

DSC-F505V

SERVICE MANUAL

Level 2

Self Diagnosis
Supported model

Ver 1.0 2000.05
Cyber-shot
Digital Still Camera

InfoLITHIUM S



MEMORY STICK



US Model
Canadian Model
AEP Model
UK Model
E Model
Hong Kong Model
Australian Model
Chinese Model
Korea Model
Tourist Model
Japanese Model

This service manual contains information for Japanese model as well.

On the PS-434, SY-62 boards

This service manual provides the information that is premised the circuit board replacement service and not intended repair inside the PS-434, SY-62 boards.

Therefore, schematic diagram, printed wiring board and electrical parts list of the PS-434, SY-62 boards are not shown.

The following pages are not shown.

PS-434 board

Schematic diagram Page 4-15 to 4-20
Printed wiring board Page 4-11 to 4-14
Electrical parts list Page 6-13 to 6-14

SY-62 board

Schematic diagram Page 4-23 to 4-26
Printed wiring board Page 4-21 to 4-22
Electrical parts list Page 6-14 to 6-15

The above-described information is shown in service manual Level 3.

SPECIFICATIONS

System

Image device

1/1.8 type color CCD

Lens

5 × zoom lens
f = 7.1 – 35.5 mm
(38 – 190 mm when converted into a 35 mm still camera)
F = 2.8 – 3.3

Exposure control

Automatic exposure

White balance

Automatic, Indoor, Outdoor, One-push

Data system

Movie: MPEG1
Still: JPEG, GIF (in TEXT mode), TIFF
Audio with still image: MPEG1 (Monaural)

Recording medium

“Memory Stick”

Flash

Recommended recording distance:
11 7/8 inches to 8 1/4 feet
(0.3 m to 2.5 m)

Output connector

A/V OUT (Monaural)

Minijack
Video: 1 Vp-p, 75 Ω, unbalanced, sync negative
Audio: 327 mV (at a 47 kΩ load)
Output impedance: 2.2 kΩ

Digital I/O (USB)

Special minijack

External flash jack

Minijack

LCD screen

Used LCD panel

2 type TFT (Thin Film Transistor active matrix) drive

Total number of dots

122,980 (559 × 220) dots

General

Used battery pack

NP-FS11

Power requirements

3.6 V

Power consumption (during recording)

3.3 W

Operation temperature

32°F to 104°F
(0°C to 40°C)

Storage temperature

–4°F to +140°F
(–20°C to +60°C)

Maximum dimensions

Approx.
4 1/4 × 2 1/2 × 5 3/8 inches
(107 × 62 × 136 mm) (w/h/d)

Mass

Approx. 1 lb (475 g)
(including battery pack NP-FS11, “Memory Stick,” lens cap, etc.)

Built-in microphone

Electret condenser microphone

Built-in speaker

Dynamic speaker

AC-VF10 AC power adaptor/charger

Power requirements

100 to 240 V AC, 50/60 Hz

Rated output voltage

DC OUT: DC 4.2 V, 1.8 A in operating mode

Battery charge terminal:

DC 4.2 V, 1.5 A in charge mode

Operation temperature

32°F to 104°F (0°C to 40°C)

Storage temperature

–4°F to +140°F

(–20°C to +60°C)

Maximum dimensions

1 15/16 × 1 9/16 × 3 3/8 inches

(49 × 39 × 85 mm) (w/h/d)

Mass

Approx. 4.2 oz (120 g)

NP-FS11 battery pack

Used battery

Lithium ion battery

Maximum voltage

DC 4.2 V

Nominal voltage

DC 3.6 V

Capacity

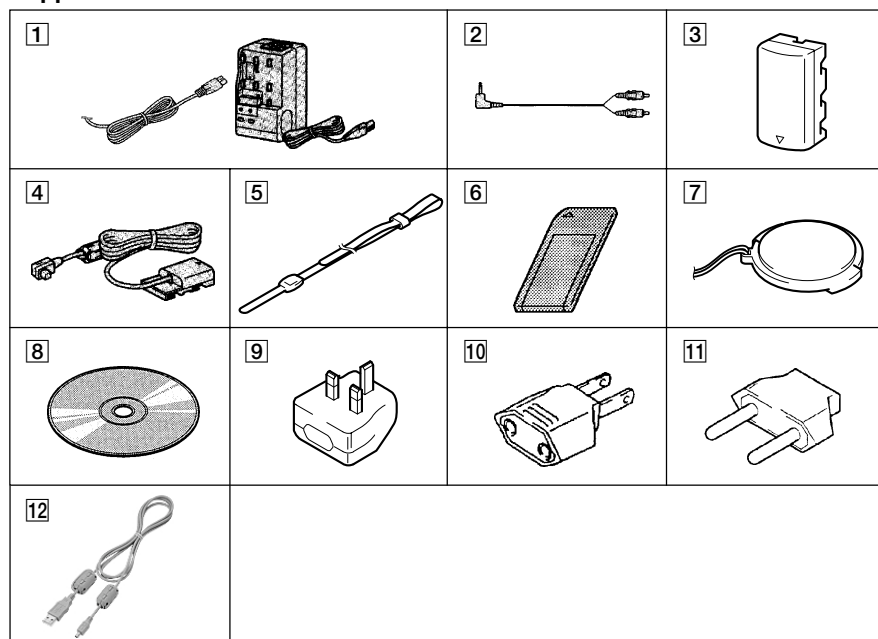
4.1 Wh (1 140 mAh)

Design and specifications are subject to change without notice.

DIGITAL STILL CAMERA

SONY®

Supplied accessories



- 1 AC-VF10 AC power adaptor/charger, Power cord (1)**
- 2 A/V connecting cable (1)**
- 3 NP-FS11 Battery pack (1)**
- 4 DK-115 DC connecting cable (1)**
- 5 Wrist strap (1)**
- 6 Memory Stick (8MB) (1)**
- 7 Lens cap/Lens cap strap (1)**
- 8 CD-ROM (1)**
- 9 Conversion plug 3P adaptor (1)**
UK, Hong Kong model
- 10 2-pin conversion adaptor (1)**
E model
- 11 2-pin conversion adaptor (1)**
Tourist model
- 12 USB cable (1)**

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH MARK \triangle 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.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE \triangle SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR 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.
6. Flexible Circuit Board Repairing
 - Keep the temperature of the soldering iron around 270 °C during repairing.
 - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
 - Be careful not to apply force on the conductor when soldering or unsoldering.

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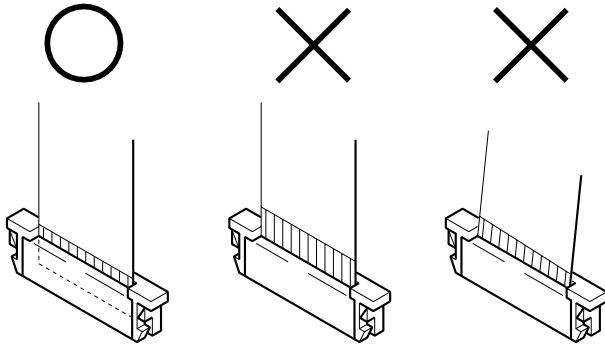
<p>* The color reproduction frame is shown on page 134. The parts reference sheet is shown on page 135.</p>

SERVICE NOTE

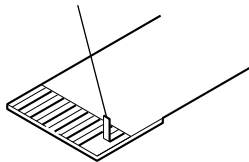
• NOTE FOR REPAIR

Make sure that the flat cable and flexible board are not cracked or bent at the terminal.

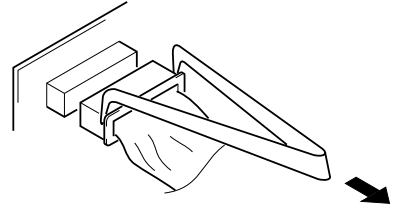
Do not insert the cable insufficiently nor crookedly.



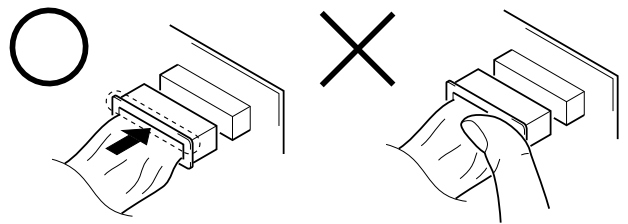
Cut and remove the part of gilt which comes off at the point.
(Be careful or some pieces of gilt may be left inside)



When remove a connector, don't pull at wire of connector. It is possible that a wire is snapped.



When installing a connector, don't press down at wire of connector. It is possible that a wire is snapped.



[Discharging of the FLASH unit's charging capacitor]

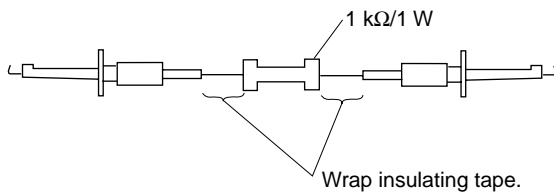
The charging capacitor of the FLASH unit is charged up to the maximum 300 V potential.

There is a danger of electric shock by this high voltage when the battery is handled by hand. The electric shock is caused by the charged voltage which is kept without discharging when the main power of the unit is simply turned off. Therefore, the remaining voltage must be discharged as described below.

Preparing the Short Jig

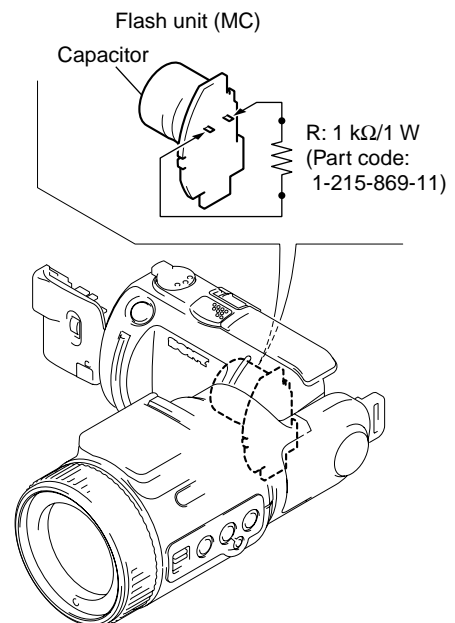
To preparing the short jig, a small clip is attached to each end of a resistor of 1 k Ω / 1 W (1-215-869-11).

Wrap insulating tape fully around the leads of the resistor to prevent electrical shock.



Discharging the Capacitor

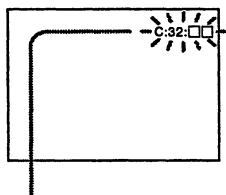
Short-circuit between the positive and the negative terminals of charged capacitor with the short jig about 10 seconds.



[Description on Self-diagnosis Display]

Self-diagnosis display

The camera has a self-diagnosis display. This function displays the camera condition with five-digits (a combination of a letter and figures) on the LCD screen. If this occurs check the following code chart. The five-digits display informs you of the camera's current condition. The last two digits (indicated by □□) will differ depending on the state of the camera.



Self-diagnosis display

- C: □□: □□

You can reverse the camera malfunction yourself. (However, contact your Sony dealer or local authorized Sony service facility when you cannot recover from the camera malfunction.)

- E: □□: □□

Contact your Sony dealer or local authorized Sony service facility.

Display Code	Countermeasure	Cause	Caution Display During Error
C:04:□□	Use a NP-FS11/F10 battery pack.	You are using a battery pack that is not an "InfoLITHIUM" battery pack.	for "InfoLITHIUM" BATTERY ONLY
C:32:□□	Turn the power off and on again.	Trouble with hardware.	SYSTEM ERROR
C:13:□□	Format the "Memory stick".	Unformatted memory stick is inserted.	FORMAT ERROR
	Insert a new "Memory Stick".	Memory stick is broken.	MEMORY STICK ERROR
E:61:□□ *1	Checking of lens drive circuit.	When failed in the focus and zoom initialization.	—
E:91:□□	Checking of flash unit or replacement of flash unit.	Abnormality when flash is being charged. *2	

Note : The error code is cleared if the battery is removed, except defective flash, unit.

*1: The error display is given in two ways.

*2: When the flash charging failed, Page: D, Address: 67, Data: 04 are written.

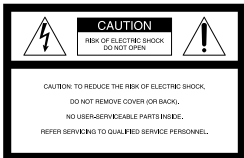
After repair, be sure to write Page: D, Address: 67, Data: 00.

SECTION 1 GENERAL

This section is extracted from instruction manual.

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

For the Customers in the U.S.A.



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.

Never expose the battery pack to temperature above 140°F (60°C), such as in a car park in the sun or under direct sunlight.

If you have any questions about this product, you may call:
Sony Customer Information Center
1-800-222-SONY (7669)
or write to:
Sony Customer Information Center
1 Sony Drive, Mail Drop #T1-11, Park Ridge, NJ 07656

2

For the Customers in the U.S.A.

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.

Be sure to read the following before using your camera

Trial recording
Before you record one-time events, you may want to make a trial recording to make sure that the camera is working correctly.

No compensation for contents of the recording
Contents of the recording cannot be compensated for if recording or playback is not possible due to a malfunction of your camera, etc.

Notes on image data compatibility
• This camera conforms with the Design Rules for Camera File Systems universal standard established by the JEIDA (Japan Electronic Industries Development Association). You cannot play back on your camera still images recorded on other equipment (DCR-TRV890E/TRV900/TRV900E, DSC-D700, DSC-D770) that does not conform with this universal standard. (These models are not sold in some areas.)
• Playback of images recorded with your camera on other equipment and playback of images recorded or edited with other equipment on your camera are not guaranteed.

Precaution on copyright
Television programs, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provision of the copyright laws.

4

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

Declaration of Conformity
Trade Name: SONY
Model No.: DSC-F505V
Responsible Party: Sony Electronics Inc.
Address: 1 Sony Drive, Park Ridge, NJ 07656 USA
Telephone No.: 201-930-6972

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.

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 interference 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.

Do not shake or strike the camera
In addition to malfunctions and inability to record images, this may render the "Memory Stick" unusable or image data breakdown, damage or loss may occur.

LCD screen and lens
• The LCD screen is manufactured using high-precision technology. However, there may be some tiny black points and/or bright points (red, blue or green in color) that constantly appear on the LCD screen. These points are normal in the manufacturing process and do not affect the recording in any way. Over 99.99% of the pixels are operational for effective use.
• Be careful when placing the camera near a window or outdoors. Exposing the LCD screen or the lens to direct sunlight for long periods may cause malfunctions.

Do not get the camera wet
When taking pictures outdoors in the rain or under similar conditions, be careful not to get the camera wet. If moisture condensation occurs, refer to page 55 and follow the instructions on how to remove it before using the camera.

Back up recommendation
To avoid the potential risk of data loss, always copy (back up) data to a disk.

About the Carl Zeiss lens
This camera is equipped with a Carl Zeiss lens which is capable of reproducing fine images. The lens for this camera uses the MTF* measurement system for cameras developed jointly by Carl Zeiss, in Germany, and Sony Corporation, and offers the same quality as other Carl Zeiss lenses.
* MTF is the abbreviation of Modulation Transfer Function/Factor, a numeric value indicating the ability to reproduce the subject contrast.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

For the Customers in the U.S.A. and Canada

DISPOSAL OF LITHIUM ION BATTERY. DISPOSE OF PROPERLY.
You can return your unwanted lithium ion batteries to your nearest Sony Service Center or Factory Service Center.
Note:
In some areas the disposal of lithium ion batteries in household or business trash may be prohibited.

For the Sony Service Center nearest you call 1-800-222-SONY (United States only)
For the Sony Factory Service Center nearest you call 416-499-SONY (Canada only)

Caution:
Do not handle damaged or leaking lithium ion battery.

For the Customers in Canada

CAUTION
TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

NOTICE FOR THE CUSTOMERS IN THE UNITED KINGDOM

A moulded plug complying with BS 1363 is fitted to this equipment for your safety and convenience.

Should the fuse in the plug supplied need to be replaced, a 5 AMP fuse approved by ASTA or BSI to BS 1362, (i.e. marked with Ⓢ or Ⓡ mark) must be used.

If the plug supplied with this equipment has a detachable fuse cover, be sure to attach the fuse cover after you change the fuse. Never use the plug without the fuse cover. If you should lose the fuse cover, please contact your nearest Sony service station.

For the Customers in Germany

Directive: EMC Directive 89/336/EEC. 92/31/EEC
This equipment complies with the EMC regulations when used under the following circumstances:
• Residential area
• Business district
• Light-industry district
(This equipment complies with the EMC standard regulations EN55022 Class B.)

Attention

The electromagnetic fields at the specific frequencies may influence the picture and sound of this camera.

"Memory Stick"



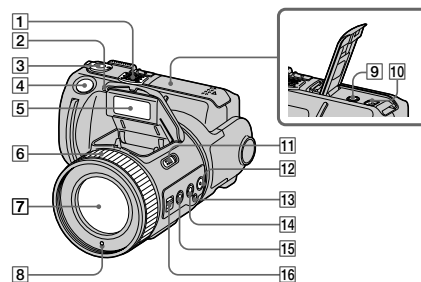
For the Customers in CANADA
This Class B digital apparatus complies with Canadian ICES-003.

3

Getting started

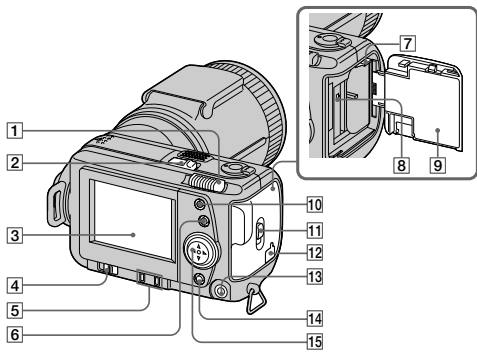
Identifying the parts

See the pages in parentheses for details of operation.



- 1 Built-in microphone (Do not touch while recording.)
- 2 Self-timer/Recording lamp
- 3 MODE selector (30)
- 4 Shutter button (16) (21)
- 5 Flash (19)
- 6 Focus ring (40)
- 7 Lens
- 8 Photocell window for flash (Do not block while recording.)
- 9 A/V OUT jack (49) (Audio output is monaural.)
- 10 DIGITAL I/O (USB) jack (26) (27)
- 11 OPEN (flash) switch (19)
- 12 SPOT METER button (42)
- 13 (one-push white balance) button (43)
- 14 WHT BAL (white balance) button (43)
- 15 MACRO button (40)
- 16 FOCUS AUTO/MANUAL switch (40)

6



Getting started

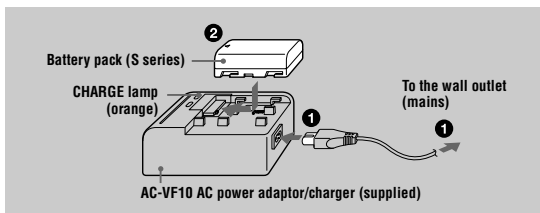
- 1 Zoom lever
- 2 POWER switch
POWER lamp
- 3 LCD screen
- 4 LCD BACK LIGHT switch
Usually set to ON. Set to OFF to save the battery if you use your camera in bright place.
- 5 PROGRAM AE ADJ button
VOLUME +/- button
- 6 PROGRAM AE button (41)
- 7 Battery eject lever (11)
- 8 Access lamp (15)
- 9 Battery/"Memory Stick" cover
- 10 (flash) button
Flash lamp
- 11 OPEN switch
- 12 Slot cover for AC power adaptor/charger (12)
- 13 (External flash) jack
- 14 DISPLAY button
- 15 Control button

7

Preparing the power supply

Charging the battery pack

Your camera operates only with the "InfoLITHIUM" NP-FS11 battery pack* (S series). You cannot use any other battery pack.



- 1 Connect the AC power adaptor/charger and the wall outlet (mains).
- 2 Insert the battery pack in the direction of the ▲ mark. Slide the battery pack in the direction of the arrow.
The CHARGE lamp lights up when charging begins. When the CHARGE lamp goes off, **normal charge** is completed. For **full charge**, which allows you to use the battery longer than usual, leave the battery pack inserted for about one hour after normal charge is completed.

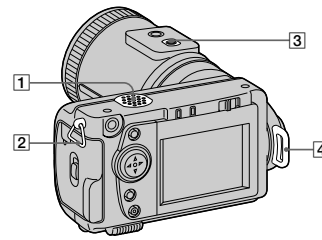
To remove the battery pack

Slide the battery pack in the direction opposite the ▲ mark.

* What is "InfoLITHIUM"?

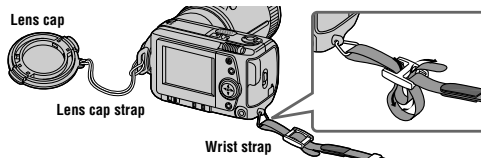
"InfoLITHIUM" is a lithium ion battery pack which can exchange information such as battery consumption with compatible video equipment. This unit is compatible with the "InfoLITHIUM" battery pack (S series). "InfoLITHIUM" S series battery packs have the mark. "InfoLITHIUM" is a trademark of Sony Corporation.

9



- 1 Speaker
- 2 Hook for the wrist/shoulder strap
- 3 Tripod receptacle (bottom surface)
Use a tripod with a screw length of less than 9/32 inch (6.5 mm). You will be unable to firmly secure the camera to tripods having longer screws, and may damage the camera.
- 4 Hook for the lens cap/shoulder strap
Be sure to remove the lens cap before turning on your camera.

Attaching the lens cap (supplied) and the wrist strap (supplied).



8

Charging time

Battery pack	Full charge (min.)	Normal charge (min.)
NP-FS11 (supplied)	170	110

Approximate time to charge a completely discharged battery pack using the AC-VF10 AC power adaptor/charger.

Battery life and number of images that can be recorded/played back

STILL mode recording*

LCD BACK LIGHT	Battery life (min.)	Number of images
ON	70 (65)	1300 (1200)
OFF	85 (75)	1600 (1400)

STILL mode playback**

LCD BACK LIGHT	Battery life (min.)	Number of images
ON	110 (100)	2200 (2000)
OFF	145 (130)	2900 (2600)

Approximate battery life and number of images that can be recorded/played back with a fully charged battery pack at a temperature of 77°F (25°C), 640×480 image size and in NORMAL recording mode. Numbers in parentheses indicate the time when you use a normally charged battery pack.

* Recording at about 4-second intervals

** Playing back single images in order at about 3-second intervals

MOVIE mode recording

LCD BACK LIGHT	Continuous recording time (min.)
ON	75 (65)
OFF	85 (75)

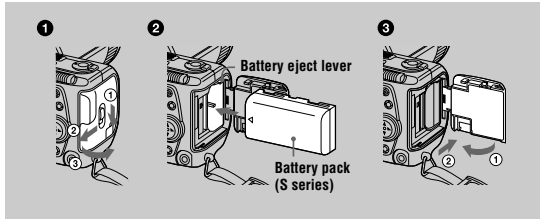
Approximate time that can be recorded with a fully charged battery pack at a temperature of 77°F (25°C) and 160×112 image size. Numbers in parentheses indicate the time when you use a normally charged battery pack.

Notes

- The battery life and number of images will be decreased if you use your camera at low temperatures, use the flash, repeatedly turn the power on/off or use the zoom.
- The capacity of the "Memory Stick" is limited. The above figures are a guide when you continuously record/play back while replacing the "Memory Stick."
- If sufficient battery remaining time is indicated but the power runs out soon, fully charge the battery so that the correct battery remaining time appears.
- Do not expose the battery pack to water.

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Installing the battery pack



- 1 Open the battery/"Memory Stick" cover.**
Open the cover while sliding the OPEN switch in the direction of the arrow.
- 2 Install the battery pack.**
Insert the battery pack with the ▲ mark facing toward the battery compartment as illustrated.
- 3 Close the battery/"Memory Stick" cover.**

To remove the battery pack

Open the battery/"Memory Stick" cover. Slide the battery eject lever upward, and remove the battery pack.

Be careful not to drop the battery pack when removing it.

Battery remaining indicator

The LCD screen on the camera shows the remaining time for which you can still record or play back images. This indication may not be entirely accurate depending on the conditions of use and the operating environment.

Auto power-off function

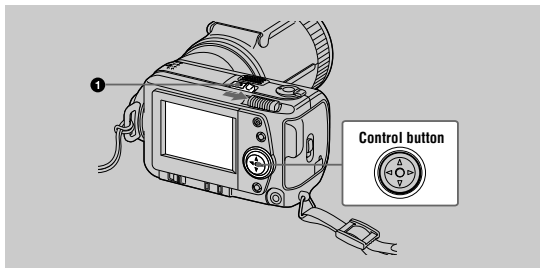
If you do not operate the camera for about three minutes during recording, the camera turns off automatically to prevent wearing down the battery. To use the camera again, slide the POWER switch to turn on the camera again.

Getting started

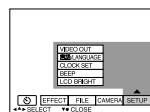
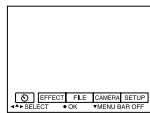
11

Setting the date and time

When you first use your camera, set the date and time. If these are not set, the CLOCK SET screen appears whenever you turn on your camera for recording.



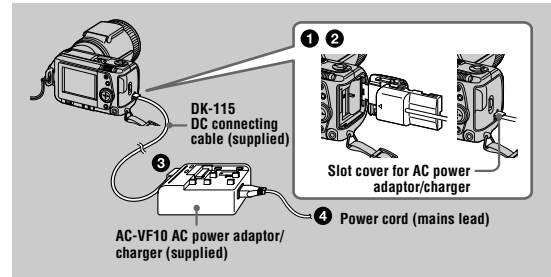
- 1 Slide the POWER switch in the direction of the arrow to turn on the power.**
The POWER lamp lights up.
- 2 Press ▲ on the control button.**
The menu bar appears on the LCD screen.
- 3 Select [SETUP] with ► on the control button, then press the center ●.**



Getting started

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Using the AC power adaptor



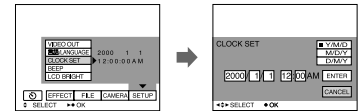
- 1 Open the battery/"Memory Stick" cover.**
- 2 Insert the one end of the DK-115 DC connecting cable to the battery terminal, and close the cover.**
When inserting the cable, open the slot cover for AC power adaptor/charger and be careful not to pinch the cable.
- 3 Connect the other end of the DC connecting cable to the AC power adaptor/charger.**
- 4 Connect the power cord (mains lead) to the AC power adaptor/charger and then to a wall outlet (mains).**

Using a car battery

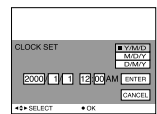
Use Sony DC adaptor/charger (not supplied).

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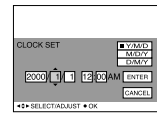
- 4 Select [CLOCK SET] with ▲/▼ on the control button, then press the center ●.**



- 5 Select the desired date display format with ▲/▼ on the control button, then press the center ●.**
Select from [Y/M/D] (year/month/day), [M/D/Y] (month/day/year) or [D/M/Y] (day/month/year).

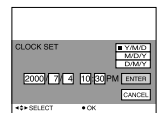


- 6 Select the year, month, day, hour or minute item you want to set with ◀/▶ on the control button.**
The item to be set is indicated with ▲/▼.



- 7 Set the numeric value with ▲/▼ on the control button, then press the center ● to enter it.**
After entering the number, ▲/▼ moves to the next item. If you selected [D/M/Y] in step 5, set the time on a 24-hour cycle.

- 8 Select [ENTER] with ► on the control button, then press the center ● at the desired moment to begin clock movement.**
The date and time are entered.

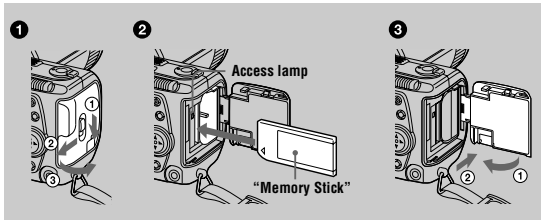


To cancel the date and time setting

Select [CANCEL] with ▲/▼/◀/▶ on the control button, then press the center ●.

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Inserting the "Memory Stick"



Getting started

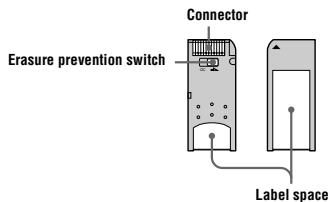
- 1 Open the battery/"Memory Stick" cover.**
Open the cover while sliding the OPEN switch in the direction of the arrow.
- 2 Insert the "Memory Stick."**
Insert the "Memory Stick" with the ► mark facing toward the battery compartment as illustrated until it clicks.
- 3 Close the battery/"Memory Stick" cover.**

Removing the "Memory Stick"

Open the battery/"Memory Stick" cover, then press the "Memory Stick" once lightly.

Notes

- Insert the "Memory Stick" firmly until it clicks, otherwise a message such as "MEMORY STICK ERROR" will be displayed.
- Never remove the "Memory Stick" or turn off the power while the access lamp is lit up.
- You cannot record or edit images on a "Memory Stick" if the erasure prevention switch is set to the LOCK position.

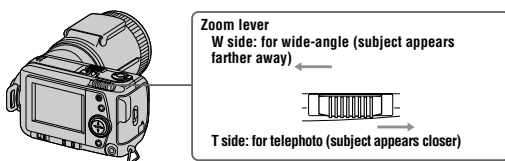


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Checking the last recorded image (Quick Review)

You can check the last recorded image by clearing the menu bar from the screen (page 32) and pressing ◀ on the control button. To return to the normal recording mode, press lightly on the shutter button or select [RETURN] with ◀▶ on the control button and then press the center ●. You can also delete the image first by selecting [DELETE] on the Quick Review screen with ◀▶ on the control button and pressing the center ●, and then selecting [OK] with ▲▼ on the control button and pressing the center ●.

Using the zoom feature

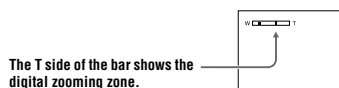


Minimum focal distance to the subject

W side: About 9 7/8 inches (25 cm) or more
T side: About 31 1/2 inches (80 cm) or more
To record even closer subjects, see page 40.

Digital zoom function

This camera has a digital zoom function. Digital zoom enlarges the image by digital processing and it starts to function when zoom exceeds 5×.



The T side of the bar shows the digital zooming zone.

Using digital zoom

- The maximum zoom magnification is 10×.
- Digital zooming deteriorates the picture quality. When digital zoom is not necessary, set [DIGITAL ZOOM] to [OFF] in the menu settings (page 35).

Note

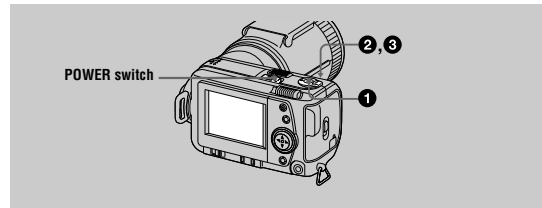
Digital zoom does not work for moving images.

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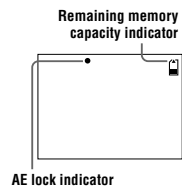
Recording still images

Still images are recorded in JPEG format.

To record still images, slide the POWER switch to the right to turn on the power and insert a "Memory Stick."



- 1 Set the MODE selector to STILL.**
- 2 Press and hold the shutter button halfway down and check the image.**
While the AE lock indicator ● (green) is flashing, the image freezes momentarily, but is not yet recorded. When the camera finishes the automatic adjustments*, the AE lock indicator ● lights up and the camera is ready for recording. To cancel the recording, release the shutter button.



- 3 Press the shutter button fully down.**
The shutter sounds and the image is recorded on the "Memory Stick." When "RECORDING" disappears, you can record the next image.

* Exposure and focus are automatically adjusted.

The number of images you can record on a "Memory Stick"

See pages 37 to 39.

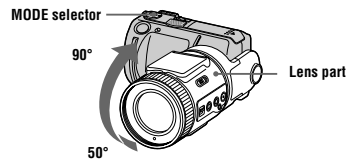
Notes

- While the image is being recorded on the "Memory Stick," do not shake or strike the camera. Also, do not turn the power off, or remove the battery pack or "Memory Stick."
- When recording a bright subject, the LCD screen color may change after AE lock, but this does not affect the recorded image.

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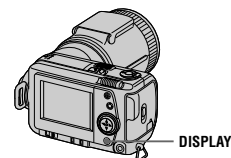
Changing the lens orientation

You can adjust the angle by turning the lens part upward up to 90 degrees and downward up to 50 degrees.



LCD screen indicators during recording

Press DISPLAY to turn on/off the indicators on the LCD screen. See page 65 for a detailed description of the indicated items.



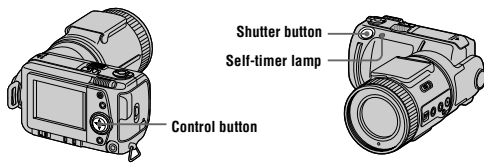
Notes

- You cannot turn off the self-timer indicators and some of the indicators used in advanced operations.
- The indicators on the LCD screen are not recorded.

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Using the self-timer

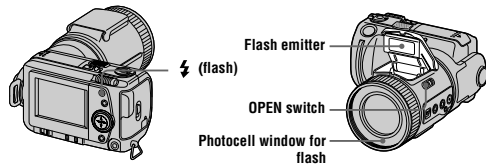
When you use the self-timer function, the subject is recorded about 10 seconds after you press the shutter button.



Select (self-timer) indicator on the LCD screen with // on the control button, then press the center . The (self-timer) indicator appears on the LCD screen, and about 10 seconds after you press the shutter button, the subject is recorded. The self-timer lamp flashes after you press the shutter button until the shutter is released.

Recording images with the flash

Slide OPEN switch to make the flash available. The flash pops up. The initial setting is auto (no indicator). In this mode, the flash automatically strobes when the surroundings become dark. When you change the flash mode, press the (flash) repeatedly so that the flash mode indicator appears on the LCD screen. You can only change the flash mode while the flash is popped up.



Each time you press the (flash), the indicator changes as follows.
(No indicator) → → → → (No indicator)

Auto red-eye reduction: The flash strobes before recording to reduce the red-eye phenomenon.

Forced flash: The flash strobes regardless of the surrounding brightness.

No flash: The flash does not strobe.

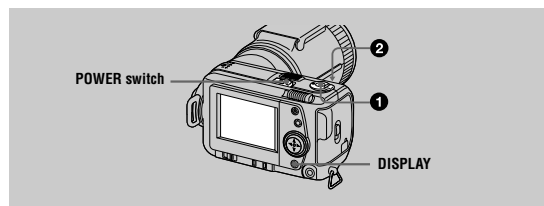
You can change the brightness of the flash (FLASH LEVEL) in the menu settings (page 35).

▶ Recording

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Recording moving images

Moving images with audio are recorded in MPEG format. To record moving images, slide the POWER switch to the right to turn on the power and insert a "Memory Stick."



1 Set the MODE selector to MOVIE.

2 Press the shutter button fully down. "REC" appears on the LCD screen, and the image and sound are recorded on the "Memory Stick."

If you press the shutter button momentarily

The image and sound are recorded for five seconds. You can change the recording time to 10 or 15 seconds with [REC TIME SET] in the menu settings (page 37).

If you hold the shutter button down

The image and sound are recorded while the shutter button is held down for up to 60 seconds. However, when [IMAGE SIZE] in the menu setting is set to [320 (HQ)]/[320×240], the maximum recording time is 15 seconds (page 37).

Zooming or using the self-timer, etc.

See pages 17 to 19.

LCD screen indicators during recording

Press DISPLAY to turn on/off the indicators on the LCD screen. These indicators are not recorded. See page 65 for a detailed description of the indicators.

▶ Recording

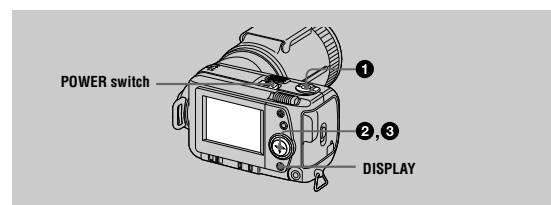
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Notes

- The recommended shooting distance using the built-in flash is 31/32 feet to 8 1/3 feet (0.3 m to 2.5 m).
- Attaching a conversion lens (not supplied) may block the light from the flash or cause the lens shadow to appear.
- You cannot use an external flash and the built-in flash at the same time.
- If the flash is closed when it should be used, the (no-flash) indicator appears in the LCD screen.
- Auto red-eye reduction may not produce the desired red-eye reduction effects depending on individual differences, the distance to the subject, if the subject does not see the pre-strobe, or other conditions. In addition, red-eye reduction effects are also difficult to obtain if you set the shutter to a slow speed in the PROGRAM AE shutter priority mode.
- The flash effect is not obtained easily when you use forced flash in a bright location.

▶ Playback

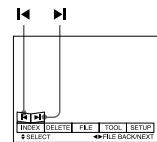
Playing back still images



1 Set the MODE selector to PLAY.
The last recorded image (still or moving) appears on the LCD screen.

2 Press on the control button to display the menu bar on the LCD screen.

3 Select the desired still image with the control button.
Press / on the control button to select / on the LCD screen, then press / on the control button.
: To display the preceding image.
: To display the next image.



When the menu bar is not displayed

You can directly select and play back the image with / on the control button.

Notes

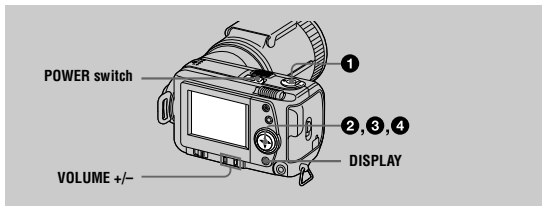
- You might not be able to correctly play back images recorded with this camera on other equipment.
- You cannot play back on this camera images larger than the maximum image size that can be recorded with this camera.

LCD screen indicators during still image playback

Press DISPLAY to turn on/off the indicators on the LCD screen. See page 66 for a detailed description of the indicators.

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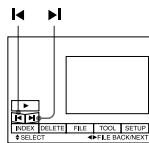
Playing back moving images



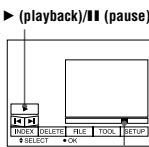
1 Set the MODE selector to PLAY.
The last recorded image (still or moving) appears on the LCD screen.

2 Press ▲ on the control button to display the menu bar on the LCD screen.

3 Select the desired moving image with the control button.
Moving images are displayed one-size smaller than still images.
Press ▲▼/◀▶ on the control button to select ◀▶ on the LCD screen, then press ◀▶ on the control button.
◀: To display the preceding image.
▶: To display the next image.



4 Select ▶ (playback) on the LCD screen with ▲▼/◀▶ on the control button, then press the center ●.
The moving image and sound are played back. During playback, ▶ (playback) changes to || (pause).



Playback bar

To pause playback

Select || (pause) on the LCD screen with ▲▼/◀▶ on the control button, then press the center ●.

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Viewing images using a personal computer

You can view data recorded with your camera on a personal computer and attach it to e-mail. This section describes the method for installing the USB driver and viewing images on a personal computer. Be sure to also see the operation manuals for your personal computer and application software.

Note

Data recorded with your camera is stored in the following formats. Make sure that applications that support these file formats are installed on your personal computer.

- Still images (other than TEXT and uncompressed modes): JPEG format
- Moving images/audio: MPEG format
- Uncompressed mode still images: TIFF format
- TEXT mode: GIF format

Recommended computer environment

Recommended Windows environment

OS: Microsoft Windows 98, Windows 98SE
Standard installation is required.
Operation is not assured in an environment upgraded from:
Windows 3.1, Windows 95 to Windows 98 or
Windows 98 to Windows 98SE.

CPU: MMX Pentium 200 MHz or faster

The USB connector must be provided as standard.

ActiveMovie Player (DirectShow) must be installed (to play back moving pictures).

Recommended Macintosh environment

Macintosh computer with the Mac OS 8.5.1/8.6/9.0 standard installation
However, note that the update to Mac OS 9.0 should be used for the following models.

- iMac with the Mac OS 8.6 standard installation and a slot loading type CD-ROM drive
- iBook or G4 with the Mac OS 8.6 standard installation

The USB connector must be provided as standard.

QuickTime 3.2 or newer must be installed (to play back moving pictures).

Notes

- Operations are not guaranteed for either the Windows or Macintosh environment if you connect two or more USB equipment to a single personal computer at the same time (except for the USB keyboard and mouse which are provided as standard), or when using a hub.
- Depending on the type of USB equipment that is used simultaneously, some equipment may not operate.
- Operations are not guaranteed for all the recommended computer environments mentioned above.

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When the menu bar is not displayed

You can directly select the image with ◀▶ on the control button, and play back the image and sound by pressing the center ●. When you press the center ● during playback, playback is paused.

Moving images recorded with the image of [320 (HQ)]

The images are displayed over the entire screen in steps 3 and 4.

Adjusting the volume

Press VOLUME +/- to adjust the volume.

LCD screen indicators during moving image playback

Press DISPLAY to turn on/off the indicators on the LCD screen.
See page 66 for a detailed description of the indicators.

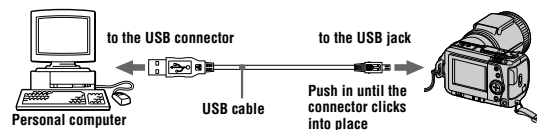
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Installing the USB driver

Before connecting your camera to your personal computer, install the USB driver to the computer. The USB driver is contained together with application software for viewing images on a CD-ROM which is supplied with your camera.

For Windows 98 users

- 1 Turn on your personal computer and allow Windows 98 to load.**
- 2 Insert the supplied CD-ROM in the CD-ROM drive of your personal computer.**
- 3 Connect the USB jack on your camera with the USB connector on your personal computer using the supplied USB cable.**



- 4 Insert a "Memory Stick" into your camera, connect the AC power adaptor/charger and turn on your camera.**
"PC MODE" appears on the LCD screen of your camera and the camera is set to communication standby mode. Your personal computer recognizes the camera, and the Windows 98 Add Hardware Wizard starts.
- 5 Follow the on-screen messages to specify the CD-ROM drive and install the USB driver.**
The Add Hardware Wizard starts twice because two different USB drivers are installed. Be sure to allow the installation to complete without interrupting it.

Note

Be sure to insert a "Memory Stick" into your camera before installing the USB driver. Otherwise, you will be unable to install the USB driver.

For Macintosh users

- 1 Turn on your personal computer and allow the Mac OS to load.**
- 2 Insert the supplied CD-ROM in the CD-ROM drive of your personal computer.**

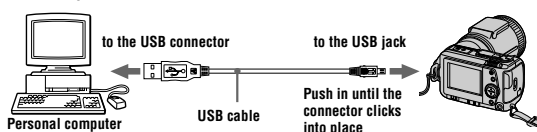
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- 3 Double-click the CD-ROM drive icon to open the window.
- 4 Double-click the icon of the hard disk containing the OS to open the window.
- 5 Move the following two files from the window opened in step 3 to the "System Folder" icon in the window opened in step 4 (drag and drop).
 - Sony USB Driver
 - Sony USB Shim
- 6 When "Put these items into the Extensions folder?" appears, click "OK."
- 7 Restart your personal computer.

Viewing images

For Windows 98 users

- 1 Turn on the power of your personal computer and allow Windows 98 to load.
- 2 Connect one end of the USB cable to the USB jack on the camera and the other end to the USB connector on your personal computer.



- 3 Insert a "Memory Stick" into your camera, and connect the AC power adaptor/charger to your camera and then to a wall outlet (mains).
- 4 Turn on the power of your camera. "PC MODE" appears on the LCD screen of the camera.
- 5 Open "My Computer" on Windows 98 and double click the newly recognized drive. (Example: "Removable Disk (D:)")
The folders inside the "Memory Stick" are displayed.

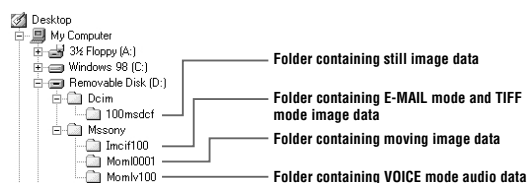
▶ Playback

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Image file storage destinations and image files

Image files recorded with your camera are grouped in folders by recording mode. The meanings of the file names are as follows. □□□□ stands for any number within the range from 0001 to 9999.

For Windows 98 users (The drive recognizing the camera is "D:.")



Folder	File	Meaning
100msdscf	DSC0□□□□.JPG	<ul style="list-style-type: none"> • Still image file recorded normally • Still image file recorded in E-MAIL mode (page 38) • Still image file recorded in TIFF mode (page 39) • Still image file recorded in VOICE mode (page 38)
	TXT0□□□□.GIF	<ul style="list-style-type: none"> • Still image file recorded in TEXT mode (page 39)
Imcif100	DSC0□□□□.JPG	<ul style="list-style-type: none"> • Small-size image file recorded in E-MAIL mode (page 38)
	DSC0□□□□.TIF	<ul style="list-style-type: none"> • Uncompressed image file recorded in TIFF mode (page 39)
Moml0001	MOV0□□□□.MPG	<ul style="list-style-type: none"> • Moving image file recorded normally
Momlv100	DSC0□□□□.MPG	<ul style="list-style-type: none"> • Audio file recorded in VOICE mode (page 38)

The numerical portions of the following files are the same.
 — A small-size image file recorded in E-MAIL mode and its corresponding image file
 — An uncompressed image file recorded in TIFF mode and its corresponding image file
 — An audio file recorded in VOICE mode and its corresponding image file

▶ Playback

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- 6 Select and double-click the desired image/sound file from the folder.

For the detailed folder and file name, see "Image file storage destinations and image files" (page 29).

Desired file type	Double-click in this order
Still image	"Dcim" folder → "100msdscf" folder → Image file
Moving image*	"Mssony" folder → "Moml0001" folder → Image file*
Audio*	"Mssony" folder → "Momlv100" folder → Audio file*
E-mail image TIFF image (uncompressed)	"Mssony" folder → "Imcif100" folder → Image file

* Copying a file to the hard disk of your personal computer before viewing it is recommended. If you play back the file directly from the "Memory Stick", the image and sound may break off.

Notes on using your personal computer

"Memory Stick"

- "Memory Stick" operations on your camera cannot be assured if the "Memory Stick" has been formatted on your personal computer.
- Do not optimize the "Memory Stick" on a Windows machine. This will shorten the "Memory Stick" life.
- Do not compress the data on the "Memory Stick." Compressed files cannot be played back on your camera.

Software

- Depending on your application software, the file size may increase when you open a still image file.
- When you load an image modified using the supplied retouch software from your personal computer to the camera or when you directly modify the image on the camera, the image format will differ so the "FILE ERROR" message may appear and you may be unable to open the file.

Communications with your personal computer

Communications between your camera and your personal computer may not recover after recovering from Suspend, Resume, or Sleep.

- Windows and ActiveMovie, DirectShow are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- Macintosh and Mac OS, QuickTime are trademarks of Apple Computer, Inc.
- All other product names mentioned herein may be the trademarks or registered trademarks of their respective companies. Furthermore, "TM" and "®" are not mentioned in each case in this manual.

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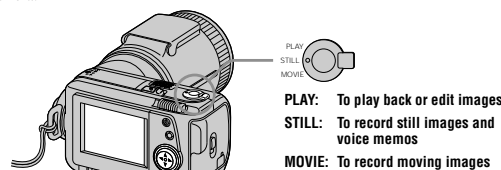
Advanced operations

Before performing advanced operations

This section describes the basic control methods that are frequently used for "Advanced operations".

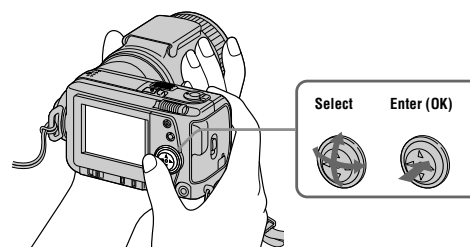
How to use the MODE selector

The MODE selector selects whether you can use your camera to record or to play back and edit images. Set the selector as follows before starting to operate your camera.



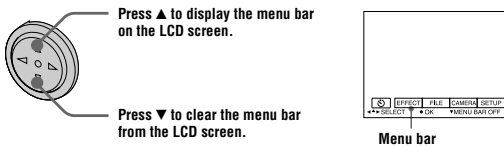
How to use the control button

The control button is used to select the indicators, images and menus appearing on the LCD screen of your camera. The operation methods that are frequently used for "Advanced operations" are described below.



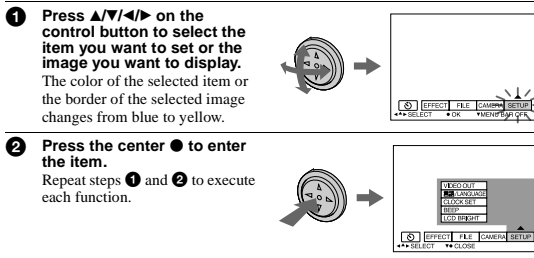
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Turning on/off the operation buttons (menu bar) on the LCD screen



Note
You cannot clear the menu bar during INDEX screen display (page 46).

Selecting items and images on the LCD screen

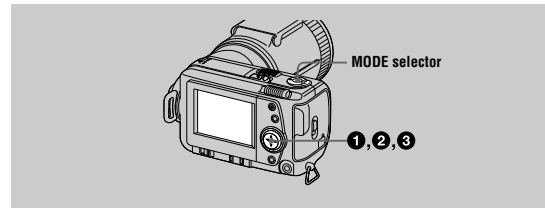


The "Advanced operations" section of this manual refers to selecting and entering items by the above procedure as "Select [(item name)]."

Before performing advanced operations

How to change the menu settings

Some of the advanced operations for your camera are executed by selecting menu items displayed on the LCD screen with the control button.



- Press ▲ on the control button to display the menu bar. The menu bar appears as follows according to the setting of the MODE selector.

MOVIE/STILL	PLAY (single mode)	PLAY (INDEX mode)
- Select the desired item with ▲/▼/◀/▶ on the control button, then press the center ●. The color of the selected item changes from blue to yellow, and when you press the center ●, the modes that can be set for that item are displayed.

--	--	--
- Select the desired mode with ▲/▼/◀/▶ on the control button, then press the center ●.

To clear the menu

Press ▼ on the control button until the LCD screen returns to the menu bar display in step 1. To clear the menu bar, press ▼ again.

Menu settings

Menu items that can be modified differ depending on the setting of the MODE selector. The LCD screen shows only the items you can operate at the moment. Initial settings are indicated with ■.

⌚ (SELF TIMER)

Records with the self-timer (page 19).

EFFECT

Item	Setting	Description	MODE selector
PEFFECT	SOLARIZE B&W SEPIA NEG.ART ■ OFF	Sets the image special effects (page 45).	MOVIE STILL
DATE/TIME	DAY&TIME DATE ■ OFF	Sets whether to insert the date and time into the image (page 44).	STILL

FILE

Item	Setting	Description	MODE selector
FORMAT	OK CANCEL	Formats a "Memory Stick." Cancels formatting of a "Memory Stick."	MOVIE STILL PLAY
POS. SENSOR	ON ■ OFF	Plays back images recorded with the camera on its side (vertical images) as horizontal images. This function does not work for images recorded in TEXT mode. When this camera may be subject to vibration such as when you record images from inside a moving car, set this to OFF to prevent improper horizontal/vertical judgement.	STILL
FILE NUMBER	SERIES ■ NORMAL	Assigns numbers to files in sequence even if the "Memory Stick" is changed. Resets the file numbering each time the "Memory Stick" is changed.	MOVIE STILL

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Before performing advanced operations

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Item	Setting	Description	MODE selector
IMAGE SIZE	■ 2240×1680 1856×1392 1856 (3:2) 1280×960 640×480	Selects the image size when recording still images.	STILL
	320 (HQ) 320×240 ■ 160×112	Selects the MPEG image size when recording moving images.	MOVIE
REC MODE	TIFF	Records a TIFF (uncompressed) file in addition to the JPEG file.	STILL
	TEXT	Records a GIF file in black-and-white.	
	VOICE	Records an audio file (with still image) in addition to the JPEG file.	
	E-MAIL	Records a small-size (320×240) JPEG file in addition to the selected image size.	
REC TIME SET	15 sec 10 sec ■ 5 sec	Adjusts the recording time for moving images.	MOVIE
	—	Rotates the still image.	PLAY
SLIDE SHOW (in single mode only)	INTERVAL	Sets the slide show interval. ■ 3 sec/5 sec/10 sec/30 sec/1 min	PLAY
	REPEAT	Repeats the slide show. ■ ON/OFF	
	START	Starts the slide show.	
	CANCEL	Cancels the slide show settings and execution.	
PRINT MARK	ON	Marks the still images to be printed (page 54).	PLAY
	■ OFF	Unmarks the print mark of the still images.	
PROTECT	ON ■ OFF	Protects images against accidental erasure (page 50). Releases protection of images against accidental erasure.	PLAY

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CAMERA

Item	Setting	Description	MODE selector
DIGITAL ZOOM	■ ON OFF	Uses digital zoom. Does not use digital zoom.	STILL
SHARPNESS	+2 to -2	Adjusts the sharpness of the image. [] appears on the LCD screen except when set to 0.	STILL
FLASH LEVEL	HIGH ■ NORMAL LOW	Makes the flash level higher than normal. Normal setting. Makes the flash level lower than normal.	STILL
EXPOSURE	+2.0 EV to -2.0 EV	Adjusts the exposure.	MOVIE STILL

TOOL

Item	Setting	Description	MODE selector
COPY	OK CANCEL	Copies an image (page 52). Cancels copying of the image.	PLAY
RESIZE (in single mode only)	2240×1680 1856×1392 1280×960 640×480 ■ CANCEL	Changes the recorded still image size (page 52).	PLAY

SETUP

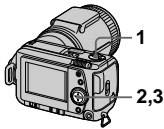
Item	Setting	Description	MODE selector
DEMO	■ ON/STBY OFF	Displayed only when you use the AC power adaptor in MOVIE or STILL mode. When ON is selected, a demonstration will start if you do not operate your camera for about 10 minutes. To stop the demonstration, turn off your camera. Select ON to make the demonstration appear again.	MOVIE STILL

Before performing advanced operations

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► Various recording

Setting the image size (IMAGE SIZE)



- 1 Set the MODE selector to MOVIE or STILL.
- 2 Select [FILE] and then [IMAGE SIZE] from the menu.
- 3 Select the desired image size.

Still image sizes

2240×1680, 1856×1392, 1856 (3:2)*, 1280×960, 640×480

* The image is recorded in 3:2 size to match the printing paper size ratio of 3:2.

Moving image sizes

320 (HQ)*, 320×240, 160×112

* High Quality mode

The number of images or the time that you can record on a "Memory Stick" (8 MB):

Image size	Number of images or time*
2240×1680	Approx. 4
1856×1392	Approx. 6
1856 (3:2)	Approx. 6
1280×960	Approx. 12
640×480	Approx. 118
320 (HQ)	Approx. 20 (15**) sec.
320×240	Approx. 85 (15**) sec.
160×112	Approx. 345 (60**) sec.

* When [REC MODE] is set to [NORMAL].

** Numbers in parentheses indicate the maximum recording time during continuous recording.

► Various recording

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Item	Setting	Description	MODE selector
VIDEO OUT	■ NTSC PAL	Sets the video output signal to NTSC mode (North American countries, Japan, etc.). Sets the video output signal to PAL mode (European countries, etc.).	MOVIE STILL PLAY
言語/ LANGUAGE	■ ENGLISH 日本語/JPN	Displays the menu items in English. Displays the menu items in Japanese.	MOVIE STILL PLAY
CLOCK SET	—	Sets the date and time (page 13).	MOVIE STILL PLAY
BEEP	SHUTTER ■ ON OFF	Turns off the beep only. (The shutter sound is heard when you press the shutter button.) Turns on the beep/shutter sound (when you press the control button/shutter button). Turns off the beep/shutter sound.	MOVIE STILL PLAY
LCD BRIGHT	■■■■■■■■■■	Adjusts the LCD screen brightness using the +/- buttons on the LCD screen. This has no effect on the recorded images.	MOVIE STILL PLAY

INDEX*

Displays six images at a time (PLAY (INDEX) mode) (page 46).

DELETE

Setting	Description	MODE selector
OK	Deletes the displayed image.	PLAY
CANCEL	Cancels deleting of the image.	

⏪ (RETURN)**

Returns to PLAY (single) mode.

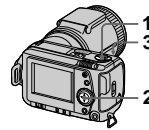
* Displayed only in PLAY (single) mode.

** Displayed only in PLAY (INDEX) mode.

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Recording still images for e-mail (E-MAIL)

E-MAIL mode records a small-size (320×240) image at the same time as a still image. Small-size images are convenient for e-mail transmission, etc.



- 1 Set the MODE selector to STILL.
- 2 Select [FILE], [REC MODE], and then [E-MAIL] from the menu.
- 3 Record the image.

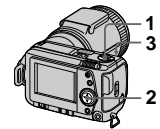
The number of images that you can record on a "Memory Stick" (8 MB) in E-MAIL mode:

Image size	Number of images
2240×1680	Approx. 4
1856×1392	Approx. 5
1856 (3:2)	Approx. 5
1280×960	Approx. 12
640×480	Approx. 95

To return to normal recording mode

Select [NORMAL] in step 2.

Adding audio files to still images (VOICE)



- 1 Set the MODE selector to STILL.
- 2 Select [FILE], [REC MODE], and then [VOICE] from the menu.
- 3 Record the image.

If you press and release the shutter button, sound is recorded for 5 seconds.

If you hold down the shutter button, sound is recorded until you release the shutter button for up to 40 seconds.

The number of images that you can record on a "Memory Stick" (8 MB) in VOICE mode (when recording sound for five seconds):

Image size	Number of images
2240×1680	Approx. 4
1856×1392	Approx. 5
1856 (3:2)	Approx. 5
1280×960	Approx. 11
640×480	Approx. 56

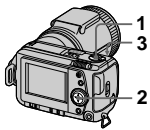
To return to normal recording mode

Select [NORMAL] in step 2.

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Recording text documents (TEXT)

Text is recorded in black and white GIF format to provide a clearer image.



- 1 Set the MODE selector to STILL.
- 2 Select [FILE], [REC MODE], and then [TEXT] from the menu.
- 3 Record the image.

The number of images that you can record on a "Memory Stick" (8 MB) in TEXT mode:

Image size	Number of images
2240×1680	Approx. 10 to 110
1856×1392	Approx. 20 to 140
1856 (3:2)	Approx. 20 to 160
1280×960	Approx. 40 to 228
640×480	Approx. 160 to 727

To return to normal recording mode

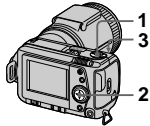
Select [NORMAL] in step 2.

Notes

- If the subject is not evenly illuminated, you may be unable to record a clear image.
- Writing and reading data takes more time than in normal recording.

Recording uncompressed images (TIFF)

This mode simultaneously records still images in both TIFF format (uncompressed) and JPEG format (compressed).



- 1 Set the MODE selector to STILL.
- 2 Select [FILE], [REC MODE], and then [TIFF] from the menu.
- 3 Record the image.

The number of images that you can record on a "Memory Stick" (16 MB) in TIFF mode:

Image size	Number of images
1856×1392	Approx. 1
1856 (3:2)	Approx. 1

To return to normal recording mode

Select [NORMAL] in step 2.

Notes

- JPEG images are recorded in the image size selected by the [IMAGE SIZE] menu.
- TIFF images are recorded in [1856×1392] size other than when [1856 (3:2)] is selected.
- Writing data takes more time than in normal recording.
- The supplied "Memory Stick" (8 MB) does not have sufficient capacity to record uncompressed images.

▼ Various recording

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Notes

- The focus mode indicator is approximate, and should be used as a reference.
- The focus mode indicator is not displayed correctly when using a conversion lens.
- When the zoom lever is set to the T side, your camera may not focus on subjects closer than about 2 5/8 feet (80 cm). In these cases, the focus mode indicator flashes. Move the zoom lever toward the W side until the focus mode indicator stops flashing.
- You cannot focus manually in PROGRAM AE Panfocus mode.

Using the PROGRAM AE function



- 1 Set the MODE selector to MOVIE or STILL.
- 2 Press PROGRAM AE repeatedly to select the desired PROGRAM AE mode.

Aperture priority mode

Makes the subject stand out against an unclear background or makes both the subject and the background stand out clearly. Press +/- repeatedly to select an aperture value in 7 steps from F2.8 to F8.

Shutter speed priority mode

Records a sharp picture of a fast-moving subject or the flow of motion of a moving subject. Press +/- repeatedly to select a shutter speed in 19 steps from 8" to 1/1000 when recording a still image and in 13 steps from 1/8 to 1/1000 when recording a moving image.

Twilight mode

Suppresses the washed-out color of a bright subject in a dark place so that you can record the subject without losing the dark atmosphere of the surroundings.

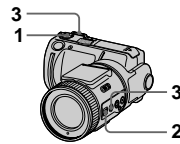
Twilight plus mode

Increases the effectiveness of the twilight mode function.

▼ Various recording

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Recording images in macro



- 1 Set the MODE selector to MOVIE or STILL.
- 2 Set FOCUS AUTO/MANUAL to AUTO.
- 3 Set the zoom to W side and then press MACRO.

The (macro) indicator appears on the LCD screen. You can shoot a subject that is about 13/16 inches (2 cm) away from the lens surface in macro mode.

To return to normal recording mode

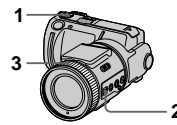
Press MACRO again. (macro) disappears from the LCD screen.

Notes

- You cannot record images in macro with the following PROGRAM AE modes.
 - Landscape mode
 - Panfocus mode
- You cannot record images in macro when (macro) appears on the LCD screen.
- When you shoot a subject that is about 13/16 inches (2 cm) away from the lens surface, the edges of the LCD screen image may appear distorted.

Focusing manually

Normally the focus is automatically adjusted. This function is useful when the auto focus does not work well such as in dark places.



- 1 Set the MODE selector to MOVIE or STILL.
- 2 Set FOCUS AUTO/MANUAL to MANUAL. The (manual focus) indicator appears on the LCD screen.
- 3 Turn the focus ring to achieve a sharp focus.

When recording still images, the LCD screen image is zoomed to 2×* and the focus mode indicator is displayed. When a sharp focus is achieved, the image returns to normal and the (manual focus) indicator changes from yellow to white. When recording moving images, the image is not zoomed. You can adjust the focus distance from 13/16 inches (2 cm) to ∞ (infinite).

* When using digital zoom, the LCD screen image is zoomed to slightly less than 2x.

To reactivate auto focusing

Set FOCUS AUTO/MANUAL to AUTO.

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Landscape mode

Focuses only on a distant subject to record landscapes, etc.

Panfocus mode

Changes the focus quickly and simply from a close subject to a distant subject.

To cancel PROGRAM AE

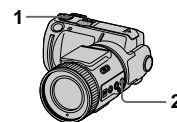
Press PROGRAM AE repeatedly until the indicator on the LCD screen goes out.

Notes

- You cannot select F2.8 in aperture priority mode when the zoom is set to the T side.
- You can focus only on distant subjects in Landscape mode.
- In Panfocus mode, the zoom position and focus are fixed.
- When you record in the Twilight plus mode, we recommend that you use a tripod to prevent shaking.
- Set the forced flash () when you use the flash in the following modes:
 - Twilight mode
 - Twilight plus mode
 - Landscape mode
- You cannot use the PROGRAM AE function when [REC MODE] is set to [TEXT].
- If the setting is not appropriate in aperture priority mode and shutter priority mode, the setting value indicator on the LCD screen flashes when you press the shutter button halfway down. In this case, reset the value.
- If you set a slow shutter speed in twilight plus mode and shutter speed priority mode, the noise may increase.

Using the spot light-metering mode

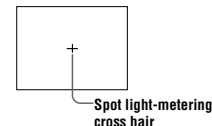
Use this mode when there is backlight or when there is strong contrast between the subject and the background, etc.



- 1 Set the MODE selector to MOVIE or STILL.
- 2 Press SPOT METER to display the spot light-metering cross hair.

Position the point you want to record on the spot light-metering cross hair.

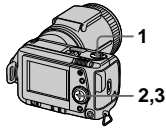
LCD screen



Spot light-metering cross hair

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Adjusting the exposure (EXPOSURE)



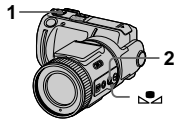
- 1 Set the MODE selector to MOVIE or STILL.
- 2 Select [CAMERA] and then [EXPOSURE] from the menu.
- 3 Select the desired exposure value.
Adjust the exposure value while checking the brightness of the background. You can select values ranging from +2.0 EV to -2.0 EV in steps of 1/3 EV.

Note

The exposure may not be adjusted properly when the subject is extremely bright or dark, or when using the flash.

Adjusting the white balance (WHITE BALANCE)

Normally the white balance is automatically adjusted.



- 1 Set the MODE selector to MOVIE or STILL.
- 2 Press WHT BAL repeatedly to select the desired white balance mode.

One-push white balance (S)

Adjusts the white balance depending on the light source

OUT DOOR (☀)

Recording a sunrise/sunset, night scene, neon signs, or fireworks

IN DOOR (🏠)

- Places where the lighting condition changes quickly
- Under bright lighting such as photography studios
- Under sodium or mercury lamps

AUTO (No indicator)

Adjusts the white balance automatically

▶ Various recording

To set the (One-push white balance) button

- ① Press WHT BAL repeatedly until appears.
- ② Place a white object such as paper under the same light conditions as you are going to record, and record the white object so that it fills the entire frame of your camera.
- ③ Press .
The indicator starts to flash quickly. Once the white balance is set, the indicator stops flashing.

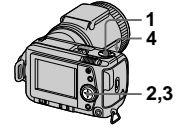
To reactivate auto adjustment

Select [AUTO] in step 2.

Notes

- Select [AUTO] when recording under fluorescent lighting.
- The indicator means:
Slow flashing: white balance is not set.
Quick flashing: white balance is being adjusted.
Lit steady: white balance has been set.
- If the indicator keeps flashing even when you press , record in automatic white balance mode.

Recording the date and time on the still image (DATE/TIME)



- 1 Set the MODE selector to STILL.
- 2 Select [EFFECT] and then [DATE/TIME] from the menu.
- 3 Select the date and time setting.

DAY & TIME

The date, hour and minutes are imposed onto the image.

DATE

The year, month and day are imposed onto the image.

OFF

The date and time are not imposed onto the image.

- 4 Record the image.

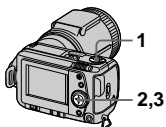
The date and time are not displayed during recording. The date and time are displayed when playing back images.



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Enjoying picture effects (P.EFFECT)



- 1 Set the MODE selector to MOVIE or STILL.
- 2 Select [EFFECT] and then [P.EFFECT] from the menu.
- 3 Select the desired mode.

SOLARIZE

The light contrast is clearer and the picture looks like an illustration.

B&W

The picture is monochrome (black and white).

SEPIA

The picture is colored like an old picture.

NEG.ART

The color and brightness of the picture are reversed.

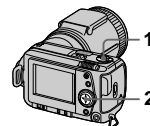
To cancel picture effect

Select [OFF] in step 3.

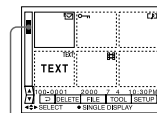
▶ Various recording

▶ Various playback

Playing back six images at once (INDEX)



- 1 Set the MODE selector to PLAY.
- 2 Select [INDEX] on the LCD screen.
Six images are displayed at once (index screen).



This shows the position of the currently displayed images relative to all the recorded images.

The following marks are displayed on each image according to the image type and settings.
 : Moving image file
 : Voice memo file
 : E-mail file
 : Print mark
 : Protect mark
 TEXT: Text mark
 TIFF: TIFF mark
 (No mark): Normal recording (no settings)

To display the next (previous) index screen

Select at the lower left of the LCD screen.



Displays the previous index screen

Displays the next index screen

To return to normal playback (single image)

- Select the desired image with the control button.
- Select [] (RETURN).

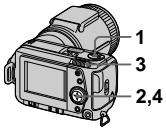
Note

You cannot display images recorded in TEXT mode on the INDEX screen.

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Enlarging a part of the still image (Zoom and trimming)



- 1 Set the MODE selector to **PLAY**.
- 2 Display the image to be enlarged.
- 3 Zoom in/out the image with the zoom lever.
The zoom scaling indicator appears on the LCD screen.
- 4 Press the control button repeatedly to select the desired part of the image.
▲: The image moves downward
▼: The image moves upward
◀: The image moves rightward
▶: The image moves leftward

To return to the normal size

Zoom out with the zoom lever until the zoom scaling indicator (Q ×1.1) disappears from the screen, or simply press ●.

To record an enlarged image (trimming)

- ① Enlarge the image.
- ② Press the shutter button. The image is recorded at 640×480 size, then the display returns to the image display before enlargement.

Notes

- You cannot trim images recorded in TEXT mode or uncompressed images.
- The maximum zoom magnification is 5× the original image, regardless of the image size.
- The picture quality of trimmed images may deteriorate.
- The original picture remains even after trimming.
- The trimmed image is recorded as the newest file.

▼ Various playback

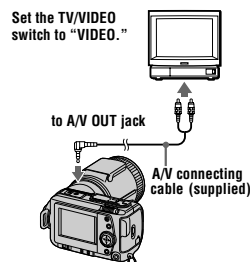
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Note

The [INTERVAL] setting time is approximate, and may vary depending on the played back image size or other factors.

Viewing images on a TV screen

Before connecting your camera, be sure to turn off the TV.



- 1 Connect the A/V connecting cable to the A/V OUT jack of your camera and to the audio/video input jacks of the TV.
If your TV has stereo type audio input jacks, connect the audio plug of the A/V connecting cable to the Lch jack.
- 2 Turn on the TV, then start playback on your camera.
The playback image appears on the TV screen.

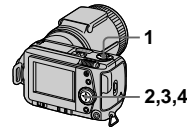
Note

You cannot use a TV that has an antenna (aerial) connector only.

▼ Various playback

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Rotating a still image (ROTATE)



- 1 Set the MODE selector to **PLAY**.
- 2 Display the image to rotate.
- 3 Select [FILE] and then [ROTATE] from the menu.
- 4 Rotate the image clockwise ↻ or counterclockwise ↺, then select [RETURN].

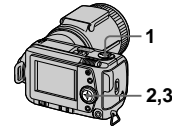
Notes

- You may not be able to rotate images recorded with other equipment.
- Also, when viewing images on a personal computer, the image rotation information may not be reflected depending on the application software.
- You cannot rotate protected or uncompressed images, or images recorded in TEXT mode.

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Playing back the images in order (SLIDE SHOW)

This function is useful for checking the recorded images or for presentations, etc.



- 1 Set the MODE selector to **PLAY**.
- 2 Select [FILE] and then [SLIDE SHOW] from the menu.
Set the following items.

INTERVAL

1 min (one minute), 30 sec (30 seconds), 10 sec (10 seconds), 5 sec (5 seconds), 3 sec (3 seconds)

REPEAT

ON: Plays back images in a continuous loop until [RETURN] is selected.
OFF: After all images have been played back, the slide show ends.

- 3 Select [START] with the control button.
The slide show begins.

To cancel the slide show

Select [CANCEL] in step 2 or 3.

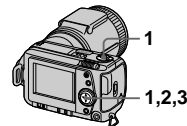
To skip to the next/previous image during slide show playback

Select [▶] or [◀] at the lower left of the LCD screen.

▶ Editing

Preventing accidental erasure (PROTECT)

The (protect) indicator appears on protected images.



In single mode

- 1 Set the MODE selector to **PLAY**, then display the image to protect.
- 2 Select [FILE], [PROTECT], and then [ON] from the menu.
The displayed image is protected and appears.

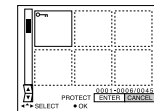
To release protection

Select [OFF] in step 2.

In INDEX mode

- 1 Set the MODE selector to **PLAY**, then display the INDEX screen.
- 2 Select [FILE], [PROTECT], and then [ALL] or [SELECT] from the menu.
- 3 When you select [ALL]
Select [ON].
All the images recorded in "Memory Stick" are protected.
When you select [SELECT]
Select all the images to protect with the control button, then select [ENTER].

The selected images are protected.



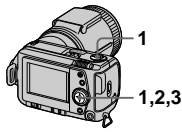
To release protection

If you selected [ALL] in step 2, select [OFF]. If you selected [SELECT] in step 2, select the images to unprotect with the control button, then select [ENTER].

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Deleting images (DELETE)

You cannot delete protected files.



In single mode

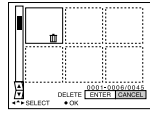
- 1 Set the MODE selector to **PLAY**, then display the image to delete.
- 2 Select **[DELETE]** and then **[OK]** from the menu.
The image is deleted.

In INDEX mode

- 1 Set the MODE selector to **PLAY**, then display the **INDEX** screen.
- 2 Select **[DELETE]** and then **[ALL]** or **[SELECT]** from the menu.
- 3 When you select **[ALL]**
Select **[ENTER]**.
All unprotected images are deleted.

When you select **[SELECT]**
Select all the images to delete with the control button, then select **[ENTER]**.

The (delete) indicator appears on the selected images and these images are deleted.



To cancel deleting

Select **[CANCEL]** in step 2 or 3.

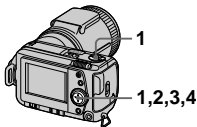
Note

If there are files on the "Memory Stick" with names having the same last 4 digits as the file name of the image to be deleted, these files are also deleted at the same time.

▶ Editing

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In INDEX mode



- 1 Set the MODE selector to **PLAY**, then display the **INDEX** screen.
- 2 Select **[TOOL]**, **[COPY]**, and then **[SELECT]** from the menu.
- 3 Select the image to copy.
The (select) indicator appears on the image.
- 4 Select **[ENTER]**.
"MEMORY STICK ACCESS" appears.
- 5 When "CHANGE MEMORY STICK" is displayed, eject the "Memory Stick."
"INSERT MEMORY STICK" appears.
- 6 Insert another "Memory Stick."
"RECORDING" appears. When copying is completed, "COMPLETE" appears.
To end copying, select **[EXIT]**.

To copy the image to another "Memory Stick"

Select **[CONTINUE]** and repeat steps 5 and 6.

To cancel copying part-way
Change the MODE selector setting or turn off the power.

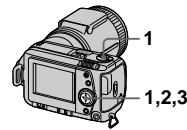
Notes

- You cannot copy uncompressed images.
- You cannot copy images that are bigger than 5 MB at once. If "NOT ENOUGH MEMORY" appears or flashes on the INDEX screen, cancel some images to copy and try again.
- After "COMPLETE" appears, if you exchange the "Memory Stick" without selecting "EXIT," the same image is copied again.

▶ Editing

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Changing the recorded still image size (RESIZE)



- 1 Set the MODE selector to **PLAY** and display the image to resize.
- 2 Select **[TOOL]** and then **[RESIZE]** from the menu.
- 3 Select the desired image size.
2240×1680, 1856×1392,
1280×960, 640×480
The changed image is recorded, then the display returns to the image display before resizing.

To return to the original size
Select **[CANCEL]** in step 3.

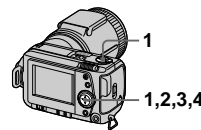
Notes

- You cannot change the size of images recorded in **TEXT** mode or uncompressed images.
- When you change from a small size to a large size, the picture quality deteriorates.
- The original image is retained even after resizing.
- The resized image is recorded as the newest file.

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Selecting still images to print (PRINT MARK)

You can mark a print mark on still images recorded with your camera. This mark is convenient when you have images printed at a shop that conforms with the DPOF (Digital Print Order Format) standard.



In single mode

- 1 Set the MODE selector to **PLAY** and display the image you want to print.
- 2 Select **[FILE]**, **[PRINT MARK]**, and then **[ON]** from the menu.
The (print) mark is displayed on the image.

To unmark the print mark
Select **[OFF]** in step 2.

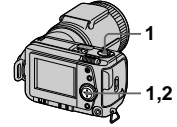
In INDEX mode

- 1 Set the MODE selector to **PLAY**, then display the **INDEX** screen.
- 2 Select **[FILE]**, **[PRINT MARK]**, and then **[SELECT]** from the menu.
- 3 Select the images to mark with the control button.

Copying images (COPY)

You can copy images to another "Memory Stick."

In single mode



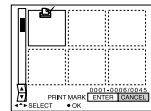
- 1 Set the MODE selector to **PLAY**, then display the image to copy.
- 2 Select **[TOOL]**, **[COPY]**, and then **[OK]** from the menu.
"MEMORY STICK ACCESS" appears.
- 3 When "CHANGE MEMORY STICK" appears, eject the "Memory Stick."
"INSERT MEMORY STICK" appears.
- 4 Insert the "Memory Stick" on which to copy the image.
"RECORDING" appears. When copying is completed, "COMPLETE" appears.
To end copying, select **[EXIT]**.

To copy the image to another "Memory Stick"

Select **[CONTINUE]** and repeat steps 3 and 4.

- 4 Select **[ENTER]**.

of the selected images change from green to white.



To unmark selected print marks

Select the images to unmark in step 3 with the control button, then select **[ENTER]**.

To unmark all the print marks

Select **[FILE]**, **[PRINT MARK]**, **[ALL]** and then **[OFF]** from the menu.
 of all images are unmarked.

Notes

- You cannot mark moving images or images recorded in **TEXT** mode.
- If you mark an image recorded in **TIFF** mode with a print mark, only the uncompressed image is printed, and the **JPEG** image recorded at the same time is not printed.

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Additional information

Precautions

On cleaning

Cleaning the LCD screen

Wipe the screen surface with a cleaning cloth (not supplied) or a LCD cleaning kit (not supplied) to remove fingerprints, dust, etc.

Cleaning the camera surface

Clean the camera surface with a soft cloth slightly moistened with water, then wipe the surface dry. Do not use any type of solvent such as thinner, alcohol or benzene as this may damage the finish or the casing.

After using your camera at the seashore or other dusty locations

Clean your camera carefully. Otherwise, the salty air may corrode the metal fittings or dust may enter the inside of your camera, causing a malfunction.

Note on operating temperature

Your camera is designed for use between the temperatures of 32°F and 104°F (0°C and 40°C). Recording in extremely cold or hot places that exceed this range is not recommended.

On moisture condensation

If the camera is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense inside or outside the camera. Should this occur, the camera will not operate properly.

Moisture condensation occurs easily when:

- The camera is brought from a cold location such as a ski slope into a warmly heated room.
- The camera is taken from an air-conditioned room or car interior to the hot outdoors, etc.

How to prevent moisture condensation

When bringing the camera from a cold place to a warm place, seal the camera in a plastic bag and allow it to adapt to conditions at the new location over a period of time (about an hour).

If moisture condensation occurs

Turn off the camera and wait about an hour for the moisture to evaporate. Note that if you attempt to record with moisture remaining inside the lens, you will be unable to record clear images.

On AC power adaptor

- Unplug the unit from the wall outlet (mains) when you are not using the unit for a long time.
- To disconnect the power cord (mains lead), pull it out by the plug. Never pull the power cord (mains lead) itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the power cord (mains lead) forcibly, or place a heavy object on it. This will damage the cord and may cause fire or electrical shock.
- Prevent metallic objects from coming into contact with the metal parts of the connecting section. If this happens, a short may occur and the unit may be damaged.
- Always keep metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment. AM reception and video operation are disturbed.
- The unit becomes warm during use. This is not a malfunction.
- Do not place the unit in locations that are:
 - Extremely hot or cold
 - Dusty or dirty
 - Very humid
 - Vibrating

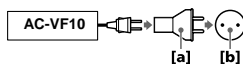
Additional information

"Memory Stick", , "MagicGate Memory Stick" and  are trademarks of Sony Corporation. "MagicGate" and **MAGICGATE** are trademarks of Sony Corporation.

Using your camera abroad

Power sources

You can use your camera in any country or area with the supplied battery charger within 100 V to 240 V AC, 50/60 Hz. Use the supplied AC power adaptor [a], if necessary, depending on the design of the wall outlet (mains) [b].



Watching the playback picture on TV

If you want to view the playback picture on a TV, you need a TV having a video input jack and a video connecting cable.

The color system of the TV must be the same as that of your digital still camera. TV color systems differ from country to country. Check the following list:

NTSC system countries

Bahama Islands, Bolivia, Canada, Central America, Chile, Columbia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

PAL system countries

Australia, Austria, Belgium, China, Denmark, Finland, 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, Czech Republic, France, Guiana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Slovak Republic, Ukraine, etc.

Additional information

On battery pack

- Use only the specified charger with the charging function.
- To prevent accident from a short circuit, do not allow metal objects to come into contact with the battery terminals.
- Keep the battery pack away from fire.
- Never expose the battery pack to temperatures above 140°F (60°C), such as in a car parked in the sun or under direct sunlight.
- Keep the battery pack dry.
- Do not expose the battery pack to any mechanical shock.
- Do not disassemble nor modify the battery pack.
- Install the battery pack to the camera securely.
- Charging while some capacity remains does not affect the original battery capacity.

If any problem occurs, unplug your camera and contact your nearest Sony dealer.

On internal rechargeable button battery

This camera has an internal rechargeable button battery for maintaining the date and time and other settings regardless of whether the power is on or off. This rechargeable button battery is constantly charged as long as you are using the camera. However, if you use the camera for only short periods it discharges gradually, and if you do not use the camera at all for about half a year it becomes completely discharged. In this case, be sure to charge this rechargeable button battery before using the camera. However, even if this rechargeable button battery is not charged, you can still use the camera as long as you do not record the date and time.

Charging method

Connect the camera to a wall outlet (mains) with the AC power adaptor/charger, or install a charged battery pack, and leave the camera for 24 hours or more with the POWER switch set to OFF.

On "Memory Sticks"

"Memory Stick" is a new compact, portable and versatile IC recording medium with a data capacity that exceeds a floppy disk. "Memory Stick" is specially designed for exchanging and sharing digital data among "Memory Stick" compatible products. Because it is removable, "Memory Stick" can also be used for external data storage.

There are two types of "Memory Sticks": general "Memory Sticks" and "MagicGate Memory Sticks" that are equipped with the MagicGate® copyright protection technology.

You can use both types of "Memory Stick" with your camera. However, because your camera does not support the MagicGate standards, data recorded with your camera is not subject to MagicGate copyright protection.


* MagicGate is copyright protection technology that uses encryption technology.

Notes

- Do not remove the "Memory Stick" while reading or writing data.
- Data may be damaged if:
 - you remove the "Memory Stick" or turn off your camera while reading or writing data.
 - you use the "Memory Stick" in a location subject to the effects of static electricity or noise.
- Do not attach any other material than the supplied label on the labeling position.
- Attach the label so that it does not stick out from the proper attachment location.
- When you carry or store the "Memory Stick," put it in its supplied case.
- Do not touch the terminals of a "Memory Stick" with your hand or a metal object.
- Do not strike, bend or drop the "Memory Stick."
- Do not disassemble or modify the "Memory Stick."
- Do not allow the "Memory Stick" to get wet.

Troubleshooting

If you experience trouble with your camera, first check the following items. Should your camera still not operate properly after you have made these checks, consult your Sony dealer or local authorized Sony service facility. If code displays (C:□□□□□) appear on the LCD screen, the self-diagnosis display function is working (page 63).

Symptom	Cause and/or Solution
Your camera does not work.	<ul style="list-style-type: none"> • You are not using an "InfoLITHIUM" battery pack. → Use an "InfoLITHIUM" battery pack (page 9). • The battery level is low (the  indicator appears on the LCD screen). → Charge the battery pack (page 9). • The AC power adaptor is not connected securely. → Connect it firmly to the battery terminal of your camera and a wall outlet (mains) (page 12). • The built-in microcomputer is not working properly. → Disconnect and then reconnect all power sources after one minute. Then turn the power on by sliding the POWER switch to the right and check that the camera works properly.
Your camera cannot record images.	<ul style="list-style-type: none"> • The MODE selector is set to PLAY. → Set it to MOVIE or STILL (pages 16, 21). • No "Memory Stick" has been inserted into your camera. → Insert a "Memory Stick" (page 15). • The write-protect tab on the "Memory Stick" is set to LOCK. → Set it to the recording position.
The picture is out of focus.	<ul style="list-style-type: none"> • Your camera is not in macro recording mode when you shoot a subject that is about 13/16 to 9 7/8 inches (2 to 25 cm) away from the lens. → Set the macro recording mode (page 40). → Set the zoom lever to set to the W side.
The resizing function does not work.	<ul style="list-style-type: none"> • You cannot resize moving images and text images.
You cannot display a print mark.	<ul style="list-style-type: none"> • You cannot display print marks on moving images and text images.
The picture is noisy.	<ul style="list-style-type: none"> • Your camera is placed near a TV or other equipment that uses strong magnets. → Move your camera away from the TV, etc.

Symptom	Cause and/or Solution
The picture is too dark.	<ul style="list-style-type: none"> You are shooting a subject with a light source behind the subject. <ul style="list-style-type: none"> → Adjust the exposure (page 43). → Adjust the brightness of the LCD screen (page 36).
The flash does not work.	<ul style="list-style-type: none"> The flash is set to . <ul style="list-style-type: none"> → Set the flash to auto (no indicator), or (page 19). PROGRAM AE is set to the Twilight, Twilight plus, or Landscape mode. <ul style="list-style-type: none"> → Cancel the mode (page 41) or set the flash to . The MODE selector is set to MOVIE. <ul style="list-style-type: none"> → Set it to STILL. The flash is not popped up. <ul style="list-style-type: none"> → Pop up the flash (page 19).
The date and time are recorded incorrectly.	<ul style="list-style-type: none"> The date and time are not set correctly. <ul style="list-style-type: none"> → Set the correct date and time (page 13).
Vertical streaks appear when you are shooting a very bright subject.	<ul style="list-style-type: none"> The smear phenomenon is happening. <ul style="list-style-type: none"> → This is not a malfunction.
The battery life is short.	<ul style="list-style-type: none"> You are recording/playing back images under extremely cold temperatures. The battery pack is not charged enough. <ul style="list-style-type: none"> → Charge the battery pack fully. The battery pack is dead. <ul style="list-style-type: none"> → Replace the battery pack with a new one (page 11).
The battery remaining indicator is incorrect.	<ul style="list-style-type: none"> You have used the camera for a long time in an extremely hot or an extremely cold location. The battery pack is dead. <ul style="list-style-type: none"> → Replace the battery pack with a new one (page 11). The battery pack is discharged. <ul style="list-style-type: none"> → Install a charged battery pack (pages 9, 11).
Sufficient battery remaining indicator is displayed but the power runs out soon.	<ul style="list-style-type: none"> → Fully charge the battery pack (page 9).
The zoom does not work.	<ul style="list-style-type: none"> PROGRAM AE is set to the Panfocus mode. <ul style="list-style-type: none"> → Cancel the Panfocus mode (page 41).

Additional Information

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Symptom	Cause and/or Solution
Your personal computer does not recognize your camera.	<ul style="list-style-type: none"> The camera is turned off. <ul style="list-style-type: none"> → Turn on the camera. The battery level is low. <ul style="list-style-type: none"> → Use the AC power adaptor/charger (page 12). The USB cable is not connected firmly. <ul style="list-style-type: none"> → Disconnect the USB cable, and connect it again firmly. Make sure that "PC MODE" is displayed on the LCD screen (page 26). The USB connectors on your personal computer are connected to other equipment besides the keyboard, the mouse, and your camera. <ul style="list-style-type: none"> → Disconnect the USB cables except for the ones connected to the keyboard, the mouse, and your camera (page 25).

Additional Information

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Symptom	Cause and/or Solution
Digital zoom does not function.	<ul style="list-style-type: none"> You cannot use digital zoom to record moving pictures.
Your camera cannot play back images.	<ul style="list-style-type: none"> The MODE selector is set to STILL or MOVIE. <ul style="list-style-type: none"> → Set it to PLAY (pages 22, 23).
The image and sound are interfered by noise when you play back an image on a personal computer.	<ul style="list-style-type: none"> You are playing back the file directly from the "Memory Stick." <ul style="list-style-type: none"> → Copy the file to the hard disk of the personal computer and then play back the file from the hard disk (page 28).
The image cannot be played back on a personal computer.	<ul style="list-style-type: none"> → Consult the personal computer or software manufacturer.
Your camera cannot delete an image.	<ul style="list-style-type: none"> The image is protected. <ul style="list-style-type: none"> → Cancel the protection (page 50).
The power turns off suddenly.	<ul style="list-style-type: none"> With the MODE selector set to STILL or MOVIE, if you do not operate the camera for about three minutes while the power is on, the camera turns off automatically to prevent wearing down the battery. <ul style="list-style-type: none"> → Turn on the camera. The battery is discharged. <ul style="list-style-type: none"> → Replace it with a charged battery.
The image does not appear on the TV screen.	<ul style="list-style-type: none"> The video output signal setting of your camera is incorrect. <ul style="list-style-type: none"> → Change the setting (page 36).
A file error occurs when you play back a file.	<ul style="list-style-type: none"> The image size is larger than 2240×1680. <ul style="list-style-type: none"> → Use an image size of 2240×1680 or smaller.
The PROGRAM AE function does not work.	<ul style="list-style-type: none"> The camera is set to text mode. <ul style="list-style-type: none"> → Cancel text mode (page 39).
The LCD screen freezes momentarily.	<ul style="list-style-type: none"> This is a characteristic of the system and is not a malfunction.

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Warning and notice messages

Various messages appear on the LCD screen. Check the corresponding descriptions in the following list.

Message	Meaning
NO MEMORY STICK	No "Memory Stick" has been inserted.
SYSTEM ERROR	Turn the power off and on again.
MEMORY STICK ERROR	The inserted "Memory Stick" cannot be used with your camera, or is damaged.
FORMAT ERROR	Failed to format the "Memory Stick."
MEMORY STICK LOCKED	The write-protect tab on the "Memory Stick" is set to the LOCK position.
NO MEMORY SPACE	The capacity of the "Memory Stick" is full, and you cannot record or copy images.
NO FILE	No image has been recorded on the "Memory Stick."
FILE ERROR	An error occurred while playing back the image.
FILE PROTECT	The image is protected against erasure.
for "InfoLITHIUM" battery only	The battery is not the "InfoLITHIUM" type.
NOT ENOUGH MEMORY	The images you want to copy are too big to copy with your camera.
DIRECTORY ERROR	A directory with the same name already exists.
IMAGE SIZE OVER	You are playing back an image of a size that cannot be played back with your camera.
INVALID OPERATION	You are playing back a file that was created on equipment other than your camera.
	The battery level is low or zero.
	The image is protected.

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Self-diagnosis display

Your camera has a self-diagnosis display. This function displays the camera condition on the LCD screen with a combination of a letter and four digits of numbers. If this occurs, check the following code chart. The code informs you of the camera's current condition. The last two digits (indicated by □□) will differ depending on the state of the camera.



Self-diagnosis display

- C:□□:□□
You can reverse the camera malfunction yourself.
- E:□□:□□
Contact your Sony dealer or local authorized Sony service facility.

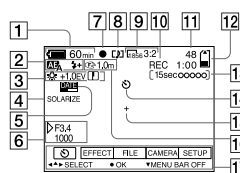
First three digits	Cause and/or Corrective Action
C:32:□□	<ul style="list-style-type: none"> • There is trouble with your camera's hardware. → Turn the power off and on again.
C:13:□□	<ul style="list-style-type: none"> • An unformatted "Memory Stick" is inserted. → Format the "Memory Stick" (page 33). • The inserted "Memory Stick" cannot be used with your camera, or is damaged. → Insert a new "Memory Stick" (page 15).
E:61:□□ E:91:□□	<ul style="list-style-type: none"> • A camera malfunction that you cannot reverse has occurred. → Contact your Sony dealer or local authorized Sony service facility and inform them of the 5-digit service code. (example: E:61:10)

If you are unable to solve the problem even after trying the corrective actions a few times, contact your Sony dealer or local authorized Sony service facility.

Additional information

LCD screen indicators

The indicators during recording



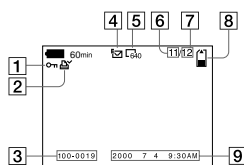
- | | |
|---|--|
| 1 Battery remaining indicator | 10 Self-diagnosis function/
recording time indicator |
| 2 PROGRAM AE/flash mode/
flash level indicator | 11 Number of recorded images |
| 3 White balance/EV level/
sharpness indicator | 12 Remaining memory capacity
indicator |
| 4 Picture effect indicator | 13 Moving image/VOICE recording
time indicator |
| 5 Date/time indicator | 14 Self-timer indicator |
| 6 Aperture/shutter speed
indicator | 15 Spot light-metering indicator |
| 7 AE lock/focus lock indicator | 16 Focus/macro mode indicator |
| 8 Recording mode indicator | 17 Menu bar and guide menu |
| 9 Image size indicator | They appear by pressing ▲ on the
control button and disappear by
pressing ▼ of it. |

Additional information

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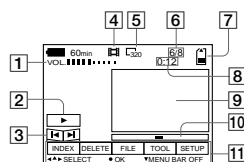
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When playing back still images



- | | |
|----------------------------|--|
| 1 Protect indicator | 7 Number of stored images in
"Memory Stick" |
| 2 Print mark indicator | 8 Remaining memory capacity
indicator |
| 3 File name | 9 Recording date of the playback
image/menu bar and guide
menu |
| 4 Recording mode indicator | |
| 5 Image size indicator | |
| 6 Image number | |

When playing back moving images

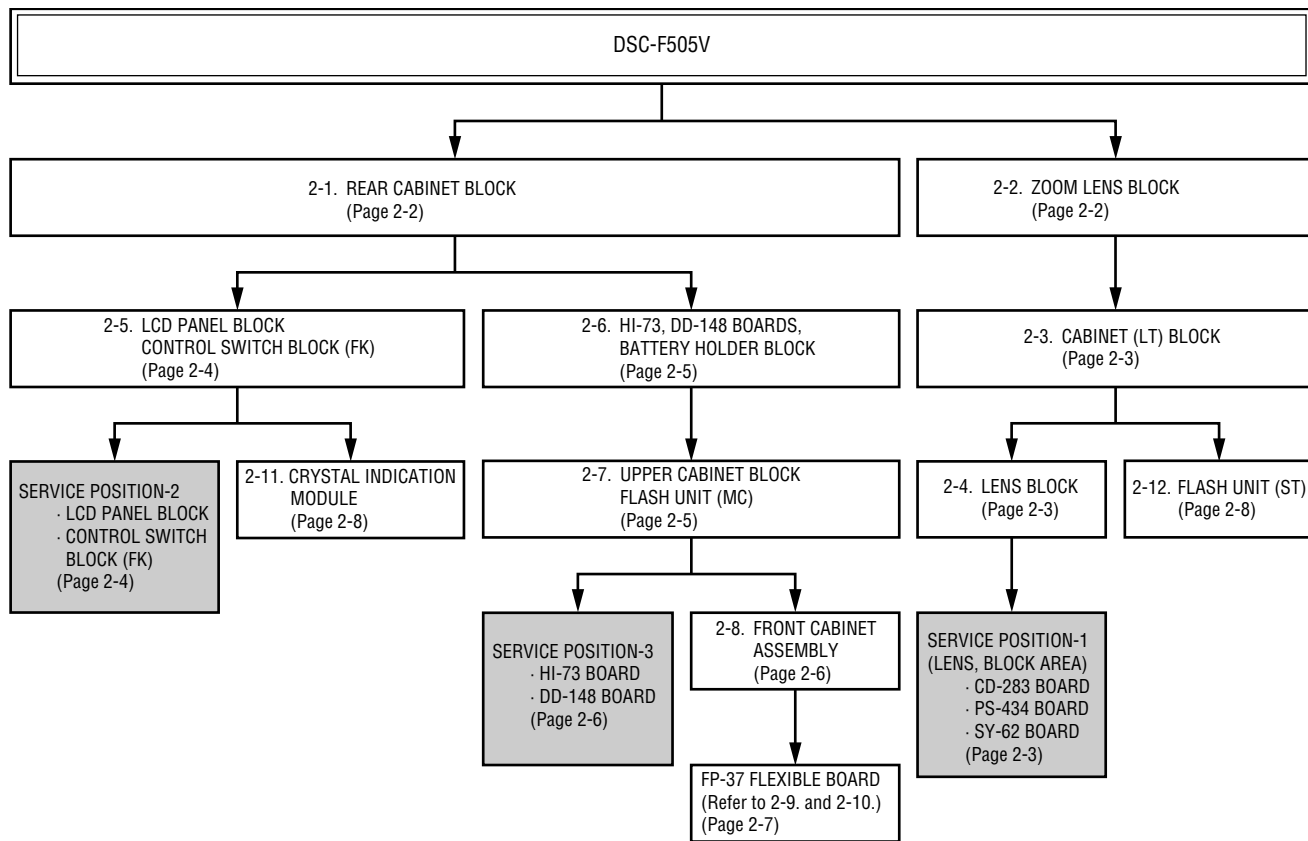


- | | |
|--|--|
| 1 VOL. (Volume) indicator | 6 Image number/number of
stored images in "Memory
Stick" |
| 2 Playback/pause buttons
▶: during pause
 : during playback | 7 Remaining memory capacity
indicator |
| 3 Fast-forward/rewind buttons | 8 Counter |
| 4 Recording mode indicator | 9 Playback image |
| 5 Image size indicator | 10 Play bar |
| | 11 Menu bar and guide menu |

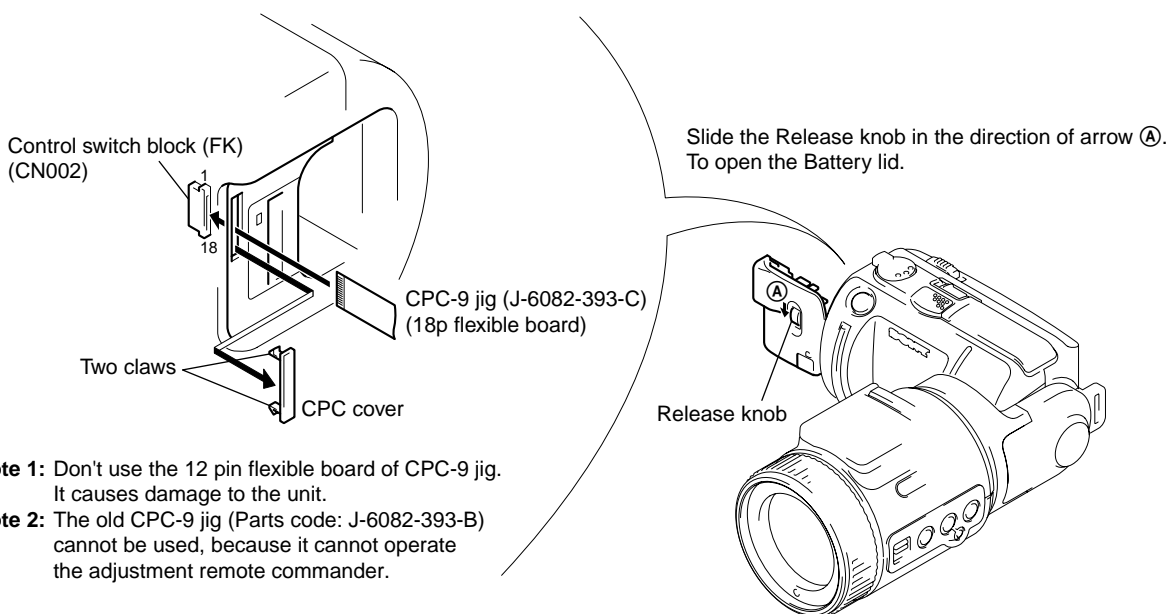
66

SECTION 2 DISASSEMBLY

• This set can be disassembled in the order shown below.

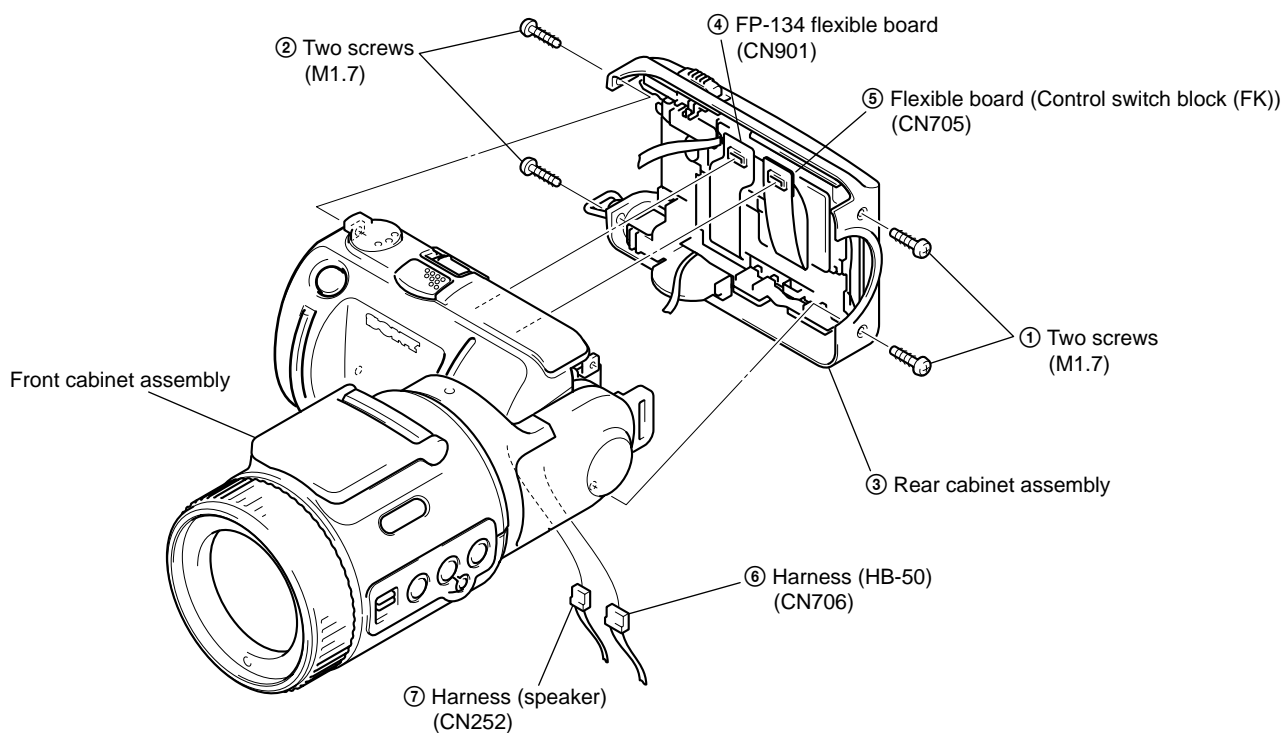


• ATTACHMENT OF CPC-9 JIG

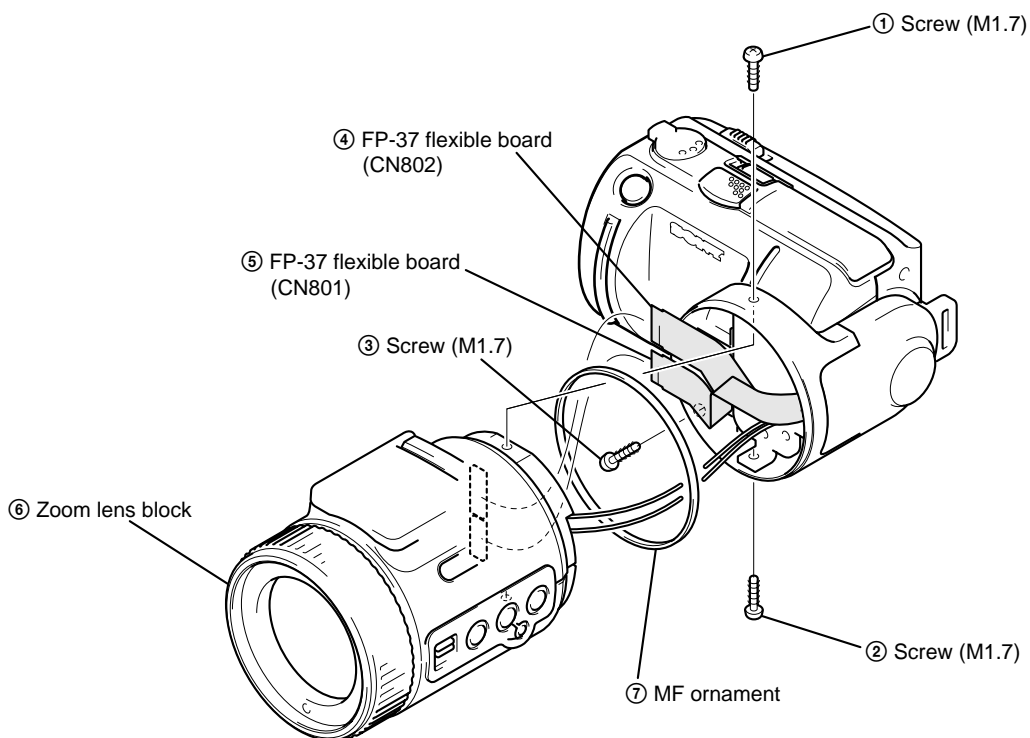


Note: Follow the disassembly procedure in the numerical order given.

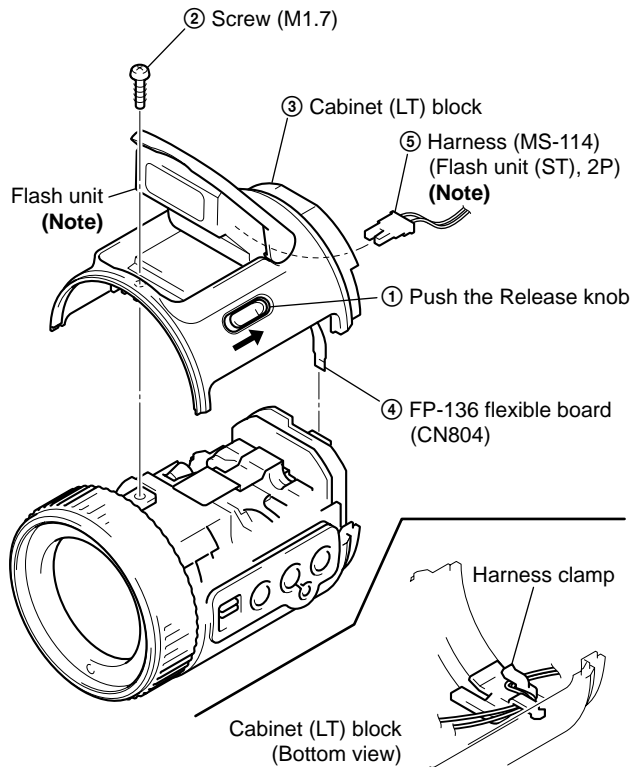
2-1. REAR CABINET BLOCK



2-2. ZOOM LENS BLOCK

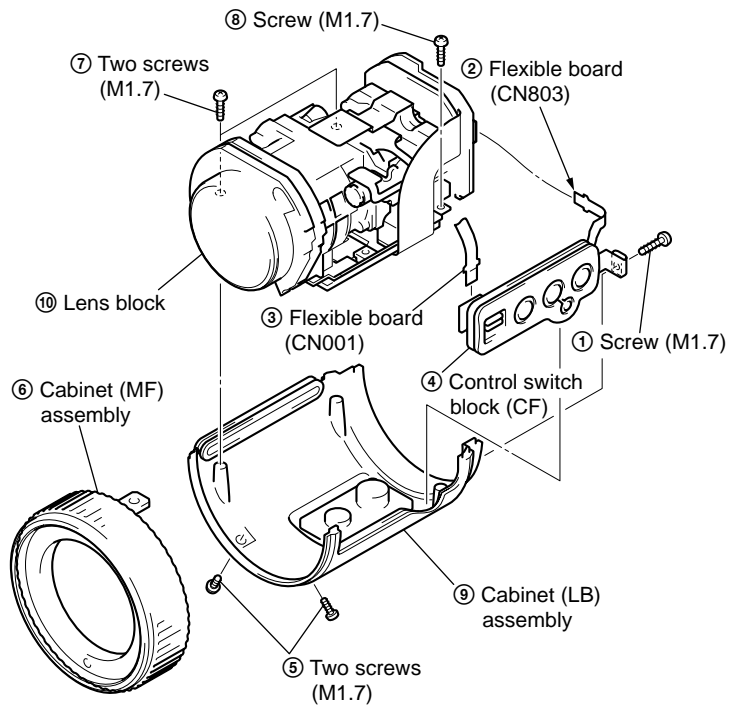


2-3. CABINET (LT) BLOCK

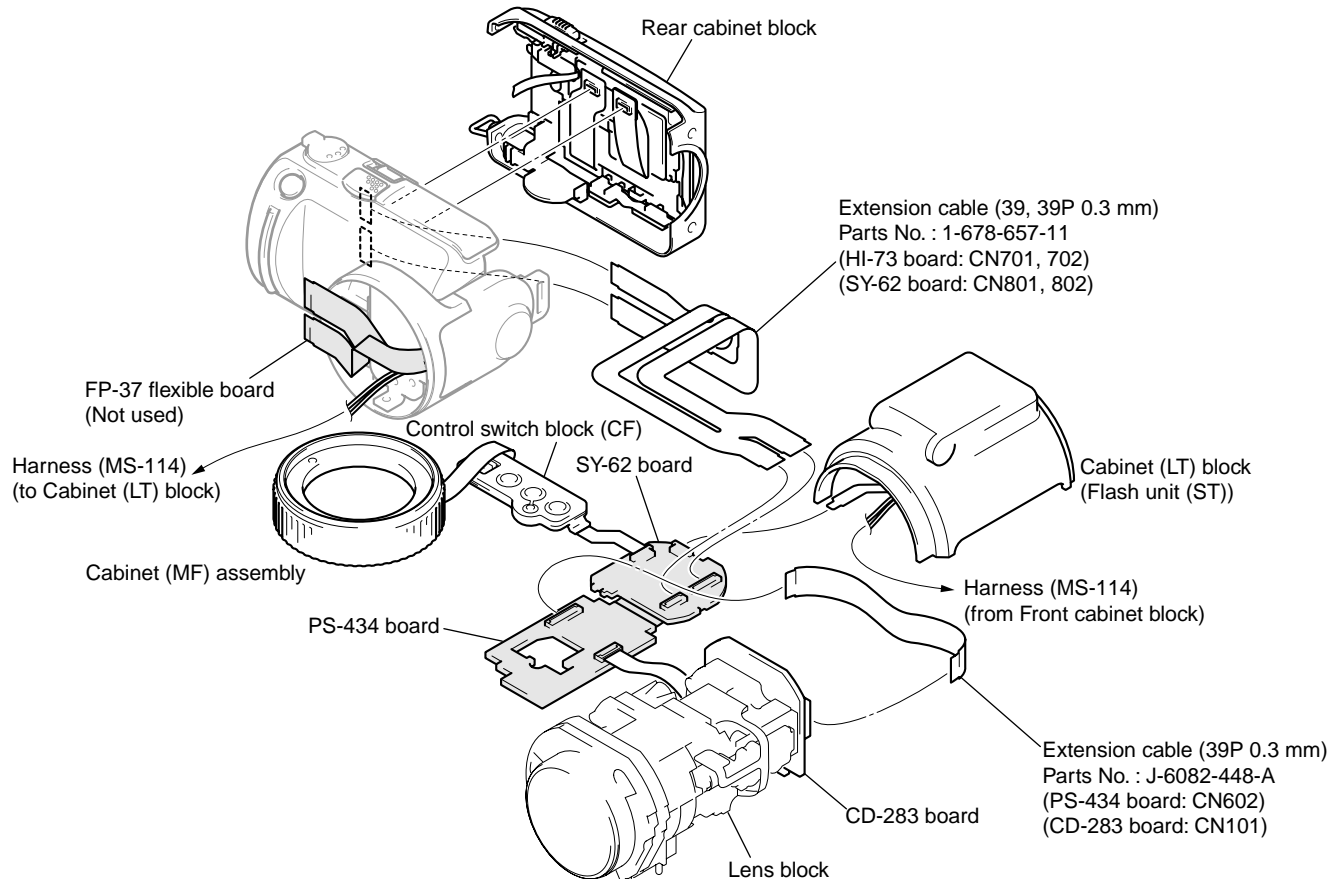


Note: Clamp the cables after attaching the Harness (MS-114). If clamped with the flash unit closed, the flash unit cannot be opened. Be sure to clamp the cable with the flash unit opened.

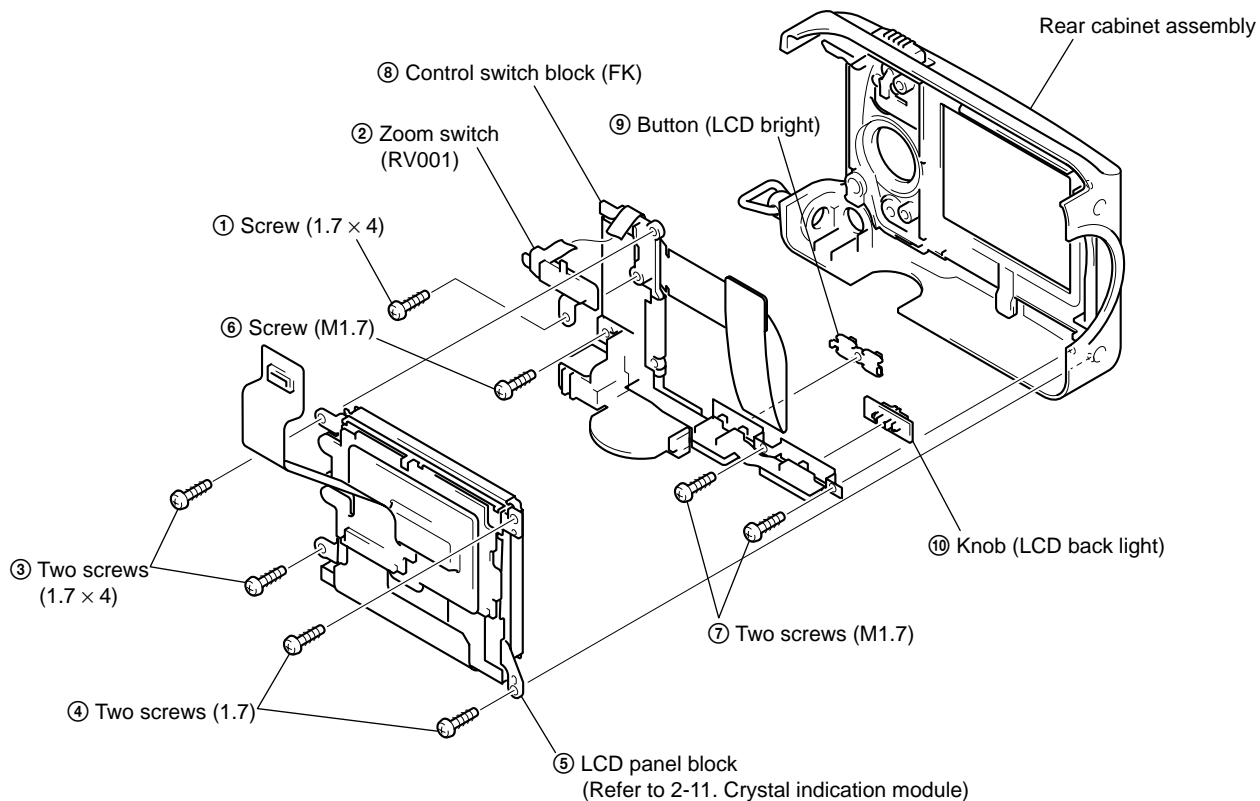
2-4. LENS BLOCK



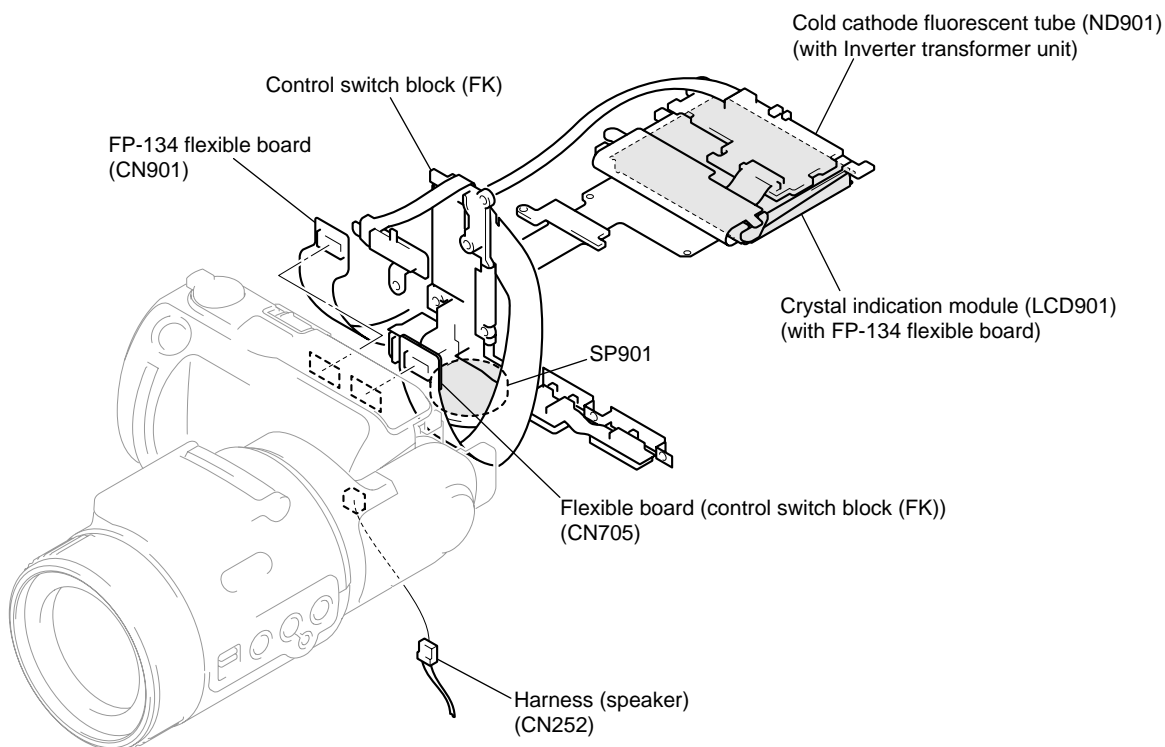
[SERVICE POSITION-1 (LENS BLOCK AREA: CD-283, PS-434, SY-62 BOARDS)]



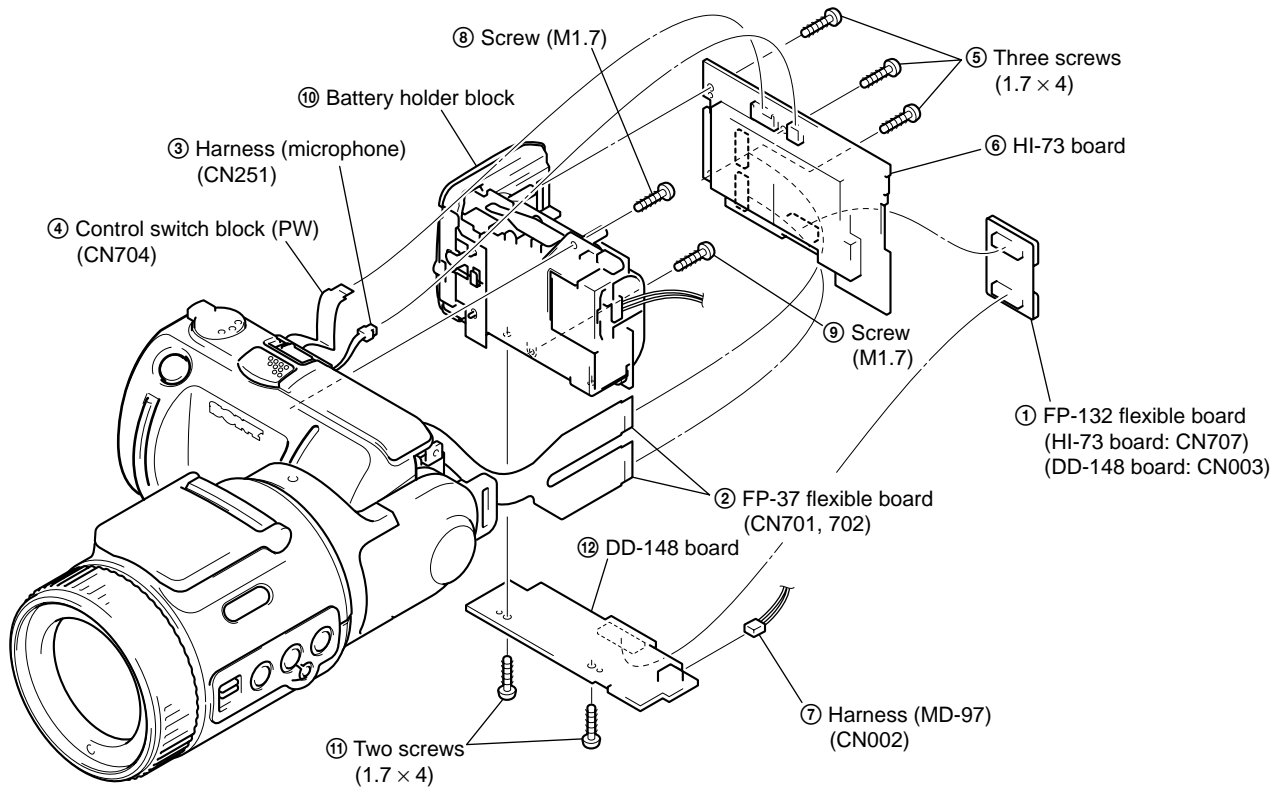
2-5. LCD PANEL BLOCK, CONTROL SWITCH BLOCK (FK)



[SERVICE POSITION-2 (REAR CABINET AREA: LCD PANEL BLOCK, CONTROL SWITCH BLOCK (FK))]

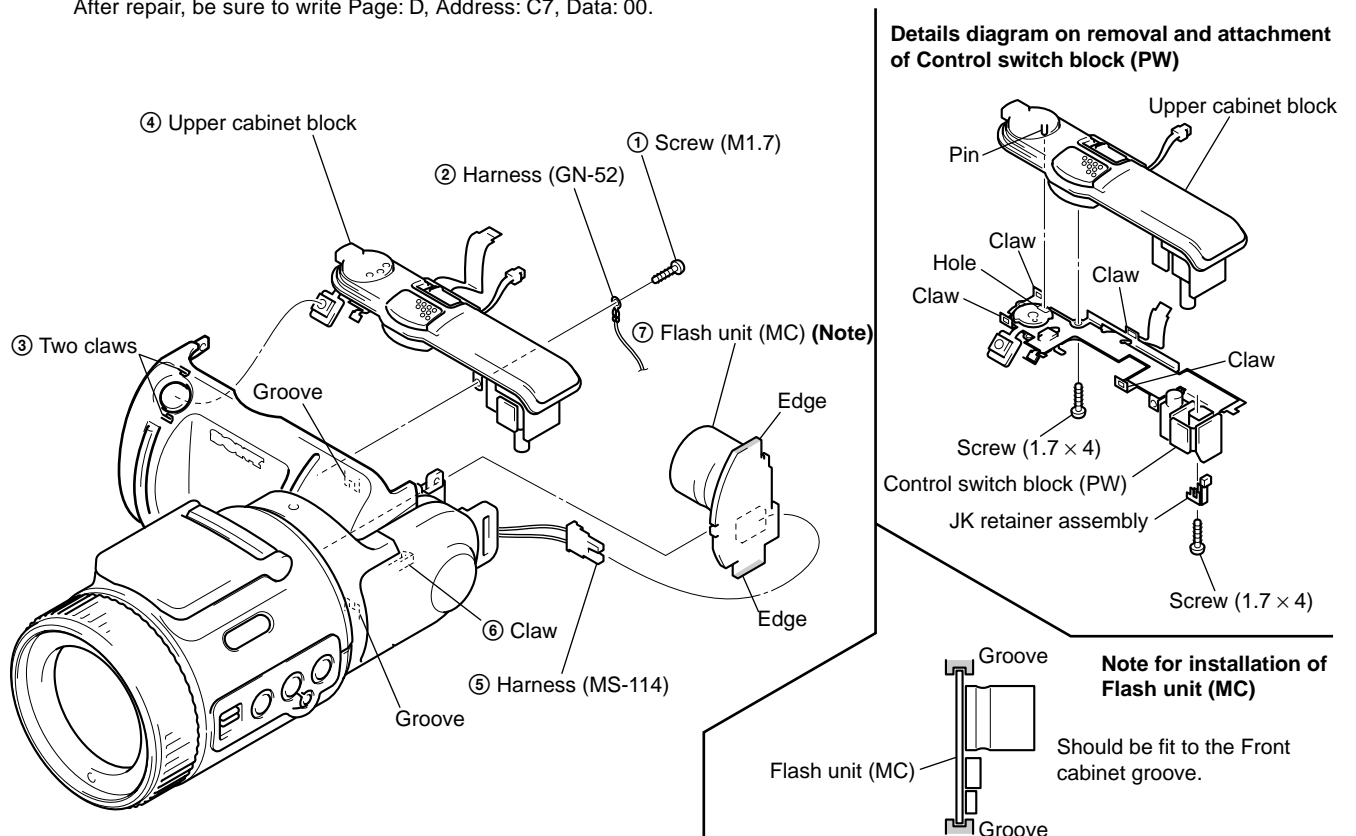


2-6. HI-73, DD-148 BOARDS, BATTERY HOLDER BLOCK

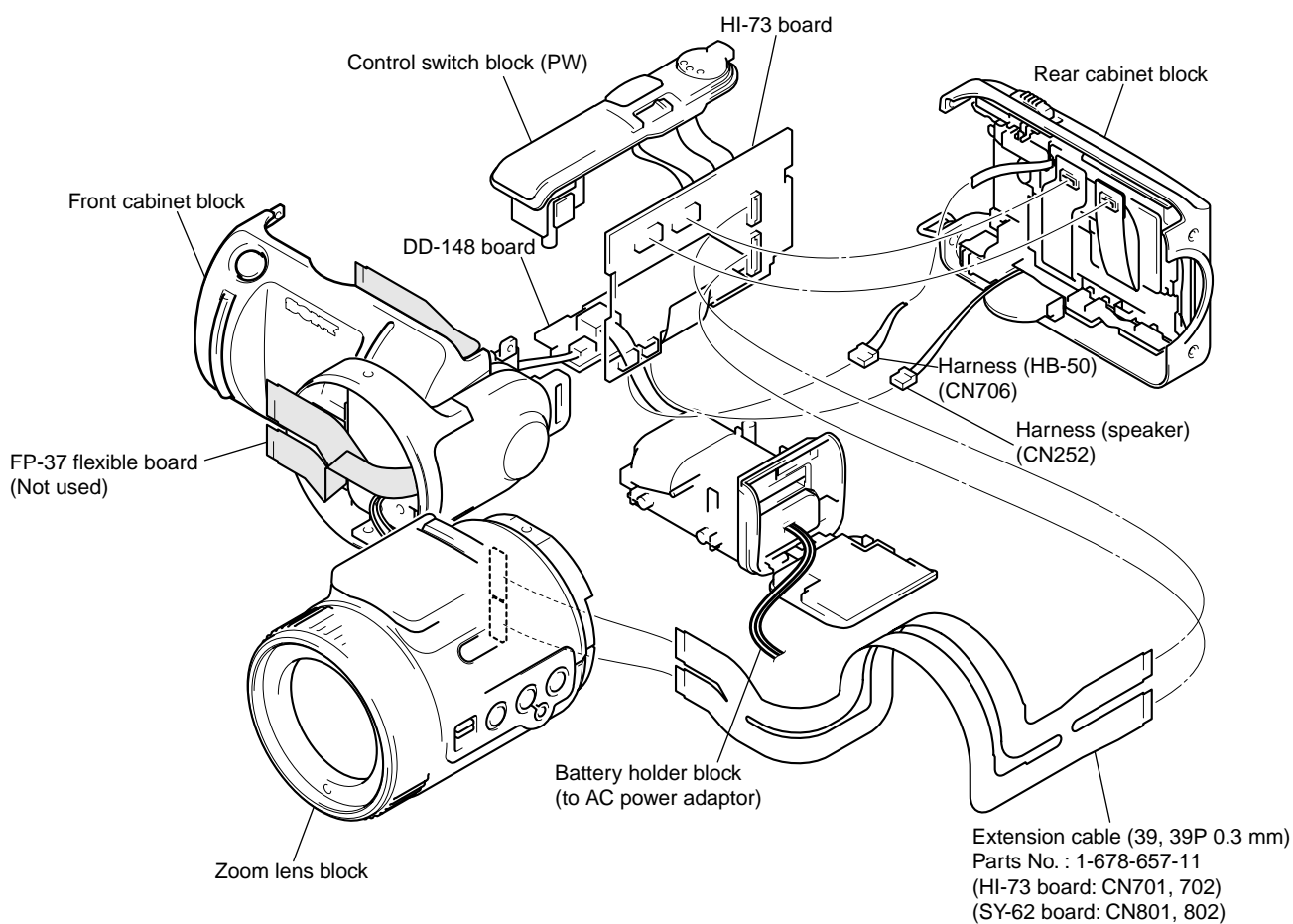


2-7. UPPER CABINET BLOCK, FLASH UNIT (MC)

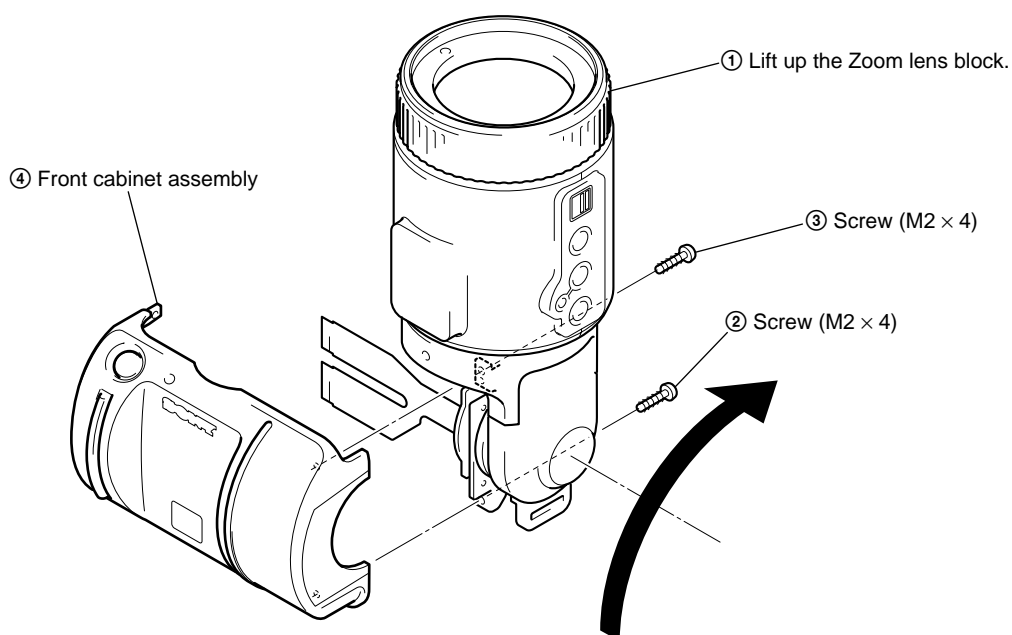
Note: When the flash unit (MC) charging failed, Page: D, Address: 67, Data: 04 are written. After repair, be sure to write Page: D, Address: C7, Data: 00.



[SERVICE POSITION-3 (HI-73, DD-148 BOARDS)]

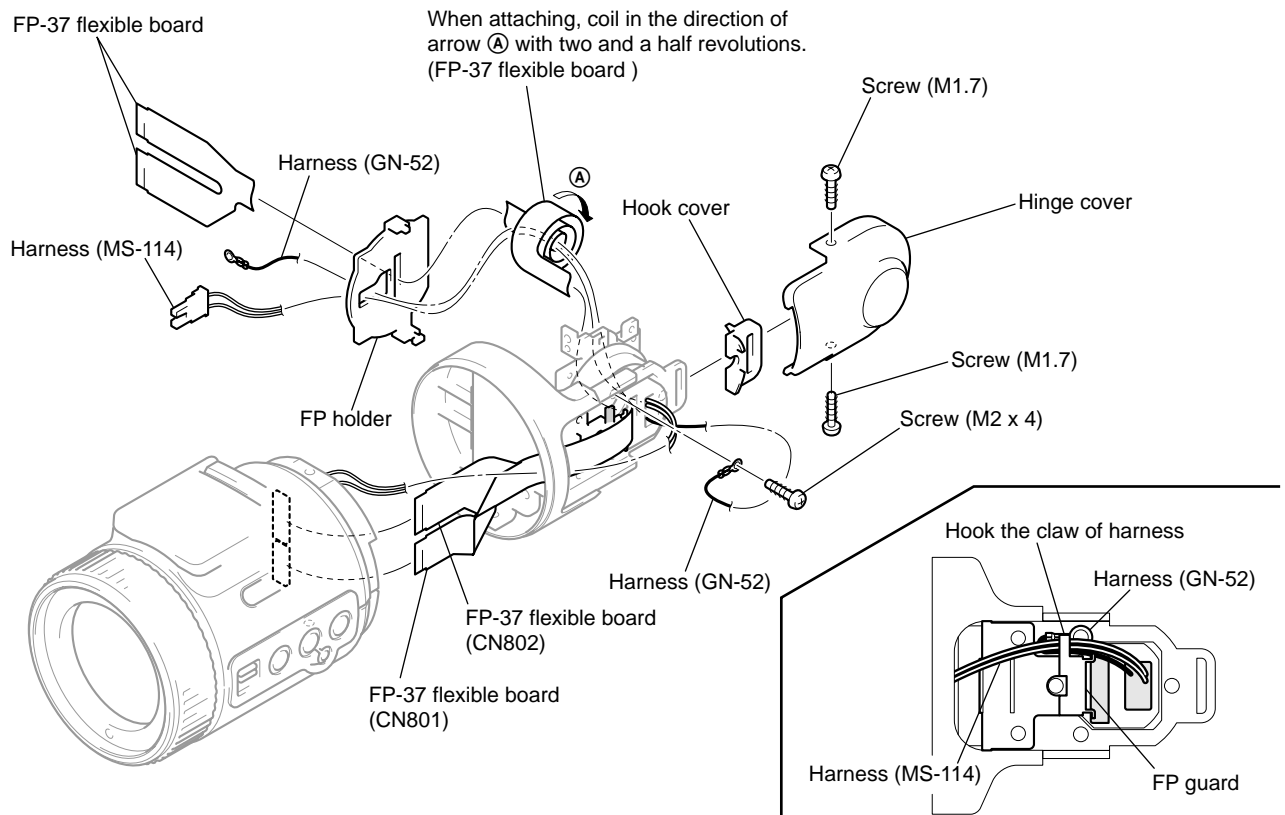


2-8. FRONT CABINET ASSEMBLY

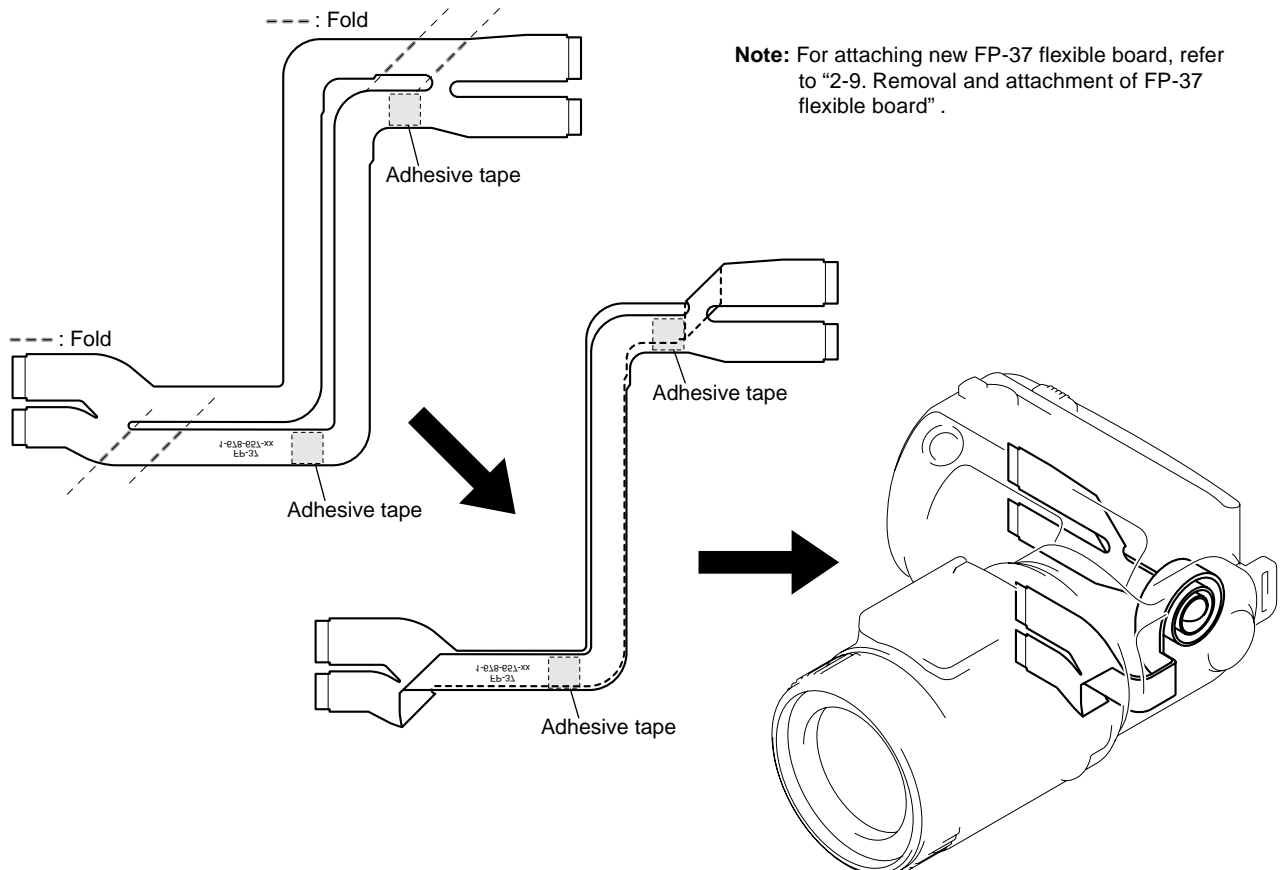


2-9. REMOVAL AND ATTACHMENT OF FP-37 FLEXIBLE BOARD

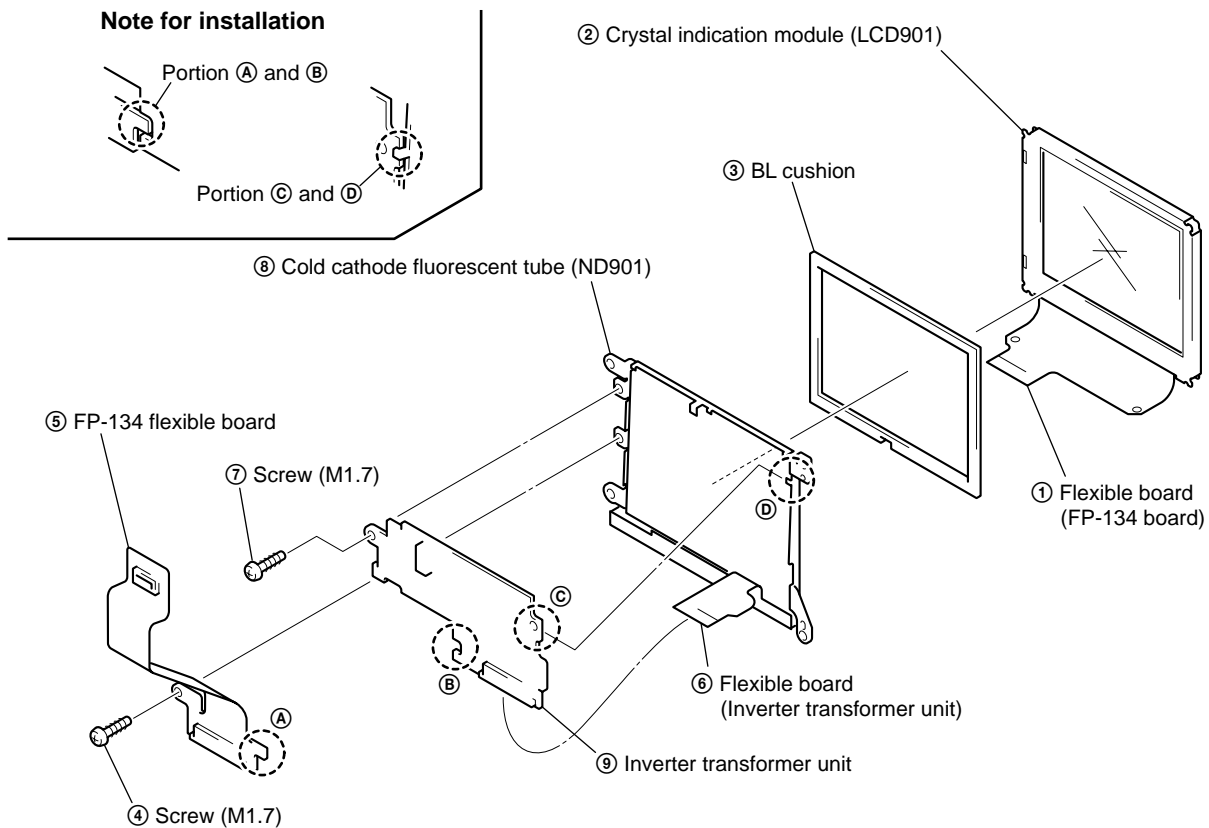
Note: For folding new FP-37 flexible board, refer to "2-10. To fold the new FP-37 flexible board".



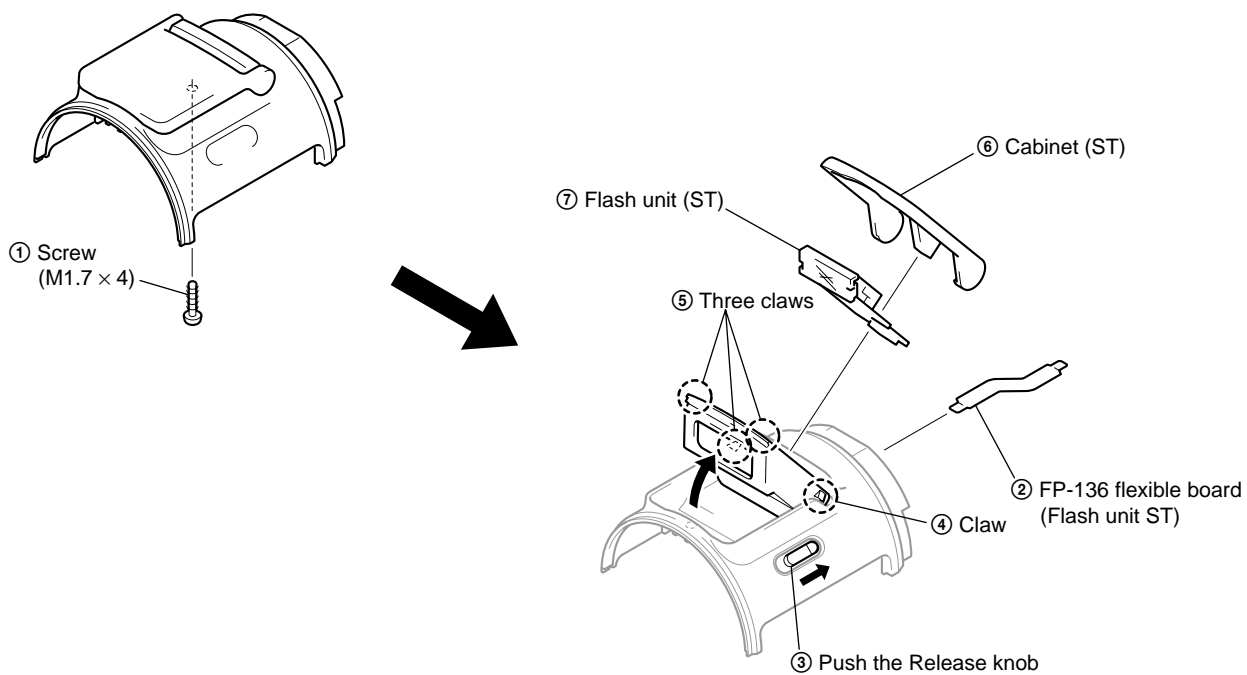
2-10. TO FOLD THE NEW FP-37 FLEXIBLE BOARD



2-11. CRYSTAL INDICATION MODULE



2-12. FLASH UNIT (ST)



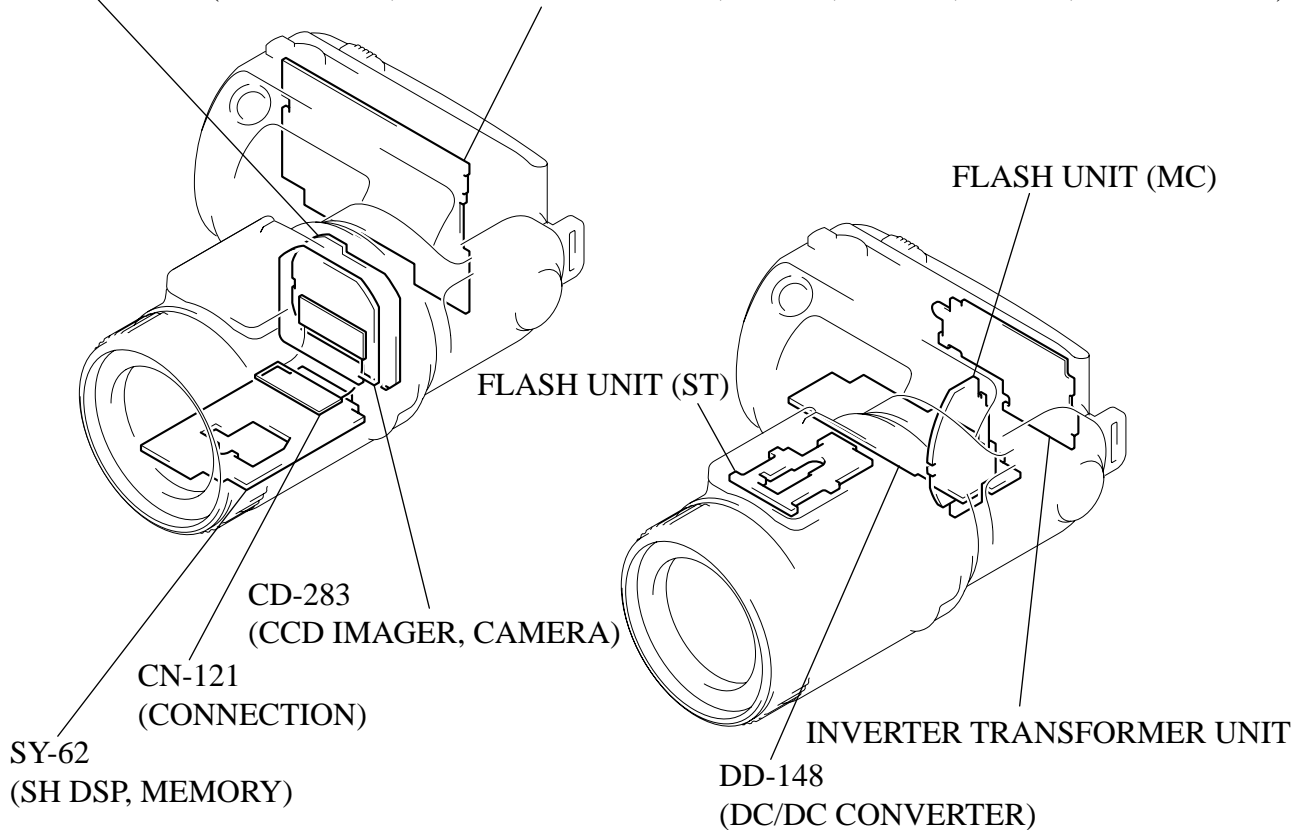
2-13. CIRCUIT BOARDS LOCATION

PS-434

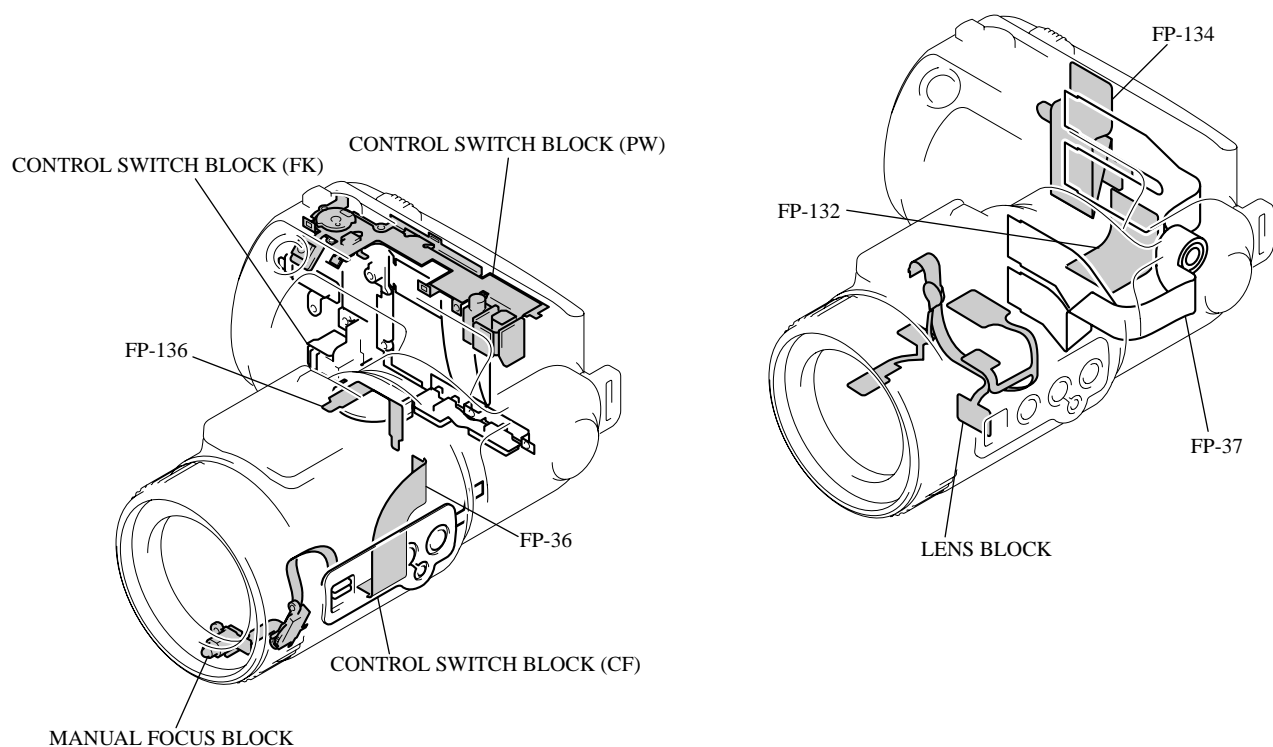
(CAMERA DISPLAY, MEMORY, AUDIO AD/DA CONVERTER, LENS DRIVE)

HI-73

(LCD DRIVE, TIMING GENERATOR, VIDEO, USB I/F, AUDIO, HI CONTROL)

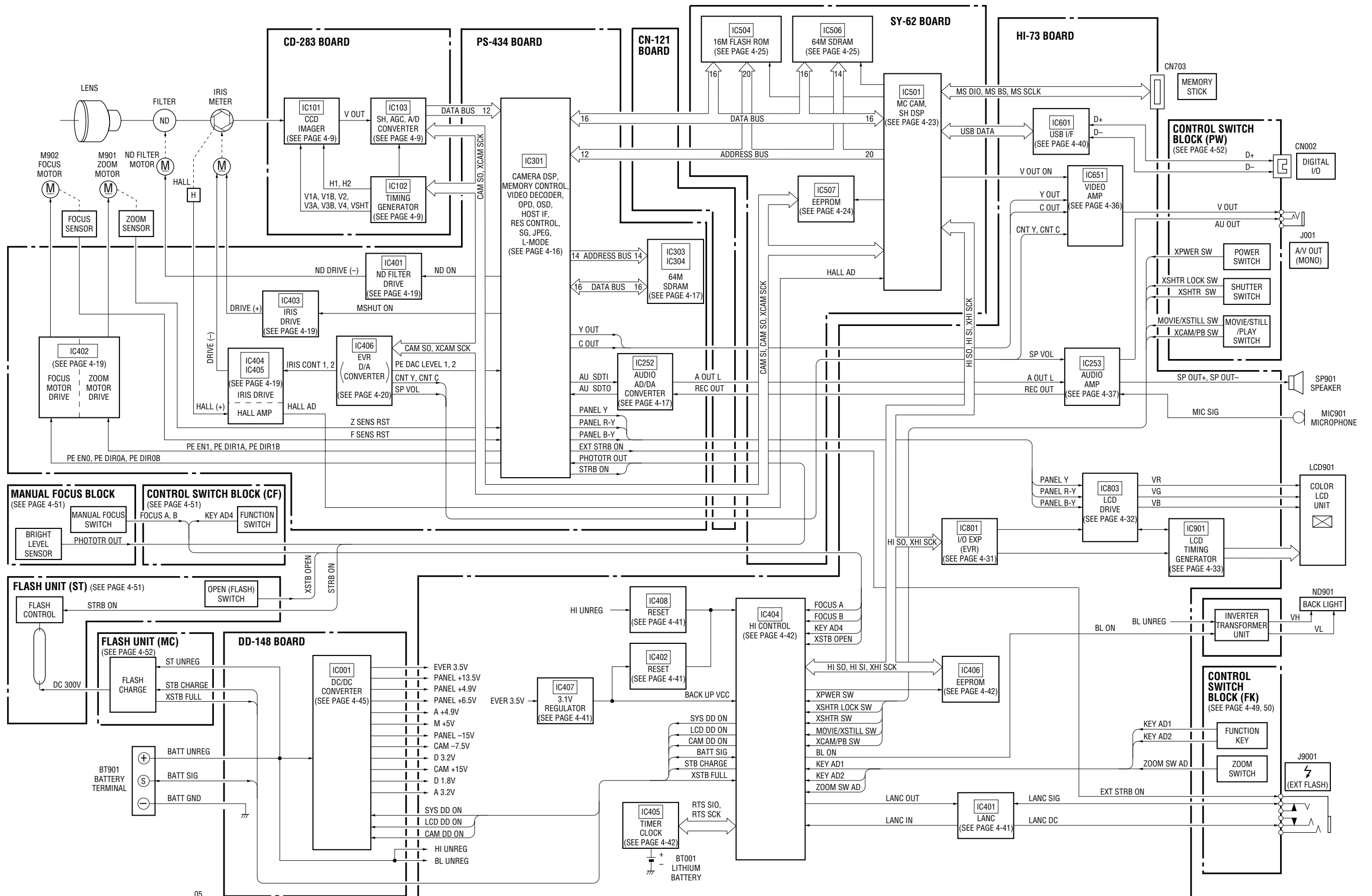


2-14. FLEXIBLE BOARDS LOCATION



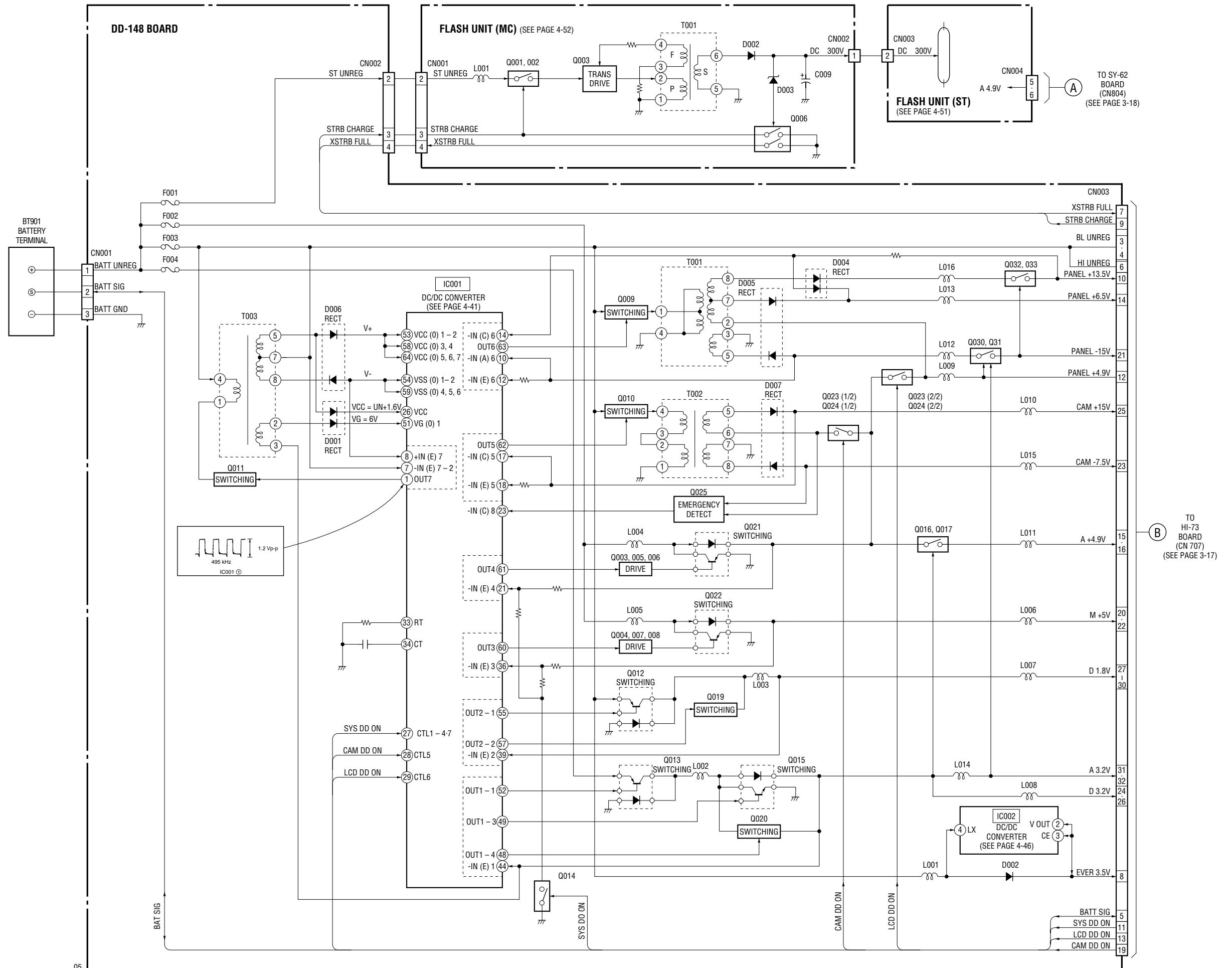
SECTION 3 BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM

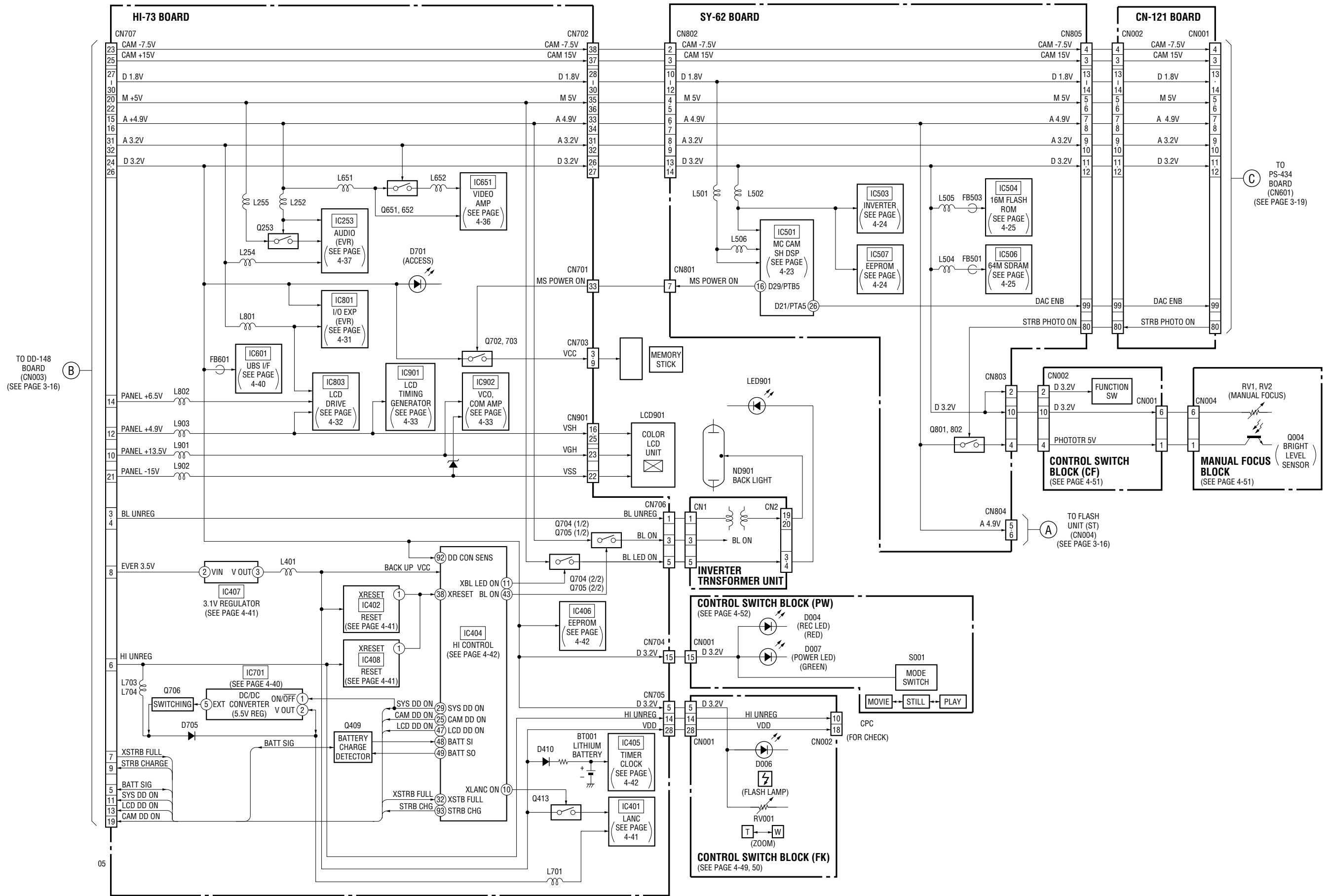


05

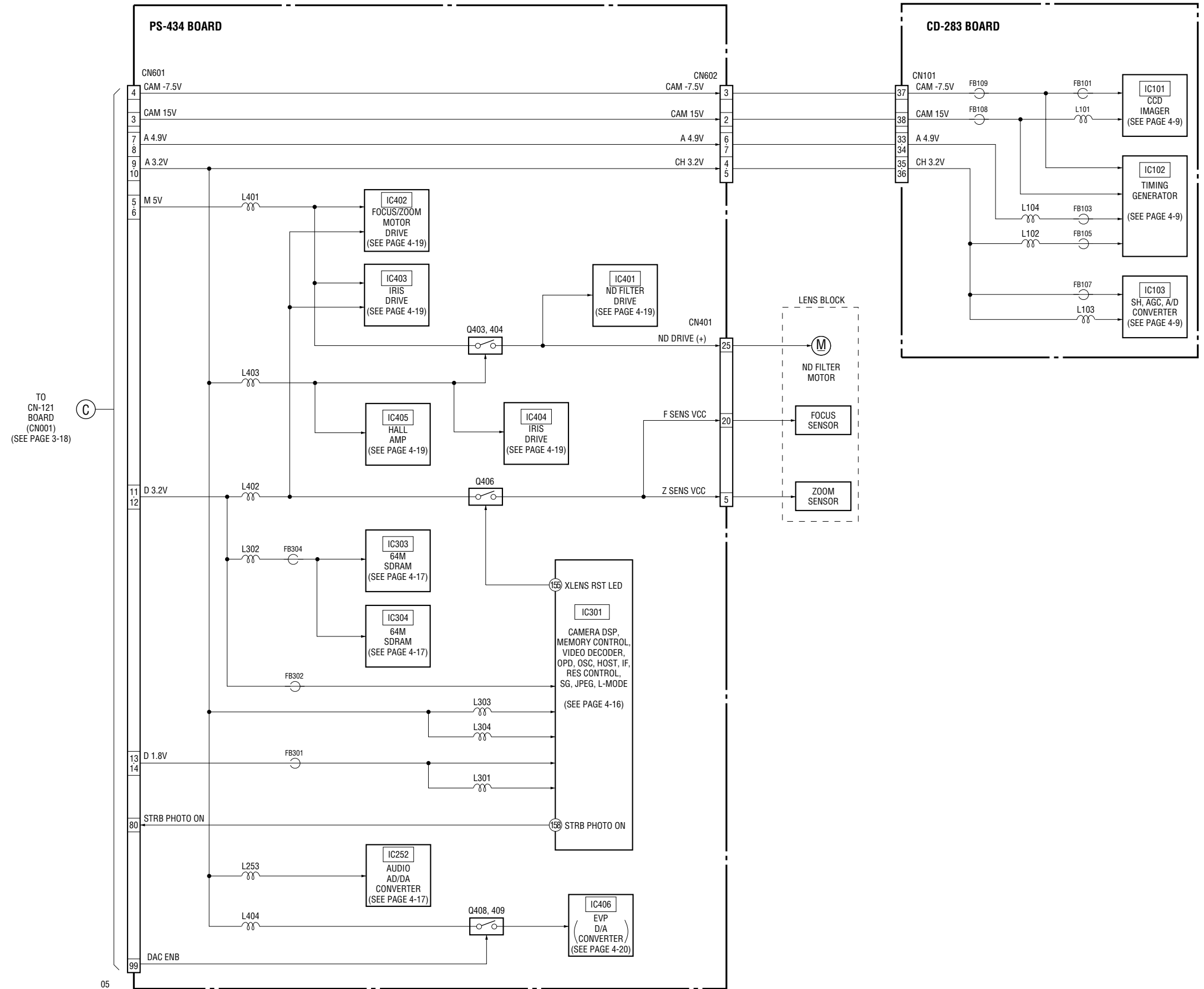
3-8. POWER BLOCK DIAGRAM 1



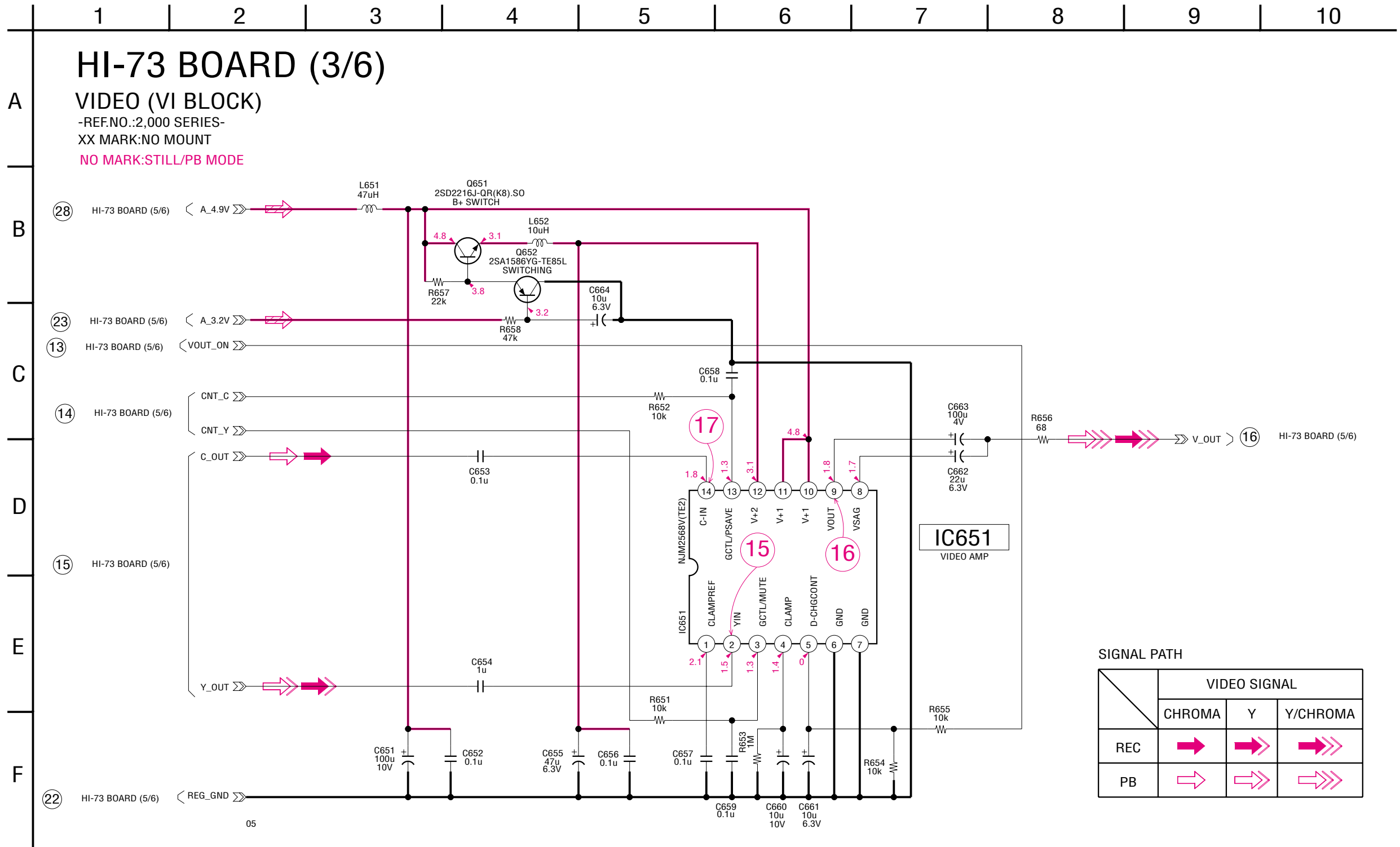
3-9. POWER BLOCK DIAGRAM 2



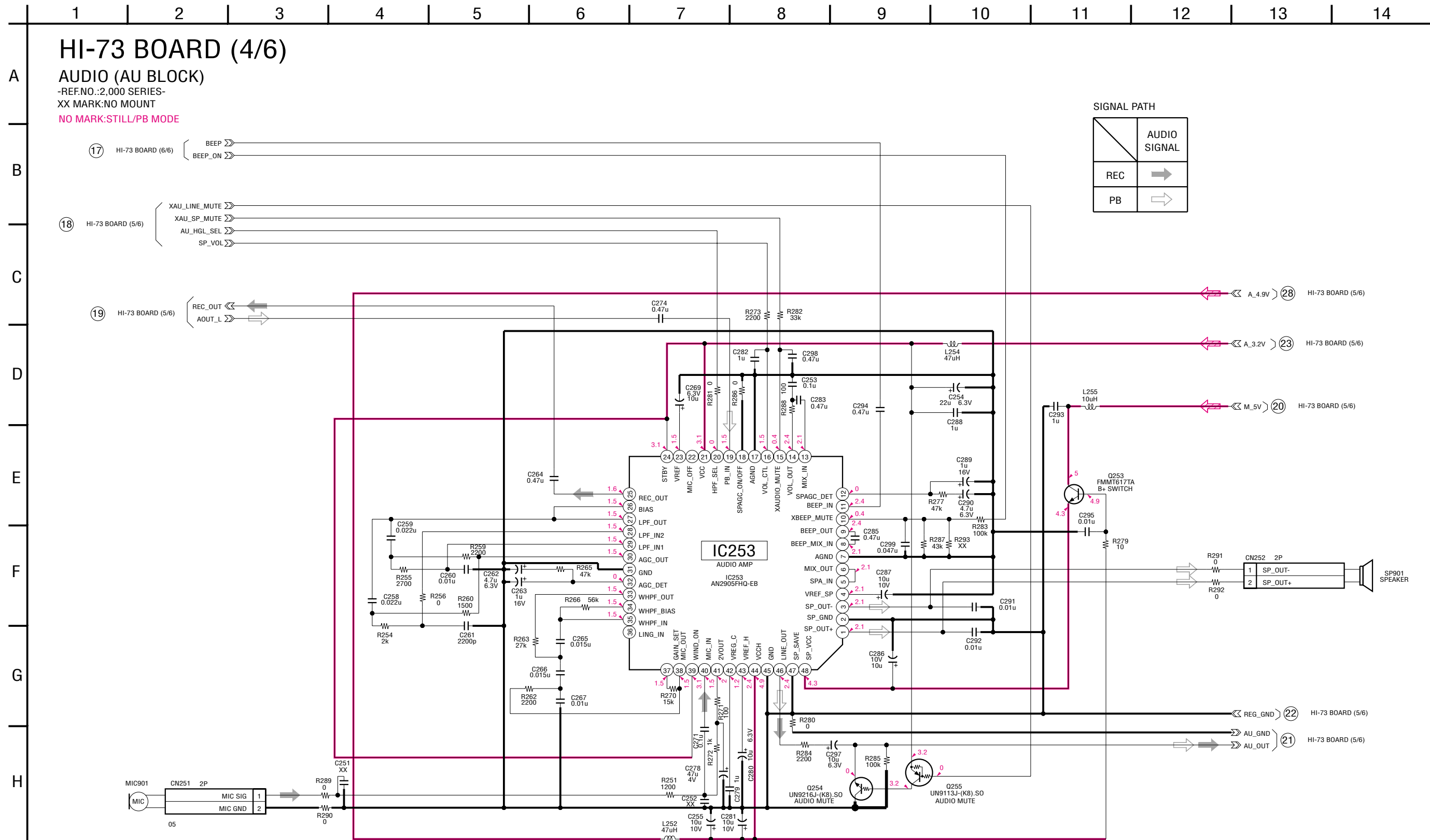
3-10. POWER BLOCK DIAGRAM 3

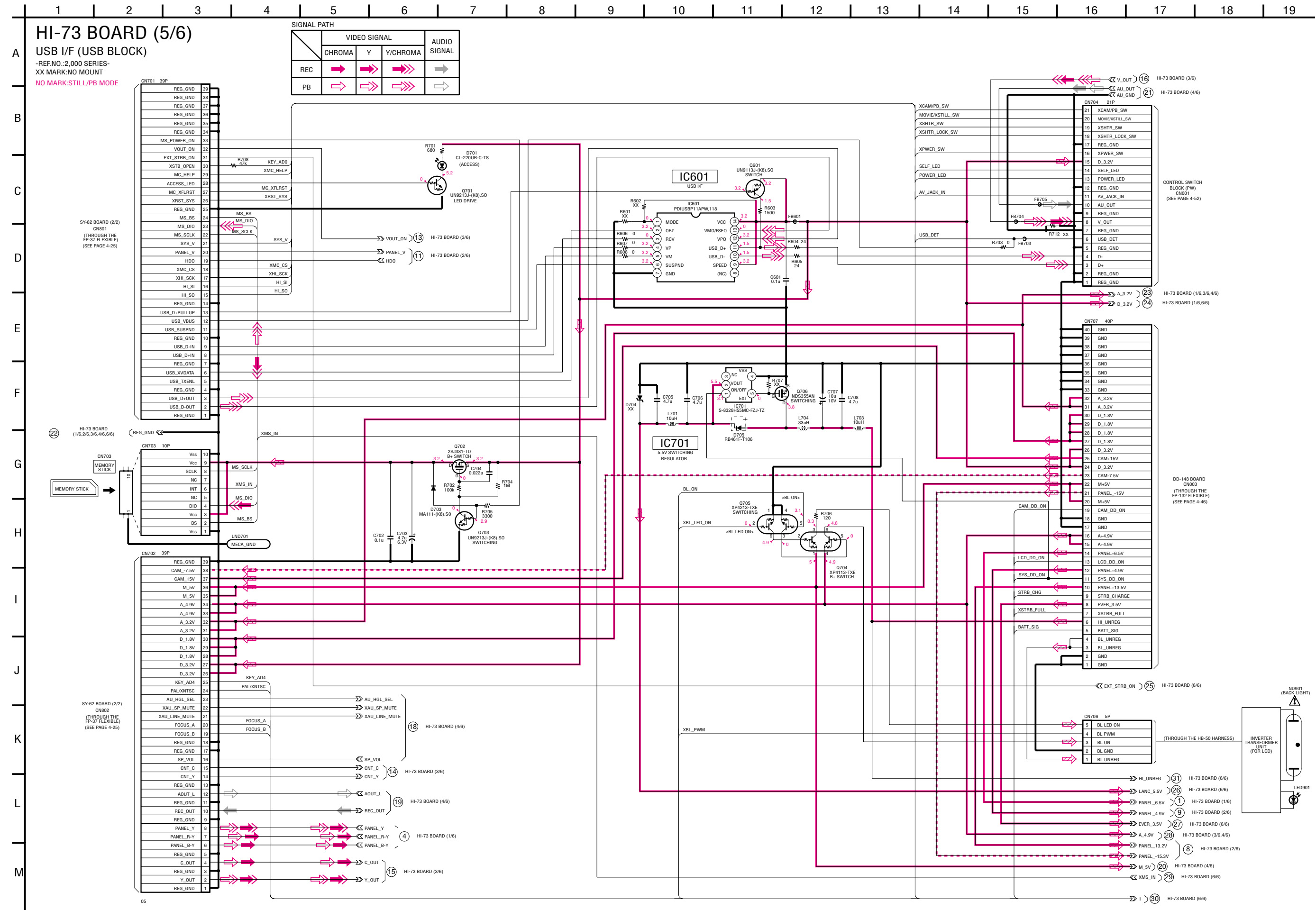


HI-73 (VIDEO) SCHEMATIC DIAGRAM • See page 4-27 for HI-73 printed wiring board. • See page 4-55 for waveforms.



HI-73 (AUDIO) SCHEMATIC DIAGRAM • See page 4-27 for HI-73 printed wiring board.

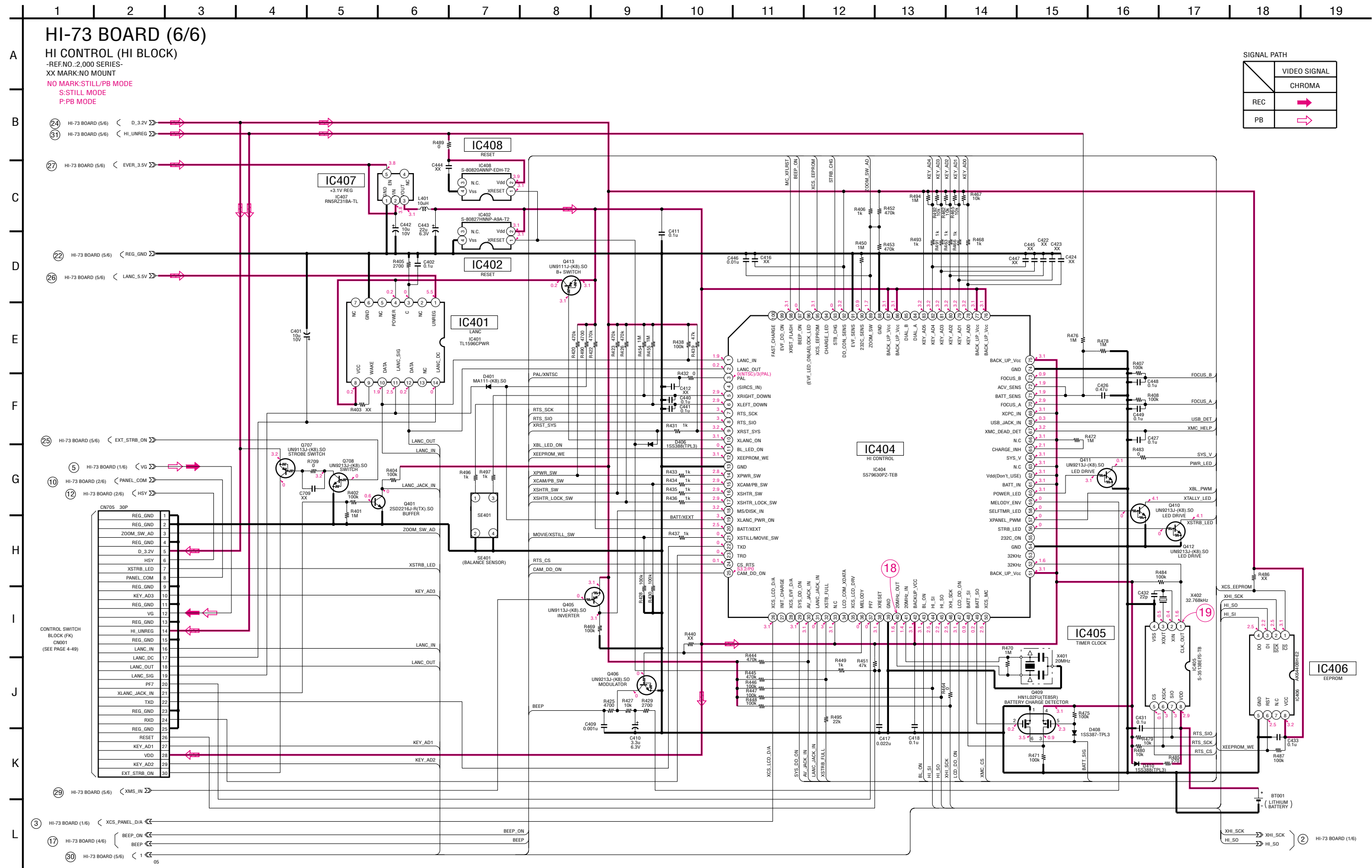




The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

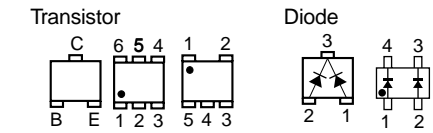
HI-73 (HI CONTROL) SCHEMATIC DIAGRAM • See page 4-27 for HI-73 printed wiring board. • See page 4-55 for waveforms.



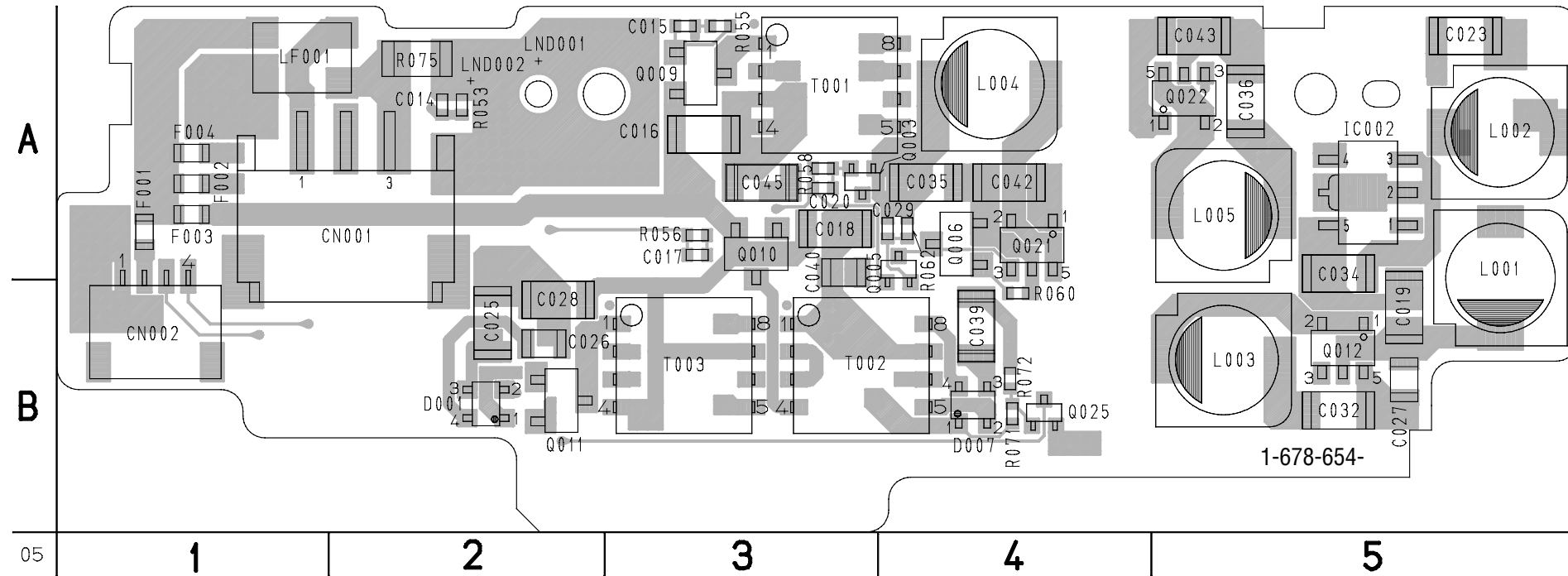
DD-148 (DC/DC CONVERTER) PRINTED WIRING BOARD

– Ref. No.: DD-148 board; 2,000 series –

- For Printed Wiring Board.
- DD-148 board is six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- There are few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-59 for printed parts location.
- Chip parts

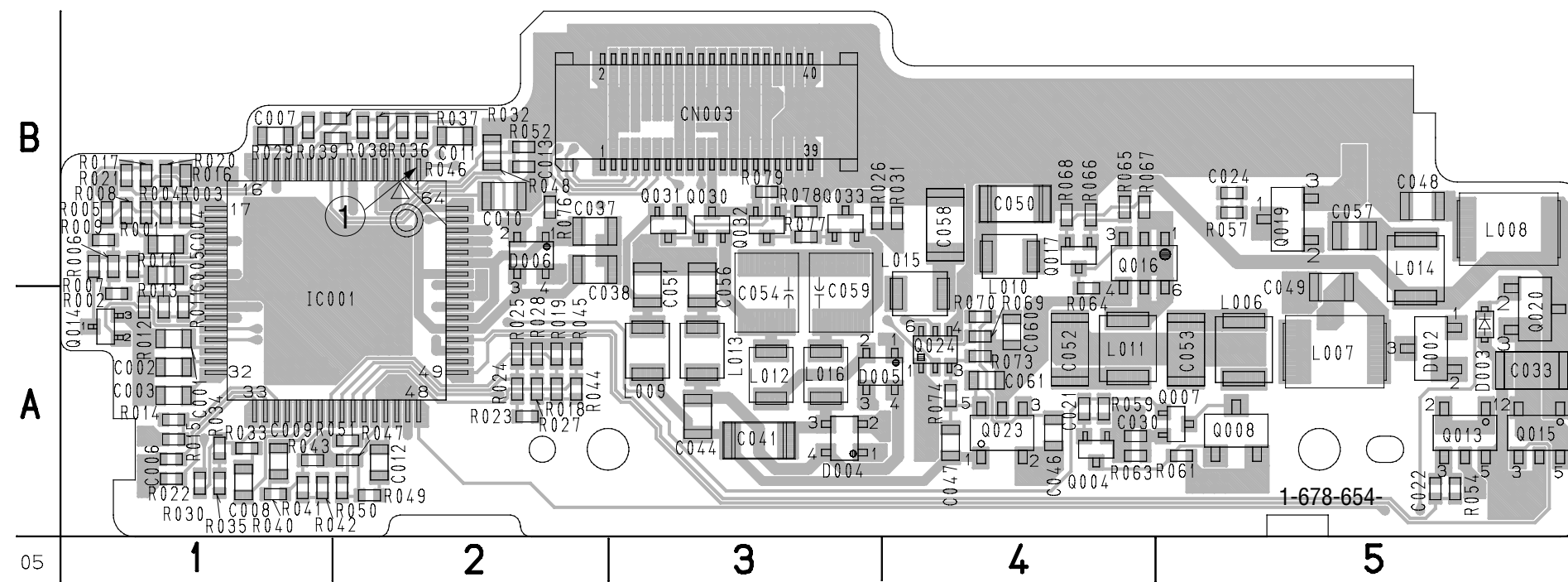


DD-148 BOARD (SIDE A)



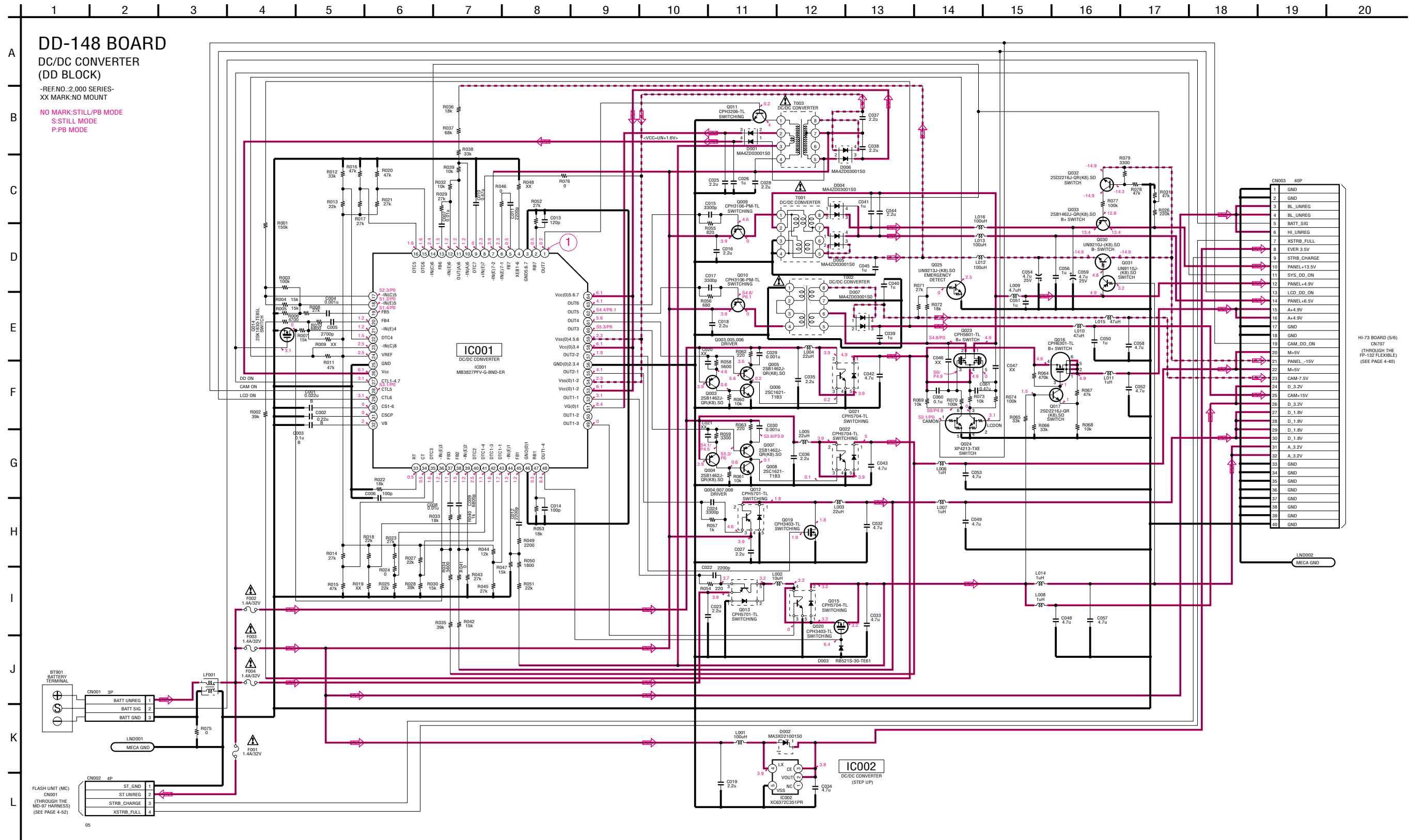
11

DD-148 BOARD (SIDE B)



11

DD-148 (DC/DC CONVERTER) SCHEMATIC DIAGRAM • See page 4-56 for waveform.



H-73 BOARD (5/6)
 CN707
 (THROUGH THE
 FP-152 FLEXIBLE)
 (SEE PAGE 4-40)

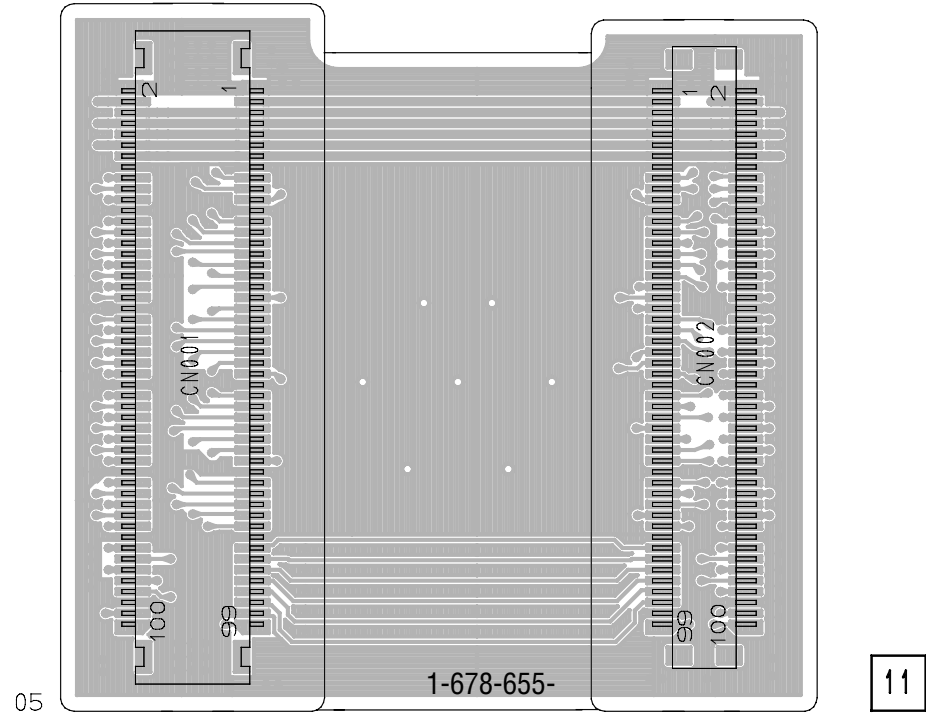
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

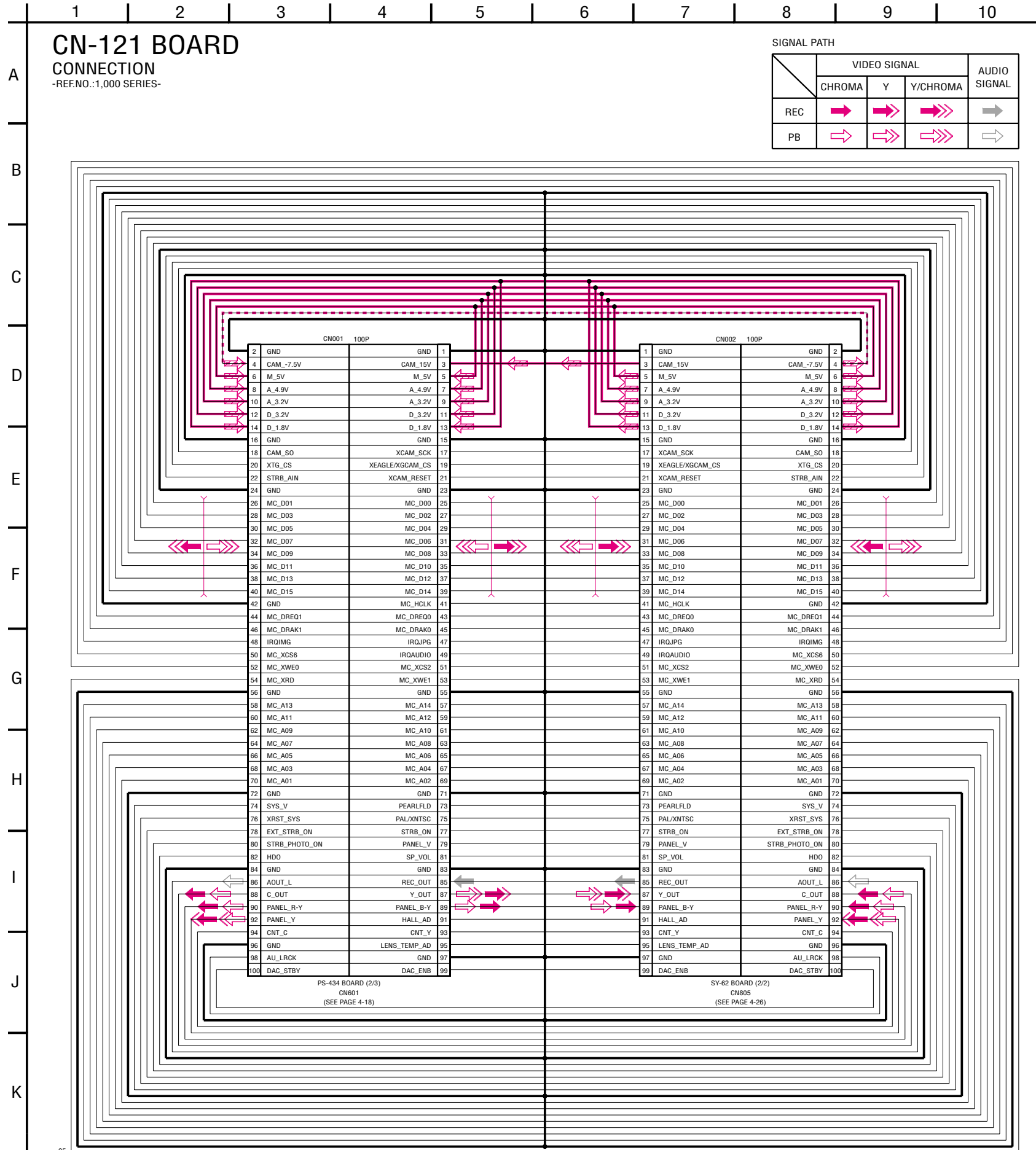
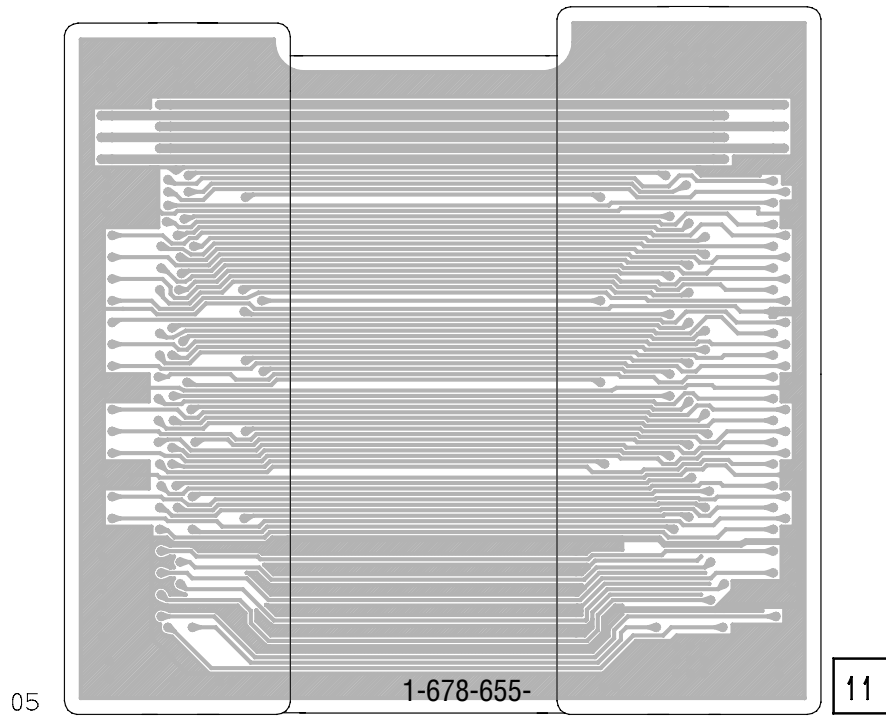
CN-121 (CONNECTION) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

- Ref. No.: CN-121 board; 1,000 series -

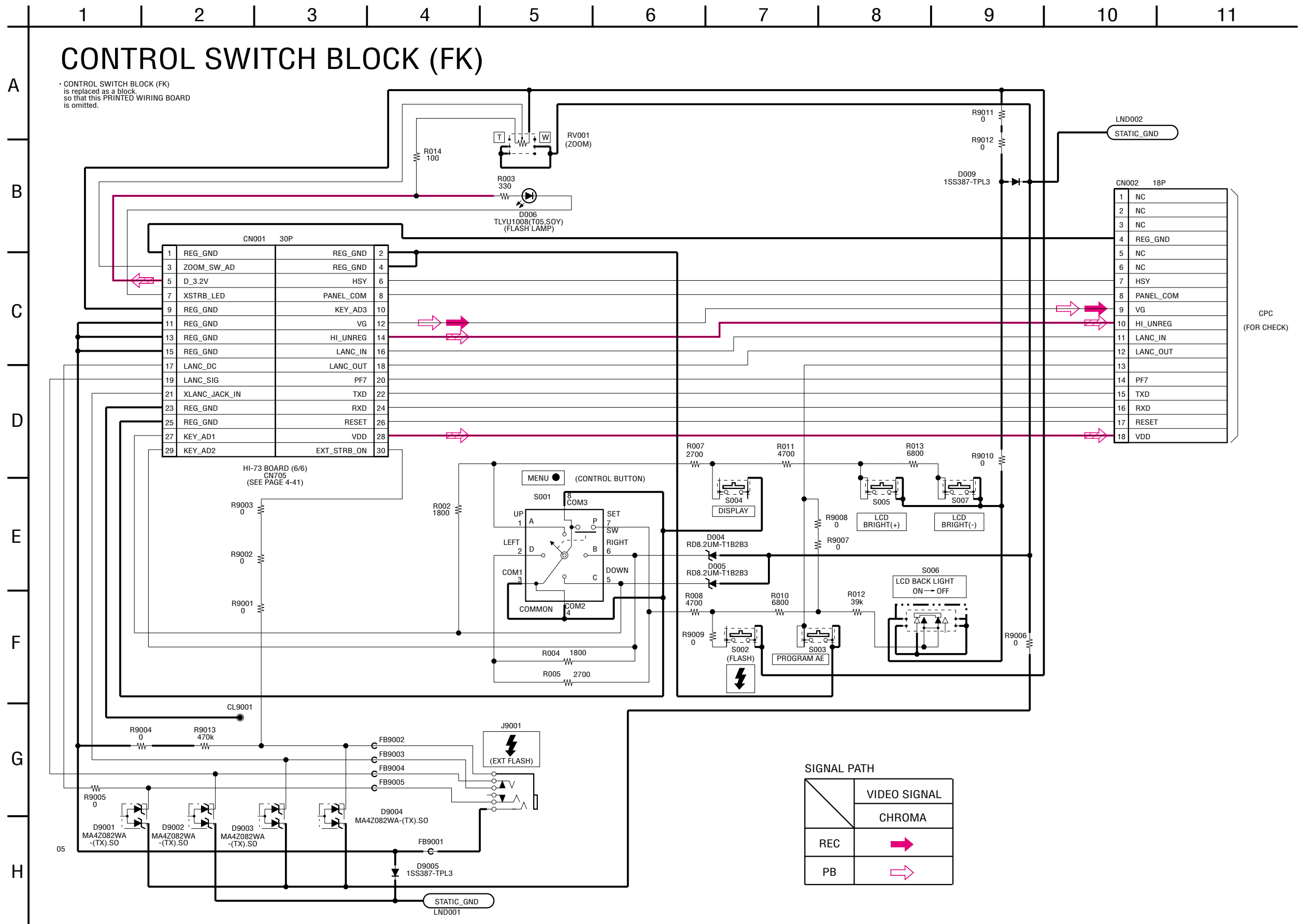
CN-121 BOARD (SIDE A)



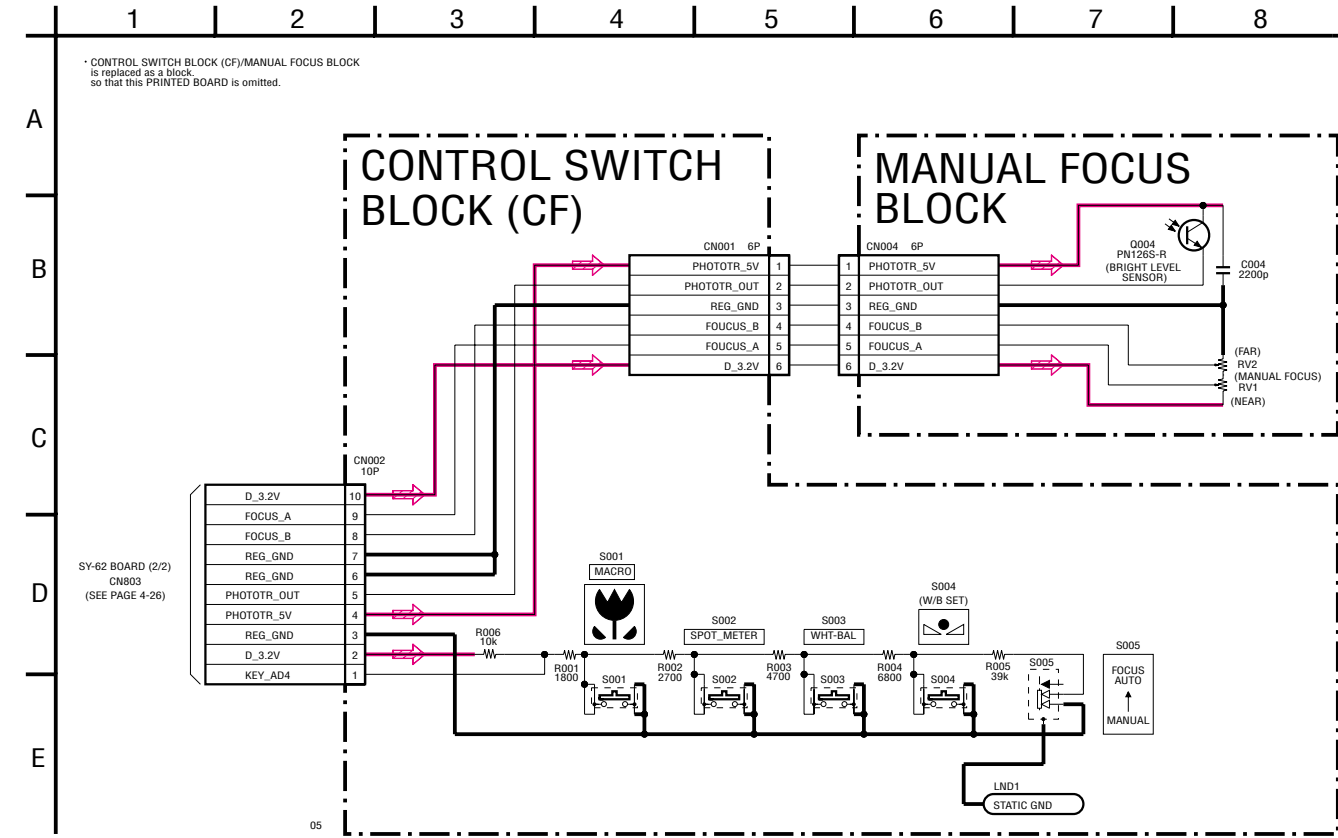
CN-121 BOARD (SIDE B)



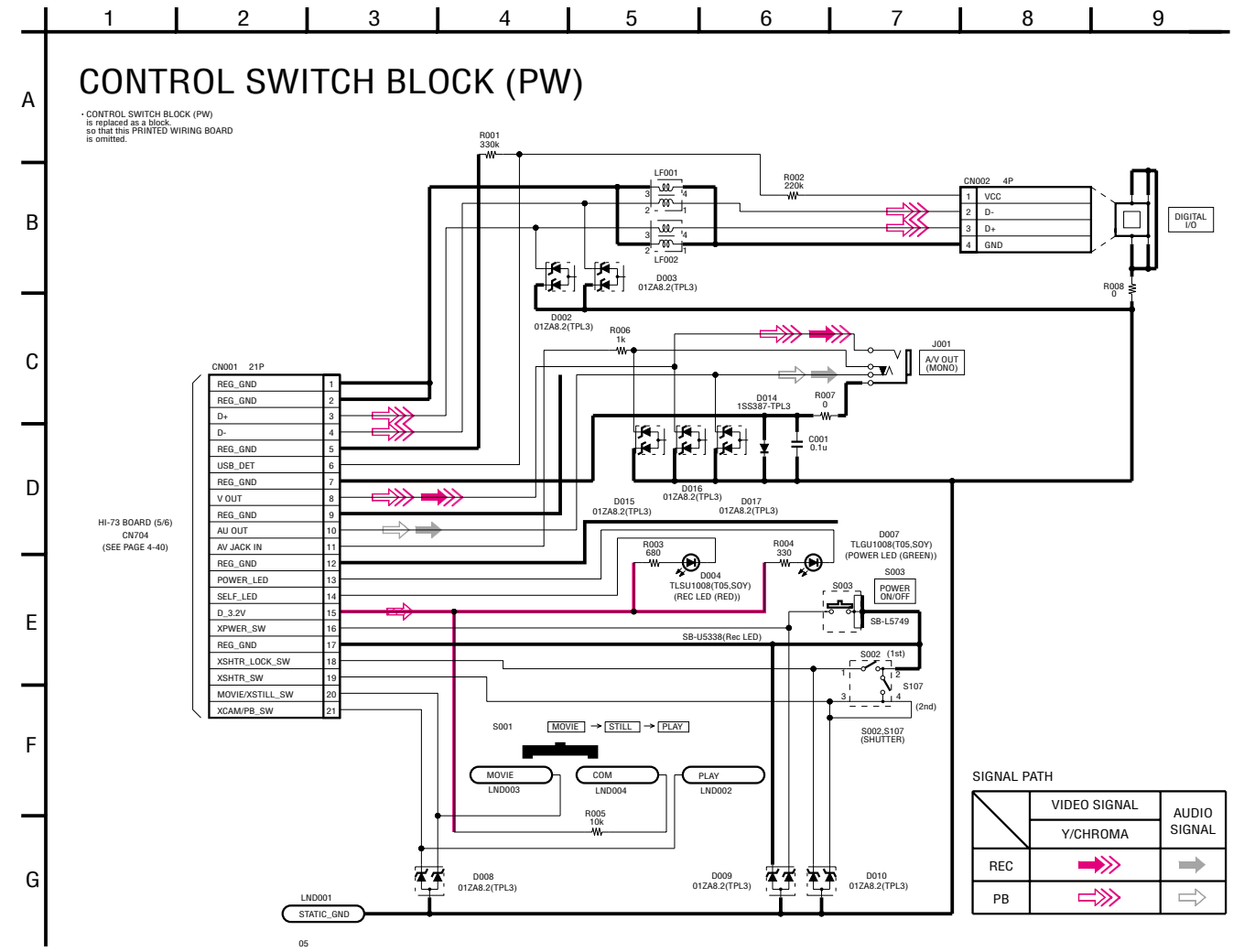
FK (CONTROL SWITCH BLOCK) SCHEMATIC DIAGRAM



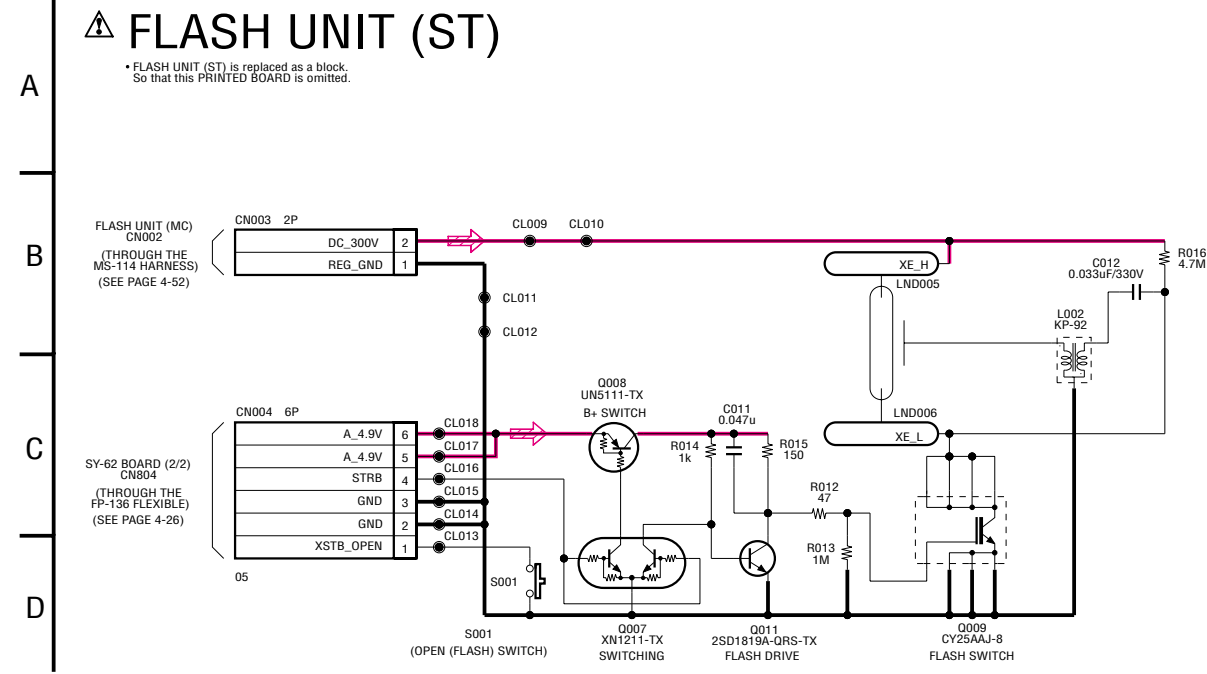
CF (CONTROL SWITCH BLOCK)/MANUAL FOCUS BLOCK, ST (FLASH UNIT) SCHEMATIC DIAGRAMS



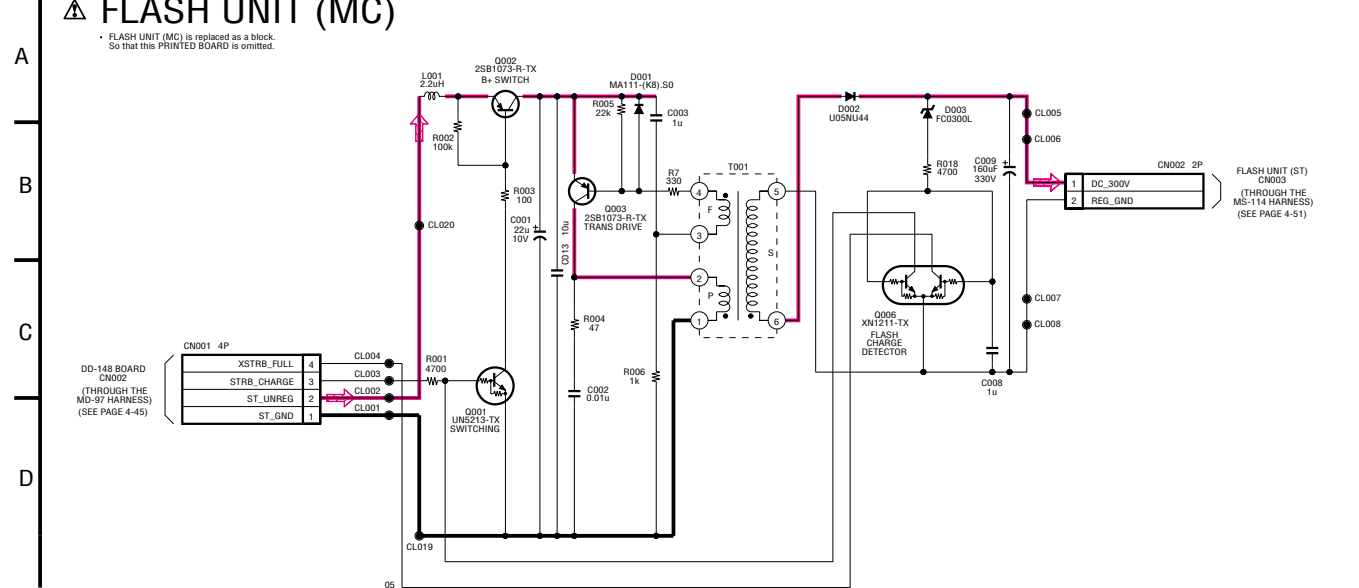
PW (CONTROL SWITCH BLOCK), MC (FLASH UNIT) SCHEMATIC DIAGRAMS



FLASH UNIT (ST)



FLASH UNIT (MC)

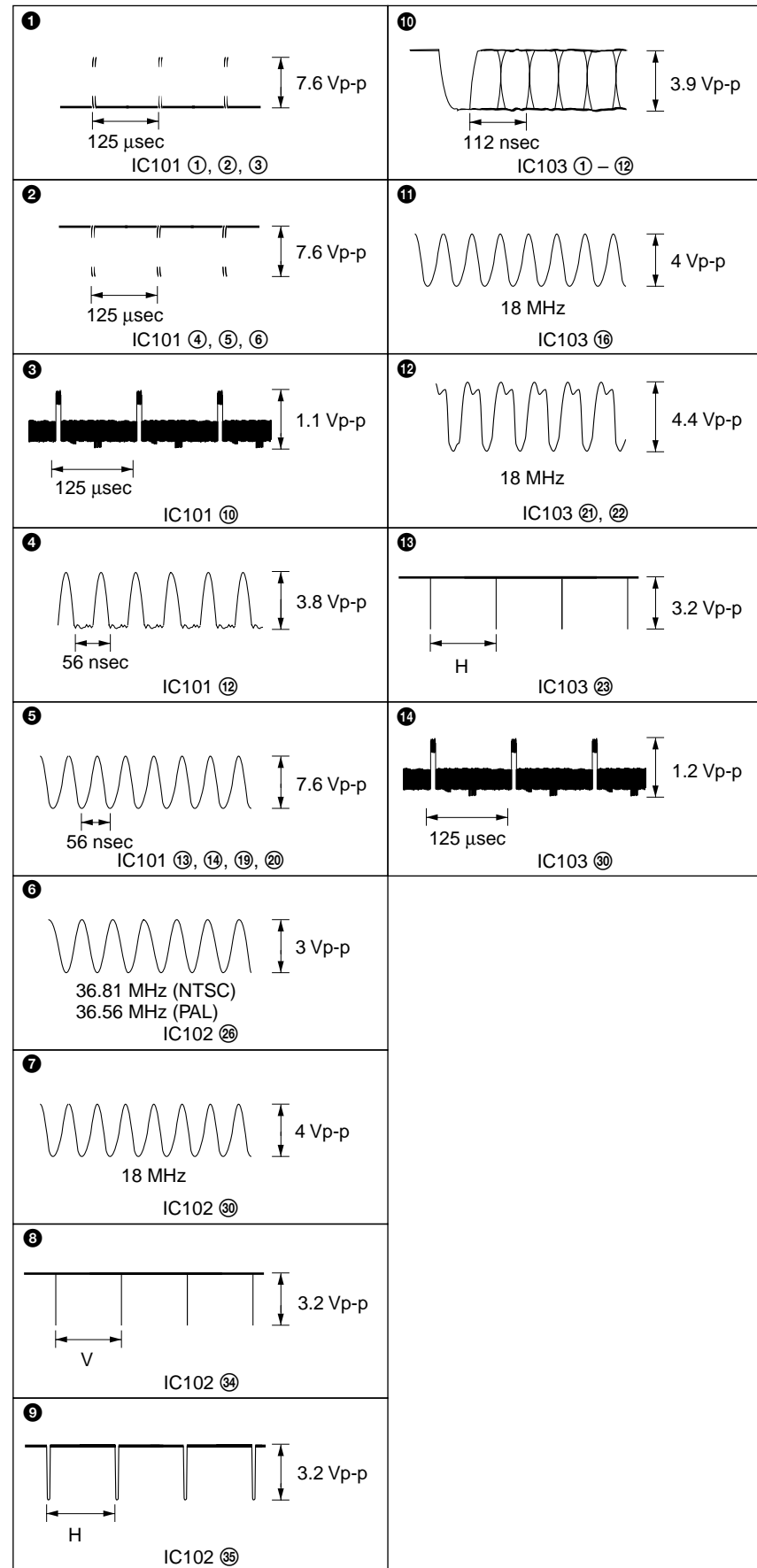


The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

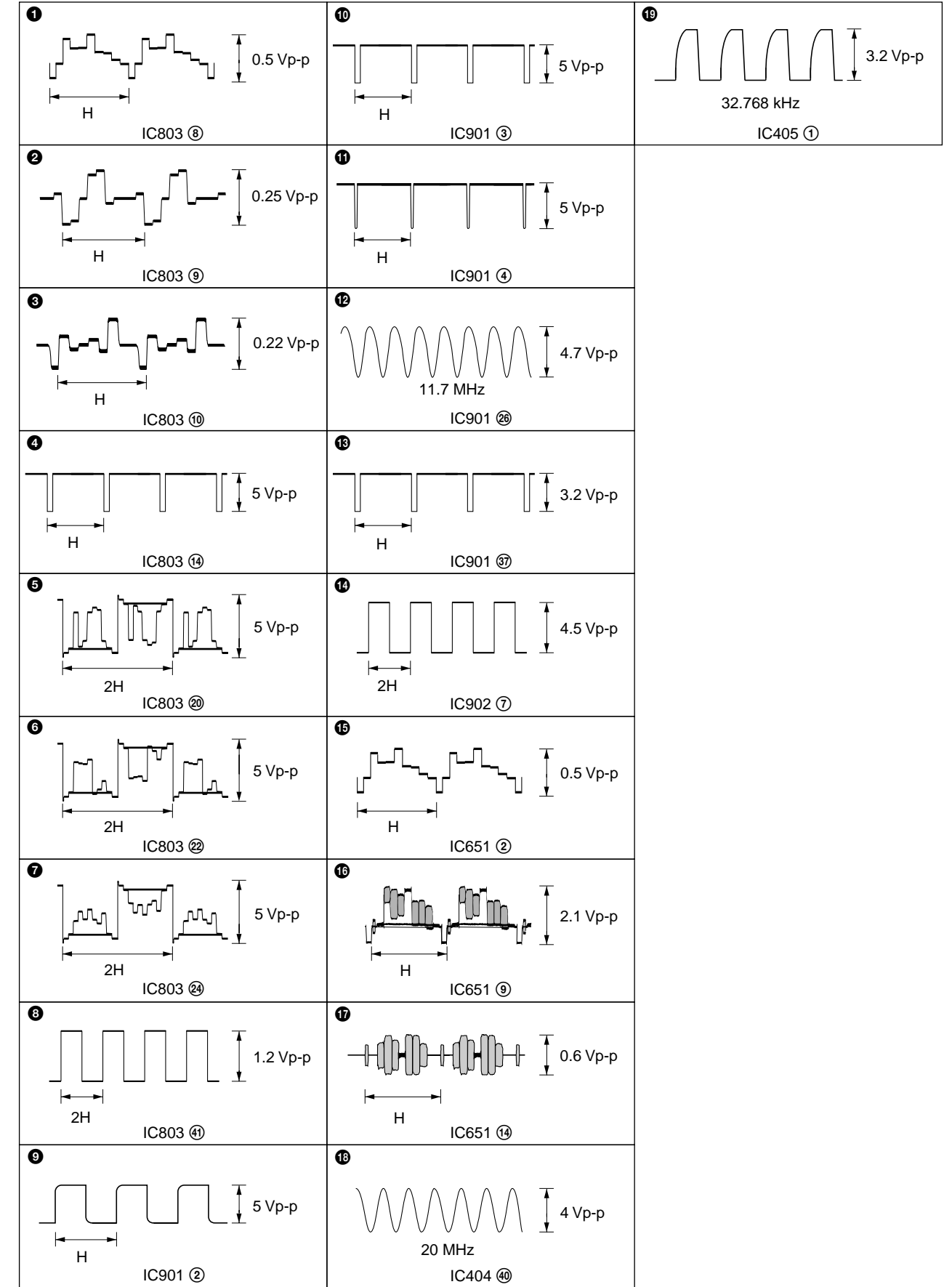
Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

4-3. WAVEFORMS

CD-283 BOARD

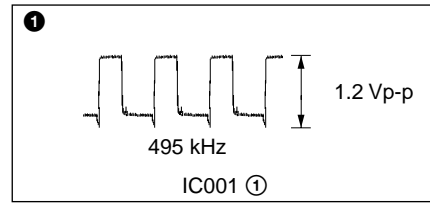


HI-73 BOARD



4-4. PARTS LOCATION

DD-148 BOARD



CD-283 BOARD (SIDE A)

C102	A-2
C103	B-2
C104	B-2
C105	B-3
C106	B-2
C107	B-2
C108	B-2
C109	B-2
C110	C-2
C111	C-1
C112	C-2
C113	A-3
C115	C-3
C116	B-3
C117	B-3
C118	B-3
C119	A-2
C120	A-2
C121	A-2
C122	A-2
C123	A-3
C124	A-2
C125	A-2
C126	A-2
C127	B-3
C128	C-3
C129	A-2
C130	A-2
C131	A-2
C132	A-2
C133	C-3
C134	B-2
C135	A-1
C136	C-3
C138	B-2
C139	C-3
C140	B-3
C141	C-2
CN101	B-1
D101	C-2
D102	A-2
FB101	C-1
FB104	B-3
FB106	B-3
FB107	A-1
FB108	B-1
FB109	B-1
FB110	B-3
FB111	C-3
FB113	C-3
FB114	C-3
IC102	B-3
IC103	A-2
L101	C-2
Q101	A-3
Q102	B-2
Q103	B-3
R101	A-3
R102	B-2
R104	B-2
R105	B-2
R106	B-1
R107	B-2
R108	B-2
R112	A-3
R113	B-2
R114	B-3
R115	B-3
R119	B-3
R126	A-1
R128	A-1
R129	B-1
R138	C-2
R139	A-1
R140	A-1
R141	A-1
R142	A-1
R143	A-1
R144	A-1
R145	A-1
R146	A-1
R147	A-1
R148	A-1
R149	A-1
R150	A-1
R152	B-1
X102	A-3

CD-283 BOARD (SIDE B)

C114	C-3
C137	A-2
FB103	C-3
FB105	C-3
L102	C-3
L103	A-2
L104	C-3
X101	A-3

HI-73 BOARD (SIDE A)

BT001	A-1
C253	C-3
C254	C-4
C258	C-4
C259	C-4
C260	C-4
C261	C-4
C262	B-4
C263	C-4
C264	C-4
C265	C-4
C266	C-4
C267	C-4
C269	C-4
C271	B-4
C274	C-4
C278	B-3
C279	B-3
C280	B-3
C282	C-3
C283	C-3
C285	C-3
C286	B-3
C287	B-3
C288	C-4
C289	C-3
C290	C-3
C291	B-3
C292	B-3
C294	C-3
C297	B-3
C298	C-3
C299	B-3
C401	B-3
C402	A-3
C409	B-1
C410	B-1
C411	C-2
C417	B-1
C418	C-1
C426	C-2
C427	C-2
C431	C-2
C432	C-1
C433	C-1
C440	A-2
C441	A-2
C442	D-2
C443	C-2
C446	B-2
C448	C-2
C449	C-2
C601	B-4
C651	C-6
C652	C-5
C653	C-5
C654	D-5
C655	C-5
C656	C-5
C657	D-5
C658	C-5
C659	D-5
C660	D-5
C661	D-5
C662	C-6
C663	C-6
C664	C-6
C801	A-6
C802	A-6
C803	B-6
C804	B-6
C805	B-6
C806	A-6
C807	B-5
C808	B-5
C810	B-5
C811	A-6
C812	B-6
C813	B-6
C814	B-6
C815	B-6
C816	B-6
C903	A-4
C905	A-4
C906	A-5
C907	A-5
C908	A-5
C909	A-5
C911	A-5
C913	A-4
C917	A-3
C918	A-3
CN252	D-2
CN701	B-5
CN702	C-5
CN705	A-2
CN706	D-1
CN707	C-3
CN901	A-3
D401	B-2
D406	B-2
D408	C-1
D410	C-2
D701	B-6
D903	A-5
FB601	A-4
IC253	C-4
IC401	B-3
IC402	C-2
IC404	B-2
IC405	C-2
IC406	C-1
IC407	D-2
IC408	C-2
IC601	B-4
IC651	C-5
IC801	A-5
IC803	B-5
IC901	A-4
L254	D-4
L401	D-2
L651	B-6
L652	C-5
L801	A-6
L802	B-6
L905	A-5
Q254	B-3
Q255	B-3
Q401	A-1
Q405	A-2
Q406	B-1
Q409	C-1
Q410	C-1
Q411	C-1
Q412	C-1
Q413	A-3
Q601	B-4
Q651	C-6
Q652	C-6
Q701	B-6
Q704	D-1
Q705	D-2
Q707	A-3
Q708	A-3
R251	B-4
R254	C-4
R255	C-4
R256	C-4
R259	C-4
R260	C-4
R262	B-4
R263	B-4
R265	B-4
R266	B-4
R270	B-4
R271	B-4
R272	B-4
R273	C-4
R277	C-3
R280	B-3
R281	C-4
R282	C-3
R283	B-3
R284	B-3
R285	B-3
R286	C-4
R287	B-3
R288	C-3
R291	D-2
R292	D-2
R401	A-1
R402	A-1
R404	B-1
R405	A-3
R406	B-3
R407	C-2
R408	C-2
R420	A-2
R422	B-1
R423	A-2
R425	B-1
R426	A-2
R427	B-1
R428	B-1
R429	B-1
R430	A-2
R431	A-2
R432	B-2
R433	B-2
R434	B-2
R435	B-2
R436	B-2
R437	B-1
R438	B-2
R439	B-2
R444	B-1
R445	B-1
R446	C-1
R447	C-1
R448	C-1
R449	B-1
R450	B-2
R451	B-1
R452	B-3
R453	B-2
R454	B-2
R455	B-2
R462	C-3
R463	C-3
R464	C-1
R465	C-3
R466	C-3
R467	C-3
R468	C-3
R469	A-2
R470	B-1
R471	C-1
R472	C-2
R475	C-1
R476	C-2
R478	C-2
R479	D-2
R480	D-2
R483	C-2
R484	C-1
R485	C-2
R487	C-1
R489	C-2
R490	A-2
R491	C-3
R492	C-3
R493	C-3
R494	C-3
R495	B-1
R496	A-1
R497	A-1
R603	B-3
R604	B-4
R605	B-4
R606	B-4
R607	B-4
R608	B-4
R651	C-5
R652	C-5
R653	D-5
R654	D-5
R655	D-6
R656	C-6
R657	C-6
R658	C-6
R701	A-6
R706	D-2
R708	B-5
R709	A-3
R802	B-5
R803	B-5
R804	B-5
R807	A-5
R808	A-5
R809	A-5
R812	A-5
R813	A-5
R815	B-6
R816	B-5
R820	C-5
R821	C-5
R822	C-5
R905	A-5
R908	A-5
R912	A-4
R913	A-5
R914	A-5
R915	A-5
R916	A-5
R918	A-5
R920	A-4
R921	A-5
R922	A-5
R924	A-4
R926	A-5
R940	A-5
R941	A-3
R942	A-3
R943	A-3
R944	A-3
R967	A-3

HI-73 BOARD (SIDE B)

R968	A-3
R969	A-3
R978	A-5
R979	A-5
R981	A-5
SE401	A-1
X401	B-1
X402	D-1
C255	D-4
C281	D-4
C293	D-3
C295	D-3
C702	B-1
C703	B-1
C704	C-1
C705	C-1
C706	C-1
C707	D-1
C708	D-1
C902	A-2
C904	A-2
C915	A-6
C916	A-3
C919	A-3
C920	A-3
CN251	A-3
CN703	B-4
CN704	A-4
D703	B-1
D705	C-1
D904	A-3
FB703	A-5
FB704	A-5
FB705	A-4
IC701	D-1
IC902	A-5
L252	D-4
L255	D-3
L701	C-1
L703	D-2
L704	D-1
L901	A-2
L902	A-2
L903	A-2
Q253	D-3
Q702	C-1
Q703	B-1
Q706	D-1
Q903	A-6
Q904	A-6
Q905	A-6
Q906	A-6
R279	D-4
R289	A-3
R290	A-3
R702	C-1
R703	A-5
R704	B-1
R705	B-1
R929	A-6
R930	A-6
R932	A-6
R933	A-6
R938	A-6
R939	A-6

DD-148 BOARD
(SIDE A)

C014 A-2
C015 A-3
C016 A-3
C017 A-3
C018 A-3
C019 B-5
C023 A-5
C025 B-2
C026 B-2
C027 B-5
C028 B-2
C029 A-4
C032 B-5
C034 A-5
C035 A-4
C036 A-5
C039 B-4
C040 A-3
C042 A-3
C043 A-5
C045 A-3

CN001 A-2
CN002 B-1

D001 B-2
D007 B-4

F001 A-1
F002 A-1
F003 A-1
F004 A-1

IC002 A-5

L001 A-5
L002 A-5
L003 B-5
L004 A-4
L005 A-5

LF001 A-1

Q003 A-3
Q005 A-4
Q006 A-4
Q009 A-3
Q010 A-3
Q011 B-2
Q012 B-5
Q021 A-4
Q022 A-5
Q025 B-4

R053 A-2
R055 A-3
R056 A-3
R058 A-3
R060 B-4
R062 A-4
R071 B-4
R072 B-4
R075 A-2

T001 A-3
T002 B-3
T003 B-3

DD-148 BOARD
(SIDE B)

C001 A-1
C002 A-1
C003 A-1
C004 B-1
C005 B-1
C006 A-1
C007 B-1
C008 A-1
C009 A-1
C010 B-2
C011 B-2
C012 A-2
C013 B-2
C022 A-5
C024 B-5
C030 A-4
C033 A-5
C037 B-2
C038 B-2
C041 A-3
C044 A-3
C048 B-5
C049 A-5
C050 B-4
C051 A-3
C052 A-4
C053 A-5
C054 A-3
C056 A-3
C057 B-5
C058 B-4
C059 A-3
C060 A-4
C061 A-4

CN003 B-3

D002 A-5
D003 A-5
D004 A-3
D005 A-3
D006 B-2

IC001 A-1

L006 A-5
L007 A-5
L008 B-5
L009 A-3
L010 B-4
L011 A-4
L012 A-3
L013 A-3
L014 B-5
L015 A-4
L016 A-3

Q004 A-4
Q007 A-5
Q008 A-5
Q013 A-5
Q014 A-1
Q015 A-5
Q016 B-4
Q017 B-4
Q019 B-5
Q020 A-5
Q023 A-4
Q024 A-4
Q030 B-3
Q031 B-3
Q032 B-3
Q033 B-3

R001 B-1
R002 A-1
R003 B-1
R004 B-1
R005 B-1
R006 B-1
R007 B-1
R008 B-1
R010 B-1
R011 A-1
R012 A-1
R013 A-1
R014 A-1
R015 A-1
R016 B-1
R017 B-1
R018 A-2
R020 B-1
R021 B-1
R022 A-1
R023 A-2
R024 A-2
R025 A-2
R026 B-3

R027 A-2
R028 A-2
R029 B-1
R030 A-1
R031 B-4
R032 B-2
R033 A-1
R034 A-1
R035 A-1
R036 B-2
R037 B-2
R038 B-2
R039 B-2
R040 A-1
R041 A-1
R042 A-1
R043 A-1
R044 A-2
R045 A-2
R046 B-2
R047 A-2
R049 A-2
R050 A-2
R051 A-2
R052 B-2
R054 A-5
R057 B-5
R059 A-4
R061 A-5
R063 A-4
R064 A-4
R065 B-4
R066 B-4
R067 B-4
R068 B-4
R069 A-4
R070 A-4
R073 A-4
R074 A-4
R076 B-2
R077 B-3
R078 B-3
R079 B-3

SECTION 5 ADJUSTMENTS

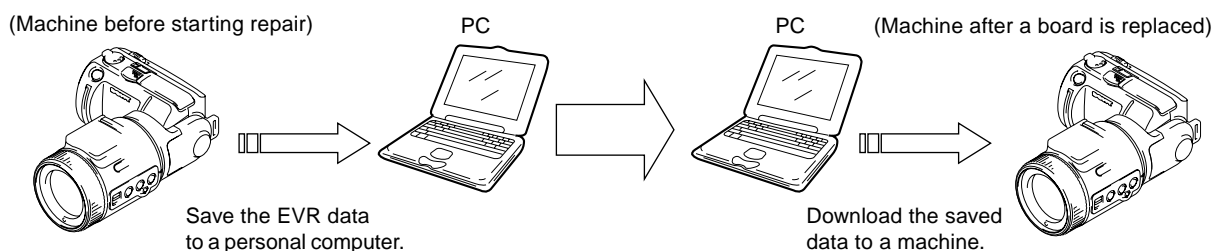
Before starting adjustment

EVR Data Re-writing Procedure When Replacing Board

The data that is stored in the repair board, is not necessarily correct.
Perform either procedure 1 or procedure 2 or procedure 3 when replacing board.

Procedure 1

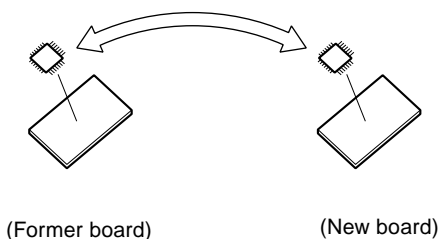
Save the EVR data of the machine in which a board is going to be replaced. Download the saved data after a board is replaced.



Procedure 2

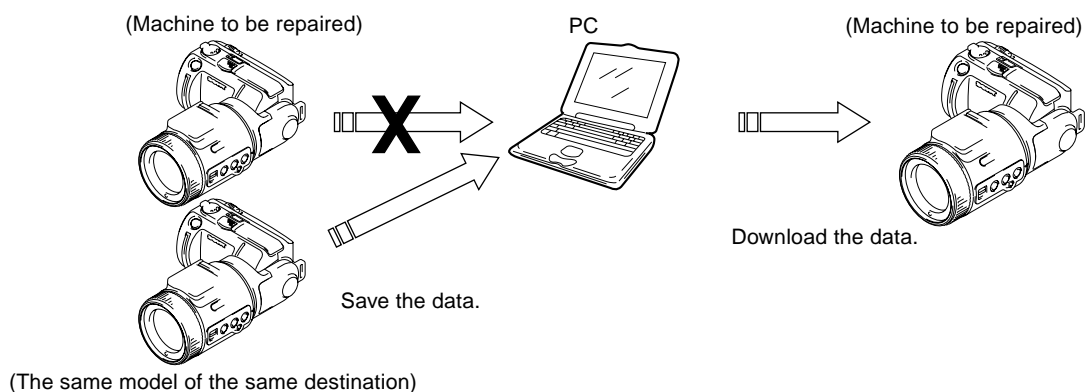
Remove the EEPROM from the board of the machine that is going to be repaired. Install the removed EEPROM to the replaced board.

Remove the EEPROM and install it.



Procedure 3

When the data cannot be saved due to defective EEPROM, or when the EEPROM cannot be removed or installed, save the data from the same model of the same destination, and download it.



After the EVR data is saved and downloaded, check the respective items of the EVR data.
(Refer to page 5-2 for the items to be checked.)

1-1. Adjusting items when replacing main parts and boards

When replacing main parts and boards, adjust the items indicated by ● in the following table.

Adjustment section	Adjustment	Replaced parts																		
		Block replacement				Mounted parts replacement						Board replacement								
		Lens device	MC block (Flash unit)	ST block (Flash unit)	FK block (Control switch block)	LCD block LCD901 (LCD panel)	LCD block ND901 (Back light unit)	CD-283 board IC101 (CCD imager)	CD-283 board IC103 (S/H, AGC, A/D)	PS-434 board IC406 (EVR)	HI-73 board IC651 (VIDEO AMP)	HI-73 board IC803 (LCD drive)	HI-73 board IC901 (LCD Timing generator)	HI-73 board IC801 (EVR)	CD-283 board (COMPLETE)	PS-434 board (COMPLETE)	SY-62 board (COMPLETE)	HI-73 board (COMPLETE)	SY-62 board IC507 (EEPROM)	HI-73 board IC406 (EEPROM)
Initialization of 7, B, D, E, F, page data	Initialization of D page data																	●		●
	Initialization of 7, B, E, F page data																	●		●
Video	Video sync level adj.							●	●									●	●	●
	Video burst level adj.							●	●									●	●	●
Camera	Hall adj.	●						●										●	●	●
	Flange back adj.	●					●								●			●	●	●
	F No. standard data input	●					●								●			●	●	●
	Mechanical shutter adj.	●					●								●			●	●	●
	Light level adj.	●					●	●							●			●	●	●
	Mixed color cancel adj.	●					●	●							●			●	●	●
	Auto white balance standard data input						●	●							●			●	●	●
	Auto white balance ND filter compensation						●	●							●			●	●	●
	Auto white balance adj.						●	●							●			●	●	●
	Color reproduction adj.						●	●							●			●	●	●
	Strobe white balance adj.		●	●			●	●	●						●	●		●	●	●
CCD (black and white) defect compensation						●								●			●		●	
LCD	LCD initial data input																		●	●
	VCO adj.											●	●					●	●	●
	D range adj.										●	●						●	●	●
	Bright adj.										●	●						●	●	●
	Contrast adj.										●	●						●	●	●
	Color adj.										●	●						●	●	●
	V-COM level adj.										●	●						●	●	●
	V-COM adj.					●					●	●						●	●	●
White balance adj.					●	●				●	●						●	●	●	
System control	Battery down adj.																	●	●	●
	ZOOM-VR center adj.				●													●	●	●

Table 5-1-1

5-1. CAMERA SECTION ADJUSTMENT

1-1. PREPARATIONS BEFORE ADJUSTMENT

1-1-1. List of Service Tools

- Oscilloscope
- Color monitor
- Vectorscope
- Regulated power supply
- Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	Pattern box PTB-450	J-6082-200-A	
J-3	Color bar chart for pattern box	J-6020-250-A	
J-4	Adjustment remote commander (RM-95 upgraded). (Note 1)	J-6082-053-B	
J-5	Siemens star chart	J-6080-875-A	For checking the flange back
J-6	Clear chart for pattern box	J-6080-621-A	
J-7	CPC-9 jig (Note 2)	J-6082-393-C	For connecting the adjustment remote commander For adjusting the LCD block
J-8	Mini pattern box	J-6082-353-B	For adjusting the flange back
J-9	Extension cable (39P, 0.3 mm)	J-6082-448-A	For extension between the CD-283 board (CN101) and the PS-434 board (CN602)
J-10	Extension cable (39P, 0.3 mm)	1-678-657-11	For extension between the HI-73 board (CN701, 702) and the SY-62 board (CN801, 802)
J-11	Back ground paper	J-2501-130-A	For adjusting the strobe

Note 1: If the micro processor IC in the adjustment remote commander is not the new micro processor (UPD7503G-C56-12), The pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

Note 2: The old CPC-9 jig (Parts code: J-6082-393-B) cannot be used, because it cannot operate the adjustment remote commander.

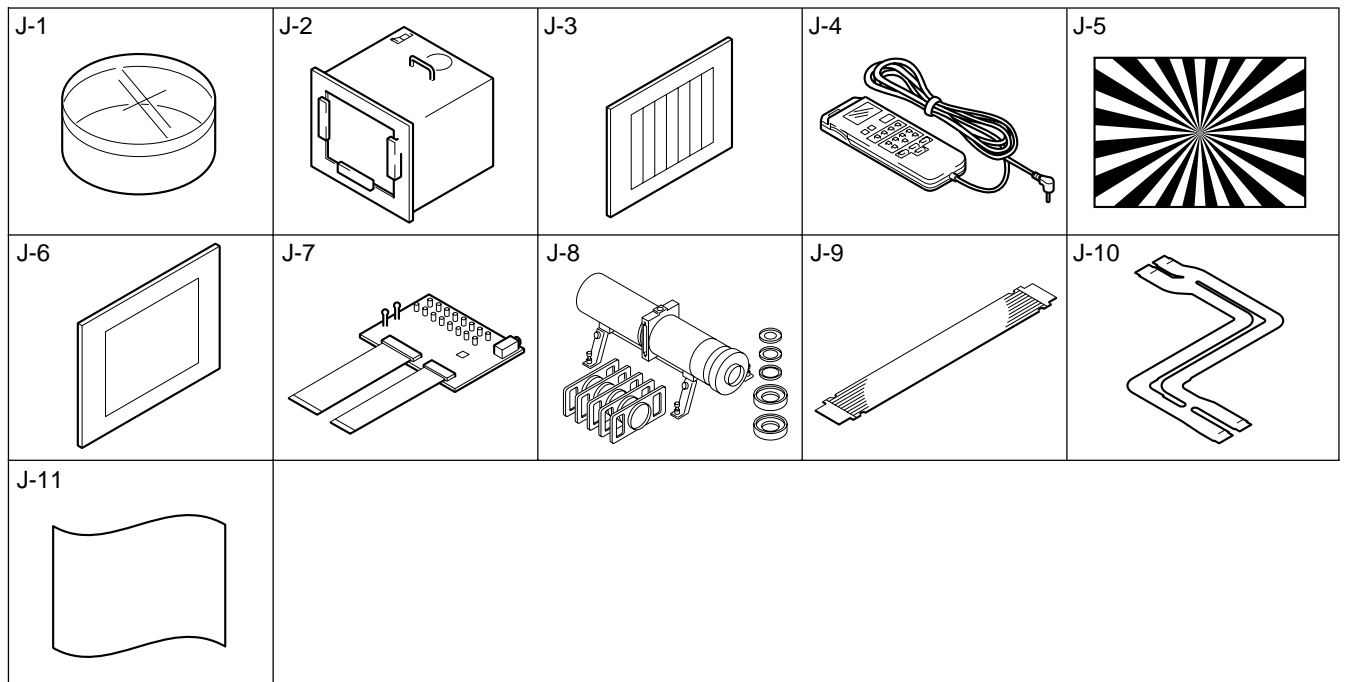


Fig. 5-1-1

1-1-2. Preparations

Note 1: For details of how remove the cabinet and boards, refer to “2. DISASSEMBLY”.

Note 2: When performing only the adjustments, the lens block and boards need not be disassemble.

- 1) Connect the equipment for adjustments according to Fig. 5-1-5.
- 2) Connect the Adjusting remote commander to FK (control switch block) CN002 via CPC-9 jig (J-6082-393-C). (See Fig. 5-1-3)

Note 3: Setting the “Forced STILL mode power ON” Mode

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjusting remote commander.

The Above procedure will enable the camera power to be turned on. After completing adjustments, be sure to exit the “Forced STILL mode power ON Mode”.

Note 4: Exiting the “Forced STILL mode power ON Mode”

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 3) Select page: 0, address: 01, and set data: 00.

1-1-3. Discharging of the flashlight power supply

The capacitor which is used as power supply of flashlight is charged with 200 V to 300 V voltage. Discharge this voltage before starting adjustments in order to protect service engineers from electric shock during adjustment.

Discharge procedure

1. Press the FLASH button (FK block S002) and turn off the FLASH LED (FK block D006).
2. Fabricate the discharging jig as shown in Fig. 5-1-5 locally by yourself. Connect the discharging jig to the positive (+) and negative (-) terminal of the flash voltage charge capacitor. Allow ten seconds to discharge the voltage.

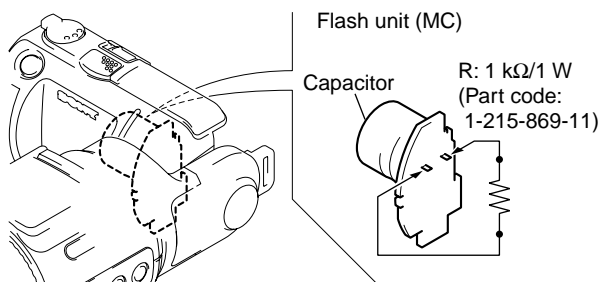


Fig. 5-1-4

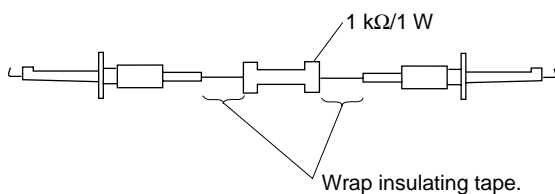


Fig. 5-1-5

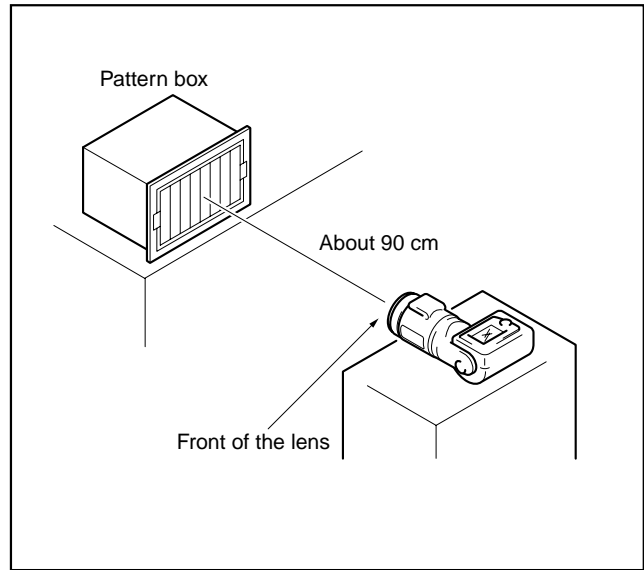
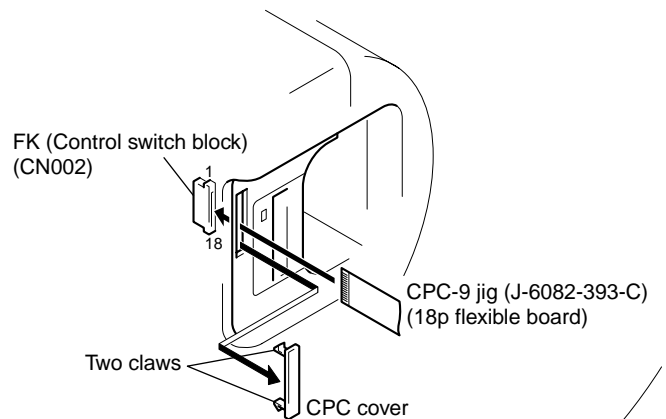
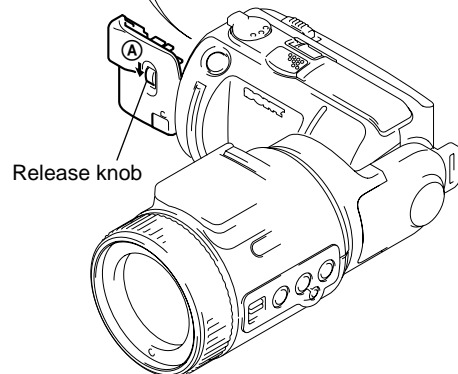


Fig. 5-1-2



Note 1: Don't use the 12 pin flexible board of CPC-9 jig. It causes damage to the unit.

Note 2: The old CPC-9 jig (Parts code: J-6082-393-B) cannot be used, because it cannot operate the adjustment remote commander.



Slide the Release knob in the direction of arrow ④. To open the Battery lid.

Fig. 5-1-3

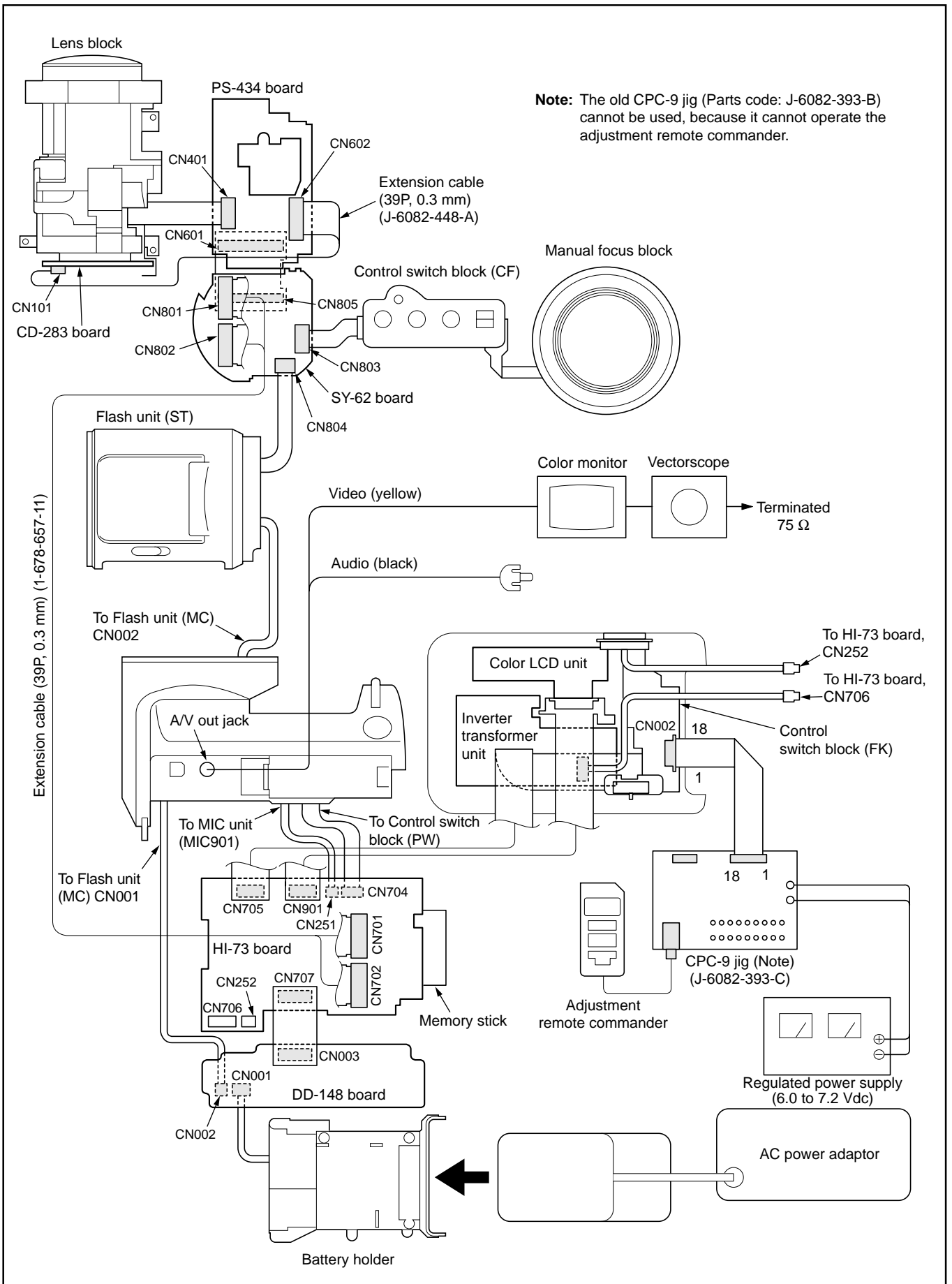


Fig. 5-1-6

1-1-4. Precautions

1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments.

- | | | | |
|---|---------------------------------|---------------------------------------|--------|
| 1. FOCUS button (CF block S005) | MANUAL | 5. DEMO (Menu display) | OFF |
| 2. PROGRAM AE button (FK block S003) | | 6. VIDEO OUT (Menu display) | NTSC |
| | AUTO (No mark indicated on LCD) | 7. WHITE BALANCE (Menu display) | AUTO |
| 3. DISPLAY button (FK block S004) | OSD OFF | 8. EXPOSURE | 0EV |
| 4. P. EFFECT (Menu display) | OFF | 9. FLASH LEVEL | NORMAL |

2. Order of Adjustments

Basically carry out adjustments in the order given.

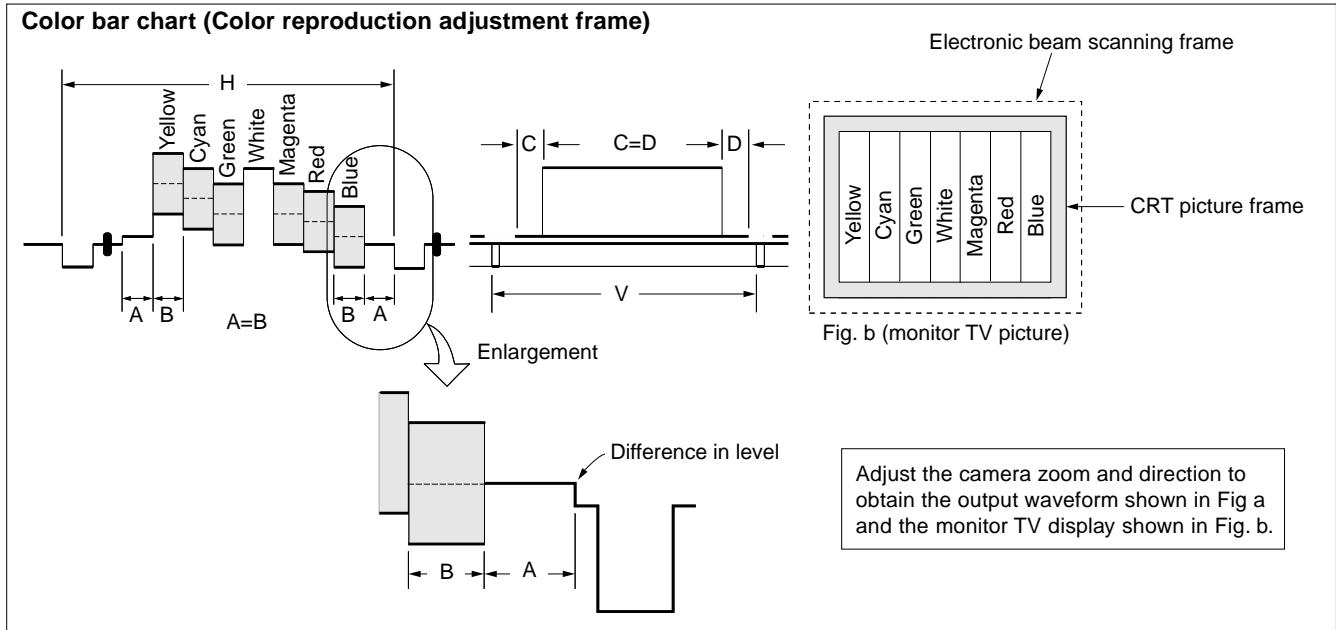


Fig. 5-1-7

3. Subjects

- 1) Color bar chart (Standard picture frame).
When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 5-1-7. (Standard picture frame)
- 2) Clear chart (Standard picture frame)
Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time)

4. Preparing the Flash Adjustment Box

A dark room is required to provide an accurate flash adjustment.
If it is not available, prepare the flash adjustment box as given below;

- 1) Provide woody board A, B and C of 15 mm thickness.

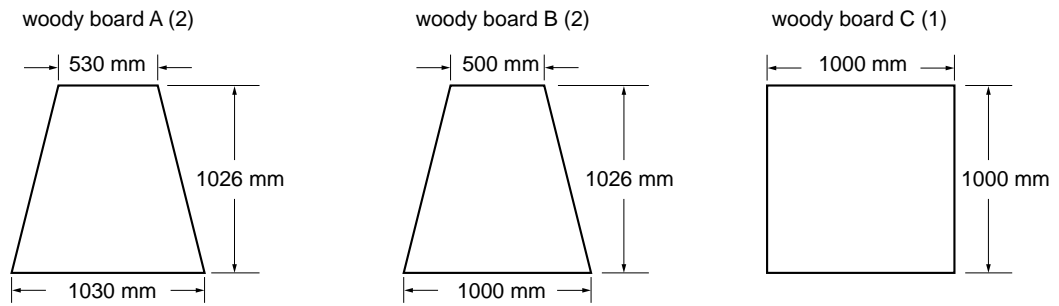


Fig. 5-1-8

- 2) Apply black mat paint to one side of woody board A and B.
- 3) Attach background paper (J-2501-130-A) to woody board C.
- 4) Assemble so that the black sides and the background paper side of woody board A, B and C are internal. (Fig 5-1-9)

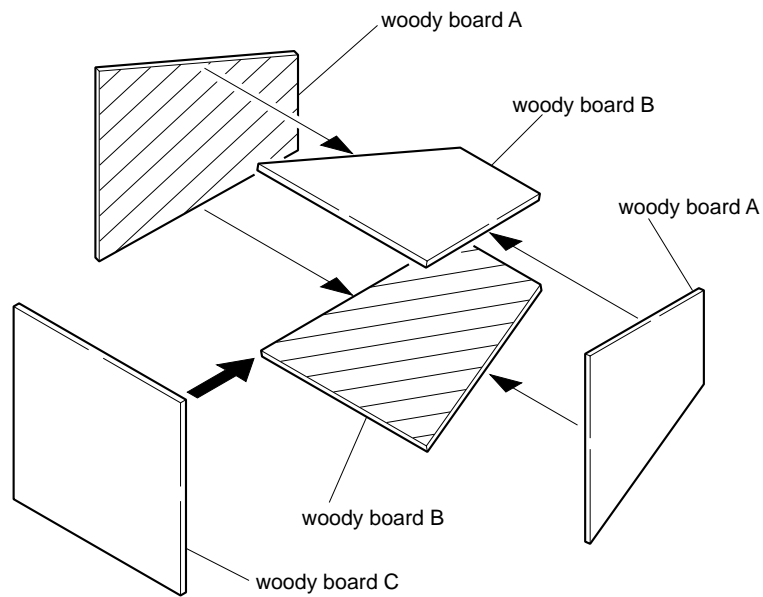


Fig. 5-1-9

1-2. INITIALIZATION OF B, D, E, F, 7 PAGE DATA

1-2-1. INITIALIZATION OF D PAGE DATA

1. Initializing D Page Data

Note: If the D page data has been initialized, the following adjustments need to be performed again.

- 1) Modification of D page data
- 2) LCD system adjustments
- 3) Battery end adjustments

Adjusting page	D
Adjusting Address	10 to EF

Initializing Method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 2, address: 03, and set data: 08.
- 3) Select page: 2, address: 00, and set data: 2D.
- 4) Select page: 2, address: 01, set data: 2D, and press the PAUSE button of the adjustment remote commander.
- 5) Select page: 2, address: 02, and check that the data changes to "01".
- 6) Perform "Modification of D Page Data".

2. Modification of D Page Data

If the D page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Modifying Method:

- 1) Before changing the data, select page: 0, address: 01, and set data: 01.
- 2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.

Note : If copy the data built in the different model, the camcorder may not operate.

- 3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
- 4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of D Page data

- 1) Select page: 2, address: 00, and set data: 29.
- 2) Select page: 2, address: 01, and set data: 29, and press the PAUSE button of the adjustment remote commander.

3. D Page Table

Note 1: Fixed data-1: Initialized data.

(Refer to "1. Initializing D Page Data")

Note 2: Fixed data-2: Modified data.

(Refer to "2. Modification of D Page Data")

Address	Initial value	Remark
00 to 0F		
10	00	Test mode
11 to 42		Fixed data-1 (Initialized data)
43		Fixed data-2
44 to 61		Fixed data-1 (Initialized data)
62		Fixed data-2
63		
64 to 7C		Fixed data-1 (Initialized data)
7D		Fixed data-2
7E to 85		Fixed data-1 (Initialized data)
86		Fixed data-2
87		
88		Fixed data-1 (Initialized data)
89	80	ZOOM-VR center adj.
8A		Fixed data-2
8B		
8C to 8F		Fixed data-1 (Initialized data)
90	80	Battery down adj.
91	88	
92	AD	
93	C2	
94	CD	
95 to 97		Fixed data-1 (Initialized data)
98		Fixed data-2
99		
9A		
9B		
9C		
9D		
9E		
9F		
A0		
A1		
A2		Fixed data-1 (Initialized data)
A3		Fixed data-2
A4		Fixed data-1 (Initialized data)
A5		Fixed data-2
A6 to CF		Fixed data-1 (Initialized data)
D0	BC	Bright adj.
D1	80	Color adj.
D2	B9	White balance adj.
D3	B7	
D4	BE	Contrast adj.
D5	C8	D Range adj.
D6	7C	V-COM Level adj.
D7	80	VCO adj. (NTSC)
D8	74	V-COM adj.
D9 to DC		Fixed data-1 (Initialized data)
DD	88	VCO adj. (PAL)
DE to EF		Fixed data-1 (Initialized data)

1-2-2. Initializing B, E, F, 7 Page Data

1. Initializing B, E, F, 7 Page Data

Note: If the B, E, F Page data has been initialized, “Modification of B, E, F, 7 Page Data” and following adjustments need to be performed again.

- 1) Modification of B, E, F, 7 page data
- 2) Video system adjustments
- 3) Camera system adjustments

Adjusting page	F
Adjusting Address	10 to FF
Adjusting page	E
Adjusting Address	00 to FF
Adjusting page	B
Adjusting Address	00 to FF
Adjusting page	7
Adjusting Address	00 to FF

Initializing Method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: B, address: 0C, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 6, address: 03, and set data: 08.
- 4) Select page: 6, address: 00, and set data: 2D.
- 5) Select page: 6, address: 01, set data: 2D, and press the PAUSE button of the adjustment remote commander.
- 6) Select page: 6, address: 02, and check that the data changes to “01”.
- 7) Perform “Modification of B, E, F, 7 Page Data”.

2. Modification of B, E, F, 7 Page Data

If the B, E, F, 7 Page data has been initialized, change the data of the “Fixed data-2” address shown in the following tables by manual input.

Modifying Method:

- 1) Before changing the data, select page: 0, address: 01, and set data: 01.
- 2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
Note: If copy the data built in the different model, the camcorder may not operate.
- 3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
- 4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of B, E, F, 7 Page data

- 1) Select page: 2, address: 00, and set data: 29.
- 2) Select page: 2, address: 01, and set data: 29, and press the PAUSE button of the adjustment remote commander.

3. B Page Table

Note 1: Fixed data-1: Initialized data.

(Refer to “1. Initializing B, E, F, 7 Page Data”)

Note 2: Fixed data-2: Modified data.

(Refer to “2. Modification of B, E, F, 7 Page Data”)

Address	Initial value	Remark
00		Fixed data-2
01 to FF		Fixed data-1 (Initialized data)

4. E Page Table

Note 1: Fixed data-1: Initialized data.

(Refer to “1. Initializing B, E, F, 7 Page Data”)

Note 2: Fixed data-2: Modified data.

(Refer to “2. Modification of B, E, F, 7 Page Data”)

Address	Initial value	Remark
00 to FF		Fixed data-1 (Initialized data)

5. F Page Table

Note 1: Fixed data-1: Initialized data. (Refer to “1. Initializing B, E, F, 7 Page Data”)

Note 2: Fixed data-2: Modified data. (Refer to “2. Modification of B, E, F, 7 Page Data”)

Address	Initial value	Remark	
00 to 0F			
10 to 13		Fixed data-1 (Initialized data)	
14	1C	Flange back adj.	
15	94		
16	26		
17	EC		
18	13		
19	B9		
1A	00		
1B	00		
1C	00		
1D	00		
1E	46		
1F	00		
20	20		
21	20		
22	20		
23	44		
24	0A		
25	00		
26	85	Light level adj.	
27		Fixed data-1 (Initialized data)	
28	94	Light level adj.	
29	47	F No. standard data input	
2A	41		
2B	3D		
2C	3D		
2D	3B		
2E	80		Hall adj.
2F	93		
30 to 33		Fixed data-1 (Initialized data)	
34	15	Hall adj.	
35	7C		
36 to 39		Fixed data-1 (Initialized data)	
3A	2F	Auto white balance standard data input	
3B	37		
3C	40		
3D	D0		
3E		Fixed data-1 (Initialized data)	
3F	B5	Auto white balance adj.	
40	43	Color reproduction adj.	
41	03		
42	E9		
43	63		
44	83		
45	D5		
46	FE		
47	73		
48	45		
49 to 4C		Fixed data-1 (Initialized data)	
4D	27	Strobe white balance adj.	
4E	77	Auto white balance ND filter compensation adj.	
4F	00		
50	00		

Address	Initial value	Remark	
51	03	Color reproduction adj. (with ND filter)	
52	E9		
53	63		
54	83		
55	D5		
56	FE		
57	73		
58	45		
59	00	Auto white balance standard data input	
5A	14	Mechanical shutter adj.	
5B		Fixed data-1 (Initialized data)	
5C	63	Color reproduction adj.	
5D	83		
5E	03		
5F	E9		
60	63	Color reproduction adj. (with ND filter)	
61	83		
62	03		
63	E9	Strobe white balance adj.	
64	10		
65	61	Video sync level adj.	
66	61	Video burst level adj.	
67, 68		Fixed data-1 (Initialized data)	
69	01	Strobe white balance adj.	
6A	A3		
6B	B4		
6C	0B		Mechanical shutter adj.
6D	C2		
6E	09		
6F	42		
70	06		
71	C2		
72	05		
73	C2		
74	04		
75	C2		
76	33		
77	33		
78	33		
79	33		
7A	33		
7B	33		
7C	33		
7D	33		
7E	33		
7F	33		
80	00	Auto white balance adj.	
81 to 9F		Fixed data-1 (Initialized data)	
A0	00	Mixed color cancel adj.	
A1	00		
A2	00		
A3	00		
A4 to FF		Fixed data-1 (Initialized data)	

6. 7 Page Table

Note 1: Fixed data-1: Initialized data. (Refer to “1. Initializing B, E, F, 7 Page Data”)

Note 2: Fixed data-2: Modified data. (Refer to “2. Modification of B, E, F, 7 Page Data”)

Address	Initial value	Remark
00 to 5F		Fixed data-1 (Initialized data)
60	0F	CCD black defect compensation
61	FF	
62	0F	
63	FF	
64	0F	
65	FF	
66	0F	
67	FF	
68	0F	
69	FF	
6A	0F	
6B	FF	
6C	0F	
6D	FF	
6E	0F	
6F	FF	
70	0F	
71	FF	
72	0F	
73	FF	
74	0F	
75	FF	
76	0F	
77	FF	
78	0F	
79	FF	
7A	0F	
7B	FF	
7C	0F	
7D	FF	
7E	0F	
7F	FF	
80	0F	
81	FF	
82	0F	
83	FF	
84	0F	
85	FF	
86	0F	
87	FF	
88	0F	CCD white defect compensation
89	FF	
8A	0F	
8B	FF	
8C	0F	
8D	FF	
8E	0F	
8F	FF	
90	0F	
91	FF	
92	0F	

Address	Initial value	Remark
93	FF	CCD white defect compensation
94	0F	
95	FF	
96	0F	
97	FF	
98	0F	
99	FF	
9A	0F	
9B	FF	
9C	0F	
9D	FF	
9E	0F	
9F	FF	
A0	0F	
A1	FF	
A2	0F	
A3	FF	
A4 to FF		Fixed data-1 (Initialized data)

1-3. VIDEO SYSTEM ADJUSTMENTS

1. Video Sync Level Adjustment

Adjust the sync level of the composite video signal output.

Mode	PLAY
Signal	Color bar (Test signal)
Measurement Point	Video terminal of A/V OUT jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	65
Specified Value	A = 286 ± 5 mV (NTSC) A = 300 ± 5 mV (PAL)

Menu setting:

- 1) VIDEO OUT of SET UP menu
 - NTSC (NTSC mode)
 - PAL (PAL mode)

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: 04.
- 3) Select page: F, address: 65, change the data and set the sync level (A) to the specified value.
- 4) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

- 1) Select page: 5, address: F1, and set data: 00.
- 2) Select page: 0, address: 01, and set data: 00.

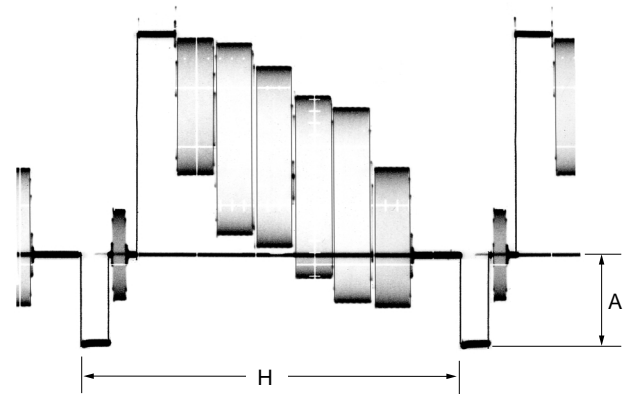


Fig. 5-1-10

2. Video Burst Level Adjustment

Adjust the burst level of the composite video signal output.

Mode	PLAY
Signal	Color bar (Test signal)
Measurement Point	Video terminal of A/V OUT jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	66
Specified Value	A = 286 ± 5 mV (NTSC) A = 300 ± 5 mV (PAL)

Menu setting:

- 1) VIDEO OUT of SET UP menu
 - NTSC (NTSC mode)
 - PAL (PAL mode)

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: 04.
- 3) Select page: F, address: 66, change the data and set the burst level (A) to the specified value.
- 4) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

- 1) Select page: 5, address: F1, and set data: 00.
- 2) Select page: 0, address: 01, and set data: 00.

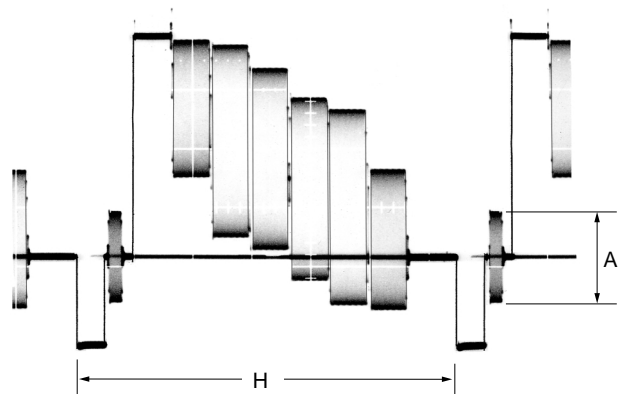


Fig. 5-1-11

1-4. CAMERA SYSTEM ADJUSTMENT

Before perform the camera system adjustments, check that the specified values of “VIDEO SYSTEM ADJUSTMENTS” are satisfied.

1. HALL Adjustment

For detecting the position of lens iris, adjust the HALL AMP gain and offset.

Mode	STILL
Subject	Not required
Measurement Point	Displayed data of page: 1 (Note 2)
Measuring Instrument	Adjusting remote commander
Adjustment Page	F
Adjustment Address	2E, 2F, 34, 35
Specified Value	13 to 17 during IRIS OPEN 7B to 7F during IRIS CLOSE

Note 1: Check that the data of page: 6, address: 02 is “00”.

If not, turn the power of the unit OFF/ON.

Note 2: The right two digits of the page: 1 displayed data of the adjusting remote commander.

1:00:XX

└─ Displayed data

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: FF.
- 3) Select page: D, address: 63, set data: 40, and press the PAUSE button of the adjusting remote commander.
- 4) Select page: 6, address: 94, and set data: 15.
- 5) Select page: 6, address: 95, and set data: 7D.
- 6) Select page: 6, address: 01, set data: 6D, and press the PAUSE button. (The HALL adjustment is performed and the adjustment data is stored in page: F, addresses: 2E, 2F, 34 and 35)
- 7) Select page: 6, address: 02, and check that the data is “01”.
- 8) Select page: 6, address: 01, set data: 00, and press the PAUSE button.

Checking method:

- 1) Select page: 0, address: 03, and set data: 03.
- 2) Select page: 6, address: 01, set data: 01, and press the PAUSE button of the adjusting remote commander.
- 3) Select page: 1, and check that the displayed data (Note 2) during IRIS OPEN satisfies the specified value.
- 4) Select page: 6, address: 01, set data: 03, and press the PAUSE button.
- 5) Select page: 1, and check that the displayed data (Note 2) during IRIS CLOSE satisfies the specified value.

Processing after Completing Adjustments:

- 1) Select page: 0, address: 03, and set data: 00.
- 2) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 3) Select page: 6, address: 95, and set data: 00.
- 4) Select page: 6, address: 94, and set data: 00.
- 5) Select page: 5, address: F1, and set data: 00.
- 6) Select page: D, address: 63, set data: 00, and press the PAUSE button.
- 7) Select page: 0, address: 01, and set data: 00.

2. Flange Back Adjustment (Using the minipattern box)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Mode	STILL
Subject	Siemens star chart with ND filter for minipattern box (Note 1)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	14 to 25

Note 1: Dark Siemens star chart.

Note 2: Check that the data of page: 6, address: 02 is "00".
If not, turn the power of the unit OFF/ON.

Preparations before adjustments:

The minipattern box is installed as shown in the following figure.

Note 3: The attachment lenses are not used.

Note 4: Take care not to hit the mini-pattern box when extending the lens.

Specified voltage: The specified voltage varies according to the minipatternbox, so adjustment the power supply output voltage to the specified voltage written on the sheet which is supplied with the minipattern box.

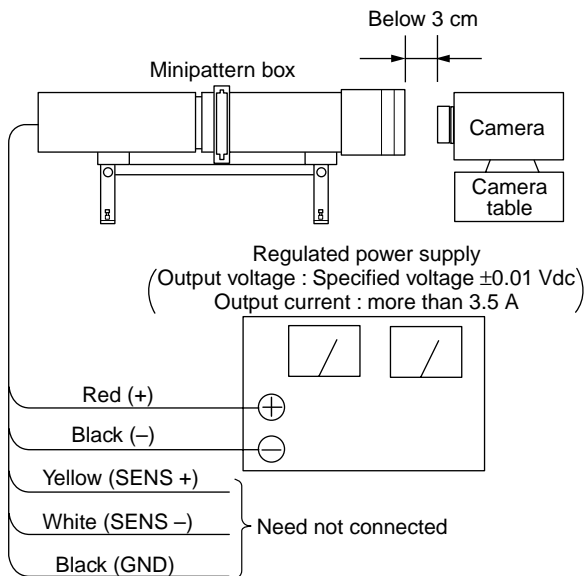


Fig. 5-1-12

Adjusting method:

- 1) Install the minipattern box so that the distance between it and the front of lens of the camera is less than 3cm.
- 2) Make the height of minipattern box and the camera equal.
- 3) Check the output voltage of the regulated power supply is the specified voltage ± 0.01 Vdc.
- 4) Check that the center of Siemens star chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.
- 5) Select page: 0, address: 01, and set data: 01.
- 6) Select page: 5, address: F1, and set data: FF.
- 7) Select page: D, address: 63, set data: 40, and press the PAUSE button of the adjusting remote commander.
- 8) Check that the data on page: F, addresses: 14 to 25 are initial values (See table below).

Address	Data	Address	Data
14	1C	1D	00
15	94	1E	46
16	26	1F	00
17	EC	20	20
18	13	21	20
19	B9	22	20
1A	00	23	44
1B	00	24	0A
1C	00	25	00

- 9) Select page: 6, address: 01, set data: 13, and press the PAUSE button.
- 10) Select page: 6, address: 01, set data: 27, and press the PAUSE button. (The flange back adjustment is performed and the adjustment data is stored in page: F, addresses: 14 to 25)
- 11) Select page: 6, address: 02, and check that the data is "01".

Processing after completion of adjustment:

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 2) Select page: 5, address: F1, and set data: 00.
- 3) Select page: D, address: 63, set data: 00, and press the PAUSE button.
- 4) Select page: 0, address: 01, and set data: 00.
- 5) Perform "Flange Back Check".

3. Flange Back Check

Mode	STILL
Subject	Siemens star (2.0 m from the front of the lens) (Luminance: approx. 200 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Specified value	Focused at the TELE end and WIDE end

Checking method:

- 1) Place the Siemens star 2.0 m from the front of the lens.
- 2) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appear on the image.
- 3) Select page: 0, address: 01, and set data: 01.
- 4) Select page: 5, address: F1, and set data: FF.
- 5) Select page: D, address: 63, set data: 40, and press the PAUSE button of the adjusting remote commander.
- 6) Shoot the Siemens star with the zoom TELE end.
- 7) Turn on the auto focus.
- 8) Check that the lens is focused.
- 9) Select page: 6, address: 2C, and set data: 01.
- 10) While observe the TV monitor, change the zoom to the WIDE end and check that the lens is focused.

Processing after completion of adjustment:

- 1) Select page: 6, address: 2C, and set data: 00.
- 2) Select page: 5, address: F1, and set data: 00.
- 3) Select page: D, address: 63, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 4) Select page: 0, address: 01, and set data: 00.

4. F No. Standard Data Input

Compensate the unevenness of the iris meter sensitivity.

Mode	STILL
Subject	Clear chart (10 cm from the front of the lens)
Adjustment Page	F
Adjustment Address	29 to 2D

Note 1: Check that the data of page: 6, address: 02 is "00".

If not, turn the power of the unit OFF/ON.

Adjusting method:

- 1) Shoot the Clear chart with the zoom WIDE end.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: 5, address: F1, and set data: FF.
- 4) Select page: D, address: 63, set data: 40, and press the PAUSE button of the adjusting remote commander.
- 5) Select page: E, address: 51, after noting down the data, set data: FF, and press the PAUSE button.
- 6) Select page: 6, address: 01, set data: BB, and press the PAUSE button. (The F No. standard data input is performed and the standard data is stored in page: F, addresses: 29 to 2D)
- 7) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 2) Select page: E, address: 51, set data noted down at step 5) and press the PAUSE button.
- 3) Select page: 5, address: F1, and set data: 00.
- 4) Select page: D, address: 63, set data: 00, and press the PAUSE button.
- 5) Select page: 0, address: 01, and set data: 00.

5. Mechanical Shutter Adjustment

Adjust the period which the mechanical shutter is closed, and compensate the exposure.

Mode	STILL
Subject	Clear chart (10 cm from the front of the lens)
Adjustment Page	F
Adjustment Address	5A, 6C to 7F

Note 1: Check that the data of page: 6, address: 02 is "00".

If not, turn the power of the unit OFF/ON.

Adjusting method:

- 1) Shoot the Clear chart with the zoom WIDE end.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: 5, address: F1, and set data: FF.
- 4) Select page: D, address: 63, set data: 40, and press the PAUSE button of the adjusting remote commander.
- 5) Select page: 6, address: 01, set data: AD, and press the PAUSE button. (The mechanical shutter adjustment is performed and the adjustment data is stored in page: F, addresses: 5A and 6C to 7F)
- 6) Select page: 6, address: 02, and check that the data is "01".
- 7) Select page: 6, address: AB, and check that the data is "00". (If the data other than "00", mechanical shutter adjustment has errors)

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 2) Select page: 5, address: F1, and set data: 00.
- 3) Select page: D, address: 63, set data: 00, and press the PAUSE button.
- 4) Select page: 0, address: 01, and set data: 00.

6. Picture Frame Setting

Mode	STILL
Subject	Color bar chart (Color reproduction adjustment frame)
Measurement Point	Video terminal of A/V OUT jack (75 Ω terminated)
Measuring Instrument	Oscilloscope and TV monitor
Specified Value	A = B, C = D, E = F

Note 1: Displayed data of page 1 of adjusting remote commander.

1:XX:XX

— XL or YL data

— XH or YH data

Setting method:

- 1) Select page: 5, address: F1, and set data: FF.
- 2) Adjust the zoom and the camera direction, and set to the picture frame to the specified position.
- 3) Mark the position of the picture frame on the TV monitor, and adjust the picture frame to this position in following adjustments using “Color reproduction adjustment frame”.
- 4) Select page: 0, address: 03, and set data: 18.
- 5) Select page: 1, and note down the XH and XL data. (Note 1)
- 6) Select page: 0, address: 03, and set data: 22.
- 7) Select page: 1, and note down the YH and YL data. (Note 1)
- 8) Select page: 5, address: F1, and set data: 00.

How to reset the zoom and focus when they deviated:

If the zoom and focus deviated due to some reason, reset them in the following method.

- 1) Select page: 6, address: 90, and set data: XL. (Note 2)
- 2) Select page: 6, address: 91, and set data: XH. (Note 2)
- 3) Select page: 6, address: 92, and set data: YL. (Note 3)
- 4) Select page: 6, address: 93, and set data: YH. (Note 3)
- 5) Select page: 6, address: 01, set data: 79, press the PAUSE button.
- 6) Wait for 1 second.
- 7) Select page: 6, address: 2C, and set data: 01.
- 8) Select page: 6, address: 01, set data: 00, and press the PAUSE button.

Note 2: The data noted down at step 5) of “Setting method”.

Note 3: The data noted down at step 7) of “Setting method”.

Check on the oscilloscope

1. Horizontal period

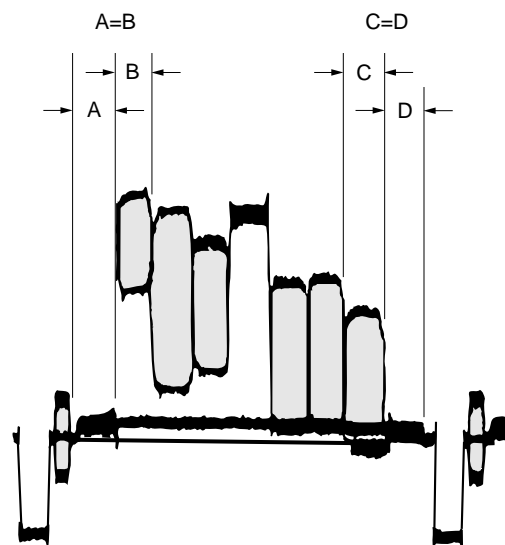


Fig. 5-1-13

2. Vertical period

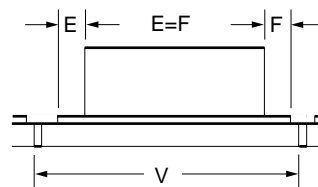


Fig. 5-1-14

Check on the TV monitor

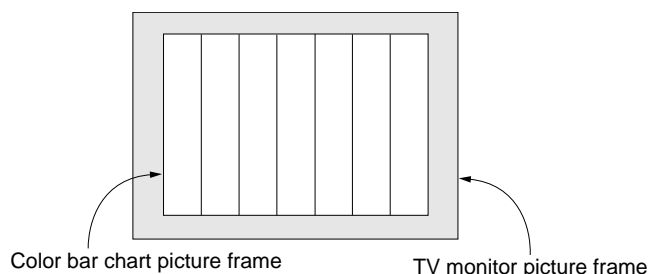


Fig. 5-1-15

7. Light Level Adjustment and ND Shutter Check

Adjust the standard LV value.

Mode	STILL
Subject	Clear chart (Color reproduction adjustment frame)
Measurement Point	Displayed data of page: 1 (Note 2)
Measuring Instrument	Adjusting remote commander
Adjustment Page	F
Adjustment Address	26, 28
Specified Value	AE level 1: 0FE0 to 1020 AE level 2: Below 1100

Note 1: Check that the data of page: 6, address: 02 is “00”.

If not, turn the power of the unit OFF/ON.

Note 2: The right four digits of the page: 1 displayed data of the adjusting remote commander.

1:XX:XX

└───┘ Displayed data

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: FF.
- 3) Select page: D, address: 63, set data: 40, and press the PAUSE button of the adjusting remote commander.
- 4) Select page: 6, address: 01, set data: 0D, and press the PAUSE button. (The light level adjustment is performed and the adjustment data is stored in page: F, addresses: 26 and 28)
- 5) Select page: 6, address: 02, and check that the data is “01”.
- 6) Select page: 0, address: 03, and set data: 06.
- 7) Select page: 1, and check that the displayed data (Note 2) satisfies the AE level 1 specified value.
- 8) Select page: E, address: 41, set data: 6B, and press the PAUSE button.
- 9) Select page: 6, address: 1C, and set data: 03.
- 10) Select page: 1, and check that the displayed data (Note 2) satisfies the AE level 2 specified value.

Processing after Completing Adjustments:

- 1) Select page: 6, address: 1C, and set data: 00.
- 2) Select page: E, address: 41, set data: 6A, and press the PAUSE button of the adjusting remote commander.
- 3) Select page: 0, address: 03, and set data: 00.
- 4) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 5) Select page: 5, address: F1, and set data: 00.
- 6) Select page: D, address: 63, set data: 00, and press the PAUSE button.
- 7) Select page: 0, address: 01, and set data: 00.

8. Mixed Color Cancel Adjustment

To perform mixed color cancel adjustment based on data of each color in color bar.

Mode	STILL
Subject	Color bar chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	A0 to A3

Note 1: Perform “Light Level Adjustment” before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is “00”.
If not, turn the power of the unit OFF/ON.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: FF.
- 3) Select page: D, address: 63, set data: 40, and press the PAUSE button of the adjusting remote commander.
- 4) Select page: 6, address: 01, set data: D7, and press the PAUSE button.
- 5) Select page: 6, address: 01, set data: D5, and press the PAUSE button. (The mixed color adjustment is performed and the adjustment data is stored in page: F, addresses: A0 to A3)
- 6) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 2) Select page: 5, address: F1, and set data: 00.
- 3) Select page: D, address: 63, set data: 00, and press the PAUSE button.
- 4) Select page: 0, address: 01, and set data: 00.

9. Auto White Balance Standard Data Input

Adjust the white balance standard data at 3200K.

Mode	STILL
Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	3A to 3D, 59

Note 1: Perform “Light Level Adjustment” and “Mixed Color Cancel Adjustment” before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is “00”.
If not, turn the power of the unit OFF/ON.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: FF.
- 3) Select page: D, address: 63, set data: 40, and press the PAUSE button of the adjusting remote commander.
- 4) Select page: 6, address: 01, set data: 11, and press the PAUSE button.
- 5) Select page: 6, address: 01, set data: 0B, and press the PAUSE button. (The auto white balance standard data input is performed and the standard data is stored in page: F, addresses: 3A to 3D, 59)
- 6) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 2) Select page: 5, address: F1, and set data: 00.
- 3) Select page: D, address: 63, set data: 00, and press the PAUSE button.
- 4) Select page: 0, address: 01, and set data: 00.
- 5) Perform “Auto White Balance Adjustment”.

10. Auto White Balance ND Filter Compensation

Adjust to the proper auto white balance output data with Built-in ND filter.

If it is not correct, auto white balance and color reproducibility will be poor.

Mode	STILL
Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	4F, 50

Note 1: Perform “Auto White Balance Standard Data Input” before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is “00”. If not, turn the power of the unit OFF/ON.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: FF.
- 3) Select page: D, address: 63, set data: 40, and press the PAUSE button of the adjusting remote commander.
- 4) Select page: 6, address: 1C, set data: 03, and press the PAUSE button.
- 5) Wait for 1 second.
- 6) Select page: 6, address: 01, set data: 11, and press the PAUSE button.
- 7) Select page: 6, address: 01, set data: 09, and press the PAUSE button.
(The auto white balance adjustment ND filter compensation is performed and the adjustment data is stored in page: F, addresses: 4F and 50)
- 8) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

- 1) Select page: 6, address: 1C, and set data: 00.
- 2) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 3) Select page: 5, address: F1, and set data: 00.
- 4) Select page: D, address: 63, set data: 00, and press the PAUSE button.
- 6) Select page: 0, address: 01, and set data: 00.

11. Auto White Balance Adjustment

Adjust to the proper auto white balance output data.

If it is not correct, auto white balance and color reproducibility will be poor.

Mode	STILL
Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction
Measurement Point	Displayed data of page: 1 (Note 3)
Measuring Instrument	Adjusting remote commander
Adjustment Page	F
Adjustment Address	3F, 40, 80
Specified Value	R ratio: 2820 to 2A60 B ratio: 5DA0 to 5EE0

Note 1: Perform “Auto White Balance Standard Data Input” and “Auto White Balance ND Filter Compensation” before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is “00”.
If not, turn the power of the unit OFF/ON.

Note 3: The right four digits of the page: 1 displayed data of the adjusting remote commander.

1:XX:XX
└───Displayed data

Adjusting method:

- 1) Place the C14 filter for color temperature correction on the lens.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: 5, address: F1, and set data: FF.
- 4) Select page: D, address: 63, set data: 40, and press the PAUSE button of the adjusting remote commander.
- 5) Select page: 6, address: 01, set data: A7, and press the PAUSE button.
- 6) Select page: F, addresses: 49 to 4C, and noting down the data of each address.
- 7) Write data in page: F, addresses: 49 to 4C as shown in the following table.

Address	49	4A	4B	4C
Data	29	C0	5E	40

Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.

- 8) Select page: 6, address: 01, set data: A5, and press the PAUSE button. (The auto white balance adjustment is performed and the adjustment data is stored in page: F, addresses: 3F, 40 and 80)
- 9) Select page: 6, address: 02, and check that the data is “01”.
- 10) Select page: 6, address: 01, set data: 3F, and press the PAUSE button.
- 11) Select page: 0, address: 03, and set data: 04.
- 12) Select page: 1, and check that the displayed data (Note 3) satisfies the R ratio specified value.
- 13) Select page: 0, address: 03, and set data: 05.
- 14) Select page: 1, and check that the displayed data (Note 3) satisfies the B ratio specified value.
- 15) Select page: F, addresses: 49 to 4C, and input the data noted down at step 6).

Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

- 1) Select page: 0, address: 03, and set data: 00.
- 2) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 3) Select page: 5, address: F1, and set data: 00.
- 4) Select page: D, address: 63, set data: 00, and press the PAUSE button.
- 5) Select page: 0, address: 01, and set data: 00.

12. Color Reproduction Adjustment

Adjust the color separation matrix coefficient so that proper color reproduction is produced.

12-1. Color Reproduction Adjustment (Without ND Filter)

Mode	STILL
Subject	Color bar chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	41 to 48, 5C to 5F

Note 1: Perform “Auto White Balance Standard Data Input” before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is “00”. If not, turn the power of the unit OFF/ON.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: FF.
- 3) Select page: D, address: 63, set data: 40, and press the PAUSE button of the adjusting remote commander.
- 4) Select page: B, address: 67, after noting down the data, set data: 00, and press the PAUSE button.
- 5) Select page: 6, address: 01, set data: AB, and press the PAUSE button.
- 6) Select page: 6, address: 12, set data: 80, and press the PAUSE button.
- 7) Wait for 1 second.
- 8) Select page: 6, address: 12, set data: 00, and press the PAUSE button.
- 9) Wait for 2 seconds.
- 10) Select page: 6, address: 01, set data: A9, and press the PAUSE button. (The color reproduction adjustment (without ND filter) is performed and the adjustment data is stored in page: F, addresses: 41 to 48, 5C to 5F)
- 11) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 2) Select page: B, address: 67, set data noted down at step 4) and press the PAUSE button.
- 3) Select page: 5, address: F1, and set data: 00.
- 4) Select page: D, address: 63, set data: 00, and press the PAUSE button.
- 5) Select page: 0, address: 01, and set data: 00.
- 6) Perform “Color Reproduction Check”.

12-2. Color Reproduction Adjustment (With ND Filter)

Mode	STILL
Subject	Color bar chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	51 to 58, 60 to 63

Note 1: Perform “Auto White Balance Standard Data Input” and “Auto White Balance ND Filter Compensation” before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is “00”. If not, turn the power of the unit OFF/ON.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: FF.
- 3) Select page: D, address: 63, set data: 40, and press the PAUSE button of the adjusting remote commander.
- 4) Select page: B, address: 67, after noting down the data, set data: 00, and press the PAUSE button.
- 5) Select page: 6, address: 1C, set data: 03, and press the PAUSE button.
- 6) Wait for 1 second.
- 7) Select page: 6, address: 01, set data: C3, and press the PAUSE button.
- 8) Select page: 6, address: 12, set data: 80, and press the PAUSE button.
- 9) Wait for 1 second.
- 10) Select page: 6, address: 12, set data: 00, and press the PAUSE button.
- 11) Wait for 2 seconds.
- 12) Select page: 6, address: 01, set data: C1, and press the PAUSE button.
(The color reproduction adjustment (with ND filter) is performed and the adjustment data is stored in page: F, addresses: 51 to 58 and 60 to 63)
- 13) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 2) Select page: 6, address: 1C, set data: 00, and press the PAUSE button.
- 3) Select page: B, address: 67, set data noted down at step 4) and press the PAUSE button.
- 4) Select page: 5, address: F1, and set data: 00.
- 5) Select page: D, address: 63, set data: 00, and press the PAUSE button.
- 6) Select page: 0, address: 01, and set data: 00.
- 7) Perform “Color Reproduction Check”.

13. Color Reproduction Check

Mode	STILL
Subject	Color bar chart (Color reproduction adjustment frame)
Measurement Point	Video terminal of A/V OUT jack (75 Ω terminated)
Measuring Instrument	Vectorscope
Specified Value	All color luminance points should settle within each color reproduction frame.

Menu setting:

- 1) VIDEO OUT of SET UP menu
 - NTSC (NTSC mode)
 - PAL (PAL mode)

Checking method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: FF.
- 3) Select page: D, address: 63, set data: 40, and press the PAUSE button of the adjusting remote commander.
- 4) Check that the picture frame is set to the specified position. (Refer to "Picture Frame Setting")
- 5) Select page: B, address: 67, after noting down the data, set data: 00, and press the PAUSE button.
- 6) Select page: 6, address: 10, and set data: 01.
- 7) Select page: E, address: 52, after noting down the data, set data: 0A, and press the PAUSE button.
- 8) Select page: 6, address: 01, set data: 0F, and press the PAUSE button.
- 9) Select page: 6, address: 12, set data: 80, and press the PAUSE button.
- 10) Wait for 1 second.
- 11) Select page: 6, address: 12, set data: 00, and press the PAUSE button.
- 12) Wait for 2 seconds.
- 13) Check the each color luminance point is in each color reproduction frame.
- 14) Select page: 6, address: 1C, and set data: 03.
- 15) Wait for 1 second.
- 16) Select page: 6, address: 12, set data: 80, and press the PAUSE button.
- 17) Wait for 1 second.
- 18) Select page: 6, address: 12, set data: 00, and press the PAUSE button.
- 19) Wait for 2 seconds.
- 20) Check the each color luminance point is in each color reproduction frame.

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 2) Select page: 6, address: 1C, and set data: 00.
- 3) Select page: 6, address: 10, and set data: 00.
- 4) Select page: E, address: 52, set data noted down at step 7) and press the PAUSE button.
- 5) Select page: B, address: 67, set data noted down at step 5) and press the PAUSE button.
- 6) Select page: 5, address: F1, and set data: 00.
- 7) Select page: D, address: 63, set data: 00, and press the PAUSE button.
- 8) Select page: 0, address: 01, and set data: 00.

For NTSC mode

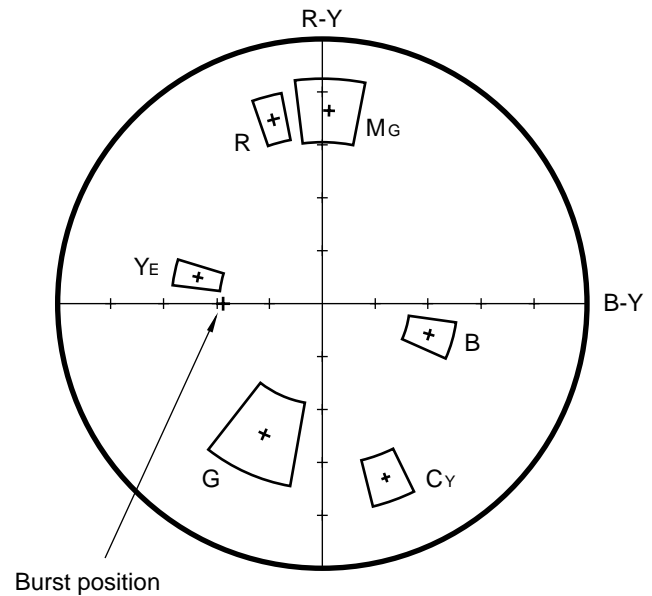


Fig. 5-1-16

For PAL mode

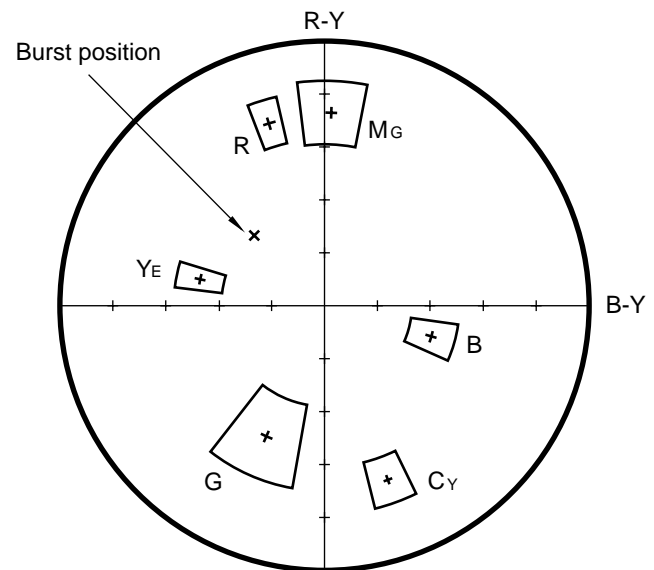



Fig. 5-1-17

14. White Balance Check

Mode	STILL	
Subject	Clear chart (Color reproduction adjustment frame)	
Measurement Point	Displayed data of Page: 1 (Note 2)	Video terminal of A/V OUT jack (75 Ω terminated)
Measuring Instrument	Adjustment remote Commander	Vectorscope
Specified Value	R ratio: 3E00 to 4200 B ratio: 3E00 to 4200	Fig. 5-1-18 (A) and (B)

Note 1: Refer to “Picture Frame Setting” for XH, XL, YH and YL.

Note 2: The right four digits of the page: 1 displayed data of the adjusting remote commander.

1:XX:XX

 Displayed data

Checking method:

- 1) Check that the lens is not covered with either filter.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: 5, address: F1, and set data: FF.
- 4) Select page: D, address: 63, set data: 40, and press the PAUSE button of the adjusting remote commander.
- 5) Select page: 6, address: 90, and set data: XL. (Note 1)
- 6) Select page: 6, address: 91, and set data: XH. (Note 1)
- 7) Select page: 6, address: 92, and set data: YL. (Note 1)
- 8) Select page: 6, address: 93, and set data: YH. (Note 1)
- 9) Select page: 6, address: 6C, and set data: 01.
- 10) Select page: 6, address: 01, set data: 79, press the PAUSE button.
- 11) Wait for 1 second.
- 12) Select page: 6, address: 2C, and set data: 01.
- INDOOR data check (without ND filter)
- 13) Select page: 6, address: 01, set data: 0F, and press the PAUSE button.
- 14) Select page: 0, address: 03, and set data: 04.
- 15) Select page: 1, and check that the displayed data (Note 2) satisfies the R ratio specified value.
- 16) Select page: 0, address: 03, and set data: 05.
- 17) Select page: 1, and check that the displayed data (Note 2) satisfies the B ratio specified value.
- INDOOR data check (with ND filter)
- 18) Select page: 6, address: 1C, and set data: 03.
- 19) Wait for 1 second.
- 20) Select page: 0, address: 03, and set data: 04.
- 21) Select page: 1, and check that the displayed data (Note 2) satisfies the R ratio specified value.
- 22) Select page: 0, address: 03, and set data: 05.
- 23) Select page: 1, and check that the displayed data (Note 2) satisfies the B ratio specified value.
- OUTDOOR luminance point check
- 24) Select page: 6, address: 1C, and set data: 00.
- 25) Select page: 0, address: 03, and set data: 00.
- 26) Check that the center of the white luminance point is within the circle shown Fig. 5-1-18 (A).
- OUTDOOR luminance point check
- 27) Place the C14 filter on the lens.
- 28) Select page: E, address: 4B, after noting down the data, set data: 20, and press the PAUSE button.
- 29) Select page: 6, address: 01, set data: 3F, and press the PAUSE button.
- 30) Check that the center of the white luminance point settles in the circle shown Fig. 5-1-18 (B).

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 2) Select page: 6, address: 6C, and set data: 00.
- 3) Select page: E, address: 4B, set data noted down at step 28) and press the PAUSE button.
- 4) Select page: 5, address: F1, and set data: 00.
- 5) Select page: D, address: 63, set data: 00, and press the PAUSE button.
- 6) Select page: 0, address: 01, and set data: 00.

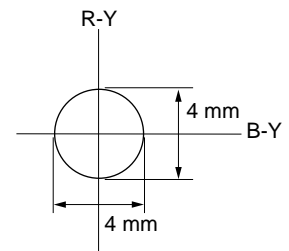


Fig. 5-1-18 (A)

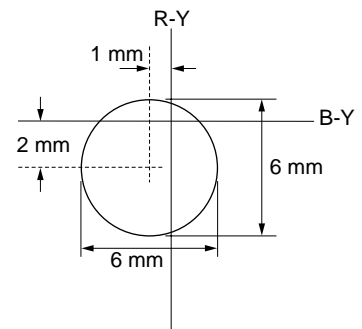


Fig. 5-1-18 (B)

15. Strobe White Balance Adjustment

Adjust the white balance when the strobe light flashed.

Mode	STILL
Subject	Flash adjustment box (Note 3) (1.0 m from the front of lens)
Adjustment Page	F
Adjustment Address	4D, 4E, 64, 69, 6A, 6B

Note 1: Perform “Hall Adjustment”, “Flange Back Adjustment”, “Light Level Adjustment” and “Auto White Balance Adjustment” before this adjustment.

Note 2: Perform this adjustment in the Flash adjustment box.

Note 3: Refer to “4. Preparing the Flash adjustment box”. (See page 5-7)

Note 4: Check that the data of page: 6, address: 02 is “00”. If not, turn the power of the unit OFF/ON.

Switch setting:

- FLASH ON

Adjusting method:

- Select page: 0, address: 01, and set data: 01.
- Select page: 5, address: F1, and set data: FF.
- Select page: D, address: 63, set data: 40, and press the PAUSE button of the adjusting remote commander.
- Select page: 6, address: 90, and set data: 00.
- Select page: 6, address: 91, and set data: 00.
- Select page: 6, address: 92, and set data: 00.
- Select page: 6, address: 93, and set data: 90.
- Select page: 6, address: 6C, and set data: 01.
- Select page: 6, address: 2C, and set data: 01.
- Select page: 6, address: 01, set data: 79, and press the PAUSE button.
- Select page: 6, address: 01, set data: 67, and press the PAUSE button.
- Select page: 6, address: 02, and check that the data: 01.
- Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- Select page: 6, address: 01, set data: 79, and press the PAUSE button.
- Select page: 6, address: 01, set data: 67, and press the PAUSE button.
- Select page: 6, address: 02, and check that the data: 01.
- Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- Select page: 6, address: 01, set data: 79, and press the PAUSE button.
- Select page: 6, address: 01, set data: B9, and press the PAUSE button. (The strobe white balance adjustment is performed and the adjustment data is stored in page: F, addresses: 4D, 4E, 64, 69, 6A and 6B)
- Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

- Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
- Perform “Strobe Light Level and White Balance Check” successively. (Do not turn the power of unit OFF)

16. Strobe Light Level and White Balance Check

Check the light level regulation and the white balance when the strobe light flashed.

Mode	STILL
Subject	Flash adjustment box (Note 3) (1.0 m from the front of lens)
Measurement Point	Displayed data of page: 1
Measuring Instrument	Adjusting remote commander
Specified value	Y level data: 60 to 94 R-Y level data: FA to FF or 00 to 06 (Note 4) B-Y level data: FA to FF or 00 to 06 (Note 4)

Note 1: Perform “Hall Adjustment”, “Flange Back Adjustment”, “Light Level Adjustment” and “Auto White Balance Adjustment” before this checking.

Perform this checking successively after performing “Strobe White Balance Adjustment”. (Do not turn the power of the unit OFF)

Note 2: Perform this adjustment in the Flash adjustment box.

Note 3: Refer to “4. Preparing the Flash adjustment box”. (See page 5-7)

Note 4: The right four digits of the page: 1 displayed data of the adjusting remote commander.

1:XX:XX

Note 5: Displayed data of page: F, address: 64 of the adjusting remote commander.

F:XX:64

Note 6: Check that the data of page: 6, address: 02 is “00”.

Checking method:

- Select page: 0, address: 01, and set data: 01.
- Select page: 6, address: 01, set data: 79, and press the PAUSE button of the adjusting remote commander.
- Select page: 6, address: 01, set data: 67, and press the PAUSE button.
- Check the flashing of strobe light.
- Select page: 6, address: 02, and check that the data is “01”.
- Select page: F, address: 64, and check that the data satisfies the Y level data specified value. (Note 5)
- Select page: 0, address: 03, and set data: 02.
- Select page: 1, and check the R-Y, B-Y level data (Note 4) satisfies the specified value.

Processing after Completing Adjustments:

- Select page: 0, address: 03, and set data: 00.
- Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
- Select page: 6, address: 2C, and set data: 00.
- Select page: 6, address: 6C, and set data: 00.
- Select page: 6, address: 93, and set data: 00.
- Select page: 5, address: F1, and set data: 00.
- Select page: D, address: 63, set data: 00, and press the PAUSE button.
- Select page: 0, address: 01, and set data: 00.

17. CCD Black Defect Compensation

Mode	STILL
Subject	Clear chart (25 cm from the front of lens)
Measurement Point	Displayed data of page: 6, address: 55
Measuring Instrument	Adjusting remote commander
Adjustment Page	7
Adjustment Address	60 to 87

Note 1: Check that there are no dust, no dirt and reflection of the clear chart.

Note 2: Any subject other than the clear chart should be in the screen.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: FF.
- 3) Select page: D, address: 63, set data: 40, and press the PAUSE button of the adjusting remote commander.
- 4) Select page: F, address: DF, after noting down the data, set data: 4C, and press the PAUSE button.
- 5) Select page: 6, address: 2C, and set data: 01.
- 6) Select page: 6, address: 90, and set data: 00.
- 7) Select page: 6, address: 91, and set data: 03.
- 8) Select page: 6, address: 92, and set data: 00.
- 9) Select page: 6, address: 93, and set data: 00.
- 10) Select page: 6, address: 6C, and set data: 01.
- 11) Select page: 6, address: 01, set data: 79, and press the PAUSE button.
- 12) Select page: 6, address: 30, and set data: 01.
- 13) Wait for 4 seconds.
- 14) Select page: 6, address: 01, set data: 8D, and press the PAUSE button. (The CCD black defect compensation is performed and the compensation data is stored in page: 7, addresses: 60 to 87)
- 15) Select page: 6, address: 02, and check that the data is "01".
- 16) Select page: 6, address: 55, and check the data.
00 to 0A: Normal
0B to FF: Defective
- 17) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 18) Select page: F, address: DF, set data: 5A, and press the PAUSE button.
- 19) Select page: 6, address: 01, set data: 89, and press the PAUSE button.
- 20) Select page: 6, address: 02, and check that the data is "01".
- 21) Select page: 6, address: 55, and check the data .
00: Normal
01 to FF: Defective

Processing after Completing Adjustments:

- 1) Select page: F, address: DF, set data noted down at step 4) and press the PAUSE button of the adjusting remote commander.
- 2) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 3) Select page: 6, address: 2C, and set data: 00.
- 4) Select page: 6, address: 30, and set data: 00.
- 5) Select page: 6, address: 6C, and set data: 00.
- 6) Select page: 6, address: 91, and set data: 00.
- 7) Select page: 5, address: F1, and set data: 00.
- 8) Select page: D, address: 63, set data: 00, and press the PAUSE button.
- 9) Select page: 0, address: 01, and set data: 00.

18. CCD White Defect Compensation

Mode	STILL
Subject	Clear chart (25 cm from the front of lens)
Measurement Point	Displayed data of page: 6, address: 55
Measuring Instrument	Adjusting remote commander
Adjustment Page	7
Adjustment Address	88 to A3

Note 1: Check that there are no dust, no dirt and reflection of the clear chart.

Note 2: Any subject other than the clear chart should be in the screen.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: FF.
- 3) Select page: D, address: 63, set data: 40, and press the PAUSE button of the adjusting remote commander.
- 4) Select page: F, address: DE, after noting down the data, set data: 1E, and press the PAUSE button.
- 5) Select page: F, address: E3, after noting down the data, set data: 08, and press the PAUSE button.
- 6) Select page: 6, address: 01, set data: 8B, and press the PAUSE button. (The CCD white defect compensation is performed and the compensation data is stored in page: 7, addresses: 88 to A3)
- 7) Select page: 6, address: 02, and check that the data is "01".
- 8) Select page: 6, address: 55, and check the data.
00 to 7F: Normal
80 to FF: Defective
- 9) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 10) Select page: F, address: DE, set data: 0F, and press the PAUSE button.
- 11) Select page: F, address: E3, set data: A0, and press the PAUSE button.
- 12) Select page: 6, address: 01, set data: 87, and press the PAUSE button.
- 13) Select page: 6, address: 02, and check that the data is "01".
- 14) Select page: 6, address: 55, and check the data.
00: Normal
01 to FF: Defective

Processing after Completing Adjustments:

- 1) Select page: F, address: DE, set data noted down at step 4) and press the PAUSE button of the adjusting remote commander.
- 2) Select page: F, address: E3, set data noted down at step 5) and press the PAUSE button.
- 3) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 4) Select page: 5, address: F1, and set data: 00.
- 5) Select page: D, address: 63, set data: 00, and press the PAUSE button.
- 6) Select page: 0, address: 01, and set data: 00.

1-5. LCD SYSTEM ADJUSTMENTS

Before perform the LCD system adjustments, check that the specified values of "VIDEO SYSTEM ADJUSTMENTS" are satisfied.

Note 1: The back light (fluorescent tube) is driven with high voltage AC power. Therefore, do not touch the back light directly, otherwise you will feel an electric shock.

Note 2: Taken an extreme care not to destroy the liquid crystal display module by static electricity when replacing it.

Note 3: Set the LCD BRIGHT to the center.

[Adjusting connector]

Most of the measuring points for adjusting the LCD system are concentrated in CN002 of the FK block.

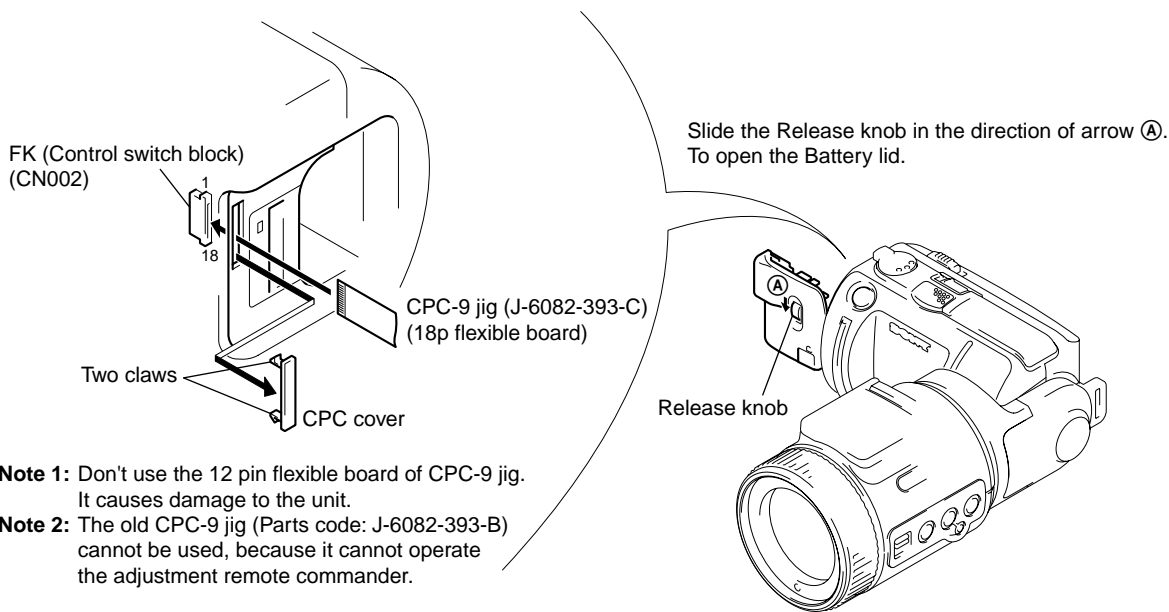
Connect the Measuring Instruments via the CPC-9 jig (J-6082-393-C).

The following table shows the Pin No. and signal name of CN002.

Pin No.	Signal Name	Pin No.	Signal Name
1	N. C.	10	UNREG
2	N. C.	11	LANC IN
3	N. C.	12	LANC OUT
4	REG GND	13	N. C.
5	XCPC_IN	14	RF7
6	N. C.	15	TXD
7	HSY	16	RXD
8	PANEL COM	17	RESET
9	VG	18	VDD

Table 5-1-7

• ATTACHMENT OF CPC-9 JIG



Note 1: Don't use the 12 pin flexible board of CPC-9 jig. It causes damage to the unit.

Note 2: The old CPC-9 jig (Parts code: J-6082-393-B) cannot be used, because it cannot operate the adjustment remote commander.

Fig. 5-1-19

1. LCD Initial Data Input

Mode	PLAY
Signal	Arbitrary
Adjustment Page	D
Adjustment Address	1C, 1D, D0 to D8, DD to DF

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, and enter the data given in the following table.

Note: Press the PAUSE button of the adjusting remote commander each time the data are set, as the data are written to non-volatile memory (EEPROM).

Address	Data	Remark
1C	00	Fixed value
1D	2C	
D0	BC	Bright Adjustment
D1	80	Color Adjustment
D2	B9	White Balance Adjustment
D3	B7	
D4	BE	Contrast Adjustment
D5	C8	D Range Adjustment
D6	7C	V-COM Level Adjustment
D7	80	VCO Adjutment (NTSC)
D8	74	V-COM Adjustment
DD	88	VCO Adjutment (PAL)
DE	13	Fixed value
DF	11	

Processing after Completing Adjustments:

- 1) Select page: 0, address: 01, and set data: 00.

2. VCO Adjustment (HI-73 Board)

Set the VCO free-run frequency. If deviated, the LCD screen will be blurred.

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ⑦ of CN002 (HSY) on FK block
Measuring Instrument	Frequency counter
Adjustment Page	D
Specified Value	D7 (NTSC) DD (PAL)
Specified Value	f = 15734 ± 30 Hz (NTSC) f = 15745 ± 30 Hz (PAL)

Menu setting:

- 1) VIDEO OUT of SET UP menu..... NTSC (NTSC mode)
(This adjustment must be performed in NTSC mode, so don't set the menu setting to "PAL")

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F0, and set data: 01.
- 3) Select page: D, address: D7, change the data and set the frequency (f) to the NTSC specified value.
- 4) Press the PAUSE button of the adjusting remote commander.
- 5) Select page: D, address: DD, and change the data and set the frequency (f) to the PAL specified value.
- 6) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

- 1) Select page: 5, address: F0, and set data: 00.
- 2) Select page: 0, address: 01, and set data: 00.

3. D Range Adjustment (HI-73 Board)

Set the D range of the LCD driver to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish)

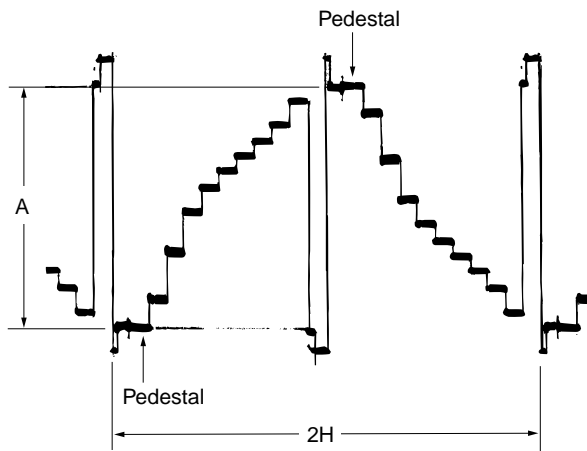
Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ⑨ of CN002 (VG) on FK block External trigger: Pin ⑧ of CN002 (PANEL COM) on FK block
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	D5
Specified Value	$A = 3.62 \pm 0.05 \text{ Vp-p}$

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: 03.
- 3) Select page: D, address: D5, change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
- 4) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

- 1) Select page: 5, address: F1, and set data: 00.
- 2) Select page: 0, address: 01, and set data: 00.



A: Pedestal level difference between 1H period and previous 1H period.

Fig. 5-1-20

4. Bright Adjustment (HI-73 Board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the LCD screen image will be blackish or saturated (whitish).

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ⑨ of CN002 (VG) on FK block External trigger: Pin ⑧ of CN002 (PANEL COM) on FK block
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	D0
Specified Value	$A = 2.00 \pm 0.08 \text{ Vp-p}$

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: 03.
- 3) Select page: 2, address: 10, and set data: 01.
- 4) Select page: D, address: D0, change the data and set the voltage (A) between the pedestal and GAMMA 1 limiter level to the specified value.
- 5) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

- 1) Select page: 5, address: F1, and set data: 00.
- 2) Select page: 2, address: 10, and set data: 00.
- 3) Select page: 0, address: 01, and set data: 00.

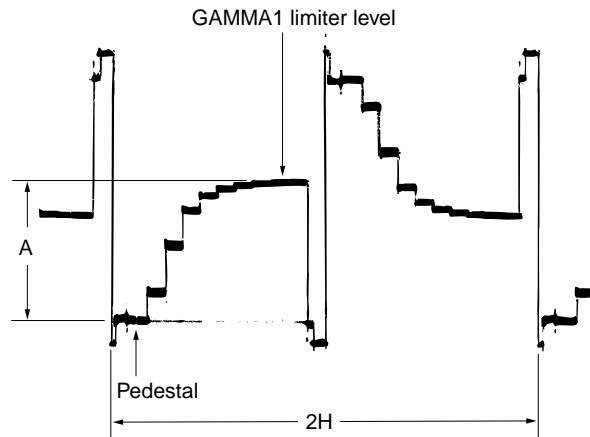


Fig. 5-1-21

5. Contrast Adjustment (HI-73 Board)

Set the level of the VIDEO signal for driving the LCD to the specified value.

If deviated, the LCD screen image will be blackish or saturated (whitish).

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ⑨ of CN002 (VG) on FK block External trigger: Pin ⑩ of CN002 (PANEL COM) on FK block
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	D4
Specified Value	$A = 3.31 \pm 0.05 \text{ V}_{p-p}$

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: 03.
- 3) Select page: D, address: D4, change the data and set the voltage (A) between the pedestal and 10 steps peak to the specified value.
- 4) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

- 1) Select page: 5, address: F1, and set data: 00.
- 2) Select page: 0, address: 01, and set data: 00.

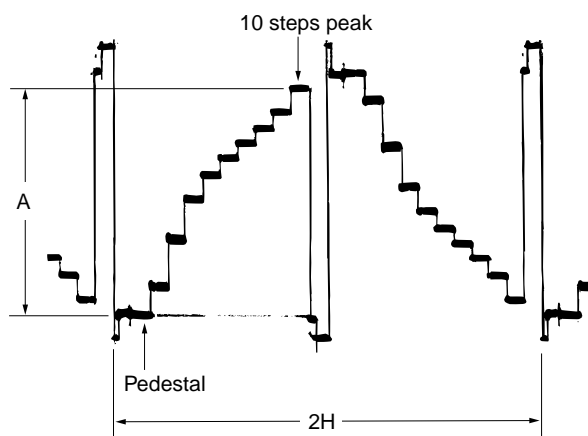


Fig. 5-1-22

6. Color Adjustment (HI-73 Board)

Set the color saturation to the standard value.

If, deviated, the color will be dark or light.

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ⑨ of CN002 (VG) on FK block External trigger: Pin ⑩ of CN002 (PANEL COM) on FK block
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	D1
Specified Value	$A = 544 \pm 50 \text{ mV}_{p-p}$

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: 04.
- 3) Select page: D, address: D1, change the data and set the voltage (A) between the white 100% (Reference level) and green to the specified value.
- 4) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

- 1) Select page: 5, address: F1, and set data: 00.
- 2) Select page: 0, address: 01, and set data: 00.

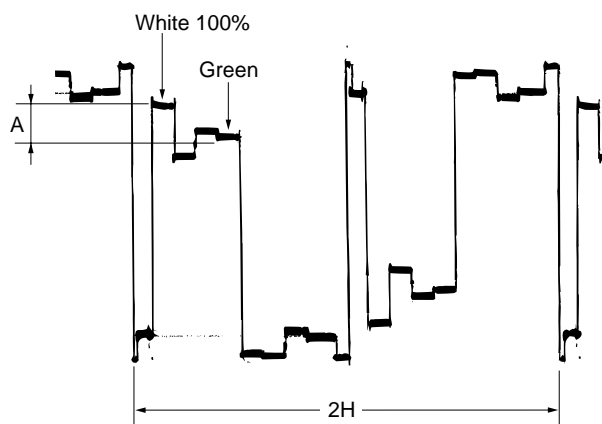


Fig. 5-1-23

7. V-COM Level Adjustment (HI-73 Board)

Set the common electrode drive signal level of LCD to the specified value.

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ③ of CN002 (PANEL COM) on FK block
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	D6
Specified Value	$A = 6.30 \pm 0.05 \text{ V}_{p-p}$

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: 03.
- 3) Select page: D, address: D6, change the data and set the V-COM signal level (A) to the specified value.
- 4) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

- 1) Select page: 5, address: F1, and set data: 00.
- 2) Select page: 0, address: 01, and set data: 00.

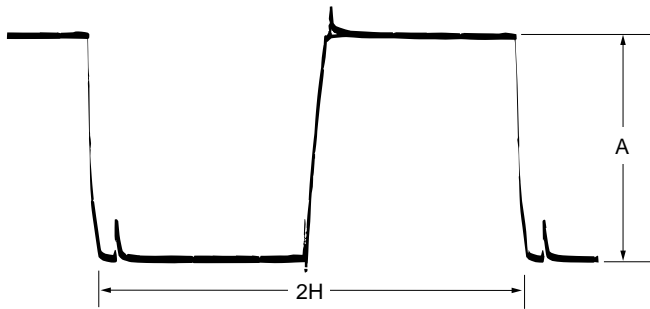


Fig. 5-1-24

8. V-COM Adjustment (HI-73 Board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.

If deviated, the LCD display will be move, producing flicker and conspicuous vertical lines.

Mode	PLAY
Signal	Arbitrary
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	D
Adjustment Address	D8
Specified Value	The brightness difference between the section-A and section-B is minimum

Note: Perform “Bright Adjustment” and “Contrast Adjustment” before this adjustment.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: 01.
- 3) Select page: 2, address: 10, and set data: 02.
- 4) Select page: D, address: D8, change the data so that brightness of the section A and section B is equal.
- 5) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

- 1) Select page: 5, address: F1, and set data: 00.
- 2) Select page: 2, address: 10, and set data: 00.
- 3) Select page: 0, address: 01, and set data: 00.

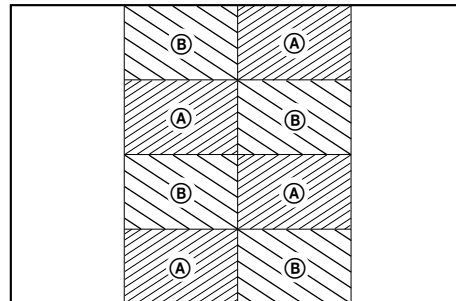


Fig. 5-1-25

9. White Balance Adjustment (HI-73 Board)

Correct the white balance.

If deviated, the LCD screen color cannot be reproduced.

Mode	PLAY
Signal	Arbitrary
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	D
Adjustment Address	D2, D3
Specified Value	LCD screen must not be colored

Note: Check the white balance only when replacing the following parts.

If necessary, adjust them.

1. LCD panel
2. Light induction plate
3. IC803

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: 02.
- 3) Select page: D, address: D2 and D3, and set the data to the initial value.

Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

Address	Data
D2	B9
D3	B7

- 4) Check that the LCD screen is not colored. If colored, change the data of page: D, address: D2 and D3 so that the LCD screen is not colored.

Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

- 5) Select page: 5, address: F1, and set data: 00.
- 6) Select page: 0, address: 01, and set data: 00.

1-6. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Battery Down Adjustment

Set the battery end voltage.

If the voltage is incorrect, the life of battery will shorten.

The image at the battery end will also be rough.

Mode	STILL
Subject	Arbitrary
Measurement Point	Displayed data of page: 2, address: 52
Measuring Instrument	Adjusting remote commander
Adjustment Page	D
Adjustment Address	90 to 94

Connection:

- 1) Connect the regulated power supply and the digital voltmeter to the battery terminal as shown in Fig. 5-1-26.

Adjusting method:

- 1) Adjust the output voltage of the regulated power supply so that the digital volt meter display is 3.5 ± 0.1 Vdc.
- 2) Turn off the power supply.
- 3) Turn the HOLD switch of the adjusting remote commander.
- 4) Turn on the power supply.
- 5) Insert the memory stick to the unit, and set the STILL mode.
- 6) Set the FOCUS switch in MANUAL mode.
- 7) Select page: 0, address: 01, and set data: 01.
- 8) Decrease the output voltage of the regulated power supply so that the digital voltmeter display is 3.00 ± 0.01 Vdc.
- 9) Select page: 2, address: 52, read the data, and this data is named Dref.
- 10) Select page: D, address: 90, set data Dref, and then press the PAUSE button of adjusting remote commander.
- 11) Convert Dref to decimal notation, and obtain Dref'.
(Refer to Table 5-2-2. "Hexadecimal-decimal conversion table")
- 12) Calculate D_{91}' , D_{92}' , D_{93}' and D_{94}' using following equations (decimal calculation), convert it to a hexadecimal number, and input each adjustment address.

Address: 91	$D_{91}' = Dref' + 8$
Address: 92	$D_{92}' = Dref' + 10$
Address: 93	$D_{93}' = Dref' + 10$
Address: 94	$D_{94}' = Dref' + 10$

Note: After setting each data, be sure to press the PAUSE button.

Processing after Completing Adjustments:

- 1) Select page: 0, address: 01, and set data: 00.

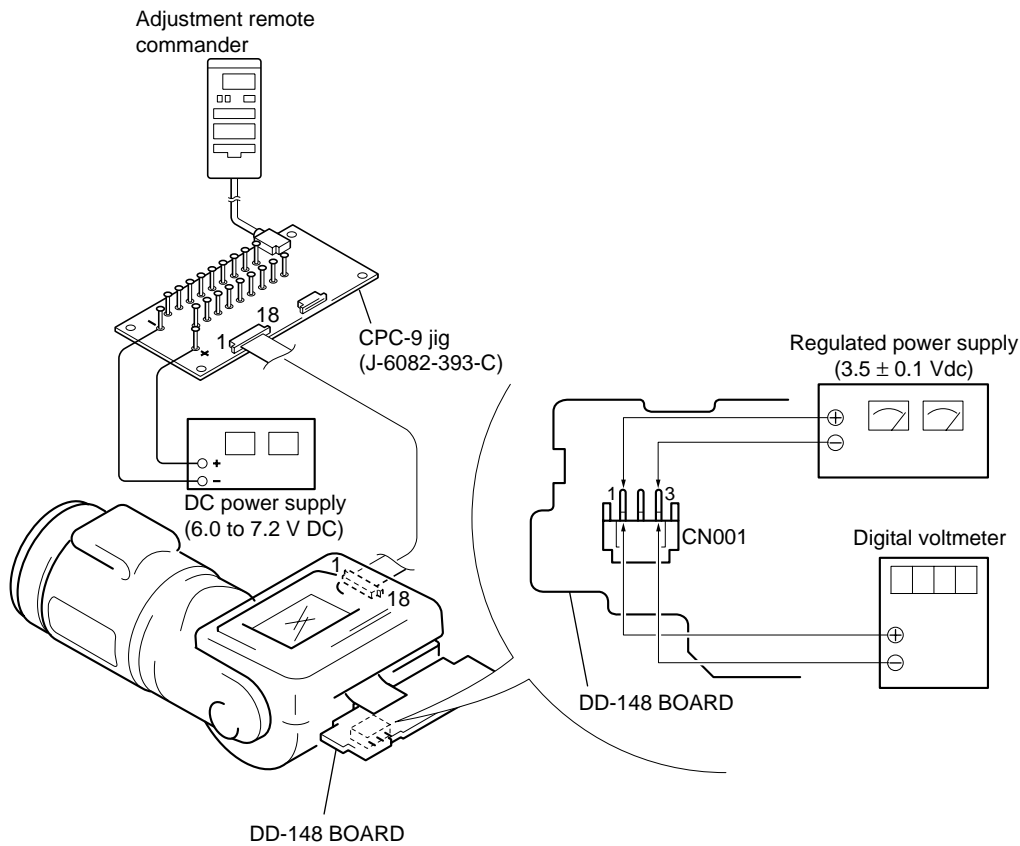


Fig. 5-1-26

2. ZOOM-VR Center Adjustment

Set normal position (center value) of ZOOM-VR.

Mode	STILL
Subject	Arbitrary
Measurement Point	Displayed data of page: 2 address: 5C (Note 2)
Measuring Instrument	Adjusting remote commander
Adjustment Page	D
Adjustment Address	89

Note 1: Before adjustment, make sure that the ZOOM-VR is in mechanical center position.

Note 2: Displayed data of page: 2, address: 5C of the adjusting remote commander.

2: XX: 5C

└─ Displayed data

Adjustment method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 2, address: 5C.
- 3) With the ZOOM at TELE end, check the displayed data. (Note 2)
F5 to FF: Normal
00 to F4: Defective
- 4) Return the ZOOM from TELE end to the center, and check the displayed data. (Note 2)
62 to 9E: Normal
00 to 61 and 9F to FF: Defective
- 5) Read the data checked in step 4), which is assumed to be D1ref.
- 6) Convert D1ref to decimal notation, and obtain D1ref'. (Refer to Table 5-2-2. "Hexadecimal-decimal conversion table" of "5-2.Service Mode")
- 7) With the ZOOM at WIDE end, check the displayed data. (Note 2)
00 to 10: Normal
11 to FF: Defective
- 8) Return the ZOOM from WIDE end to the center, and check the displayed data. (Note 2)
62 to 9E: Normal
00 to 61 and 9F to FF: Defective
- 9) Read the data checked in step 8), which is assumed to be D2ref.
- 10) Convert D2ref to decimal notation, and obtain D2ref'. (Refer to Table 5-2-2. "Hexadecimal-decimal conversion table" of "5-2.Service Mode")
- 11) Check that a difference between D1ref' and D2ref' is 41 or less.
- 12) From the following equation (calculation of decimal number), calculate Dref' (omit the decimal fraction) and convert it into hexadecimal number, which is assumed to be Dref.

$$Dref' = \frac{D1ref' + D2ref'}{2}$$

- 13) From the following table, obtain D89 that corresponds to Dref.

Dref	D89
63 to 72	73
73 to 90	Dref
91 to 9D	90

- 14) Select page: D, address: 89, set data: D89, and then press the PAUSE button of adjusting remote commander.

Processing after Completing Adjustment:

- 1) Select page: 0, address: 01, and set data: 00.

5-2. SERVICE MODE

2-1. ADJUSTING REMOTE COMMANDER

The adjusting remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjusting remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Used Adjusting Remote Commander

- 1) Connect the adjusting remote commander to the CN002 on the FK (control switch block) via CPC-9 jig (J-6082-393-C).
 - 2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).
 - 3) Turn on the power with the POWER switch of the unit.
- If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Fig. 5-2-1.

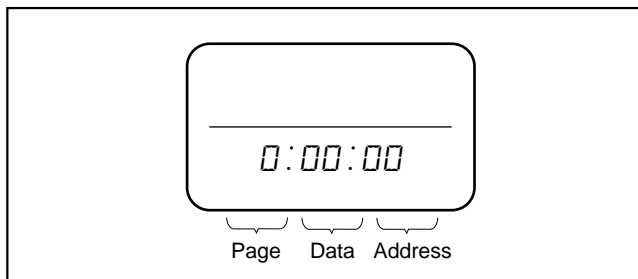


Fig. 5-2-1

- 4) Operate the adjusting remote commander as follows.
 - Changing the page

The page increases when the EDIT SEARCH + button is pressed, and decreases when the EDIT SEARCH – button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0 1 2 3 4 5 6 7 8 9 A B C D E F
LCD Display	0 1 2 3 4 5 6 7 8 9 A b c d E F
Decimal notation conversion value	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Table 5-2-1

- Changing the address

The address increases when the FF (▶▶) button is pressed, and decreases when the REW (▶▶) button is pressed. There are altogether 256 addresses, from 00 to FF.
- Changing the data (Data setting)

The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
- Writing the adjustment data

The PAUSE button must be pressed to write the adjustment data in the nonvolatile memory. (The new adjustment data will not be recorded in the nonvolatile memory if this step is not performed)

2. Precautions upon Using the Adjusting Remote Commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

2-2. DATA PROCESS

The calculation of the adjusting remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table 5-2-2. indicates the hexadecimal notation- the decimal notation, calculation table.

Hexadecimal notation-Decimal notation																
The lower digits of the hexadecimal notation The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
											(A)	(B)	(C)	(D)	(E)	(F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
①→ B (B)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (C)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (D)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note : () indicate the adjusting remote control unit display.

(Example) In the case that the adjusting remote control unit display are BD (BD).
As the upper digit of the hexadecimal notation is B (B), and the lower digit is D (D), the intersection “189” of the ① and ② in the above table is the decimal notation to be calculated.

Table 5-2-2

2-3. SERVICE MODE

1. Setting the Test Mode

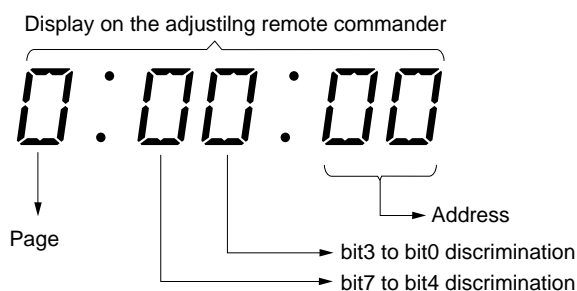
Page D	Address 10
--------	------------

Data	Function
00	Normal
01	Forced STILL mode power ON
02	Forced PLAY mode power ON
03	Forced MOVIE mode power ON

- Before setting the data, select page: 0, address: 01, and set data: 01.
- For page D, the data set is recorded in the non-volatile memory by pressing the PAUSE button of the adjusting remote commander. In this case, take note that the test mode will not be exited even when the main power is turned off.
- After completing adjustments/repairs, be sure to return the data of this address to “00”, and press the PAUSE button of the adjusting remote commander.
Select page: 0, address: 01, and set data: 00.

2. Bit Value Discrimination

Bit values must be discriminated using the display data of the adjusting remote commander for following items. Use the table below to discriminate if the bit value is “1” or “0”



Display on the Adjusting remote commander	Bit values			
	bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
Ⓐ 8	1	0	0	0
9	1	0	0	1
A(\bar{A})	1	0	1	0
B(\bar{b})	1	0	1	1
C(\bar{c})	1	1	0	0
D(\bar{d})	1	1	0	1
Ⓑ E(\bar{E})	1	1	1	0
F(\bar{F})	1	1	1	1

Example: If “8E” is displayed on the adjusting remote commander, the bit values for bit7 to bit4 are shown in the Ⓐ column, and the bit values for bit3 to bit0 are shown in the Ⓑ column.

3. Balance Sensor Check

Page 2	Address 42
--------	------------

State	Bit values	
	bit 0	bit 1
Upright state	1	1
Tilt 90° rightward	0	1
Tilt 90° leftward	1	0

Using method:

- 1) Select page: 2, address: 42.
- 2) Placing the set in respective states, check from the bit value of displayed data that the sensor operates normally.

4. Switch Check (1)

Page 2	Address 43
--------	------------

Bit	Function	When bit value=1	When bit value=0
2	SHUTTR SW (PW block)	OFF	ON
3	XSHUTTERLOCKSW (PW block)	OFF	ON

Using method:

- 1) Select page: 2, address: 43
- 2) By discriminating the bit value of display data, the state of the switches can be discriminated.

5. Switch Check (2)

Page 2	Addresses 54 to 56 and 58
--------	---------------------------

Using method:

- 1) Select page: 2, addresses: 54 to 56 and 58.
- 2) By discriminating the display data, the pressed key can be discriminated.

Address	Data						
	00 to 14	15 to 3B	3C to 64	65 to 91	92 to BD	BE to F0	F1 to FF
54 (KEY AD0) (IC404 ㉞)						FLASH OPEN (ST unit) (S001)	FLASH CLOSE (ST unit) (S001)
55 (KEY AD1) (IC404 ㉟)	CONTROL DOWN (FK block) (S001)	CONTROL UP (FK block) (S001)	DISPLAY (FK block) (S004)	LCD BRIGHT+ (FK block) (S005)	LCD BRIGHT- (FK block) (S007)		
56 (KEY AD2) (IC404 ㊱)	CONTROL RIGHT (FK block) (S001)	CONTROL LEFT (FK block) (S001)	CONTROL SET (FK block) (S001)	FLASH (FK block) (S002)	PROGRAM AE (FK block) (S003)	LCD BACK LIGHT OFF (FK block) (S006)	LCD BACK LIGHT ON (FK block) (S006)
58 (KEY AD4) (IC404 ㊲)		MACRO (CF block) (S001)	SPOT METER (CF block) (S002)	WHT BAL (CF block) (S003)	W/B SET (CF block) (S004)	MANUAL FOCUS (CF block) (S005)	AUTO FOCUS (CF block) (S005)

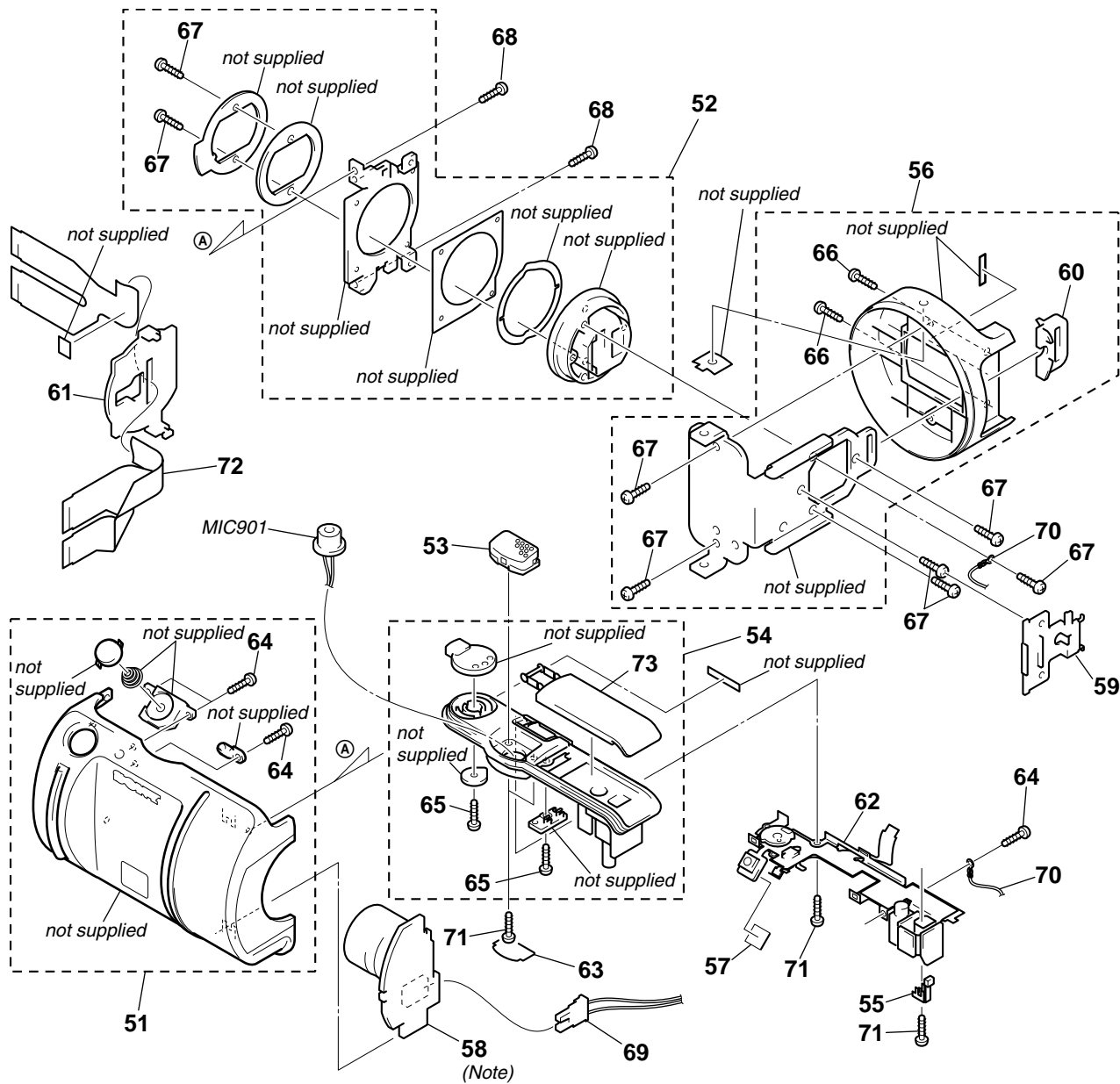
6. LED Check

Page 2	Address 06	Data 02
--------	------------	---------

Using method:

- 1) Select page: 2, address: 06, and set data: 02.
- 2) Check that all LED except for the ACCESS LED are lit.
- 3) Select page: 2, address: 06, and set data: 00.

6-1-2. FRONT CABINET ASSEMBLY



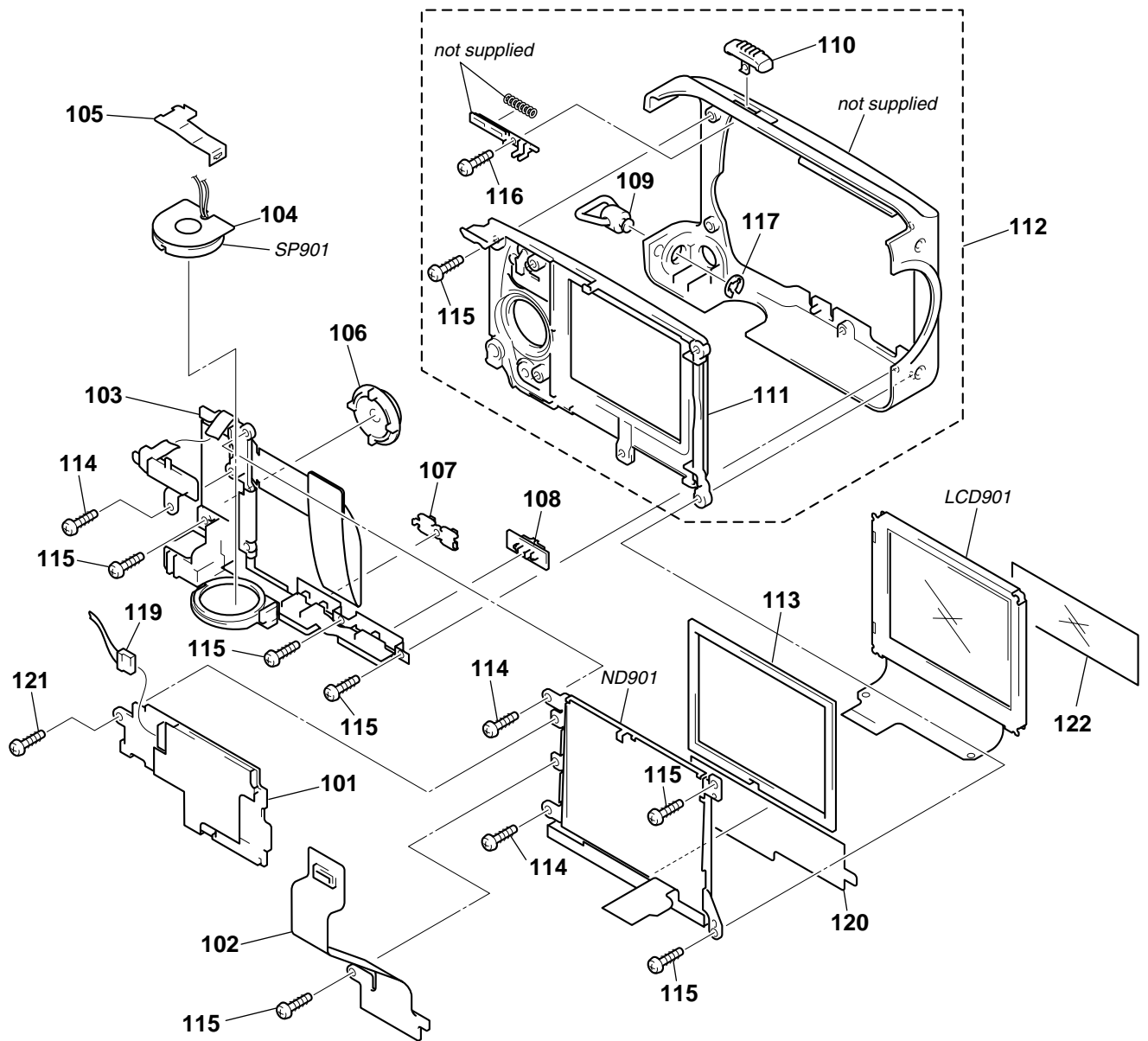
(Note) Refer to page 2-5 "2-7. Upper cabinet block, flash unit (MC)" for details of replacement of Flash unit (MC).

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

Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	X-3949-843-1	CABINET (F) ASSY, P		* 63	3-058-170-01	SHEET, MICROPHONE	
52	X-3950-713-1	HINGE ASSY		64	3-989-735-51	SCREW (M1.7), LOCK ACE, P2	
53	X-3950-819-1	GRILLE ASSY, MICROPHONE		65	3-713-791-01	SCREW (M1.7X4), TAPPING, P2	
54	X-3950-715-1	CABINET (UPPER) ASSY		66	3-713-786-21	SCREW (M2X3)	
55	X-3949-849-1	RETAINER ASSY, JK		67	3-948-339-61	TAPPING	
56	X-3950-711-1	CABINET (M) ASSY		68	3-719-381-01	SCREW (M2X4)	
* 57	3-057-084-01	SHEET, RELEASE		69	1-960-050-11	HARNESS (MS-114)	
\triangle 58	1-418-657-11	FLASH UNIT (MC) (Note)		70	1-960-061-11	HARNESS (GN-52)	
* 59	3-056-769-01	GUARD, FP		71	3-914-366-01	SCREW (DIA. 1.7X4), PRECISION	
60	3-056-716-01	COVER, HOOK		72	1-678-657-11	FP-37 FLEXIBLE BOARD	
* 61	3-056-765-01	HOLDER, FP		73	X-3950-846-1	COVER ASSY, JK (SERVICE)	
62	1-476-140-11	SWITCH BLOCK, CONTROL (PW)		MIC901	1-542-408-11	MICROPHONE UNIT	

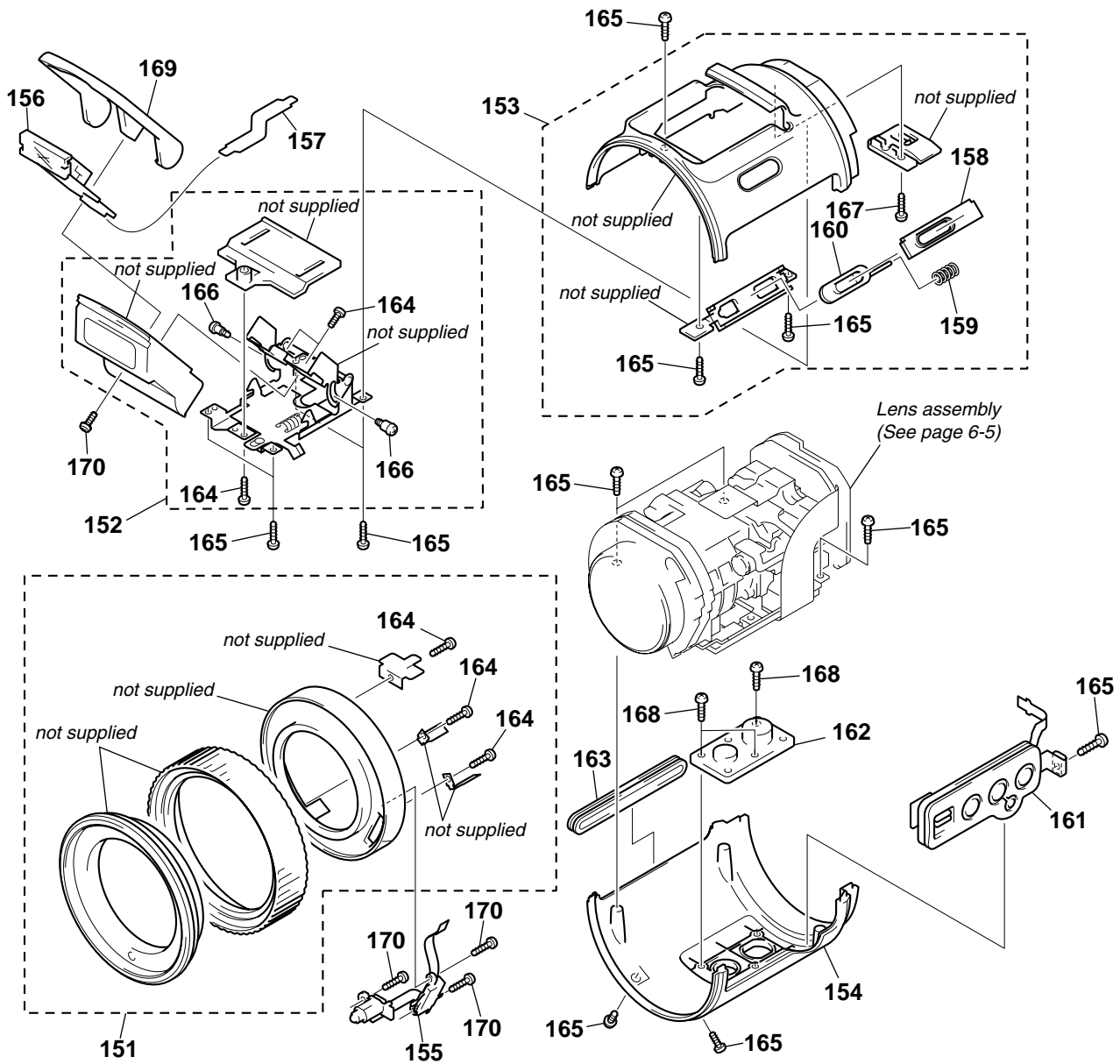
6-1-3. REAR CABINET ASSEMBLY



<p>The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	1-418-880-11	TRANSFORMER UNIT, INVERTER		113	3-056-774-01	CUSHION, BL	
102	1-675-591-21	FP-134 FLEXIBLE BOARD		114	3-914-366-01	SCREW (DIA. 1.7X4), PRECISION	
103	1-476-139-11	SWITCH BLOCK, CONTROL (FK)		115	3-989-735-51	SCREW (M1.7), LOCK ACE, P2	
* 104	3-057-098-01	SHEET, SP PROTECTION		116	3-056-711-01	SCREW (M1.4)	
* 105	3-057-088-01	RETAINER (SP)		117	7-624-106-04	STOP RING 3.0, TYPE -E	
106	3-058-280-11	BUTTON, FUNCTION		119	1-960-049-11	HARNES (HB-50)	
107	3-056-771-11	BUTTON, BR		120	3-056-773-01	SHEET, BL LIGHT INTERCEPTION	
108	3-056-770-11	KNOB, BL		121	3-056-030-01	ACE (M1.7), 0 PLATE 2 MAIN LOCK	
109	3-056-707-01	BRACKET, STRAP		* 122	3-057-534-01	SHEET, PANEL SHIELD	
110	X-3950-818-1	LEVER ASSY, ZOOM		LCD901	1-803-549-23	MODULE, CRYSTAL INDICATION	
111	X-3950-717-1	ESCUTCHEON (R) ASSY		Δ ND901	1-517-878-21	TUBE, FLUORESCENT, COLD CATHODE	
112	X-3950-710-1	CABINET (R) ASSY, P		SP901	1-505-862-51	SPEAKER (2.0cm)	

6-1-4. LENS CABINET ASSEMBLY

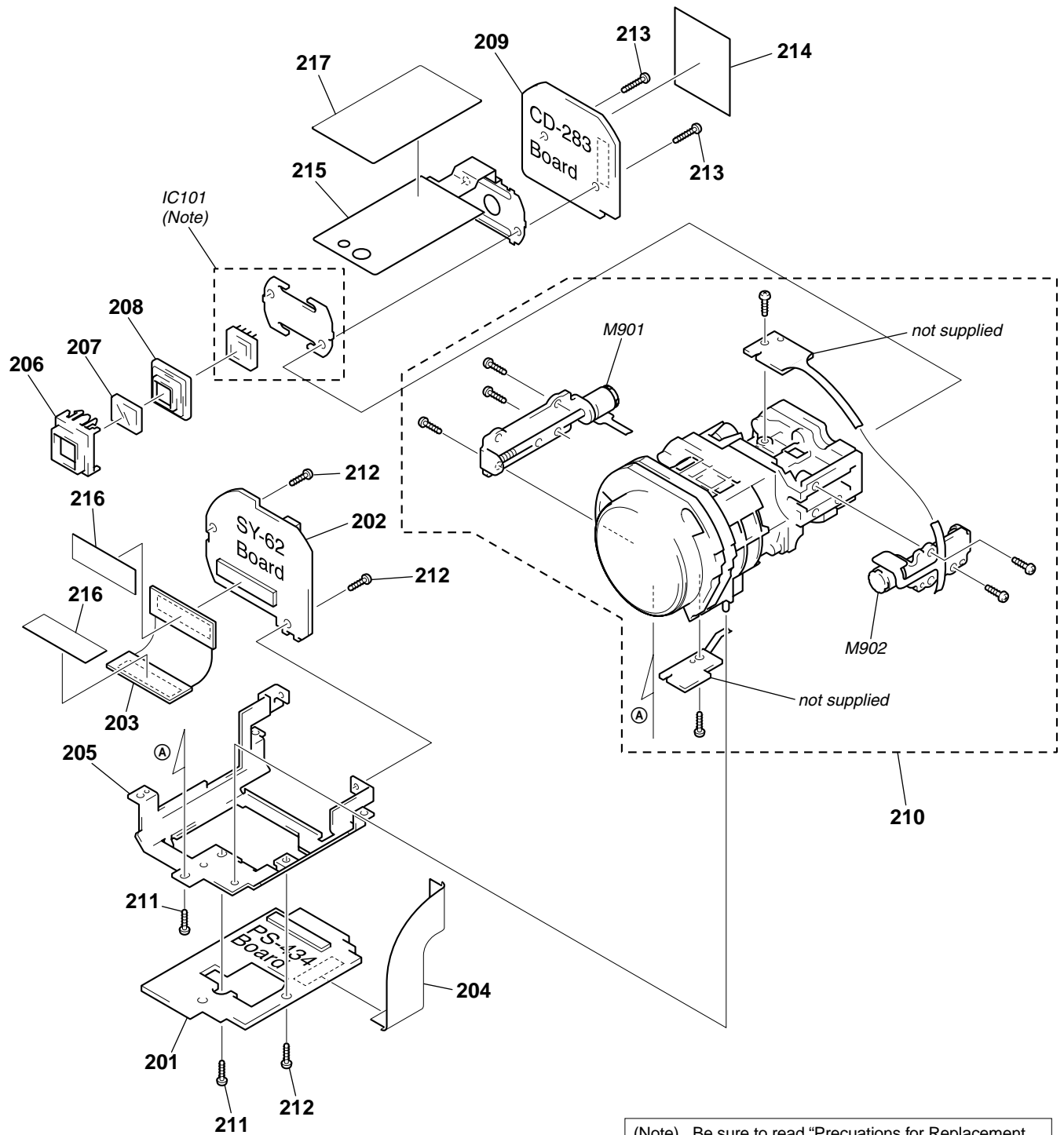


The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	X-3950-707-1	CABINET (MF) ASSY		161	1-418-652-21	SWITCH BLOCK, CONTROL (CF)	
152	X-3950-817-1	SHEET METAL ASSY, ST		162	3-056-700-02	PLATE, TRIPOD	
153	X-3950-708-1	CABINET (LT) ASSY		163	3-056-763-11	ORNAMENT, LENS	
154	X-3950-709-1	CABINET (LB) ASSY		164	3-713-791-01	SCREW (M1.7X4), TAPPING, P2	
155	1-418-656-11	FOCUS BLOCK, MANUAL		165	3-989-735-51	SCREW (M1.7), LOCK ACE, P2	
\triangle 156	1-418-658-21	FLASH UNIT (ST)		166	4-984-006-01	SCREW, STEP	
157	1-675-593-11	FP-136 FLEXIBLE BOARD		167	3-054-938-01	SCREW, STEP	
158	3-056-688-11	COVER, RELEASE		168	3-713-786-21	SCREW (M2X3)	
159	3-056-690-01	SPRING (R), COMPRESSION COIL		169	X-3950-716-1	CABINET (ST) ASSY	
160	3-056-689-11	KNOB, RELEASE		170	3-914-366-01	SCREW (DIA. 1.7X4), PRECISION	

6-1-5. LENS ASSEMBLY



(Note) Be sure to read "Precautions for Replacement of CCD Imager" on page 4-10 when changing the CCD imager.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
201	A-7074-485-A	PS-434 BOARD, COMPLETE		211	3-914-366-01	SCREW (DIA. 1.7X4), PRECISION	
202	A-7096-289-A	SY-62 BOARD, COMPLETE (SERVICE)		212	3-989-735-51	SCREW (M1.7), LOCK ACE, P2	
203	A-7074-486-A	CN-121 BOARD, COMPLETE		213	3-318-203-11	SCREW (B1.7X6), TAPPING	
204	1-678-656-11	FP-36 FLEXIBLE BOARD		214	3-057-094-01	SHEET, HI	
205	3-061-904-01	FRAME, LENS		* 215	3-061-905-01	HEAT SINK, CD	
206	3-054-554-11	ADAPTOR (K), CCD FITTING		216	3-061-906-01	SHEET, 100P FIXED	
207	1-758-441-11	FILTER BLOCK, OPTICAL		* 217	3-062-694-01	SHEET, STROBOSCOPE (KBR)	
208	3-054-555-11	RUBBER (K), SEAL		M901	3-709-551-01	MOTOR UNIT, ZOOM STEPPING	
209	A-7074-484-A	CD-283 BOARD, COMPLETE		M902	3-709-400-01	MOTOR, FOCUS STEPPING	
210	A-7031-126-A	LENS ASSY		IC101	A-7031-119-A	CCD BLOCK ASSY (CCD IMAGER) (Note)	

6-2. ELECTRICAL PARTS LIST

NOTE:

- 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 and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable
- Abbreviation
AUS : Australian model J : Japanese model
CN : Chinese model JE : Tourist model
CND : Canadian model KR : Korea model
HK : Hong Kong model

- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u: μ , for example:
uA. . : μ A. . uPA. . : μ PA. .
uPB. . : μ PB. . uPC. . : μ PC. .
uPD. . : μ PD. .
- CAPACITORS
uF: μ F
- COILS
uH: μ H

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

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
	A-7074-484-A	CD-283 BOARD, COMPLETE ***** (Ref.No.: 1,000 Series) (IC101 is not included in this complete board)		C137	1-110-569-11	TANTAL. CHIP 47uF 20%	6.3V
		< CAPACITOR >		C138	1-113-985-11	TANTAL. CHIP 10uF 20%	20V
C102	1-164-850-11	CERAMIC CHIP 10PF	0.50PF 16V	C139	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
C103	1-107-820-11	CERAMIC CHIP 0.1uF	16V	C140	1-107-826-91	CERAMIC CHIP 0.1uF 10%	16V
C104	1-107-826-91	CERAMIC CHIP 0.1uF	10% 16V	C141	1-119-751-11	TANTAL. CHIP 22uF 20%	16V
C105	1-107-826-91	CERAMIC CHIP 0.1uF	10% 16V			< CONNECTOR >	
C106	1-162-966-11	CERAMIC CHIP 0.0022uF	10% 50V	CN101	1-784-423-21	CONNECTOR, FFC/FPC (ZIF) 39P	
C107	1-107-826-91	CERAMIC CHIP 0.1uF	10% 16V			< DIODE >	
C108	1-104-329-11	CERAMIC CHIP 0.1uF	10% 50V	D101	8-719-073-01	DIODE MA111-(K8).SO	
C109	1-107-682-11	CERAMIC CHIP 1uF	10% 16V	D102	8-719-056-23	DIODE MA2S111-(K8).SO	
C110	1-107-826-91	CERAMIC CHIP 0.1uF	10% 16V			< FERRITE BEAD >	
C111	1-119-751-11	TANTAL. CHIP 22uF	20% 16V	FB101	1-414-228-11	INDUCTOR CHIP 0uH	
C112	1-113-985-11	TANTAL. CHIP 10uF	20% 20V	FB103	1-414-228-11	INDUCTOR CHIP 0uH	
C113	1-107-826-91	CERAMIC CHIP 0.1uF	10% 16V	FB104	1-414-228-11	INDUCTOR CHIP 0uH	
C114	1-119-750-11	TANTAL. CHIP 22uF	20% 6.3V	FB105	1-414-228-11	INDUCTOR CHIP 0uH	
C115	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V	* FB106	1-500-282-11	INDUCTOR CHIP 0uH	
C116	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V	FB107	1-414-228-11	INDUCTOR CHIP 0uH	
C117	1-107-826-91	CERAMIC CHIP 0.1uF	10% 16V	FB108	1-414-228-11	INDUCTOR CHIP 0uH	
C118	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V	FB109	1-414-228-11	INDUCTOR CHIP 0uH	
C119	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V	FB110	1-500-284-21	INDUCTOR CHIP 0uH	
C120	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V	* FB111	1-500-282-11	INDUCTOR CHIP 0uH	
C121	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V	FB113	1-414-227-11	INDUCTOR CHIP 0uH	
C122	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V	* FB114	1-500-282-11	INDUCTOR CHIP 0uH	
C123	1-104-329-11	CERAMIC CHIP 0.1uF	10% 50V			< IC >	
C124	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V	IC101	A-7031-119-A	CCD BLOCK ASSY (CCD IMAGER)	
C125	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V	IC102	8-752-404-95	IC CXD2497R-T4	
C126	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V	IC103	8-759-653-62	IC AD80027JSTRL	
C127	1-164-943-11	CERAMIC CHIP 0.01uF	10% 16V			< COIL >	
C128	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V	L101	1-469-528-91	INDUCTOR 100uH	
C129	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V	L102	1-412-955-11	INDUCTOR 22uH	
C130	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V	L103	1-412-951-11	INDUCTOR 10uH	
C131	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V	L104	1-412-955-11	INDUCTOR 22uH	
C132	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V			< TRANSISTOR >	
C133	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V	Q101	8-729-117-73	TRANSISTOR 2SC4178-F13F14-T1	
C134	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V				
C135	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V				
C136	1-110-569-11	TANTAL. CHIP 47uF	20% 6.3V				

(Note) Be sure to read "Note on the CCD Imager Replacement" on page 4-10 when changing the CCD imager.

Ref. No.	Part No.	Description	Remark
Q102	8-729-037-74	TRANSISTOR UN9213J- (K8).SO	
Q103	8-729-037-74	TRANSISTOR UN9213J- (K8).SO	
< RESISTOR >			
R101	1-218-959-11	RES-CHIP 3.3K 5%	1/16W
R102	1-218-932-11	RES-CHIP 18 5%	1/16W
R104	1-218-989-11	RES-CHIP 1M 5%	1/16W
R105	1-218-958-11	RES-CHIP 2.7K 5%	1/16W
R106	1-218-977-11	RES-CHIP 100K 5%	1/16W
R107	1-218-931-11	RES-CHIP 15 5%	1/16W
R108	1-218-931-11	RES-CHIP 15 5%	1/16W
R112	1-208-643-11	RES-CHIP 22 5%	1/16W
R113	1-218-937-11	RES-CHIP 47 5%	1/16W
R114	1-218-973-11	RES-CHIP 47K 5%	1/16W
R115	1-218-945-11	RES-CHIP 220 5%	1/16W
R119	1-218-937-11	RES-CHIP 47 5%	1/16W
R126	1-218-990-11	SHORT 0	
R128	1-218-990-11	SHORT 0	
R129	1-218-959-11	RES-CHIP 3.3K 5%	1/16W
R138	1-218-977-11	RES-CHIP 100K 5%	1/16W
R139	1-218-937-11	RES-CHIP 47 5%	1/16W
R140	1-218-937-11	RES-CHIP 47 5%	1/16W
R141	1-218-937-11	RES-CHIP 47 5%	1/16W
R142	1-218-937-11	RES-CHIP 47 5%	1/16W
R143	1-218-937-11	RES-CHIP 47 5%	1/16W
R144	1-218-937-11	RES-CHIP 47 5%	1/16W
R145	1-218-937-11	RES-CHIP 47 5%	1/16W
R146	1-218-937-11	RES-CHIP 47 5%	1/16W
R147	1-218-937-11	RES-CHIP 47 5%	1/16W
R148	1-218-937-11	RES-CHIP 47 5%	1/16W
R149	1-218-937-11	RES-CHIP 47 5%	1/16W
R150	1-218-937-11	RES-CHIP 47 5%	1/16W
R152	1-218-990-11	SHORT 0	
< VIBRATOR >			
X101	1-781-772-21	OSCILLATOR, CRYSTAL (36.818182MHz)	
X102	1-781-771-21	OSCILLATOR, CRYSTAL (36.5625MHz)	
<hr/>			
A-7074-486-A	CN-121 BOARD, COMPLETE ***** (Ref.No.: 1,000 Series)		
< CONNECTOR >			
CN001	1-785-967-21	CONNECTOR, BOARD TO BOARD 100P	
CN002	1-785-969-21	CONNECTOR, BOARD TO BOARD 100P	
<hr/>			
A-7074-489-A	DD-148 BOARD, COMPLETE ***** (Ref.No.: 2,000 Series)		
< CAPACITOR >			
C001	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V
C002	1-115-467-11	CERAMIC CHIP 0.22uF 10%	10V
C003	1-107-826-91	CERAMIC CHIP 0.1uF 10%	16V
C004	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C005	1-162-979-11	CERAMIC CHIP 0.0027uF 10%	50V
C006	1-164-874-11	CERAMIC CHIP 100PF 5%	16V
C007	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C008	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C009	1-162-969-11	CERAMIC CHIP 0.0068uF 10%	25V

Ref. No.	Part No.	Description	Remark
C010	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V
C011	1-162-966-11	CERAMIC CHIP 0.0022uF 10%	50V
C012	1-162-966-11	CERAMIC CHIP 0.0022uF 10%	50V
C013	1-164-876-11	CERAMIC CHIP 120PF 5%	16V
C014	1-164-874-11	CERAMIC CHIP 100PF 5%	16V
C015	1-164-940-11	CERAMIC CHIP 0.0033uF 10%	16V
C016	1-109-994-11	CERAMIC CHIP 2.2uF 10%	10V
C017	1-164-940-11	CERAMIC CHIP 0.0033uF 10%	16V
C018	1-109-994-11	CERAMIC CHIP 2.2uF 10%	10V
C019	1-109-994-11	CERAMIC CHIP 2.2uF 10%	10V
C022	1-164-939-11	CERAMIC CHIP 0.0022uF 10%	16V
C023	1-109-994-11	CERAMIC CHIP 2.2uF 10%	10V
C024	1-164-940-11	CERAMIC CHIP 0.0033uF 10%	16V
C025	1-109-994-11	CERAMIC CHIP 2.2uF 10%	10V
C026	1-109-982-11	CERAMIC CHIP 1uF 10%	10V
C027	1-125-838-91	CERAMIC CHIP 2.2uF 10%	6.3V
C028	1-109-994-11	CERAMIC CHIP 2.2uF 10%	10V
C029	1-164-937-11	CERAMIC CHIP 0.001uF 10%	16V
C030	1-164-937-11	CERAMIC CHIP 0.001uF 10%	16V
C032	1-115-566-11	CERAMIC CHIP 4.7uF 10%	10V
C033	1-115-566-11	CERAMIC CHIP 4.7uF 10%	10V
C034	1-115-566-11	CERAMIC CHIP 4.7uF 10%	10V
C035	1-109-994-11	CERAMIC CHIP 2.2uF 10%	10V
C036	1-109-994-11	CERAMIC CHIP 2.2uF 10%	10V
C037	1-125-838-91	CERAMIC CHIP 2.2uF 10%	6.3V
C038	1-125-838-91	CERAMIC CHIP 2.2uF 10%	6.3V
C039	1-107-682-11	CERAMIC CHIP 1uF 10%	16V
C040	1-109-982-11	CERAMIC CHIP 1uF 10%	10V
C041	1-107-682-11	CERAMIC CHIP 1uF 10%	16V
C042	1-115-566-11	CERAMIC CHIP 4.7uF 10%	10V
C043	1-115-566-11	CERAMIC CHIP 4.7uF 10%	10V
C044	1-125-838-91	CERAMIC CHIP 2.2uF 10%	6.3V
C045	1-107-682-11	CERAMIC CHIP 1uF 10%	16V
C048	1-127-760-91	CERAMIC CHIP 4.7uF 10%	6.3V
C049	1-127-760-91	CERAMIC CHIP 4.7uF 10%	6.3V
C050	1-107-682-11	CERAMIC CHIP 1uF 10%	16V
C051	1-109-982-11	CERAMIC CHIP 1uF 10%	10V
C052	1-115-566-11	CERAMIC CHIP 4.7uF 10%	10V
C053	1-115-566-11	CERAMIC CHIP 4.7uF 10%	10V
C054	1-113-987-11	TANTAL. CHIP 4.7uF 20%	25V
C056	1-109-982-11	CERAMIC CHIP 1uF 10%	10V
C057	1-127-760-91	CERAMIC CHIP 4.7uF 10%	6.3V
C058	1-115-566-11	CERAMIC CHIP 4.7uF 10%	10V
C059	1-113-987-11	TANTAL. CHIP 4.7uF 20%	25V
C060	1-107-826-91	CERAMIC CHIP 0.1uF 10%	16V
C061	1-117-863-11	CERAMIC CHIP 0.47uF 10%	6.3V
< CONNECTOR >			
CN001	1-774-730-21	PIN, CONNECTOR (PC BOARD) 3P	
CN002	1-770-621-21	PIN, CONNECTOR 4P	
CN003	1-785-917-21	CONNECTOR, BOARD TO BOARD 40P	
< DIODE >			
D001	8-719-074-08	DIODE MA4ZD03001S0	
D002	8-719-075-12	DIODE MA3XD21001S0	
D003	8-719-071-34	DIODE RB521S-30-TE61	
D004	8-719-074-08	DIODE MA4ZD03001S0	
D005	8-719-074-08	DIODE MA4ZD03001S0	
D006	8-719-074-08	DIODE MA4ZD03001S0	
D007	8-719-074-08	DIODE MA4ZD03001S0	

DD-148

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
		< FUSE >		Q033	8-729-037-53	TRANSISTOR 2SB1462J-QR (K8).SO	
△ F001	1-576-406-21	FUSE, MICRO (1608) (1.4A/32V)				< RESISTOR >	
△ F002	1-576-406-21	FUSE, MICRO (1608) (1.4A/32V)		R001	1-208-939-11	METAL CHIP 150K 0.5% 1/16W	
△ F003	1-576-406-21	FUSE, MICRO (1608) (1.4A/32V)		R002	1-208-721-11	METAL CHIP 39K 0.5% 1/16W	
△ F004	1-576-406-21	FUSE, MICRO (1608) (1.4A/32V)		R003	1-218-977-11	RES-CHIP 100K 5% 1/16W	
		< IC >		R004	1-208-711-11	METAL CHIP 15K 0.5% 1/16W	
IC001	8-759-581-99	IC MB3827PFV-G-BND-ER		R005	1-208-711-11	METAL CHIP 15K 0.5% 1/16W	
IC002	8-759-486-48	IC XC6372C351PR		R006	1-208-699-11	METAL CHIP 4.7K 0.5% 1/16W	
		< COIL >		R007	1-208-711-11	METAL CHIP 15K 0.5% 1/16W	
L001	1-416-510-21	INDUCTOR 100uH		R008	1-218-970-11	RES-CHIP 27K 5% 1/16W	
L002	1-419-353-21	INDUCTOR 10uH		R010	1-218-963-11	RES-CHIP 6.8K 5% 1/16W	
L003	1-419-354-21	INDUCTOR 22uH		R011	1-218-973-11	RES-CHIP 47K 5% 1/16W	
L004	1-419-354-21	INDUCTOR 22uH		R012	1-208-719-11	METAL CHIP 33K 0.5% 1/16W	
L005	1-419-354-21	INDUCTOR 22uH		R013	1-208-715-11	METAL CHIP 22K 0.5% 1/16W	
L006	1-414-392-21	INDUCTOR 1uH		R014	1-218-970-11	RES-CHIP 27K 5% 1/16W	
L007	1-414-428-21	INDUCTOR 1uH		R015	1-218-973-11	RES-CHIP 47K 5% 1/16W	
L008	1-414-428-21	INDUCTOR 1uH		R016	1-218-973-11	RES-CHIP 47K 5% 1/16W	
L009	1-469-524-91	INDUCTOR 4.7uH		R017	1-218-970-11	RES-CHIP 27K 5% 1/16W	
L010	1-469-527-91	INDUCTOR 47uH		R018	1-218-969-11	RES-CHIP 22K 5% 1/16W	
L011	1-414-392-21	INDUCTOR 1uH		R020	1-208-927-11	METAL CHIP 47K 0.5% 1/16W	
L012	1-469-528-91	INDUCTOR 100uH		R021	1-218-970-11	METAL CHIP 27K 0.5% 1/16W	
L013	1-469-528-91	INDUCTOR 100uH		R022	1-218-968-11	RES-CHIP 18K 5% 1/16W	
L014	1-414-392-21	INDUCTOR 1uH		R023	1-218-970-11	RES-CHIP 27K 5% 1/16W	
L015	1-469-527-91	INDUCTOR 47uH		R024	1-218-990-11	SHORT 0	
L016	1-469-528-91	INDUCTOR 100uH		R025	1-218-969-11	RES-CHIP 22K 5% 1/16W	
		< LINE FILTER >		R026	1-218-981-11	RES-CHIP 220K 5% 1/16W	
LF001	1-411-957-11	FILTER, COMMON MODE		R027	1-218-969-11	RES-CHIP 22K 5% 1/16W	
		< TRANSISTOR >		R028	1-218-972-11	RES-CHIP 39K 5% 1/16W	
Q003	8-729-037-53	TRANSISTOR 2SB1462J-QR (K8).SO		R029	1-218-970-11	RES-CHIP 27K 5% 1/16W	
Q004	8-729-037-53	TRANSISTOR 2SB1462J-QR (K8).SO		R030	1-208-711-11	METAL CHIP 15K 0.5% 1/16W	
Q005	8-729-037-53	TRANSISTOR 2SB1462J-QR (K8).SO		R031	1-218-973-11	RES-CHIP 47K 5% 1/16W	
Q006	8-729-162-13	TRANSISTOR 2SC1621-T1B2		R032	1-218-965-11	RES-CHIP 10K 5% 1/16W	
Q007	8-729-037-53	TRANSISTOR 2SB1462J-QR (K8).SO		R033	1-218-968-11	RES-CHIP 18K 5% 1/16W	
Q008	8-729-162-13	TRANSISTOR 2SC1621-T1B2		R034	1-208-701-11	METAL CHIP 5.6K 0.5% 1/16W	
Q009	8-729-043-94	TRANSISTOR CPH3106-PM-TL		R035	1-208-721-11	METAL CHIP 39K 0.5% 1/16W	
Q010	8-729-043-94	TRANSISTOR CPH3106-PM-TL		R036	1-208-713-11	METAL CHIP 18K 0.5% 1/16W	
Q011	8-729-049-11	TRANSISTOR CPH3206-TL		R037	1-208-931-11	METAL CHIP 68K 0.5% 1/16W	
Q012	8-729-047-74	TRANSISTOR CPH5701-TL		R038	1-208-719-11	METAL CHIP 33K 0.5% 1/16W	
Q013	8-729-047-74	TRANSISTOR CPH5701-TL		R039	1-208-707-11	METAL CHIP 10K 0.5% 1/16W	
Q014	8-729-047-68	TRANSISTOR 2SK1830-TE85L		R040	1-218-953-11	RES-CHIP 1K 5% 1/16W	
Q015	8-729-048-19	TRANSISTOR CPH5704-TL		R041	1-218-990-11	SHORT 0	
Q016	8-729-046-00	TRANSISTOR CPH6301-TL		R042	1-208-711-11	METAL CHIP 15K 0.5% 1/16W	
Q017	8-729-037-52	TRANSISTOR 2SD2216J-QR (K8).SO		R043	1-218-970-11	METAL CHIP 27K 0.5% 1/16W	
Q019	8-729-044-84	TRANSISTOR CPH3403-TL		R044	1-218-966-11	RES-CHIP 12K 5% 1/16W	
Q020	8-729-044-84	TRANSISTOR CPH3403-TL		R045	1-218-970-11	RES-CHIP 27K 5% 1/16W	
Q021	8-729-048-19	TRANSISTOR CPH5704-TL		R046	1-218-990-11	SHORT 0	
Q022	8-729-048-19	TRANSISTOR CPH5704-TL		R047	1-208-711-11	METAL CHIP 15K 0.5% 1/16W	
Q023	8-729-048-18	TRANSISTOR CPH5601-TL		R049	1-218-957-11	RES-CHIP 2.2K 5% 1/16W	
Q024	8-729-427-46	TRANSISTOR XP4213-TXE		R050	1-218-956-11	RES-CHIP 1.8K 5% 1/16W	
Q025	8-729-037-74	TRANSISTOR UN9213J- (K8).SO		R051	1-208-715-11	METAL CHIP 22K 0.5% 1/16W	
Q030	8-729-037-71	TRANSISTOR UN9210J- (K8).SO		R052	1-218-970-11	RES-CHIP 27K 5% 1/16W	
Q031	8-729-042-57	TRANSISTOR UN9110J- (K8).SO		R053	1-218-968-11	RES-CHIP 18K 5% 1/16W	
Q032	8-729-037-52	TRANSISTOR 2SD2216J-QR (K8).SO		R054	1-218-945-11	RES-CHIP 220 5% 1/16W	
				R055	1-218-952-11	RES-CHIP 820 5% 1/16W	
				R056	1-218-951-11	RES-CHIP 680 5% 1/16W	
				R057	1-218-953-11	RES-CHIP 1K 5% 1/16W	
				R058	1-218-962-11	RES-CHIP 5.6K 5% 1/16W	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R059	1-218-959-11	RES-CHIP	3.3K 5% 1/16W	C285	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V
R060	1-218-965-11	RES-CHIP	10K 5% 1/16W	C286	1-104-851-11	TANTAL. CHIP	10uF 20% 10V
R061	1-218-965-11	RES-CHIP	10K 5% 1/16W	C287	1-104-851-11	TANTAL. CHIP	10uF 20% 10V
R062	1-218-945-11	RES-CHIP	220 5% 1/16W				
R063	1-218-945-11	RES-CHIP	220 5% 1/16W	C288	1-115-156-11	CERAMIC CHIP	1uF 10V
R064	1-218-985-11	RES-CHIP	470K 5% 1/16W	C289	1-135-177-21	TANTALUM CHIP	1uF 20% 20V
R065	1-218-971-11	RES-CHIP	33K 5% 1/16W	C290	1-125-926-91	TANTAL. CHIP	4.7uF 20% 6.3V
R066	1-218-971-11	RES-CHIP	33K 5% 1/16W	C291	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
R067	1-218-973-11	RES-CHIP	47K 5% 1/16W	C292	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
R068	1-218-965-11	RES-CHIP	10K 5% 1/16W				
R069	1-218-965-11	RES-CHIP	10K 5% 1/16W	C293	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V
R070	1-218-977-11	RES-CHIP	100K 5% 1/16W	C294	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V
R071	1-218-970-11	RES-CHIP	27K 5% 1/16W	C295	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
R072	1-218-968-11	RES-CHIP	18K 5% 1/16W	C297	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
R073	1-218-965-11	RES-CHIP	10K 5% 1/16W	C298	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V
R074	1-218-977-11	RES-CHIP	100K 5% 1/16W				
R075	1-216-296-91	SHORT	0	C299	1-119-923-81	CERAMIC CHIP	0.047uF 10% 10V
R076	1-218-990-11	SHORT	0	C401	1-104-851-11	TANTAL. CHIP	10uF 20% 10V
R077	1-218-977-11	RES-CHIP	100K 5% 1/16W	C402	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
R078	1-218-973-11	RES-CHIP	47K 5% 1/16W	C409	1-164-937-11	CERAMIC CHIP	0.001uF 10% 16V
R079	1-218-959-11	RES-CHIP	3.3K 5% 1/16W	C410	1-104-912-11	TANTAL. CHIP	3.3uF 20% 6.3V
		< TRANSFORMER >		C411	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
△ T001	1-433-784-21	TRANSFORMER, DC-DC CONVERTER		C417	1-107-819-11	CERAMIC CHIP	0.022uF 10% 16V
△ T002	1-433-786-21	TRANSFORMER, DC-DC CONVERTER		C418	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
△ T003	1-433-785-21	TRANSFORMER, DC-DC CONVERTER		C426	1-125-891-11	CERAMIC CHIP	0.47uF 10% 10V
				C427	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
	A-7096-288-A	HI-73 BOARD, COMPLETE (SERVICE)		C431	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
		*****		C432	1-164-858-11	CERAMIC CHIP	22PF 5% 16V
		(Ref.No.: 2,000 Series)		C433	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
		< BATTERY >		C440	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
BT001	1-756-102-11	BATTERY, LITHIUM SECONDARY		C441	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
		< CAPACITOR >		C442	1-104-851-11	TANTAL. CHIP	10uF 20% 10V
C253	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	C443	1-119-750-11	TANTAL. CHIP	22uF 20% 6.3V
C254	1-119-750-11	TANTAL. CHIP	22uF 20% 6.3V	C446	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C255	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	C448	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
C258	1-107-819-11	CERAMIC CHIP	0.022uF 10% 16V	C449	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
C259	1-107-819-11	CERAMIC CHIP	0.022uF 10% 16V				
C260	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	C601	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
C261	1-164-939-11	CERAMIC CHIP	0.0022uF 10% 16V	C651	1-113-500-11	TANTAL. CHIP	100uF 20% 10V
C262	1-125-926-91	TANTAL. CHIP	4.7uF 20% 6.3V	C652	1-107-820-11	CERAMIC CHIP	0.1uF 16V
C263	1-135-177-21	TANTALUM CHIP	1uF 20% 20V	C653	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
C264	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V	C654	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V
C265	1-164-245-11	CERAMIC CHIP	0.015uF 10% 25V	C655	1-110-569-11	TANTAL. CHIP	47uF 20% 6.3V
C266	1-164-245-11	CERAMIC CHIP	0.015uF 10% 25V	C656	1-107-820-11	CERAMIC CHIP	0.1uF 16V
C267	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	C657	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
C269	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V	C658	1-107-820-11	CERAMIC CHIP	0.1uF 16V
C271	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	C659	1-107-820-11	CERAMIC CHIP	0.1uF 16V
C274	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V				
C278	1-131-862-91	TANTAL. CHIP	47uF 20% 4V	C660	1-104-851-11	TANTAL. CHIP	10uF 20% 10V
C279	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V	C661	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C280	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V	C662	1-119-750-11	TANTAL. CHIP	22uF 20% 6.3V
C281	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	C663	1-127-569-91	TANTAL. CHIP	100uF 20% 4V
C282	1-115-156-11	CERAMIC CHIP	1uF 10% 10V	C664	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C283	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V				
				C702	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
				C703	1-135-181-21	TANTALUM CHIP	4.7uF 20% 6.3V
				C704	1-107-819-11	CERAMIC CHIP	0.022uF 10% 16V
				C705	1-115-566-11	CERAMIC CHIP	4.7uF 10% 10V
				C706	1-115-566-11	CERAMIC CHIP	4.7uF 10% 10V
				C707	1-104-851-11	TANTAL. CHIP	10uF 20% 10V
				C708	1-115-566-11	CERAMIC CHIP	4.7uF 10% 10V
				C801	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
				C802	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
				C803	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V

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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C804	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	IC401	8-759-642-45	IC TL1596CPWR	
C805	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	IC402	8-759-525-51	IC S-80827HNNP-A9A-T2	
C806	1-110-569-11	TANTAL. CHIP	47uF 20% 6.3V	IC404	8-759-679-10	IC S579630PZ-TEB	
C807	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	IC405	8-759-538-14	IC S-3513BEFS-TB	
C808	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V				
C810	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	IC406	8-759-566-20	IC AK6440BH-E2	
C811	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	IC407	8-759-525-53	IC RN5RZ31BA-TL	
C812	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	IC408	8-759-466-71	IC S-80820ANNP-EDH-T2	
C813	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	IC601	8-759-657-69	IC PDIUSBP11APW, 118	
C814	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V	IC651	8-759-652-45	IC NJM2568V (TE2)	
C815	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V				
C816	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V	IC701	8-759-592-68	IC S-8328H55MC-FZJ-TZ	
C902	1-107-687-11	TANTAL. CHIP	3.3uF 20% 20V	IC801	8-759-364-05	IC MB40D001PFV-G-BND-ER	
C903	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	IC803	8-759-539-27	IC IR3Y37A4	
C904	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V	IC901	8-759-587-61	IC LZ9GH234	
C905	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	IC902	8-759-327-01	IC NJM062V (TE2)	
C906	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V				
C907	1-164-937-11	CERAMIC CHIP	0.001uF 10% 16V				
C908	1-164-872-11	CERAMIC CHIP	82PF 5% 16V				
C909	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V				
C911	1-164-739-11	CERAMIC CHIP	560PF 5% 50V				
C913	1-164-872-11	CERAMIC CHIP	82PF 5% 16V				
C915	1-107-682-11	CERAMIC CHIP	1uF 10% 16V				
C916	1-113-994-11	TANTAL. CHIP	6.8uF 20% 16V				
C917	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V				
C918	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V				
C919	1-107-689-21	TANTAL. CHIP	1uF 20% 35V				
C920	1-107-682-11	CERAMIC CHIP	1uF 10% 16V				
		< CONNECTOR >					
* CN251	1-770-619-11	PIN, CONNECTOR 2P					
CN252	1-778-506-21	PIN, CONNECTOR (PC BOARD) 2P					
CN701	1-784-423-21	CONNECTOR, FFC/FPC (ZIF) 39P					
CN702	1-784-423-21	CONNECTOR, FFC/FPC (ZIF) 39P					
CN703	1-793-641-11	CONNECTOR, MEMORY STICK (MEMORY STICK)					
CN704	1-784-420-11	CONNECTOR, FFC/FPC (ZIF) 21P					
CN705	1-778-596-21	CONNECTOR, BOARD TO BOARD 30P					
CN706	1-793-302-21	PIN, CONNECTOR (PC BOARD) 5P					
CN707	1-778-803-11	CONNECTOR, BOARD TO BOARD 40P					
CN901	1-778-596-21	CONNECTOR, BOARD TO BOARD 30P					
		< DIODE >					
D401	8-719-073-01	DIODE MA111- (K8).SO					
D406	8-719-056-48	DIODE 1SS388 (TPL3)					
D408	8-719-056-23	DIODE 1SS387-TPL3					
D410	8-719-056-48	DIODE 1SS388 (TPL3)					
D701	8-719-058-12	DIODE CL-220UR-C-TS (ACCESS)					
D703	8-719-073-01	DIODE MA111- (K8).SO					
D705	8-719-066-34	DIODE RB461F-T106					
D903	8-713-102-80	DIODE 1T369-01-T8A					
D904	8-719-976-96	DIODE MA8047-H-TX					
		< FERRITE BEAD >					
FB601	1-414-228-11	INDUCTOR CHIP 0uH					
FB703	1-500-284-21	INDUCTOR CHIP 0uH					
FB704	1-414-594-11	INDUCTOR CHIP 0uH					
FB705	1-414-594-11	INDUCTOR CHIP 0uH					
		< IC >					
IC253	8-759-655-17	IC AN2905FHQ-EB					
		< COIL >					
L252	1-414-402-11	INDUCTOR 47uH					
L254	1-414-756-11	INDUCTOR 47uH					
L255	1-414-754-11	INDUCTOR 10uH					
L401	1-414-754-11	INDUCTOR 10uH					
L651	1-414-756-11	INDUCTOR 47uH					
L652	1-414-754-11	INDUCTOR 10uH					
L701	1-414-398-11	INDUCTOR 10uH					
L703	1-412-951-11	INDUCTOR 10uH					
L704	1-419-161-21	INDUCTOR 33uH					
L801	1-414-757-11	INDUCTOR 100uH					
L802	1-414-078-11	INDUCTOR 10uH					
L901	1-414-754-11	INDUCTOR 10uH					
L902	1-414-754-11	INDUCTOR 10uH					
L903	1-412-951-11	INDUCTOR 10uH					
L905	1-412-949-21	INDUCTOR 6.8uH					
		< TRANSISTOR >					
Q253	8-729-041-51	TRANSISTOR FMMT617TA					
Q254	8-729-042-74	TRANSISTOR UN9216J- (K8).SO					
Q255	8-729-037-61	TRANSISTOR UN9113J- (K8).SO					
Q401	8-729-037-92	TRANSISTOR 2SD2216J-R (TX).SO					
Q405	8-729-037-61	TRANSISTOR UN9113J- (K8).SO					
Q406	8-729-037-74	TRANSISTOR UN9213J- (K8).SO					
Q409	8-729-041-43	TRANSISTOR HN1L02FU (TE85R)					
Q410	8-729-037-74	TRANSISTOR UN9213J- (K8).SO					
Q411	8-729-037-74	TRANSISTOR UN9213J- (K8).SO					
Q412	8-729-037-74	TRANSISTOR UN9213J- (K8).SO					
Q413	8-729-042-58	TRANSISTOR UN9111J- (K8).SO					
Q601	8-729-037-61	TRANSISTOR UN9113J- (K8).SO					
Q651	8-729-037-52	TRANSISTOR 2SD2216J-QR (K8).SO					
Q652	8-729-230-60	TRANSISTOR 2SA1586YG-TE85L					
Q701	8-729-037-74	TRANSISTOR UN9213J- (K8).SO					
Q702	8-729-032-00	TRANSISTOR 2SJ381-TD					
Q703	8-729-037-74	TRANSISTOR UN9213J- (K8).SO					
Q704	8-729-427-16	TRANSISTOR XP4113-TXE					
Q705	8-729-427-46	TRANSISTOR XP4213-TXE					
Q706	8-729-041-24	TRANSISTOR NDS355AN					
Q707	8-729-037-61	TRANSISTOR UN9113J- (K8).SO					
Q708	8-729-037-74	TRANSISTOR UN9213J- (K8).SO					
Q903	8-729-037-52	TRANSISTOR 2SD2216J-QR (K8).SO					
Q904	8-729-037-53	TRANSISTOR 2SB1462J-QR (K8).SO					
Q905	8-729-037-52	TRANSISTOR 2SD2216J-QR (K8).SO					
Q906	8-729-037-53	TRANSISTOR 2SB1462J-QR (K8).SO					

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
		< RESISTOR >				R449	1-218-953-11	RES-CHIP	1K	5%	1/16W
R251	1-218-954-11	RES-CHIP	1.2K	5%	1/16W	R450	1-218-989-11	RES-CHIP	1M	5%	1/16W
R254	1-208-690-11	RES-CHIP	2K	5%	1/16W	R451	1-218-973-11	RES-CHIP	47K	5%	1/16W
R255	1-218-958-11	RES-CHIP	2.7K	5%	1/16W	R452	1-218-985-11	RES-CHIP	470K	5%	1/16W
R256	1-218-990-11	SHORT	0			R453	1-218-985-11	RES-CHIP	470K	5%	1/16W
R259	1-218-957-11	RES-CHIP	2.2K	5%	1/16W	R454	1-218-989-11	RES-CHIP	1M	5%	1/16W
R260	1-218-955-11	RES-CHIP	1.5K	5%	1/16W	R455	1-218-989-11	RES-CHIP	1M	5%	1/16W
R262	1-218-957-11	RES-CHIP	2.2K	5%	1/16W	R462	1-218-965-11	RES-CHIP	10K	5%	1/16W
R263	1-218-970-11	RES-CHIP	27K	5%	1/16W	R463	1-218-953-11	RES-CHIP	1K	5%	1/16W
R265	1-218-973-11	RES-CHIP	47K	5%	1/16W	R464	1-218-990-11	SHORT	0		
R266	1-218-974-11	RES-CHIP	56K	5%	1/16W	R465	1-218-965-11	RES-CHIP	10K	5%	1/16W
R270	1-218-967-11	RES-CHIP	15K	5%	1/16W	R466	1-218-953-11	RES-CHIP	1K	5%	1/16W
R271	1-218-941-11	RES-CHIP	100	5%	1/16W	R467	1-218-965-11	RES-CHIP	10K	5%	1/16W
R272	1-218-953-11	RES-CHIP	1K	5%	1/16W	R468	1-218-953-11	RES-CHIP	1K	5%	1/16W
R273	1-218-957-11	RES-CHIP	2.2K	5%	1/16W	R469	1-218-977-11	RES-CHIP	100K	5%	1/16W
R277	1-218-973-11	RES-CHIP	47K	5%	1/16W	R470	1-218-989-11	RES-CHIP	1M	5%	1/16W
R279	1-218-929-11	RES-CHIP	10	5%	1/16W	R471	1-218-977-11	RES-CHIP	100K	5%	1/16W
R280	1-218-990-11	SHORT	0			R472	1-218-989-11	RES-CHIP	1M	5%	1/16W
R281	1-218-990-11	SHORT	0			R475	1-218-977-11	RES-CHIP	100K	5%	1/16W
R282	1-218-971-11	RES-CHIP	33K	5%	1/16W	R476	1-218-989-11	RES-CHIP	1M	5%	1/16W
R283	1-218-977-11	RES-CHIP	100K	5%	1/16W	R478	1-218-989-11	RES-CHIP	1M	5%	1/16W
R284	1-218-957-11	RES-CHIP	2.2K	5%	1/16W	R479	1-218-965-11	RES-CHIP	10K	5%	1/16W
R285	1-218-977-11	RES-CHIP	100K	5%	1/16W	R480	1-218-965-11	RES-CHIP	10K	5%	1/16W
R286	1-218-990-11	SHORT	0			R483	1-218-990-11	SHORT	0		
R287	1-220-202-11	RES-CHIP	43K	5%	1/16W	R484	1-218-977-11	RES-CHIP	100K	5%	1/16W
R288	1-218-941-11	RES-CHIP	100	5%	1/16W	R485	1-218-946-11	RES-CHIP	270	5%	1/16W
R289	1-218-990-11	SHORT	0			R487	1-218-977-11	RES-CHIP	100K	5%	1/16W
R290	1-218-990-11	SHORT	0			R489	1-218-990-11	SHORT	0		
R291	1-218-990-11	SHORT	0			R490	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R292	1-218-990-11	SHORT	0			R491	1-218-953-11	RES-CHIP	1K	5%	1/16W
R401	1-218-989-11	RES-CHIP	1M	5%	1/16W	R492	1-218-965-11	RES-CHIP	10K	5%	1/16W
R402	1-218-977-11	RES-CHIP	100K	5%	1/16W	R493	1-218-953-11	RES-CHIP	1K	5%	1/16W
R404	1-218-977-11	RES-CHIP	100K	5%	1/16W	R494	1-218-989-11	RES-CHIP	1M	5%	1/16W
R405	1-218-958-11	RES-CHIP	2.7K	5%	1/16W	R495	1-218-969-11	RES-CHIP	22K	5%	1/16W
R406	1-218-953-11	RES-CHIP	1K	5%	1/16W	R496	1-218-953-11	RES-CHIP	1K	5%	1/16W
R407	1-218-977-11	RES-CHIP	100K	5%	1/16W	R497	1-218-953-11	RES-CHIP	1K	5%	1/16W
R408	1-218-977-11	RES-CHIP	100K	5%	1/16W	R603	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R420	1-218-985-11	RES-CHIP	470K	5%	1/16W	R604	1-220-168-11	RES-CHIP	24	5%	1/16W
R422	1-218-985-11	RES-CHIP	470K	5%	1/16W	R605	1-220-168-11	RES-CHIP	24	5%	1/16W
R423	1-218-985-11	RES-CHIP	470K	5%	1/16W	R606	1-218-990-11	SHORT	0		
R425	1-218-961-11	RES-CHIP	4.7K	5%	1/16W	R607	1-218-990-11	SHORT	0		
R426	1-218-985-11	RES-CHIP	470K	5%	1/16W	R608	1-218-990-11	SHORT	0		
R427	1-218-965-11	RES-CHIP	10K	5%	1/16W	R651	1-218-965-11	RES-CHIP	10K	5%	1/16W
R428	1-218-977-11	RES-CHIP	100K	5%	1/16W	R652	1-218-965-11	RES-CHIP	10K	5%	1/16W
R429	1-218-958-11	RES-CHIP	2.7K	5%	1/16W	R653	1-218-989-11	RES-CHIP	1M	5%	1/16W
R430	1-218-977-11	RES-CHIP	100K	5%	1/16W	R654	1-218-965-11	RES-CHIP	10K	5%	1/16W
R431	1-218-953-11	RES-CHIP	1K	5%	1/16W	R655	1-218-965-11	RES-CHIP	10K	5%	1/16W
R432	1-218-990-11	SHORT	0			R656	1-218-939-11	RES-CHIP	68	5%	1/16W
R433	1-218-953-11	RES-CHIP	1K	5%	1/16W	R657	1-218-969-11	RES-CHIP	22K	5%	1/16W
R434	1-218-953-11	RES-CHIP	1K	5%	1/16W	R658	1-218-973-11	RES-CHIP	47K	5%	1/16W
R435	1-218-953-11	RES-CHIP	1K	5%	1/16W	R701	1-218-951-11	RES-CHIP	680	5%	1/16W
R436	1-218-953-11	RES-CHIP	1K	5%	1/16W	R702	1-218-977-11	RES-CHIP	100K	5%	1/16W
R437	1-218-953-11	RES-CHIP	1K	5%	1/16W	R703	1-218-990-11	SHORT	0		
R438	1-218-977-11	RES-CHIP	100K	5%	1/16W	R704	1-218-989-11	RES-CHIP	1M	5%	1/16W
R439	1-218-973-11	RES-CHIP	47K	5%	1/16W	R705	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R444	1-218-985-11	RES-CHIP	470K	5%	1/16W	R706	1-218-942-11	RES-CHIP	120	5%	1/16W
R445	1-218-985-11	RES-CHIP	470K	5%	1/16W	R708	1-218-973-11	RES-CHIP	47K	5%	1/16W
R446	1-218-977-11	RES-CHIP	100K	5%	1/16W	R709	1-218-990-11	SHORT	0		
R447	1-218-977-11	RES-CHIP	100K	5%	1/16W	R802	1-218-990-11	SHORT	0		
R448	1-218-977-11	RES-CHIP	100K	5%	1/16W	R803	1-218-969-11	RES-CHIP	22K	5%	1/16W

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Ref. No.	Part No.	Description			Remark
R804	1-218-966-11	RES-CHIP	12K	5%	1/16W
R807	1-218-973-11	RES-CHIP	47K	5%	1/16W
R808	1-218-967-11	RES-CHIP	15K	5%	1/16W
R809	1-218-971-11	RES-CHIP	33K	5%	1/16W
R812	1-218-966-11	RES-CHIP	12K	5%	1/16W
R813	1-218-972-11	RES-CHIP	39K	5%	1/16W
R815	1-218-977-11	RES-CHIP	100K	5%	1/16W
R816	1-218-965-11	RES-CHIP	10K	5%	1/16W
R820	1-216-295-91	SHORT	0		
R821	1-216-295-91	SHORT	0		
R822	1-216-295-91	SHORT	0		
R905	1-218-987-11	RES-CHIP	680K	5%	1/16W
R908	1-218-978-11	RES-CHIP	120K	5%	1/16W
R912	1-218-977-11	RES-CHIP	100K	5%	1/16W
R913	1-218-965-11	RES-CHIP	10K	5%	1/16W
R914	1-218-989-11	RES-CHIP	1M	5%	1/16W
R915	1-218-989-11	RES-CHIP	1M	5%	1/16W
R916	1-218-969-11	RES-CHIP	22K	5%	1/16W
R918	1-218-975-11	RES-CHIP	68K	5%	1/16W
R920	1-208-931-11	METAL CHIP	68K	0.5%	1/16W
R921	1-218-975-11	RES-CHIP	68K	5%	1/16W
R922	1-216-841-11	METAL CHIP	47K	5%	1/16W
R924	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R926	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R929	1-218-977-11	RES-CHIP	100K	5%	1/16W
R930	1-218-971-11	RES-CHIP	33K	5%	1/16W
R932	1-218-977-11	RES-CHIP	100K	5%	1/16W
R933	1-218-977-11	RES-CHIP	100K	5%	1/16W
R938	1-218-977-11	RES-CHIP	100K	5%	1/16W
R939	1-218-971-11	RES-CHIP	33K	5%	1/16W
R940	1-218-990-11	SHORT	0		
R941	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R942	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R943	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R944	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R967	1-218-937-11	RES-CHIP	47	5%	1/16W
R968	1-218-937-11	RES-CHIP	47	5%	1/16W
R969	1-218-937-11	RES-CHIP	47	5%	1/16W
R978	1-218-973-11	RES-CHIP	47K	5%	1/16W
R979	1-218-973-11	RES-CHIP	47K	5%	1/16W
R981	1-216-829-11	METAL CHIP	4.7K	5%	1/16W

< SENSOR >

SE401 1-771-701-21 SWITCH, SLANT (BALANCE SENSOR)

< VIBRATOR >

X401 1-767-980-21 VIBRATOR, CERAMIC (20MHz)

X402 1-760-458-21 VIBRATOR, CRYSTAL (32.768kHz)

A-7074-485-A PS-434 BOARD, COMPLETE

(Ref.No.: 1,000 Series)

A-7096-289-A SY-62 BOARD, COMPLETE (SERVICE)

(Ref.No.: 1,000 Series)

Electrical parts list of the PS-434 board and SY-62 board are not shown. Pages 6-13 to 6-15 are not shown.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS *****				ACCESSORIES *****	
5	1-675-589-21	FP-132 FLEXIBLE BOARD		△	1-475-851-12	ADAPTOR, AC (J)	
14	1-960-051-11	HARNESS (MD-97)		△	1-475-851-22	ADAPTOR, AC (US, CND)	
△ 58	1-418-657-11	FLASH UNIT (MC) (Note 1)		△	1-475-851-33	ADAPTOR, AC (AEP, UK, E, HK, AUS, JE)	
62	1-476-140-11	SWITCH BLOCK, CONTROL (PW)		△	1-475-851-71	ADAPTOR, AC (KR)	
69	1-960-050-11	HARNESS (MS-114)		△	1-475-851-81	ADAPTOR, AC (CN)	
70	1-960-061-11	HARNESS (GN-52)		△	1-555-074-21	CORD, POWER (AUS)	
72	1-678-657-11	FP-37 FLEXIBLE BOARD		△	1-569-008-21	ADAPTOR, CONVERSION 2P (E)	
101	1-418-880-11	TRANSFORMER UNIT, INVERTER		△	1-573-856-11	ADAPTOR, CHANGE (JE)	
102	1-675-591-21	FP-134 FLEXIBLE BOARD		△	1-769-608-11	CORD, POWER (AEP, UK, E, HK)	
103	1-476-139-11	SWITCH BLOCK, CONTROL (FK)		△	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (UK, HK)	
119	1-960-049-11	HARNESS (HB-50)		△	1-776-985-11	CORD, POWER (KR)	
155	1-418-656-11	FOCUS BLOCK, MANUAL		△	1-782-476-11	CORD, POWER (CN)	
△ 156	1-418-658-21	FLASH UNIT (ST)			1-783-738-31	CORD, CONNECTION (A/V CONNECTING CABLE 1.5m)	
157	1-675-593-11	FP-136 FLEXIBLE BOARD			1-783-739-22	CORD, CONNECTION (DK-115 DC CONNECTING CABLE 1.6m)	
161	1-418-652-21	SWITCH BLOCK, CONTROL (CF)		△	1-790-073-11	CORD, POWER 2P (J, JE)	
204	1-678-656-11	FP-36 FLEXIBLE BOARD		△	1-790-107-22	CORD, POWER (US, CND)	
207	1-758-441-11	FILTER BLOCK, OPTICAL			1-791-785-11	CORD, CONNECTION (USB CABLE)	
209	A-7074-484-A	CD-283 BOARD, COMPLETE			3-056-776-01	STRAP, LIST	
BT901	1-694-531-11	TERMINAL BOARD, BATTERY			3-060-716-01	SOFT (2000), BUNDLE (CD-ROM)	
IC101	A-7031-119-A	CCD BLOCK ASSY (CCD IMAGER) (Note 2)			3-061-981-01	MANUAL, INSTRUCTION (JAPANESE) (J)	
LCD901	1-803-549-23	MODULE, CRYSTAL INDICATION			3-061-981-11	MANUAL, INSTRUCTION (ENGLISH) (US, CND, AEP, UK, E, HK, AUS, CN, JE)	
M901	3-709-551-01	MOTOR UNIT, ZOOM STEPPING			3-061-981-21	MANUAL, INSTRUCTION (FRENCH, GERMAN) (CND, AEP, JE)	
M902	3-709-400-01	MOTOR, FOCUS STEPPING			3-061-981-31	MANUAL, INSTRUCTION (SPANISH, PORTUGUESE) (AEP, E, JE)	
MIC901	1-542-408-11	MICROPHONE UNIT			3-061-981-41	MANUAL, INSTRUCTION (ITALIAN, DUTCH) (AEP)	
△ ND901	1-517-878-21	TUBE, FLUORESCENT, COLD CATHODE			3-061-981-51	MANUAL, INSTRUCTION (CHINESE) (E, HK, CN, JE)	
SP901	1-505-862-51	SPEAKER (2.0cm)			3-061-981-61	MANUAL, INSTRUCTION (RUSSIAN, SWEDISH) (AEP, JE)	
					3-061-981-71	MANUAL, INSTRUCTION (ARABIC) (E)	
					3-061-981-81	MANUAL, INSTRUCTION (KOREAN) (KR, JE)	
					3-724-594-21	STRING, CAP	
					3-866-482-01	MANUAL, INSTRUCTION (安全のために) (JAPANESE) (J)	
					X-3949-850-1	CAP ASSY, LENS	

(Note 1) Refer to page 2-5 "2-7. Upper cabinet block, flash unit (MC)" for details of replacement of Flash unit (MC).

(Note 2) Be sure to read "Precautions for Replacement of CCD Imager" on page 4-10 when changing the CCD imager.

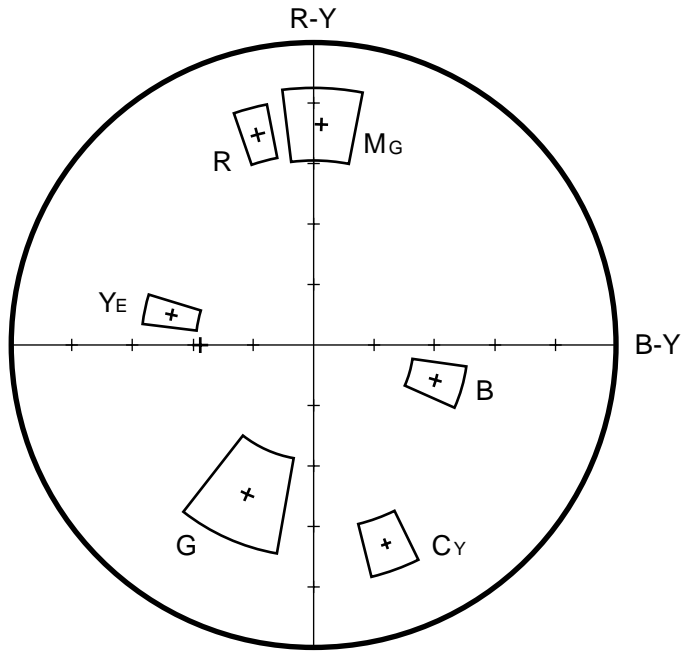
The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

Take a copy of CAMERA COLOR REPRODUCTION FRAME and Parts reference sheets with a clear sheet for use.

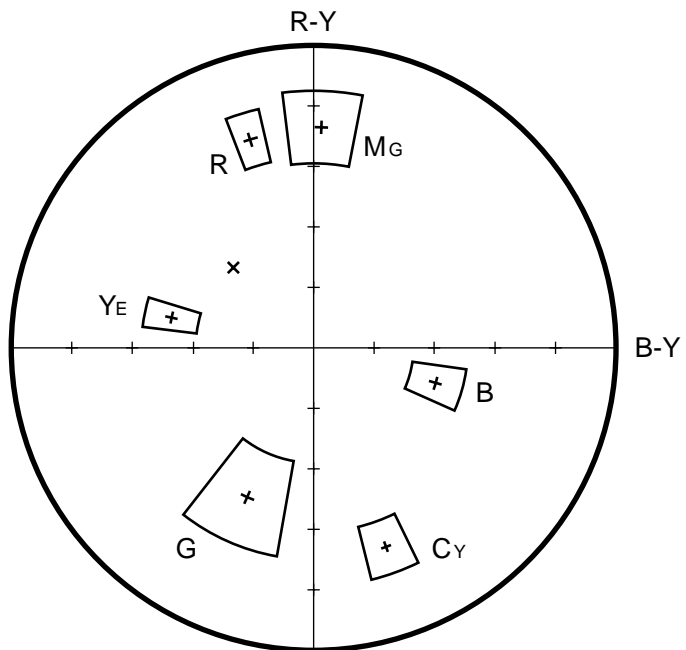
For NTSC mode



DSC-F505V



For PAL mode



DSC-F505V



< PARTS REFERENCE SHEET >

You can find the parts position of mount locations applying to HI-73 board of a set.

