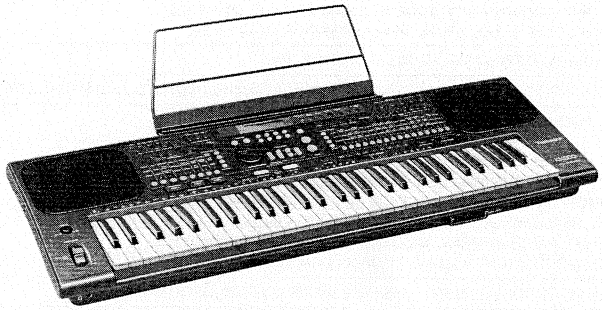
ORDER NO. EMID891253
A4

Service Manual

PCM Keyboard

SX-KN800

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



AREAS

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

Specifications

KEYBOARD		61 KEYS (TOUCH SENSITIVE KEYBOARD)
SOUND SOURCE		PCM
MAXIMUM NUMBER OF SIMULTANEOUS POLYPHONIC NOTES		23
PRESET SOUNDS	POLY 1, 2, ACCOMP 1, 2, 3	96 SOUNDS (48 × 2 VARIATIONS): PIANO 1, 2, E.GRAND, HARPSICHORD, E.PIANO 1, 2, GUITAR, JAZZ GUITAR, SOLID GUITAR, HAWAIIAN GUITAR, MUTE GUITAR, ROCK GUITAR, HARP, BANJO, CLAVI, GLOCKEN, VIBETONE, CHIME, XYLOPHONE, STEEL DRUM, KALIMBA, PIPE ORGAN 1, 2, JAZZ ORGAN 1, 2, POP ORGAN 1, 2, VIOLIN, STRINGS, SYNTH STRING, BRASS, TRUMPET, FRENCH HORN, TROMBONE, SYNTH BRASS 1, 2, ACCORDION, TENOR SAX, ALTO SAX, OBOE, CLARINET, HARMONICA, PAN FLUTE, FLUTE, WHISTLE, SPECIAL 1, 2, 3
	BASS	16 SOUNDS (8 × 2 VARIATIONS): ORGAN, TUBA, ACOUSTIC, ELECTRIC, CHOPPER, SPECIAL 1, 2, 3
SOUND EDIT	PARAMETER	TONE ASSIGN MODE (NORMAL, DUAL DUET, TRIO), TONE SELECT, VOLUME (LEVEL, KEY-BALANCE), PITCH (KEY-SHIFT, DETUNE), ENVELOPE (ATTACK & DECAY, RELEASE), VIBRATO (DEPTH, SPEED, DELAY), REPEAT (SPEED), AUTO BEND & TRILL (PATTERN, DEPTH, SPEED), PITCH RELEASE (DEPTH, TIME), TOUCH SENSE (VOLUME, AUTO BEND & TRILL), GLIDE (ON/OFF), SPLIT OCT (ON/OFF), SOUND NAME
	SOUND MEMORY	POLY 1, 2, ACCOMP 1, 2, 3: 16 MEMORY BASS: 8 MEMORY
EFFECT	CHORUS	ON/OFF (POLY 1, 2, ACCOMP 1, 2, 3)
	SUSTAIN	ON/OFF (POLY 1, 2, ACCOMP 1, 2, 3, BASS)
	REVERB	ON/OFF (POLY 1, 2, ACCOMP 1, 2, 3, BASS, DRUMS) TYPE (ROOM, HALL, STAGE, CATHEDRAL, SYMPHONY HALL, ECHO 1, 2, 3), TOTAL ON/OFF, DEPTH, USER 1~4 (DECAY, ECHO-TIME)
MODULATION		VIBRATO ON/OFF
PITCH BEND		○ (PITCH BEND WHEEL)
TRANSPOSE		○
TECHNI-CHORD		○
BGS		THUNDER, BIRD, WINDCHIMES, SPECIAL 1, 2, WIND, STREAM, WAVE, CHURCHBELL, FADE-OUT
RHYTHM	PATTERN	MARCH, POLKA, COUNTRY, WALTZ, TANGO, LATIN, SAMBA, BOSSANOVA, SWING, DIXIE, JAZZ WALTZ, SHUFFLE, ROCK BALLAD, SWING ROCK, SAMBA ROCK, LATIN ROCK, 8 BEAT 1, 2, ROCK'N'ROLL, 16 BEAT 1, 2, JAZZ ROCK, FUNK, DISCO
	CONTROLS	START/STOP, SYNCHRO & BREAK, FILL-IN, INTRO & ENDING, TEMPO
	MANUAL PERCUSSION	PAD 1, 2, 3
	KEYBOARD PERCUSSION	48
AUTO PLAY CHORD		FINGERED, ONE FINGER, MEMORY
ARRANGER		ACCOMP 1, 2&3, DRUMS, VARIATION

Technics

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Central P.O. Box 288, Osaka 530-91, Japan

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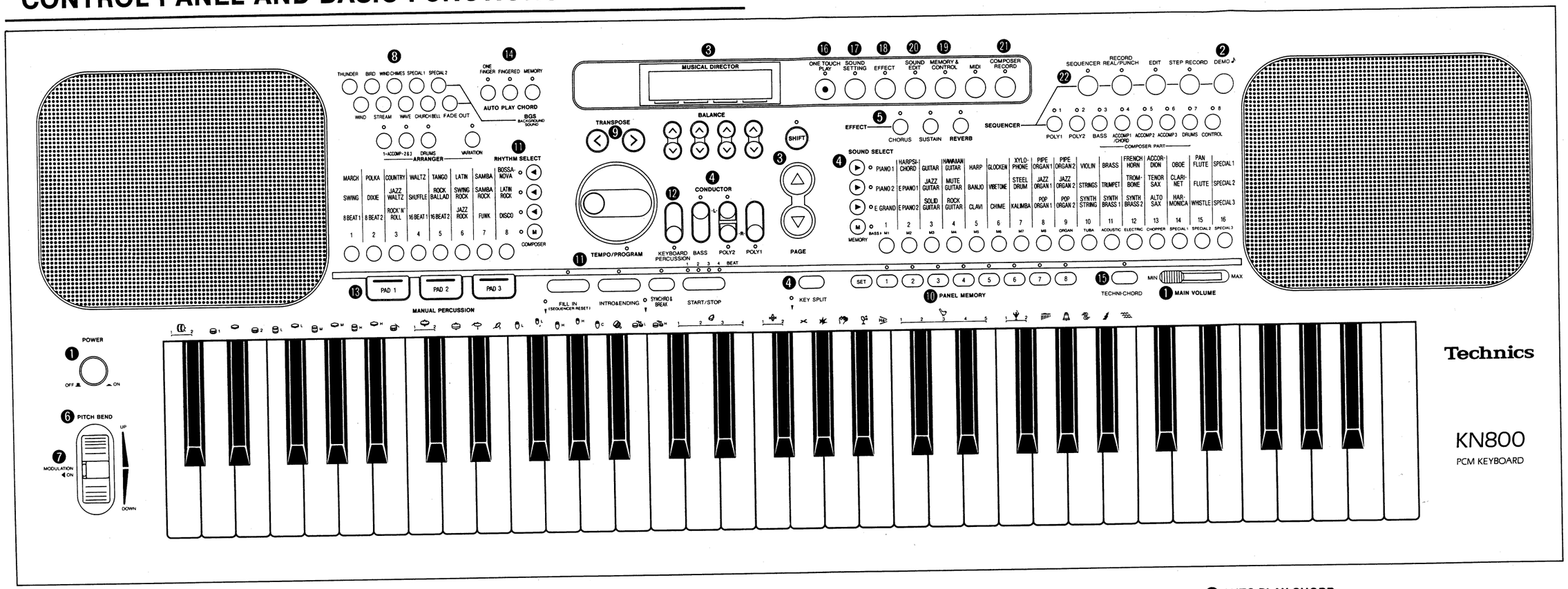
Division of Matsushita Electric Corporation of America
50 Meadowland Parkway,
Secaucus, New Jersey 07094

Panasonic Sales Company,
Division of Matsushita Electric of Puerto Rico, Inc.
San Gabriel Industrial Park
65th Infantry Ave. Km. 9.5
Carolina, P.R. 00630

ONE TOUCH PLAY	○(ONE TOUCH PLAY/MUSIC STYLE SELECT)
PANEL MEMORY	SET, 1~8
COMPOSER	5 TRACKS (PART: ACCOMP 1, 2, 3, BASS, DRUMS) MEMORY...1~8 INPUT MODE...REAL TIME, STEP EDITING FUNCTIONS...COPY, RECORDING, CHORD SELECT RESOLUTION...REAL TIME: ♩-1/96, STEP: ♩- 1/8
SEQUENCER	8 TRACKS (PART: POLY 1, 2, BASS, ACCOMP 1/CHORD, ACCOMP 2, 3, DRUMS, CONTROL) STORAGE CAPACITY...APPROX. 2,800 NOTES INPUT MODE...REAL TIME, STEPS EDITING FUNCTIONS...PUNCH-IN/OUT, TRACK ASSIGN, SONG ALL CLEAR, TRACK CLEAR, TRACK MERGE, MAJOR DELETE, MAJOR ERASE, MAJOR INSET, MAJOR COPY, VELOCITY CHANGE, QUANTIZE RESOLUTION...REAL TIME: ♩-1/96, STEPS: ♩-1/8 , DEMONSTRATION TUNE
MUSICAL DIRECTOR	LIQUID CRYSTAL DISPLAY (20 LETTERS × 2 LINES)
CONTROLS	SHIFT, PAGE △, ▽, BALANCE △, ▽, CONDUCTOR (POLY 1, 2, BASS, KEYBOARD PERCUSSION), TEMPO/PROGRAM DIAL, KEY SPLIT
MIDI	PART (POLY 1, 2, ACCOMP 1, 2, 3, BASS, DRUMS, CONTROL) CHANNELS 1~16 MIDI INPUT SELECT (CONDUCTOR/DIRECT) MIDI OUTPUT SELECT (APC/CHORD, TECHNI-CHORD ON/OFF) MIDI FUNCTION SELECT COMMON: (INITIAL, NOTE ONLY, TRANSPOSE OUT, PROGRAM CHANGE MODE, SONG SELECT, REAL TIME COMMAND, MIDI CLOCK, MIDI DATA LOAR) PART: (OCTAVE SHIFT, PANEL MEMORY, PROGRAM CHANGE, SUSTAIN, VELOCITY, PITCH BEND, MODULATION, VOLUME, CHORUS, EXPRESSION, INTRO)
EXTERNAL MEMORY	MEMORY CARD (SY-P5, OPTIONAL), DIGITAL DISK RECORDER (SY-FD20, OPTIONAL)
TERMINALS	HEADPHONE, LINE OUT (R/R+L, L), AUX IN (R/R+L), MIDI (IN, OUT, THRU), FOOT SWITCH, FOOT CONTROLLER
OTHERS	POWER SWITCH, MAIN VOLUME, MEMORY CARD SLOT
OUTPUT	10W×2
SPEAKERS	16cm (6-5/16")×2
POWER REQUIREMENT	70W
	AC120V, 60 Hz
DIMENSIONS (W×H×D)	103.2 cm×13.2 cm×35.7 cm (40-5/8"×5-3/16"×14-1/16")
NET WEIGHT	11.4 kg (25.1 lbs.)
ACCESSORIES	MUSIC RACK, AC CORD, DUST COVER

CONTENTS

CONTROL PANEL AND BASIC FUNCTIONS



❷ DEMO
A demonstration performance has been preset in the keyboard.
The other buttons and keys do not function when the demonstration performance display is shown.

❸ MUSICAL DIRECTOR
The normal mode display shows the name of the selected rhythm, the rhythm tempo, the sounds selected for **POLY 1** and **2**, and the transposed key. When storing functions, various settings are displayed depending on the selected function button. Find the desired display with the **PAGE** and **SHIFT** buttons. The **BALANCE** buttons directly beneath the display are used to select and adjust the numerous programmable settings of the Keyboard.

❹ CONDUCTOR (Selecting sounds)
Choose from the many **POLY** and **BASS** sounds with the **SOUND SELECT** matrix. You control exactly how the sounds are assigned to the Keyboard with the **CONDUCTOR**. The same sound can be assigned to the entire keyboard, or different sounds to the separate parts of a split keyboard. The volume of each sound is controlled independently.

❺ EFFECT
CHORUS and **SUSTAIN** are set independently for each **CONDUCTOR** part. The **REVERB** effect (KN800 only) is applied collectively to all **CONDUCTOR** parts.

❻ PITCH BEND
With the **PITCH BEND** wheel you can change the pitch continuously as you play. The wheel returns automatically to the center position when you release your hand.

❼ MODULATION
When the **MODULATION** switch is on, a vibrato is applied to the sounds.

❽ BACK GROUND SOUND
Nine unique background sounds add special life and interest to your performance. The **FADE OUT** button is pushed once for slowly diminishing background sound, twice for immediate cut-off. The volume for **BGS** is controlled independently.

❾ TRANSPOSE
C is the standard setting, but you can raise or lower the key of the entire keyboard with the two buttons. The transposed key is shown on the normal mode display of the **MUSICAL DIRECTOR**. The two buttons are also used to move the cursor on the display when assigning names to your recorded creations or when step-recording/correcting **COMPOSER** or **SEQUENCER** performance data.

❿ PANEL MEMORY
Store up to 8 different panel settings—sounds, effects, volumes, **CONDUCTOR**, **KEY SPLIT** point, and **TRANSPOSE**—in these 8 buttons for instant recall as you play.

⓫ RHYTHM SELECT
Select a preset rhythm from the 8×4 matrix and start it instantly with the **START/STOP** button. Eight of the locations are reserved for patterns you create yourself. **BEAT** indicators, **SYNCHRO & BREAK** feature, and tempo dial make playing easy. Regular Technics features such as automatic **FILL IN**, **INTRO** and **ENDING** patterns add spice to your performance. The **DRUMS** volume is adjusted independently of the other sounds.

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

⓭ MANUAL PERCUSSION
Any of the three **PAD** buttons can be pressed during your performance to produce a percussion sound. Use the preset sounds, or store the desired **KEYBOARD PERCUSSION** sounds. The **PAD** switches can also be programmed for other functions, such as rhythm start/stop.

⓮ AUTO PLAY CHORD
This feature is activated when the **ONE FINGER** or **FINGERED** button is turned on. The bass and accompaniment are automatically produced when you play a key on the left part of the keyboard. A walking bass feature and accompaniment variations add diversity to your performance.

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

⓰ ONE TOUCH PLAY
With this special feature, you select a rhythm or type of music, and appropriate voices and effects are automatically set.

⓱ SOUND SETTING mode
Turning on this button readies the **MUSICAL DIRECTOR** for use as a controller to preset certain sound, volume, effect and mode settings for the Keyboard.

⓲ EFFECT mode
In the effect-setting mode, you use the **MUSICAL DIRECTOR** to select the type of **REVERB**, edit and store a **REVERB** type, and specify effect on/off for each performance part.

⑲ MEMORY & CONTROL mode
When this button is on, a broad range of functions can be set, including memory initialization, selection of the **TECHNI-CHORD** harmony style, tuning, scale-select, **PANEL MEMORY** range-setting, and vibrato depth adjustment, switch-assign, display contrast adjustment, and more.

⑳ SOUND EDIT
With this feature you select a preset sound, modify it until it sounds just the way you like it, and then store it in one of the memory locations. Edit and store up to **16 POLY** sounds and **8 BASS** sounds.

㉑ COMPOSER
Create original rhythm patterns, either in real-time or with the step method, or modify preset rhythms. Store up to eight new rhythms in the reserved memory locations for instant recall as you play.

㉒ SEQUENCER
With this feature you can separately play and store the parts for an entire tune. Then have the whole ensemble performance played back automatically. This is a true 8-track sequencer, with full real-time recording, step recording and editing features.

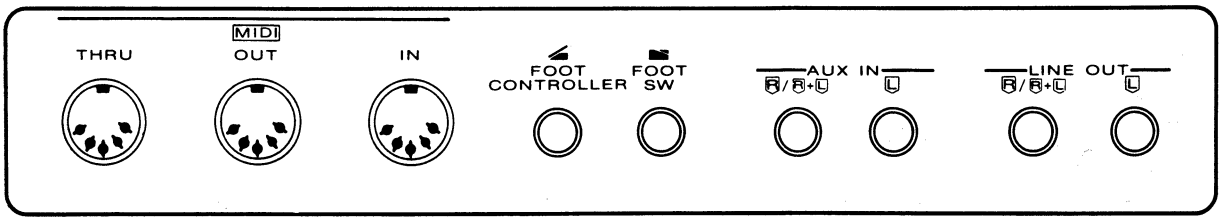
● Memory card SY-P5 (option)
Store your performances or registrations on optional memory cards. Create a library of performances—for practice, accompaniment or just listening.

● Digital Disk Recorder SY-FD20 (option)
The optional Digital Disk Recorder allows you to store up to 19 performances on a 3.5-in. DSDD memory disk.

NOTE: See separate instruction book for detail.

OPTIONS AND CONNECTIONS

(Rear Panel)



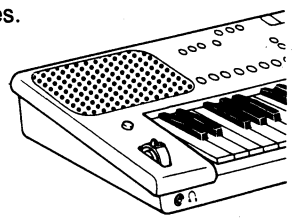
FOOT CONTROLLER
The SZ-E2 Expression Pedal allows you to control the volume (loudness) of all the keyboard voices, leaving your hands free to play.

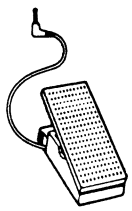
FOOT SW
When an SZ-P1 Foot Switch is connected to this terminal, you can choose from among several functions to control by foot.

AUX IN (Input level 0.5 Vrms, 30 kΩ)
Other instruments such as a rhythm machine or sound module can be connected to the keyboard so that the sound is output from the keyboard. To receive monaural sound, connect instruments to the **R/R+L** terminal.

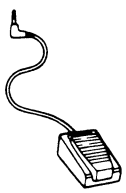
LINE OUT (Output level 1 Vrms, 600 Ω)
By plugging into the Technics Keyboard Amp or a high-power amplifier, the sound can be reproduced at high volume. (Use the **R/R+L** terminal when outputting monaural sound.)

PHONES (Ω) (Use headphones with over 16 Ω 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.

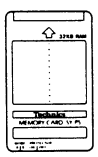




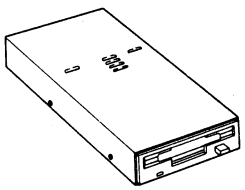
SZ-E2
Expression Pedal
(optional)



SZ-P1
Foot Switch
(optional)



SY-P5
Memory Card
(optional)



SY-FD20
Digital Disk Recorder
(optional)

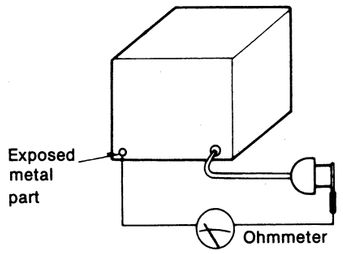
SAFETY PRECAUTION (This "safety precaution" is applied only in U.S.A.)

• Safety Precaution

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

• Insulation Resistance Test

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



Resistance=4MΩ to ∞

INITIAL SETTING

[1] Initial setting function will be used to return to the Original Factory setting mode, reset the customer setting and irregular operations with following methodes.

1. Turn the POWER switch to off.
2. Then, Turn on the POWER switch while pressing PAD 1, 2, and 3 buttons at the same time.

NOTE:
All stored data in the SEQUENCER, COMPOSER AND OTHER will be initialized with this operation.

[2] Initial setting function also be able to reset limited function of the stored data or all data as same purpose as section [1] above. (ALL, COMPOSER, SOUND MEM, or SEQUENCER is selectable.)

1. Set the MUSICAL DIRECTOR to MEMORY & CONTROL mode.
2. Change the MUSICAL DIRECTOR mode to INITIAL SETTING mode with PAGE button to call 2nd PAGE)

[MEMORY & CONTROL MODE] PAGE 2

```
2 : INITIAL SETTING
    ALL              [SET]
```

① ② ③ ④

3. The functions to be initialized are selected by the ② buttons.

ALL: Initializes all functions such as the status of sounds and effects, **PANEL MEMORY, SOUND SELECT MEMORY, COMPOSER** and **SEQUENCER.**

COMPOSER: Initializes the **COMPOSER** memory and sets to the factory presets.

SOUND MEM.: Initializes the **SOUND SELECT MEMORY** of all parts and sets to the factory presets.

SEQUENCER: Initializes the memory contents of all tracks.

4. Press ④ button to change to the following confirmation display.

```
2 : INITIAL SETTING
    SURE?        [NO] [YES]
```

① ② ③ ④

• Press ④ button for [YES] to execute the initialization procedure.
• Press ③ button for [NO] to cancel the initialization procedure.

CONDUCTOR SETTINGS

The Keyboard are arranged into three voices groups, POLY 1, POLY 2 and BASS.
The 8 different sound conbinations are possible to set as shown in the chart below.

(R) denotes the right section of a split keyboard. (L) denotes the left section of a split keyboard.

CONDUCTOR settings	Parts which can be played on the keyboard	Number of notes that can be produced simultaneously
CONDUCTOR; KEYBOARD PERCUSSION, BASS, POLY2, POLY1		
POLY 1	**POLY 1**	**POLY 1**: 8 notes
POLY 2 (R)	**POLY 2**	**POLY 2**: 8 notes
POLY 1 + POLY 2 (R)	**POLY 1 + POLY 2**	**POLY 1**: 8 notes **POLY 2**: 8 notes
POLY 1 + POLY 2 (L)	(L) **POLY 2** / (R) **POLY 1** Split point	(R) **POLY 1**: 8 notes (L) **POLY 2**: 8 notes
BASS	**BASS**	**BASS**: 1 note
POLY 1 + BASS	(L) **BASS** / (R) **POLY 1** Split point	(R) **POLY 1**: 8 notes (L) **BASS**: 1 note
POLY 2 (R) + BASS	(L) **BASS** / (R) **POLY 2** Split point	(R) **POLY 2**: 8 notes (L) **BASS**: 1 note
POLY 1 + POLY 2 (R) + BASS	(L) **BASS** / (R) **POLY 1 + POLY 2** Split point	(R) **POLY 1**: 8 notes **POLY 2**: 8 notes (L) **BASS**: 1 note

*Press 2 or more buttons simultaneously when multiple parts are used.

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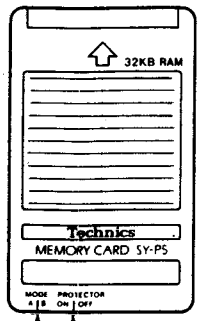
MEMORY CARD SY-P5 (OPTION)

The memory card is used in the slot beneath the Keyboard. Select from three modes-SOUND COMPOSER, SONG– depending on the type and amount of data you would like to store.



Mode	Storable contents	Number of songs which can be stored
SOUND	• Panel button settings • **PANEL MEMORY** data • **SOUND SELECT** matrix **MEMORY** contents (**SOUND EDIT**)	8 songs
COMPOSER	**SOUND** mode contents (above) + **COMPOSER** memory contents	2 songs
SONG	**COMPOSER** mode contents (above) + **SEQUENCER** data	1 song (approximately 2800 notes)

PROTECTOR switch: When set to **ON**, you cannot store new data on the memory card.

MODE switch: Set according to the mode.
A: **SOUND** mode or **COMPOSER** mode
B: **SONG** mode

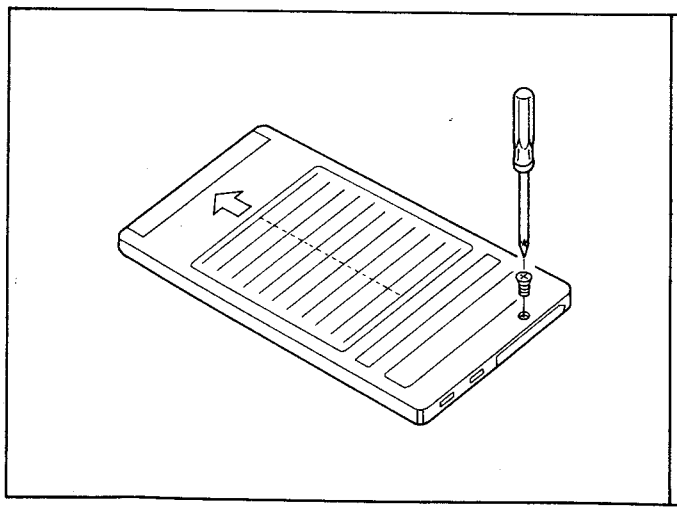
■ Precautions when using the memory card

1. The life of battery is about 3 years under normal temperatures.
2. The memorized data will be eliminated when the battery worn after the life time and new battery is required for new data memory.
3. To keep important memory long time, it is necessary to maintain battery exchange as following steps.
   * Copy memorized data from card to piano and replace the battery and re-store the data from piano to card again.

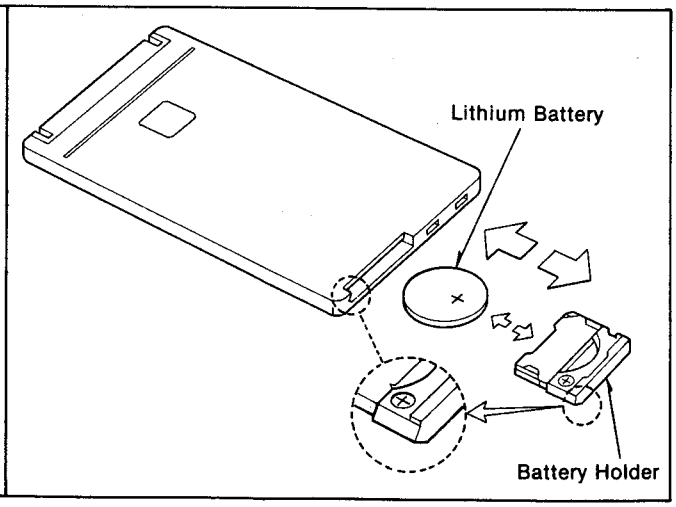
■ Battery replacing method

Caution: Before replacing the battery, be sure to explain the user that the memory entries will be erased. When storing the memory entries, copy them before replacing the battery.

1. Remove one screw on the back of memory card.
2. Pull out the battery holder as in Fig. 2.
3. When setting the battery, check the plus (+) mark of battery and the (+) mark of battery holder, and set it in correct polarity.
4. When setting the battery holder on the main body of memory card, be sure to set it in correct position.



[Fig. 1]



[Fig. 2]

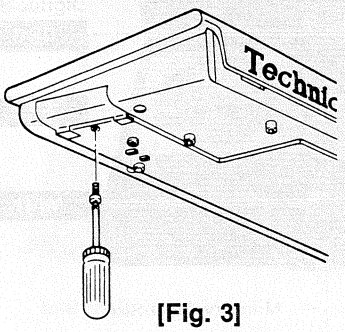
DIGITAL DISK RECORDER SY-FD20 (OPTION)

Data for up to 19 performances-including all panel settings, button memories and SEQUENCER contents-can be on one SY-FD20 digital memory disk (floppy disk).
The SY-FD20 memory capacity is equivalent to 19 times of the keyboard's internal memory capacity.

■ INSTALLATION OF SY-FD20

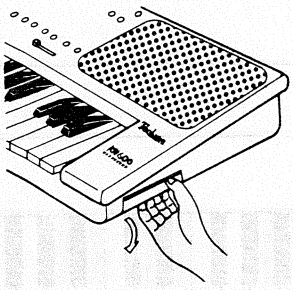
1. Make sure that the power to the Keyboard is turned off.

2. Remove the cover from the connector unit by first removing the screw.



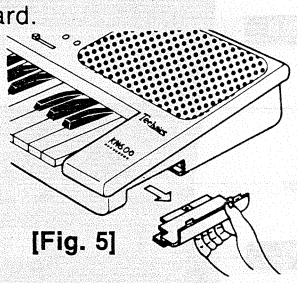
[Fig. 3]

3. Use the gap at the top of the cover as a fingerhold to apply downward pressure.



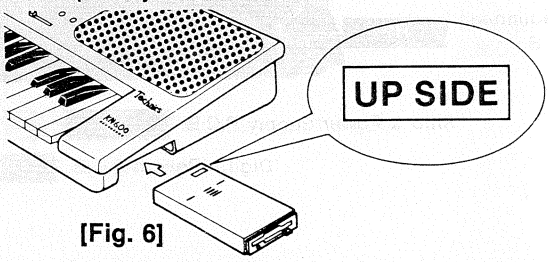
[Fig. 4]

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



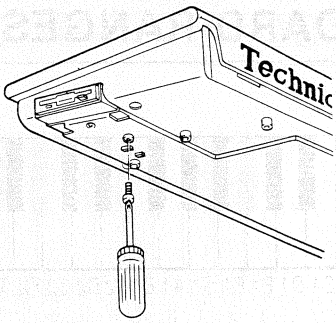
[Fig. 5]

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



[Fig. 6]

6. Secure the Digital Disk Recorder to the Keyboard with the screw you removed in step **2**.



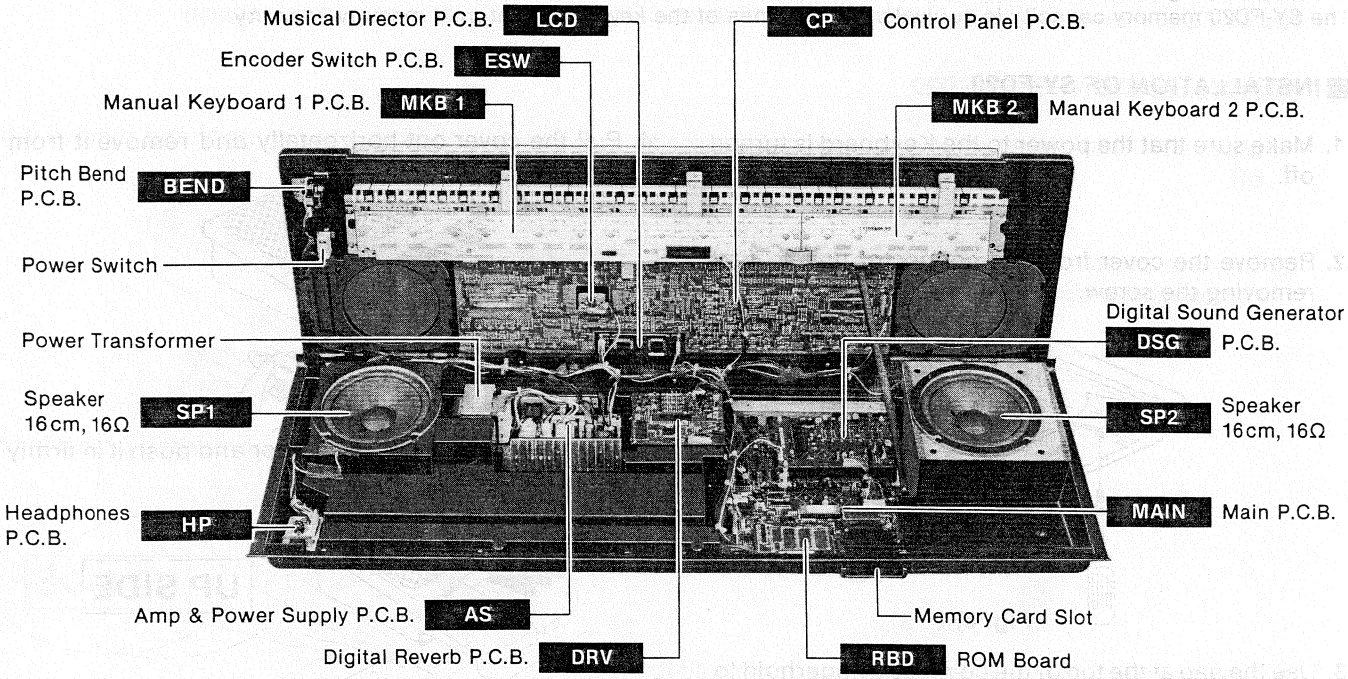
[Fig. 7]

■ NEW DISK FORMATTING.

Any disk to be used with SY-FD20 requires formatting when useing first time.
(Please refer the Operating Instruction book for the detail procedure)

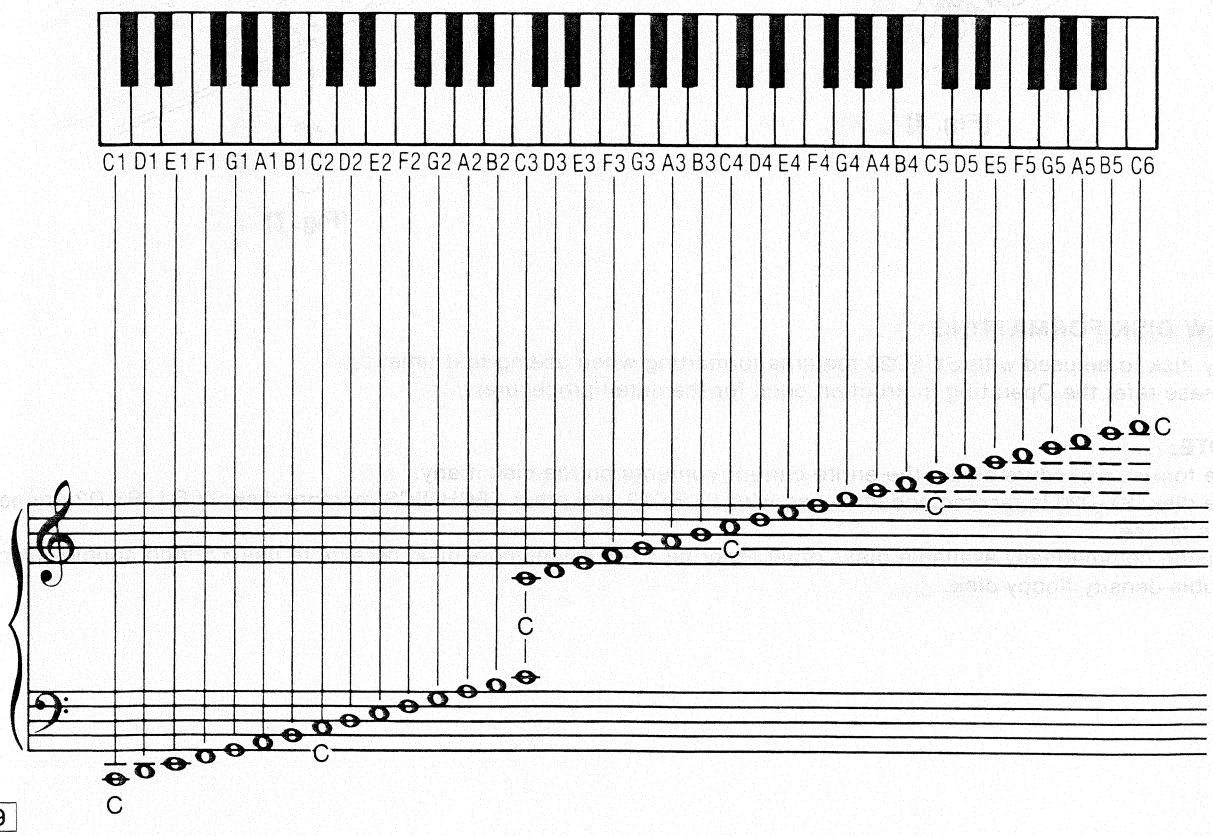
NOTE:
The format procedure clears the entire current contents on the disk if any.
The disk, SY-D20 is recommended to use with SY-FD20 and other TECHNICS memory disk SY-D1, SY-D2 are not able to use.
If using commercially available disks other than the SY-FD20 memory disk, be sure to use 3.5 inch double-sided, double-density floppy disk.

PARTS LOCATION



[Photo-1]

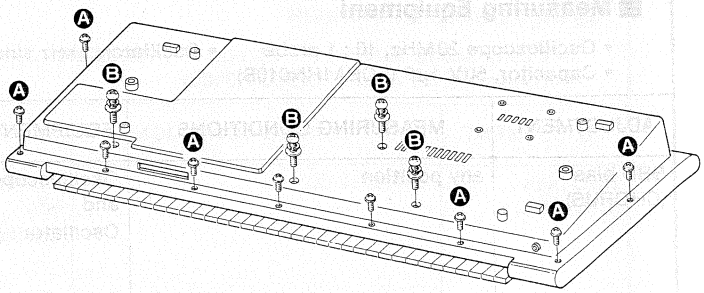
KEYBOARD RANGES



DISASSEMBLY INSTRUCTIONS

1 Opening the Cabinet. (Fig. 8)

1. Turn the keyboard cabinet upside down as shown in Fig. 1, and remove the bottom screws. (Ⓐ 9 pcs. & Ⓑ 4 pcs.)
2. Place the keyboard bottomside down, and open the top cabinet.



[Fig. 8]

2 Removing the Printed Circuit Boards. (Fig. 9)

MAIN P.C.B.

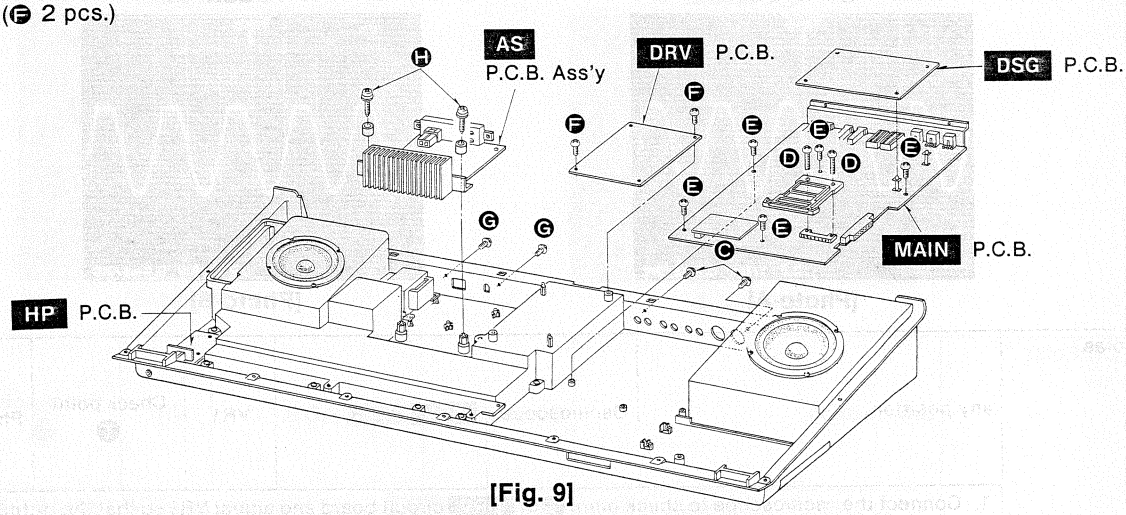
1. Open the cabinet. (See Step 1)
2. Remove the MAIN P.C.B. mounting screws on the rear panel and memory card holder. (Ⓒ 2 pcs. & Ⓓ 2 pcs.)
3. Remove the MAIN P.C.B. mounting screws on the P.C.B. (Ⓔ 5 pcs.)

DRV P.C.B.

1. Open the cabinet. (See Step 1)
2. Remove the DRV P.C.B. mounting screws on the P.C.B. (Ⓕ 2 pcs.)

AS P.C.B. Ass'y

1. Open the cabinet. (See Step 1)
2. Remove the AS P.C.B. mounting screws on the rear panel and P.C.B. (Ⓖ 2 pcs. & Ⓗ 2 pcs.)

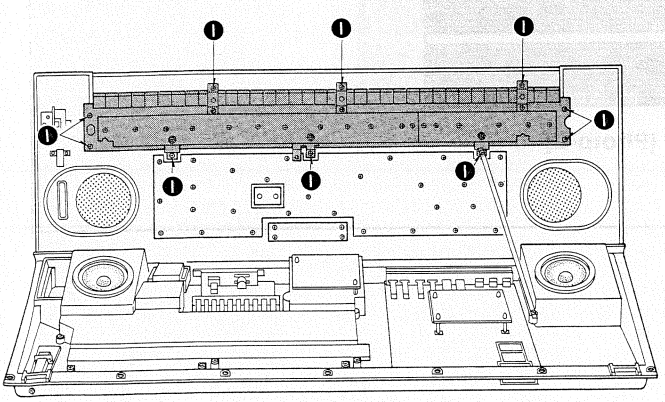


[Fig. 9]

NOTE:
Other P.C.B. can be removed with releasing claws and/or removing screws on the P.C.B.

3 Removing the Keyboard assembly. (Fig. 10)

1. Open the cabinet. (See Step 1)
2. Remove the keyboard assembly holding screws. (Ⓘ 10 pcs.)

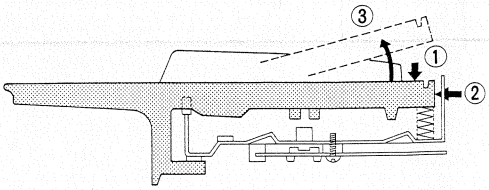


[Fig. 10]

4 Removing the Key(s). (Fig. 11)

1. Remove the keyboard assembly. (See Step. 3)
2. Press the rear of the key downward. (Fig. 11-①)
3. Push the rear edge of the key while the rear of the key in downward. (Fig. 11-②)
4. To remove the key, lift it as shown Fig. 11-③ direction.

NOTE:
If a black key is to be replaced it is necessary to remove both adjacent white keys.



[Fig. 11]

MEASUREMENTS AND ADJUSTMENTS

Measuring Equipment

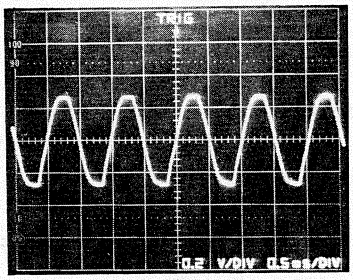
- Oscilloscope 20MHz, 10 : 1 probe
- Oscillator, 1kHz sine wave, 0~10Vp-p, 600Ω
- Capacitor, 50V 1μF (ECEA1HN010S)

ADJUSTMENT	MEASURING CONDITIONS	EQUIPMENT	ADJUSTMENT P.C.B.	ADJ. POINT	CONNECTION(S)	METER READING
BBD bias (CHORUS)	any position	Oscilloscope and Oscillator	MAIN P.C.B.	VR1	Check point ㉕ (• Oscillator IC55-③ pin)	Photo-A

1. Connect the oscilloscope to check point ㉕ of MAIN circuit board.
2. Input 1kHz sine wave to IC55-③ pin by oscillator through capacitor of less than 50V 1μF. Then, adjust the output level of oscillator until the sinewave on the oscilloscope is clipped.
3. Adjust VR1 so that the output waveforms on the oscilloscope are evenly clipped at top and bottom.

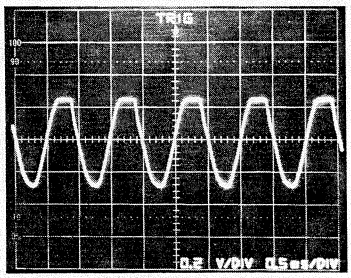
BBD bias adjustment

○: Good



[Photo-A]

×: Fault



[Photo-B]

DRV bias	any position	Oscilloscope	DRV P.C.B.	VR1	Check point ❶	Photo-C

1. Connect the oscilloscope to check point ❶ of DRV circuit board and adjust VR1 so that the output level on the oscilloscope are minimum level as shown in Photo-C.

Fault →

Good →

[Photo-C]

PRECAUTIONS BEFORE SERVICING

■ Precautions for measuring of the output waveforms.

1. Set the INITIAL mode before measurement. (Refer to page I-5.)
2. After INITIAL mode, set the measurement conditions as each check points.
3. The waveform was measured by "National Digital Storage Oscilloscope VP-5730A". Therefore the waveforms of musical tone signals shown may somewhat change due to variation of timing of triggering.
4. Since the 1/10 of the test probe is used, the indicated voltage value on bottom part of the each waveform photo is 1/10 of the actual value. (e.g. 0.2V/cm should be 2.0V/cm)

■ 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.

■ Symbolic Marks

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

1. RESISTORS
   - Resistors without symbolic mark are FIXED CARBON FILM RESISTORS (ERD-type).
   - All resistors are 1/4WATT, ±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)	[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 Film Resistors "FLAME-PROOF" (ERD2FC—type)
Ⓖ	Fixed Metal Film Resistors (Precision and High Stability) (ERO—type)		

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

(TABLE-2)

SYMBOL	SPECIFICATION	TYPE
Ⓝ	Non-Polarised Electrolytic Capacitors	ECEA−KN−type
Ⓨ	Non-Polarised Electrolytic (for Network System)	ECEA−Y−type
(MS)	Aluminum Electrolytic Capacitors (Low leakage current type)	ECEA−M−type
Ⓩ	Aluminum Electrolytic Capacitors (Low impeadance type)	ECEA−Z−type
(TF)	Metalized Plastic Film Capacitors (TF Series)	ECQV−type
	Polyester Film Capacitors	ECQB−type
○	Temprature Compensating Ceramic Capacitors	ECC−type
	High-Dielectric Constant Ceramic Capacitors	ECK−type ECR−type
	Metalized Polyester Film Capacitors for Across the Line	ECQ−EW−type
	Aluminum Electrolytic Capacitors for smooting Circuit	ECES−type

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** once, then turn it on again. •If the above procedure is not successful, turn off the **POWER** once. Then, while pressing **PAD 1**, **2** and **3** at the same time, turn the **POWER** on again. (Note that, in this case, the stored contents of the **SEQUENCER**, **COMPOSER**, etc. are erased.)
The sound of a part cannot be heard.	•The volumes for the **POLY 1**, **2**, **ACCOMP 1**, **2**, **3**, **BASS**, **DRUMS** and **BGS** parts are adjusted with the **BALANCE** buttons. When the volume level indication for a part is not shown on the **MUSICAL DISPLAY**, that part's volume is off. Use the ⊘ button to adjust the volume for that part to an appropriate level. •The local control for a part performed on the keyboard is set to OFF.
When many keys are pressed at the same time, the sounds of each key are different.	In the DUET and TRIO modes, the sounds differ depending on the played key.
When a key is pressed, it does not sound.	•When the sound module mode is set to A, B or C, no sound is produced by playing the keyboard. Set the mode to OFF. •The buttons and keys do not function when the demonstration performance display is shown. Press the **DEMO** ♪ button to turn it off.
■ Rhythm	
The rhythm does not start.	•When a **SEQUENCER** track button(s) is on, the rhythm section will not start unless the rhythm part has been stored. When the clock mode... •When the clock mode is set to MIDI, the rhythm does not start if no MIDI clock signal is received from another instrument. When using only the Keyboard, return the clock mode to the internal clock, for example by turning off the **POWER** once.
The only rhythm produced is a hi-hat and bass drum sound.	•This is the rhythm sound produced when the **KEYBOARD PERCUSSION** button is on. When the **KEYBOARD PERCUSSION** button is turned off, the rhythm returns to normal.
■ Composer	
The timing of a rhythm pattern which was stored in real-time is not correct.	The smallest note unit that can be stored is defined by setting of the QUANTIZE level. When the timing of a played note is off for QUANTIZE level, it will be corrected to the nearest note and stored.
■ Sequencer	
The **SEQUENCER** track indicators are flashing slowly, but storage is not successful.	•If any **SEQUENCER** indicator is lit, press the **START/STOP** button for automatic performance of the stored part. You can then store another part while you listen to the part already stored. •When storing **POLY** and **BASS** parts at the same time, turn on the respective **CONDUCTOR** button(s) before beginning to play.
■ External Memory	
When the operation to load from the optional memory card or memory disk is performed, the contents of the Keyboard's internal memory are erased.	When performing the load operation from a memory card or memory disk, the Keyboard's internal memory changes to that stored in the memory card or memory disk. To preserve a song in the Keyboard's memory, save it in a memory card or memory disk before performing the load procedure.

ERROR DISPLAY

Display	Cause

■ **COMPOSER/SEQUENCER**

MEMORY full!!	• The **COMPOSER** or **SEQUENCER** memory is full.
MEASURE error!!	• A measure number which does not exist was specified. • The measure number was specified improperly.
REPEAT exists	• You attempted to use the copy, insert or delete procedure for a **SEQUENCER** chord track or rhythm track in which a repeat mark is stored.
PART error!!	• Illegal edit attempt, such as in a melody track or rhythm track.
DATA exists	• You attempted to use the **COMPOSER** function to modify a beat or measure of memory where a pattern was stored.
TRACK error!!	• You attempted to edit a **SEQUENCER** track in which no song or data is stored.
OPERATION error!!	• Recording is ending with no punch out point specified (the punch in point was specified).

■ **Memory card/memory disk**

LOAD error!!	• Loading failed.
SAVE error!!	• Saving failed.
DELETE error!!	• Deleting a song failed.
VERIFY error!!	• Data verification failed. • Loaded, saved, or copied data has errors.
FORMAT error!!	• Formatting failed.
NO DISK!! NO CARD!!	• A memory card or floppy disk is not inserted.
PROTECT error!!	• You attempted to save to a memory card or floppy disk which is write protected.
SONG NOT FOUND	• You attempted to load a song which does not exist in the memory card or floppy disk.

MIDI IMPLEMENTATION CHART

Keyboard [SX-KN600/SX-KN800] **(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 Octave Shift or Transpose control.
	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		*○×	*○×	*○×	*○×	*○×	*○×	×	×	
Control Change	1	*○×	*○×	*○×	*○×	*○×	*○×	×	×	modulation
	7	*○×	*○×	*○×	*○×	*○×	*○×	*○×	*○×	volume main volume
	11	×	×	×	×	×	×	×	*○×	expression pedal
	64	*○×	*○×	*○×	*○×	*○×	*○×	×	×	sustain
	80	×	×	*○×	×	×	×	×	×	auto play chord
	82	×	×	×	×	×	×	*○×	×	intro, fill in, ending
	93	*○×	*○×	*○×	*○×	*○×	×	×	×	chorus
Prog Change		*○×	*○×	*○×	*○×	*○×	*○×	*○×	× (KN600) *○× (KN800)	
	True #	—	—	—	—	—	—	—	—	
System exclusive		×								
System common	Song Pos	*○×								0~18
	Song Sel	*○×								
	Tune	×								
System Real Time	Clock	○								start/stop/continue
	Commands	*○×								
Aux Messages	Local ON/OFF	×	×	×	×	×	×	×	—	
	All notes OFF	○	○	○	○	○	○	○	—	
	Active Sense	○								
	Reset	×								
Notes		*○×.....Whether or not the data for each of these items is transmitted 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

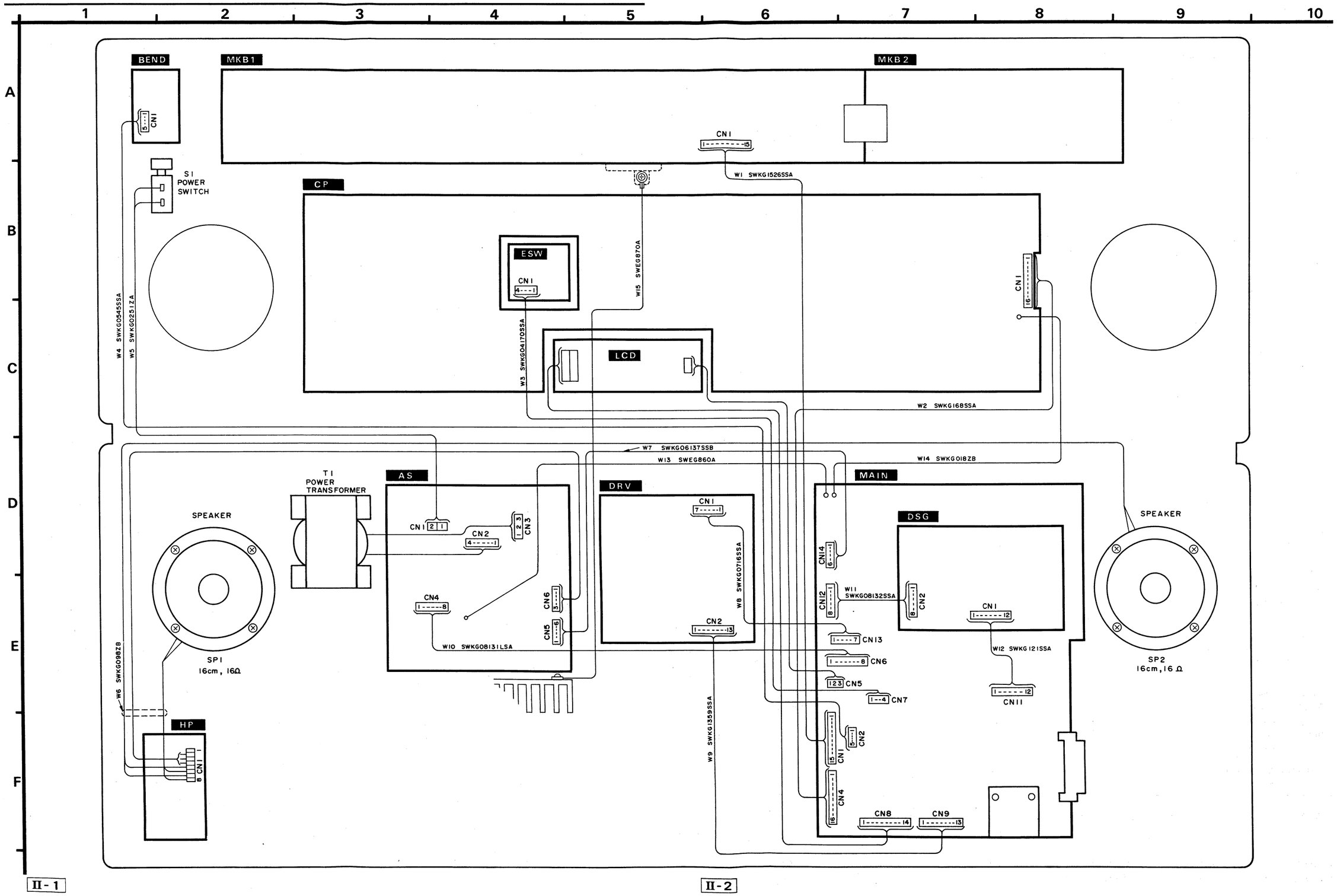
Keyboard
[SX-KN600/SX-KN800] **(Recognized)**

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 Octave Shift or Transpose control.
	True voice	24~119	24~119	24~119	24~119	24~119	24~95	36~71 (KN600) 36~83 (KN800)	—	
Velocity	Note ON	○	○	○	○	○	○	○	—	
	Note OFF	×	×	×	×	×	×	×	—	
After Touch	Key's	×	×	×	×	×	×	×	×	
	Ch's	×	×	×	×	×	×	×	×	
Pitch Bender		*○×	*○×	*○×	*○×	*○×	*○×	×	×	
Control Change	1	*○×	*○×	*○×	*○×	*○×	*○×	×	×	modulation
	7	*○×	*○×	*○×	*○×	*○×	*○×	*○×	*○×	volume main volume
	11	×	×	×	×	×	×	×	*○×	expression pedal
	64	*○×	*○×	*○×	*○×	*○×	*○×	×	×	sustain
	80	×	×	*○×	×	×	×	×	×	auto play chord
	82	×	×	×	×	×	×	*○×	×	intro, fill in, ending
	93	*○×	*○×	*○×	*○×	*○×	×	×	×	chorus
Prog Change	True #	*○× 0~63 0~7**	*○× 0~63	*○× 0~63	*○× 0~63	*○× 0~63	*○× 0~15	*○× 0~31	×(KN600) *○×(KN800) 0~9	
System exclusive		×								
System common	Song Pos	*○×								0~18
	Song Sel	*○×								
	Tune	×								
System Real Time	Clock	○								start/stop/continue
	Commands	*○×								
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. ** P. MEMO/P. CG								

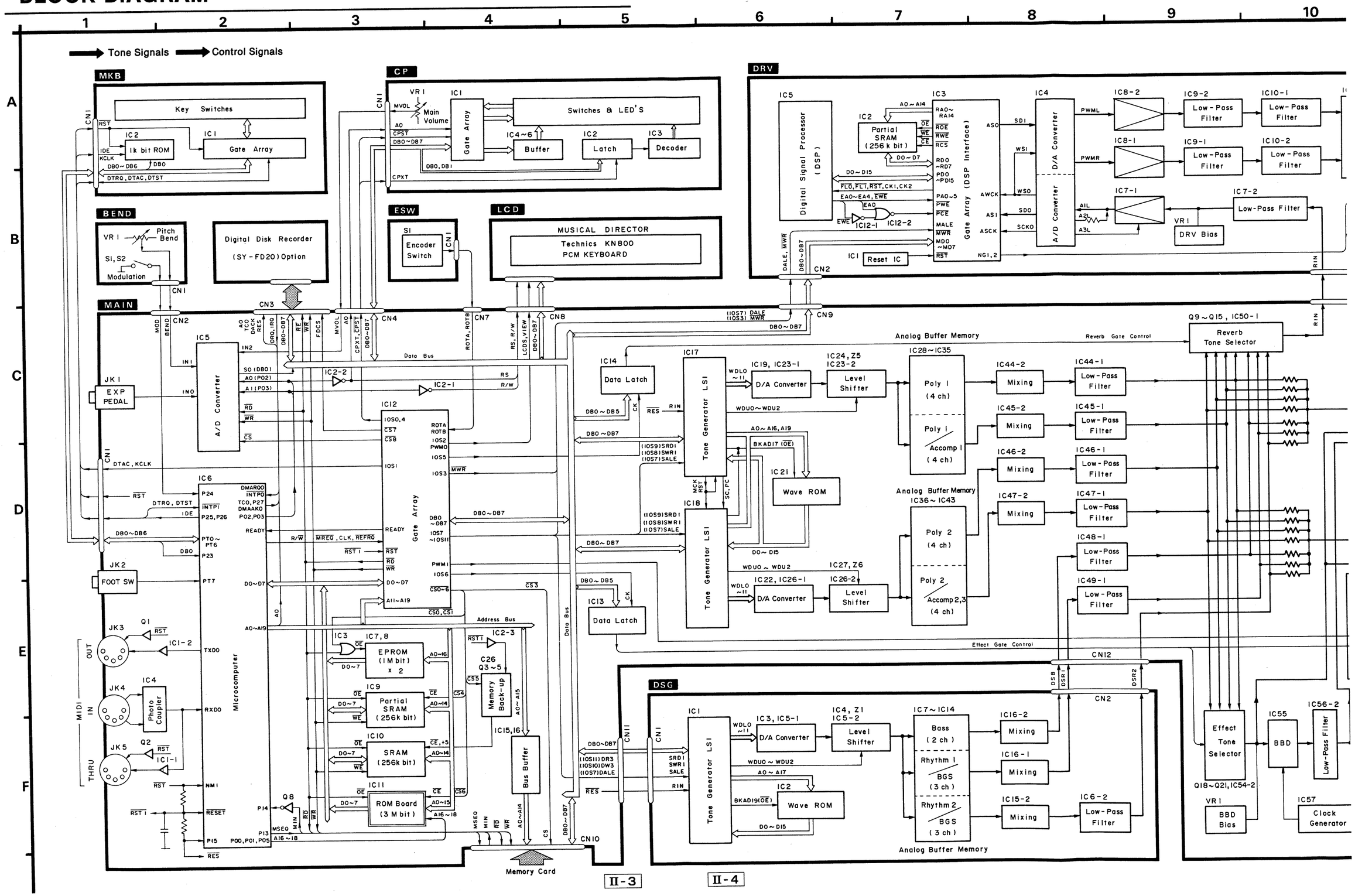
Mode 1: OMNI ON, POLY **Mode 2:** OMNI ON, MONO ○: Yes
Mode 3: OMNI OFF, POLY **Mode 4:** OMNI OFF, MONO ×: No

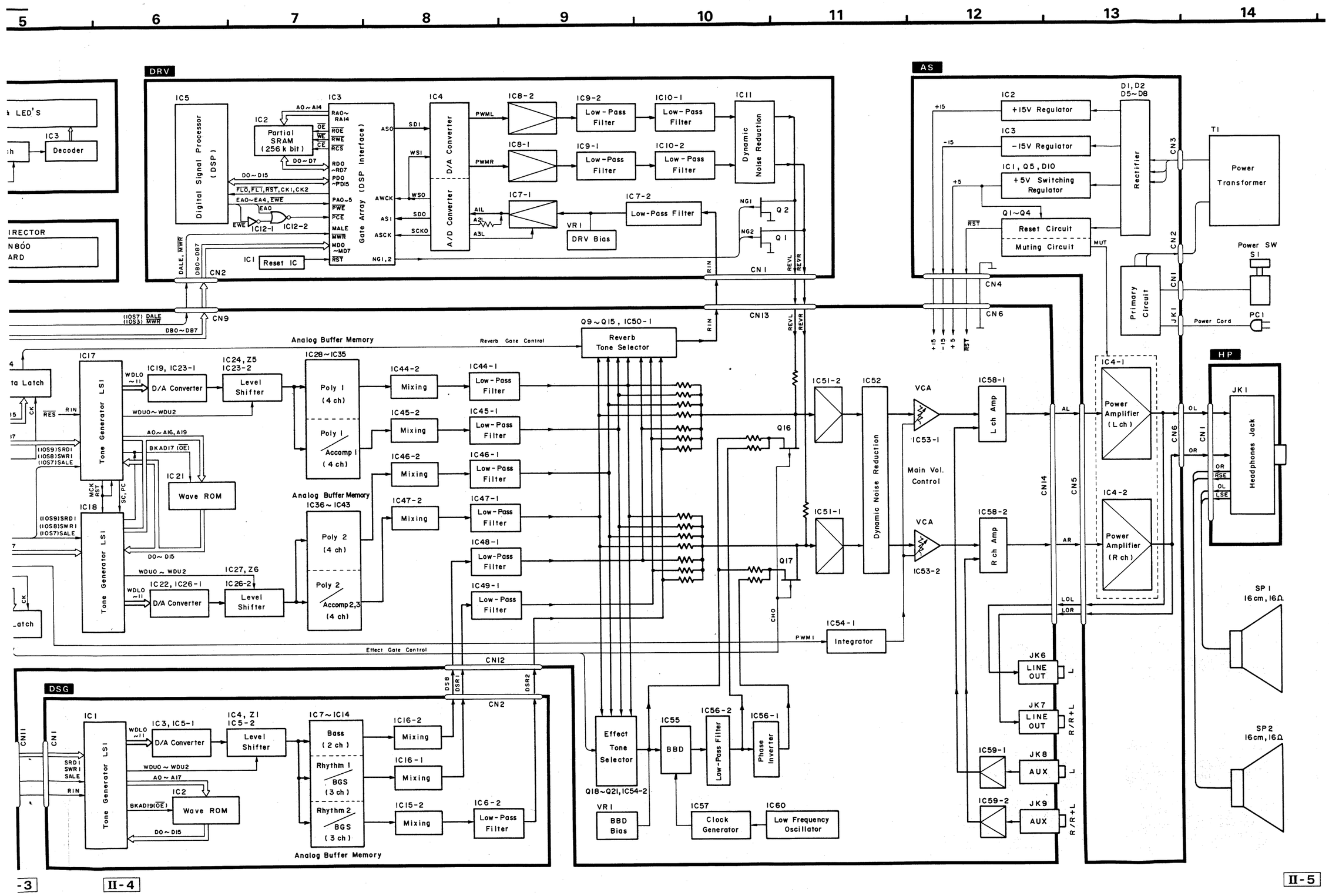
MEMO

WIRING CONNECTION DIAGRAM



BLOCK DIAGRAM




5
6
7
8
9
10
11
12
13
14
DRV
IC5
Digital Signal Processor (DSP)
IC2
Partial SRAM (256 k bit)
IC3
Gate Array (DSP Interface)
IC4
D/A Converter
A/D Converter
IC8-2
IC8-1
IC9-2
IC9-1
Low-Pass Filter
IC10-1
IC10-2
IC11
Dynamic Noise Reduction
IC7-1
IC7-2
VR1
DRV Bias
Q2
Q1
IC1
Reset IC
CN2
CN1
CN13
AS
IC2
+15V Regulator
IC3
-15V Regulator
IC1, Q5, D10
+5V Switching Regulator
Q1~Q4
Reset Circuit
Muting Circuit
D1, D2
D5~D8
Rectifier
T1
Power Transformer
Primary Circuit
Power SW
S1
Power Cord
PC1
CN4
CN6
CN3
CN2
CN1
JK1
HP
JK1
Headphones Jack
IC4-1
Power Amplifier (L ch)
IC4-2
Power Amplifier (R ch)
SP1
16cm, 16Ω
SP2
16cm, 16Ω
Analog Buffer Memory
Reverb Gate Control
Q9~Q15, IC50-1
Reverb Tone Selector
IC17
Tone Generator LSI
IC18
Tone Generator LSI
IC19, IC23-1
D/A Converter
IC24, Z5
IC23-2
Level Shifter
IC21
Wave ROM
IC28~IC35
Poly 1 (4 ch)
Poly 1 Accomp 1 (4 ch)
IC36~IC43
Poly 2 (4 ch)
Poly 2 Accomp 2,3 (4 ch)
IC22, IC26-1
D/A Converter
IC27, Z6
IC26-2
Level Shifter
IC44-2
IC45-2
IC46-2
IC47-2
Mixing
IC44-1
IC45-1
IC46-1
IC47-1
IC48-1
IC49-1
Low-Pass Filter
Effect Gate Control
CN12
DSG
IC1
Tone Generator LSI
IC3, IC5-1
D/A Converter
IC4, Z1
IC5-2
Level Shifter
IC2
Wave ROM
IC7~IC14
Bass (2 ch)
Rhythm 1 BGS (3 ch)
Rhythm 2 BGS (3 ch)
Analog Buffer Memory
IC16-2
IC16-1
IC15-2
Mixing
IC6-2
Low-Pass Filter
Q16
Q17
IC51-2
IC51-1
IC52
Dynamic Noise Reduction
VCA
IC53-1
IC53-2
Main Vol. Control
IC58-1
L ch Amp
IC58-2
R ch Amp
IC54-1
Integrator
Effect Tone Selector
Q18~Q21, IC54-2
VR1
BBD Bias
IC55
BBD
IC56-2
Low-Pass Filter
IC56-1
Phase Inverter
IC57
Clock Generator
IC60
Low Frequency Oscillator
IC59-1
IC59-2
JK6
LINE OUT
JK7
LINE OUT
JK8
AUX
JK9
AUX
CN14
CN5
CN11
CN12
II-3
II-4
II-5

MAIN MAIN CIRCUIT BOARD

• P.C.B. Comparison Chart

Area	P.C.B. Part No.	J3	J6	J7	Q6, Q7	R39~R43, R54, R56	C30
[M]	SXPG145631	○	×	×	○	○	○
Others	SXPG145611	×	○	○	×	×	×

*Products for [M] area

SXPG145631

Measuring Conditions

1. Set the initial mode before measurement.
2. After initial mode, set the measurement conditions as each check points.
3. The output waveform was measured volume level of Touch Sense (Sound Edit: Page 11) as zero (0″).

❶ EXP. PEDAL

MIN ..... +5V
MAX 0V

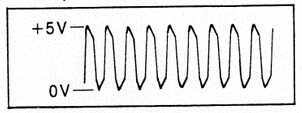
❷ PITCH BEND

UP 0V
DOWN ..... +5V

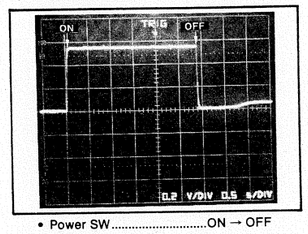
❸ MAIN VOLUME

MIN 0V
MAX ..... +5V

❹ X1, 12MHz

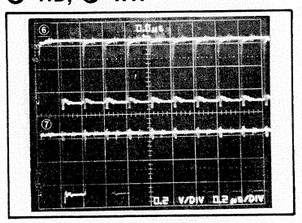


❺ RESET

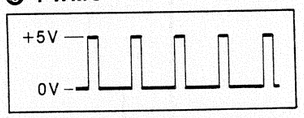


• Power SW ..... ON → OFF

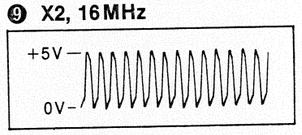
❻ RD, ❼ WR



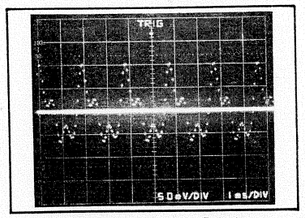
❽ PWMO



❾ X2, 16MHz

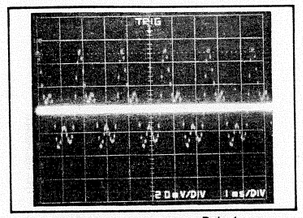


❿



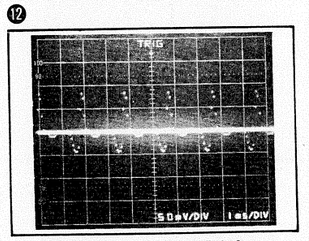
• Conductor ..... Poly 1
• Sound Select ..... Flute
• Keyboard ..... C4 Key

⓫



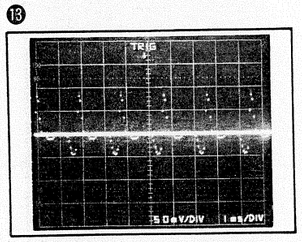
• Conductor ..... Poly 1
• Sound Select ..... Flute
• Keyboard ..... C4 Key

⓬



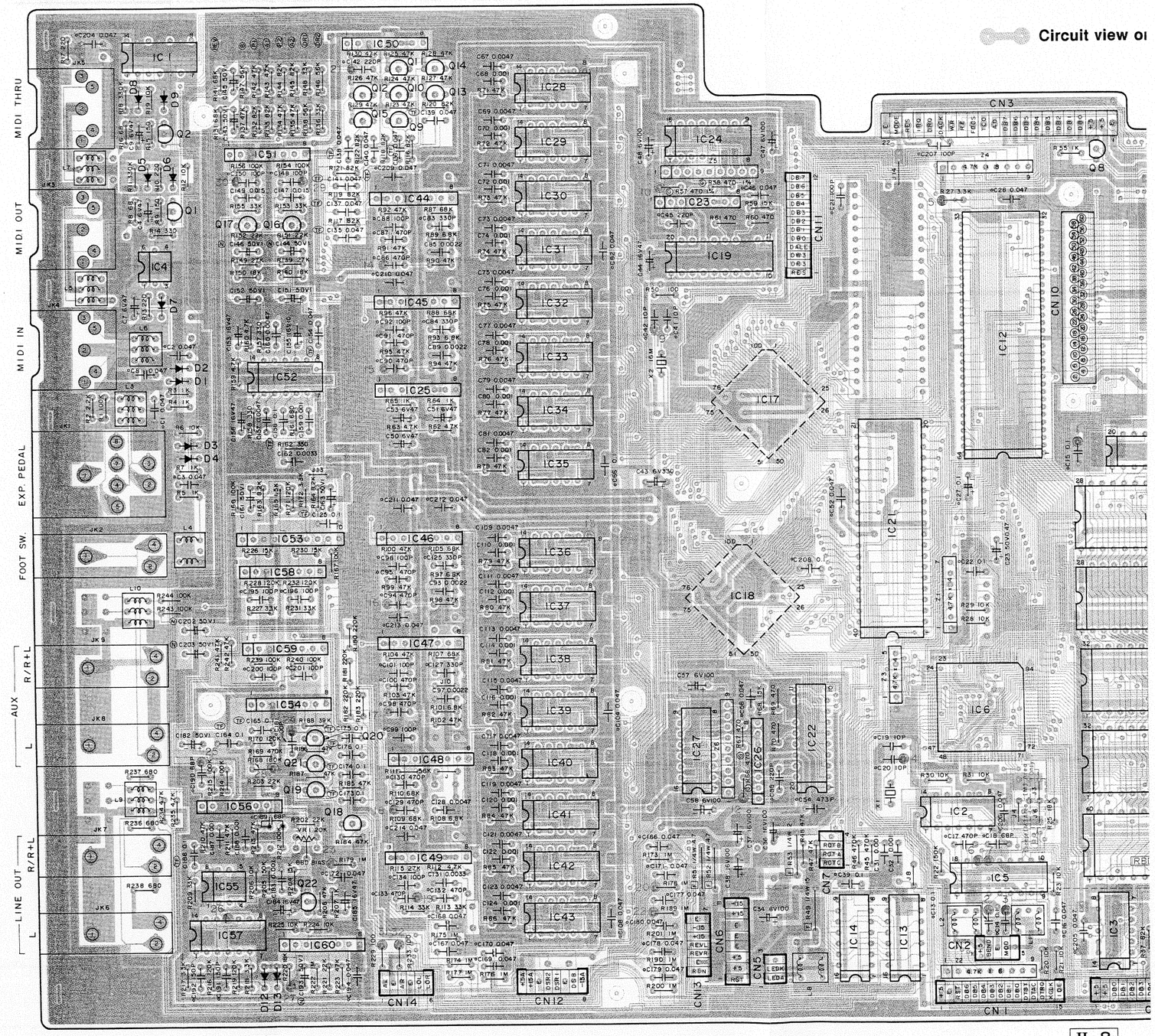
• Conductor ..... Poly 2
• Sound Select ..... Trumpet
• Keyboard ..... C4 Key

⓭



• Conductor ..... Poly 2
• Sound Select ..... Trumpet
• Keyboard ..... C4 Key

MAIN



Circuit view of

• **P.C.B. Comparison Chart**

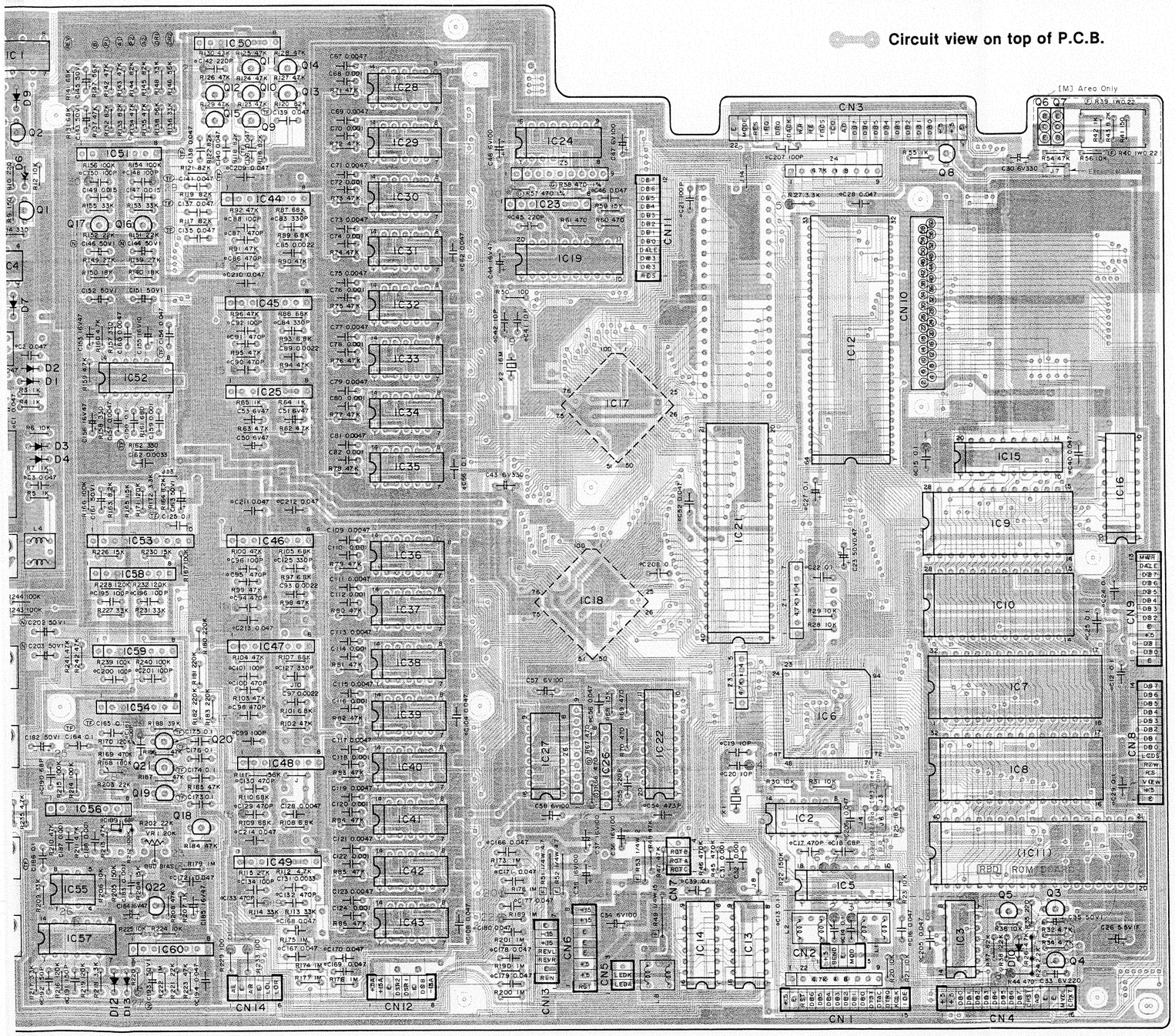
Area	P.C.B. Part No.	J3	J6	J7	Q6, Q7	R39~R43, R54, R56	C30
[M]	SXPG145631	○	×	×	○	○	○
Others	SXPG145611	×	○	○	×	×	×

RBD ROM BOARD

*Products for [M] area **SXPG145631**

*Other areas **SXPG145611**

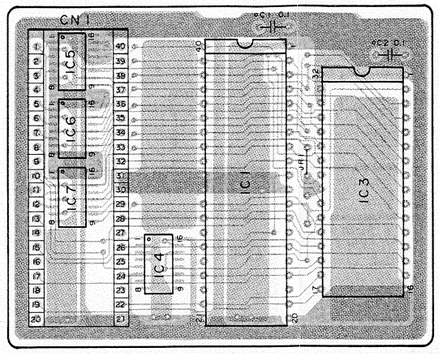
Circuit view on top of P.C.B.

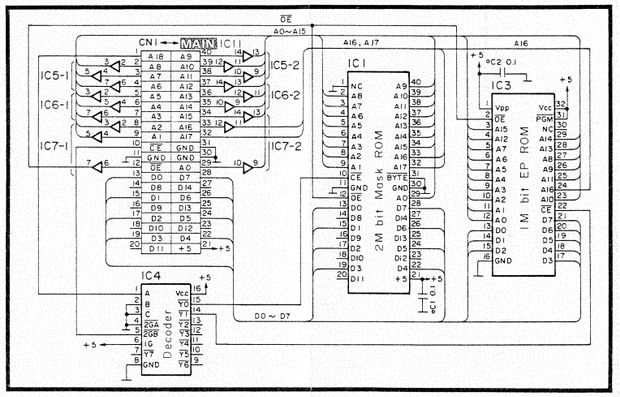


II-7

II-8

RBD **SXPG148311**





NOTES: MAIN

• IC'S

IC1:	SVIGM74LS07
IC2:	SVIGTC40H004
IC3:	SVIGTC40H032
IC4:	SVIGTLP513
IC5:	SVIGMSM6253
IC6:	SVIGD70320GJ
IC7:	SVIGAKN8AX0
IC8:	SVIGAKN8BX0
IC9:	SVIGHM65256
IC10:	SVIGM5256BLL
IC11:	SXPG148311
IC12:	SVIGMB621407
IC13, 14:	SVIGTC40H174
IC15, 16:	SVIGTC40H244
IC17, 18:	MN6635
IC19, 22:	SVIGBA9221
IC21:	SVIGU3C04672
IC23, 26:	SVIGM5238L
IC24, 27:	SVIGT74H4051
IC25, 44~51, 54, 56, 58~60:	SVIGM5218L
IC28~43:	SVIGM74H4066
IC52:	SVIGLM1894N
IC53:	SVIGM5241L
IC55:	MN3009
IC57:	SVIGMSM4011

• TRANSISTORS

Q1, 2, 4, 8:	2SA1015-GR
Q3:	2SC1047C
Q5, 22:	2SC2320LFG
Q6, 7: [M]	2SB953AQP
Q9~21:	2SJ105GR

• DIODES

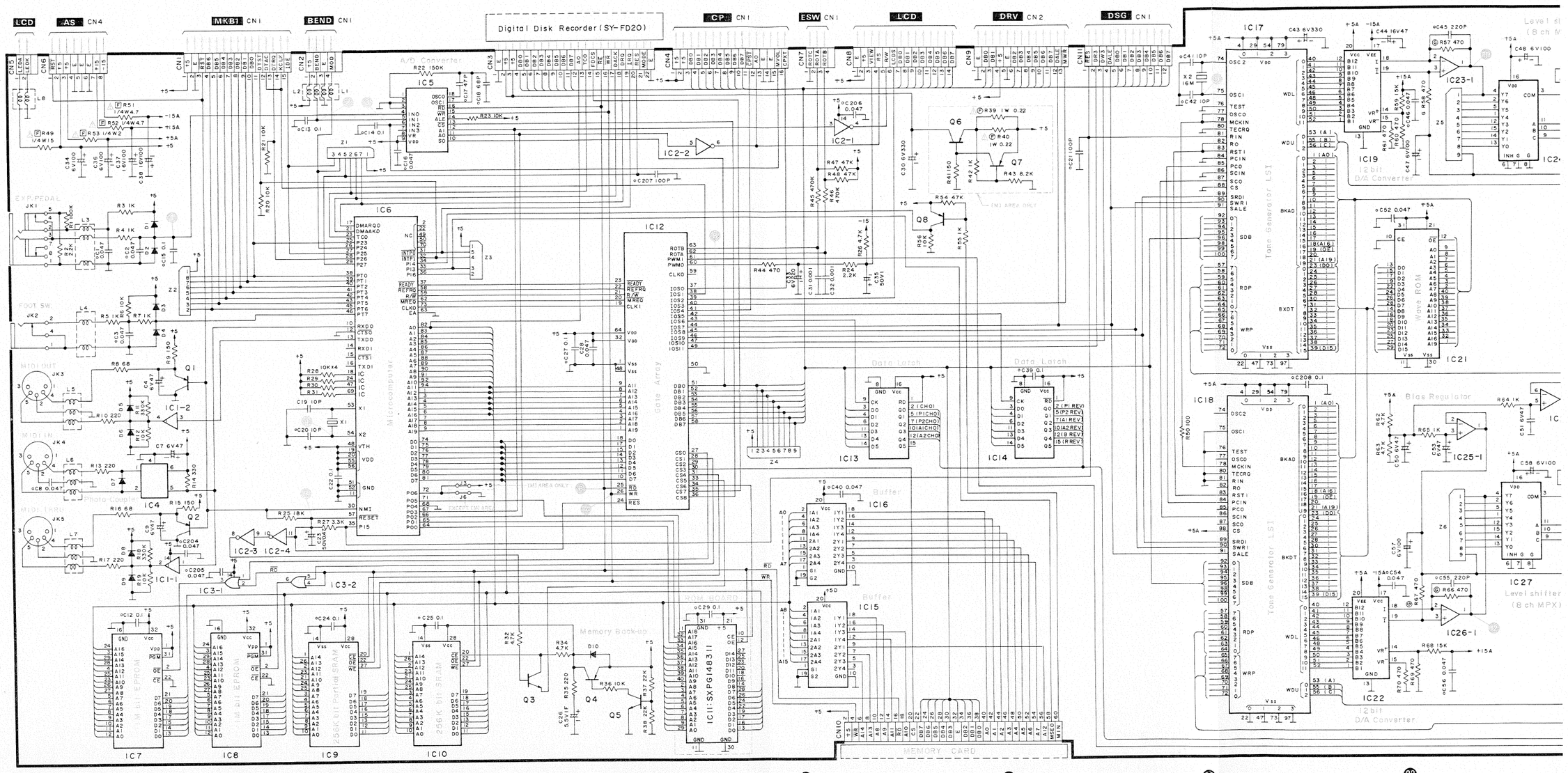
D1~10, 12, 13:	MA165TA5

NOTES: RBD

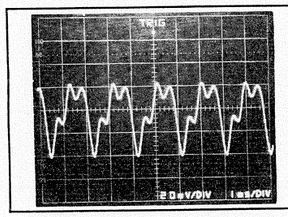
• IC'S

IC1:	SVIGU3C02560
IC3:	SVIGAKN8CX0
IC4:	MN74HC138S
IC5~7:	MN74HC365S

MAIN CIRCUIT DIAGRAM

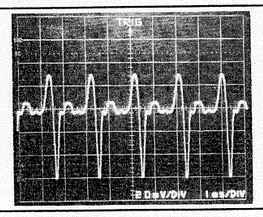


⑭, ⑮ Poly 1



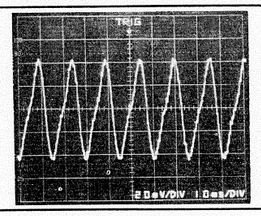
- Conductor ..... Poly 1
- Sound Select ..... Flute
- Keyboard ..... C4 Key

⑯, ⑰ Poly 2



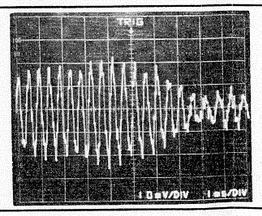
- Conductor ..... Poly 2
- Sound Select ..... Trumpet
- Keyboard ..... C4 Key

⑱ Bass



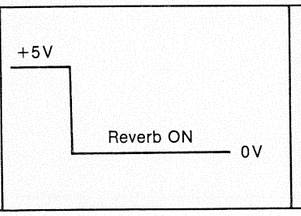
- Conductor ..... Bass
- Sound Select ..... Organ
- Keyboard ..... C2 Key

⑲ Rhythm 1



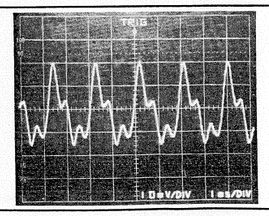
- Keyboard Perc. ..... Whistle 1
- Key Press ..... Max

⑳



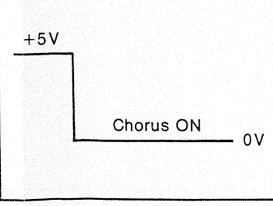
- Effect ..... Page 3
- DRUM ..... Reverb ON

㉑



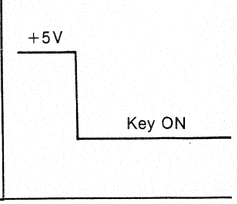
- Effect ..... Page 3
- Poly 1 ..... Reverb ON
- Sound Select ..... Flute
- Keyboard ..... C4 Key

㉒

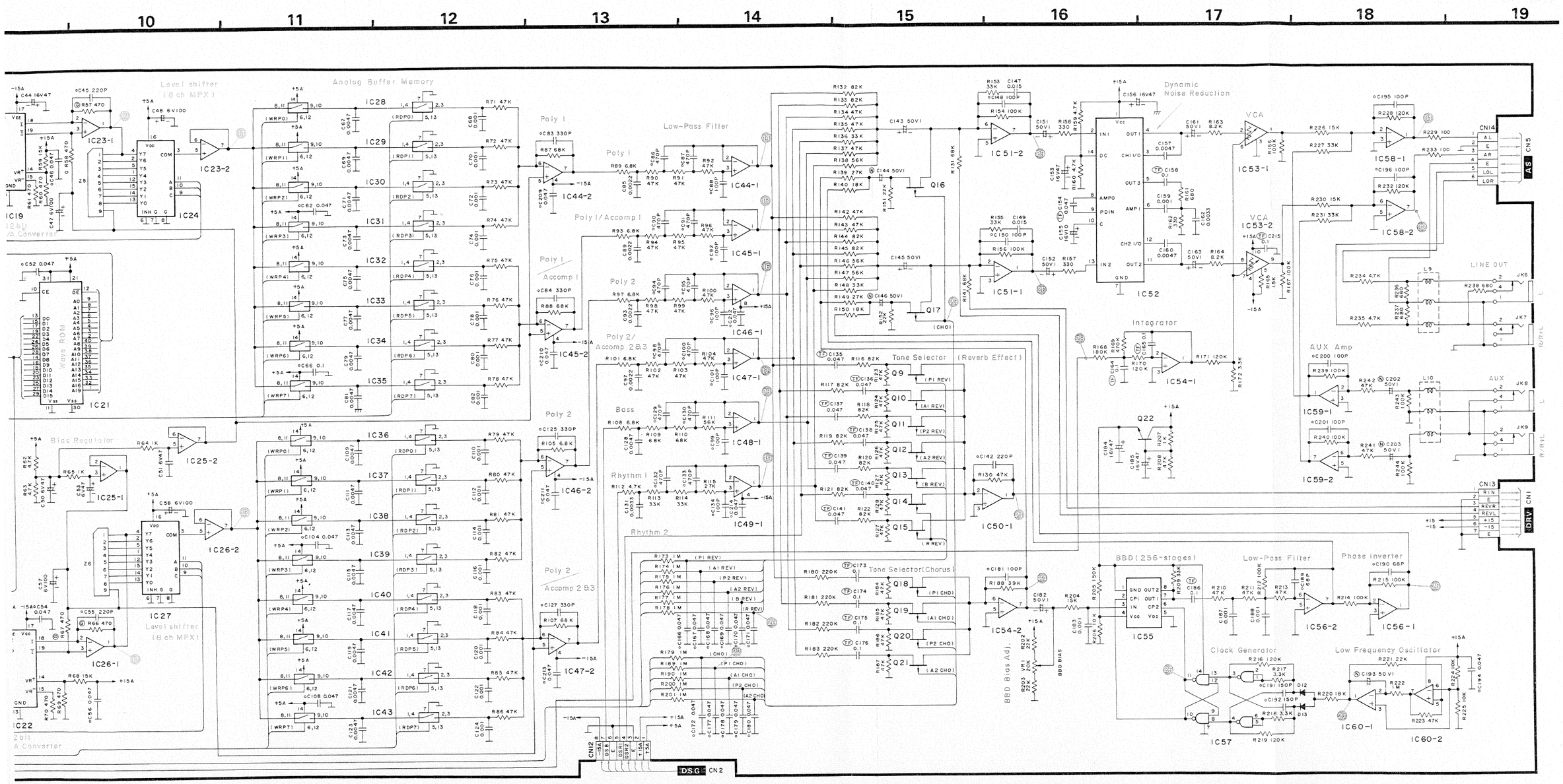


- Conductor ..... Poly 1
- Effect ..... Chorus ON

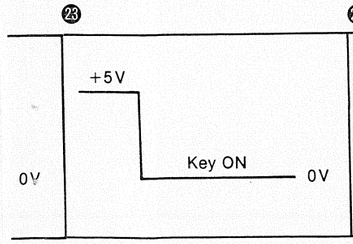
㉓



- Effect ..... Choru
- Keyboard ..... Key C



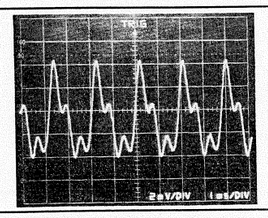
23



ON

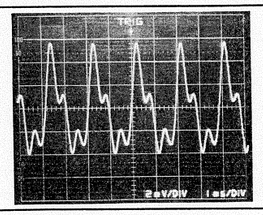
- Effect ..... Chorus ON
- Keyboard ..... Key ON

24



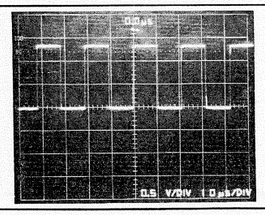
- Conductor ..... Poly 1
- Sound Select ..... Flute
- Effect ..... Chorus ON
- Keyboard ..... C4 Key

25

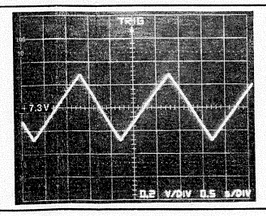


- Conductor ..... Poly 1
- Sound Select ..... Flute
- Effect ..... Chorus ON
- Keyboard ..... C4 Key

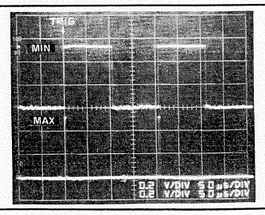
26



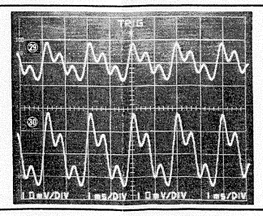
27



28 Main Vol. Control

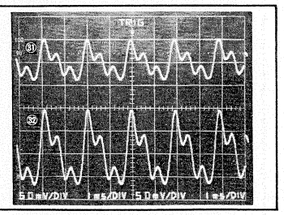


29, 30



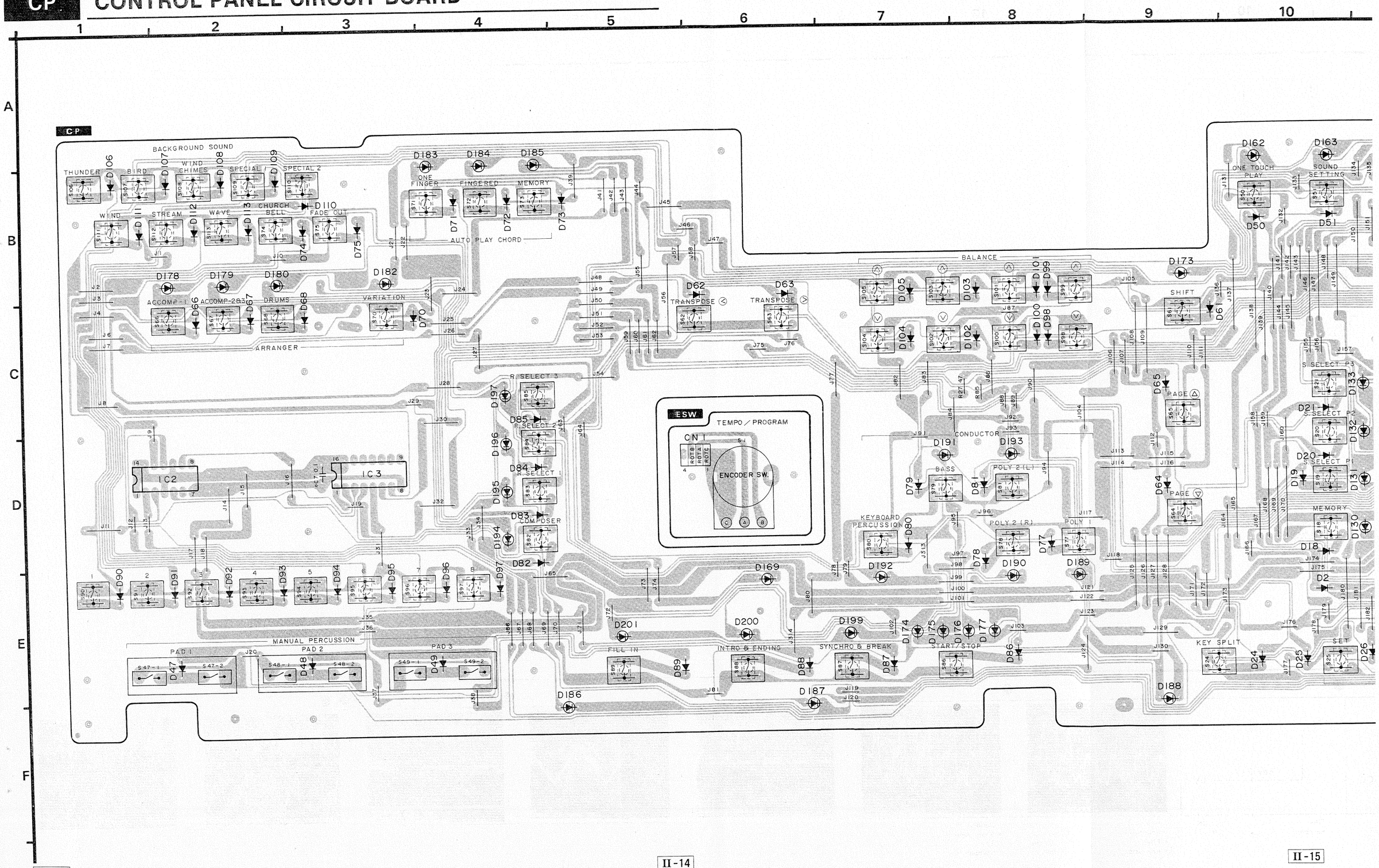
- Conductor ..... Poly 1
- Sound Select ..... Flute
- Effect (all) ..... OFF
- Keyboard ..... C4 Key

31, 32



- Conductor ..... Poly 1
- Sound Select ..... Flute
- Effect (all) ..... OFF
- Keyboard ..... C4 Key
- Main Vol. ..... Max

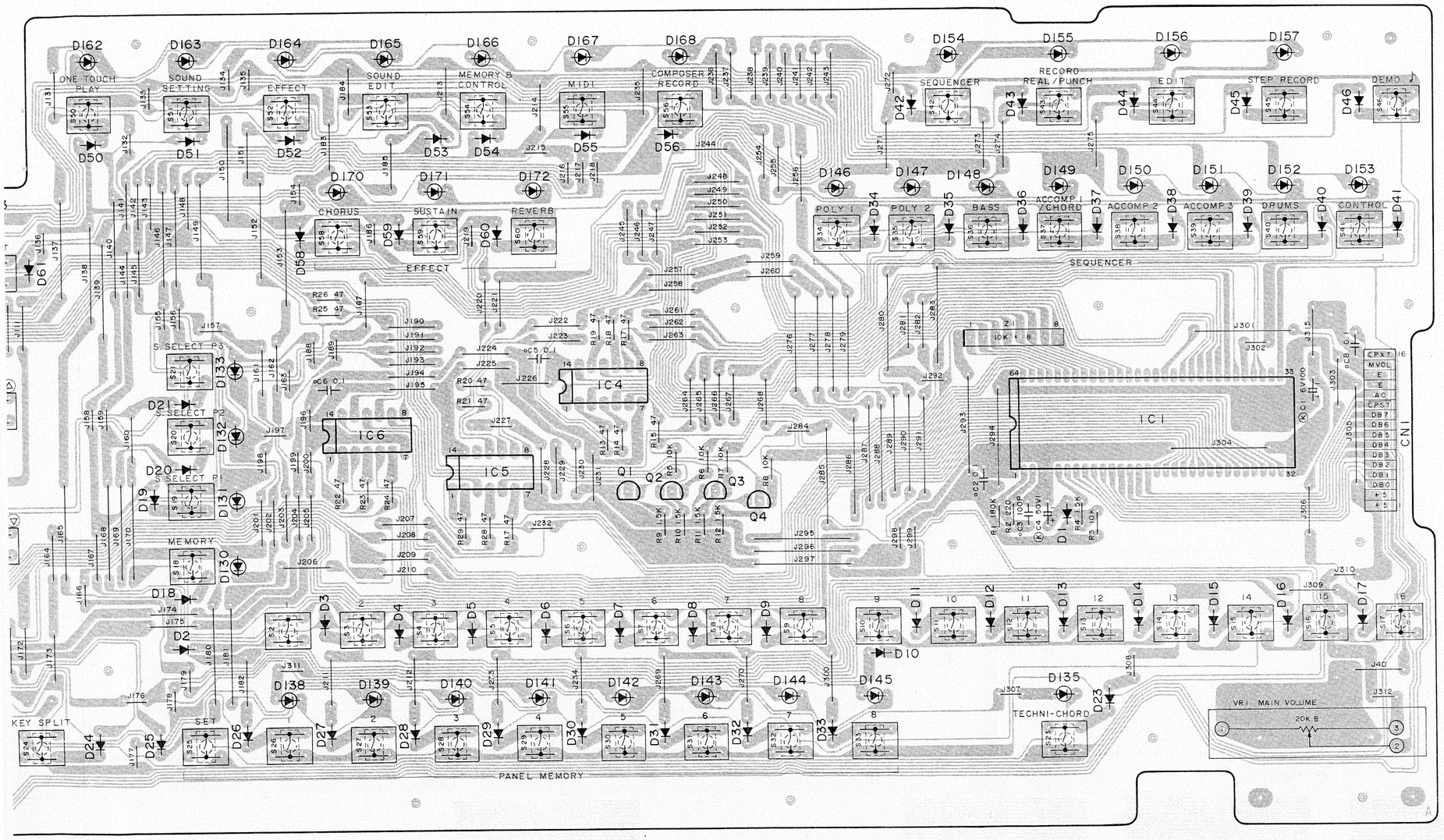
CP CONTROL PANEL CIRCUIT BOARD

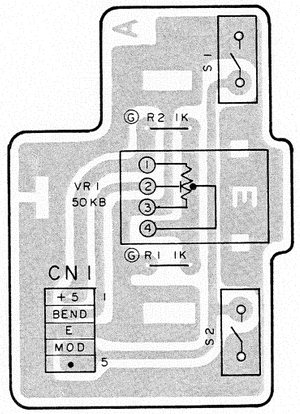


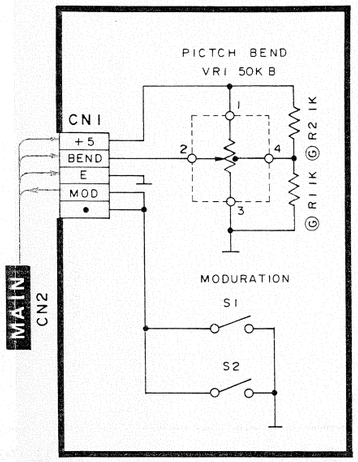
CP CONTROL PANEL P.C.B. **SXPG145811A**

ESW ENCODER SWITCH P.C.B. **SXPG145811B**

SXPG145911



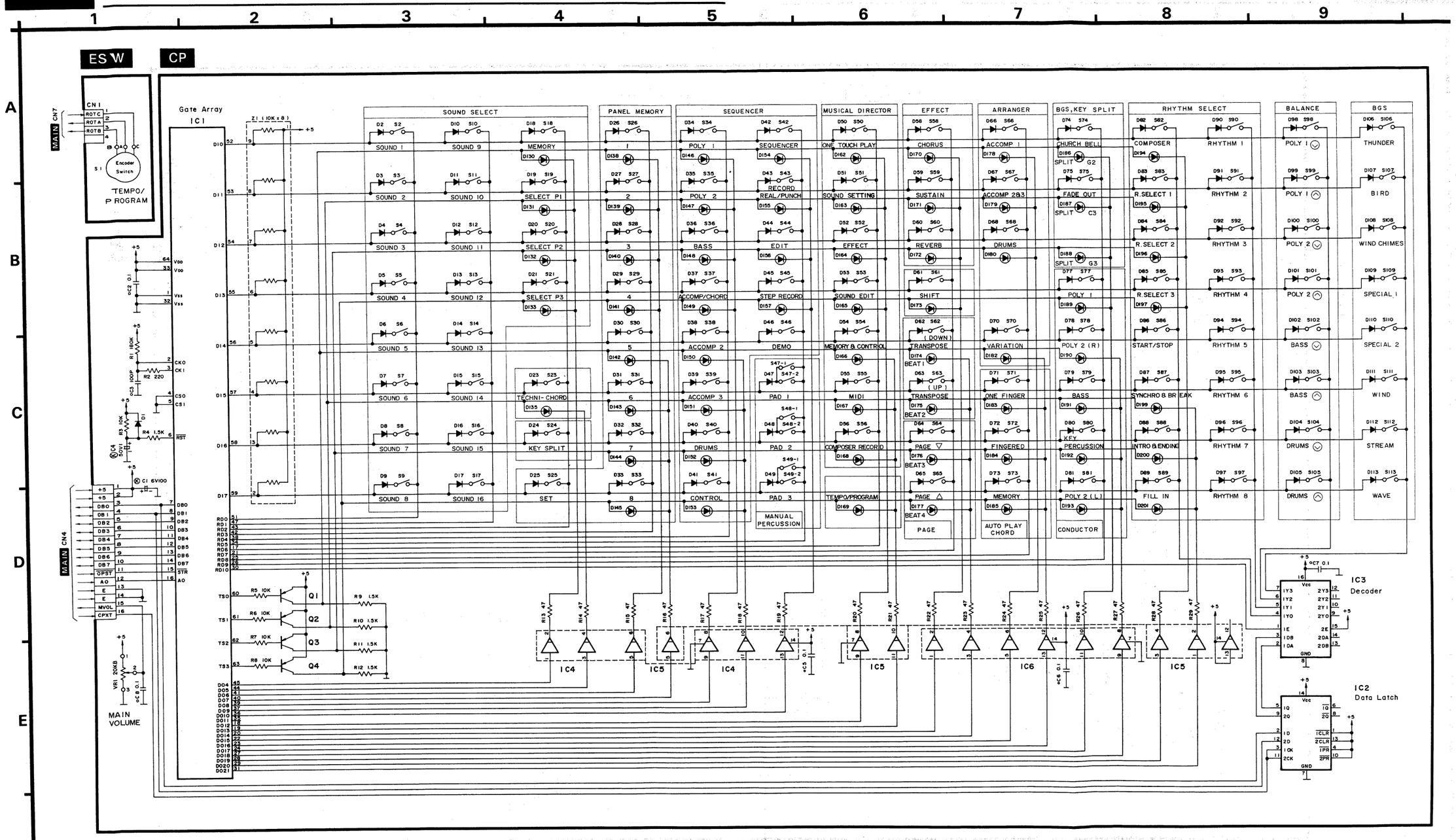




NOTES:

- IC'S
  - IC1: SVIGM603A121
  - IC2: SVIGM74LS74
  - IC3: SVIGM74LS139
  - IC4~6: SVIGM74LS07
- TRANSISTORS
  - Q1~4: 2SA830SB
- DIODES
  - D1~21, 23~56, 58~68, 70~75, 77~113: MA165TA5
  - D130, 138~157, 162~169, 173, 175~177, 182, 194: LN382G
  - D131~133, 135, 170~172, 174, 178, 180, 183~193, 195~197, 199~201: LN282R

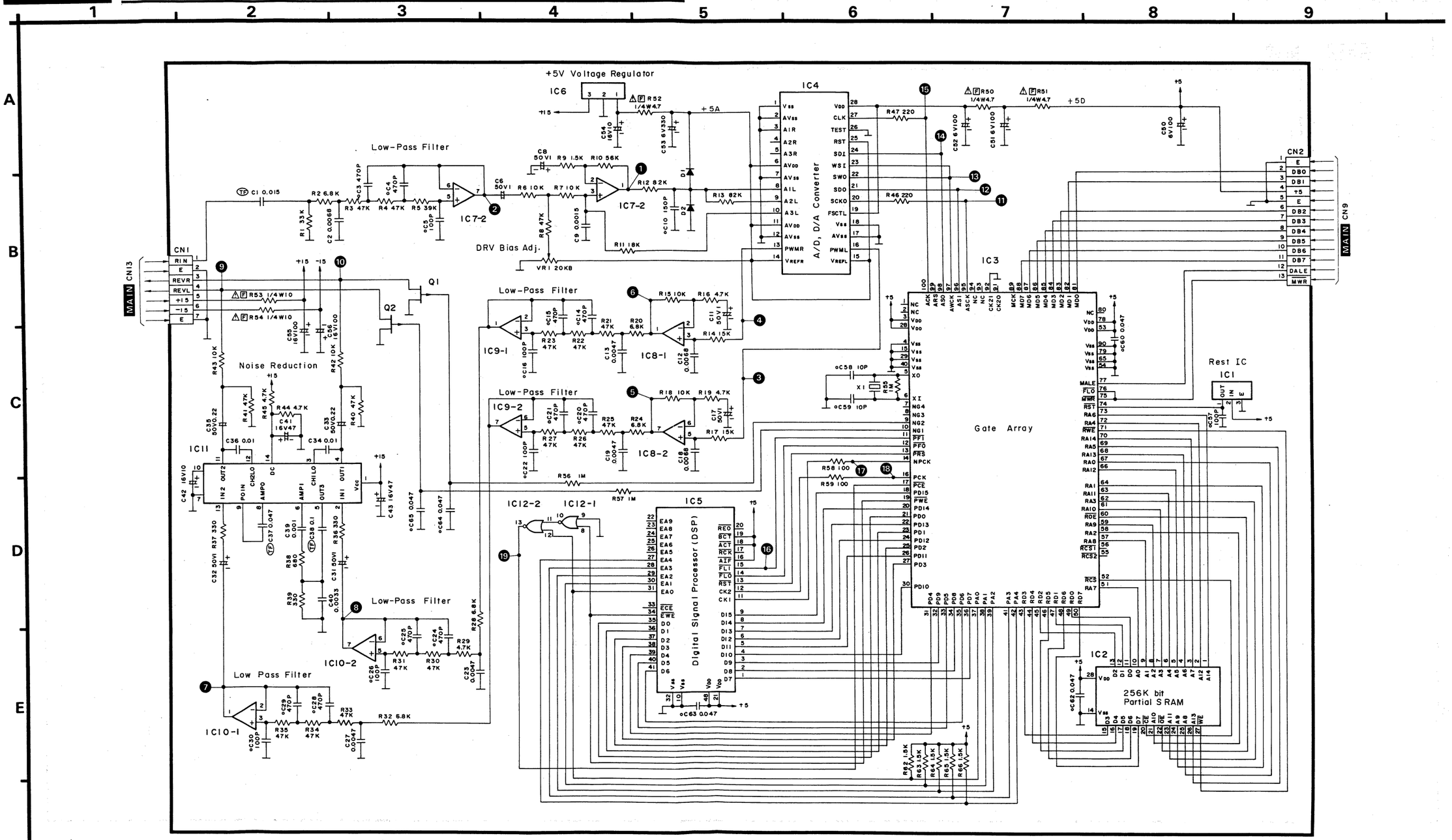
CP CONTROL PANEL CIRCUIT DIAGRAM



NOTES:

- **IC'S**
  - IC1: SVIGM603A121
  - IC2: SVIGM74LS74
  - IC3: SVIGM74LS139
  - IC4~6: SVIGM74LS07
- **TRANSISTORS**
  - Q1~4: 2SA830SB
- **DIODES**
  - D1~21, 23~56, 58~68, 70~75, 77~113: MA165TA5
  - D130, 138~157, 162~169, 173, 175~177, 182, 194: LN382G
  - D131~133, 135, 170~172, 174, 178, 180, 183~193, 195~197, 199~201: LN282R

DRV DIGITAL REVERB CIRCUIT DIAGRAM



NOTES:

- IC'S

IC1:	MN1280R
IC2:	SVIGHM65256
IC3:	SVIGMB622416
IC4:	MN8305S
IC5:	SVIG87064073
IC6:	SVIGM5278L05
IC7:	SVIGM5220L
IC8~10:	SVIGM5218L
IC11:	SVIGLM1894N
IC12:	MN74HC02S

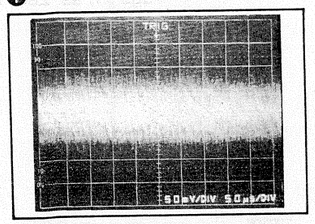
- TRANSISTORS
  Q1, 2: 2SJ105GR
- DIODES
  D1, 2: MA165TA5

DRV DIGITAL REVERB CIRCUIT BOARD

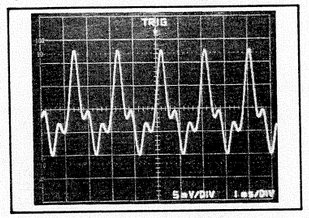
Measuring Conditions

1. Set the initial mode before measurement.
2. After initial mode, set the measurement conditions as follows.
   - Conductor ..... Poly 1
   - Sound Select ..... Flute
   - Reverb ..... ON
   - Keyboard ..... C4 Key
   - Touch Sense (Sound Edit: Page 11) ..... Volume=0

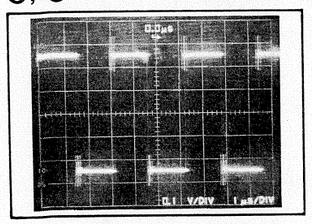
❶



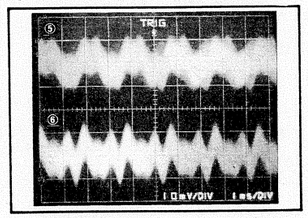
❷



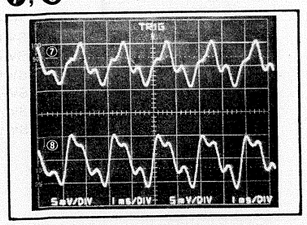
❸, ❹



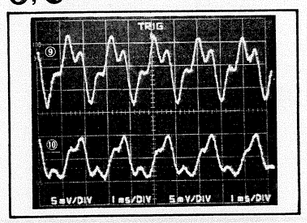
❺, ❻



❼, ❽

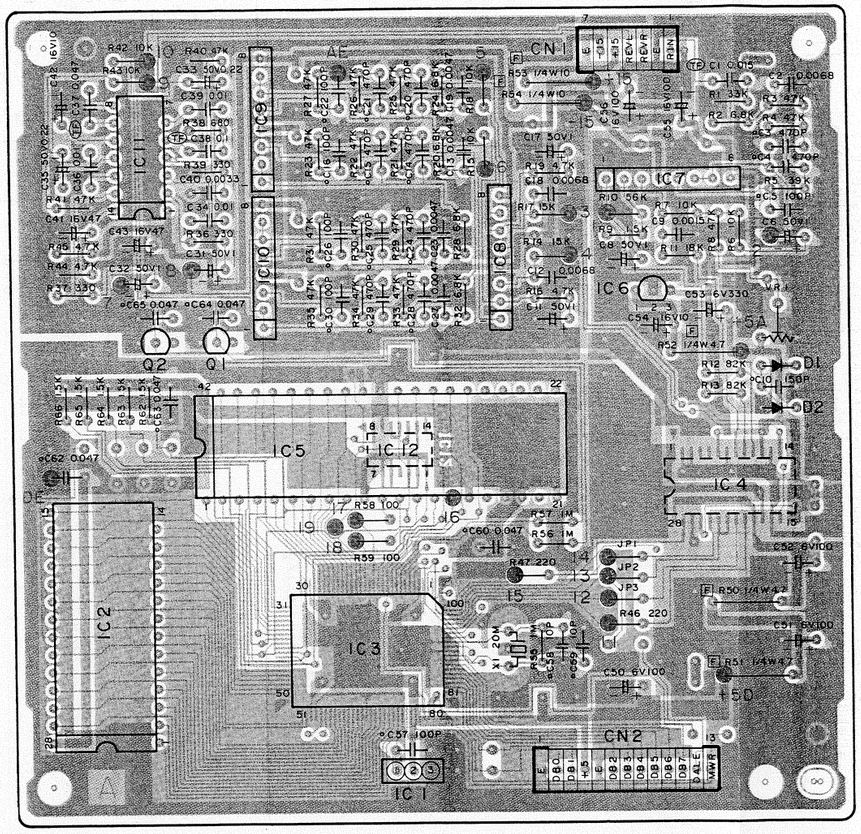


❾, ❿



Circuit view on top of P.C.B.

SXPG146011



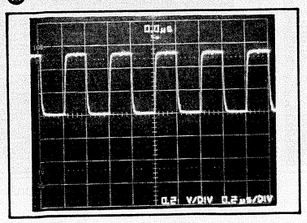
NOTES:

- IC'S

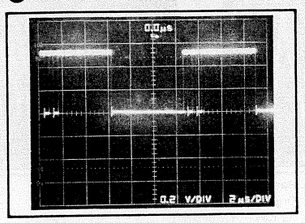
IC1:	MN1280R	IC8~10:	SVIGM5218L
IC2:	SVIGHM65256	IC11:	SVIGLM1894N
IC3:	SVIGMB622416	IC12:	MN74H02S
IC4:	MN8305S		
IC5:	SVIG87064073		
IC6:	SVIGM5278L05		
IC7:	SVIGM5220L		

- TRANSISTORS
  Q1, 2: 2SJ105GR
- DIODES
  D1, 2: MA165TA5

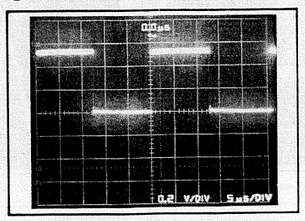
⓫



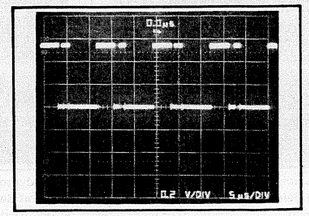
⓬



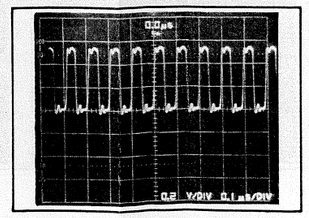
⓭



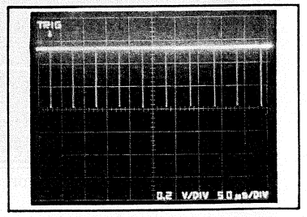
⓮



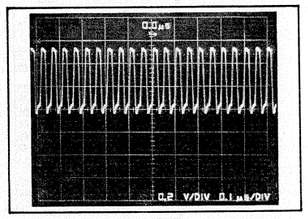
⓯



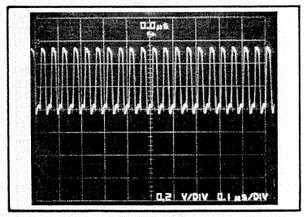
⓰



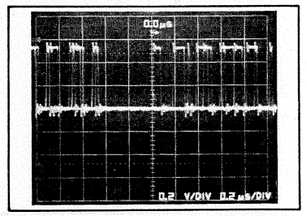
⓱



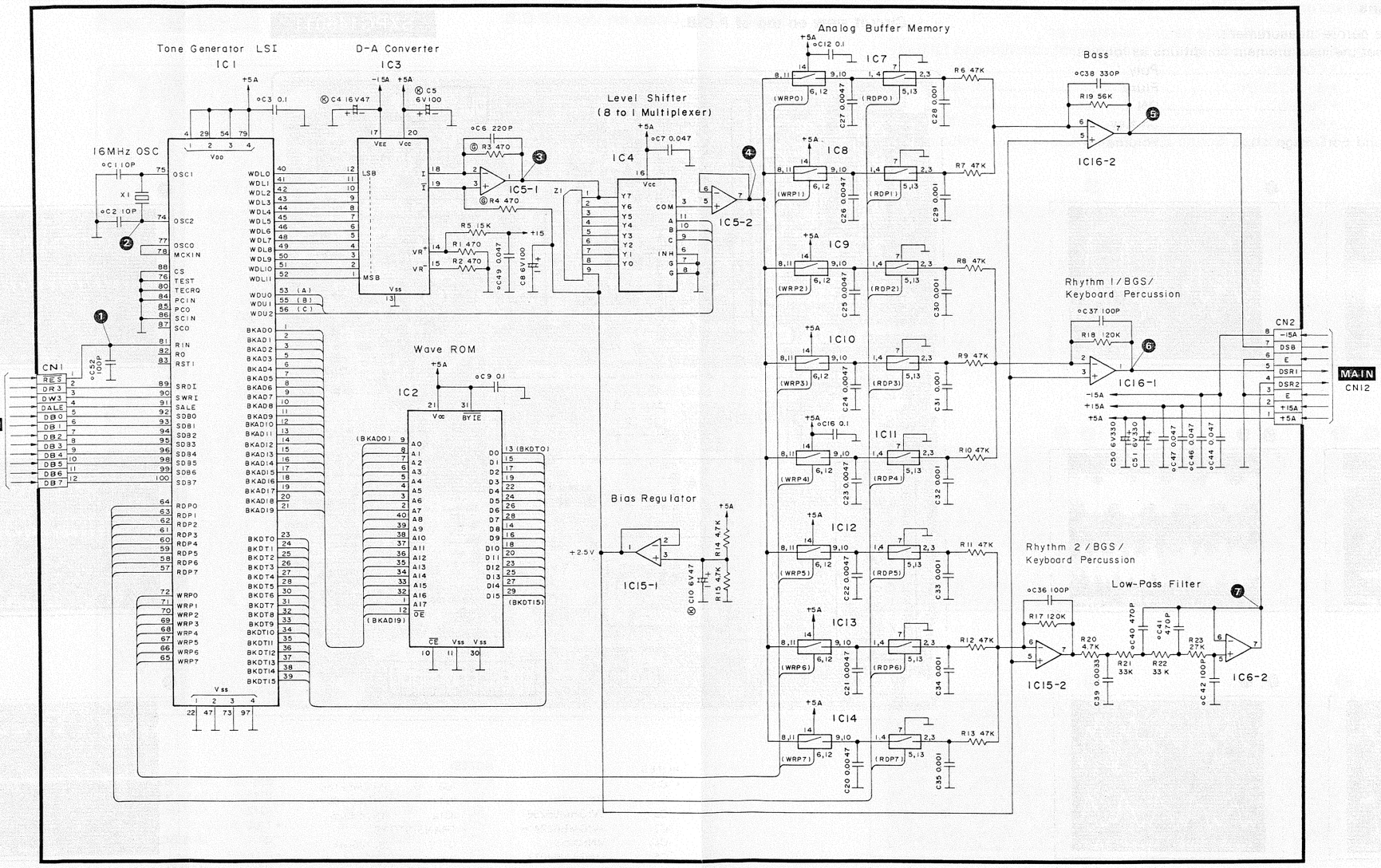
⓲



⓳



DSG DIGITAL SOUND GENERATOR CIRCUIT DIAGRAM



Measuring Conditions

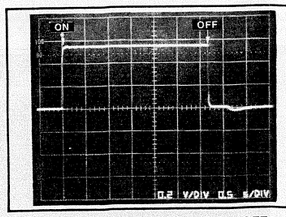
1. Set the initial mode before measurement.
2. After initial mode, set the measurement conditions as each check points.
3. The output waveform was measured, volume level of Touch Sense (Sound Edit: Page 11) as zero (0″).

NOTES:

- IC'S

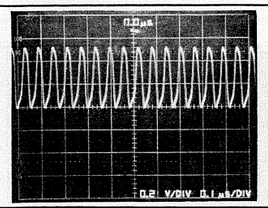
IC1:	MN6635
IC2:	SVIGU3C04673
IC3:	SVIGBA9221
IC4:	SVIGT74H4051
IC5:	SVIGM5238L
IC6, 15, 16:	SVIGM5218L
IC7~14:	SVIGM74H4066

❶ RES

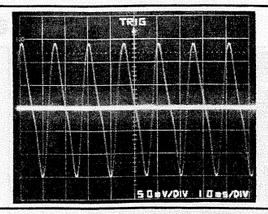


- Power SW .....ON → OFF

❷ X1, 16MHz

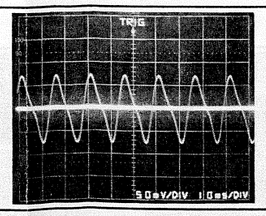


❸



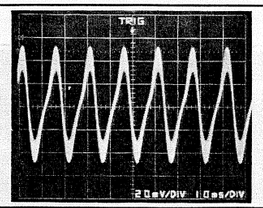
- Conductor .....Bass
- Sound Select .....Organ
- Keyboard .....C2 Key

❹



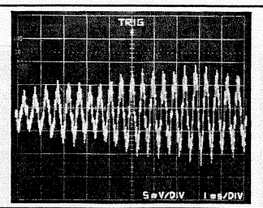
- Conductor .....Bass
- Sound Select .....Organ
- Keyboard .....C2 Key

❺ Bass



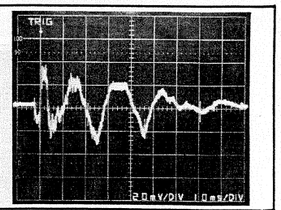
- Conductor .....Bass
- Sound Select .....Organ
- Keyboard .....C2 Key

❻ Rhythm 1



- Keyboard Perc. .....Whisle 1
- Key Press .....Max

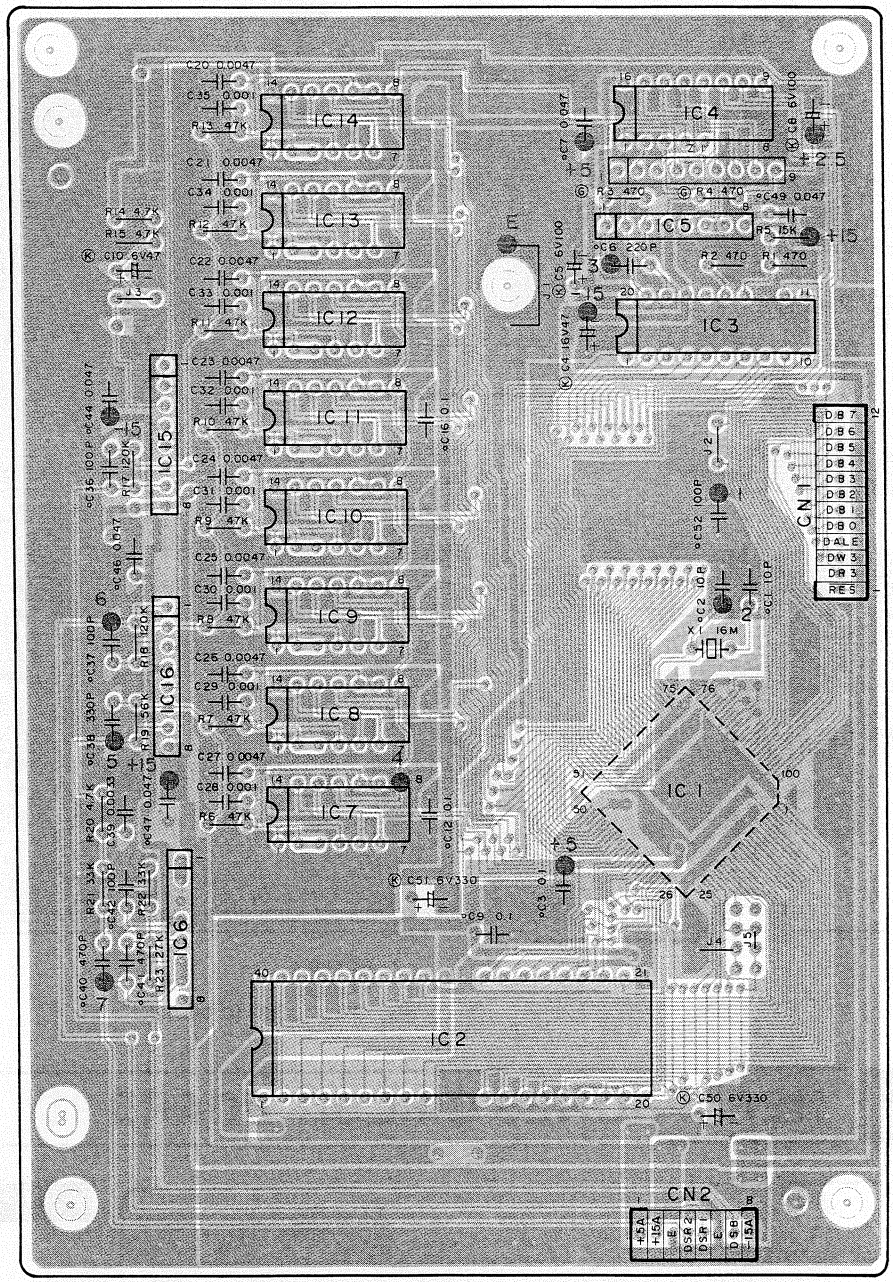
❼ Rhythm 2



- Keyboard Perc. .....Bass Drum 1
- Key Press .....Max

DSG DIGITAL SOUND GENERATOR CIRCUIT BOARD

SXPG145711



NOTES:

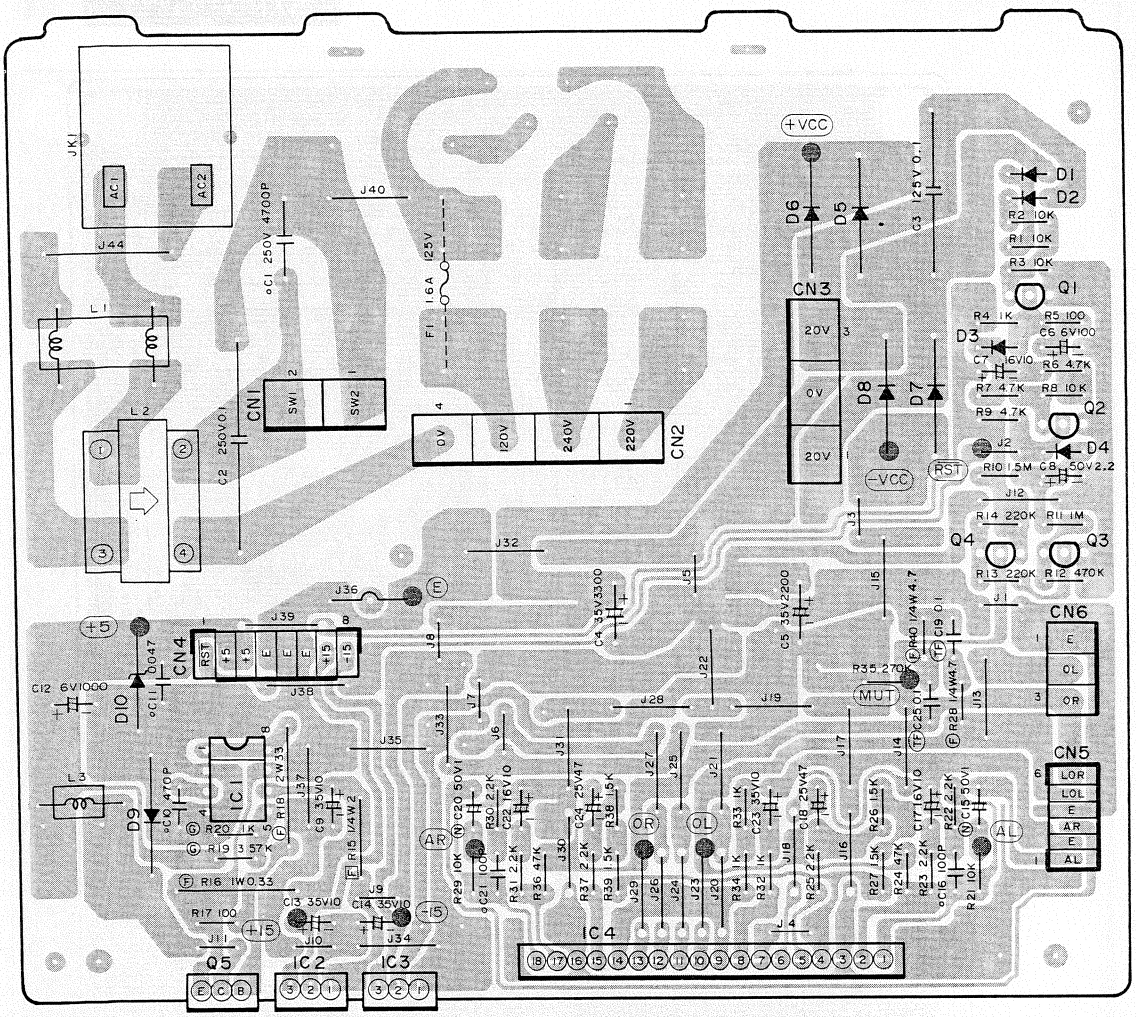
- IC'S

IC1:	MN6635
IC2:	SVIGU3C04673
IC3:	SVIGBA9221
IC4:	SVIGT74H4051
IC5:	SVIGM5238L
IC6, 15, 16:	SVIGM5218L
IC7~14:	SVIGM74H4066

AS AMP & POWER SUPPLY CIRCUIT BOARD

• Products for (M) and (MC)

SXPG1387121



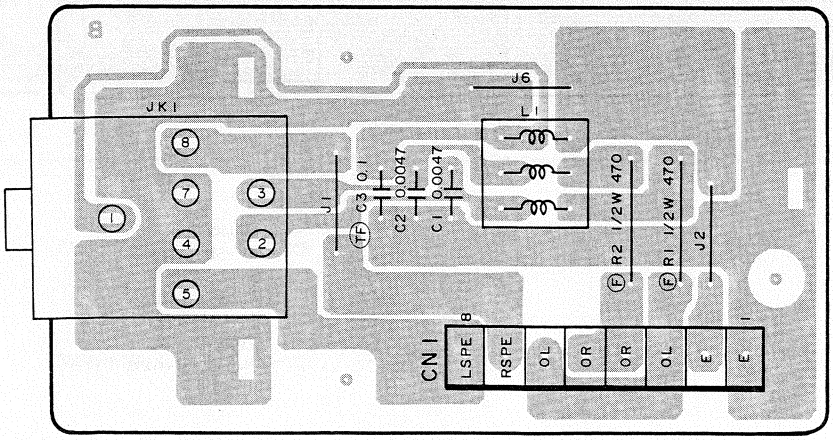
NOTES:

• FUSES

F1: XBA1C16NU100

HP HEADPHONES CIRCUIT BOARD

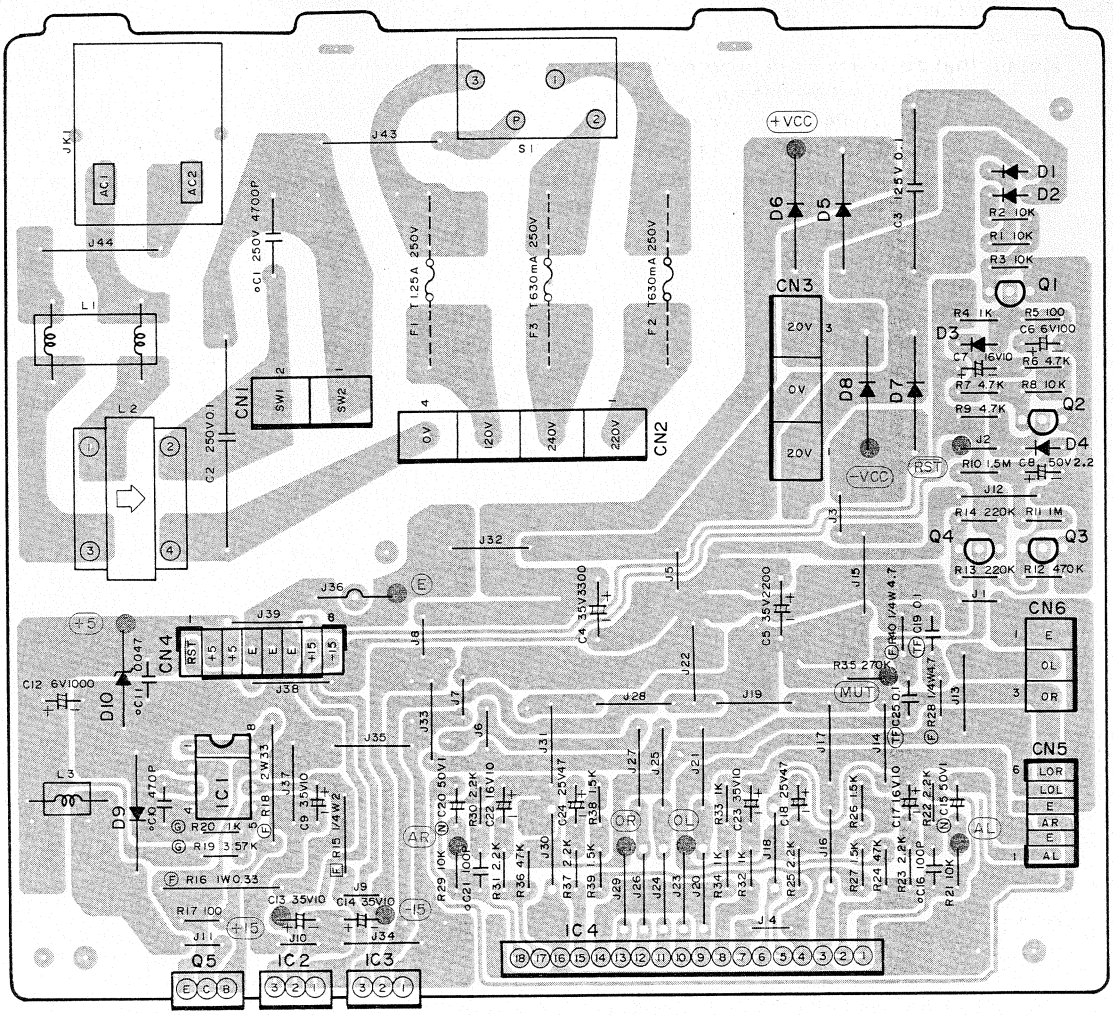
SXPG138811



AS AMP & POWER SUPPLY CIRCUIT BOARD

• Products for (XL) and (XR) **SXPG1387141**

• Other Areas Except (XL), (XR), (M), (MC) **SXPG1387111**



NOTES:

• IC'S

IC1:	SVIGM5291P
IC2:	SVIGM5F7815
IC3:	SVIGM5F7915
IC4:	SVIGS4132M2M

• TRANSISTORS

Q1~3:	2SC2320LFG
Q4:	2SA1015-GR
Q5:	2SB953AQP

• DIODES

D1, 2:	SVDGERA1502Y
D3, 4:	MA165TA5
D5~8:	SVDS2V20
D9:	SVDGRK14
D10:	MA2062LF

• FUSES

F1:	XBA2C12TB0
F2, 3:	XBA2C063TB0

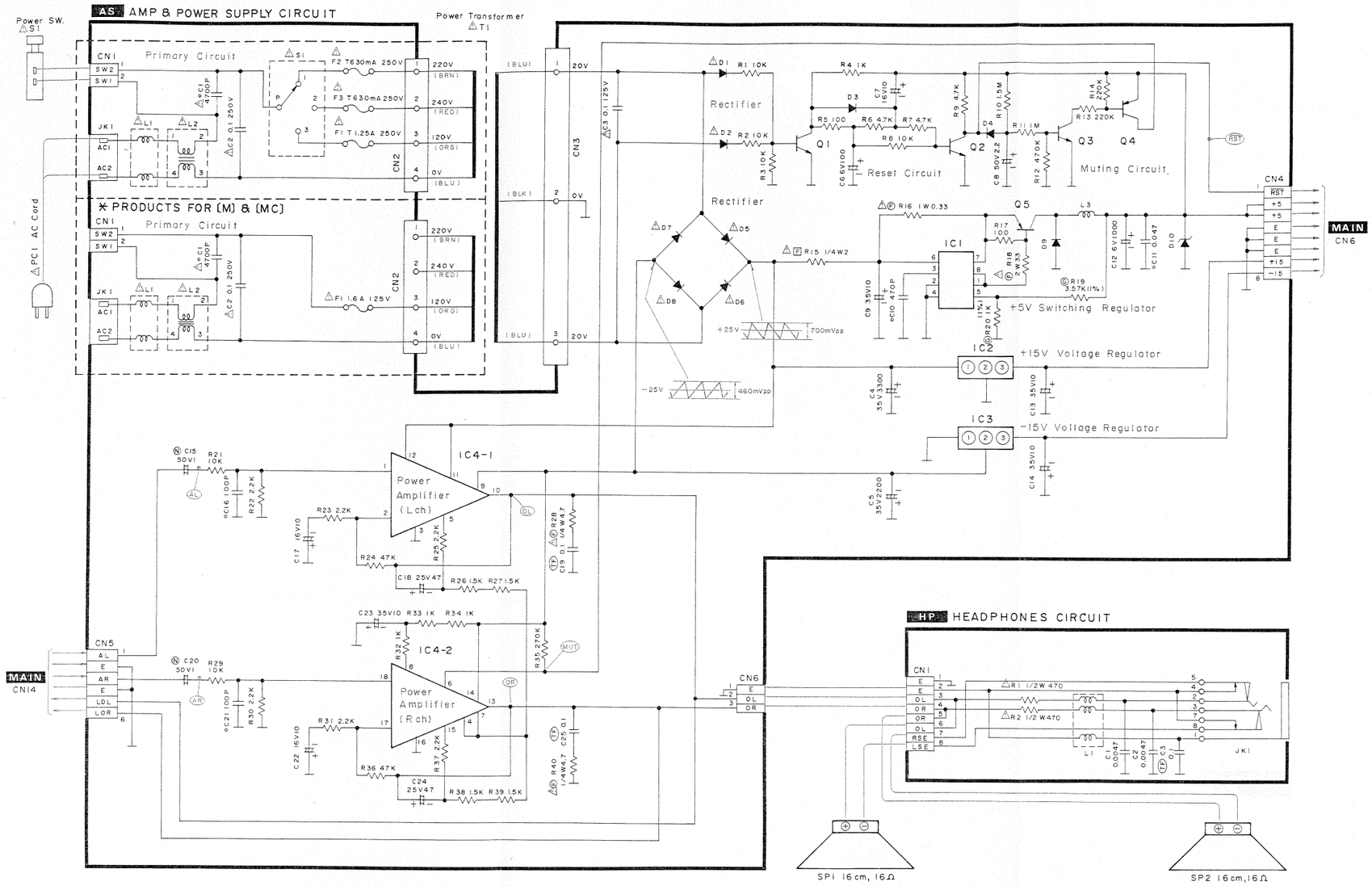
AS HP AMP & POWER SUPPLY, HEADPHONES CIRCUIT DIAGRAM

Measuring Conditions

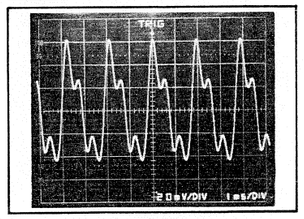
1. Set the initial mode before measurement.
2. After initial mode, set the measurement conditions as follows.
   - Conductor.....Poly 1
   - Sound Select.....Flute
   - Effect (all).....OFF
   - Keyboard .....C4 Key
   - Main Volume.....Max
   - Touch Sense .....Volume=0 (Sound Edit: Page 11)

NOTES:

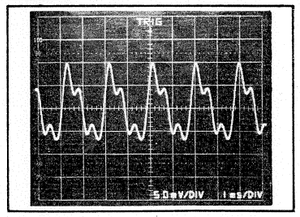
- IC'S
  - IC1: SVIGM5291P
  - IC2: SVIGM5F7815
  - IC3: SVIGM5F7915
  - IC4: SVIGS4132M2M
- TRANSISTORS
  - Q1~3: 2SC2320LFG
  - Q4: 2SA1015-GR
  - Q5: 2SB953A
- DIODES
  - D1, 2: SVDGERA1502Y
  - D3, 4: MA165TA5
  - D5~8: SVDS2V20
  - D9: SVDGRK14S
  - D10: MA2062LF
- FUSES
  - F1: M MC XBA1C16NU100
  - F1: XBA2C12TB0
  - F2, 3: XBA2C063TB0



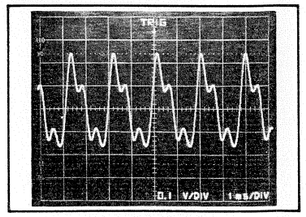
AL



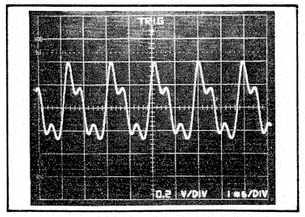
AR



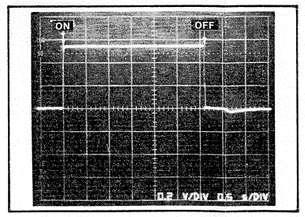
OL



OR

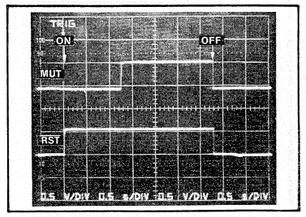


RST



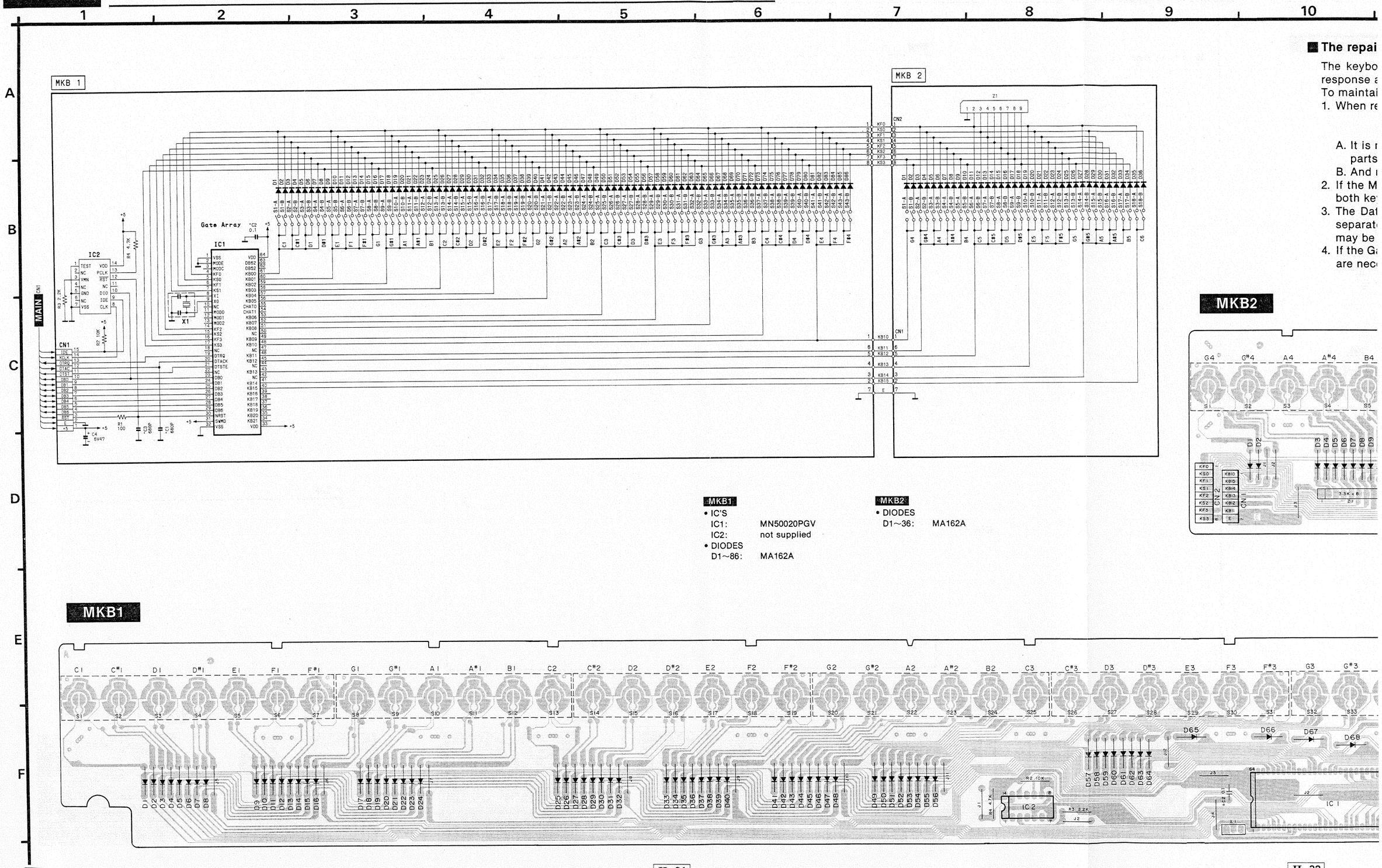
- Power SW.....ON → OFF

MUT RST



- Power SW.....ON → OFF

MKB MANUAL KEYBOARD CIRCUIT DIAGRAM & CIRCUIT BOARD



MKB1

- IC'S
  - IC1: MN50020PGV
  - IC2: not supplied
- DIODES
  - D1~86: MA162A

MKB2

- DIODES
  - D1~36: MA162A

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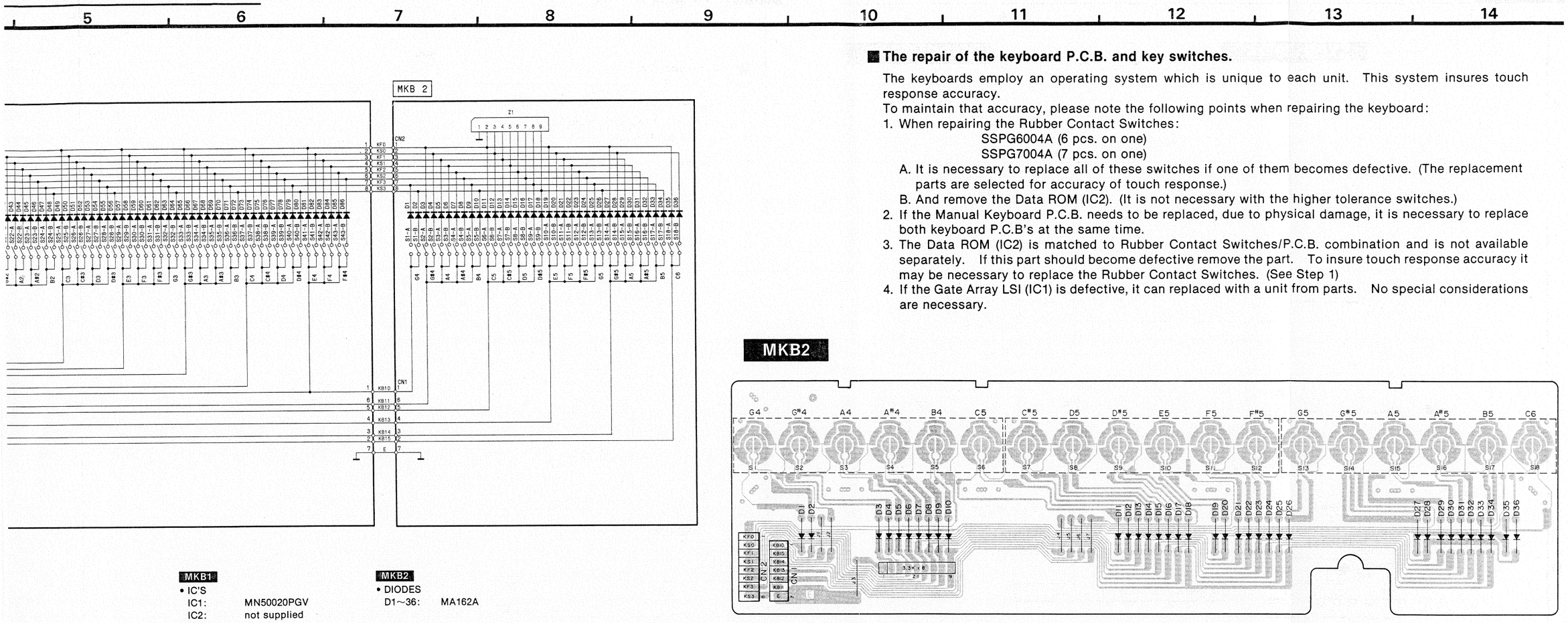


MKB1

- IC'S
  IC1: MN50020PGV
  IC2: not supplied
- DIODES
  D1~86: MA162A

MKB2

- DIODES
  D1~36: MA162A

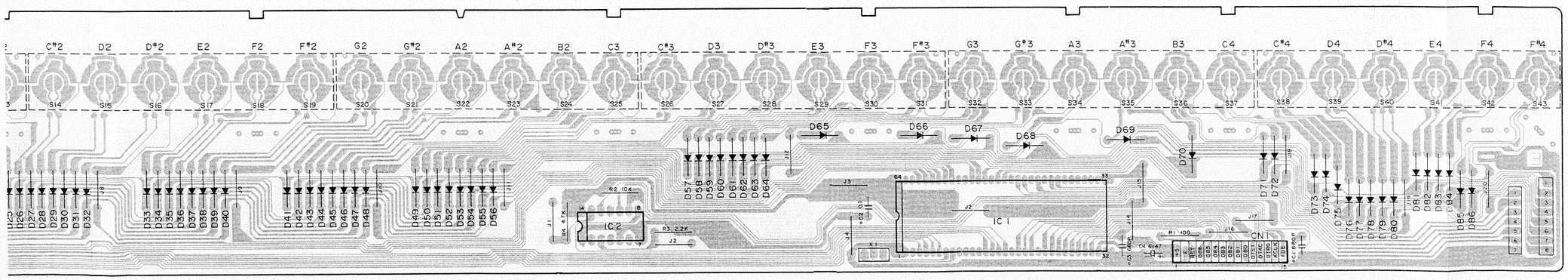
The repair of the keyboard P.C.B. and key switches.

The keyboards employ an operating system which is unique to each unit. This system insures touch response accuracy.
To maintain that accuracy, please note the following points when repairing the keyboard:

1. When repairing the Rubber Contact Switches:
   SSPG6004A (6 pcs. on one)
   SSPG7004A (7 pcs. on one)
   A. It is necessary to replace all of these switches if one of them becomes defective. (The replacement parts are selected for accuracy of touch response.)
   B. And remove the Data ROM (IC2). (It is not necessary with the higher tolerance switches.)
2. If the Manual Keyboard P.C.B. needs to be replaced, due to physical damage, it is necessary to replace both keyboard P.C.B's at the same time.
3. The Data ROM (IC2) is matched to Rubber Contact Switches/P.C.B. combination and is not available separately. If this part should become defective remove the part. To insure touch response accuracy it may be necessary to replace the Rubber Contact Switches. (See Step 1)
4. If the Gate Array LSI (IC1) is defective, it can replaced with a unit from parts. No special considerations are necessary.

MKB2

- MKB1, MKB2 **SXPG143511**



MKB1

- IC'S
  IC1: MN50020PGV
  IC2: not supplied
- DIODES
  D1~86: MA162A

MKB2

- DIODES
  D1~36: MA162A

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

Notes:

1. Printed circuit boards assembly with mark (NLA) is no longer available after production discontinuation of the complete set.
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

	NLA	Area	Part No.	Description	Per/Set
○	NLA	M	SXPG145631	MAIN	1
○	NLA		SXPG145611	MAIN Other areas	1
○	NLA		SXPG148311	RBD	1
○	NLA		SXPG145811A	CP	1
○	NLA		SXEG200A	LCD	1
○	NLA		SXPG145811B	ESW	1
○	NLA		SXPG145911	BEND	1
○	NLA		SXPG146011	DRV	1
○	NLA		SXPG145711	DSG	1
○	NLA	MC M	SXPG1387121	AS	1
○	NLA	XR XL	SXPG1387141	AS	1
○	NLA		SXPG1387111	AS Other areas	1
	NLA		SXPG138811	HP	1
○	NLA		SXPG143511	MKB1 MKB2	1

MAIN MAIN CIRCUIT

	Ref. No.	Part No.	Description	Per/Set
	INTEGRATED CIRCUITS			
	IC1	SVIGM74LS07	Hex Buffers (O.C.)	1
	IC2	SVIGTC40H004	Hex Inverters	1
	IC3	SVIGTC40H032	Quad 2-input OR Gates	1
	IC4	SVIGTLP513	Photo Coupler	1
○	IC5	SVIGMSM6253	A/D Converter	1
○	IC6	SVIGD70320GJ	Microcomputer	1
○	IC7	SVIGAKN8AX0	1M bit EP ROM	1
○	IC8	SVIGAKN8BX0	1M bit EP ROM	1
	IC9	SVIGHM65256	256K bit Partial S RAM	1
○	IC10	SVIGM5256BLL	256K bit S RAM	1
○	(IC11: RBD)	(SXPG148311)	Supply Separately	(1)
○	IC12	SVIGMB621407	Gate Array	1
○	IC13, 14	SVIGTC40H174	Hex D-type Flip-Flops	2
○	IC15, 16	SVIGTC40H244	Hex 3-State Buffers	2
	IC17, 18	MN6635	Tone Generator LSI	2
	IC19, 22	SVIGBA9221	12 bit D-A Converter	2
○	IC21	SVIGU3C04672	4M bit Mask ROM	1
	IC23, 26	SVIGM5238L	Operational Amplifier	2
	IC24, 27	SVIGT74H4051	8-channel Multiplexer	2
	IC25, 44~51, 54, 56, 58~60	SVIGM5218L	Operational Amplifier	14
	IC28~43	SVIGM74H4066	Quad Bilateral Switches	16
	IC52	SVIGLM1894N	Dynamic Noise Reduction	1
	IC53	SVIGM5241L	Dual VCA	1
	IC55	MN3009	BBD (256 stages)	1
	IC57	SVIGMSM4011	2-input NAND Gate	1

	Ref. No.	Part No.	Description	Per/Set
	TRANSISTORS			
S	Q1, 2, 4, 8	2SA1015-GR	2SA933STRS (SUB. Part)	4
	Q3	2SC1047C		1
S	Q5, 22	2SC2320LFG	2SC1310FG (SUB. Part)	2
	Q6, 7 M	2SB953AQP	[M] area only	2
	Q9~21	2SJ105GR	FET	13
	DIODES			
	D1~10, 12, 13	MA165TA5		12
	OSCILLATORS			
	X1	SVQG49S1200T	12MHz, Quartz Oscillator	1
	X2	SVQG49S1600T	16MHz, Quartz Oscillator	1
	COMPONENT COMBINATIONS			
	Z1	EXBPI6472JM	4.7KΩ×6	1
	Z2, 4	EXBPI8472JM	4.7KΩ×8	2
	Z3	EXBPI4472JM	4.7KΩ×4	1
	Z5, 6	EXAMR14A1002	1KΩ/2KΩ, Ladder Network	2
	COILS			
	L1, 2, 4, 8	SLQG15W24DPQ	Coil	4
	L3, 5~7, 9, 10	SLQG15W34DPQ	Coil	6
	JACKS			
	JK1	SJJG100A	EXP PEDAL	1
	JK2	SJJG400A	FOOT SW	1
	JK3~5	SJSG1370A	MIDI	3
	JK6~9	SJJG400A	LINE OUT, AUX IN	4
	SEMI-FIXED RESISTOR			
	VR1	EVND4AA00B24	20KΩ B,BBD Bias	1
	RESISTORS			
	R1	ERDS2TJ104	100KΩ	1
	R2	ERDS2TJ222	2.2KΩ	1
	R3~5	ERDS2TJ102	1KΩ	3
	R6	ERDS2TJ103	10KΩ	1
	R7	ERDS2TJ102	1KΩ	1
	R8	ERDS2TJ680	68Ω	1
	R9	ERDS2TJ151	150Ω	1
	R10	ERDS2TJ221	220Ω	1
	R11	ERDS2TJ334	330KΩ	1
	R12	ERDS2TJ103	10KΩ	1
	R13	ERDS2TJ221	220Ω	1
	R14	ERDS2TJ331	330Ω	1
	R15	ERDS2TJ151	150Ω	1
	R16	ERDS2TJ680	68Ω	1
	R17	ERDS2TJ221	220Ω	1
	R18	ERDS2TJ334	330KΩ	1
	R19~21	ERDS2TJ103	10KΩ	3

Ref. No.	Part No.	Description	Per/Set
R22	ERDS2TJ154	150KΩ	1
R23	ERDS2TJ103	10KΩ	1
R24	ERDS2TJ222	2.2KΩ	1
R25	ERDS2TJ183	18KΩ	1
R26	ERDS2TJ472	4.7KΩ	1
R27	ERDS2TJ332	3.3KΩ	1
R28~31	ERDS2TJ103	10KΩ	4
R32	ERDS2TJ472	4.7KΩ	1
R34	ERDS2TJ472	4.7KΩ	1
R35	ERDS2TJ221	220Ω	1
R36	ERDS2TJ103	10KΩ	1
R37	ERDS2TJ823	82KΩ	1
R38	ERDS2TJ223	22KΩ	1
R39, 40 M ⚠	ERX1ANJPR22S	0.22Ω, 1W, Flame-Proof, [M] only	2
R41 M	ERDS2TJ151	150Ω, [M] area only	1
R42 M	ERDS2TJ102	1KΩ, [M] area only	1
R43 M	ERDS2TJ822	8.2KΩ, [M] area only	1
R44	ERDS2TJ471	470Ω	1
R45, 46	ERDS2TJ474	470KΩ	2
R47, 48	ERDS2TJ473	47KΩ	2
R49 ⚠	ERD2FCG150	15Ω, 1/4W, Fuse Type	1
R50	ERDS2TJ101	100Ω	1
R51, 52 ⚠	ERD2FCJ4R7	4.7Ω, 1/4W, Fuse Type	2
R53 ⚠	ERQ14AJ2R0P	2Ω, 1/4W, Fuse Type	1
R54	ERDS2TJ473	47KΩ	1
R55	ERDS2TJ102	1KΩ	1
R56	ERDS2TJ103	10KΩ	1
R57, 58	ER0S2CKF4700	470Ω, ±1%	2
R59	ERDS2TJ153	15KΩ	1
R60, 61	ERDS2TJ471	470Ω	2
R62, 63	ERDS2TJ472	4.7KΩ	2
R64, 65	ERDS2TJ102	1KΩ	2
R66, 67	ER0S2CKF4700	470Ω, ±1%	2
R68	ERDS2TJ153	15KΩ	1
R69, 70	ERDS2TJ471	470Ω	2
R71~86	ERDS2TJ473	47KΩ	16
R87, 88	ERDS2TJ683	68KΩ	2
R89	ERDS2TJ682	6.8KΩ	1
R90~92	ERDS2TJ473	47KΩ	3
R93	ERDS2TJ682	6.8KΩ	1
R94~96	ERDS2TJ473	47KΩ	3
R97	ERDS2TJ682	6.8KΩ	1
R98~100	ERDS2TJ473	47KΩ	3
R101	ERDS2TJ682	6.8KΩ	1
R102~104	ERDS2TJ473	47KΩ	3
R105	ERDS2TJ683	68KΩ	1
R107	ERDS2TJ683	68KΩ	1
R108	ERDS2TJ682	6.8KΩ	1
R109, 110	ERDS2TJ683	68KΩ	2
R111	ERDS2TJ563	56KΩ	1
R112	ERDS2TJ472	4.7KΩ	1
R113, 114	ERDS2TJ333	33KΩ	2
R115	ERDS2TJ273	27KΩ	1
R116~122	ERDS2TJ823	82KΩ	7
R123~130	ERDS2TJ473	47KΩ	8
R131	ERDS2TJ683	68KΩ	1
R132, 133	ERDS2TJ823	82KΩ	2
R134, 135	ERDS2TJ473	47KΩ	2
R136	ERDS2TJ333	33KΩ	1
R137	ERDS2TJ473	47KΩ	1
R138	ERDS2TJ563	56KΩ	1
R139	ERDS2TJ273	27KΩ	1
R140	ERDS2TJ183	18KΩ	1
R141	ERDS2TJ683	68KΩ	1
R142, 143	ERDS2TJ473	47KΩ	2
R144, 145	ERDS2TJ823	82KΩ	2
R146, 147	ERDS2TJ563	56KΩ	2

Ref. No.	Part No.	Description	Per/Set
R148	ERDS2TJ333	33KΩ	1
R149	ERDS2TJ273	27KΩ	1
R150	ERDS2TJ183	18KΩ	1
R151, 152	ERDS2TJ223	22KΩ	2
R153	ERDS2TJ333	33KΩ	1
R154	ERDS2TJ104	100KΩ	1
R155	ERDS2TJ333	33KΩ	1
R156	ERDS2TJ104	100KΩ	1
R157, 158	ERDS2TJ331	330Ω	2
R159, 160	ERDS2TJ472	4.7KΩ	2
R161	ERDS2TJ681	680Ω	1
R162	ERDS2TJ331	330Ω	1
R163, 164	ERDS2TJ822	8.2KΩ	2
R165	ERDS2TJ152	1.5KΩ	1
R166, 167	ERDS2TJ104	100KΩ	2
R168	ERDS2TJ184	180KΩ	1
R169	ERDS2TJ474	470KΩ	1
R170, 171	ERDS2TJ124	120KΩ	2
R172	ERDS2TJ332	3.3KΩ	1
R173~179	ERDS2TJ105	1MΩ	7
R180~183	ERDS2TJ224	220KΩ	4
R184~187	ERDS2TJ473	47KΩ	4
R188	ERDS2TJ393	39KΩ	1
R189, 190	ERDS2TJ105	1MΩ	2
R200, 201	ERDS2TJ105	1MΩ	2
R202, 203	ERDS2TJ223	22KΩ	2
R204	ERDS2TJ153	15KΩ	1
R205	ERDS2TJ154	150KΩ	1
R206	ERDS2TJ103	10KΩ	1
R207	ERDS2TJ102	1KΩ	1
R208	ERDS2TJ473	47KΩ	1
R209	ERDS2TJ333	33KΩ	1
R210, 211	ERDS2TJ473	47KΩ	2
R212	ERDS2TJ104	100KΩ	1
R213	ERDS2TJ473	47KΩ	1
R214, 215	ERDS2TJ104	100KΩ	2
R216	ERDS2TJ124	120KΩ	1
R217, 218	ERDS2TJ332	3.3KΩ	2
R219	ERDS2TJ124	120KΩ	1
R220	ERDS2TJ183	18KΩ	1
R221	ERDS2TJ223	22KΩ	1
R222	ERDS2TJ105	1MΩ	1
R223	ERDS2TJ473	47KΩ	1
R224, 225	ERDS2TJ103	10KΩ	2
R226	ERDS2TJ153	15KΩ	1
R227	ERDS2TJ333	33KΩ	1
R228	ERDS2TJ124	120KΩ	1
R229	ERDS2TJ101	100Ω	1
R230	ERDS2TJ153	15KΩ	1
R231	ERDS2TJ333	33KΩ	1
R232	ERDS2TJ124	120KΩ	1
R233	ERDS2TJ101	100Ω	1
R234, 235	ERDS2TJ472	4.7KΩ	2
R236~238	ERDS2TJ681	680Ω	3
R239, 240	ERDS2TJ104	100KΩ	2
R241, 242	ERDS2TJ473	47KΩ	2
R243, 244	ERDS2TJ104	100KΩ	2

CAPACITORS

C1~3	ECKR1E473ZV	0.047μF	3
C4	ECEA0JKA470	47μF, 6.3V	1
C7	ECEA0JKA470	47μF, 6.3V	1
C8	ECKR1E473ZV	0.047μF	1
C9	ECEA0JKA470	47μF, 6.3V	1

Ref. No.	Part No.	Description	Per/Set
C12~15	ECRR1H104ZF	0.1μF	4
C16	ECKR1E473ZV	0.047μF	1
C17	ECCR1H470J	47pF	1
C18	ECCR1H680J	68pF	1
C19, 20	ECCR1H100D	10pF	2
C21	ECCR1H101J	100pF	1
C22	ECRR1H104ZF	0.1μF	1
C23	ECEA1HKAR47	0.47μF, 50V	1
C24, 25	ECRR1H104ZF	0.1μF	2
○ C26	EECF5R5U105	1F, 5.5V, Memory Back-up	1
C27	ECRR1H104ZF	0.1μF	1
C28	ECKR1E473ZV	0.047μF	1
C29	ECRR1H104ZF	0.1μF	1
C30 M	ECEA0JKA331	330μF, 6.3V, [M] area only	1
C31, 32	ECQG1H102KZ	0.001μF	2
C33	ECEA0JKA221	220μF, 6.3V	1
C34	ECEA0JKA101	100μF, 6.3V	1
C35	ECEA1HKA010	1μF, 50V	1
C36	ECEA0JKA101	100μF, 6.3V	1
C37	ECEA1CKA101	100μF, 16V	1
C38	ECEA1CKA101	100μF, 16V	1
C39	ECRR1H104ZF	0.1μF	1
C40	ECKR1E473ZV	0.047μF	1
C41, 42	ECCR1H100D	10pF	2
C43	ECEA0JKA331	330μF, 6.3V	1
C44	ECEA1CKA470	47μF, 16V	1
C45	ECCR1H221J	220pF	1
C46	ECKR1E473ZV	0.047μF	1
C47, 48	ECEA0JKA101	100μF, 6.3V	2
C50, 51	ECEA0JKA470	47μF, 6.3V	2
C52	ECKR1E473ZV	0.047μF	1
C53	ECEA0JKA470	47μF, 6.3V	1
C54	ECKR1E473ZV	0.047μF	1
C55	ECCR1H221J	220pF	1
C56	ECKR1E473ZV	0.047μF	1
C57	ECEA0JKA101	100μF, 6.3V	1
C58	ECEA0JKA101	100μF, 6.3V	1
C62	ECKR1E473ZV	0.047μF	1
C66	ECRR1H104ZF	0.1μF	1
C67	ECQG1H472KZ	0.0047μF	1
C68	ECQG1H102KZ	0.001μF	1
C69	ECQG1H472KZ	0.0047μF	1
C70	ECQG1H102KZ	0.001μF	1
C71	ECQG1H472KZ	0.0047μF	1
C72	ECQG1H102KZ	0.001μF	1
C73	ECQG1H472KZ	0.0047μF	1
C74	ECQG1H102KZ	0.001μF	1
C75	ECQG1H472KZ	0.0047μF	1
C76	ECQG1H102KZ	0.001μF	1
C77	ECQG1H472KZ	0.0047μF	1
C78	ECQG1H102KZ	0.001μF	1
C79	ECQG1H472KZ	0.0047μF	1
C80	ECQG1H102KZ	0.001μF	1
C81	ECQG1H472KZ	0.0047μF	1
C82	ECQG1H102KZ	0.001μF	1
C83, 84	ECCR1H331J	330pF	2
C85	ECQG1H222KZ	0.0022μF	1
C86, 87	ECCR1H471J	470pF	2
C88	ECCR1H101J	100pF	1
C89	ECQG1H222KZ	0.0022μF	1
C90, 91	ECCR1H471J	470pF	2
C92	ECCR1H101J	100pF	1
C93	ECQG1H222KZ	0.0022μF	1
C94, 95	ECCR1H471J	470pF	2
C96	ECCR1H101J	100pF	1
C97	ECQG1H222KZ	0.0022μF	1
C98	ECCR1H471J	470pF	1
C99	ECCR1H101J	100pF	1

Ref. No.	Part No.	Description	Per/Set
C100	ECCR1H471J	470pF	1
C101	ECCR1H101J	100pF	1
C104	ECKR1E473ZV	0.047μF	1
C108	ECKR1E473ZV	0.047μF	1
C109	ECQG1H472KZ	0.0047μF	1
C110	ECQG1H102KZ	0.001μF	1
C111	ECQG1H472KZ	0.0047μF	1
C112	ECQG1H102KZ	0.001μF	1
C113	ECQG1H472KZ	0.0047μF	1
C114	ECQG1H102KZ	0.001μF	1
C115	ECQG1H472KZ	0.0047μF	1
C116	ECQG1H102KZ	0.001μF	1
C117	ECQG1H472KZ	0.0047μF	1
C118	ECQG1H102KZ	0.001μF	1
C119	ECQG1H472KZ	0.0047μF	1
C120	ECQG1H102KZ	0.001μF	1
C121	ECQG1H472KZ	0.0047μF	1
C122	ECQG1H102KZ	0.001μF	1
C123	ECQG1H472KZ	0.0047μF	1
C124	ECQG1H102KZ	0.001μF	1
C125	ECCR1H331J	330pF	1
C127	ECCR1H331J	330pF	1
C128	ECQG1H472KZ	0.0047μF	1
C129, 130	ECCR1H471J	470pF	2
C131	ECQG1H332KZ	0.0033μF	1
C132, 133	ECCR1H471J	470pF	2
C134	ECCR1H101J	100pF	1
C135~141	ECQV1H473JZ	0.047μF	7
C142	ECCR1H221J	220pF	1
C143	ECEA1HKA010	1μF, 50V	1
C144	ECEA1HKN010	1μF, 50V	1
C145	ECEA1HKA010	1μF, 50V	1
C146	ECEA1HKN010	1μF, 50V	1
C147	ECQB1H153JZ	0.015μF	1
C148	ECCR1H101J	100pF	1
C149	ECQB1H153JZ	0.015μF	1
C150	ECCR1H101J	100pF	1
C151, 152	ECEA1HKA010	1μF, 50V	2
C153	ECEA1CKA470	47μF, 16V	1
C154	ECQV1H473JZ	0.047μF	1
C155	ECEA1CKA100	10μF, 16V	1
C156	ECEA1CKA470	47μF, 16V	1
C157	ECQG1H472KZ	0.0047μF	1
C158	ECQV1H104JZ	0.1μF	1
C159	ECQG1H102KZ	0.001μF	1
C160	ECQG1H472KZ	0.0047μF	1
C161	ECEA1HKA010	1μF, 50V	1
C162	ECQG1H332KZ	0.0033μF	1
C163	ECEA1HKA010	1μF, 50V	1
C164, 165	ECQV1H104JZ	0.1μF	2
C166	ECKR1E473ZV	0.047μF	1
C167	ECQV1H473JZ	0.047μF	1
C168~172	ECKR1E473ZV	0.047μF	5
C173~176	ECQV1H104JZ	0.1μF	4
C177~180	ECKR1E473ZV	0.047μF	4
C181	ECCR1H101J	100pF	1
C182	ECEA1HKA010	1μF, 50V	1
C183	ECQG1H102KZ	0.001μF	1
C184, 185	ECEA1CKA470	47μF, 16V	2
C186	ECQV1H104JZ	0.1μF	1
C187, 188	ECQG1H102KZ	0.001μF	2
C189, 190	ECCR1H680J	68pF	2
C191, 192	ECCR1H151J	150pF	2
C193	ECEA1HKN010	1μF, 50V	1
C194	ECKR1E473ZV	0.047μF	1
C195, 196	ECCR1H101J	100pF	2
C200, 201	ECCR1H101J	100pF	2
C202, 203	ECEA1HKN010	1μF, 50V	2

	Ref. No.	Part No.	Description	Per/Set
	C204~206	ECKR1E473ZV	0.047μF	3
	C207	ECCR1H101J	100pF	1
	C208	ECRR1H104ZF	0.1μF	1
	C209~214	ECKR1E473ZV	0.047μF	6
	C215	ECQV1H104JZ	0.1μF	1

RBD ROM BOARD

	Ref. No.	Part No.	Description	Per/Set
	INTEGRATED CIRCUITS			
○	IC1	SVIGU3C02560	2M bit Mask ROM	1
○	IC3	SVIGAKN8CX0	1M bit EP ROM	1
	IC4	MN74HC138S	1 to 8 Decoder	1
○	IC5~7	MN74HC365S	Hex 3-State Buffers	3
	CAPACITORS			
	C1, 2	ECRR1H104ZF	0.1μF	2

CP CONTROL PANEL CIRCUIT

	Ref. No.	Part No.	Description	Per/Set
	INTEGRATED CIRCUITS			
	IC1	SVIGM603A121	Gate Array	1
	IC2	SVIGM74LS74	Dual D-type Flip-Flops	1
○	IC3	SVIGM74LS139	Decoder	1
	IC4~6	SVIGM74LS07	Hex Buffers (O.C.)	3
	TRANSISTORS			
	Q1~4	2SA830SB		4
	DIODES			
	D1~21, 23~56, 58~68, 70~75, 77~113	MA165TA5		109
	D130, 138~157, 162~169, 173, 175~177, 182, 194	LN382G	LED (Green)	35
	D131~133, 135, 170~172, 174, 178~180, 183~193, 195~197, 199~201	LN282R	LED (Red)	28
	COMPONENT COMBINATIONS			
	Z1	EXBPI8103JM	10KΩ×8	1
	SWITCHES			
	S2~21, 23~46, 50~56, 58~68, 70~75, 77~113	SSHG1049A	Push Switch	105
○	S47~49	SSHG1048A	Push Switch	6
	VARIABLE RESISTOR			
	VR1	EVD07205B24G	20KΩ B, Main Volume	1
	RESISTORS			
	R1	ERDS2TJ184	180KΩ	1
	R2	ERDS2TJ221	220Ω	1
	R3	ERDS2TJ103	10KΩ	1
	R4	ERDS2TJ152	1.5KΩ	1
	R5~8	ERDS2TJ103	10KΩ	4
	R9~12	ERDS2TJ152	1.5KΩ	4
	R13~15	ERDS2TJ470	47Ω	3
	R17~29	ERDS2TJ470	47Ω	13
	CAPACITORS			
	C1	ECEA0JKA101	100μF, 6.3V	1
	C2	ECRR1H104ZF	0.1μF	1
	C3	ECCR1H101J	100pF	1
	C4	ECEA1HKA010	1μF, 50V	1
	C5~8	ECRR1H104ZF	0.1μF	4

ESW ENCODER SWITCH CIRCUIT

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

BEND PITCH BEND CIRCUIT

	Ref. No.	Part No.	Description	Per/Set
	SWITCHES			
○	S1, 2	SSHG1053A	Push Switch	2
	VARIABLE RESISTOR			
○	VR1	EVH07323B54G	50KΩ B, Pitch Bend	1
	RESISTORS			
	R1, 2	ER0S2CKF1001	1KΩ, ±1%	2

DRV DIGITAL REVERB CIRCUIT

	Ref. No.	Part No.	Description	Per/Set
	INTEGRATED CIRCUITS			
	IC1	MN1280R	Reset IC	1
	IC2	SVIGHM65256	256K bit Partial S RAM	1
○	IC3	SVIGMB622416	Gate Array	1
	IC4	MN8305S	A-D/D-A Converter	1
○	IC5	SVIG87064073	Digital Signal Processer	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	MN74HC02S	Quad 2-Input NOR Gates	1
	TRANSISTOR			
	Q1, 2	2SJ105GR	FET	2
	DIODES			
	D1, 2	MA165TA5		2
	OSCILLATOR			
○	X1	SVQGA20MX040	20MHz, Ceramic Oscillator	1
	SEMI-FIXED RESISTOR			
	VR1	EVND4AA00B24	20KΩ B, DRV Bias	1
	RESISTORS			
	R1	ERDS2TJ333	33KΩ	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
	R21~23	ERDS2TJ473	47KΩ	3
	R24	ERDS2TJ682	6.8KΩ	1
	R25~27	ERDS2TJ473	47KΩ	3

Ref. No.	Part No.	Description	Per/Set
R28	ERDS2TJ682	6.8KΩ	1
R29~31	ERDS2TJ473	47KΩ	3
R32	ERDS2TJ682	6.8KΩ	1
R33~35	ERDS2TJ473	47KΩ	3
R36, 37	ERDS2TJ331	330Ω	2
R38	ERDS2TJ681	680Ω	1
R39	ERDS2TJ331	330Ω	1
R40, 41	ERDS2TJ473	47KΩ	2
R42, 43	ERDS2TJ103	10KΩ	2
R44, 45	ERDS2TJ472	4.7KΩ	2
R46, 47	ERDS2TJ221	220Ω	2
R50~52 ⚠	ERD2FCJ4R7	4.7Ω, 1/4W, Fuse Type	3
R53, 54 ⚠	ERD2FCG100	10Ω, 1/4W, Fuse Type	2
R55~57	ERDS2TJ105	1MΩ	3
R58, 59	ERDS2TJ101	100Ω	2
R62~66	ERDS2TJ152	1.5KΩ	5
CAPACITORS			
C1	ECQB1H152JZ	0.0015μF	1
C2	ECQG1H682KZ	0.0068μF	1
C3, 4	ECCR1H471J	470pF	2
C5	ECCR1H101J	100pF	1
C6	ECEA1HKA010	1μF, 50V	1
C8	ECEA1HKA010	1μF, 50V	1
C9	ECQG1H152KZ	0.0015μF	1
C10	ECCR1H151J	150pF	1
C11	ECEA1HKA010	1μF, 50V	1
C12	ECQG1H682KZ	0.0068μF	1
C13	ECQG1H472KZ	0.0047μF	1
C14, 15	ECCR1H471J	470pF	2
C16	ECCR1H101J	100pF	1
C17	ECEA1HKA010	1μF, 50V	1
C18	ECQG1H682KZ	0.0068μF	1
C19	ECQG1H472KZ	0.0047μF	1
C20, 21	ECCR1H471J	470pF	2
C22	ECCR1H101J	100pF	1
C23	ECQG1H472KZ	0.0047μF	1
C24, 25	ECCR1H471J	470pF	2
C26	ECCR1H101J	100pF	1
C27	ECQG1H472KZ	0.0047μF	1
C28, 29	ECCR1H471J	470pF	2
C30	ECCR1H101J	100pF	1
C31, 32	ECEA1HKA010	1μF, 50V	2
C33	ECEA1HKAR22	0.22μF, 50V	1
C34	ECQB1H103JZ	0.01μF	1
C35	ECEA1HKAR22	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	ECEA0JKA331	330μF, 6.3V	1
C54	ECEA1CKA100	10μF, 16V	1
C55, 56	ECEA1CKA101	100μF, 16V	2
C57	ECCR1H101J	100pF	1
C58, 59	ECCR1H100J	10pF	2
C60	ECKR1E473ZV	0.047μF	1
C62~65	ECKR1E473ZV	0.047μF	4

DSG DIGITAL SOUND GENERATOR CIRCUIT

	Ref. No.	Part No.	Description	Per/Set
	INTEGRATED CIRCUITS			
	IC1	MN6635	Tone Generator LSI	1
○	IC2	SVIGU3C04673	4M bit Mask ROM	1
	IC3	SVIGBA9221	12 bit D-A Converter	1
	IC4	SVIGT74H4051	8 Channel Multiplexer	1
	IC5	SVIGM5238L	Operational Amplifier	1
	IC6, 15, 16	SVIGM5218L	Operational Amplifier	3
	IC7~14	SVIGM74H4066	Quad Bilateral Switches	8
	OSCILLATOR			
	X1	SVQG49S1600T	16MHz, Quartz Oscillator	1
	COMPONENT COMBINATION			
	Z1	EXAMR14A1002	1KΩ/2KΩ, Ladder Network	1
	RESISTORS			
	R1, 2	ERDS2TJ471	470Ω	2
	R3, 4	ER0S2TKF4700	470Ω, ±1%	2
	R5	ERDS2TJ153	15KΩ	1
	R6~13	ERDS2TJ473	47KΩ	8
	R14, 15	ERDS2TJ472	4.7KΩ	2
	R17, 18	ERDS2TJ124	120KΩ	2
	R19	ERDS2TJ563	56KΩ	1
	R20	ERDS2TJ472	4.7KΩ	1
	R21, 22	ERDS2TJ333	33KΩ	2
	R23	ERDS2TJ273	27KΩ	1
	CAPACITORS			
	C1, 2	ECCR1H100D	10pF	2
	C3	ECRR1H104ZF	0.1μF	1
	C4	ECEA1CKA470	47μF, 16V	1
	C5	ECEA0JKA101	100μF, 6.3V	1
	C6	ECCR1H221J	220pF	1
	C7	ECKR1E473ZV	0.047μF	1
	C8	ECEA0JKA101	100μF, 6.3V	1
	C9	ECRR1H104ZF	0.1μF	1
	C10	ECEA0JKA470	47μF, 6.3V	1
	C12	ECRR1H104ZF	0.1μF	1
	C16	ECRR1H104ZF	0.1μF	1
	C20~27	ECQG1H472KZ	0.0047μF	8
	C28~35	ECQG1H102KZ	0.001μF	8
	C36, 37	ECCR1H101J	100pF	2
	C38	ECCR1H331J	330pF	1
	C39	ECQG1H332KZ	0.0033μF	1
	C40, 41	ECCR1H471J	470pF	2
	C42	ECCR1H101J	100pF	1
	C44	ECKR1E473ZV	0.047μF	1
	C46, 47	ECKR1E473ZV	0.047μF	2
	C49	ECKR1E473ZV	0.047μF	1
	C50, 51	ECEA0JKA331	330μF, 6.3V	2
	C52	ECCR1H101J	100pF	1

AS AMP & POWER SUPPLY CIRCUIT

	Ref. No.	Part No.	Description	Per/Set
	INTEGRATED CIRCUITS			
	IC1	SVIGM5291P	Switching Regulator	1
	IC2	SVIGM5F7815	Voltage Regulator	1
	IC3	SVIGM5F7915	Voltage Regulator	1
	IC4	SVIGS4132M2M	Power Amplifier	1

	Ref. No.	Part No.	Description	Per/Set
	TRANSISTORS			
S	Q1~3	2SC2320LFG	2SC1310FG (SUB. Part)	3
S	Q4	2SA1015-GR	2SA933STRS (SUB. Part)	1
	Q5	2SB953AQP		1
	DIODES			
	D1, 2 ⚠	SVDGERA1502Y	Rectifier	2
	D3, 4	MA165TA5		2
	D5~8 ⚠	SVDS2V20	Rectifier	4
	D9	SVDGRK14S		1
	D10	MA2062LF	Zener, 6.2V	1
	COILS & LINE FILTER			
	L1 ⚠	SLQG10W2D1	Coil	1
	L2 ⚠	SLTGLF3	Line Filter	1
	L3	SLCG2A121TZ	Coil	1
	JACK			
	JK1 ⚠	SJVD0203B	AC Inlet	1
	SWITCH			
	S1 ⚠	SSRG100A	Voltage Selector, Except [M][MC]	1
	FUSES			
	F1 M MC ⚠	XBA1C16NU100	1.6A, 125V, [M][MC] areas only	1
	F1 ⚠	XBA2C12TB0	T1.25A, 250V } Other areas	1
	F2, 3 ⚠	XBA2C063TB0	T630mA, 250V } Other areas	2
	RESISTORS			
	R1~3	ERDS2TJ103	10KΩ	3
	R4	ERDS2TJ102	1KΩ	1
	R5	ERDS2TJ101	100Ω	1
	R6, 7	ERDS2TJ472	4.7KΩ	2
	R8	ERDS2TJ103	10KΩ	1
	R9	ERDS2TJ472	4.7KΩ	1
	R10	ERDS2TJ155	1.5MΩ	1
	R11	ERDS2TJ105	1MΩ	1
	R12	ERDS2TJ474	470KΩ	1
	R13, 14	ERDS2TJ224	220KΩ	2
	R15 ⚠	ERQ14AJ2R0P	2Ω, 1/4W, Fuse Type	1
	R16 ⚠	ERX1ANJPR33S	0.33Ω, 1W, Flame-Proof	1
	R17	ERDS2TJ101	100Ω	1
○	R18 ⚠	ERG2SJ330	33Ω, 2W, Flame-Proof	1
○	R19	ER0S2CKF3571	3.57KΩ, ±1%	1
	R20	ER0S2TKF1001	1KΩ, ±1%	1
	R21	ERDS2TJ103	10KΩ	1
	R22, 23	ERDS2TJ222	2.2KΩ	2
	R24	ERDS2TJ473	47KΩ	1
	R25	ERDS2TJ222	2.2KΩ	1
	R26, 27	ERDS2TJ152	1.5KΩ	2
	R28 ⚠	ERD25FVJ4R7	4.7Ω, 1/4W, Flame-Proof	1
	R29	ERDS2TJ103	10KΩ	1
	R30, 31	ERDS2TJ222	2.2KΩ	2
	R32~34	ERDS2TJ102	1KΩ	3
	R35	ERDS2TJ274	270KΩ	1
	R36	ERDS2TJ473	47KΩ	1
	R37	ERDS2TJ222	2.2KΩ	1
	R38, 39	ERDS2TJ152	1.5KΩ	2
	R40 ⚠	ERD25FVJ4R7	4.7Ω, 1/4W, Flame-Proof	1

Ref. No.	Part No.	Description	Per/Set
CAPACITORS			
C1 ⚠	ECKCVA1472MF	4700pF, Line-Capacitor	1
C2 ⚠	ECQU2A104MN	0.1μF, 250V, Across-the Line Capacitor	1
C3 ⚠	ECQE1A104M6	0.1μF, 125V	1
C4	ECEA1VU332	3300μF, 35V	1
C5	ECEA1VU222	2200μF, 35V	1
C6	ECEA0JKA101	100μF, 6.3V	1
C7	ECEA1CKA100	10μF, 16V	1
C8	ECEA1HKA2R2	2.2μF, 50V	1
C9	ECEA1VKG100	10μF, 35V	1
C10	ECCR1H471J	470pF	1
C11	ECKR1E473ZV	0.047μF	1
C12	ECEA0JU102	1000μF, 6.3V	1
C13, 14	ECEA1VKG100	10μF, 35V	2
C15	ECEA1HKN010	1μF, 50V	1
C16	ECCR1H101J	100pF	1
C17	ECEA1CKA100	10μF, 16V	1
C18	ECEA1EKA470	47μF, 25V	1
C19	ECQV1H104JZ	0.1μF	1
C20	ECEA1HKN010	1μF, 50V	1
C21	ECCR1H101J	100pF	1
C22	ECEA1CKA100	10μF, 16V	1
C23	ECEA1VKG100	10μF, 35V	1
C24	ECEA1EKA470	47μF, 25V	1
C25	ECQV1H104JZ	0.1μF	1

HP HEADPHONES CIRCUIT

Ref. No.	Part No.	Description	Per/Set
COIL			
L1	SLQG15W33AP	Coil	1
JACK			
JK1	SJJG100A	Jack, Headphone	1
RESISTORS			
R1, 2 ⚠	ERD50FJ471	470Ω, 1/2W, Flame-Proof	2
CAPACITORS			
C1, 2	ECQG1H472KZ	0.0047μF	2
C3	ECQV1H104JZ	0.1μF	1

MKB1 MANUAL KEYBOARD 1

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	MN50020PGV	Gate Array	1
IC2	not supplied		1
DIODES			
S D1~86	MA162A	MA150IR (SUB. Part)	86
OSCILLATOR			
○ X1	EF0G08004A5	Ceramic Oscillator	1

Ref. No.	Part No.	Description	Per/Set
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
R3	ERDS2TJ222	2.2KΩ	1
R4	ERDS2TJ472	4.7KΩ	1
CAPACITORS			
C1	ECCR1H681J	680pF	1
C2	ECRR1H104ZF	0.1μF	1
C3	ECCR1H681J	680pF	1
C4	ECEA0JU470	47μF, 6.3V	1

MKB2 MANUAL KEYBOARD 2

Ref. No.	Part No.	Description	Per/Set
DIODES			
S D1~36	MA162A	MA150IR (SUB. Part)	36
COMPONENT COMBINATION			
Z1	EXBP88332JM	3.3KΩ×8	1
SWITCHES			
S1~18	SSPG6004A	Rubber Switch (6 pcs. on one)	3

■ WIRING PARTS

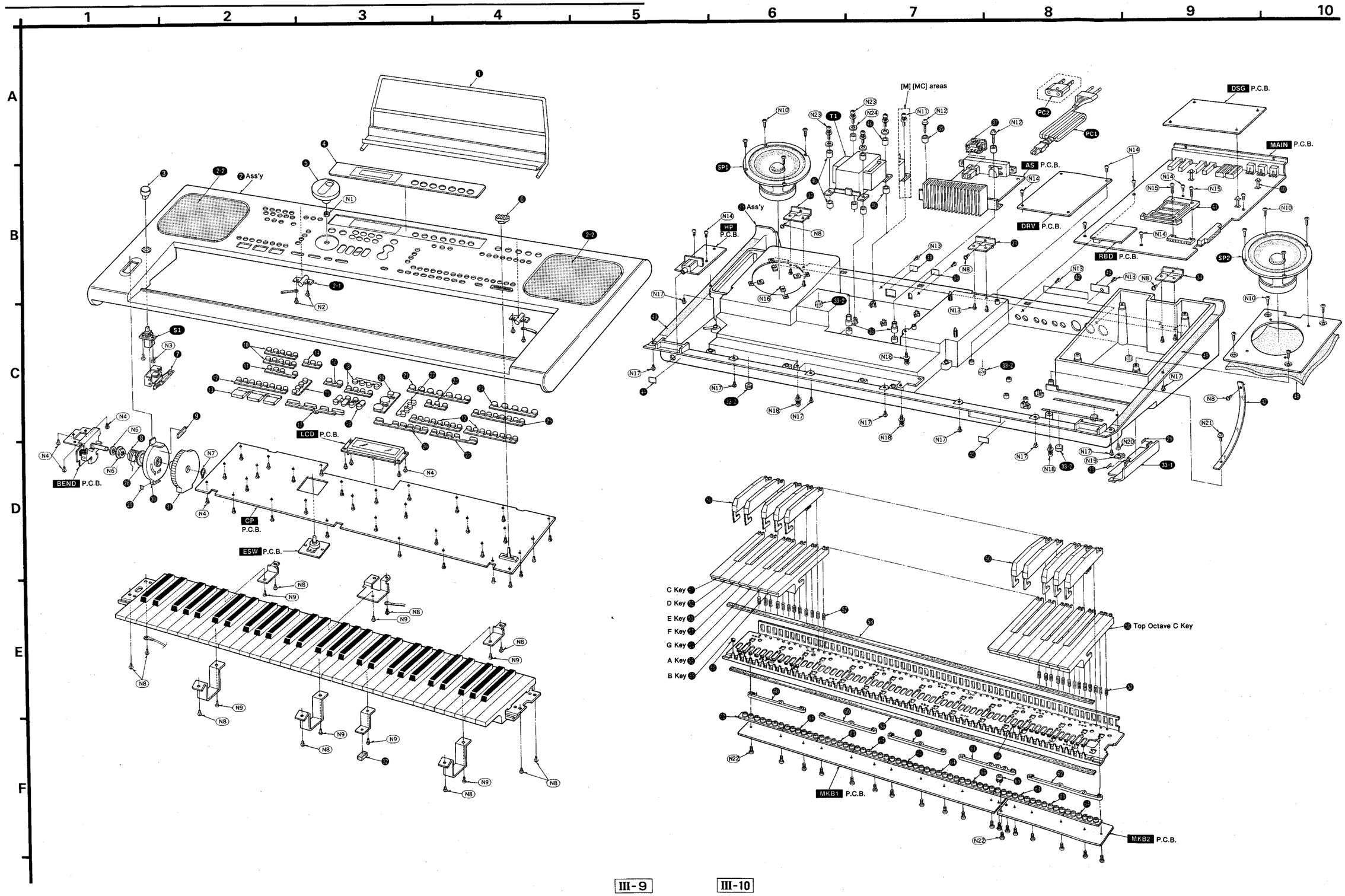
Ref. No.	Part No.	Description	Per/Set
○ W1	SWKG1526SSA	Connector with Wire	1
○ W2	SWKG168SSA	Connector with Wire	1
○ W3	SWKG04170SSA	Connector with Wire	1
○ W4	SWKG0545SSA	Connector with Wire	1
○ W5	SWKG0251ZA	Connector with Wire	1
○ W6	SWKG098ZB	Connector with Wire	1
○ W7	SWKG06137SSB	Connector with Wire	1
○ W8	SWKG0716SSA	Connector with Wire	1
○ W9	SWKG1359SSA	Connector with Wire	1
○ W10	SWKG08131LSA	Connector with Wire	1
○ W11	SWKG08132SSA	Connector with Wire	1
○ W12	SWKG1212SSA	Connector with Wire	1
○ W13	SWEG860A	Wire	1
○ W14	SWKG018ZB	Wire	1
○ W15	SWEG870A	Wire	1

REPLACEMENT PARTS LIST.....Cabinet Parts

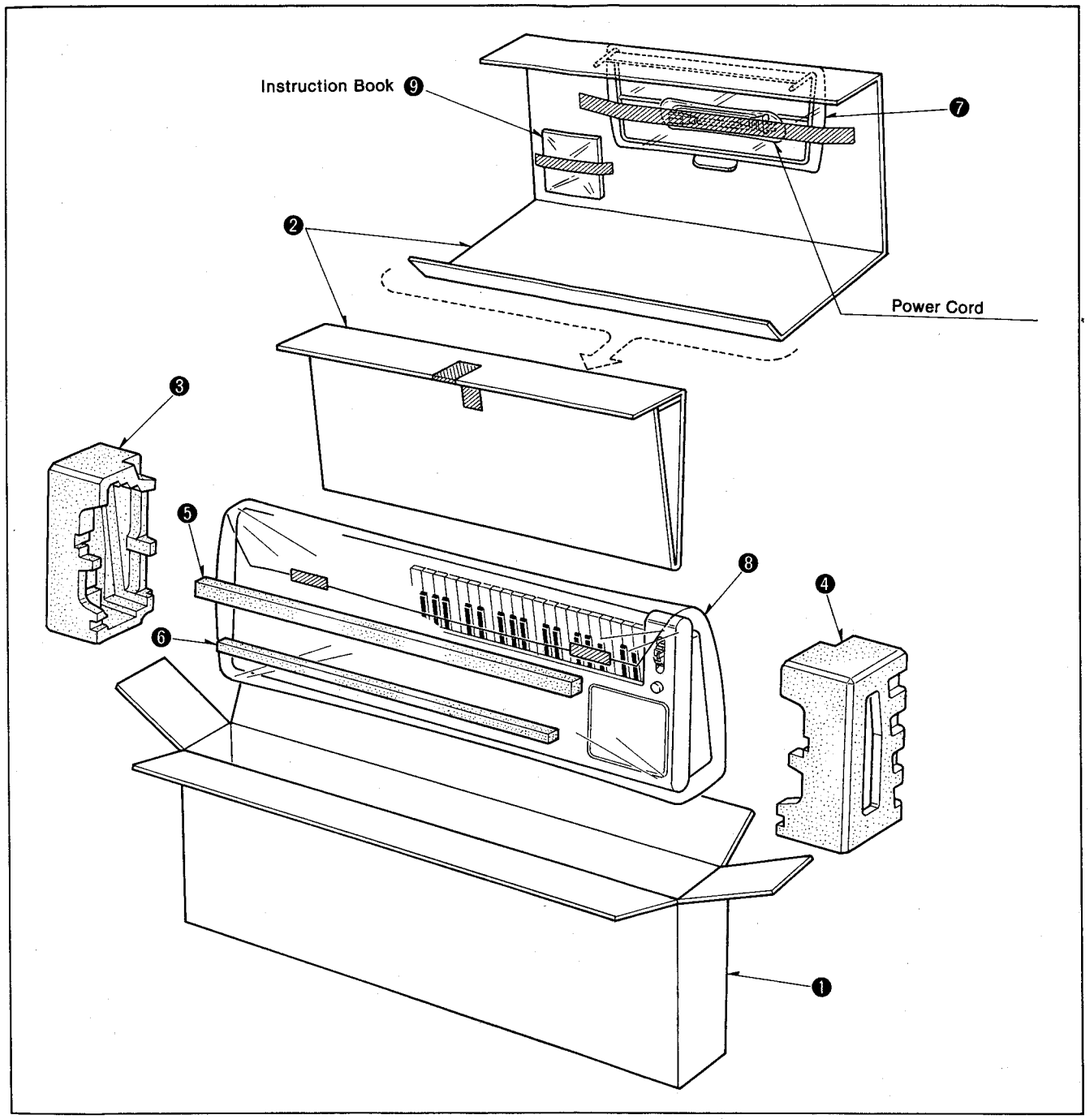
■ CABINET PARTS

	Ref. No.	Part No.	Description	Per/Set
	POWER SWITCH			
	S1 ⚠	ESB8213V	Power Switch	1
	SPEAKERS			
○	SP1, 2	SASG16PL02-F	16cm, 16Ω	2
	TRANSFORMER			
	T1 ⚠	SLTG5M36	Power Transformer	1
	AC POWER CORD & PLUG			
	PC1 MC M ⚠	SJAG62	AC Power Cord, [MC][M] only	1
	PC1 XR XL ⚠	SJAG61	AC Power Cord, [XR][XL] only	1
	PC1 XS EK ⚠	SJAG39	AC Power Cord, [XS][EK] only	1
	PC1 ⚠	SJAG41	Other areas	1
	PC2 X ⚠	SJP5213-1	Attachment Plug, [X][PA] only	1
	CABINET			
	1	SKGG1J110A	Music Rack	1
○	2	SKMG2150B	Control Panel Ass'y	1
○	2-1	SKEG7900B	Music Rack Holder	2
○	2-2	SGMG420B	Punching Net	2
○	3	SBCG1660A	Button, Power Switch	1
○	4	SGUG100A	LCD Panel	1
○	5	SBNG4060A	Search Dial Wheel	1
○	6	SBNG7070A	Knob, Main Volume	1
	7	SHRG8390A	Cover, Power Switch	1
○	8	SUSG612A	Spring	1
○	9	QMFG4008AA	Felt	1
○	10	SBCG1520A	Button A	2
○	11	SBCG1530A	Button B	1
○	12	SBCG1510A	Button C	3
○	13	SBCG1500A	Button D	1
○	14	SBCG1540A	Button E	1
○	15	SBCG1550A	Button F	1
○	16	SBCG1600A	Button G	1
○	17	SBCG1650A	Button H	1
○	18	SBCG1580A	Button I	2
○	19	SBCG1560A	Button J	1
○	20	SBCG1590A	Button K	1
○	21	SBCG1620A	Button L	1
○	22	SBCG1550B	Button M	1
○	23	SBCG1570A	Button N	1
○	24	SBCG1610A	Button O	1
○	25	SBCG1510B	Button P	1
○	26	SBCG1630A	Button Q	1
○	27	SBCG1640A	Button R	1
○	28	SHSG7040A	Felt (Lever)	1
	29	SHSG6220A	Felt (Lever, DDR Cover)	3
○	30	SBNG9040A	Lever	1
○	31	SBNG4070A	Bender Wheel	1
○	32	QMGG002AA	Rubber	1
○	33 M MC	SKUG180B	Bottom Board Ass'y	1
○	33-1	SKEG7890A	DDR Cover	1
○	33-2	SHGG3130A	Foot Rubber	5
○	33	SKUG181A	Bottom Board Ass'y } except [M][MC] areas	1
○	33-1	SKEG7890A	DDR Cover	1
○	33-2	SHGG3130A	Foot Rubber	5
	34	SBHG220A	Hinge	3
○	35	SHRG4140A	Spacer	2
○	36	SHRG4130A	Spacer	2
	37 XR XL ⚠	SJS9334A	AC Inlet Cover [XR][XL] area	1
	37 ⚠	SJS9231A	AC Inlet Cover, Other areas	1
○	38	SGKG3250A	Label (AC IN)	1
○	39	SGKG3190B	Label (Volt Adj.), except for [M][MC] areas	1
	40	SHRG9260A	PCB Holder	4
○	41	SKEG7610A	Memory Card Guide	1
○	42	SGKG3380A	Label (AUX IN, LINE OUT)	1
○	43	SGKG3360A	Label (MIDI)	1
○	44	SGKG3040B	Label (Headphones)	1
○	45	SQTG8090A	Label (MEMORY CARD)	1
○	46	SHRG4140A	Spacer, except [M][MC] areas	8
	47	SHRG9870A	Band	1
	48	SHSG9140A	Sound Absorbing Material	1
○	49	SHRG6110A	Felt (Bottom Board)	2
	MANUAL KEYBOARD			
	50	STBG2070A	Black Key	25
	51	STBG1100A	White Key (C and F Key)	10
	52	STBG1110A	White Key (D Key)	5
	53	STBG1120A	White Key (E and B Key)	10
	54	STBG1130A	White Key (G Key)	5
	55	STBG1140A	White Key (A Key)	5
	56	STBG1150A	White Key (Top Octave C Key)	1
	57	SUSG270A	Spring	61
	58	SHSG1970A	Felt	2
	59	SHGG9050A	Key Guide Rubber	61
	60	SHRGA9010A	Spacer	3
	61	SHRGA9020A	Spacer	1
	62	SHRGA9030A	Spacer	1
	63	SSPG7004A	Rubber Switch (7 pcs. on one)	1
	64	SSPG6004A	Rubber Switch (6 pcs. on one)	9
	65	SHRG9760A	Spacer	1
	SCREW & WASHER			
	N1	XNS9	Nut	1
	N2	XTW3+10Q	Screw	4
	N3	SNEG740A	Screw	2
	N4	XTV3+10G	Screw	38
	N5	SNEG2700A	Washer	1
	N6	SNEG2629A	Nut	1
○	N7	SNEG2630A	C-Ring	1
	N8	XTW3+10Q	Screw	14
	N9	XTB3+5C	Screw	7
	N10	XTB4+10BFZ	Screw	12
	N11 M MC	XYN4+F16S	Screw with Washer	4
	N12	QHDG001AA	Screw with Washer	2
	N13	XTV3+10JFZ	Screw	10
	N14	XTV3+10G	Screw	9
	N15	XTV3+16B	Screw	2
	N16	SNEG2610A	Speed Nut	4
	N17	XTW3+12QFZ	Screw	9
	N18	XYN4+F10FZ	Screw with Washer	4
	N19	SNEG2620A	Speed Nut	1
	N20	XTB4+8FFZ	Screw	1
	N21	XTWSG2	Screw	1
	N22	XTW3+10T	Screw	19
	N23	XYN4+F30S	Screw with Washer } except [M][MC] areas	4
	N24	XWG4F13	Washer } except [M][MC] areas	4
	DUST COVER			
		SQCG400A	Dust Cover	1

EXPLODED VIEWS OF CABINET



PACKING



■ PACKING PARTS

	Ref. No.	Part No.	Description	Per/Set
○	1	SPNG2086A	Carton Box	1
○	2	SPNG2087A	Case, Music Rack	1
○	3	SPNG5785A	Pad	1
○	4	SPNG5784A	Pad	1
○	5	SPNG5860A	Pad	1
○	6	SPNG5854A	Pad	1
	7	SPHG1770A	Polyethylene Bag, Music Rack	1
	8	SPHG2110A	Polyethylene Bag, Keyboard	1

	Ref. No.		Part No.	Description	Per/Set
			INSTRUCTION BOOK		
○	9	M	SQFGA1480	[M] area only	1
○	9	EN	SQFGA1470	[EN] area only	1
○	9	PA	SQFGA1490	[PA] area only	1
○	9	EF EZ	SQFGA1460	[EF][EZ] areas only	1
○	9		SQFGA1450	Other areas	1

MEMO