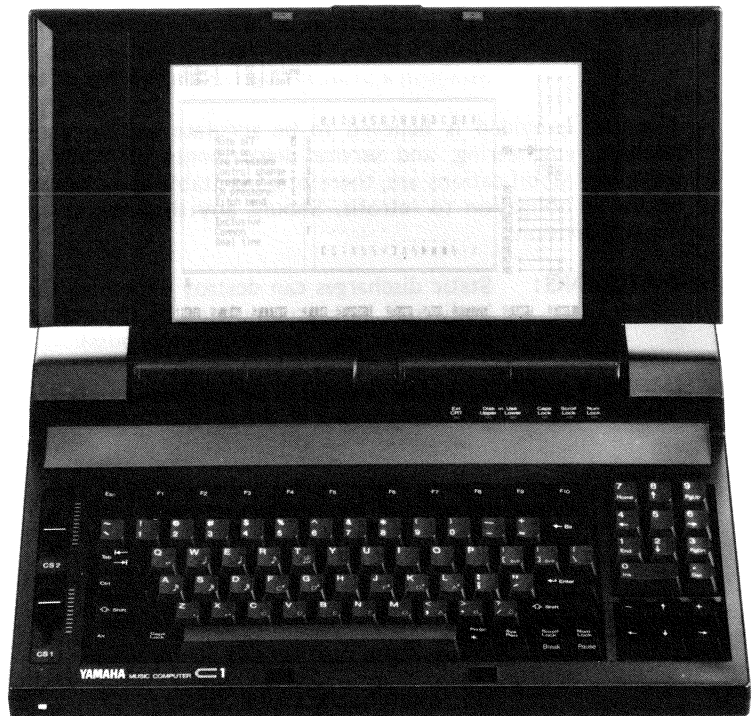


# MUSIC COMPUTER

# C1

## SERVICE MANUAL



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## IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

**WARNING:** Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

**IMPORTANT:** The presentation or sale of this manual to any individual or firm does not constitute authorization, certification, recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and changes in specification are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

**WARNING:** Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

**IMPORTANT:** Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

## ■ SPECIFICATIONS

CPU:	80286 (switchable clock 10/8 MHz)	Dimensions:	394 (W) x 382 (D) x 82 (H) mm (15-1/2" x 15" x 3-1/4")
RAM:	640K bytes main, 512K bytes extension	Weight:	FDD model: 8.2 kg (18 lb 2 oz)
ROM:	64K bytes		HDD model: 8.5 kg (18 lb 12 oz)
Disk:	FDD model: 2 x 3.5" 2DD floppy disk HDD model: 1 x 3.5" 2DD floppy disk 1 x 3.5" 20M byte hard disk	Power Requirements:	120V 60Hz
Display:	640 x 400 dot backlit LCD	Power Consumption:	120V/0.6A Max.
VRAM:	64K bytes	AC Outlet:	132V/1A Max.
External Display Output:	Digital RGB, Video (Monochrome Display mode)	Backup Battery:	Ni-Cd
Interface:	1 x Printer (Centronics) 2 x Serial (RS232C) 2 x MIDI IN 8 x MIDI OUT 1 x MIDI THRU Time Code In, Time Code Out, Expansion Card Slot	Included Items:	Power cable, 2 x 3.5" disk (MS-DOS 3.3, MIDI Monitor and Bulk Manager), Operating manual
		MS-DOS is a registered trademark of Microsoft Corporation. IBM is a registered trademark of International Business Machines Corporation.	

## ■ PRODUCT SUMMARY

The Yamaha C1 is a lap top computer designed for music applications. The C1 computer contains a built-in 640 x 400 dot Liquid Crystal Display (LCD) unit. While the C1 computer specification also provides for an optional hard disk drive, the most common C1 configuration contains two 3.5-inch double sided, double density floppy disk drives. The C1 computer provides hardware interfaces, and software programs for MIDI control and SMPTE time code management.

## ■ BASIC FUNCTIONS AND FEATURES

Since the C1 is a self-contained computer with two floppy disk drives and a panel display, the computer only requires a system DOS boot-up disk to be inserted into the (A) upper disk drive. Also, the display configuration switch (SW1) on the rear panel must be in the LCD (up) position. After power-on, the display will come on with the following messages:

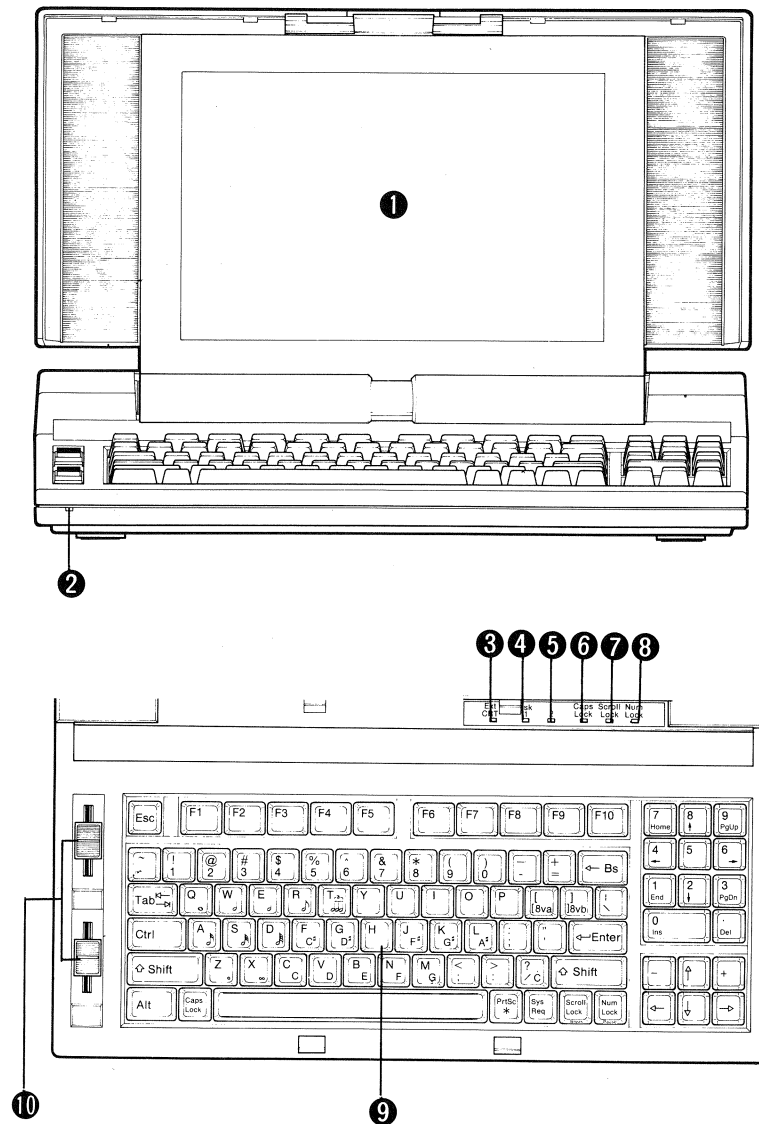
```
Date:
Time:
A >
```

The date and time inputs can be by-passed by pressing the "Enter" key on the computer keyboard. (A>) is a DOS prompt indicating you must enter a legitimate DOS command at this point, or the command can be the name of an operating program which resides in drive (A). Also, the prompt indicates the computer will use the (A) drive to retrieve subsequent files unless the operator changes the DOS prompt.

### Features:

- The C1 is operated by an 80286 micro-processor operating at 10 MHz.
- 640K bytes basic memory plus 512K bytes extended memory for a total of 1.152M bytes of working memory.
- The C1 contains two 3.5-inch floppy disk drives. The floppy disks are double sided, double density providing approximately 720K bytes each.
- The display controller is a Yamaha V6366 Panel or CRT Display Controller (PCDC). Using the PCDC, display modes compatible with the IBM Color Graphics monitor Adapter (CGA) and the Hercules Graphic Card (HGC) are supported.
- A 640 x 400 dot LCD with an electroluminescent (EL) backlight is the built-in display device. The display is automatically turned on/off by opening/closing the LCD panel. An external CRT display can also be used. The internal LCD can only display in CGA mode. When using the CGA mode, the display can also be switched to the external CRT display. HGC mode can only be displayed on the external CRT display.
- A Ni-Cad battery pack provides approximately 600 hours of computer operation after 48 hours of charging.
- An 88-key keyboard with numeric key pad.
- 2 serial RS232C ports
- 1 parallel printer (Centronics) port
- For music application the following are provided:
  - MIDI IN — 2 channels
  - MIDI OUT — 8 channels
  - MIDI THRU — 1 channel
  - SMPTE Time Code interface IN/OUT
  - 2 analog sliders
  - 2 application timers

## ■ PARTS AND CONTROLS



### ① LCD Display:

Backlit 640 x 400 dot Liquid Crystal Display. When this display screen is folded down, the backlight is automatically turned off. The left side panel has controls for LCD contrast and backlight brightness.

### ② Power LED:

This LED lights when the C1's power is turned on.

### ③ Use External CRT:

This LED indicates that an external display is being used instead of the C1's built-in LCD screen.

### ④ Disk in Use Upper Drive:

This LED lights red to indicate that the floppy disk in drive A is being accessed. *Do not remove the floppy disk or turn the power off while this LED is on.*

### ⑤ Disk in Use Lower Drive:

This LED lights red to indicate that the floppy disk in drive B (or the hard disk in drive C for hard disk models) is being accessed. For the hard disk model, this LED lights green to indicate that the read/write head is unparked. (The hard disk read/write head automatically parks itself to a safe position when there has been no disk access for 5 seconds.) *Do not remove the floppy disk or turn the power off while this LED is on.*



**6 Caps Lock LED:**

The "Caps Lock" key toggles this LED on/off. When this LED is on and the Shift key is released, alphabet keys A — Z will produce uppercase letters. When the Shift key is pressed, lowercase letters will be produced.

**7 Scroll Lock LED:**

The "Scroll Lock" key toggles this LED on/off. The effect will be determined by the application program.

**8 Num Lock LED:**

The "Num Lock" key toggles this LED on/off. When it is on, the numeric key pad at the right

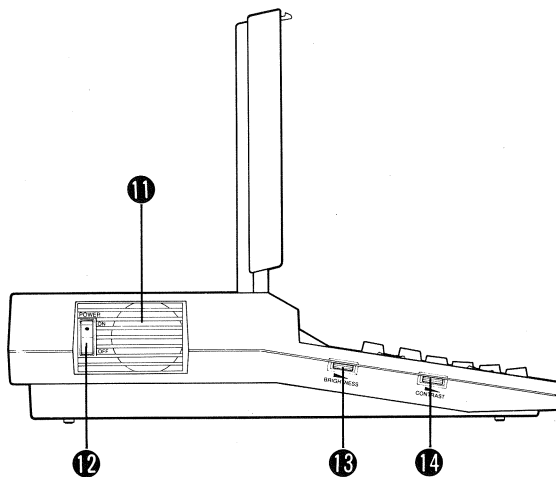
side of the alphabet keys can be used to enter numbers 1 — 9. When it is off, the numeric key pad will act as the cursor (arrow) and other function keys.

**9 Keyboard:**

A standard 88-key ASCII keyboard. The effect of the function keys and control keys will be determined by the application program.

**10 Control Sliders 1,2:**

These general purpose sliders function as determined by the application program (the MIDI Monitor program, etc.).



**11 Vent:**

To prevent overheating, do not obstruct the cooling fan vent.

**12 Power Switch:**

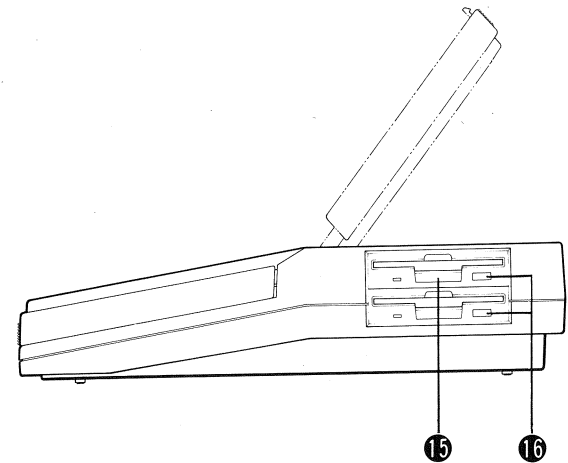
Push this switch up to turn the power on. Push down to turn the power off.

**13 Backlight Brightness Control:**

Rotate this control towards you to darken the backlight.

**14 LCD Contrast Control:**

Rotate this control towards you to decrease the contrast of the LCD. Adjust it to suit your



viewing angle. *Extreme settings of this control will make the LCD screen appear blank.*

**15 3.5" Floppy Disk Drive:**

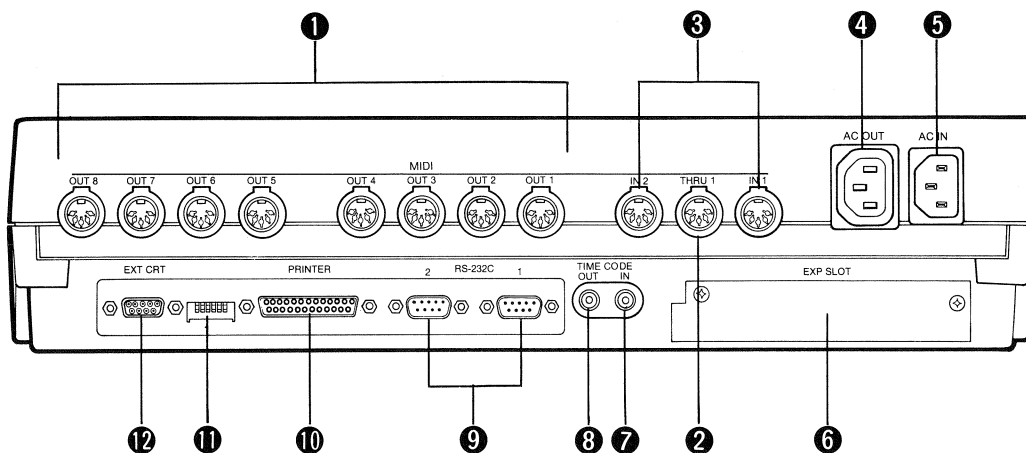
The C1 has two 3.5" 720K byte floppy disk drives.

**3.5" Hard Disk Drive (HDD model):**

The hard disk model of the C1 has a 3.5" non-removable hard disk instead of the lower floppy disk drive.

**16 Floppy Disk Eject Button:**

Press this button to eject the floppy disk.



### 1 MIDI OUT:

The C1 can transmit MIDI messages from these terminals.

### 2 MIDI THRU:

MIDI messages received at MIDI IN 1 are re-transmitted unchanged from this terminal.

### 3 MIDI IN:

The C1 can receive MIDI messages at these terminals.

### 4 AC Out:

This AC outlet is powered when the C1's power is on. When using an external display screen (IBM Monochrome Display), connect its AC cable to this outlet. Some displays may be damaged if powered on without an incoming video signal. Using this AC outlet for the display ensures that the display is not turned on unless the C1's power is on.

### 5 AC IN:

Connect this terminal to an AC outlet using the included power cable.

### 6 Expansion Slot:

Optional cards such as extended memory can be plugged into this slot.

### 7 TIME CODE IN:

The C1 can receive time code from a tape recorder line output connected to this terminal. (Use a pin plug cable.)

### 8 TIME CODE OUT:

The C1 can transmit time code from this terminal to a tape recorder line input connected to this terminal. (Use a pin plug cable.)

### 9 RS232C:

These are standard connectors for attaching a serial mouse or a modem.

### 10 PRINTER:

A Centronics-type printer can be connected to this terminal.

### 11 DIP Switches:

These six switches determine system settings and display modes.

### 12 CRT:

An IBM PC Color Graphic Display (CGA mode) or IBM PC Monochrome Display (Hercules graphics card compatible mode) can be connected to this terminal.

# ■ SYSTEM BLOCK DIAGRAM

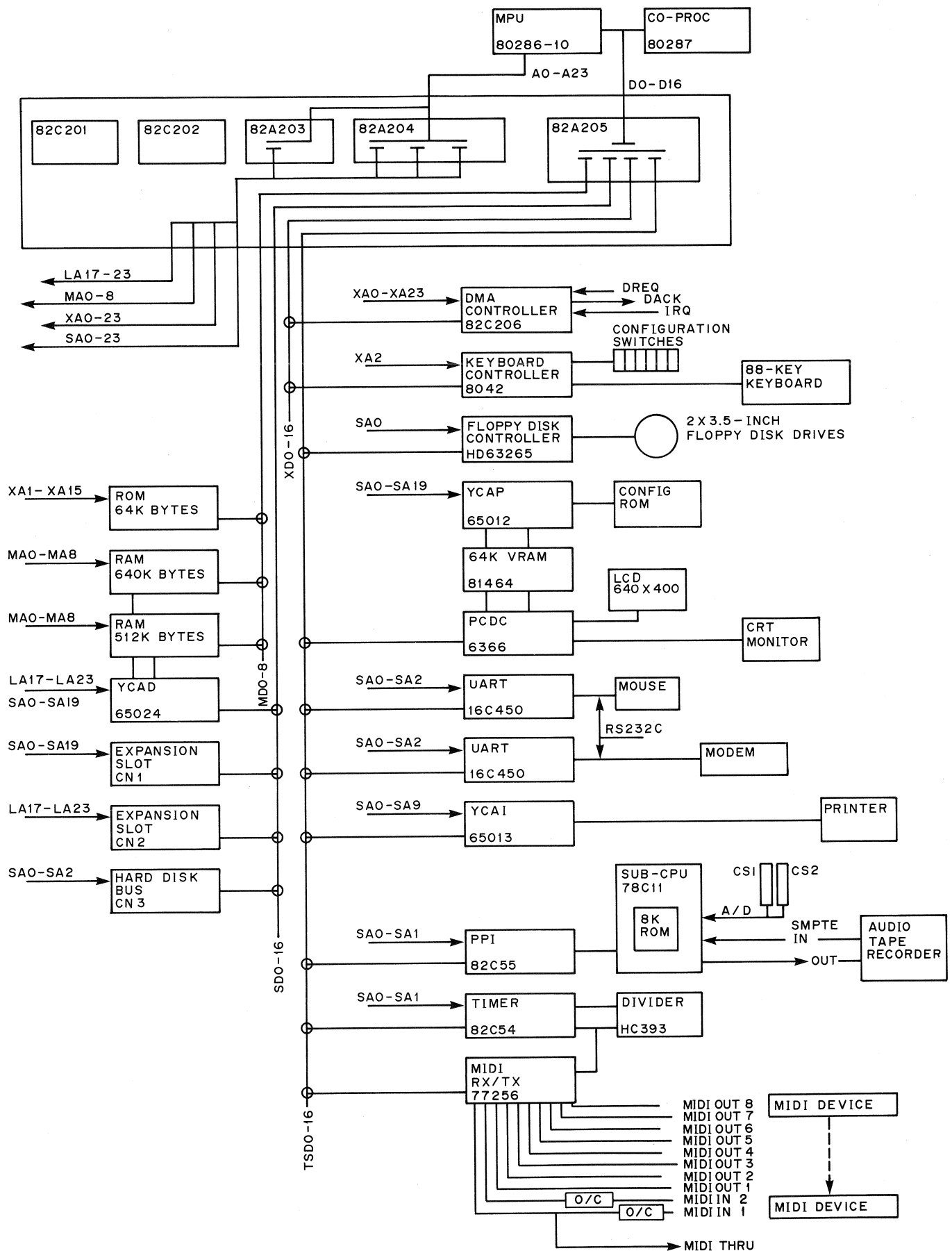


Fig. A - C1 Block Diagram

In Figure A it is apparent that all devices are isolated from the Main Processor Unit (MPU) 80286 by buffers in the LSI's 201, 202, 203, 204, and 205. The Co-Processor (80287) is optional for those applications which are math intensive.

While the MPU requires only one data bus for all I/O transfers, the C1 provides four Data Bus systems for the entire unit. The Address Bus is also expanded to four Address systems from a single MPU address bus. This arrangement allows Direct Memory Access (DMA) within the C1 computer. DMA transfer is only possible between memory systems, i.e., a floppy transfer to RAM would be an example of a DMA transfer. A more specific example of DMA transfer would be: the MPU would latch a source address, the MPU then latches a destination address, the data buffer 82A205 (data bus) would be configured to connect the data source to the data destination, and then the bus control signals would be asserted to cause the data to be latched into the RAM location. Notice, data does not pass through the MPU as it would in a normal MPU operation; hence, the time required for a DMA transfer is much less than a normal data transfer. This characteristic is very desirable where operations require many bytes of transfer from disk to system RAM memory. Another reason for multiple bus systems in the C1 is, the MPU is operating at 10 MHz high data rates; in this environment, the number of devices allowed on any bus (Address or Data) are limited by the speed requirements of the MPU.

### **DMA Controller 82A206**

The accessory IC's which support the MPU will accumulate and identify or distribute the individual signals necessary to interface every device in the system. The DMA controller sums all processor interface signals and distributes the acknowledge signals (ACK) from the MPU. Direct Memory Access Request, (DREQ) is a request for a direct data connection from Disk to RAM. "DACK" is interpreted as permission from the MPU for a DMA transfer, or the OK for such a transfer from the Main Processor Unit. All other devices in C1 computer interface with the MPU through Interrupt (IRQ) signals, and the subsequent chip selects the MPU issues in response to the IRQ's.

### **Keyboard Controller 8042**

The 8042 is an Universal Peripheral Interface Controller with 2K bytes of ROM and 64 bytes of RAM. The Keyboard controller provides two functions: at power-on the controller inputs the system configuration from 6 DIP switches on the rear panel of the unit, OR normally the controller is encoding the 88-key keyboard before that data is input to the MPU.

The configuration switches determine what the system configuration is to be. The switches indicate:

1. Liquid Crystal Display / Cathode Ray Tube
2. IBM Color Graphics Adapter / Hercules Graphic Card
3. C1 external I/O enable / disable
4. SIO Internal / External
5. 512K bytes expanded memory ENABLE / DISABLE
6. CPU clock 10 MHz / 8 MHz operation

There are a second set of switches on the Main board which are in addition to the previous mentioned switches. DIP switch 2 indicates:

1. FDD-Selects the floppy disk or the Hard disk model.  
on = Floppy Disk Model  
off = Hard Disk Model
2. HDD-Selects the floppy disk or the Hard disk model.  
on = Hard Disk Model  
off = Floppy Disk Model
3. Bit 6 of the system configuration information. For the C1, set to off (high level).
4. Bit 7 of the system configuration information. For the C1, set to off (high level).

In the scan mode, the 8042 develops a scanner output and a scanner input system. From the multiplexed scanner data, the 8042 encodes KEY-MAKE and KEY-BREAK data which is sent to the Main Processor Unit. Each key has a unique MAKE number and a unique BREAK number.

Examples:

key number	-----	make code	-----	break code
1		01		81
2		02		82
3		03		83
4		04		84
5		05		85
6		06		86
10		0A		8A

### Floppy Disk Controller HD63265

The floppy disk controller interfaces with the Main Processor Unit with the conventional IRQ and the Direct Memory Access. Direct Memory Access is made through the DMA controller 82C206. The unit will usually be configured with two floppy disks; however, the Hard Disk is an optional memory device in the C1 computer.

### YCAP-VRAM-PCDC

YCAP (IC24) is a helping processor controller for PCDC. Initially YCAP loads Video RAM (VRAM) with the initial LCD display messages and it places an operating program for PCDC in the video RAM. Beyond the power-up initialization, YCAP provides addressing control (A0-A15) over VRAM during data load operations from the MPU, while data (TSD0-TSD7) arrives via PCDC (IC25).

VRAM (IC's 60, 61) contains 64K bytes of control program and display data for PCDC. Control data is placed here by the YCAP chip, while display data is placed here by the MPU. In the initial power-up configuration mode, YCAP controls the Address and the Data bus; however, in the video output mode, PCDC controls the VRAM Address bus in order to read the display data. Immediately after power-on, PCDC (IC25) is configured to either provide an LCD or CRT display by the MPU. Configuration switch 1 should be in the "up" position for the LCD display. LCD control voltage is inhibited until approximately 100 control registers in the PCDC are loaded with control data, this precaution prevents DC voltage from being placed on the display before the video program is ready to run. If a DC condition is allowed to exist during this time, chemical alteration of the crystal display may occur, adversely affecting the panel display life.

### USART 16C450

The UARTS provides a high speed Serial to Parallel or Parallel to Serial interface to/from the MPU. The external connections are configured to the RS232C serial interface. Transmission and Reception are asynchronous, which means the data transmitted and received must operate the receivers without benefit of strobes or clocks, there are no additional word measuring signals. RS232C Data format is usually 8 bits, while start and stop bits are added to operate the receivers. RS232C data format provides for transmission rates up to 20 KHz.

### YCAI 65013

YCAI is a general purpose IC, but one of the main functions that it provides is the parallel printer interface. The printer interface is mainly an output port, the controller monitors the printer "BUSY" line to determine when to send more characters. The remaining functions in YCAI are chip select decode for the various peripheral devices.

### Sub-CPU 78C11

The 78C11 provides: Society of Motion Pictures and Television Engineers (SMPTE) code Receiver and Transmitter functions, also A to D conversion function for the front panel continuous slider inputs. The 78C11 contains an 8K byte ROM operating program, therefore, it requires no instructions from the MPU to be able to perform this function. The Sub-CPU to MPU interface is performed using Interrupt and chip selects.

SMPTE code format is 80 bits per frame, while the information contained in the 80 bits is: Hours, Minutes, Seconds, and Frame count. Hours, minutes, seconds, and frames are each encoded with two BCD bytes. SMPTE time code can be subsequently converted into MIDI TIME CODE (MTC) by the MPU. SMPTE code is electrically encoded using Manchester Bi-Phase Mark code. There are four frame rates used with SMPTE time code:

1. 24 frames per second
2. 25 frames per second
3. 29.97 frames per second or drop frame (color TV)
4. 30 frames per second (TV)

The multiple frame rates are provided for by the sub-CPU.

#### **PPI 82C55**

The 82C55 is a three port communication device through which the MPU can send or receive data via (TSD0-TSD7) the system data bus.

#### **Timer 82C54**

The Timer provides two programmable timer functions which are assigned by the operator. The MPU enters numbers to the timer registers via the data bus. The timer outputs cause Interrupts at the MPU via the YCAI chip.

#### **MIDI 77256**

The MIDI chip is a proprietary MIDI interface device which can provide 10 simultaneous serial communication ports. The MIDI chip provides 2 MIDI inputs and 8 MIDI outputs.

MIDI data format is 8 bits serial; however, each byte also includes a negative start pulse and a positive stop pulse. The start pulse causes the receiver to strobe the input data line for 10 data periods. The stop pulse signals the end of a complete data word. Data transmission and reception are asynchronous. "Asynchronous" means, there are no additional signals transmitted to aid the receiver in word measure. The receiver must trigger on the start bit and strobe the data line for 10 data periods to receive a data byte. The transmitter portion of the MIDI chip attaches the start and stop bits to the transmitted data byte.

#### **ROM 64K bytes**

The system operating programs reside in ROM. The MPU retrieves system programs through the Address and Data buffers 82A204 and 82A205 respectively.

#### **RAM 640K bytes**

The system operating RAM is the location where all system variables are placed. Floppy and Hard disk operating programs are also placed here. This device is capable of DMA transfers to and from the disk drives.

#### **RAM 512K bytes**

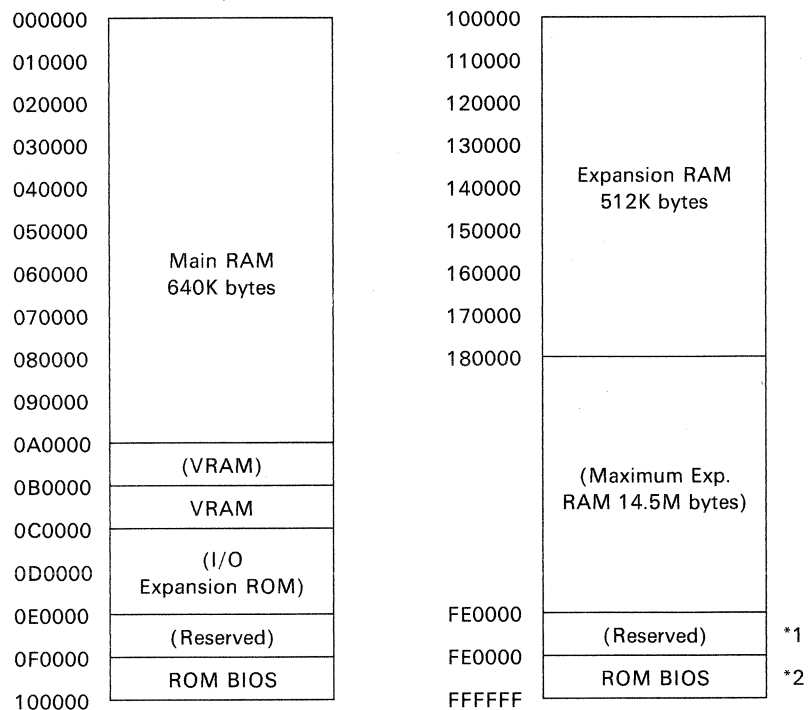
Extended RAM memory for the operating system. Disk is used to save or load data to/from the main work area of memory.

#### **YCAD 65024**

YCAD is a general purpose IC, the most important function that it provides is the memory decode function.

#### **Hard Disk Bus**

The C1 computer provides for an optional 20M bytes hard disk drive unit.



NOTE:

\*1 Duplicate of 0E0000 to 0EFFFF

\*2 Duplicate of 0F0000 to 0FFFFF

( ) is not installed in the C1.

Fig. B — Memory Map

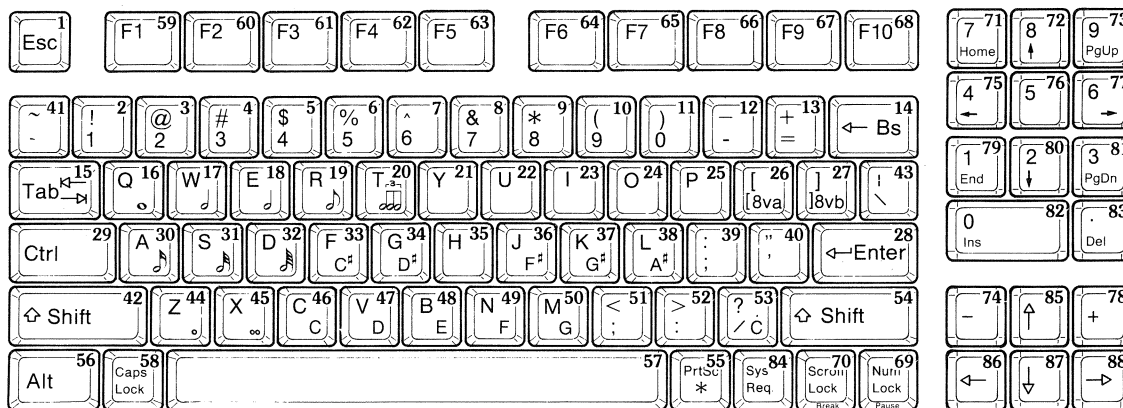


Fig. C — Keyboard Locator Numbers

I/O Port (Hex)	Device/Function
000-01F	DMA Controller 1, 8237A-5 equivalent
020-03F	Interrupt Controller 1, 8259A equivalent
040-05F	Timer, 8254-2 equivalent
060-06F	Keyboard Controller
070-07F	Real Time Clock, NMI (Non-Maskable Interrupt) Mask
080-09F	DMA Page Register, 74LS612 equivalent
0A0-0BF	Interrupt Controller 2, 8237A-5 equivalent
0C0-0DF	DMA Controller 2, 8237A-5 equivalent
0E0-0EF	Reserved
0F0	(Clear Math Coprocessor Busy)
0F1	(Reset Math Coprocessor)
0F8-0FF	(Math Coprocessor)
100-1EF	Reserved
1F0-1F8	Fixed Disk Controller *1
200-207	(Game I/O)
278-27F	(Parallel Printer Port 2)
2F8-2FF	Serial Port 2
300-31F	C1 Expansion I/O
360-36F	Reserved
378-37F	Parallel Printer Port 1
380-38F	(SDLC, Bisynchronous 2)
3A0-34F	(Bisynchronous 1)
3B0-3BF	PCDC HGC Mode
3C0-3CF	Reserved
3D0-3DF	PCDC CGA Mode
3F0-3F7	Floppy Disk Controller
3F8-3FF	Serial Port 1

NOTE:

\*1 Not installed in the FDD model.

\*2 ( ) is not installed in the C1.

**Fig. D — I/O Address Map**



## ■ POST (POWER-ON SELF TEST)

The C1 BIOS ROM contains the program for self-diagnosis of the main components of the system. This test is executed automatically when power is turned on, and the results are displayed as a POST message on the LCD.

There are two types of POST messages as follows:

- Error messages indicate a failure with either the hardware, software, or firmware.
- Informational messages provide important information about the power-on and boot processes.

The error and informational messages for POST are listed separately below.

### POST Error Messages

The table below gives possible causes and solutions for the POST error messages.

**NOTE:** Italicized items within the message text will be replaced by the appropriate value when the message is issued.

**Table 1 – POST Error Messages**

MESSAGE	POSSIBLE CAUSE	SOLUTION
Diskette drive 0 seek to track 0 failed	The A: drive has either failed or is missing.	Check the A: drive.
Diskette drive reset failed	The diskette adapter has failed.	Check the diskette adapter.
Diskette read failure — strike F1 to retry boot	The diskette is either not formatted or defective.	Replace the diskette with a bootable diskette and retry boot.
Display adapter failed; using alternate	<ul style="list-style-type: none"> <li>• The color/monochrome switch is set wrong.</li> <li>• The primary video adapter failed.</li> </ul>	<ul style="list-style-type: none"> <li>• Change the switch to the correct setting.</li> <li>• Check the primary video adapter.</li> </ul>
Gate A20 failure	Protected mode cannot be enabled.	Most likely, the problem is with the system board check the system board.
Hard disk controller failure	The controller card has failed.	Replace the controller card.
Hard disk failure	—	Retry boot. If that doesn't work, replace the hard disk.
Hard disk read failure — strike F1 to retry boot	The working diskette or the hard disk is defective.	Retry boot. If that doesn't work, replace the diskette.
Invalid configuration information — please run SETUP program	<ul style="list-style-type: none"> <li>• Memory size is configured wrong.</li> <li>• Display adapter is configured wrong.</li> <li>• Wrong number of diskette drives.</li> </ul>	Run the SETUP utility program.
Keyboard clock line failure	Either the keyboard or the keyboard cable connection is defective.	Make sure the keyboard cable is connected properly.
Keyboard data line failure		
Keyboard controller failure	The keyboard controller firmware has failed.	Check the keyboard controller.
Keyboard is locked — please unlock	The keyboard lock located at the front of the computer is activated.	—
Keyboard stuck key failure	A key(s) is jammed.	Try pressing the key(s) again.
Memory address line failure at <i>hex-value</i> , read <i>hex-value</i> expecting <i>hex-value</i>	Circuitry associated with the memory chips has failed.	Check the circuitry.

**Table 1 – POST Error Messages (Continued)**

MESSAGE	POSSIBLE CAUSE	SOLUTION
Memory data line failure at <i>hex-value</i> , read <i>hex-value-hex-value</i>	One of the memory chips or associated circuitry has failed.	Try replacing the memory chips.
Memory high address line failure at <i>hex-value-hex-value</i>	Circuitry associated with the memory chips has failed.	Check the circuitry.
Memory odd/even logic failure at <i>hex-value</i> , read <i>hex-value</i> expecting <i>hex-value</i>	Circuitry associated with the memory chips has failed.	Check the circuitry.
Memory parity failure at <i>hex-value-hex-value</i>	One of the parity memory chips has failed.	Try replacing the memory chips.
Memory write/read failure at <i>hex-value</i> , read <i>hex-value</i> expecting <i>hex-value</i>	One of the memory chips has failed.	Try replacing the memory chips.
No boot device available — strike F1 to retry boot	Either diskette drive A:, the hard disk, or the diskette itself is defective.	Retry boot. If that doesn't work, replace the floppy diskette or the hard disk.
No boot sector on hard disk — strike F1 to retry boot	The C: drive is not formatted.	Format the C: drive.
No timer tick	The timer chip has failed.	Check the timer chip on the system board.
Not a boot diskette—strike F1 to retry boot	The diskette in drive A: is not formatted as a bootable diskette.	Replace the diskette with a bootable diskette and retry boot.
<i>Hex-value</i> Optional ROM bad Checksum = <i>hex-value</i>	The peripheral card contains a defective ROM.	Replace the peripheral card.
Shutdown failure	The keyboard controller or its associated logic has failed.	Check the keyboard controller.
Time-of-day clock stopped	The CMOS Time-of-day clock chip has failed.	Run the SETUP utility.
Timer chip counter 2 failed	—	Check the timer chip system board.
Timer or Interrupt Controller bad	Either the timer chip or the Interrupt Controller is defective.	Check the timer chip or the Interrupt Controller on the system board.
Unexpected interrupt in protected mode	The non-maskable interrupt (NMI) port can't be disabled.	Check the system board, particularly the logic associated with the non-maskable interrupt.

## POST Informational Messages

The table below describes the POST informational messages.

**NOTE:** Italicized items within the text will be replaced by the appropriate value when the message is issued.

**Table 2 — POST Informational Messages**

MESSAGE	MEANING
<i>Hex-value</i> Base Memory, <i>hex-value</i> Expansion	This message indicates the amount of memory that has tested successfully.
Decreasing available memory	This message immediately follows any memory error message, and informs you that the memory chips are failing.
Memory tests terminated by keystroke	This message indicates that you have pressed the Spacebar while the memory tests were running. This stops the memory tests.
Phoenix 80286 ROM BIOS PLUS Version 3.10 02 Copyright (C) 1985-1988 Phoenix Technologies Ltd. All Rights Reserved	This copyright message is displayed on the initial boot screen and indicates that POST has started.
Strike the F1 key to continue	This message indicates that an error was found during POST. Pressing the F1 key allows the system to attempt to boot.

## Run-Time Messages

Run-time messages are displayed if an error occurs after the boot procedure is complete.

The table below gives possible causes and solutions for the run-time messages.

**NOTE:** Italicized items within the message text will be replaced with the appropriate value when the message is issued.

**Table 3 — Run-Time Messages**

MESSAGE	POSSIBLE CAUSE	SOLUTION
I/O card parity interrupt at <i>address</i> . Type (S)hut off NMI, (R)eboot, other keys to continue	The peripheral card has failed.	Type (S)hut off NMI. Note: This will only temporarily allow you to continue. You must replace the peripheral card.
Memory parity interrupt at <i>address</i> . Type (S)hut off NMI, (R)eboot, other keys to continue	A memory chip(s) has failed.	Type (S)hut off NMI. Note: This will only temporarily allow you to continue. You must replace the memory chip(s).
Unexpected HW interrupt <i>interrupt</i> at <i>address</i> . Type (R)eboot, other keys to continue	This could be any hardware-related problem. Note: This message will not be displayed if INTENHD is false.	Check the hardware.
Unexpected HW interrupt <i>interrupt</i> at <i>address</i> . Type (R)eboot, other keys to continue	There is an error(s) in the software program. Note: This message will not be displayed if INTENHD is false.	Try turning the machine off and then on again. If that doesn't work, check the program.
Unexpected type 02 interrupt at <i>address</i> . Type (S)hut off NMI, (R)eboot, other keys to continue	There is an error(s) in the software program. Note: This message will not be displayed if INTENHD is false.	Try turning the machine off and then on again. If that doesn't work, check the program.

## ■ DISASSEMBLY PROCEDURES

### Upper Case Assembly Removal

1. Place the unit upside down.
2. Remove the twelve screws from the lower case. (See Fig. 1.)

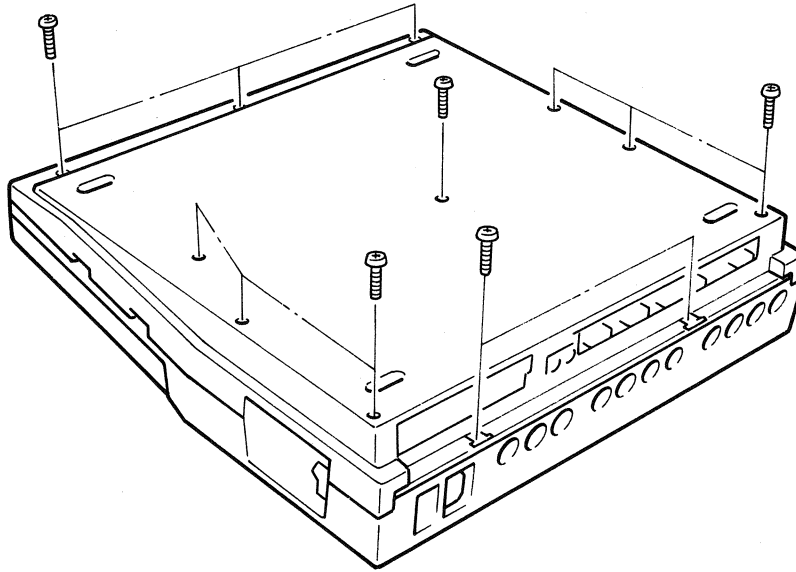


Fig. 1

3. Replace the unit in its normal position.
4. Gently lift up the upper case assembly, then disconnect the cable that is attached to the upper case assembly.

### Keyboard Assembly Removal

1. Remove the upper case assembly. (See Upper Case Assembly Removal.)
2. Remove the seventeen screws for the shield cover to be removed. (See Fig. 2.)

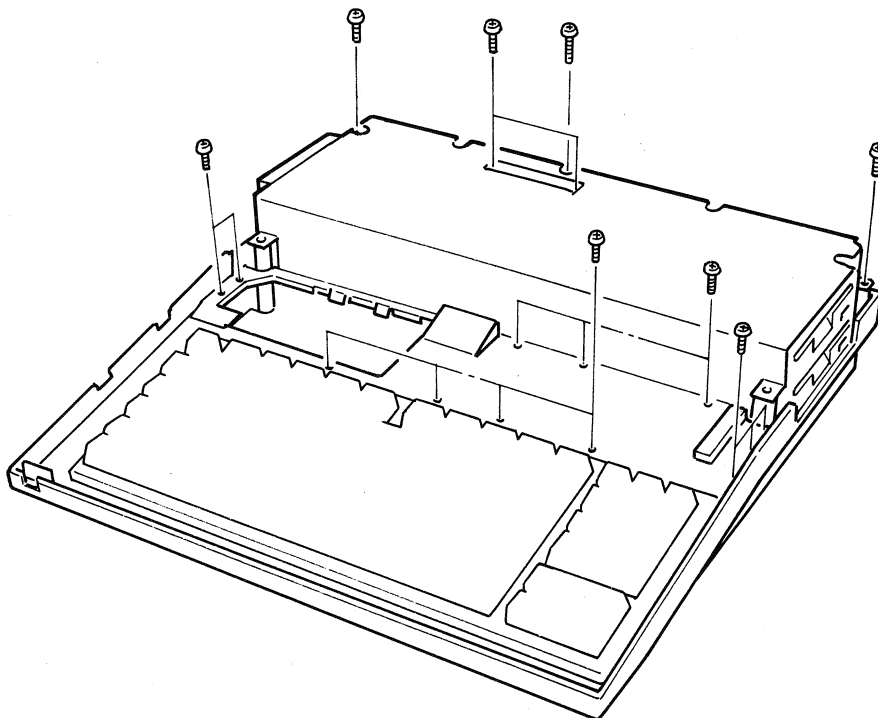


Fig. 2

3. Remove the three screws of the shield cover on the left side of the keyboard.
4. Gently lift up the keyboard assembly and disconnect the two flexible connector sheets that are attached to the Main circuit board.

### Main Circuit Board Removal

1. Remove the upper case assembly and the keyboard unit.
2. Remove the two screws from the slot cover on the left rear panel.
3. Remove the screw as shown in the Fig. 3 and lift out the power supply/FDD/fan assembly, then disconnect four connectors that are attached to the Main circuit board.

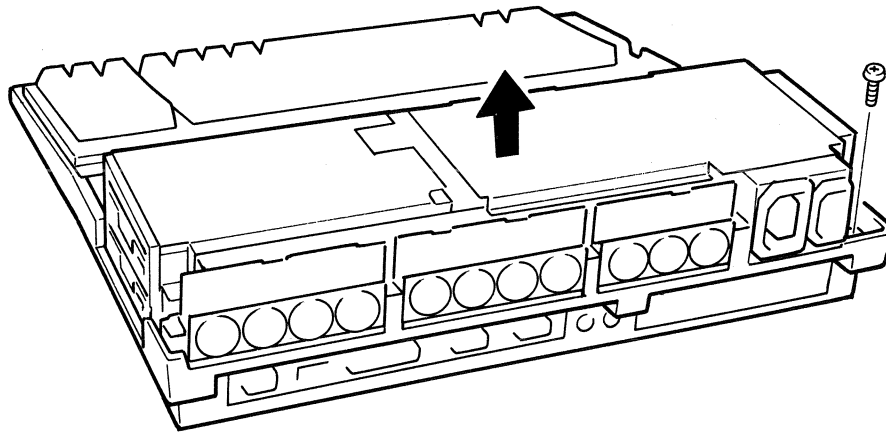


Fig. 3

4. Disconnect CN10, CN11 and CN12 connectors from the Main circuit board and remove these three MIDI Connector boards completely.
5. Remove the eleven screws for the Main circuit board to be removed.

### FDD (Floppy Disk Drive) Unit Removal

1. Remove the upper case assembly and the shield cover mounted over the Main circuit board, then remove the power supply/FDD/fan assembly.
2. Remove the eight screws on the two sides of FDD (four for each FDD), then slide upward and lift out the FDD unit very carefully.
3. Disconnect the cables which are attached to the FDD unit.

### Power Supply Unit Removal

1. Remove the upper case assembly and the shield cover mounted over the Main circuit board, then remove the power supply/FDD/fan assembly from the unit.
2. Remove the screw (between FDD and Power Supply) to remove the shield cover mounted over the power supply unit.
3. Remove the two screws for the cooling fan vent to be removed.
4. Remove the two screws for the power switch/AC socket assembly to be removed, then disconnect the cable attached to the power supply unit.
5. Remove the five screws for the power supply unit to be removed.

## Key Top and Key Actuator Removal

1. Remove the keyboard assembly from the unit.
2. Each key top can be removed by pulling out. For the key tops with the key guide wire such as the Shift, Ctrl, Space bar and Ins, first remove the wire from its groove then pull out the key top.
3. The switch contact plate can be removed from the keyboard assembly by removing the 13 screws.
4. Each key actuator can be removed from the keyboard frame by pushing its stopper claws inward. (See Fig. 4.)

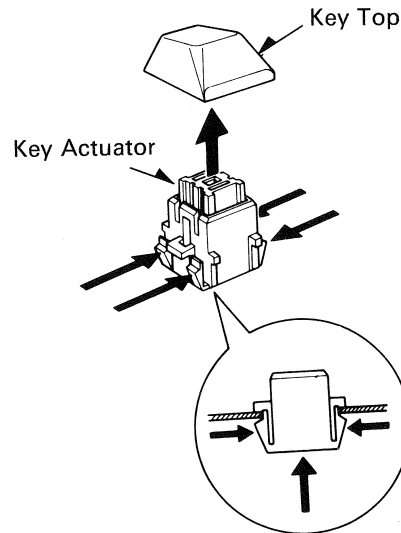


Fig. 4

## LCD Unit and EL Panel Removal

1. Open the display panel fully.
2. Using a blade-type screwdriver, open the upper part of the display panel. Then pull out the panel toward you until it is completely released. (See Fig. 5.)

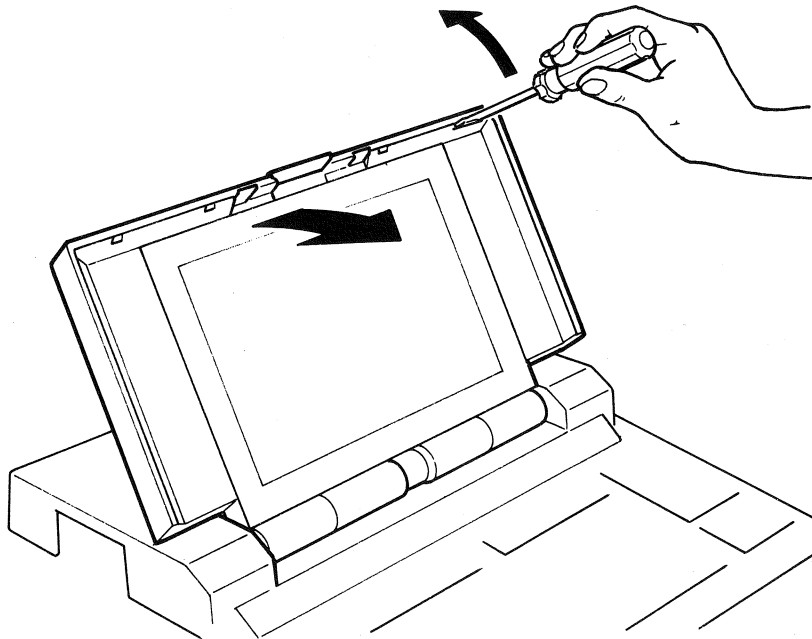


Fig. 5

3. Disconnect the cable attached to the upper right side of the LCD unit.
4. Remove the four screws securing the LCD unit.
5. Remove and hold the LCD unit, then disconnect the flat cable.
6. The EL panel can be removed by pulling the connector at the upper right side of the LCD unit.

### **Latch Removal**

1. Remove the LCD unit. (See LCD Unit Removal.)
2. Remove the screw for the shield plate to be removed.
3. Bend the latch toward you fully, then slide it for removal.

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# MEMO

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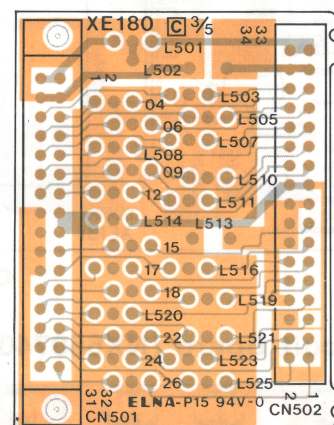


## ■ PRINTED CIRCUIT BOARDS

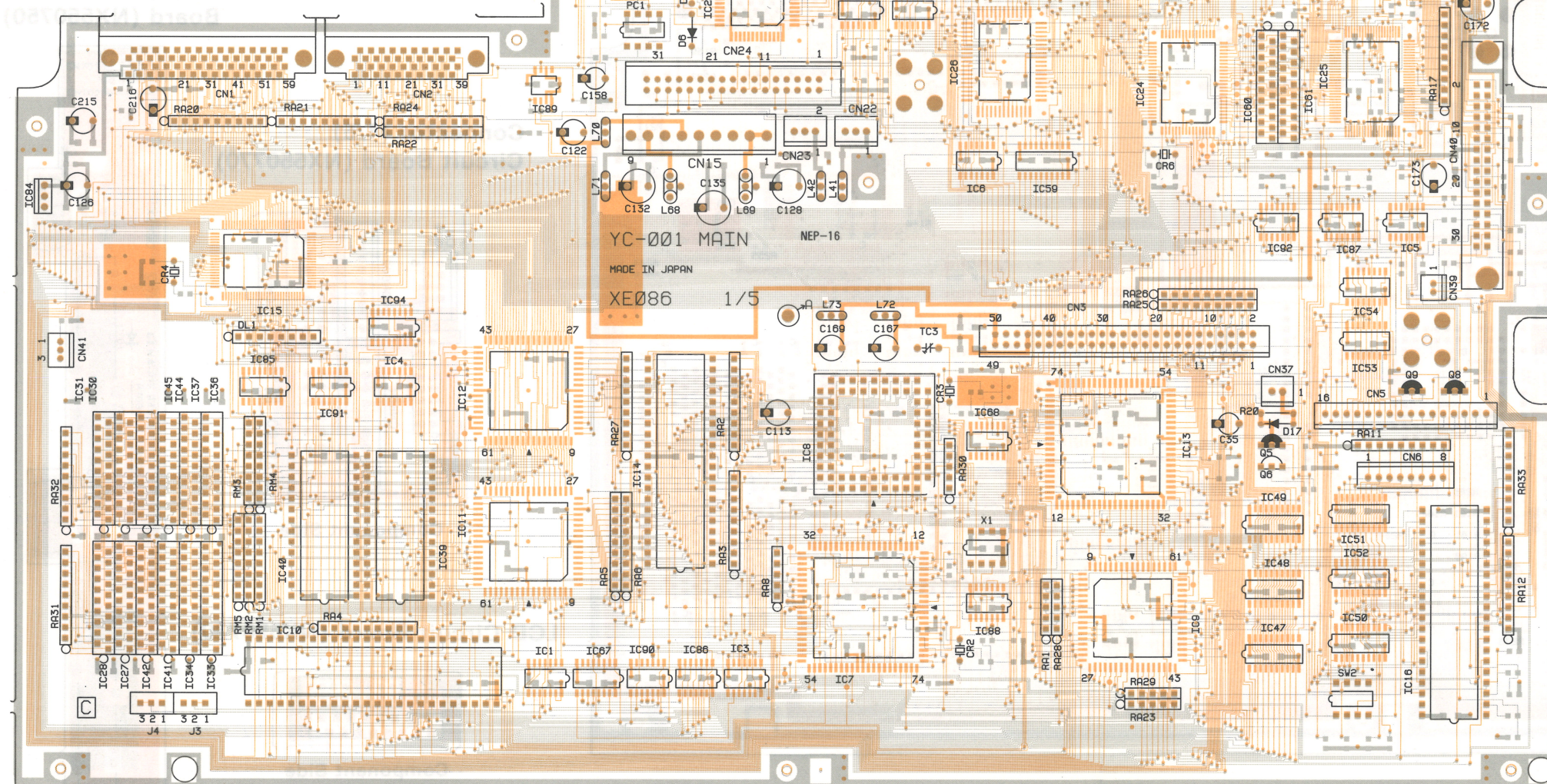
## Main Circuit Board (NX550690)

### Connector (3/5)

### Circuit Board (NX550760)



### Component Side



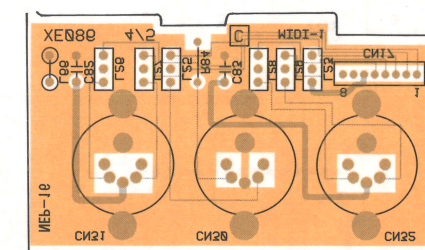
### Component Side

### Power LED (5/5) Circuit Board (NX550780)



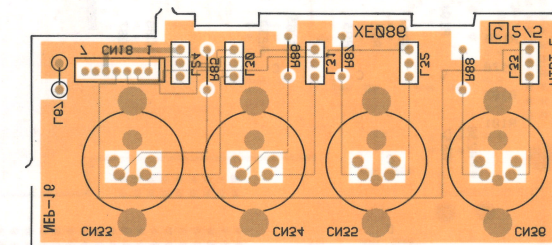
### Component Side

### MIDI-1 Circuit Board (NX550700)



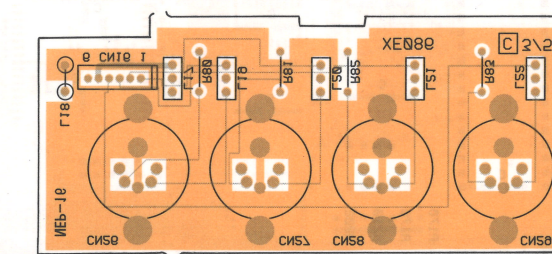
### Pattern Side

### MIDI-2 Circuit Board (NX550710)



### Pattern Side

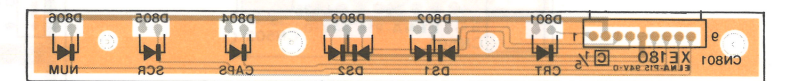
### MIDI-3 Circuit Board (NX550720)



### Pattern Side

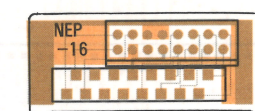


**LED (1/5) Circuit Board (NX550740)**



## Slider (2/5) Circuit Board (NX550750)

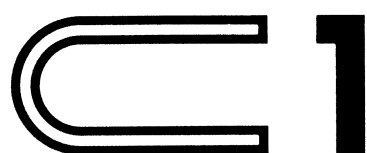
### LCD Circuit Board (NX550730)



### Pattern Side



**MUSIC COMPUTER**



**PARTS LIST**

# ELECTRICAL PARTS

Ref	Part No.	Description	部 品 名	Remarks	ランク
	NX550690	Circuit Board	MAIN	メインシート	91
	NX550700	Circuit Board	MIDI-1	MIDI-1シート	16
	NX550710	Circuit Board	MIDI-2	MIDI-2シート	16
	NX550720	Circuit Board	MIDI-3	MIDI-3シート	16
	NX550730	Circuit Board	LCD	LCDシート	07
	NX550740	Circuit Board	LED(1/5)	LEDシート	12
	NX550750	Circuit Board	SLIDER(2/5)	スライダシート	16
	NX550760	Circuit Board	CONNECTOR(3/5)	中継シート	13
	NX550770	Circuit Board	CONNECTOR(4/5)	変換シート	13
	NX550780	Circuit Board	POWER LED(5/5)	POWER LEDシート	09
	NX550790	Circuit Board	INVERTER	インバータシート	16
	IG103520	IC	NJM4558MT-1	IC	03
	XD667A00	IC	TL7705CPS-B-R	IC	
	XE068A00	IC	AN79N09	IC	
	XE444A00	IC	UPC311G-TP1	IC	
	XD238001	IC	TC74HC244F-TP1	IC	04
	XD355A00	IC	HD74LS125AFPTL	IC	
	XD600A00	IC	TC74HC02F-T1	IC	02
	XD657A00	IC	TC74HC14F-T1	IC	
	XD661A00	IC	SN74LS541NS	IC	04
	XD83CA00	IC	SN74HC04NSR	IC	01
	XE052A00	IC	TC74HC393F-T1	IC	
	XE054A00	IC	TC4069UBF-T1	IC	
	XE055A00	IC	TC50H001F-T1	IC	
	XE057A00	IC	SN74ALS245ANSR	IC	
	XE058A00	IC	SN74ALS273NSR	IC	
	XE060A00	IC	SN74ALS573NSR	IC	
	XE061A00	IC	SN74ALS1005NSR	IC	
	XE064A00	IC	HD74LS145FP-TL	IC	
	XE066A00	IC	74F00SJ-TP	IC	
	XE067A00	IC	74F112SJ-TP	IC	
	XE452A00	IC	HD74LS02FP-TL	IC	
	XE533A00	IC	SN74ALS153NSR	IC	
	XE537A00	IC	SN74HC540NSR	IC	
	XE538A00	IC	SN74LS30NSR	IC	
	XE539A00	IC	SN75188NSR	IC	
	XE540A00	IC	SN75189ANSR	IC	
	XF001A00	IC	TC40H000F-TP1	IC	
	XF025A00	IC	SN74LS08NSR	IC	
	XF034A00	IC	SN74ALS139NSR	IC	
	XD264A00	IC	TMP82C55AF-10	IC	06
	XD747A00	IC	CF77258FT	IC	
	XD790A00	IC	UPD65013GF-394-	IC	
	XD791A00	IC	UPD65024GF-064-	IC	
	XD792A00	IC	UPD65012GF-288-	IC	
	XD900A00	IC	V6366B-F YM6102	IC	
	XE081A00	IC	HD63265P	IC	
	XE083A00	IC	MB8042	IC	
	XE087B00	IC	UPD78C11G-158-	IC	
	XE451A00	IC	TMP82C54M-2	IC	
	XE707A00	IC	WD16C450JM-00	IC	
	XE790A00	IC	P82C201-10	IC	
	XE791A00	IC	P82C202	IC	
	XE792A00	IC	P82A203	IC	
	XE793A00	IC	P82A204	IC	
	XE794A00	IC	P82A205	IC	
	XE795A00	IC	P82C206	IC	
	XE070A00	IC	M5M4464AL-10	IC	
	XF002A00	IC	M5M4464AL-12	IC	
	XD366A00	IC	MB81C425612PSZ	IC	
	XE071A00	IC	MB81C425610PSZ	IC	
	VA928600	Photo Coupler	PC910	フォトカブラ	06
	IA093360	Transistor	2SA933S R	トランジスタ	
	VE746800	Transistor	2SB1068 K,U	トランジスタ	
	IC174070	Transistor	2SC1740S R,S	トランジスタ	01
	IC181580	Transistor	2SC1815 Y,GR	トランジスタ	03
	IF003450	Diode	1SS133	ダイオード	01
	HJ354270	Carbon Resistor	27.0Ω 1/4W J	カーボン抵抗	01
	HF854470	Carbon Resistor	47.0Ω 1/6W J	カーボン抵抗	01
	HF855150	Carbon Resistor	150.0Ω 1/6W J	カーボン抵抗	01
	HF855180	Carbon Resistor	180.0Ω 1/6W J	カーボン抵抗	01
	HF855220	Carbon Resistor	220.0Ω 1/6W J	カーボン抵抗	01
	HF855470	Carbon Resistor	470.0Ω 1/6W J	カーボン抵抗	01
	HF856220	Carbon Resistor	2.2KΩ 1/6W J	カーボン抵抗	01
	HF856270	Carbon Resistor	2.7KΩ 1/6W J	カーボン抵抗	01
	HF856330	Carbon Resistor	3.3KΩ 1/6W J	カーボン抵抗	01
	HF856470	Carbon Resistor	4.7KΩ 1/6W J	カーボン抵抗	01
	HF857100	Carbon Resistor	10.0KΩ 1/6W J	カーボン抵抗	01

\*:New Parts (新規部品)

ランク:Japan Only

Ref	Part No	Description	部品名	Remarks	ランク
	HF857220	Carbon Resistor	カーボン抵抗		01
	HF857470	Carbon Resistor	カーボン抵抗		01
	VD307000	Chip Resistor	チップ抵抗		
	VD308500	Chip Resistor	チップ抵抗		
	VD309000	Chip Resistor	チップ抵抗		
	VD309700	Chip Resistor	チップ抵抗		
	VD309900	Chip Resistor	チップ抵抗		
	VD310300	Chip Resistor	チップ抵抗		
	VD310600	Chip Resistor	チップ抵抗		
	VD311000	Chip Resistor	チップ抵抗		
	VD311500	Chip Resistor	チップ抵抗		
	VD312300	Chip Resistor	チップ抵抗		
	VD313100	Chip Resistor	チップ抵抗		
	VD313900	Chip Resistor	チップ抵抗		
	VD314700	Chip Resistor	チップ抵抗		
	VD315500	Chip Resistor	チップ抵抗		
	VD316300	Chip Resistor	チップ抵抗		
	VD316400	Chip Resistor	チップ抵抗		
	VD317200	Chip Resistor	チップ抵抗		
	VD319100	Chip Resistor	チップ抵抗		
	VD319900	Chip Resistor	チップ抵抗		
	VF502000	Chip Resistor	チップ抵抗		
	HZ004730	Resistor Array	抵抗アレイ		02
	VA092200	Resistor Array	抵抗アレイ		01
	VA822600	Resistor Array	抵抗アレイ		01
	VB350600	Resistor Array	抵抗アレイ		01
	VB594000	Resistor Array	抵抗アレイ		01
	VE742900	Resistor Array	抵抗アレイ		
	FA154100	Mylar Cap.	マイラーコン		02
	FG213100	Ceramic Cap.	セラコン		01
	VD455600	Chip Monolithic Cera. Cap.	チップ積層セラコン		
	VD499100	Chip Monolithic Cera. Cap.	チップ積層セラコン		
	VD499200	Chip Monolithic Cera. Cap.	チップ積層セラコン		
	VD914300	Chip Monolithic Cera. Cap.	チップ積層セラコン		
	VD914700	Chip Monolithic Cera. Cap.	チップ積層セラコン		01
	VE345200	Chip Monolithic Cera. Cap.	チップ積層セラコン		
	VE788700	Chip Monolithic Cera. Cap.	チップ積層セラコン		
	VD458800	Chip Monolithic Cera. Cap.	チップ積層セラコン		
	VD915100	Chip Monolithic Cera. Cap.	チップ積層セラコン		01
	VD915300	Chip Monolithic Cera. Cap.	チップ積層セラコン		01
	VE790000	Chip Monolithic Cera. Cap.	チップ積層セラコン		
	FZ006470	Electrolytic Cap.	ケミコン		01
	UJ148100	Electrolytic Cap.	ケミコン		01
	UJ137100	Electrolytic Cap.	ケミコン		01
	UJ157470	Electrolytic Cap.	ケミコン		01
	UJ166470	Electrolytic Cap.	ケミコン		01
	UJ137100	Electrolytic Cap.	ケミコン		01
	UJ147470	Electrolytic Cap.	ケミコン		01
	UJ146470	Electrolytic Cap.	B P ケミコン		01
	VC541900	EMI Coil	EMI コイル		02
	VC543200	EMI Coil	EMI コイル		
	VF228000	Coil	コイル	47m	
	VF606600	Coil	コイル	100 $\mu$ H	
	VD057200	LC Filter	L C フィルター		
	VF485900	EMI Filter	EMI フィルター		
	QU002100	Quartz Crystal Unit	水晶振動子		04
	VC048500	Quartz Crystal Unit	水晶振動子		
	VD567000	Quartz Crystal Unit	水晶振動子		04
	VE804600	Quartz Crystal Unit	水晶振動子		
	VE804700	Quartz Crystal Unit	水晶振動子		
	VE804800	Quartz Crystal Unit	水晶振動子		
	VE804900	Quartz Crystal Unit	水晶振動子		
	VD017000	Slide Switch	スライド S W		03
	VF179100	Dip Switch	ディップ S W		
	VF307000	Pin Jack	ピンジャック	WH/BL	
	VC699700	IC Socket	IC ソケット		
	VC699900	IC Socket	IC ソケット		
	VF371100	IC Socket	IC ソケット		
	VF823900	Relay	リレー		
	GE300670	Ferrite Bead	フェライトビーズ		02
	VE439400	Ferrite Bead	フェライトビーズ		
	VE748300	Pin Header	ピンヘッダー		
	VF215700	Pin Header	ピンヘッダー		
	VF200600	Connector	コネクタ	16P	
	VE474600	Connector	コネクタ	50P	
	VE474700	Connector	コネクタ	40P	08
	VE749700	Connector	コネクタ	60P	
	VE750000	Connector	コネクタ	16P	
	VE864500	Connector	コネクタ	8P	
				16P	08

\* New Parts (新規部品)

ランク: Japan Only

3

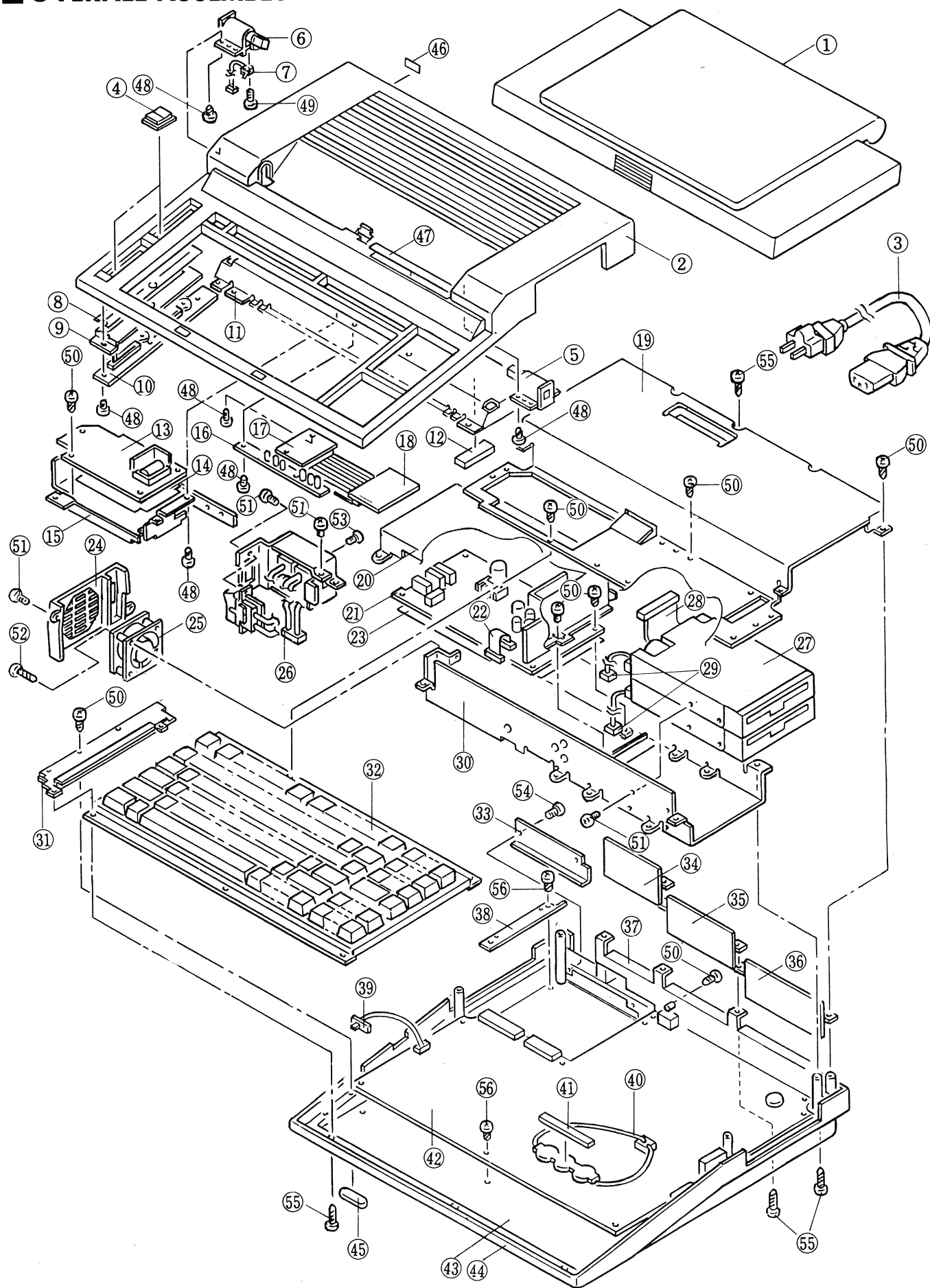
# POWER SUPPLY UNIT

Ref	Part No	Description	部品名	Remarks	ランク
	VF671200	Power Supply Unit	電源ユニット		30
	IX803640	IC	MB3759	IC	
	IX000910	IC	TL431CLPB	IC	03
	XD342001	IC	AN79M12F	IC	03
	IX803650	IC	AN79M24F	IC	
	IK000480	Photo Coupler	PC817 5KV	フォトカプラー	03
	IX803660	Transistor	2SA1451	トランジスター	
	IC181520	Transistor	2SC1815 Y	トランジスター	03
	IC195920	Transistor	2SC1959 Y	トランジスター	03
	IX803670	MOS FET	2SK724	MOS FET	
	IX803680	Diode	D10SC6M	ダイオード	
	IX803690	Diode	ESAB92M-02	ダイオード	
	IX803700	Diode	ESAB82M-004	ダイオード	
	IX803710	Diode	ERB38-06	ダイオード	
	IX001230	Diode	ERB44-04	ダイオード	03
	IX802720	Diode	1SS178 0.1A 80V	ダイオード	01
	IF001470	Zener Diode	RD6.2EB2	ツェナーダイオード	01
	IF002170	Zener Diode	RD13EB3	ツェナーダイオード	01
	IF001850	Zener Diode	RD10EB2	ツェナーダイオード	01
	IF005700	Zener Diode	RD5.1EB2	ツェナーダイオード	01
	IX803720	Zener Diode	RD3.3E	ツェナーダイオード	
	IF003350	Zener Diode	RD39EB1	ツェナーダイオード	01
	IX803730	Diode Stack	D3SB40	ダイオードスタック	
	HF855100	Carbon Film Resistor	100Ω 1/6W	カーボン抵抗	01
	HF855220	Carbon Film Resistor	220Ω 1/6W	カーボン抵抗	01
	HF8556100	Carbon Film Resistor	1KΩ 1/6W	カーボン抵抗	01
	HF8556220	Carbon Film Resistor	2.2KΩ 1/6W	カーボン抵抗	01
	HF8556270	Carbon Film Resistor	2.7KΩ 1/6W	カーボン抵抗	01
	HF8557100	Carbon Film Resistor	10KΩ 1/6W	カーボン抵抗	01
	HF8557220	Carbon Film Resistor	22KΩ 1/6W	カーボン抵抗	01
	HF855470	Carbon Film Resistor	470Ω 1/6W	カーボン抵抗	01
	HF8556470	Carbon Film Resistor	4.7KΩ 1/6W	カーボン抵抗	01
	HF8557270	Carbon Film Resistor	27KΩ 1/6W	カーボン抵抗	01
	HF8558100	Carbon Film Resistor	100KΩ 1/6W	カーボン抵抗	01
	HF8557680	Carbon Film Resistor	68KΩ 1/6W	カーボン抵抗	01
	HW052330	Wire Wound Resistor	0.33Ω 5W	セメント抵抗	02
	HX804060	Wire Wound Resistor	0.02Ω 5W	セメント抵抗	
	HL314220	Metal Oxide Film Resistor	22Ω 1W	酸化金属皮膜抵抗	01
	HL314470	Metal Oxide Film Resistor	47Ω 1W	酸化金属皮膜抵抗	01
	HL324100	Metal Oxide Film Resistor	10Ω 2W	酸化金属皮膜抵抗	01
	HL324470	Metal Oxide Film Resistor	47Ω 2W	酸化金属皮膜抵抗	01
	HL326100	Metal Oxide Film Resistor	1KΩ 2W	酸化金属皮膜抵抗	01
	HL327270	Metal Oxide Film Resistor	27KΩ 2W	酸化金属皮膜抵抗	01
	HL327470	Metal Oxide Film Resistor	47KΩ 2W	酸化金属皮膜抵抗	01
	HL334470	Metal Oxide Film Resistor	47KΩ 3W	酸化金属皮膜抵抗	01
	HX804070	Fuse Resistor	10Ω 2W	ヒューズ抵抗	
	HX804080	Fuse Resistor	100Ω 1/6W	ヒューズ抵抗	
	HX804090	Trimmer Pot.	81KΩ	半固定ポトリム	
	FX800310	Electrolytic Cap.	560μF 200V	ケミコン	
	FZ004280	Electrolytic Cap.	4700μF 16V	ケミコン	05
	FZ006370	Electrolytic Cap.	1000μF 16V	ケミコン	02
	FX550640	Electrolytic Cap.	330μF 50V	ケミコン	03
	FJ157220	Electrolytic Cap.	22μF 35V	ケミコン	01
	UW029330	Electrolytic Cap.	3300μF 10V M	ケミコン	03
	FJ265470	Electrolytic Cap.	0.47μF 50V	ケミコン	01
	FJ266330	Electrolytic Cap.	3.3μF 50V	ケミコン	01
	FJ166100	Electrolytic Cap.	1μF 50V	ケミコン	01
	FD153100	Polystyrene Cap.	1000PF 50V J	スチコン	02
	FD154220	Polystyrene Cap.	22000PF 50V J	スチコン	02
	FD154470	Polystyrene Cap.	47000PF 50V J	スチコン	02
	FD154150	Polystyrene Cap.	15000PF 50V J	スチコン	02
	FX800320	Polystyrene Cap.	0.18μF 250V	スチコン	
	FX800330	Polystyrene Cap.	0.22μF 250V	スチコン	
	FX800340	Ceramic Cap.	100PF 2KV	セラコン	
	FX800350	Ceramic Cap.	330PF 2KV	セラコン	
	FI383220	Ceramic Cap.	0.0022μF 125V	セラコン	01
	FI384100	Ceramic Cap.	0.01μF 125V	セラコン	01
	GX801410	Coil	SU16V-12035	コイル	
	GX801420	Coil	C-L00-174-11	コイル	
	GX801430	Coil	L-10001-11	コイル	
	KX801210	Fuse	TSC 5A 125V	ヒューズ	
	VC310300	Connector	5096-02C	コネクタ	01
	LX801510	Connector	B9P-VH	コネクタ	
	LX801520	Connector	B3B-XH-A	コネクタ	
	IX803740	Thyristor	CR02AM	サイリスタ	
	IX803750	Thermistor	8D-18	サーミスター	
	GX801440	Transformer	N-T00-305-11	電源トランス	

\* New Parts (新規部品)

ランク: Japan only

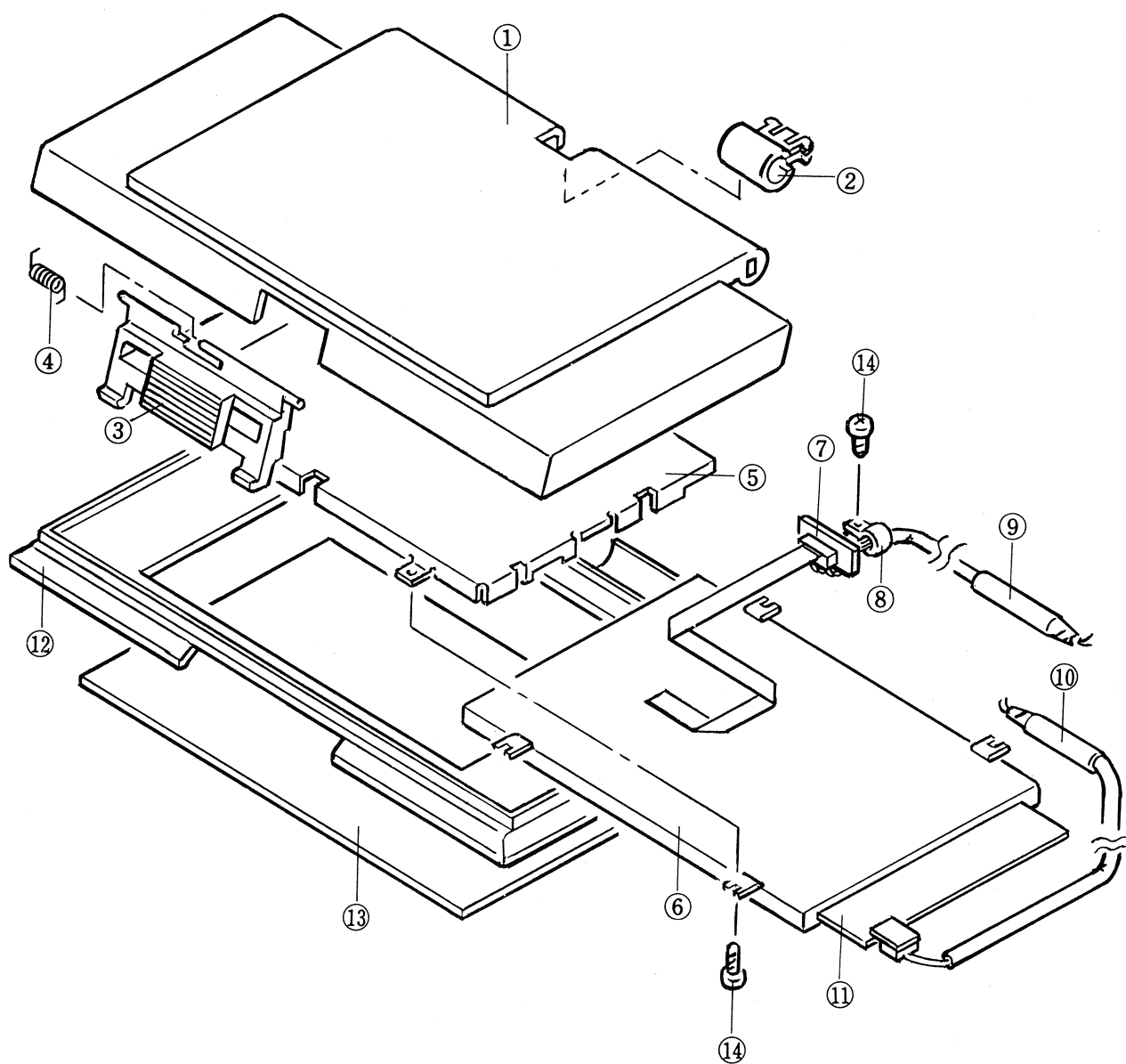
OVERALL ASSEMBLY





Ref	Part No	Description	部品名	Remarks	ランク
1	VF670400	Panel Assembly	パネル A S S 'Y		16
2	VF301400	Upper Case	上ケース		01
3	VF670000	Power Cord	電源ケーブル		
4	VB774000	Knob	ツマミ		
5	VF670800	Hinge Unit	Right ヒンジユニット(右)		
6	VF670700	Hinge Unit	Left ヒンジユニット(左)		
7	VF638000	Micro Switch Assembly	マイクロスイッチ Ass'y		
8	VF630400	Dust Proof Cloth	防塵クロス		
9	VF444300	Slider Upper Shield	SLIDER(2/5) スライダ上シールド		16
10	NX550750	Circuit Board	スライダシート		
11	VF4443400	Upper Shield	上シールド		
12	VC920900	ACT Pad	C440 BL ACTパッド		16
13	NX550790	Circuit Board	INVERTER インバータシート		
14	VF574300	Insulation Sheet	IN V 絶縁シート		
15	VF522000	Angle Bracket	インバータ金具		
16	NX550740	Circuit Board	LED(1/5) LEDシート		12
17	NX550770	Circuit Board	CONNECTION(4/5) 変換シート		13
18	NX550760	Circuit Board	CONNECTION(3/5) 中継シート		
19	VF4443500	Internal Shield	中シールド		
20	VF444100	Power Supply Cover	電源カバー		
21	VF671200	Power Supply Unit	100-120V 電源ユニット		30
22	VF596500	Power Cable	電源束線		
23	VF495200	Insulation Sheet	絶縁シート		
24	VF495500	Vent	ファンカバー		
25	VF438200	Cooling Fan Assembly	ファン A s s 'y		
26	VF571900	AC Socket Assembly	AC インレット Ass'y		31
27	VG192800	3.5" Floppy Disk Drive	3.5 インチ F D D	C1/20	
27	VG315200	3.5" Hard Disk Drive	3.5 インチ H D D	C1/20	
27-1	VG315300	Circuit Board	コントローラーシート	C1/20	
27-2	VG315000	HDD Cable	H D ケーブル	C1/20	
27-3	VG175000	HDD Cover	H D D カバー		
28	VF598100	FDD Signal Cable	F D D 信号束線		
29	VF596400	FDD Power Cable	F D D 電源束線		
30	VF444000	Mid Frame	ミッドフレーム		
31	VF443900	Slider Lower Shield	スライダ下シールド		
32	VF296700	Keyboard Unit	キーボードユニット		17
33	VF495300	Slot Cover	スロットカバー		
34	NX550700	Circuit Board	MIDI-1 M I D I - 1 シート		16
35	NX550710	Circuit Board	MIDI-2 M I D I - 2 シート		16
36	NX550720	Circuit Board	MIDI-3 M I D I - 3 シート		16
37	VF443700	Angle Bracket	コネクタ金具		
38	VF443800	Guide Plate	ガイドプレート		
39	NX550780	Circuit Board	POWER LED(5/5) POWER LEDシート		09
40	VF404000	Ni-Cd Battery Assembly	N i - C d 電池 Ass'y		
41	VF438000	Battery Pad	C440 10X50 T=4 電池パッド		
42	NX550690	Circuit Board	MAIN メインシート		91
43	VF443600	Lower Shield	下シールド		
44	VF495400	Lower Case	下ケース	C1	17
44	VG315600	Lower Case	下ケース	C1/20	
45	CB055690	Foot	BL ゴム足		01
46	VF647000	Label	120Vラベル		
47	VF671100	Label	LEDラベル		
48	EI030106	Bind Head Tapping Screw	3.0X10 ZMC2Y ハイトタッピングネジ		01
49	EI020106	Bind Head Tapping Screw	2.0X10 ZMC2Y ハイトタッピングネジ		01
50	EI130086	Bind Head Tapping Screw	3.0X8 FNM33G ハイトタッピングネジ		01
51	ED330066	Bind Head Screw	3.0X6 FCM3BL バインド小ネジ		01
52	EI330206	Bind Head Tapping Screw	3.0X20 FCM3BL ハイトタッピングネジ		01
53	ED340086	Bind Head Screw	4.0X8 FCM3BL バインド小ネジ		01
54	ED130066	Bind Head Screw	3.0X6 FNM33G バインド小ネジ		01
55	EI330146	Bind Head Tapping Screw	3.0X14 ZMC2BL ハイトタッピングネジ		01
56	EK093020	Bind Head Tapping Screw	3.0X8 ZMC2Y ハイトタッピングネジ		01

PANEL ASSEMBLY

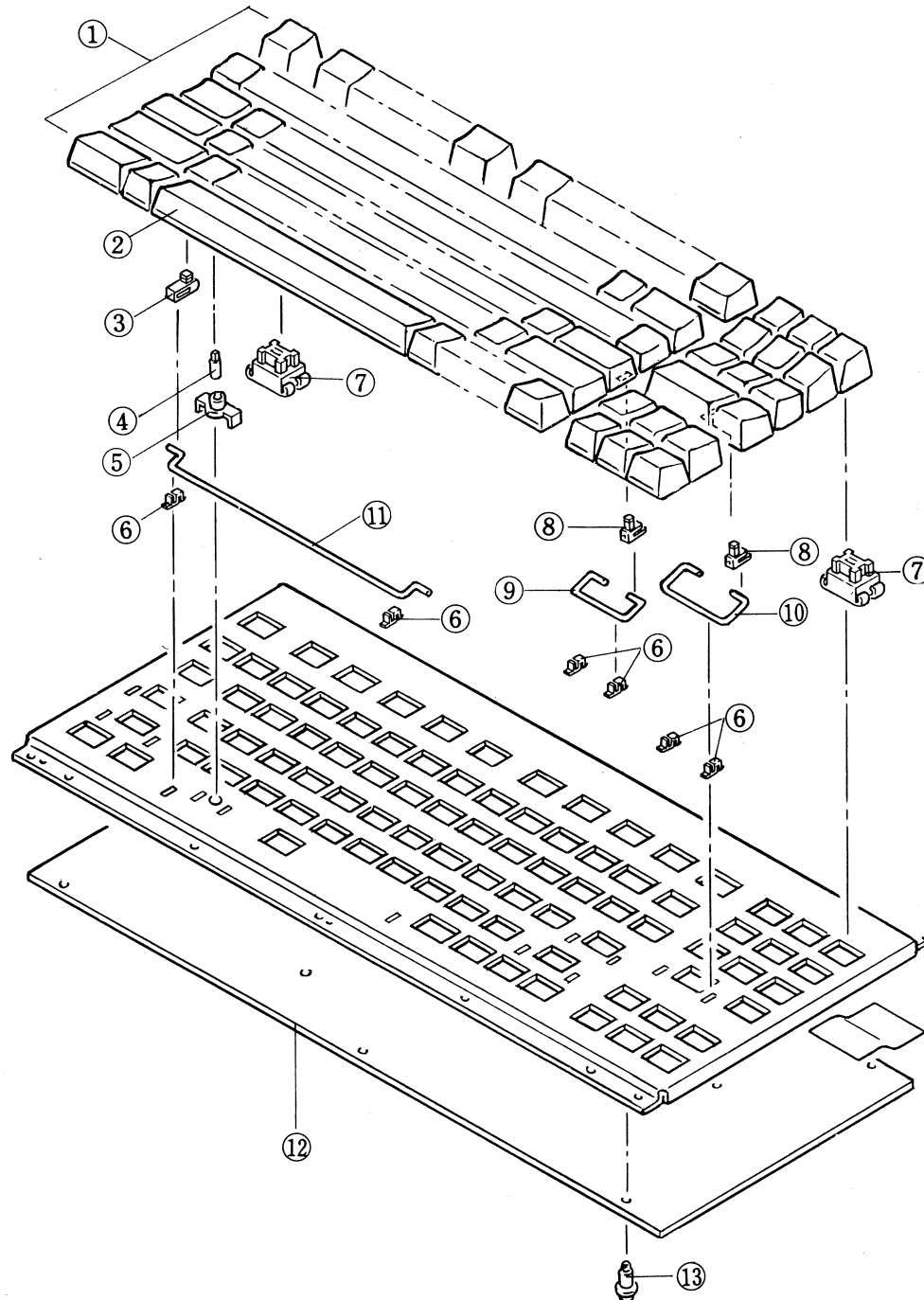


Ref	Part No	Description	部品名	Remarks	ランク
	VF670400	Panel Assembly	パネル A S S 'Y		
1	VF572700	Panel Case	パネル 外 ケース		14
2	VF574400	Cable Guide	ケーブル ガイド		
3	VF572900	Panel Hook	パネル フック		
4	VF574000	Lock Spring	ロック スプリング		
5	VF443300	Panel Shield	パネル シールド		
6	VF475700	LCD Unit	L C D ユニット	640 × 400	6407
7	NX550730	Circuit Board	L C D シート		
8	VF573800	Cable Clamp	ケーブル クランプ		
9	VF375800	LCD Cable	L C D ケーブル		
10	VF375900	EL Cable	E L ケーブル		
11	VF475800	EL Lamp	E L ランプ		2309
12	VF572800	Panel Case	パネル 内 ケース		15
13	VF573400	Display Panel	ディスプレイ パネル		
14	EI030086	Bind Head Tapping Screw	ハ イント タ ッ ピ ン ク ネジ		01

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ランク: Japan Only

# **KEYBOARD UNIT**



Ref	Part No	Description	部品名	Remarks	ランク
	VF296700	Keyboard Unit	キーボードユニット	KFNBBAA010D	17
1	YX303520	Key Top Set	キートップセット	J1AAA0931	
2	YX303530	Key Top	スペースバーキートップ		
3	YX303570	Bracket, B	スペースキーフック	69AAA0018	
4	AX550250	Key Top Guide Pin	キートップガイドピン	16KF006	02
5	AX557000	Key Guide	スペースバーガイド		
6	YX303610	Mounting Plate	マウンティングプレート	68AAA0001	
7	YX303660	Switch Actuator	スイッチドライブASS'Y	L7AAA0002	
8	YX303560	Bracket A	キートップブラケット	69AAA0003	
9	YX303630	Torsion Bar A	トーションバー(A)	74AAA0004	
10	YX303640	Torsion Bar B	トーションバー(B)	74AAA0005	
11	YX303650	Torsion Bar C	トーションバー(C)	74AAA0012	
12	YX303580	A Point Of Contact	接点ASS'Y	54AAA0008	
13	EX550020	Screw	特殊ネジ	2D00AA005	02

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