCM
MAXIMUM NUMBER OF NOTES PRODUCED SIMULTANEOUSLY			32 NOTES (A MAXIMUM OF 8 SIMULTANEOUSLY PRESSED KEYS CAN BE INPUT)
SOUNDS	PRESET	POLY 1, POLY 2, BASS	120 SOUNDS (40 SOUNDS × 3 VARIATIONS) PIANO 1, 2, E GRAND, E PIANO 1, 2, HARPSICHORD, MALLET 1, 2, AFRICAN PERC, ORIENTAL PERC, GUITAR, JAZZ GUITAR, SOLID GUITAR, ROCK GUITAR, SPECIAL PERC, PIPE ORGAN, JAZZ ORGAN, POP ORGAN, VIOLIN, STRINGS, BRASS, TRUMPET, TROMBONE, SYNTH BRASS 1, 2, SYNTH PERC, SYNTH LEAD 1, 2, SYNTH ENSEMBLE 1, 2, SAX, CLARINET, REED, ACCORDION, FLUTE, PAN FLUTE, ACOUSTIC BASS, ELECTRIC BASS, CHOPPER BASS, SYNTH BASS
		BASIC	TONE, PITCH, ENVELOPE, VIBRATO, TOUCH SENSE, MEMORY WRITE & NAME SET
	EDIT	EFFECT	DIGITAL EFFECT, AUTOBEND & TRILL, MODULATION, OTHERS, MEMORY WRITE & NAME SET
		SOUND MEMORY	10 × 3 MEMORY
BACKGROUND SOUND			14 SOUNDS (7 SOUNDS × 2 VARIATIONS) BIRD, BEACH, CHURCH BELL, CITY, APPLAUSE, EXPLOSION, SPACE, FADE OUT
EFFECT			DIGITAL EFFECT, SUSTAIN, DIGITAL REVERB, PITCH BEND WHEEL, MODULATION WHEEL
RHYTHM	RHYTHM SELECT		120 PATTERNS (40 PATTERNS × 3 VARIATIONS) MARCH 1, 2, POLKA, COUNTRY 1, 2, WALTZ 1, 2, TANGO, RHUMBA, MAMBO, BIG BAND 1, 2, JAZZ COMBO, JAZZ BALLAD, MODERN JAZZ, DIXIE, JAZZ WALTZ, BOSSA NOVA, MODERN BOSSA, SAMBA, 8 BEAT 1, 2, 3, HARD ROCK, ROCK 'N' ROLL, SHUFFLE, ROCK BALLAD, SAMBA ROCK, LATIN ROCK, MODERN LATIN, 16 BEAT 1, 2, 3, JAZZ ROCK 1, 2, SWING ROCK, FUNK, ELECTRO POP, DISCO 1, 2
		CONTROLS	START/STOP, SYNCHRO & BREAK, INTRO & ENDING, FILL IN 1, 2, COUNT INTRO, TEMPO
	MANUAL PERCUSSION	PAD 1, 2, 3	
	KEYBOARD PERCUS- SION	48 KEYS	
AUTO PLAY CHORD			AUTO PLAY CHORD (ONE FINGER, FINGERED, MEMORY), DYNAMIC ACCOMP ONE TOUCH PLAY, MUSIC STYLE ARRANGER
TECHNI-CHORD			○
PANEL MEMORY			SET, 1-8
COMPOSER			5 TRACKS (PARTS: BASS, ACCOMP 1, ACCOMP 2, ACCOMP 3, DRUMS) MEMORY: 1~10 STORAGE CAPACITY: APPROX. 2400 NOTES INPUT MODES: REALTIME, STEP EDIT FUNCTIONS: COPY, RECORD CHORD SETTING
SEQUENCER			8 TRACKS (PARTS: POLY 1, POLY 2, BASS, ACCOMP 1/CHORD, ACCOMP 2, ACCOMP 3, DRUMS, CONTROL) STORAGE CAPACITY: APPROX. 4900 NOTES (EXPANDED: APPROX. 6600 NOTES) INPUT MODES: REALTIME, STEP EDIT FUNCTIONS: SONG CLEAR, TRACK CLEAR, VELOCITY CHANGE, QUANTIZE, TRACK MERGE, MEASURE DELETE, MEASURE ERASE, MEASURE INSERT, MEASURE COPY
DISPLAY			MUSICAL DIRECTOR: LIQUID CRYSTAL DISPLAY (40 CHARACTERS × 2 LINES), CONTRAST
DEMO			○

Technics

MIDI	PART INDEPENDENT: BASIC CHANNEL, CONTROL MESSAGE 1, 2, IN/OUT CONTROL, PANEL MEMORY PROGRAM CHANGE CONTROL, EXPRESSION CONTROL, INTRO-FILL IN-ENDING CONTROL, APC CONTROL PART COMMON: REALTIME SETTING, COMMON SETTING 1, 2, INPUT SELECT, OUTPUT SELECT, MIDI DRUM TYPE SETTING, PANEL MEMORY OUTPUT CONTROL
CONTROLS	CONDUCTOR (POLY 1, POLY 2, BASS), BALANCE, TEMPO/PROGRAM DIAL, MENU, PAGE, TRANSPOSE, SPLIT POINT
EXTERNAL MEMORY	DIGITAL DISK RECORDER (SY-FD20, OPTIONAL)
TERMINALS	HEADPHONE TERMINAL, LINE OUT (R/R+L, L), AUX IN (R/R+L, L), MIDI (IN, OUT, THRU), FOOT SWITCH, FOOT CONTROLLER
OTHERS	POWER SWITCH, MAIN VOLUME
OUTPUT	10 W x 2
SPEAKERS	12 cm x 2, 6.5 cm x 2
POWER REQUIREMENT	100 W, 70 W (NORTH AMERICA AND MEXICO)
	AC 120/220/240 V 50/60 Hz
	AC 120 V 60 Hz (NORTH AMERICA AND MEXICO) AC 230 V 50/60 Hz (EUROPE EXCEPT FOR UNITED KINGDOM)
DIMENSIONS (WxHxD)	103.2 cm x 14.0 cm x 37.5 cm (40-5/8" x 5-1/2" x 14-3/4")
NET WEIGHT	10.5 kg (23.1 lbs.)
ACCESSORIES	MUSIC STAND, AC CORD

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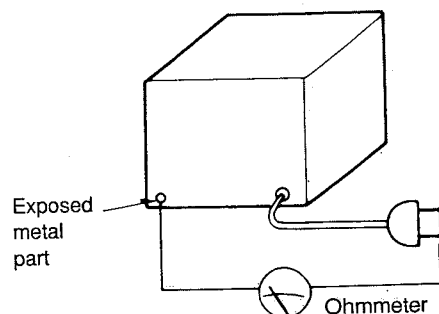
SAFETY PRECAUTION (This "safety precaution" is for the U.S.A. only)

• 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.

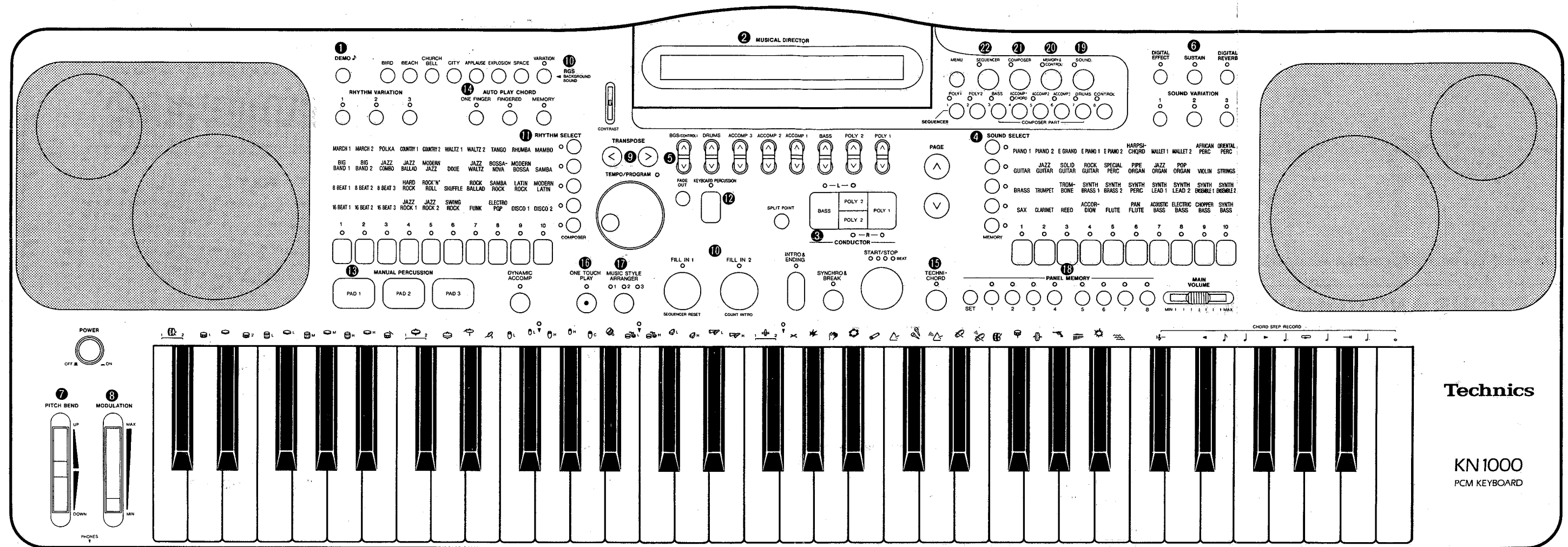
• Insulation Resistance Test

1. Unplug the power cord and short the two 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=4 MΩ to ∞

ARRANGEMENT OF CONTROL PANEL



BASIC FUNCTIONS

1 DEMO

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

2 MUSICAL DIRECTOR

In the normal mode, the **MUSICAL DIRECTOR** indicates the selected sounds, rhythm, tempo and other information about the panel settings. The display is also used for setting the various sound and memory functions, as well as the key to programming when using the **SOUND**, **COMPOSER** and **SEQUENCER** features. In addition to the sliding **CONTRAST** control, the angle of the display is adjustable for easy readability.

3 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.

4 SOUND SELECT

The matrix is used to choose from 40 different sounds, with three variations available for each sound. An additional 10 memory locations are reserved for user-created sounds.

5 Balance buttons

The eight sets of buttons directly below the display are used to adjust the volume of each part, as well as to set the various programmable functions of the Keyboard.

6 Effects

Turn the **DIGITAL REVERB** button on to add reverberation to the sound. **DIGITAL EFFECT** gives the sound a thickness and diffusion. When **SUSTAIN** is on, the musical tones fade gradually after the keys are released.

7 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.

8 MODULATION

Add vibrato to the sound by turning the wheel upwards.

9 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. The two buttons are also used to move the cursor on the display when assigning names to user-created sounds and rhythms, when using the step-record mode of the **COMPOSER** and **SEQUENCER**, or when saving a performance to disk.

10 BACKGROUND SOUND (BGS)

Seven unique background sounds add special life and interest to your performance. The **FADE OUT** button is pressed once for slowly diminishing background sound, twice for immediate cut-off. Turn on **VARIATION** for the alternate sound of the selected sound. The volume is adjusted with the **BGS** balance buttons below the display.

11 RHYTHM SELECT

Choose from 40 preset automatic rhythm patterns, each with three variations. An additional 10 memory locations are reserved for user-created rhythms. Other rhythm controls are **START/STOP**, **SYNCHRO & BREAK**, **INTRO & ENDING**, **COUNT INTRO** and **FILL IN 1** and **2**. The volume is adjusted with the **DRUMS** balance buttons below the display.

12 KEYBOARD PERCUSSION

One press of the **KEYBOARD PERCUSSION** button transforms your keyboard into a whole band of percussion instruments and special sounds. The keys are picture-coded for quick and easy selection.

13 MANUAL PERCUSSION

The three **PAD** buttons are used to add percussion sounds during your performance. The desired **KEYBOARD PERCUSSION** sounds are easily stored in the **PAD** buttons. The buttons can also be programmed for other functions, such as rhythm start/stop.

14 AUTO PLAY CHORD

This feature is activated when the **ONE FINGER** or **FINGERED** button is turned on. 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.

15 TECHNICHORD

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.

16 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 STYLE SELECT** display. Choose one of the many music styles and the appropriate sounds, effects and even rhythm are set instantly.

17 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.

18 PANEL MEMORY

Set up the sounds and effects, and then store them in these 8 buttons for instant recall as you play. You can expand the range of storable settings to include the rhythm selection, tempo setting and more.

19 SOUND

This button is used for making the various sound, volume and effect settings for each part, as well as selecting the drum kit and **TECHNI-CHORD** type, by reading the display. It is also used with the sound-synthesizer feature to create up to 10 storable sounds.

20 MEMORY & CONTROL

The settable functions in this mode include initialization, **PANEL MEMORY** range, foot switch and **PAD** button function-assignment, **SEQUENCER** memory expand and touch sensitivity setting. The button is also used for the MIDI settings and when saving the **SEQUENCER** contents to (or loading them from) a disk.

21 COMPOSER

Create original rhythm patterns, either in realtime or with the step record method, or modify preset rhythms. Store up to 10 new rhythms in the reserved memory locations and recall them as you play, just like the preset rhythms.

22 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 8-track sequencer, with full realtime recording, step recording and editing features.

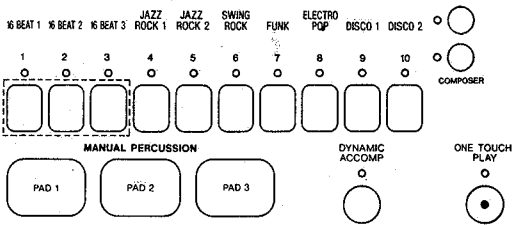
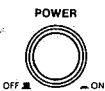
Digital Disk Recorder (optional)

This Digital Disk Recorder allows you to store up to 20 **SEQUENCER** performances on a 3.5-in. 2DD memory disk.

INITIAL SETTING

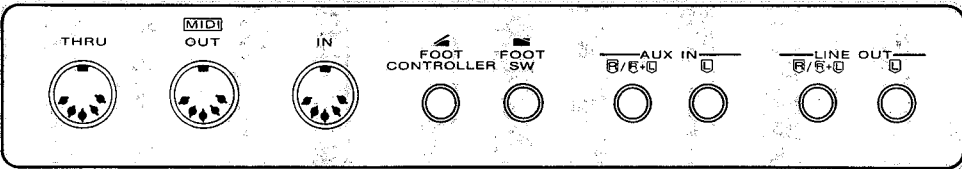
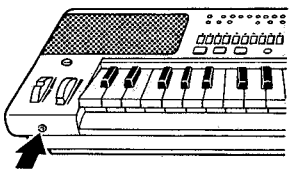
The initial setting function is used to return to the original factory settings, and to reset the customer settings and misoperations.

- 1. Press the **POWER** button to turn off the instrument.
- 2. While pressing the three leftmost buttons in the **RHYTHM SELECT** section (**COMPOSER 1, 2 and 3**) at the same time, turn the **POWER** button on again.



NOTE:
All stored data in the **SEQUENCER** and **COMPOSER** and other settings are initialized with this operation.

OPTIONS AND CONNECTIONS



(on the rear panel)

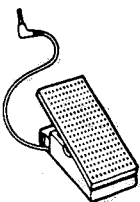
PHONES (Ω) (Use headphones with over 16Ω impedance.)
For silent practice headphones may be used. When plugged in, the speaker system is automatically switched off, and sound is heard only through the headphones.

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 instruments provided with MIDI terminals.

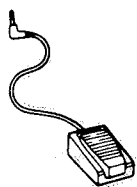
IN: The terminal that receives data from external equipment.
OUT: The terminal that transmits data from this instrument to external equipment.
THRU: The terminal that transfers data from the **IN** terminal directly to other equipment.

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

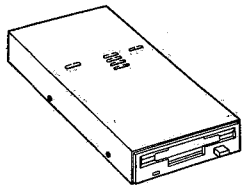
Options



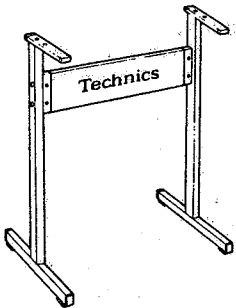
SZ-E2
Expression Pedal



SZ-P1
Foot Switch



SY-FD20
Digital Disk Recorder



SZ-S61
Keyboard Stand

LINE OUT (output level 1 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, 33 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.)

FOOT SW
The optional SZ-P1 Foot Switch can be connected to this terminal to control various functions.

FOOT CONTROLLER
The optional SZ-E2 Expression Pedal can be connected to this terminal to control the volume.

CONDUCTOR SETTINGS

Assigning a part to the keyboard

There are several possible ways to assign sounds to the keyboard.

CONDUCTOR settings	How sounds are assigned to the keyboard

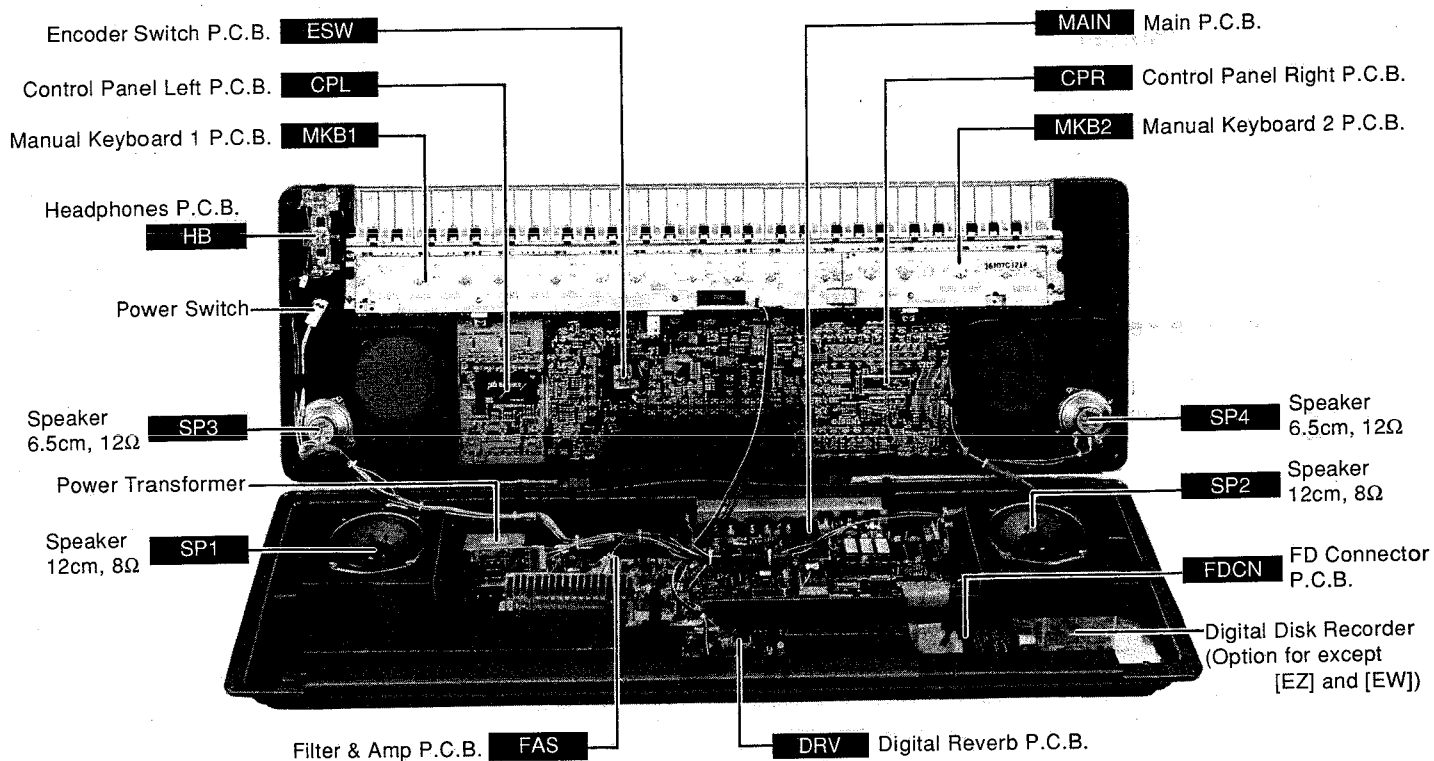
Assigning parts to the split keyboard

Parts can be assigned to a split keyboard in the following four ways.

CONDUCTOR settings	How sounds are assigned to the keyboard

• The keyboard automatically splits into left and right sections. The split point is shown by the lit indicator at G2, C3 or G3.

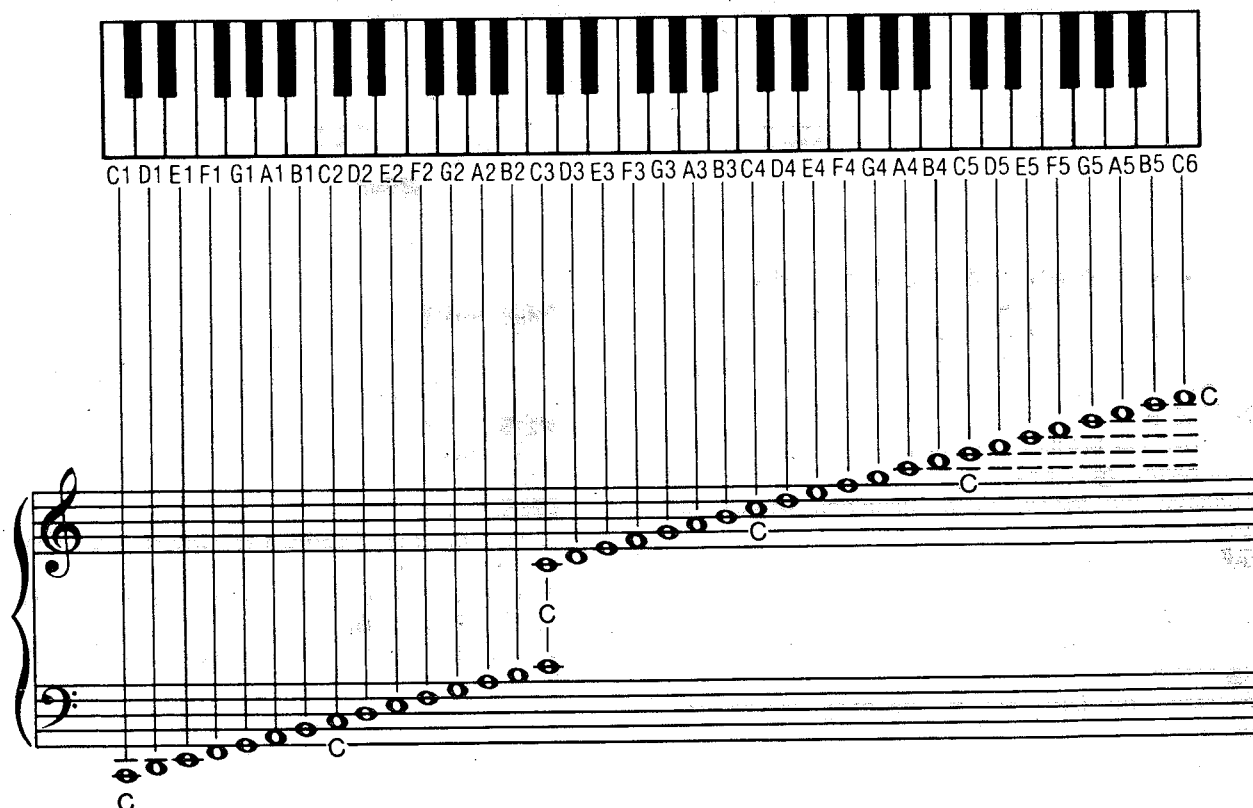
PARTS LOCATION



[Photo-1]

KEYBOARD RANGES

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



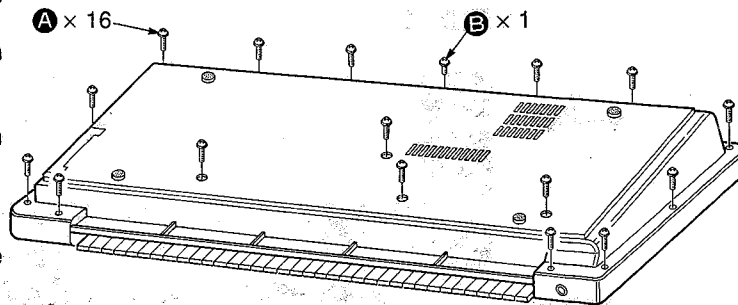
DISASSEMBLY INSTRUCTIONS

1 Opening the cabinet

1. Turn the keyboard cabinet upside down as shown in Fig. 1, and remove the bottom screws (A 16 pcs. and brown screw B 1 pc.).
2. Place the keyboard bottomside down, and open the top cabinet.

NOTE:

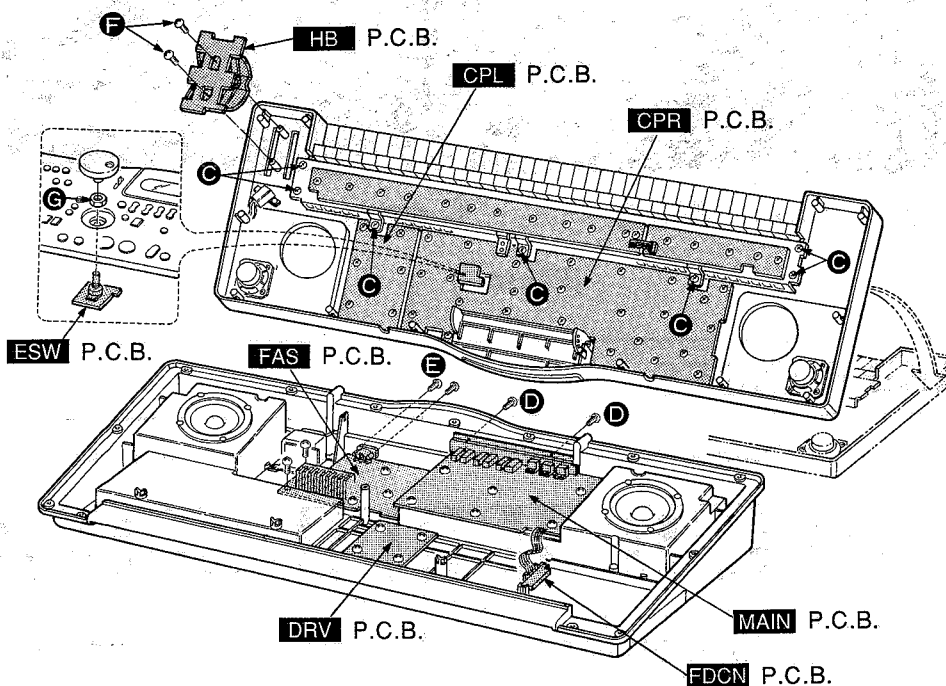
When closing the cabinet, be sure to use the brown screw which was removed in step 1 at position B.



[Fig. 1]

2 Removing the keyboard

1. Open the cabinet (see step 1), and turn over the control panel unit towards the rear.
2. Remove the keyboard assembly holding screws (C 7 pcs.).



[Fig. 2]

3 Removing the printed circuit boards

- Open the cabinet (see step 1), and turn over the control panel unit towards the rear.
- Pull out the connectors on the printed circuit boards.

MAIN P.C.B.

1. Remove the MAIN P.C.B. mounting screws on the rear panel (D 2 pcs.).
2. Remove the MAIN P.C.B. mounting screws (6 pcs.).

FAS P.C.B.

1. Remove the AC inlet jack fixing screws on the rear panel (E 2 pcs.).
2. Remove the FAS P.C.B. mounting screws (5 pcs.).

DRV P.C.B.

1. Remove the DRV P.C.B. mounting screws (4 pcs.).

CPL CPR P.C.B.

1. Remove the CPL P.C.B. mounting screws (6 pcs.) and CPR P.C.B. mounting screws (25 pcs.).
2. Remove the CPL and CPR P.C.B.s together.

HB P.C.B.

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

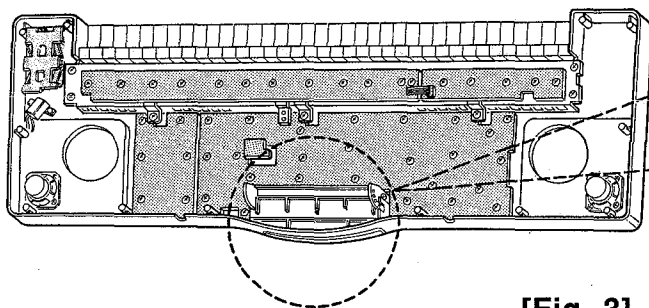
ESW P.C.B.

1. Pull off the **TEMPO/PROGRAM** dial from the control panel.
2. Remove the encoder switch holding nut on the ESW P.C.B. (G 1 pc.).
3. Open the cabinet, and remove the ESW P.C.B.

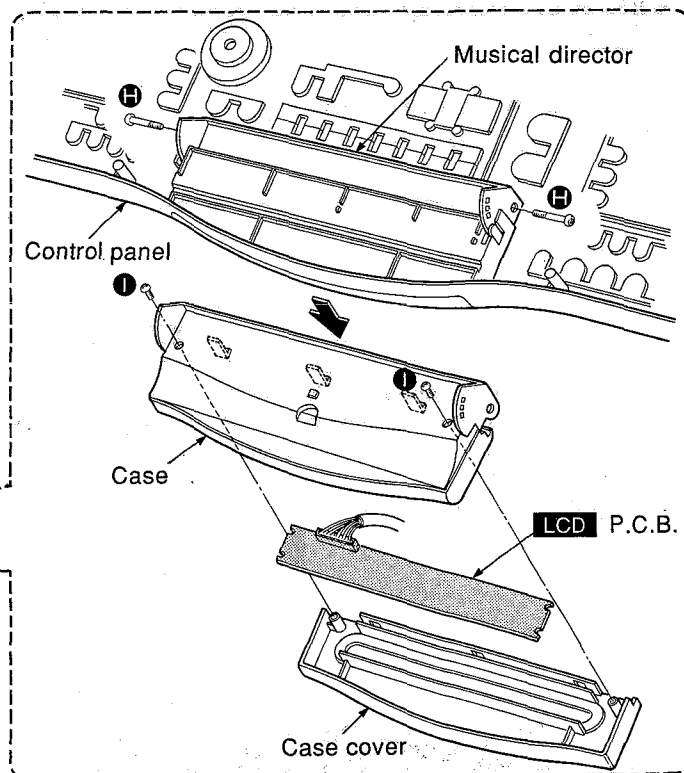
4 Removing the MUSICAL DIRECTOR

1. Open the cabinet (see step 1).
2. Remove the CPL and CPR P.C.B.s (see step 3).
3. Remove the **MUSICAL DIRECTOR** holding screws (H 2 pcs.). Remove the **MUSICAL DIRECTOR**.
4. Remove 2 screws on the **MUSICAL DIRECTOR** unit (I 2 pcs.).

Release the 3 claws of the case. The unit can then be separated into its three parts: case, LCD P.C.B., and case cover.



[Fig. 3]

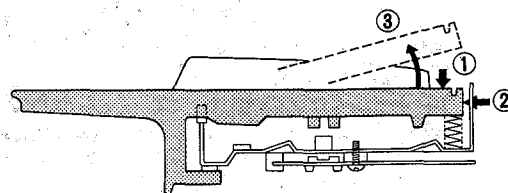


5 Removing the keys

1. Remove the keyboard by following the procedure in step 2.
2. Press downward on the rear of the key (Fig. 4-①).
3. While pressing downward on the rear of the key, push the key forward and release it from the chassis (Fig. 4-②).
4. Lift the key and remove it from the chassis (Fig. 4-③).

NOTE:

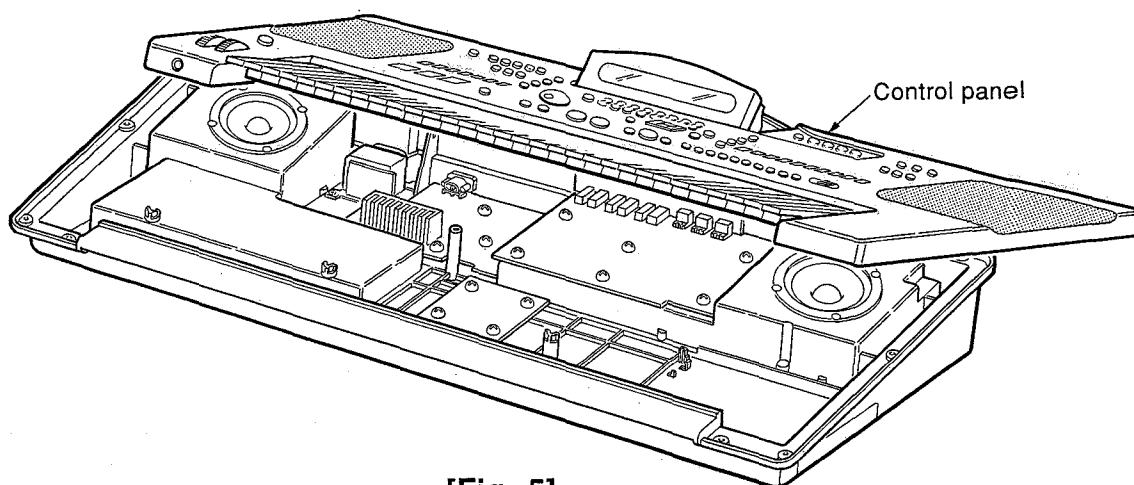
To remove a black key, the white key to either side of it should be removed first.



[Fig. 4]

■ INSPECTION

Inspect the printed circuit boards, etc. while operating the keyboard by first opening the cabinet and positioning the control panel unit as shown in Fig. 5.



[Fig. 5]

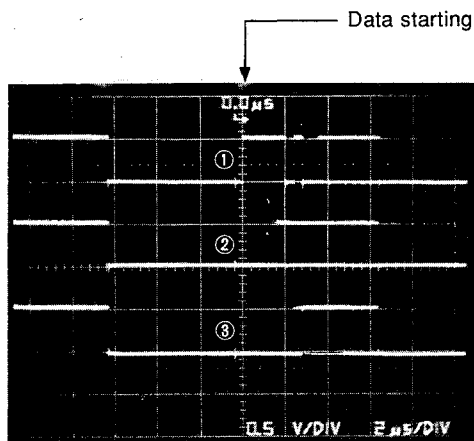
MEASUREMENTS AND ADJUSTMENTS

■ Measuring Equipment

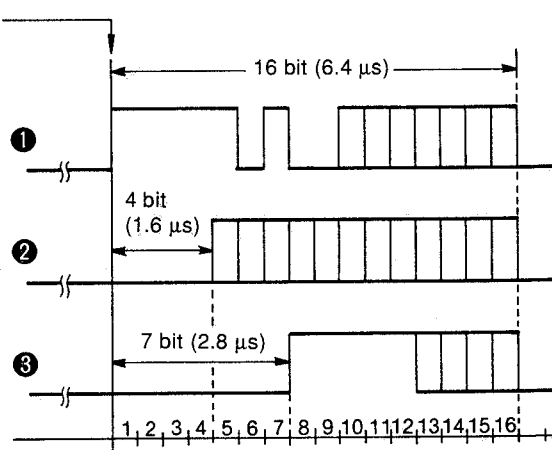
• Oscilloscope 20 MHz, 10:1 probe/1:1 probe

ADJUSTMENT	MEASURING CONDITIONS	EQUIPMENT	ADJUSTMENT P.C.B.	ADJ. POINT	CONNECT POINT(S)	READING
DRV bias	any position	Oscilloscope	DRV P.C.B.	VR1	Checkpoint ⑫ ⑬	Photo-A Fig. A

1. Connect the oscilloscope channel 1 to **DRV** P.C.B. checkpoint ⑫ and connect the oscilloscope external trigger to **DRV** P.C.B. checkpoint ⑬. (Set the oscilloscope CH1 triggering with EXT in.)
2. Turn VR1 on the **DRV** P.C.B. fully clockwise and set the data starting point to the oscilloscope division scale to facilitate adjustment in next procedure. (See photo A-①.)
3. Confirm that the first 4 bits (or 5 bits) are low when VR1 is turned fully counter-clockwise. (See photo A-②, Fig. A-②.)
4. Gradually turn VR1 clockwise and make the first 7 bits (2.8μs) turn to low. (See photo A-③, Fig. A-③.)



[Photo-A]



[Fig. A]

D/A Converter offset	any position	Oscilloscope	MAIN P.C.B.	VR1	IC22- ⑦ pin	0V ±5 mV
----------------------	--------------	--------------	--------------------	-----	-------------	----------

1. Set the oscilloscope voltage division to 5 mV/cm (Use the 1:1 oscilloscope probe) and connect the oscilloscope probe to **MAIN** P.C.B. IC22 Pin ⑦.
2. Turn VR1 to adjust the voltage to zero.

MEMO

DIGITAL DISK RECORDER SY-FD20 (OPTION)

■ Digital Disk Recorder

One song's worth of **SEQUENCER** data can be stored in the Keyboard's internal memory. When the Digital Disk Recorder is used, the data for up to 20 **SEQUENCER** performances can be preserved on one Digital Memory Disk (3.5 inch 2DD floppy disk).

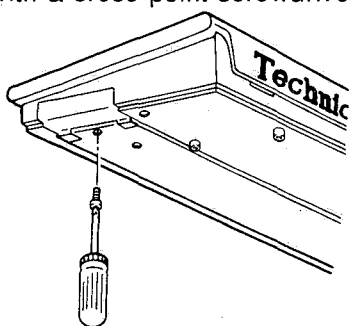
■ For Germany [EZ] and Switzerland [EW]

The SX-KN1000 sold in Germany and Switzerland has a Digital Disk Recorder already installed. This Digital Disk Recorder is a unit made especially for the SX-KN1000 and is different from the separately sold SY-FD20. Do not use it in other models.

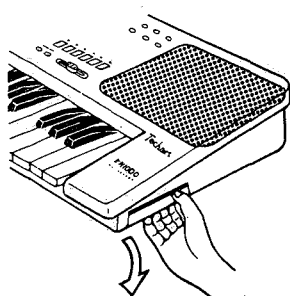
■ Installation procedures for SY-FD20 (Except for [EZ] and [EW] areas)

Make sure that the power to the Keyboard is turned off.

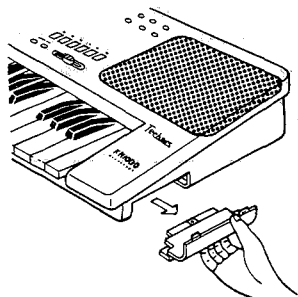
1. Remove the cover from the connector unit beneath the keyboard by first removing the screw with a cross-point screwdriver.



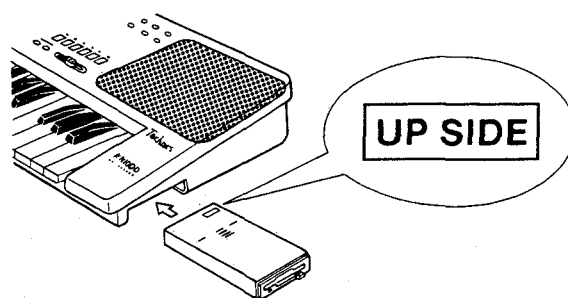
2. Use the gap at the top of the cover as a finger-hold to apply downward pressure.



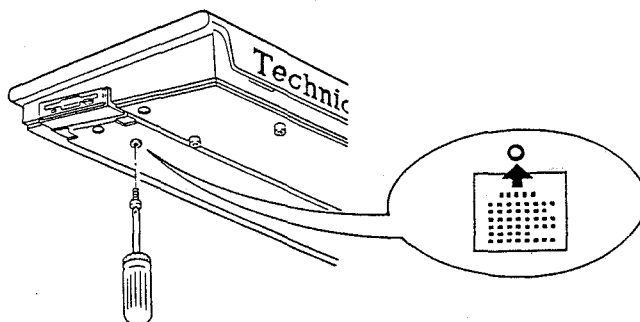
3. Pull the cover out horizontally and remove it from the Keyboard.



4. Insert the Digital Disk Recorder and push it in firmly and completely.



5. Secure the Digital Disk Recorder to the Keyboard with the screw you removed in step 1.



Note: To affix the Digital Disk Recorder, the same screw which was used to affix the cover must be used (in the place indicated by the arrow). Use of a different screw may result in malfunction of or damage to the Digital Disk Recorder.

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 SELECT section (1, 2 and 3) 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 DEMO button is on. ("DEMONSTRATION SONG" is shown on the display.) Press the DEMO button to turn it off. The display returns to the normal performance display. • The volumes for the selected parts are set to the minimum levels. Use the balance buttons to set the volumes of the relevant parts to appropriate levels. • The local control for a part performed on the keyboard is set to OFF. Set the local control to ON.
	When a chord is played, the sound of each key is different.	• The selected sound is a TRIO mode sound. TRIO mode sounds produce a different sound for each chord note.
	Only percussive instrument sounds are produced when the keyboard is played.	• The KEYBOARD PERCUSSION button is on. Turn it off to return the keyboard to the normal sound.
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 SELECT section, a COMPOSER number button with no stored pattern was selected. Change the rhythm or store a new rhythm pattern in the COMPOSER. • The MIDI clock is set the external clock. Set the MIDI clock to the internal <INT> clock.
AUTO PLAY CHORD	No sound is produced for the automatic accompaniment.	• In the RHYTHM SELECT section, a COMPOSER number button with no stored pattern was selected. Change the rhythm or store a new rhythm pattern in the COMPOSER.
	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 volumes to appropriate levels.

Phenomenon		Remedy
COMPOSER	Storage is not possible.	- The remaining memory capacity of the COMPOSER is 0. Erase a different COMPOSER number button in the RHYTHM SELECT section in which a pattern is stored. - The SEQUENCER memory is set to the <EXPAND> mode. Follow the procedure to set the SEQUENCER memory to the <NORMAL> mode.
	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 signature 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 the timing was automatically corrected. Set the quantize level to a smaller note unit or to OFF when recording.
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.
	Multi-track storage is not possible.	The playback track has been selected, but the START/STOP button has not been pressed. A flashing track indicator shows the track which is ready for recording, and a lit track indicator shows a track which is ready for playback. To record one track while listening to another (playback) track, press the START/STOP button to begin playback.
	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 track.
Digital Disk Recorder (Option)	The Digital Disk Recorder produces a noise during recording or playback.	This occurs when the Digital Disk Recorder is reading a disk. It does not indicate a problem.
	When the procedure to load from a memory disk is performed, the contents of the SEQUENCER memory are erased.	When performing the load operation from a memory disk, the SEQUENCER memory changes to that of the data loaded from the memory disk. If you wish to preserve a song which is stored in the SEQUENCER memory, save it in a memory disk before performing the load procedure.

MIDI IMPLEMENTATION CHART

Keyboard [SX-KN1000]

(Transmitted)

Function		POLY 1	POLY 2	ACCOMP 1	ACCOMP 2	ACCOMP 3	BASS	DRUMS	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 and octave shift.
	True voice	—	—	—	—	—	—	—	—	
Velocity	Note ON	○	○	○	○	○	○	○	—	
	Note OFF	× (9nH:v=0)	× (9nH:v=0)	× (9nH:v=0)	× (9nH:v=0)	× (9nH:v=0)	× (9nH:v=0)	× (9nH:v=0)	—	
After Touch	Key's	×	×	×	×	×	×	×	×	
	Ch's	×	×	×	×	×	×	×	×	
Pitch Bender		*OX	*OX	*OX	*OX	*OX	*OX	×	×	
Control Change	1	*OX	*OX	*OX	*OX	*OX	*OX	×	×	modulation
	7	*OX	*OX	*OX	*OX	*OX	*OX	*OX	*OX	volume (main volume)
	11	×	×	×	×	×	×	×	*OX	expression pedal
	64	*OX	*OX	*OX	*OX	*OX	*OX	×	×	sustain
	80	×	×	*OX	×	×	×	×	×	auto play chord
	82	×	×	×	×	×	×	*OX	×	intro, fill in, ending
	93	*OX	*OX	*OX	*OX	*OX	*OX	×	×	chorus
	0, 32	*OX	*OX	*OX	*OX	*OX	*OX	*OX	*OX	bank select (only for Technics mode and when program change data exchange is enabled)
Prog Change		*OX	*OX	*OX	*OX	*OX	*OX	*OX	*OX	
	True #	—	—	—	—	—	—	—	—	
System exclusive		○								
System common	Song Pos	*OX								0~19
	Song Sel	*OX								
	Tune	×								
System Real Time	Clock	○								start/stop, continue
	Commands	*OX								
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		POLY 1	POLY 2	ACCOMP 1	ACCOMP 2	ACCOMP 3	BASS	DRUMS	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 sound.
	True voice	0~127	0~127	0~127	0~127	0~127	0~127	36~83	—	
Velocity	Note ON	○	○	○	○	○	○	○	—	
	Note OFF	×	×	×	×	×	×	×	—	
After Touch	Key's	×	×	×	×	×	×	×	×	
	Ch's	×	×	×	×	×	×	×	×	
Pitch Bender		*OX	*OX	*OX	*OX	*OX	*OX	×	×	
Control Change	1	*OX	*OX	*OX	*OX	*OX	*OX	×	×	modulation
	7	*OX	*OX	*OX	*OX	*OX	*OX	*OX	*OX	volume (main volume)
	11	×	×	×	×	×	×	×	*OX	expression pedal
	64	*OX	*OX	*OX	*OX	*OX	*OX	×	×	sustain
	80	×	×	*OX	×	×	×	×	×	auto play chord
	82	×	×	×	×	×	×	*OX	×	intro, fill in, ending
	93	*OX	*OX	*OX	*OX	*OX	*OX	×	×	chorus
	0, 32	*OX	*OX	*OX	*OX	*OX	*OX	*OX	*OX	bank select (only for Technics mode and when program change data exchange is enabled)
Prog Change		*OX	*OX	*OX	*OX	*OX	*OX	*OX	*OX	
	True #	0~49 0~7**	0~49	0~49	0~49	0~49	0~49	0~49	0~6	
System exclusive		○								
System common	Song Pos	*OX								0~19
	Song Sel	*OX								
	Tune	×								
System Real Time	Clock	○								start/stop, continue
	Commands	*OX								
Aux Messages	Local ON/OFF	×	×	×	×	×	×	×	—	
	All notes OFF	○	○	○	○	○	○	○	—	
	Active Sense	○								
	Reset	×								
Notes		* ○ ×Whether or not the data for each of these items is received can be set. **Panel memory program change								

Mode 1: OMNI ON, POLY Mode 2: OMNI ON, MONO
Mode 3: OMNI OFF, POLY Mode 4: OMNI OFF, MONO

○: Yes

x: No

PRECAUTIONS BEFORE SERVICING

■ Precautions for measuring of the output waveforms.

- The waveform was measured with a "National Digital Storage Oscilloscope VP-5730A". Therefore the waveforms of the musical tone signals shown may differ somewhat due to the difference in the timing of the triggering.
- Since the 1/10 test probe is used, the indicated voltage value on the bottom part of each waveform photo is 1/10 of the actual value (e.g. 0.2V/cm should be 2.0V/cm).
- This PCM keyboard has a touch-sensitive type keyboard. Therefore the touch sensor level must be set to the "0" level when checking waveform measurements after activating the initial setting.
 - Initial setting method
 - Turn off the **POWER** button.
 - While pressing the three leftmost buttons in the **RHYTHM SELECT** section (**COMPOSER 1, 2 and 3**) at the same time, turn the **POWER** button on again.
 - Touch sensitivity setting method
 - Select "TOUCH SENSITIVITY" in the CTRL2 section with the **MEMORY & CONTROL** button.
 - Adjust the touch sensitivity level to "0".
 - Press the **MEMORY & CONTROL** button again to set the level.

■ Important safety notice:

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

■ Symbolic marks

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

1. RESISTORS

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

(TABLE-1)

SYMBOL	SPECIFICATION	SYMBOL	SPECIFICATION
Ⓡ	Fixed Carbon Film Resistors "FLAME-PROOF" (ERD_F_type)	Ⓡ	Fixed Metal Film Resistors "FLAME-PROOF" (ERX_type)
Ⓡ	Fixed Wire Wound Resistors "FLAME-PROOF" (ERF_type)	Ⓡ	Fuse Type Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERQ_type)
Ⓡ	Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERG_type)	Ⓡ	Fuse Type Fixed Carbon Film Resistors "FLAME-PROOF" (ERD2FC_type)
Ⓡ	Fixed Metal Film Resistors (Precision and High Stability) (ERO_type)		

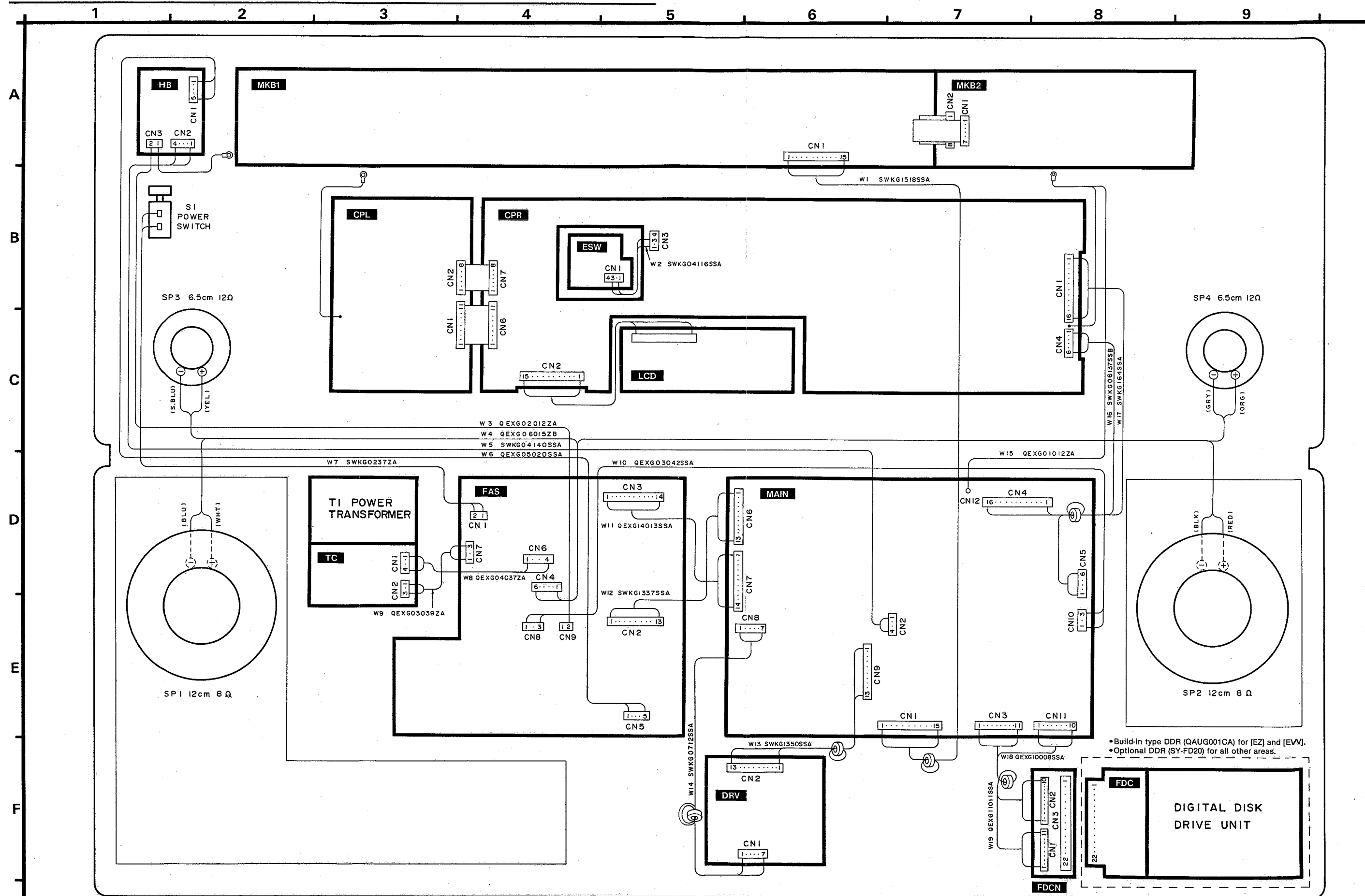
2. CAPACITORS

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

(TABLE-2)

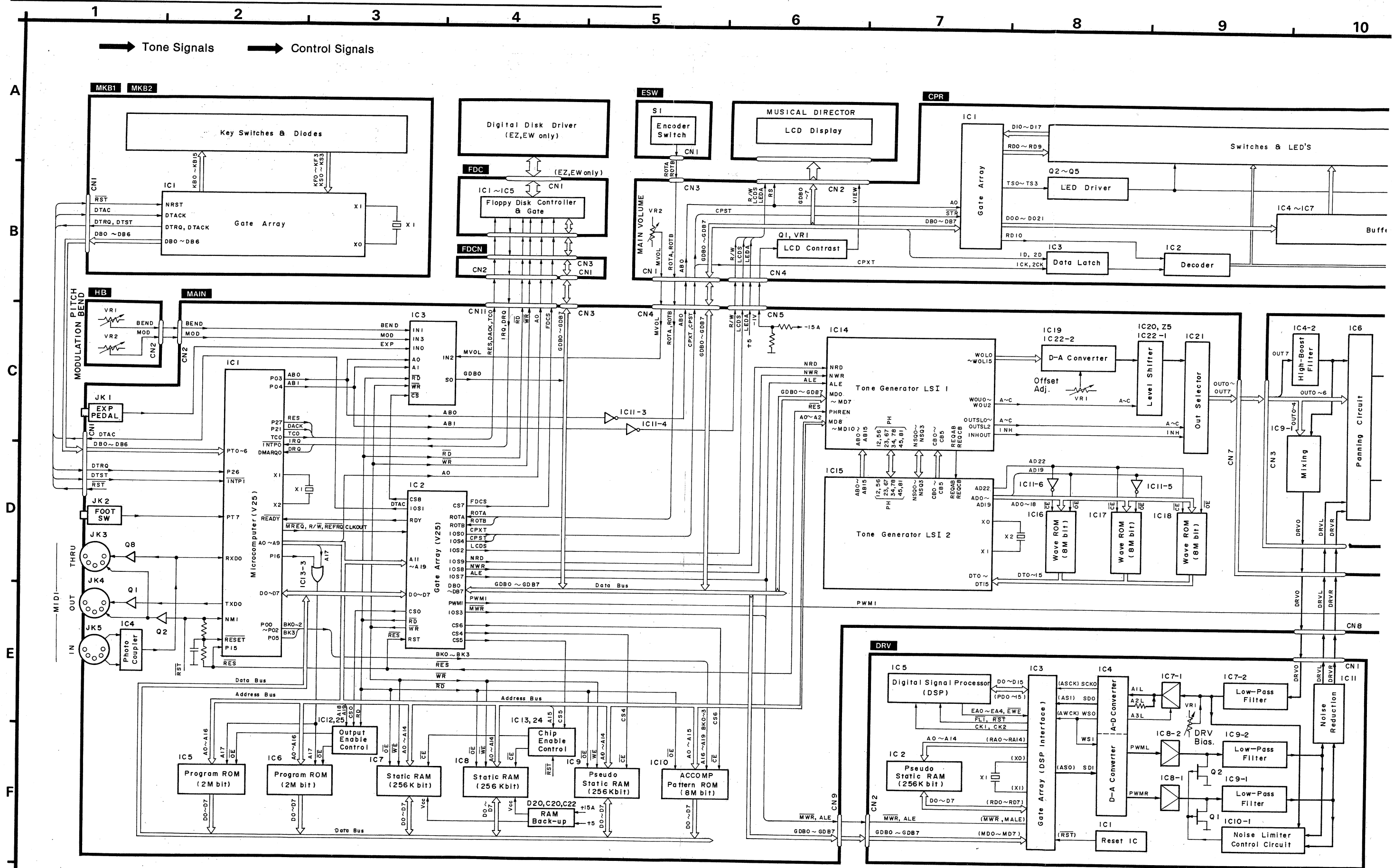
SYMBOL	SPECIFICATION	TYPE
Ⓝ	Non-Polarized Electrolytic Capacitors	ECEA_KN_type
Ⓨ	Non-Polarized Electrolytic (for Network System)	ECEA_Y_type
Ⓜ	Aluminum Electrolytic Capacitors (Low leakage current type)	ECEA_M_type
Ⓩ	Aluminum Electrolytic Capacitors (Low impedance type)	ECEA_Z_type
Ⓣ	Tantalum Solid Electrolytic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

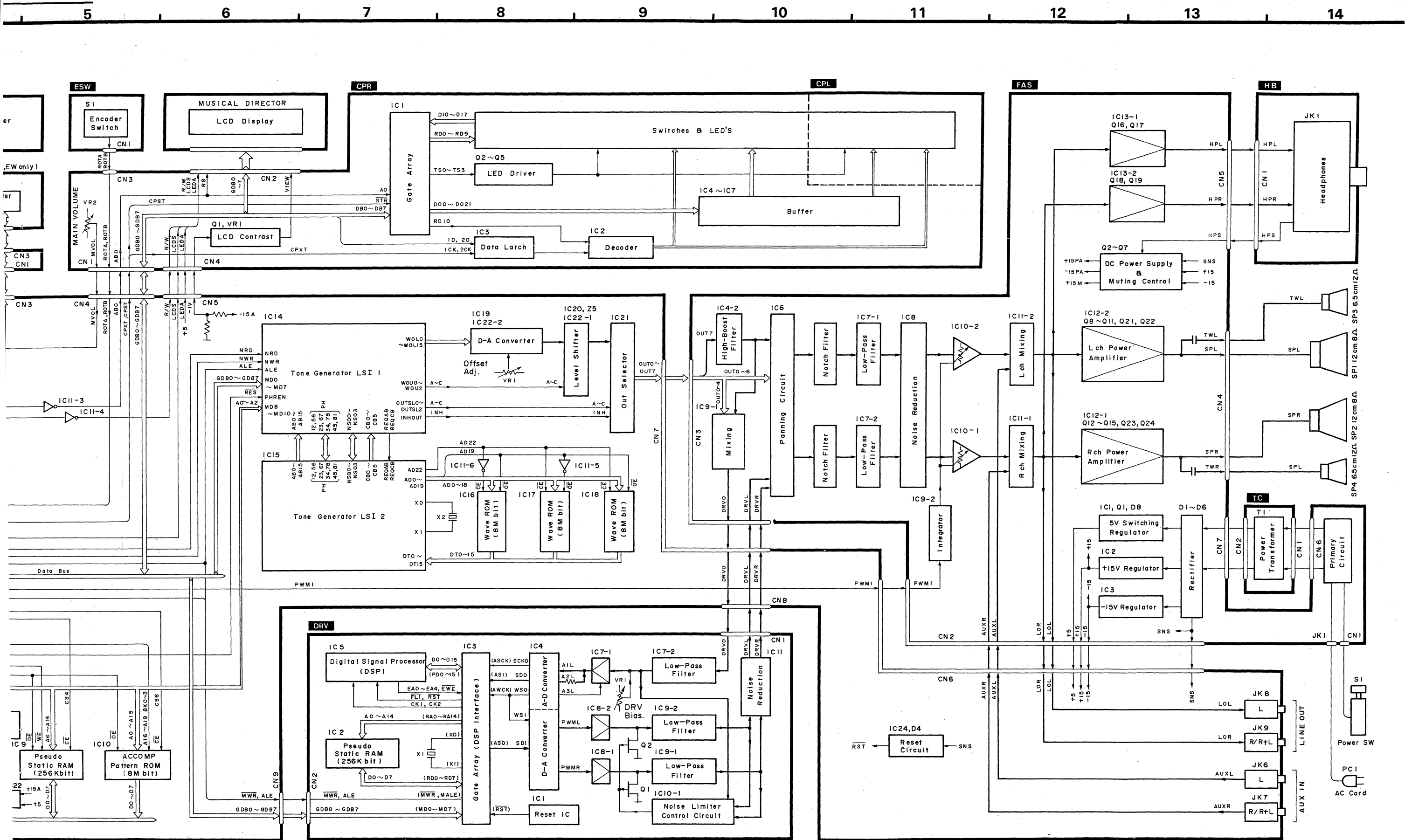
WIRING CONNECTION DIAGRAM



• Build-in type DDR (QAUG001CA) for [EZ] and [EVV].
• Optional DDR (SY-FD20) for all other areas.

BLOCK DIAGRAM





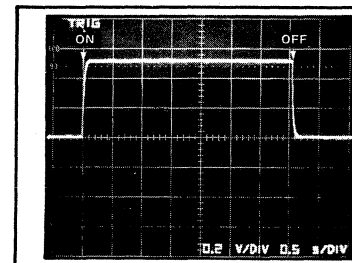
MAIN AND FD CONNECTOR CIRCUIT DIAGRAM

NOTES: MAIN

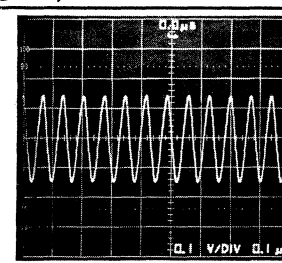
IC1:	SVIGD70320GJ	IC12, 13:	M74HC32FP
IC2:	SVIGMB621407	IC14:	MN73012PGC
IC3:	SVIGMSM6253	IC15:	MN73013PGD
IC4:	SVIGTLP513	IC16:	QSIGH3C08D48
IC5:	QSIGBKN10BX0	IC17:	QSIGU3C08066
IC6:	QSIGBKN10AX0	IC18:	QSIGU3C08065
IC7, 8:	SVIGD43256AL	IC19:	SVIGPCM54
IC9:	SVIGHM65256	IC20, 21:	T74H4051AF
IC10:	QSIGH3C08C11	IC22:	M5238FP
IC11:	M74HC04FP	IC24, 25:	M74HC00FP

TRANSISTORS	
Q1, 2, 8:	2SA1015-GR
DIODES	
D1~15, 19:	MA165TA5
D17, 18:	MA4051MTA
D20:	MA4056H

1 RESET



2 X1, 14MHz



Power SW ON → OFF

A

B

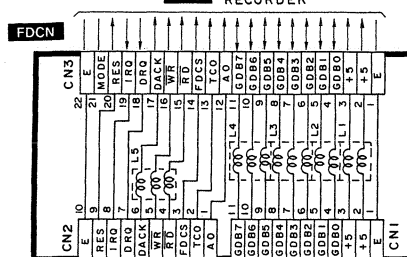
C

D

E

F

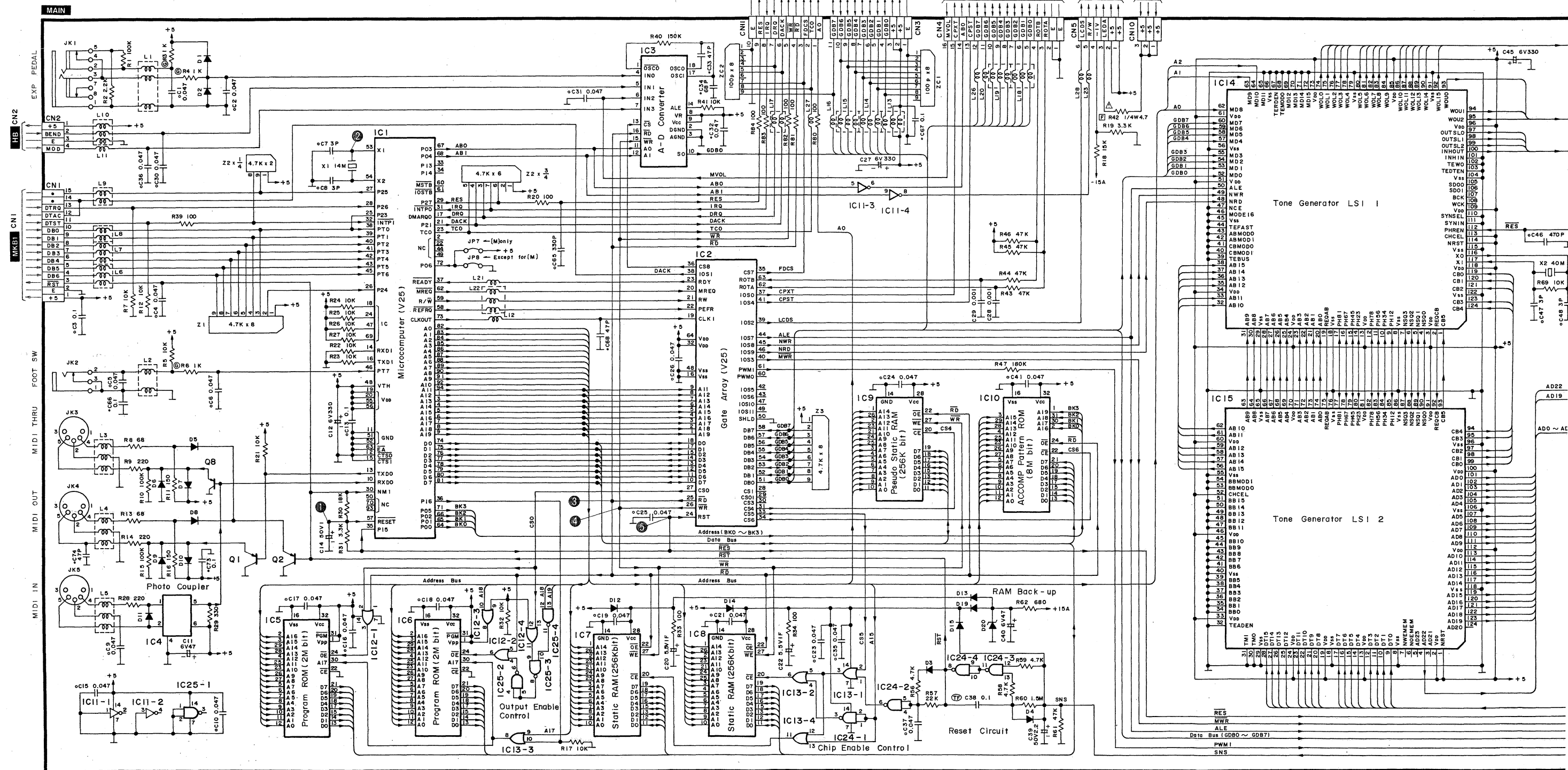
FDC DIGITAL DISK RECORDER

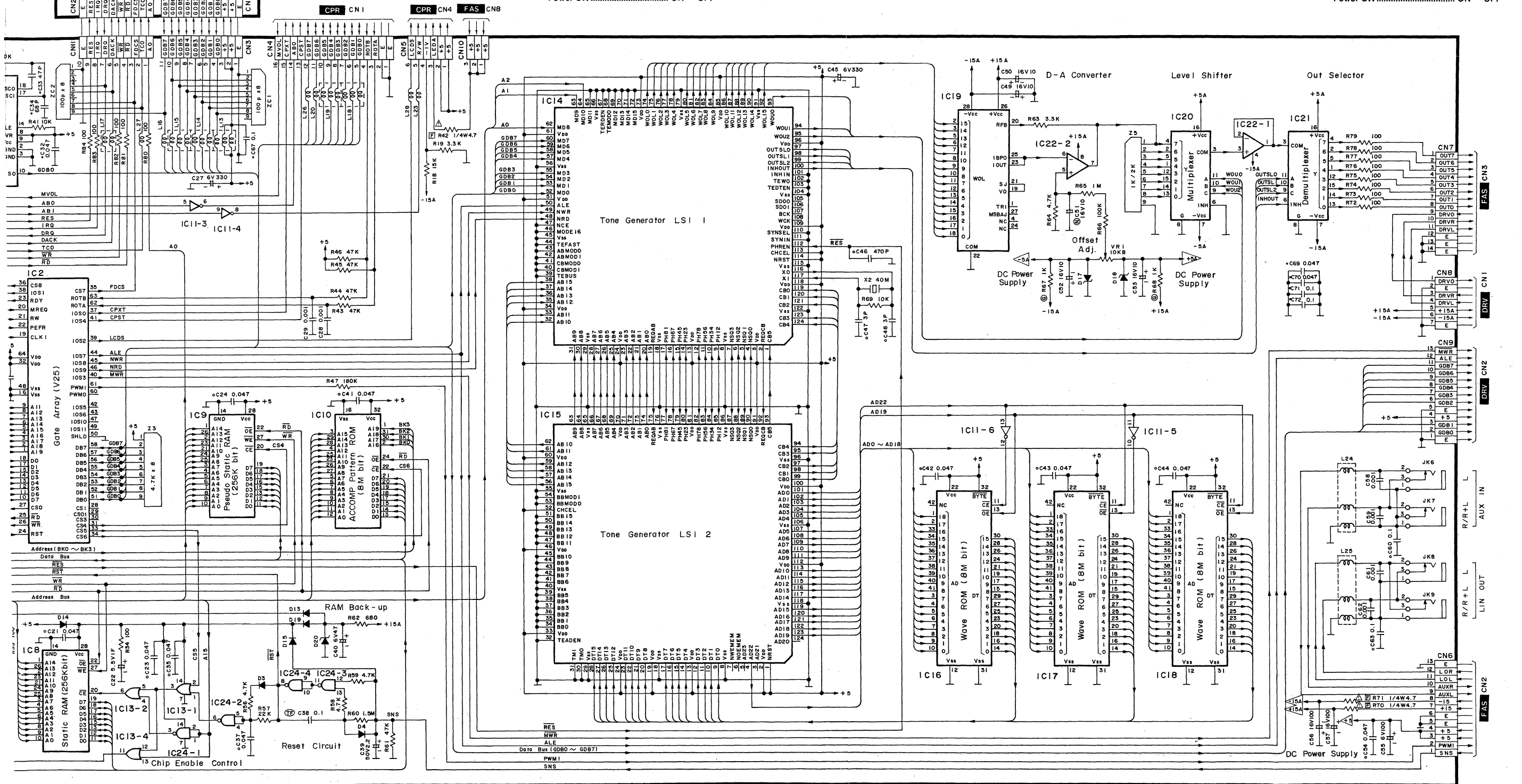
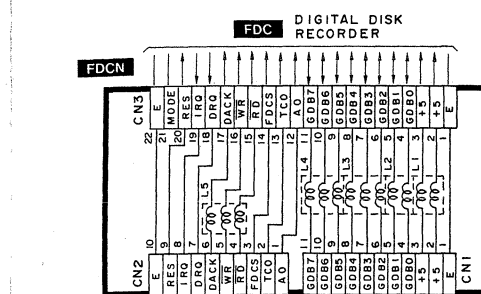


CPR CN1

CPR CN4

FAS CN6





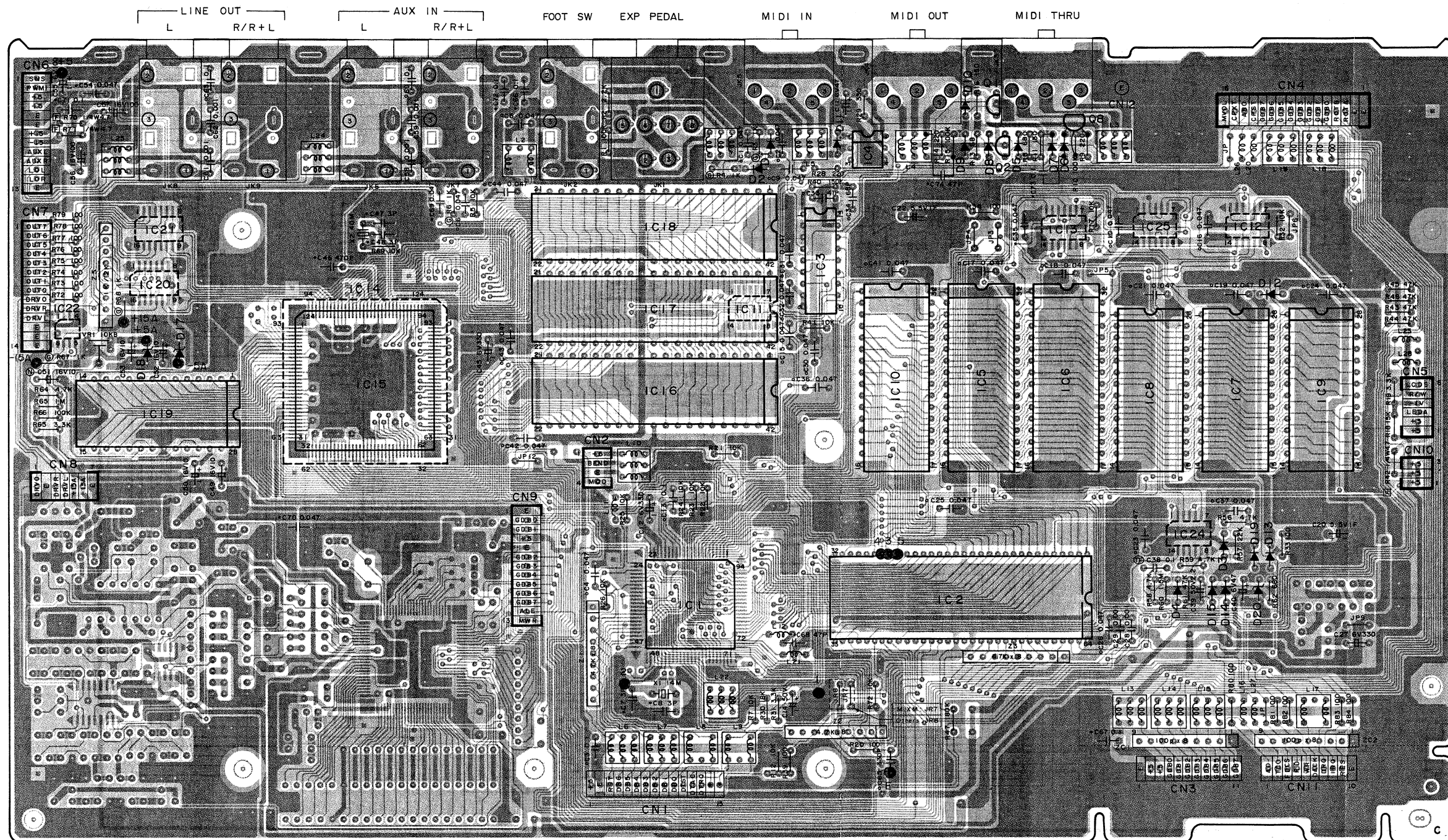
MAIN AND FD CONNECTOR CIRCUIT BOARD

MAIN AND FD CONNECTOR CIRCUIT BOARD

• [M] [XM] areas..... **SXPG206421**

• Other areas..... **SXPG206411**

MAIN

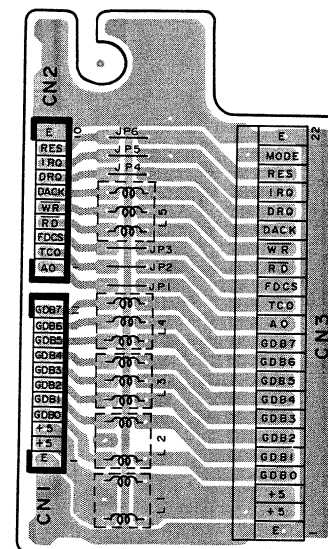

Circuit view on top of P.C.B.

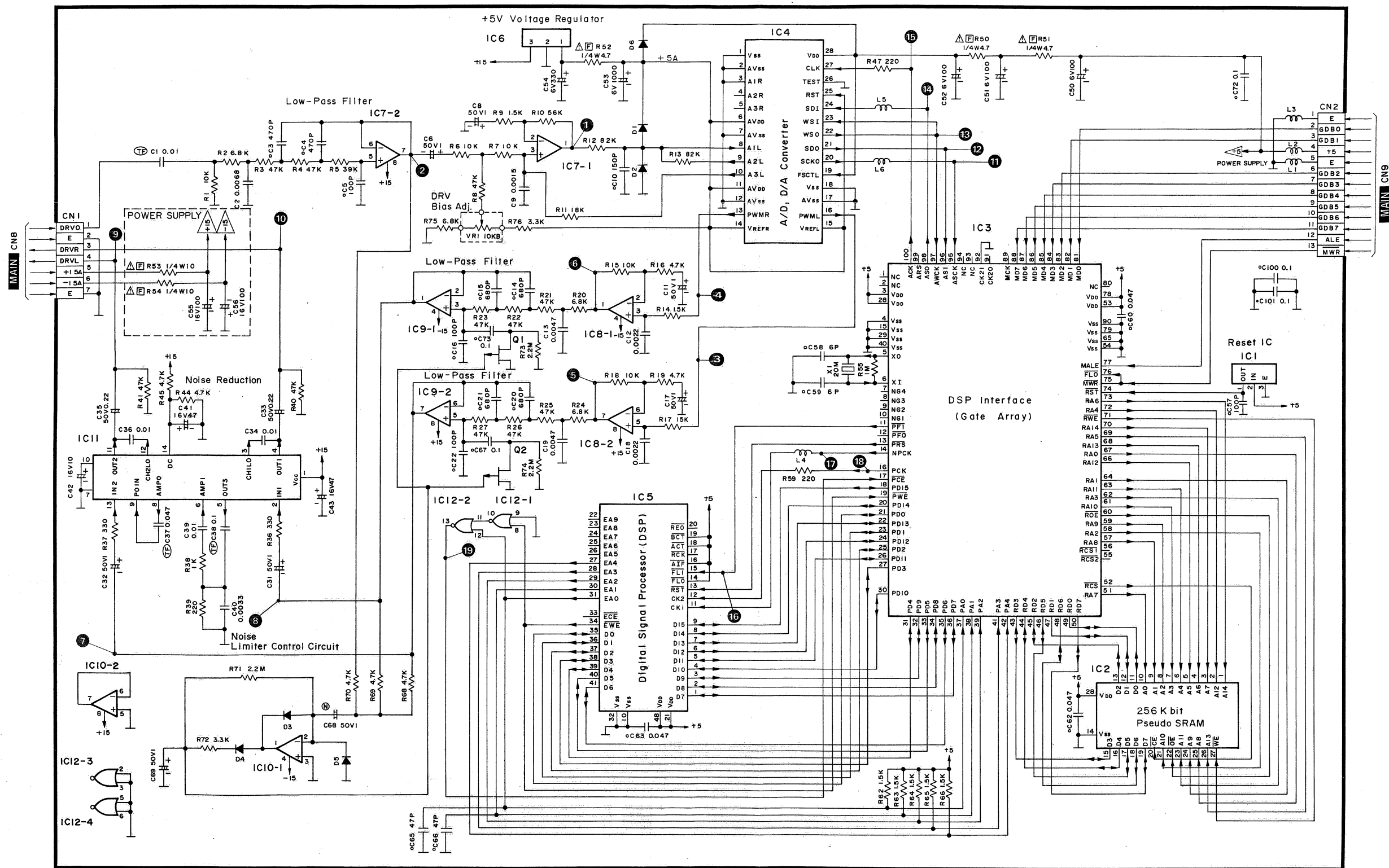
MAIN

NOTES:

- IC'S
 - IC1: SVIGD70320GJ
 - IC2: SVIGMB621407
 - IC3: SVIGMSM6253
 - IC4: SVIGTLP513
 - IC5: QSIGBKN10BX0
 - IC6: QSIGBKN10AX0
 - IC7, 8: SVIGD43256AL
 - IC9: SVIGHM65256
 - IC10: QSIGH3C08C11
 - IC11: M74HC04FP
 - IC12, 13: M74HC32FP
 - IC14: MN73012PGC
 - IC15: MN73013PGD
 - IC16: QSIGH3C08D48
 - IC17: QSIGU3C08066
 - IC18: QSIGU3C08065
 - IC19: SVIGPCM54
 - IC20, 21: T74H4051AF
 - IC22: M5238FP
 - IC24, 25: M74HC00FP
- TRANSISTORS
 - Q1, 2, 8: 2SA1015-GR
- DIODES
 - D1~15, 19: MA165TA5
 - D17, 18: MA4051MTA
 - D20: MA4056H

FDCN SXP208721





NOTES:

- IC'S
- IC1: MN1280R
- IC2: SVIGHM65256
- IC3: SVIGMB622416
- IC4: MN8305S
- IC5: SVIG87064073
- IC6: SVIGM5278L05
- IC7: SVIGM5220L
- IC8~10: SVIGM5218L
- IC11: SVIGLM1894N
- IC12: M74HC02FP
- TRANSISTORS
- Q1, 2: 2SJ105GR
- DIODES
- D1~5: MA165TA5
- D6: EK04

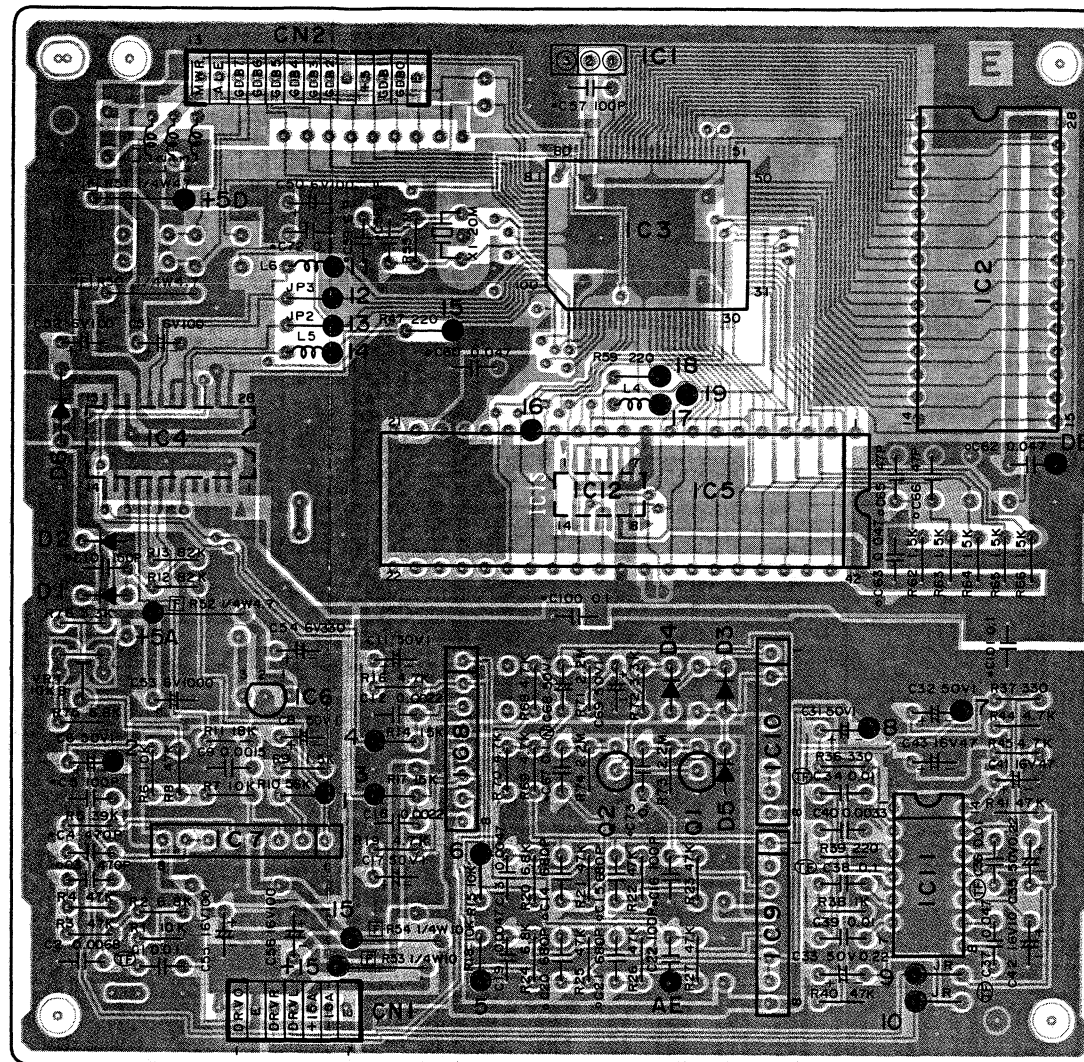
Waveform measurement

1. Activate the initial setting method. (Refer to page I-15)
2. Set the touch sensitivity level to the "0". (Refer to page I-15)
3. Set the keyboard to required mode followings.

- SOUND SELECT FLUTE
- SOUND VARIATION 1
- DIGITAL REVERB ON
- Key C4 key

Circuit view on top of P.C.B.

SXPG146071



NOTES:

• IC'S

- IC1: MN1280R
- IC2: SVIGHM65256
- IC3: SVIGMB622416
- IC4: MN8305S
- IC5: SVIG87064073
- IC6: SVIGM5278L05
- IC7: SVIGM5220L

- IC8~10: SVIGM5218L
- IC11: SVIGLM1894N
- IC12: M74HC02FP

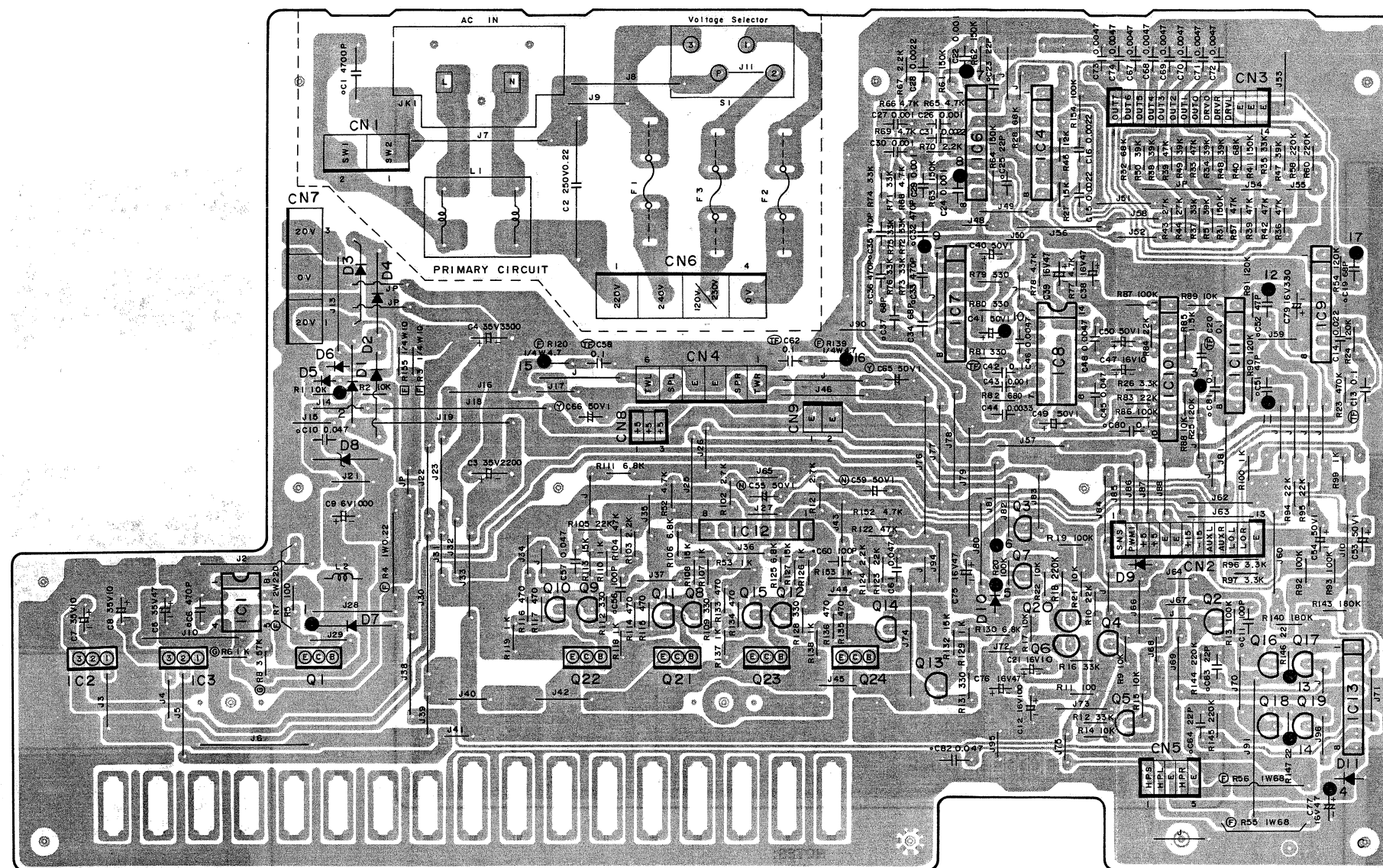
• TRANSISTORS

- Q1, 2: 2SJ105GR

• DIODES

- D1~5: MA165TA5
- D6: EK04

FAS



FAS P.C.B.

- [M] [XM] [MC] areas SXP206731A
- [XR] area SXP206741A
- [XL] area SXP206751A
- [EK] [X] [XS] [XD] areas ... SXP206761A
- Other areas SXP206711A

FAS

NOTES:

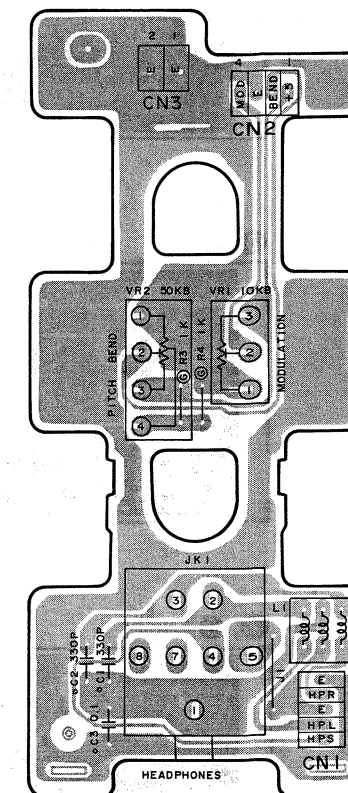
- IC'S
 - IC1: SVIGM5291P
 - IC2: SVIGM5F7815
 - IC3: SVIGM5F7915
 - IC4, 6, 7, 9, 11~13: SVIGM5218L
 - IC8: SVIGLM1894N
 - IC10: SVIGM5241L
- TRANSISTORS
 - Q1: 2SA1643
 - Q2~4, 9, 10, 13, 14, 17, 19, 20: 2SA1015-GR
 - Q5~8, 11, 12, 15, 16, 18: 2SC1815GR
 - Q21, 23: 2SA15670Y
 - Q22, 24: 2SC40640Y
- DIODES
 - D1~4: SVDS2V20
 - D5, 6: SVDGERA1502Y
 - D7: SVDGRK14S
 - D8: MA2062LF
 - D9: MA165TA5
 - D10, 11: EK04
- FUSES
 - F1:

M	XM	MC	XBA1C16NU100
EK	X	XS	XBA2C12TB0
 - F2, 3:

EK	X	XS	XBA2C063TB0
XR	XD		
 - F3: Others: XBA2C063TB0

HB

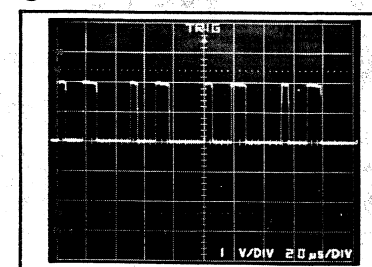
SXP206711B



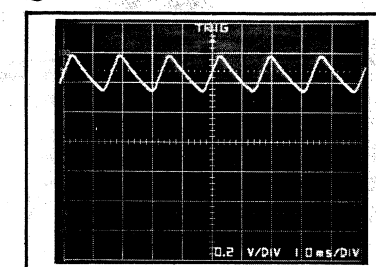
* FAS P.C.B. comparison chart by area about the primary circuit.

Ref. No.	P.C.B. Part No.	JK1	S1	F1	F2	F3	J8	J9	J11	C1	C2	CN1, CN6, L1, J7
M, XM, MC	SXP206731A	SJS9236	x	1.6A, 125V	x	x	x	○				
XR	SXP206741A	SJSD16	○	T1.25A, 250V	T630mA, 250V				x	4700pF	0.22μF, 250V	○
EK, X, XS, XD	SXP206761A	SJS9236	○			T630mA, 250V	○	x				
XL	SXP206751A	SJSD16	x	x	x				○			
Others	SXP206711A	SJS9236										

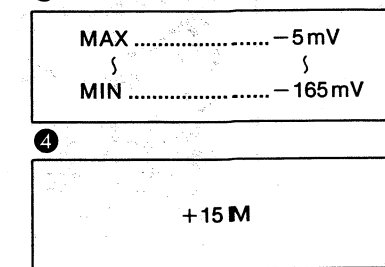
①

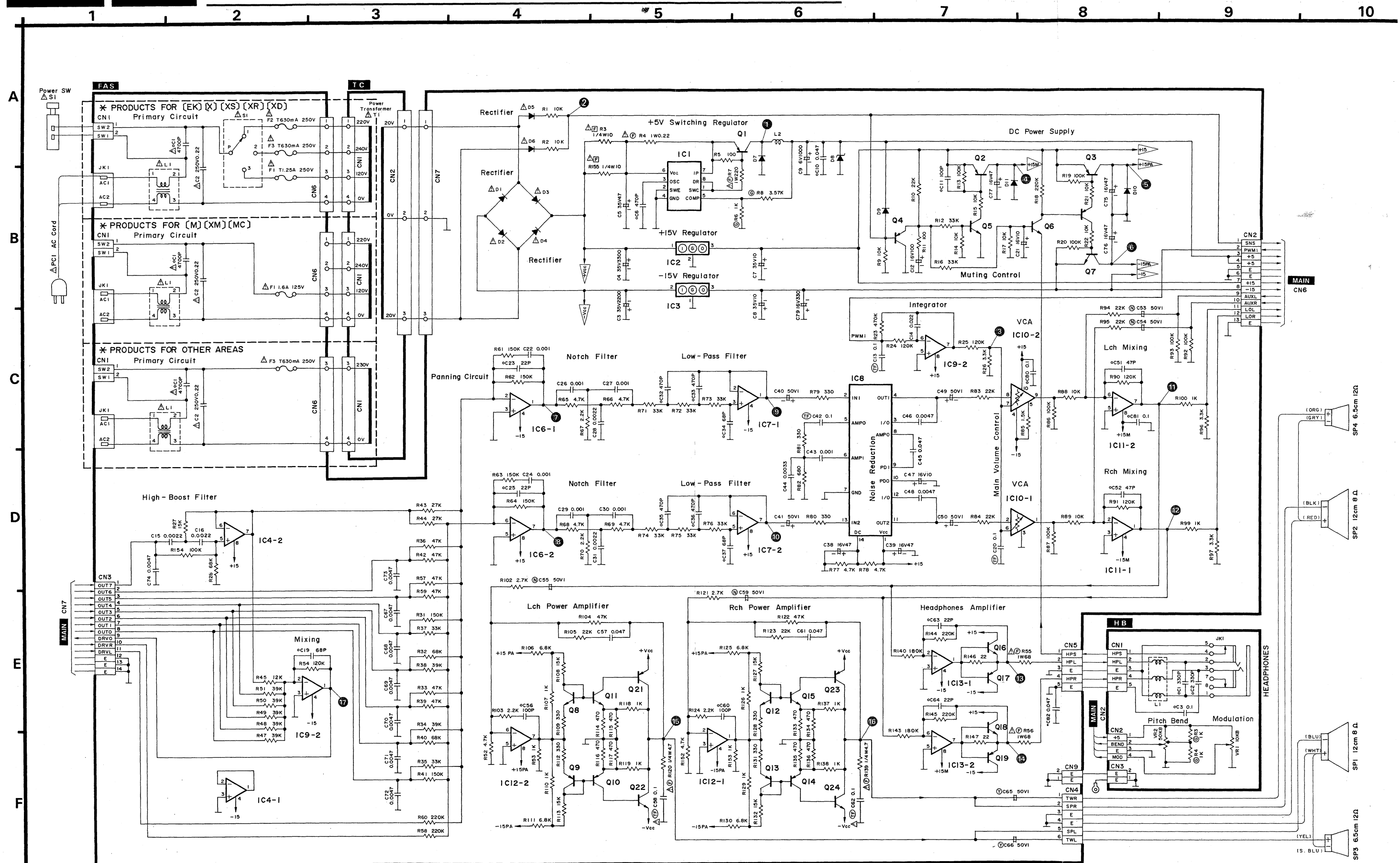


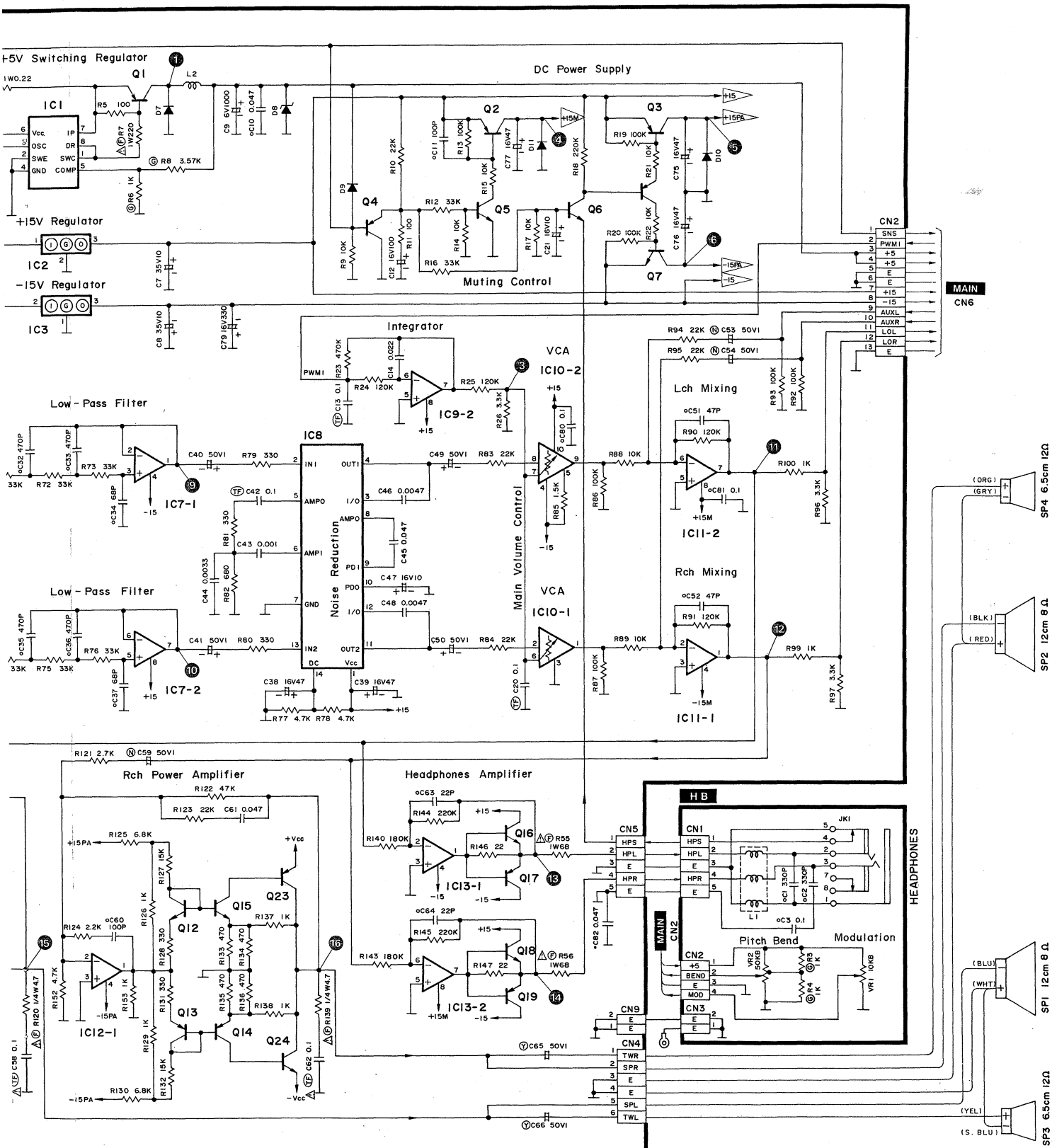
② SNS



③ Main Vol. Control





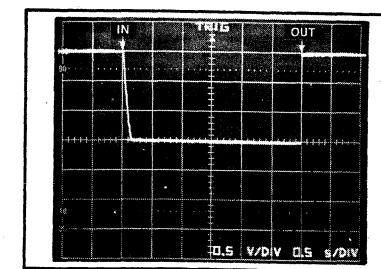


Waveform measurement

1. Activate the initial setting method. (Refer to page I-15)
2. Set the touch sensitivity level to the "0". (Refer to page I-15)
3. Set the keyboard to the required mode followings.

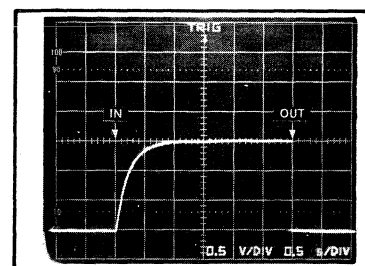
- SOUND SELECT FLUTE
- SOUND VARIATION 1
- DIGITAL REVERB OFF
- MAIN VOLUME MAX
- Key C4 Key

5 +15PA



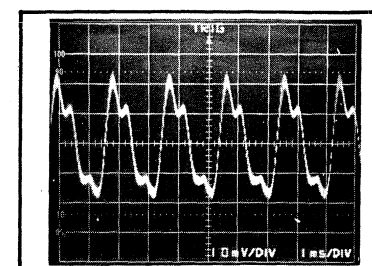
• Headphones plug.....IN → OUT

6 -15PA

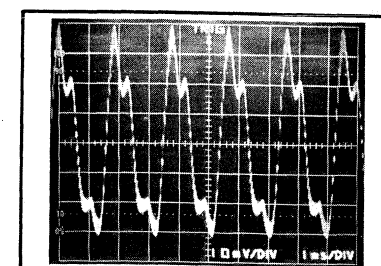


• Headphones plug.....IN → OUT

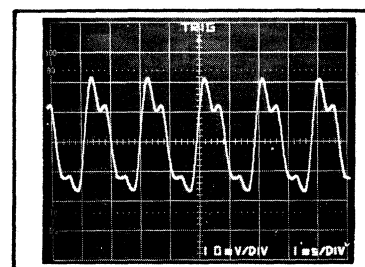
7



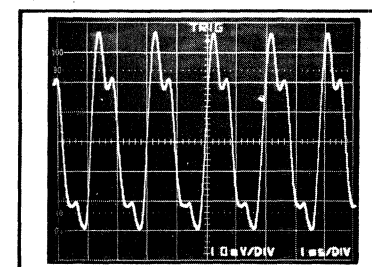
8



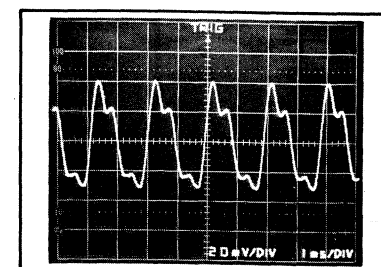
9



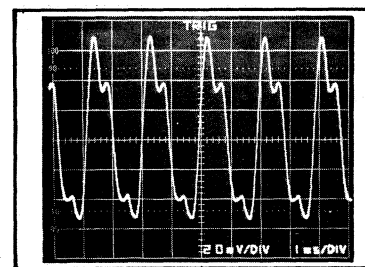
10



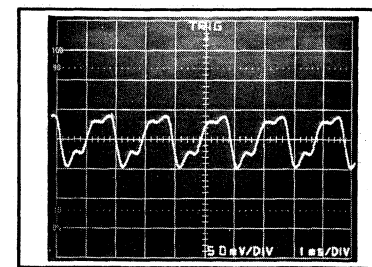
11



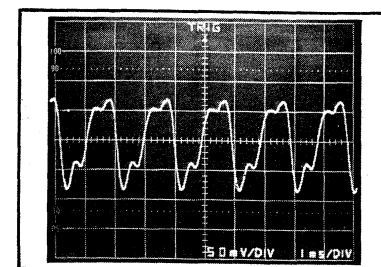
12



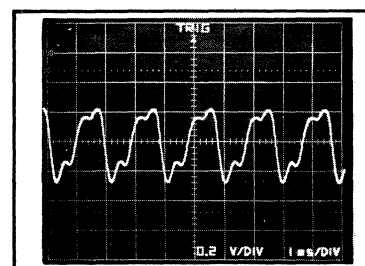
13



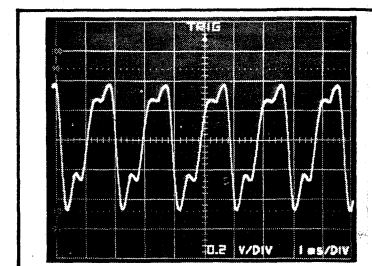
14



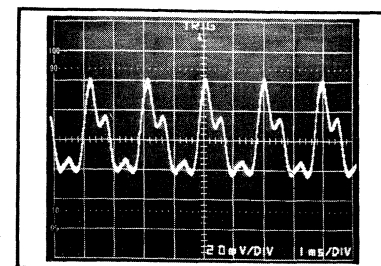
15

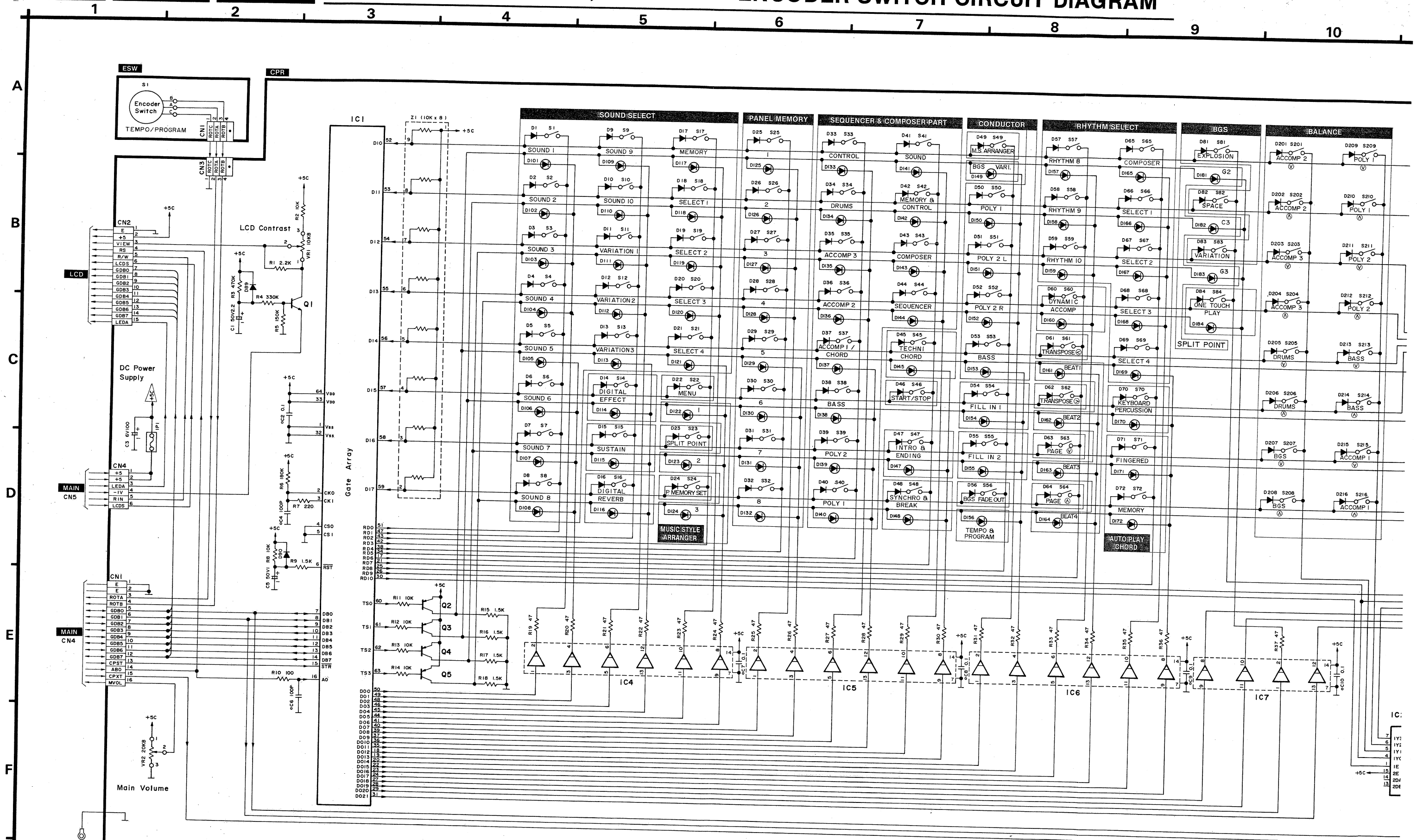


16

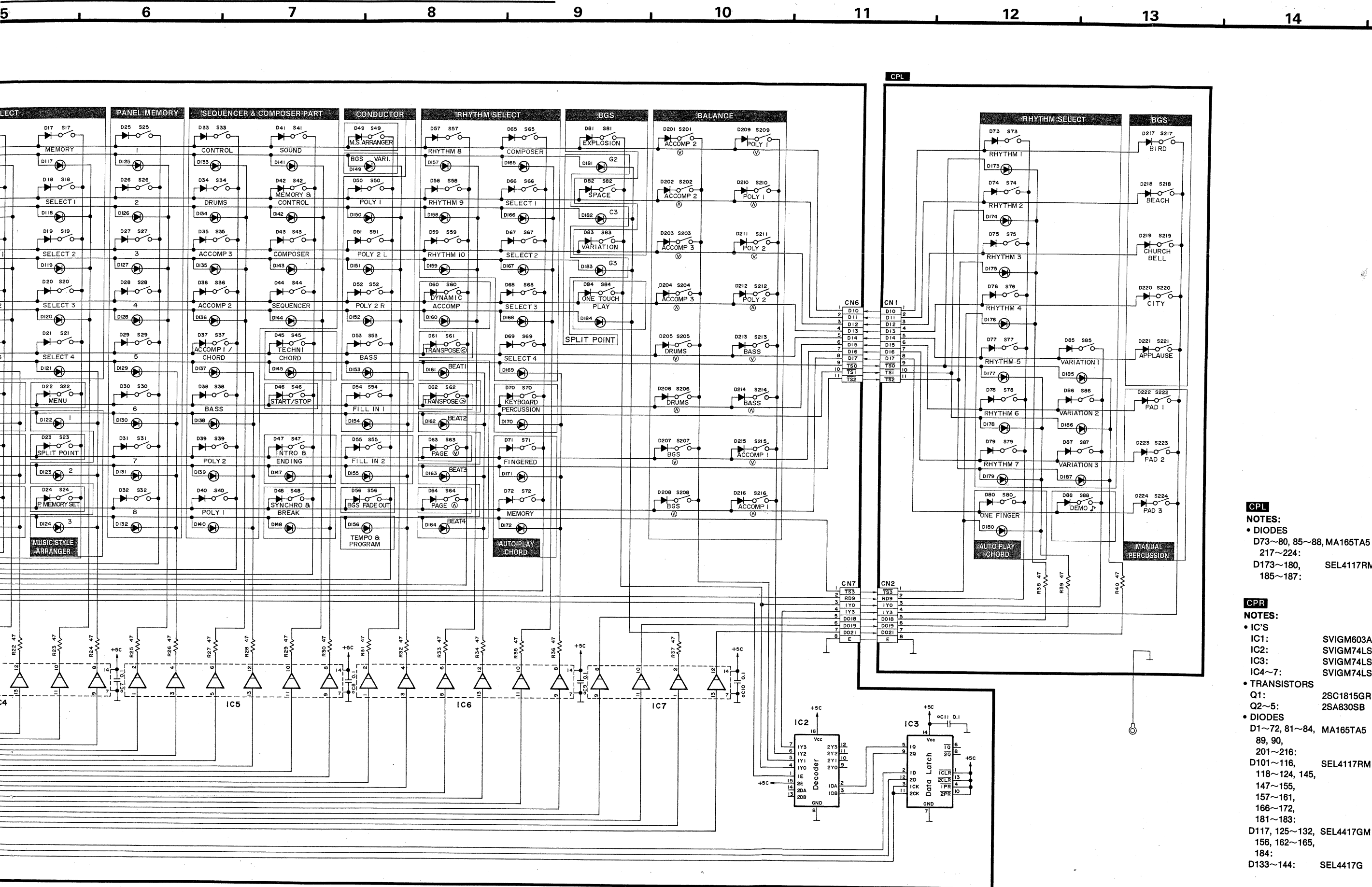


17





HT AND ENCODER SWITCH CIRCUIT DIAGRAM



CPL
NOTES:
 • DIODES
 D73~80, 85~88, MA165TA5
 217~224:
 D173~180, SEL4117RM
 185~187:

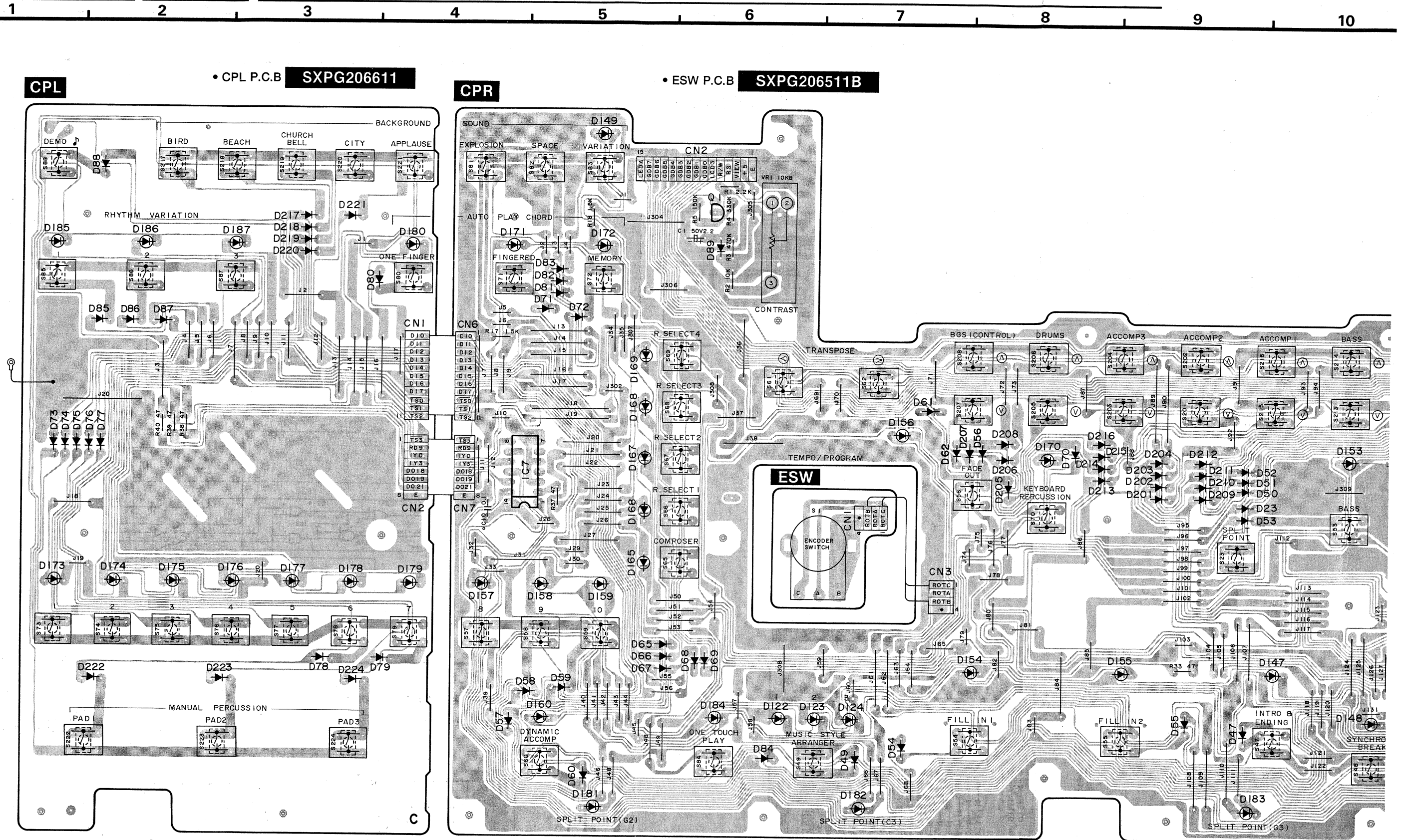
CPR
NOTES:
 • IC'S
 IC1: SVIGM603A121
 IC2: SVIGM74LS139
 IC3: SVIGM74LS74
 IC4~7: SVIGM74LS07
 • TRANSISTORS
 Q1: 2SC1815GR
 Q2~5: 2SA830SB
 • DIODES
 D1~72, 81~84, MA165TA5
 89, 90,
 201~216:
 D101~116, SEL4117RM
 118~124, 145,
 147~155,
 157~161,
 166~172,
 181~183:
 D117, 125~132, SEL4417GM
 156, 162~165,
 184:
 D133~144: SEL4417G

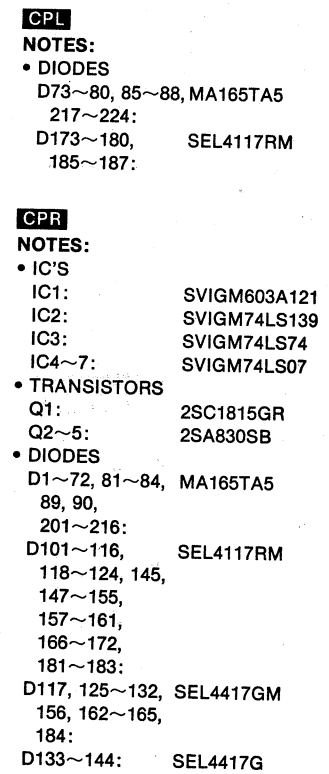
CPL

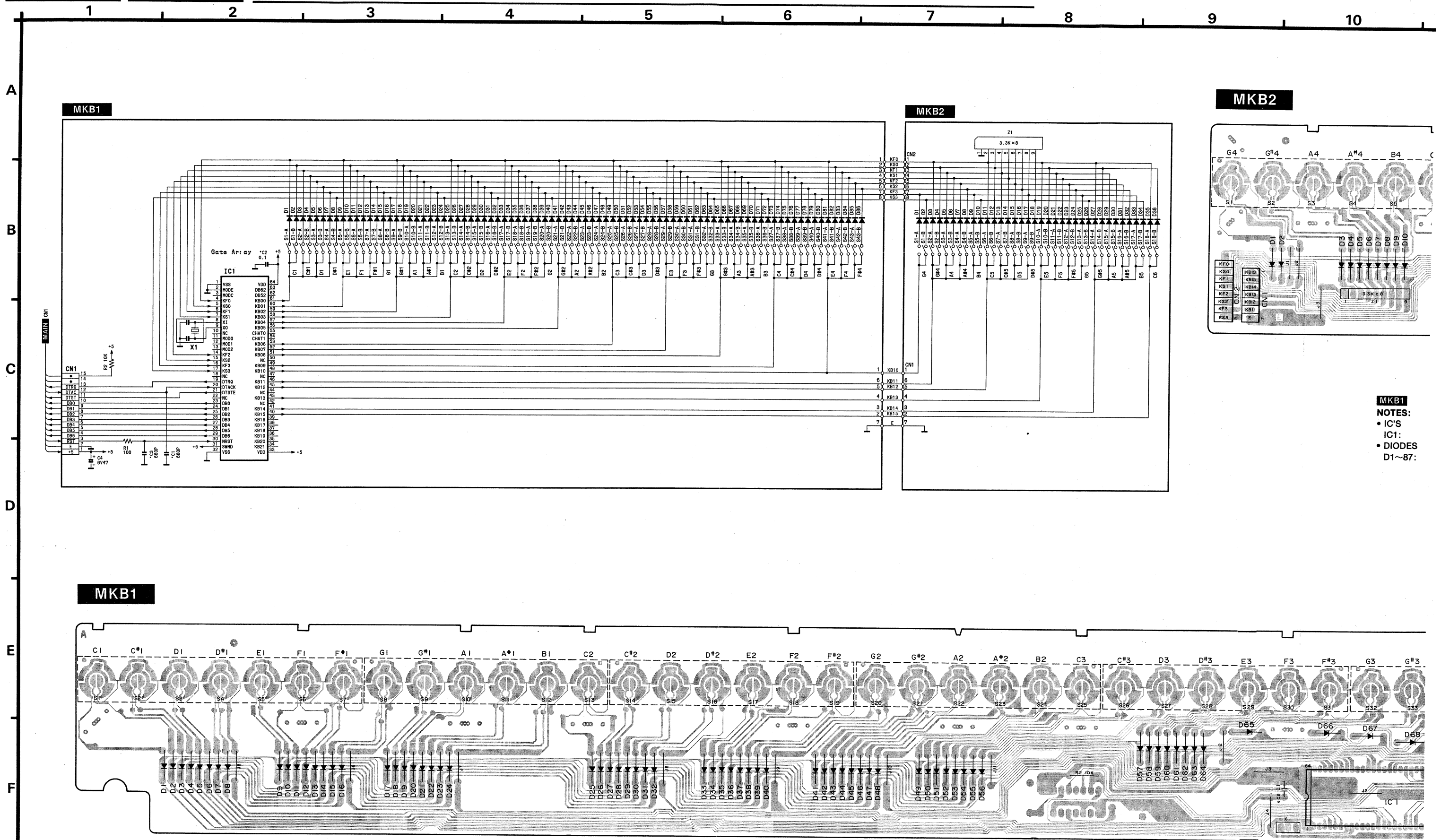
CPR

ESW

CONTROL PANEL LEFT, RIGHT AND ENCODER SWITCH CIRCUIT BOARD

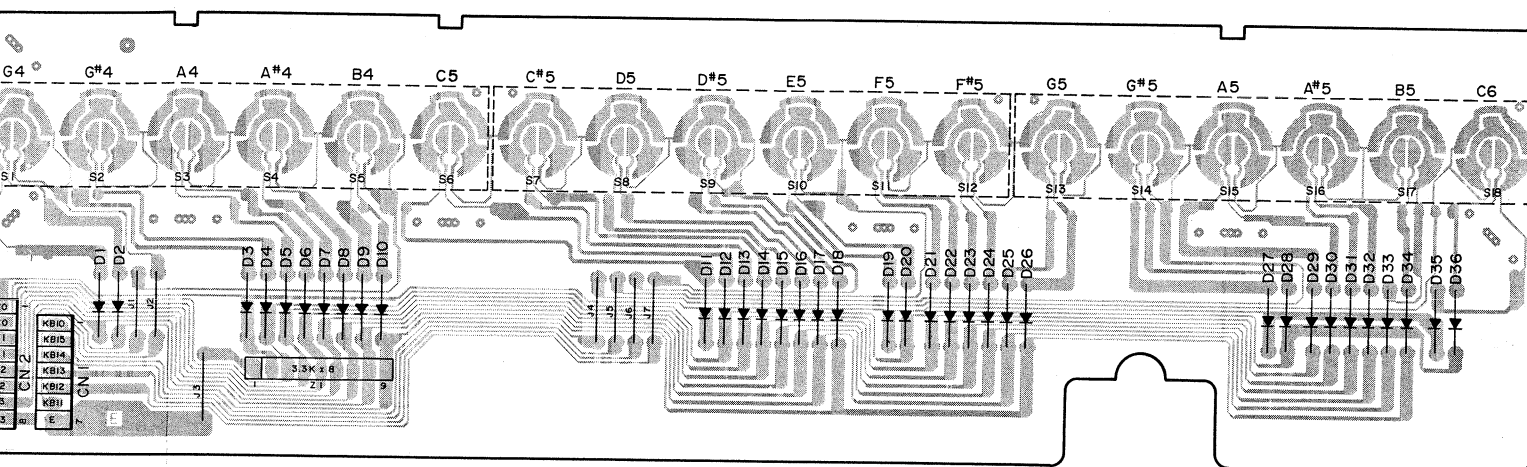






MKB2

SXPG143611



MKB1

NOTES:

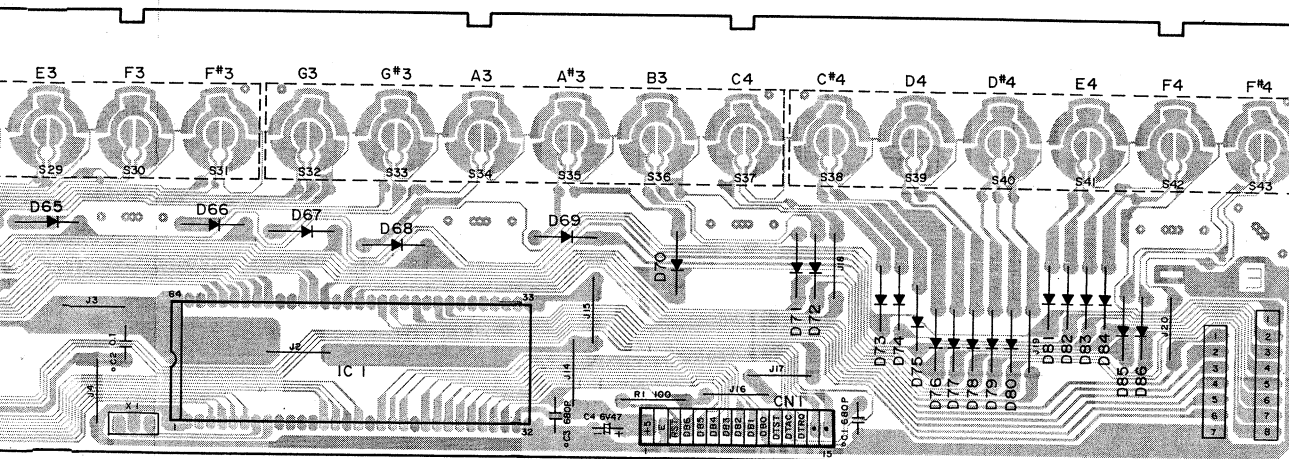
- IC'S
IC1: MN50020PGV
- DIODES
D1~87: MA162A

MKB2

NOTES:

- DIODES
D1~36: MA162A

SXPG143521



A

B

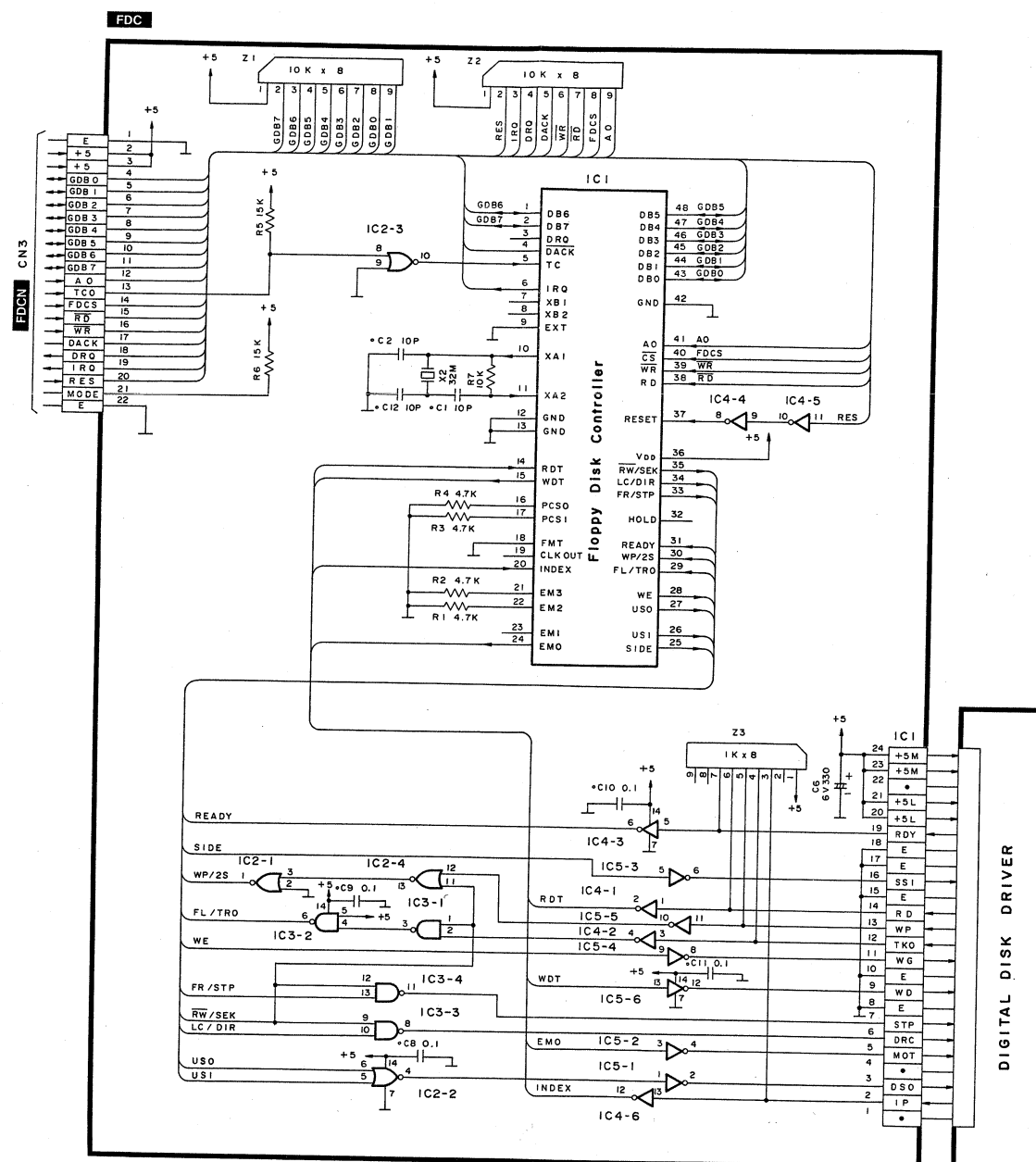
C

D

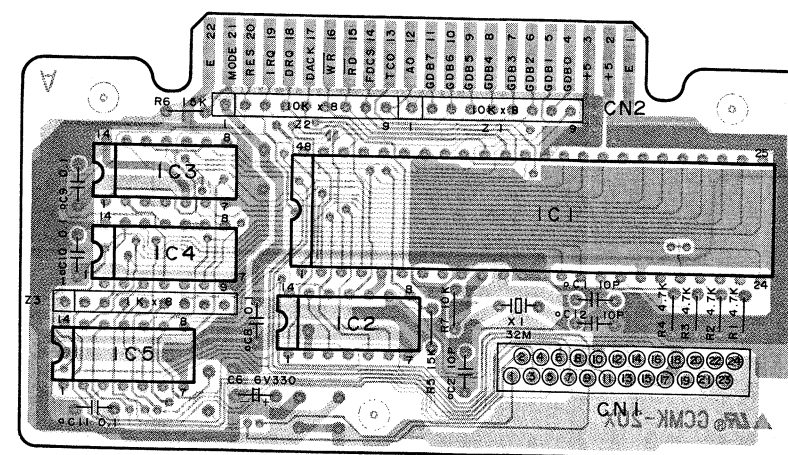
E/

F

II-30



Circuit view on top of P.C.B.



SXPG208311

NOTES:

- IC'S
 - IC1: SVIGD72067C
 - IC2: SVIGM74H02
 - IC3: SVIGM74H00
 - IC4: SVIGM74H14
 - IC5: SVIGM74H04

REPLACEMENT PARTS LISTP.C.B. and Wiring Parts

Notes:

1. Printed circuit board assembly with mark (NLA) is no longer available after production discontinuation of the complete set.
2. Important safety notice
Components identified by Δ 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. $\bigcirc$ mark are new parts.
5. For part No. with area mark, check the area when placing an order.

PRINTED CIRCUIT BOARD

	NLA	Area	Part No.	Description	Per/Set
$\bigcirc$	NLA	Δ M XM	SXPG206421	MAIN	1
$\bigcirc$	NLA	Others	SXPG206411	MAIN	1
$\bigcirc$	NLA		SXPG208721	FDCN	1
$\bigcirc$	NLA		SXPG146071	DRV	1
$\bigcirc$	NLA	Δ M MC XM	SXPG206731A	FAS	1
$\bigcirc$	NLA	Δ XR	SXPG206741A	FAS	1
$\bigcirc$	NLA	Δ XL	SXPG206751A	FAS	1
$\bigcirc$	NLA	Δ EK X XS	SXPG206761A	FAS	1
$\bigcirc$	NLA	Δ XD			
$\bigcirc$	NLA	Others	SXPG206711A	FAS	1
$\bigcirc$	NLA		SXPG206711B	HB	1
$\bigcirc$	NLA		SXPG206611	CPL	1
$\bigcirc$	NLA		SXPG206511A	CPR	1
$\bigcirc$	NLA		SXPG206511B	ESW	1
$\bigcirc$	NLA		SXPG143521	MKB1	1
$\bigcirc$	NLA		SXPG143611	MKB2	1
$\bigcirc$	NLA	Δ EZ EW	SXPG208311	FDC	1

MAIN MAIN CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGD70320GJ	16 bit Microcomputer	1
IC2	SVIGMB621407	Gate Array	1
IC3	SVIGMSM6253	A/D Converter	1
IC4	SVIGTLP513	Photo Coupler	1
$\bigcirc$ IC5	QSIGBKN10BX0	2M bit Programmed EP ROM	1
$\bigcirc$ IC6	QSIGBKN10AX0	2M bit Programmed EP ROM	1
IC7, 8	SVIGD43256AL	256k bit Static RAM	2
IC9	SVIGHM65256	256k bit Pseudo Static RAM	1
$\bigcirc$ IC10	QSIGH3C08C11	8M bit ACCOMP Pattern ROM	1
$\bigcirc$ IC11	M74HC04FP	Hex Inverters	1
$\bigcirc$ IC12, 13	M74HC32FP	Quad 2-input OR Gates	2
IC14	MN73012PGC	Tone Generator LSI 1	1
IC15	MN73013PGD	Tone Generator LSI 2	1
$\bigcirc$ IC16	QSIGH3C08D48	8M bit Wave ROM	1
$\bigcirc$ IC17	QSIGU3C08066	8M bit Wave ROM	1
$\bigcirc$ IC18	QSIGU3C08065	8M bit Wave ROM	1
$\bigcirc$ IC19	SVIGPCM54	D-A Converter	1
$\bigcirc$ IC20, 21	T74H4051AF	8-channel Multiplexer	2
$\bigcirc$ IC22	M5238FP	Operational Amplifier	1
$\bigcirc$ IC24, 25	M74HC00FP	Quad 2-input NAND Gates	2
TRANSISTORS			
S Q1, 2, 8	2SA1015-GR	2SA933STRS (SUB. Part)	3
DIODES			
D1~15, 19	MA165TA5		16
D17, 18	MA4051MTA	Zener, 5.1V	2
D20	MA4056H	Zener, 5.8V	1

Ref. No.	Part No.	Description	Per/Set
OSCILLATORS			
X1	QXSG1A1400A	14MHz, Quartz Oscillator	1
X2	QXSG1B4000B	40MHz, Quartz Oscillator	1
COMPONENT COMBINATIONS			
Z1~3	EXBPI8472JM	4.7k Ω $\times$ 8	3
Z5	EXAMR14A1002	1k Ω /2k Ω , Ladder Network	1
ZC1, 2	EXFP8101MW	100pF $\times$ 8	2
COILS			
L1, 3~7, 10, 13~15, 18, 19, 22, 24, 25	QLQGT3T150SA	Coil	15
L2, 8, 9, 17	QLQGT2T150SA	Coil	4
L11, 16, 20, 21, 23, 26~28	QLQGT1B600MA	Coil	8
L12	SLQG15W14D	Coil	1
JACKS			
JK1	SJJG100A	EXP PEDAL	1
$\bigcirc$ JK2, 6~9	QJJG003AA	FOOT SW, AUX IN, LINE OUT	5
JK3~5	SJSG1370A	MIDI	3
SEMI-FIXED RESISTOR			
VR1	EVND4AA00B14	10k Ω B, Offset Adj.	1
RESISTORS			
R1	ERDS2TJ104	100k Ω	1
R2	ERDS2TJ222	2.2k Ω	1
R3, 4	ER0S2CKF1001	1k Ω , $\pm$ 1%	2
R5	ERDS2TJ103	10k Ω	1
R6	ER0S2CKF1001	1k Ω , $\pm$ 1%	1
R7	ERDS2TJ103	10k Ω	1
R8	ERDS2TJ680	68 Ω	1
R9	ERDS2TJ221	220 Ω	1
R10	ERDS2TJ104	100k Ω	1
R11	ERDS2TJ151	150 Ω	1
R12	ERDS2TJ103	10k Ω	1
R13	ERDS2TJ680	68 Ω	1
R14	ERDS2TJ221	220 Ω	1
R15	ERDS2TJ104	100k Ω	1
R16	ERDS2TJ151	150 Ω	1
R17	ERDS2TJ103	10k Ω	1
R18	ERDS2TJ153	15k Ω	1
R19	ERDS2TJ332	3.3k Ω	1
R20	ERDS2TJ101	100 Ω	1
R21~27	ERDS2TJ103	10k Ω	7
R28	ERDS2TJ221	220 Ω	1
R29	ERDS2TJ331	330 Ω	1
R30	ERDS2TJ183	18k Ω	1
R31	ERDS2TJ332	3.3k Ω	1
R32	ERDS2TJ103	10k Ω	1
R33, 34	ERDS2TJ101	100 Ω	2
R39	ERDS2TJ101	100 Ω	1

FDCN FD CONNECTOR CIRCUIT

Ref. No.	Part No.	Description	Per/Set
R40	ERDS2TJ154	150kΩ	1
R41	ERDS2TJ103	10kΩ	1
R42	ERD2FCVJ4R7	4.7Ω, 1/4W, Fuse Type	1
R43~46	ERDS2TJ473	47kΩ	4
R47	ERDS2TJ184	180kΩ	1
R56	ERDS2TJ472	4.7kΩ	1
R57	ERDS2TJ223	22kΩ	1
R58, 59	ERDS2TJ472	4.7kΩ	2
R60	ERDS2TJ155	1.5MΩ	1
R61	ERDS2TJ473	47kΩ	1
R62	ERDS2TJ681	680Ω	1
R63	ERDS2TJ332	3.3kΩ	1
R64	ERDS2TJ472	4.7kΩ	1
R65	ERDS2TJ105	1MΩ	1
R66	ERDS2TJ104	100kΩ	1
R67, 68	ERDS2CKF1001	1kΩ, ±1%	2
R69	ERDS2TJ103	10kΩ	1
R70, 71	ERD2FCVJ4R7	4.7Ω, 1/4W, Fuse Type	4
R72~84	ERDS2TJ101	100Ω	13

CAPACITORS

C1, 2	ECKR1E473ZV	0.047μF	2
C3	ECRR1H04ZF	0.1μF	1
C4~6	ECKR1E473ZV	0.047μF	3
C7, 8	ECCR1H030C	3pF	2
C9, 10	ECKR1E473ZV	0.047μF	2
C11	ECEA0JKA470	47μF, 6.3V	1
C12	ECEA0JKA331	330μF, 6.3V	1
C13	ECRR1H104ZF	0.1μF	1
C14	ECEA1HKA010	1μF, 50V	1
C15~19	ECKR1E473ZV	0.047μF	5
C20	EECF5R5U105	1F, 5.5V, Memory Back-up	1
C21	ECKR1E473ZV	0.047μF	1
C22	EECF5R5U105	1F, 5.5V, Memory Back-up	1
C23~26	ECKR1E473ZV	0.047μF	4
C27	ECEA0JKA331	330μF, 6.3V	1
C28, 29	ECQG1H102KZ	0.001μF	2
C30~32	ECKR1E473ZV	0.047μF	3
C33	ECCR1H470J	47pF	1
C34	ECCR1H680J	68pF	1
C35~37	ECKR1E473ZV	0.047μF	3
C38	ECQV1H104JZ	0.1μF	1
C39	ECEA1HKA2R2	2.2μF, 50V	1
C40	ECEA0JKA470	47μF, 6.3V	1
C41~44	ECKR1E473ZV	0.047μF	4
C45	ECEA0JKA331	330μF, 6.3V	1
C46	ECCR1H471J	470pF	1
C47, 48	ECCR1H030C	3pF	2
C49, 50	ECEA1CKA100	10μF, 16V	2
C51	ECEA1CKN100	10μF, 16V	1
C52, 53	ECEA1CKA100	10μF, 16V	2
C54	ECKR1E473ZV	0.047μF	1
C55	ECEA0JKA101	100μF, 6.3V	1
C56, 57	ECEA1CKA101	100μF, 16V	2
C58, 59	ECQG1H102KZ	0.001μF	2
C60	ECRR1H104ZF	0.1μF	1
C61, 62	ECQG1H102KZ	0.001μF	2
C63	ECRR1H104ZF	0.1μF	1
C65	ECCR1H331J	330pF	1
C66, 67	ECRR1H104ZF	0.1μF	2
C68	ECCR1H470J	47pF	1
C69, 70	ECKR1E473ZV	0.047μF	2
C71~73	ECRR1H104ZF	0.1μF	3
C74	ECCR1H470J	47pF	1

Ref. No.	Part No.	Description	Per/Set
CONNECTOR			
CN3	SJSG16SM222A	Connector	1
COILS			
L1, 2	QLQGT2T150SA	Coil	2
L3~5	QLQGT3T150SA	Coil	3

DRV DIGITAL REVERB CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	MN1280R	Reset IC	1
IC2	SVIGHM65256	256k bit Pseudo Static RAM	1
IC3	SVIGMB622416	Gate Array	1
IC4	MN8305S	A-D/D-A Converter	1
IC5	SVIG87064073	Digital Signal Processor	1
IC6	SVIGM5278L05	+5V Voltage Regulator	1
IC7	SVIGM5220L	Operational Amplifier	1
IC8~10	SVIGM5218L	Operational Amplifier	3
IC11	SVIGLM1894N	Dynamic Noise Reduction	1
IC12	M74HC02FP	Quad 2-Input NOR Gates	1
TRANSISTORS			
Q1, 2	2SJ105GR	FET	2
DIODES			
D1~5	MA165TA5		5
D6	EK04		1
OSCILLATOR			
X1	SVQGA20MX040	20MHz, Ceramic Oscillator	1
COIL			
L1~3	QLBG002A	Coil	3
L4~6	QLQGT1B600MA	Coil	3
SEMI-FIXED RESISTOR			
VR1	EVND4AA00B14	10kΩ B, DRV Bias	1
RESISTORS			
R1	ERDS2TJ103	10kΩ	1
R2	ERDS2TJ682	6.8kΩ	1
R3, 4	ERDS2TJ473	47kΩ	2
R5	ERDS2TJ393	39kΩ	1
R6, 7	ERDS2TJ103	10kΩ	2
R8	ERDS2TJ473	47kΩ	1
R9	ERDS2TJ152	1.5kΩ	1
R10	ERDS2TJ563	56kΩ	1
R11	ERDS2TJ183	18kΩ	1
R12, 13	ERDS2TJ823	82kΩ	2
R14	ERDS2TJ153	15kΩ	1
R15	ERDS2TJ103	10kΩ	1
R16	ERDS2TJ472	4.7kΩ	1
R17	ERDS2TJ153	15kΩ	1
R18	ERDS2TJ103	10kΩ	1
R19	ERDS2TJ472	4.7kΩ	1
R20	ERDS2TJ682	6.8kΩ	1

FAS FILTER & AMP CIRCUIT

Ref. No.	Part No.	Description	Per/Set
R21~23	ERDS2TJ473	47 kΩ	3
R24	ERDS2TJ682	6.8 kΩ	1
R25~27	ERDS2TJ473	47 kΩ	3
R36, 37	ERDS2TJ331	330Ω	2
R38	ERDS2TJ102	1 kΩ	1
R39	ERDS2TJ221	220Ω	1
R40, 41	ERDS2TJ473	47 kΩ	2
R44, 45	ERDS2TJ472	4.7 kΩ	2
R47	ERDS2TJ221	220Ω	1
R50~52	ERD2FCJ4R7	4.7Ω, 1/4W, Fuse Type	3
R53, 54	ERD2FCG100	10Ω, 1/4W, Fuse Type	2
R55	ERDS2TJ105	1 MΩ	1
R59	ERDS2TJ221	220Ω	1
R62~66	ERDS2TJ152	1.5 kΩ	5
R68~70	ERDS2TJ472	4.7 kΩ	3
R71	ERDS2TJ225	2.2 MΩ	1
R72	ERDS2TJ332	3.3 kΩ	1
R73, 74	ERDS2TJ225	2.2 MΩ	2
R75	ERDS2TJ682	6.8 kΩ	1
R76	ERDS2TJ332	3.3 kΩ	1

CAPACITORS

C1	ECQB1H103JZ	0.01μF	1
C2	ECQG1H682KZ	0.0068μF	1
C3, 4	ECCR1H471J	470 pF	2
C5	ECCR1H101J	100 pF	1
C6	ECEA1HKA010	1μF, 50V	1
C8	ECEA1HKA010	1μF, 50V	1
C9	ECQG1H152KZ	0.0015μF	1
C10	ECCR1H151J	150 pF	1
C11	ECEA1HKA010	1μF, 50V	1
C12	ECQG1H222KZ	0.0022μF	1
C13	ECQG1H472KZ	0.0047μF	1
C14, 15	ECCR1H681J	680 pF	2
C16	ECCR1H101J	100 pF	1
C17	ECEA1HKA010	1μF, 50V	1
C18	ECQG1H222KZ	0.0022μF	1
C19	ECQG1H472KZ	0.0047μF	1
C20, 21	ECCR1H681J	680 pF	2
C22	ECCR1H101J	100 pF	1
C31, 32	ECEA1HKA010	1μF, 50V	2
C33	ECEA1HKA010	0.22μF, 50V	1
C34	ECQB1H103JZ	0.01μF	1
C35	ECEA1HKA010	0.22μF, 50V	1
C36	ECQB1H103JZ	0.01μF	1
C37	ECQV1H473JZ	0.047μF	1
C38	ECQV1H104JZ	0.1μF	1
C39	ECQB1H103JZ	0.01μF	1
C40	ECQG1H332KZ	0.0033μF	1
C41	ECEA1CKA470	47μF, 16V	1
C42	ECEA1CKA100	10μF, 16V	1
C43	ECEA1CKA470	47μF, 16V	1
C50~52	ECEA0JKA101	100μF, 6.3V	3
C53	ECEA0JU102	1000μF, 6.3V	1
C54	ECEA0JU331	330μF, 6.3V	1
C55, 56	ECEA1CKA101	100μF, 16V	2
C57	ECCR1H101J	100 pF	1
C58, 59	ECCR1H060D	6 pF	2
C60	ECKR1E473ZV	0.047μF	1
C62, 63	ECKR1E473ZV	0.047μF	2
C65, 66	ECCR1H470J	47 pF	2
C67	ECRR1H104ZF	0.1μF	1
C68	ECEA1HKN010	1μF, 50V	1
C69	ECEA1HKA010	1μF, 50V	1
C72, 73	ECRR1H104ZF	0.1μF	2
C100, 101	ECRR1H104ZF	0.1μF	2

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGM5291P	Switching Regulator	1
IC2	SVIGM5F7815	+15V Voltage Regulator	1
IC3	SVIGM5F7915	-15V Voltage Regulator	1
S IC4, 6, 7, 9, 11~13	SVIGM5218L	Operational Amplifier	7
IC8	SVIGLM1894N	Dynamic Noise Reduction	1
IC10	SVIGM5241L	Dual VCA	1

TRANSISTORS

Q1	2SA1643	2SA933STRS (SUB. Part)	1
S Q2~4, 9, 10, 13, 14, 17, 19, 20	2SA1015-GR		10
S Q5~8, 11, 12, 15, 16, 18	2SC1815GR		9
Q21, 23	2SA15670Y		2
Q22, 24	2SC40640Y		2

DIODES

D1~4	SVDS2V20	Rectifier	4
D5, 6	SVDGERA1502Y	Rectifier	2
D7	SVDGRK14S	Diode	1
D8	MA2062LF	Zener, 6.2V	1
D9	MA165TA5		1
D10, 11	EK04		2

COIL & LINE FILTER

L1	SLTGLF3	Line Filter	1
L2	QLQGT1T121SA	Coil	1

JACK

JK1	SJS9236	AC IN, Except for [XR][XL]	1
JK1	SJSD16	AC IN	1

SWITCH

S1	SSRG100A	Voltage Selector	1
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FUSES

F1	XBA1C16NU100	1.6A, 125V	1
F1	XBA2C12TB0	T1.25A, 250V	1
F2, 3	XBA2C063TB0	T630mA, 250V	2
F3	XBA2C063TB0	T630mA, 250V	1

RESISTORS

R1, 2	ERDS2TJ103	10 kΩ	2
R3	ERD2FCVG100	10Ω, 1/4W, Fuse Type	1
R4	ERX1ANJPR22S	0.22Ω, 1W, Flame-Proof	1
R5	ERDS2TJ101	100Ω	1
R6	ER0S2CKF1001	1 kΩ, ±1%	1
R7	ERG1ANJP221S	220Ω, 1W, Flame-Proof	1
R8	ER0S2CKF3571	3.57 kΩ, ±1%	1
R9	ERDS2TJ103	10 kΩ	1
R10	ERDS2TJ223	22 kΩ	1
R11	ERDS2TJ101	100Ω	1
R12	ERDS2TJ333	33 kΩ	1
R13	ERDS2TJ104	100 kΩ	1

Ref. No.	Part No.	Description	Per/Set	Ref. No.	Part No.	Description	Per/Set
R14, 15	ERDS2TJ103	10kΩ	2	R122	ERDS2TJ473	47kΩ	1
R16	ERDS2TJ333	33kΩ	1	R123	ERDS2TJ223	22kΩ	1
R17	ERDS2TJ103	10kΩ	1	R124	ERDS2TJ222	2.2kΩ	1
R18	ERDS2TJ224	220kΩ	1	R125	ERDS2TJ682	6.8kΩ	1
R19, 20	ERDS2TJ104	100kΩ	2	R126	ERDS2TJ102	1kΩ	1
R21, 22	ERDS2TJ103	10kΩ	2	R127	ERDS2TJ153	15kΩ	1
R23	ERDS2TJ474	470kΩ	1	R128	ERDS2TJ331	330Ω	1
R24, 25	ERDS2TJ124	120kΩ	2	R129	ERDS2TJ102	1kΩ	1
R26	ERDS2TJ332	3.3kΩ	1	R130	ERDS2TJ682	6.8kΩ	1
R27	ERDS2TJ153	15kΩ	1	R131	ERDS2TJ331	330Ω	1
R28	ERDS2TJ683	68kΩ	1	R132	ERDS2TJ153	15kΩ	1
R31	ERDS2TJ154	150kΩ	1	R133~136	ERDS2TJ471	470Ω	4
R32	ERDS2TJ683	68kΩ	1	R137, 138	ERDS2TJ102	1kΩ	2
R33	ERDS2TJ473	47kΩ	1	R139	△ ERD25FVJ4R7	4.7Ω, 1/4W, Flame-Proof	1
R34	ERDS2TJ393	39kΩ	1	R140	ERDS2TJ184	180kΩ	1
R35	ERDS2TJ333	33kΩ	1	R143	ERDS2TJ184	180kΩ	1
R36	ERDS2TJ473	47kΩ	1	R144, 145	ERDS2TJ224	220kΩ	2
R37	ERDS2TJ333	33kΩ	1	R146, 147	ERDS2TJ220	22Ω	2
R38	ERDS2TJ393	39kΩ	1	R152	ERDS2TJ472	4.7kΩ	1
R39	ERDS2TJ473	47kΩ	1	R153	ERDS2TJ102	1kΩ	1
R40	ERDS2TJ683	68kΩ	1	R154	ERDS2TJ104	100kΩ	1
R41	ERDS2TJ154	150kΩ	1	R155	ERD2FCVG100	10Ω, 1/4W, Fuse Type	1
R42	ERDS2TJ473	47kΩ	1	CAPACITORS			
R43, 44	ERDS2TJ273	27kΩ	2	C1	△ ECKCVA1472MF	4700pF, Line-Capacitor	1
R45	ERDS2TJ123	12kΩ	1	○ C2	△ ECQU2A224MN	0.22μF, 250V, Across-the Line Capacitor	1
R47~51	ERDS2TJ393	39kΩ	5	C3	ECEA1VU222	2200μF, 35V	1
R52	ERDS2TJ472	4.7kΩ	1	C4	ECEA1VU332	3300μF, 35V	1
R53	ERDS2TJ102	1kΩ	1	C5	ECEA1VKA470	47μF, 35V	1
R54	ERDS2TJ124	120kΩ	1	C6	ECCR1H471J	470pF	1
R55, 56	△ ERG1ANJP680S	68Ω, 1W, Flame-Proof	2	C7, 8	ECEA1VKA100	10μF, 35V	2
R57	ERDS2TJ473	47kΩ	1	C9	ECEA0JU102	1000μF, 6.3V	1
R58	ERDS2TJ224	220kΩ	1	C10	ECKR1E473ZV	0.047μF	1
R59	ERDS2TJ473	47kΩ	1	C11	ECCR1H101J	100pF	1
R60	ERDS2TJ224	220kΩ	1	C12	ECEA1CKA101	100μF, 16V	1
R61~64	ERDS2TJ154	150kΩ	4	C13	ECQV1H104JZ	0.1μF	1
R65, 66	ERDS2TJ472	4.7kΩ	2	C14	ECQM1H223KV	0.022μF	1
R67	ERDS2TJ222	2.2kΩ	1	C15, 16	ECQG1H222KZ	0.0022μF	2
R68, 69	ERDS2TJ472	4.7kΩ	2	C19	ECCR1H680J	68pF	1
R70	ERDS2TJ222	2.2kΩ	1	C20	ECQV1H104JZ	0.1μF	1
R71~76	ERDS2TJ333	33kΩ	6	C21	ECEA1CKA100	10μF, 16V	1
R77, 78	ERDS2TJ472	4.7kΩ	2	C22	ECQG1H102KZ	0.001μF	1
R79~81	ERDS2TJ331	330Ω	3	C23	ECCR1H220J	22pF	1
R82	ERDS2TJ681	680Ω	1	C24	ECQG1H102KZ	0.001μF	1
R83, 84	ERDS2TJ223	22kΩ	2	C25	ECCR1H220J	22pF	1
R85	ERDS2TJ152	1.5kΩ	1	C26, 27	ECQG1H102KZ	0.001μF	2
R86, 87	ERDS2TJ104	100kΩ	2	C28	ECQG1H222KZ	0.0022μF	1
R88, 89	ERDS2TJ103	10kΩ	2	C29, 30	ECQG1H102KZ	0.001μF	2
R90, 91	ERDS2TJ124	120kΩ	2	C31	ECQG1H222KZ	0.0022μF	1
R92, 93	ERDS2TJ104	100kΩ	2	C32, 33	ECCR1H471J	470pF	2
R94, 95	ERDS2TJ223	22kΩ	2	C34	ECCR1H680J	68pF	1
R96, 97	ERDS2TJ332	3.3kΩ	2	C35, 36	ECCR1H471J	470pF	2
R99, 100	ERDS2TJ102	1kΩ	2	C37	ECCR1H680J	68pF	1
R102	ERDS2TJ272	2.7kΩ	1	C38, 39	ECEA1CKA470	47μF, 16V	2
R103	ERDS2TJ222	2.2kΩ	1	C40, 41	ECEA1HKA010	1μF, 50V	2
R104	ERDS2TJ473	47kΩ	1	C42	ECQV1H104JZ	0.1μF	1
R105	ERDS2TJ223	22kΩ	1	C43	ECQG1H102KZ	0.001μF	1
R106	ERDS2TJ682	6.8kΩ	1	C44	ECQG1H332KZ	0.0033μF	1
R107	ERDS2TJ102	1kΩ	1	C45	ECQM1H473KV	0.047μF	1
R108	ERDS2TJ153	15kΩ	1	C46	ECQG1H472KZ	0.0047μF	2
R109	ERDS2TJ331	330Ω	1	C47	ECEA1CKA100	10μF, 16V	1
R110	ERDS2TJ102	1kΩ	1	C48	ECQG1H472KZ	0.0047μF	1
R111	ERDS2TJ682	6.8kΩ	1	C49, 50	ECEA1HKA010	1μF, 50V	2
R112	ERDS2TJ331	330Ω	1	C51, 52	ECCR1H470J	47pF	2
R113	ERDS2TJ153	15kΩ	1	C53~55	ECEA1HKN010	1μF, 50V	3
R114~117	ERDS2TJ471	470Ω	4	C56	ECCR1H101J	100pF	1
R118, 119	ERDS2TJ102	1kΩ	2				
R120	△ ERD25FVJ4R7	4.7Ω, 1/4W, Flame-Proof	1				
R121	ERDS2TJ272	2.7kΩ	1				

CPR UPPER CONTROL PANEL RIGHT CIRCUIT

Ref. No.	Part No.	Description	Per/Set
C57	ECQM1H473KV	0.047μF	1
C58	ECQV1H104JZ	0.1μF	1
C59	ECEA1HKN010	1μF, 50V	1
C60	ECCR1H101J	100pF	1
C61	ECQM1H473KV	0.047μF	1
C62	ECQV1H104JZ	0.1μF	1
C63, 64	ECCR1H220J	22pF	2
C65, 66	ECEA50Y1	1μF, 50V	2
C67~74	ECQG1H472KZ	0.0047μF	8
C75~77	ECEA1CKA470	47μF, 16V	3
C79	ECEA1CU331	330μF, 16V	1
C80, 81	ECRR1H104ZF	0.1μF	2
C82	ECKR1E473ZV	0.047μF	1

HB HEADPHONES CIRCUIT

Ref. No.	Part No.	Description	Per/Set
COIL			
L1	QLQGT3T150SA	Coil	1
JACK			
JK1	SJJG100A	Headphones	1
VARIABLE RESISTORS			
VR1	EVA07115B14G	10kΩ B, MODULATION	1
VR2	EVA07015B54G	50kΩ B, PITCH BEND	1
RESISTORS			
R3, 4	ER0S2CKF1001	1kΩ, ±1%	2
CAPACITORS			
C1, 2	ECCR1H331J	330pF	2
C3	ECRR1H104ZF	0.1μF	1

CPL UPPER CONTROL PANEL LEFT CIRCUIT

Ref. No.	Part No.	Description	Per/Set
DIODES			
D73~80, 85~88, 217~224	MA165TA5		20
D173~180, 185~187	SEL4117RM	LED (RED)	11
SWITCHES			
S73~80, 85~88, 217~224	SSHG1049A	Push Switch	20
RESISTORS			
R38~40	ERDS2TJ470	47Ω	3

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGM603A121	Gate Array	1
IC2	SVIGM74LS139	Decoder	1
IC3	SVIGM74LS74	Dual D-type Flip-Flops	1
IC4~7	SVIGM74LS07	Hex Buffers (O.C.)	4
TRANSISTORS			
Q1	2SC1815GR		1
Q2~5	2SA830SB		4
DIODES			
D1~72, 81~84, 89, 90, 201~216	MA165TA5		94
D101~116, 118~124, 145, 147~155, 157~161, 166~172, 181~183	SEL4117RM	LED (RED)	48
D117, 125~132, 156, 162~165, 184	SEL4417GM	LED (GREEN)	15
○ D133~144	SEL4417G	LED (Green)	12
COMPONENT COMBINATION			
Z1	EXBPI8103JM	10kΩ × 8	1
SWITCHES			
S1~72, 81~84, 201~216	SSHG1049A	Push Switch	92
IC PROTECTOR			
IP1	ICP-N10T104	IC Protector	1
VARIABLE RESISTORS			
○ VR1	QRVG15N01B14	10kΩ B, LCD Contrast	1
VR2	EVD07205B24G	20kΩ B, MAIN VOLUME	1
RESISTORS			
R1	ERDS2TJ222	2.2kΩ	1
R2	ERDS2TJ103	10kΩ	1
R3	ERDS2TJ474	470kΩ	1
R4	ERDS2TJ334	330kΩ	1
R5	ERDS2TJ154	150kΩ	1
R6	ERDS2TJ184	180kΩ	1
R7	ERDS2TJ224	220kΩ	1
R8	ERDS2TJ103	10kΩ	1
R9	ERDS2TJ152	1.5kΩ	1
R10	ERDS2TJ101	100Ω	1
R11~14	ERDS2TJ103	10kΩ	1
R15~18	ERDS2TJ152	1.5kΩ	4
R19~37	ERDS2TJ470	47Ω	19

III-5

Ref. No.	Part No.	Description	Per/Set
CAPACITORS			
C1	ECEA1HKA2R2	2.2μF, 50V	1
C2	ECRR1H104ZF	0.1μF	1
C3	ECEA0JKA101	100μF, 6.3V	1
C4	ECCR1H101J	100pF	1
C5	ECEA1HKA010	1μF, 50V	1
C6	ECCR1H101J	100pF	1
C7~11	ECRR1H104ZF	0.1μF	5

ESW ENCODER SWITCH

Ref. No.	Part No.	Description	Per/Set
SWITCH			
S1	SSRG110A	Encoder Switch	1

MKB 1 MANUAL KEYBOARD 1 CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUIT			
IC1	MN50020PGV	Gate Array	1
DIODES			
S D1~87	MA162A	MA150IR (SUB. Part)	87
OSCILLATOR			
X1	EF0GC8004A5	8MHz, Ceramic Oscillator	1
SWITCHES			
S1~7	SSPG7004A	Rubber Switch (7 pcs. on one)	1
S8~43	SSPG6004A	Rubber Switch (6 pcs. on one)	6
RESISTORS			
R1	ERDS2TJ101	100Ω	1
R2	ERDS2TJ103	10kΩ	1
CAPACITORS			
C1	ECCR1H681J	680pF	1
C2	ECRR1H104ZF	0.1μF	1
C3	ECCR1H681J	680pF	1
C4	ECEA0JU470	47μF, 6.3V	1

MKB 2 MANUAL KEYBOARD 2 CIRCUIT

Ref. No.	Part No.	Description	Per/Set
DIODES			
S D1~36	MA162A	MA150IR (SUB. Part)	36
COMPONENT COMBINATION			
Z1	EXBP88332JM	3.3kΩ × 8	1

III-6

Ref. No.	Part No.	Description	Per/Set
SWITCHES			
S1~18	SSPG6004A	Rubber Switch (6 pcs. on one)	3

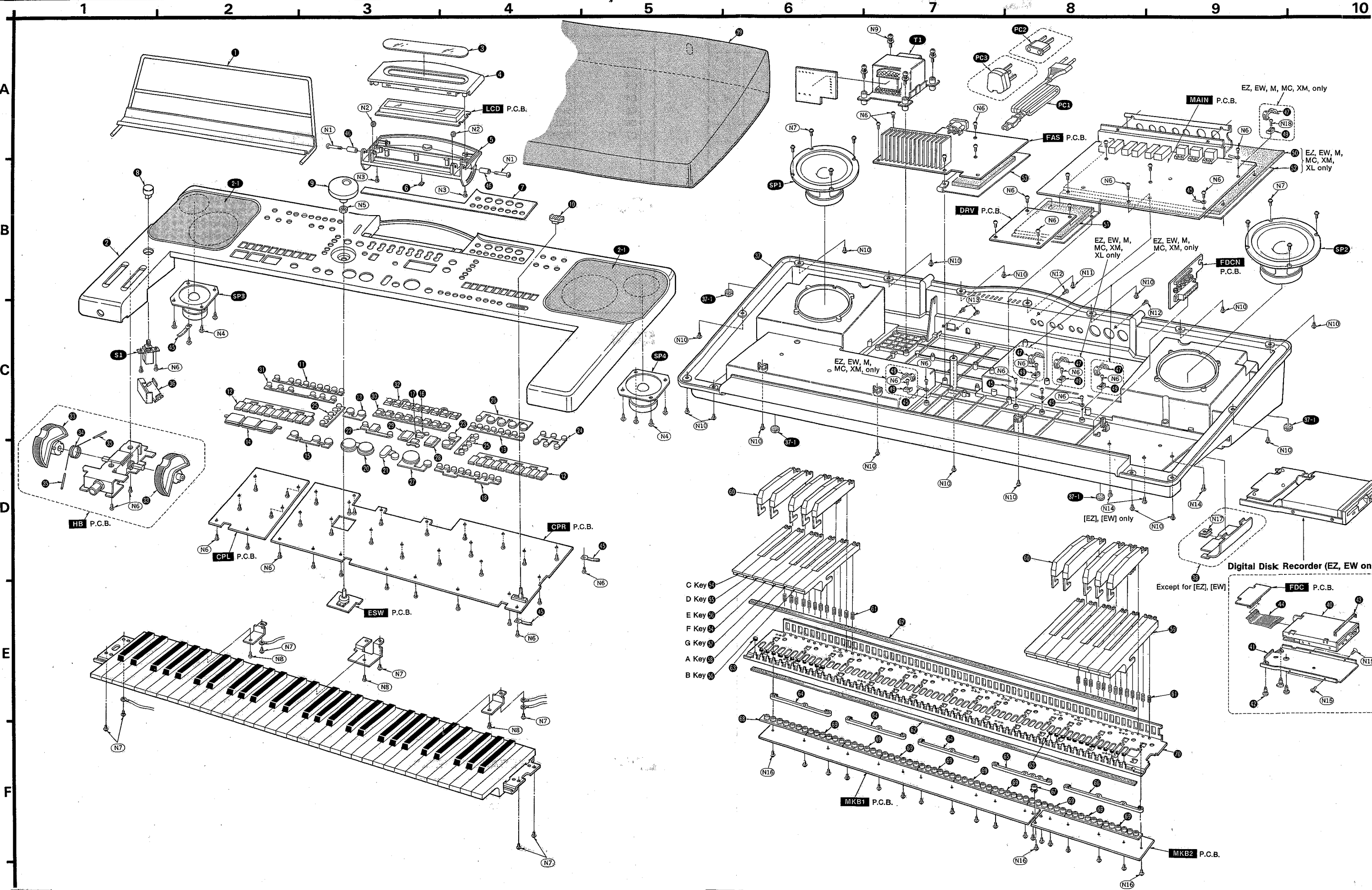
FDC FD CONTROL CIRCUIT ([EZ][EW] only)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGD72067C	Floppy Disk Controller	1
IC2	SVIGM74H02	Quad 2-input NOR Gates	1
IC3	SVIGM74H00	Quad 2-input NAND Gates	1
IC4	SVIGM74H14	Hex Schmitt-trigger Inverters	1
IC5	SVIGM74H04	Hex Inverters	1
OSCILLATOR			
○ X1	QSGX1A3200A	32MHz, Quartz Oscillator	1
COMPONENT COMBINATIONS			
Z1, 2	EXBPI8103JM	10kΩ × 8	2
Z3	EXBPI8102JM	1kΩ × 8	1
RESISTORS			
R1~4	ERDS2TJ472	4.7kΩ	4
R5, 6	ERDS2TJ153	15kΩ	2
R7	ERDS2TJ103	10kΩ	1
CAPACITORS			
C1, 2	ECBA1H100J	10pF	2
C6	ECEA0JKA331	330μF, 6.3V	1
C8~11	ECRR1H104ZF	0.1μF	4
C12	ECBA1H100J	10pF	1

WIRING PARTS

Ref. No.	Part No.	Description	Per/Set
W1	SWKG1518SSA	Connector with Wire	1
W2	SWKG04116SSA	Connector with Wire	1
○ W3	QEXG021012ZA	Connector with Wire	1
○ W4	QEXG060152B	Connector with Wire	1
W5	SWKG04140SSA	Connector with Wire	1
○ W6	QEXG05020SSA	Connector with Wire	1
W7	SWKG0237ZA	Connector with Wire	1
○ W8	QEXG04037ZA	Connector with Wire	1
○ W9	QEXG03039ZA	Connector with Wire	1
○ W10	GEXG03042SSA	Connector with Wire	1
○ W11	QEXG14013SSA	Connector with Wire	1
W12	SWKG1337SSA	Connector with Wire	1
W13	SWKG1350SSA	Connector with Wire	1
W14	SWKG0712SSA	Connector with Wire	1
○ W15	QEXG01012ZA	Connector with Wire	1
W16	SWKG06137SSB	Connector with Wire	1
W17	SWKG164SSA	Connector with Wire	1
○ W18	QEXG10008SSA	Connector with Wire	1
○ W19	QEXG11011SSA	Connector with Wire	1

EXPLODED VIEWS OF CABINET



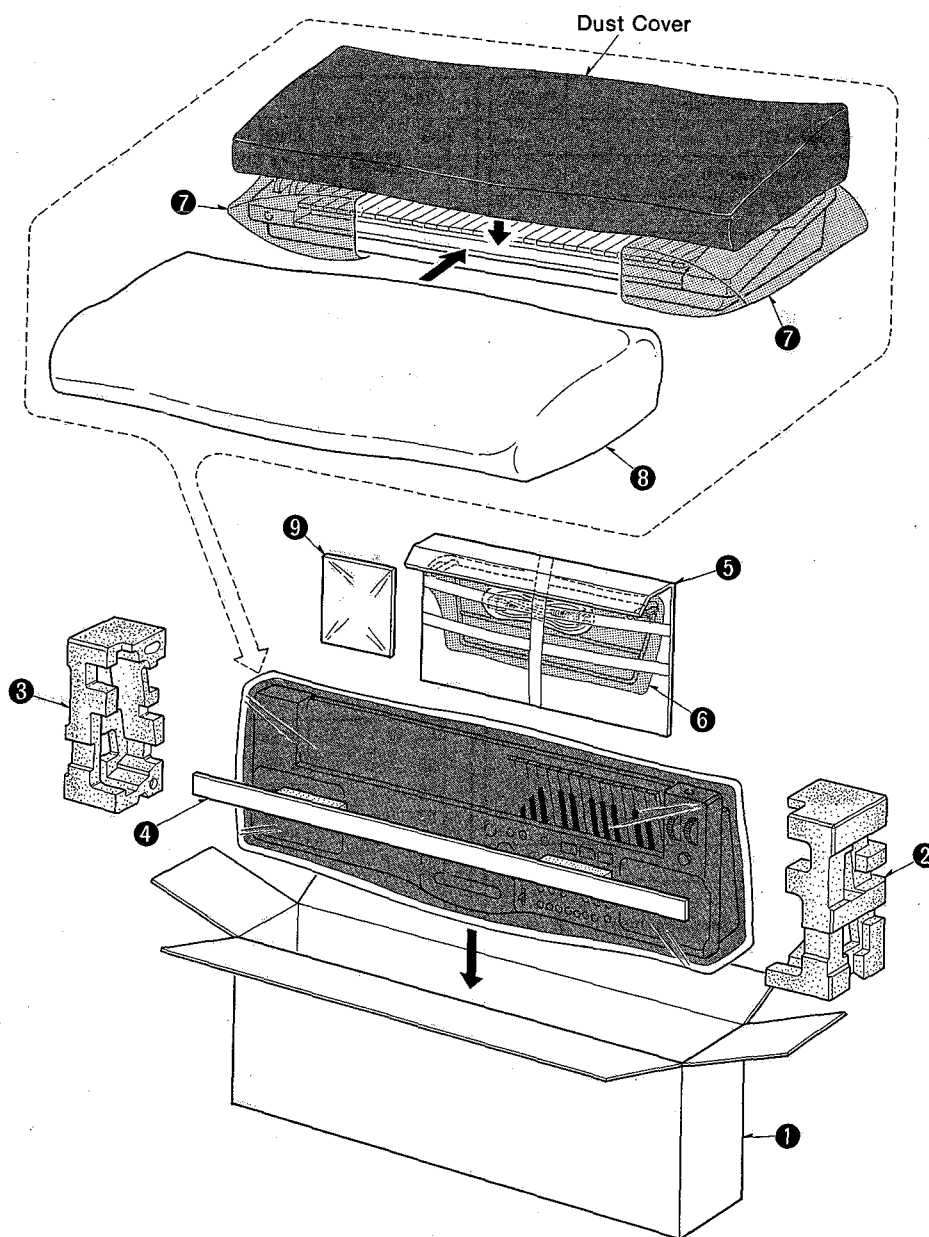
REPLACEMENT PARTS LIST Cabinet and Chassis Parts

Note: Keyboard chassis part No. with mark (NLA) is no longer available after production discontinuation of the complete set.

■ CABINET & CHASSIS PARTS

Ref. No.	Part No.	Description	Per/Set	Ref. No.	Part No.	Description	Per/Set
POWER SWITCH							
S1	ESB823V	Power Switch	1	36	SHRG8390A	Cover, Power SW.	1
SPEAKERS				37	QYKG050AA	Bottom Plate	1
SP1, 2	SASG12PL03-F	12cm, 8Ω	2	37	QYKG050BB	Bottom Plate	1
SP3, 4	EAS65PH89A	Speaker 6.5cm, 12Ω	2	37-1	[SHGG3130A	Foot Rubber	4
TRANSFORMER				38	QYKG051AA	DDR Cover	1
T1	QTPG1M005A	Power Transformer	1	39	SQCG402A	Dust Cover	1
T1	QTPG1M007A	Power Transformer	1	40	EME213DV	Digital Disk Drive Unit	1
POWER CORD & PLUG				41	SUVG1282A	Cover	1
PC1	QJAG001AA	AC Power Cord	1	42	SHRG9850A	P.C.B. Holder	3
PC1	SJAG41	AC Power Cord	1	43	QMGF1066AA	Felt	1
PC1	SJAG61	AC Power Cord	1	44	QEUGR0W10A	Flat Cable	1
PC1	SJAG62	AC Power Cord	1	45	TUX926	Binder	(9)
PC1	SJAG65	AC Power Cord	1	46	QMXG003AA	Spacer	2
PC1	SJAG65	AC Power Cord	1	47	QLZG001A	Core	4
PC2	SJP5213-1	Attachment Plug	1	48	SLQGTRCC20	Core	1
PC3	SJPG1350A	Power Plug	1	49	SHRG1270A	Mounting Base	5
CABINET PARTS				50	QMRG5012AA	Cushion	1
1	QYAG3002AA	Music Rack	1	51	QMRG5013AA	Cushion	1
2	QYPG1014AB	Control Panel Assembly	1	52	QSCG033A	Shield parts	1
2-1	[QGMG0006AA	Speaker Net	2	53	QSCG032A	Shield Parts	1
3	QGP0028AA	Transparent Plate	1	MANUAL KEYBOARD			
4	QGP0026AB	LCD Case	1	54	STBG1100A	White Key (C and F Key)	10
5	QGP0027AB	LCD Base	1	55	STBG1110A	White Key (D Key)	5
6	QMG014AA	Cushion	1	56	STBG1120A	White Key (E and B Key)	10
7	QGP0029AA	Sequencer Indication Plate	1	57	STBG1130A	White Key (G Key)	5
8	SBCG1660A	Button, Power Switch	1	58	STBG1140A	White Key (A Key)	5
9	QGUG3002AA	Dial Wheel	1	59	STBG1150A	White Key (Top Octave C Key)	1
10	SBNG7070A	Knob, Main Volume	1	60	STBG2070A	Black Key	25
11	QGUG1077AA	Button	1	61	SUSG270A	Spring	61
12	QGUG1078AA	Button	2	62	SHSG1970A	Felt	2
13	QGUG1079AA01	Button	1	63	SHGG9050A	Key Guide Rubber	61
14	QGUG1080AA01	Button	1	64	SHRGA9010A	Spacer	3
15	QGUG1081AA01	Button	1	65	SHRGA9020A	Spacer	1
16	QGUG1082AA01	Button	1	66	SHRGA9030A	Spacer	1
17	QGUG1082AA02	Button	1	67	SHRG9760A	Spacer	1
18	QGUG1083AA	Button	1	68	SSPG7004A	Rubber Switch (7 pcs. on one)	1
19	QGUG1084AA	Button	1	69	SSPG6004A	Rubber Switch (6 pcs. on one)	9
20	QGUG1085AA	Button	1	70 (NLA)	STBG6241A	Chassis	1
21	QGUG1086AA	Button	1	SCREWS & WASHERS			
22	QGUG1087AA	Button	1	N1	XSB4+25	Screw	2
23	QGUG1088AA01	Button	1	N2	XNG4B	Nut	2
24	QGUG1089AA	Button	1	N3	XTV3+12BFZ	Screw	2
25	QGUG1092AA	Button	2	N4	XTW3+10Q	Screw	8
26	QGUG1095AA	Button	1	N5	XNS9	Nut	1
27	QGUG1096AA	Button	1	N6	XTV3+10G	Screw	55
28	QGUG1097AA01	Button	1	N7	XTW3+12Q	Screw	15
29	QGUG1097AA02	Button	1	N8	XTB3+5C	Screw	3
30	QGUG1098AA01	Button	1	N9	QHDG002AA	Screw with Washer	4
31	QGUG1099AA	Button	1	N10	XTW3+14TFZ	Screw	16
32	QGUG1100AA01	Button	1	N11	XTW3+10QFVC	Screw	1
33	SBNG4050A	Wheel Knob	2	N12	XTB3+10JFZ	Screw	2
34	SUSG570A	Spring	1	N13	XTB3+14GFZ	Screw	2
35	SHGG5010A	Tube	2	N14	XTB4+8FFZ	Screw	1
				N14	XTB4+8FFZ	Screw	2
				N15	XSS3+6FZ	Screw	4
				N16	XTW3+10T	Screw	19
				N17	SNEG2620A	Nut	1
				N18	XTB3+12BFZ	Screw	1

PACKING



PACKING PARTS

Ref. No.	Part No.	Description	Per/Set	Ref. No.	Part No.	Description	Per/Set
○ 1	QPGG0093AA	Carton	1	INSTRUCTION BOOK			
○ 1	EZ EW QPGG0093AB	Carton	1	○ 9	EN QQFGKN1000AA	Instruction Book	1
○ 2	QPNG0183AA	Pad	1	○ 9	IM QQFGKN1000CA	Instruction Book	1
○ 3	QPNG0184AA	Pad	1	○ 9	MC QQFGKN1000DA	Instruction Book	1
○ 4	QPNG0185AA	Pad	1	○ 9	EZ EA QQFGKN1000EA	Instruction Book	1
○ 5	QPNG0186AA	Cardboard	1	○ 9	EW QQFGKN1000FA	Instruction Book	1
6	SPHG1770A	Polyethylene Bag	1	○ 9	EF QQFGKN1000GA	Instruction Book	1
7	QPHG007AA	Polyethylene Bag	2	○ 9	EH QQFGKN1000HA	Instruction Book	1
8	QPFG002AA	Polyethylene Bag	1	○ 9	X QQFGKN1000JA	Instruction Book	1
				○ 9	EK XL XR QQFGKN1000KA	Instruction Book	1
				○ 9	XS XD QQFGKN1000LA	Instruction Book	1
				○ 9	EP XM QQFGKN1000LA	Instruction Book	1