IVO-V11

SERVICE MANUAL

US Model

Model Name Using Similar Mechanism	New
CD Mechanism Name	KSM-311AAM

SPECIFICATIONS

System

Model	Compact Disc Digital Audio and Compact Disc Interactive System
D/A conversion	16-bit (44.1 kHz) linear, 8-bit (37.8 kHz)/4-bit (37.8 kHz/18.9 kHz) non-linear
Display system	Transparent TN LCD panel
Drive system	TFT (thin-film transistor active matrix system)
No. of pixels	112,086 (479 x 234)
Lighting device	Built-in lighting system (fluorescent lamp)
Video signal	EIA standard NTSC color (initial display non-interlaced)

Input and output connectors

Video connector	Input/output switch Phono jack (1), 1 Vp-p, 75 ohms unbalanced, sync negative
Audio connector	Input/output switch Phono jacks (2: L, R) Input : –7.5 dBs, impedance more than 47 kilohms Output: –1.6 dBs, impedance less than 10 kilohms
CONTROL R	8-pin mini DIN (1)
PHONES	Stereo minijack (φ3.5) (1)

General

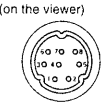
Power requirements	Battery mounting surface input: 6 V (battery pack), 7.5 V (AC power adaptor)
Power consumption	Approximately 9 W
Operating temperature	5°C to 35°C (41°F to 95°F)
Speaker	200 mW
Dimensions	139 x 63 x 193 mm (5 1/2 x 2 1/2 x 7 5/8 in.) (w/h/d)
Mass	Approximately 1.2 kg (2 lb 10 oz)
Supplied accessories	See page 6

Mouse

Power consumption	+ 5 V 5 mA
Dimensions	100 x 37 x 62 mm (4 x 1 1/2 x 2 1/2 in.) (w/h/d)
Weight	Approximately 125 g (4 oz)
Cable length	1.5 m (4 feet 11 1/8 in.)
Operating temperature	5°C to 35°C (41°F to 95°F)

Connector pin assignment

CONTROL R connector (on the viewer)



Mouse connector (on the mouse)

Pin	Signal	Pin	Signal
1	N.C.	5	GND
2	RXD	6	–
3	–	7	RTS
4	–	8	+5V

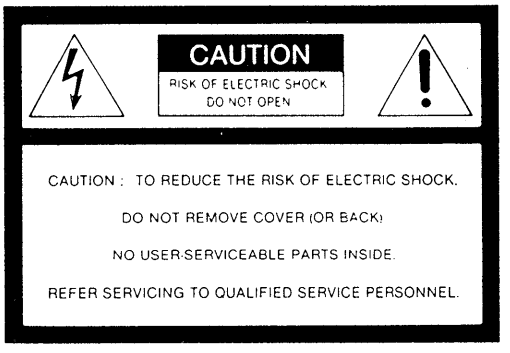
Design and specifications are subject to change without notice.

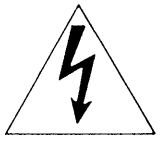
PORTABLE CD – I VIEWER

SONY®

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.





This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CAUTION

The use of optical instruments with this product will increase eye hazard.

As the laser beam used in this CD-I viewer is harmful to the eyes, do not attempt to disassemble the cabinet.
Refer servicing to qualified personnel only.

For the customers in the USA

CAUTION

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Note

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interfence by one or more of the following measures:

— Reorient or relocate the receiving antenna.
— Increase the separation between the equipment and receiver.
— Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
— Consult the dealer or an experienced radio/TV technician for help.

For the customers in Canada

This apparatus complies with the Class B limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe B pour bruits radioélectriques, spécifies dans le Règlement sur le brouillage radioélectrique.

WARNING !!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 25 cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

CAUTION:

The use of optical instrument with this product will increase eye hazard.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

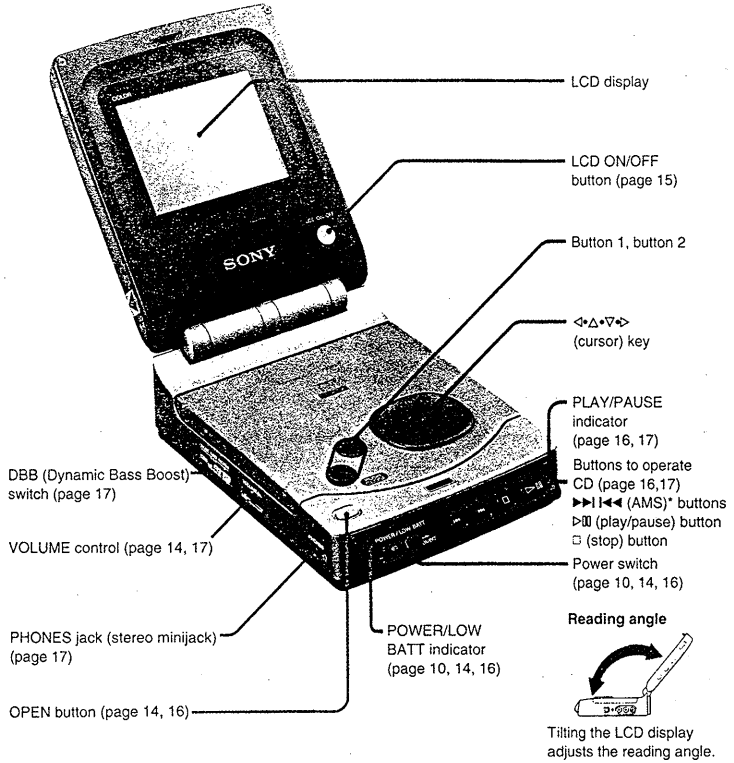
TABLE OF CONTENTS

- When removing the lithium battery (or when removing the bottom plate etc.), connect the AC power adptor to the AC power supply outlet.
  If the lithium battery is removed while power is not being supplied, the contents of the memory will be lost.

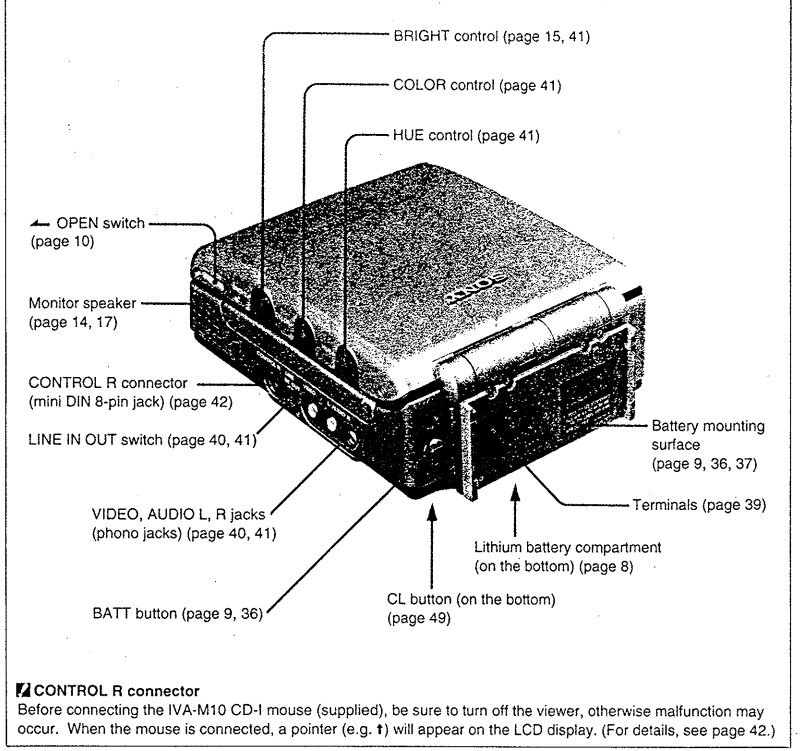
- Refer to the material to be published soon for how to back up the user data.

Identifying the Parts

Numbers in parentheses indicate page numbers for detailed description.



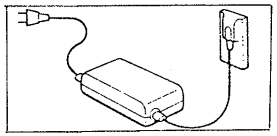
* AMS: Automatic Music Sensor, a function used for detecting the beginning of a selection.



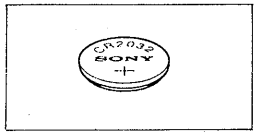
CONTROL R connector
Before connecting the IVA-M10 CD-I mouse (supplied), be sure to turn off the viewer, otherwise malfunction may occur. When the mouse is connected, a pointer (e.g. ↑) will appear on the LCD display. (For details, see page 42.)

Checking the Package Contents

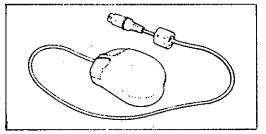
Make sure the following accessories are also included in the package. If any of them is missing, call your local Sony service facility.



AC-IV10 AC power adaptor (1 pc)
(page 9)



CR2032 Lithium battery (1 pc)
(page 8)



IVA-M10 CD-I mouse (1 pc)
(page 42)

This section is extracted from instruction manual.

Features

The IVO-V11 CD-I viewer offers the following features. Be sure to read the "Before You Begin" section (page 8) before you operate it.

CD-I Discs (page 14)
The IVO-V11 provides a monitor speaker and a color LCD display for you to enjoy both video and audio recorded on a CD-I disc.

Clock/Calendar/World Time Clock (page 20)
The IVO-V11 comes with clock, calendar and world time clock functions for display.

Compact Discs (page 16)
The IVO-V11 can play regular compact discs (CD).

As Video Monitor (page 41)
You can also use the IVO-V11's monitor speaker and color LCD display to enjoy video output from video equipment (e.g. camcorder).

What is CD-I?

CD-I (Compact Disc Interactive) is a type of multimedia technology. Each CD-I disc contains video, audio, and text data, as well as a program to manage them. Such design allows you to interact with the disc to determine how the program should proceed, thus making the process a lot of fun.

Playing a CD-I disc is simple: All you need is the cursor key, button 1, and button 2. The cursor key lets you move around within a CD-I program, while the two buttons trigger actions.

Discs the IVO-V11 CD-I Viewer Can Play

The viewer can play three formats of discs. Before you insert a disc, make sure its logo is listed in the table below.

Disc Formats	CD-I	CD		CDV (Video cannot be displayed)
Disc Logo	COMPACT disc Interactive	CD SINGLE / COMPACT disc DIGITAL AUDIO		CD VIDEO CDV
Disc Type	CD-I discs	8-cm CD singles	CD	CDV
Size	8 or 12 cm	8 cm	12 cm	12 cm
See Page	14	16		

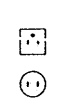
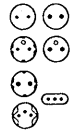
Some CD-I discs may also contain audio tracks (similar to those on regular compact discs).

A disc that is based on specifications of bridge format, such as Photo CD, can be played on this machine in the same way of playing CD-I discs.

Using the CD-I Viewer Abroad

Each country has its own electricity and TV color systems. Before using your CD-I viewer abroad, check the following points.

You can use the CD-I viewer in any country with the supplied AC power adaptor within 100V to 240V AC, 50/60 Hz. If you cannot attach the power adaptor to an AC outlet, use a power cord plug adaptor (not supplied). The following is a list of the shape of AC outlets and the appropriate power cord plug adaptor required.

AC Outlet Type						
Required Plug Adaptor	Mainly in North America and South America No special plug adaptor is required.				 Mainly in Europe	 Mainly in Australia

The CD-I viewer is based on the NTSC color system. If you want to view CD-I programs on a TV, the TV must be based on the NTSC system or PAL-M system with NTSC/PAL-M transcoder. Check the following alphabetical list.

NTSC system countries
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the USA, Venezuela, etc.

PAL system countries
Australia, Austria, Belgium, China, Denmark, Finland, Germany (former West Germany), Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

PAL M system country
Brazil

PAL N system countries
Argentina, Paraguay, Uruguay

SECAM system countries
Bulgaria, France, Guiana, Hungary, Iran, Iraq, Monaco, Poland, former Soviet Union, etc.

You can use the world time clock function abroad. For details, see page 24.

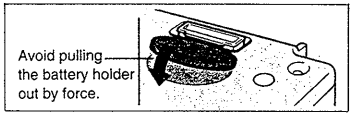
Before You Begin

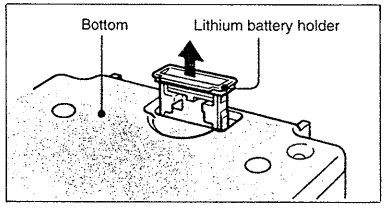
The following setups prepare the CD-I viewer for operation, so be sure to complete them before you start using the viewer.

Setup 1: Inserting the Lithium Battery

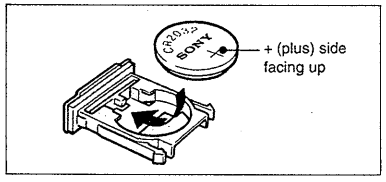
The supplied lithium battery keeps the internal clock running even when the viewer is not supplied with power from other sources. To insert the battery, follow the steps below.

1 Pull out the lithium battery holder.
If necessary, use a coin (or similar object) to pull out the battery holder as indicated.

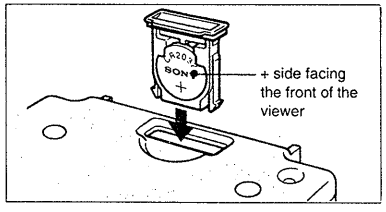




2 Insert the supplied lithium battery into the holder.



3 Put the battery holder back into the viewer.



Replacing the lithium battery
The lithium battery lasts for about 2 years. When it becomes dead, replace it as follows:
1 Connect the viewer to a power source (page 9).
2 Replace the used lithium battery with a new one.
If the viewer is not connected to a power source when you replace the lithium battery, the memory contents of the viewer will be lost, and you need to set the date and time again.

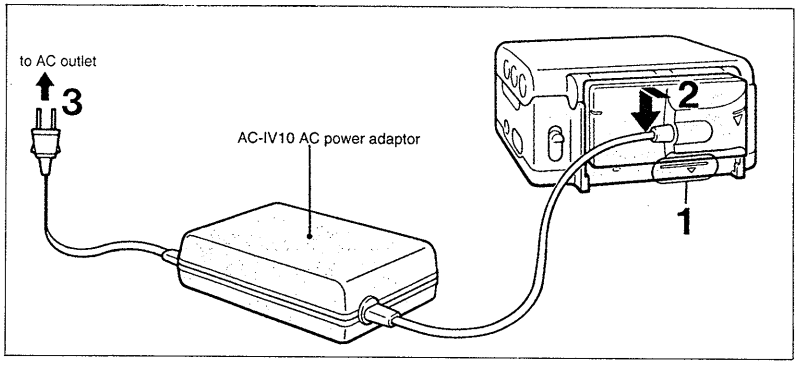
Replace the battery with a Sony CR2032 or Duracell DL-2032 lithium battery. Use of any other battery may present a risk of fire or explosion.

Lithium battery
- Keep the lithium battery out of the reach of children. Should the battery be swallowed, consult a doctor immediately.
- Before use, wipe the battery with a dry cloth to ensure good contact.
- Insert the battery with the correct polarity.
- Do not hold the battery with metalic tweezers, otherwise a short-circuit may occur.

WARNING
Battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

Setup 2: Connecting to an AC Outlet

The viewer can work with AC power or a rechargeable battery pack (not supplied). The following describes how to connect the supplied AC-IV10 AC power adaptor. If you want to use the battery pack, see page 37 for details.

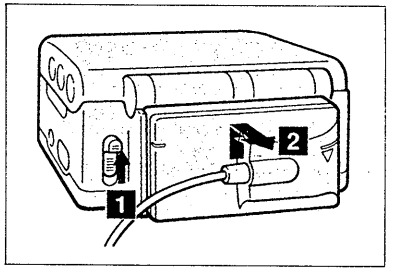


1 Align the bottom of the connecting plate with the line on the viewer.

2 While pressing the connecting plate, slide it as indicated.

3 Plug the AC power adaptor into an AC outlet.

Removing the connecting plate
While pushing up the BATT button **1**, slide the connecting plate as indicated **2**.



Refer also to the operating manual that comes with the AC-IV10.

Setup 3: Setting the Date and Time

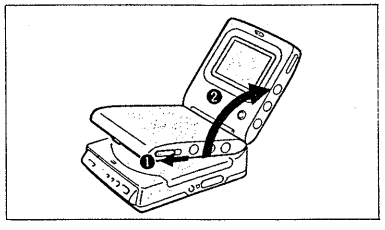
Set the date and time after you have completed Setup 1 and Setup 2 (page 8, 9). This is necessary as some CD-I discs rely on the correct date and time to work properly. Valid range is from 1988 to 2037.

When setting the date and time, you must first specify the current time zone (the country or area where you are). If you later move to another country, you need to change the zone name to that country and modify the time.

To make the changes, use the buttons on the viewer; the supplied mouse cannot make the changes.

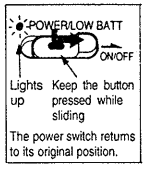
Example: Setting to Paris, 11:17 am, July 4, 1993

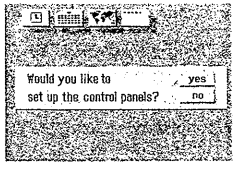
1 While sliding the ⟵ OPEN switch forward ❶, lift the top cover ❷.



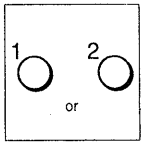
2 Slide the power switch (with the green button pressed) to the right, then release it.
In a few seconds, the following message appears.

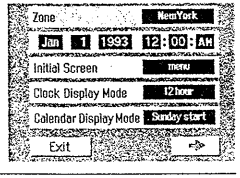
Would you like to set up the control panels? ▶ yes / no



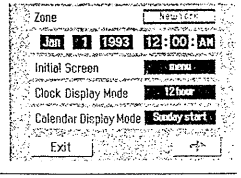


3 Make sure ▶ is pointing at yes (if necessary, press △ to move ▶). Press button 1 or button 2.
The control panel appears and the zone option is highlighted (in cyan). (Pressing △ or ▽ moves to other options.)



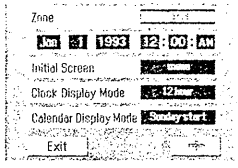


4 Press button 1 or button 2.
New York is displayed in black on white, indicating that it is ready for change.

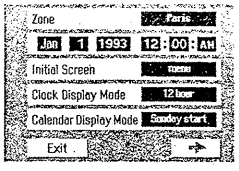


If no is selected in step 3
The initial screen appears. If this happens, turn off the viewer and try again, or do so when you operate the viewer again (page 47).

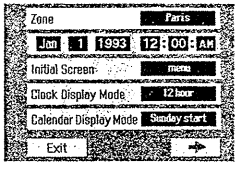
5 Press ▷ or ◁ until the desired zone appears (Paris in this example).
(See page 13 for the time zone chart.)



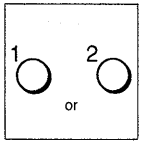
6 Press button 1 or button 2.
The desired zone is displayed in white on black again.

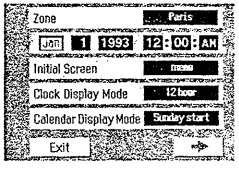


7 Press △ or ▽ to highlight the date and time option.

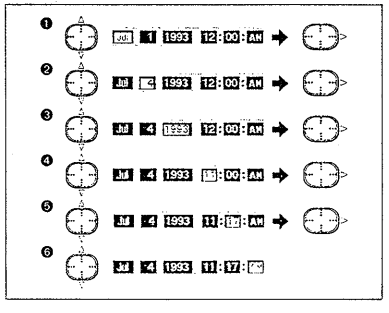


8 Press button 1 or button 2.
Jan is displayed in black on white, indicating that it can be changed.

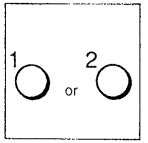


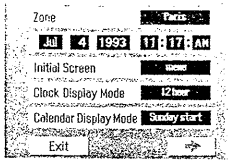


9 Press ▷ or ◁ to move to an item within the date and time option. Then press △ to increase or ▽ to decrease its value. This sets the date and time (time is shown in 12-hour format).
In the date and time option, the time must be standard time. Otherwise, DS TIME will not be displayed correctly in the world time clock function.

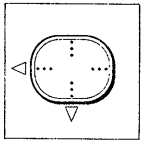


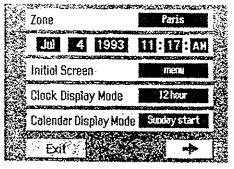
10 Using a local time-of-the-day service, press button 1 or button 2 to set the time.
The internal clock starts running. If there is any mistake, start from step 8 again.





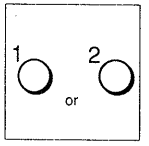
11 Use ▽ and ◁ to highlight [Exit].

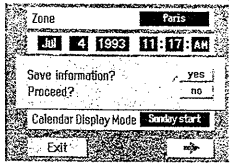




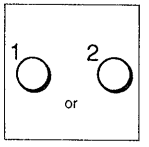
12 Press button 1 or button 2 to confirm.
The following message appears.

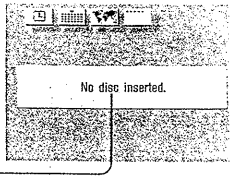
```
Save information?          ▶ yes
Proceed?                     no
```





13 Make sure ▶ is pointing at [yes] (if necessary, press △ to move ▶). Press button 1 or button 2.
The initial screen appears.

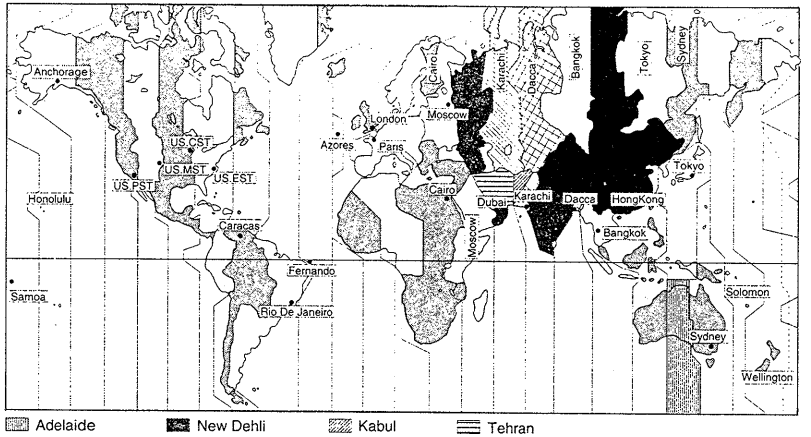




Message disappears in a few seconds.

Correcting date and time
To correct, start from step 8. If you have already come to step 13, do the following:
1 Turn off the viewer (by sliding the power switch to the right and release it).
2 While holding button 1 and button 2 down, turn on the viewer (see step 2 on page 10). Do not release the buttons until the control panel appears.
3 Start from step 8 on page 11 and make the correction.

Time zone chart



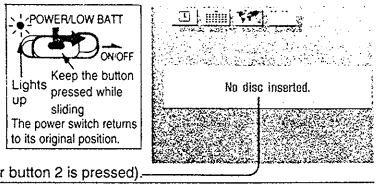
Zone name	Countries or area
London	England, GMT (Greenwich Mean Time), Portugal
Paris	Austria, France, Germany, Italy, Netherlands, Spain, Sweden, Switzerland
Cairo	Egypt, Greece, Israel, Turkey
Moscow	Iraq, Kenya, Saudi Arabia, former USSR (west)
Tehran	
Dubai	United Arab Emirates
Kabul	
Karachi	Moldives, Pakistan
New Delhi	
Dacca	Bangladesh, India, Myanmar
Bangkok	Cambodia, Indonesia (Jakarta), Thailand, Vietnam
Hong Kong	Australia (west), China, Hong Kong, Indonesia (Bali, Borneo), Malaysia, Philippines, Singapore, Taiwan
Tokyo	Japan, Korea
Adelaide	
Sydney	Australia (east), Guam, Saipan
Solomon	New Caledonia
Wellington	Fiji, New Zealand
Samoa	Western Samoa
Honolulu	HST (Hawaii standard time), Tahiti
Anchorage	AST (Alaska standard time)
Los Angeles	PST (Pacific standard time)
Denver	MST (Mountain standard time)
Chicago	CST (Central standard time), Mexico
New York	EST (East standard time), Peru
Caracas	Chile, Venezuela
Rio de Janeiro	Argentina, Brazil
Fernando	Fernando de Noronha
Azores	Azores Islands

The countries and areas shown in the table are common names. They may be different from their formal country names.

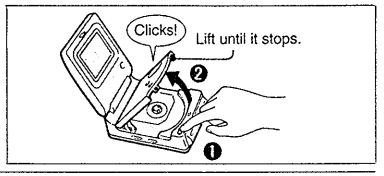
Playing a CD-I Disc

Playing a CD-I disc is simple: All you need is the cursor (◁ • △ • ▽ • ▷) key, button 1 and button 2. You must, however, have completed the steps described in the "Before You Begin" section (page 8-13). Also, if you want to connect the viewer to a TV for viewing, see page 40.
If the viewer is already turned on, skip step 1.

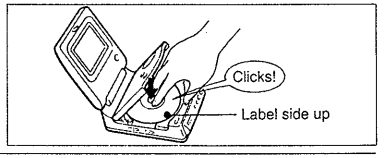
1 Slide the power switch (with the green button pressed) to the right, then release it.
In a few seconds, the initial screen appears.



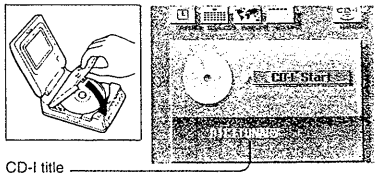
2 Press the OPEN button ❶ and open the disc cover ❷.



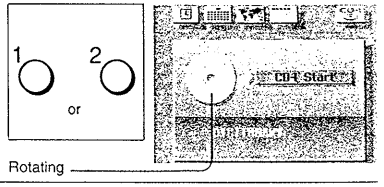
3 Put a CD-I disc into the disc compartment.
Push gently around the center of the disc until it clicks into place.



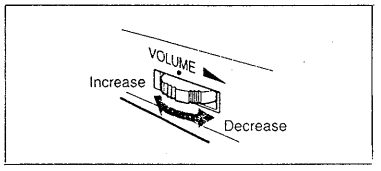
4 Close the disc cover.
CD-I appears on the initial screen.



5 Press button 1 or button 2.
The CD-I disc starts playing.

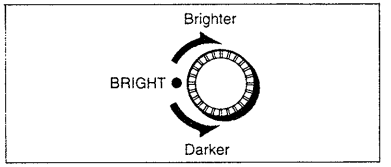


6 Turn the VOLUME control (on the left side of the viewer) to adjust the volume.
The monitor speaker can output sound in monaural only.



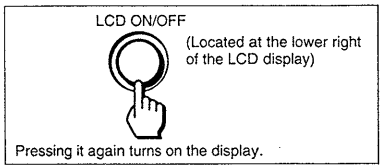
Adjusting the brightness

Turn the BRIGHT control (on the right side of the LCD display) to adjust the brightness. (Note: the COLOR and HUE controls are operative only when the viewer is connected to video equipment.)



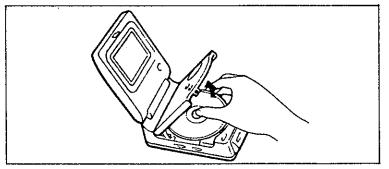
Turning off the LCD display

If you do not need to use the LCD display (e.g. when you are using a TV for viewing), you can turn it off to save power.



Removing a CD-I disc

Hold the disc as indicated, and remove it from the disc compartment.



Turning off the viewer

Slide the power switch (with the green button pressed) to the right again, then release it.

Each CD-I disc may end its program differently, so be sure to refer to the disc instructions.

To play a multi-disc CD-I program
At the 2nd control panel, set to
Set Disc Handling : yes (page 28).
The viewer will then keep the information about the last disc, when a new disc is inserted.

Some CD-I discs may take a longer time to start than others.
The screen appears in blue when a CD-I disc is starting up. This is not a malfunction.

When a CD-I disc is being played, the auto power-off feature (page 28) becomes inoperative.

Auto start (page 28)
At the 1st control panel, if the CD-I auto start is set to CD-I Auto Start : yes, the disc starts playing as soon as it is inserted into the viewer.

To play the CD-I disc when the clock, calendar, or world time clock is displayed (page 20)
1 Press the cursor key (◁ or ▷) until ▲ is pointing at CD-I.
2 Press button 1 or button 2.
3 Make sure ▶ is pointing at CD-I Start. Press button 1 or button 2, and the CD-I disc starts playing.

When both CD and CD-I appear
This means the disc contains audio tracks (similar to those on regular compact disc) as well. CD-I will be selected and played. To play back the audio tracks, see page 16.

If ⛁ appears in front of a CD-I title
This indicates two or more CD-I discs are to be used. This symbol, however, will not appear if multi-disc CD-I title handling at the 2nd control panel is set to Set Disc Handling : no (page 28).

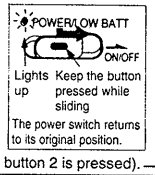
If you hear noise coming out from the viewer
This indicates the viewer is searching for information or the next scene. This is not a malfunction.

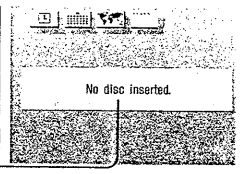
About the LCD display
If the LCD display is in use, closing the top cover automatically turns it off, but subsequently opening the cover turns it back on again.

Playing a Compact Disc

The viewer can play regular compact discs (i.e. 8-cm CD singles). Before you start, make sure the viewer is connected to a power source: AC or battery pack (page 36, 37).

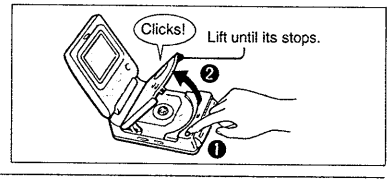
1 Slide the power switch (with the green button pressed) to the right, then release it.
In a few seconds, the initial screen appears.



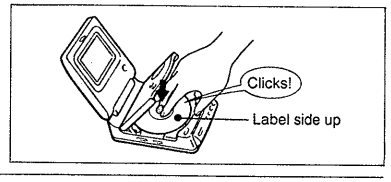


Message disappears in a few seconds (or when button 1 or button 2 is pressed).

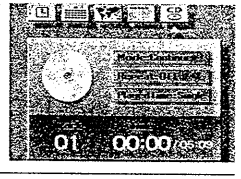
2 Press the OPEN button ❶ and open the disc cover ❷.



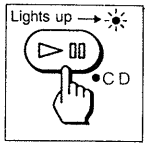
3 Put a compact disc into the disc compartment.
Push gently around the center of the disc until it clicks into place.

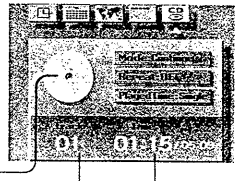


4 Close the disc cover.
[CD] appears, followed by the CD screen.



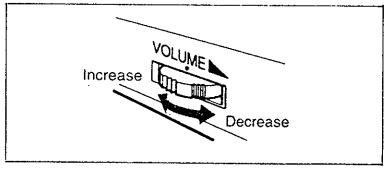
5 Press ▷II.
The compact disc starts playing.



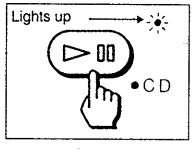


Rotating
Current selection
Play time (page 19)

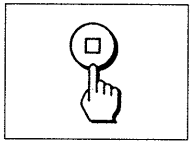
6 Turn the VOLUME control to adjust the volume.
The monitor speaker can output sound in monaural only.



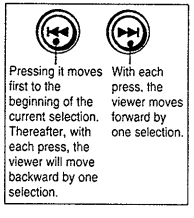
To pause
Press ▷II once. Pressing it again resumes playing.



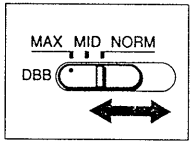
To stop
Press □.



To locate a desired selection



To listen to powerful bass sound
Slide the DBB switch (on the left side of the viewer) towards the left to increase the bass, and use the headphones (not supplied) to enjoy the effect.



To remove the CD disc
See "Removing a CD-I disc" section on page 15 for detailed description.

Sound tracks and time
When a compact disc is inserted, the total number of tracks (selections) and time will appear in a few seconds.

Using headphones
Plug a stereo mini plug-type headphones (e.g. those used for Walkman®) into the PHONES jack. Try not to disturb people around you with the sound from your headphones.

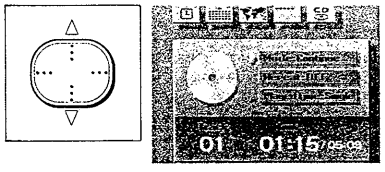
Displaying date and time functions
When the compact disc is being played, you can display the clock, calendar, or world time clock (page 20).

Selecting a Play Mode

For your music enjoyment, you can change and repeat the order of selections on the compact disc to be played. Up to six ways are listed on the next page for your choice.

Changing the order of selections

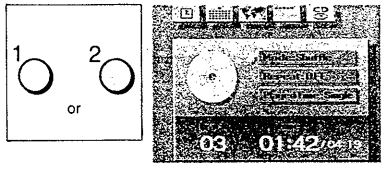
1 Use △ or ▽ to move ► to [Mode].



2 **Press button 1 or button 2.**
Each press changes the order as follows:

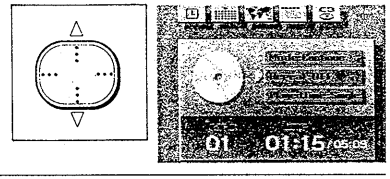
Shuffle → Single → Continue →

See the table on page 19 for detailed description.

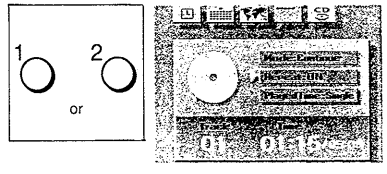


Repeating the order of selections

1 Use ▽ or △ to move ► to [Repeat].



2 **Press button 1 or button 2.**
Each press switches the repeat function ON or OFF. See the table on page 19 for detailed description.

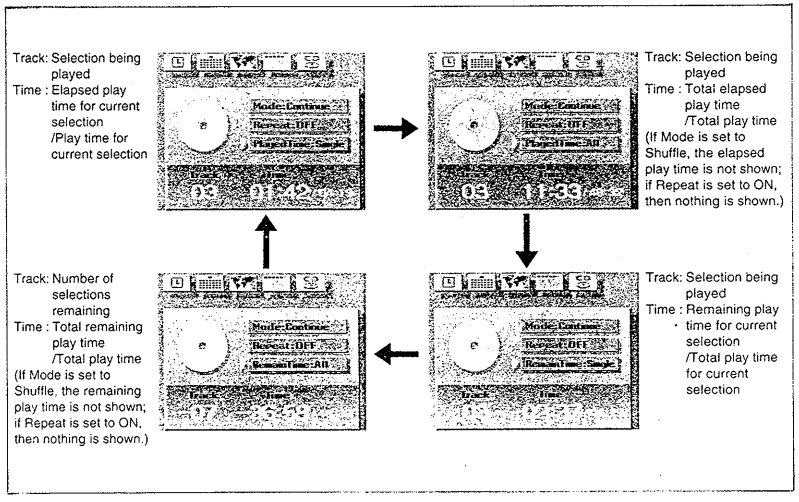


Compact disc play mode

Play mode	Set Mode to	Set Repeat to	Screen
Play all selections in natural order once.	Continue	OFF	Mode:Continue Repeat:OFF
Play all selections in natural order repeatedly.	Continue	ON	Mode:Continue Repeat:ON
Play all selections in random order once.	Shuffle	OFF	Mode:Shuffle Repeat:OFF
Play all selections in random order repeatedly.	Shuffle	ON	Mode:Shuffle Repeat:ON
Play a single selection once.	Single	OFF	Mode:Single Repeat:OFF
Play a single selection repeatedly.	Single	ON	Mode:Single Repeat:ON

Displaying the play time

Use ▽ to move ► to [Played Time :] or [Remain Time :], and press button 1 or button 2. Each press changes the meanings of track and time as follows.

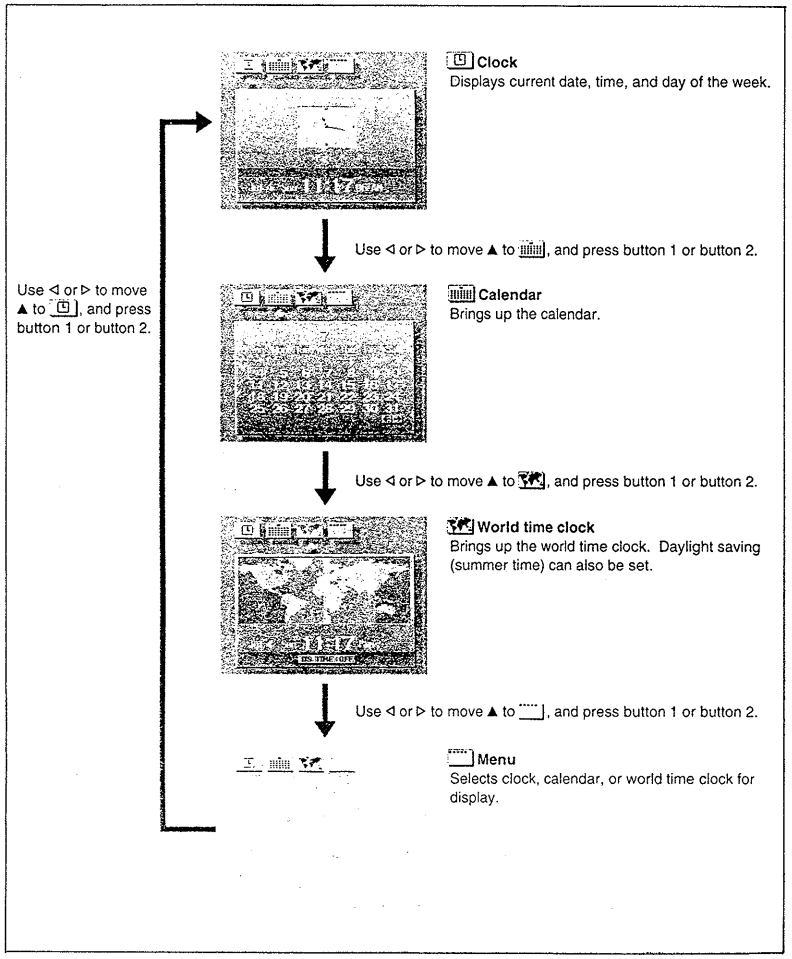


How to Select a Date and Time Function

Across the top of the initial screen are a number of icons (graphic symbols) each representing a function you can select. For example, the following illustration contains the clock, calendar, world time clock, and menu icons. If a CD-I disc or compact disc is inserted, its corresponding icon will also appear on the screen.

To display the time correctly, you must have completed the procedure described in the "Setup 3: Setting the Date and Time" section (page 10).

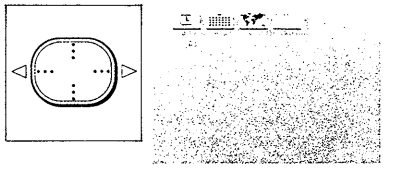
The following shows how to select a date and time function.



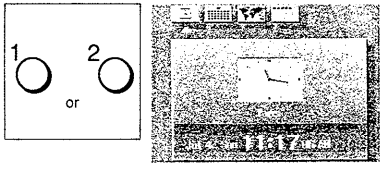
Using the Clock

Selecting the [clock] icon displays the current time, date, and day of the week. This is also possible even when a compact disc is being played.

1 Use ◁ or ▷ to move ▲ to [clock].



2 Press button 1 or button 2.
The clock appears.



Removing the clock display

1 Use ◁ or ▷ to move ▲ to [menu].
2 Press button 1 or button 2.

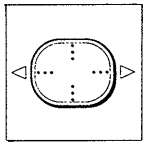
Time display format
The digital clock display can be set to either 12- or 24-hour format (page 28).

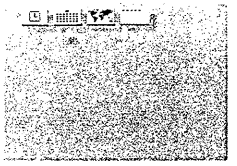
Selected time zone is displayed below the clock.

Using the Calendar

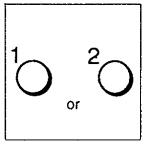
Selecting the icon brings up the calendar. This is also possible even when a compact disc is being played.

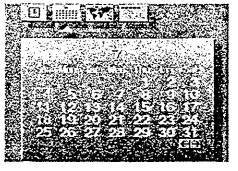
1 Use ◁ or ▷ to move ▲ to .





2 Press button 1 or button 2.
The calendar appears, showing the current month.





Removing the calendar display

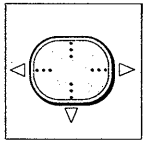
1 Use ◁ or ▷ to move ▲ to .
2 Press button 1 or button 2.

Calendar display format
The calendar display can be set to start from either Sunday or Monday (page 28).

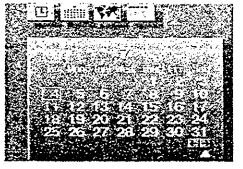
The clock is based on the standard time
Therefore, at midnights during the daylight saving period, the frame line (the square that marks the current day) will not move to the next day immediately; the movement will be delayed.

Displaying other months
When the current month appears, use the steps below to display other months.

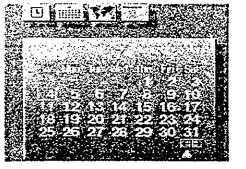
1 Press ▽ once and ▲ will be pointing at or .
displays the previous month
displays the following month
(If necessary, press ◁ or ▷ to move ▲.)



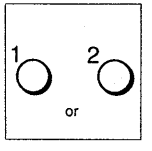
To display the following month



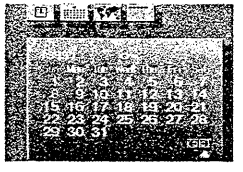
To display the previous month



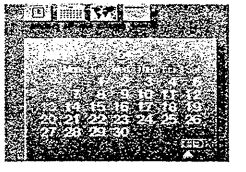
2 Press button 1 or button 2.
If ▲ is pointing at , each press moves the calendar to the following month.
If ▲ is pointing at , each press moves the calendar to the previous month.
To return ▲ to , press △.



To display the following month



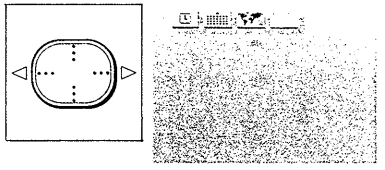
To display the previous month



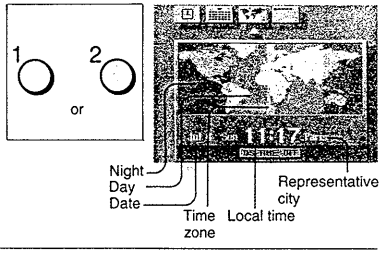
Using the World Time Clock

Selecting the 🗺 icon brings up the world time clock with the daylight saving (summer time) option. This is also possible even when a compact disc is being played.

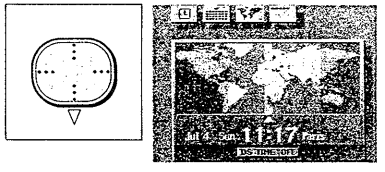
1 **Use ◁ or ▷ to move ▲ to 🗺.**



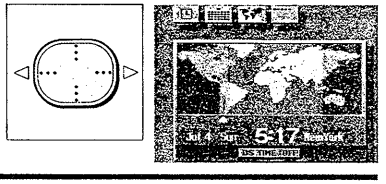
2 **Press button 1 or button 2.**
The world map appears, showing the date, local time, and representative city of the current time zone (highlighted in yellow).



3 **To change the time zone, press ▽ to move ▲ to the bottom of the world map.**



4 **Use ◁ or ▷ to move ▲ to the desired time zone.**
The date, local time, and representative city of the desired time zone appear.



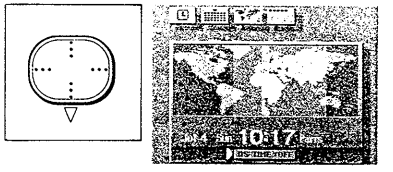
Removing the world time clock display

1 Use ◁ or ▷ to move ▲ to ⬚.
2 Press button 1 or button 2.

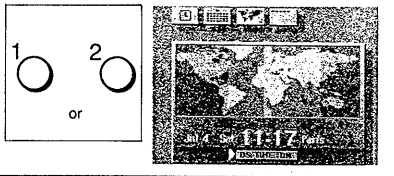
Effecting daylight saving time

Set DS TIME (Daylight Saving Time) to ON.

1 **Use ▽ to move ▶ to DS TIME:OFF.**



2 **Press button 1 or button 2.**
The setting changes to DS TIME:ON and the summer time is in effect. (In other words, the clock is moved forward by one hour.)
Pressing the button again returns to standard time.



✍ Setting the DS TIME affects only the world time clock, but not the clock.

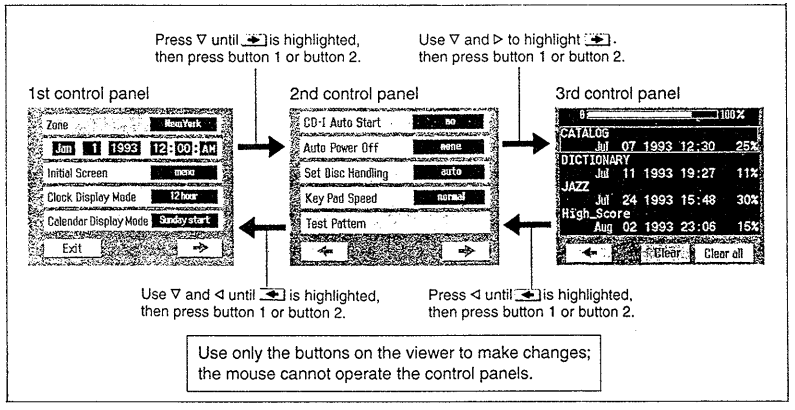
✍ Due to recent changes in the geography of Eastern Europe, the time zones in the IVO-V11 world time clock are different from the actual ones.

Changing the CD-I Viewer Settings

The CD-I viewer has been configured at the factory to certain preset values (page 28) so that you can enjoy CD-I programs as soon as possible. The only thing you must do when you operate the viewer the first time is set the date and time (page 10).

However, the CD-I viewer provides three control panels (as shown below) so that, if necessary, you can customize the viewer to your particular needs. (See page 28 for a list of settings you can change.) When you want to do so, follow the procedure described below to make and save changes.

To move between the three control panels, use ▶] or ◀]. ▶] advances to the next panel, while ◀] goes back to the previous one.



Use only the buttons on the viewer to make changes; the mouse cannot operate the control panels.

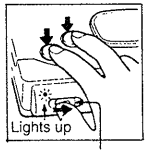
Making and Saving Changes

If the viewer is already on, turn it off.

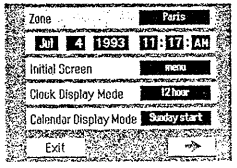
See the above illustration for movement between the control panels, and see page 28 for a list of settings that you can change.

To restore to the factory preset values, see page 32; to cancel the changes, see page 34.

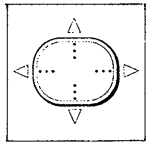
1 While holding both button 1 and button 2 down, turn on the viewer. Do not release the buttons until the 1st control panel appears.
The 1st control panel appears.

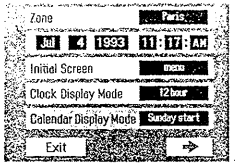


Slide the power switch (with the green button pressed) to the right, then release it.

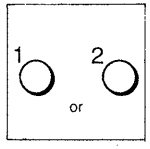


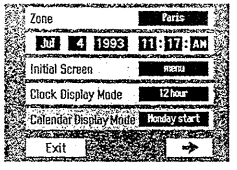
2 Press ◁, △, ▽, or ▷ to highlight the desired setting for change.
In this example, Calendar Display Mode : Sunday start is highlighted.





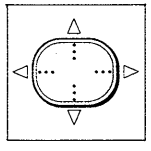
3 Press button 1 or button 2 until the desired value for the highlighted setting appears.
In this example, Calendar Display Mode : Monday start is selected.

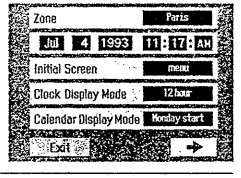




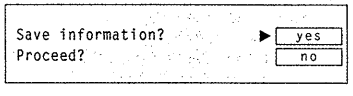
4 Repeat steps 2 and 3 to change other settings.

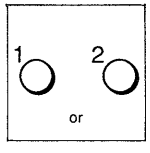
5 To end, use ◁, △, ▽, or ▷ to highlight Exit.

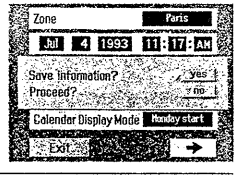




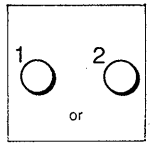
6 Press button 1 or button 2.
The following message appears.

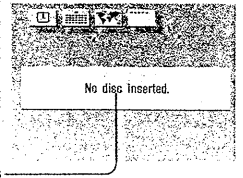






7 Make sure ▶ is pointing at yes, then press button 1 or button 2 to save the changes.
If ▶ is pointing at no, press △ to move ▶ to yes.
The changes are saved.





Message disappears in a few seconds.

Control panel settings

The following table summarizes the 1st and 2nd control panel settings. Use the steps described in the "Making and Saving Changes" section (page 26) for changes. See page 29 for information on the 3rd control panel.

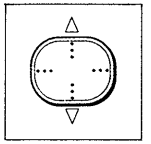
	Setting	Factory Preset Value	Description	When Button 1 or Button 2 is Pressed
1st control panel	Date and Time	Zone:New York	Set date and time. See "Setting the Date and Time" (page 10) for details.	[New York] is displayed in cyan.
		Jan 1 1993 12:00: AM		[Jan] is displayed in cyan.
	Initial Screen	menu	Select a function to display when the viewer is turned on. If a disc (CD-I or CD) is inserted, the disc information will always be displayed instead.	menu → clock → calendar → world time clock
	Clock Display Mode	12 hour	Set the digital clock display to the 12- or 24-hour format.	12 hour ←→ 24 hour
	Calendar Display Mode	Sunday start	Set the first day of the week to Sunday or Monday.	Sunday start ←→ Monday start
2nd Control Panel	CD-I Auto Start	no	Enable auto start when a CD-I disc is inserted.	no ←→ yes
	Auto Power Off	none	Automatically turn off the viewer at a preset time if no disc is played or if the date and time function is displayed.	none → 5 min. → 10 min. → 30 min.
	Set Disc Handling	auto	Handle multi-disc CD-I title (a program is recorded on multiple CD-I discs). If set to auto, the viewer will check for such feature; if set to yes, the viewer will always assume the disc is part of a multi-disc title. For details, see the manual that comes with the multi-disc CD-I title.	auto → yes → no
	Key Pad Speed	normal	Set how fast the markers or pointer should move when the cursor key is pressed during a CD-I disc operation.	normal → fast → slow
	Test Pattern	—	Used for adjusting the color pattern on a TV connected to the viewer (page 40).	The test pattern appears. Pressing the button again clears the pattern.

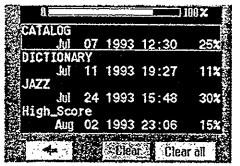
Clearing the Memory

The viewer contains memory which can store information — in the form of a file — about a disc played. Only some discs such as games can use this function. When the memory is full, you need to remove some or all of the files; otherwise an inserted disc cannot be played (page 14).

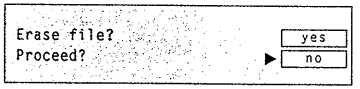
Removing one or more files

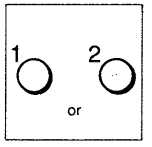
1 Use △ or ▽ to move the frame line to the file for removal.

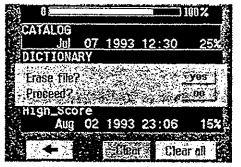




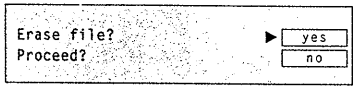
2 Press button 1 or button 2.
The following message appears.

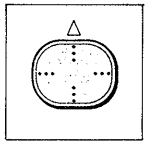


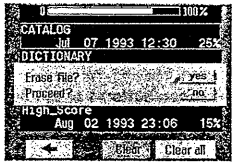




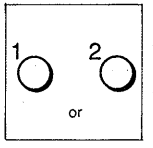
3 Press △ until ▶ is pointing at [yes].

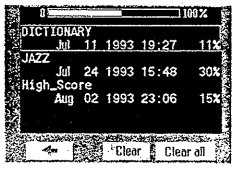






4 Press button 1 or button 2.
The file is removed.
If you have selected [no] in step 3, then the file is not removed and the viewer returns to where it was in step 1.

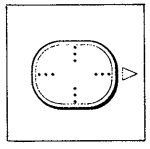


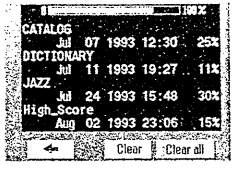


5 Repeat steps 1 to 4 to remove other files.

Removing all files

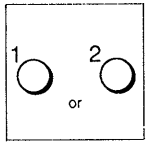
1 Press ▷ until [Clear all] is highlighted.

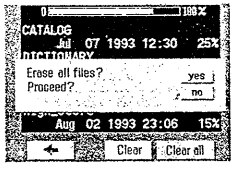




2 **Press button 1 or button 2.**
The following message appears.

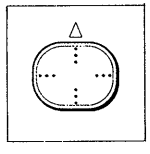
Erase all files? yes
Proceed? ▶ no

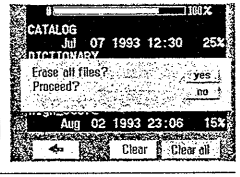




3 **Press △ until ▶ is pointing at [yes].**

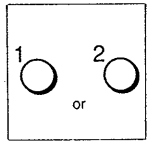
Erase all files? yes
Proceed? ▶ no

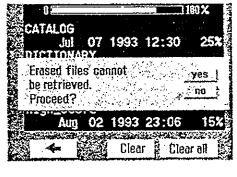




4 **Press button 1 or button 2.**
The following message appears.
If you have selected [no] in step 3, then the files are not removed and the viewer returns to where it was in step 1.

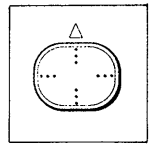
Erased files cannot be retrieved. yes
Proceed? ▶ no

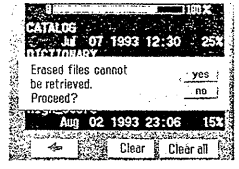




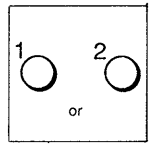
5 Press △ until ▶ is pointing at [yes].

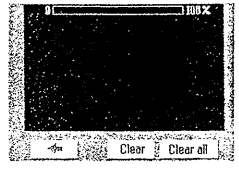
Erased files cannot be retrieved. yes
Proceed? ▶ no





6 **Press button 1 or button 2.**
All the files are removed.
If you have selected [no] in step 5, then the files are not removed and the viewer returns to where it was in step 1.



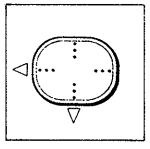


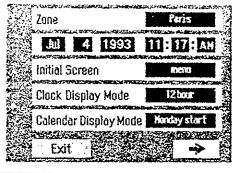
Restoring to the Factory Preset Values

You can use the 1st control panel (page 26) to restore all the settings to their factory preset values (page 28).

Note that this also changes the date and time. Therefore, when you operate the viewer again, you need to set them correctly (page 10).

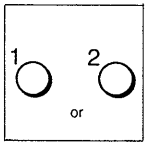
1 **Use ▽ and ◁ to highlight [Exit].**

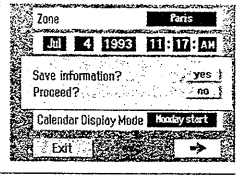




2 **Press button 1 or button 2.**
The following message appears.

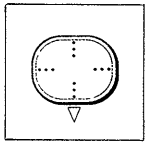
```
Save information?          ▶ yes
Proceed?                     no
```

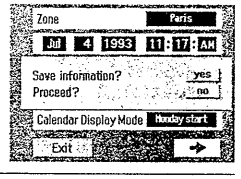




3 **Press ▽ until ▶ is pointing at [no].**

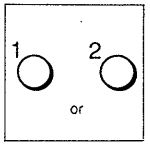
```
Save information?            yes
Proceed?                   ▶ no
```

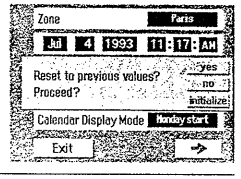




4 **Press button 1 or button 2.**
The following message appears.

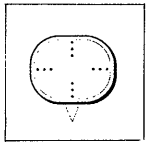
```
Reset to previous values?  ▶ yes
Proceed?                     no
                             initialize
```

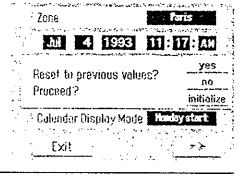




5 **Press ▽ until ▶ is pointing at [initialize]**

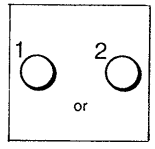
```
Reset to previous values?    yes
Proceed?                     no
                           ▶ initialize
```

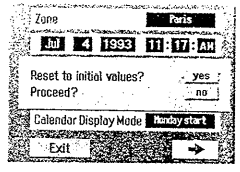




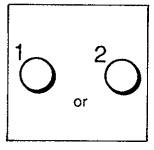
6 **Press button 1 or button 2.**
The following message appears.

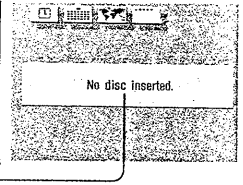
```
Reset to initial values?   ▶ yes
Proceed?                     no
```





7 **Make sure ▶ is pointing at [yes], then press button 1 or button 2.**
If ▶ is pointing at [no], press △ to move to [yes]. All the control panel settings return to their factory preset values.



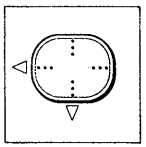


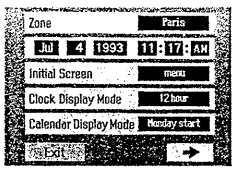
Message disappears in few seconds.

Canceling Changes

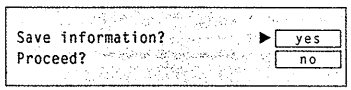
If you decide not to save changes made to the control panel settings, you can cancel them from the 1st control panel.

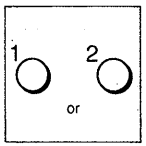
1 **Use ◁ and ▽ to highlight [Exit].**

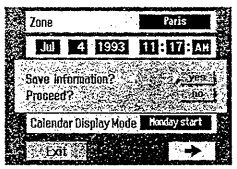




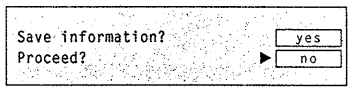
2 **Press button 1 or button 2.**
The following message appears.

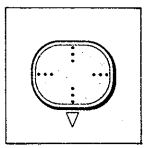


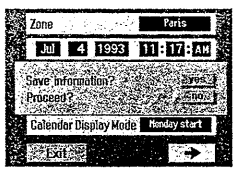




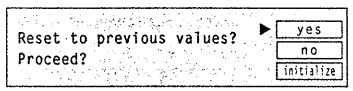
3 **Press ▽ until ▶ is pointing at [no].**

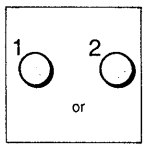


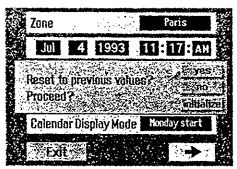




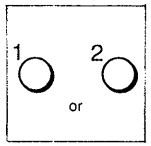
4 **Press button 1 or button 2.**
The following message appears.

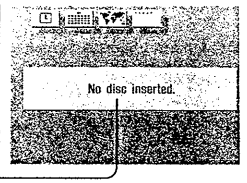






5 **Make sure ▶ is pointing at [yes], then press button 1 or button 2.**
If ▶ is pointing at [no], press △ to move to [yes].
All the control panel settings return to their previous values.





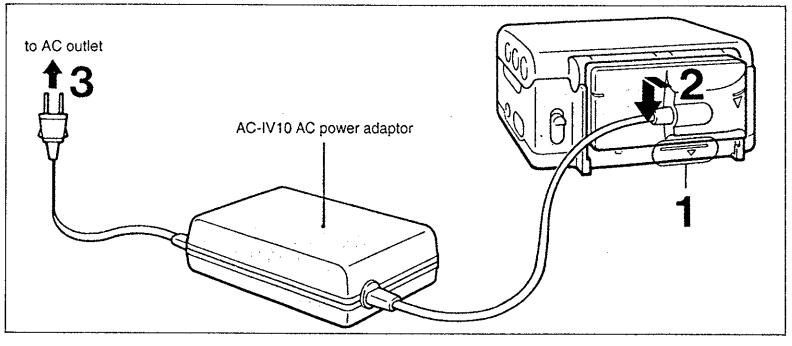
Message disappears in few seconds.

Choosing a Power Source

The CD-I viewer works with AC power (house current) or a rechargeable battery pack.

AC Power

Connect the supplied AC power adaptor as below.



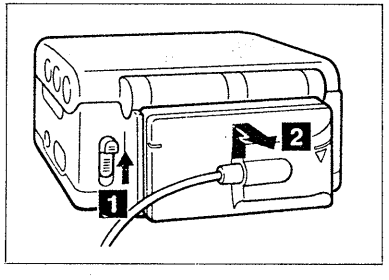
1 Align the bottom of the connecting plate with the line on the viewer.

2 While pressing the connecting plate, slide it as indicated.

3 Plug the AC power adaptor into the AC outlet.

Removing the connecting plate

While pushing up the BATT button 1, slide the connecting plate as indicated 2.

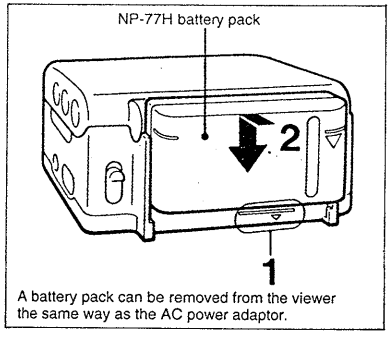


Refer also to the operating manual that comes with the AC-IV10.

Battery Pack

The viewer can also work with a battery pack (not supplied). Two types of battery packs are available: NP-77H/77HD, and NP-77. A new battery pack must be charged. Also, If you use the BC-S10 battery charger or AC-S10 AC power adaptor, fully discharge the battery pack first, and then charge it completely.

The NP-77H battery pack is used here for explanation.



A battery pack can be removed from the viewer the same way as the AC power adaptor.

1 Align the bottom of the battery pack with the line on the viewer.

2 While pressing the battery pack, slide it as indicated.

Types of chargers

The CD-I viewer package does not include any charger; you need to provide one yourself. The chargers you can use are:

Type	Charger
Direct plug-in	BC-S10 or -77 battery charger
Via power cord	AC-S10 or -V30 AC power adaptor (for one battery pack) AC-V55 AC power adaptor (for two battery packs)

The BC-77 battery charger cannot be used to charge the NP-77H/77HD battery pack.

Battery life

The table below lists the number of hours a fully charged battery pack can deliver for playing a compact disc continuously at room temperature. The respective battery life for playing CD-I discs may be shorter.

Battery Pack	Hours
NP-77H/77HD	About 1 hr 30 min
NP-77	About 1 hr 20 min

Using a Battery Pack Effectively

How to Prepare a Battery Pack

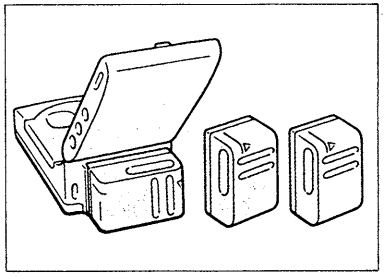
Have sufficient battery pack power to do 2 or 3 times the amount of playing that you plan to do.

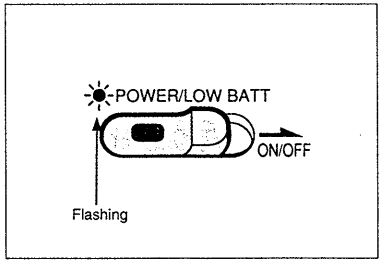
"Battery life" as described in the instruction manual or catalogue of the viewer is measured by the continuous use of the viewer, at room temperature, using a fully charged battery.

Battery life is shorter in a cold climate.
Cold climates reduce the efficiency of a battery and cause it to discharge more quickly.

When to Replace the Battery Pack

When the battery is low, the POWER/LOW BATT indicator becomes orange and starts flashing; this is the best time to replace the battery pack.
Turn off the viewer and replace the battery pack with a fully charged one.





On Charging

Before using the battery pack, charge it completely. A brand-new battery pack is not charged.

Recharge the battery pack only when it is fully discharged.

If you use the BC-S10 battery charger or AC-S10 AC power adaptor, fully discharge the battery first, and then charge it completely. Repeated charging while some capacity remains will reduce the battery capacity.

However, the original battery capacity can be recovered if you fully discharge and charge the battery again.

Recharge the battery pack just before use.
If the battery pack is not used for a long time (about 1 year), it becomes discharged. Charge it again, but in this case the battery life will be shorter than normal. After several charging and discharging cycles, the battery life will recover its original capacity.

Always Keep the Terminals Clean

If the terminals (metal parts on the battery pack) are soiled, the battery life will become shorter.

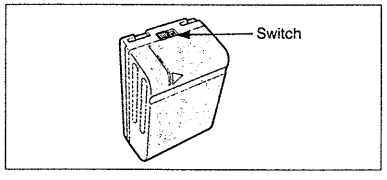
When the terminals are soiled, or when the battery pack has not been used for a long time, repeatedly attach and remove it several times. This will improve the contact of the battery pack and the viewer. Also, wipe the + and – terminals with a soft cloth or tissue.

How to care for battery pack

- Remove the battery pack from the viewer after use, and keep it in a cool place. When the battery pack is attached to the viewer, a small amount of current flows to the viewer even if the power switch is turned off. This causes overdischarge and, consequently, shortens battery life.
- The battery pack is always discharging even when it is not in use. Thus the battery should be charged before each use.
- When the battery pack is not in use, store it in a case. If the + and – terminals are short-circuited with a piece of metal, the battery heats up abnormally. This is very dangerous.

How to use the switch on the battery pack

Use this switch as a reminder of the charging condition. Set the switch to the "no mark" position when the charging is completed. Set the switch to the "red mark" position when the battery is fully discharged.



How many times can the battery pack be recharged

It can be fully charged and discharged about 500 times under normal temperatures. When the POWER/LOW BATT indicator turns orange and starts flashing with a fully charged battery pack, replace the battery pack with a brand new one.

Charging temperature

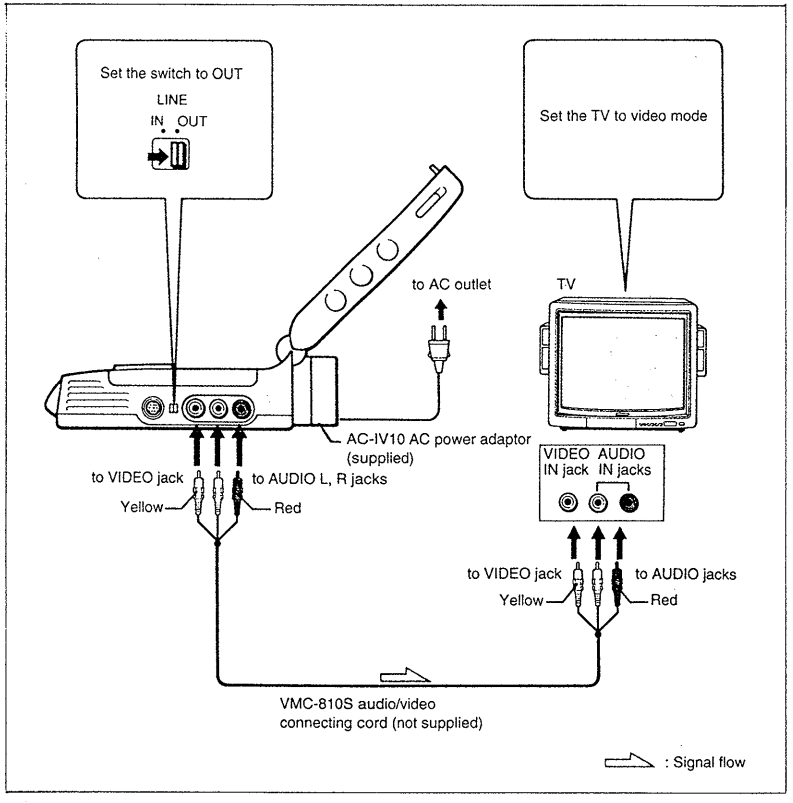
Lower temperatures require a longer charging time. Charging under a temperature ranging from 10°C to 30°C (50°F to 86°F) is recommended.

Why the battery pack heats up

While the battery pack is being charged or used, a chemical change occurs inside the battery pack which generates electric energy. Consequently, the battery pack becomes warm, but this is not dangerous.

Connecting to a TV

You can watch CD-I disc programs on a TV equipped with video and audio input jacks. Use an audio/video connecting cord (not supplied) for the connection and refer also to the operating instructions that come with the TV for more information. AC power is recommended for this purpose.



If the TV has only one AUDIO IN jack
This means the TV can only play monaural sound. The audio/video connecting cord VMC-910MS (pin plug (3) ←→ pin plug (2)) is recommended. Connect the black plug to the TV's AUDIO IN jack.

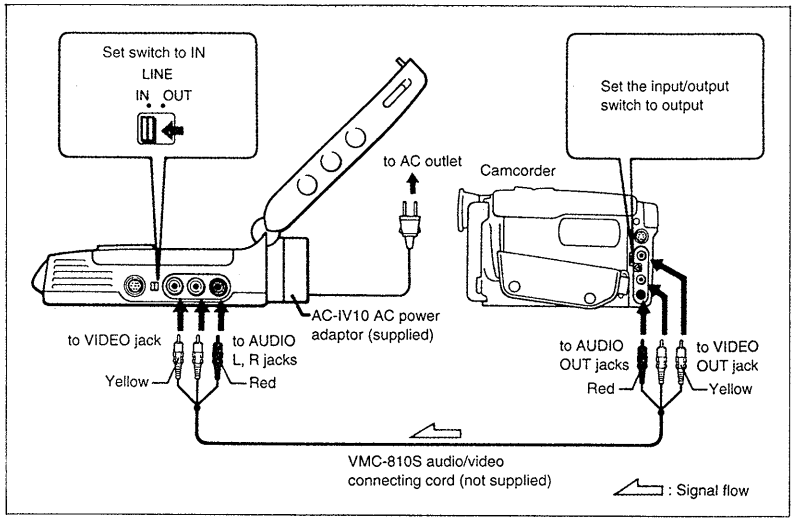
When using the VMC-810S, etc, use the white plug to connect to the AUDIO IN jack on the TV; do not use the red plug.

To adjust the sound volume
The monitor speaker of the viewer can output sound in monaural only. Use its VOLUME control to adjust the sound level.

Some discs may cause distortion to the picture on the TV.

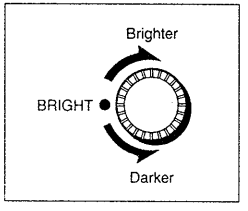
Connecting to Video Equipment

You can use the viewer's LCD display to enjoy video output from video equipment. For the connection, refer also to the operating instructions that come with the video equipment.

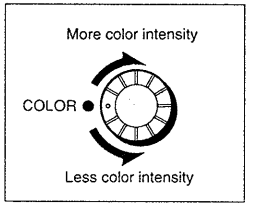


Adjusting the picture
The following three controls are located on the right side of the top cover.

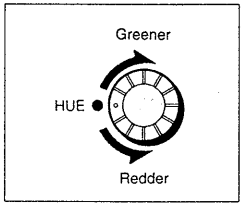
Brightness



Color Intensity



Skin Tone



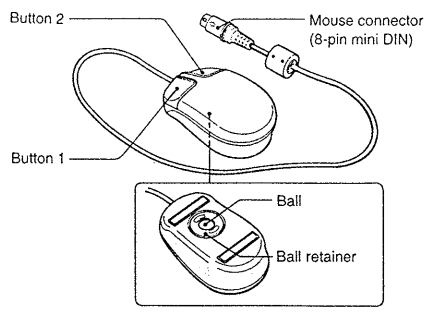
If the power is suddenly cut off
This happens when the auto power-off function is active (page 28).
To disable this function, set the Auto Power Off to none.

If the video equipment has only one AUDIO OUT jack
This means the video equipment can output sound in monaural only. The VMC-910MS audio/video connecting cord (pin plug (3) ←→ pin plug (2)) is recommended. Connect the black plug to the AUDIO OUT jack on the video equipment.

When using the VMC-810S, etc, use the white plug to connect to the AUDIO OUT jack on the video equipment; do not use the red plug.

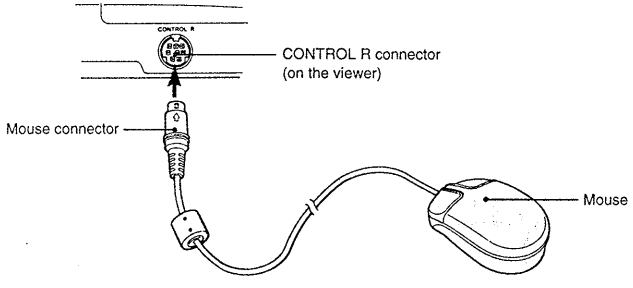
Using the Supplied Mouse

Overview



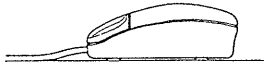
Connection

Note **Turn off the viewer before connecting the mouse.**



Putting the Mouse on the Table Top

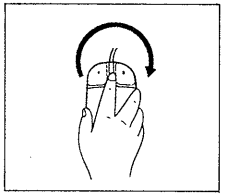
Be sure to place the mouse on a clean, flat surface.
Otherwise the mouse will not work properly.



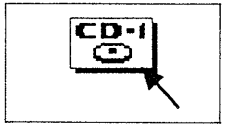
Using the Mouse

1 **Grasp the mouse and slide it across the table top, while watching the ↖ (pointer) move on the screen.**
The pointer's movement corresponds to that of the mouse.

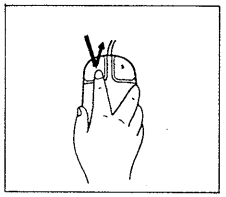
Note: Each CD-I disc and connected unit have their own pointer shape.



2 **Keep moving the mouse until the ↖ (pointer) is on the item you want.**
The ↖ (pointer) on the screen will not move if the mouse is not on the table top.

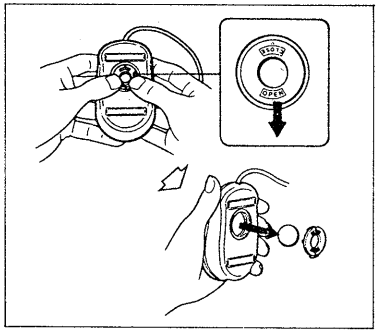


3 **Press and release (click) button 1 or button 2.**



Cleaning

To clean the mouse, take the ball out as illustrated. Clean the ball with a mild detergent solution and wipe it with a dry cloth. Then, replace the ball and ball retainer.



Cautions

- Do not allow the mouse to come in contact with dust or liquid spills (water, oil etc.)
- If the mouse does come in contact with moisture or dust, use a lint-free cloth with mild detergent to clean the ball and dry it well.
- The mouse is a very precise mechanical device, so handle it with care. Do not drop or hit it.
- Do not disassemble the mouse. (That is, do not remove the screws on bottom housing.) Refer servicing to your local Sony service facility.
- Do not try to pull out the cable. It may cause damage to the cable and the connector. Do not pick up the mouse by holding the cable.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Precautions

On Safety

- **Do not disassemble the viewer.**
  As the laser beam used in this viewer is harmful to the eyes, do not attempt to disassemble the casing.
- **Do not put any foreign objects into the viewer.**
  A safety device is built into the viewer so that when the disc cover is opened, the safety device will stop the laser beam from functioning. Any foreign objects (e.g. pin) inside the viewer will defeat the purpose of the safety device and the laser beam may come out when the cover is opened.
- **Do not wrap the viewer in a piece of cloth.**
  When the viewer is used with the AC power adaptor, do not wrap the unit in a cloth, blanket, etc. If you do so, the temperature inside and outside the viewer may rise considerably, resulting in malfunctioning of the viewer or serious accidents.
- **Do not subject the viewer to shock, or a malfunction may result.**
- **When the viewer is in use, its bottom will become hot.**
  So be careful if you place it on the carpet, etc.

On condensation

If the viewer is brought directly from a cold location to a warm one, or is placed in a very damp room, condensation may occur on the lens inside the viewer, causing it to work incorrectly. If this happens, remove the disc inside, and leave the viewer in a warm place for a few hours until the condensation evaporates. If the problem still continues, call your local Sony service facility for assistance.

About the lens

The lens on the disc table should be kept clean. Do not touch the lens or poke at it. If you do so, the lens may be damaged and the viewer will not operate properly. To keep the dust out, always keep the disc cover closed except for inserting discs.

About the temperature

The bottom of the viewer may get warm. This is not a malfunction. The AC power adaptor also gets warm. This is also not a malfunction. However, if the AC power adaptor gets excessively hot, disconnect it and have it checked by your local Sony service facility.

On installation

Do not place the viewer:

- Under direct sunlight or near heat sources such as radiators.
  Operate the viewer between 5°C to 35°C (41°F to 95°F)
- On the dashboard or inside your car parked under direct sunlight (particularly in the summer).
- Near magnet, speaker, or a TV where a magnetic field exists.
- In a very dusty place.
- In an inclined position.
- Subject to mechanical vibration or shock.
- Exposed to moisture or rain.

When listening to a CD-I or a compact disc

- Adjust the sound volume to a level comfortable to your ears.
- Try not to disturb people around you with the sound leaking from your headphones.

If any problem occurs

If any problem occurs, or if a foreign object falls into the viewer, turn off the viewer and call your local Sony service facility for assistance.

On the LCD display

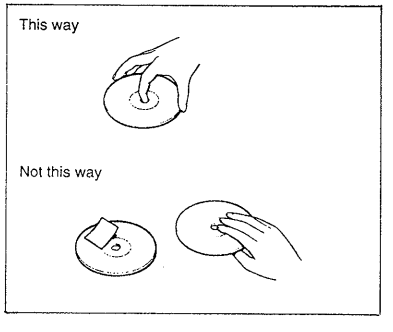
- Do not push the display forcibly, otherwise uneven color distribution or viewer trouble may occur.
- Avoid operating the viewer at temperature below 5°C (41°F) or above 35°C (95°F).
- If the viewer is used in a cold place, a residual image may appear on the display. This is not a malfunction of the unit.
- Constant bright points of light (red, blue, or green) may appear on the display. This is not a malfunction of the unit.

On the built-in lighting system

A built-in lighting system is assembled inside the LCD display of this unit. The life of the small fluorescent tube used for this built-in lighting system runs out over a period of use. If the lamp becomes dimmer or goes off immediately after you turn it on, even with a new battery, replace the lamp with a new one. To replace the lamp, consult the dealer where you purchased the unit, or a local Sony service facility. The expected life of the small fluorescent tube is about three years if this unit is used for an hour each day. When you use this unit in a cold environment, the fluorescent tube will be dimmer at first. As soon as the temperature of the tube rises, the unit will regain its original brightness.

Handling CD-I or compact discs

- Always hold a disc by its edge. Do not touch the surface (the side without a label).
- Do not stick paper or write anything on the surface of the disc.



Storing CD-I or compact discs

- Do not store the discs
  - subject to high temperature, e.g. direct sunlight.
  - in a very humid environment.
  - on the dashboard or inside your car parked under direct sunlight (particularly in the summer).
- When you are not going to play a disc for a long time, remove it from the viewer. Keep the disc in its case; otherwise the disc may warp. Do not stack it with other discs or stand it in an inclined position.

Maintenance

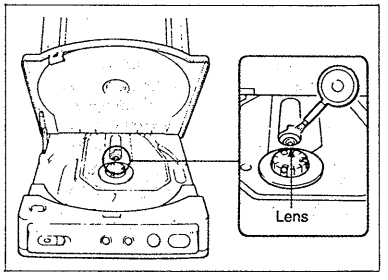
Viewer

Cleaning the casing

Clean the casing with a soft cloth. If the dirt is serious, slightly moisten the cloth with a mild detergent solution. Do not use solvents such as thinner, benzine, or alcohol, as they may damage the finish of the casing.

Cleaning the lens

If you accidentally touch the lens with dirty fingers or if dust on the lens prevents the viewer from operating properly, open the disc cover and clean the lens with a KK-9 lens cleaning kit (not supplied).



Cleaning the headphones plug

Keep the headphones plug clean to obtain optimum sound. Wipe the plug with a dry, soft cloth.

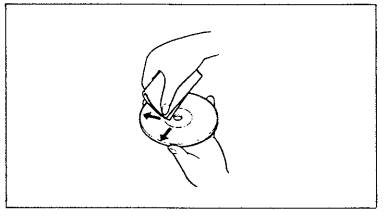
LCD display

Use a soft cloth to wipe the display.

Discs

The CDM-1K/2K CD cleaning kit (not supplied) is recommended.

- If a disc becomes dirty, clean it with a cleaning kit.
- Do not use solvents such as benzine, thinner, commercially available cleaners or anti-static spray intended for use with records. They may damage the disc.
- Clean the disc from the center out, using a clean soft cloth.
- If the dirt is serious, slightly moisten the cloth with water and wipe it, followed by a dry cloth.



Messages

If any problem occurs during the operation and a message appears on the LCD display, use the following table to try to solve the problem.

Message	Try This	See Also Page
This disc cannot be played on this machine. Please check the disc.	Remove the disc and check its format.	5
Disc error found. Please check the disc.	Remove the disc and look for dirt or damage. If necessary, clean the disc.	46
System error found. Turn off the power immediately.	Turn the viewer off, then back on again. If the problem still continues, call your local Sony service facility for assistance.	—
Would you like to set up the control panels? ▶ yes / no	The viewer settings have returned to their factory preset values. Use the steps below to access the 1st control panel and set the correct date and time. If this is not done, the message will continue to appear every time the viewer is turned on. 1 With the viewer still connected to a power source, insert a new lithium battery. 2 Move ▶ to point at yes, then press button 1 or button 2. 3 Set the correct date and time. If the problem still continues, call your local Sony service facility for assistance.	10
The time and date are not properly set. Please reset them. ▶ Reset	Set the correct date and time.	10
No disc is inserted.	This is not a problem. The message will disappear in a few seconds. Pressing button 1 or button 2 will immediately clear the message.	14, 16
Memory full. Please erase 10 % of the saved files. ▶ yes	The memory is full, so you must erase some of the files. Press button 1 or button 2 to bring up the 3rd control panel (in this case the other two control panels cannot be accessed). Erase the unnecessary files to free up about 10% of memory. When this is done, the Please wait a moment... message appears for a few seconds, then the initial screen is displayed.	29

Troubleshooting

If a problem occurs without a message appearing on the LCD display, use the following table to troubleshoot the viewer. If the problem still continues, call your local Sony service facility for assistance.

	Problem	Cause	Check	See Also Page
Operation	The CD-I disc screen does not appear when a CD-I disc is inserted.	• The disc is inserted upside down. • The disc or the lens is dirty.	• Insert the disc with the label side up. • Clean the disc or lens.	14, 16 46
	The compact disc screen does not appear when a compact disc is inserted.	• Condensation occurs.	• Take out the disc and leave the viewer for two or three hours until the condensation evaporates.	44
		• The disc cover is not closed properly.	• Close the cover properly.	14, 16
	The CD-I disc screen appears, but the inserted CD-I disc does not start playing.	• The memory is full.	• Remove some or all the unnecessary files.	29, 47
Sound & Picture	The sound skips, or picture does not appear.	• The CD-I, compact disc, or the lens is dirty.	• Clean them.	46
		• The CD-I or compact disc is seriously damaged.	• Replace the disc.	—
		• The viewer is subject to strong vibration.	• Keep the viewer away from vibration.	44
	No sound comes from the headphones.	• The headphones are not connected correctly.	• Plug the headphones properly into the PHONES jack.	17
		• The VOLUME control is set to the minimum level.	• Adjust the VOLUME control to a comfortable level.	14, 17
	No picture appears on the LCD display.	• The LCD display is too bright or too dark.	• Use the BRIGHT control to adjust the brightness to an appropriate level.	15
		• The LINE IN OUT switch on the viewer is set to IN.	• Set the switch to OUT.	40
		• The LCD display is turned off.	• Press the LCD ON/OFF button to turn on the display.	15
	No picture appears on the TV.	• The viewer is not properly connected to the TV.	• Connect them properly.	40
		• The LINE IN OUT switch on the viewer is set to IN.	• Set the switch to OUT.	
		• The TV/video switch on the TV is set to TV.	• Set the switch to video.	

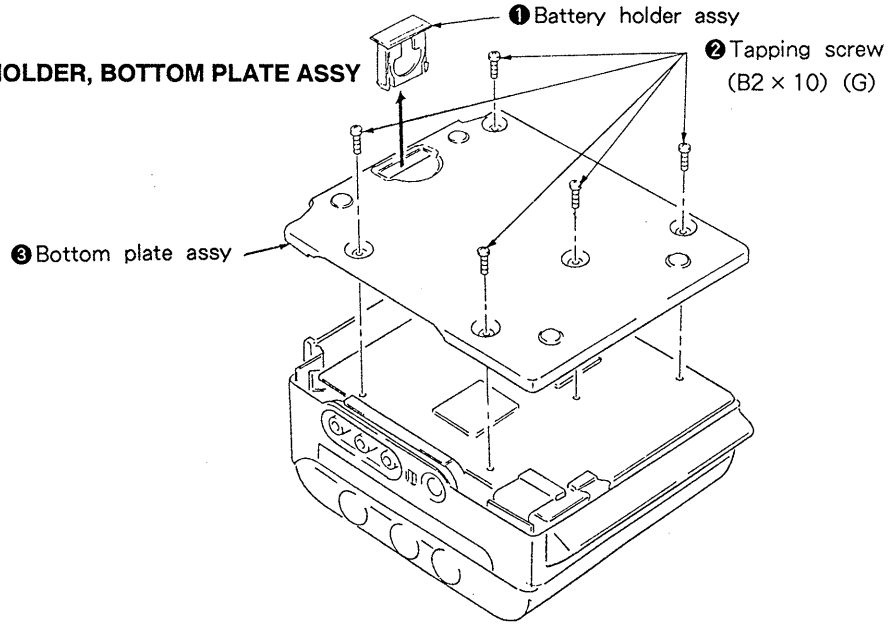
	Problem	Cause	Check	See Also Page
Sound & Picture	No sound comes from the TV.	• The viewer is not properly connected to the TV.	• Connect them properly.	40
		• The sound volume on the TV is set to the minimum level.	• Adjust the volume.	
	No picture appears on the viewer when connected to video equipment.	• The viewer is not properly connected to the video equipment.	• Connect them properly.	41
		• The LINE IN OUT switch on the viewer is set to OUT.	• Set the switch to IN.	
		• The video or audio input/output switch on the video equipment is set to input.	• Set the switch to output.	
Others	No power is supplied.	• The AC power adaptor is not connected.	• Connect the AC power adaptor properly.	9
		• The battery pack is almost or completely discharged, or is not installed yet.	• Install a fully charged battery pack.	37
		• The battery pack has expired.	• Replace with a new one.	39
	The power suddenly goes off.	• The auto power-off function is active.	• Turn on the viewer again.	—
			• Access the control panel and change auto power-off to [Auto Power Off : none]	28
	The battery pack is discharged very quickly.	• The viewer is being used in an extremely cold environment.	—	—
		• The battery pack is not fully charged.	• After the battery pack is completely discharged, fully charge it.	38
		• The battery pack has expired.	• Replace with a new one.	39
	None of the buttons work during operation.	• Strong interference from the external environment has caused the viewer's microprocessor to malfunction.	• Use a pointed device to press the CL button on the bottom of the viewer. This resets the viewer.	7

SECTION 2
DISASSEMBLY

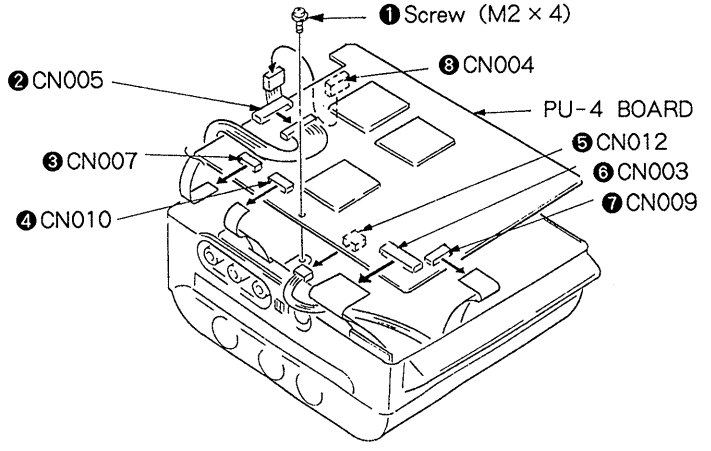
NOTE : Follow the disassembly procedure in the numerical order given.

• See page 4.

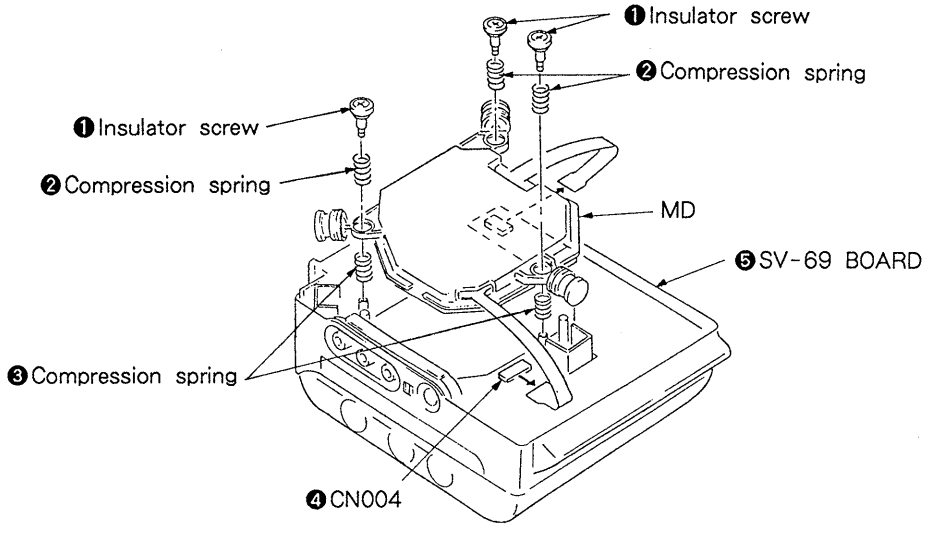
2-1. BATTERY HOLDER, BOTTOM PLATE ASSY



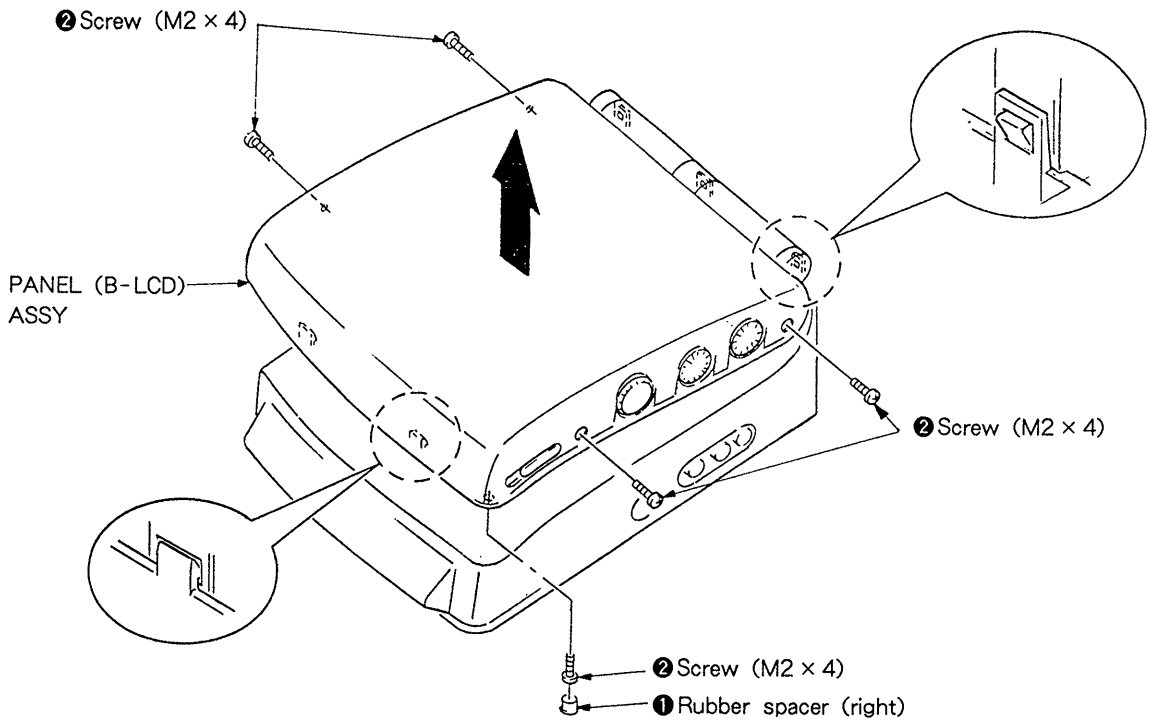
2-2. PU-4 BOARD



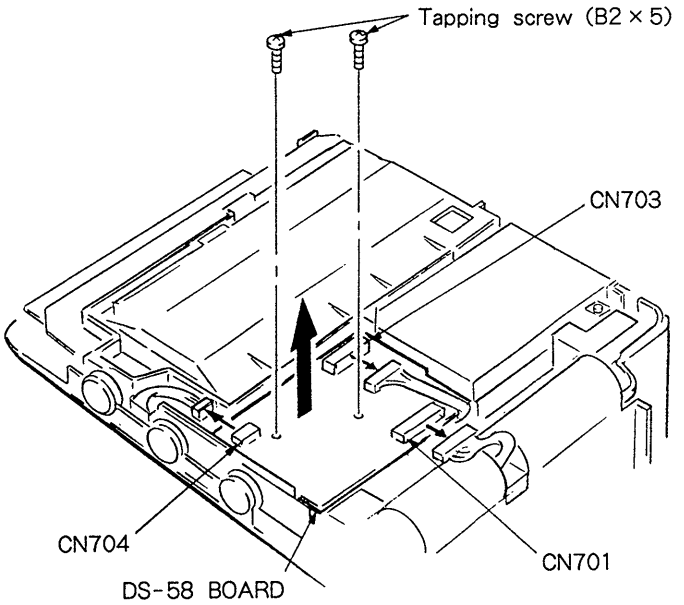
2-3. MD, SV-69 BOARD



2-4. PANEL (B-LCD) ASSY

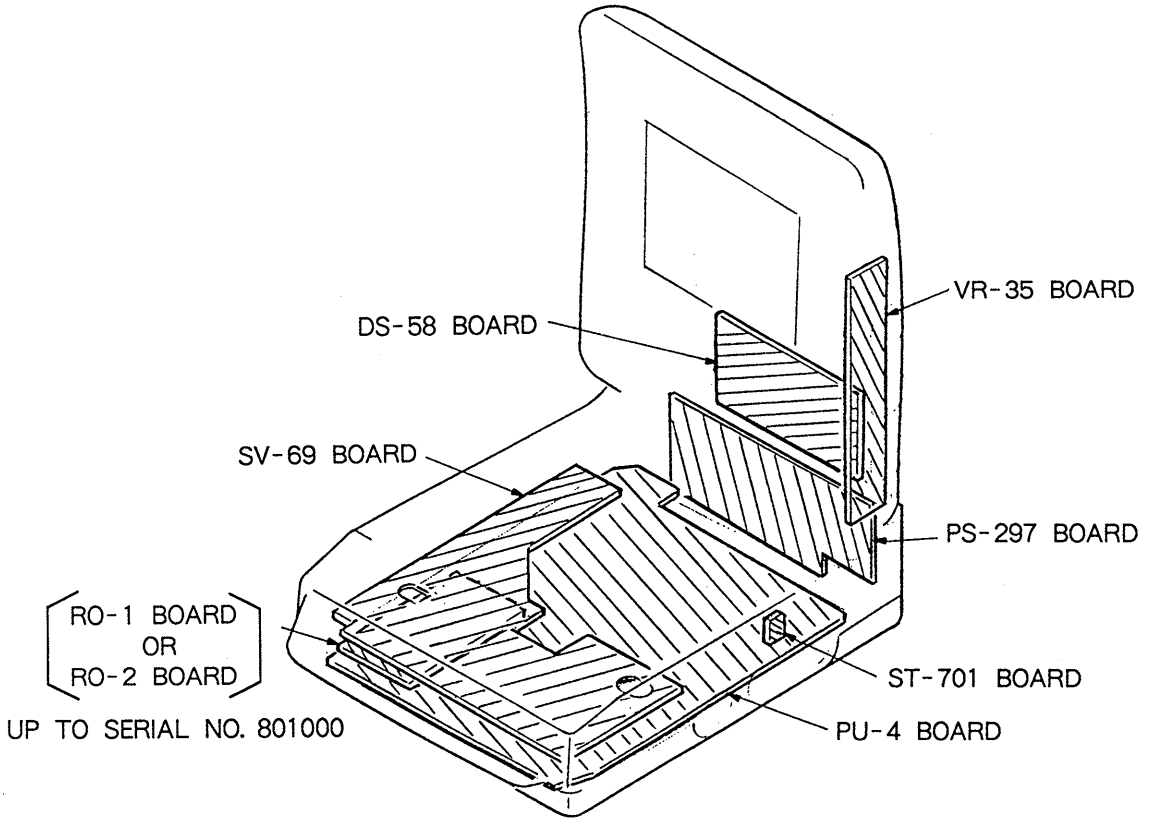


2-5. DS-58 BOARD

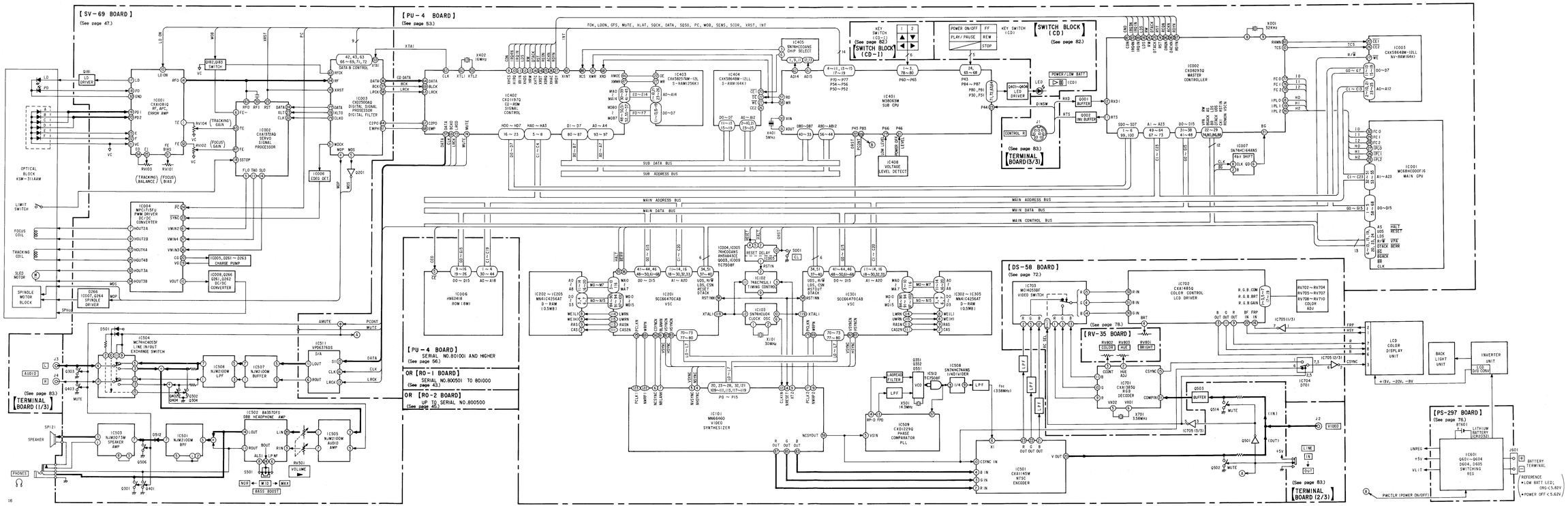


SECTION 3
DIAGRAMS

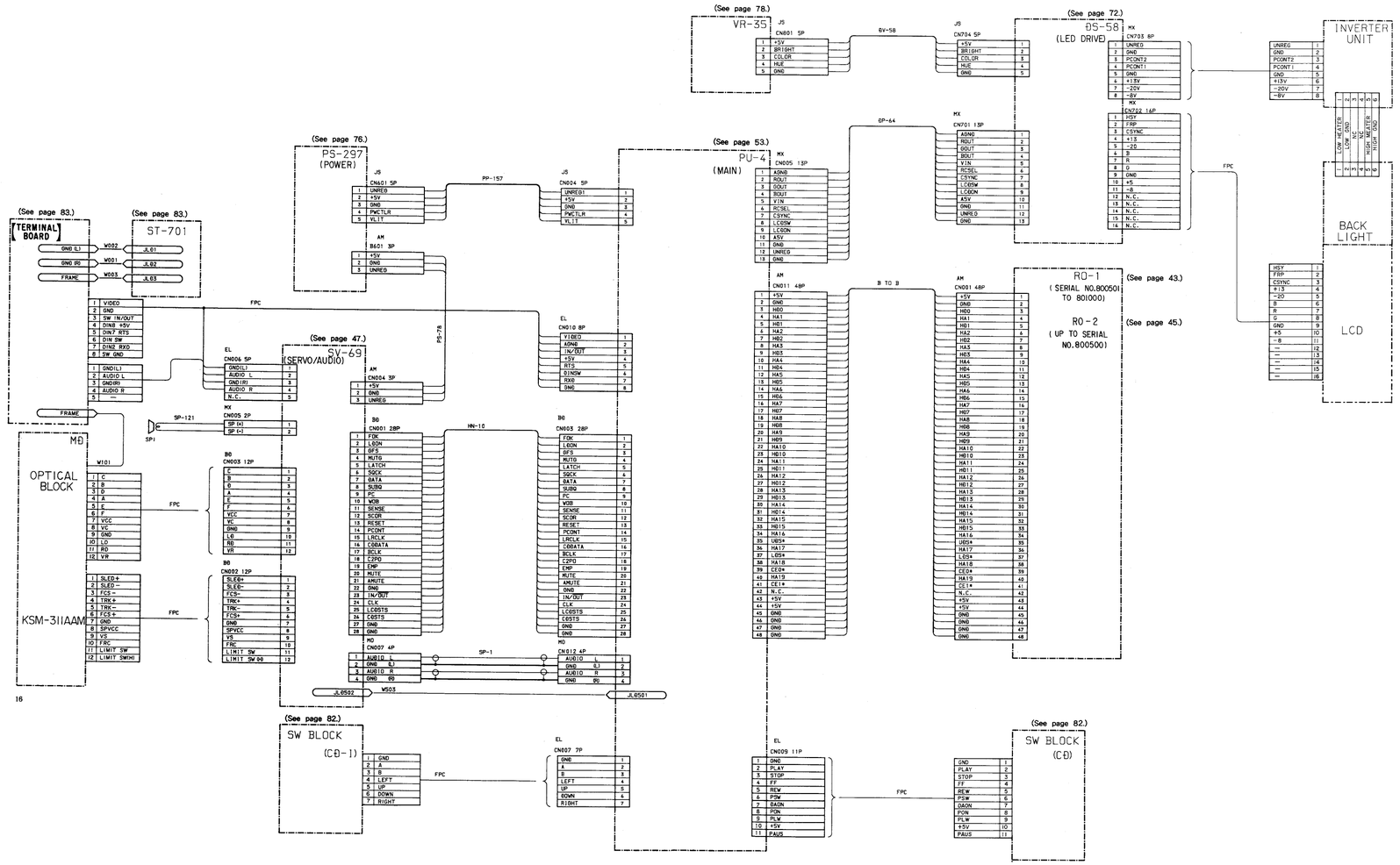
3-1. CIRCUIT BOARDS LOCATION



3-2. BLOCK DIAGRAM

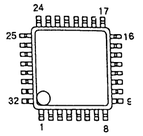


3-3. FRAME SCHEMATIC DIAGRAM

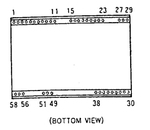


3-4. SEMICONDUCTORS

CXA1081Q

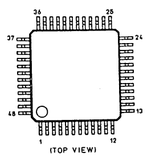


MC68HC00FC16



(BOTTOM VIEW)

CXA1372AQ



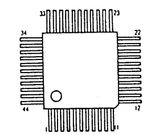
(TOP VIEW)

MN41C4256AT

(TOP VIEW)

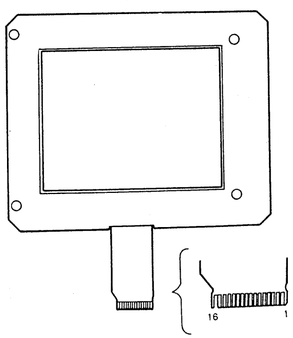
XN4601

MPC1715FU



1T33C-01

3-5. LCD PIN DESCRIPTION



PIN NO.	SIGNAL
1	HSY
2	FRP
3	SYN
4	VGH
5	VGL
6	VB
7	VR
8	VG
9	GND
10	VSH
11	VSL
12	VCDC
13	N/P
14	VSY
15	OVD
16	W/H

3-6. SCHEMATIC DIAGRAM AND PRINTED WIRING BOARD

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

For printed wiring boards:

- o—— : indicated a lead wire mounted on the component side.
- ○ : Through hole.
  (Otherr pattern is not shown)

For schematic diagram:

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4 W unless otherwise noted.
  Chip resistors: 1/10 W unless otherwise noted.
  kΩ : 1000 Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
-  : nonflammable resistor.
- : fusible resistor.
-  : panel designation.
- △ : internal component.
-  : adjustment for repair. ★
- ▬▬ : B + Line. ★
- ▬ ▬ ▬ : B − Line. ★
- Voltage are dc between ground and measurement points. ★
- Readings are taken with a digital multimeter (DC10 MΩ). ★
- Voltage variations may be noted due to normal production tolerances. ★

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- ★ : indicated by color red.

SV-69 (SERVO/AUDIO) RO-1, RO-2 PRINTED WIRING BOARDS

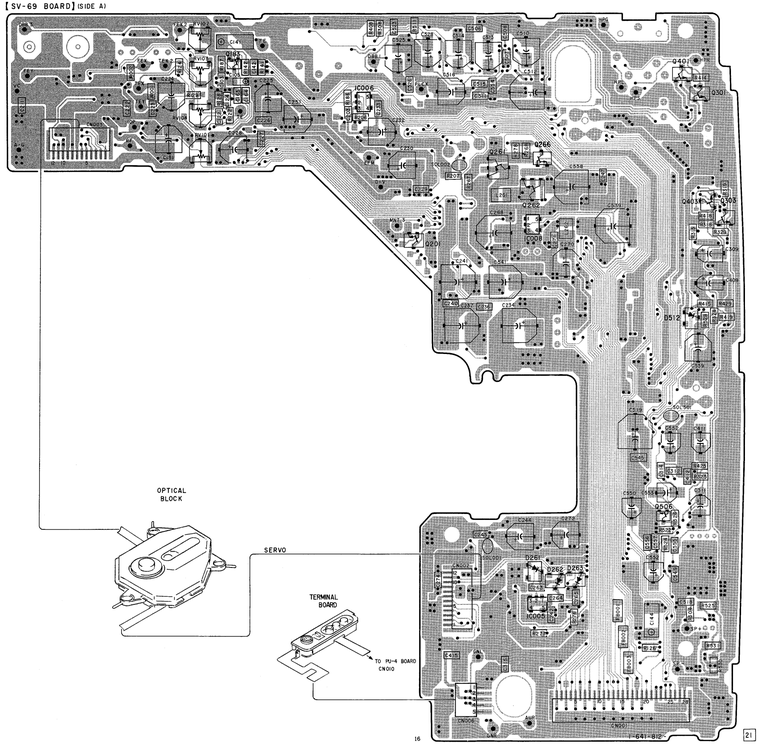
SV-69 BOARD
RO-1 BOARD
RO-2 BOARD

0261 H-8
0262 H-8
0263 H-8
0265 D-14
0266 I-15
0501 F-13
0511 B-13

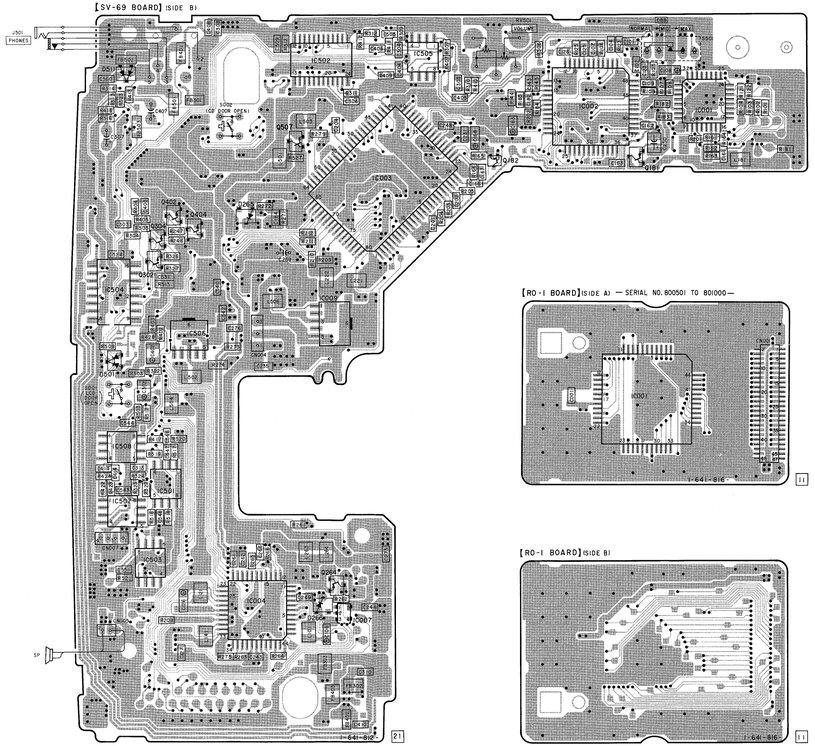
IC001 F-25
IC001 F-20
IC001 B-21
IC002 B-19
IC002 F-24
IC003 C-16
IC004 I-15
IC005 I-8
IC006 B-6
IC007 I-16
IC008 D-8
IC009 E-16
IC501 G-13
IC502 A-15
IC503 H-13
IC504 E-13
IC505 A-17
IC506 E-14
IC507 G-13
IC508 G-13

Q181 C-20
Q182 C-18
Q183 A-4
Q201 D-6
Q261 C-8
Q262 C-8
Q264 H-16
Q266 C-8
Q301 B-10
Q302 D-13
Q303 D-11
Q304 D-13
Q401 B-10
Q402 C-13
Q403 C-10
Q404 D-14
Q506 H-10
Q507 C-15

【SV-69 BOARD】(SIDE A)

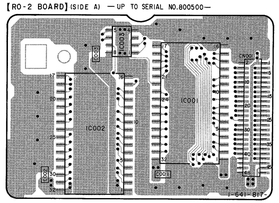


【SV-69 BOARD】(SIDE B)



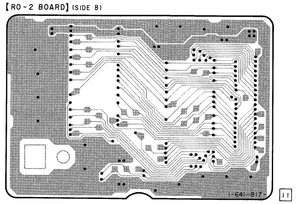
【RO-1 BOARD】(SIDE A) — SERIAL NO.800501 TO 801000 —

【RO-2 BOARD】(SIDE A) — UP TO SERIAL NO.800500 —



【RO-1 BOARD】(SIDE B)

【RO-2 BOARD】(SIDE B)



IVO-V11

RO-1 SCHEMATIC DIAGRAM

Serial No. 800501 to 801000.

【RO-1】

CN001 48P WHT

1	+5V	JL001	
2	GNĐ	JL002	
3	HĐ0	JL003	Đ0
4	HA1	JL004	A1
5	HĐ1	JL005	Đ1
6	HA2	JL006	A2
7	HĐ2	JL007	Đ2
8	HA3	JL008	A3
9	HĐ3	JL009	Đ3
10	HA4	JL010	A4
11	HĐ4	JL011	Đ4
12	HA5	JL012	A5
13	HĐ5	JL013	Đ5
14	HA6	JL014	A6
15	HĐ6	JL015	Đ6
16	HA7	JL016	A7
17	HĐ7	JL017	Đ7
18	HA8	JL018	A8
19	HĐ8	JL019	Đ8
20	HA9	JL020	A9
21	HĐ9	JL021	Đ9
22	HA10	JL022	A10
23	HĐ10	JL023	Đ10
24	HA11	JL024	A11
25	HĐ11	JL025	Đ11
26	HA12	JL026	A12
27	HĐ12	JL027	Đ12
28	HA13	JL028	A13
29	HĐ13	JL029	Đ13
30	HA14	JL030	A14
31	HĐ14	JL031	Đ14
32	HA15	JL032	A15
33	HĐ15	JL033	Đ15
34	HA16	JL034	A16
35	UĐS*	JL035	
36	HA17	JL036	A17
37	LĐS*	JL037	
38	HA18	JL038	A18
39	CE0*	JL039	
40	HA19	JL040	A19
41	CE1*	JL041	
42	N.C.	JL042	
43	+5V	JL043	
44	+5V	JL044	
45	GNĐ	JL045	
46	GNĐ	JL046	
47	GNĐ	JL047	
48	GNĐ	JL048	

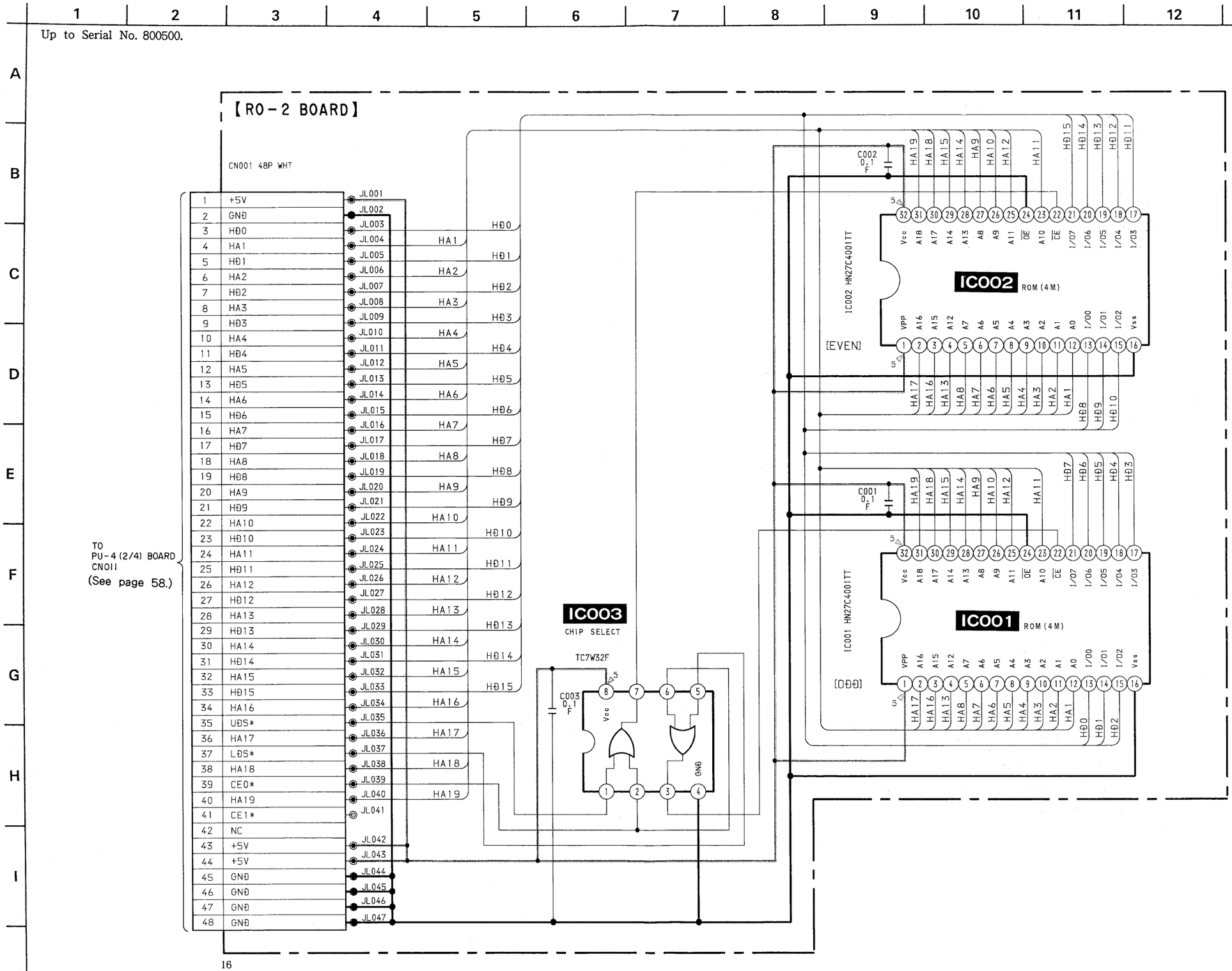
TO
PU-4(2/4) BOARD
CN011
(See page 58.)

16

IC001
IC001
HN62418
ROM

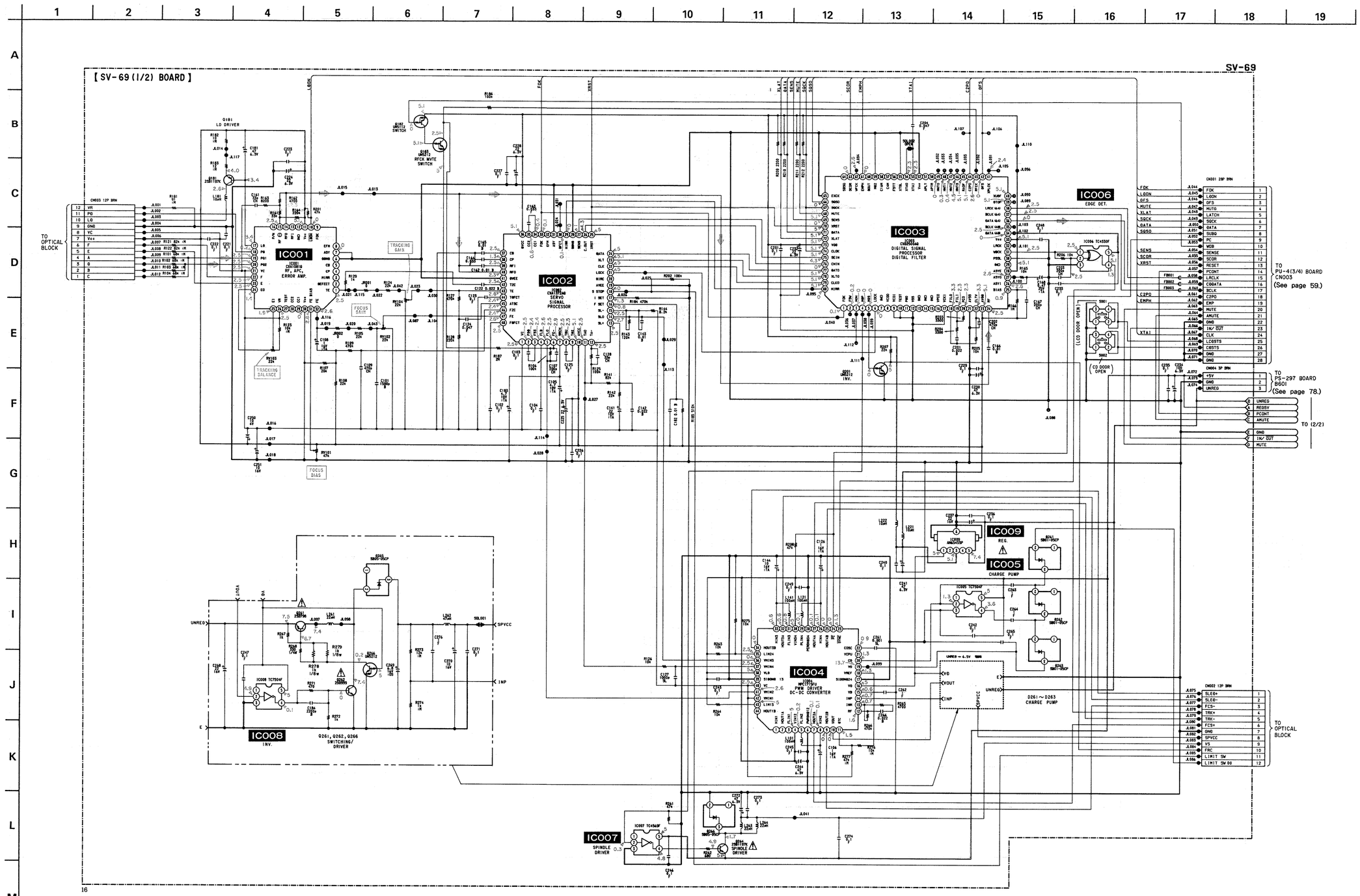
C001
0.1
F

Up to Serial No. 800500.

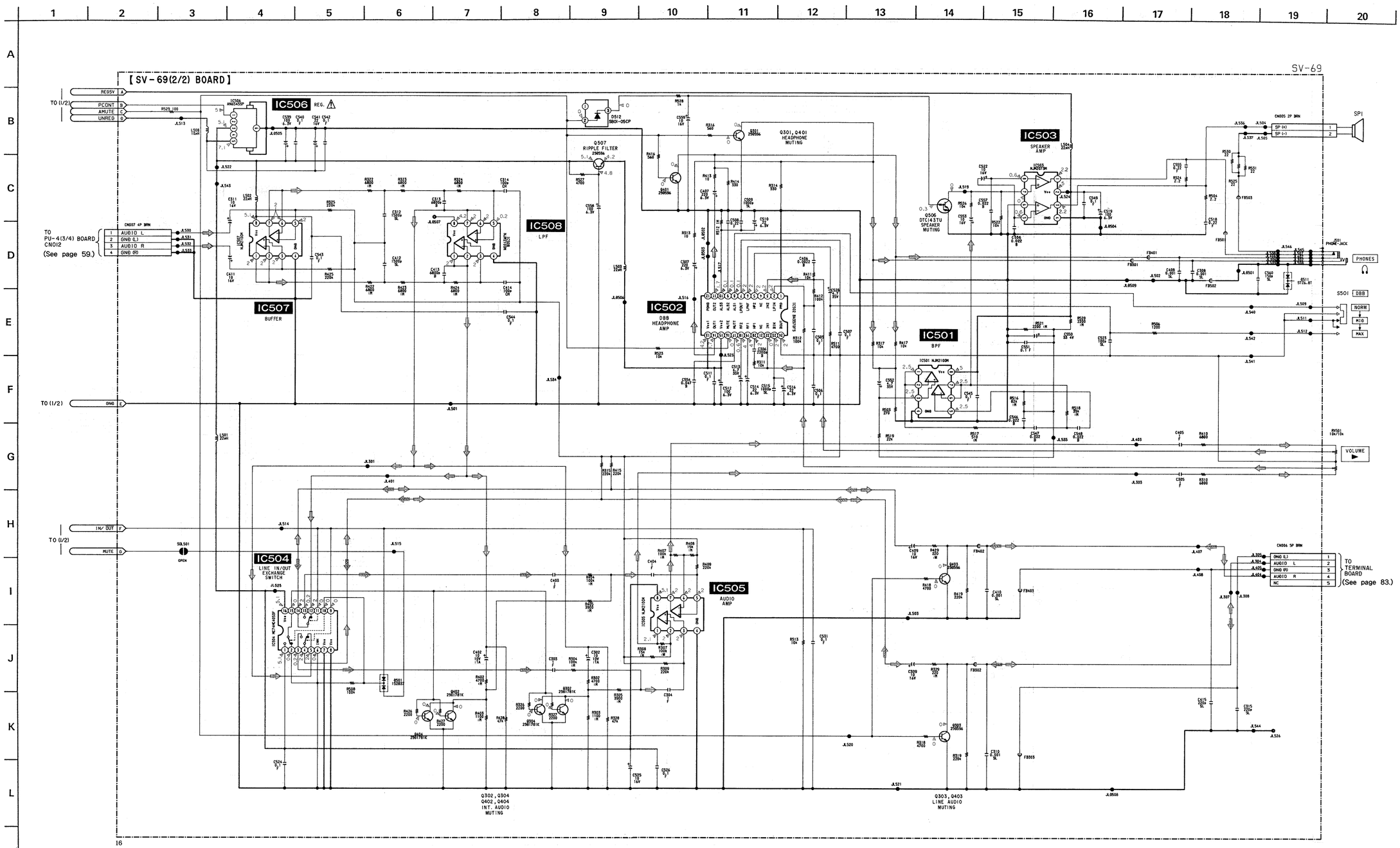


16

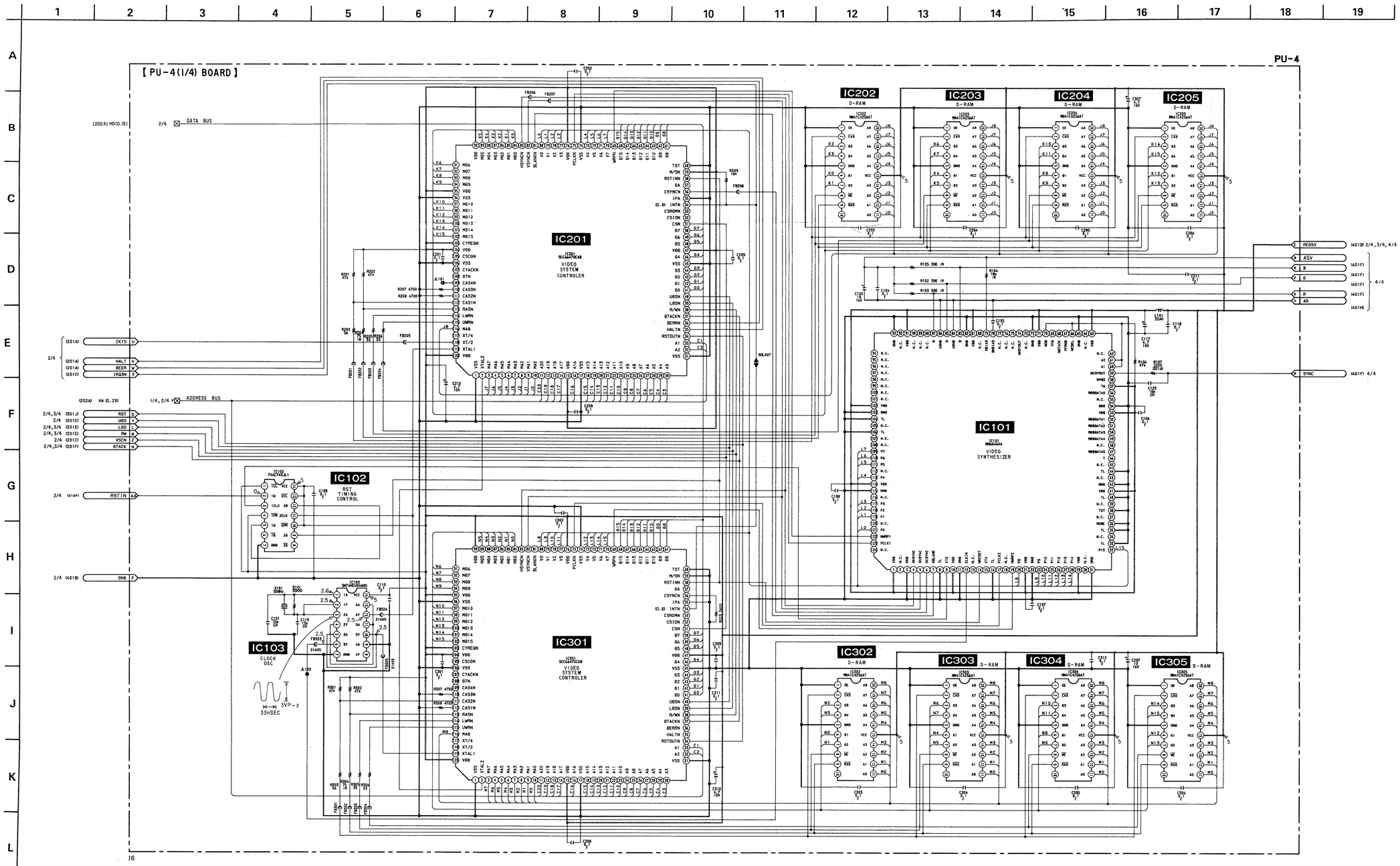
SV-69 (1/2) (SERVO/AUDIO) SCHEMATIC DIAGRAM



SV-69 (2/2) (SERVO/AUDIO) SCHEMATIC DIAGRAM



PU-4 (1/4) (MAIN) SCHEMATIC DIAGRAM



PU-4 (2/4) (MAIN) SCHEMATIC DIAGRAM

【PU-4 (2/4) BOARD】

PU-4

IC002 CXM82256Q MASTAR CONTROLER

IC001 MC68MC000FC16 MAIN CPU

IC004 RESET

IC008 B+ DOWN DETECT

IC003 NV-RAM

IC009 AMP

IC005 RESET DELAY

IC007 8G 4bit SHIFT

IC006 HN62418FPC81 ROM

IC006 SERIAL NO. B01001 AND HIGHER (RO-2 OR RO-1 ARE NOT USED)

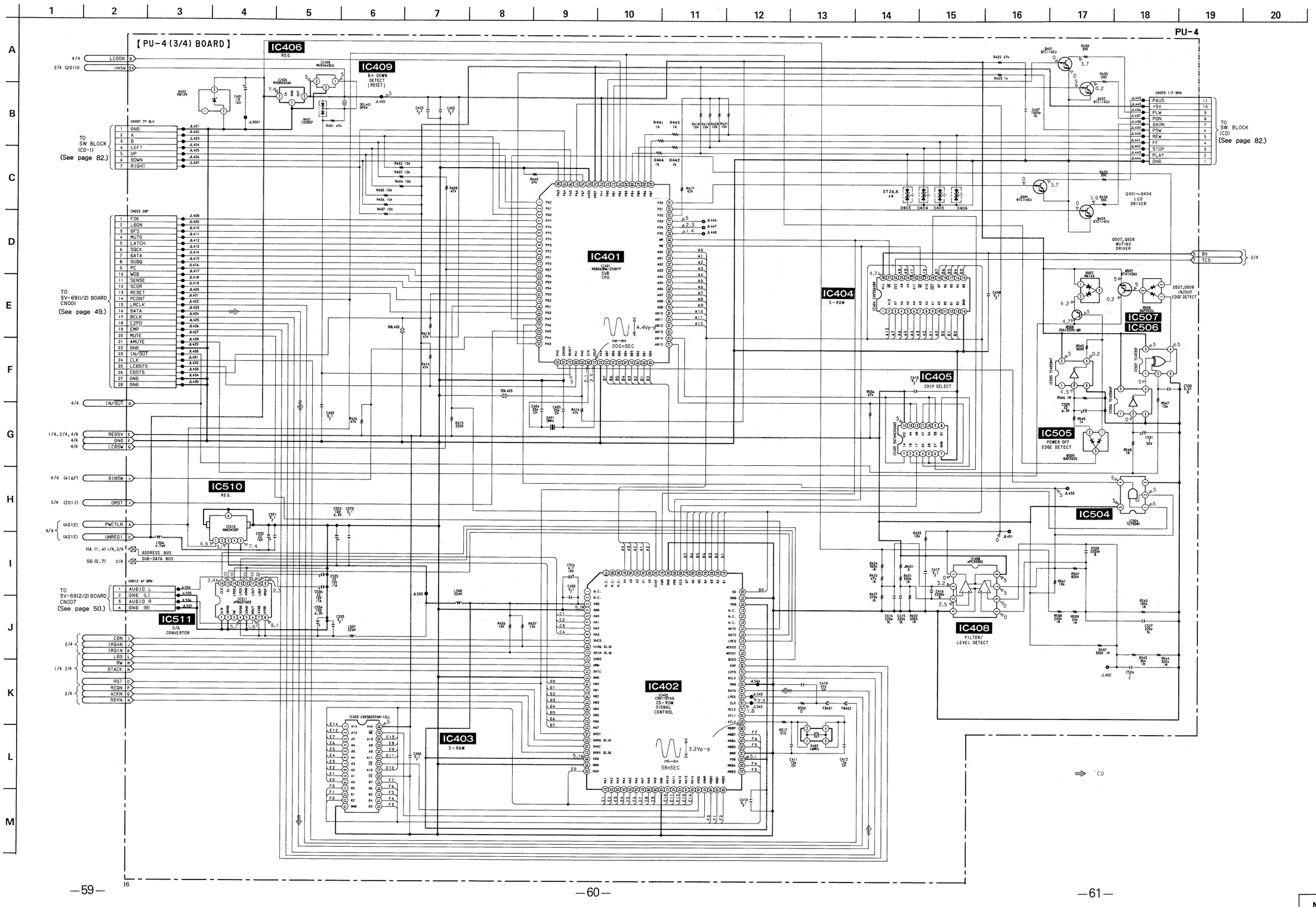
Q001 INPUT BUFFER

Q002 INV BUFFER

Q003 BUFFER

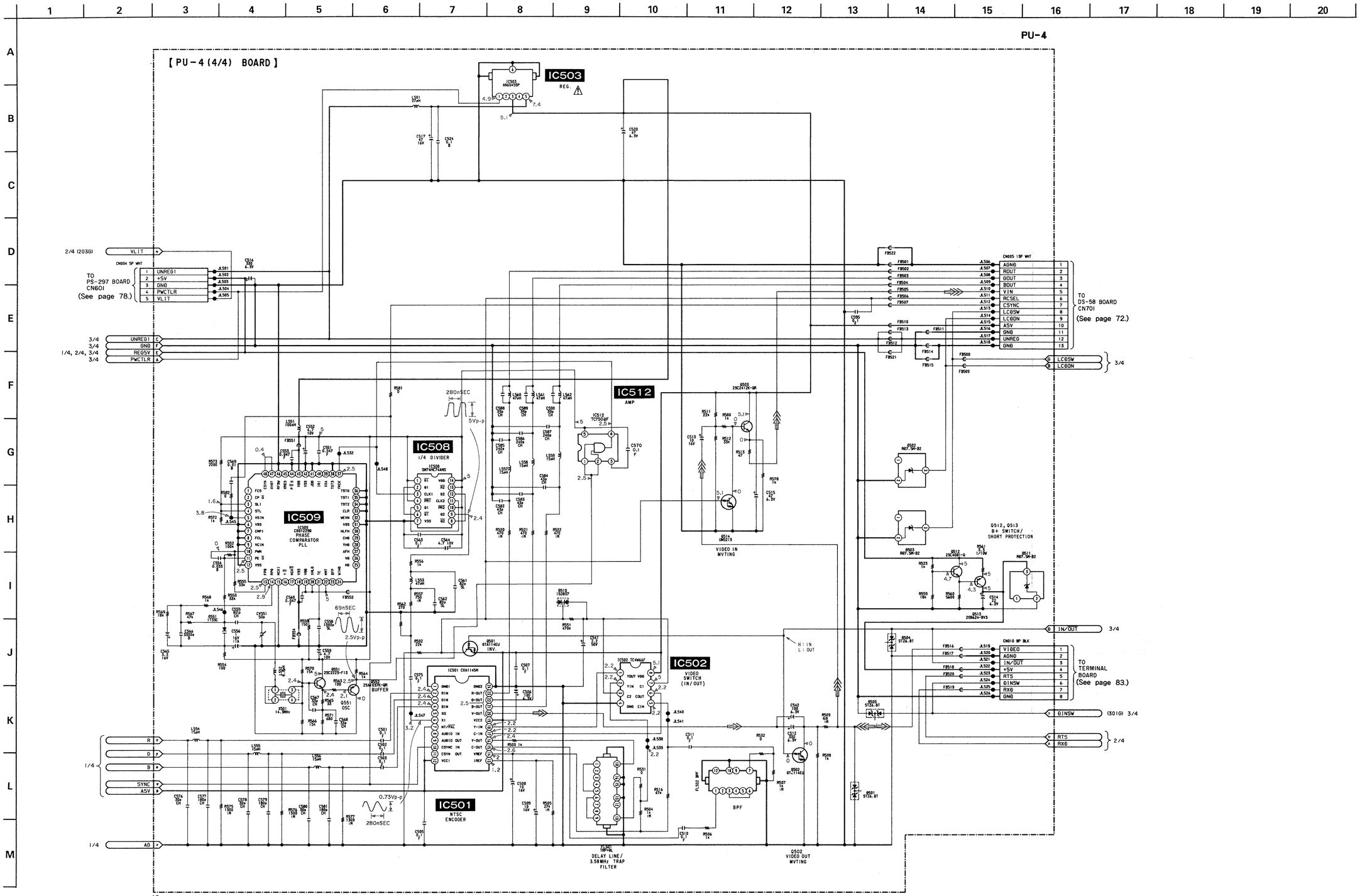
TO RO-1 or RO-2 BOARD CN001 (See page 43.) (See page 45.)

PU-4 (3/4) (MAIN) SCHEMATIC DIAGRAM



MAIN

PU-4 (4/4) (MAIN) SCHEMATIC DIAGRAM

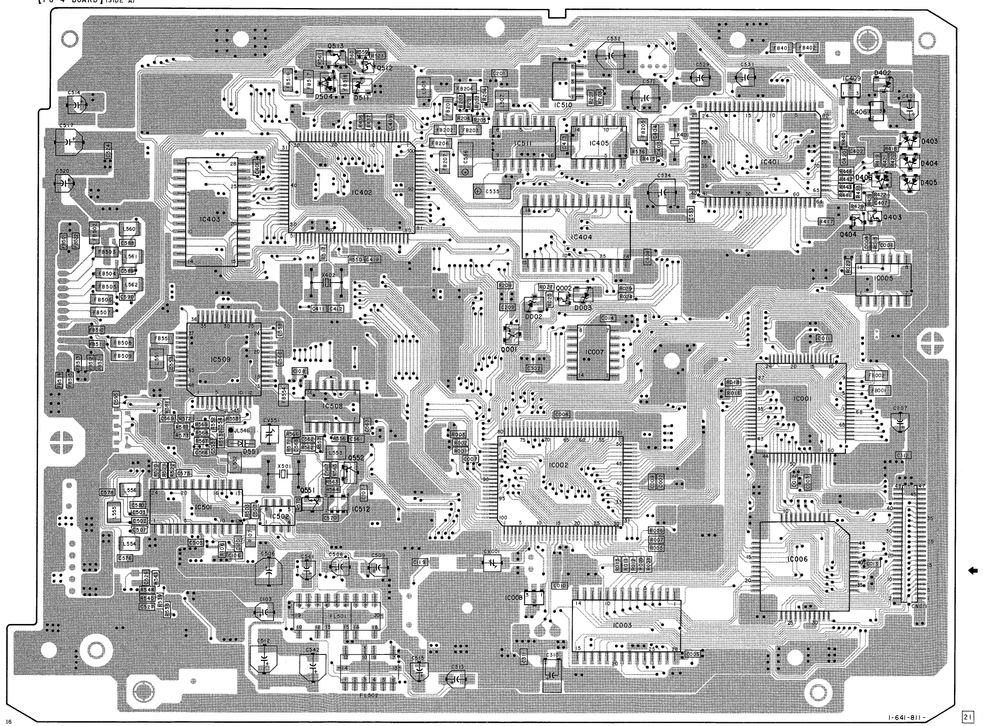


PU-4 BOARD

D001	C-19	IC401	C-11
D002	E-8	IC402	C-5
D003	E-8	IC403	D-3
D004	D-19	IC404	D-8
D401	C-18	IC405	C-9
D402	B-13	IC406	B-12
D501	I-24	IC408	I-27
D502	F-27	IC409	B-12
D503	F-27	IC501	G-3
D504	B-5	IC502	H-4
D505	C-19	IC503	C-27
D507	B-19	IC504	I-26
D508	B-19	IC505	B-19
D509	C-19	IC506	B-19
D510	I-25	IC507	B-19
D511	B-5	IC508	F-5
D551	G-4	IC509	E-4
		IC510	B-8
IC001	F-11	IC511	C-8
IC002	G-8		
IC003	I-9	Q001	E-15
IC004	E-16	Q002	E-8
IC005	D-13	Q401	C-18
IC007	E-9	Q402	C-18
IC008	I-8	Q403	C-13
IC101	G-25	Q404	C-13
IC102	I-20	Q501	I-26
IC103	I-22	Q502	I-26
IC201	C-22	Q503	I-24
IC202	B-25	Q507	B-19
IC203	C-25	Q508	B-19
IC204	D-25	Q512	A-6
IC205	E-25	Q513	A-5
IC301	F-21	Q514	I-24
IC302	E-18	Q551	G-5
IC303	F-18	Q552	G-5
IC304	G-18		
IC305	H-18		

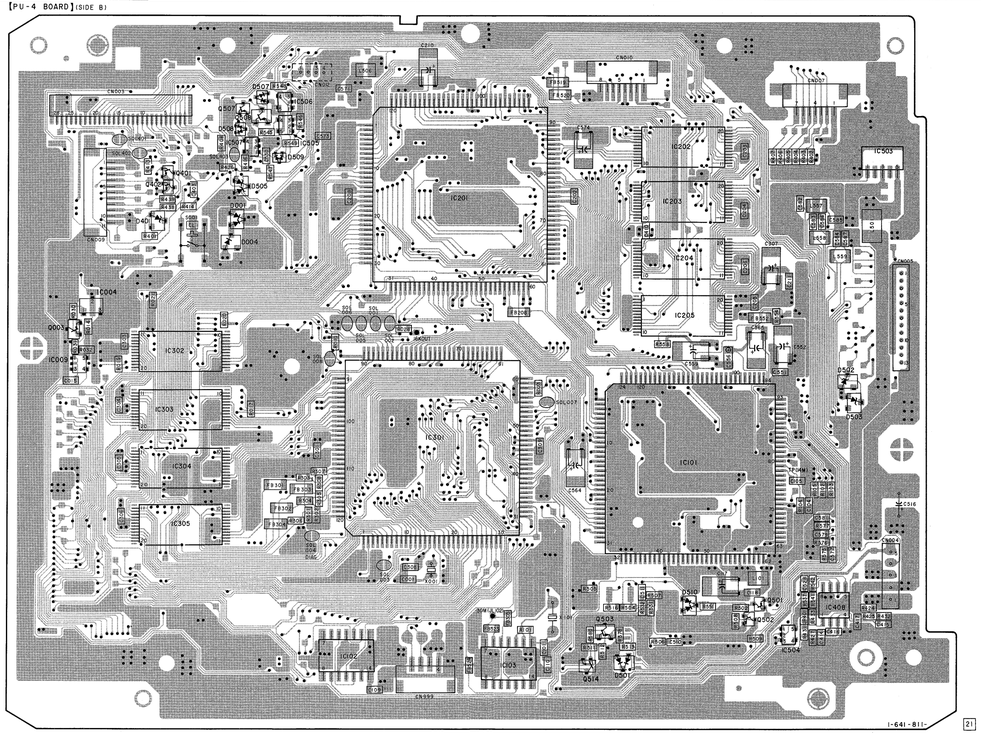
PU-4 (MAIN) PRINTED WIRING BOARD

【PU-4 BOARD】(SIDE A)



IC006
SERIAL NO.801001 AND HIGHER
(RO-2 OR RO-1 ARE NOT USED.)

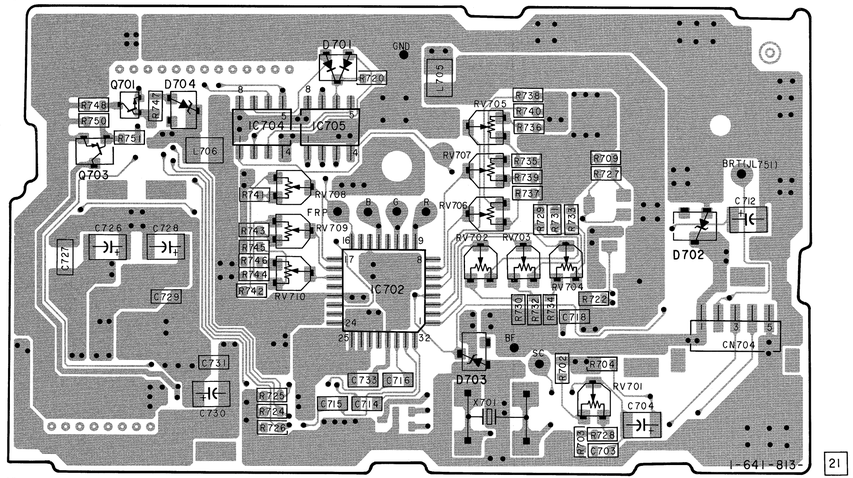
【PU-4 BOARD】(SIDE B)



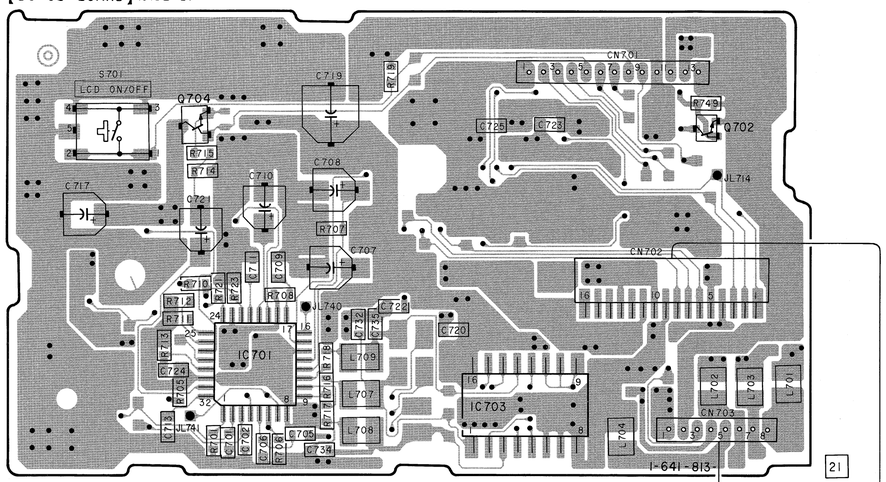
IVO-V11

DS-58 (LCD DRIVE) PRINTED WIRING BOARD

【DS-58 BOARD】(SIDE A)



【DS-58 BOARD】(SIDE B)



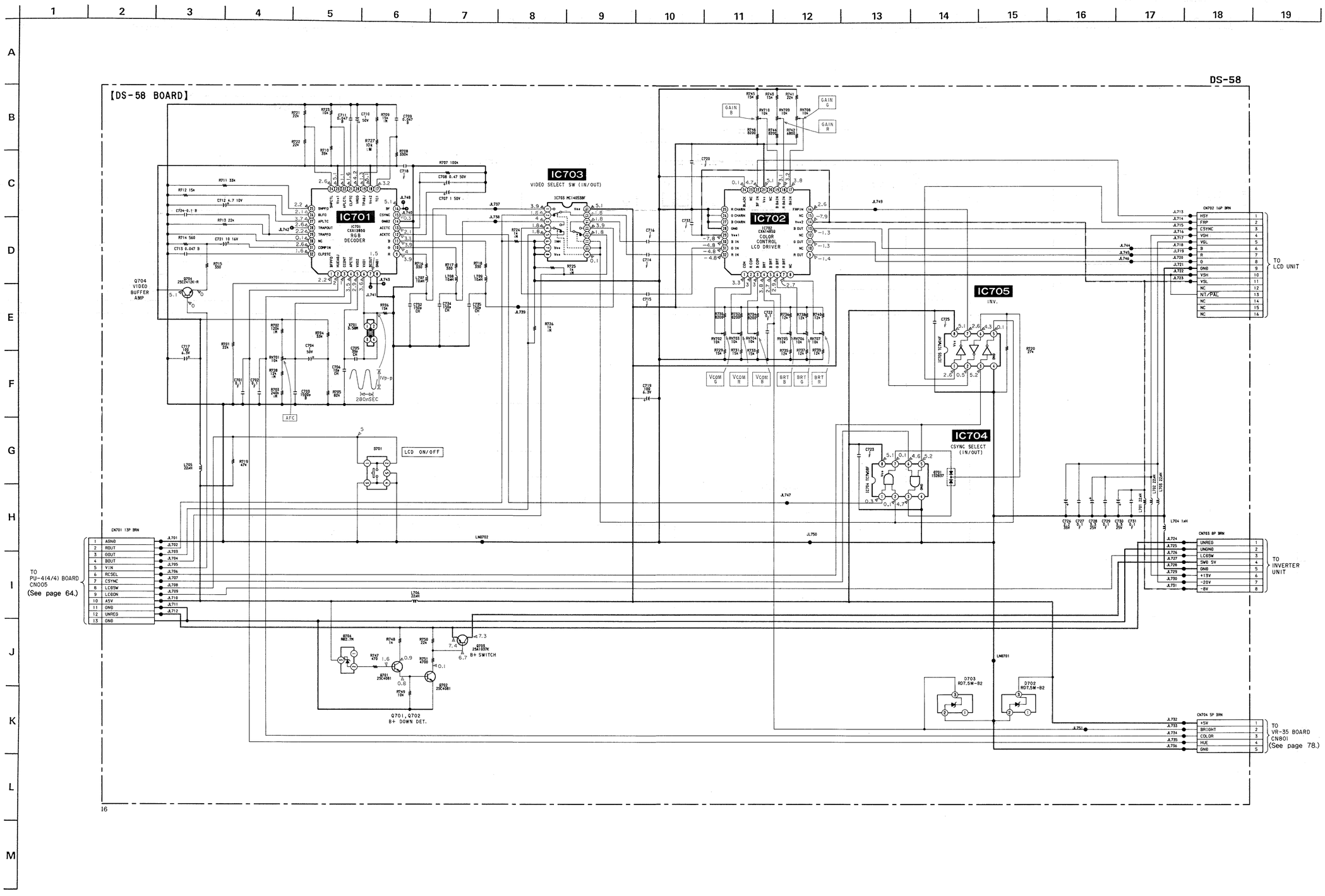
INVERTER UNIT

LCD UNIT (COLOR)

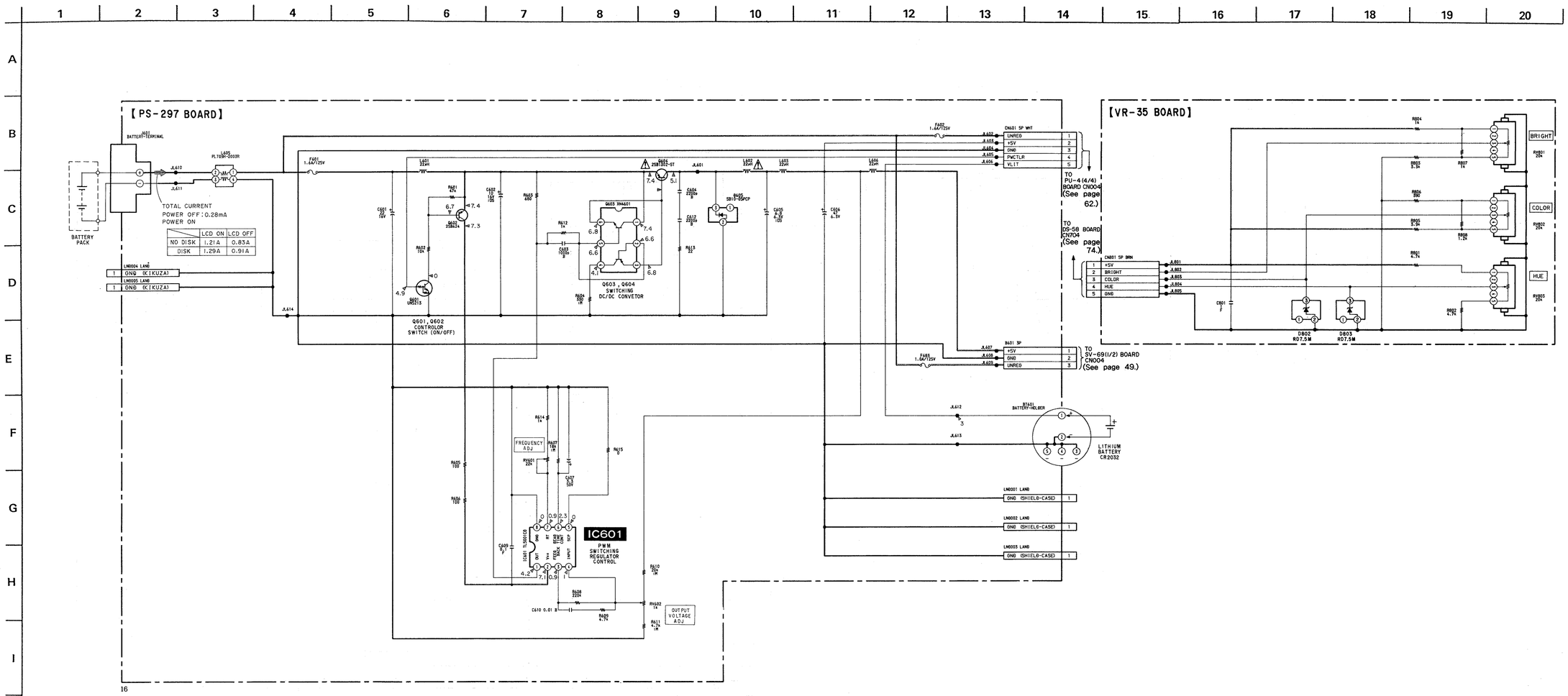
DS-58 BOARD

D701	A-3
D704	B-2
IC701	C-10
IC702	C-3
IC703	D-12
IC704	B-3
IC705	B-3
Q701	B-2
Q702	B-13
Q703	B-1
Q704	B-10

DS-58 (LCD DRIVE) SCHEMATIC DIAGRAM



PS-297 (POWER) VR-35 SCHEMATIC DIAGRAMS

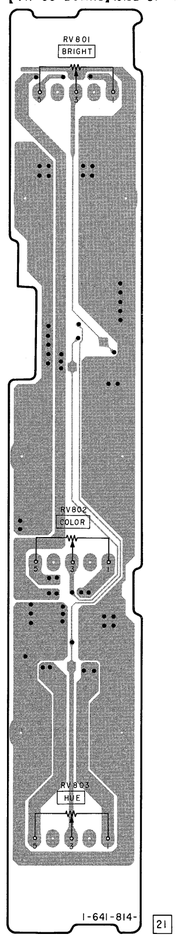


PS-297 (POWER) VR-35 PRINTED WIRING BOARDS

PS-297 BOARD

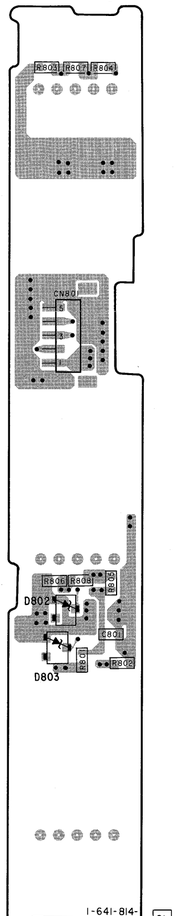
D605	G-13
IC601	G-13
Q601	F-12
Q602	F-13
Q603	G-13
Q604	F-13

【VR-35 BOARD】(SIDE B)

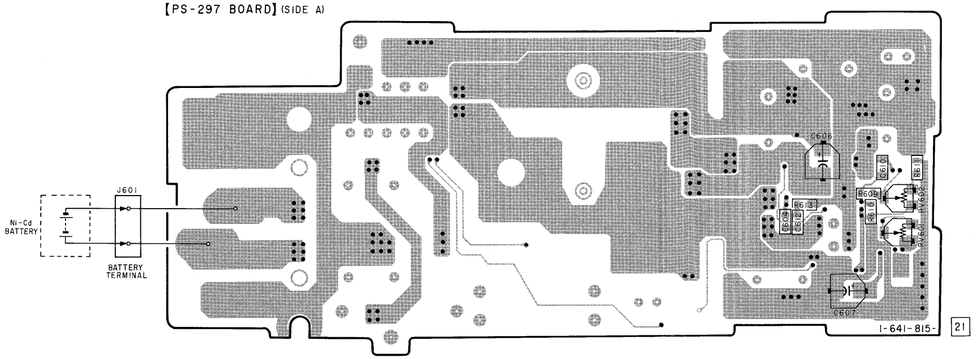


16

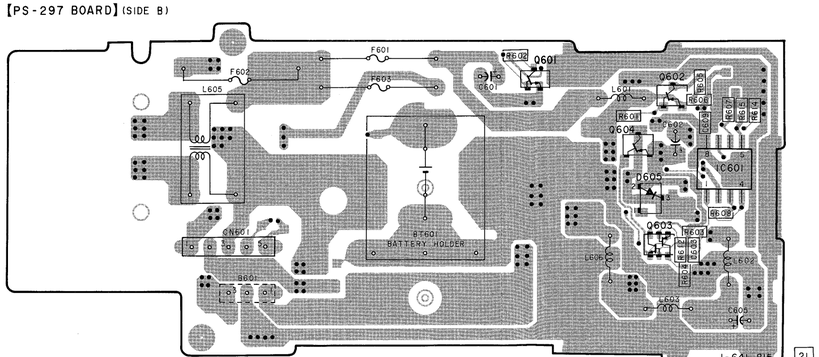
【VR-35 BOARD】(SIDE A)



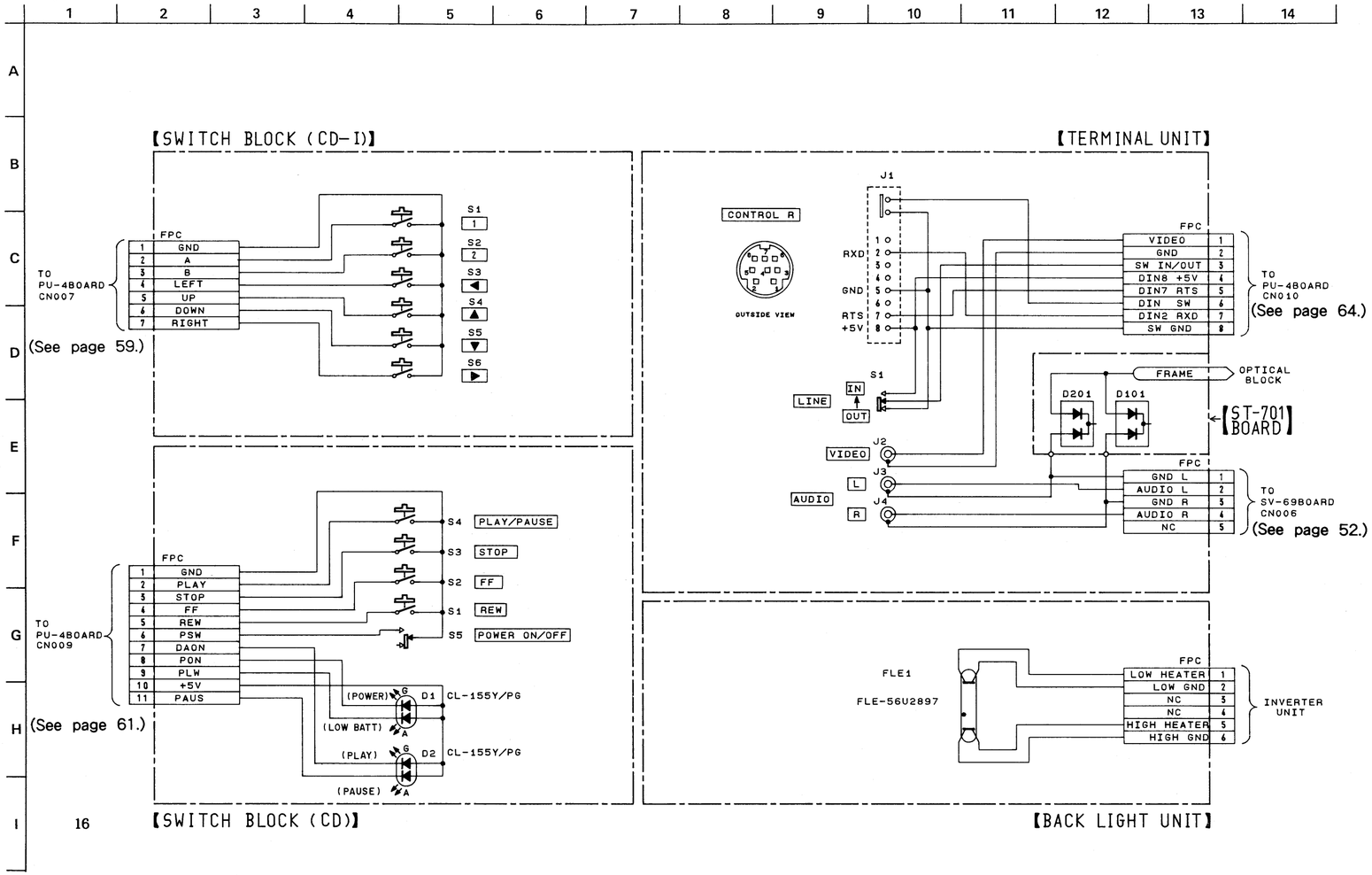
【PS-297 BOARD】(SIDE A)

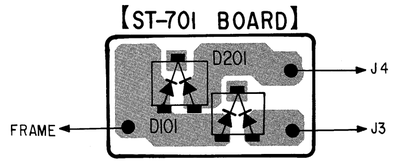


【PS-297 BOARD】(SIDE B)



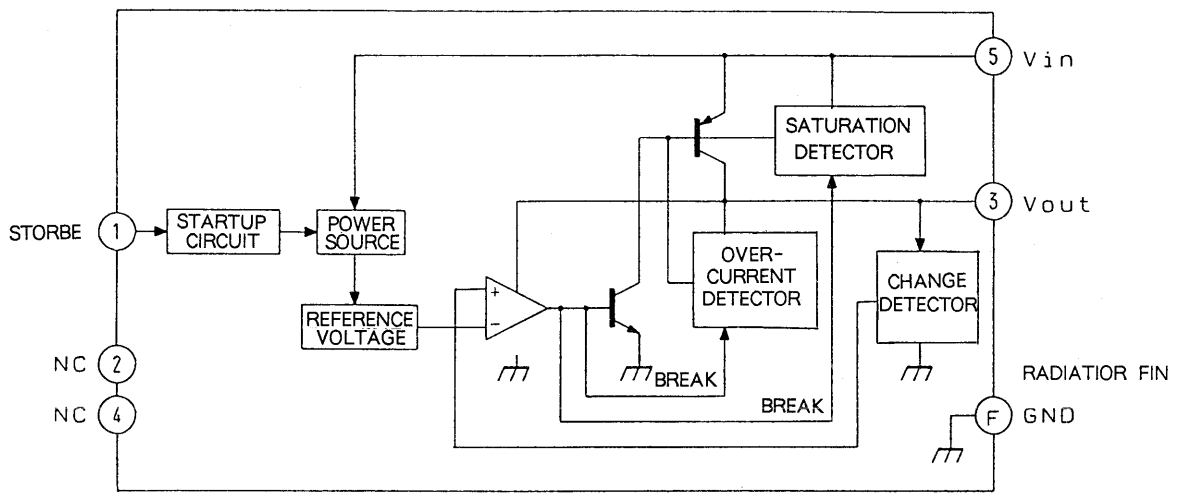
ST-701 (SWITCH BLOCK/ TERMINAL UNIT/ BACK LIGHT UNIT) SCHEMATIC DIAGRAM



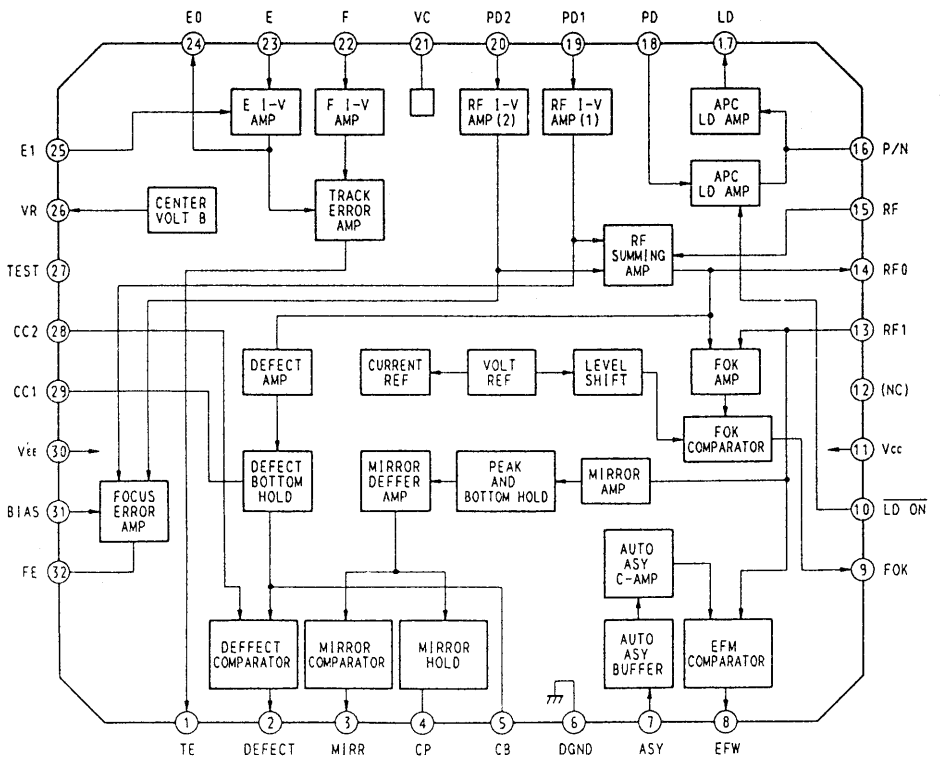


3-7. IC BLOCK DIAGRAMS

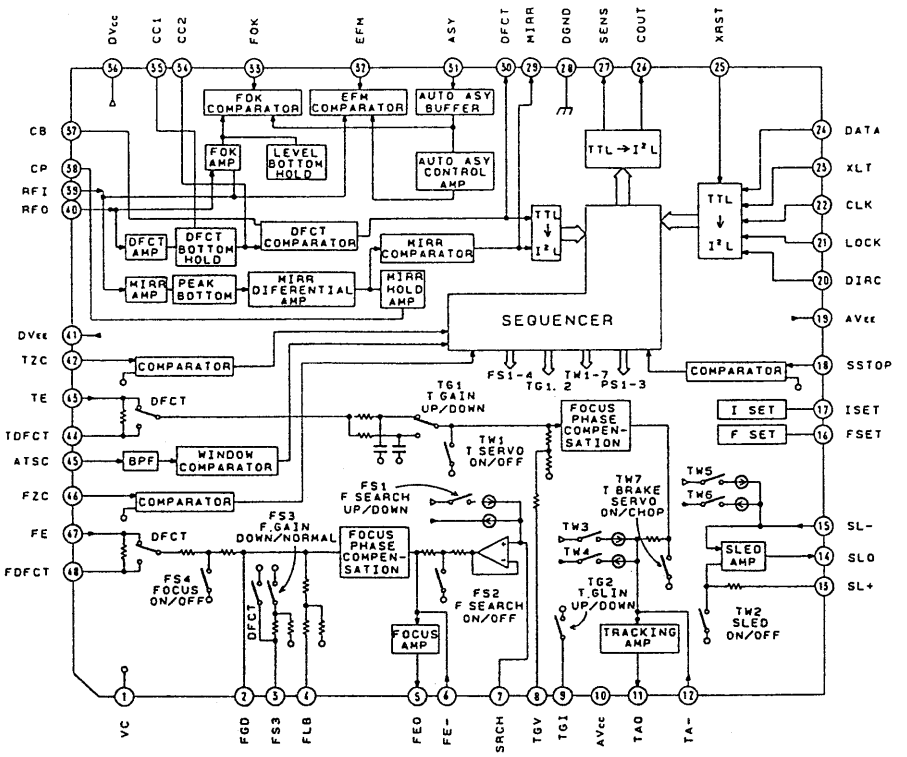
• AN6545SP-E1



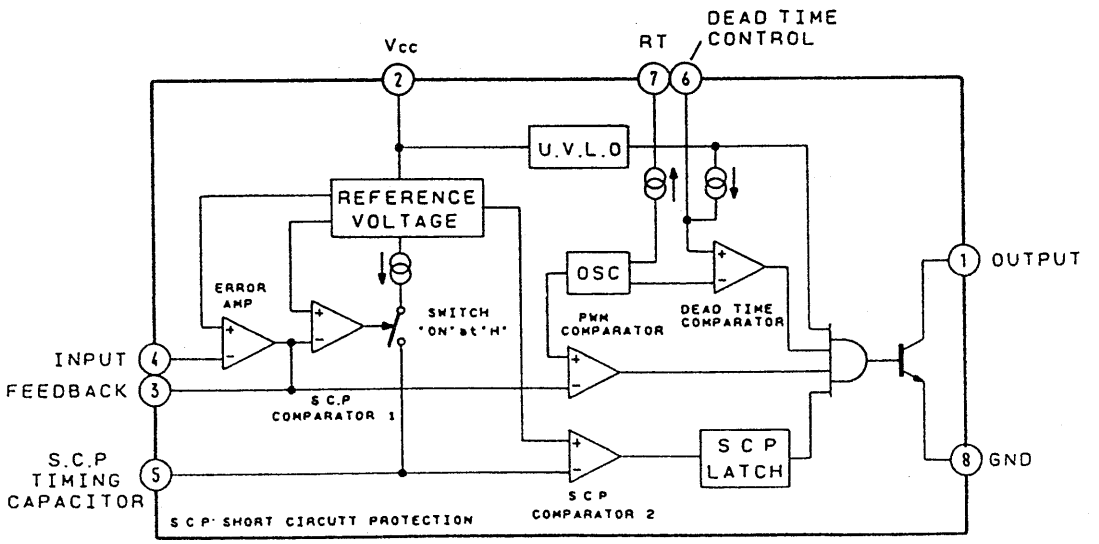
• CXA1081Q



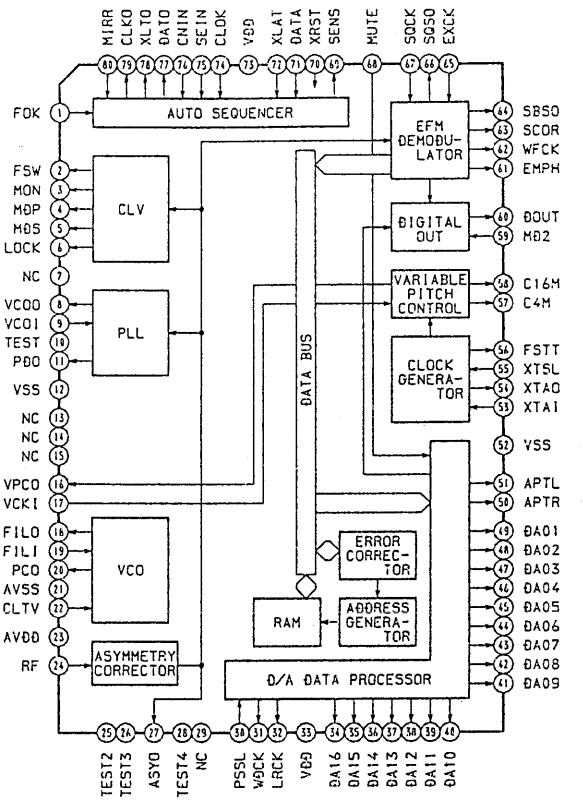
• CXA1372AQ



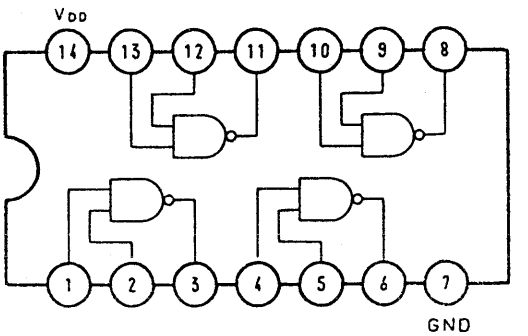
• TL5001CD



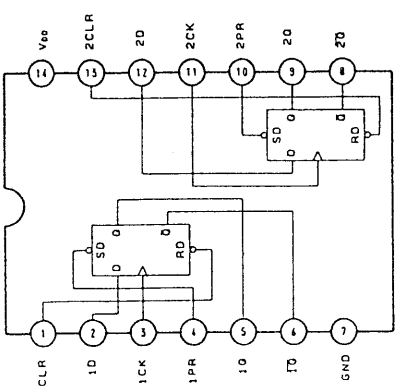
• CXD2500AQ



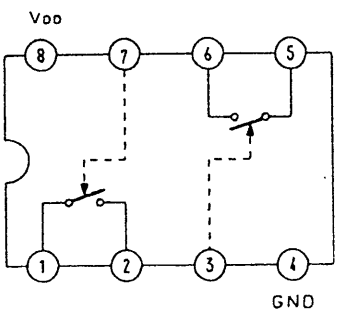
• SN74HC74ANS



• SN74HC00ANS



• TC4W66F



3-8. IC PIN DESCRIPTION

• IC004 PWM DRIVER (MPC1715) (SV-69 BOARD)

1. Four-system PWM AMP circuit
2. REG circuit for microprocessors (2 V)
3. VREF (1.25 V) circuit
4. 5.8 V DC-CD converter control circuit
5. Charge pump circuit (12 V)
6. VD switch (VIN —o/o— VD)

IC004 is a CMOS motor driver which includes these devices.

Pin No.	Pin Name	I/O	Description
1	H IN 1	I	Thread PWM balanced input
2	H OUT1A	O	Thread motor drive output ⊕
3	FL IN 1	O	Thread PWM amplifier output (176 kHz rectangular wave)
4	V IN 12	–	PWM amplifier 1 and 2 + B
5	FL IN 2	O	Focus PWM amplifier output (176 kHz rectangular wave)
6	PWR GND	–	GND
7	H OUT 2A	O	Focus coil drive output ⊕
8	H IN 2	I	Focus PWM balanced input
9	H OUT 2B	O	Focus coil drive output ⊖
10	V OUT	O	5.8 V step-up circuit control output
11	DTC	I	Step-up circuit switching maximum duty limiter terminal
12	RF	O	Step-up circuit differential amplifier output
13	INM	I	Step-up circuit differential amplifier feedback input
14	INP	I	5.8 V step-up circuit control input
15	VB	–	Bias terminal for step-up circuit differential amplifier
16	VD	O	+ B output (OFF at stop)
17	SIG GND	–	GND
18	VREF	O	Reference output for 5.8 V REG circuit
19	VG	I	Motor drive FET drive (12 V) input
20	CG	O	Peripheral capacitor terminal for motor drive FET driver voltage generation (VG)
21	VCPU	O	Power supply output for microcomputer (IC801)
22	COSC	O	Sawtooth wave oscillator output (Period : approx. 6 μSec.)
23	$\overline{\text{SYNC}}$	I	System clock input
24	$\overline{\text{PC}}$	I	Power ON/OFF control input
25	H OUT 4B	O	Tracking coil drive output ⊖
26	H IN 4	I	Tracking PWM balanced input
27	H OUT 4A	O	Tracking coil drive output ⊕
28	PER GND	–	GND
29	FL IN 4	O	Tracking PWM amplifier output (176 kHz rectangular wave)
30	V IN 34	–	PWM amplifiers 3 and 4 + B
31	FL IN 3	O	Tracking coil PWM amplifier output (176 kHz rectangular wave)
32	H OUT 3A	O	Spindle motor drive output ⊕
33	H IN 3	I	Spindle PWM balanced input
34	H OUT 3B	O	Spindle motor drive output ⊖
35	LIM 24	I	PWM amplifiers 2 and 4 output limiter terminal
36	VM IN 3	I	Tracking servo error input
37	VM IN 4	I	Spindle servo error input
38	VLG	–	+ B
39	SIG GND	–	GND
40	VC	–	1/2 V_{CC} (1.8 V)
41	VM IN 2	I	Thread servo error input
42	VM IN 1	I	Focus servo error input
43	LIM 13	I	PWM amplifiers 1 and 3 output limiter terminal
44	H OUT 1B	O	Thread motor drive output ⊖

※ FL IN1 to 4 and VOUT signals are output synchronized with SYNC (176 kHz). If there is no SYNC, these signals are not output after the focus operation (UP/DOWN), because they are synchronized with the internal oscillator (approx. 200 kHz), and they do not match with the signal process system.

• **IC002 master controller (CXD8293Q) (PU-4 Board)**

Pin No.	Pin Name	I/O	Description
1	SD5	I/O	Subdata bus
2	SD4	I/O	Subdata bus
3	SD3	I/O	Subdata bus
4	SD2	I/O	Subdata bus
5	SD1	I/O	Subdata bus
6	SD0	I/O	Subdata bus
7	BV	I	RTC power supply *1
8	TCK1	O	Connected to crystal *1
9	TCK2	I	Connected to crystal *1
10	TCS	I	RTC CS
11	RTS	O	P-device control
12	RXD1	I	P-device information receive (Pull-up)
13	TXD0	O	Serial interface transmission
14	RXD0	I	Serial interface receive (Pull-up)
15	VDD	–	Power supply
16	GND	–	GND
17	SW	I	(Pull-up)
18	IPL0	O	Interrupt priority
19	IPL1	O	Interrupt priority
20	IPL2	O	Interrupt priority
21	BG	I	Bus ground
22	VPA	O	Varied peripheral address (open drain)
23	BGACK	O	Bus ground acknowledge (open drain)
24	BR	O	Bus request
25	DTACK	I/O	Data transmission acknowledge
26	RW	I/O	Read and write
27	AS	I/O	Address strobe
28	LDS	I/O	Lower data strobe
29	UDS	I/O	Upper data strobe
30	CKSL	I	ROM delay select (Pull-up)
31	D15	I/O	Data bus
32	D14	I/O	Data bus
33	D13	I/O	Data bus
34	D12	I/O	Data bus
35	D11	I/O	Data bus
36	D10	I/O	Data bus
37	D9	I/O	Data bus
38	D8	I/O	Data bus
39	VDD	–	Power supply (+ 5V)
40	GND	–	GND
41	D7	I/O	Data bus
42	D6	I/O	Data bus
43	D5	I/O	Data bus
44	D4	I/O	Data bus
45	D3	I/O	Data bus
46	D2	I/O	Data bus
47	D1	I/O	Data bus
48	D0	I/O	Data bus
49	A23	I/O	Address bus
50	A22	I/O	Address bus

Pin No.	Pin Name	I/O	Description
51	A21	I/O	Address bus
52	A20	I/O	Address bus
53	A19	I/O	Address bus
54	A18	I/O	Address bus
55	A17	I/O	Address bus
56	A16	I/O	Address bus
57	A15	I/O	Address bus
58	A14	I/O	Address bus
59	A13	I/O	Address bus
60	A12	I/O	Address bus
61	A11	I/O	Address bus
62	A10	I/O	Address bus
63	A9	I/O	Address bus
64	A8	I/O	Address bus
65	VDD	–	Power supply (+ 5V)
66	GND	–	GND
67	A7	I/O	Address bus
68	A6	I/O	Address bus
69	A5	I/O	Address bus
70	A4	I/O	Address bus
71	A3	I/O	Address bus
72	A2	I/O	Address bus
73	A1	I/O	Address bus
74	RSTN	I	Reset signal
75	FC2	I	Function code
76	FC1	I	Function code
77	FC0	I	Function code
78	TEST2	I	Test terminal (Pull-up)
79	TSET1	I	Test terminal (Pull-up)
80	CK1	I	Clock input (15 MHz)
81	IRQ5N	I	Open (Pull-up)
82	CDN	O	ACP and CDC chip select
83	RAMN	O	NVRAM chip select
84	ROMSL	I	4 or 8 Mbit ROM select (Pull-up)
85	ROM1N	O	ROM1 chip select
86	ROM0N	O	ROM0 chip select
87	CKO	O	Clock output (5 MHz)
88	VSCN	O	VSC chip select
89	IRQ1N	I	External interrupt signal (Pull-up)
90	VDD	–	Power supply (+ 5V)
91	GND	–	GND
92	IRQ2N	I	External interrupt signal (Pull-up)
93	IRQ3N	I	External interrupt signal (Pull-up)
94	IRQ4N	I	External interrupt signal (Pull-up)
95	IRQ7N	I	External interrupt signal (Pull-up)
96	DRQN	I	CDC and ADP DMA request
97	RDYN	I	CDC and ADP DMA controller
98	DACKN	O	
99	SD7	I/O	Subdata bus
100	SD6	I/O	Subdata bus

< Note > * 1 : The I/O cells (TK1, TK2 and TK3) related to RTC and RTC are independent from VCC, and the power is supplied from the BV terminal.

• IC101 VIDEO SYNTHESIZER (MN66460B) (PU-4 BOARD)

Pin No.	Pin Name	I/O	Description
1, 10, 21, 29, 41, 53, 63, 71, 81, 91, 102, 114	VDD	–	Power supply (+5 V)
3, 8, 11, 22, 31, 42, 54, 65, 72, 82, 93, 103, 115	GND	–	GND
4	NHSYNC	I	Active low. H sync. input from VSC.
5	NVSYNC	I	Active low. V sync. input from VSC.
6	NCSYNC	I	Active low. Composite sync. input from VSC.
7	NBLANK	I	Blank signal input from video controller.
9	XT2	O	1/2 clock frequency output of CLKIN
12	CLKIN	I	External clock input (30 MHz maximum)
14	NRESET	I	Reset input for initializing chip. Active low.
15	XT4	O	Open
17	PCLK2	I	Pixel clock input
19	NWRP2	I	Control input. "H" : Picture data. "L" : Control signal.
20, 23 to 28 and 32	P8 to P15	I	Higher 8 bits pixel bus
36	MODE	I	GND
38	TST	I	GND
47, 49. 50, 51, 52 and 56	RGBDATA0 to 5	O	Digital color output of hard copy. Internal pull-up.
58	NVDS	O	Open
59	NCSYOUT	O	Composite sync. delay output to monitor or TV. Active low.
60 and 61	A1 and 2	I	RGBDATA address input from CPU.
66	NCEL	I	Chip select of hard copy. Active low.
67	PFRGB	O	Flag to indicate whether RGBDATA is valid. Internal pull-up.
68	NDTACK	O	Open
69	YFG	O	Open
70	NOD	I	Active low. Input of the useable RGB
74	NHSYOUT	O	Open
79	MBIAS	I	Bias voltage input of current supplied from D/A converter.
84 and 86	AGND	–	Analog GND
109, 110, 111, 113, 119 to 117 and 121	P0 to P7	I	Lower 8 bits pixel bus
122	NWRP1	I	Control input. "H" : Picture data. "L" : Control signal
123	PCLK1	I	Pixel clock input

(Note) NC terminals do not have Pin Nos.

• IC201 and 301 VIDEO SYSTEM CONTROLLER (SCC66470CAB) (PU-4 BOARD)

Pin No.	Pin Name	I/O	Description
2	XTAL2	O	Clock output
3 to 10 and 116	MA0 to MA8	I/O	Memory address line. 3-state
11 to 14, 16, 18 to 30 and 32 to 33	A1 to A20	I	System address line. Address input to access from system bus.
34	RSTOUTN	O	Reset output. Active low. 3-state.
35	HALTN	O	Hold line output. Active low. 3-state.
37	DTACKN	I/O	Data transmission acknowledge. Active low. Open drain. Active while system bus cycle continues.
38	R/WN	I	Read/write. Control input signal. Indicates transmitting direction on system bus.
39	LDSN	I	Lower data strobe. Active low
40	UDSN	I	Upper data strobe. Active low
41 to 44, 46, 48 to 50 and 61 to 68	D0 to D15	I/O	Bi-directional 3-state data bus. Used to transmit data between system bus and VSC.
51	CSN	I	Chip select. Active low.
52	CSION	O	Open
53	CSROMN	O	Open
54	INTN	O	Interrupt request output. Active low. Open drain. Used to interrupt CPU.
55	IPA	I	GND
56	CSYNCN	I/O	Composite sync. Active low. 3-state and internal pull-up. Composite sync. signal is generated in master mode. Symmetrical signal which creates H frequency. Signal is generated at slave signal TV mode. Phase error between master and slave is generated in slave dual mode. If the display cannot be used, this mode is used to initialize sync. mode.
57	DA	O	Open
58	RSTINN	I	Reset input. Active low. Schmitt input. Internal pull-up.
59	M/SN	I	Connected to VDD.
60	TST	I	GND
69	WRPN	O	Write pallet output. Active low. 3-state. Indicates which of the data useable on V0 to V7 is control information.
70 to 73 and 77 to 80	V0 to V7	O	Video output. 3-state.
75	PCLK	O	Pixel clock. 3-state. V0 to V7 are effective when high.
81	BLANKN	O	Blank output. Active low. 3-state. Active when H or V is blank, and high in other cases.
82	VSYNCN	I/O	V sync. Active low. 3-state. This output signal is used as a V sync. signal to the monitor, and as a V sync. input in slave TV mode and slave dual mode.
83	HSYNCN	I/O	H sync. Active low. 3-state. This signal is used as an H sync. signal to the monitor in master mode and slave TV mode, and as an H sync. signal in slave dual mode.
84 to 89, 91 to 94, and 97 to 102	MD0 to MA8	I/O	Bi-directional memory data bus. 3 states.
103	CYREQN	I	Connected to VDD.
105	CSCGN	O	Open
107	CYACKN	O	Open
108	DTN	O	Open
109 to 112	CASI-4N	I/O	Column address strobe of memory banks 1 to 4. Active low.
113	RASN	O	Low address strobe. Acrive low. The column address of the dynamic RAM is effective at falling.
114	LWSN	O	Lower write signal to D-RAM. Active low.
115	UWRN	O	Lower write signal to D-RAM. Active low.
117	XT/4	O	Clock output. Frequency is 1/4 of clock frequency.
118	XT/2	O	Clock output. Frequency is 1/2 of clock frequency.
119	XTAL1	I	External clock input

• **IC401 SUB CPU (M38063M6-281FP) (PU-4 BOARD)**

Pin No.	Pin Name	I/O	Description
1 to 3 and 76	P60 to P67	I/O	8-bit I/O port. This terminal is also used as an A-D converter input terminal.
4 to 11	P70 to P77	I/O	8-bit I/O port. Output type is N channel open drain. This terminal activates as a function terminal of serial I/O2 by selecting the function with the program.
12 to 19	P50 to P57	I/O	8-bit I/O port. This terminal activates as an I/O function terminal of timers X and Y, and an output terminal of the D-A converter by selecting the function with the program.
20 to 25, 28 and 29	P40 to P47	I/O	8-bit I/O port. This terminal activates as a function terminal of serial I/O1 by selecting the function with the program.
26	CNVss	–	GND
27	$\overline{\text{RESET}}$	I	When this terminal is "L" for more than 2 μs, a reset condition is set. However, add the appropriate period "L" level, if it takes a long time to stabilize the crystal oscillation.
30	XIN	I	I/O to the built-in clock generator circuit.
31	XOUT	O	
32	Vss	–	GND
33 to 40	DB0 to DB7	I/O	8-bit I/O port with the same functions port P0. It is used as a data bus.
41 to 48	AD8 to AD15	I/O	8-bit I/O port with the same functions as port P0. It outputs the higher part of the address information
49 to 56	AD0 to AD7	I/O	8-bit CMOS I/O port. It outputs the lower part of the address information.
58	WR	O	Pulse output terminal for writing data.
57	RD	O	Pulse output terminal for reading data.
59 to 64	P30 to P35	I/O	8-bit I/O port with the same functions as port P0. This terminal is used as a control bus.
65 to 72	P80 to P87	I/O	8-bit I/O port.
73	Vcc	–	Power supply terminal (+ 5 V)
74	VREF	I	Reference voltage input terminal for A-D and D-A converters
75	AVss	–	GND input terminal of the A-D and D-A converters. A potential equal to Vss is added.

• **IC402 CD-ROM/ADPCM DECODER (CXD1197AQ) (PU-4 BOARD)**

Pin No.	Pin Name	I/O	Description
1	NC	–	Open
2	NC	–	Open
3	VDD	–	Power supply (+ 5V)
4	GND	–	GND
5	HA0	I	Host address signal
6	HA1	I	Host address signal
7	HA2	I	Host address signal
8	HA3	I	Host address signal
9	XHCS	I	CXD1197Q select negative logic signal from the host
10	HIRQ	O	Negative logic signal of an interrupt request from the host. Open drain output
11	XRIN	O	Negative logic signal of an interrupt request from the host. Open drain output
12	XHDS	I	Negative logic signal of the host data strobe
13	HRW	I	Host read/write signal
14	XHTC	I/O	Negative logic signal of the host data acknowledge. Open drain output
15	GND	–	GND
16	HD0	I/O	Host data path
17	HD1	I/O	Host data path
18	HD2	I/O	Host data path
19	HD3	I/O	Host data path
20	HD4	I/O	Host data path
21	HD5	I/O	Host data path
22	HD6	I/O	Host data path
23	HD7	I/O	Host data path
24	XRST	I	Reset negative logic signal
25	XDRQ	O	Reset negative logic signal of the host DMA request. Open drain signal
26	XHAC	I	Negative logic signal of the host DMA acknowledge signal
27	XRDY	O	Negative logic signal of the host data ready. Open drain output.
28	VDD	–	Power supply (+5 V)
29	GND	–	GND
30	MA0	O	Buffer memory address (LSB)
31	MA1	O	Buffer memory address
32	MA2	O	Buffer memory address
33	MA3	O	Buffer memory address
34	MA4	O	Buffer memory address
35	MA5	O	Buffer memory address
36	MA6	O	Buffer memory address
37	MA7	O	Buffer memory address
38	MA8	O	Buffer memory address
39	MA9	O	Buffer memory address
40	GND	–	GND
41	MA10	O	Buffer memory address
42	MA11	O	Buffer memory address
43	MA12	O	Buffer memory address
44	MA13	O	Buffer memory address
45	MA14	O	Buffer memory addresss
46	XMOE	O	Buffer memory output enable negative logic signal
47	XMWR	O	Buffer memory write enable negative logic signal
48	MDB0	I/O	Buffer memory data bus
49	MDB1	I/O	Buffer memory data bus
50	MDB2	I/O	Buffer memory data bus

Pin No.	Pin Name	I/O	Description
51	MDB3	I/O	Buffer memory data bus
52	MDB4	I/O	Buffer memory data bus
53	VDD	–	GND (+ 5 V)
54	GND	–	GND
55	MDB5	I/O	Buffer memory data bus
56	MDB6	I/O	Buffer memory data bus
57	MDB7	I/O	Buffer memory data bus
58	MDBP	I/O	Buffer memory data bus (error flag)
59	XTL2	O	Crystal oscillation output terminal
60	XTL1	I	Crystal oscillation circuit input terminal (16.9344 MHz)
61	HCLK	O	8.4672 MHz clock output terminal
62	CLK	O	16.9344 MHz clock output terminal
63	LRCK	I	LR clock signal from DSP for CD. (For distinguishing the R and L channels.)
64	DATA	I	Data signal from DSP for CD
65	GND	–	GND
66	BCLK	I	DATA terminal strobe clock signal. (Bit clock)
67	C2PO	I	Positive logic signal of error flag (C2 pointer) from DSP for CD
68	EMP	I	Positive logical signal of emphasis on from DSP for CD
69	BCKO	O	Bit clock signal to DAC (D/C converter)
70	WCO1	O	Word clock signal 1 to DAC
71	WCO2	O	Word clock signal 2 to DAC
72	LRCO	O	LR clock signal to DAC
73	DATO	O	Data signal to DAC
74	MUTE	O	Mute positive logic signal
75	NC	–	Open
76	NC	–	Open
77	NC	–	Open
78	VDD	–	Power supply (+ 5V)
79	GND	–	GND
80	D0	O	Sub CPU data bus
81	D1	O	Sub CPU data bus
82	D2	O	Sub CPU data bus
83	D3	O	Sub CPU data bus
84	D4	O	Sub CPU data bus
85	D5	O	Sub CPU data bus
86	D6	O	Sub CPU data bus
87	D7	O	CPU data bus
88	XCS	I	Negative logic signal of CXD1197Q from the sub CPU
89	XRD	I	Negative logic signal of CXD1197Q internal register read-out from the sub CPU
90	GND	–	GND
91	XWR	I	Negative logic signal of CXD1197Q internal register read-out from the sub CPU
92	XINT	O	Negative logic signal of an interrupt request to the sub CPU.
93	A0	I	Sub CPU address
94	A1	I	Sub CPU address
95	A2	I	Sub CPU address
96	A3	I	Sub CPU address
97	A4	I	Sub CPU address
98	NC	–	Open
99	NC	–	Open
100	NC	–	Open

• IC509 SYNC. SEPARATION FOR DIGITAL VIDEO PROCESSING/AFC (CXD1229Q) (PU-4 BOARD)

Outputs the sync. separation and 910 fH clock. Built-in AFC, OP AMP and VCO.

Pin No.	Pin Name	I/O	Description
1	FCS	I/O	Open
2	CP$\overline{O}$	I/O	Open
3	SLI	AI	Slice level of the sync. clamp block.
4	STL	AI	Single chip level
5	VSIN	AI	Open
6	Vss	–	GND
7	CMPI	AI	Open
8	FCL	AI	Open
9	VCIN	AI	Open
10	PWM	AI	OP AMP input
11	PEO	AO	OP AMP output
12	Vss	–	GND
13	FPD	O	Phase comparator output from rising edge of sync. pulse and built-in H counter (Phase error output of the AFC sub loop)
14	RPD	O	Phase comparator output from the button of the sync. pulse and built-in H counter. (Phase error output of the AFC main loop)
15	MCKI	I	Inverter input for VCO
16	YO	O	Inverter output for VCO
17	MCKO	O	910 fH output. Logically same as YO.
18	Vss	–	GND
19	VDD	–	+5 V
20	XHLD	I	Normally "H". "H" : AFC error, active. "L" : AFC error, hold.
21	TC	I/O	This terminal is used to precisely adjust the AFC lock phase. The time constant connected to this terminal changes the pulse width of pin 13 (FPD), and makes pin 27 (AFH) lock phase adjustable.
22	MMT	I	Normally "H". (Built-in Mono-multi terminal)
23	BFP	O	Open
24	WIND	O	Open
25	HD	I/O	Open
26	VD	O	Open
27	AFH	O	Open
28	YHD	O	Open
29	CHD	O	Open
30	HLFH	O	Open
31	Vss	–	GND
32	WEVN	O	Odd and even detect output. "H" : First and third fields. (Connected to CXD1226 and CXD1228)
33	CLR	I	GND
34	TST2	I	GND
35	TST1	I	GND
36	TNT0	I	GND
37	YMCK	I	Master clock input. (This terminal is not internally connected to MCKO.)
38	TST3	I	GND
39	XXA	I/O	GND
40	IR1	I/O	Open
41	JOG	I	GND
42	Vss	–	GND
43	VDD	–	+5 V
44	POS	I	GND
45	XRES	O	Open
46	RFSW	I	GND
47	XVDT	I	Composite sync. input of V-Det system. Connected to "CSYN"
48	CSYN	I/O	Sync. separation output of the sync. clamp system

(Note) AI : Analog input
AO : Analog output

• **IC701 RGB Decoder (CXA1385Q-T4) (DS-58 BOARD)**

Pin No.	Pin Name	I/O	Description
1	BPF F0	–	fo adjustment terminal of the filter
2	HUE ADJ	–	HUE adjustment terminal. ± 30° degree or more adjustments are possible.
3	CCONT	–	Chromatic amplifier gain adjustment terminal
4	APC TC	–	APC (color sync.) time constant and free-run frequency adjustment terminal
5	VXO2	–	Crystal oscillation terminal
6	VXO1	–	Crystal oscillation terminal
7	SC OUT	O	Sub carrier output terminal
8	GND1	–	GND terminal of the filter and chromatic block
9	R OUT	O	R output terminal
10	G OUT	O	G output terminal
11	B OUT	O	B output terminal
12	ACK TC	–	ACK (Automatic color killer) time constant terminal
13	ACC TC	–	ACK (Automatic color adjustment) time constant terminal
14	GND2	–	GND terminal of the Y system
15	CSYNC	O	Composite sync. output terminal (TTL level)
16	BF	O	Burst flag output terminal
17	TC1	–	Feedback lamp time constant terminal for sync. separation
18	Vcc2	–	Power supply terminal of the Y system
19	TP ADJ	–	Burst flag position adjustment terminal. t_D (BF) = 5.6 μs
20	VREG	O	4.2 V regulator output terminal. Applies de-coupling capacity.
21	CLP TC	–	Pedestal clamp time constant terminal
22	APL CTL	–	APL sensitivity adjustment terminal. When APL-AMP is not necessary, connect this terminal to GND.
23	Vcc1	–	Power supply to the filter and chromatic blocks.
24	SHP CTL	–	①Gain adjustment terminal for sharpness ②Variable range – 5 dB to + 5 dB ($1.5 \leqq V_{24} \leqq 3.5$) ③Possible to gain adjust the fo band.
25	SHP FO	–	Frequency adjustment terminal for the filter
26	DL FO	–	Delay adjustment terminal for delay-run
27	APL TC	–	Time constant terminal to detect APL (Average Picture Level) of the luminous intensity signal
28	TRAP OUT	O	This terminal enables a Y signal which has passed the trap to be monitored. To deepen the trap a little, connect an L and C to GND in series.
29	TRAP FO	–	fo adjustment terminal for the filter
30	NC	–	
31	COMP IN	I	Input terminal of the composite video signal. Standard input is 0.56 Vp-p.
32	CLP2 TC	–	Pedestal clamp time constant terminal

• IC702 COLOR CONTROL LCD DRIVER (CXA1485Q) (DS-58 BOARD)

Pin No.	Pin Name	I/O	Description
1	COM	–	Signal center potential adjustment terminal of the RGB output
2	R COM	–	Center potential adjustment terminal of the R channel
3	B COM	–	Center potential adjustment terminal of the B channel
4	BRT	–	Bright control terminal. Possible to adjust the RGB output simultaneously.
5	B BRT	–	B bright control terminal
6	G BRT	–	G bright control terminal
7	R BRT	–	R bright control terminal
8	NC	–	
9	R OUT	O	R output terminal
10	NC	–	Open terminal
11	G OUT	O	G output terminal
12	NC	–	Open terminal
13	B OUT	O	B output terminal
14	V_{EE} 2	–	Power supply terminal
15	NC	O	
16	FRP IN	I	Pulse input terminal to inverse the RGB output every hour.
17	GAIN	–	Gain control terminal. Possible to adjust the RGB amplitude
18	R GAIN	–	R gain control terminal
19	B GAIN	–	B gain control terminal
20	NC	–	Open terminal
21	V_{CC}	–	Power supply terminal
22	BF IN	I	Input terminal of the pulse to clamp the RGB input
23	NC	–	Open terminal
24	BLACK IN	I	Connected to GND. (This is the input terminal which blacks around characters.)
25	B CHR IN	I	Connected to GND. (B character input terminal)
26	G CHR IN	I	Connected to GND. (G character input terminal)
27	R CHR IN	I	Connected to GND. (R character input terminal)
28	GND	–	GND terminal
29	V_{EE} 1	–	Power supply terminal
30	B IN	I	B input terminal
31	G IN	I	G input terminal
32	R IN	I	R input terminal

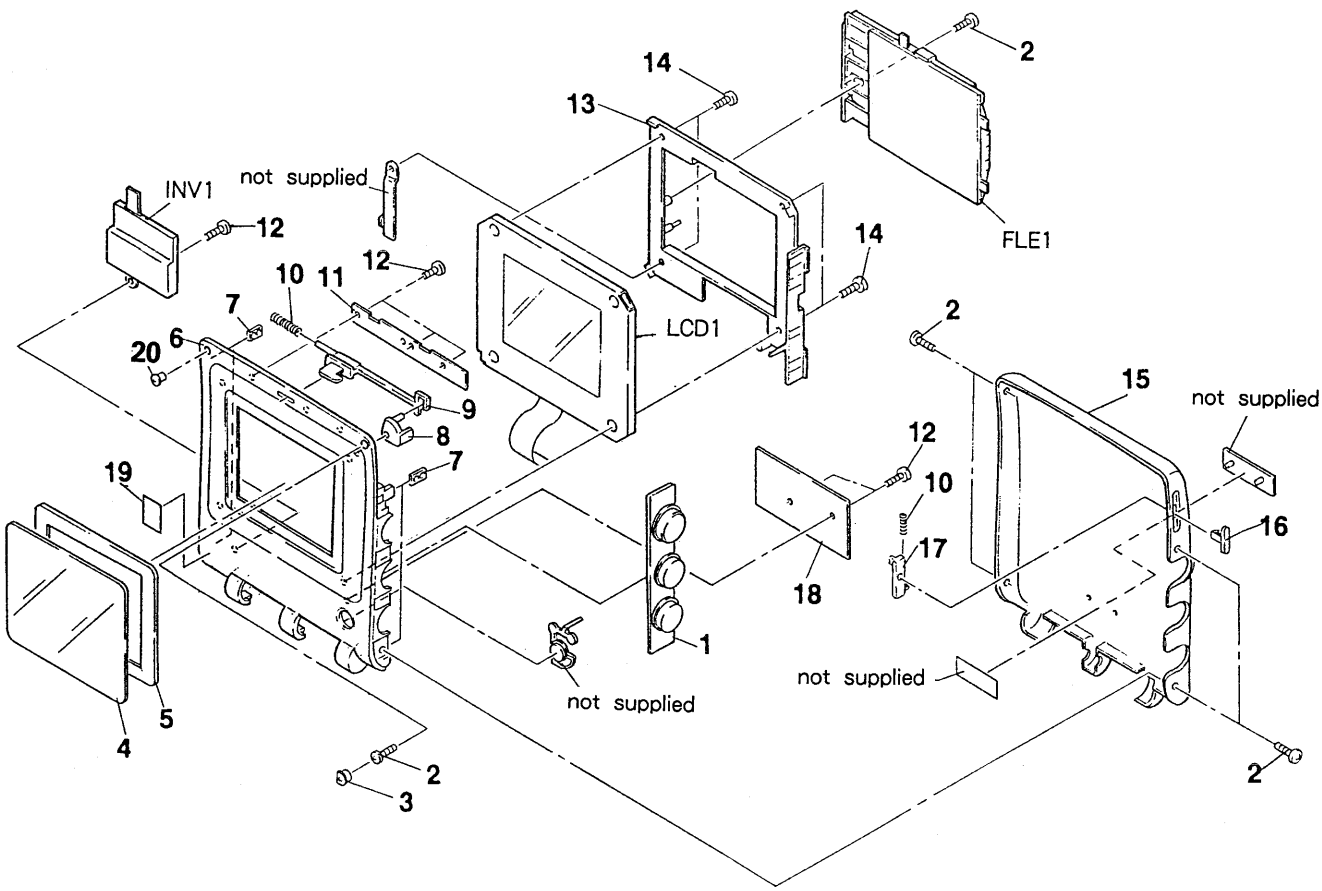
SECTION 4
EXPRODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE)...(RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

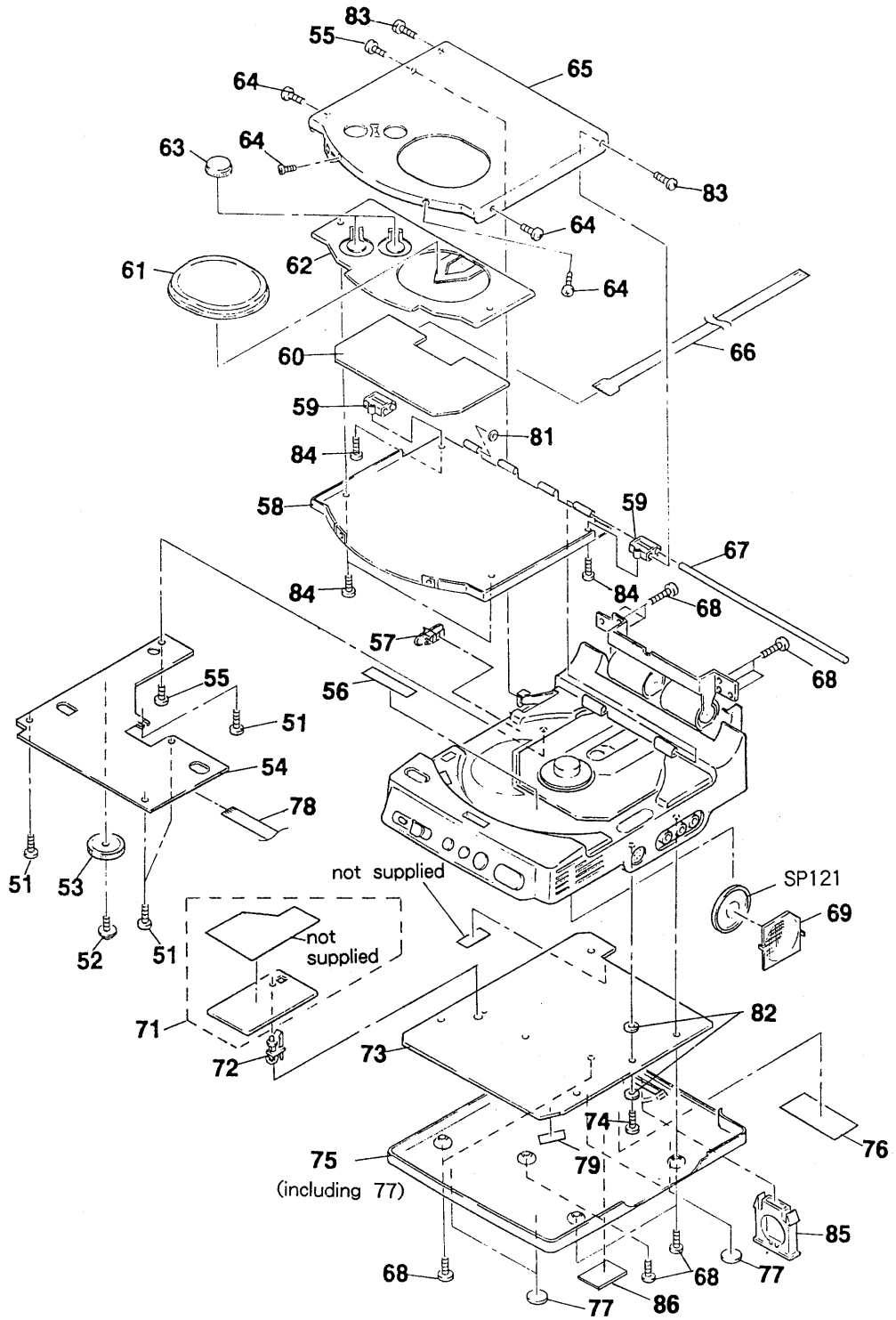
4-1. LCD SECTION



Ref. No.	Part No.	Description	Remarks
* 1	A-4649-533-A	VR-35 BOARD, COMPLETE	
2	3-724-455-01	SCREW (M2X4)	
3	4-951-194-11	SPACER (RIGHT), RUBBER	
4	4-948-623-01	FILTER	
5	4-948-653-01	SHEET (FILTER), ADHESIVE	
6	X-4942-097-1	PANEL (F-LCD) ASSY	
7	3-730-103-01	NUT, PLATE	
8	4-948-625-01	LEVER (LCD)	
9	4-948-654-11	CLAW, LOCK	
10	3-728-944-01	SPRING, COMPRESSION	
11	4-948-636-01	RETAINER	
12	3-719-601-01	SCREW (B2X5), TAPPING	

Ref. No.	Part No.	Description	Remarks
* 13	X-4942-098-1	HOLDER ASSY, LCD	
14	4-953-738-01	SCREW (M1.7X6)	
15	X-4943-200-1	PANEL (B-LCD) ASSY	
16	4-948-624-11	BUTTON (O-LCD)	
17	4-948-635-01	PLATE, SLIDE	
* 18	A-4649-534-A	DS-58 BOARD, COMPLETE	
* 19	3-703-713-41	STICKER, SONY SYMBOL (10)	
20	4-951-195-11	SPACER (LEFT), RUBBER	
⚠FLE1	1-809-548-11	ILLUMINATION UNIT, BACK	
⚠INV1	1-466-637-11	INVERTER UNIT	
LCD1	1-809-546-11	MODULE, COLOER LIQUID CRYSTAL	

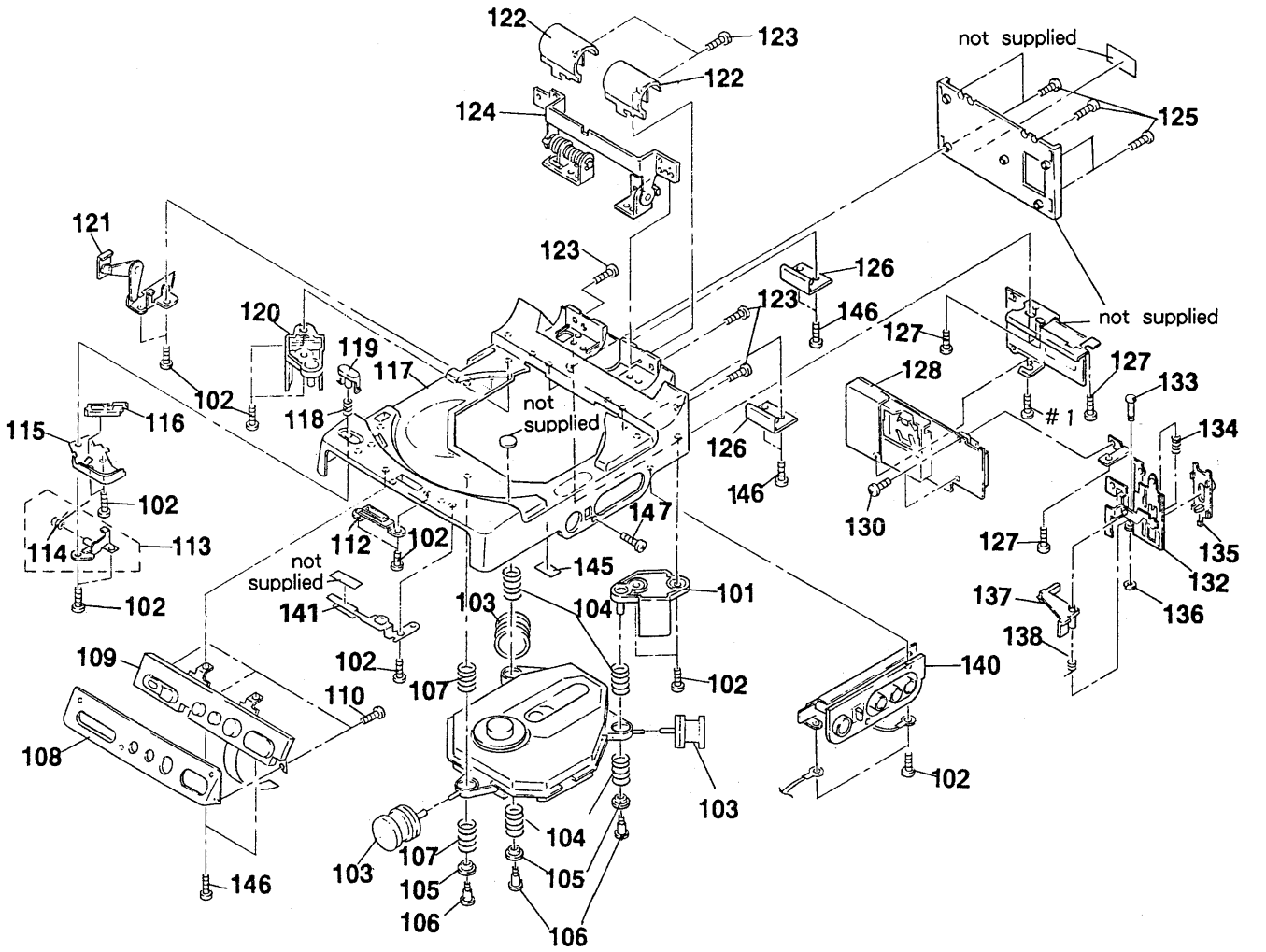
4-2. CD LID SECTION



Ref. No.	Part No.	Description	Remarks
51	3-719-408-01	SCREW (B2), TAPPING, P3	
52	3-345-648-01	SCREW (M1.4X3)	
53	4-932-763-11	KNOB, VOLUME	
* 54	A-4649-528-A	SV-69 BOARD, COMPLETE	
55	3-740-626-21	SCREW (M1.7X4)	
56	4-908-711-11	LABEL, CAUTION, LENS	
57	4-948-647-11	KNOB (DBB)	
58	4-948-665-01	LID (LOWER), CD	
59	4-948-639-01	BEARING (CD LID)	
60	1-466-641-21	SWITCH BLOCK, CONTROL (CD-I)	
61	4-948-659-11	BUTTON (CA)	
62	4-948-671-01	HOLDER (CD LID)	
63	4-948-637-11	BUTTON (A)	
64	3-703-816-41	SCREW (M1.4X2.5), SPECIAL HEAD	
65	4-948-664-11	LID (UPPER), CD	
66	1-641-819-11	HN-12 FLEXIBLE BOARD	
67	4-948-618-01	SHAFT (CD HINGE)	
68	3-336-395-01	SCREW (B2X10) (G), TAPPING	
69	X-4942-096-1	SPACER ASSY, SPK	

Ref. No.	Part No.	Description	Remarks
* 71	A-4649-535-A	RO-2 BOARD, COMPLETE (UP TO SERIAL NO. 800500)	
71	A-4649-390-A	RO-1 BOARD, COMPLETE (SERIAL NO. 800501 TO 801000)	
72	3-744-842-01	SUPPORT, CT PC BOARD (UP TO SERIAL NO. 801000)	
* 73	A-4649-527-A	PU-4 BOARD, COMPLETE	
74	3-724-455-01	SCREW (M2X4)	
75	A-4604-979-A	PLATE ASSY, BOTTOM	
* 76	4-956-160-01	LABEL, MODEL NUMBER (U/C)	
77	4-912-641-11	FOOT, RUBBER	
78	1-641-818-11	HN-10 FLEXIBLE BOARD	
79	3-831-441-XX	SPACER, KNOB	
81	4-918-886-11	WASHER, THRUST	
82	4-953-217-01	WASHER, POLY-SLIDER	
83	3-342-073-01	SCREW (1.7X4), TAPPING	
84	4-945-318-01	SCREW	
85	X-4942-095-1	HOLDER ASSY, BATTERY	
86	3-704-256-01	LABEL, CAUTION (LITHIUM BATT)	
SP121	1-544-227-21	SPEAKER	

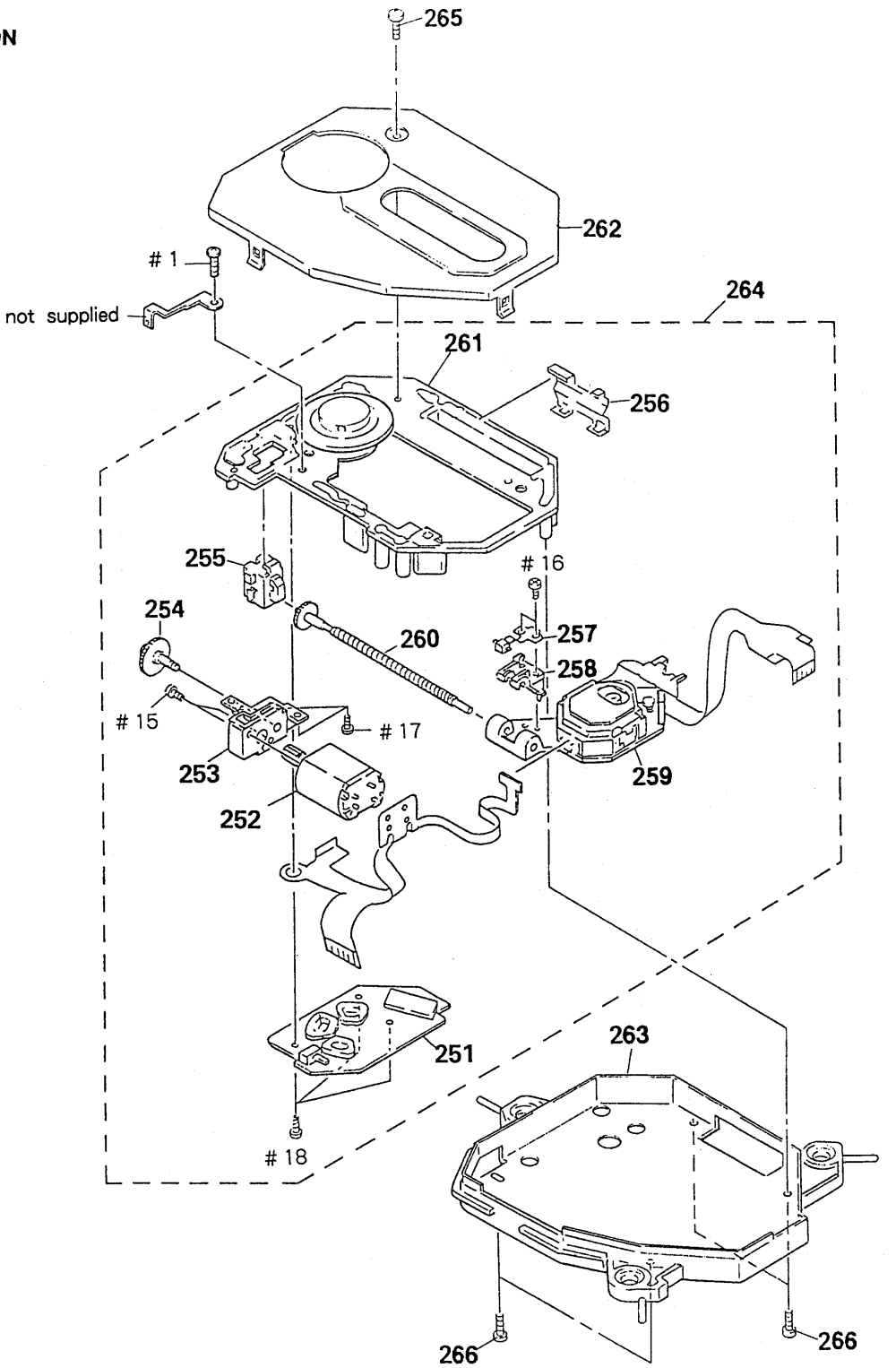
4-3. CABINET SECTION



Ref. No.	Part No.	Description	Remarks
101	4-948-651-01	HOLDER (R)	
102	3-719-408-01	SCREW (B2), TAPPING, P3	
103	3-330-929-11	DAMPER (S), HYPER	
104	4-951-816-01	SPRING (A), COMPRESSION	
105	4-948-634-01	RETAINER, SPRING	
106	4-924-718-01	SCREW, INSULATOR	
107	4-951-817-01	SPRING (B), COMPRESSION	
108	X-4943-201-1	ESCUTCHEON (CD) ASSY	
109	1-466-642-21	SWITCH BLOCK, CONTROL (CD)	
110	4-945-318-01	SCREW	
112	4-951-188-11	GUIDE, LOCK	
113	X-4942-568-1	PLATE ASSY, POP	
114	4-951-262-01	SPRING, POP	
115	4-948-600-01	BRACKET (LOCK CLAW)	
116	4-948-658-01	CLAW (CD), LOCK	
117	4-948-662-11	CABINET	
118	4-951-335-01	SPRING, COMPRESSION	
119	4-948-614-11	BUTTON (OPEN)	
120	4-948-650-01	HOLDER (L)	
121	X-4942-102-1	PLATE ASSY, SWITCHING	

Ref. No.	Part No.	Description	Remarks
122	4-948-660-11	COVER, HINGE	
123	3-724-455-01	SCREW (M2X4)	
124	X-4942-101-1	HINGE (LCD) ASSY	
125	3-740-626-21	SCREW (M1.7X4)	
126	4-948-640-01	HINGE (CD LID)	
127	3-719-381-21	SCREW (M2X6)	
* 128	A-4630-294-A	PS-297 BOARD COMPLETE	
130	4-952-140-01	SCREW (M2X6)	
132	X-4942-094-1	BRACKET (BATTERY LOCK) ASSY	
133	4-948-643-01	SHAFT (LOCK ARM)	
134	4-951-181-01	SPRING, PRESS COIL	
135	4-948-646-12	KNOB (LOCK RELEASE)	
136	3-321-813-11	WASHER, COTTER POLYETHYLENE	
137	4-951-189-01	CLAW, BATT	
138	4-951-182-01	SPRING, TORSION	
140	1-537-393-21	TERMINAL BOARD	
141	X-4942-712-1	SPRING ASSY, LOCK	
145	3-831-441-XX	SPACER, KNOB	
146	3-719-601-01	SCREW (B2X5), TAPPING	
147	3-342-073-01	SCREW (1.7X4), TAPPING	

4-4. MD SECTION



Ref. No.	Part No.	Description	Remarks
251	8-835-456-01	DC MOTOR SSC-02E01S	
252	X-2625-210-1	SLED MOTOR GEAR ASSY	
* 253	2-625-513-01	DRIVING BASE	
254	2-625-818-01	GEAR (B)	
* 255	A-4910-348-B	THRUST BASE ASSY	
* 256	2-625-514-01	COVER, FLEX	
257	2-625-516-01	SPRING, A	
258	2-625-515-01	RACK AT	

Ref. No.	Part No.	Description	Remarks
⚠259	8-848-245-11	PICKUP, OPTICAL KSS-311A (RP)	
260	X-2625-209-1	SCREW (SLED) ASSY	
261	X-2625-309-2	TURNTABLE CHASSIS ASSY	
262	4-948-652-01	COVER, MD	
* 263	4-948-667-01	HOLDER, MD	
⚠264	8-848-252-01	DEVICE, OPTICAL KSM-311AAM	
265	3-733-912-01	SCREW (M2X2.5), SPECIAL HEAD	
266	3-719-601-11	SCREW (B2X5), TAPPING	

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- −XX, −X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS :
  uF : μF
- RESISTORS
  All resistors are in ohms.
  METAL : metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- COILS
  uH : μH
- SEMICONDUCTORS
  In each case, u : μ, for example :
  uA... : μA... , uPA... , μPA... ,
  uPB... , μPB... ,uPC... , μPC... ,
  uPD..., μPD...

Ref. No.	Part No.	Description			Remarks
*	A-4649-534-A	DS-58 BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C701	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C702	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C703	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C704	1-128-049-11	ELECT CHIP	1uF	0	50V
C705	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C706	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C707	1-126-193-11	ELECT	1uF	20%	50V
C708	1-126-191-11	ELECT CHIP	0.47uF	20%	50V
C709	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C710	1-126-193-11	ELECT	1uF	20%	50V
C711	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C712	1-128-024-11	ELECT CHIP	4.7uF	0	10V
C713	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C714	1-164-346-11	CERAMIC CHIP	1uF		16V
C715	1-164-346-11	CERAMIC CHIP	1uF		16V
C716	1-164-346-11	CERAMIC CHIP	1uF		16V
C717	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C718	1-164-346-11	CERAMIC CHIP	1uF		16V
C719	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C720	1-164-346-11	CERAMIC CHIP	1uF		16V
C721	1-124-779-00	ELECT CHIP	10uF	20%	16V
C722	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C723	1-164-346-11	CERAMIC CHIP	1uF		16V
C724	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C725	1-164-346-11	CERAMIC CHIP	1uF		16V
C726	1-126-610-11	ELECT CHIP	2.2uF	0	35V
C727	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C728	1-128-034-11	ELECT CHIP	3.3uF	0	25V
C729	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C730	1-128-034-11	ELECT CHIP	3.3uF	0	25V
C731	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C732	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C733	1-164-346-11	CERAMIC CHIP	1uF		16V
C734	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C735	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
		< CONNECTOR >			
* CN701	1-565-160-11	PIN, CONNECTOR (ANGLE) 13P			
CN702	1-568-238-11	CONNECTOR, FPC (1.0MM)(ZIF)16P			
* CN703	1-565-155-11	PIN, CONNECTOR (ANGLE) 8P			
CN704	1-569-775-21	PIN, CONNECTOR 5P			
		< DIODE >			
D701	8-719-400-18	DIODE MA152WK			
D702	8-719-106-23	DIODE RD7.5M-B2			
D703	8-719-106-23	DIODE RD7.5M-B2			
D704	8-719-105-32	DIODE RD2.7M-B2			
		< IC >			
IC701	8-752-056-40	IC CXA1385Q-T4			
IC702	8-752-057-28	IC CXA1485Q			
IC703	8-759-300-71	IC HD14053BFP			
IC704	8-759-242-76	IC TC7W08F			
IC705	8-759-242-74	IC TC7W04F			
		< COIL >			
L701	1-412-030-11	INDUCTOR CHIP	22uH		
L702	1-412-030-11	INDUCTOR CHIP	22uH		
L703	1-412-030-11	INDUCTOR CHIP	22uH		
L704	1-412-026-11	INDUCTOR CHIP	1uH		
L705	1-412-030-11	INDUCTOR CHIP	22uH		
L706	1-412-030-11	INDUCTOR CHIP	22uH		
L707	1-412-029-11	INDUCTOR CHIP	10uH		
L708	1-412-029-11	INDUCTOR CHIP	10uH		
L709	1-412-029-11	INDUCTOR CHIP	10uH		

Ref. No.	Part No.	Description			Remarks
		< TRANSISTOR >			
Q701	8-729-120-28	TRANSISTOR	2SC1623-L5L6		
Q702	8-729-120-28	TRANSISTOR	2SC1623-L5L6		
Q703	8-729-216-22	TRANSISTOR	2SA1162		
Q704	8-729-901-81	TRANSISTOR	2SC2412K-T-146-R		
		< RESISTOR >			
R701	1-216-837-11	METAL CHIP	22K	5%	1/16W
R702	1-216-846-11	METAL CHIP	120K	5%	1/16W
R703	1-218-749-11	METAL CHIP	240K	0.50%	1/16W
R704	1-216-839-11	METAL CHIP	33K	5%	1/16W
R705	1-216-844-11	METAL CHIP	82K	5%	1/16W
R706	1-216-835-11	METAL CHIP	15K	5%	1/16W
R707	1-216-845-11	METAL CHIP	100K	5%	1/16W
R708	1-216-851-11	METAL CHIP	330K	5%	1/16W
R709	1-218-720-11	METAL CHIP	15K	0.50%	1/16W
R710	1-216-840-11	METAL CHIP	39K	5%	1/16W
R711	1-216-839-11	METAL CHIP	33K	5%	1/16W
R712	1-216-835-11	METAL CHIP	15K	5%	1/16W
R713	1-216-837-11	METAL CHIP	22K	5%	1/16W
R714	1-216-818-11	METAL CHIP	560	5%	1/16W
R715	1-216-815-11	METAL CHIP	330	5%	1/16W
R716	1-216-815-11	METAL CHIP	330	5%	1/16W
R717	1-216-815-11	METAL CHIP	330	5%	1/16W
R718	1-216-815-11	METAL CHIP	330	5%	1/16W
R719	1-216-841-11	METAL CHIP	47K	5%	1/16W
R720	1-216-838-11	METAL CHIP	27K	5%	1/16W
R721	1-216-837-11	METAL CHIP	22K	5%	1/16W
R722	1-216-837-11	METAL CHIP	22K	5%	1/16W
R723	1-216-833-11	METAL CHIP	10K	5%	1/16W
R724	1-216-821-11	METAL CHIP	1K	5%	1/16W
R725	1-216-821-11	METAL CHIP	1K	5%	1/16W
R726	1-216-821-11	METAL CHIP	1K	5%	1/16W
R727	1-218-716-11	METAL CHIP	10K	0.50%	1/16W
R728	1-216-834-11	METAL CHIP	12K	5%	1/16W
R729	1-216-835-11	METAL CHIP	15K	5%	1/16W
R730	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R731	1-216-835-11	METAL CHIP	15K	5%	1/16W
R732	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R733	1-216-835-11	METAL CHIP	15K	5%	1/16W
R734	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R735	1-216-834-11	METAL CHIP	12K	5%	1/16W
R736	1-216-834-11	METAL CHIP	12K	5%	1/16W
R737	1-216-834-11	METAL CHIP	12K	5%	1/16W
R738	1-216-834-11	METAL CHIP	12K	5%	1/16W
R739	1-216-834-11	METAL CHIP	12K	5%	1/16W
R740	1-216-834-11	METAL CHIP	12K	5%	1/16W
R741	1-216-837-11	METAL CHIP	22K	5%	1/16W
R742	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R743	1-216-835-11	METAL CHIP	15K	5%	1/16W
R744	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R745	1-216-835-11	METAL CHIP	15K	5%	1/16W
R746	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R747	1-216-817-11	METAL CHIP	470	5%	1/16W
R748	1-216-821-11	METAL CHIP	1K	5%	1/16W
R749	1-216-833-11	METAL CHIP	10K	5%	1/16W
R750	1-216-837-11	METAL CHIP	22K	5%	1/16W
R751	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
		< VARIABLE RESISTOR >			
RV701	1-241-395-11	RES, ADJ, METAL GLAZE 10K			
RV702	1-241-395-11	RES, ADJ, METAL GLAZE 10K			
RV703	1-241-395-11	RES, ADJ, METAL GLAZE 10K			
RV704	1-241-395-11	RES, ADJ, METAL GLAZE 10K			
RV705	1-241-395-11	RES, ADJ, METAL GLAZE 10K			
RV706	1-241-395-11	RES, ADJ, METAL GLAZE 10K			
RV707	1-241-395-11	RES, ADJ, METAL GLAZE 10K			
RV708	1-241-395-11	RES, ADJ, METAL GLAZE 10K			
RV709	1-241-395-11	RES, ADJ, METAL GLAZE 10K			
RV710	1-241-395-11	RES, ADJ, METAL GLAZE 10K			
		< SWITCH >			
S701	1-572-725-11	SWITCH, TACTILE (LCD ON/OFF)			
		< VIBRATOR >			
X701	1-579-466-11	VIBRATOR, CRYSTAL (3.58MHz)			
**********					
*	A-4630-294-A	PS-297 BOARD, COMPLETE			
		**********			
	4-951-265-01	SPACER (BATTERY TERMINAL)			
		< CAPACITOR >			
C601	1-124-234-00	ELECT	22uF	20%	16V
C602	1-127-512-00	ELECT(SOLID)	10uF	20%	16V
C603	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C604	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C605	1-127-481-00	ELECT(SOLID)	6.8uF	20%	6.3V
C606	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C607	1-126-602-11	ELECT CHIP	3.3uF	20%	50V
C609	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C610	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C612	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
		< CONNECTOR >			
* CN601	1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P			
		< DIODE >			
D605	8-719-938-78	DIODE	SB10-05PCP		

Ref. No.	Part No.	Description			Remarks
		< FUSE >			
⚠F601	1-532-778-21	FUSE, MICRO	(1.6A 125V)		
⚠F602	1-532-778-21	FUSE, MICRO	(1.6A 125V)		
⚠F603	1-532-776-21	FUSE, MICRO	(1A 125V)		
		< IC >			
IC601	8-759-521-35	IC	TL5001CD		
		< JACK >			
J601	1-537-429-11	TERMINAL BOARD (BATTERY)			
		< COIL >			
L601	1-414-092-11	COIL, CHOKE	22uH		
⚠L602	1-414-092-11	COIL, CHOKE	22uH		
L603	1-414-092-11	COIL, CHOKE	22uH		
L605	1-424-597-11	COIL, LINE FILTER			
L606	1-414-092-11	COIL, CHOKE	22uH		
		< TRANSISTOR >			
Q601	8-729-402-42	TRANSISTOR	UN5213		
Q602	8-729-141-48	TRANSISTOR	2SB624-BV345		
Q603	8-729-402-84	TRANSISTOR	XN4601		
⚠Q604	8-729-822-60	TRANSISTOR	2SB1302-S		
		< RESISTOR >			
R601	1-216-841-11	METAL CHIP	47K	5%	1/16W
R602	1-216-833-11	METAL CHIP	10K	5%	1/16W
R603	1-216-819-11	METAL CHIP	680	5%	1/16W
R604	1-218-680-11	METAL CHIP	330	0.50%	1/16W
R605	1-216-809-11	METAL CHIP	100	5%	1/16W
R606	1-216-809-11	METAL CHIP	100	5%	1/16W
R607	1-216-836-11	METAL CHIP	18K	5%	1/16W
R608	1-216-849-11	METAL CHIP	220K	5%	1/16W
R609	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R610	1-218-723-11	METAL CHIP	20K	0.50%	1/16W
R611	1-218-708-11	METAL CHIP	4.7K	0.50%	1/16W
R612	1-216-821-11	METAL CHIP	1K	5%	1/16W
R613	1-216-801-11	METAL CHIP	22	5%	1/16W
R614	1-216-821-11	METAL CHIP	1K	5%	1/16W
R615	1-216-864-11	METAL CHIP	0	5%	1/16W
		< VARIABLE RESISTOR >			
RV601	1-241-396-11	RES, ADJ, METAL GLAZE	22K		
RV602	1-241-392-11	RES, ADJ, METAL GLAZE	1K		

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Ref. No.	Part No.	Description			Remarks
*	A-4649-527-A	PU-4 BOARD, COMPLETE			
		**********			
	1-641-811-21	PU-4 BOARD			
		< CAPACITOR >			
C001	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C002	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C003	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C004	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C005	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C006	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C007	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C008	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C009	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C010	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C011	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C012	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C013	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C014	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C015	1-164-346-11	CERAMIC CHIP	1uF		16V
C101	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C103	1-124-779-00	ELECT CHIP	10uF	20%	16V
C104	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C105	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C106	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C107	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C108	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C109	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C110	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C117	1-128-024-11	ELECT CHIP	4.7uF	0	10V
C118	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C119	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C120	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C201	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C202	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C203	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C204	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C205	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C206	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C207	1-124-779-00	ELECT CHIP	10uF	20%	16V
C208	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C209	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C210	1-128-024-11	ELECT CHIP	4.7uF	0	10V
C211	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C301	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C302	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C303	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C304	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C305	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C306	1-163-038-00	CERAMIC CHIP	0.1uF		25V

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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Ref. No.	Part No.	Description			Remarks
C307	1-128-024-11	ELECT CHIP	4.7uF	0	10V
C308	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C309	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C310	1-128-024-11	ELECT CHIP	4.7uF	0	10V
C311	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C312	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C401	1-124-779-00	ELECT CHIP	10uF	20%	16V
C402	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C403	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C404	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C405	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C406	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C407	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C408	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C409	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C410	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C411	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C412	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C413	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C414	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C415	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C416	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C417	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C419	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C420	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C501	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C502	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C503	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C505	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C506	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C507	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C508	1-124-779-00	ELECT CHIP	10uF	20%	16V
C509	1-124-779-00	ELECT CHIP	10uF	20%	16V
C510	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C511	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C512	1-128-391-11	ELECT	330uF	20%	6.3V
C513	1-124-779-00	ELECT CHIP	10uF	20%	16V
C514	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C515	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C516	1-126-245-11	ELECT	330uF	20%	6.3V
C517	1-126-204-11	ELECT CHIP	47uF	20%	16V
C520	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C524	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C526	1-164-346-11	CERAMIC CHIP	1uF		16V
C527	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C528	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C529	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C530	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C531	1-126-193-11	ELECT	1uF	20%	50V
C532	1-126-395-11	ELECT	22uF	20%	16V

Ref. No.	Part No.	Description			Remarks
C533	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C534	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C535	1-135-161-21	TANTALUM CHIP	22uF	10%	10V
C536	1-135-161-21	TANTALUM CHIP	22uF	10%	10V
C541	1-126-601-11	ELECT CHIP	2.2uF	20%	50V
C542	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C551	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C552	1-128-024-11	ELECT CHIP	4.7uF	0	10V
C553	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C554	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C555	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C556	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C558	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C559	1-128-024-11	ELECT CHIP	4.7uF	0	10V
C560	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C561	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C562	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C563	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C564	1-128-024-11	ELECT CHIP	4.7uF	0	10V
C565	1-128-028-11	ELECT CHIP	3.3uF	0	16V
C566	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C567	1-164-164-11	CERAMIC CHIP	33PF	5%	50V
C568	1-164-164-11	CERAMIC CHIP	33PF	5%	50V
C569	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C570	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C571	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C572	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C573	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C574	1-128-024-11	ELECT CHIP	4.7uF	0	10V
C575	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C576	1-164-378-11	CERAMIC CHIP	30PF	5%	50V
C577	1-164-218-11	CERAMIC CHIP	180PF	0.25PF	50V
C578	1-164-378-11	CERAMIC CHIP	30PF	5%	50V
C579	1-164-218-11	CERAMIC CHIP	180PF	0.25PF	50V
C580	1-164-378-11	CERAMIC CHIP	30PF	5%	50V
C581	1-164-218-11	CERAMIC CHIP	180PF	0.25PF	50V
C582	1-164-379-11	CERAMIC CHIP	43PF	5%	50V
C583	1-164-379-11	CERAMIC CHIP	43PF	5%	50V
C584	1-164-379-11	CERAMIC CHIP	43PF	5%	50V
C585	1-164-466-11	CERAMIC CHIP	240PF	5%	50V
C586	1-164-466-11	CERAMIC CHIP	240PF	5%	50V
C587	1-164-466-11	CERAMIC CHIP	240PF	5%	50V
C588	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C589	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C590	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C595	1-164-156-11	CERAMIC CHIP	0.1uF		25V

< CONNECTOR >

CN003	1-691-342-31	HOUSING, CONNECTOR 28P
* CN004	1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P
* CN005	1-565-160-11	PIN, CONNECTOR (ANGLE) 13P

Ref. No.	Part No.	Description	Remarks
CN007	1-566-523-11	CONNECTOR, FPC (ZIF) 7P	
CN009	1-566-527-11	CONNECTOR, FPC (ZIF) 11P	
CN010	1-566-524-21	CONNECTOR, FPC (ZIF) 8P	
* CN012	1-565-151-11	PIN, CONNECTOR (ANGLE) 4P	
CN999	1-580-057-11	PIN, CONNECTOR 4P	
		< VARIABLE CAPACITOR >	
CV001	1-141-370-11	CAP, CHIP TRIMMER	
CV551	1-141-373-11	CAP, CHIP TRIMMER	
		< DIODE >	
⚠D001	8-719-991-65	DIODE SB02W03C	
D002	8-719-157-36	DIODE RD6.8M-B	
D003	8-719-157-36	DIODE RD6.8M-B	
⚠D004	8-719-938-72	DIODE SB01-05CP	
D401	8-719-400-18	DIODE MA152WK	
D402	8-719-106-70	DIODE RD12M-B1	
D403	8-719-016-73	DIODE STZ6.8T	
D404	8-719-016-73	DIODE STZ6.8T	
D405	8-719-016-73	DIODE STZ6.8T	
D406	8-719-016-73	DIODE STZ6.8T	
D501	8-719-016-73	DIODE STZ6.8T	
D502	8-719-106-23	DIODE RD7.5M-B2	
D503	8-719-106-23	DIODE RD7.5M-B2	
D504	8-719-016-73	DIODE STZ6.8T	
D505	8-719-016-73	DIODE STZ6.8T	
D507	8-719-800-76	DIODE 1SS226	
D508	8-719-941-09	DIODE DAP202U	
D509	8-719-941-09	DIODE DAP202U	
D510	8-719-400-18	DIODE MA152WK	
D511	8-719-106-23	DIODE RD7.5M-B2	
D551	8-713-300-88	DIODE 1T33C-01	
		< FERRITE BEAD >	
FB001	1-216-296-00	METAL CHIP 0 5% 1/8W	
FB002	1-216-296-00	METAL CHIP 0 5% 1/8W	
FB201	1-543-775-11	FILTER, EMI	
FB202	1-543-775-11	FILTER, EMI	
FB203	1-543-775-11	FILTER, EMI	
FB204	1-543-775-11	FILTER, EMI	
FB205	1-543-775-11	FILTER, EMI	
FB206	1-543-775-11	FILTER, EMI	
FB207	1-543-775-11	FILTER, EMI	
FB208	1-543-775-11	FILTER, EMI	
FB301	1-543-775-11	FILTER, EMI	
FB302	1-543-775-11	FILTER, EMI	
FB303	1-543-775-11	FILTER, EMI	
FB304	1-543-775-11	FILTER, EMI	
FB305	1-412-390-21	INDUCTOR CHIP 0uH	

Ref. No.	Part No.	Description	Remarks
FB401	1-543-775-11	FILTER, EMI	
FB402	1-216-296-00	METAL CHIP 0 5% 1/8W	
FB501	1-412-390-21	INDUCTOR CHIP 0uH	
FB502	1-543-775-11	FILTER, EMI	
FB503	1-543-775-11	FILTER, EMI	
FB504	1-543-775-11	FILTER, EMI	
FB505	1-543-775-11	FILTER, EMI	
FB506	1-543-775-11	FILTER, EMI	
FB507	1-543-775-11	FILTER, EMI	
FB508	1-543-775-11	FILTER, EMI	
FB509	1-543-775-11	FILTER, EMI	
FB510	1-412-390-21	INDUCTOR CHIP 0uH	
FB511	1-412-390-21	INDUCTOR CHIP 0uH	
FB512	1-412-390-21	INDUCTOR CHIP 0uH	
FB513	1-412-390-21	INDUCTOR CHIP 0uH	
FB514	1-412-390-21	INDUCTOR CHIP 0uH	
FB515	1-412-390-21	INDUCTOR CHIP 0uH	
FB516	1-543-775-11	FILTER, EMI	
FB517	1-543-775-11	FILTER, EMI	
FB518	1-543-775-11	FILTER, EMI	
FB519	1-543-775-11	FILTER, EMI	
FB520	1-543-775-11	FILTER, EMI	
FB521	1-412-390-21	INDUCTOR CHIP 0uH	
FB522	1-412-390-21	INDUCTOR CHIP 0uH	
FB523	1-412-390-21	INDUCTOR CHIP 0uH	
FB524	1-412-390-21	INDUCTOR CHIP 0uH	
FB551	1-543-775-11	FILTER, EMI	
FB552	1-543-775-11	FILTER, EMI	
FB554	1-543-775-11	FILTER, EMI	
		< FILTER >	
FL501	1-415-891-11	DELAY LINE	
FL502	1-236-191-11	FILTER, BAND PASS	
		< IC >	
IC001	8-759-038-92	IC MC68HC000FC16	
IC002	8-759-521-53	IC CXD8293Q	
IC003	8-752-331-01	IC CXK5864BM-12LL	
IC004	8-759-043-25	IC RH5VA43CA	
IC005	8-759-927-46	IC SN74HC00ANS	
IC006	8-759-095-53	IC HN62418FPC81 (SERIAL NO. 801001 AND LATER) (RO-1 OR RO-2 ARE NOT USED.)	
IC007	8-759-926-24	IC SN74HC164ANS	
IC008	8-759-043-25	IC RH5VA43CA	
IC009	8-759-234-20	IC TC7S08F	
IC101	8-759-098-26	IC MN66460B	
IC102	8-759-985-26	IC 74AC74SJ	
IC103	8-759-927-29	IC SN74HCU04ANS	
IC201	8-759-521-38	IC SCC66470CAB	
IC202	8-759-421-37	IC MN41C4256AT	
IC203	8-759-421-37	IC MN41C4256AT	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

PU-4

Ref. No.	Part No.	Description	Remarks
IC204	8-759-421-37	IC MN41C4256AT	
IC205	8-759-421-37	IC MN41C4256AT	
IC301	8-759-521-38	IC SCC66470CAB	
IC302	8-759-421-37	IC MN41C4256AT	
IC303	8-759-421-37	IC MN41C4256AT	
IC304	8-759-421-37	IC MN41C4256AT	
IC305	8-759-421-37	IC MN41C4256AT	
IC401	8-759-095-54	IC M38063M6-281FP	
IC402	8-752-351-70	IC CXD1197AQ	
IC403	8-752-337-80	IC CXK58257AM-12L	
IC404	8-752-331-01	IC CXK5864BM-12LL	
IC405	8-759-927-46	IC SN74HC00ANS	
IC406	8-759-948-48	IC RH5RA50A	
IC408	8-759-100-93	IC uPC393G2	
IC409	8-759-043-25	IC RH5VA43CA	
IC501	8-752-033-07	IC CXA1145M	
IC502	8-759-242-66	IC TC4W66F	
⚠IC503	8-759-062-32	IC AN6545SP-E1	
IC504	8-759-234-20	IC TC7S08F	
IC505	8-759-245-04	IC TC4S584F	
IC506	8-759-245-04	IC TC4S584F	
IC507	8-759-234-13	IC TC4S30F	
IC508	8-759-925-90	IC SN74HC74ANS	
IC509	8-759-987-20	IC CXD1229Q	
⚠IC510	8-759-062-32	IC AN6545SP-E1	
IC511	8-759-148-30	IC uPD6376	
IC512	8-759-234-20	IC TC7S08F	

< JUMPER RESISTOR >

JR401	1-216-864-11	METAL CHIP	0	5%	1/16W

< COIL >

L101	1-412-030-11	INDUCTOR CHIP	22uH
L501	1-412-627-51	INDUCTOR	27uH
L506	1-412-028-11	INDUCTOR CHIP	4.7uH
L507	1-412-030-11	INDUCTOR CHIP	22uH
L508	1-412-030-11	INDUCTOR CHIP	22uH
L551	1-412-032-11	INDUCTOR CHIP	100uH
L552	1-412-949-21	INDUCTOR	6.8uH
L553	1-412-031-11	INDUCTOR CHIP	47uH
L554	1-410-383-31	INDUCTOR CHIP	15uH
L555	1-410-383-31	INDUCTOR CHIP	15uH
L556	1-410-383-31	INDUCTOR CHIP	15uH
L557	1-410-383-31	INDUCTOR CHIP	15uH
L558	1-410-383-31	INDUCTOR CHIP	15uH
L559	1-410-383-31	INDUCTOR CHIP	15uH
L560	1-410-389-31	INDUCTOR CHIP	47uH
L561	1-410-389-31	INDUCTOR CHIP	47uH
L562	1-410-389-31	INDUCTOR CHIP	47uH

Ref. No.	Part No.	Description	Remarks

< TRANSISTOR >

Q001	8-729-422-27	TRANSISTOR	2SD601A-Q
Q002	8-729-907-00	TRANSISTOR	DTC114EU
Q003	8-729-216-22	TRANSISTOR	2SA1162
Q401	8-729-907-00	TRANSISTOR	DTC114EU
Q402	8-729-907-00	TRANSISTOR	DTC114EU
Q403	8-729-907-00	TRANSISTOR	DTC114EU
Q404	8-729-907-00	TRANSISTOR	DTC114EU
Q501	8-729-920-XX	TRANSISTOR	DTA114EUT106
Q502	8-729-907-00	TRANSISTOR	DTC114EU
Q503	8-729-422-27	TRANSISTOR	2SD601A-Q
Q507	8-729-924-07	TRANSISTOR	DTA143XU-T106
Q508	8-729-216-22	TRANSISTOR	2SA1162
Q512	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q513	8-729-141-48	TRANSISTOR	2SB624-BV345
Q514	8-729-402-42	TRANSISTOR	UN5213
Q551	8-729-102-07	TRANSISTOR	2SC2223-F13
Q552	8-729-216-22	TRANSISTOR	2SA1162

< RESISTOR >

R001	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R002	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R003	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R005	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R006	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R007	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R008	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R009	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R010	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R011	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R012	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R013	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R014	1-216-833-11	METAL CHIP	10K	5%	1/16W
R015	1-216-821-11	METAL CHIP	1K	5%	1/16W
R016	1-216-833-11	METAL CHIP	10K	5%	1/16W
R017	1-216-821-11	METAL CHIP	1K	5%	1/16W
R018	1-216-833-11	METAL CHIP	10K	5%	1/16W
R019	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R020	1-216-841-11	METAL CHIP	47K	5%	1/16W
R021	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R022	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R023	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R024	1-216-809-11	METAL CHIP	100	5%	1/16W
R025	1-216-813-11	METAL CHIP	220	5%	1/16W
R027	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R028	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R029	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R030	1-216-821-11	METAL CHIP	1K	5%	1/16W
R031	1-216-803-11	METAL CHIP	33	5%	1/16W
R032	1-216-839-11	METAL CHIP	33K	5%	1/16W

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
R101	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R102	1-216-816-11	METAL CHIP	390	5%	1/16W
R103	1-216-816-11	METAL CHIP	390	5%	1/16W
R104	1-216-836-11	METAL CHIP	18K	5%	1/16W
R105	1-216-816-11	METAL CHIP	390	5%	1/16W
R106	1-216-841-11	METAL CHIP	47K	5%	1/16W
R107	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R201	1-216-841-11	METAL CHIP	47K	5%	1/16W
R202	1-216-841-11	METAL CHIP	47K	5%	1/16W
R203	1-216-806-11	METAL GLAZE	56	5%	1/16W
R204	1-216-624-11	METAL CHIP	75	0.5%	1/10W
R205	1-216-803-11	METAL CHIP	33	5%	1/16W
R206	1-216-803-11	METAL CHIP	33	5%	1/16W
R207	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R208	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R209	1-216-833-11	METAL CHIP	10K	5%	1/16W
R301	1-216-841-11	METAL CHIP	47K	5%	1/16W
R302	1-216-841-11	METAL CHIP	47K	5%	1/16W
R303	1-216-806-11	METAL GLAZE	56	5%	1/16W
R304	1-216-624-11	METAL CHIP	75	0.5%	1/10W
R305	1-216-803-11	METAL CHIP	33	5%	1/16W
R306	1-216-803-11	METAL CHIP	33	5%	1/16W
R307	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R308	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R401	1-216-841-11	METAL CHIP	47K	5%	1/16W
R402	1-216-833-11	METAL CHIP	10K	5%	1/16W
R403	1-216-833-11	METAL CHIP	10K	5%	1/16W
R404	1-216-833-11	METAL CHIP	10K	5%	1/16W
R405	1-216-833-11	METAL CHIP	10K	5%	1/16W
R406	1-216-833-11	METAL CHIP	10K	5%	1/16W
R407	1-216-833-11	METAL CHIP	10K	5%	1/16W
R408	1-216-841-11	METAL CHIP	47K	5%	1/16W
R413	1-216-841-11	METAL CHIP	47K	5%	1/16W
R414	1-216-841-11	METAL CHIP	47K	5%	1/16W
R415	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R416	1-216-841-11	METAL CHIP	47K	5%	1/16W
R417	1-216-841-11	METAL CHIP	47K	5%	1/16W
R418	1-216-833-11	METAL CHIP	10K	5%	1/16W
R419	1-216-833-11	METAL CHIP	10K	5%	1/16W
R420	1-216-833-11	METAL CHIP	10K	5%	1/16W
R421	1-216-833-11	METAL CHIP	10K	5%	1/16W
R422	1-216-841-11	METAL CHIP	47K	5%	1/16W
R423	1-216-821-11	METAL CHIP	1K	5%	1/16W
R424	1-218-751-11	METAL CHIP	300K	0.50%	1/16W
R425	1-218-732-11	METAL CHIP	47K	0.50%	1/16W
R426	1-216-841-11	METAL CHIP	47K	5%	1/16W
R427	1-218-750-11	METAL CHIP	270K	0.50%	1/16W
R428	1-216-816-11	METAL CHIP	390	5%	1/16W
R429	1-216-816-11	METAL CHIP	390	5%	1/16W
R431	1-218-752-11	METAL CHIP	330K	0.50%	1/16W

Ref. No.	Part No.	Description			Remarks
R432	1-218-752-11	METAL CHIP	330K	0.50%	1/16W
R433	1-216-833-11	METAL CHIP	10K	5%	1/16W
R436	1-216-833-11	METAL CHIP	10K	5%	1/16W
R437	1-216-833-11	METAL CHIP	10K	5%	1/16W
R438	1-216-816-11	METAL CHIP	390	5%	1/16W
R439	1-216-816-11	METAL CHIP	390	5%	1/16W
R440	1-216-841-11	METAL CHIP	47K	5%	1/16W
R441	1-216-821-11	METAL CHIP	1K	5%	1/16W
R442	1-216-821-11	METAL CHIP	1K	5%	1/16W
R443	1-216-821-11	METAL CHIP	1K	5%	1/16W
R444	1-216-821-11	METAL CHIP	1K	5%	1/16W
R502	1-216-837-11	METAL CHIP	22K	5%	1/16W
R503	1-216-821-11	METAL CHIP	1K	5%	1/16W
R504	1-216-821-11	METAL CHIP	1K	5%	1/16W
R505	1-216-838-11	METAL CHIP	27K	5%	1/16W
R506	1-216-821-11	METAL CHIP	1K	5%	1/16W
R507	1-216-821-11	METAL CHIP	1K	5%	1/16W
R508	1-216-821-11	METAL CHIP	1K	5%	1/16W
R509	1-216-623-11	METAL CHIP	68	0.5%	1/10W
R511	1-216-837-11	METAL CHIP	22K	5%	1/16W
R512	1-216-839-11	METAL CHIP	33K	5%	1/16W
R513	1-216-805-11	METAL CHIP	47	5%	1/16W
R516	1-216-841-11	METAL CHIP	47K	5%	1/16W
R517	1-218-289-11	METAL GLAZE	510	5%	1/16W
R520	1-216-817-11	METAL CHIP	470	5%	1/16W
R521	1-216-817-11	METAL CHIP	470	5%	1/16W
R522	1-216-817-11	METAL CHIP	470	5%	1/16W
R523	1-216-821-11	METAL CHIP	1K	5%	1/16W
R531	1-216-864-11	METAL CHIP	0	5%	1/16W
R532	1-216-864-11	METAL CHIP	0	5%	1/16W
R536	1-216-841-11	METAL CHIP	47K	5%	1/16W
R537	1-218-752-11	METAL CHIP	330K	0.50%	1/16W
R538	1-218-749-11	METAL CHIP	240K	0.50%	1/16W
R539	1-218-725-11	METAL CHIP	24K	0.50%	1/16W
R540	1-218-746-11	METAL CHIP	180K	0.50%	1/16W
R541	1-216-833-11	METAL CHIP	10K	5%	1/16W
R542	1-216-856-11	METAL CHIP	820K	5%	1/16W
R543	1-218-729-11	METAL CHIP	36K	0.50%	1/16W
R544	1-218-751-11	METAL CHIP	300K	0.50%	1/16W
R545	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R546	1-216-857-11	METAL CHIP	1M	5%	1/16W
R547	1-216-833-11	METAL CHIP	10K	5%	1/16W
R548	1-216-857-11	METAL CHIP	1M	5%	1/16W
R549	1-216-821-11	METAL CHIP	1K	5%	1/16W
R550	1-216-864-11	METAL CHIP	0	5%	1/16W
R551	1-216-853-11	METAL CHIP	470K	5%	1/16W
R552	1-216-845-11	METAL CHIP	100K	5%	1/16W
R553	1-216-839-11	METAL CHIP	33K	5%	1/16W
R554	1-216-809-11	METAL CHIP	100	5%	1/16W
R555	1-216-839-11	METAL CHIP	33K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R556	1-216-821-11	METAL CHIP	1K	5%	1/16W
R557	1-218-484-11	METAL CHIP	750	0.50%	1/16W
R558	1-216-811-11	METAL CHIP	150	5%	1/16W
R559	1-216-836-11	METAL CHIP	18K	5%	1/16W
R560	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R561	1-216-304-11	METAL CHIP	3.3	5%	1/10W
R562	1-216-814-11	METAL CHIP	270	5%	1/16W
R563	1-216-809-11	METAL CHIP	100	5%	1/16W
R564	1-216-821-11	METAL CHIP	1K	5%	1/16W
R565	1-216-803-11	METAL CHIP	33	5%	1/16W
R566	1-216-835-11	METAL CHIP	15K	5%	1/16W
R567	1-216-841-11	METAL CHIP	47K	5%	1/16W
R568	1-216-821-11	METAL CHIP	1K	5%	1/16W
R569	1-216-836-11	METAL CHIP	18K	5%	1/16W
R570	1-218-720-11	METAL CHIP	15K	0.50%	1/16W
R571	1-216-819-11	METAL CHIP	680	5%	1/16W
R572	1-216-821-11	METAL CHIP	1K	5%	1/16W
R573	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R575	1-218-695-11	METAL CHIP	1.3K	0.50%	1/16W
R576	1-218-695-11	METAL CHIP	1.3K	0.50%	1/16W
R577	1-218-695-11	METAL CHIP	1.3K	0.50%	1/16W
R578	1-216-821-11	METAL CHIP	1K	5%	1/16W
R580	1-216-821-11	METAL CHIP	1K	5%	1/16W
R581	1-216-864-11	METAL CHIP	0	5%	1/16W
R582	1-216-864-11	METAL CHIP	0	5%	1/16W

< SWITCH >

S001	1-572-725-11	SWITCH, TACTILE (CL)

< VIBRATOR >

X001	1-567-098-31	VIBRATOR, CRYSTAL (32KHz)
X101	1-579-512-11	VIBRATOR, CRYSTAL (30MHz)
X401	1-567-964-11	OSCILLATOR, CHIP CERAMIC (5MHz)
X402	1-577-274-11	VIBRATOR, CRYSTAL (16MHz)
X501	1-579-597-11	VIBRATOR, CRYSTAL (14.3MHz)

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* 1-643-952-11 ST-701 BOARD
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< DIODE >

D101	8-719-016-73	DIODE STZ6.8T
D201	8-719-016-73	DIODE STZ6.8T

****

Ref. No.	Part No.	Description			Remarks
*	A-4649-528-A	SV-69 BOARD, COMPLETE			

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< CAPACITOR >

C101	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C102	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C103	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C104	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C105	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C106	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C107	1-164-386-11	CERAMIC CHIP	200PF	5%	50V
C108	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C109	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C122	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C123	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C124	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C125	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C126	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C127	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C128	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C141	1-135-161-21	TANTALUM CHIP	22uF	10%	10V
C142	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C143	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C144	1-135-159-21	TANTALUM CHIP	10uF	10%	20V
C161	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C162	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C163	1-164-373-11	CERAMIC CHIP	0.033uF		25V
C164	1-164-373-11	CERAMIC CHIP	0.033uF		25V
C165	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C166	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C167	1-164-386-11	CERAMIC CHIP	200PF	5%	50V
C168	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C181	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C182	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C183	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C184	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C201	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C202	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C203	1-164-386-11	CERAMIC CHIP	200PF	5%	50V
C204	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C221	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C222	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C223	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C224	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C225	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C226	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C227	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C228	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C229	1-164-156-11	CERAMIC CHIP	0.1uF		25V

Ref. No.	Part No.	Description			Remarks
C230	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C231	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C232	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C233	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C234	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C235	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C236	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C237	1-126-395-11	ELECT	22uF	20%	16V
C240	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C241	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C242	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C243	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C244	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C245	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C246	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C247	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C248	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C249	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C250	1-128-014-11	ELECT CHIP	10uF	0	4V
C251	1-124-779-00	ELECT CHIP	10uF	20%	16V
C261	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C262	1-164-346-11	CERAMIC CHIP	1uF		16V
C263	1-164-346-11	CERAMIC CHIP	1uF		16V
C264	1-164-346-11	CERAMIC CHIP	1uF		16V
C265	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C266	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C268	1-126-395-11	ELECT	22uF	20%	16V
C269	1-127-556-11	ELECT(SOLID)	6.8uF	20%	16V
C270	1-124-779-00	ELECT CHIP	10uF	20%	16V
C271	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C272	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C273	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C274	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C276	1-164-346-11	CERAMIC CHIP	1uF		16V
C302	1-135-216-11	TANTALUM CHIP	10uF	20%	10V
C303	1-164-346-11	CERAMIC CHIP	1uF		16V
C304	1-164-346-11	CERAMIC CHIP	1uF		16V
C305	1-164-346-11	CERAMIC CHIP	1uF		16V
C306	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C307	1-126-369-11	ELECT	220uF	20%	6.3V
C308	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C309	1-124-779-00	ELECT CHIP	10uF	20%	16V
C310	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C311	1-124-779-00	ELECT CHIP	10uF	20%	16V
C312	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C313	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C314	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C315	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C402	1-135-216-11	TANTALUM CHIP	10uF	20%	10V
C403	1-164-346-11	CERAMIC CHIP	1uF		16V
C404	1-164-346-11	CERAMIC CHIP	1uF		16V
C405	1-164-346-11	CERAMIC CHIP	1uF		16V
C406	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C407	1-126-369-11	ELECT	220uF	20%	6.3V
C408	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C409	1-124-779-00	ELECT CHIP	10uF	20%	16V
C410	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C411	1-124-779-00	ELECT CHIP	10uF	20%	16V
C412	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C413	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C414	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C415	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C505	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C506	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C507	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C508	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C509	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C510	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C511	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C512	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C513	1-126-603-11	ELECT CHIP	4.7uF	20%	35V
C514	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C515	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C516	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C518	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C519	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C522	1-124-779-00	ELECT CHIP	10uF	20%	16V
C523	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C524	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C525	1-124-779-00	ELECT CHIP	10uF	20%	16V
C526	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C528	1-126-603-11	ELECT CHIP	4.7uF	20%	35V
C531	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C539	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C540	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C541	1-126-395-11	ELECT	22uF	20%	16V
C542	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C543	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C544	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C545	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C546	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C547	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C548	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C549	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C550	1-126-207-11	ELECT CHIP	33uF	20%	4V
C551	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C552	1-126-603-11	ELECT CHIP	4.7uF	20%	35V
C553	1-124-779-00	ELECT CHIP	10uF	20%	16V
C554	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C555	1-164-222-11	CERAMIC CHIP	0.22uF		25V

Ref. No.	Part No.	Description			Remarks
C556	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C557	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C558	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C559	1-124-779-00	ELECT CHIP	10uF	20%	16V
C560	1-162-955-11	CERAMIC CHIP	150PF	5%	50V
		< CONNECTOR >			
CN001	1-691-342-31	HOUSING, CONNECTOR 28P			
CN002	1-569-528-11	HOUSING, CONNECTOR 12P			
CN003	1-569-528-11	HOUSING, CONNECTOR 12P			
* CN004	1-568-941-11	PIN, CONNECTOR 3P			
* CN005	1-565-135-11	PIN, CONNECTOR (STRAIGHT) 2P			
CN006	1-566-521-11	CONNECTOR, FPC (ZIF) 5P			
* CN007	1-565-151-11	PIN, CONNECTOR (ANGLE) 4P			
		< DIODE >			
D261	8-719-938-72	DIODE	SB01-05CP		
D262	8-719-938-72	DIODE	SB01-05CP		
D263	8-719-938-72	DIODE	SB01-05CP		
D265	8-719-938-75	DIODE	SB05-05CP		
D266	8-719-938-75	DIODE	SB05-05CP		
D501	8-719-400-18	DIODE	MA152WK		
D511	8-719-016-73	DIODE	STZ6.8TT146		
D512	8-719-938-72	DIODE	SB01-05CP		
		< FERRITE BEAD >			
FB001	1-543-775-11	FILTER, EMI			
FB002	1-543-775-11	FILTER, EMI			
FB003	1-543-775-11	FILTER, EMI			
FB301	1-543-775-11	FILTER, EMI			
FB302	1-543-775-11	FILTER, EMI			
FB303	1-543-775-11	FILTER, EMI			
FB401	1-543-775-11	FILTER, EMI			
FB402	1-543-775-11	FILTER, EMI			
FB403	1-543-775-11	FILTER, EMI			
FB501	1-543-775-11	FILTER, EMI			
FB502	1-543-775-11	FILTER, EMI			
FB503	1-543-775-11	FILTER, EMI			
		< IC >			
IC001	8-752-033-14	IC	CXA1081Q		
IC002	8-752-062-52	IC	CXA1372AQ-T6		
IC003	8-752-352-93	IC	CXD2500AQ		
IC004	8-759-030-17	IC	MPC1715		
IC005	8-759-031-84	IC	SC7S04F		
IC006	8-759-234-13	IC	TC4S30F		
IC007	8-759-209-57	IC	TC4S69F		
IC008	8-759-031-84	IC	SC7S04F		
⚠IC009	8-759-062-32	IC	AN6545SP-E1		
IC501	8-759-710-55	IC	NJM2100M		

Ref. No.	Part No.	Description			Remarks
IC502	8-759-510-56	IC	BA3570FS		
IC503	8-759-701-02	IC	NJM2073M		
IC504	8-759-011-65	IC	MC74HC4053F		
IC505	8-759-710-55	IC	NJM2100M		
⚠IC506	8-759-062-32	IC	AN6545SP-E1		
IC507	8-759-710-55	IC	NJM2100M		
IC508	8-759-710-55	IC	NJM2100M		
		< JACK >			
J501	1-563-282-21	JACK, SMALL TYPE			
		< JUMPER RESISTOR >			
JR001	1-216-295-00	METAL CHIP	0	5%	1/10W
JR002	1-216-295-00	METAL CHIP	0	5%	1/10W
		< COIL >			
L101	1-412-032-11	INDUCTOR CHIP	100uH		
L121	1-412-032-11	INDUCTOR CHIP	100uH		
L141	1-412-032-11	INDUCTOR CHIP	100uH		
L181	1-412-029-11	INDUCTOR CHIP	10uH		
L221	1-412-029-11	INDUCTOR CHIP	10uH		
L222	1-412-029-11	INDUCTOR CHIP	10uH		
L261	1-412-030-11	INDUCTOR CHIP	22uH		
L262	1-412-031-11	INDUCTOR CHIP	47uH		
L263	1-412-030-11	INDUCTOR CHIP	22uH		
L264	1-412-030-11	INDUCTOR CHIP	22uH		
L501	1-412-030-11	INDUCTOR CHIP	22uH		
L502	1-412-030-11	INDUCTOR CHIP	22uH		
L503	1-412-030-11	INDUCTOR CHIP	22uH		
L504	1-412-030-11	INDUCTOR CHIP	22uH		
L508	1-412-029-11	INDUCTOR CHIP	10uH		
		< TRANSISTOR >			
Q181	8-729-904-87	TRANSISTOR	2SB1197K-R		
Q182	8-729-810-13	TRANSISTOR	UN5112		
Q183	8-729-402-45	TRANSISTOR	UN5212		
Q201	8-729-402-45	TRANSISTOR	UN5212		
⚠Q261	8-729-101-07	TRANSISTOR	2SB798-DL		
⚠Q262	8-729-140-75	TRANSISTOR	2SD999-CLCK		
⚠Q264	8-729-904-87	TRANSISTOR	2SB1197K-R		
Q266	8-729-402-45	TRANSISTOR	UN5212		
Q301	8-729-141-75	TRANSISTOR	2SD596DV345		
Q302	8-729-921-73	TRANSISTOR	2SD1781K-QR		
Q303	8-729-141-75	TRANSISTOR	2SD596DV345		
Q304	8-729-921-73	TRANSISTOR	2SD1781K-QR		
Q401	8-729-141-75	TRANSISTOR	2SD596DV345		
Q402	8-729-921-73	TRANSISTOR	2SD1781K-QR		
Q403	8-729-141-75	TRANSISTOR	2SD596DV345		
Q404	8-729-921-73	TRANSISTOR	2SD1781K-QR		
Q506	8-729-922-94	TRANSISTOR	DTC143TU		
Q507	8-729-141-75	TRANSISTOR	2SD596DV345		

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
		< RESISTOR >			
R101	1-218-736-11	METAL CHIP	68K	0.50%	1/16W
R102	1-218-736-11	METAL CHIP	68K	0.50%	1/16W
R103	1-218-736-11	METAL CHIP	68K	0.50%	1/16W
R104	1-218-736-11	METAL CHIP	68K	0.50%	1/16W
R105	1-216-837-11	METAL CHIP	22K	5%	1/16W
R106	1-216-845-11	METAL CHIP	100K	5%	1/16W
R107	1-218-292-11	METAL GLAZE	20K	5%	1/16W
R108	1-216-837-11	METAL CHIP	22K	5%	1/16W
R109	1-216-853-11	METAL CHIP	470K	5%	1/16W
R121	1-218-738-11	METAL CHIP	82K	0.50%	1/16W
R122	1-218-738-11	METAL CHIP	82K	0.50%	1/16W
R123	1-218-716-11	METAL CHIP	10K	0.50%	1/16W
R124	1-216-837-11	METAL CHIP	22K	5%	1/16W
R125	1-216-845-11	METAL CHIP	100K	5%	1/16W
R126	1-216-833-11	METAL CHIP	10K	5%	1/16W
R127	1-216-853-11	METAL CHIP	470K	5%	1/16W
R128	1-216-849-11	METAL CHIP	220K	5%	1/16W
R129	1-216-821-11	METAL CHIP	1K	5%	1/16W
R141	1-216-844-11	METAL CHIP	82K	5%	1/16W
R142	1-216-837-11	METAL CHIP	22K	5%	1/16W
R143	1-216-846-11	METAL CHIP	120K	5%	1/16W
R144	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R161	1-216-839-11	METAL CHIP	33K	5%	1/16W
R162	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R163	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R164	1-216-849-11	METAL CHIP	220K	5%	1/16W
R165	1-216-833-11	METAL CHIP	10K	5%	1/16W
R166	1-216-857-11	METAL CHIP	1M	5%	1/16W
R181	1-218-286-11	METAL CHIP	91	0.50%	1/16W
R182	1-216-603-11	METAL CHIP	10	0.5%	1/10W
R183	1-216-605-11	METAL CHIP	12	1%	1/10W
R184	1-216-853-11	METAL CHIP	470K	5%	1/16W
R185	1-218-273-11	METAL GLAZE	510K	5%	1/16W
R186	1-216-845-11	METAL CHIP	100K	5%	1/16W
R187	1-216-128-11	METAL GLAZE	2M	5%	1/10W
R201	1-216-841-11	METAL CHIP	47K	5%	1/16W
R202	1-216-845-11	METAL CHIP	100K	5%	1/16W
R203	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R204	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R205	1-216-833-11	METAL CHIP	10K	5%	1/16W
R206	1-216-833-11	METAL CHIP	10K	5%	1/16W
R207	1-216-837-11	METAL CHIP	22K	5%	1/16W
R208	1-216-841-11	METAL CHIP	47K	5%	1/16W
R209	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R210	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R211	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R212	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R261	1-216-841-11	METAL CHIP	47K	5%	1/16W
R262	1-216-819-11	METAL CHIP	680	5%	1/16W
R263	1-216-833-11	METAL CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R264	1-216-833-11	METAL CHIP	10K	5%	1/16W
R265	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R266	1-216-853-11	METAL CHIP	470K	5%	1/16W
R267	1-216-817-11	METAL CHIP	470	5%	1/16W
R268	1-216-198-00	METAL CHIP	1K	5%	1/8W
R271	1-216-817-11	METAL CHIP	470	5%	1/16W
R272	1-216-821-11	METAL CHIP	1K	5%	1/16W
R273	1-216-834-11	METAL CHIP	12K	5%	1/16W
R274	1-216-821-11	METAL CHIP	1K	5%	1/16W
R275	1-216-833-11	METAL CHIP	10K	5%	1/16W
R276	1-218-716-11	METAL CHIP	10K	0.50%	1/16W
R277	1-218-732-11	METAL CHIP	47K	0.50%	1/16W
R278	1-216-198-00	METAL CHIP	1K	5%	1/8W
R279	1-216-198-00	METAL CHIP	1K	5%	1/8W
R302	1-218-708-11	METAL CHIP	4.7K	0.50%	1/16W
R303	1-218-270-11	METAL CHIP	1.1K	0.50%	1/16W
R304	1-218-740-11	METAL CHIP	100K	0.50%	1/16W
R305	1-218-706-11	METAL CHIP	3.9K	0.50%	1/16W
R307	1-218-740-11	METAL CHIP	100K	0.50%	1/16W
R308	1-218-720-11	METAL CHIP	15K	0.50%	1/16W
R309	1-216-849-11	METAL CHIP	220K	5%	1/16W
R310	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R311	1-216-833-11	METAL CHIP	10K	5%	1/16W
R312	1-216-845-11	METAL CHIP	100K	5%	1/16W
R313	1-216-797-11	METAL CHIP	10	5%	1/16W
R314	1-216-815-11	METAL CHIP	330	5%	1/16W
R315	1-216-849-11	METAL CHIP	220K	5%	1/16W
R316	1-216-818-11	METAL CHIP	560	5%	1/16W
R317	1-216-833-11	METAL CHIP	10K	5%	1/16W
R318	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R319	1-216-849-11	METAL CHIP	220K	5%	1/16W
R322	1-216-795-11	METAL CHIP	6.8K	0.50%	1/16W
R323	1-216-795-11	METAL CHIP	6.8K	0.50%	1/16W
R324	1-216-795-11	METAL CHIP	6.8K	0.50%	1/16W
R325	1-216-849-11	METAL CHIP	220K	5%	1/16W
R326	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R327	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R328	1-216-841-11	METAL CHIP	47K	5%	1/16W
R329	1-218-676-11	METAL CHIP	220	0.50%	1/16W
R402	1-218-708-11	METAL CHIP	4.7K	0.50%	1/16W
R403	1-218-270-11	METAL CHIP	1.1K	0.50%	1/16W
R404	1-218-740-11	METAL CHIP	100K	0.50%	1/16W
R405	1-218-706-11	METAL CHIP	3.9K	0.50%	1/16W
R407	1-218-740-11	METAL CHIP	100K	0.50%	1/16W
R408	1-218-720-11	METAL CHIP	15K	0.50%	1/16W
R409	1-216-849-11	METAL CHIP	220K	5%	1/16W
R410	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R411	1-216-833-11	METAL CHIP	10K	5%	1/16W
R412	1-216-845-11	METAL CHIP	100K	5%	1/16W
R413	1-216-797-11	METAL CHIP	10	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R414	1-216-815-11	METAL CHIP	330	5%	1/16W
R415	1-216-849-11	METAL CHIP	220K	5%	1/16W
R416	1-216-818-11	METAL CHIP	560	5%	1/16W
R417	1-216-833-11	METAL CHIP	10K	5%	1/16W
R418	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R419	1-216-849-11	METAL CHIP	220K	5%	1/16W
R422	1-216-795-11	METAL CHIP	6.8K	0.50%	1/16W
R423	1-216-795-11	METAL CHIP	6.8K	0.50%	1/16W
R424	1-216-795-11	METAL CHIP	6.8K	0.50%	1/16W
R425	1-216-849-11	METAL CHIP	220K	5%	1/16W
R426	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R427	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R428	1-216-841-11	METAL CHIP	47K	5%	1/16W
R429	1-218-676-11	METAL CHIP	220	0.50%	1/16W
R503	1-216-814-11	METAL CHIP	270	5%	1/16W
R504	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R506	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R508	1-216-845-11	METAL CHIP	100K	5%	1/16W
R511	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R512	1-216-857-11	METAL CHIP	1M	5%	1/16W
R513	1-216-833-11	METAL CHIP	10K	5%	1/16W
R516	1-218-738-11	METAL CHIP	82K	0.50%	1/16W
R517	1-218-289-11	METAL CHIP	510	0.50%	1/16W
R518	1-216-804-11	METAL CHIP	39	5%	1/16W
R519	1-216-837-11	METAL CHIP	22K	5%	1/16W
R520	1-218-700-11	METAL CHIP	2.2K	0.50%	1/16W
R521	1-218-700-11	METAL CHIP	2.2K	0.50%	1/16W
R522	1-216-833-11	METAL CHIP	10K	5%	1/16W
R523	1-216-833-11	METAL CHIP	10K	5%	1/16W
R524	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R525	1-216-158-00	METAL GLAZE	22	5%	1/8W
R526	1-216-833-11	METAL CHIP	10K	5%	1/16W
R527	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R528	1-216-821-11	METAL CHIP	1K	5%	1/16W
R529	1-216-809-11	METAL CHIP	100	5%	1/16W
R530	1-216-158-00	METAL GLAZE	22	5%	1/8W
R531	1-216-158-00	METAL GLAZE	22	5%	1/8W

< VARIABLE RESISTOR >

RV101	1-230-873-11	RES, ADJ, METAL 47K
RV102	1-230-871-11	RES, ADJ, METAL 22K
RV103	1-230-871-11	RES, ADJ, METAL 22K
RV104	1-230-871-11	RES, ADJ, METAL 22K
RV501	1-230-485-11	RES, VAR, CARBON 10K/10K (VOLUME)

< SWITCH >

S001	1-570-953-11	SWITCH, PUSH (1 KEY) (LCD DOOR OPEN)
S002	1-570-953-11	SWITCH, PUSH (1 KEY) (CD DOOR OPEN)
S501	1-570-386-21	SWITCH, SLIDE (DBB:NORMAL/MID/MAX)

****

Ref. No.	Part No.	Description	Remarks
*	A-4649-533-A	VR-35 BOARD, COMPLETE	

****

< CAPACITOR >

C801	1-164-346-11	CERAMIC CHIP 1uF	16V

< CONNECTOR >

CN801	1-569-775-21	PIN, CONNECTOR 5P

< DIODE >

D802	8-719-106-23	DIODE RD7.5M-B2
D803	8-719-106-23	DIODE RD7.5M-B2

< RESISTOR >

R801	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R802	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R803	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R804	1-216-821-11	METAL CHIP	1K	5%	1/16W
R805	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R806	1-216-816-11	METAL CHIP	390	5%	1/16W
R807	1-216-821-11	METAL CHIP	1K	5%	1/16W
R808	1-216-822-11	METAL CHIP	1.2K	5%	1/16W

< VARIABLE RESISTOR >

RV801	1-241-750-21	RES, VAR, CARBON 20K (BRIGHT)
RV802	1-241-751-21	RES, VAR, CARBON 20K (COLOR)
RV803	1-241-751-21	RES, VAR, CARBON 20K (HUE)

****

MISCELLANEOUS

****

60	1-466-641-21	SWITCH BLOCK, CONTROL (CD-I)
109	1-466-642-21	SWITCH BLOCK, CONTROL (CD)
251	8-835-456-01	DC MOTOR SSC-02E01S
⚠259	8-848-245-11	PICKUP, OPTICAL KSS-311A (RP)
⚠264	8-848-252-01	DEVICE, OPTICAL KSM-311AAM
⚠FLE1	1-809-548-11	ILLUMINATION UNIT, BACK
⚠INV1	1-466-637-11	INVERTER UNIT
LCD1	1-809-546-11	MODULE, COLOER LIQUID CRYSTAL
SP121	1-544-227-21	SPEAKER

****

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
		ACCESSORIES & PACKING MATERIALS	
		**********	
⚠	1-465-955-21	ADAPTOR, AC	
⚠	1-528-174-31	BATTERY, LITHIUM (CR2032 TYPE)	
	1-550-777-21	MOUSE (CD-I)	
	3-756-192-21	MANUAL, INSTRUCTION (ENGLISH)	
	3-756-193-21	INSTRUCTION	
*	4-953-720-01	CUSHION	
*	4-953-721-11	INDIVIDUAL CARTON	

****

****
HARDWARE LIST
****

#1	7-627-553-17	PRECISION SCREW +P 2X2 TYPE 3
#15	7-628-253-10	+PS 2X5
#16	7-627-852-17	SCREW, PRECISION +P 1.7X4, TYPE 3
#17	7-627-553-37	SCREW, PRECISION +P 2X3 TYPE 3
#18	7-685-102-19	SCREW +P 2X4 TYPE 2 NON-SLIT, TAPPING

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

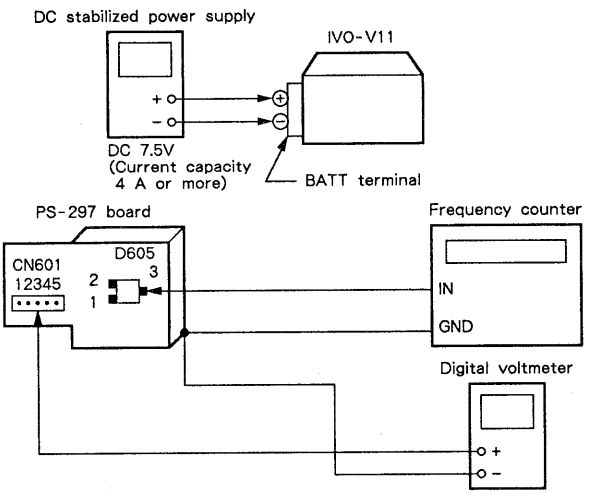
SECTION 6
ADJUSTMENT

Notes on Adjustment

1. Adjust in the given order.
2. Use the service disk.
   YEDS-18
   Part code (3-702-101-01)
3. Power supply : DC7.5 V (Current capacity 4 A or more)
4. LINE IN/OUT switch : OUT
5. Set the PU-4 board to service mode.

6-1. Frequency and Voltage Adjustments

Adjustment Procedure:



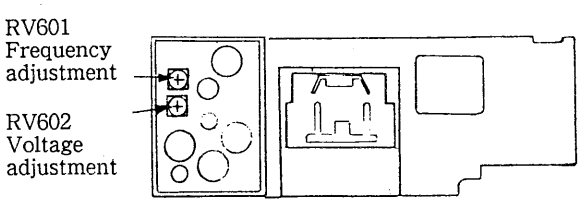
1. Frequency adjustment
   ①Connect a frequency counter to D605 (pin 3 : cathode).
   ②Adjust RV601 so that the frequency is 485 Hz ± 10 Hz.

2. Power Supply Adjustment
   ①Connect a digital voltmeter to CN601 (pin 2).
   ②Adjust RV602 so that the voltage is 4.95 V ± 0.02 V.

Adjustment Point: PS-297 board – Side A –

Adjustment Locations:

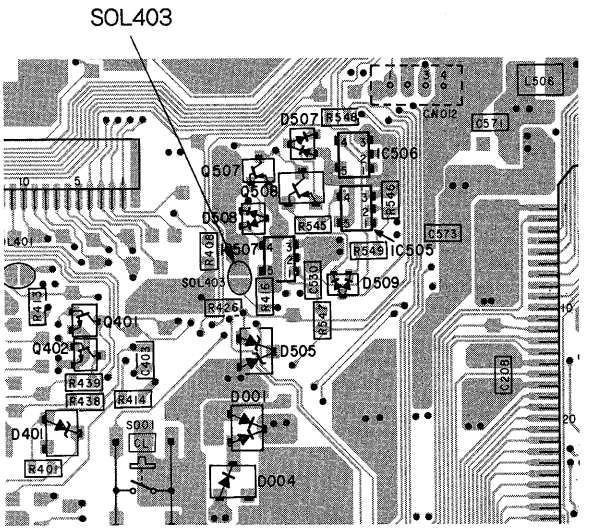
PS-297 BOARD (SIDE A)



• Service Mode (Servo Adjustment) Setting Procedure

1. Solder-bridge the SOL403 (S MODE) to side B of the PU-4 board.
2. Turn the power on. (The display remains blue.)
3. Service mode is setup.
4. After each adjustment is complete, turn the power off and remove the solder, then release service mode.

PU-4 BOARD (SIDE B)

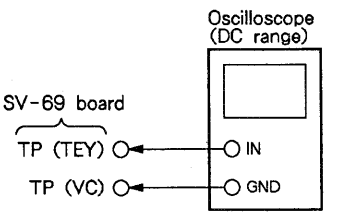


6-2. Tracking Balance Adjustment

Conditions:

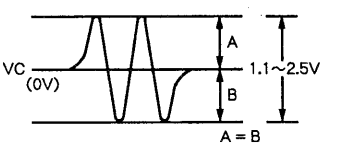
• Place the unit horizontally.

Adjustment Procedure:



1. Insert the test disk and press PLAY (⏯).
   (The focus servo and spindle servo are turned on.)
2. Adjust the center of the traverse waveform to 0 V with RV103.
3. Check that the peak value of the waveform is within the specification.

• Traverse waveform



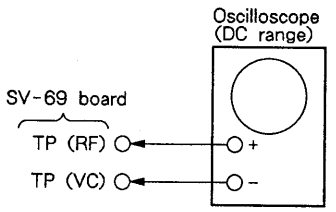
Adjustment Point: SV-69 board (See page 117.)

6-3. Focus Bias Adjustment

Conditions:

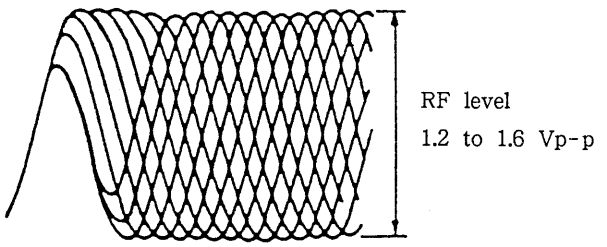
- Place the unit horizontally.

Adjustment Procedure:



1. Insert the test disk and press PLAY (⏯).
2. Press the AMS (⏭, ⏮) button to move the optical pick-up so that the eye pattern is easy to see.
3. Press button ① on the CD-I operation block. (The tracking servo and thread servo are turned on.)
4. Adjust RV101 so that the eye pattern (the diamond shape ◇ in the center of the waveform) can be distinguished clearly.
5. The RF level is within the specification.
6. Press the STOP button (■) to turn the servo off.

- RF Signal Waveform (eye pattern) VOLT/DIV : 200mV
  TIME/DIVE : 500ns

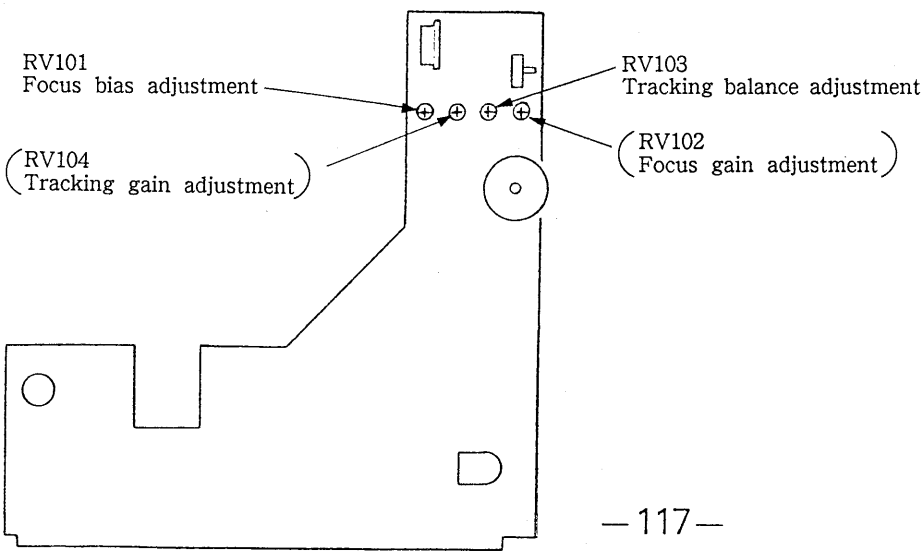


To look at the eye pattern, set the oscilloscope in the AC range and raise the vertical sensitivity.

Adjustment Point : SV-69 board (see the figure below.)

Adjustment locations

SV-69 BOARD (SIDE A)



Reference

6-4. Focus/Tracking Gain Adjustment

A frequency response analyzer or CD jig is needed for precise adjustment.

> This gain has a built-in margin. Even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical shock when a 2-axis device is operating.

- The higher the gain, the greater noise when operating a 2-axis device.
- The lower the gain, the more sensitive to mechanical shock, and the greater the tendency for the second to skip.

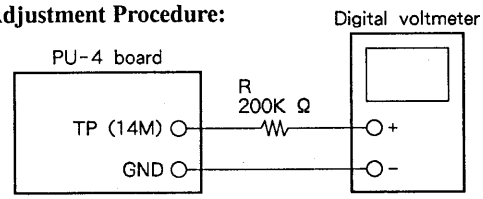
This adjustment is needed when the following are replaced :

- Optical pick-up block
- RV102 (focus gain volume)
- RV104 (Tracking gain volume)

Adjustment Point: SV-69 board (see the following figure.)

6-5. 14 MHz Oscillation Frequency Adjustment

Adjustment Procedure:

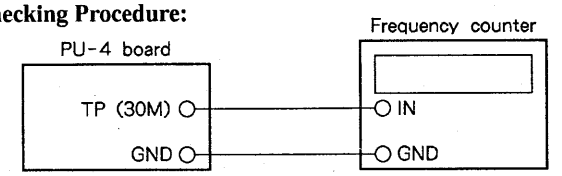


1. Connect a digital voltmeter to TP (14 M).
2. Adjust CV551 so that the voltage is between 2.5 V and 2.7 V.

Adjustment Point: PU-4 board

Checking 30 MHz Oscillation Frequency

Checking Procedure:

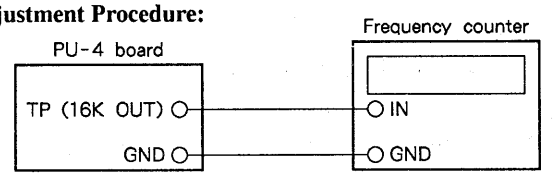


1. Check that the frequency is between 30.209368 MHz and 30.210212 MHz.

Adjustment Point: PU-4 board

6-6. 16 KHz Oscillation Frequency Adjustment

Adjustment Procedure:

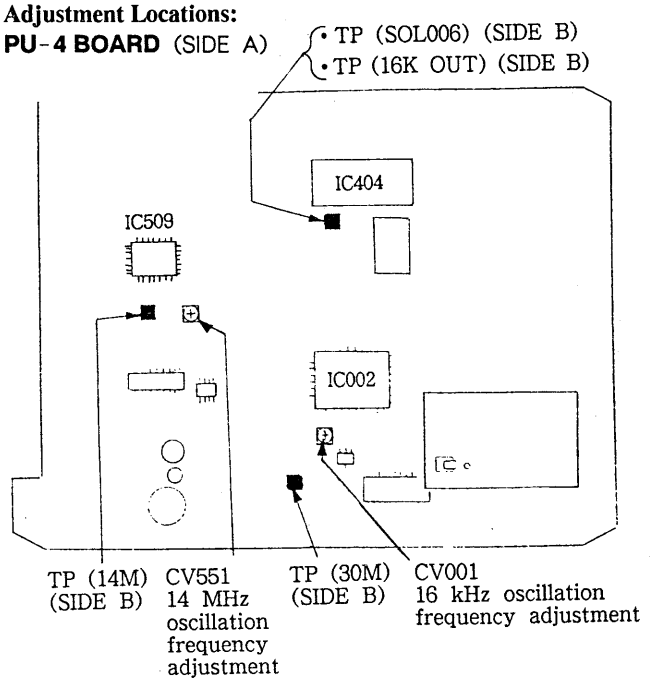


1. Short TP (SOL006).
2. Connect a frequency counter to TP (16 K OUT).
3. Adjust CV001 so that the frequency is 16384.05 Hz ± 0.06 Hz.
4. After adjustment, open the TP (SOL006).

Adjustment Point: PU-4 board

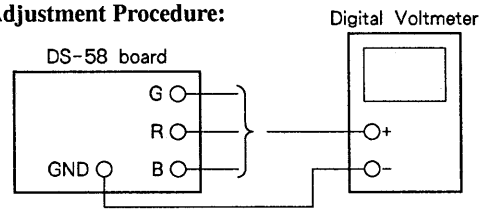
Adjustment Locations:

PU-4 BOARD (SIDE A)



6-7. VCOM R, G, B Adjustment

Adjustment Procedure:

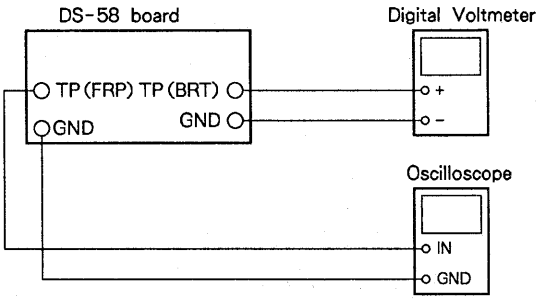


1. Connect a digital voltmeter to TP (G, R, B).
2. Adjust RV702 so that the TP (G) voltage is − 1.5 ± 0.05 V.
3. Adjust RV703 so that the TP (R) voltage is − 1.5 ± 0.05 V.
4. Adjust RV704 so that the TP (B) voltage is − 1.5 ± 0.05 V.

Adjustment Point: DS-58 board (see page 120.)

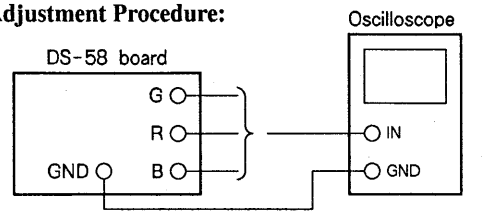
6-8. BRT R, G, B Adjustment

- An LCD, VR35M't and inverter are connected.
- Presetting for BRT adjustment.

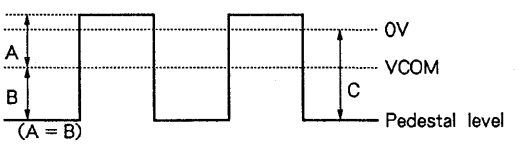


1. Connect a digital voltmeter to the TP (BRT).
2. Adjust BRIGHT VR (RV801) so that the voltage is 3.5 V ± 0.05 V.
3. Connect an oscilloscope to the TP (FRP).
4. Check that there is a square wave of about 7.8 KHz TTL level.

Adjustment Procedure:



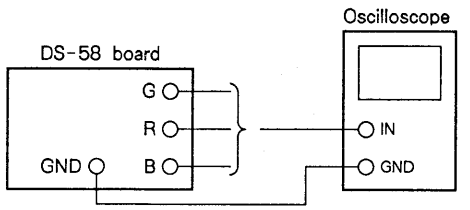
1. Connect an oscilloscope to the TP (G, R, B).
2. Adjust RV706 so that level C of the TP (G) is 5 V ± 0.05 V.
3. Adjust RV707 so that level C of the TP (R) is 5 V ± 0.05 V.
4. Adjust RV705 so that level C of the TP (B) is 5 V ± 0.05 V.



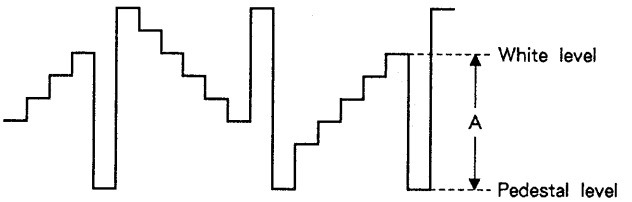
Adjustment Point: DS-58 board (see page 120.)

6-9. Gain R, G, B Adjustment

Adjustment Procedure:



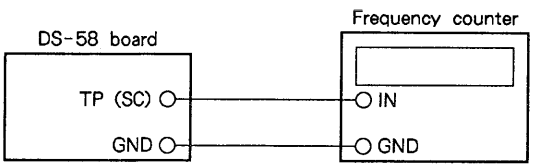
1. Display the "test pattern" by operating the second control panel.
   - To enter control panel mode
     Turn the power on while pressing CD-I operation buttons ① and ② until the first control panel appears.
2. Adjust RV708 so that level A of TP (G) is 2.6 V ± 0.05 V.
3. Adjust RV709 so that level A of TP (R) is 2.6 V ± 0.05 V.
4. Adjust RV710 so that level A of TP (B) is 2.6 V ± 0.05 V.



Adjustment Point: DS-58 board (see page 120.)

6-10. AFC Free Run Frequency Adjustment

Adjustment Procedure:



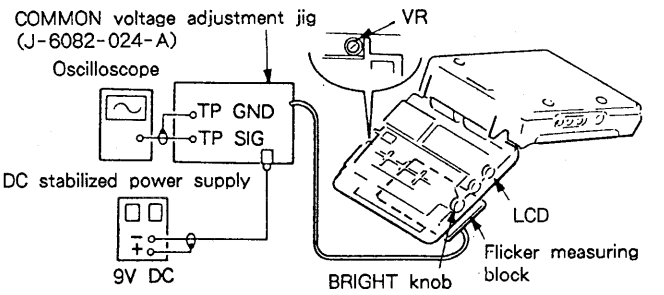
1. Connect a frequency counter to TP (SC).
2. Adjust RV701 so that the frequency is 3.579545 Hz ± 20 Hz.

Adjustment Point: DS-58 board (see page 120.)

6-11. LCD Panel V COM DC Adjustment

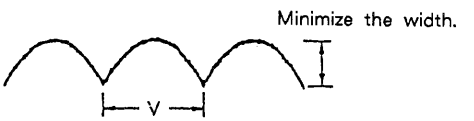
Adjustment Procedure:

- Remove panel ASS'Y (B-LCD).

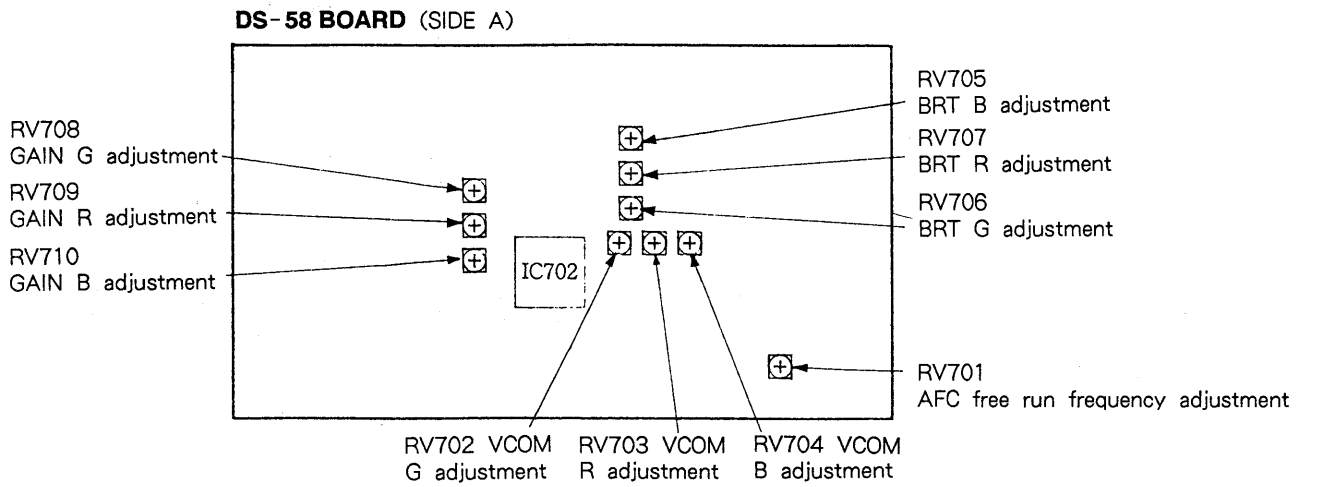


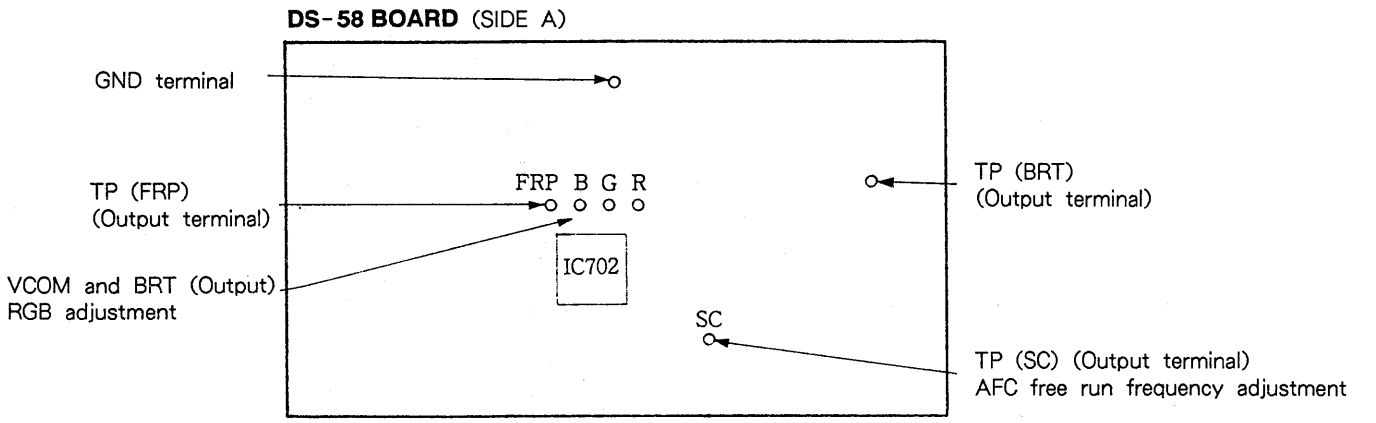
Note : Turn down the LCD to eliminate external light.

1. Display the "test pattern" by operating the second control panel.
   - To enter control panel mode
     Turn the power on while pressing CD-I operation buttons ① and ② until the first control panel appears.
2. Put the flicker measuring block to the LCD.
   (Turn down the LCD to eliminate external light.)
3. Connect an oscilloscope to the COMMON voltage adjustment jig.
4. Turn the BRIGHT knob (RV801) so that the flicker waveform width is maximized.
   (If a flicker waveform does not appear, check that the flicker measuring block is placed correctly and that there is no the external light.
5. Turn VR so that the flicker waveform width is minimized.



6-12. PARTS ARRANGEMENT DIAGRAM FOR ADJUSTMENTS





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