DSC-F707

SERVICE MANUAL

Level 2

Self Diagnosis Supported model

Ver 1.0 2001. 09

Cyber-shot
Digital Still Camera

InfoLITHIUM M

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 SY-072 board

This service manual procides the information that is premised the circuit board replacement service and not intended repair inside the SY-072 board.
Therefore, schematic diagram, printed wiring board and electrical parts list of the SY-072 board are not shown.
The following pages are not shown.

SY-072 board

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

SPECIFICATIONS

System

Image device
11 mm (2/3 type) color CCD
Effective pixels number of camera
Approx. 5 020 000 pixels
Lens
5× zoom lens
f = 9.7 – 48.5 mm (13/32 – 1 15/16 inches)
(38 – 190 mm (1 1/2 – 7 1/2 inches) when converted to a 35 mm still camera)
F = 2.0 – 2.4
Filter diameter: 58 mm (2 3/8 inches)
Exposure control
Automatic exposure, Shutter speed priority, Aperture priority, Manual exposure
White balance
Automatic, Indoor, Outdoor, One-push
Data system
Movie: MPEG1
Still: JPEG, GIF (in Clip Motion), TIFF
Audio with still image: MPEG1 (Monaural)

Recording medium
"Memory Stick"
Flash
Recommended recording distance (ISO set to AUTO): 0.3 m to 4.5 m (11 7/8 inches to 177 1/4 inches)
Viewfinder
Electric viewfinder (color)

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
USB jack
mini-B
ACC (Accessory) jack
Minijack

LCD screen

Used LCD panel
4.6 cm (1.8 type) TFT (Thin Film Transistor active matrix) drive
Total number of dots
123 200 (560×220) dots

General

Used battery pack
NP-FM50
Power requirements
7.2 V
Power consumption (during recording)
2.8 W
Operation temperature
0°C to 40°C
(32°F to 104°F)
Storage temperature
–20°C to +60°C
(–4°F to +140°F)
Maximum dimensions
119×69×151 mm
(4 3/4×2 3/4×6 inches)
(w/h/d) (excluding maximum protrusions)
Mass
Approx. 710 g (1 lb. 9 oz) (including battery pack NP-FM50, "Memory Stick," shoulder strap and lens cap etc.)
Built-in microphone
Electret condenser microphone
Built-in speaker
Dynamic speaker

AC-L10A/L10B/L10C AC power adaptor

Power requirements
100 to 240 V AC, 50/60 Hz
Rated output voltage
DC 8.4 V, 1.5 A in operating mode
Operation temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to +60°C
(–4°F to +140°F)
Maximum dimensions
125×39×62 mm
(5×1 9/16×2 1/2 inches)
(w/h/d)
Mass
Approx. 280 g (10 oz)

NP-FM50 battery pack

Used battery
Lithium ion battery
Maximum voltage
DC 8.4 V
Nominal voltage
DC 7.2 V
Capacity
8.5 Wh (1 180 mAh)

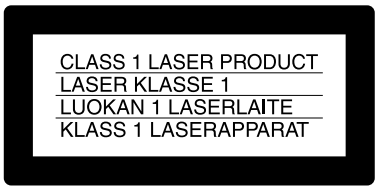
Accessories

A/V connecting cable (1)
NP-FM50 battery pack (1)
AC-L10A/L10B/L10C AC power adaptor (1)
Power cord (1)
Ferrite Core (1)
USB cable (1)
Lens cap (1)
Lens cap strap (1)
Shoulder strap (1)
"Memory Stick" (16 MB) (1)
CD-ROM (USB driver SPVD-004) (1)
Operating Instructions (1)

Design and specifications are subject to change without notice.

DIGITAL STILL CAMERA

SONY®



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

SAFETY-RELATED COMPONENT WARNING!!

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

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ 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.

UNLEADED SOLDER

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size)

: LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40 ˚C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350 ˚C .
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

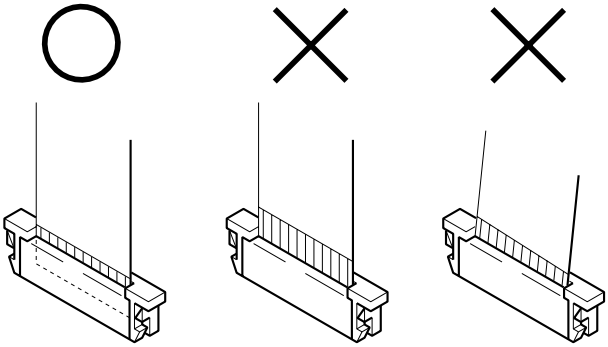
TABLE OF CONTENTS

* The sheet for auxiliary light is shown on page 164.
* The color reproduction frame is shown on page 165.

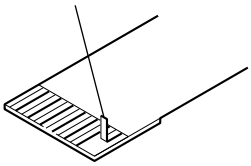
SERVICE NOTE

• NOTE FOR REPAIR

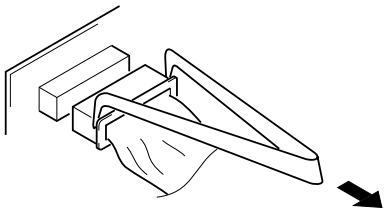
Make sure that the flat cable and flexible board are not cracked of bent at the terminal.
Do not insert the cable insufficiently nor crookedly.



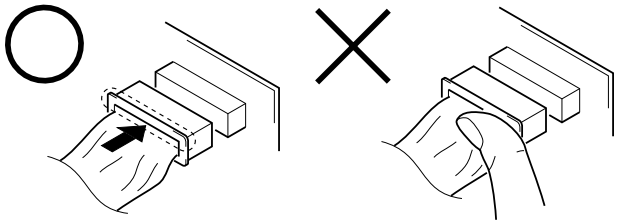
Cut and remove the part of gilt which comes off at the point. (Be careful or some pieces of gilt may be left inside)



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.

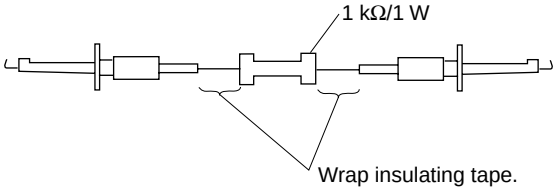


[Discharging of the BT-006 board's charging capacitor (C414, 415)]

The charging capacitor (C414, 415) of BT-006 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.

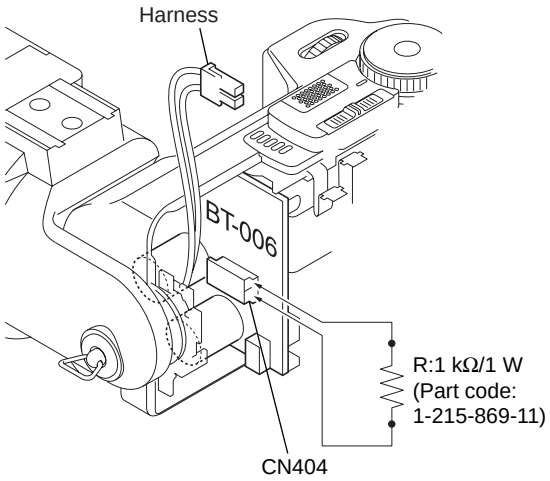
Preparing the Short Jig

To preparing the short jig. a small clip is attached to each end of a resistor of 1 kΩ /1 W (1-215-869-11).
Wrap insulating tape fully around the leads of the resistor to prevent electrical shock.



Discharging the Capacitor

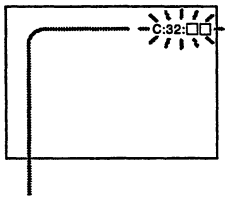
1. Remove the FR-181 board, and disconnect the harness from CN404 on the BT-006 board.
2. Connect the short jig to the pin ① and pin ② of CN404 on BT-006 board. Allow ten seconds to discharge the voltage.



[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.



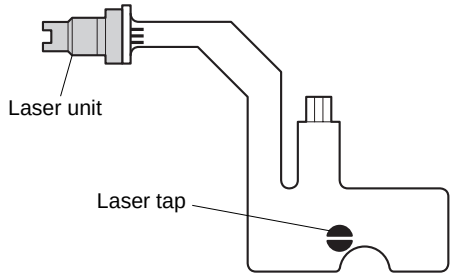
Self-diagnosis display

- 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: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:☐☐	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.	

[PRECAUTIONS FOR USE OF LASER UNIT]

As the laser diode in the laser unit is easily damaged by static electricity, desolder the laser tap of the flexible board (FP-425) of the laser unit when using it.
Before disconnecting the connector, solder first. Before connecting the connector, be careful not to remove the solder. Also take adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.



FP-425 flexible board

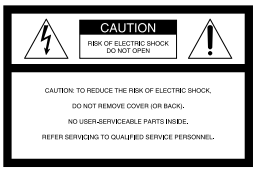
SECTION 1
GENERAL

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.

CAUTION

The use of optical instruments with this product will increase eye hazard. As the laster beam used in this camera is harmful to eyes, do not attempt to disassemble the cabinet. Refer servicing to qualified personnel only.

If you have any questions about this product, you may call:
Sony Customer Information Services Center
1-800-222-SONY (7669)

The number below is for the FCC related matters only.

Regulatory Information

Declaration of Conformity

Trade Name:	SONY
Model No.:	DSC-F707
Responsible Party:	Sony Electronics Inc.
Address:	680 Kinderkamack Road, Oradell, NJ 07649 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.

CAUTION

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

Note:

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

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

About Ferrite Core

Be sure to attach the supplied ferrite core to the cable of the AC power adaptor. This ferrite core can reduce noises. Refer to the addendum for the details.

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

DISPOSAL OF LITHIUM ION BATTERY.
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 Factory Service Center nearest you call 416-499-SONY (Canada only)

Caution:

Do not handle damaged or leaking lithium ion battery.

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 BS1363 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 BS1362, (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 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 for the Customers in Europe

This product has been tested and found compliant with the limits sets out on the EMC Directive for using connection cables shorter than 3 meters.

Attention

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

"Memory Stick"

CE N50

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

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.
THIS CLASS B DIGITAL APPARATUS COMPLIES WITH CANADIAN ICES-003.

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 or recording medium, etc.

Notes on image data compatibility

• This camera conforms with the Design rule for Camera File system universal standard established by the JEITA (Japan Electronics and Information Technology Industries 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.

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.

Do not aim the camera at the sun or other bright light

This may cause irrecoverable damage to your eyes.

LCD screen, LCD finder (only models with a finder) and lens

• The LCD screen and the LCD finder are manufactured using extremely high-precision technology so over 99.99% of the pixels are operational for effective use. However, there may be some tiny black points and/or bright points (white, red, blue or green in color) that constantly appear on the LCD screen and the LCD finder. These points are normal in the manufacturing process and do not affect the recording in any way.
• Be careful when placing the camera near a window or outdoors. Exposing the LCD screen, the finder 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 95 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.

When the camera is used for long periods

Note that the camera body may become hot.

Notice

If static electricity or electromagnetism causes data transfer to discontinue midway (fail), restart the application or disconnect and connect the USB cable again.

About the Carl Zeiss lens

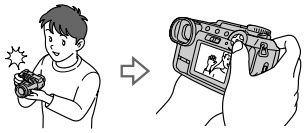
This camera is equipped with a Carl Zeiss lens which is capable of reproducing fine images. The lens for this camera uses the MTF* measurement system for cameras developed jointly by Carl Zeiss, in Germany, and Sony Corporation, and offers the same quality as other Carl Zeiss lenses.

* MTF is the abbreviation of Modulation Transfer Function, a numeric value indicating the amount of light from a specific part of the subject gathered at the corresponding position in the image.

Introduction

Check images after recording

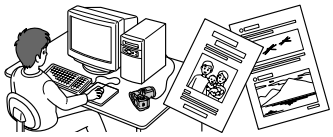
Recording still images: page 21
Playing back still images: page 35
Deleting images (DELETE): page 83



Capture images with your computer

You can copy images onto your computer and view and modify images or attach images to e-mail on your computer using the supplied USB cable and application software.

Viewing images using a computer: page 38
Recording still images for e-mail (E-MAIL): page 67



Record moving pictures (MPEG Movie or Clip Motion)

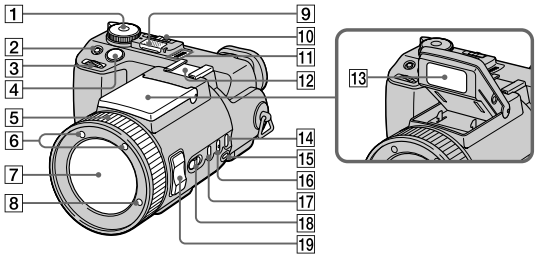
The digital still camera can record a moving picture with audio (MPEG MOVIE): page 32

Select from various recording modes

Adding audio files to still images (VOICE): page 68
Recording still images as uncompressed files (TIFF): page 69
Creating Clip Motion Files: page 70

Identifying the parts

See the pages in parentheses for details of operation.



1 Mode dial (19)
- : To record still images
- S: To record in the shutter speed priority mode
- A: To record in the aperture priority mode
- M: To record in the manual exposure mode
- SCN: To record in the scene selection mode
- SET UP: To set the SET UP items (92)
- : To record moving images or Clip Motion images
- : To playback or edit images

2 (Exposure) button (73)

3 Jog dial (58)

4 Shutter button (21, 33)

5 Focus ring (72)

6 Infrared rays emitter (29)

7 Lens

8 Hologram AF emitter (28)

9 Built-in microphone
Do not touch while recording.

10 NIGHTSHOT/NIGHTFRAMING switch (29, 30, 33)

11 Speaker

12 Accessory shoe

13 Flash emitter (26)

14 WHT BAL (white balance) button (74)

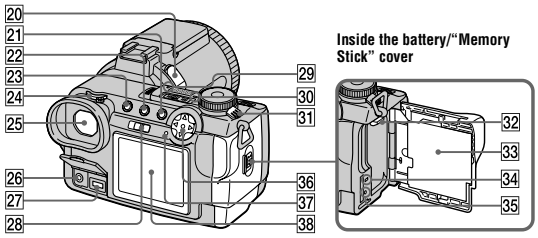
15 (one-push white balance) button (74)

16 (metering mode) button (76)

17 AE LOCK button (62)

18 FOCUS (AUTO/MANUAL) switch (72)

19 ZOOM button (24)



20 ACC (Accessory) jack
Used to connect the external flash (not supplied) or the remote control tripod (not supplied).

21 MENU button (20)

22 (Index) button (78)

23 DISPLAY button (25)

24 Finder adjustment dial (23)

25 Finder (23)
The finder eyepiece cannot be removed.

26 A/V OUT jack (82)
Audio output is monaural.

27 DC IN jack (12, 15)

28 FINDER/LCD switch (23)

29 Self-timer lamp (26, 33)

30 POWER lamp (16)

31 POWER switch (16)

32 Battery eject lever (11)

33 Battery/"Memory Stick" cover

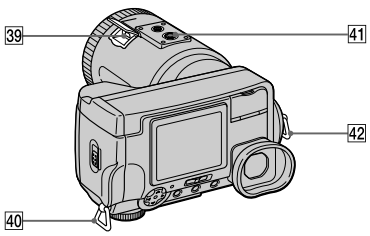
34 Access lamp (18)

35 RESET button (99)

36 Control button (19)

37 CHG/ (Flash charge) lamp (12, 26)

38 LCD screen

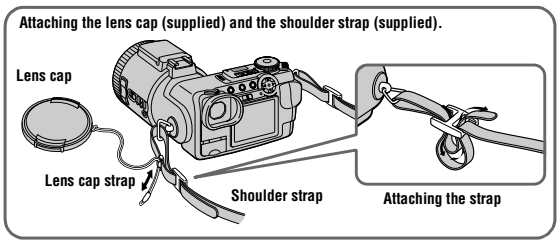


39 (USB) jack (43, 45)

40 Hook for shoulder strap

41 Tripod receptacle (bottom surface)
Use a tripod with a screw length of less than 5.5 mm (7/32 inch). You will be unable to firmly secure the camera to tripods having longer screws, and may damage the camera.

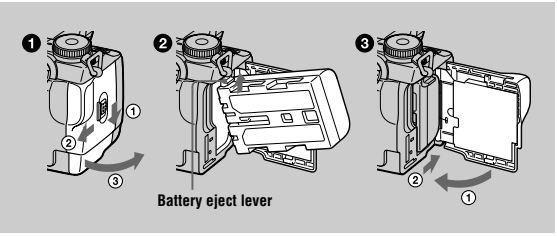
42 Hook for shoulder strap



Preparing the power supply

Installing the battery pack

Your camera operates only with the "InfoLITHIUM" NP-FM50 battery pack* (M series) (supplied). You cannot use any other battery pack. See page 97 for more information about the "InfoLITHIUM" battery pack.



1 Open the battery/"Memory Stick" cover.
Slide the cover 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

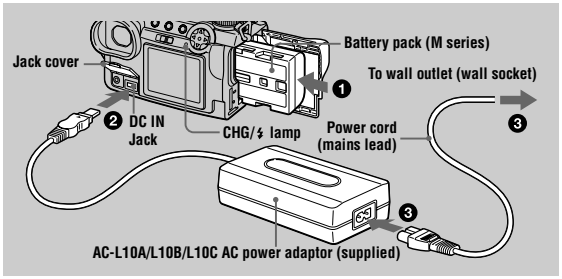
Open the battery/"Memory Stick" cover. Slide the battery eject lever upward, and remove the battery pack.
Be careful not to drop the battery pack when removing it.

**** What is "InfoLITHIUM"?***

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

Charging the battery pack

You cannot charge the battery pack while your camera is turned on. Be sure to turn off your camera.



1 Insert the battery pack into your camera.

2 Open the jack cover and connect the DC connecting cable to the DC IN jack of your camera with the ▲ mark facing up.

3 Connect the power cord (mains lead) to the AC power adaptor and then to a wall outlet (wall socket).
The CHG/ lamp lights up when charging begins. When the CHG/ lamp goes off, charging is completed.

When using the AC power adaptor

Be sure to use it near the wall outlet (wall socket). If a malfunction occurs, disconnect the plug from the wall outlet (wall socket) at once.

After charging the battery pack

Disconnect the AC power adaptor from the DC IN jack of your camera.

Recommended charging temperature

We recommend charging the battery pack in an ambient temperature of between 10°C to 30°C (50°F to 86°F).

Using your camera abroad

For details, see page 98.

NP-FM50 battery pack

When you record images in an extremely cold location, the operating time becomes short. Place the battery pack in your pocket or other place to keep it warm, then insert the battery pack into the camera just before recording. When using a pocket heater, take care not to let the heater directly contact the battery.

Charging time

Battery pack	Full charge (min.)
NP-FM50 (supplied)	Approx. 150

Approximate time to charge a completely discharged battery pack using the AC-L10A/B/C AC power adaptor at a temperature of 25°C (77°F).

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

Still image recording*

	NP-FM50 (supplied)	
	Battery life (min.)	Number of images
with LCD	Approx. 150	Approx. 2500
with finder	Approx. 150	Approx. 2500

Still image playback**

	NP-FM50 (supplied)	
	Battery life (min.)	Number of images
with LCD	Approx. 330	Approx. 6600

Approximate battery life and number of images that can be recorded/played back with a fully charged battery pack at a temperature of 25°C (77°F), 640×480 image size, standard picture quality and in NORMAL recording mode.

* Recording at about 4-second intervals
** Playing back single images in order at about 3-second intervals

Moving image recording

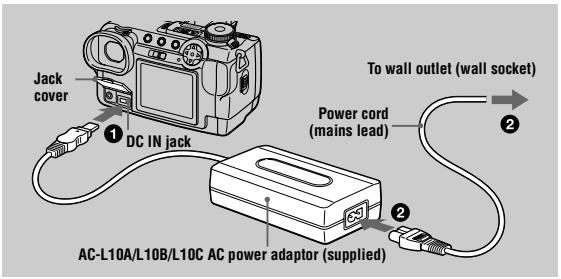
	NP-FM50 (supplied)	
	with LCD (min.)	with finder (min.)
Continuous recording	Approx. 210	Approx. 210

Approximate recording time with a fully charged battery pack at a temperature of 25°C (77°F) and 160×112 image size.

Notes

- The battery life and number of images will be decreased in the following cases:
  - — When you use your camera at low temperatures.
  - — When you use the flash.
  - — When you repeatedly turn the power on/off.
  - — When you use the zoom.
  - — When you set the LCD backlight or the EVF backlight to BRIGHT.
- The numbers of images shown on tables above are a guide. The actual numbers may be less depending on conditions.
- The capacity of the "Memory Stick" is limited. The figures on tables are a guide for when you continuously record/play back while replacing the "Memory Stick."
- When you switch the FINDER/LCD switch, it takes about one minute for the correct battery remaining time to appear.
- 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 short the DC plug of the AC power adaptor with a metallic object, as this may cause malfunction.

Using the AC power adaptor



1 Open the jack cover and connect the DC connecting cable to the DC IN jack of your camera with the ▲ mark facing up.

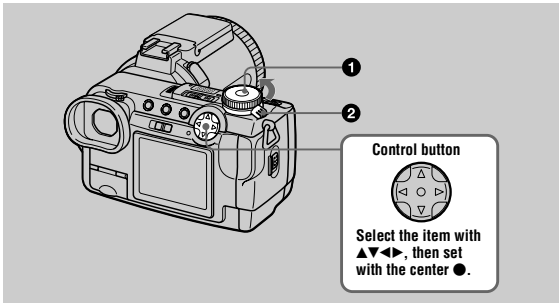
2 Connect the power cord (mains lead) to the AC power adaptor and then to a wall outlet (wall socket).

Using a car battery

Use Sony DC adaptor/charger (not supplied).

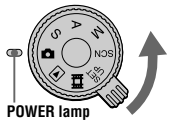
Setting the date and time

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

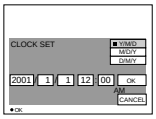


1 Set the mode dial to , S, A, M, SCN, , or .

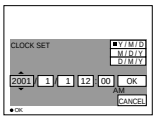
2 Slide the POWER switch in the direction of the arrow to turn on the power.
The POWER lamp (green) lights up.
The CLOCK SET screen appears on the screen.



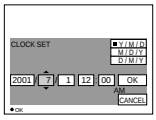
3 Select the desired date display format with ▲/▼ on the control button, then press the center ●.
Select from [Y/M/D] (year/month/day), [M/D/Y] (month/day/year) or [D/M/Y] (day/month/year).



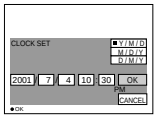
4 Select the year, month, day, hour or minute item you want to set with ◄/► on the control button.
The item to be set is indicated with ▲/▼.



5 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 3, set the time on a 24-hour cycle.



6 Select [OK] 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

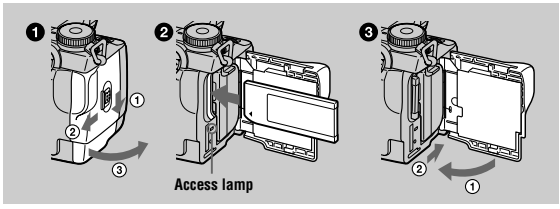
Select [CANCEL] with ▲/▼/◄/► on the control button, then press the center ●.

To change the date and time

Set the mode dial to SET UP, and change the date and time on the CLOCK SET screen in (SETUP 1) (page 93).

Note
If the rechargeable button battery is ever fully discharged (page 96), the CLOCK SET screen will appear again. When this happens, reset the date and time, by starting from step 3 above.

Inserting the “Memory Stick”



1 Open the battery/“Memory Stick” cover.
Slide the cover in the direction of the arrow.

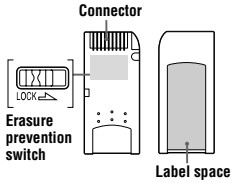
2 Insert the “Memory Stick.”
Insert the “Memory Stick” with the ◄ mark facing toward the battery compartment as illustrated until it clicks.

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.
- When the access lamp is lit up, it means data is being read or written. Never remove the “Memory Stick” or turn off the power at this time, as the data may become damaged.
- You cannot record or edit images on a “Memory Stick” if the erasure prevention switch is set to the LOCK position.
- You can use both types of “Memory Sticks”: general “Memory Sticks” and “MagicGate Memory Sticks” with this camera (page 96).

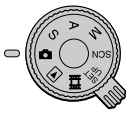


* The position and shape of the erasure prevention switch may differ depending on the types of “Memory Stick” used.

Basic operations

How to use the mode dial

The mode dial switches the function which is used for recording, playback, or editing. Set the dial as follows before starting to operate your camera.

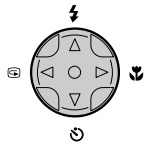


- : To record still images (page 21)
- S: To record in the shutter speed priority mode (page 63)
- A: To record in the aperture priority mode (page 63)
- M: To record with the shutter speed and aperture set manually (page 64)
- SCN: To record in the scene selection mode (page 65)
- SET UP: To set the SET UP items (page 92)
- : To record moving images or Clip Motion images (pages 32, 70)
- : To play back or edit images (pages 35, 36, 78, 83)

How to use the control button

When the menu is not displayed

The control button is used to perform the following operations.



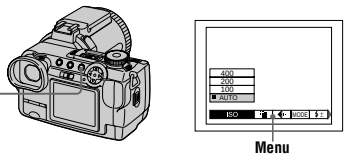
- (▲): Recording with flash (page 26)
- (▼): Recording with self-timer (pages 26, 33)
- (◄): Checking the last recorded image (page 23)
- (►): Recording close subjects (page 73)

When the menu or SET UP screen is displayed

The control button is used to select the buttons, images and menu items displayed on the screen of your camera and modify the settings.

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

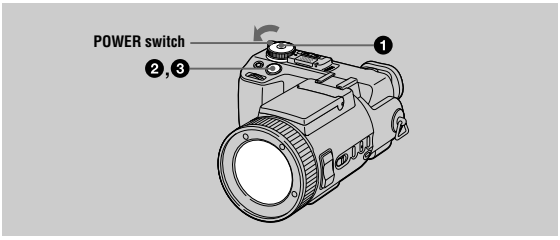
Press MENU to display/clear the menu on the screen.*



* Note that in these Operating Instructions, "on the screen" refers to both "in the finder" and "on the LCD screen".

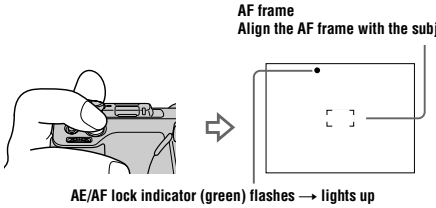
Recording still images

Still images are recorded in JPEG format.
To record still images, slide the POWER switch in the direction of the arrow to turn on the power and insert a "Memory Stick."



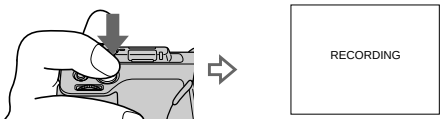
❶ Set the mode dial to , S, A, M or SCN.

❷ Press and hold the shutter button halfway down.
The beep sounds, but the image is not yet recorded. While the AE/AF lock indicator ● is flashing, the camera automatically adjusts the exposure and focus of the captured image. When the camera finishes the automatic adjustments, the AE/AF lock indicator ● changes from flashing to lighted up* and the camera is ready for recording.
If you release the shutter button, the recording will be canceled.



* If the flashing AE/AF lock indicator changes to flashing slowly, the subject may be difficult to focus on (dark, poor contrast) or the subject may be extremely close. Release the shutter button, then focus again.

❸ Press the shutter button fully down.
The shutter sounds.
"RECORDING" appears on the screen, and the image will be recorded on the "Memory Stick." When "RECORDING" disappears, you can record the next image.



Auto power-off function

If you do not operate the camera for about three minutes during recording or playback, the camera turns off automatically to prevent wearing down the battery. To use the camera again, turn on the camera again with the POWER switch. The auto power-off function only operates when the camera is operating using a battery pack. The auto power-off also will not operate when playing back moving images or playing back a SLIDE SHOW (page 80), or when a connector is plugged into the USB jack, the DC IN jack or the A/V OUT jack.

The number of images you can record on a "Memory Stick" (16 MB)

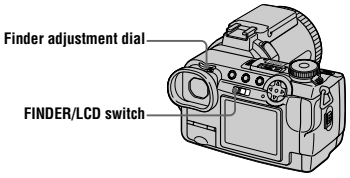
See pages 61 and 67 to 71.

Notes

- The following phenomena may occur when AE/AF is locked, but this does not affect the recorded image.
  - — When recording a bright subject, the screen color may change.
  - — When recording a dark subject, the screen may brighten momentarily.
- If you press the shutter button fully down at once in step ❷, the camera starts recording after the automatic adjustments are complete. However, the recording cannot be carried out while the CHG/ lamp (page 26) is flashing. (During this time, the camera is charging the flash.)

Recording images with the finder

With the FINDER/LCD switch, you can choose to record either using the finder or the LCD screen. When you use the finder, the image does not appear on the LCD screen. Turn the finder adjustment dial until the image appears clearly within the finder, then record the image.



Checking the last recorded image (Quick Review)

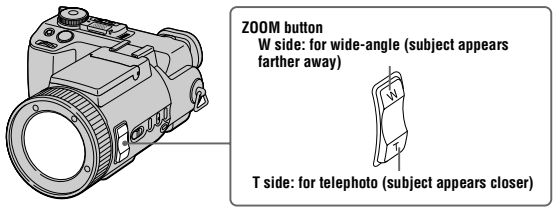
You can check the last recorded image by clearing the menu from the screen (page 20) and pressing ◀ (⏎) on the control button.

To delete the image:

1. Display the menu.
2. Select [DELETE] with ▶ on the control button, then press the center ●.
3. Select [OK] with ▲ on the control button, then press the center ●.

To return to the normal recording mode: press lightly on the shutter button or press ◀ (⏎) again.

Using the zoom feature



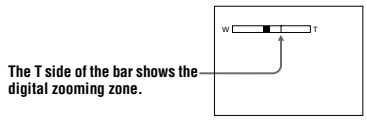
Press the ZOOM button a little for a slower zoom.
Press it further for a faster zoom.

Minimum focal distance to the subject

W side: About 50 cm (19 3/4 inches) or more
T side: About 90 cm (35 1/2 inches) or more
To record even closer subjects, see page 73.

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×.



Using digital zoom

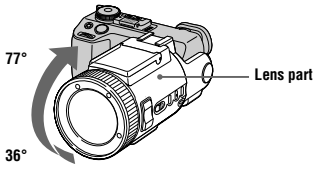
- The maximum zoom magnification is 10×.
- Digital zooming deteriorates the picture quality. When digital zoom is not necessary, set [DIGITAL ZOOM] to [OFF] in the SET UP settings (page 92).

Notes

- Zoom does not work when [CONVERSION LENS] is set to [ON] in the SET UP settings (page 93).
- Digital zoom does not work for moving images.
- During digital zoom, the AF frame (page 21) does not appear on the screen.

Changing the lens orientation

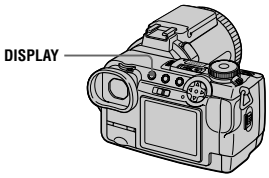
You can adjust the angle by turning the lens part upward up to 77 degrees and downward up to 36 degrees.



The indicators on the screen

Each time you press DISPLAY, the status of the screen changes as follows:

All indicators on
(All the available indicators are turned on.)
↕
Indicators off
(Warning messages and manual adjustment items which are set using the jog dial are turned on.)



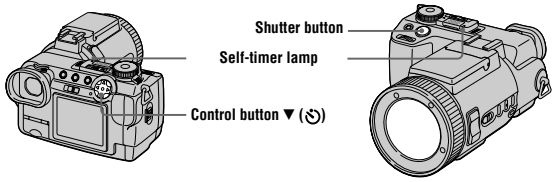
See page 109 for a detailed description of the indicated items.

Notes

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

Using the self-timer

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



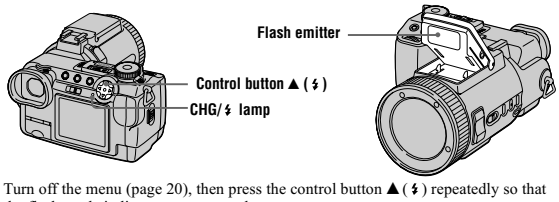
1. Turn off the menu (page 20).
2. Press the control button ▼ (⏲), then press the shutter button.
   The ⏲ (self-timer) indicator appears on the screen, and about 10 seconds after you press the shutter button, the subject is recorded. The self-timer lamp flashes and a beep sounds after you press the shutter button until the shutter is released.

To cancel the self-timer recording

Press the control button ▼ (⏲) again.

Recording images with the flash

The flash automatically pops up and strobes when the surroundings are dark.



Turn off the menu (page 20), then press the control button ▲ (ϟ) repeatedly so that the flash mode indicator appears on the screen.
Each time you press the control button ▲ (ϟ), the indicator changes as follows.

(No indicator) → ϟ → ⓐ → (No indicator)

ϟ Forced flash: The flash strobes regardless of the surrounding brightness.
ⓐ No flash: The flash does not strobe.

"Auto (no indicator)" cannot be selected in some modes, depending on the mode dial setting.

Mode dial		Auto	Forced flash	No flash
📷		●	○	○
S		×	○	●
A		×	○	●
M		×	○	●
SCN	TWILIGHT	×	○	●
	LANDSCAPE	×	○	●
	PORTRAIT	●	○	○
🎞 (only for Clip Motion)		●	○	○

●: Default setting.
○: Can be selected.
×: Cannot be selected.

You can change the brightness of the flash with [⚡±] (FLASH LEVEL) in the menu settings (page 54).

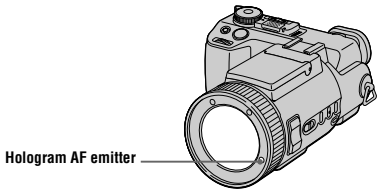
To reduce the red-eye phenomenon

Set [RED EYE REDUCTION] to [ON] in the SET UP settings (page 92). The flash pre-strobes before recording to reduce the red-eye phenomenon. When [ON] is selected, 👁 appears on the screen.

Notes
- When [ISO] is set to [AUTO] in the menu settings, the recommended shooting distance using the built-in flash is 0.3 m to 4.5 m (11 7/8 inches to 177 1/4 inches). When it is not set to [AUTO], the flash may be ineffective even if the flash level is changed.
- Attaching a conversion lens (not supplied) blocks the light from the built-in flash or cause the lens shadow to appear.
- You cannot use an external flash (not supplied) and the built-in flash at the same time. When you mount an external flash, the weight makes it impossible to lock the lens portion. We recommend supporting the lens portion with your left hand or using a tripod for recording.
- Red-eye reduction may not produce the desired effects depending on individual differences, the distance to the subject, if the subject does not see the pre-strobe, or other conditions.
- The flash effect is not obtained easily when you use ⚡ forced flash in a bright location.
- While charging the flash, the CHG/⚡ lamp flashes. After the charging is complete, the lamp goes out.
- The flash does not function when recording moving images (MPEG movie) or recording in BURST 3 mode, in EXP BRKTG mode or in NightShot mode.
- ⚡ forced flash will be used when using the NightFraming function.

Recording images with the hologram AF

The hologram AF is fill light to focus on a subject easily. Set [HOLOGRAM AF] (page 92) to [AUTO] in the SET UP settings. ᴷᴳᴏɴ appears on the screen and the hologram AF emits light when the shutter button is pressed halfway until the focus is locked.



About Hologram AF

"Hologram AF (Auto-Focus)," an application of laser holograms, is a new AF optical system that enables still image shooting in dark places. Having gentler radiation than conventional high-brightness LEDs or lamps, the system satisfies Laser Class 1* specification and thus maintains higher safety for human eyes.

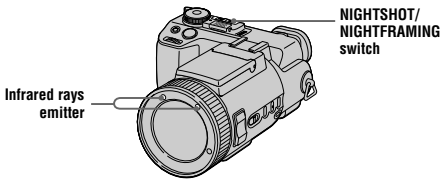
No safety problems will be caused by directly looking into the hologram AF emitter at a close range. However, it is not recommended to do so, because you may experience such effects like several minutes of image residual and dazzling, that you encounter after looking into a flashlight.

* Hologram AF satisfies Class 1 (time base 30,000 seconds), specified in all of JIS (Japan), IEC (EU), and FDA (US) industry standards. Complying with these standards identifies the laser product to be safe, under a condition that a human looks at the laser light either directly or even through a lens for 30,000 seconds.

Notes
- If hologram AF light does not reach the subject sufficiently or the subject has no contrast, focus will not be achieved. (An approximate distance of 4.5 m (177 1/4 inches) is recommended.)
- The hologram AF will not emit light in NightShot mode.
- In TWILIGHT mode of the scene selection function (page 65), the hologram AF will emit light only when the flash mode is set to ⚡ forced flash.
- The hologram AF will not emit light when the LANDSCAPE mode of the scene selection function (page 65) is selected or [CONVERSION LENS] is set to [ON] in the SET UP settings (page 93).
- Focus is achieved as long as hologram AF light reaches the subject even if its light is slightly out of the middle position of the subject.
- The hologram AF does not emit light when adjusting focus manually.
- Attaching a filter (not supplied) may interfere with the hologram AF light.
- If the hologram AF emitter is dirty, the hologram AF light may be dimmed and focus may not be achieved. In this case, wipe the hologram AF emitter with a dry cloth.

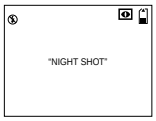
Shooting in the dark – NightShot

The NightShot function enables you to shoot a subject in a dark place such as camp scenes at night or for observation of nocturnal animals and plants.



1 **Set the mode dial to 📷.**

2 **Set NIGHTSHOT/NIGHTFRAMING to NIGHTSHOT.**
The 👁 and "NIGHT SHOT" indicators light. The "NIGHT SHOT" indicator turns off after 5 seconds.



3 **Press and hold the shutter button halfway down.**

4 **Press the shutter button fully down.**
The image will be recorded on the "Memory Stick".

To cancel the NightShot function

Set NIGHTSHOT/NIGHTFRAMING to ●.

While using the NightShot function, you cannot use the following functions:
- White balance
- Switching the metering mode
- AE LOCK
- Recording with hologram AF
- Recording with the flash

Notes
- Set the mode dial to 📷. If the mode dial is set to any setting other than 📷, the message "NIGHT SHOT IS INVALID" appears.
- Do not use the NightShot function in bright places (ex. outdoors in the daytime). This may cause your camera to malfunction.
- Images do not appear in the correct color while shooting with the NightShot function.
- If focusing is difficult with the auto focus mode when using the NightShot function, focus manually. The focus distance value does not appear.
- If you press an invalid key while using the NightShot function, the 👁 indicator flashes, and the "NIGHT SHOT" indicator lights for 5 seconds.
- Filters (not supplied) may block the infrared rays. Be sure to use the recommended accessories.
- The recommended recording distance for the NightShot function is from 0.3 m to 4.5 m (11 7/8 inches to 177 1/4inches).
- You cannot use the NightShot function when [CONVERSION LENS] is set to [ON] in the SET UP settings (page 93).

Shooting in the dark – NightFraming

The NightFraming function enables you to check a subject even at night and then record with natural colors using the flash.

1 **Set the mode dial to 📷.**

2 **Set NIGHTSHOT/NIGHTFRAMING to NIGHTFRAMING.**
The 👁NF and "NIGHT FRAMING" indicators light. The "NIGHT FRAMING" indicator turns off after 5 seconds.

3 **Press and hold the shutter button halfway down.**
The hologram AF light (page 28) is emitted and the focus is automatically adjusted.

4 **Press the shutter button fully down.**
The shutter sounds, the flash strobes and the image is recorded.

To cancel the NightFraming function

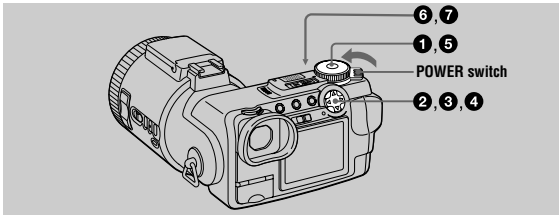
Set NIGHTSHOT/NIGHTFRAMING to ●.

While using the NightFraming function, you cannot use the following functions:
- White balance
- Switching the metering mode
- AE LOCK
- Manual focus

Notes
- Set the mode dial to . If the mode dial is set to any setting other than , the message "NIGHT FRAMING IS INVALID" appears.
- When you press the shutter button halfway down you will hear a sound, but this is not the sound of the shutter releasing. The image is not recorded yet.
- You cannot use the NightFraming function to record moving images.
- The flash does not function when recording in BURST 3 and in EXP BRKTG modes.
- If you rotate the focus ring while using the NightFraming function, the indicator flashes and "MANUAL FOCUS IS INVALID" appears on the screen.
- If you perform any other invalid operation while using the NightFraming function, the indicator flashes and the "NIGHT FRAMING" indicator lights for 5 seconds.
- Filters (not supplied) may block the infrared rays. Be sure to use the recommended accessories.
- The recommended recording distance for the NightFraming function is from 0.3 m to 4.5 m (11 7/8 inches to 177 1/4 inches).
- You cannot use the NightFraming function when [CONVERSION LENS] is set to [ON] in the SET UP settings (page 93).

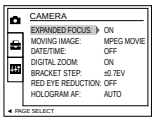
Recording moving images

Moving images with audio are recorded in MPEG format (page 52).
To record moving images, slide the POWER switch in the direction of the arrow to turn on the power and insert a "Memory Stick."

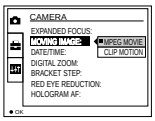


1 Set the mode dial to SET UP.

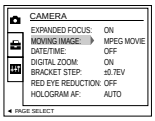
2 Select [ ] (CAMERA) with ▲/▼ on the control button, then press ▶.



3 Select [MOVING IMAGE] with ▲/▼ on the control button, then press ▶.



4 Select [MPEG MOVIE] with ▲/▼ on the control button, then press the center ●.



5 Set the mode dial to .
You are now ready to record moving images.

6 Press the shutter button fully down.
"REC" appears on the screen, and recording of the image and sound on the "Memory Stick" begins.

7 Press the shutter button fully down again to stop recording.
The recording stops.
When selecting the 320 (HQ) size: The recording stops in approximately 15 seconds.
When selecting the 320×240 or 160×112 sizes: The recording stops when the "Memory Stick" is full.
For details on the image size, see "Setting the image size (IMAGE SIZE)" on page 60.

Using the self-timer

When you use the self-timer function, recording starts about 10 seconds after you press the shutter button.
1. Turn off the menu (page 20).
2. Press the control button ▼ ( ), then press the shutter button.
The (self-timer) indicator appears on the screen, and the recording starts about 10 seconds after you press the shutter button. The self-timer lamp flashes and a beep sounds after you press the shutter button until the shutter is released.

To cancel the self-timer recording

Press the control button ▼ ( ) again.

Shooting in the dark – NightShot

The NightShot function enables you to shoot a subject in a dark place such as camp scenes at night or for observation of nocturnal animals and plants.

Set NIGHTSHOT/NIGHTFRAMING switch to NIGHTSHOT.
The and "NIGHT SHOT" indicators light. The "NIGHT SHOT" indicator turns off after 5 seconds.

To cancel the NightShot function

Set NIGHTSHOT/NIGHTFRAMING to ●.

While using the NightShot function, you cannot use the following functions:
- White balance
- Switching the metering mode
- AE LOCK

Notes
- Do not use the NightShot function in bright places (ex. outdoors in the daytime). This may cause your camera to malfunction.
- Images do not appear in the correct color while shooting with the NightShot function.
- If focusing is difficult with the auto focus mode when using the NightShot function, focus manually. The focus distance value does not appear.
- If you press an invalid key while using the NightShot function, the indicator flashes, and the "NIGHT SHOT" indicator lights for 5 seconds.
- Filters (not supplied) may block the infrared rays. Be sure to use the recommended accessories.
- The recommended recording distance for the NightShot function is from 0.3 m to 4.5 m (11 7/8 inches to 177 1/4 inches).
- You cannot use the NightShot function when [CONVERSION LENS] is set to [ON] in the SET UP settings (page 93).

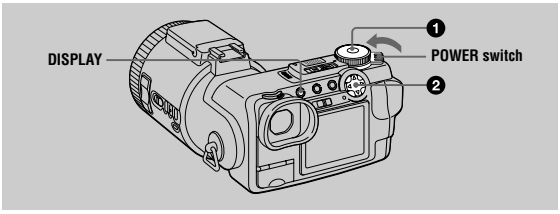
Indicators during recording

Each time you press DISPLAY, the status of the screen changes as follows:
all indicators on ⟷ indicators off.
These indicators are not recorded.
See page 110 for a detailed description of the indicators.

Note
When using the camera for long periods, use the AC power adaptor. If you remove the battery pack or otherwise turn off the power partway through a recording, the moving image recorded thus far is not saved. When the mark appears while operating the camera, stop the recording at this point before the battery completely runs out.

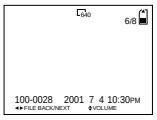
Playing back still images

To play back still images, slide the POWER switch in the direction of the arrow to turn on the power and insert a "Memory Stick."



1 Set the mode dial to ▶.
The last recorded image (still or moving) appears on the screen.

2 Select the desired still image with the control button ◀/▶.
◀: To display the preceding image.
▶: To display the next image.
You can select the image with the jog dial (page 59).



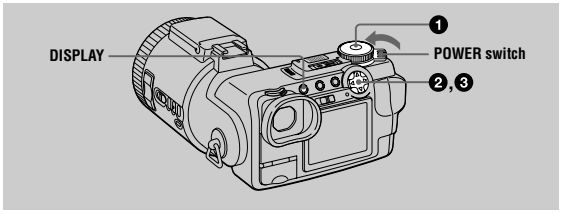
Notes
- You might not be able to correctly play back images recorded with this camera on other equipment.
- You cannot play back images on this camera which are larger than the maximum image size that can be recorded with this camera.
- A rough image is played back, followed by the normal image.

Indicators during still image playback

Each time you press DISPLAY, the status of the screen changes as follows:
all indicators on ⟷ indicators off.
See page 111 for a detailed description of the indicators.

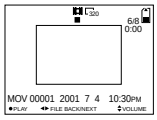
Playing back moving images

To play back moving images, slide the POWER switch in the direction of the arrow to turn on the power and insert a "Memory Stick."

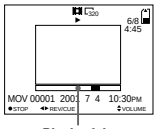


1 Set the mode dial to ▶.
The last recorded image (still or moving) appears on the screen.

2 Select the desired moving image with the control button ◀/▶.
Moving images are displayed one-size smaller than still images.
◀: To display the preceding image.
▶: To display the next image.
You can select the image with the jog dial (page 59).



3 Press the center ● on the control button to start the playback.
The moving image and sound are played back.
During playback, ▶ (playback) appears on the screen.



Playback bar

To pause playback

Press the center ● on the control button to pause the playback.

To advance or rewind the moving image

Press the control button ◀/▶ during playback.
To return to normal playback, press the center ● on the control button.

Moving images recorded with the image of [320 (HQ)] (page 60)

The images are displayed over the entire screen.

Adjusting the volume

Press the control button ▲/▼ to adjust the volume.

Indicators during moving image playback

Each time you press DISPLAY, the status of the screen changes as follows:
all indicators on ⟷ indicators off.
See page 111 for a detailed description of the indicators.

Viewing images using a computer

You can view data recorded with your camera on a computer, and modify and attach it to e-mail using application software. This section describes the method for viewing images on a computer using the supplied USB cable.

The USB cable is used to connect the camera to a computer so that operations can be performed on image files recorded in a "Memory Stick" from the computer.
In order to use the USB cable, a USB driver must be installed in the computer beforehand.
Be sure to also refer to the operation manuals for your computer and the application software.

There are two ways to make the USB connection, which are the normal connection and the PTP connection. This is set using [USB CONNECT] in the SET UP settings (page 94). The factory setting is [NORMAL].
This section describes the way using the [NORMAL] setting. Users will be informed at the Sony website when PTP connection is supported.

Viewing images on Windows: page 39
Viewing images on Macintosh: page 48
Notes on using your computer: page 50

Notes
- Data recorded with your camera is stored in the following formats. Make sure that applications that support these file formats are installed on your computer.
  — Still images (other than uncompressed mode): JPEG format
  — Moving images/audio: MPEG format
  — Uncompressed mode still images: TIFF format
  — Clip Motion: GIF format
- Depending on your application software, the file size may increase when you open a still image file.
- When you copy an image to the camera from your computer, which was modified with retouching software and was converted to another file format, the "FILE ERROR" message may appear and you may be unable to open the image.
- Depending on your application software, only the first frame of the Clip Motion file may be played back.
- **Communications with your computer (for Windows only)**
  Communications between your camera and your computer may not recover after recovering from Suspend or Sleep.

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

Viewing images on Windows

Recommended computer environment

OS: Microsoft Windows 98, Windows 98SE, Windows 2000 Professional, Windows Millennium Edition
The above OS must be installed at the factory.
Operation is not assured in an environment upgraded to the operating systems described above.
CPU: MMX Pentium 200 MHz or faster
The USB connector must be provided as standard.
Windows Media Player (recommended) must be installed (to play back moving pictures).

Notes
- If you connect two or more USB equipment to a single computer at the same time, some equipment may not operate depending on the type of USB equipment.
- Operations are not guaranteed when using a hub.
- Operations are not guaranteed for all the recommended computer environments mentioned above.

Installing the USB driver to the computer

Before connecting your camera to your computer, install the USB driver to the computer. The USB driver is included with the application software in the CD-ROM which is supplied with your camera.

Caution

Be sure to complete installation of the USB driver before connecting your camera to the computer. If you connect the USB cable first, you will be unable to install the USB driver properly.

See page 42 for corrective measures if the USB cable was connected before installing the driver and the driver software could not be installed correctly.

❶ Turn on your computer and allow Windows to load.
Do not connect the USB cable in this step.
- Close down all applications running on the computer.

❷ Insert the supplied CD-ROM in the CD-ROM drive of your computer.

The title screen appears after a moment.

If the title screen does not appear

① Double-click "My Computer."
② Double-click the CD-ROM ("PhotoSuite (E:)*").
* The drive symbol ((E:), etc.) may differ depending on your computer.

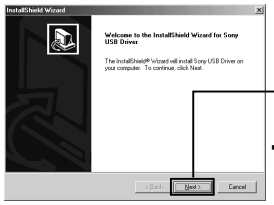
➡The title screen appears after a moment.

❸ Move the arrow (mouse pointer) to "USB Driver Installation for Windows 98/98SE/Me and Windows 2000" in the title screen and click the left button of the mouse.

Left-click here.

➡The Install Wizard program starts and the "InstallShield Wizard" screen appears.

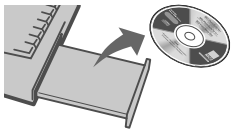
❹ Left-click "Next."



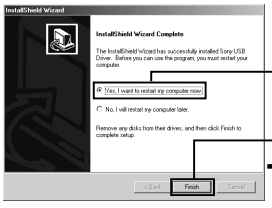
Left-click "Next."

➡Installation starts. When installation finishes, a screen indicating that installation has been completed appears.

❺ Eject the CD-ROM from the computer.



❻ Follow the on-screen messages to quit the InstallShield Wizard.



① Select "Yes, I want to restart my computer now."

② Left-click "Finish."

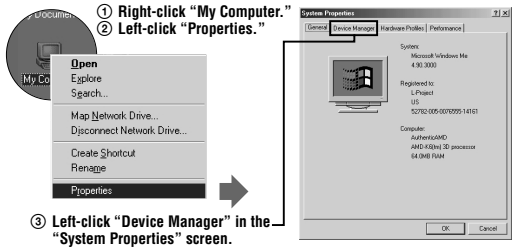
➡The computer turns off and then immediately on again (restart). The USB driver is enabled after restarting.

If you cannot install the USB driver

Another USB driver may already be installed. Follow the procedure on page 44 to connect the camera and then try the following steps.

For Windows 98, Windows 98SE and Windows Me users:
The screens shown below are taken from Windows Me.

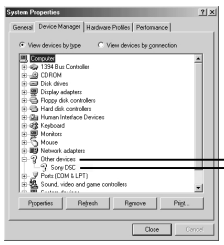
1 Display the "System Properties" screen.
The "System Properties" screen appears.



① Right-click "My Computer."
② Left-click "Properties."

③ Left-click "Device Manager" in the "System Properties" screen.

2 Check whether a USB driver is already installed.



① Double-click "Other Devices."

② Check for [? Sony DSC] with a question mark.

3 If a USB driver is installed, remove it.
If the check in step **2** shows [? Sony DSC] in the "Other Devices" list, another USB driver is already installed in your computer. In this case, the driver must be removed and then installed again. The removal procedure is as follows.
① Left-click [? Sony DSC].
② Left-click "Remove." The "Confirm Device Removal" screen appears.
③ Left-click "OK" to remove the driver.

For Windows 2000 Professional users:
Log in with the permission of administrator.

1 Right-click “ My Computer,” then left-click “Properties”.
The “System Properties” screen appears.

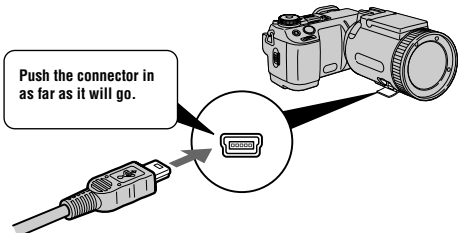
2 Left-click “Hardware,” then left-click “Device Manager.”

3 Left-click “View” in “Device Manager,” then left-click “Devices by type.”

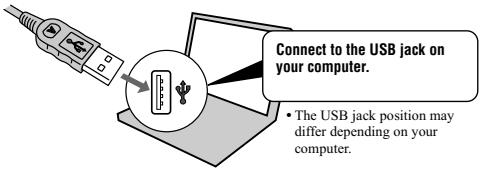
4 Right-click [Sony DSC] in “ Other devices,” then left-click “Delete.”

Perform the operations starting over from step ❶ (page 39) to reinstall the USB driver.

❼ Open the jack cover on the camera and insert the USB cable connector into the USB jack (mini-B) as far as it will go.

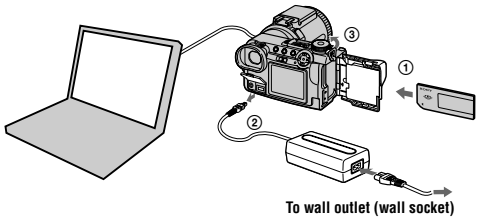


❽ Connect the other USB cable connector to the USB jack on your computer.



• The USB jack position may differ depending on your computer.

❾ Prepare your camera.



① Insert a “Memory Stick” into your camera.
② Connect the AC power adaptor to your camera.
③ Turn on your camera.
“USB MODE” appears on the screen of your camera.
When you first connect the camera, the Device Manager automatically starts twice in succession to allow your computer to recognize the camera. There is no need to operate either your computer or the camera during this period. Be sure to wait until the Device Manager has started twice.

• If “USB MODE” does not appear after finishing step ③, check [USB CONNECT] in the SET UP settings, and change the setting to [NORMAL] if it is different.

Notes
• Do not connect the USB cable before the USB driver installation is completed in step ❻.
• In step ❾, make sure that a “Memory Stick” is inserted into your camera before turning on the camera. Otherwise, your computer will be unable to recognize the camera.

Viewing images

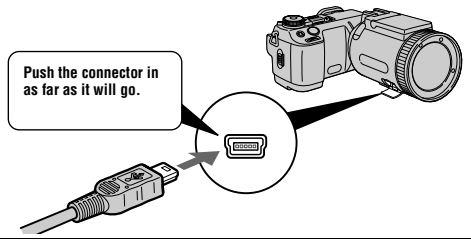
When viewing moving images on a Windows system, Windows Media Player or other moving image playback applications must be installed.

Example: Viewing still images

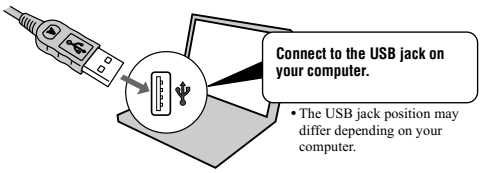
The procedure is the same as for viewing moving images and other image data.

❶ Turn on your computer and allow Windows to load.

❷ Open the jack cover on the camera and insert the USB cable connector into the USB jack (mini-B) as far as it will go.



❸ Connect the other USB cable connector to the USB jack on your computer.

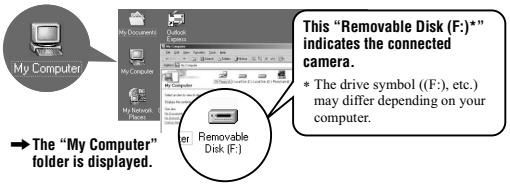


• The USB jack position may differ depending on your computer.

❹ Insert a “Memory Stick” into your camera, and connect the AC power adaptor to your camera and then to a wall outlet (wall socket).

❺ Turn on the power of your camera.
“USB MODE” appears on the screen of the camera.

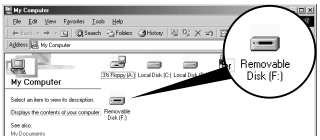
❻ Double-click “My Computer.”



This “Removable Disk (F:)*” indicates the connected camera.
* The drive symbol ((F:), etc.) may differ depending on your computer.

➡ **The “My Computer” folder is displayed.**

❼ Double-click the newly recognized drive.



Double-click the “Removable Disk (F:)” folder.

➡ **The “Removable Disk (F:)” folder contents are displayed.**

❽ Double-click the “DCIM” folder.

➡ **The “DCIM” folder contents are displayed.**

❾ Double-click the “100MSDCF” folder.

➡ **The “100MSDCF” folder contents are displayed.**

❿ Double-click the image.

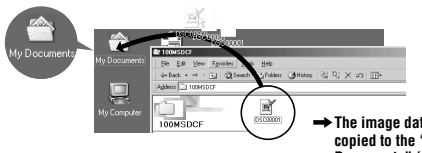
➡ **The image is displayed.**

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

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

To copy the image data to your computer

Drag and drop the image data to the "My Documents" (example) folder.



➡The image data is copied to the "My Documents" (example) folder.

Viewing images on Macintosh

Recommended computer environment

OS: Mac OS 8.5.1/8.6/9.0/9.1, Mac OS X
The above OS must be installed at the factory.
However, note that the upgrade to Mac OS 9.0/9.1 should be used for the following models.
- iMac with the Mac OS 8.6 factory pre-installed and a slot loading type CD-ROM drive
- iBook or Power Mac G4 with the Mac OS 8.6 factory pre-installed

The USB connector must be provided as standard.
QuickTime 3.0 or newer must be installed (to play back moving pictures).

Notes
- If you connect two or more USB equipment to a single computer at the same time, some equipment may not operate depending on the type of USB equipment.
- Operations are not guaranteed when using a hub.
- Operations are not guaranteed for all the recommended computer environments mentioned above.

Installing the USB driver to the computer

For Mac OS 9.1, Mac OS X users

It is not necessary to install the USB driver. The Macintosh recognizes the camera as a drive simply by connecting it to the Macintosh with the USB cable.

For Mac OS 8.5.1/8.6/9.0 users

Follow the procedures below to install the driver.

❶ Turn on your computer and allow the Mac OS to load.

❷ Insert the supplied CD-ROM in the CD-ROM drive of your computer.

❸ Double-click the CD-ROM drive icon to open the window.

❹ Double-click the icon of the hard disk containing the OS to open the window.

❺ Move the following two files from the window opened in step ❸ to the "System Folder" icon in the window opened in step ❹ (drag and drop).
- Sony USB Driver
- Sony USB Shim

❻ When "Put these items into the Extensions folder?" appears, click "OK."

❼ Restart your computer.

Viewing images

When viewing moving images on a Macintosh system, QuickTime 3.0 or later must be installed.

❶ Turn on your computer and allow the Mac OS to load.

❷ Open the jack cover on the camera and insert the USB cable connector into the USB jack (mini-B) as far as it will go.

❸ Connect the other USB cable connector to the USB jack on your computer.

❹ Insert a "Memory Stick" into your camera, and connect the AC power adaptor to your camera and then to a wall outlet (wall socket).

❺ Turn on the power of your camera.
"USB MODE" appears on the screen of the camera.

❻ Double click the newly recognized icon on the desktop.
The folders inside the "Memory Stick" are displayed.

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

Notes on using your computer

"Memory Stick"
- Operation is not guaranteed if you are using a "Memory Stick" that was formatted with a computer, or if you used a computer to format the "Memory Stick" in your camera through a USB connection.
- 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 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.
- Depending on your application software, only the first frame of the Clip Motion file may be played back.

For Windows Me and Windows 2000 users
The following procedures are recommended when disconnecting the USB cable from your computer or ejecting the "Memory Stick" from the camera while it is connected to your computer.
1 Stop the drive by clicking on the "Unplug/Eject" icon in the task tray.
2 When the message appears confirming the safe removal of the hardware, disconnect the USB cable or eject the "Memory Stick."

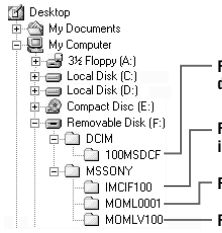
Communications with your computer (for Windows only)
Communications between your camera and your computer may not recover after recovering from Suspend or Sleep.

For Mac OS X users
Turn off your computer before disconnecting the USB cable from the computer or removing the "Memory Stick."

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 Me users (The drive recognizing the camera is "F:")



Folder	File	Meaning
100MSDCF	DSC0□□□□.JPG	• Still image file recorded normally • Still image file recorded in – E-MAIL mode (page 67) – TIFF mode (page 69) – VOICE mode (page 68) – BURST 3 mode (page 66)
	CLP0□□□□.GIF	• Clip Motion file recorded in NORMAL mode (page 70)
	CLP0□□□□.THM	• Index image file of Clip Motion file recorded in NORMAL mode
	MBL0□□□□.GIF	• Clip Motion file recorded in MOBILE mode (page 70)
	MBL0□□□□.THM	• Index image file of Clip Motion file recorded in MOBILE mode

Folder	File	Meaning
IMCIF100	DSC0□□□□.JPG	• Small-size image file recorded in E-MAIL mode (page 67)
	DSC0□□□□.TIF	• Uncompressed image file recorded in TIFF mode (page 69)
MOML0001	MOV0□□□□.MPG	• Moving image file recorded normally
MOMLV100	DSC0□□□□.MPG	• Audio file recorded in VOICE mode (page 68)

Notes

- 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
  - An image file recorded with Clip Motion and its corresponding index image file
- Do not change folder and file names on your computer. If the name is changed, the camera may be unable to open that folder or file.

Tips

The digital still camera saves recorded images as digital data. The format of the saved data is called as the file format. The formats that can be used with this camera are as follows:

JPEG format

Most digital still cameras, computer operating systems, and browser software adopt this format. This format is able to compress files without appreciable deterioration. However, if the image is compressed and saved on repeated occasions, the image quality will deteriorate. This camera records still images using the JPEG format for normal recording.

GIF format

Using this format, the image quality will not deteriorate even if the image is compressed and saved on repeated occasions. This format limits the number of colors to 256 colors. This camera records still images using the GIF format in Clip Motion (page 70).

TIFF format

Stores shot images without compression, so the image quality does not deteriorate. Most operating systems and applications support this format. This camera records still images using the TIFF format for the TIFF mode (page 69).

MPEG format

This format is very typical for moving images. This camera records audio using the MPEG format for the moving image recordings and the VOICE mode (page 68).

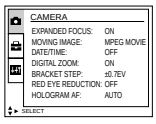
Before performing advanced operations

The operation methods that are frequently used for "Advanced operations" are described below. For mode dial and control button usage, see page 19.

Changing the settings

Setting up the items in the SET UP

1 Set the mode dial to SET UP.
The SET UP screen appears.



2 Press ▲/▼/◀/▶ on the control button to select the item you want to set up.
The selected item turns yellow.

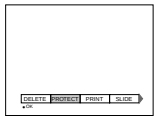
3 Press the center ● on the control button to enter the item.
For the description of the SET UP items, see page 92.

Setting up the items in the menu

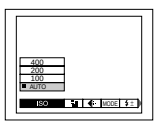
1 Set the mode dial to 📷, SCN, S, A, M, 🎞 or ▶.

2 Press MENU.
The menu appears.

3 When the mode dial is set to ▶:
① Press ◀/▶ on the control button to select the item you want to set.
The selected setting turns yellow.
② Press the center ● on the control button to enter the item.



When the mode dial is set to 📷, SCN, S, A, M or 🎞:
Press ▲/▼/◀/▶ on the control button to select the setting of the item.
The selected setting turns yellow and the setup is complete.



Menu settings

Menu items that can be modified differ depending on the positions of the mode dial. The screen shows only the items you can operate at the moment. Default settings are indicated with ■.

When the mode dial is set to 📷/S/A/M

Item	Setting	Description
ISO	400 200 100 ■AUTO	Selects the ISO film speed. When recording under dark conditions or recording a fast-moving subject, use a high-number setting. To record high-quality images, use a low-number setting.
(IMAGE SIZE)	■2560×1920 2560 (3:2) 2048×1536 1280×960 640×480	Selects the image size when recording still images (page 60).
(P. QUALITY)	■FINE STANDARD	Selects the JPEG compression method. Select [FINE] for high-quality images.
MODE (REC MODE)	TIFF	Records a TIFF (uncompressed) file in addition to the JPEG file (page 69).
	VOICE	Records an audio file (with a still image) in addition to the JPEG file (page 68).
	E-MAIL	Records a small-size (320×240) JPEG file in addition to the selected image size (page 67).
	EXP BRKTG	Records three images with the exposure value of each image slightly shifted (page 66).
	BURST 3	Records three images continuously (page 66).
	■NORMAL	Records an image using the normal recording mode.
± (FLASH LEVEL)	HIGH	Makes the flash level higher than normal.
	■NORMAL	Normal setting.
	LOW	Makes the flash level lower than normal.
PFX (P. EFFECT)	SOLARIZE SEPIA NEG.ART ■OFF	Sets the image special effects (page 75).
(SHARPNESS)	+2 +1 ■ 0 –1 –2	Adjusts the sharpness of the image. The indicator appears (except when the setting is 0).

When the mode dial is set to SCN

Item	Setting	Description
SCN	■TWILIGHT LANDSCAPE PORTRAIT	Sets the scene selection mode (page 65).
(IMAGE SIZE)	■2560×1920 2560 (3:2) 2048×1536 1280×960 640×480	Selects the image size when recording still images (page 60).
(P. QUALITY)	■FINE STANDARD	Selects the JPEG compression method. Select [FINE] for high-quality images.
MODE (REC MODE)	TIFF	Records a TIFF (uncompressed) file in addition to the JPEG file (page 69).
	VOICE	Records an audio file (with a still image) in addition to the JPEG file (page 68).
	E-MAIL	Records a small-size (320×240) JPEG file in addition to the selected image size (page 67).
	EXP BRKTG	Records three images with the exposure value of each image slightly shifted (page 66).
	BURST 3	Records three images continuously (page 66).
	■NORMAL	Records an image using the normal recording mode.
± (FLASH LEVEL)	HIGH	Makes the flash level higher than normal.
	■NORMAL	Normal setting.
	LOW	Makes the flash level lower than normal.
PFX (P. EFFECT)	SOLARIZE SEPIA NEG.ART ■OFF	Sets the image special effects (page 75).
(SHARPNESS)	+2 +1 ■ 0 –1 –2	Adjusts the sharpness of the image. The indicator appears (except when the setting is 0).

When the mode dial is set to (MOVING IMAGE is set to MPEG MOVIE in the SET UP settings.)

Item	Setting	Description
(IMAGE SIZE)	320 (HQ) 320×240 ■160×112	Selects the MPEG image size when recording moving images (page 60).
PFX (P. EFFECT)	SOLARIZE SEPIA NEG.ART ■OFF	Sets the image special effects (page 75).

When the mode dial is set to (MOVING IMAGE is set to CLIP MOTION in the SET UP settings.)

Item	Setting	Description
(IMAGE SIZE)	■NORMAL MOBILE	Selects the Clip Motion image size (page 70).
± (FLASH LEVEL)	HIGH	Makes the flash level higher than normal.
	■NORMAL	Normal setting.
	LOW	Makes the flash level lower than normal.
PFX (P. EFFECT)	SOLARIZE SEPIA NEG.ART ■OFF	Sets the image special effects (page 75).
(SHARPNESS)	+2 +1 ■ 0 –1 –2	Adjusts the sharpness of the image. The indicator appears (except when the setting is 0).

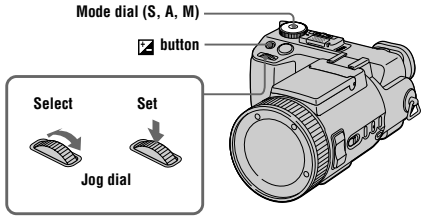
When the mode dial is set to ►

Item	Setting	Description
DELETE	OK	Deletes the displayed image (page 83).
	CANCEL	Cancels deleting of the image.
PROTECT	–	Protects images against accidental erasure (page 84).
PRINT	–	Marks the print mark on still images (page 88).
SLIDE*	INTERVAL	Sets the slide show interval. ■3 sec/5 sec/10 sec/30 sec/1 min
	REPEAT	■ON/OFF
	START	Starts the slide show.
	CANCEL	Cancels the slide show.
COPY	OK	Copies an image (page 87).
	CANCEL	Cancels copying of the image.
RESIZE*	2560×1920 2048×1536 1280×960 640×480	Changes the recorded still image size (page 86).
	CANCEL	Cancels changing of the recorded image size.
ROTATE*	 OK	Rotates the still image 90° (page 81).
	CANCEL	Cancels rotation of a still image.
DIVIDE*	OK	Divides a moving image (page 90).
	CANCEL	Cancels division of a moving image.

* Only in single-image mode.

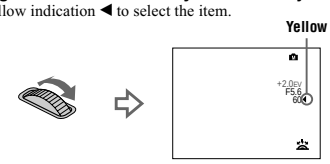
How to use the jog dial

The functions which are used frequently in recording are set up using the jog dial and the following direct buttons. The jog dial is used to change the value in manual adjustments.

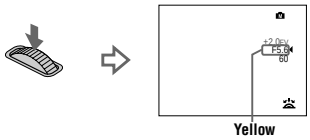


1 Set the mode dial to S, A, or M.
The adjustable value appears at the right corner on the screen.

2 Turn the jog dial to select the item you want to adjust.
Move the yellow indication ◄ to select the item.



3 Press the jog dial.
The value turns to yellow.

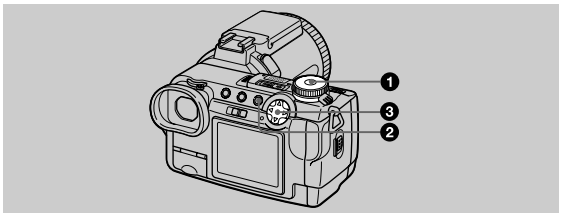


4 Turn the jog dial to select the value you want to set.
When you adjust only the value, the adjustment is complete. If you want to change other items, press the jog dial, then select the item.

Viewing the next/previous image using the jog dial during playback

When the mode dial is set to ▶, you can easily view the next/previous image by turning the jog dial.

Setting the image size (IMAGE SIZE)



1 **Set the mode dial to 📷, SCN, S, A, M, or 🎞.**

2 **Press MENU.**
The menu appears.

3 **Select [▦] (IMAGE SIZE) with ◀/▶, then select the desired image size with ▲/▼.**

Still image sizes:
2560×1920: 5.0 mega pixels
2560 (3:2)*
2048×1536: 3.0 mega pixels
1280×960: 1.3 mega pixels
640×480: 0.35 mega pixels

* The image is recorded in the ratio of three to two to fit the printing paper size. Using this image size, the margin of an image is not printed out. However, a slight amount of the upper and lower black portions are displayed on the screen.

The larger the numbers for the image size are, the larger the file will be, and the fewer images that can be recorded on one "Memory Stick." For details on how many images can be recorded, refer to page 61.

Moving image (MPEG movie) sizes:
320 (HQ)*, 320×240, 160×112

* High Quality mode

Clip Motion sizes:
NORMAL (160×120), MOBILE (120×108)

Examples of use and the number of images* or the time that you can record on a "Memory Stick" (16 MB) for each image size**

Still images:

Image size	Usage	Quality	
		STANDARD	FINE
2560×1920	Modifying images (emphasis on image quality)	Approx. 11	Approx. 6
2560 (3:2)	Printing in 3:2 ratio	Approx. 11	Approx. 6
2048×1536	Modifying images	Approx. 18	Approx. 10
1280×960	Printing in post card size	Approx. 44	Approx. 24
640×480	Attaching to e-mail	Approx. 240	Approx. 96

Moving images:

Image size	Usage	Number of images or time
320 (HQ)	Viewing on TV	Approx. 40 sec.
320×240	Viewing on computer	Approx. 160 sec.
160×112	Attaching to e-mail	Approx. 640 sec.
MOBILE (120×108) (2 frames)	—	Approx. 450
NORMAL (160×120) (10 frames)	—	Approx. 80

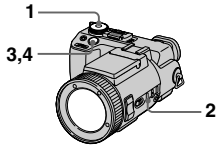
* When [MODE] (REC MODE) is set to [NORMAL].
** The maximum recording time in continuous recording.

The number of recordable images or recordable time
The actual number of images or recordable time may differ depending on the recording conditions.

Recording with the exposure fixed (AE LOCK)

Mode dial: 📷/S/A/M/SCN/🎞

Once you press AE LOCK, the exposure, now captured, is fixed. For instance, this function is convenient in the following use:
Measure the exposure of the desired portion of the subject using the spot metering function and fix its exposure value by pressing AE LOCK. Then, recompose the picture.



1 **Set the mode dial to 📷, S, A, M, SCN or 🎞.**

2 **Target the subject that has desired exposure value, then press AE LOCK.**
The exposure is fixed and the AE-L mark appears.

3 **Target the subject you want to record and press and hold the shutter button halfway down.**
The focus is automatically adjusted.
Once you remove your finger from the shutter, AE LOCK is released.

4 **Press down the shutter button.**
Once you press the shutter button, AE LOCK is automatically released.

To release AE LOCK

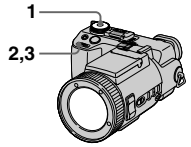
Carry out one of the followings:
- Press AE LOCK again after step **2**.
- Release your finger from the shutter button after step **3**.

Recording with the manual adjustments

Mode dial: S/A/M

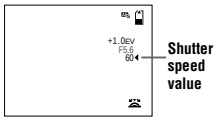
Shutter speed priority mode

Once the shutter speed is adjusted manually, the aperture will be automatically adjusted to the suitable value to attain correct exposure according to the brightness of the subject. Using the higher shutter speed, you can record a fast-moving subject with its motion frozen. And using the lower shutter speed, you can record the flow motion of a moving subject.



1 Set the mode dial to S.

2 Select a shutter speed with the jog dial, then press the jog dial.



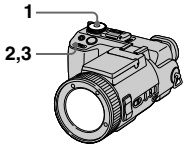
3 Select the desired shutter speed value, then press the jog dial.
The shutter speed can be selected from 30" to 1/1000.
If you select a shutter speed of 2.5 seconds or slower, NR is displayed before the shutter speed and the NR slow shutter mode is automatically activated.

NR slow shutter
The NR slow shutter function removes noise from recorded images to provide clean, crisp images. Using a tripod is recommended to prevent shaking.

Press the shutter button fully down.
↓
Exposure is performed for the set shutter speed time, the screen turns black, and "CAPTURING" is displayed.
↓
Processing is performed to reduce noise for the set shutter speed time, and "PROCESSING" is displayed. The shutter sounds.
↓
"RECORDING" is displayed. The image is recorded.

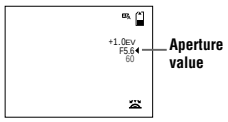
Aperture priority mode

Once the aperture is adjusted manually, the shutter speed will be automatically adjusted to the suitable value to attain correct exposure according to the brightness of the subject. Selecting a lower aperture value opens the lens iris. Using a lower aperture value, you can record a subject with its background unclear. And using a higher aperture value, you can record both the subject and the background stand out clearly.



1 Set the mode dial to A.

2 Select an aperture value with the jog dial, then press the jog dial.

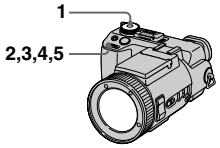


3 Select the desired aperture value with the jog dial, then press the jog dial.
The aperture value can be selected from F2 to F8.

Note
The range of values that can be selected varies, depending on the zoom position.

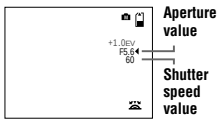
Manual exposure mode

You can manually adjust the shutter speed and aperture values to achieve the desired shooting condition according to your purpose. The exposure value appears on the screen (page 73). And you can also adjust the aperture value and the shutter speed value according to your taste. 0 EV is the most suitable value set by the camera.



1 Set the mode dial to M.

2 Select the aperture value indication with the jog dial, then press the jog dial.



3 Select the aperture value with the jog dial, then press the jog dial.

4 Select the shutter speed value indication with the jog dial, then press the jog dial.

5 Select the shutter speed value with the jog dial, then press the jog dial.
For details on available values, see "Shutter speed priority mode" on page 63, or "Aperture priority mode" on page 63.

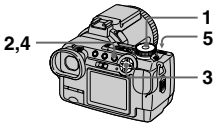
Note
- If the setting is not appropriate in aperture priority mode, shutter speed priority mode, or manual exposure mode, the setting value indicator on the screen flashes when the shutter button is pressed halfway. You can record in this setting, we, however, recommend that you adjust the flashed-value again.
- When shooting by manual adjustment, you cannot use the NightShot or NightFraming functions.

Tips
Under normal recording conditions, the camera automatically makes various adjustments, such as those for the focus, iris, exposure, and white balance, as it shoots. However, you may not be able to carry out your desired shooting depending on the shooting conditions. In this case you can set the near-optimum adjustments to suit your shooting situation by manual adjustment.

Recording images according to shooting conditions (Scene selection)

Mode dial: SCN

This camera has preset three scene selection modes. Each mode is suitable for the following situations; night scene, landscape, and portrait.



1 Set the mode dial to SCN.

2 Press MENU.
The menu appears.

3 Select [SCN] with ◀/▶, the desired setting with ▲/▼.

TWILIGHT mode
Allows you to record bright subjects in dark places without losing the dark atmosphere of the surroundings. The shutter speed becomes slower, so we recommend that you use a tripod to prevent shaking.

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

PORTRAIT mode
Suits for portrait recordings. Backgrounds blurred away, and the frontward person is sharpened.

4 Press MENU.
The menu disappears.

5 Record the image.

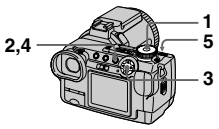
To cancel the scene selection function
Set the mode dial to other modes.

Notes
- You can focus only on distant subjects in LANDSCAPE mode.
- Set ϟ forced flash when you use the flash in the following modes:
  — TWILIGHT mode
  — LANDSCAPE mode
- When using the scene selection mode, the hologram AF (page 28) does not emit light in the following conditions:
  — TWILIGHT mode: when the flash mode is not set to ϟ forced flash
  — LANDSCAPE mode

Recording three images continuously (BURST 3)

Mode dial: /S/A/M/SCN

You can continuously record three images.



1 Set the mode dial to , S, A, M or SCN.

2 Press MENU.
The menu appears.

3 Select [MODE] (REC MODE) with ◀/▶, [BURST 3] with ▲/▼.

4 Press MENU.
The menu disappears.

5 Record the image.

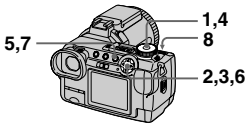
To return to normal recording mode
Select [NORMAL] with ▲/▼ in step **3**.

Notes
- You cannot use the flash in this mode.
- During recording in this mode, the image is not displayed on the screen. Make the composition before pressing the shutter button.
- The recording interval is approximately 0.5 seconds.
- You cannot select a shutter speed slower than 1".

Recording three images with the exposure shifted (EXP BRKTG)

Mode dial: /S/A/M/SCN

The camera continuously records three images with each exposure value shifted. The exposure compensation value can be set between ±1.0EV from the correct exposure value by 1/3 step.



1 Set the mode dial to SET UP.
The SET UP screen appears.

2 Select [ ] (CAMERA) with ▲/▼, [BRACKET STEP] with ▶/▲/▼, then press ▶.

3 Select the desired bracket step value, then press ●.
±1.0EV: Shifts the exposure value by plus or minus 1.0EV.
±0.7EV: Shifts the exposure value by plus or minus 2/3EV.
±0.3EV: Shifts the exposure value by plus or minus 1/3EV.

4 Set the mode dial to , S, A, M, or SCN.

5 Press MENU.
The menu appears.

6 Select [MODE] (REC MODE) with ◀/▶, [EXP BRKTG] with ▲/▼.

7 Press MENU.
The menu disappears.

8 Record the image.

To return to normal recording mode

Select [NORMAL] with ▲/▼ in step **6**.

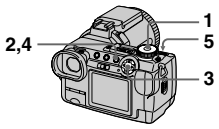
Notes

- You cannot use the flash in this mode.
- During recording, the image is not displayed on the screen. Make the composition before pressing the shutter button.
- Focus and white balance are adjusted for the first image and these settings are also used for the other images.
- When the exposure is manually adjusted, the adjusted value is used for the center value.
- The recording interval is approximate 0.5 seconds.
- You cannot select a shutter speed slower than 1".

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

Mode dial: /S/A/M/SCN

In the E-MAIL mode, a small-size image which is suitable for e-mail transmission is also recorded at the same time as recording a normal still image. (The size of the normal still image is set using [ ] (IMAGE SIZE) in the menu settings (page 60).)



1 **Set the mode dial to , S, A, M or SCN.**

2 **Press MENU.**
The menu appears.

3 **Select [MODE] (REC MODE) with ◀/▶, [E-MAIL] with ▲/▼.**

4 **Press MENU.**
The menu disappears.

5 **Record the image.**

The number of images that you can record on a "Memory Stick" (16 MB) in E-MAIL mode

Image size	Quality	
	STANDARD	FINE
2560×1920	Approx. 11	Approx. 6
2560 (3:2)	Approx. 11	Approx. 6
2048×1536	Approx. 17	Approx. 9
1280×960	Approx. 42	Approx. 24
640×480	Approx. 192	Approx. 87

The number of recordable images

The actual number of images may differ depending on the recording conditions.

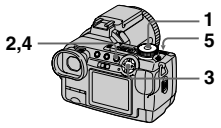
To return to normal recording mode

Select [NORMAL] with ▲/▼ in step **3**.

Adding audio files to still images (VOICE)

Mode dial: /S/A/M/SCN

In the VOICE mode, the audio is also recorded at the same time as recording a still image. (The size of the normal still image is set using [ ] (IMAGE SIZE) in the menu settings (page 60).)



1 **Set the mode dial to , S, A, M or SCN.**

2 **Press MENU.**
The menu appears.

3 **Select [MODE] (REC MODE) with ◀/▶, [VOICE] with ▲/▼.**

4 **Press MENU.**
The menu disappears.

5 **Record the image.**
If you press and release the shutter button, sound is recorded for five 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" (16 MB) in VOICE mode (when recording sound for five seconds)

Image size	Quality	
	STANDARD	FINE
2560×1920	Approx. 11	Approx. 6
2560 (3:2)	Approx. 11	Approx. 6
2048×1536	Approx. 16	Approx. 9
1280×960	Approx. 38	Approx. 22
640×480	Approx. 120	Approx. 68

The number of recordable images

The actual number of images may differ depending on the recording conditions.

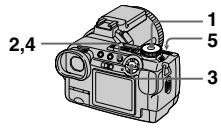
To return to normal recording mode

Select [NORMAL] with ▲/▼ in step **3**.

Recording still images as uncompressed files (TIFF)

Mode dial: /S/A/M/SCN

In this mode, a 2560×1920 size uncompressed image is recorded at the same time as a normal still image. (The size of the normal still image is set using [ ] (IMAGE SIZE) in the menu settings (page 60).) The image quality does not deteriorate. Images recorded in this mode are suitable for printing with a high-quality image.



1 **Set the mode dial to , S, A, M or SCN.**

2 **Press MENU.**
The menu appears.

3 **Select [MODE] (REC MODE) with ◀/▶, [TIFF] with ▲/▼.**

4 **Press MENU.**
The menu disappears.

5 **Record the image.**

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

Image size	Quality	
	STANDARD	FINE
2560×1920	Approx. 0	Approx. 0
2560 (3:2)	Approx. 1	Approx. 1
2048×1536	Approx. 1	Approx. 0
1280×960	Approx. 1	Approx. 1
640×480	Approx. 1	Approx. 1

The number of recordable images

The actual number of images may differ depending on the recording conditions.

To return to normal recording mode

Select [NORMAL] with ▲/▼ in step **3**.

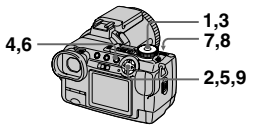
Notes

- When [2560 (3:2)] is selected for the image size, the uncompressed image is recorded in the [2560 (3:2)] format.
- Some sizes cannot be recorded in TIFF mode because the "Memory Stick" (16 MB) does not have enough capacity.
- Writing data takes more time than in normal recording.

Creating Clip Motion Files

Mode dial:

Clip Motion is an animation function that plays back still images in succession. The images are stored in GIF format, which is convenient for creating home pages or attaching images to an e-mail.



1 **Set the mode dial to SET UP.**
The SET UP screen appears.

2 **Select [ ] (CAMERA) with ▲/▼, [MOVING IMAGE] with ▶/▲/▼, [CLIP MOTION] with ▲/▼, then press ●.**

3 **Set the mode dial to .**

4 **Press MENU.**
The menu appears.

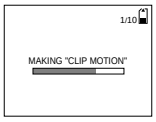
5 **Select [ ] (IMAGE SIZE) with ◀/▶, the desired mode with ▲/▼.**

NORMAL (160×120)
Clip Motion of up to 10 frames can be recorded. This is suitable for use on home pages, etc.

MOBILE (120×108)
Clip Motion of up to 2 frames can be recorded. This is suitable for use with portable data terminals.

6 **Press MENU.**
The menu disappears.

7 Record the image for the first frame.



Before carrying out step **9**, the images are temporarily stored in the memory. These images are not recorded on the "Memory Stick" yet.

8 Record the image for the next frame.
Image recording can be repeated up to the maximum number of recordable frames.

9 Press ●.
All the frame images are recorded on the "Memory Stick".

To delete some or all of the frame images while making a Clip Motion recording

① Press the control button ◀ (🗑) in step **7** or **8**.
The recorded frame images are played back in turn and stop at the last image.
② Press MENU, and select [DELETE LAST] or [DELETE ALL] with ◀/▶, then press ●.
③ Select [OK] with ▲/▼, then press ●.
When [DELETE LAST] is selected in step ②, each time you repeat steps ① through ③, a recorded frame is deleted from the newest one.

The number of Clip Motion frames that you can record on a "Memory Stick" (16 MB)

Image size	Number of images
NORMAL (160×120)	Approx. 80*
MOBILE (120×108)	Approx. 450**

* When recording 10 frames per Clip Motion file
** When recording 2 frames per Clip Motion file

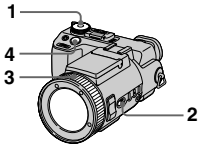
The number of recordable images
The actual number of images may differ depending on the recording conditions.

Notes
- You cannot change the image size partway through a Clip Motion recording.
- Reading and writing data take more time than normal image recording.
- Due to the limitations of the GIF format, the number of colors for Clip Motion images is reduced to 256 colors or less. Therefore, the picture quality may deteriorate for some images.
- The file size is reduced in MOBILE mode, so the picture quality deteriorates.
- GIF files not created on this camera may not be displayed correctly.
- All the frame images are immediately recorded on the "Memory Stick" if the mode dial is switched or the power is turned off.

Focusing manually

Mode dial: 📷/S/A/M/SCN/🎞

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



1 Set the mode dial to 📷, S, A, M, SCN or 🎞.

2 Set FOCUS to MANUAL.
The MF (manual focus) indicator appears on the screen.

3 Turn the focus ring to achieve a sharp focus.
If [EXPANDED FOCUS] in the SET UP settings is set to [ON], the image is zoomed to 2×* and the focus mode indicator is displayed when recording still images. When a sharp focus is achieved, the image returns to normal and the MF (manual focus) indicator changes from yellow to white. When recording moving images, or [EXPANDED FOCUS] is set to [OFF], the image is not zoomed. You can adjust the focus distance from 2 cm (13/16 inches) to ∞ (infinite).

* When using digital zoom, the image is zoomed 1× to 2×, depending on the digital zoom magnification.

4 Record the image.

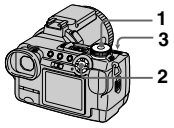
To reactivate auto focusing
Set FOCUS to AUTO.

Notes
- The focus mode indicator is approximate, and should be used as a reference.
- The focus distance value does not appear when NightShot is set and [CONVERSION LENS] is set to [ON] in the SET UP settings. When the MF indicator flashes, the focus distance has reached 2 cm (13/16 inches) or ∞.
- You cannot focus manually when using the NightFraming function.

Recording images at close range (MACRO)

Mode dial: 📷/S/A/M/SCN/🎞

The macro recording mode is used when zooming up a small subject, such as flowers, insects.



1 Set the mode dial to 📷, S, A, M, SCN or 🎞.

2 Clear the menu, and press the control button ▶ (🌷).
The 🌷 (macro) indicator appears on the screen.
You can record a subject as close as about 2 cm (13/16 inches) from the lens surface with the zoom set all the way to the W side, or about 90 cm (35 1/2 inches) with the zoom set all the way to the T side.

3 Record the image.

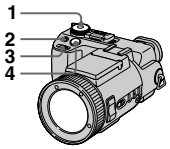
To return to normal recording mode
Press the control button ▶ (🌷) again. The 🌷 indicator disappears.

Notes
- You cannot record images in macro with the LANDSCAPE mode of the scene selection function.
- You cannot record images in macro when focusing manually.
- You cannot record images in macro when [CONVERSION LENS] is set to [ON] in the SET UP settings (page 93).

Adjusting the exposure (EXPOSURE)

Mode dial: 📷/S/A/SCN/🎞

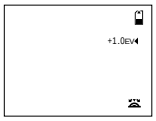
This adjusts the exposure value which is set in the automatic adjustment.



1 Set the mode dial to 📷, S, A, SCN or 🎞.

2 Press ⊡.

3 Select the desired exposure value with the jog dial.
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.



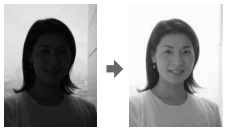
4 Record the image.

To reactivate auto exposure
Set the exposure value to 0 EV with the jog dial.

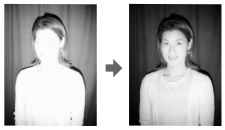
Note
If a subject is under extremely bright or dark conditions, or the flash is used, the exposure adjustment may not be effective.

Tips
Normally, the camera automatically adjusts the exposure. If the color of the image is too dark or bright as shown below, we recommend that you adjust the exposure manually. When recording a backlighted subject or a subject in the snow, set the exposure toward +, and when recording a subject with extremely bright illumination such as a spotlight, set it toward –.

Set the exposure toward +



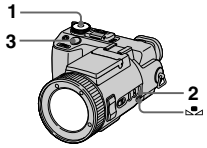
Set the exposure toward –



Adjusting the white balance (WHITE BALANCE)

Mode dial: 📷/S/A/M/SCN/🎞

Normally the white balance is automatically adjusted (AUTO). When you record with the shooting condition fixed or under a specific lighting condition, you can manually adjust the white balance.



1 Set the mode dial to 📷, S, A, M, SCN or 🎞.

2 Press WHT BAL repeatedly to select the desired white balance mode.

ONE PUSH (🌷)
Adjusting the white balance depending on the light source
① Shoot a white object such as paper full under the same situation you will shoot.
② Press 🌷.
The 🌷 indicator flashes quickly. When the white balance has been adjusted and stored in the memory, the indicator stops flashing.

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
Under fluorescent lighting

3 Record the image.

To reactivate auto adjustment

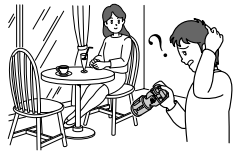
Select AUTO (no indicator) in step **2**.

Notes

- The indicator means:
  Slow flashing: white balance is not set or was not able to be 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.
- You cannot adjust the white balance when using the NightShot and NightFraming functions.

Tips

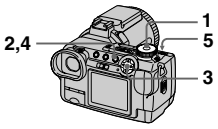
The image is susceptible to lighting conditions. The image looks blue under sunlight in the summer, and looks red under mercury lamps. Human eyes can resolve these problems. However, the camera cannot resolve the problem without making adjustments. Normally, the camera adjusts automatically, but if the image appears in strange colors, we recommend that you change the white balance mode.



Enjoying picture effects (P. EFFECT)

Mode dial: /S/A/M/SCN/

You can digitally process images to obtain special effects.



1 Set the mode dial to , S, A, M, SCN or .

2 Press MENU.
The menu appears.

3 Select [PFX] (P. EFFECT) with ◀/▶, the desired mode with ▲/▼.

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

SEPIA
The picture is sepia-toned like an old photograph.

NEG.ART
The color and brightness of the picture are reversed as in a negative.

OFF
Does not use the picture effect function.

4 Press MENU.
The menu disappears.

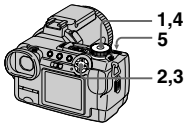
5 Record the image.

To cancel picture effect

Select [OFF] with ▲/▼ in step **3**.

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

Mode dial: /S/A/M/SCN



1 Set the mode dial to SET UP.
The SET UP screen appears.

2 Select [ ] (CAMERA) with ▲/▼, [DATE/TIME] with ▶/▲/▼, then press ▶.

3 Select the date and time setting with ▲/▼, then press ●.

DAY & TIME
Superimposes the date, hour, and minute.

DATE
Superimposes the year, month, and day.

OFF
Does not superimpose the date and time.

4 Set the mode dial to , S, A, M, or SCN.

5 Record the image.
The date and time do not appear on the screen during shooting. These appear during playback only.

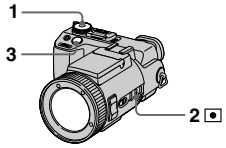
Notes

- If you select [DATE] in step **3**, the date is superimposed onto the image in the order selected with "Setting the date and time" (page 16).
- The date and time are not superimposed onto moving images or Clip Motion images.

Determining the exposure (Metering mode)

Mode dial: /S/A/M/SCN/

This function enables you to select the metering mode to suit the shooting conditions and purpose. You can select from the three modes of multi-pattern, center-weighted or spot metering.



1 Set the mode dial to , S, A, M, SCN or .

2 Press repeatedly to select the desired setting.

Multi-pattern metering (No indicator)
The image is divided into multiple regions and metering is performed for each region. The camera judges the subject position and background brightness, and determines a well-balanced exposure.
The camera is set to multi-pattern metering as the default setting.

Center-weighted metering ( )
Metering is performed with priority given to the center of the image. The camera determines the exposure based on the brightness of a subject near the center according to the recording aim.

Spot metering ( )
Light is measured only for the specific region where the subject is located. This lets you adjust the exposure to the subject even when the subject is backlit or there is strong contrast between the subject and the background.
Position the spot metering cross hair with the point you want to record.

3 Record the image.
Press the shutter button halfway down, wait until the camera completes the automatic adjustments, then record the image.

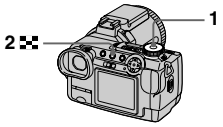
Note

You cannot set the metering mode when using the NightShot and NightFraming functions.

Playing back three or nine images at once

Mode dial:

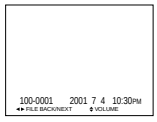
You can display multiple images on the screen at one time by pressing .



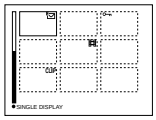
1 Set the mode dial to .

2 Press repeatedly.
The screen display changes as follows:

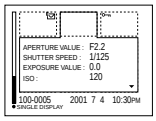
- Single (single-image) screen



- Index (nine-image) screen



- Triple-image screen



The image indicated by the yellow frame in the index screen is displayed in the middle of the triple-image screen with the recording information. To display the other information, press the control button ▼.

The following marks are displayed on each image according to the image type and settings.
: Moving image file
: VOICE mode file
: E-mail file
TIFF: TIFF file
CLIP: Clip Motion file
: Print mark
: Protect mark
(No mark): Normal recording (no settings)

To display the next (previous) index screen

Press the control button ▲/▼/◀/▶.

To return to normal playback (single-image)

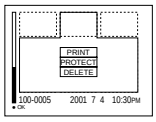
- Press repeatedly.
- Press the control button ●.

Note

When viewing an image recorded in Clip Motion on the index screen, the image may appear different from the actual image. The recording information does not appear on the triple-image screen.

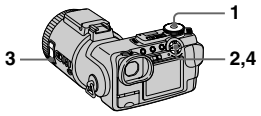
Tips

When the triple-image screen is displayed, pressing MENU opens the menu including [PRINT], [PROTECT], and [DELETE]. For details on these items, see pages 83, 84, or 88. To close the menu, press MENU again. The menu disappears and the recording information is indicated.



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

Mode dial: ▶



1 Set the mode dial to ▶.

2 Display the image to be enlarged.

3 Zoom in/out the image with the ZOOM T/W buttons.

4 Move the image with ▲/▼/◀/▶ to select the desired portion of the image.

To return to the normal size

Press the control button ●.

To record an enlarged image (trimming)

① Press MENU after zooming.
② Select [TRIMMING] with ▶, then press ●.
③ Select the image size with ▲/▼, then press ●.
The image is recorded and the image on the screen returns to the normal size after recording.

▼ Various playback

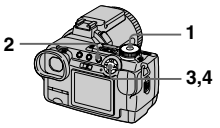
Notes

- You cannot zoom moving images and Clip Motion images.
- Zoom scaling is up to 5× regardless of the original image size.
- The quality of enlarged images may be deteriorated.
- The original data is retained even if you enlarge the image.
- The enlarged image is recorded as the newest file.
- If you trim an image, the remaining "Memory Stick" capacity will be decreased.
- If the remaining "Memory Stick" capacity is not sufficient, you may be unable to trim an image.
- You cannot trim to an image size of 3:2.
- You cannot trim uncompressed (TIFF) images.

Playing back still images in order (SLIDE)

Mode dial: ▶

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



1 Set the mode dial to ▶.

2 Press MENU.
The menu appears.

3 Select [SLIDE] with ◀/▶, then press ●.
Set the following items with ▲/▼/◀/▶.

INTERVAL
You can select from 1 min (one minute), 30 sec (30 seconds), 10 sec (10 seconds), 5 sec (5 seconds), or 3 sec (3 seconds).

REPEAT
ON: Plays back images in a continuous loop.
OFF: After all images have been played back, the slide show ends.

4 Select [START] with ▲/▼, then press ●.
The slide show begins.

To cancel the SLIDE SHOW setting

Select [CANCEL] with ▲/▼/◀/▶ in step **3**, then press ●.

To stop the SLIDE SHOW playback

Press ●, select [EXIT] with ▶, then press ●.

To skip to the next/previous image during the SLIDE SHOW

Press ▶ (next) or ◀ (previous).

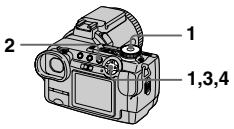
Note

The interval setting time may vary depending on the image size.

Rotating a still image (ROTATE)

Mode dial: ▶

You can rotate the image recorded in portrait orientation and change it in landscape orientation.



1 Set the mode dial to ▶, and display the image to rotate.

2 Press MENU.
The menu appears.

3 Select [ROTATE] with ◀/▶, then press ●.

4 Select [↶, ↷] with ▲/▼, then rotate the image with ◀/▶. Select [OK] with ▲/▼, then press ●.

To cancel rotation

Select [CANCEL] with ▲/▼ in step **4**, then press ●.

Notes

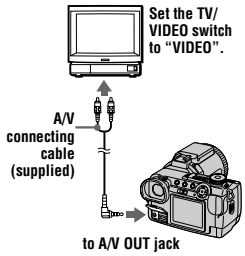
- You cannot rotate protected or uncompressed images.
- You may not be able to rotate images recorded with other equipment.
- Also, when viewing images on a computer, the image rotation information may not be reflected depending on the application software.

▼ Various playback

Viewing images on a TV screen

Mode dial: ▶

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



1 Set the mode dial to ▶.

2 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 input jacks, connect the audio plug (black) of the A/V connecting cable to the Lch jack.

3 Turn on the TV and start playback on your camera.
The image appears on the TV screen.

Notes

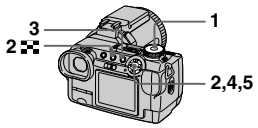
- You cannot use a TV that has an antenna (aerial) connector only.
- When viewing a still image on the TV, the black band may appear around the image.

Deleting images (DELETE)

Mode dial: ▶

You can delete unwanted files.

In single-image or triple-image mode



1 **Set the mode dial to ▶.**

2 **In single-image mode:**
Display the image you want to delete with ◀/▶.

In triple-image mode:
Press ▦ twice in the single-image mode to turn to the triple-image mode. Display the image you want to delete with ◀/▶.

3 **Press MENU.**
The menu appears.

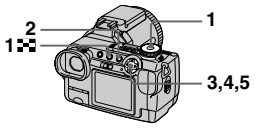
4 **Select [DELETE] with ◀/▶ in single-image mode, or with ▲/▼ in triple-image mode, then press ●.**

5 **Select [OK] with ▲/▼, then press ●.**
The displayed image (or the middle-positioned image in triple-image mode) is deleted.

To cancel deleting

- Press MENU in step **4** or **5** so that the menu turns off.
- Select [CANCEL] with ▲/▼ in step **5**, then press ●.

In index mode



1 **Set the mode dial to ▶, then display the index screen with ▦.**

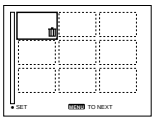
2 **Press MENU.**
The menu appears.

3 **Select [DELETE] with ◀/▶, then press ●.**

4 **Select [ALL] or [SELECT] with ◀/▶, then press ●.**

5 **When you select [ALL]**
Select [OK] with ◀/▶, then press ●.
All the unprotected images are deleted.

When you select [SELECT]
① Select an image to be deleted with ▲/▼/◀/▶, then press ●.
The 🗑 (delete) indicator appears on the selected image.
Repeat this step for all images that are to be deleted.
To cancel, press ● again.
The 🗑 indicator disappears.



② Press MENU.
③ Select [OK] with ◀/▶, then press ●.

To cancel deletion

Select [CANCEL] with ◀/▶ in step **4** or [EXIT] with ◀/▶ in step **5**, then press ●.

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.

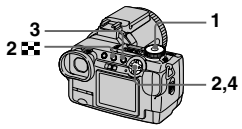
Preventing accidental erasure (PROTECT)

Mode dial: ▶

This function protects images against accidental erasure.

Note
Formatting a "Memory Stick" (page 91) erases even protected images.

In single-image or triple-image mode



1 **Set the mode dial to ▶.**

2 **In single-image mode**
Display the image you want to protect with ◀/▶.

In triple-image mode
Press ▦ twice in the single-image mode to turn to the triple-image mode.
Display the image you want to protect with ◀/▶.

3 **Press MENU.**
The menu appears.

4 **Select [PROTECT] with ◀/▶ in single-image mode, or with ▲/▼ in triple-image mode, then press ●.**
The displayed image (or the middle-positioned image in triple-image mode) is protected.
The 🔑 indicator appears on the image.

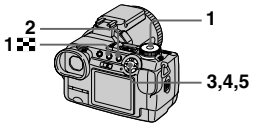
To release protection

Press ● again in step **4**. The 🔑 indicator disappears.

To cancel protection

Press MENU in step **4** so that the menu turns off.

In index mode



1 **Set the mode dial to ▶, then display the index screen with ▦.**

2 **Press MENU.**
The menu appears.

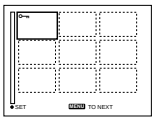
3 **Select [PROTECT] with ◀/▶, then press ●.**

4 **Select [ALL] or [SELECT] with ◀/▶, then press ●.**

5 **When you select [ALL]**
Select [ON] with ◀/▶, then press ●.
All the images in the "Memory Stick" are protected.

When you select [SELECT]
① Select an image to be protected with ▲/▼/◀/▶, then press ●.
The 🔑 (protect) indicator appears on the selected image.
Repeat this step for all images that are to be protected.

To cancel, press ● again.
The 🔑 indicator disappears.



② Press MENU.
③ Select [OK] with ◀/▶, then press ●.

To release protection

If you selected [ALL] in step 4:
Select [OFF] with ◀/▶, and then press ●.

If you selected [SELECT] in step 4:
① Select the images to be unprotected with ▲/▼/◀/▶, then press ●.
② Repeat ① for all images that are to be unprotected.
③ Press MENU, select [OK] with ◀/▶, and then press ●.

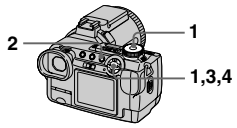
To cancel protection

Select [CANCEL] with ◀/▶ in step **4** or [EXIT] with ◀/▶ in step **5**, then press ●.

Changing the recorded still image size (RESIZE)

Mode dial: ▶

You can change the image size of a recorded image in single mode.



1 **Set the mode dial to ▶, then display the image of which you want to change the size.**

2 **Press MENU.**
The menu appears.

3 **Select [RESIZE] with ◀/▶, then press ●.**

4 **Select the desired size with ▲/▼, then press ●.**
2560×1920, 2048×1536, 1280×960, 640×480
The resized image is recorded.

To cancel changing the size

Select [CANCEL] with ▲/▼ in step **4**, then press ●.

Notes

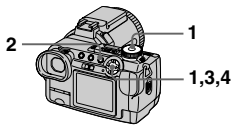
- The original image is retained even after resizing.
- You cannot change the size of moving images, uncompressed images, or Clip Motion images.
- The resized image is recorded as the newest file.
- If you resize an image, the remaining "Memory Stick" capacity will be decreased.
- When you change from a small size to a large size, the picture quality deteriorates.
- If the remaining "Memory Stick" capacity is not sufficient, you may not be able to resize an image.
- You cannot resize to an image size of 3:2.
- When you resize a 3:2 image, the upper and lower black portions are displayed on the screen.
- You cannot resize images in index mode or triple-image mode.

Copying images (COPY)

Mode dial: ▶

You can copy images to another "Memory Stick."

In single mode



1 Set the mode dial to ▶, then display the image you want to copy.

2 Press MENU.
The menu appears.

3 Select [COPY] with ◀/▶, then press ●.

4 Select [OK] with ▲/▼, then press ●.
"MEMORY STICK ACCESS" appears.

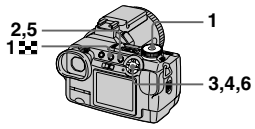
5 When "CHANGE MEMORY STICK" appears, eject the "Memory Stick."
"INSERT MEMORY STICK" appears.

6 Insert the "Memory Stick" on which to copy the image.
"RECORDING" appears.
When copying is completed, "COMPLETE" appears.
To end copying, select [EXIT] with ▲/▼, then press ●.

To copy the image to another "Memory Stick"
Select [CONTINUE] with ▲/▼, press ●, then repeat steps **5** and **6**.

To cancel copying
Select [CANCEL] with ▲/▼ in step **4**, or [EXIT] in step **5**, then press ●.

In index mode

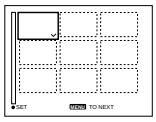


1 Set the mode dial to ▶, then display the index screen with ▦.

2 Press MENU.
The menu appears.

3 Select [COPY] with ◀/▶, then press ●. Select [SELECT] with ◀/▶, then press ●.
The frame of the selected image turns green.

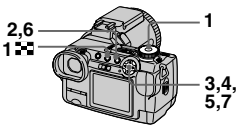
4 Select the image to copy with ▲/▼/◀/▶, then press ●.
The ✓ (select) indicator appears on the selected image. Repeat this step for all images that are to be copied.
To cancel, press ● again. The ✓ indicator disappears.



▼ Editing

To cancel marking the print mark
Press MENU in step **4** so that the menu turns off.

In index mode



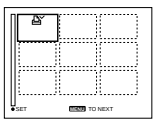
1 Set the mode dial to ▶, then display the index screen with ▦.

2 Press MENU.
The menu appears.

3 Select [PRINT] with ◀/▶, then press ●.

4 Select [SELECT] with ◀/▶, then press ●.
The frame of the selected image turns green.
When marking the 🖂 mark, you cannot select [ALL].

5 Select the images to be marked with ▲/▼/◀/▶, then press ●.
The 🖂 (print) mark appears on the selected image.
Repeat this step for all images that are to be marked.
To cancel, press ● again. The 🖂 mark disappears.



6 Press MENU.
The menu appears.

7 Select [OK] with ◀/▶, then press ●.

To unmark selected print marks
Select the images to be unmarked in step **5** with the control button, then press ●.

To unmark all the print marks
Select [ALL] with ◀/▶ in step **4**, then press ●. Select [OFF] with ◀/▶, then press ●.
The 🖂 marks on all images are unmarked.

To cancel marking the print mark
Select [CANCEL] with ◀/▶ in step **4** or select [EXIT] with ◀/▶ in step **7**, then press ●.

Notes
- You cannot mark moving images or Clip Motion images.
- 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.
- In E-mail mode, a print mark is marked on the normal size image that is recorded at the same time.

▼ Editing

5 Press MENU.
The menu appears.

6 Select [OK] with ◀/▶, then press ●.
"MEMORY STICK ACCESS" appears.

7 When "CHANGE MEMORY STICK" is displayed, eject the "Memory Stick."
"INSERT MEMORY STICK" appears.

8 Insert another "Memory Stick."
"RECORDING" appears.
When copying is completed, "COMPLETE" appears.
To end copying, select [EXIT] with ▲/▼, then press ●.

To copy the image to another "Memory Stick"
Select [CONTINUE] with ▲/▼ in step **8**, press ●, then repeat steps **7** and **8**.

To cancel copying
Select [CANCEL] with ◀/▶ in step **3** or [EXIT] in steps **6** and **7**, then press ●.

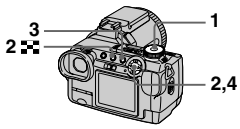
Notes
- You cannot copy uncompressed images.
- You cannot copy images that are bigger than 5 MB at once. If "NOT ENOUGH MEMORY" appears or ✓ flashes on the INDEX screen, cancel some images to copy and try again.
- If you do not select [EXIT] after "COMPLETE" appears and instead insert a new "Memory Stick," the same image is copied again.

Selecting still images to print (PRINT)

Mode dial: ▶

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-image or triple-image mode



1 Set the mode dial to ▶.

2 In single-image mode
Display the image you want to print with ◀/▶.

In triple-image mode
Press ▦ twice in the single-image mode to turn to the triple-image mode.
Display the image you want to print with ◀/▶.

3 Press MENU.
The menu appears.

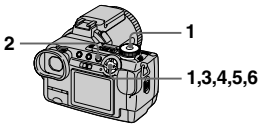
4 Select [PRINT] with ◀/▶ in single-image mode, or with ▲/▼ in triple-image mode, then press ●.
The 🖂 (print) mark is marked on the displayed image (or the middle-positioned image in triple-image mode).

To unmark the print mark
Press ● again in step **4**. The 🖂 mark disappears.

Dividing a moving image file (DIVIDE)

Mode dial: ▶

You can divide moving images recorded in MPEG MOVIE mode. This is convenient when there is not enough space on a "Memory Stick" or when attaching moving images to e-mails.

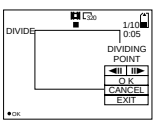


1 Set the mode dial to ▶ and display the moving image you want to divide.

2 Press MENU.
The menu appears.

3 Select [DIVIDE] with ◀/▶, then press ●, select [OK] with ▲/▼, then press ●.
The moving image is played back.

4 Press ● at the divide point.
The following screen appears.
You can reselect the divide point with ▲/▼ as follows:



[◀II / II▶] (frame forward/ frame reverse)
You can finely adjust the divide point using ◀/▶.

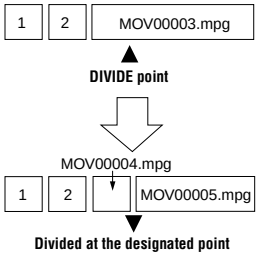
[CANCEL]
Moving image playback restarts and you can reselect the divide point.

5 When you have decided the divide point, select [OK] with ▲/▼, then press ●.

6 [OK], [CANCEL] and [EXIT] appear on the screen. Select [OK] with ▲/▼, then press ●.
The moving image file is divided.

You cannot divide the following types of files:
- Clip Motion files
- Still image files
- Moving image files that are too short to divide

The file number changes as follows when you divide a file.
<eg.> If you divide the MOV00003.mpg file, the divided file numbers become MOV00004.mpg and MOV00005.mpg, and MOV00003.mpg is skipped. The divided files are saved as the latest files.



To cancel file division
Press [EXIT]. The image playback screen appears.

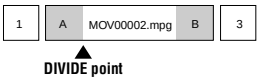
Notes
- You cannot recombine divided files.
- The original undivided file is not saved.

To delete unwanted portions of a moving image

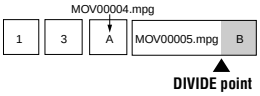
<eg.> To delete the unwanted scenes A and B from the file MOV00002.mpg:

Step 1: Divide

① Divide the unwanted scene A.

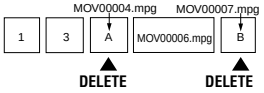


② Divide the unwanted scene B.



Step 2: Delete

① Delete the unwanted scenes A and B.



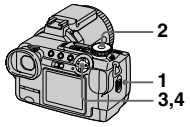
② Only the desired scene remains.

Formatting the "Memory Stick" (FORMAT)

Mode dial: SET UP

When you format a "Memory Stick", all data stored on the "Memory Stick" will be deleted. Check the contents of the "Memory Stick" before formatting.

Note
Even if images are protected, these images will be deleted.



1 **Insert the "Memory Stick" you want to format.**

2 **Set the mode dial to SET UP.**
The SET UP screen appears.

3 **Select [🧰] (SETUP 1) with ▲/▼, [FORMAT] with ▶/▲/▼, then press ▶.**

4 **Select [OK] with ▲/▼, then press ●.**

To cancel formatting

Select [CANCEL] with ▲/▼ in step **4**.

Notes
- Format the "Memory Stick" only using this camera. You cannot format the "Memory Stick" using a computer via the USB cable.
- When you format, be sure to use a fully charged battery pack or the AC power adaptor as the power source.

Changing the SET UP settings (SETUP)

The SET UP position changes the settings of infrequently-used items.
Set the mode dial to SET UP. The SET UP screen appears. You can set up the following items with the control button. Default settings are indicated with ■.

📷 CAMERA

Item	Setting	Description
EXPANDED FOCUS	■ON OFF	When focusing manually, the image is enlarged to 2× (page 72).
MOVING IMAGE	■MPEG MOVIE CLIP MOTION	Selects the recording mode of the moving image (pages 32, 70).
DATE/TIME	DAY & TIME DATE ■OFF	Selects whether to superimpose the date or the time onto the image (page 76).
DIGITAL ZOOM	■ON OFF	Uses digital zoom (page 24).
BRACKET STEP	±1.0EV ■±0.7EV ±0.3EV	Sets the exposure compensation value when recording three images with each exposure value shifted (page 66).
RED EYE REDUCTION	ON ■OFF	Reduces the red-eye phenomenon (page 27).
HOLOGRAM AF	■AUTO OFF	Uses when it is difficult to focus on the subject under dark conditions (page 28).

Notes on [DATE/TIME]
- The date and time do not appear on the screen during shooting. These appear only during playback.
- The date and time are not superimposed onto moving images and Clip Motion images.

🧰 SETUP 1

Item	Setting	Description
FORMAT	OK	**Formats the "Memory Stick". Note that formatting erases all the information recorded on the "Memory Stick", including even erasure protected images (page 91).**
	CANCEL	Cancels formatting of the "Memory Stick".
FILE NUMBER	■SERIES	Assigns numbers to files in sequence even if the "Memory Stick" is changed.
	RESET	Resets the file numbering each time the "Memory Stick" is changed.

Item	Setting	Description
CONVERSION LENS	ON ■OFF	Sets to [ON] when using the VCL-MHG07A conversion lens (not supplied). At this time, the zoom function does not work. Use the step-down ring supplied with the conversion lens.
言語/ LANGUAGE	■ENGLISH	Displays the menu items in English.
	日本語 /JPN	Displays the menu items in Japanese.
CLOCK SET	OK CANCEL	Sets the date and time (Perform the procedure from step ❸ on page 16).

Note when using a conversion lens

When you mount the conversion lens VCL-MHG07A, the weight makes it impossible to lock the lens portion. We recommend supporting the lens portion with your left hand or using a tripod for recording.

SETUP 2

Item	Setting	Description
LCD BRIGHTNESS	BRIGHT ■NORMAL DARK	Selects the LCD brightness. This has no effect on the recorded images.
LCD BACKLIGHT	BRIGHT ■NORMAL	Displayed only when using your camera with the battery pack: Selects the brightness of the LCD backlight. Selecting [BRIGHT] makes the screen bright and easy to see when using the camera outdoors or in other bright locations, but also uses up the battery charge faster.
EVF BACKLIGHT	BRIGHT ■NORMAL	Selects the brightness of the finder backlight. Selecting [BRIGHT] makes the screen bright and easy to see when using the camera outdoors or in other bright locations, but also uses up the battery charge faster.
BEEP	SHUTTER	Turns on the shutter sound only. (The shutter sound is heard when you press the shutter button.)
	■ON	Turns on the beep/shutter sound (when you press the control button/shutter button).
	OFF	Turns off the beep/shutter sound.
VIDEO OUT	NTSC	Sets the video output signal to NTSC mode (e.g., Japan, USA) (page 98).
	PAL	Sets the video output signal to PAL mode (e.g., Europe) (page 98).

Item	Setting	Description
USB CONNECT	PTP ■NORMAL	Switches the USB mode (page 38). Users will be informed at the Sony website when PTP connection is supported.
DEMO	■ON/STBY OFF	Displayed only when you use your camera with the AC power adaptor. [DEMO] is set to [STBY] as the default setting and the demonstration starts about 10 minutes after you have set the mode dial to 📷, S, A, or M. To cancel the demonstration, turn off the power.

Note on DEMO mode

You can release the shutter in DEMO mode, but nothing is recorded.

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.

Care and storage of the lens
- Wipe the surface of the lens clean with a soft cloth in the following instance:
  - —When there are fingerprints on the lens surface
  - —In hot or humid locations
  - —When the lens is used in environments such as the seaside
- Store the lens in a well-ventilated location subject to little dirt or dust.

To prevent mold from occurring, periodically perform the above.
We recommend turning on and operating the digital still camera about once per month to keep the digital still camera in an optimum state for a long time.

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 benzine 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 0°C and 40°C (32°F and 104°F). 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

- The unit is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet (wall socket), even if the unit itself has been turned off.
- Unplug the unit from the wall outlet (wall socket) 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 on the power cord (mains lead) itself.
- Do not operate the unit with a damaged power cord (mains lead) 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 (mains lead) 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 the 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 will be 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

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 60°C (140°F), 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 or modify the battery pack.
- Install the battery pack in 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 1 month 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 (wall socket) with the AC power adaptor, or install a charged battery pack, and leave the camera for 24 hours or more with the power 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
- 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 the “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.

“Memory Stick”, MEMORY STICK, “MagicGate Memory Stick” and MG are trademarks of Sony Corporation.
“MagicGate” and MAGICGATE are trademarks of Sony Corporation.

On “InfoLITHIUM” battery pack

What is the “InfoLITHIUM” battery pack?
The “InfoLITHIUM” battery pack is a lithium-ion battery pack that has functions for communicating information related to operating conditions between your camera and the AC power adaptor.
The “InfoLITHIUM” battery pack calculates the power consumption according to the operating conditions of your camera, and displays the remaining battery time in minutes.

Charging the battery pack
- Be sure to charge the battery pack before you start using your camera.
- We recommend charging the battery pack in an ambient temperature of between 10°C to 30°C (50°F to 86°F) until the CHG/ϟ lamp goes out, indicating that the battery pack is fully charged. If you charge the battery pack outside of this temperature range, you may not be able to efficiently charge the battery pack.
- After charging is completed, disconnect the AC power adaptor from the DC IN jack on your camera or remove the battery pack.

Effective use of the battery pack
- Battery performance decreases in low-temperature surroundings. So, the time that the battery pack can be used is shorter in cold places. We recommend the following to ensure longer battery pack use:
  - —Put the battery pack in a pocket close to your body to warm it up, and insert it in your camera immediately before you start shooting.
- Frequently operating the zoom wears out the battery pack faster.
- Be certain to turn the POWER switch to off when not taking shots or playing back on your camera.
- We recommend having spare batteries handy for two or three times the expected shooting time, and making trial shots before taking the actual shots.
- Do not expose the battery pack to water. The battery pack is not water-resistant.

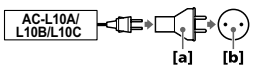
Remaining battery time indicator
- The power may go off although the battery remaining indicator shows there is enough power to operate. Charge the battery pack fully again so that the indication on the battery remaining indicator is correct. Note, however, that the correct battery indication sometimes will not be restored if it is used in high temperatures for a long time or left in a fully charged state, or the battery pack is frequently used. Regard the remaining battery time indication as the approximate shooting time.

How to store the battery pack
- Even if the battery pack will not be used for a long time, fully charge it and use it up once per year. Remove the battery pack from your camera, then store it in a dry, cool place. This is to maintain the battery pack’s functions.
- To use the battery pack up on your camera, leave the POWER switch to on in slide show playback mode until the power goes off.

Battery life
- The battery life is limited. Battery capacity decreases little by little as you use it more and more, and as time passes. When the battery operating time is shortened considerably, a probable cause is that the battery pack has reached the end of its life. Please buy a new battery pack.
- The battery life varies according to how it is stored and operating conditions and environment for each battery pack.

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 a commercially available AC plug adaptor **[a]**, if necessary, depending on the design of the wall outlet (wall socket) **[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. Check the following list:

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

PAL system
Australia, Austria, Belgium, China, Czech Republic, Denmark, Finland, Germany, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Thailand, United Kingdom, etc.

PAL-M system
Brazil

PAL-N system
Argentina, Paraguay, Uruguay

SECAM system
Bulgaria, France, Guiana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Ukraine, etc.

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, press the RESET button. (If you press the RESET button, all the settings including date and time are cleared.) Should your camera still not operate properly, consult your Sony dealer or local authorized Sony service facility. **If code displays (C:□□:□□) appear on the screen, the self-diagnosis display function is working (page 107).**

Symptom	Cause and/or Solution
Your camera does not work.	• You are not using an "InfoLITHIUM" battery pack. →Use an "InfoLITHIUM" battery pack (page 11). • The battery level is low (the indicator appears on the screen). →Charge the battery pack (page 12). • The AC power adaptor is not connected securely. →Connect it firmly to the DC IN jack of your camera and a wall outlet (wall socket) (pages 12, 15). • 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 and check that the camera works properly. If the function still do not work, press the RESET button located on the inside of the battery/"Memory Stick" cover using a sharp-pointed object. (If you press the RESET button, all setting including the date and time are cleared.)
Your camera cannot record images.	• You cannot record images while charging the flash. • The mode dial is set to or SET UP. →Set it to other modes (pages 21, 32). • No "Memory Stick" has been inserted into your camera. →Insert a "Memory Stick". • The write-protect tab on the "Memory Stick" is set to LOCK. →Set it to the recording position.
The LCD screen does not light when the power is turned on.	• The FINDER/LCD switch is set to FINDER. →Set it to LCD.

Symptom	Cause and/or Solution
An unexpected screen appears.	• When using your camera with the AC power adaptor, a demonstration starts about 10 minutes after you have set the mode dial to , S, A or M. →Turn the power off and then on again. You can disable the demonstration under SET UP (page 94).
Recording takes a long time.	• NR slow shutter is activated. →Set to a faster shutter speed than 2.5" (page 63).
The picture is out of focus.	• Your camera is not in macro recording mode when you shoot a subject that is within 50 cm (19 3/4 inches) from the lens at the W side, or within 90 cm (35 1/2 inches) at the T side. →Set the macro recording mode (page 73). • Manual focus mode is selected. →Set FOCUS to AUTO. • The LANDSCAPE mode or PORTRAIT mode are selected for the scene selection function. →Cancel the function (page 65). • [CONVERSION LENS] is set to [ON]. →Set it to [OFF] (page 93).
The resizing function does not work.	• You cannot resize moving images, Clip Motion and uncompressed images.
You cannot display a print mark.	• You cannot display print marks on moving images and Clip Motion images.
The picture is noisy.	• Your camera is placed near a TV or other equipment that uses strong magnets. →Move your camera away from the TV, etc.
The picture is too dark.	• You are shooting a subject with a light source behind the subject. →Adjust the exposure (page 73). • The brightness of the LCD screen is too low. →Adjust the brightness of the LCD screen (page 93).
The picture is too bright.	• You are shooting a spotlighted subject in a dark location such as on a stage. →Adjust the exposure (page 73). • The LCD screen is too bright. →Adjust the brightness of the LCD screen (page 93).

Symptom	Cause and/or Solution
A sound is made if the NIGHTSHOT/ NIGHTFRAMING switch is changed.	• The sound is made by the lens in operation.
The image colors are not correct.	• NIGHTSHOT or NIGHTFRAMING is set. →Set to ●.
The lens makes a noise inside if the shutter button is lightly pressed while NIGHTFRAMING is set.	• The sound is made by the AE/AF function in operation.
NightShot or NightFraming does not function.	• The mode dial is set to SCN, S, A or M. →Set it to or (only for NightShot).
The flash does not work.	• The flash is set to no flash. →Set the flash to auto (no indicator) or forced flash (page 26). • The camera is in one of the following scene selection modes: TWILIGHT or LANDSCAPE. →Cancel the scene selection function (page 65) or set the flash to forced flash. • The mode dial is set to , SETUP or (MPEG MOVIE). →Set it to other modes. • [MODE] (REC MODE) is set to [BURST 3] or [EXP BRKTG] in the menu settings. →Set it to other settings. • NightShot is activated. →Set NIGHTSHOT/NIGHTFRAMING to ● or NIGHTFRAMING.
The date and time are recorded incorrectly.	• The date and time are not set correctly. →Set the correct date and time (page 16).
Vertical streaks appear when you are shooting a very bright subject.	• The smear phenomenon is happening. →This is not a malfunction.

Symptom	Cause and/or Solution
The battery life is short.	• You are recording/playing back images under extremely cold temperatures. • The battery pack is not charged enough. →Charge the battery pack fully. • The battery pack is dead (page 98). →Replace the battery pack with a new one.
The battery remaining indicator is incorrect.	• You have used the camera for a long time in an extremely hot or an extremely cold location. • The battery pack is dead. →Replace the battery pack with a new one. • The battery pack is discharged. →Install a charged battery pack (pages 11, 12).
Sufficient battery remaining indicator is displayed but the power runs out soon.	• A deviation has occurred in the remaining battery time. →Fully charge the battery pack (page 12).
The CHG/ lamp flashes during charging.	• The AC power adaptor is disconnected. →Firmly connect the power cord to the wall outlet (wall socket) (page 12). • The battery pack is not installed correctly. →Install the battery pack correctly (page 11). • The battery pack has malfunctioned. →Contact your Sony dealer or local authorized Sony service facility.
You cannot charge the battery.	• The camera is turned on. →Turn the camera off (page 12).
The zoom does not work.	• [CONVERSION LENS] in the SET UP setting is set to [ON]. →Set it to [OFF] (page 93).
Digital zoom does not function.	• The digital zoom cannot be used when recording a moving image. • [DIGITAL ZOOM] is set to [OFF]. →Set [DIGITAL ZOOM] to [ON] in the SET UP settings.

Symptom	Cause and/or Solution
Your camera cannot play back images.	• The mode dial is set to 📷, 🎞, M, A, S, SCN or SET UP. →Set it to ▶ (pages 35, 36). • Your camera cannot play back image files copied to the hard disk of your computer if the file name has been changed or the image has been modified.
The image and sound are interrupted by noise when you play back an image on a computer.	• You are playing back the file directly from the "Memory Stick." →Copy the file to the hard disk of the computer and then play back the file from the hard disk (page 47).
The image cannot be played back on a computer.	→Consult the computer or software manufacturer.
Your camera cannot delete an image.	• The image is protected. →Release the protection (page 84).
The power turns off suddenly.	• The auto-power off function (page 22) is activated. →Turn on the camera or use the AC power adaptor. • The battery is discharged. →Replace it with a charged battery.
The image does not appear on the TV screen.	• The video output signal setting of your camera is incorrect. →Change the setting (page 93).
A file error occurs when you play back a file.	• Your camera cannot play back files with an image size larger than 2560×1920 or larger that were recorded by another camera.

Symptom	Cause and/or Solution
Your computer does not recognize your camera.	• The battery level is low. →Use the AC power adaptor (page 15). • The camera is turned off. →Turn on the camera. • The USB cable is not connected firmly. →Disconnect the USB cable, and connect it again firmly. Make sure that "USB MODE" is displayed on the screen (pages 44, 45). • [USB CONNECT] is set to [PTP] in the SET UP settings. →Set it to [NORMAL] (page 94). • The USB connectors on your computer are connected to other equipment besides the keyboard, the mouse, and your camera. →Disconnect the USB cables except for the ones connected to the keyboard, the mouse, and your camera. • The USB driver is not installed. →Install the USB driver (pages 39, 48). • Since the camera is connected to a computer with the USB cable before installing the USB driver, the drive is not recognized by the computer. →Delete the drive which is not recognized, then install the USB driver. For details, see the procedure on page 42.

Warning and notice messages

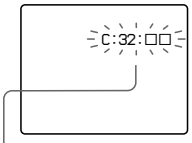
Various messages appear on the screen. Check the corresponding descriptions in the following list.

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. • The "Memory Stick" is not inserted correctly.
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.
COPY ERROR	Copying was not performed correctly, or the "Memory Stick" was removed during copying.
DIRECTORY ERROR	A directory with the same name already exists on the "Memory Stick".
IMAGE SIZE OVER	You are playing back an image of a size that cannot be played back with your camera.

Message	Meaning
INVALID OPERATION	You are playing back a file that was created on equipment other than your camera.
🪫	The battery level is low. Depending on the conditions of use or the type of battery pack, the indicator may flash even though there is still 5 to 10 minutes of remaining battery time left.
CANNOT DIVIDE	• The file is not long enough to be divided. • The file is not a moving image.
🤚	The amount of lights is not sufficient or the shutter speed is too slow. (Mount the camera on a tripod or otherwise secure the camera in place.)
"NIGHT SHOT"	An operation that is not valid while NIGHTSHOT is set is attempted.
"NIGHT FRAMING"	An operation that is not valid while NIGHTFRAMING is set is attempted.
NIGHT SHOT IS INVALID	• The mode dial is set to a position other than 📷 or 🎞 while NIGHTSHOT is set. • [CONVERSION LENS] in the SET UP settings is set to [ON].
NIGHT FRAMING IS INVALID	• The mode dial is set to a position other than 📷 or 🎞 (Clip Motion) while NIGHTFRAMING is set. • [CONVERSION LENS] in the SET UP settings is set to [ON].
MANUAL FOCUS IS INVALID	The focus ring is turned while NIGHTFRAMING is set.

Self-diagnosis display

Your camera has a self-diagnosis display. This function displays the camera condition on the 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.



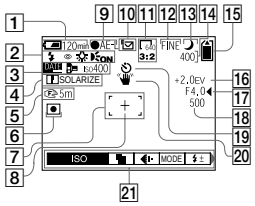
Self-diagnosis display
- C:☐☐:☐☐
  You can reverse the camera malfunction yourself.
- E:☐☐:☐☐
  Contact your Sony dealer or local authorized Sony service facility.

First three digits	Cause and/or Corrective Action
C:32:☐☐	• There is trouble with your camera's hardware. →Turn the power off and on again.
C:13:☐☐	• An unformatted "Memory Stick" is inserted. →Format the "Memory Stick" (page 91). • The inserted "Memory Stick" cannot be used with your camera, or is damaged. →Insert a new "Memory Stick" (page 18). • The camera cannot read or write data on the "Memory Stick". →Re-insert the "Memory Stick" several times.
E:61:☐☐ E:91:☐☐	• 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, or if the camera is not reset even if you press the RESET button located on the inside of the battery/"Memory Stick" cover, contact your Sony dealer or local authorized Sony service facility.

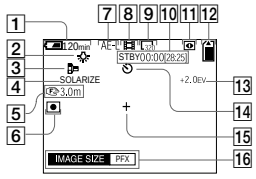
Finder/LCD screen indicators

The indicators during recording still images



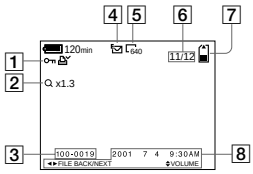
1. **Battery remaining indicator**
2. **Flash mode/ Red eye reduction/ White balance/ Hologram AF indicator**
3. **Date/time/ Conversion lens/ ISO number indicator**
4. **Sharpness/ Picture effect indicator**
5. **Macro /focus distance indicator**
6. **Metering modes indicator**
7. **AF frame**
8. **Spot light-metering cross hair**
9. **AE/AF lock indicator**
10. **Recording mode indicator**
11. **Image size indicator**
12. **Image quality indicator**
13. **Mode dial indicator/ NightShot/NightFraming indicator**
14. **Remaining number of recordable images indicator/ Self-diagnosis function indicator**
15. **Remaining memory capacity indicator**
16. **EV level indicator**
17. **Aperture value indicator**
18. **Shutter speed indicator**
19. **Self-timer indicator**
20. **Light amount warning indicator**
21. **Menu and guide menu**
    Pressing MENU switches the menu on/off.

The indicators during recording moving images



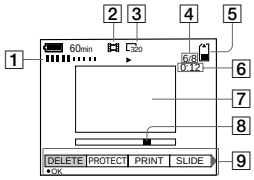
1. **Battery remaining indicator**
2. **White balance indicator**
3. **Conversion lens indicator**
4. **Picture effect indicator**
5. **Macro /focus distance indicator**
6. **Metering modes indicator**
7. **AE lock indicator**
8. **Recording mode indicator**
9. **Image size indicator**
10. **Recording time [maximum recordable time] indicator/ Self-diagnosis function indicator**
11. **NightShot indicator**
12. **Remaining memory capacity indicator**
13. **EV level indicator**
14. **Self-timer indicator**
15. **Spot light-metering cross hair**
16. **Menu and guide menu**
    Pressing MENU switches the menu on/off.

When playing back still images



1. **Protect/print mark indicator**
2. **Zoom scaling indicator**
3. **File name**
4. **Recording mode indicator**
5. **Image size indicator**
6. **Image number/Number of stored images in "Memory Stick"**
7. **Remaining memory capacity indicator**
8. **Recording date of the playback image/menu and guide menu**

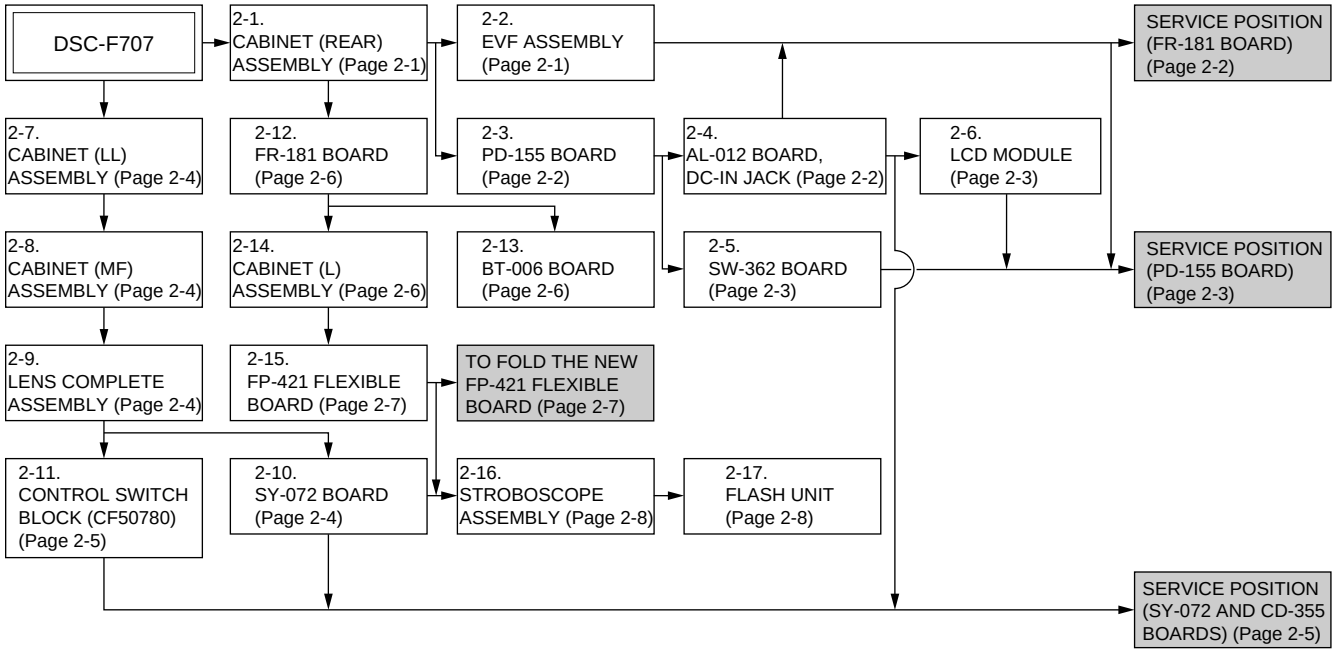
When playing back moving images



1. **VOL. (Volume) indicator**
2. **Recording mode indicator**
3. **Image size indicator**
4. **Image number/Number of stored images in "Memory Stick"**
5. **Remaining memory capacity indicator**
6. **Counter**
7. **Playback image**
8. **Play bar**
9. **Menu and guide menu**

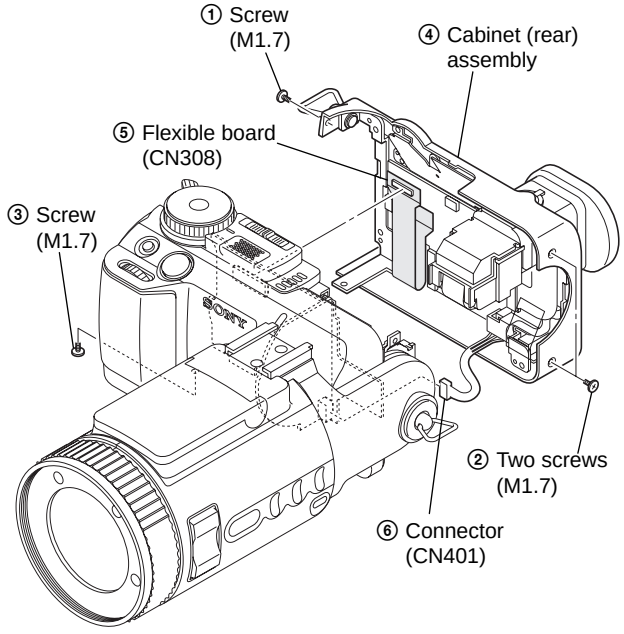
SECTION 2
DISASSEMBLY

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

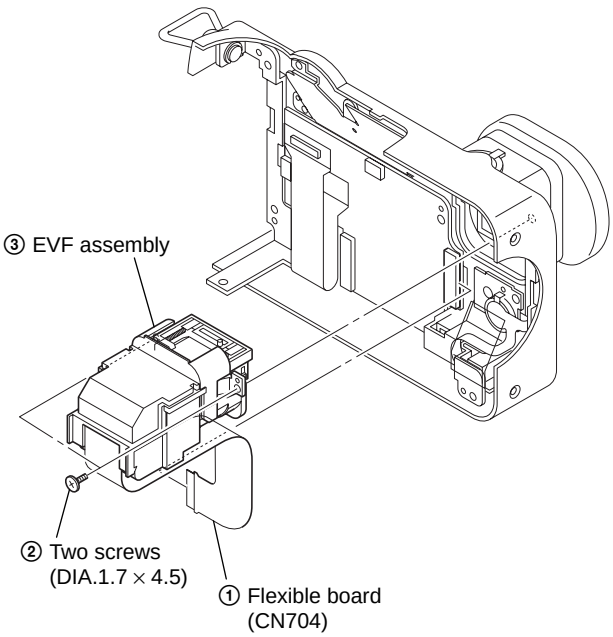


Note: Follow the disassembly procedure in the numerical order given.

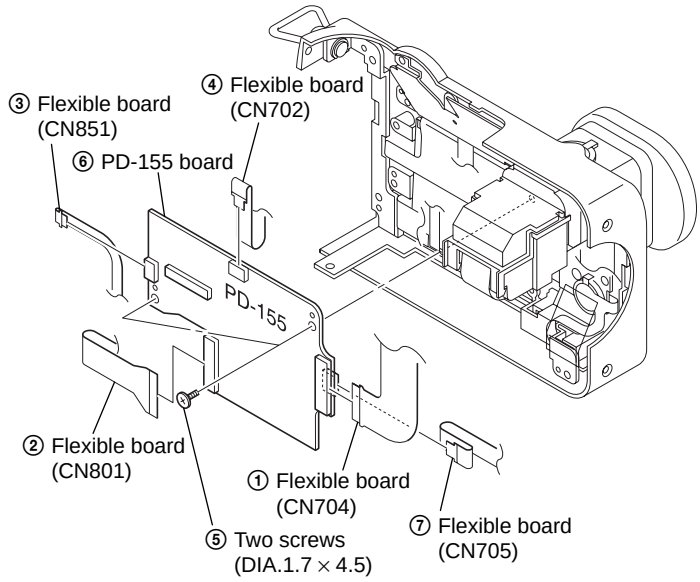
2-1. CABINET (REAR) ASSEMBLY



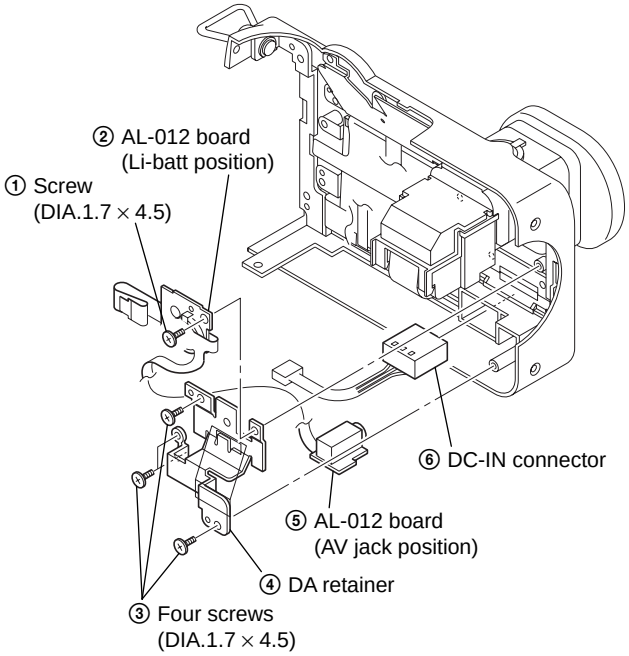
2-2. EVF ASSEMBLY



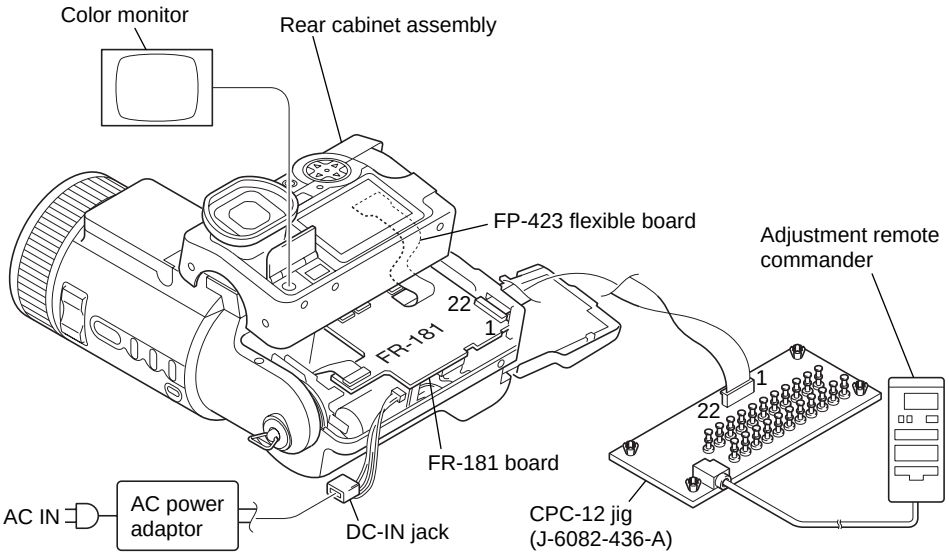
2-3. PD-155 BOARD



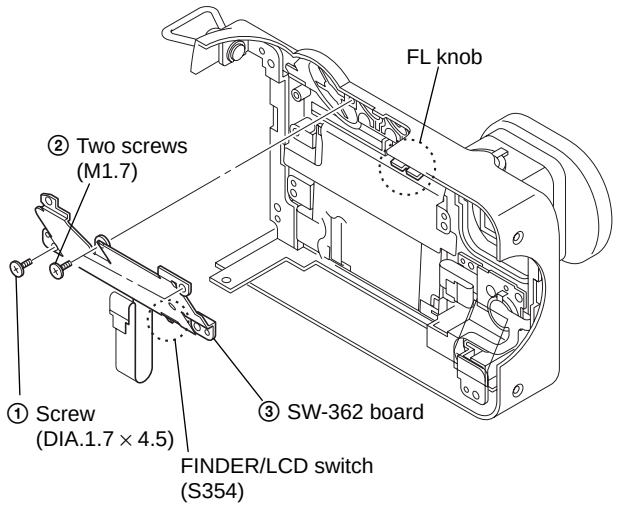
2-4. AL-012 BOARD, DC-IN JACK



[SERVICE POSITION (FR-181 BOARD)]

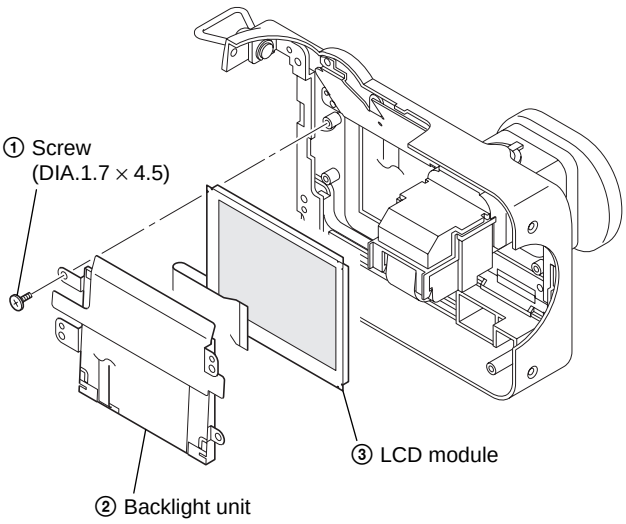


2-5. SW-362 BOARD

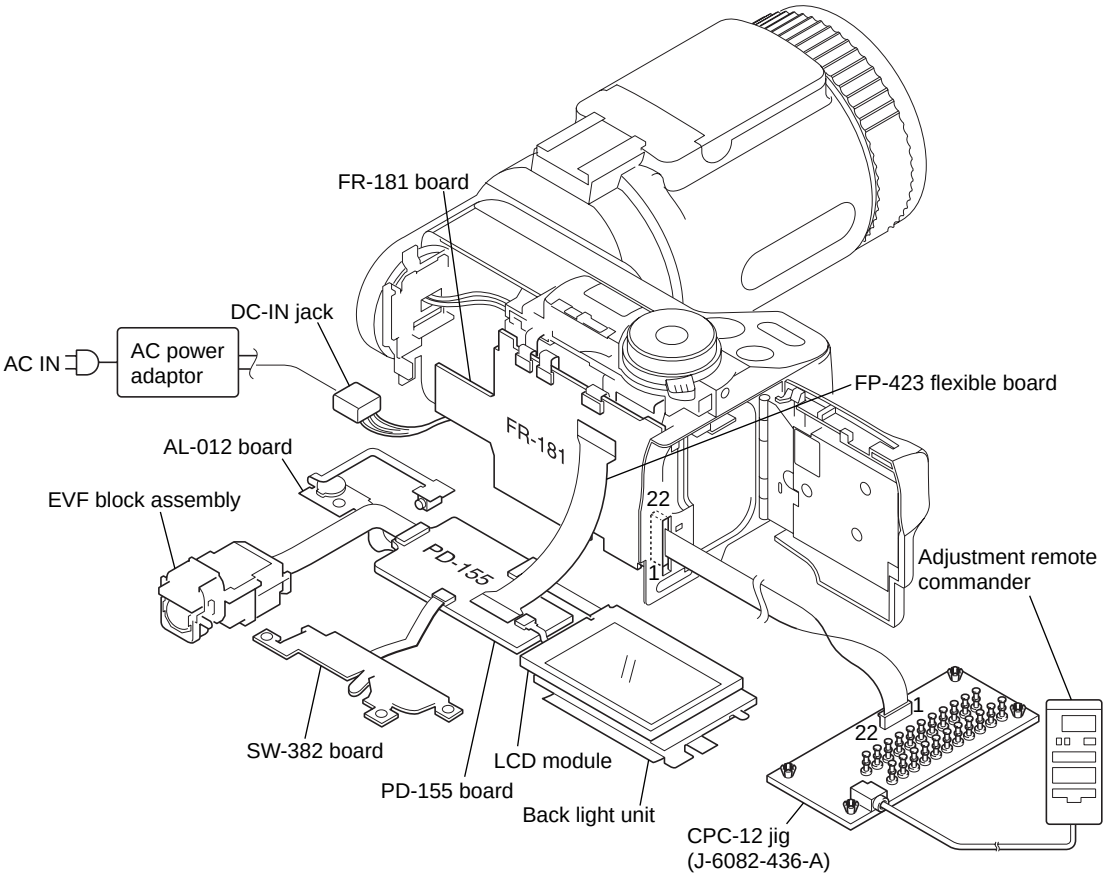


(Note) When installing SW-362 board, connect FL knob with FINDER/LCD switch (S354).

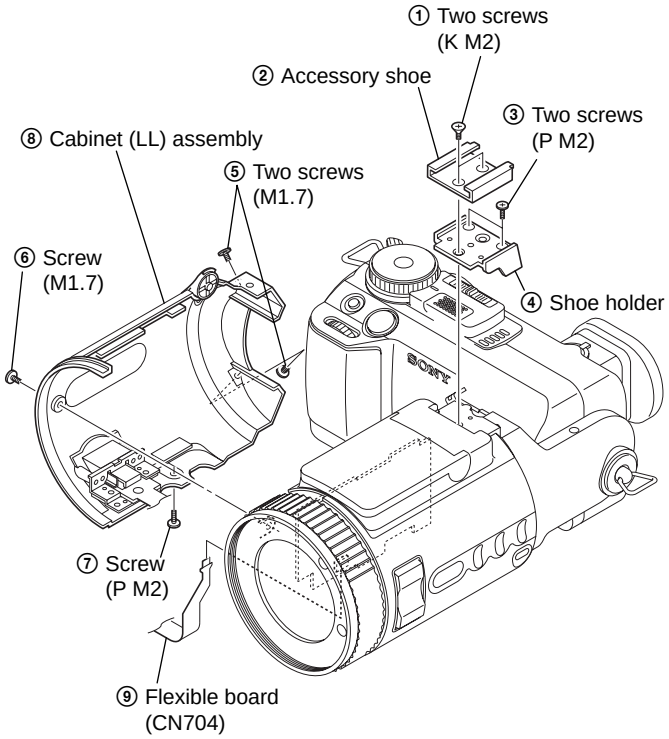
2-6. LCD MODULE



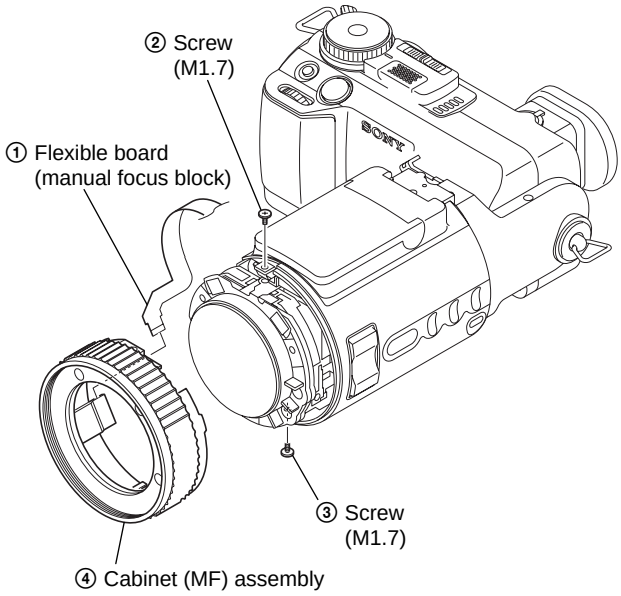
[SERVICE POSITION (PD-155 BOARD)]



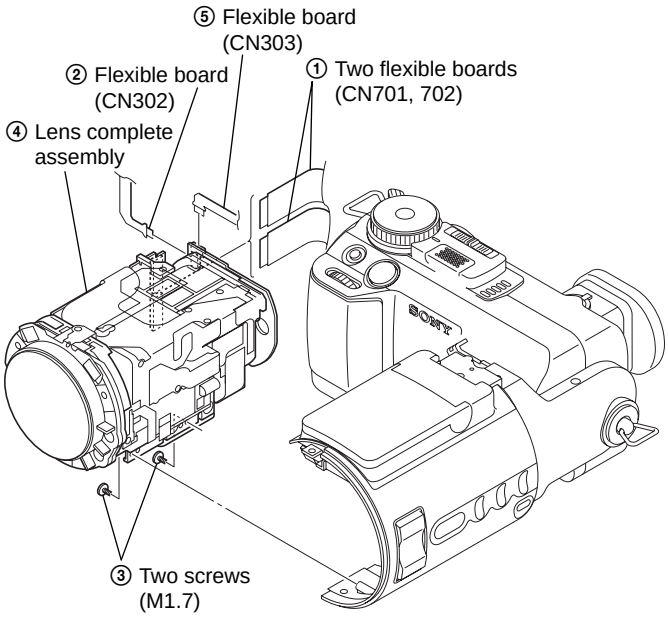
2-7. CABINET (LL) ASSEMBLY



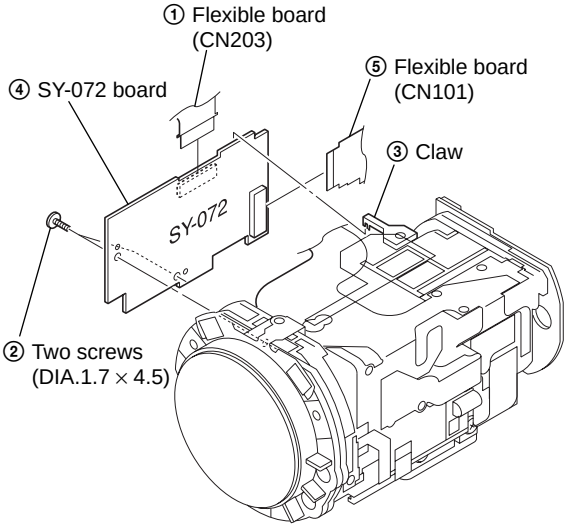
2-8. CABINET (MF) ASSEMBLY



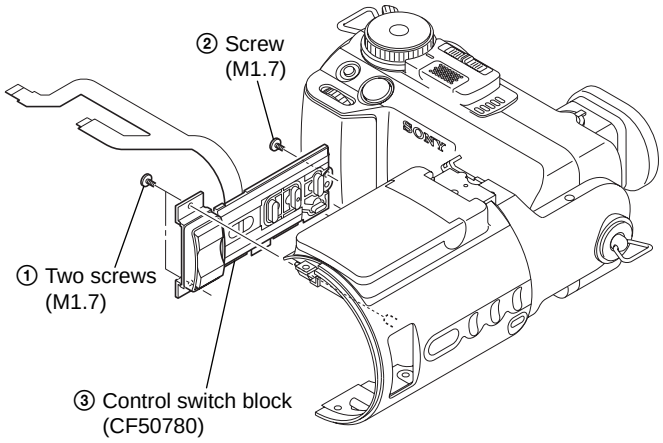
2-9. LENS COMPLETE ASSEMBLY



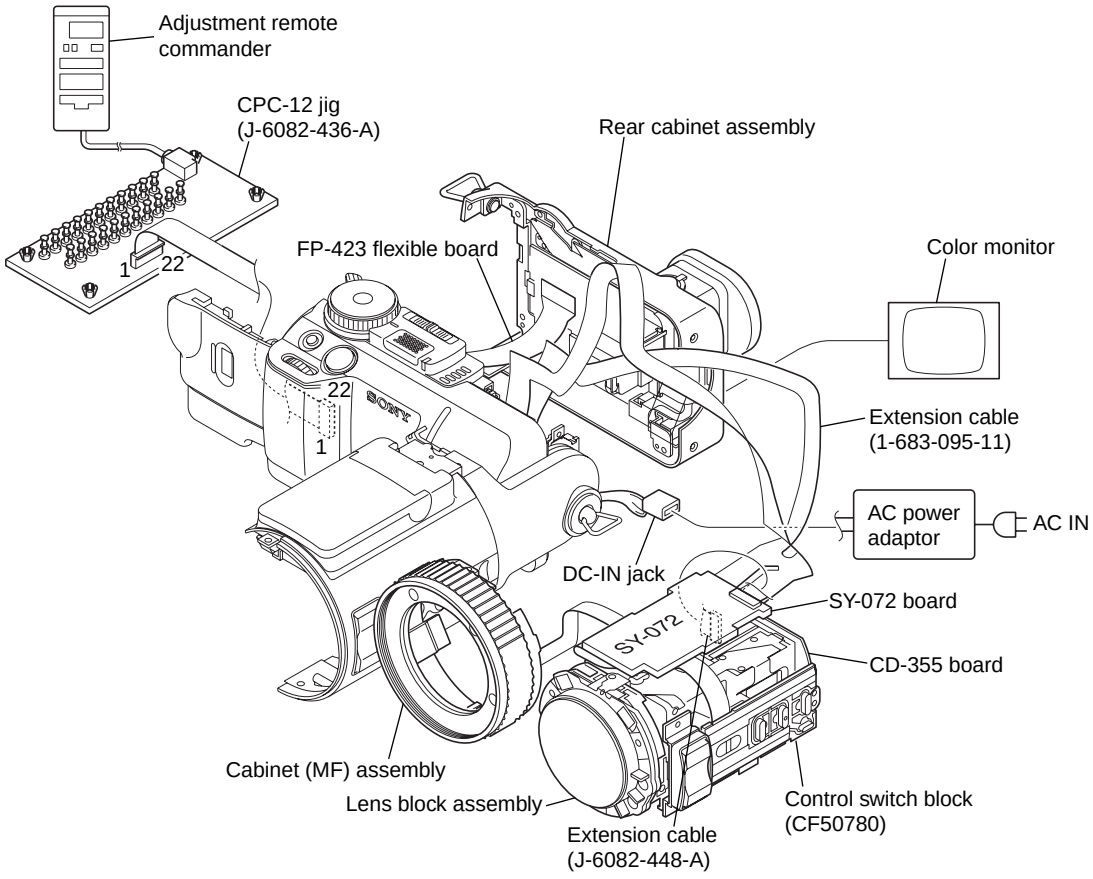
2-10. SY-072 BOARD



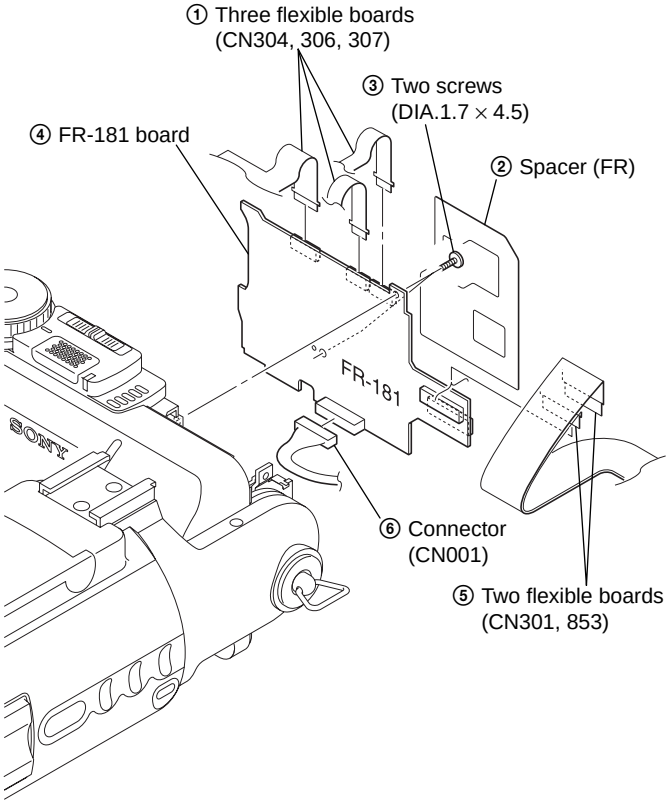
2-11. CONTROL SWITCH BLOCK (CF50780)



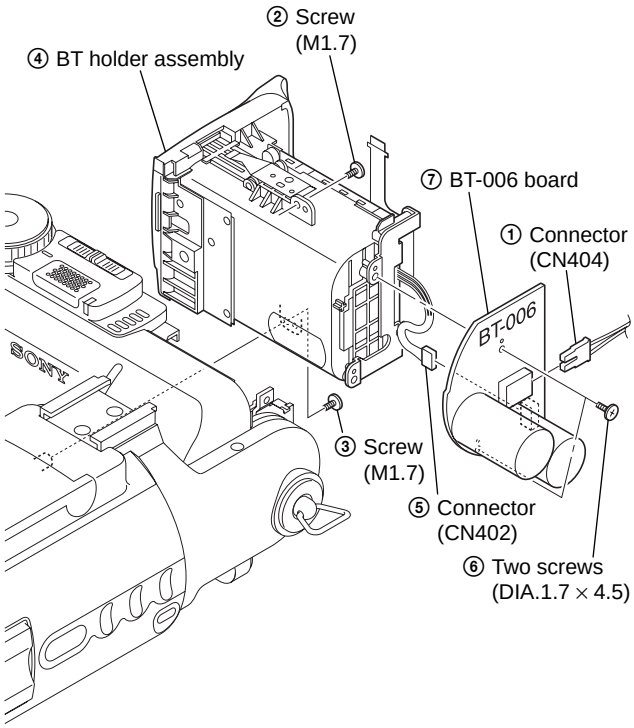
[SERVICE POSITION (SY-072 AND CD-355 BOARDS)]



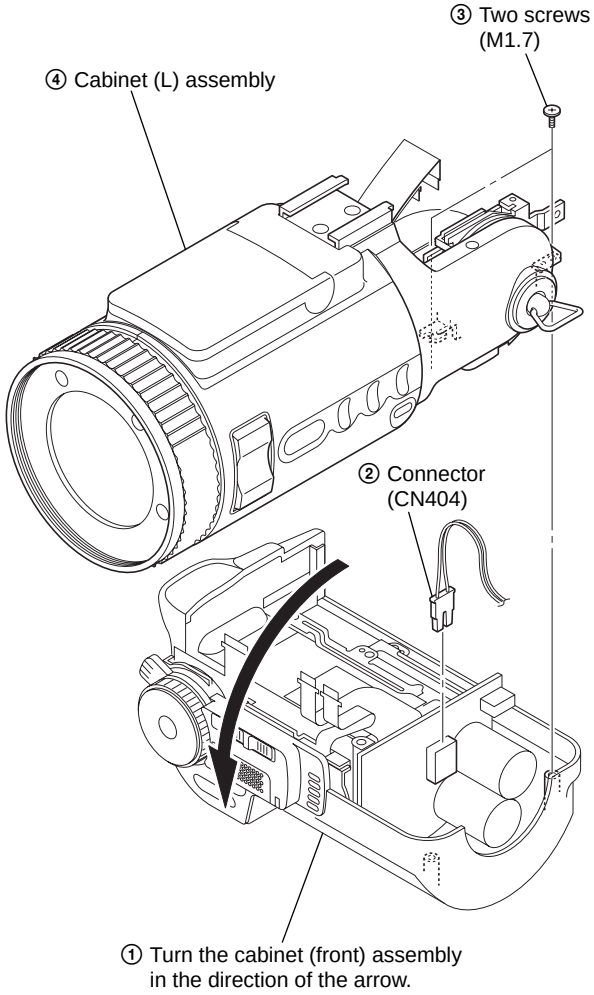
2-12. FR-181 BOARD



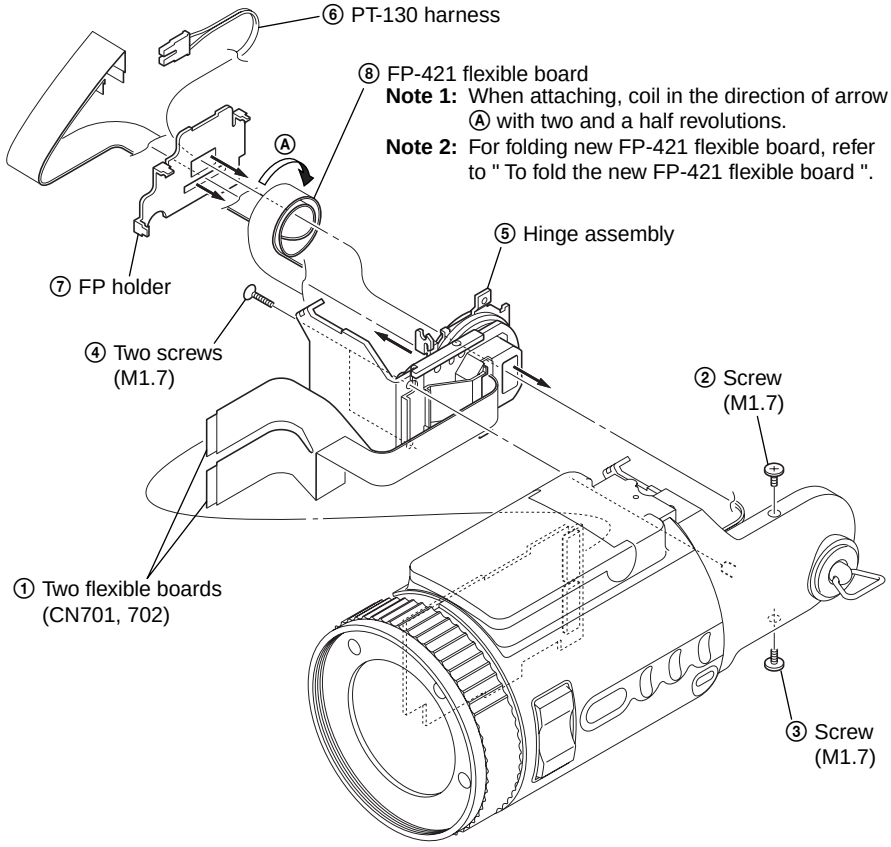
2-13. BT-006 BOARD



2-14. CABINET (L) ASSEMBLY

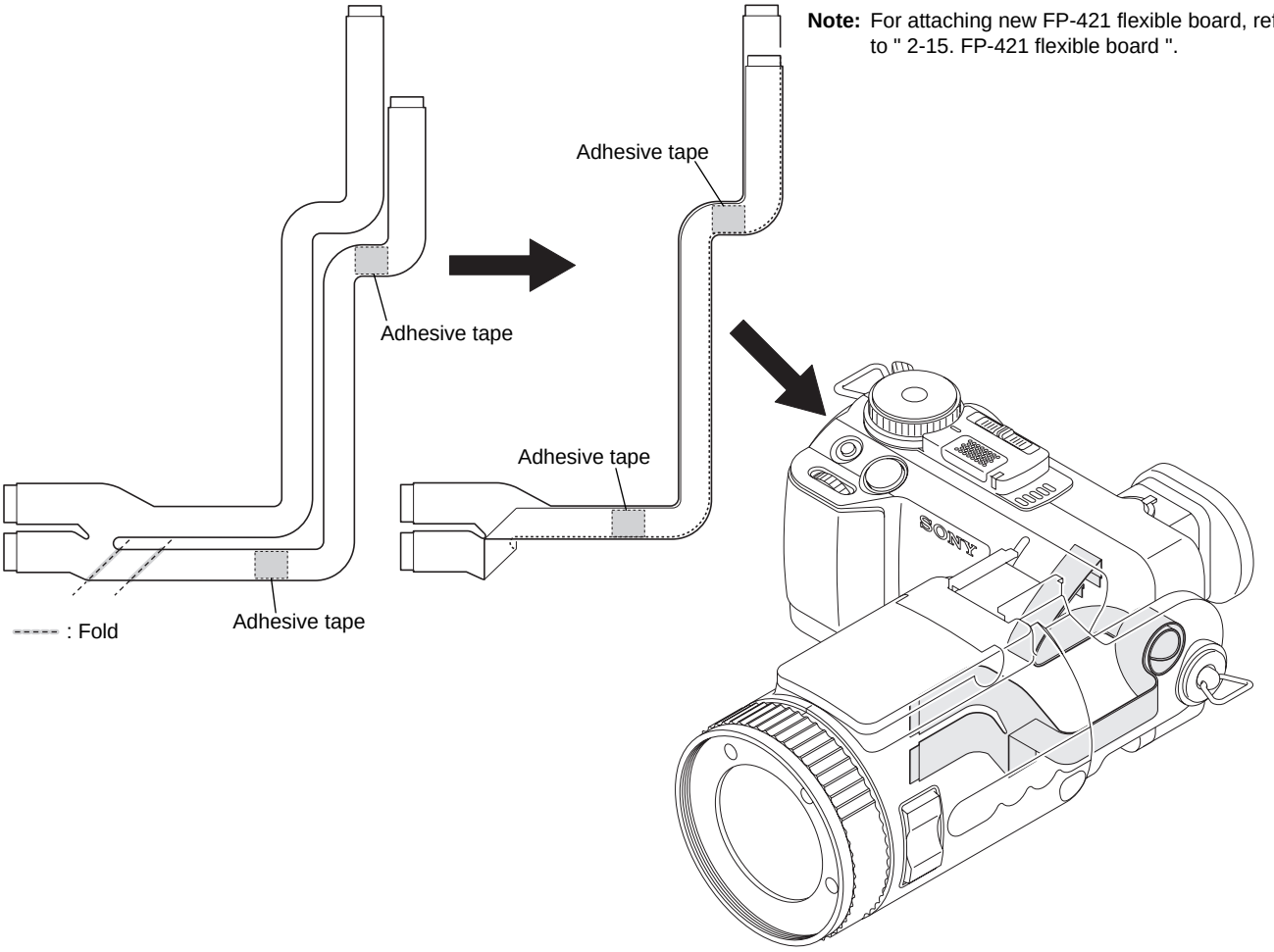


2-15. FP-421 FLEXIBLE BOARD

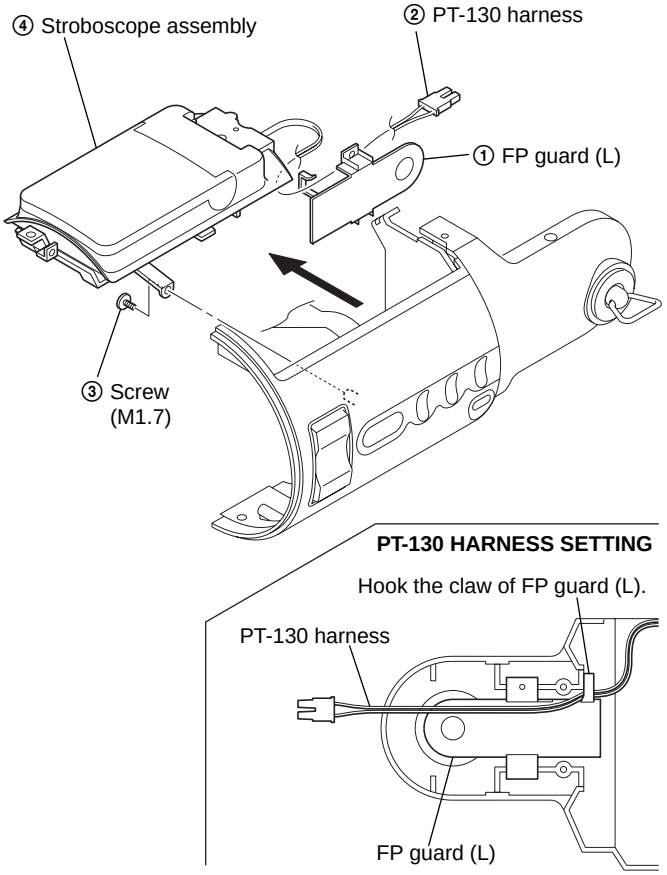


[TO FOLD THE NEW FP-421 FLEXIBLE BOARD]

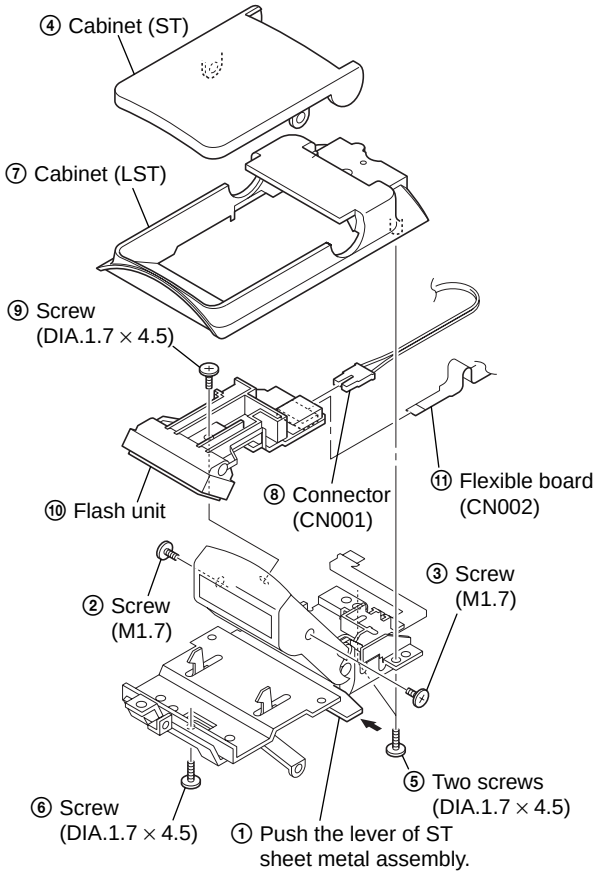
Note: For attaching new FP-421 flexible board, refer to " 2-15. FP-421 flexible board ".



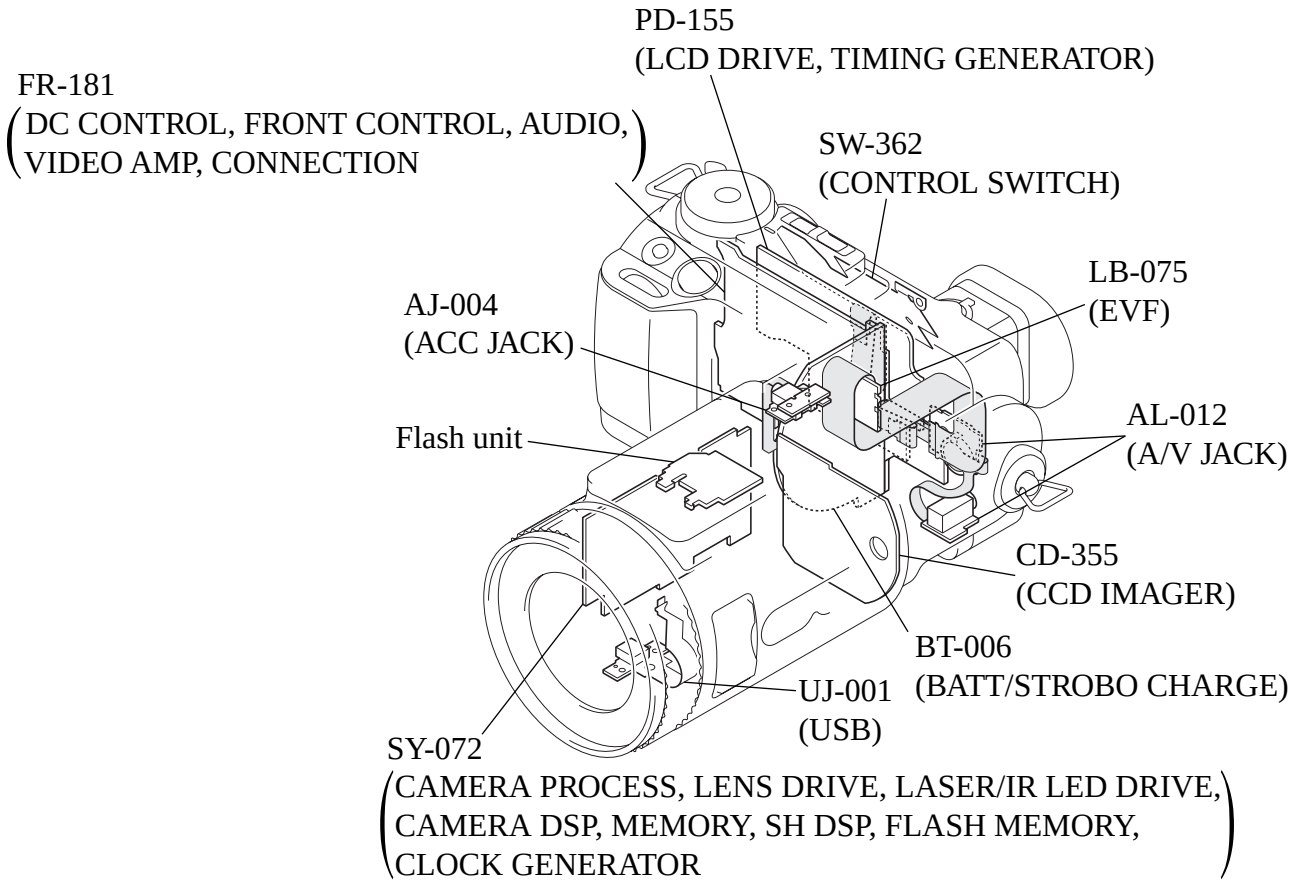
2-16. STROBOSCOPE ASSEMBLY



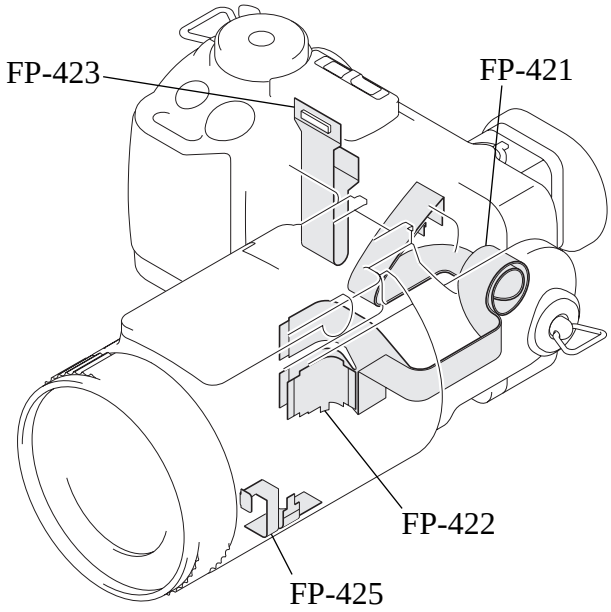
2-17. FLASH UNIT

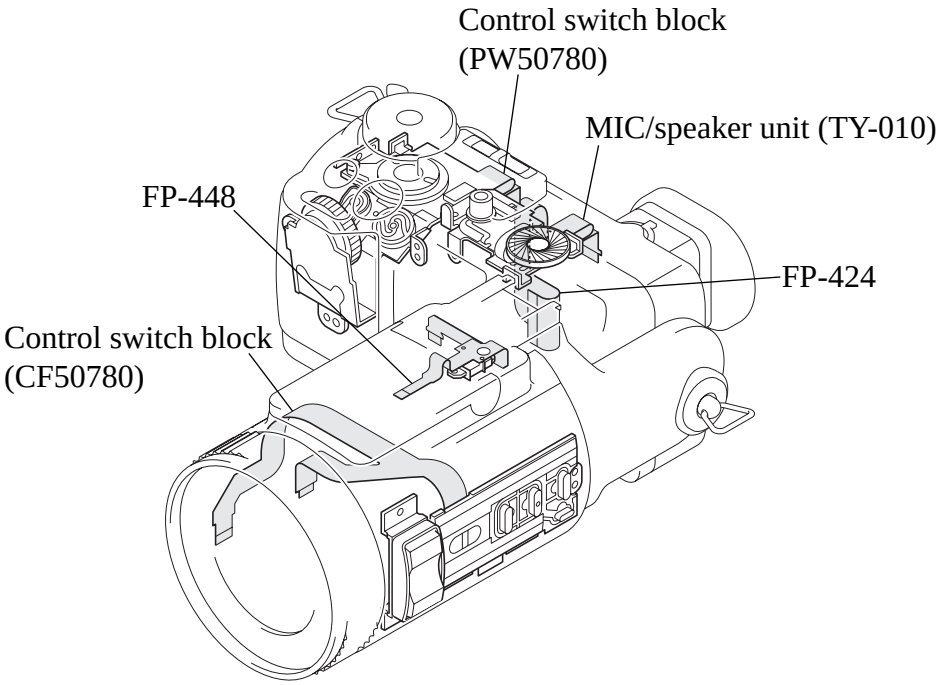


2-18. CIRCUIT BOARDS LOCATION



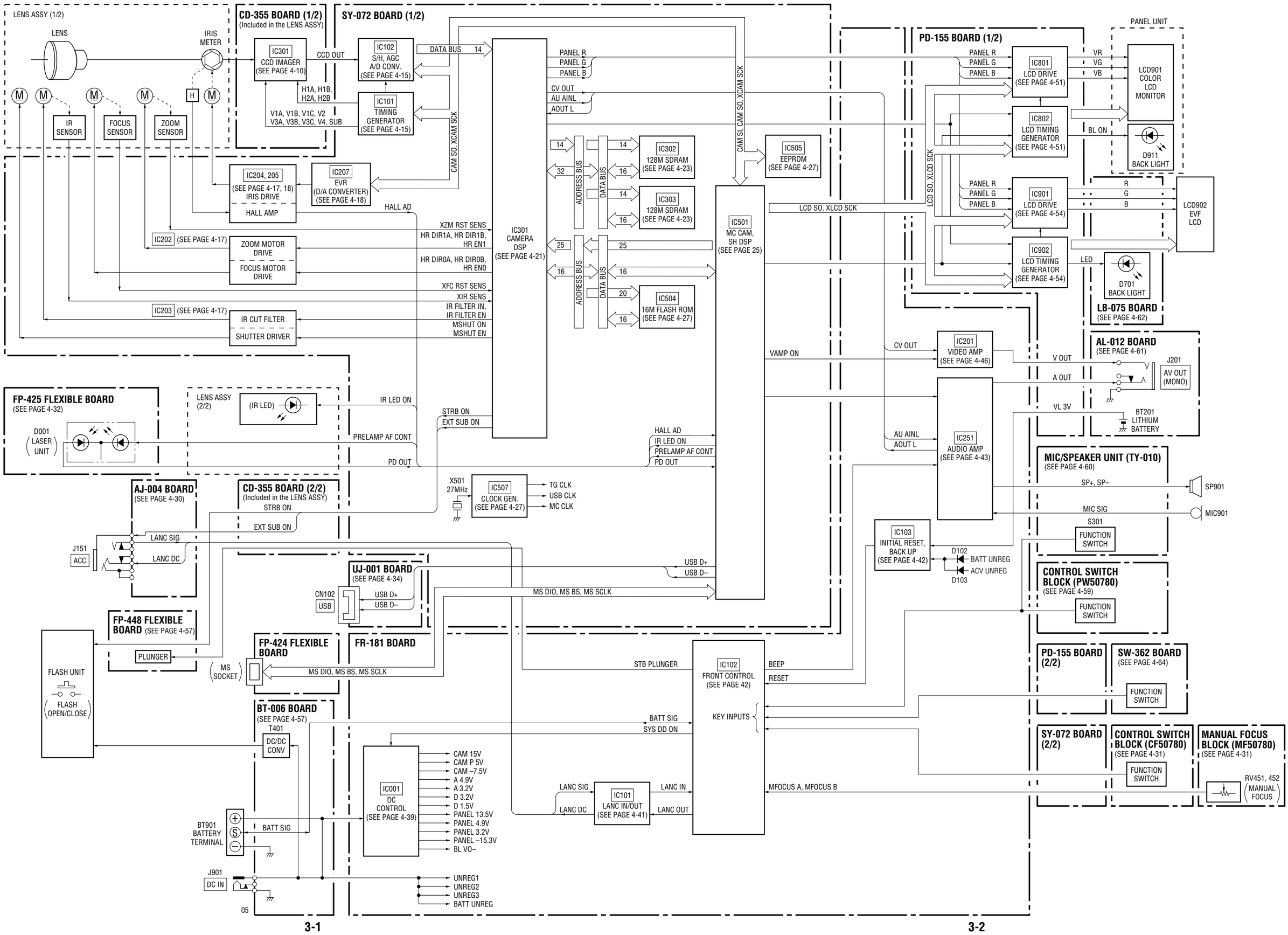
2-19. FLEXIBLE BOARDS LOCATION



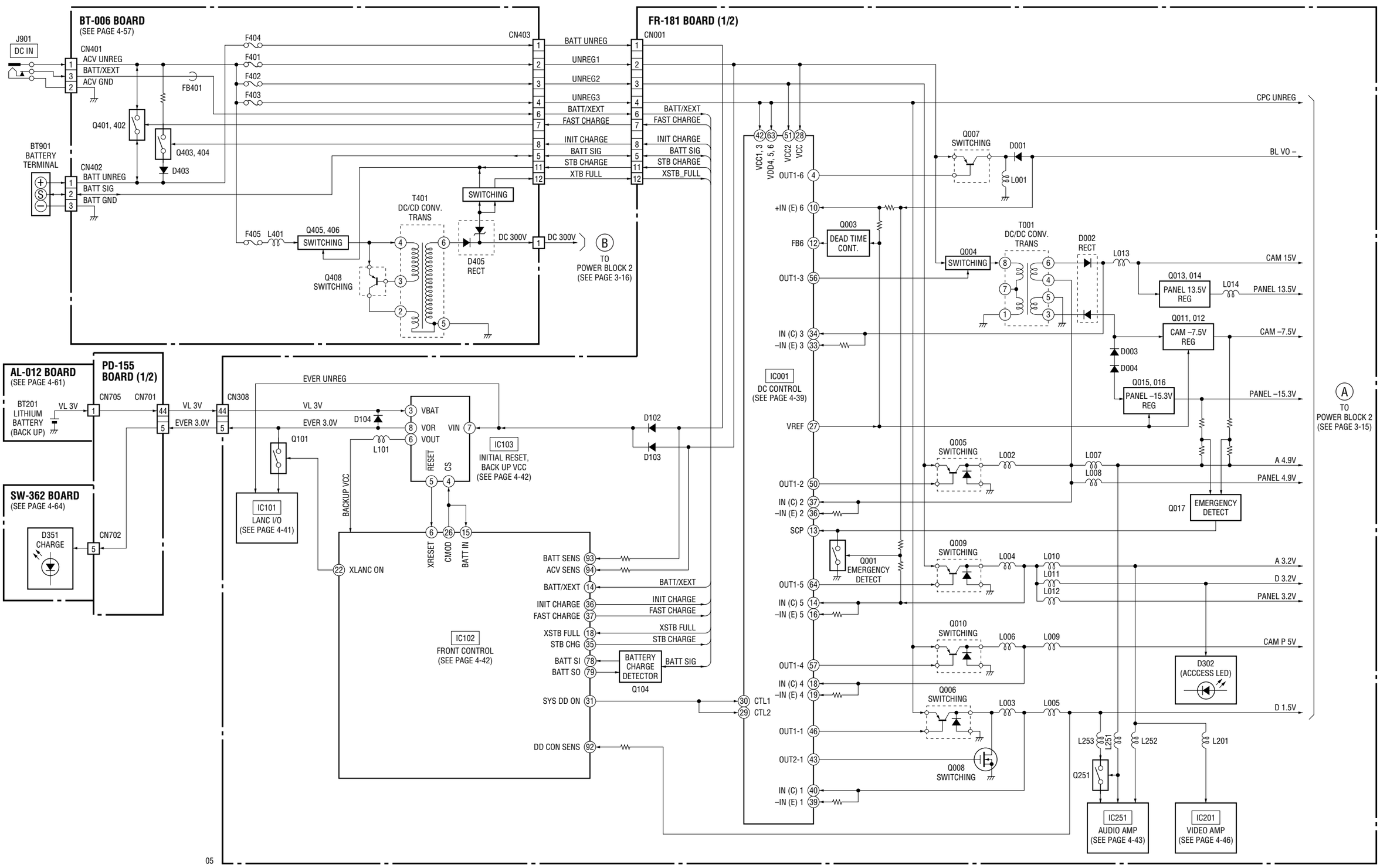


SECTION 3
BLOCK DIAGRAMS

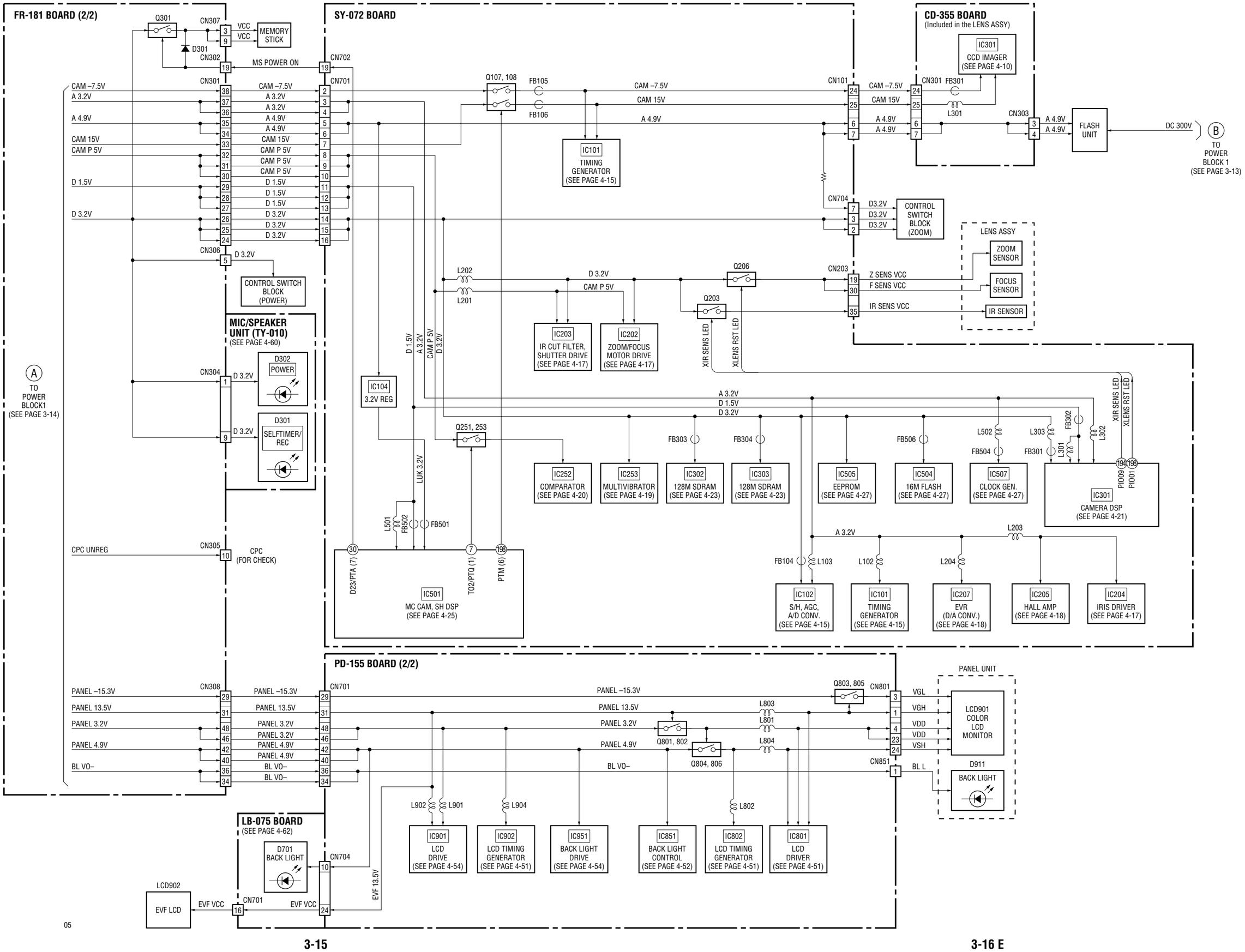
3-1. OVERALL BLOCK DIAGRAM



3-7. POWER BLOCK DIAGRAM 1



3-8. POWER BLOCK DIAGRAM 2

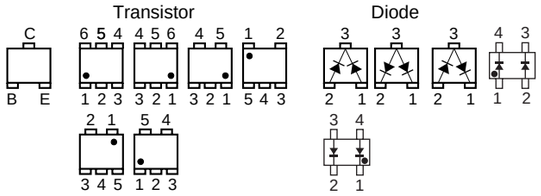


SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

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

(For printed wiring boards)

- : Uses unleaded solder.
- : Pattern from the side which enables seeing. (The other layers' patterns are not indicated)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are a few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.



(For schematic diagrams)

- All capacitors are in μF unless otherwise noted. pF : μμF. 50 V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10 W unless otherwise noted. kΩ=1000 Ω, MΩ=1000 kΩ.
- Caution when replacing chip parts. New parts must be attached after removal of chip. Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example C541 22U TA A L452 10UH 2520

Kinds of capacitor
Temperature characteristics
External dimensions (mm)

- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used. In such cases, the unused circuits may be indicated.
- Parts with ★ differ according to the model/destination. Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name XEDIT → $\overline{\text{EDIT}}$ PB/XREC → PB/$\overline{\text{REC}}$
- : non flammable resistor
- : fusible resistor
- : panel designation
- : B+ Line *
- : B– Line *
- : IN/OUT direction of (+,–) B LINE. *
- : adjustment for repair. *
- Circled numbers refer to waveforms. *

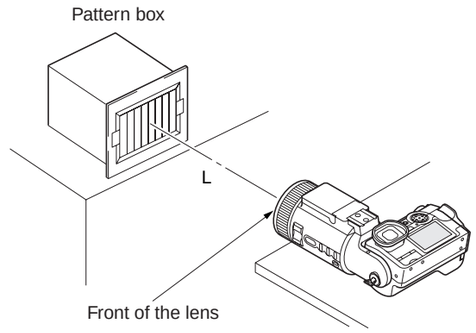
* Indicated by the color red.

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

(Measuring conditions voltage and waveform)

- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms. * (VOM of DC 10 MΩ input impedance is used)
- Voltage values change depending upon input impedance of VOM used.)

1. Connection



L=About 30 cm

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

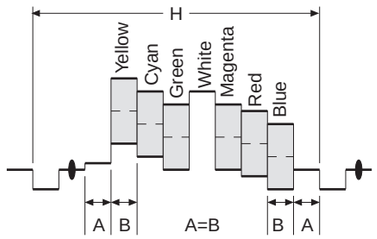


Fig. a (Video output terminal output waveform)

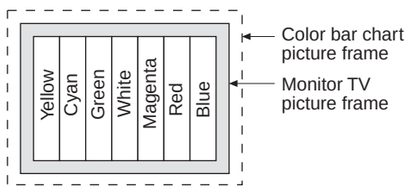


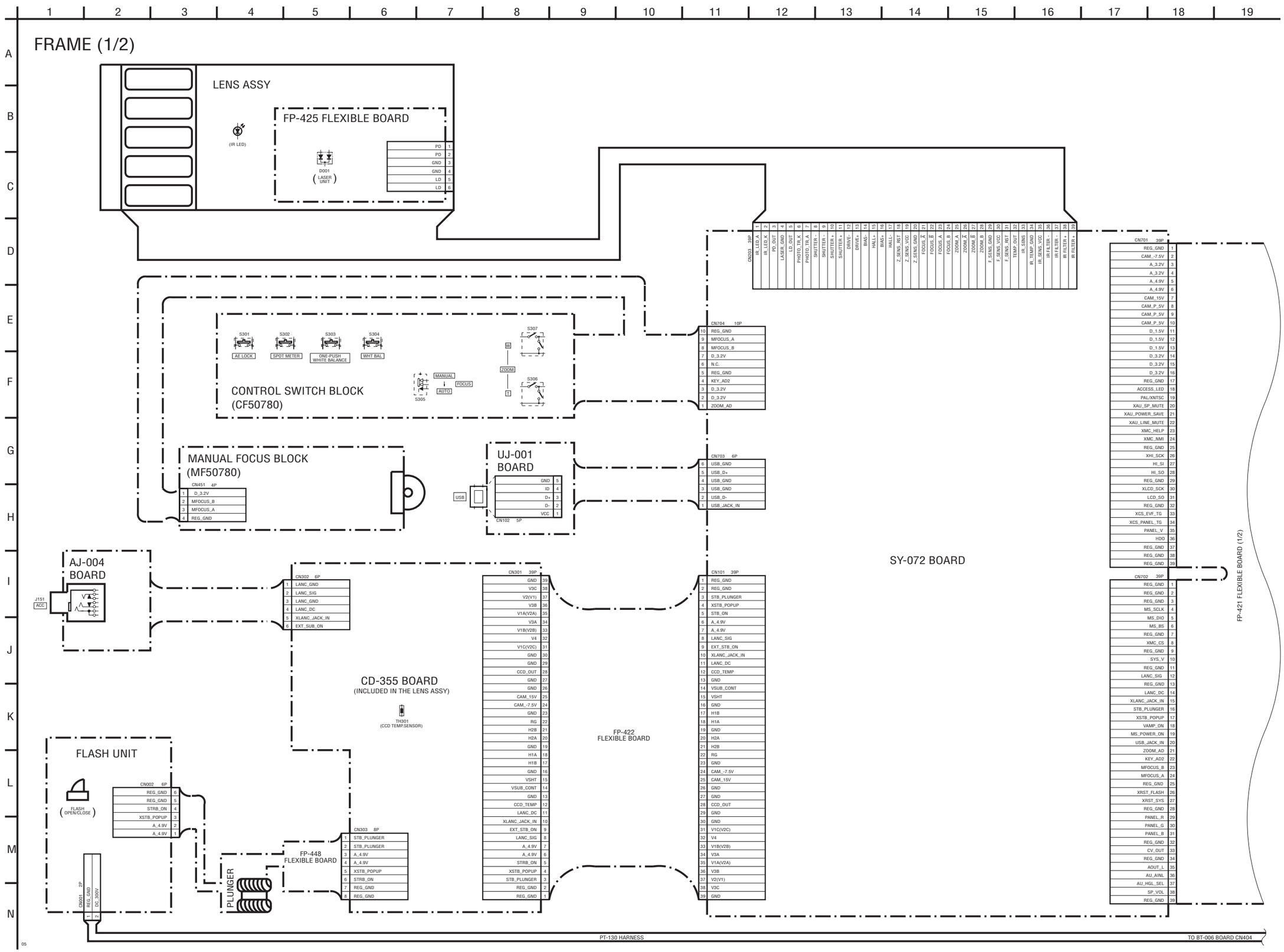
Fig.b (Picture on monitor TV)

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

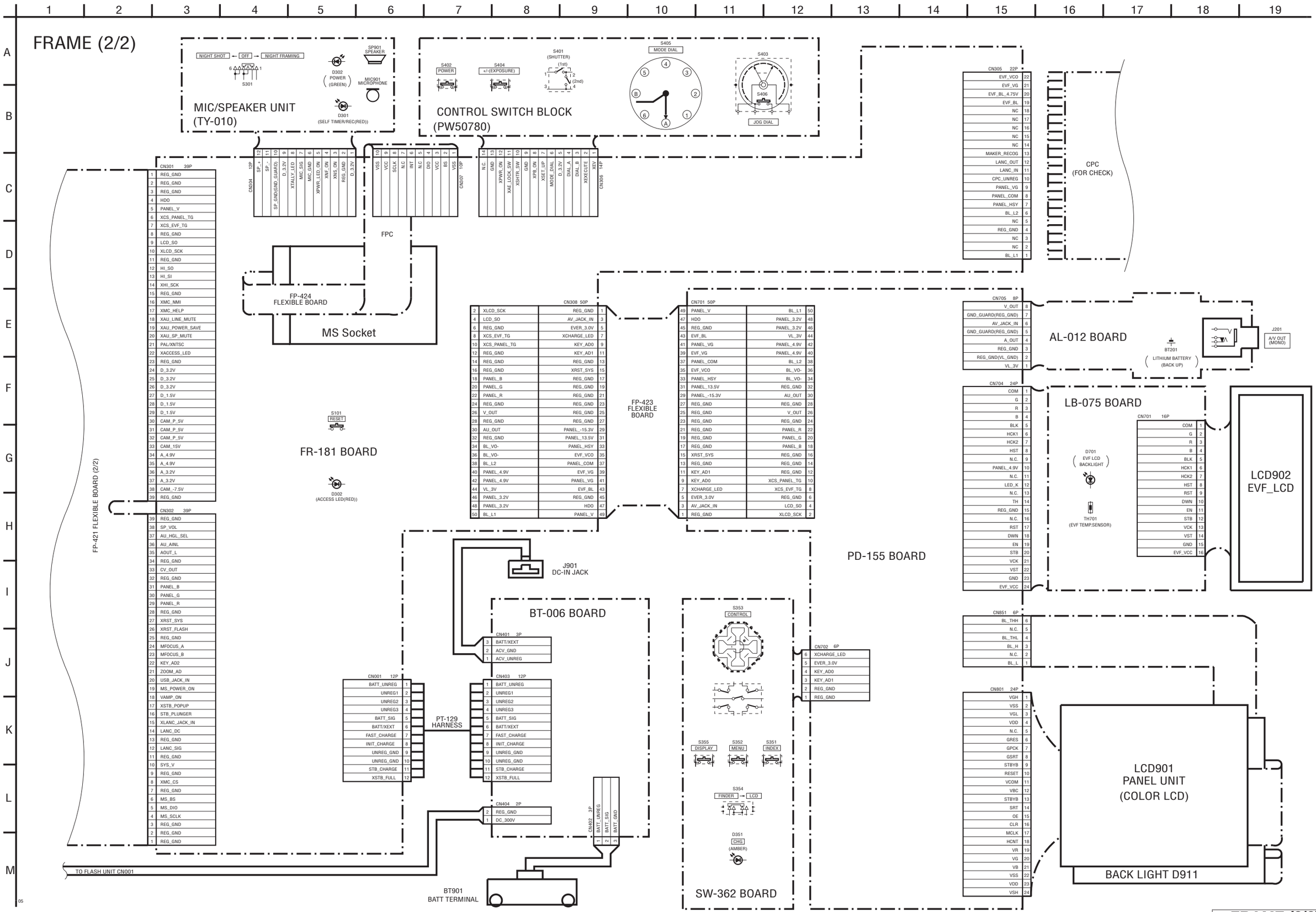
Note : Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifie.

4-1. FRAME SCHEMATIC DIAGRAMS

FRAME SCHEMATIC DIAGRAM (1/2)



FRAME SCHEMATIC DIAGRAM (2/2)

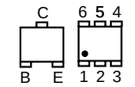


4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

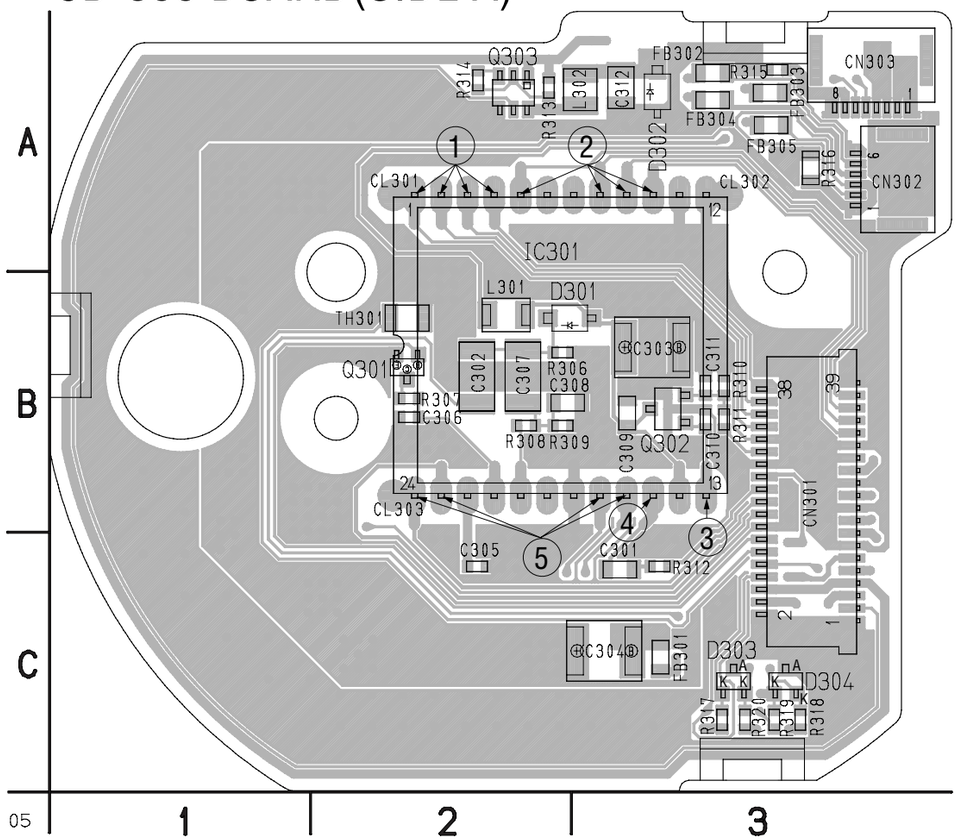
CD-355 (CCD IMAGER) PRINTED WIRING BOARD

– Ref. No.: CD-355 board; 5,000 series –

- **For Printed Wiring Board.**
- : :Uses unleaded solder.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-68 for printed parts location.
- Chip transistor

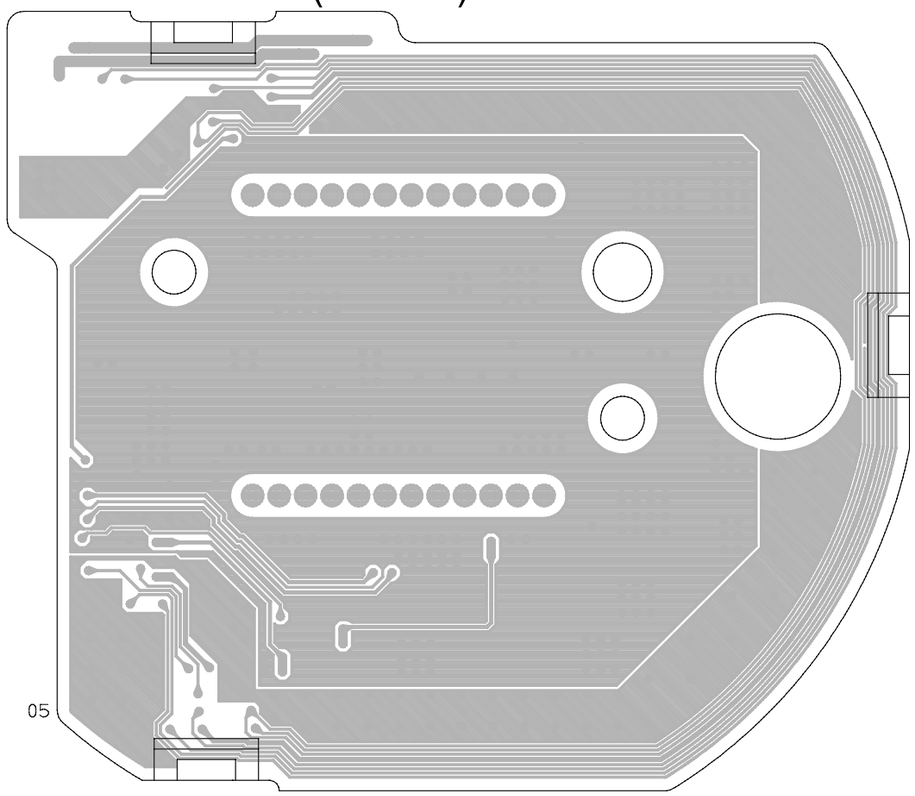


CD-355 BOARD(SIDE A)



1-683-089- 11

CD-355 BOARD(SIDE B)



1-683-089- 11

CD-355 (CCD IMAGER) SCHEMATIC DIAGRAM • See page 4-7 for CD-355 printed wiring board. • See page 4-65 for waveforms.

CD-355 BOARD

(CD-355 BOARD is replaced as a Lens block assy)

CCD IMAGER

-REF.NO.:5,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE

CN301 39P

GND	39
V3C	38
V2(V1)	37
V3B	36
V1A(V2A)	35
V3A	34
V1B(V2B)	33
V4	32
V1C(V2C)	31
GND	30
GND	29
CCD_OUT	28
GND	27
GND	26
CAM_15V	25
CAM_-7.5V	24
GND	23
RG	22
H2B	21
H2A	20
GND	19
H1A	18
H1B	17
GND	16
VSHT	15
VSUB_CONT	14
GND	13
CCD_TEMP	12
LANC_DC	11
XLANC_JACK_IN	10
EXT_STB_ON	9
LANC_SIG	8
A_4.9V	7
A_4.9V	6
STRB_ON	5
XSTB_POPUP	4
STB_PLUNGER	3
REG_GND	2
REG_GND	1

SY-072 BOARD (1/7)
CN101
(THROUGH THE FP-422 FLEXIBLE (SEE PAGE 4-15))

TH301 47k (CCD TEMP SENSOR)
R320 0
R319 100
R318 100
R317 0

D303 XX
D304 MAZT082H0850
FB305

CN302 6P

LANC_GND	1
LANC_SIG	2
LANC_GND	3
LANC_DC	4
XLANC_JACK_IN	5
EXT_SUB_ON	6

AJ-004 BOARD (SEE PAGE 4-30)

R316 0
FB304
FB303
FB302

CN303 8P

STB_PLUNGER	1
STB_PLUNGER	2
A_4.9V	3
A_4.9V	4
XSTB_POPUP	5
STRB_ON	6
REG_GND	7
REG_GND	8

FP-448 FLEXIBLE BOARD (SEE PAGE 4-57)

R315 0
D302 MA111-(K8).S0
C312 XX
L302 3.3uH
Q303 UMF5NTR
R313 100k
R314 330

L301 22uH
R312 0
C301 0.1u 16V

C302 1u 25V
D301 MA111-(K8).S0
FB301
C303 3.3u 35V
C304 22u 16V
C305 0.1u 10V
R306 100k
R307 2700
Q301 UN9213J-(K8).SO SWITCH
R308 0
R309 470k
C307 0.1u 50V
C308 XX
C306 0.1u 10V

CL301 CL302

IC301
CCD IMAGER
ICX282AQ-13

CL303 IC301	R1.5/P0 H2A	R1.9/P0 H1A	R.7.5/P0 VL	R10.7/P0 CSUB	R10.5/P0 SUB	NC	GND	R1.9/P0 H1B	R1.5/P0 H2B	R13.1/P0 RG	R15/P0 VH	R10.7/P0 CCD_OUT											
	24	23	22	21	20	19	18	17	16	15	14	13											
CL301													1	2	3	4	5	6	7	8	9	10	11	12
ICX282AQ-13													R-6.9/P0 V4	R-6.9/P0 V3A	R-6.9/P0 V3B	R-6.9/P0 V3C	V2	NC	NC	V1A	R-0.3/P0 V1B	V1C	GND	GND

R-0.3/P0 R-0.3/P0 R-0.3/P0

Q302 2SC4250(T5LSONY1) BUFFER
R15/P0
R10/P0
R10.7/P0
R311 0
R310 3300
C311 XX
C309 0.1u 16V
C310 10p

SIGNAL PATH

	VIDEO SIGNAL
	Y/CHROMA
REC	

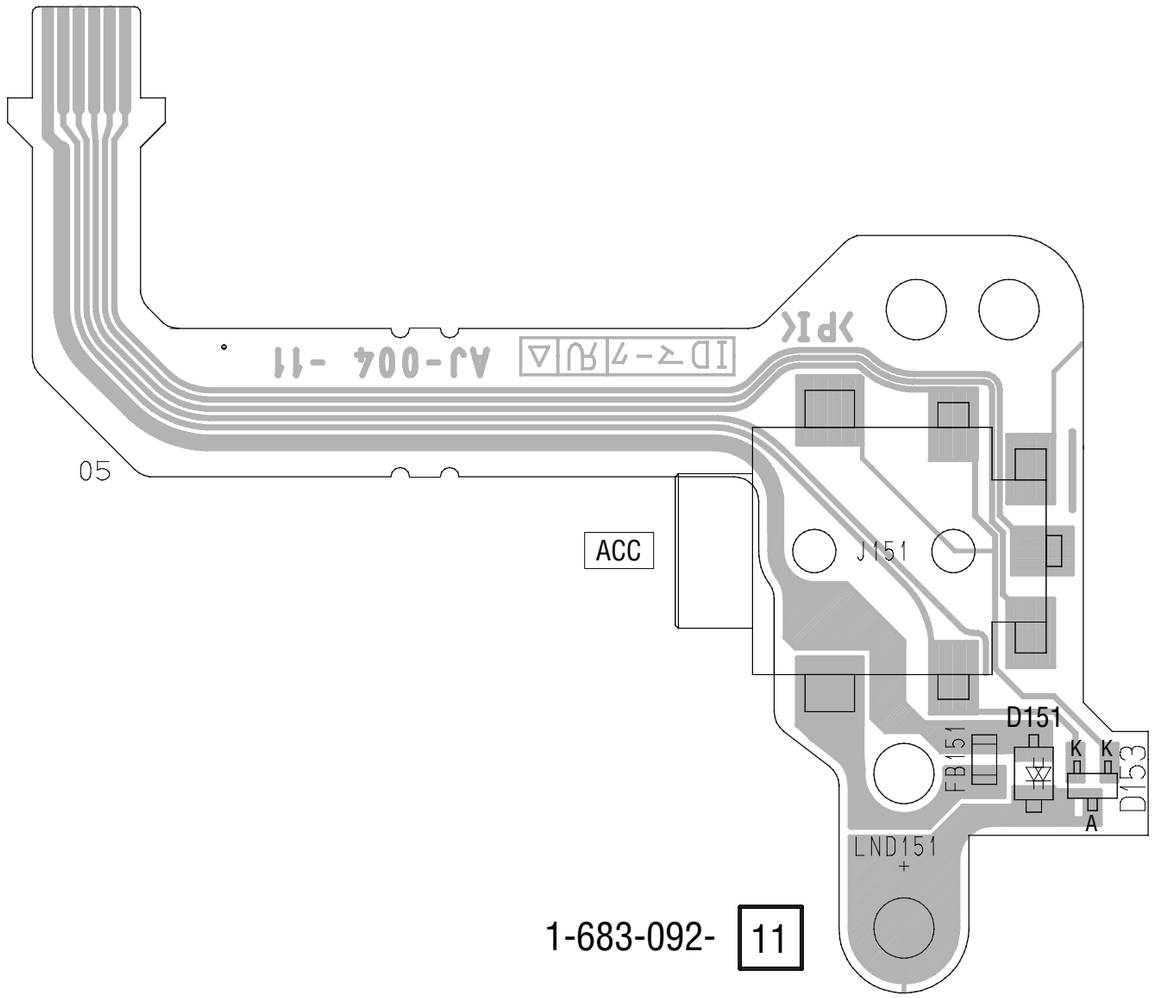
05

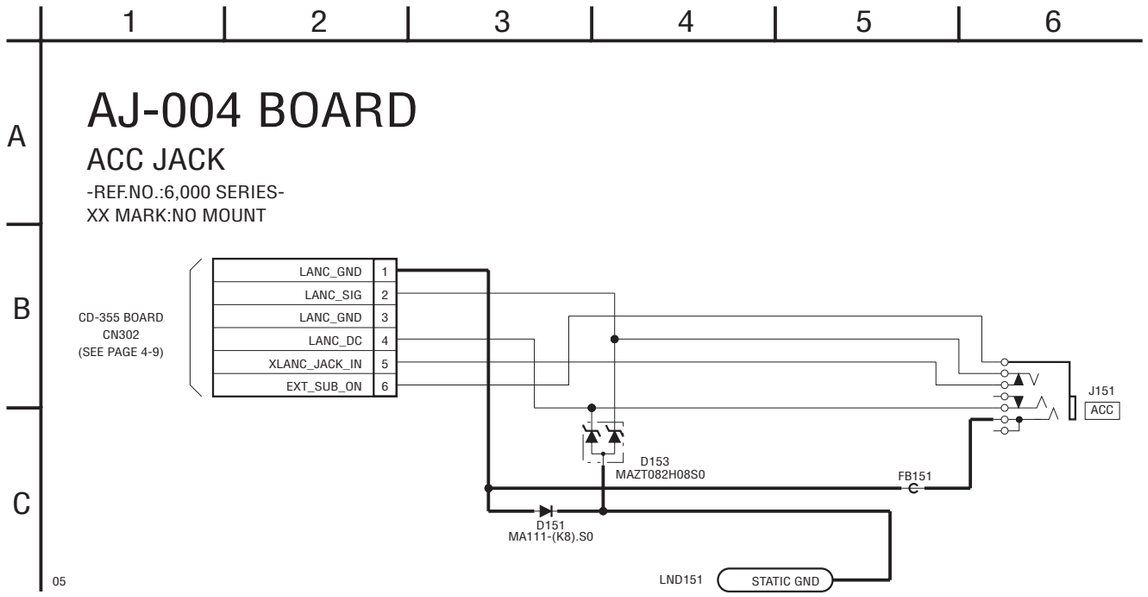
AJ-004 (ACC JACK) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

– Ref. No.: AJ-004 board; 6,000 series –

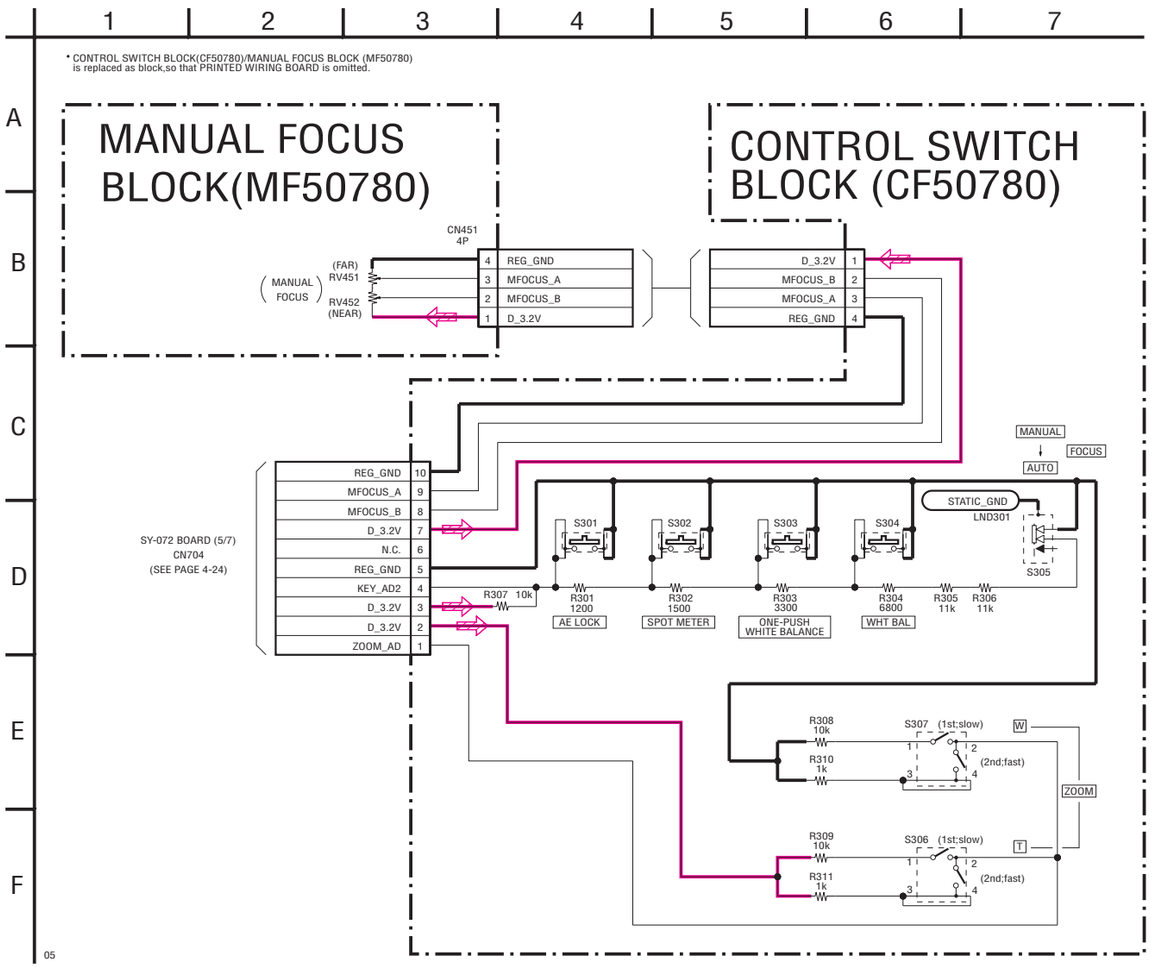
- **For Printed Wiring Board.**
- There are a few cases that the part isn't mounted in this model is printed on this diagram.

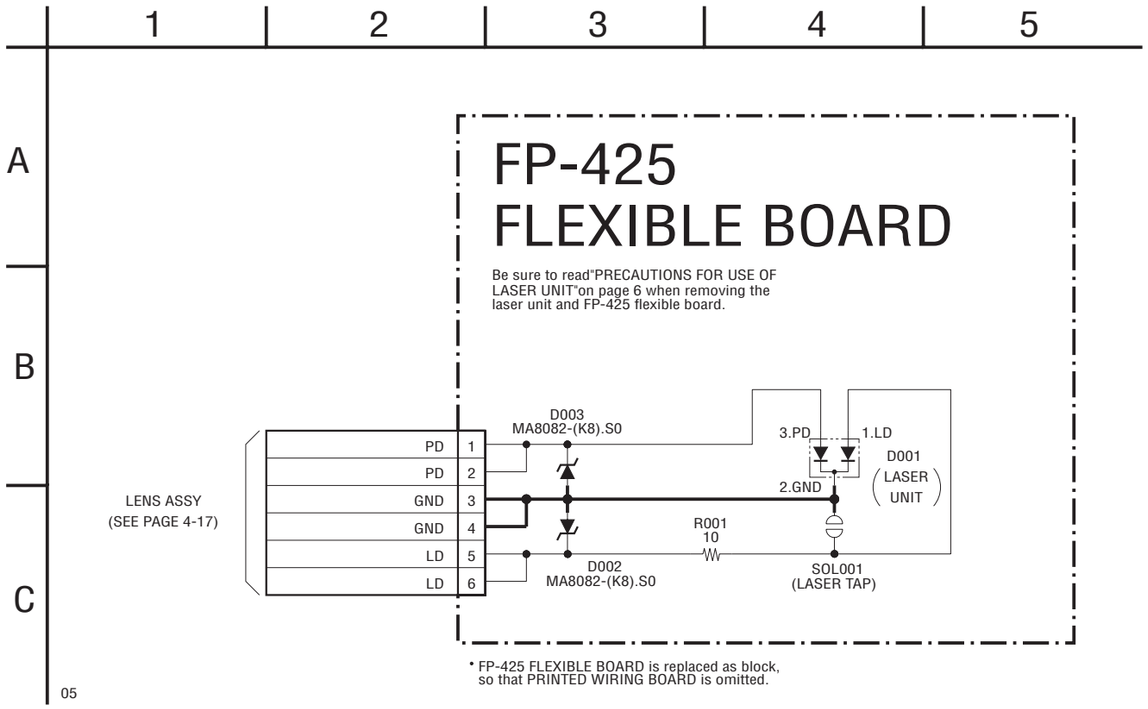
AJ-004 BOARD





CF50780 (CONTROL SWITCH BLOCK)/MF50780 (MANUAL FOCUS BLOCK), FP-425 (LASER UNIT) SCHEMATIC DIAGRAMS

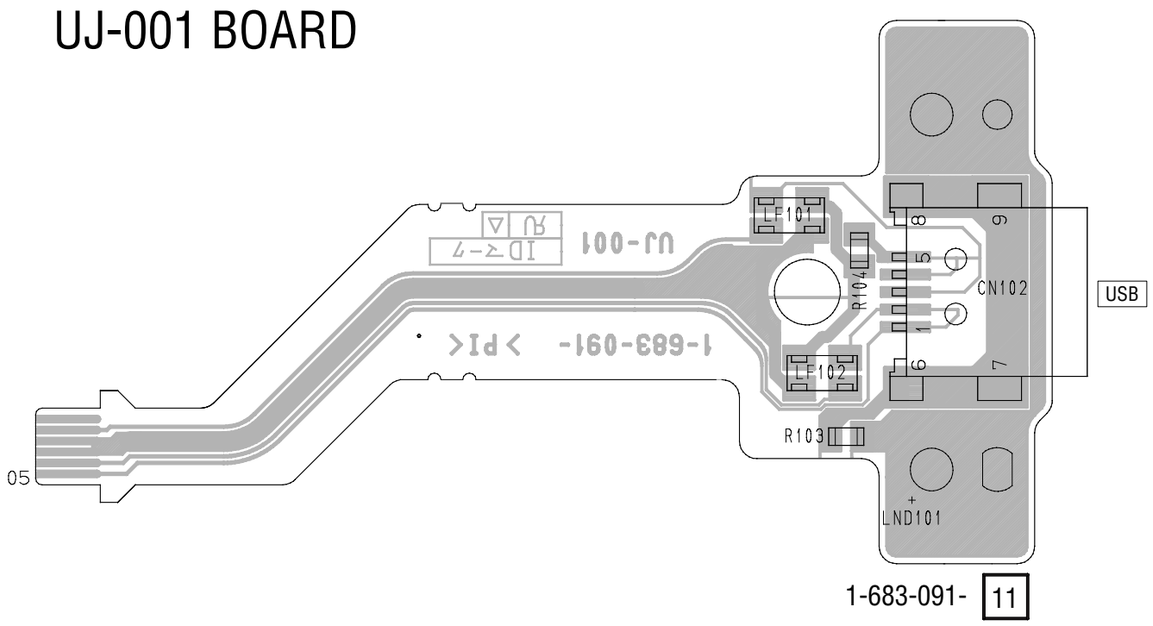


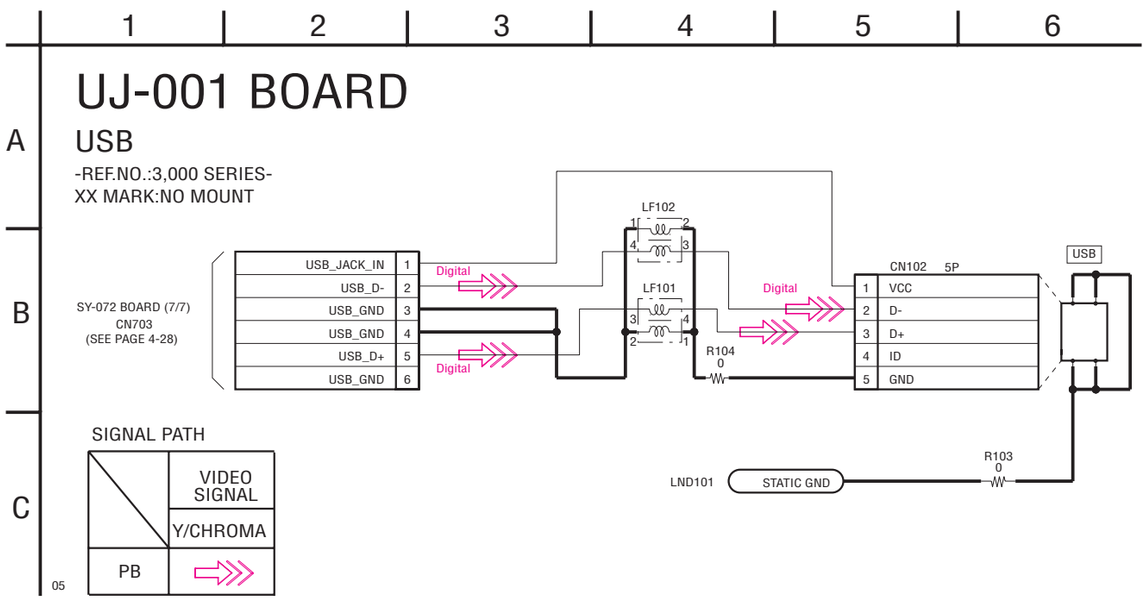


UJ-001 (USB) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

– Ref. No.: UJ-001 board; 3,000 series –

- **For Printed Wiring Board.**
- There are a few cases that the part isn't mounted in this model is printed on this diagram.

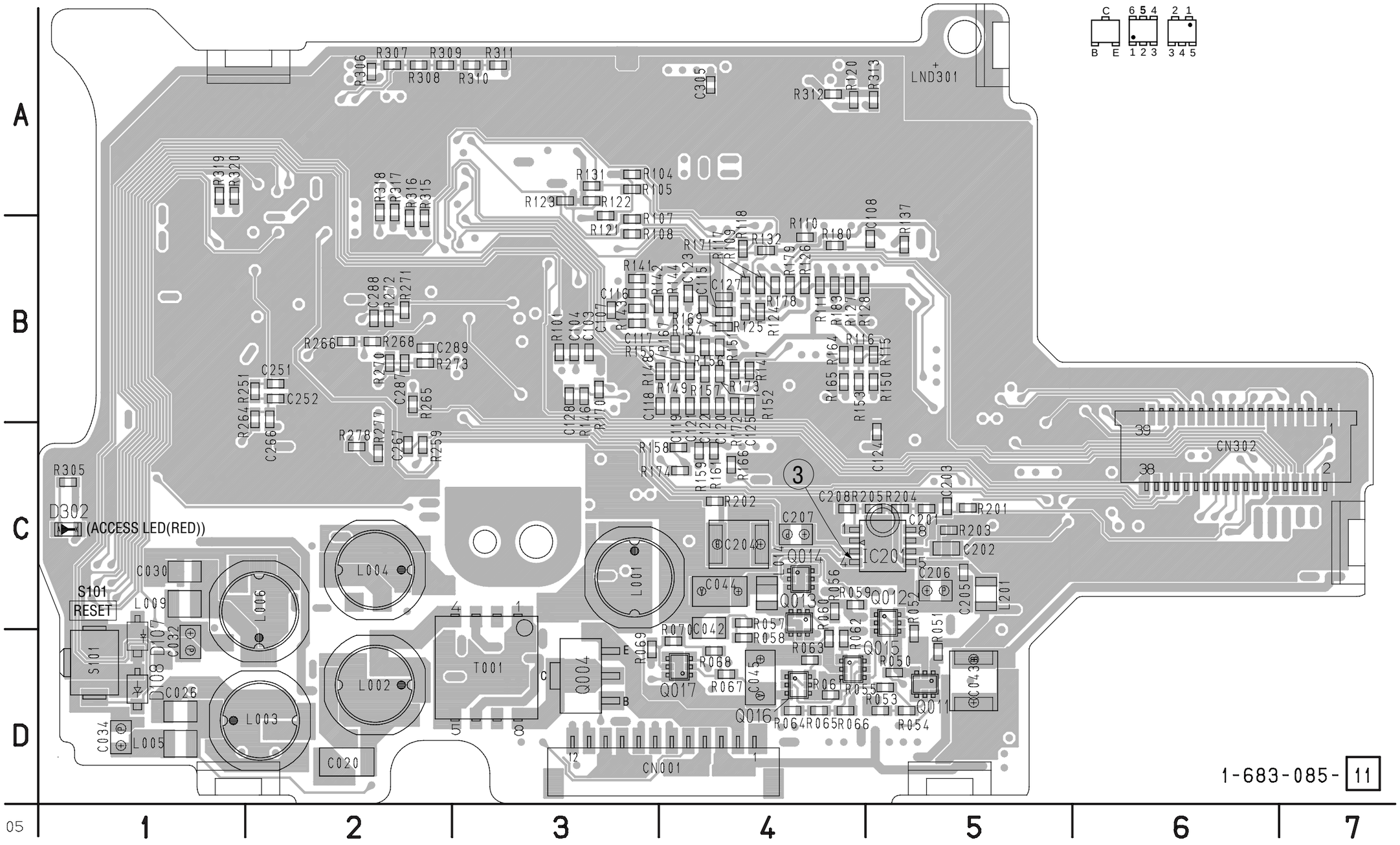




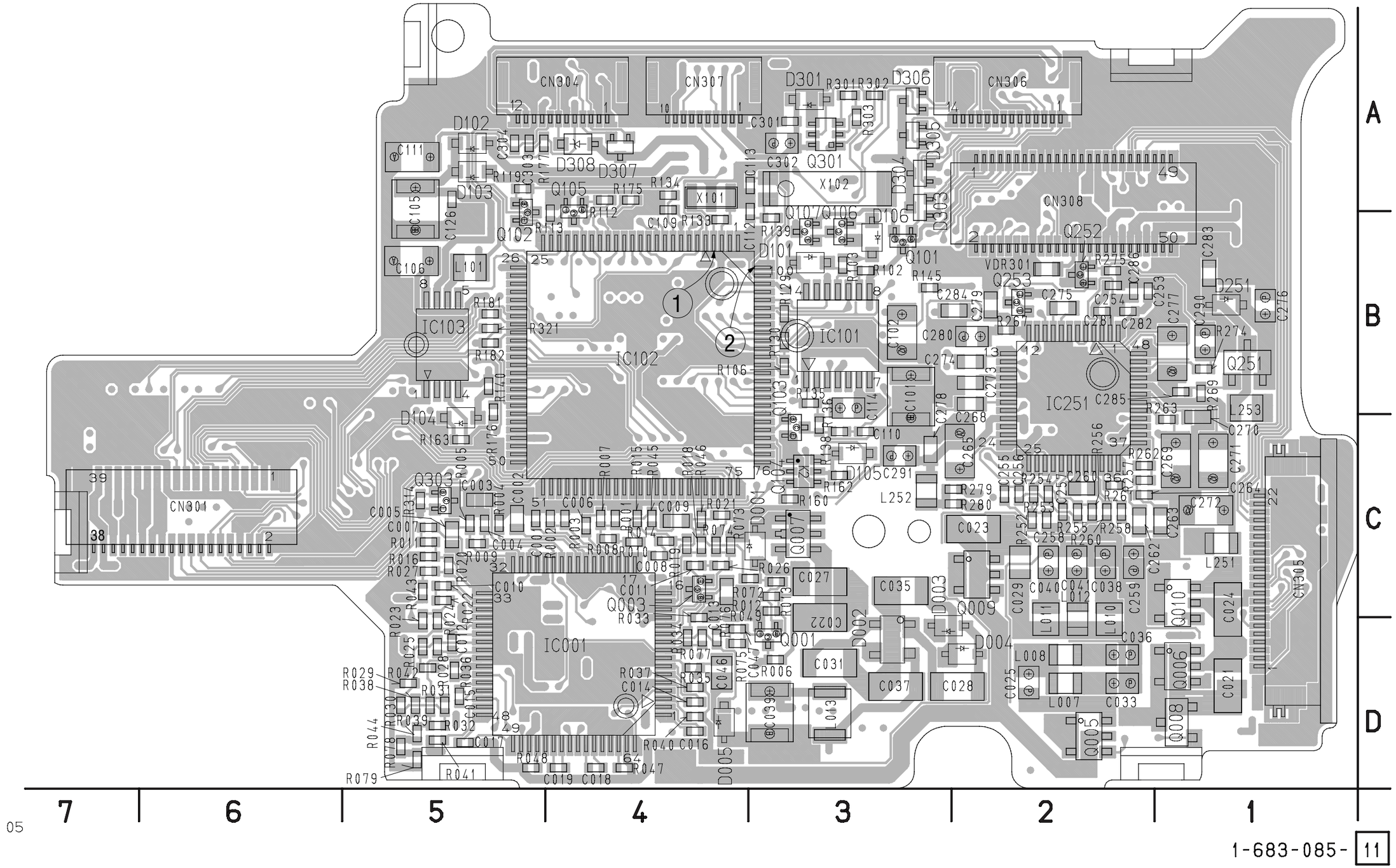
FR-181 (DC CONTROL, FRONT CONTROL, AUDIO, VIDEO AMP, CONNECTION) PRINTED WIRING BOARD
– Ref. No.: FR-181 board; 2,000 series –

- **For Printed Wiring Board.**
- : Uses unleaded solder.
- FR-181 board is six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-68 for printed parts location.
- Chip transistor

FR-181 BOARD(SIDE A)



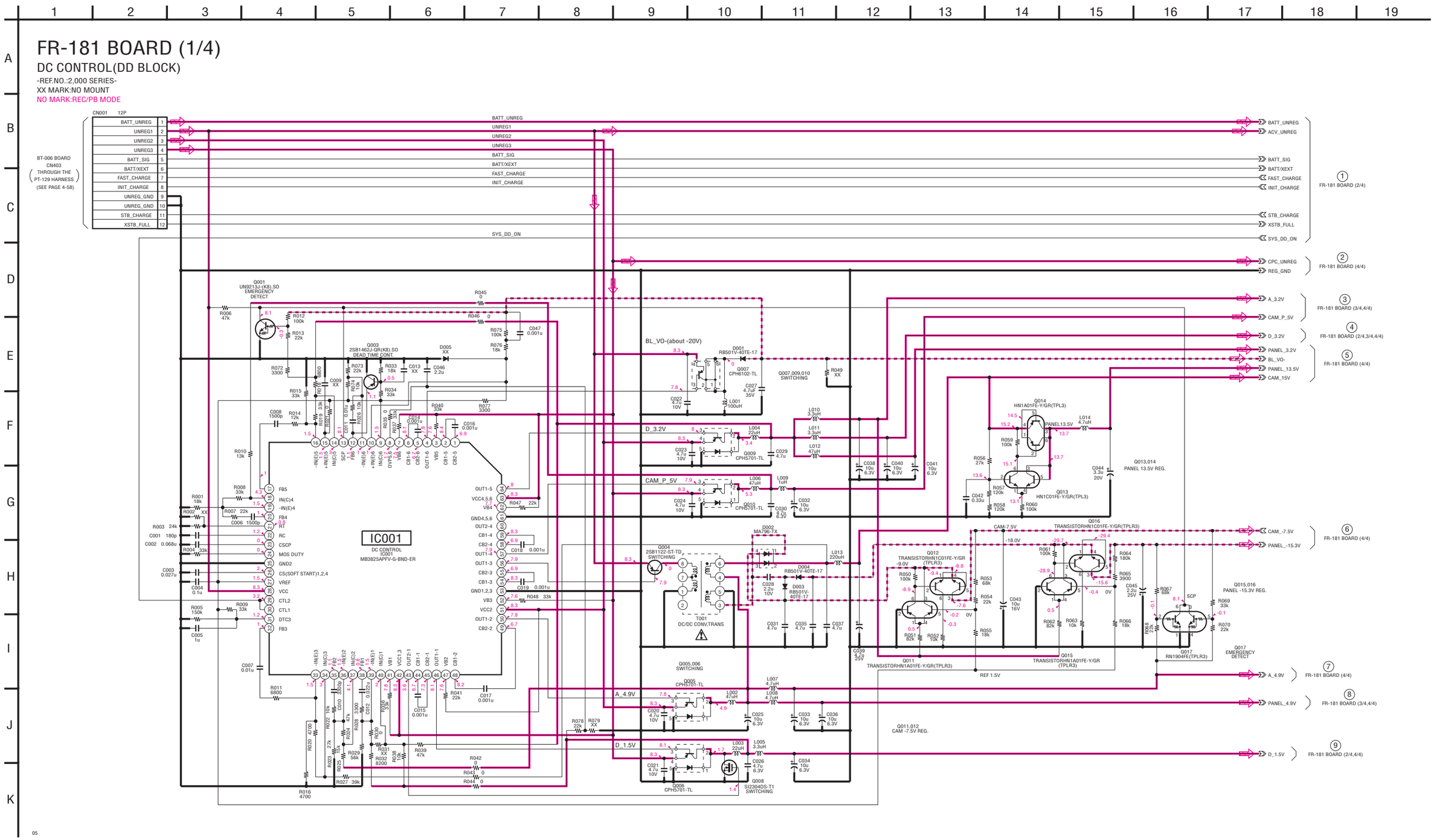
FR-181 BOARD(SIDE B)



05

1-683-085-11

FR-181 (DC CONTROL) SCHEMATIC DIAGRAM • See page 4-35 for FR-181 printed wiring board.



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 piéce portant le numéro spécifié.

FR-181 (FRONT CONTROL) SCHEMATIC DIAGRAM • See page 4-35 for FR-181 printed wiring board. • See page 4-65 for waveforms.

FR-181 BOARD (2/4)

FRONT CONTROL(FR BLOCK)

-REF.NO.:2,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE

IC101 LANC IN/OUT

IC102 FRONT CONTROL IC102 MB89098RPFV-G-178-BND

IC103 INITIAL RESET BACK UP VCC

Q101 UN9111J-(K8).SO B+ SWITCH

Q102 UN9213J-(K8).SO INVERTER

Q103 UN9213J-(K8).SO MODULATOR

Q104 HN1L02FU(TE85R) BATTERY CHARGE DETECTOR

Q105 2SD2216J-QR(K8).SO

Q106 UN9210J-(K8).SO

Q107 UN9110J-(K8).SO

Q105 INVERTER

Q106,107 SWITCH

D101 MA111-(K8).S0

D102 MA116-(TX).SO

D103 MA116-(TX).SO

D104 1SS357-TPH3

D105 MA111-(K8).S0

D106 MA111-(K8).S0

D107 MA111-(K8).S0

D108 MA8082-(K8).S0

X101 10MHz

X102 32.768kHz

S101 RESET

FR-181 (AUDIO) SCHEMATIC DIAGRAM • See page 4-35 for FR-181 printed wiring board.

FR-181 BOARD (3/4)

AUDIO(AU BLOCK)

-REF.NO.:2,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE

SIGNAL PATH

	AUDIO SIGNAL
REC	⇒
PB	⇨

IC251
AUIDO AMP
IC251
AN2905FHQ-EB

Q251 FMMT617TA B+ SWITCH
Q252 UN9216J-(K8).SO AUDIO MUTE
Q253 UN9113J-(K8).SO AUDIO MUTE

FR-181 (VIDEO AMP, CONNECTION) SCHEMATIC DIAGRAM • See page 4-35 for FR-181 printed wiring board. • See page 4-65 for waveforms.

FR-181 BOARD (4/4)

VIDEO AMP,CONNECTION
(VI BLOCK,CN1 BLOCK)

-REF.NO.:2,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE

SIGNAL PATH

	VIDEO SIGNAL		AUDIO SIGNAL
	CHROMA	Y/CHROMA	
REC	→	⇒	→
PB	⇨	⇒	⇨

IC201 VIDEO AMP

CONTROL SWITCH BLOCK (PW50780) CN403 (SEE PAGE 4-59)

MIC/SPEAKER UNIT (TY-010) CN301 (SEE PAGE 4-60)

SY-072 BOARD (5/7) CN702 THROUGH THE FP-421 FLEXIBLE (SEE PAGE 4-24)

SY-072 BOARD (7/7) CN701 THROUGH THE FP-421 FLEXIBLE (SEE PAGE 4-28)

PD-155 BOARD (2/2) CN701 THROUGH THE FP-423 FLEXIBLE (SEE PAGE 4-53)

CPC (FOR CHECK)

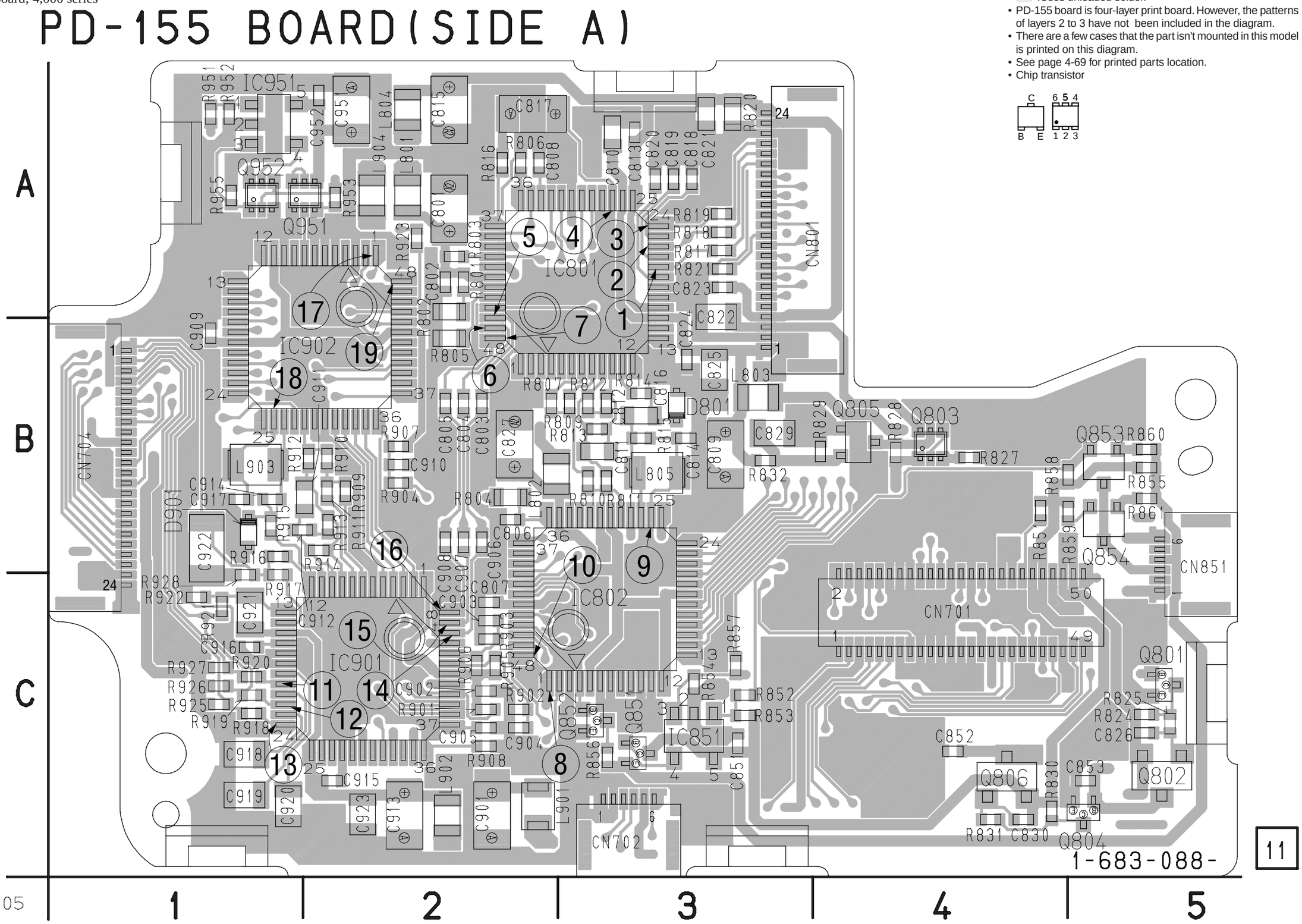
MEMORY STICK / MS SOCKET / FP-424 FLEXIBLE BOARD

VIDEO AMP, CONNECTION
FR-181 (4/4)

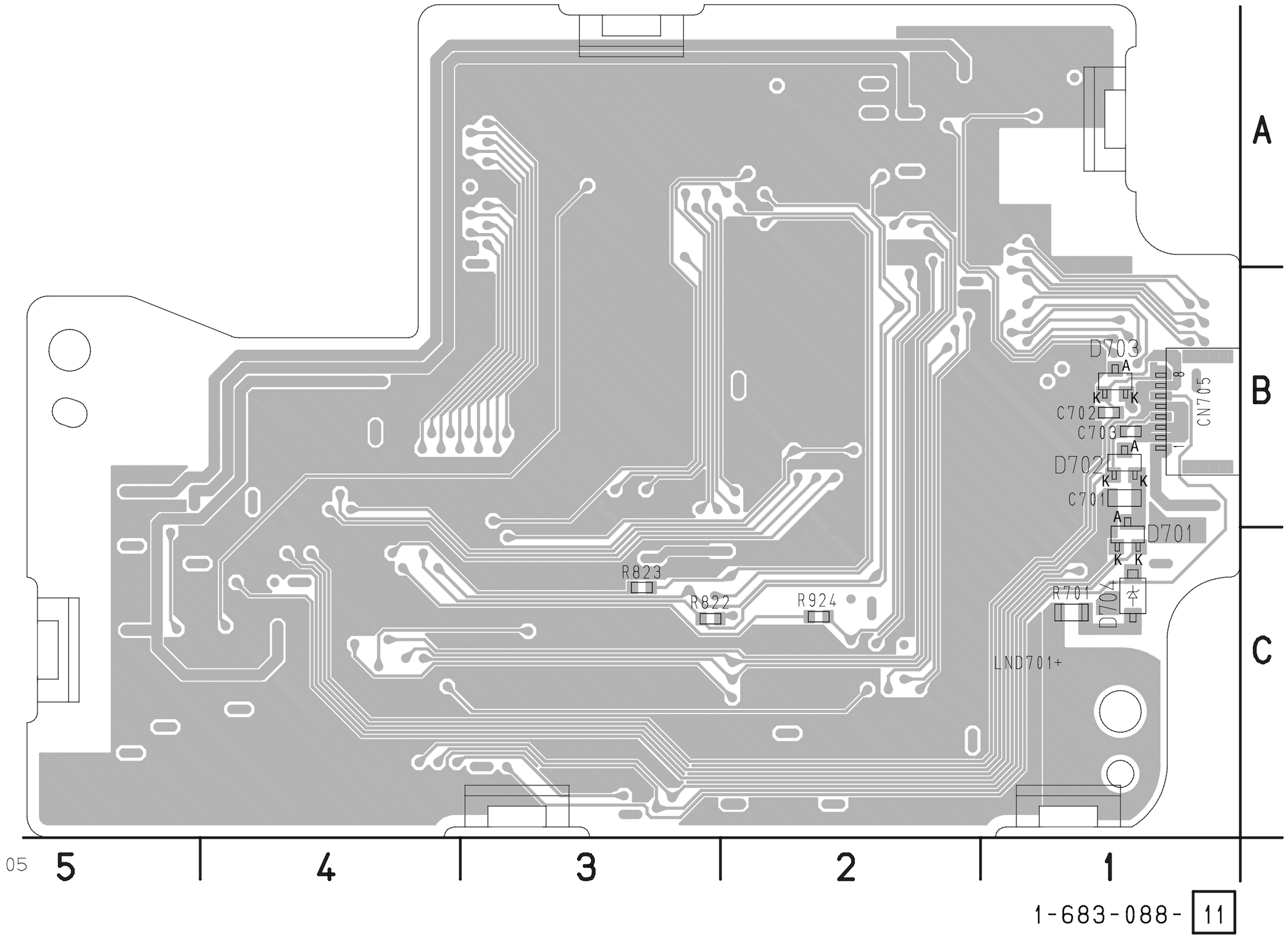
PD-155 (LCD DRIVE, TIMING GENERATOR) PRINTED WIRING BOARD

– Ref. No.: PD-155 board; 4,000 series –

- **For Printed Wiring Board.**
- :Uses unleaded solder.
- PD-155 board is four-layer print board. However, the patterns of layers 2 to 3 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-69 for printed parts location.
- Chip transistor



PD-155 BOARD(SIDE B)



1-683-088-11

PD-155 (LCD DRIVE, TIMING GENERATOR (LCD PANEL)) SCHEMATIC DIAGRAM • See page 4-47 for PD-155 printed wiring board. • See page 4-66 for waveforms.

PD-155 BOARD (1/2)

LCD DRIVE,TIMING GENERATOR(RGB/TG BLOCK)

-REF.NO.:4,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE

IC801
LCD DRIVE
IC801
RBSP003AM1

IC802
LCD TIMING GENERATOR
IC802
CM7021L3-E2

IC851
BACK LIGHT CONTROL

CN801 24P
CN851 6P

PANEL UNIT
LCD901 COLOR LCD MONITOR

D911 BACK LIGHT

SIGNAL PATH

	VIDEO SIGNAL
	CHROMA
REC	➡
PB	⇨

PD-155 (LCD DRIVE, TIMING GENERATOR (VIEWFINDER)) SCHEMATIC DIAGRAM • See page 4-47 for PD-155 printed wiring board. • See page 4-66 for waveforms.

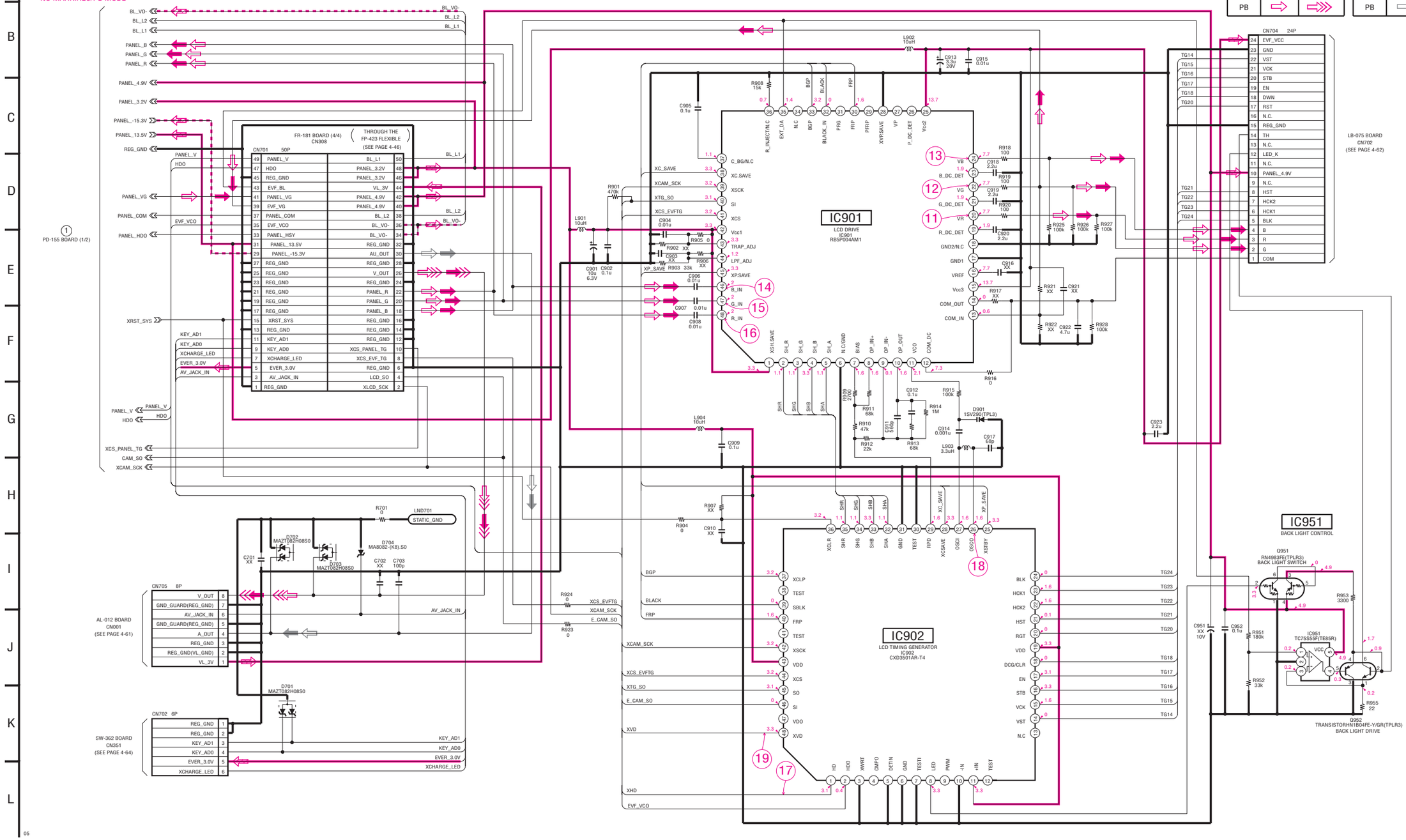
PD-155 BOARD (2/2)

LCD DRIVE,TIMING GENERATOR(VF BLOCK)

-REF.NO.:4,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE

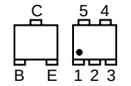
SIGNAL PATH

	VIDEO SIGNAL		AUDIO SIGNAL
	CHROMA	Y/CHROMA	
REC	→	→→	→
PB	⇨	⇨⇨	⇨

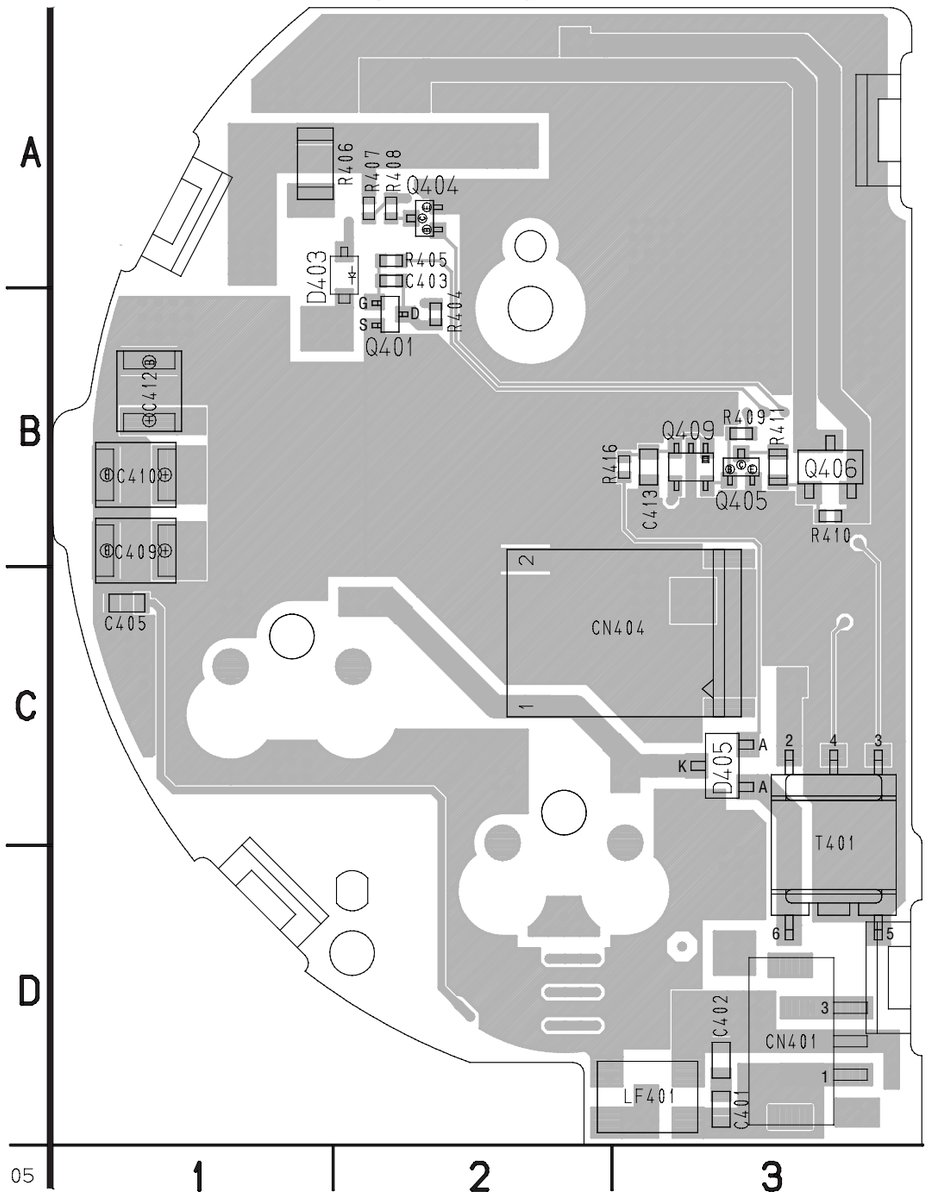


BT-006 (BATT/STROBE CHARGE) PRINTED WIRING BOARD
– Ref. No.: BT-006 board; 3,000 series –

- **For Printed Wiring Board.**
- : Uses unleaded solder.
- BT-006 board is six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-68 for printed parts location.
- Chip transistor

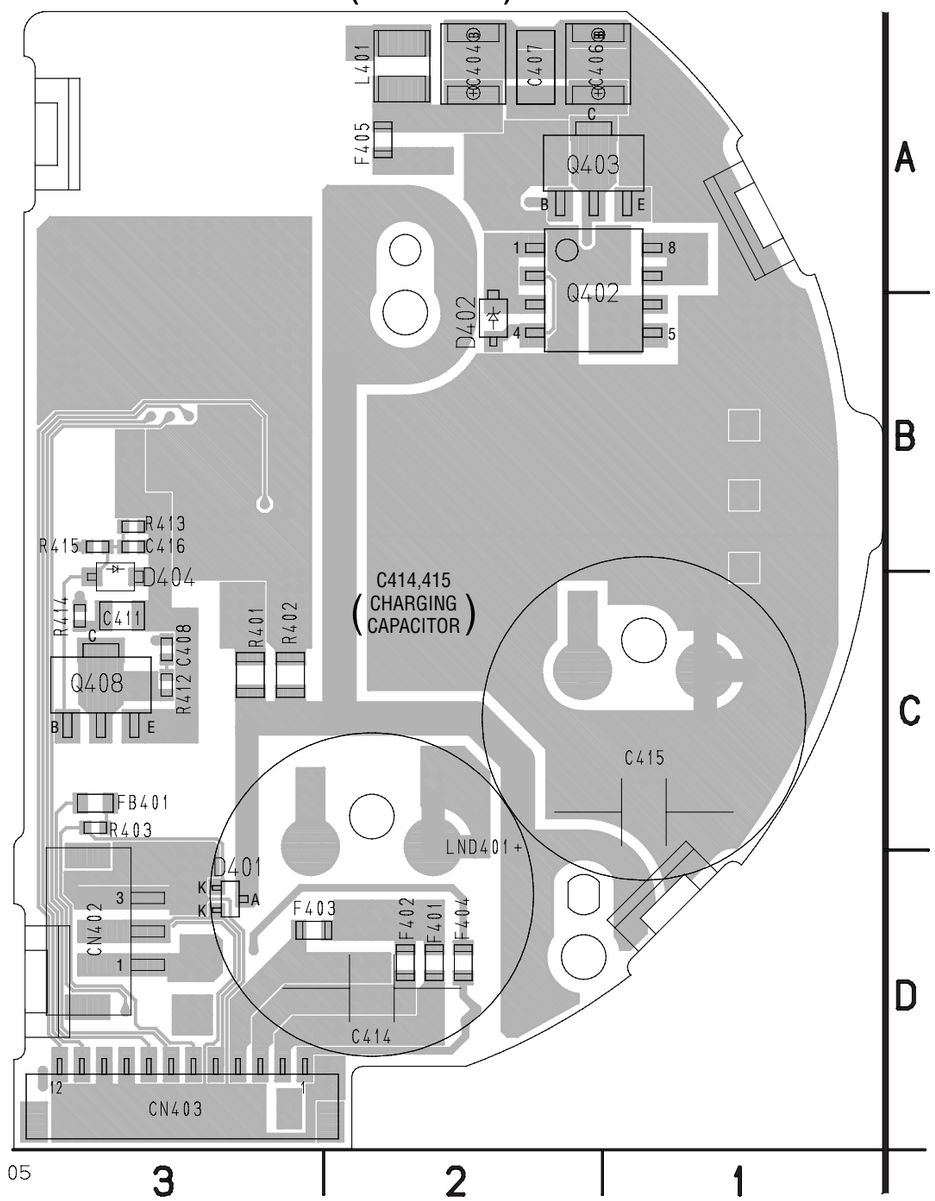


BT-006 BOARD(SIDE A)



1-683-086- 11

BT-006 BOARD(SIDE B)



1-683-086- 11

BT-006 (BATT/STROBE CHARGE) SCHEMATIC DIAGRAM • See page 4-55 for BT-006 printed wiring board.

BT-006 BOARD

BATT/STROBE CHARGE

-REF.NO.:3,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE

Q403,404
CHARGE CONTROL

BATT_SIG
BATT/XEXT
FAST_CHARGE
INIT_CHARGE

J901 DC IN

CN401 3P
ACV_UNREG 1
ACV_GND 2
BATT/XEXT 3

C401 XX
C402 XX
LF401
FB401
R403 1k
R401 XX
R402 0
LND401
STATIC_GND
D401 MAZT082H08S0

BT901 BATTERY TERMINAL

CN402 3P
BATT_UNREG 1
BATT_SIG 2
BATT_GND 3

D402 MA8120-TX
Q402 TPC8305(TE12L)
R404 470k
C403 0.022u
R405 1M
Q401 SSM3K03FE(TPL3)
Q401,402 SWITCH

Q403 2SB1122-ST-TD
R406 10
R407 1k
R408 6800
Q404 UN9213J-(K8).SO
D403 1SS357-TPH3

F401 1.4A A4.9V/3.2V
F402 1.4A CAM_P_5V/1.5V
F403 1.4A TRANS/18V
F404 1.4A
FUSE 1-576-286-21 SB_L7653
C405 XX

UNREG1
UNREG2
UNREG3
BATT_UNREG

C409 10u 16V
C410 10u 16V
C412 10u 16V

CN403 12P
1 BATT_UNREG
2 UNREG1
3 UNREG2
4 UNREG3
5 BATT_SIG
6 BATT/XEXT
7 FAST_CHARGE
8 INIT_CHARGE
9 UNREG_GND
10 UNREG_GND
11 STB_CHARGE
12 XSTB_FULL

FR-181 BOARD (1/4)
CN001
(THROUGH THE PT-129 HARNESS)
(SEE PAGE 4-39)

F405 1.4A STRB
L401 2.2uH
Q406 CPH3109-TL B+ SWITCH
R410 100k
R411 100
C404 10u 16V
Q405 UN9213J-(K8).SO SWITCHING
R409 4700
C406 10u 16V
C407 4.7u
C408 0.01u
C416 0.001u
Q408 2SB1073-R-TX TRANS DRIVE
R412 47
R413 22k
R414 12k
R415 680
D404 MA111-(K8).SO
C411 1u
T401 DC/DC CONV. TRANS
D405 HAU140C029TP
R416 4700
C414 120u 310V
C415 120u 310V
Q409 XP1211-TXE FLASH CHARGE DETECTOR
C413 1u

CN404 2P
1 DC_300V
2 REG_GND

C414,415
(CHARGING CAPACITOR)

PT-130 HARNESS

CN001 2P
DC_300V 2
REG_GND 1

CN002 6P
REG_GND 6
REG_GND 5
STRB_ON 4
XSTB_POPUP 3
A_4.9V 2
A_4.9V 1

FLASH UNIT
(FLASH OPEN/CLOSE)

FP-448 FLEXIBLE BOARD

CD-355 BOARD
CN303
(SEE PAGE 4-9)

STB_PLUNGER 1
STB_PLUNGER 2
A_4.9V 3
A_4.9V 4
XSTB_ON 5
STRB_ON 6
REG_GND 7
REG_GND 8

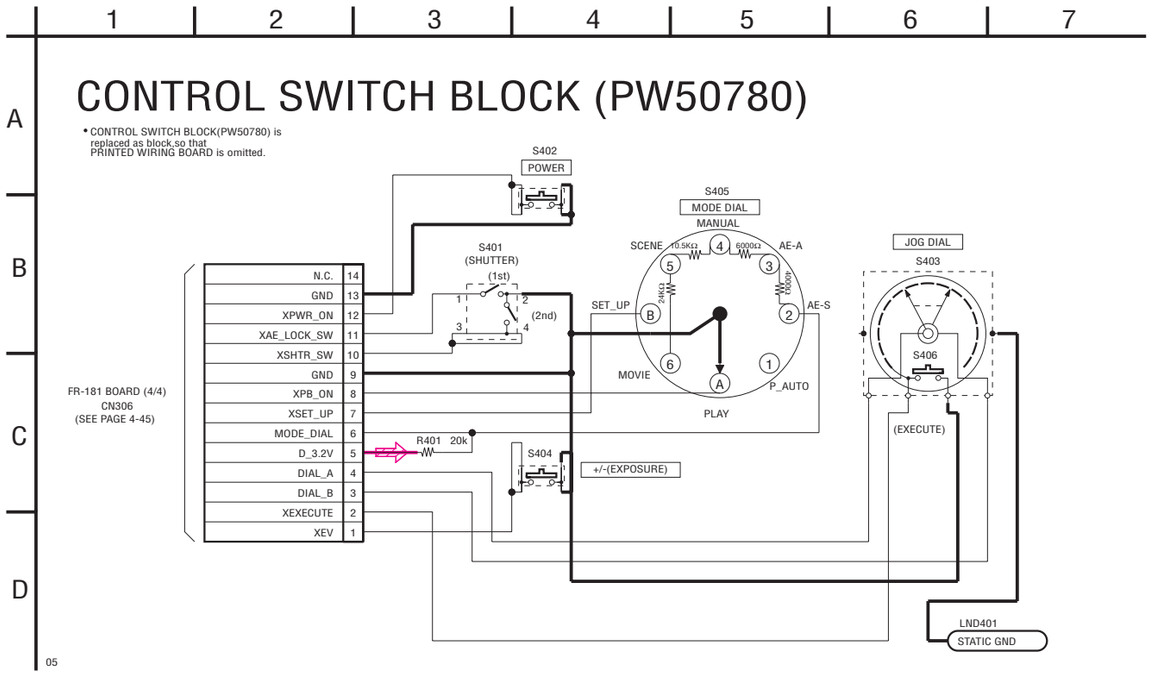
CL151
CL152
(PLUNGER)

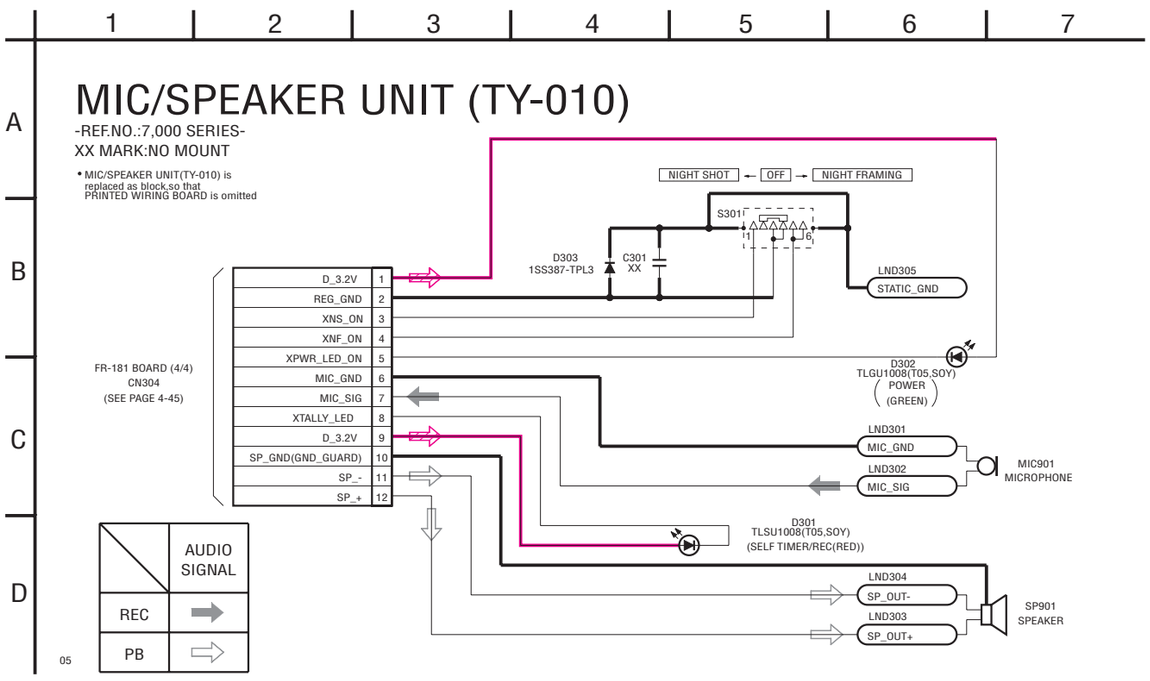
1 REG_GND
2 REG_GND
3 STRB_ON
4 XSTB_POPUP
5 A_4.9V
6 A_4.9V

* FP-448 FLEXIBLE BOARD is replaced as block, so that PRINTED WIRING BOARD is omitted

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 piéce portant le numéro spécifié.

PW50780 (CONTROL SWITCH BLOCK), TY-010 (MIC/SPEAKER UNIT) SCHEMATIC DIAGRAMS



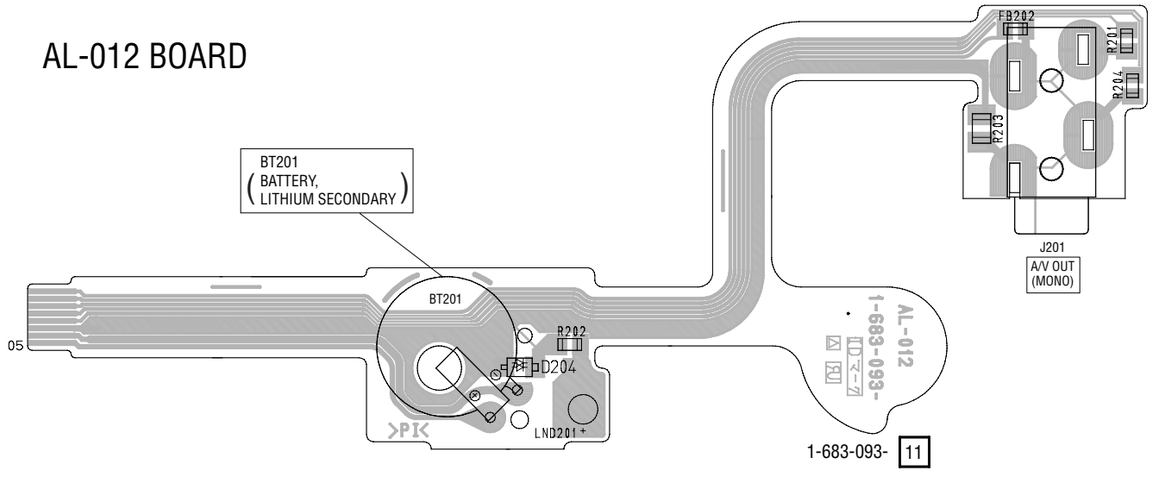


AL-012 (A/V JACK), LB-075 (EVF) PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

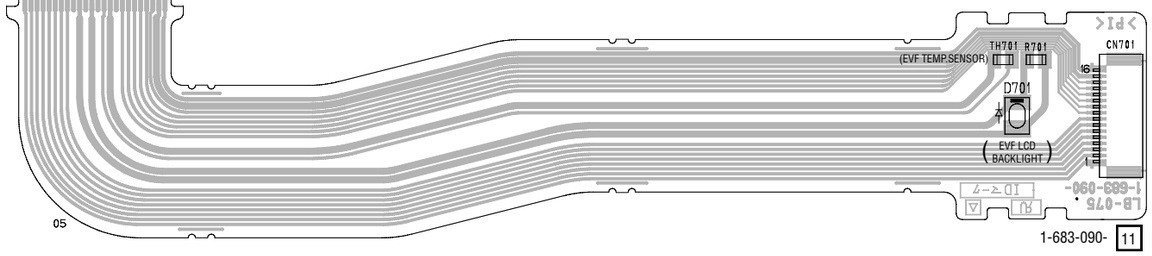
– Ref. No.: AL-012 board; 3,000 series/LB-075 board; 1,000 series –

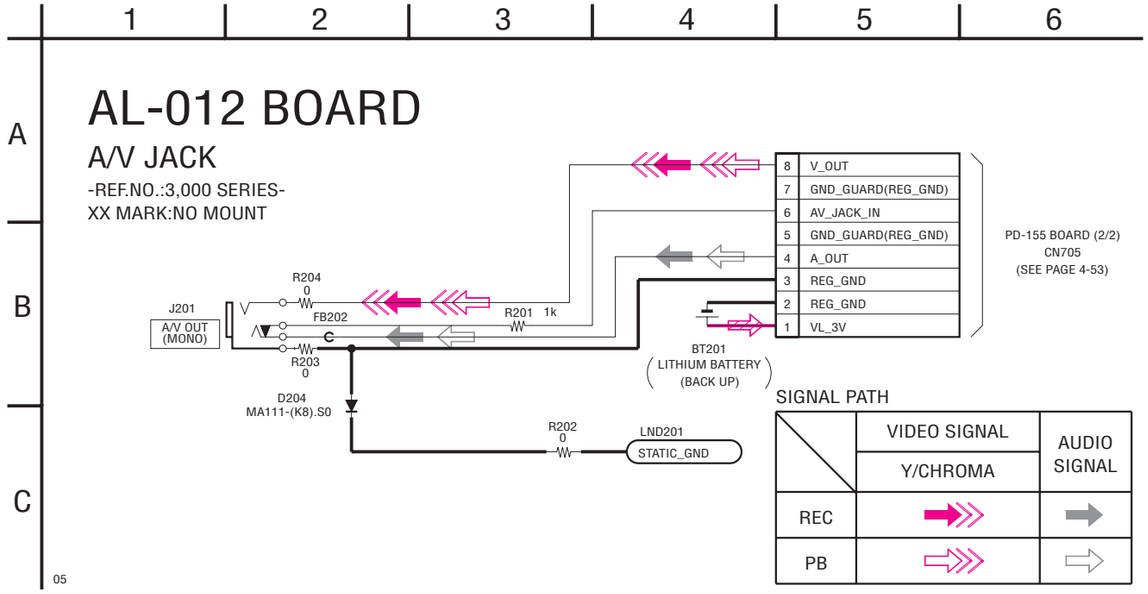
- **For Printed Wiring Board.**
- There are a few cases that the part isn't mounted in this model is printed on this diagram.

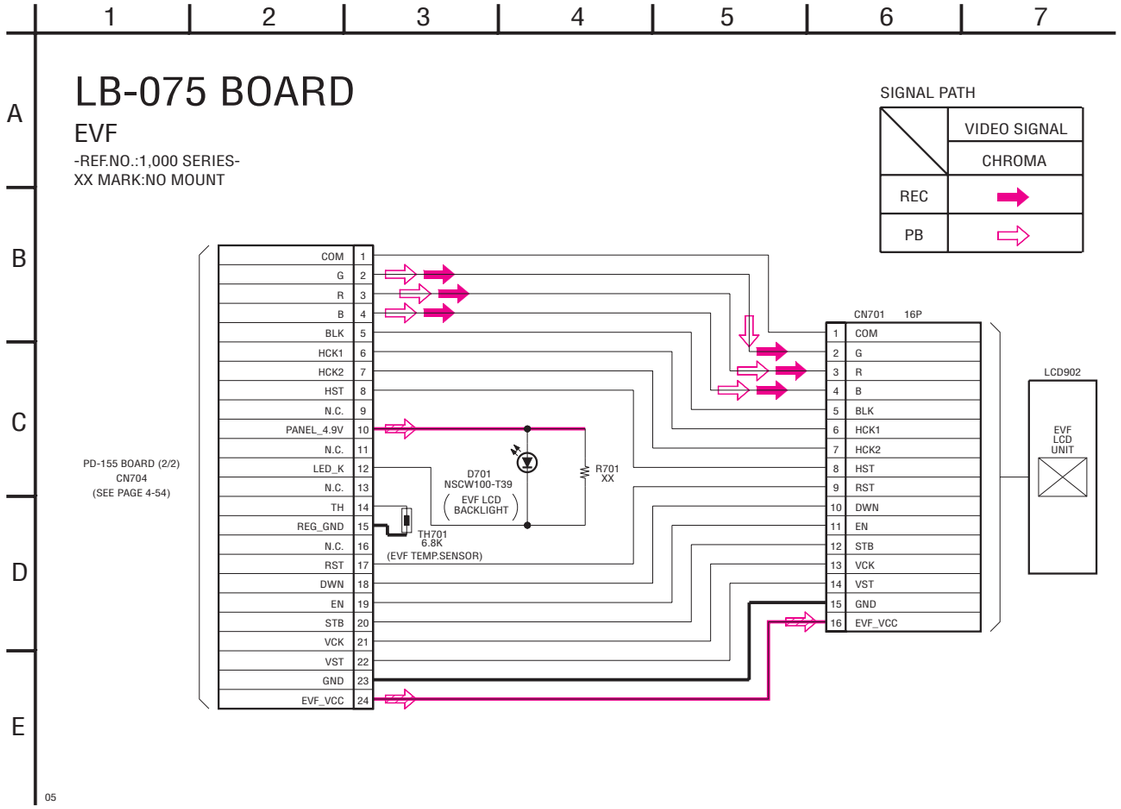
AL-012 BOARD



LB-075 BOARD



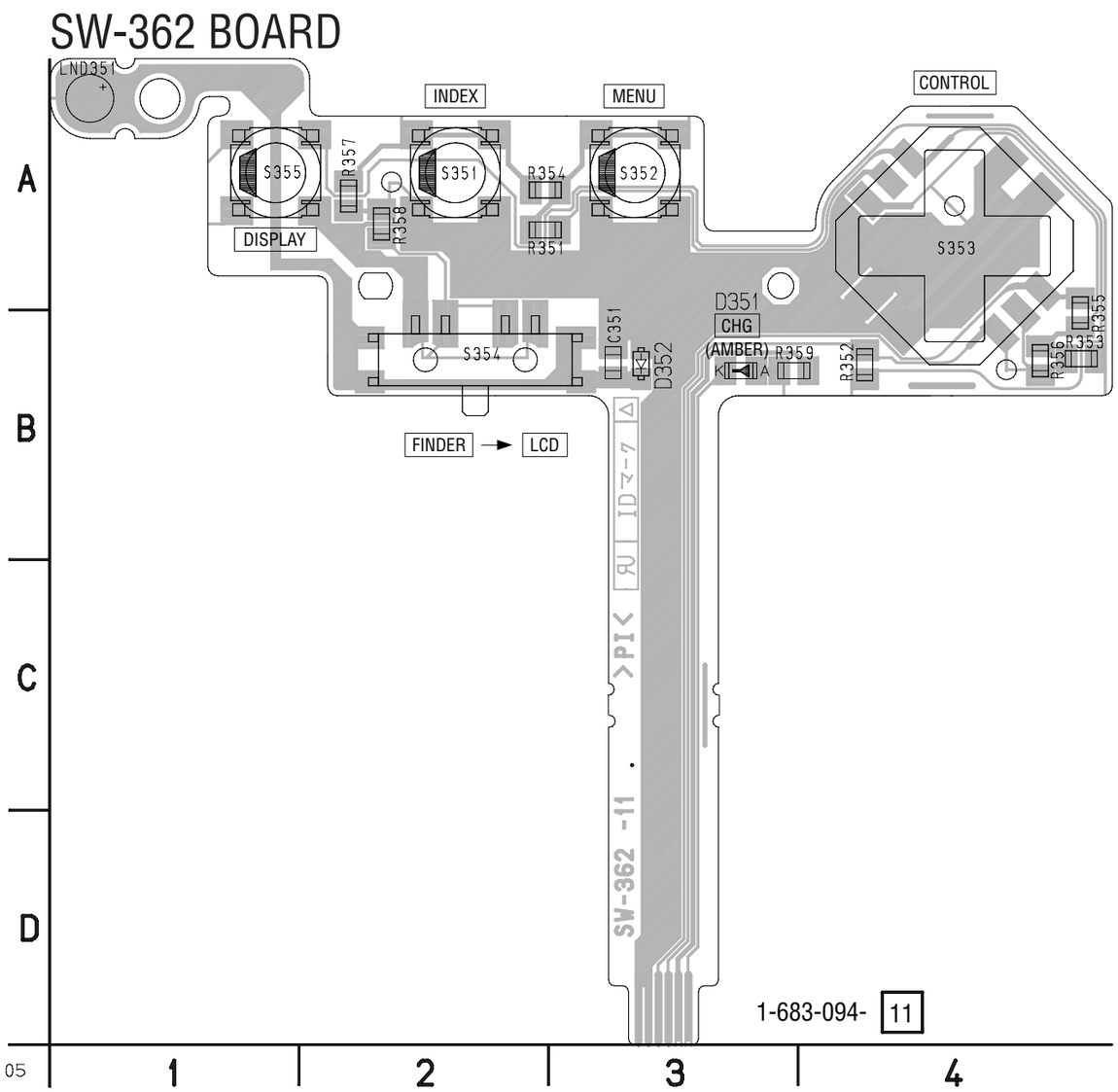


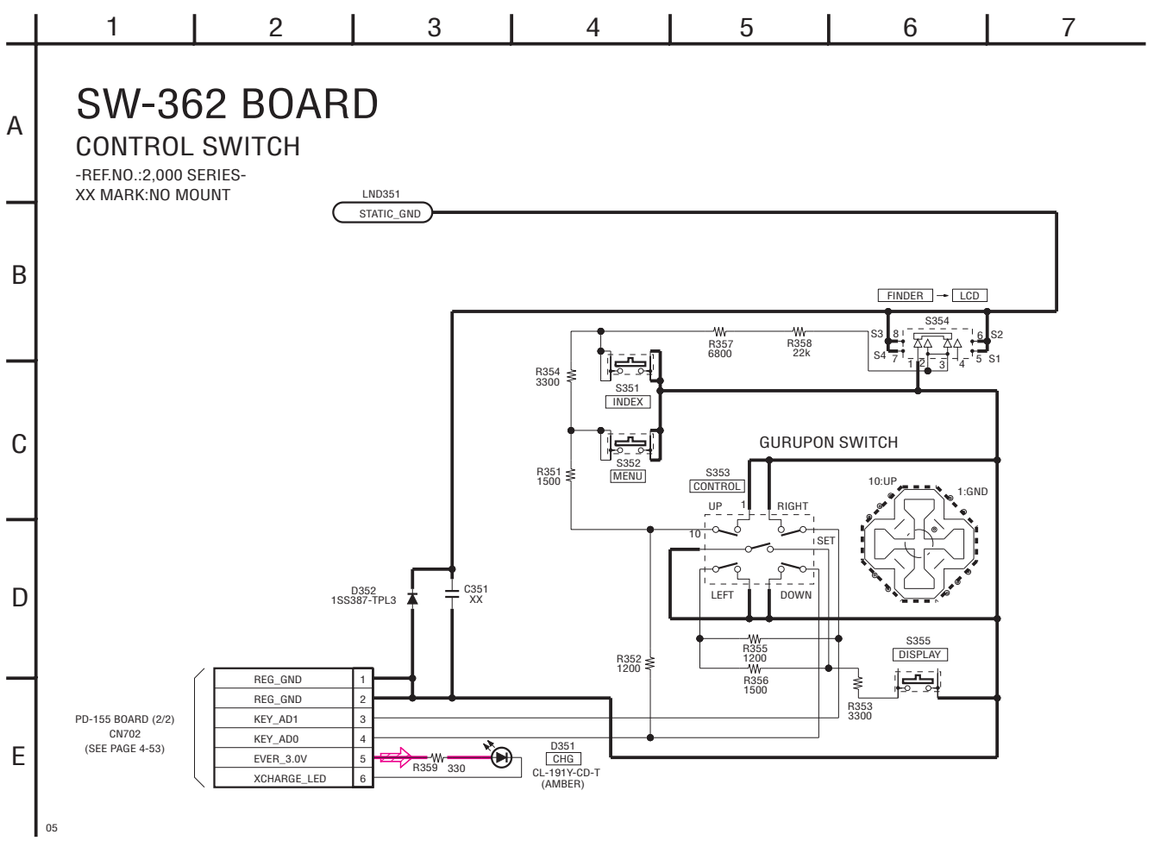


SW-362 (CONTROL SWITCH) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

– Ref. No.: SW-362 board; 2,000 series –

- **For Printed Wiring Board.**
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-69 for printed parts location.





4-3. WAVEFORMS

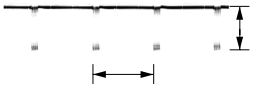
CD-355 BOARD

❶

134 µsec

IC301 ①, ②, ③, ④ REC

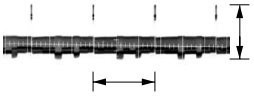
❷



134 µsec

IC301 ⑤, ⑧, ⑨, ⑩ REC

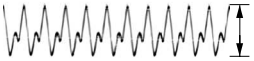
❸



134 µsec

IC301 ⑬ REC

❹



45 nsec

IC301 ⑮ REC

❺

45 nsec

IC301 ⑯, ⑰, ㉓, ㉔ REC

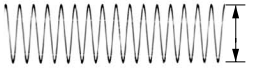
FR-181 BOARD

❶

10 MHz

IC102 ④ (X101) REC/PB

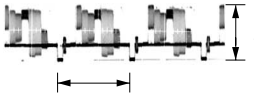
❷



32.768 MHz

IC102 ⑩⓪ (X102) REC/PB

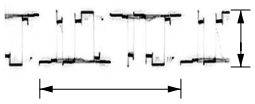
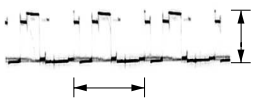
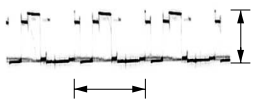
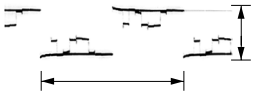
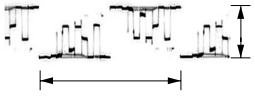
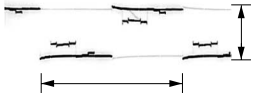
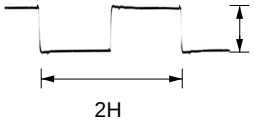
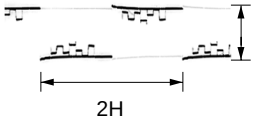
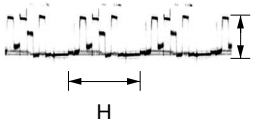
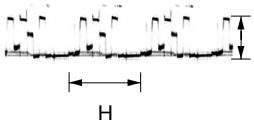
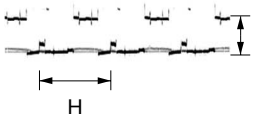
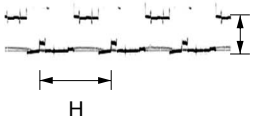
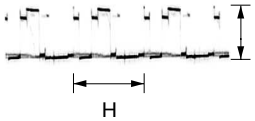
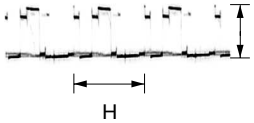
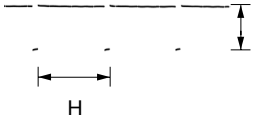
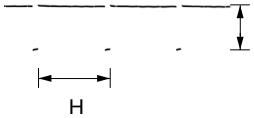
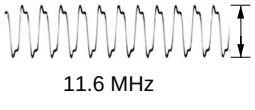
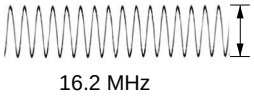
❸



H

IC201 ④ REC/PB

PD-155 BOARD

❶  IC801 ⑳ REC/PB	❿  IC802 ㊽ REC/PB	⓳  IC902 ㊽ REC/PB
❷  IC801 ㉒ REC/PB	⓫  IC901 ⑳ REC/PB	
❸  IC801 ㉔ REC/PB	⓬  IC901 ㉒ REC/PB	
❹  IC801 ㉗ REC/PB	⓭  IC901 ㉔ REC/PB	
❺  IC801 ㊻ REC/PB	⓮  IC901 ㊻ REC/PB	
❻  IC801 ㊼ REC/PB	⓯  IC901 ㊼ REC/PB	
❼  IC801 ㊽ REC/PB	⓰  IC901 ㊽ REC/PB	
❽  IC802 ① REC/PB	⓱  IC902 ① REC/PB	
❾  IC802 ㉖ REC/PB	⓲  IC902 ㉖ REC/PB	

4-4. PARTS LOCATION

no mark : SIDE A
* mark : SIDE B

BT-006 BOARD

	C403	A-2
*	C404	A-2
*	C406	A-2
*	C407	A-2
*	C408	C-3
	C409	B-1
	C410	B-1
*	C411	C-3
	C412	B-1
	C413	B-3
*	C414	D-2
*	C415	C-1
*	C416	B-3
	CN401	D-3
*	CN402	D-3
*	CN403	D-3
	CN404	C-3
*	D401	D-3
*	D402	B-2
	D403	A-2
*	D404	C-3
	D405	C-3
*	F401	D-2
*	F402	D-2
*	F403	D-3
*	F404	D-2
*	F405	A-2
*	FB401	C-3
*	L401	A-2
	LF401	D-3
	Q401	B-2
*	Q402	A-2
*	Q403	A-2
	Q404	A-2
	Q405	B-3
	Q406	B-3
*	Q408	C-3
	Q409	B-3
*	R402	C-3
*	R403	C-3
	R404	B-2
	R405	A-2
	R406	A-1
	R407	A-2
	R408	A-2
	R409	B-3
	R410	B-3
	R411	B-3
*	R412	C-3
*	R413	B-3
*	R414	C-3
*	R415	B-3
	R416	B-3
	T401	D-3

CD-355 BOARD

	C301	C-3
	C302	B-2
	C303	B-3
	C304	C-3
	C305	C-2
	C306	B-2
	C307	B-2
	C309	C-3
	C310	C-3
	CN301	B-3
	CN302	A-3
	CN303	A-3
	D301	B-2
	D302	A-3
	D304	C-3
	FB301	C-3
	FB302	A-3
	FB303	A-3
	FB304	A-3
	FB305	A-3
	IC301	B-2
	L301	B-2
	L302	A-3
	Q301	B-2
	Q302	B-3
	Q303	A-2
	R306	B-2
	R307	B-2
	R308	B-2
	R309	B-2
	R310	B-3
	R311	B-3
	R312	C-3
	R313	A-2
	R314	A-2
	R315	A-3
	R316	A-3
	R317	C-3
	R318	C-3
	R319	C-3
	R320	C-3
	TH301	B-2

FR-181 BOARD

*	C001	C-5
*	C002	C-5
*	C003	C-5
*	C004	C-5
*	C005	C-5
*	C006	C-4
*	C007	C-5
*	C008	C-4
*	C010	C-5
*	C011	C-4
*	C012	D-5
*	C014	D-4
*	C015	D-5
*	C016	D-4
*	C017	D-5
*	C018	D-4
*	C019	D-4
	C020	D-2
*	C021	D-1
*	C022	D-3
*	C023	C-2
*	C024	C-1
*	C025	D-1
	C026	D-1
*	C027	C-3
*	C028	D-2
*	C029	C-2
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*	C038	C-2
*	C039	D-3
*	C040	C-2
*	C041	C-2
	C042	C-4
	C043	D-5
	C044	C-4
	C045	D-4
*	C046	D-4
*	C047	D-4
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*	C102	B-3
	C103	B-3
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*	C106	B-5
	C107	B-3
	C108	B-5
*	C109	A-4
*	C110	C-3
*	C111	A-5
*	C112	A-3
*	C113	A-3
*	C114	B-3
	C115	B-4
	C116	B-3
	C117	B-3
	C118	B-3
	C119	B-4
	C120	B-4
	C121	B-4
	C122	B-4
	C124	C-5
	C125	B-4
*	C126	A-5
	C127	B-4
	C128	B-3
	C202	C-5
	C203	C-5
	C204	C-4
	C205	C-5
	C206	C-5
	C207	C-4
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*	C256	C-2
*	C257	C-2
*	C258	C-2
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*	C260	C-2
*	C262	C-2
*	C263	C-1
*	C264	C-2
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	C266	B-2
	C267	C-2
*	C268	B-2
*	C269	C-1
*	C270	C-1
*	C271	C-1
*	C272	C-1
*	C273	B-2
*	C274	B-2
*	C275	B-2
*	C276	B-1
*	C277	B-1
*	C278	C-3
*	C279	B-2
*	C280	B-2
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*	C283	B-1
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	C287	B-2
	C288	B-2
	C289	B-2
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*	C291	C-3
*	C301	A-3
*	C302	A-3
	CN001	D-4
*	CN301	C-6
	CN302	C-6
*	CN304	A-4
*	CN305	C-1
*	CN306	A-2
*	CN307	A-4
*	CN308	A-2
*	D001	C-3
*	D002	D-3
*	D003	D-3
*	D004	D-2
*	D101	B-3
*	D102	A-5
*	D103	A-5
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*	D105	C-3
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	D107	D-1
	D108	D-1
*	D301	A-3
	D302	C-1
*	D303	A-3
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*	D305	A-3
*	D306	A-3
*	D307	A-4
*	D308	A-4
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*	IC101	B-3
*	IC102	B-4
*	IC103	B-5
	IC201	C-5
*	IC251	B-2
	L001	C-3
	L002	D-2
	L003	D-2
	L004	C-2
	L005	D-1
	L006	C-2
*	L007	D-2
*	L008	D-2
	L009	C-1
*	L010	D-2
*	L011	D-2
*	L012	D-2
*	L013	D-3
	L014	C-4
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	L201	C-5
*	L251	C-1
*	L252	C-3
*	L253	B-1
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*	Q003	C-4
	Q004	D-3
*	Q005	D-5
*	Q006	D-1
*	Q007	C-3
*	Q008	D-1
*	Q009	C-2
*	Q010	C-1
	Q011	D-5
	Q012	C-5
	Q013	C-4
	Q014	C-4
	Q015	D-4
	Q016	D-4
	Q017	D-4
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*	Q104	C-3
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*	Q106	B-3
*	Q107	B-3
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*	Q253	B-2
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*	R003	C-4
*	R004	C-5
*	R005	C-5
*	R006	D-3
*	R007	C-4
*	R008	C-4
*	R009	C-5
*	R010	C-4
*	R011	C-5
*	R012	C-3
*	R013	C-3
*	R014	C-4
*	R015	C-4
*	R016	C-5
*	R018	C-4
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*	R020	C-5
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*	R022	C-5
*	R023	D-5
*	R024	D-5
*	R025	D-5
*	R026	C-4
*	R027	C-5
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*	R030	D-5
*	R032	D-5
*	R033	D-4
*	R034	D-4
*	R035	D-4
*	R036	D-5
*	R037	D-4
*	R038	D-5
*	R039	D-5
*	R040	D-4
*	R041	D-5
*	R042	D-5
*	R043	C-5
*	R044	D-5
*	R045	C-4
*	R046	C-4
*	R047	D-4
*	R048	D-5
	R050	D-5
	R051	D-5
	R052	D-5
	R053	D-5
	R054	D-5
	R055	D-5
	R056	C-4
	R057	C-4
	R058	D-4
	R059	C-4
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	R069	D-3
	R070	D-4
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*	R074	C-4
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	R104	A-3
	R105	A-3
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	R115	B-5
	R116	B-4
	R117	B-4
	R118	B-4
	R121	A-3
	R122	A-3
	R123	A-3
	R124	B-4
	R125	B-4
	R126	B-4
	R127	B-4
	R128	B-4
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	R131	A-3
	R132	B-4
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*	R136	C-3
	R137	B-5
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	R141	B-3
	R142	B-3
	R143	B-3
	R144	B-4
*	R145	B-3
	R146	B-3
	R147	B-4
	R148	B-3
	R149	B-4
	R150	B-5
	R152	B-4
	R153	B-4
	R154	B-4
	R155	B-4
	R156	B-4
	R157	B-4
	R158	C-4
	R159	C-4
*	R160	C-3
	R161	C-4
*	R162	C-3
*	R163	C-5
	R164	B-4
	R165	B-4
	R166	C-4
	R169	B-4
	R170	B-3
	R171	B-4
	R172	B-4
	R173	B-4
	R174	C-4
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*	R176	B-5
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	R178	B-4
	R179	B-4
	R180	B-4
*	R181	B-5
*	R182	B-5
	R183	B-4
	R201	C-5
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	R205	C-5
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*	R263	C-1
	R264	B-2
	R265	B-2
*	R267	B-2
	R268	B-2
	R270	B-2
	R271	B-2
	R272	B-2
	R273	B-2
*	R274	B-1
*	R275	B-2
	R277	C-2
*	R280	C-2
*	R301	A-3
*	R302	A-3
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	R305	C-1
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	R307	A-2
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	R309	A-2
	R310	A-3
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	R315	B-2
	R316	B-2
	R317	A-2
	R318	A-2
	R319	A-1
	R320	A-1
*	R321	B-5
	S101	D-1
	T001	D-3
*	X101	A-4
*	X102	A-3

PD-155 BOARD

*	C703	B-1
	C801	A-2
	C802	A-2
	C803	B-2
	C804	B-2
	C805	B-2
	C806	B-2
	C807	C-2
	C808	A-2
	C809	B-3
	C810	A-3
	C811	B-3
	C812	B-3
	C813	A-3
	C814	B-3
	C815	A-2
	C816	B-3
	C817	A-2
	C818	A-3
	C819	A-3
	C820	A-3
	C822	A-3
	C823	A-3
	C824	B-3
	C825	B-3
	C826	C-5
	C829	B-3
	C830	C-4
	C851	C-3
	C901	C-2
	C902	C-2
	C904	C-2
	C905	C-2
	C906	B-2
	C907	B-2
	C908	B-2
	C909	B-1
	C911	B-2
	C912	B-1
	C913	C-2
	C914	B-1
	C915	C-2
	C917	B-1
	C918	C-1
	C919	C-1
	C920	C-1
	C922	B-1
	C923	C-2
	C952	A-2
	CN701	C-4
	CN702	C-3
	CN704	B-1
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	CN801	A-3
	CN851	B-5
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*	D702	B-1
*	D703	B-1
*	D704	C-1
	D801	B-3
	D901	B-1
	IC801	A-3
	IC802	C-3
	IC851	C-3
	IC901	C-2
	IC902	B-2
	IC951	A-1
	L801	A-2
	L802	B-2
	L803	B-3
	L804	A-2
	L805	B-3
	L901	C-2
	L902	C-2
	L903	B-1
	L904	A-2
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	Q802	C-5
	Q803	B-4
	Q804	C-5
	Q805	B-4
	Q806	C-4
	Q851	C-3
	Q852	C-3
	Q853	B-5
	Q854	B-5
	Q951	A-2
	Q952	A-1
*	R701	C-1
	R801	A-2
	R803	A-2
	R804	B-2
	R805	B-2
	R806	A-2
	R807	B-2
	R809	B-3
	R810	B-3
	R811	B-3
	R812	B-3
	R813	B-3
	R814	B-3
	R815	B-3
	R816	A-2
	R817	A-3
	R818	A-3
	R819	A-3
	R821	A-3
*	R822	C-3
*	R823	C-3
	R824	C-5
	R825	C-5
	R827	B-4
	R828	B-4
	R829	B-4
	R830	C-4
	R831	C-4
	R832	B-3
	R851	B-4
	R852	C-3
	R853	C-3
	R855	B-5
	R856	C-3
	R857	C-3
	R858	B-5
	R859	B-5
	R860	B-5
	R861	B-5
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	R904	B-2
	R905	C-2
	R908	C-2
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	R910	B-2
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	R912	B-2
	R913	B-2
	R914	B-2
	R915	B-1
	R916	B-1
	R918	C-1
	R919	C-1
	R920	C-1
	R923	A-2
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	R925	C-1
	R926	C-1
	R927	C-1
	R928	C-1
	R951	A-1
	R952	A-1
	R953	A-2
	R955	A-1

SW-362 BOARD

D351	B-3
D352	B-3
R351	A-2
R352	B-4
R353	B-4
R354	A-2
R355	B-4
R356	B-4
R357	A-2
R358	A-2
R359	B-3
S351	A-2
S352	A-3
S353	A-4
S354	B-2
S355	A-1

SECTION 5
ADJUSTMENTS

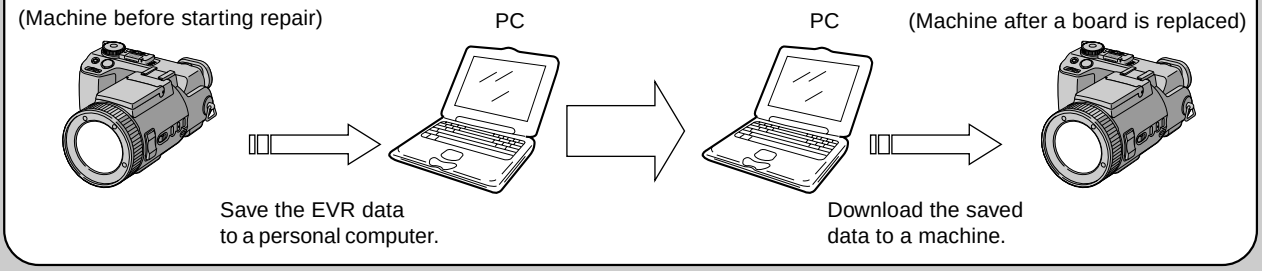
Before starting adjustment

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.

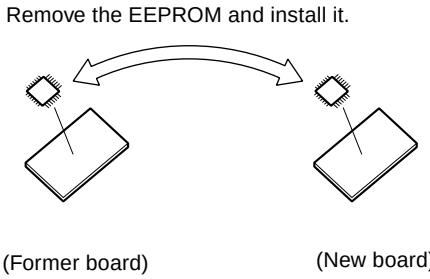
Procedure 1

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.



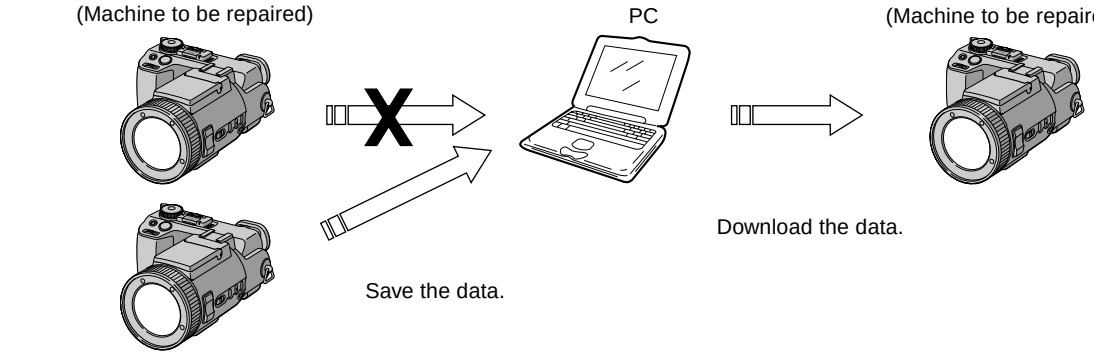
Procedure 2

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



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: Lens block assy	Flash unit	Laser unit	LCD block	LCD block: LCD901 (LCD panel)	LCD block: D901 (Back light unit)	EVF block	EVF block: LCD902 (EVF LCD panel)	LB-075 board: D701 (Back light (EVF))	Mounted parts replacement: SY-072 board: IC102 (S/H, AGC, A/D)	SY-072 board: IC207 (EVR)	FR-181 board: IC201 (VIDEO AMP)	PD- 155 board: IC801 (LCD drive)	PD-155 board: IC802 (LCD Timing generator)	PD-155 board: IC901 (LCD drive (EVF))	PD-155 board: IC902 (LCD Timing generator (EVF))	FR-181 board (COMPLETE)	PD-155 board (COMPLETE)	SY-072 board (COMPLETE)	SY-072 board: IC503 EEPROM
Initialization of 7, 9, B, D, E, F, page data	Initialization of D page data																			●	●
	Initialization of B, E, F, 7, 9 page data																			●	●
Video	Composite video level adj.											●	●					●		●	●
Camera	Hall adj.	●										●								●	●
	Flange back adj.	●																		●	●
	F No. compensation	●																		●	●
	Mechanical shutter adj.	●										●								●	●
	Light value adj.	●									●									●	●
	Mixed color cancel adj.	●									●									●	●
	Auto white balance standard data input	●									●									●	●
	Auto white balance adj.	●									●									●	●
	Color reproduction adj.	●									●									●	●
	CCD (white and black) defect compensation	●																		●	●
	Strobe white balance adj.	●	●								●									●	●
LCD	LCD initial data input																			●	●
	VCO adj.														●				●	●	●
	D range adj.													●					●	●	●
	Contrast adj.													●					●	●	●
	V-COM level adj.													●					●	●	●
	V-COM adj.				●									●					●	●	●
	White balance adj.				●	●								●					●	●	●
EVF	EVF initial data input																			●	●
	VCO adj.																●		●	●	●
	Bright adj.															●			●	●	●
	Contrast adj.															●			●	●	●
	White balance 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
- Frequency counter

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	Adjusting 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-12 jig	J-6082-436-A	For connecting the adjusting remote commander For adjusting the LCD, EVF block
J-8	Minipattern box	J-6082-353-B	For adjusting the flange back
J-9	Back ground paper	J-2501-130-A	For adjusting the strobe
J-10	Extension cable (39 P, 0.3 mm)	J-6082-448-A	For extension between the CD-355 board (CN301) and the SY-072 board (CN101)
J-11	Extension cable (39 P, 0.3 mm)	1-683-095-11	For extension between the SY-072 board (CN701, 702) and the FR-181 board (CN301, 302)

Note 1: If the micro processor IC in the adjusting 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).

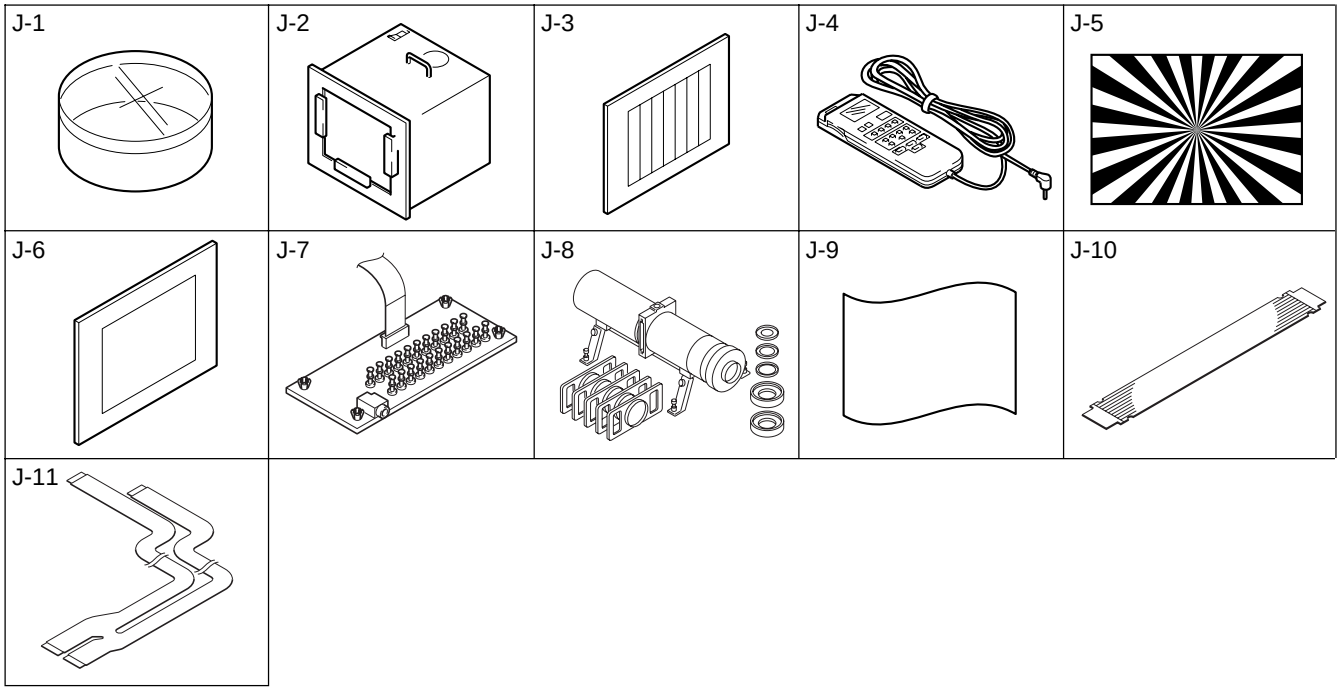


Fig. 5-1-1

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 the FR-181 board CN305 via CPC-12 jig (J-6082-436-A). (See Fig. 5-1-3)

Note 3: Setting the "Forced CAMERA 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 CAMERA mode power ON Mode".

Note 4: Exiting the "Forced CAMERA 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 disassembly in order to protect service engineers from electric shock during disassembly.

Discharge procedure

1. Remove the FR-181 board, and disconnect the harness from CN404 on the BT-006 board.
2. Fabricate the short jig as shown in Fig. 5-1-5 locally by yourself. Connect the short jig to the pin ① and pin ② of CN404 on the BT-006 board. Allow ten seconds to discharge the voltage.

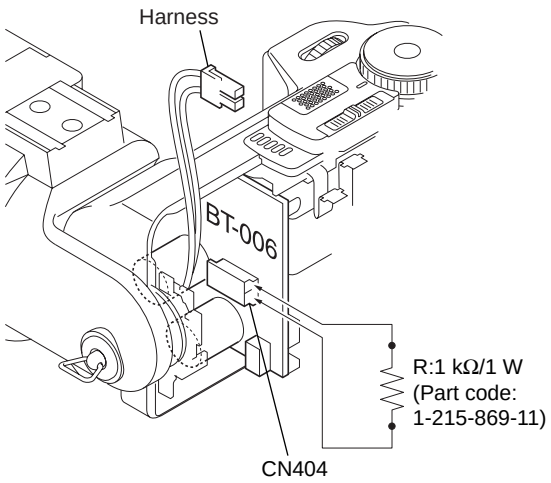


Fig. 5-1-4

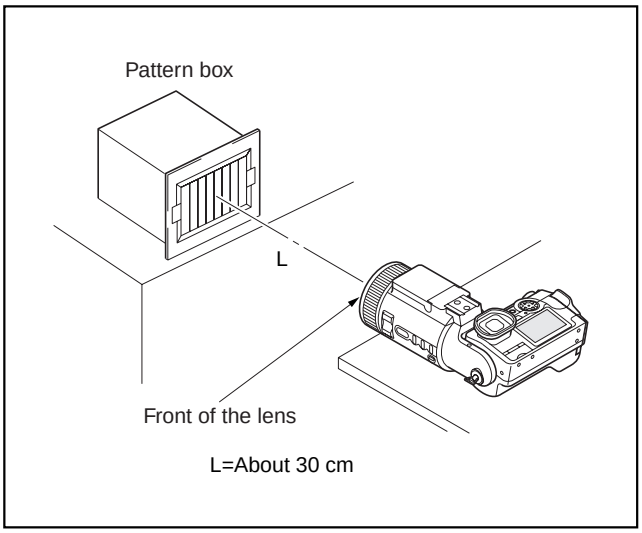


Fig. 5-1-2

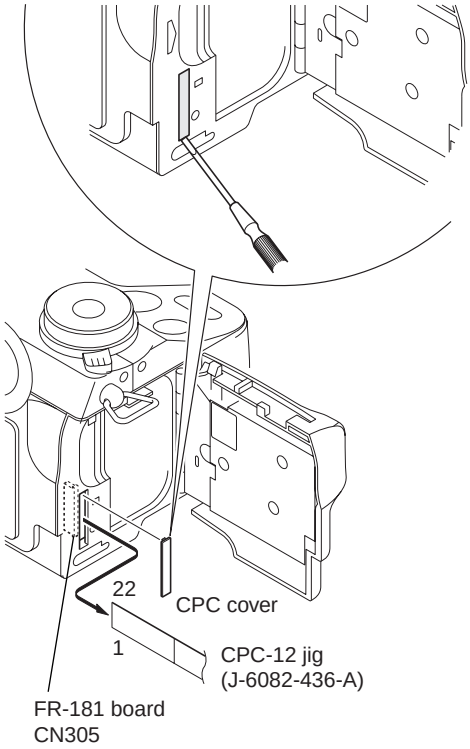


Fig. 5-1-3

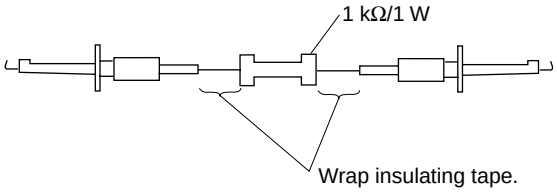


Fig. 5-1-5

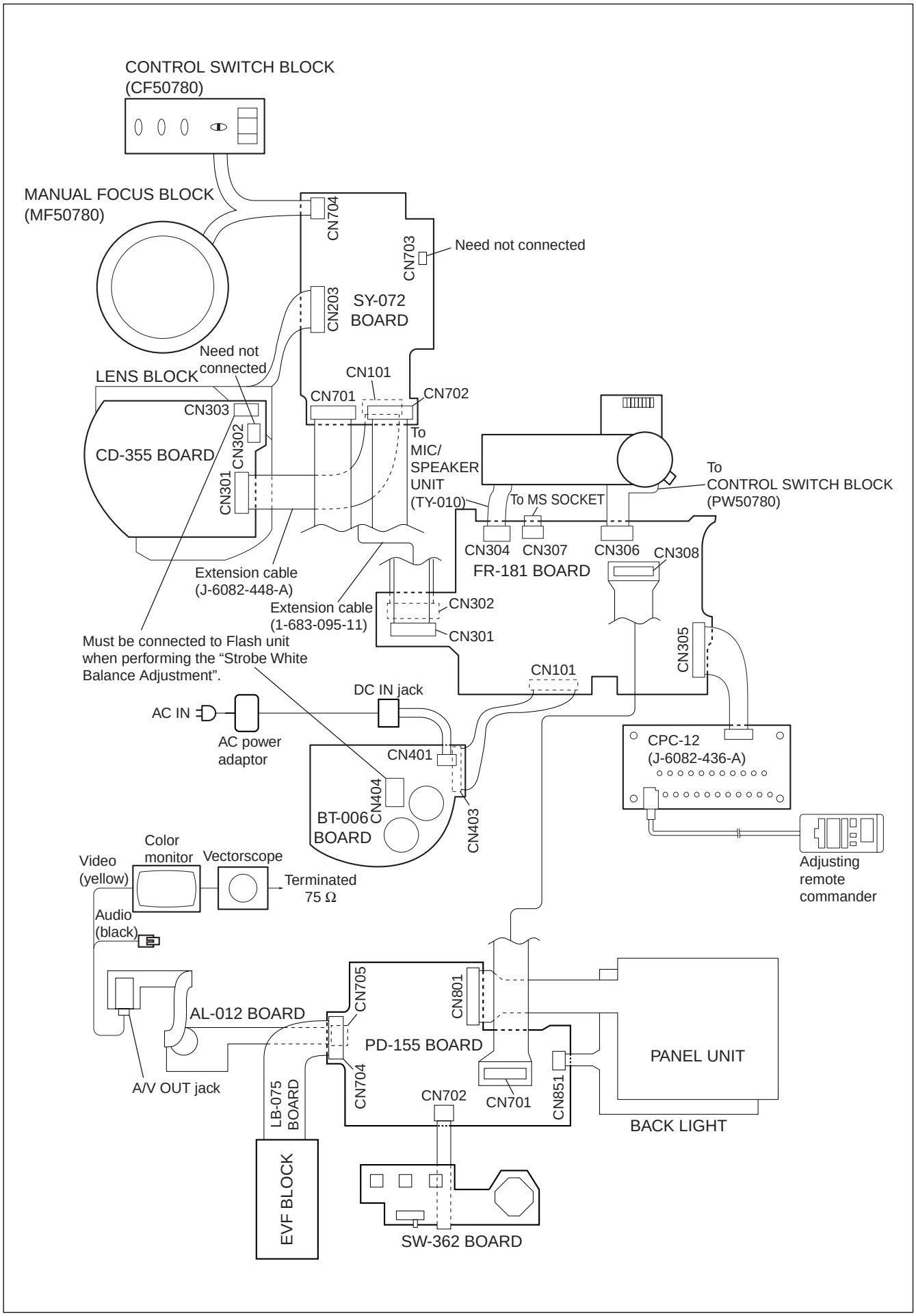

CONTROL SWITCH BLOCK
(CF50780)
MANUAL FOCUS BLOCK
(MF50780)
CN704
CN703
Need not connected
CN203
SY-072
BOARD
Need not
connected
LENS BLOCK
CN101
CN701
CN702
CN303
CN302
CD-355 BOARD
CN301
To
MIC/
SPEAKER
UNIT
(TY-010)
To MS SOCKET
To
CONTROL SWITCH BLOCK
(PW50780)
CN304
CN307
CN306
CN308
FR-181 BOARD
Extension cable
(J-6082-448-A)
Extension cable
(1-683-095-11)
CN302
CN301
Must be connected to Flash unit
when performing the “Strobe White
Balance Adjustment”.
CN305
CN101
DC IN jack
AC IN
AC power
adaptor
CN401
CN404
BT-006
BOARD
CN403
CPC-12
(J-6082-436-A)
Adjusting
remote
commander
Color
monitor
Video
(yellow)
Vectorscope
Terminated
75 Ω
Audio
(black)
AL-012 BOARD
CN705
CN801
PD-155 BOARD
PANEL UNIT
A/V OUT jack
LB-075
BOARD
CN704
CN702
CN701
CN851
BACK LIGHT
EVF BLOCK
SW-362 BOARD

Fig. 5-1-6

1-1-4. Precautions

1. Setting the Switch

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

1. Mode Dial ..... CAMERA
2. FOCUS switch
   (CF50780 block S305) ..... MANUAL
3. EXPOSURE button
   (PW50780 block S404) 0EV
4. DISPLAY button
   (SW362 board S355) ..... OSD OFF
5. WHT BAL
   (CF50780 block S304) ..... AUTO
6. P.EFFECT (Menu display) ..... OFF
7. DEMO (SET UP setting) ..... OFF
8. VIDEO OUT (SET UP setting) ..... NTSC

2. Order of Adjustments

Basically carry out adjustments in the order given.

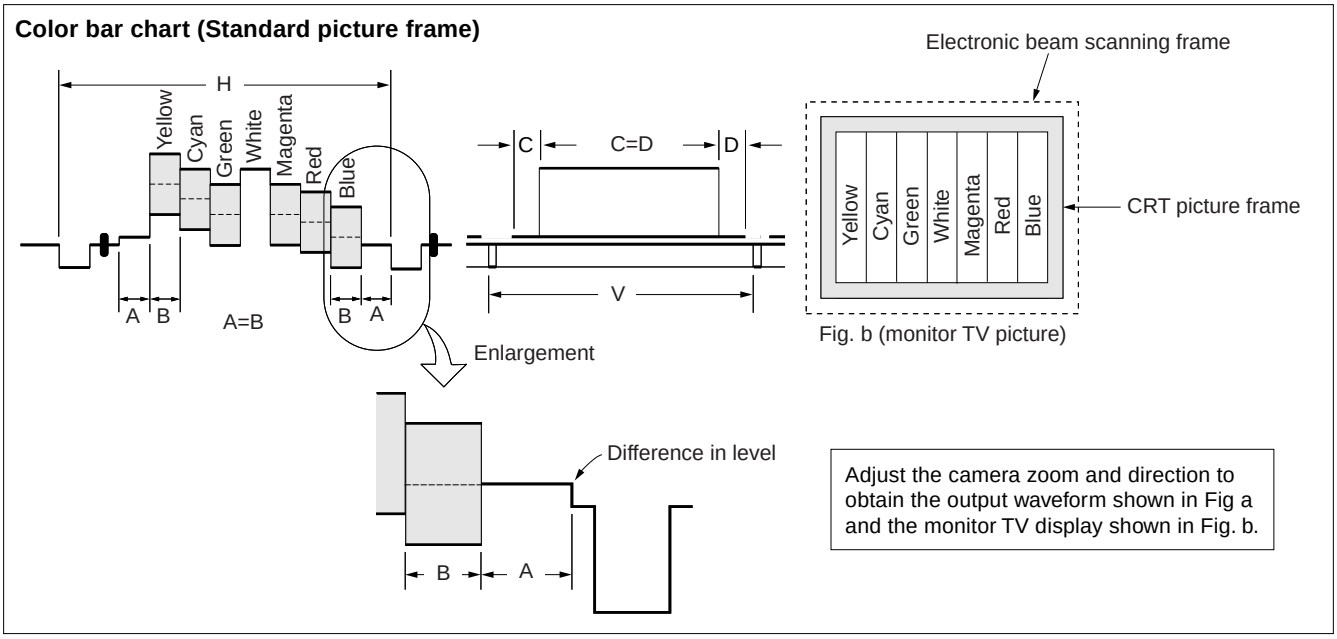


Fig. 5-1-7

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)
3) Chart for flange back adjustment
   Join together a piece of white A0 size paper (1189mm × 841 mm) and a piece of black paper to make the chart shown in Fig. 5-1-8.

Note: Use a non-reflecting and non-glazing vellum paper. The size must be A0 or larger and the joint between the white and black paper must not have any undulations.

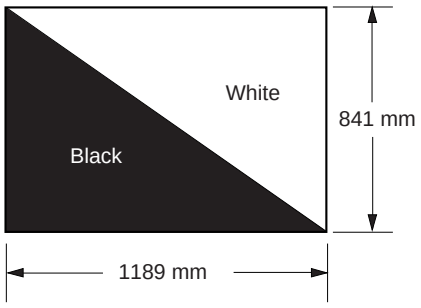


Fig. 5-1-8

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.

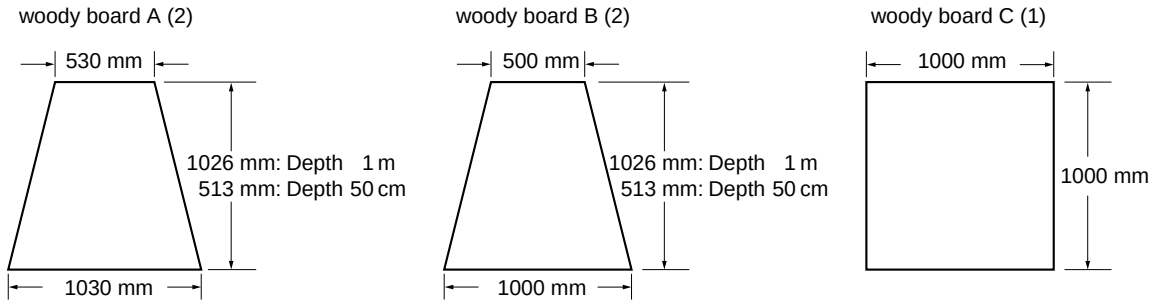


Fig. 5-1-9

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 5-1-10)

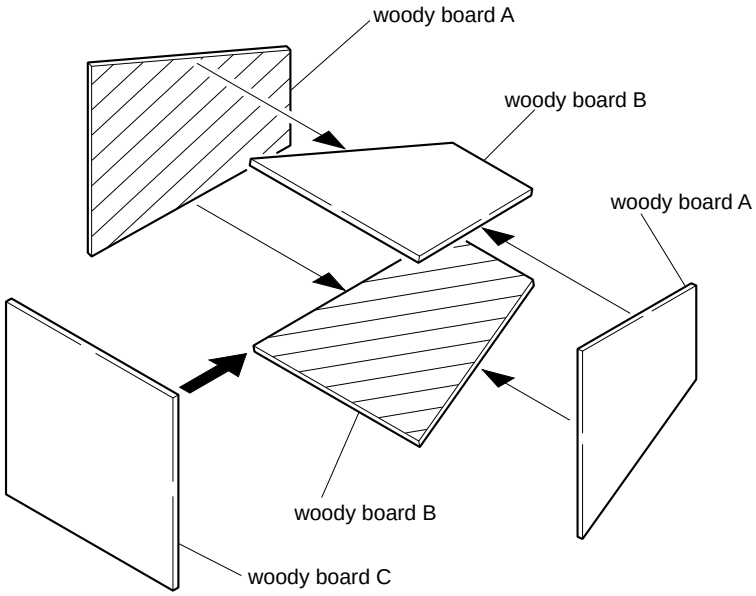


Fig. 5-1-10

1-2. INITIALIZATION OF B, D, E, F, 7, 9 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

Adjusting page	D
Adjusting Address	10 to FF

Initializing Method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	4	03	00	
3	4	00	2D	
4	4	01	2D	Press PAUSE button.
5	4	02		Check 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 camera may not operate.
3) When changing the data, press the PAUSE button of the adjusting 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:

Order	Page	Address	Data	Procedure
1	2	00	29	
2	2	01	29	Press PAUSE button.

3. D Page table

Note 1: Fixed data-1: Initialized data.
(Refer to "1. Initializing the D Page Data")
Note 2: Fixed data-2: Modified data.
(Refer to "2. Modification of D Page Data")

Address	Initial value	Remark
10	00	Test mode
11 to 4E		Fixed data-1 (Initialized data)
4F		Fixed data-2
50 to 85		Fixed data-1 (Initialized data)
86	80	Composite video level adj.
87 to E1		Fixed data-1 (Initialized data)
E2	2D	VCO adj. (NTSC) (LCD)
E3	3C	VCO adj. (PAL) (LCD)
E4	63	V-COM adj. (LCD)
E5	56	D Range adj. (LCD)
E6		Fixed data-1 (Initialized data)
E7	6B	V-COM level adj. (LCD)
E8	90	White balance adj. (LCD)
E9	83	
EA	4A	Contrast adj. (LCD)
EB to F1		Fixed data-1 (Initialized data)
F2	34	VCO adj. (NTSC) (EVF)
F3	44	VCO adj. (PAL) (EVF)
F4		Fixed data-1 (Initialized data)
F5	8E	Bright adj. (EVF)
F6, F7		Fixed data-1 (Initialized data)
F8	94	White balance adj. (EVF)
F9	82	
FA	30	Contrast adj. (EVF)
FB to FF		Fixed data-1 (Initialized data)

1-2-2. Initialization of B, E, F, 7, 9 Page Data

1. Initializing B, E, F, 7, 9 Page Data

Note: If the B, E, F, 7, 9 Page data has been initialized, "Modification of B, E, F, 7, 9 Page Data" and following adjustments need to be performed again.
1) Modification of B, E, F, 7, 9 page data
2) Video system adjustments
3) Camera system adjustments

Adjusting page	B
Adjusting Address	00 to FF
Adjusting page	E
Adjusting Address	00 to FF
Adjusting page	F
Adjusting Address	00 to FF
Adjusting page	7
Adjusting Address	00 to FF
Adjusting page	9
Adjusting Address	00 to FF

Initializing Method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	03	00	
3	6	00	2D	
4	6	01	2D	Press PAUSE button.
5	6	02		Check the data changes to "01".
6				Perform "Modification of B, E, F, 7, 9 page Data".

2. Modification of B, E, F, 7, 9 Page Data

If the B, E, F, 7, 9 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 camera may not operate.
3) When changing the data, press the PAUSE button of the adjusting 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, 9 Page data

Order	Page	Address	Data	Procedure
1	2	00	29	
2	2	01	29	Press PAUSE button.

3. B Page Table

Note 1: Fixed data-1: Initialized data.
(Refer to "1. Initializing the B, E, F, 7, 9 Page Data")
Note 2: Fixed data-2: Modified data.
(Refer to "2. Modification of B, E, F, 7, 9 Page Data")

Address	Initial value	Remark
00 to 5F		Fixed data-1 (Initialized data)
60 to D7	FF	CCD white defect compensation
D8 to FF	FF	CCD black defect compensation

4. E Page Table

Note 1: Fixed data-1: Initialized data.
(Refer to "1. Initializing the B, E, F, 7, 9 Page Data")
Note 2: Fixed data-2: Modified data.
(Refer to "2. Modification of B, E, F, 7, 9 Page Data")

Address	Initial value	Remark
00 to 5B		Fixed data-1 (Initialized data)
5C		Fixed data-2
5D to B6		Fixed data-1 (Initialized data)
B7		Fixed data-2
B8 to BA		Fixed data-1 (Initialized data)
BB		Fixed data-2
BC to FF		Fixed data-1 (Initialized data)

5. F Page Table

Note 1: Fixed data-1: Initialized data.
(Refer to "1. Initializing the B, E, F, 7, 9 Page Data")

Note 2: Fixed data-2: Modified data.
(Refer to "2. Modification of B, E, F, 7, 9 Page Data")

Address	Initial value	Remark
00 to 17		Fixed data-1 (Initialized data)
18	22	Flange back adj.
19	48	
1A	2D	
1B	3A	
1C	13	
1D	00	
1E	00	
1F	00	
20	00	
21	00	
22	12	
23	00	
24	20	
25	20	
26	23	
27	44	
28	0A	
29	00	
2A	00	
2B	00	
2C to 3D		Fixed data-1 (Initialized data)
3E	FF	Flange back adj.
3F		Fixed data-1 (Initialized data)
40		Fixed data-2
41 to 55		Fixed data-1 (Initialized data)
56	FE	Light value adj.
57	6D	
58	30	
59	00	F No. compensation
5A	00	
5B	00	
5C	00	
5D	00	
5E	5D	Hall adj.
5F	8F	
60		Fixed data-1 (Initialized data)
61	13	Hall adj.
62	75	
63		Fixed data-2
64 to 75		Fixed data-1 (Initialized data)
76	08	Auto white balance 3200K standard data input (1)
77	60	
78	05	
79	80	
7A	0C	
7B	60	
7C	0C	
7D	60	
7E, 7F		Fixed data-1 (Initialized data)
80	05	Auto white balance 5800K standard data input (1)
81	80	
82	08	
83	20	
84	0C	
85	80	
86	0C	
87	80	
88, 89		Fixed data-1 (Initialized data)
8A	2A	Auto white balance 5800K standard data input (1)
8B	80	
8C	5D	
8D	C0	
8E	00	Mixed color calcel adj.
8F	00	
90	28	Strobe white balance adj.
91	00	
92	6E	
93	00	
94	03	Color reproduction adj.
95	E9	
96	63	
97	83	
98	D5	
99	FE	
9A	73	
9B	45	
9C	63	
9D	83	
9E	03	
9F	E9	
A0 to B3		Fixed data-1 (Initialized data)
B4	00	Auto white balance 3200K standard data input (2)
B5	00	
B6	00	Auto white balance 5800K standard data input (2)
B7	00	
B8 to BB		Fixed data-1 (Initialized data)
BC	10	Mechanical shutter adj.
BD	6B	
BE	0F	
BF	F6	
C0	0F	
C1	F7	
C2	0F	
C3	F2	
C4	0F	

Address	Initial value	Remark
C5	F7	Mechanical shutter adj.
C6	00	
C7	00	
C8	00	
C9	00	
CA	00	
CB	30	
CC	1B	
CD	12	
CE	0D	
CF	08	
D0	80	
D1	88	
D2	98	
D3	90	
D4	88	
D5	14	
D6 to DB	Fixed data-1 (Initialized data)	
DC	00	Strobe white balance adj.
DD	00	
DE	00	
DF	C8	
E0	00	
E1	00	
E2	00	
E3	00	
E4	00	
E5	00	
E6	00	
E7	00	
E8	00	
E9	00	
EA	00	
EB	00	
EC	00	
ED	00	
EE	00	
EF	00	
F0 to FF	Fixed data-1 (Initialized data)	

6. 7 Page Table

Note 1: Fixed data-1: Initialized data.
(Refer to “1. Initializing the B, E, F, 7, 9 Page Data”)
Note 2: Fixed data-2: Modified data.
(Refer to “2. Modification of B, E, F, 7, 9 Page Data”)

Address	Initial value	Remark
00 to 55	Fixed data-1 (Initialized data)	
56	Fixed data-2	
57 to 62	Fixed data-1 (Initialized data)	
63	Fixed data-2	
64 to E9	Fixed data-1 (Initialized data)	
EA to FF	FF	CCD black defect compensation

7. 9 Page Table

Note 1: Fixed data-1: Initialized data.
(Refer to “1. Initializing the B, E, F, 7, 9 Page Data”)
Note 2: Fixed data-2: Modified data.
(Refer to “2. Modification of B, E, F, 7, 9 Page Data”)

Address	Initial value	Remark
00 to 60	Fixed data-1 (Initialized data)	
61	Fixed data-2	
62 to 97	Fixed data-1 (Initialized data)	
98	Fixed data-2	
99, 9A	Fixed data-1 (Initialized data)	
9B	Fixed data-2	
9C to 9E	Fixed data-1 (Initialized data)	
9F	Fixed data-2	
A0 to FF	Fixed data-1 (Initialized data)	

1-3. VIDEO SYSTEM ADJUSTMENT

1. Composite Video Level Adjustment

Adjust the sync level of the composite video signal output and check the burst level of the composite video signal output.

Mode	PLAY
Signal	Arbitrary
Measurement Point	Video terminal of A/V OUT jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	86
Specified Value	Sync level: A = 286 ± 5 mV (NTSC) A = 300 ± 5 mV (PAL) Burst level: B = 286 ± 5 mV (NTSC) B = 300 ± 5 mV (PAL)

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	4	F1	04	
3	D	86		Change the data and set the sync level (A) to the specified value.
4	D	86		Press PAUSE button.
5				Check the burst level (B) to the specified value.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	4	F1	00	
2	0	01	00	

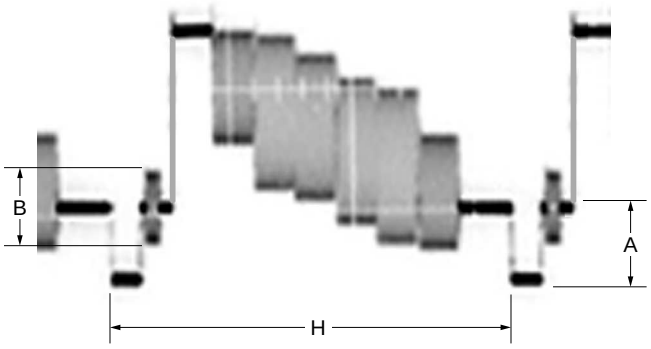


Fig. 5-1-11

1-4. CAMERA SYSTEM ADJUSTMENTS

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

Note: For "CAMERA SYSTEM ADJUSTMENTS", perform in order of item numbers.

Data setting during camera system adjustments

Perform the following data setting before the camera system adjustments.

Set up setting:

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

Data setting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	D	10	80	Press PAUSE button.
3	2	10		Check the bit values of bit3, bit4 and bit5 are "1". (Note 1, 2)
4	D	11	40	Press PAUSE button.
5	D	10	81	Press PAUSE button.
5	6	C1		Check the data changes to "02".
6	4	06	01	
7	6	6C	01	
8				Wait for 1 second.
9	E	5C	28	Press PAUSE button.
10	E	97	00	Press PAUSE button.
11	E	B7	00	Press PAUSE button.
12	E	BB	00	Press PAUSE button.
13	E	CD	08	Press PAUSE button.

Note 1: For the bit values, refer to "5-2. SERVICE MODE", "2-3. 2. Bit value discrimination".

Note 2: In case of wrong data, select page: 2, address: 0A and set data: 02.
Set the adjusting remote commander to normal LANC, and the power will be turned off and on automatically. Wait for more than 0.167 second after the power on, and set the adjusting remote commander to the service LANC. Then, retry from the step 1.

Note 3: Repeat the "Data setting method", if the power was turned off and on during the "CAMERA SYSTEM ADJUSTMENTS".

After completing the camera system adjustments, release the data setting:

Order	Page	Address	Data	Procedure
1	4	06	00	
2	6	6C	00	
3	E	97	10	Press PAUSE button.
4	E	CD	00	Press PAUSE button.
5	D	11	00	Press PAUSE button.
6	D	10	00	Press PAUSE button.
7	0	01	00	

1. HALL Adjustment

Mode	CAMERA
Subject	Not required
Measurement Point	Displayed data of page: 1 (Note 2)
Measuring Instrument	Adjusting remote commander
Adjustment Page	F
Adjustment Address	5E, 5F, 61, 62
Specified value	12 to 16 during IRIS OPEN 76 to 7A during IRIS CLOSE

Note 1: Check that the data of page: 6, address: 02 is "00". If not, turn the power of 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:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Perform "Data setting during camera system adjustment".
3	6	94	14	
4	6	95	78	
5	6	01	6D	Press PAUSE button. (Note 3)
6	6	02		Check the data changes to "01".
7	6	01	00	Press PAUSE button.
8	0	03	03	
9	6	01	01	Press PAUSE button.
10	1			Check that the displayed data (Note 2) during IRIS OPEN satisfied the specified value.
11	6	01	03	Press PAUSE button.
12	1			Check that the displayed data (Note 2) during IRIS CLOSE satisfied the specified value.

Note 3: The adjustment data will be automatically input to page: F, address: 5E, 5F, 61, and 62.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	94	00	
3	6	95	00	
3	0	03	00	
4				Release the data setting performed at step 2.
5	0	01	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	CAMERA
Subject	Siemens star chart with ND filter for minipattern box (Note 1)
Measurement Point	Check operation on monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	18 to 2B, 3E

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 unit OFF/ON.

Preparations before adjustments:

1) The minipattern box is installed as shown in the following figure.
   Note 3: The attachment lenses are not used.
2) Install the minipattern box so that the distance between it and the front of lens of camera is less than 3 cm.
3) Make the height of minipattern box and the camera equal.
4) Check the output voltage of the regulated power supply is the specified voltage ± 0.01 Vdc.
5) 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.
6) Check that the data on page: F, address: 18 to 2B and 3E are initial value (See table below).

Address	Data	Address	Data	Address	Data
18	22	1F	00	26	23
19	48	20	00	27	44
1A	2D	21	00	28	0A
1B	3A	22	12	29	00
1C	13	23	00	2A	00
1D	00	24	20	2B	00
1E	00	25	20	3E	FF

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

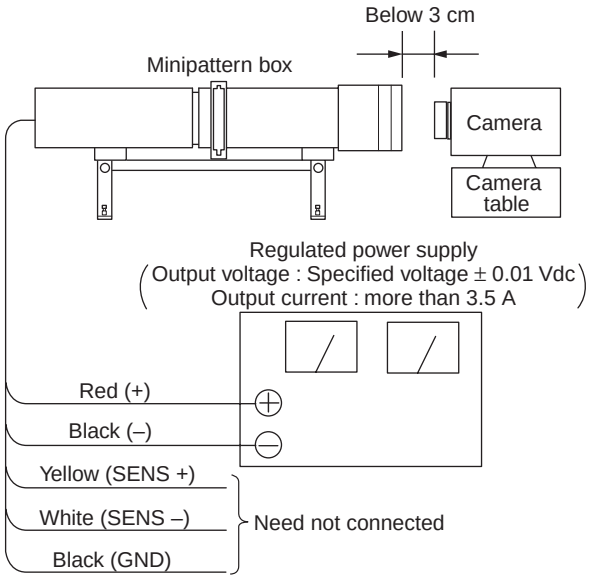


Fig. 5-1-12

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
3	6	01	13	Press PAUSE button.
4	6	01	27	Press PAUSE button. (Note 4)
5	6	02		Check the data changes to "01".
6	F	3E		Check the data. 00: Normal 01 to FF: Defective

Note 4: The adjustment data will be automatically input to page: F, address: 18 to 2B and 3E.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2				Release the data setting performed at step 2. (Refer to page 5-13)
3	0	01	00	
4				Perform "Flange Back Check".

3. Flange Back Adjustment (Using the flange back adjustment chart and Subject More than 500 m Away)

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

3-1. Flange Back Adjustment (1)

Mode	CAMERA
Subject	Flange back adjustment chart (2.0 m from the front of lens) (Luminance: 300 to 400 lux)
Measurement Point	Check operation on monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	18 to 2B, 3E

Note 1: Check that the data of page: 6, address: 02 is "00". If not, turn the power of unit OFF/ON.

Preparations before adjustments:

1) Place the Flange back adjustment chart 2.0 m from the front of the lens.
2) Check that the center of Flange back adjustment chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.
3) Check that the data on page: F, address: 18 to 2B and 3E are initial value (See table below).

Address	Data	Address	Data	Address	Data
18	22	1F	00	26	23
19	48	20	00	27	44
1A	2D	21	00	28	0A
1B	3A	22	12	29	00
1C	13	23	00	2A	00
1D	00	24	20	2B	00
1E	00	25	20	3E	FF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
3	6	01	13	Press PAUSE button.
4	6	01	15	Press PAUSE button. (Note 2)
5	6	02		Check the data changes to "01".
6	F	3E		Check the data. 00: Normal 01 to FF: Defective

Note 2: The adjustment data will be automatically input to page: F, address: 18 to 2B and 3E.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2				Release the data setting performed at step 2. (Refer to page 5-13)
3	0	01	00	
4				Perform "Flange Back Adjustment (2)".

3-2. Flange Back Adjustment (2)

Perform this adjustment after performing "Flange Back Adjustment (1)".

Mode	CAMERA
Subject	Subject more than 500 m away (Subject with clear contrast such as buildings, etc.)
Measurement Point	Check operation on monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	18 to 2B, 3E

Adjusting method:

Order	Page	Address	Data	Procedure
1				Set the zoom lens to the TELE end and expose a subject that is more than 500 m away. (Note 1)
2	0	01	01	
3				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
4	6	01	13	Press PAUSE button.
5				Place ND filter on the lens so that the optimum image is obtain.
6	6	01	29	Press PAUSE button. (Note 2)
7	6	02		Check the data changes to "01".
8	F	3E		Check the data. 00: Normal 01 to FF: Defective

Note 1: Subject with clear contrast such as building, etc. Nearby subjects less than 500 m away should not be in the screen.

Note 2: The adjustment data will be automatically input to page: F, address: 18 to 2B and 3E.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2				Release the data setting performed at step 3. (Refer to page 5-13)
3	0	01	00	
4				Perform "Flange Back Check".

4. Flange Back Check

Mode	CAMERA
Subject	Siemens star (1.0 m from the front of the lens) (Luminance: 200 to 400 lux)
Measurement Point	Check operation on monitor TV
Measuring Instrument	
Specified value	Focused at the TELE end and WIDE end

Checking method:

Order	Page	Address	Data	Procedure
1				Place the Siemens star 1.0 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	0	01	01	
4				Perform “Data setting during camera system adjustment”. (Refer to page 5-13)
5	B	3D		Note down the data.
6	B	3D	50	Press PAUSE button.
7				Shoot the Siemens star with the zoom TELE end.
8				Turn on the auto focus.
9				Check that the lens is focused.
10	6	2C	01	
11				While observe the TV monitor, change the zoom to the WIDE end and check that the lens is focused.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	2C	00	
2	B	3D		Set data noted down at step 5, and press PAUSE button.
3				Release the data setting performed at step 4. (Refer to page 5-13)
4	0	01	00	

5. Picture Frame Setting

Mode	CAMERA
Subject	Color bar chart (Standard picture frame with the zoom lens at WIDE end)
Measurement Point	Video terminal of A/V OUT jack (75 Ω terminated)
Measuring Instrument	Oscilloscope and monitor TV
Specified Value	A=B, C=D, E=F

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

1:XX:XX
- YL data
- YH data

Switch setting

1) FOCUS ..... AUTO
2) MACRO ..... ON

Setting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Shoot the color bar chart with the zoom WIDE end.
3				Enter the output of VIDEO OUT to the monitor TV, and move the position as shown in Fig. 5-1-15.
4				Horizontal width of one color (B, C) and that of black (A, D) on the color bar chart should be same. (See Fig. 5-1-13)
5				With vertical width of black (E, F) set in same, the color bar chart should come to the center of monitor TV. (See Fig. 5-1-14)
6				Check that the color bar on the monitor TV is focused.
7	0	03	22	
8	1			Note down the YH and YL data. (Note 1)

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	0	03	00	
2	0	01	00	

How to reset the zoom and focus when they deviated:

Order	Page	Address	Data	Procedure
1	6	2C	01	
2	6	90	00	
3	6	91	00	
4	6	92	YL	(Note 2)
5	6	93	YH	(Note 2)
6	6	01	79	Press PAUSE button.
7	6	07		Check the data changes to "01".
8	6	01	00	Press PAUSE button.

Note 2: The data noted down at step 8 of "Setting method".

Check on the oscilloscope

1. Horizontal period

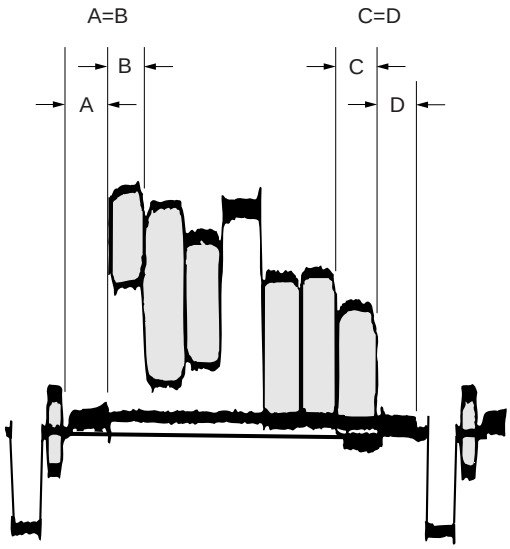


Fig. 5-1-13

2. Vertical period

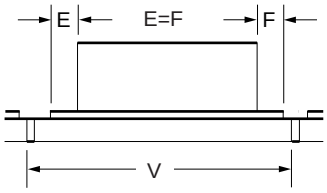


Fig. 5-1-14

Check on the monitor TV

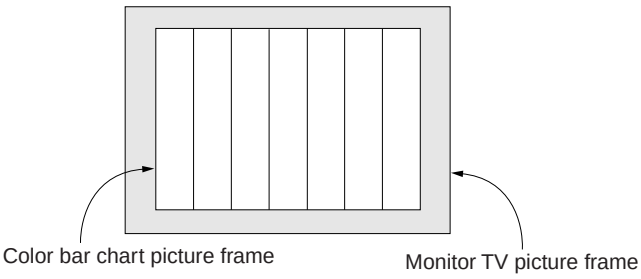


Fig. 5-1-15

6. F No. Compensation

Compensate the unevenness of the iris meter sensitivity.

Mode	CAMERA
Subject	Clear chart (Standard picture frame with the zoom lens at WIDE end)
Adjustment Page	F
Adjustment Address	59 to 5D

Note 1: Check that the data of page: 6, address: 02 is "00". If not, turn the power of unit OFF/ON.
Note 2: Refer to "Picture Frame Setting" for YH and YL.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
3	6	2C	01	
4	6	90	00	
5	6	91	00	
6	6	92	YL	(Note 2)
7	6	93	YH	(Note 2)
8	6	01	79	Press PAUSE button.
9	6	07		Check the data changes to "01".
10	6	01	00	Press PAUSE button.
11	6	01	BB	Press PAUSE button. (Note 3)
12	6	02		Check the data changes to "01".

Note 3: The adjustment data will be automatically input to page: F, address: 59 to 5D.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	2C	00	
3	6	92	00	
4	6	93	00	
5				Release the data setting performed at step 2. (Refer to page 5-13)
6	0	01	00	

7. Mechanical Shutter Adjustment

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

Mode	CAMERA
Subject	Clear chart (Standard picture frame with the zoom lens at WIDE end)
Adjustment Page	F
Adjustment Address	BC to D5

Note 1: Check that the data of page: 6, address: 02 is "00". If not, turn the power of unit OFF/ON.
Note 2: Refer to "Picture Frame Setting" for YH and YL.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
3	6	2C	01	
4	6	90	00	
5	6	91	00	
6	6	92	YL	(Note 2)
7	6	93	YH	(Note 2)
8	6	01	79	Press PAUSE button.
9	6	07		Check the data changes to "01".
10	6	01	00	Press PAUSE button.
11	6	01	AD	Press PAUSE button. (Note 3)
12	6	02		Check the data changes to "01".
13	6	AB		Check the data is "00".

Note 3: The adjustment data will be automatically input to page: F, address: BC to D5.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	2C	00	
3	6	92	00	
4	6	93	00	
5				Release the data setting performed at step 2. (Refer to page 5-13)
6	0	01	00	

8. Light Value Adjustment

Adjust the standard LV value.

Mode	CAMERA
Subject	Clear chart (Standard picture frame with the zoom lens at WIDE end)
Measurement Point	Displayed data of page: 1 (Note 3) and page: F, address: 58
Measuring Instrument	Adjusting remote commander
Adjustment Page	F
Adjustment Address	56 to 58
Specified Value	AE level 1: 0FE0 to 1020 AE level 2: 20 to 40

Note 1: Check that the data of page: 6, address: 02 is "00". If not, turn the power of unit OFF/ON.

Note 2: Refer to "Picture Frame Setting" for YH and YL.

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

1:XX:XX
└──── Displayed data

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
3	6	2C	01	
4	6	90	00	
5	6	91	00	
6	6	92	YL	(Note 2)
7	6	93	YH	(Note 2)
8	6	01	79	Press PAUSE button.
9	6	07		Check the data changes to "01".
10	6	01	00	Press PAUSE button.
11	6	12	80	
12				Wait for 1 second.
13	6	12	00	
14				Wait for 4 seconds.
15	6	01	0D	Press PAUSE button. (Note 4)
16	6	02		Check the data changes to "01".
17	0	03	06	
18	1			Check that the displayed data (Note 3) satisfies the AE level 1 specified value.
19	F	58		Check that the displayed data satisfies the AE level 2 specified value.

Note 4: The adjustment data will be automatically input to page: F, address: 56 to 58.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	0	03	00	
2	6	01	00	Press PAUSE button.
3	6	2C	00	
4	6	92	00	
5	6	93	00	
6				Release the data setting performed at step 2. (Refer to page 5-13)
7	0	01	00	

9. Mixed Color Cancel Adjustment

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

Mode	CAMERA
Subject	Color bar chart (Standard picture frame with the zoom lens at WIDE end)
Adjustment Page	F
Adjustment Address	8E, 8F

Note 1: Check that the data of page: 6, address: 02 is "00". If not, turn the power of unit OFF/ON.
Note 2: Refer to "Picture Frame Setting" for YH and YL.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
3	6	2C	01	
4	6	90	00	
5	6	91	00	
6	6	92	YL	(Note 2)
7	6	93	YH	(Note 2)
8	6	01	79	Press PAUSE button.
9	6	07		Check the data changes to "01".
10	6	01	00	Press PAUSE button.
11	6	01	D7	Press PAUSE button.
12	6	01	D5	Press PAUSE button. (Note 3)
13	6	02		Check the data changes to "01".

Note 3: The adjustment data will be automatically input to page: F, address: 8E and 8F.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	2C	00	
3	6	92	00	
4	6	93	00	
5				Release the data setting performed at step 2. (Refer to page 5-13)
6	0	01	00	

10. Auto White Balance 3200K Standard Data Input (1)

Adjust the white balance standard data at 3200K.

Mode	CAMERA
Subject	Clear chart (Standard picture frame with the zoom lens at WIDE end)
Adjustment Page	F
Adjustment Address	76 to 7D

Note 1: Check that the data of page: 6, address: 02 is "00". If not, turn the power of unit OFF/ON.
Note 2: Refer to "Picture Frame Setting" for YH and YL.
Note 3: "Auto White Balance 3200K Standard Data Input (1)" is available only once after the power is turned on. Turn the power off, then on again if the adjustment is retried.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
3	6	2C	01	
4	6	90	00	
5	6	91	00	
6	6	92	YL	(Note 2)
7	6	93	YH	(Note 2)
8	6	01	79	Press PAUSE button.
9	6	07		Check the data changes to "01".
10	6	01	00	Press PAUSE button.
11	6	01	11	Press PAUSE button.
12	6	01	0B	Press PAUSE button. (Note 4)
13	6	02		Check the data changes to "01".

Note 4: The adjustment data will be automatically input to page: F, address: 76 to 7D.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	2C	00	
3	6	92	00	
4	6	93	00	
5				Release the data setting performed at step 2. (Refer to page 5-13)
6	0	01	00	

11. Auto White Balance 3200K Standard Data Input (2)

Adjust the white balance standard data at 3200K.

Mode	CAMERA
Subject	Clear chart (Standard picture frame with the zoom lens at WIDE end)
Adjustment Page	F
Adjustment Address	B4, B5

Note 1: Check that the data of page: 6, address: 02 is "00". If not, turn the power of unit OFF/ON.

Note 2: Refer to "Picture Frame Setting" for YH and YL.

Note 3: "Auto White Balance 3200K Standard Data Input (2)" is available only once after the power is turned on. Turn the power off, then on again if the adjustment is retried.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
3	6	2C	01	
4	6	90	00	
5	6	91	00	
6	6	92	YL	(Note 2)
7	6	93	YH	(Note 2)
8	6	01	79	Press PAUSE button.
9	6	07		Check the data changes to "01".
10	6	01	00	Press PAUSE button.
11	6	01	11	Press PAUSE button.
12	6	13	AB	
13	6	01	D1	Press PAUSE button. (Note 4)
14	6	02		Check the data changes to "01".

Note 4: The adjustment data will be automatically input to page: F, address: B4 and B5.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	13	00	
3	6	2C	00	
4	6	92	00	
5	6	93	00	
6				Release the data setting performed at step 2. (Refer to page 5-13)
7	0	01	00	

12. Auto White Balance 3200K Check

Mode	CAMERA	
Subject	Clear chart (Standard picture frame with the zoom lens at WIDE end)	
Measurement Point	Displayed data of Page: 1 (Note 3)	Video terminal of A/V OUT jack (75 Ω terminated)
Measuring Instrument	Adjusting remote commander	Vectorscope
Specified Value	R ratio: 3E00 to 4200 B ratio: 3E00 to 4200	Fig. 5-1-16

Note 1: Check that the data of page: 6, address: 02 is "00".
If not, turn the power of unit OFF/ON.

Note 2: Refer to "Picture Frame Setting" for YH and YL.

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

1:XX:XX
└ Displayed data

Checking method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
3	6	2C	01	
4	6	90	00	
5	6	91	00	
6	6	92	YL	(Note 2)
7	6	93	YH	(Note 2)
8	6	01	79	Press PAUSE button.
9	6	07		Check the data changes to "01".
10	6	01	00	Press PAUSE button.
11	9	B4		Note down the data.
12	9	B4	20	Press PAUSE button.
13	6	01	0F	Press PAUSE button.
14	0	03	04	
15	1			Check that the displayed data (Note 3) satisfied the R ratio specified value.
16	0	03	05	
17	1			Check that the displayed data (Note 3) satisfied the B ratio specified value.
18				Check that the center of the white luminance point within the circle shown Fig 5-1-16.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	9	B4		Set data noted down at step 11, and press PAUSE button.
3	0	03	00	
4	6	2C	00	
5	6	92	00	
6	6	93	00	
7				Release the data setting performed at step 2. (Refer to page 5-13)
8	0	01	00	

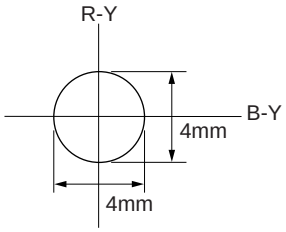


Fig. 5-1-16

13. Auto White Balance 5800K Standard Data Input (1)

Adjust the white balance standard data at 5800K.

Mode	CAMERA
Subject	Clear chart (Standard picture frame with the zoom lens at WIDE end)
Filter	Filter C14 for color temperature correction
Adjustment Page	F
Adjustment Address	80 to 87, 8A to 8D

Note 1: Check that the data of page: 6, address: 02 is "00". If not, turn the power of unit OFF/ON.
Note 2: Refer to "Picture Frame Setting" for YH and YL.
Note 3: "Auto White Balance 5800K Standard Data Input (1)" is available only once after the power is turned on. Turn the power off, then on again if the adjustment is retried.

Adjusting method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter on the lens.
2	0	01	01	
3				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
4	6	2C	01	
5	6	90	00	
6	6	91	00	
7	6	92	YL	(Note 2)
8	6	93	YH	(Note 2)
9	6	01	79	Press PAUSE button.
10	6	07		Check the data changes to "01".
11	6	01	00	Press PAUSE button.
12	F	8A	2A	Press PAUSE button.
13	F	8B	80	Press PAUSE button.
14	F	8C	5D	Press PAUSE button.
15	F	8D	C0	Press PAUSE button.
16	6	01	A7	Press PAUSE button.
17	6	01	A5	Press PAUSE button. (Note 4)
18	6	02		Check the data changes to "01".

Note 4: The adjustment data will be automatically input to page: F, address: 80 to 87 and 8A to 8D.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	2C	00	
3	6	92	00	
4	6	93	00	
5				Release the data setting performed at step 3. (Refer to page 5-13)
6	0	01	00	
7				Remove the C14 filter on the lens.

14. Auto White Balance 5800K Standard Data Input (2)

Adjust the white balance standard data at 5800K.

Mode	CAMERA
Subject	Clear chart (Standard picture frame with the zoom lens at WIDE end)
Filter	Filter C14 for color temperature correction
Adjustment Page	F
Adjustment Address	B6, B7

Note 1: Check that the data of page: 6, address: 02 is "00". If not, turn the power of unit OFF/ON.
Note 2: Refer to "Picture Frame Setting" for YH and YL.
Note 3: "Auto White Balance 5800K Standard Data Input (2)" is available only once after the power is turned on. Turn the power off, then on again if the adjustment is retried.

Adjusting method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter on the lens.
2	0	01	01	
3				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
4	6	2C	01	
5	6	90	00	
6	6	91	00	
7	6	92	YL	(Note 2)
8	6	93	YH	(Note 2)
9	6	01	79	Press PAUSE button.
10	6	07		Check the data changes to "01".
11	6	01	00	Press PAUSE button.
12	6	01	A7	Press PAUSE button.
13	6	13	AB	
14	6	01	D3	Press PAUSE button. (Note 4)
15	6	02		Check the data changes to "01".

Note 4: The adjustment data will be automatically input to page: F, address: B6 and B7.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	13	00	
3	6	2C	00	
4	6	92	00	
5	6	93	00	
6				Release the data setting performed at step 3. (Refer to page 5-13)
7	0	01	00	
8				Remove the C14 filter on the lens.

15. Auto White Balance 5800K Check

Mode	CAMERA	
Subject	Clear chart (Standard picture frame with the zoom lens at WIDE end)	
Filter	Filter C14 for color temperature correction	
Measurement Point	Displayed data of Page: 1 (Note 3)	Video terminal of A/V OUT jack (75 Ω terminated)
Measuring Instrument	Adjusting remote commander	Vectorscope
Specified Value	R ratio: 29E0 to 2B20 B ratio: 5D20 to 5E60	Fig. 5-1-17

Note 1: Check that the data of page: 6, address: 02 is "00".
If not, turn the power of unit OFF/ON.
Note 2: Refer to "Picture Frame Setting" for YH and YL.
Note 3: The right four digits of the page: 1 displayed data of the adjusting remote commander.

1:XX:XX
Displayed data

Checking method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter on the lens.
2	0	01	01	
3				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
4	6	2C	01	
5	6	90	00	
6	6	91	00	
7	6	92	YL	(Note 2)
8	6	93	YH	(Note 2)
9	6	01	79	Press PAUSE button.
10	6	07		Check the data changes to "01".
11	6	01	00	Press PAUSE button.
12	9	B4		Note down the data.
13	9	B4	20	Press PAUSE button.
14	6	01	3F	Press PAUSE button.
15	0	03	04	
16	1			Check that the displayed data (Note 3) satisfied the R ratio specified value.
17	0	03	05	
18	1			Check that the displayed data (Note 3) satisfied the B ratio specified value.
19				Check that the center of the white luminance point within the circle shown Fig 5-1-17.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	9	B4		Set data noted down at step 12, and press PAUSE button.
3	0	03	00	
4	6	2C	00	
5	6	92	00	
6	6	93	00	
7				Release the data setting performed at step 3. (Refer to page 5-13)
8	0	01	00	
9				Remove the C14 filter on the lens.

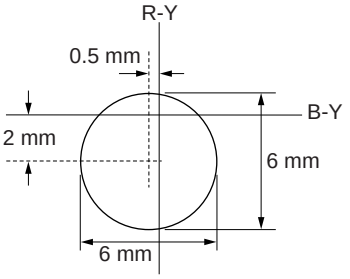


Fig. 5-1-17

16. Color Reproduction Adjustment

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

Mode	CAMERA
Subject	Color bar chart (Standard picture frame with the zoom lens at WIDE end)
Adjustment Page	F
Adjustment Address	94 to 9F

Note 1: Check that the data of page: 6, address: 02 is "00". If not, turn the power of unit OFF/ON.
Note 2: Refer to "Picture Frame Setting" for YH and YL.
Note 3: "Color Reproduction Adjustment" is available only once after the power is turned on. Turn the power off, then on again if the adjustment is retried.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
3	6	2C	01	
4	6	90	00	
5	6	91	00	
6	6	92	YL	(Note 2)
7	6	93	YH	(Note 2)
8	6	01	79	Press PAUSE button.
9	6	07		Check the data changes to "01".
10	6	01	00	Press PAUSE button.
11	6	01	AB	Press PAUSE button.
12	6	12	80	
13				Wait for 1 second.
14	6	12	00	
15				Wait for 2 seconds.
16	6	01	A9	Press PAUSE button. (Note 4)
17	6	02		Check the data changes to "01".

Note 4: The adjustment data will be automatically input to page: F, address: 94 to 9F.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	2C	00	
3	6	92	00	
4	6	93	00	
5				Release the data setting performed at step 2. (Refer to page 5-13)
6	0	01	00	

17. Color Reproduction Check

Mode	CAMERA
Subject	Color bar chart (Standard picture frame with the zoom lens at WIDE end)
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.

Note 1: Check that the data of page: 6, address: 02 is "00". If not, turn the power of unit OFF/ON.
Note 2: Refer to "Picture Frame Setting" for YH and YL.

Checking method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
3	6	2C	01	
4	6	90	00	
5	6	91	00	
6	6	92	YL	(Note 2)
7	6	93	YH	(Note 2)
8	6	01	79	Press PAUSE button.
9	6	07		Check the data changes to "01".
10	6	01	00	Press PAUSE button.
11	6	10	01	
12	9	B4		Note down the data.
13	9	B4	09	Press PAUSE button.
14	6	01	0F	Press PAUSE button.
15	6	12	80	
16				Wait for 1 second.
17	6	12	00	
18				Wait for 2 seconds.
19				Check the each color luminance point is in each color reproduction frame.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	10	00	
3	6	2C	00	
4	6	92	00	
5	6	93	00	
6	9	B4		Set data noted down at step 12, and press PAUSE button.
7				Release the data setting performed at step 2. (Refer to page 5-13)
8	0	01	00	

For NTSC mode

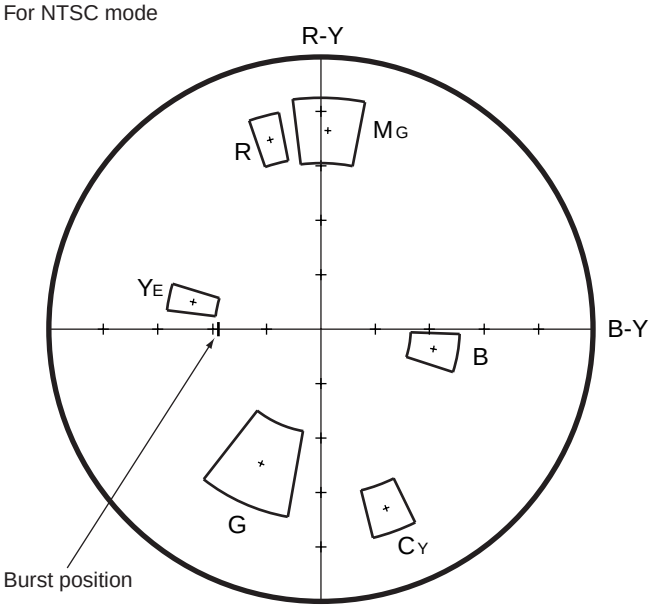


Fig. 5-1-18

For PAL mode

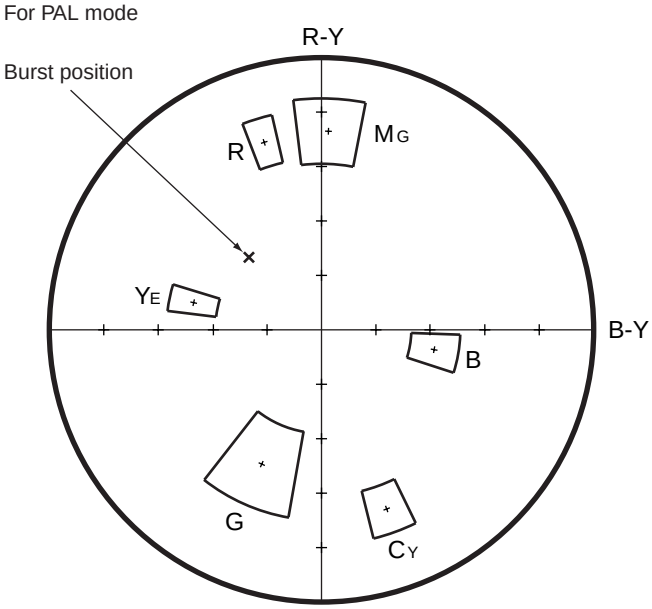


Fig. 5-1-19

18. CCD Black Defect Compensation

Mode	CAMERA	
Subject	Clear chart (Standard picture frame with the zoom lens at WIDE end)	
Measurement Point	Displayed data of page: 6, address: 55	
Measuring Instrument	Adjusting remote commander	
Adjustment Page	7	B
Adjustment Address	EA to FF	D8 to FF

Note 1: Check that the data of page: 6, address: 02 is "00". If not, turn the power of unit OFF/ON.

Note 2: Check that there are no dust, no dirt and reflection of the clear chart.

Note 3: Any subject other than the clear chart should be in the screen.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
3	E	65		Note down the data.
4	E	65	4C	Press PAUSE button.
5	6	2C	01	
6	6	90	00	
7	6	91	03	
8	6	92	00	
9	6	93	00	
10	6	01	79	Press PAUSE button.
11	6	30	01	
12	6	07		Check the data changes to "01".
13	6	01	8D	Press PAUSE button. (Note 4)
14	6	02		Check the data changes to "01".
15	6	55		Check the data. 00: Proceed to "Processing after Completing Adjustment" 01 to 14 : Normal 15 to FF : Defective
16	6	01	00	Press PAUSE button.
17	E	65	5A	Press PAUSE button.
18	6	01	89	Press PAUSE button.
19	6	02		Check the data changes to "01".
20	6	55		Check the data. 00: Normal 01 to FF: Defective

Note 4: The adjustment data will be automatically input to page: 7, address: EA to FF and page: B, address: D8 to FF.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	2C	00	
3	6	30	00	
4	6	91	00	
5	E	65		Set data noted down at step 3, and press PAUSE button.
6				Release the data setting performed at step 2. (Refer to page 5-13)
7	0	01	00	

19. CCD White Defect Compensation

Mode	CAMERA
Subject	Not required
Measurement Point	Displayed data of page: 6, address: 55
Measuring Instrument	Adjusting remote commander
Adjustment Page	B
Adjustment Address	60 to D7

Note 1: Check that the data of page: 6, address: 02 is “00”. If not, turn the power of unit OFF/ON.

Note 2: The“CCD White Defect Compensation” should be made when the set warms up at certain duration after the power was turned on, as it is affected with the temperature.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Perform “Data setting during camera system adjustment”. (Refer to page 5-13)
3	E	64		Note down the data.
4	E	64	1E	Press PAUSE button.
5	E	69		Note down the data.
6	E	69	0B	Press PAUSE button.
7	6	01	8B	Press PAUSE button. (Note 3)
8	6	02		Check the data changes to “01”.
9	6	55		Check the data. 00 to 7F: Normal 80 to FF: Defective
10	6	01	00	Press PAUSE button.
11	E	64	0F	Press PAUSE button.
12	E	69	60	Press PAUSE button.
13	6	01	87	Press PAUSE button.
14	6	02		Check the data changes to “01”.
15	6	55		Check the data. 00: Normal 01 to FF: Defective

Note 3: The adjustment data will be automatically input to page: B, address: 60 to D7.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	E	64		Set data noted down at step 3, and press PAUSE button.
3	E	69		Set data noted down at step 5, and press PAUSE button.
4				Release the data setting performed at step 2. (Refer to page 5-13)
5	0	01	00	

20. Strobe White Balance Adjustment

Adjust the white balance when the strobe light flashed.

Mode	CAMERA
Subject	Flash adjustment box (Note 3) (50 cm from the front of lens)
Measurement Point	Displayed data of page: 1 (Note 4) and page: F, address: E2, E6, EA, EE
Measuring Instrument	Adjusting remote commander
Adjustment Page	F
Adjustment Address	90 to 93, DC to EF
Specified Value	Y level data 1: 07 to 16 Y level data 2: 07 to 10 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: Check that the data of page: 6, address: 02 is "00". If not, turn the power of unit OFF/ON.

Note 2: Perform this adjustment in the Flash adjustment box. Restrict external light to enter the Flash adjustment box as less as possible.

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
- B-Y level data
- R-Y level data

Note 5: "Strobe White Balance Adjustment" is available only once after the power is turned on. Turn the power off, then on again if the adjustment is retried.

Switch setting:

1) FLASH (Control button) ..... ON

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
3	2	04		Set the bit value of bit4 is "1", and press PAUSE button. (Note 6)
4	6	90	00	
5	6	91	00	
6	6	92	FF	
7	6	93	FF	
8	6	6C	01	
9	6	2C	01	
10	6	01	79	Press PAUSE button.
11	6	07		Check the data changes to "01".
12	6	01	67	Press PAUSE button.
13				Check the flashing.
14	6	02		Check the data changes to "01".
15	F	E2		Check that the displayed data satisfies the Y level data 1 specified value.
16	6	01	00	Press PAUSE button.
17	6	01	67	Press PAUSE button.
18				Check the flashing.
19	6	02		Check the data changes to "01".
20	6	01	00	Press PAUSE button.
21	6	01	67	Press PAUSE button.
22				Check the flashing.
23	6	02		Check the data changes to "01".
24	6	01	00	Press PAUSE button.
25	6	01	67	Press PAUSE button.
26				Check the flashing.
27	6	02		Check the data changes to "01".
28	6	01	00	Press PAUSE button.
29	6	01	B9	Press PAUSE button. (Note 7)
30				Check the flashing.
31	6	02		Check the data changes to "01".
32	6	01	00	Press PAUSE button.
33	6	01	E7	Press PAUSE button.
34				Check the flashing.
35	6	02		Check the data changes to "01".
36	F	E6 EA EE		Check that the displayed data satisfies the Y level data 2 specified value.
37	0	03	02	
38	1			Check that the R-Y, B-Y level data (Note 4) satisfies the specified value.

Note 6: For the bit values, refer to "5-2. SERVICE MODE", "2-3. 2. Bit value discrimination"

Note 7: The adjustment data will be automatically input to page: F, address: 90 to 93 and DC to EF.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	2	04		Set the bit value of bit4 is "0", and press PAUSE button. (Note 6)
2	6	01	00	Press PAUSE button.
3	6	2C	00	
4	6	6C	00	
5	6	92	00	
6	6	93	00	
7	0	03	00	
8				Release the data setting performed at step 2. (Refer to page 5-13)
9	0	01	00	

21. Hologram AF Check

Check a deviation of optical axis between AF illuminator and camera image.

Mode	CAMERA
Subject	Flash adjustment box (Note 3) (1 m from the front of lens)
Measurement Point	Check operation on monitor TV
Measuring Instrument	
Specified Value	All luminance points should settle within specification frame.

Note 1: Perform checking by making the shooting surface of the Flash adjustment box perpendicular to the optical axis of the camera.

Note 2: Perform this checking in the Flash adjustment box. Restrict external light to enter the Flash adjustment box as less as possible.

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

Preparation

1) Take a reduced or enlarged copy on the clear sheet so that a rectangular frame of the sheet for auxiliary light is suitable for the effective image size of the monitor.
2) Stick the copied sheet for auxiliary light on the monitor screen.

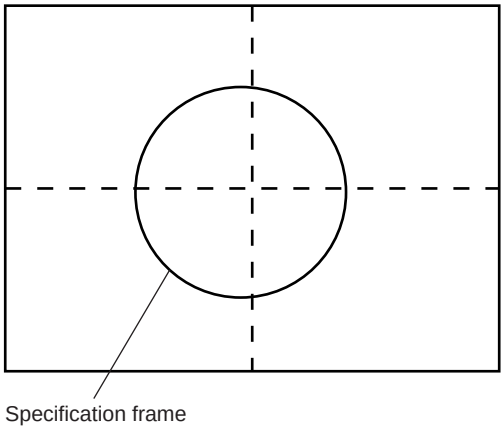


Fig. 5-1-20

Checking method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Perform "Data setting during camera system adjustment". (Refer to page 5-13)
3	B	3D		Note down the data.
4	B	3D	50	Press PAUSE button.
5	6	2C	01	
6	6	90	00	
7	6	91	00	
8	6	92	D0	
9	6	93	5A	
10	6	01	79	Press PAUSE button.
11	6	07		Check the data changes to "01".
12	6	01	00	Press PAUSE button.
13	6	22	05	
14	6	23	0A	
15				Check that the hologram patterns are all within the specification frame. (None of the hologram patterns are completely out of the frame.)

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	B	3D		Set data noted down at step 3, and press PAUSE button.
2	6	01	00	Press PAUSE button.
3	6	22	00	
4	6	23	00	
5	6	2C	00	
6	6	92	00	
7	6	93	00	
8				Release the data setting performed at step 2. (Refer to page 5-13)
9	0	01	00	

1-5. LCD SYSTEM ADJUSTMENTS

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

Note 1: Taken an extreme care not to destroy the liquid crystal display module by static electricity when replacing it.

Note 2: Set the LCD BRIGHTENSS (SET UP setting) to the NORMAL.

[Adjusting connector]

Most of the measuring points for adjusting the LCD system are concentrated in CN305 of the FR-181 board.

Connect the Measuring Instruments via the CPC-12 jig (J-6082-436-A).

The following table shows the Pin No. and signal name of CN305.

Pin No.	Signal Name	Pin No.	Signal Name
1	BL_L1	12	LANC_OUT
2	N.C.	13	MAKER_RECOG
3	N. C.	14	N.C.
4	REG_GND	15	N.C.
5	N. C.	16	N.C.
6	BL_L2	17	N.C.
7	PANEL_HSY	18	N.C.
8	PANEL_COM	19	EVF_BL
9	PANEL_VG	20	EVF_BL_4.75V
10	CPC_UNREG	21	EVF_VG
11	LANC_IN	22	EVF_VCO

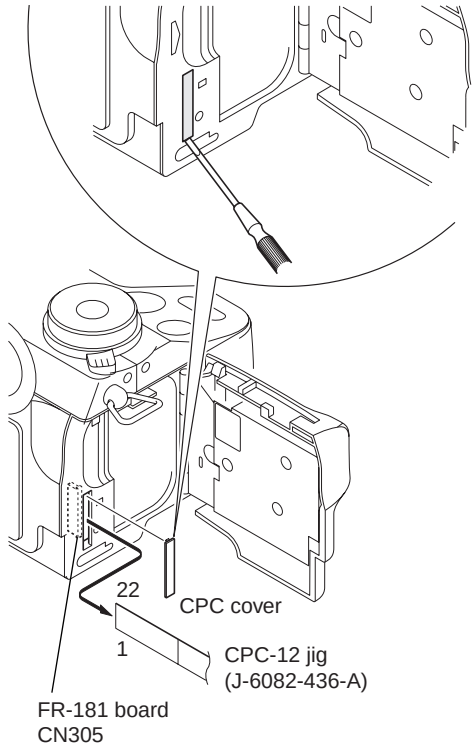


Fig. 5-1-21

1. LCD Initial Data Input (1)

Mode	PLAY
Signal	Arbitrary
Adjustment Page	B
Adjustment Address	3A to 3F

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

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

Address	Data	Remark
3A	57	Fixed data
3B	FE	
3C	02	
3D	5A	
3E	00	
3F	01	

Processing after Completing Adjustments:
1) Select page: 0, address: 01, and set data: 00.

2. LCD Initial Data Input (2)

Mode	PLAY
Signal	Arbitrary
Adjustment Page	D
Adjustment Address	E0 to EF

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 each time the data are set, as the data are written to non-volatile memory (EEPROM).

Address	Data	Remark
E0	E0	Fixed value
E1	3B	
E2	2D	VCO Adjustment (NTSC)
E3	3C	VCO Adjustment (PAL)
E4	63	V-COM Adjustment
E5	56	D Range Adjustment
E6	B8	Fixed value
E7	6B	V-COM Level Adjustment
E8	90	White Balance Adjustment
E9	83	
EA	4A	Contrast Adjustment
EB	00	Fixed value
EC	2F	
ED	31	
EE	80	
EF	00	

Processing after Completing Adjustments:
1) Select page: 0, address: 01, and set data: 00.

3. VCO Adjustment (PD-155 Board)

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

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ⑦ of CN305 on FR-181 board (PANEL_HSY)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	E2 (NTSC) E3 (PAL)
Specified Value	f = 15734 ± 30 Hz (NTSC) f = 16133 ± 30 Hz (PAL)

Menu setting:

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

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	D	1E	10	Press PAUSE button.
3	4	F1	13	
4	D	E2		Change the data and set the frequency (f) to the NTSC specified value.
5	D	E2		Press PAUSE button.
6	D	E3		Change the data and set the frequency (f) to the PAL specified value.
7	D	E3		Press PAUSE button.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	D	1E	01	Press PAUSE button.
2	4	F1	00	
3	0	01	00	

4. D Range Adjustment (PD-155 Board)

Set the D Range of the RGB decoder for driving the LCD to the specified value.
If deviated, the LCD screen image will be blackish or saturated (whitish).

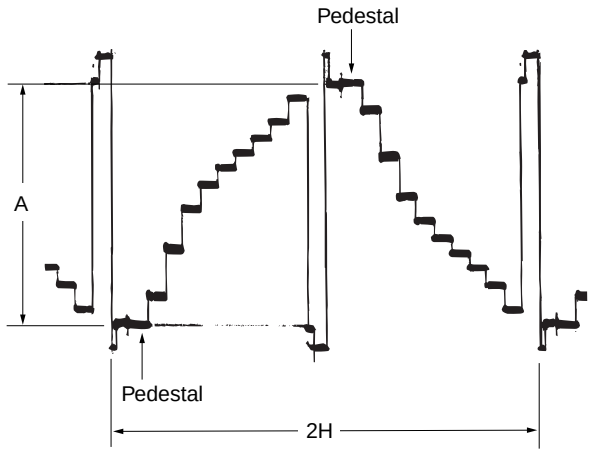
Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ⑨ of CN305 on FR-181 board (PANEL_VG) External trigger: Pin ⑧ of CN305 on FR-181 board (PANEL_COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	E5
Specified Value	A = 2.95 ± 0.05 Vp-p

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	D	1E	10	Press PAUSE button.
3	4	F1	03	
4	D	E5		Change the data and set the voltage (A) to the specified value.
5	D	E5		Press PAUSE button.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	D	1E	01	Press PAUSE button.
2	4	F1	00	
3	0	01	00	



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

Fig. 5-1-22

5. Contrast Adjustment (PD-155 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).

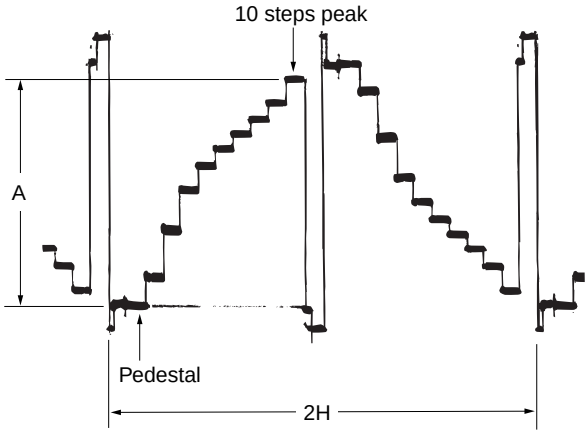
Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ⑨ of CN305 on FR-181 board (PANEL_VG) External trigger: Pin ⑧ of CN305 on FR-181 board (PANEL_COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	EA
Specified Value	A = 2.65 ± 0.07 Vp-p

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	D	1E	10	Press PAUSE button.
3	4	F1	03	
4	D	EA		Change the data and set the voltage (A) to the specified value.
5	D	EA		Press PAUSE button.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	D	1E	01	Press PAUSE button.
2	4	F1	00	
3	0	01	00	



A: Between the pedestal and 10 steps peak

Fig. 5-1-23

6. V-COM Level Adjustment (PD-155 Board)

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

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ⑧ of CN305 on FR-181 board (PANEL_COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	E7
Specified Value	A = 5.42 ± 0.05 Vp-p

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	D	1E	10	Press PAUSE button.
3	4	F1	03	
4	D	E7		Change the data and set the voltage (A) to the specified value.
5	D	E7		Press PAUSE button.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	D	1E	01	Press PAUSE button.
2	4	F1	00	
3	0	01	00	

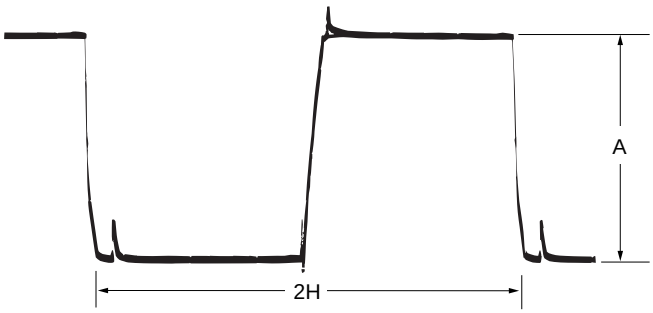


Fig. 5-1-24

7. V-COM Adjustment (PD-155 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	E4
Specified Value	The brightness difference between the section-A and section-B is minimum

Note: Perform "D Range Adjustment", "Contrast Adjustment" and "V-COM Level Adjustment" before this adjustment.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	D	1E	10	Press PAUSE button.
3	4	F1	82	
4	D	E4		Change the data so that brightness of the section A and section B is equal.
5	D	E4		Press PAUSE button.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	D	1E	01	Press PAUSE button.
2	4	F1	00	
3	0	01	00	

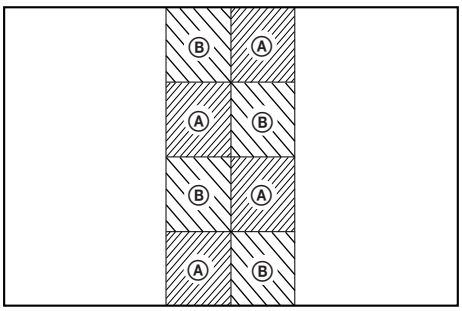


Fig. 5-1-25

8. White Balance Adjustment (PD-155 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	E8, E9
Specified Value	LCD screen must not be colored

Note 1: Check the white balance only when replacing the following parts. If necessary, adjust them.
1. LCD panel
2. Light induction plate
3. IC801

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	D	1E	10	Press PAUSE button.
3	4	F1	02	
4	D	E8 E9	90 83	Press PAUSE button. (Initial value)
5				Check that the LCD screen is not colored. If not colored, proceed to "Processing after Completing Adjustments".
6	D	E8 E9		Change the data so that the LCD screen is not colored. (Note 2)

Note 2: To write in the non-volatile memory (EEPROM), press the PAUSE button each time to set the data.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	D	1E	01	Press PAUSE button.
2	4	F1	00	
3	0	01	00	

1-6. COLOR ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS

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

Note 1: Taken an extreme care not to destroy the liquid crystal display module by static electricity when replacing it.

Note 2: Set the EVF BACKLIGHT (SET UP setting) to the NORMAL.

[Adjusting connector]

Most of the measuring points for adjusting the viewfinder system are concentrated in CN305 of the FR-181 board.

Connect the Measuring Instruments via the CPC-12 jig (J-6082-436-A).

The following table shows the Pin No. and signal name of CN305.

Pin No.	Signal Name	Pin No.	Signal Name
1	BL_L1	12	LANC_OUT
2	N.C.	13	MAKER_RECOG
3	N. C.	14	N.C.
4	REG_GND	15	N.C.
5	N. C.	16	N.C.
6	BL_L2	17	N.C.
7	PANEL_HSY	18	N.C.
8	PANEL_COM	19	EVF_BL
9	PANEL_VG	20	EVF_BL_4.75V
10	CPC_UNREG	21	EVF_VG
11	LANC_IN	22	EVF_VCO

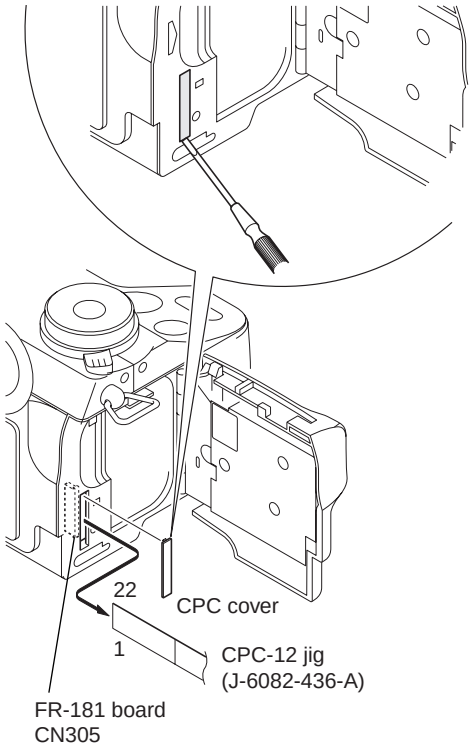


Fig. 5-1-26

1. EVF Initial Data Input

Mode	PLAY
Signal	Arbitrary
Adjustment Page	D
Adjustment Address	F0 to FD

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 each time the data are set, as the data are written to non-volatile memory (EEPROM).

Address	Data	Remark
F0	65	Fixed value
F1	B5	
F2	34	VCO Adjustment (NTSC)
F3	44	VCO Adjustment (PAL)
F4	28	Fixed value
F5	8E	Bright Adjustment
F6	08	Fixed value
F7	80	
F8	94	White Balance Adjustment
F9	82	
FA	30	Contrast Adjustment
FB	1D	Fixed value
FC	2B	
FD	00	

Processing after Completing Adjustments:

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

2. VCO Adjustment (PD-155 Board)

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

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ㉒ of CN305 on FR-181 board (EVF_VCO)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	F2 (NTSC) F3 (PAL)
Specified Value	f = 15734 ± 30 Hz (NTSC) f = 16106 ± 30 Hz (PAL)

Menu setting:

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

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	D	1E	20	Press PAUSE button.
3	4	F1	13	
4	D	F2		Change the data and set the frequency (f) to the NTSC specified value.
5	D	F2		Press PAUSE button.
6	D	F3		Change the data and set the frequency (f) to the PAL specified value.
7	D	F3		Press PAUSE button.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	D	1E	01	Press PAUSE button.
2	4	F1	00	
3	0	01	00	

3. Bright Adjustment (PD-155 Board)

Set the D Range of the RGB decoder for driving the LCD to the specified value.
If deviated, the EVF screen image will be blackish or saturated (whitish).

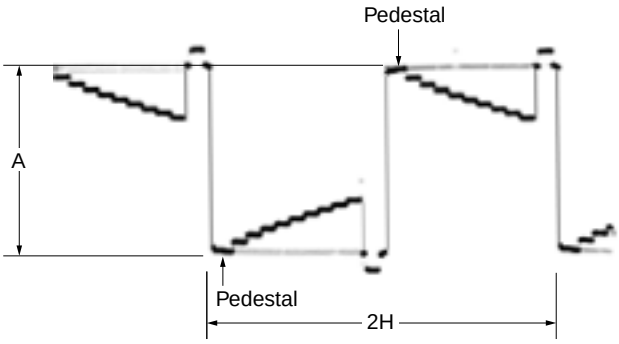
Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ㉑ of CN305 on FR-181 board (EVF_VG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	F5
Specified Value	A = 6.76 ± 0.10 Vp-p

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	D	1E	20	Press PAUSE button.
3	4	F1	03	
4	D	F5		Change the data and set the voltage (A) to the specified value.
5	D	F5		Press PAUSE button.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	D	1E	01	Press PAUSE button.
2	4	F1	00	
3	0	01	00	



A: Between the reversed waveform pedestal and non-reversed waveform pedestal

Fig. 5-1-27

4. Contrast Adjustment (PD-155 Board)

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

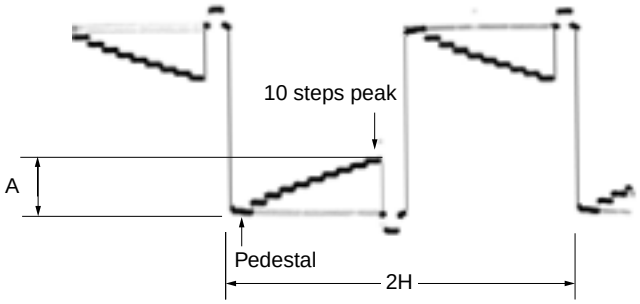
Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ㉑ of CN305 on FR-181 board (EVF_VG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	FA
Specified Value	A = 2.12 ± 0.10 Vp-p

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	D	1E	20	Press PAUSE button.
3	4	F1	03	
4	D	FA		Change the data and set the voltage (A) to the specified value.
5	D	FA		Press PAUSE button.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	D	1E	01	Press PAUSE button.
2	4	F1	00	
3	0	01	00	



A: Between the pedestal and 10 steps peak

Fig. 5-1-28

5. White Balance Adjustment (PD-155 Board)

Correct the white balance.
If deviated, the EVF screen color cannot be reproduced.

Mode	PLAY
Signal	Arbitrary
Measurement Point	Check on EVF screen
Measuring Instrument	
Adjustment Page	D
Adjustment Address	F8, F9
Specified Value	EVF screen must not be colored

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	D	1E	20	Press PAUSE button.
3	4	F1	02	
4	D	F8 F9	94 82	Press PAUSE button. (Initial value)
5				Check that the EVF screen is not colored. If not colored, proceed to “Processing after Completing Adjustments”.
6	D	F8 F9		Change the data so that the EVF screen is not colored. (Note)

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

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	D	1E	01	Press PAUSE button.
2	4	F1	00	
3	0	01	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 the Adjusting Remote Commander

1) Connect the adjusting remote commander to CN305 on the FR-181 board via CPC-12 jig (J-6082-436-A).
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.

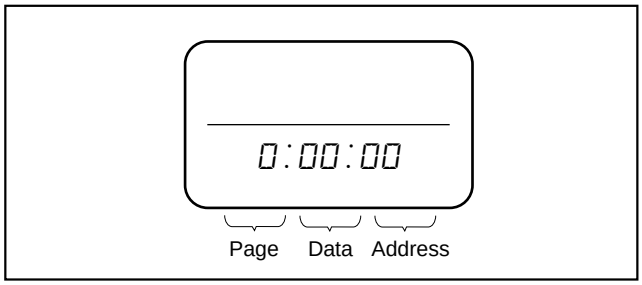


Fig. 5-2-1

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 nontation-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 (A)	B (b)	C (c)	D (d) ②	E (E)	F (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 the① 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

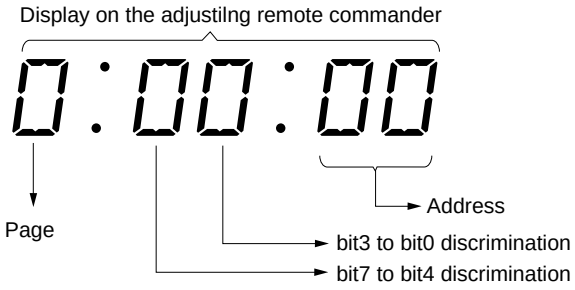
Page D	Address 10

Data	Function
00	Normal
01	Forced CAMERA 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 (A)	1	0	1	0
	B (b)	1	0	1	1
	C (c)	1	1	0	0
	D (d)	1	1	0	1
Ⓑ	E (E)	1	1	1	0
	F (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. Mode Dial Check (1)

Page 2	Address 94

Data	Function
00 to 14	S
15 to 3D	A
3E to 67	M
68 to A8	SCN
A9 to D0	MOVIE
D1 to FF	CAMERA

Using method:
1) Select page: 2, address: 94.
2) By discriminating the bit value of dispaly data, the state of the switches can be discriminated.

4. Mode Dial Check (2)

Page 2	Address 80, 86

Address	Bit	Function	When bit value=1	When bit value=0
80	1	PLAY	others	PLAY
86	6	SET UP	others	SET UP

Using method:
1) Select page: 2, address: 80 and 86.
2) By discriminating the bit value of dispaly data, the state of the switches can be discriminated.

5. Zoom Key Check

Page 2	Address 95

Data	Function
01 to 39	WIDE (FAST)
3A to 6F	WIDE (SLOW)
70 to 90	ZOOM STOP
91 to C6	TELE (SLOW)
C7 to FF	TELE (FAST)

Using method:
1) Select page: 2, address: 95.
2) By discriminating the bit value of dispaly data, the state of the switches can be discriminated.

6. Jog Dial Check

Page 2	Address 84

Using method:
1) Select page: 2, address: 84.
2) Turn down the dial and check that number of units of the data is changed as
   $0 \rightarrow 8 \rightarrow C \rightarrow 4 \rightarrow 0 \rightarrow$ .....
3) Turn up the dial and check that number of unit of the data is changed as
   $0 \rightarrow 4 \rightarrow C \rightarrow 8 \rightarrow 0 \rightarrow$ .....

7. Switch Check (1)

Page 2	Address 80

Bit	Function	When bit value=1	When bit value=0
0	POWER SW	OFF	ON
1	PLAY (Mode Dial)	others	PLAY
2			
3	SHUTTR SW (PW50780 block S401)	OFF	ON
4	XSHUTTER LOCK SW (PW50780 block S401)	OFF	ON
5	MEMORY STICK IN SW (MS Socket)	OUT	IN

Using method:
1) Select page: 2, address: 80.
2) By discriminating the bit value of dispaly data, the state of the switches can be discriminated.

8. Switch Check (2)

Page 2	Address 90 to 93

Using method:

1) Select page: 2, addresses: 90 to 93.
2) By discriminating the dispaly data, the pressed key can be discriminated.

Address	Data						
	00 to 0C	0D to 27	28 to 48	49 to 74	75 to A6	A7 to DD	DE to FF
90 (KEY AD0) (IC102 ⑫)	CONTROL DOWN (SW-362 board) (S353)	CONTROL UP (SW-362 board) (S353)	MENU (SW-362 board) (S352)	INDEX (SW-362 board) (S351)		FINEDER (SW-362 board) (S354)	LCD (SW-362 board) (S354)
91 (KEY AD1) (IC102 ⑬)	CONTROL RIGHT (SW-362 board) (S353)	CONTROL LEFT (SW-362 board) (S353)	CONTROL SET (SW-362 board) (S353)	DISPLAY (SW-362 board) (S355)			No key input
92 (KEY AD2) (IC102 ⑭)	AE LOCK (CF50780 block) (S301)	SPOT METER (CF50780 block) (S302)	ONE-PUSH WHITE BALANCE (CF50780 block) (S303)	WHT BAL (CF50780 block) (S304)		FOCUS MANUAL (CF50780 block) (S305)	FOCUS AUTO (CF50780 block) (S305)
93 (KEY AD3) (IC102 ⑮)	+/– (EXPOSURE) (PW50780 block) (S404)	JOG DIAL EXECUTE (PW50780 block) (S406)			NIGHT SHOT ON (TY-010 block) (S301)	NIGHT FRAMING ON (TY-010 block) (S301)	NIGHT SHOT NIGHT FRAMING OFF (TY-010 block) (S301)

9. LED Check

Page 2	Address 04	Data 01

Using method:

1) Select page: 2, address: 04, set data: 01, and press PAUSE button.
2) Check that all LED are lit.
   (SELF TIMER/REC, POWER, CHG, ACCESS LED)
3) Select page: 2, address: 04, set data: 00, and press PAUSE button.

10. Self Diagnosis Code

Display Code	Countermeasure	Cause	Caution Display During Error
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:□□	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.	

SECTION 6
REPAIR PARTS LIST

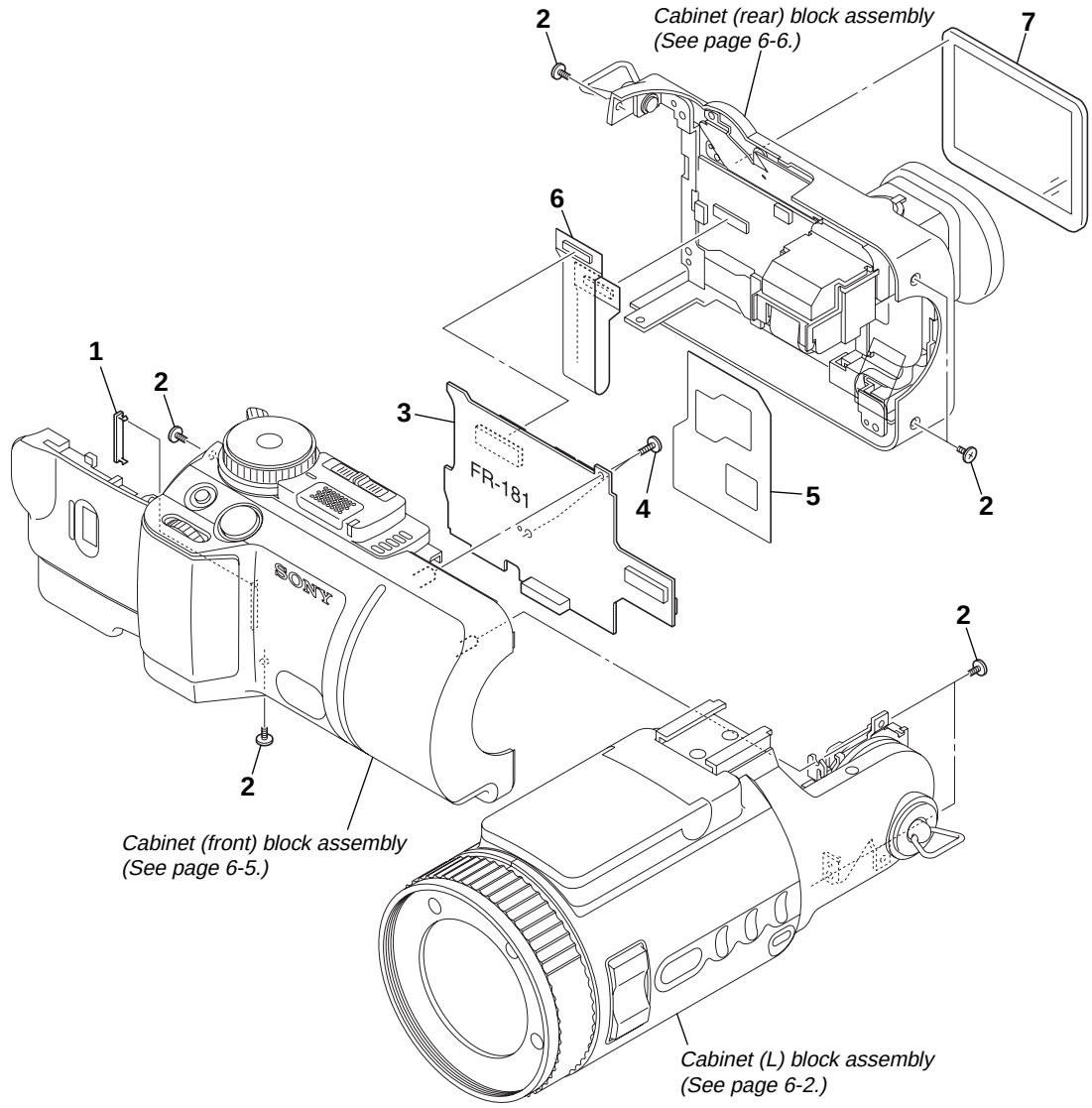
6-1. EXPLODED VIEWS

NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories are given in the last of the electrical parts list.

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

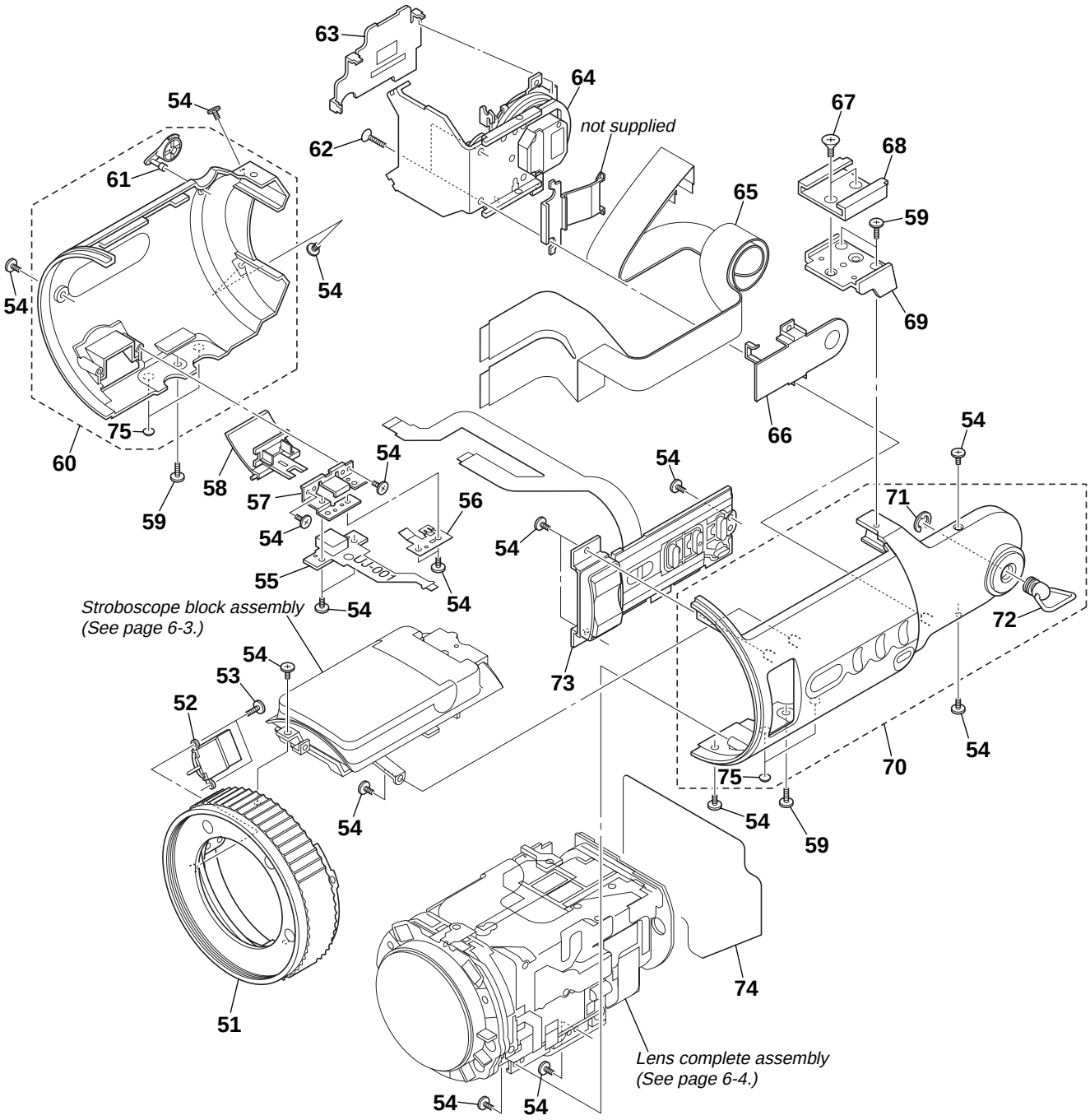
Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

6-1-1. MAIN SECTION



Ref. No.	Part No.	Description	Remark
1	3-064-225-11	LID, CPC	
2	3-989-735-51	SCREW (M1.7), LOCK ACE, P2	
3	A-7074-991-A	FR-181 BOARD, COMPLETE	
4	3-072-498-01	SCREW (DIA. 1.7X4.5), PRECISION	
5	3-071-144-01	SPACER (FR)	
6	1-683-097-21	FP-423 FLEXIBLE BOARD	
7	3-071-282-01	WINDOW, LCD	

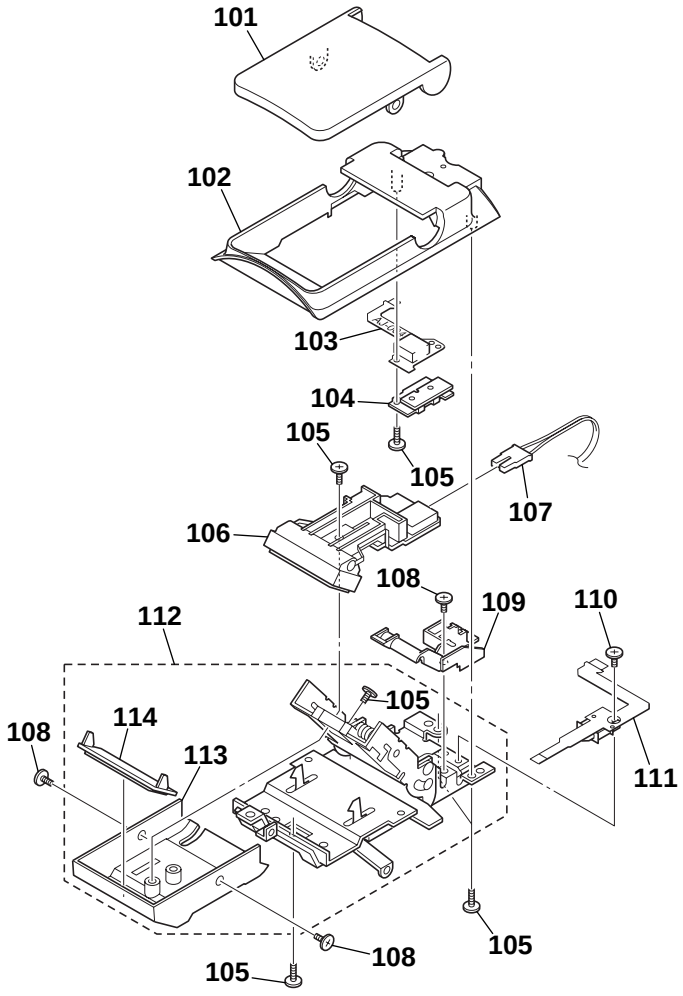
6-1-2. CABINET (L) BLOCK ASSEMBLY



Ref. No.	Part No.	Description	Remark
51	X-3952-003-1	CABINET (MF) ASSY	
52	1-476-956-11	FOCUS BLOCK, MANUAL	
53	3-072-498-01	SCREW (DIA. 1.7X4.5), PRECISION	
54	3-989-735-51	SCREW (M1.7), LOCK ACE, P2	
55	A-7074-998-A	UJ-001 BOARD, COMPLETE	
56	3-071-346-01	SPRING, USB COVER	
57	3-071-264-01	FRAME, USB	
58	X-3952-005-1	COVER ASSY, USB	
59	3-072-453-01	SCREW (M2), EG GRIP, P2	
60	X-3952-004-1	CABINET (LL) ASSY	
61	3-071-262-01	CAP, ACC	
62	3-071-350-01	SCREW (M1.7), PLATE SMALL	
63	3-071-326-01	HOLDER, FP	

Ref. No.	Part No.	Description	Remark
64	X-3952-012-1	HINGE ASSY	
65	1-683-095-11	FP-421 FLEXIBLE BOARD	
66	3-071-347-01	GUARD (L), FP	
67	3-072-452-01	EG GRIP, +K SCREW (M2)	
68	3-067-469-11	SHOE, ACCESSORY	
69	3-071-360-01	HOLDER, SHOE	
70	X-3952-014-1	CABINET (LR) ASSY	
71	7-624-106-04	STOP RING 3.0, TYPE -E	
72	3-068-615-01	SHAFT (S), STRAP	
73	1-476-954-11	SWITCH BLOCK, CONTROL (CF50780)	
74	3-071-340-01	GUARD (CD), FP	
75	3-051-124-01	FOOT, RUBBER	

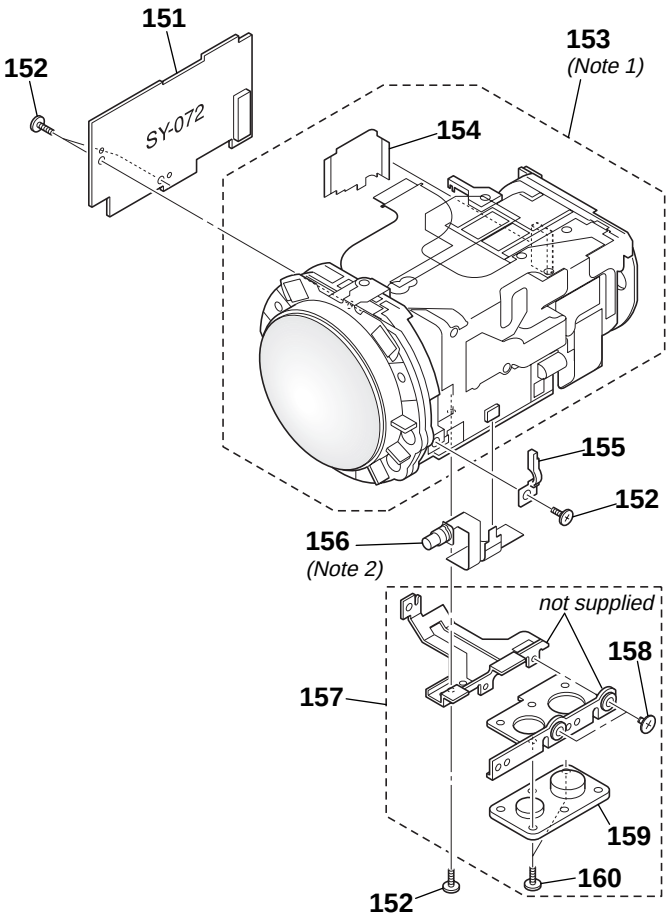
6-1-3. STROBOSCOPE BLOCK ASSEMBLY



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.

Ref. No.	Part No.	Description	Remark
101	3-071-154-01	CABINET (ST)	
102	3-071-261-01	CABINET (LST)	
103	A-7074-996-A	AJ-004 BOARD, COMPLETE	
104	3-071-263-01	FRAME, ACC	
105	3-072-498-01	SCREW (DIA. 1.7X4.5), PRECISION	
⚠106	1-476-952-11	FLASH UNIT	
107	1-961-413-11	HARNESS, PT-130	
108	3-989-735-51	SCREW (M1.7), LOCK ACE, P2	
109	3-071-309-01	ARM, ST SWITCH	
110	3-703-816-72	SCREW (M1.4X3.0), SPECIAL HEAD	
111	1-683-100-11	FP-448 FLEXIBLE BOARD	
112	X-3952-002-1	SHEET METAL ASSY, ST	
113	3-071-155-01	CABINET (SB)	
114	3-056-762-01	COVER, ST	

6-1-4. LENS COMPLETE ASSEMBLY



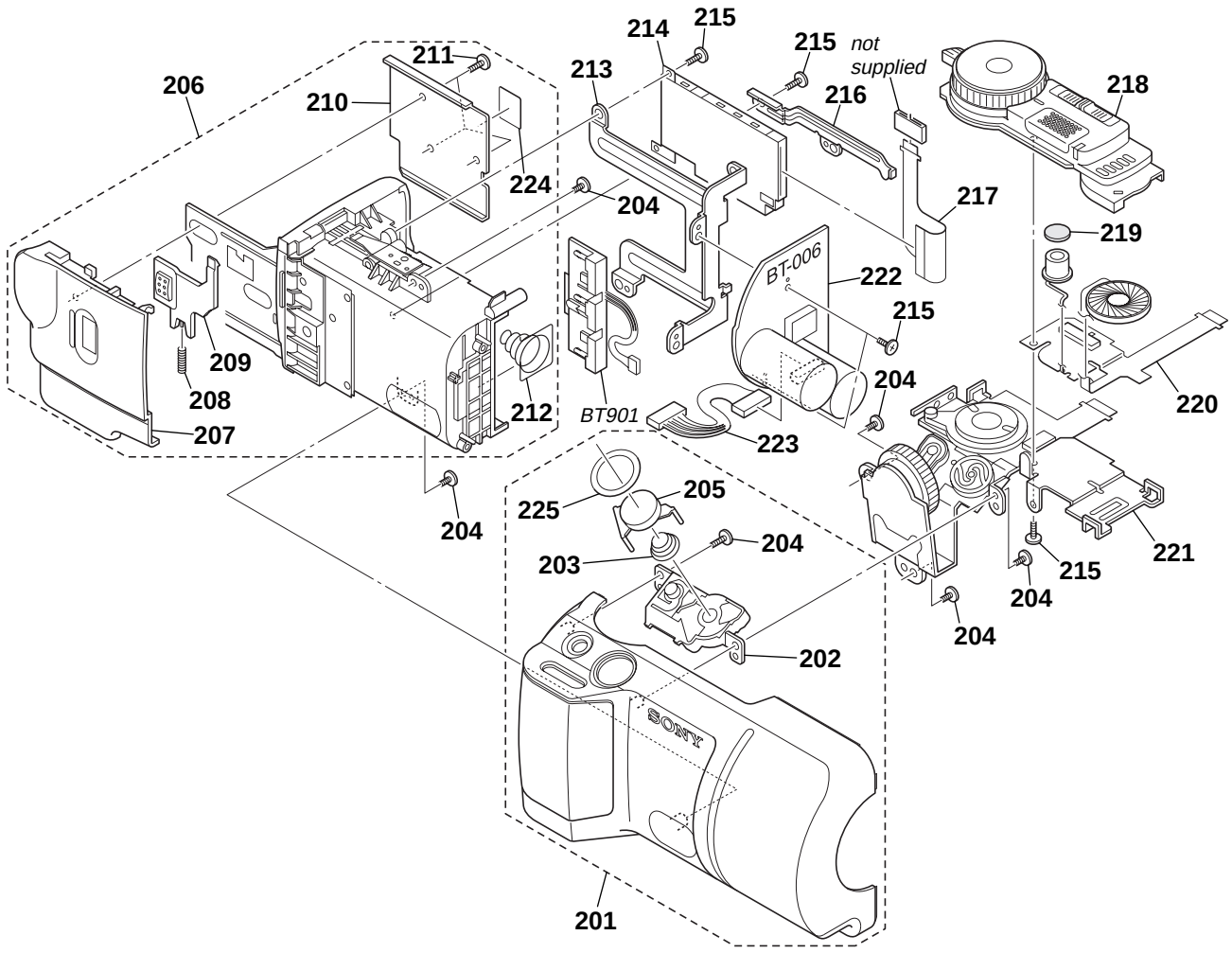
(Note 1)	The lens block assembly is a mechanical unit which has completely been adjusted in the factroy. So never disassemble the lens block assembly.

(Note 2)	Be sure to read “PRECAUTIONS FOR USE OF LASER UNIT” on page 6 when removing the laser unit and FP-425 flexible board.

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.

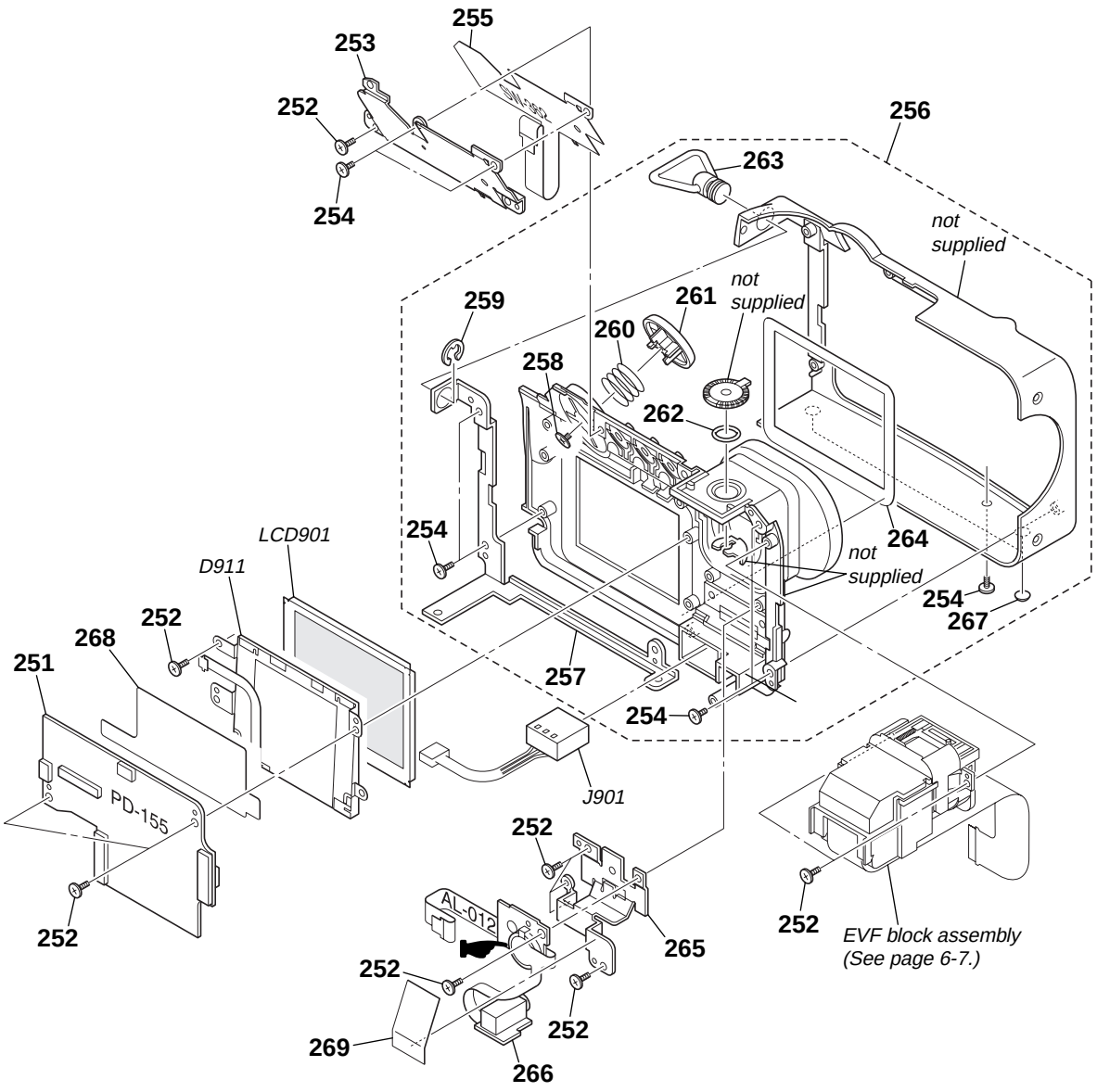
Ref. No.	Part No.	Description	Remark
151	A-7096-972-A	SY-072 BOARD, COMPLETE (SERVICE)	
152	3-072-498-01	SCREW (DIA. 1.7X4.5), PRECISION	
153	A-7031-349-A	LENS (CZ) BLOCK ASSY (Note 1)	
154	1-683-096-11	FP-422 FLEXIBLE BOARD	
155	3-071-332-01	HOLDER, AF	
156	A-7012-076-A	FP-425 COMPLETE ASSY (SERVICE) (Note 2)	
157	X-3952-006-1	FRAME ASSY, LENS	
158	3-064-215-01	SCREW (M1.7), STEP	
159	3-056-700-02	PLATE, TRIPOD	
160	3-968-729-71	SCREW (M2), LOCK ACE, P2	

6-1-5. CABINET (FRONT) BLOCK ASSEMBLY



Ref. No.	Part No.	Description	Remark
201	X-3952-010-1	CABINET (FRONT) ASSY, P	
202	3-071-306-01	HOLDER, RELEASE	
203	3-071-329-01	SPRING, RELEASE	
204	3-989-735-51	SCREW (M1.7), LOCK ACE, P2	
205	3-071-307-01	BUTTON, RELEASE	
206	X-3952-009-1	HOLDER ASSY, BT	
207	3-071-296-01	LID, BT	
208	3-050-594-01	SPRING, COMPRESSION	
209	3-071-300-01	KNOB, BT RELEASE	
210	3-071-301-01	RETAINER, BT LID	
211	3-736-363-41	TAPPING	
212	3-969-380-11	SPRING, BATTERY	
213	3-071-290-01	RETAINER, BT TERMINAL	
214	1-815-853-11	CONNECTOR, MEMORY STICK	
215	3-072-498-01	SCREW (DIA. 1.7X4.5), PRECISION	
216	3-071-337-01	RETAINER, MS	
217	1-683-098-11	FP-424 FLEXIBLE BOARD	
218	X-3952-011-1	CABINET (UPPER) ASSY	
219	3-055-971-11	CUSHION, MICROPHONE	
220	1-476-955-11	MIC/SPEAKER UNIT (TY-010)	
221	1-476-953-11	SWITCH BLOCK, CONTROL (PW50780)	
222	A-7074-993-A	BT-006 BOARD, COMPLETE	
223	1-961-412-11	HARNESS, PT-129	
224	3-057-696-01	LABEL, MS CAUTION	
225	3-072-400-01	SHEET, RELEASE	
BT901	1-694-796-21	TERMINAL BOARD, BATTERY	

6-1-6. CABINET (REAR) BLOCK ASSEMBLY



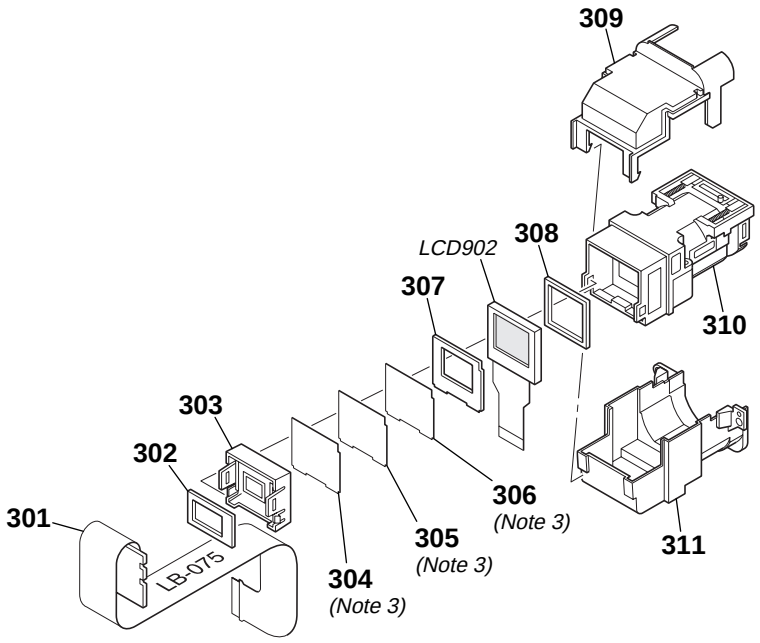
☛ : *BT201 (BATTERY, LITHIUM SECONDARY)*
Board on the mount position. (See page 4-61.)

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.

Ref. No.	Part No.	Description	Remark
251	A-7074-992-A	PD-155 BOARD, COMPLETE	
252	3-072-498-01	SCREW (DIA. 1.7X4.5), PRECISION	
253	3-071-318-01	SHEET METAL, SW	
254	3-989-735-51	SCREW (M1.7), LOCK ACE, P2	
255	A-7074-999-A	SW-362 BOARD, COMPLETE	
256	X-3952-008-1	CABINET (REAR) ASSY, P	
257	3-071-275-01	JOINT, CABINET	
258	3-065-177-01	SCREW (1.7X3)	
259	7-624-106-04	STOP RING 3.0, TYPE -E	
260	3-071-338-01	SPRING, F BUTTON	
261	3-064-247-01	BUTTON, FUNCTION	

Ref. No.	Part No.	Description	Remark
262	3-950-044-01	RING, O	
263	3-068-615-01	SHAFT (S), STRAP	
264	3-071-283-01	SHEET (LCD), ADHESIVE	
265	X-3952-013-1	RETAINER ASSY, DA	
266	A-7074-997-A	AL-012 BOARD, COMPLETE	
267	3-051-124-01	FOOT, RUBBER	
268	3-072-398-01	SHEET, LIGHT INTERCEPTION	
269	3-072-397-01	SHEET, AL PROTECTION	
⚠D911	1-476-947-11	BLOCK, LIGHT GUIDE PLATE	
J901	1-785-247-41	CONNECTOR, DC-IN	
LCD901	1-804-546-21	INDICATOR MODULE, LIQUID CRYSTAL	

6-1-7. EVF BLOCK ASSEMBLY



(Note 3) Because a coating has been done in special liquid, do not touch absolutely.
When the saliva, the dactylogram and so on adhere, it is not possible to remove the stains.

Ref. No.	Part No.	Description	Remark
301	A-7078-004-A	LB-075 BOARD, COMPLETE	
302	3-071-288-01	CUSHION, LAMP	
303	3-071-285-01	GUIDE, LAMP	
304	3-065-059-01	ILLUMINATOR (1)	
305	3-065-060-01	SHEET (1) (138), PRISM	
306	3-065-061-01	SHEET (2) (138), PRISM	
307	3-065-062-01	CUSHION (138), LCD	
* 308	3-063-519-01	CUSHION (A), LCD	
309	3-071-286-01	COVER (A), EVF	
310	X-3952-007-1	EVF ASSY	
311	3-071-287-01	COVER (B), EVF	
LCD902	8-753-028-54	LCX033AN-1	

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
  CN : Chinese model
  CND : Canadian model
  HK : Hong Kong model
  J : Japanese model
  JE : Tourist model
  KR : Korea 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. . : µA. . uPA. . : µPA. .
  uPB. . : µPB. . uPC. . : µPC. .
  uPD. . : µPD. .
- CAPACITORS
  uF: µF
- COILS
  uH: µH

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 critiquens 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
	A-7074-996-A	AJ-004 BOARD, COMPLETE			
		**********			
		(Ref.No.: 6,000 Series)			
		< DIODE >			
D151	8-719-073-01	DIODE MA111- (K8).S0			
D153	8-719-075-15	DIODE MAZT082H08S0			
		< FERRITE BEAD >			
FB151	1-469-179-21	FERRITE 0uH			
		< JACK >			
J151	1-794-666-31	JACK (ACC)			
	A-7074-997-A	AL-012 BOARD, COMPLETE			
		**********			
		(Ref.No.: 3,000 Series)			
		< BATTERY >			
BT201	1-756-191-11	BATTERY, LITHIUM (SECONDARY)			
		< DIODE >			
D204	8-719-073-01	DIODE MA111- (K8).S0			
		< FERRITE BEAD >			
FB202	1-500-444-11	FERRITE 0uH			
		< JACK >			
J201	1-569-950-31	JACK (SMALL TYPE) (A/V OUT (MONO))			
		< RESISTOR >			
R201	1-216-821-11	METAL CHIP	1K	5%	1/16W
R202	1-216-864-11	METAL CHIP	0	5%	1/16W
R203	1-216-295-91	SHORT	0		
R204	1-216-864-11	METAL CHIP	0	5%	1/16W

Ref. No.	Part No.	Description				Remark
	A-7074-993-A	BT-006 BOARD, COMPLETE				
		**********				
		(Ref.No.: 3,000 Series)				
		< CAPACITOR >				
C403	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V	
C404	1-104-913-11	TANTAL. CHIP	10uF	20%	16V	
C406	1-135-957-91	TANTAL. CHIP	10uF	20%	16V	
C407	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V	
C408	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C409	1-104-913-11	TANTAL. CHIP	10uF	20%	16V	
C410	1-104-913-11	TANTAL. CHIP	10uF	20%	16V	
C411	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	
C412	1-104-913-11	TANTAL. CHIP	10uF	20%	16V	
C413	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	
⚠C414	1-165-806-11	ELECT	120uF		310V	
⚠C415	1-165-806-11	ELECT	120uF		310V	
C416	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V	
		< CONNECTOR >				
CN401	1-691-550-11	PIN, CONNECTOR (1.5mm) (SMD) 3P				
CN402	1-691-550-51	PIN, CONNECTOR (1.5mm) (SMD) 3P				
CN403	1-778-965-21	CONNECTOR 12P				
CN404	1-816-059-11	PIN, CONNECTOR (2P)				
		< DIODE >				
D401	8-719-075-15	DIODE MAZT082H08S0				
D402	8-719-158-49	DIODE RD12SB2				
D403	8-719-027-76	DIODE 1SS357-TPH3				
D404	8-719-073-01	DIODE MA111- (K8).S0				
⚠D405	8-719-083-17	DIODE HAU140C029TP				
		< FUSE >				
⚠F401	1-576-406-21	FUSE, MICRO (1608) (1.4A/32V)				
⚠F402	1-576-406-21	FUSE, MICRO (1608) (1.4A/32V)				
⚠F403	1-576-406-21	FUSE, MICRO (1608) (1.4A/32V)				
⚠F404	1-576-406-21	FUSE, MICRO (1608) (1.4A/32V)				
⚠F405	1-576-406-21	FUSE, MICRO (1608) (1.4A/32V)				
		< FERRITE BEAD >				
FB401	1-414-228-11	FERRITE 0uH				

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.

Ref. No.	Part No.	Description			Remark
		< COIL >			
L401	1-412-027-11	INDUCTOR	2.2uH		
		< LINE FILTER >			
LF401	1-411-957-11	FILTER, COMMON MODE			
		< TRANSISTOR >			
Q401	8-729-047-68	TRANSISTOR	SSM3K03FE (TPL3)		
Q402	8-729-051-49	TRANSISTOR	TPC8305 (TE12L)		
Q403	8-729-804-41	TRANSISTOR	2SB1122-S		
Q404	8-729-037-74	TRANSISTOR	UN9213J- (TX).SO		
Q405	8-729-037-74	TRANSISTOR	UN9213J- (TX).SO		
Q406	8-729-048-75	TRANSISTOR	CPH3109-TL		
Q408	8-729-422-87	TRANSISTOR	2SB1073-R		
Q409	8-729-426-24	TRANSISTOR	XP1211-TXE		
		< RESISTOR >			
R402	1-216-295-91	SHORT	0		
R403	1-218-953-11	RES-CHIP	1K	5%	1/16W
R404	1-218-985-11	RES-CHIP	470K	5%	1/16W
R405	1-218-989-11	RES-CHIP	1M	5%	1/16W
R406	1-216-150-91	RES-CHIP	10	5%	1/8W
R407	1-218-953-11	RES-CHIP	1K	5%	1/16W
R408	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R409	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R410	1-218-977-11	RES-CHIP	100K	5%	1/16W
R411	1-216-809-11	METAL CHIP	100	5%	1/16W
R412	1-218-937-11	RES-CHIP	47	5%	1/16W
R413	1-218-969-11	RES-CHIP	22K	5%	1/16W
R414	1-218-966-11	RES-CHIP	12K	5%	1/16W
R415	1-218-951-11	RES-CHIP	680	5%	1/16W
R416	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
		< TRANSFORMER >			
⚠T401	1-437-532-11	TRANSFORMER, DC-DC CONVERTER			

CD-355 BOARD

****

(Ref.No.: 5,000 Series)

Note: The parts mounted on this board are not supplied individually for service. These are included in the LENS BLOCK ASSY (A-7031-349-A)

A-7074-991-A FR-181 BOARD, COMPLETE

****

(Ref.No.: 2,000 Series)

< CAPACITOR >

C001	1-164-880-11	CERAMIC CHIP	180PF	5%	16V
C002	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C003	1-104-700-11	CERAMIC CHIP	0.027uF	10%	16V
C004	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C005	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C006	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C007	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C008	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C010	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C011	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C012	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C014	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C015	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C016	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C017	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C018	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C019	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C020	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C021	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C022	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C023	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C024	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C025	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C026	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C027	1-128-643-11	CERAMIC CHIP	4.7uF (3216)		
C028	1-115-565-11	CERAMIC CHIP	2.2uF	10%	10V
C029	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C030	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C031	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C032	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C033	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C034	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C035	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C036	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C037	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C038	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C039	1-113-987-11	TANTAL. CHIP	4.7uF	20%	25V
C040	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C041	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C042	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C043	1-135-957-91	TANTAL. CHIP	10uF	20%	16V
C044	1-107-687-11	TANTAL. CHIP	3.3uF	20%	20V
C045	1-113-986-11	TANTAL. CHIP	2.2uF	20%	25V
C046	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C047	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C101	1-135-957-91	TANTAL. CHIP	10uF	20%	16V
C102	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C103	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C104	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C105	1-135-957-91	TANTAL. CHIP	10uF	20%	16V
C106	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C107	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C108	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C109	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C110	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C111	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C112	1-164-852-11	CERAMIC CHIP	12PF	5%	16V
C113	1-164-850-11	CERAMIC CHIP	10PF	5%	16V
C114	1-127-578-91	TANTAL. CHIP	3.3uF	20%	6.3V
C115	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C116	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C117	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C118	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C119	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C120	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V

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.

Ref. No.	Part No.	Description			Remark
C121	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C122	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C124	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C125	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C126	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C127	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C128	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C202	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C203	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C204	1-127-569-91	TANTAL. CHIP	100uF	20%	4V
C205	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C206	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C207	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C255	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C256	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C257	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C258	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C259	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C260	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C262	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C263	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C264	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C265	1-117-920-11	TANTAL. CHIP	10uF	20%	6.3V
C266	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C267	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C268	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C269	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C270	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C271	1-117-920-11	TANTAL. CHIP	10uF	20%	6.3V
C272	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C273	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C274	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C275	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C276	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C277	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C278	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C279	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C280	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C281	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C282	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C283	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C284	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C285	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C287	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C288	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C289	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C290	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C291	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C301	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C302	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
		< CONNECTOR >			
CN001	1-778-965-21	CONNECTOR 12P			
CN301	1-784-423-21	CONNECTOR, FPC (ZIF) 39P			
CN302	1-816-058-11	CONNECTOR, FPC (ZIF) 39P			
CN304	1-816-060-11	CONNECTOR, FFC/FPC (NON-ZIF)			
CN305	1-766-352-21	CONNECTOR, FFC/FPC 22P			
CN306	1-815-343-11	CONNECTOR, FFC/FPC 14P			
CN307	1-794-767-11	CONNECTOR, FFC/FPC (LIF) 10P			
CN308	1-778-597-21	CONNECTOR, BOARD TO BOARD 50P			

Ref. No.	Part No.	Description	Remark
		< DIODE >	
D001	8-719-058-24	DIODE RB501V-40TE-17	
D002	8-719-027-77	DIODE MA796	
D003	8-719-058-24	DIODE RB501V-40TE-17	
D004	8-719-058-24	DIODE RB501V-40TE-17	
D101	8-719-073-01	DIODE MA111- (K8).S0	
D102	8-719-071-45	DIODE MA116- (TX).SO	
D103	8-719-071-45	DIODE MA116- (TX).SO	
D104	8-719-027-76	DIODE 1SS357-TPH3	
D105	8-719-073-01	DIODE MA111- (K8).S0	
D106	8-719-073-01	DIODE MA111- (K8).S0	
D107	8-719-073-01	DIODE MA111- (K8).S0	
D108	8-719-073-03	DIODE MA8082- (K8).S0	
D301	8-719-073-01	DIODE MA111- (K8).S0	
D302	8-719-077-09	DIODE CL-196HR-CD-T (ACCESS LED (RED))	
D303	8-719-075-15	DIODE MAZT082H08S0	
D304	8-719-075-15	DIODE MAZT082H08S0	
D305	8-719-075-15	DIODE MAZT082H08S0	
D306	8-719-075-15	DIODE MAZT082H08S0	
D307	8-719-075-15	DIODE MAZT082H08S0	
D308	8-719-073-03	DIODE MA8082- (K8).S0	
		< IC >	
IC001	8-759-491-22	IC MB3825APFV-G-BND-ER	
IC101	8-759-642-45	IC TL1596CPWR	
IC102	6-800-828-01	IC MB89098RPFV-G-178-BND	
IC103	6-700-076-01	IC S-8423BBFS-T2	
IC201	6-700-428-01	IC NJM2574RB1 (TE2)	
IC251	8-759-655-17	IC AN2905FHQ-EB	
		< COIL >	
L001	1-419-387-21	INDUCTOR 100uH	
L002	1-419-368-21	INDUCTOR 47uH	
L003	1-416-669-11	INDUCTOR 22uH	
L004	1-416-669-11	INDUCTOR 22uH	
L005	1-469-552-21	INDUCTOR 3.3uH	
L006	1-419-368-21	INDUCTOR 47uH	
L007	1-469-845-11	INDUCTOR 4.7uH	
L008	1-469-845-11	INDUCTOR 4.7uH	
L009	1-469-549-21	INDUCTOR 1uH	
L010	1-469-552-21	INDUCTOR 3.3uH	
L011	1-469-552-21	INDUCTOR 3.3uH	
L012	1-469-846-21	INDUCTOR 47uH	
L013	1-414-406-11	INDUCTOR 220uH	
L014	1-469-845-11	INDUCTOR 4.7uH	
L101	1-469-559-21	INDUCTOR 47uH	
L201	1-469-757-21	INDUCTOR 10uH	
L251	1-469-757-21	INDUCTOR 10uH	
L252	1-469-757-21	INDUCTOR 10uH	
L253	1-469-555-21	INDUCTOR 10uH	
		< TRANSISTOR >	
Q001	8-729-037-74	TRANSISTOR UN9213J- (TX).SO	
Q003	8-729-042-26	TRANSISTOR 2SB1462J-QR (K8).SO	
Q004	8-729-804-41	TRANSISTOR 2SB1122-S	
Q005	8-729-047-74	TRANSISTOR CPH5701-TL	
Q006	8-729-047-74	TRANSISTOR CPH5701-TL	
Q007	8-729-043-60	TRANSISTOR CPH6102-TL	
Q008	8-729-044-58	TRANSISTOR SI2304DS-T1	

Ref. No.	Part No.	Description			Remark
Q009	8-729-047-74	TRANSISTOR	CPH5701-TL		
Q010	8-729-047-74	TRANSISTOR	CPH5701-TL		
Q011	8-729-053-54	TRANSISTOR	HN1A01FE-Y/GR (TPLR3)		
Q012	8-729-053-52	TRANSISTOR	HN1C01FE-Y/GR (TPLR3)		
Q013	8-729-053-52	TRANSISTOR	HN1C01FE-Y/GR (TPLR3)		
Q014	8-729-053-54	TRANSISTOR	HN1A01FE-Y/GR (TPLR3)		
Q015	8-729-053-54	TRANSISTOR	HN1A01FE-Y/GR (TPLR3)		
Q016	8-729-053-52	TRANSISTOR	HN1C01FE-Y/GR (TPLR3)		
Q017	8-729-053-58	TRANSISTOR	RN1904FE (TPLR3)		
Q101	8-729-042-58	TRANSISTOR	UN9111J- (K8).SO		
Q102	8-729-037-74	TRANSISTOR	UN9213J- (TX).SO		
Q103	8-729-037-74	TRANSISTOR	UN9213J- (TX).SO		
Q104	8-729-041-43	TRANSISTOR	HN1L02FU (TE85R)		
Q105	8-729-037-52	TRANSISTOR	2SD2216J-QR (TX).SO		
Q106	8-729-037-71	TRANSISTOR	UN9210J- (TX).SO		
Q107	8-729-042-57	TRANSISTOR	UN9110J- (TX).SO		
Q251	8-729-041-51	TRANSISTOR	FMMT617TA		
Q252	8-729-042-74	TRANSISTOR	UN9216J- (K8).SO		
Q253	8-729-037-61	TRANSISTOR	UN9113J- (TX).SO		
Q301	6-550-016-01	TRANSISTOR	UMF5NTR		
		< RESISTOR >			
R001	1-208-713-11	METAL CHIP	18K	0.5%	1/16W
R003	1-208-920-81	METAL CHIP	24K	0.5%	1/16W
R004	1-218-971-11	RES-CHIP	33K	5%	1/16W
R005	1-218-979-11	RES-CHIP	150K	5%	1/16W
R006	1-218-973-11	RES-CHIP	47K	5%	1/16W
R007	1-218-969-11	RES-CHIP	22K	5%	1/16W
R008	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R009	1-218-971-11	RES-CHIP	33K	5%	1/16W
R010	1-220-196-11	METAL CHIP	13K	0.5%	1/16W
R011	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R012	1-218-977-11	RES-CHIP	100K	5%	1/16W
R013	1-218-969-11	RES-CHIP	22K	5%	1/16W
R014	1-218-966-11	RES-CHIP	12K	5%	1/16W
R015	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R016	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R018	1-208-907-11	METAL CHIP	6.8K	0.5%	1/16W
R019	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R020	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R021	1-218-990-11	SHORT	0		
R022	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R023	1-218-970-11	METAL CHIP	27K	0.5%	1/16W
R024	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R025	1-208-711-11	METAL CHIP	15K	0.5%	1/16W
R026	1-218-965-11	RES-CHIP	10K	5%	1/16W
R027	1-208-721-11	METAL CHIP	39K	0.5%	1/16W
R028	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R029	1-218-974-11	METAL CHIP	56K	0.5%	1/16W
R030	1-218-990-11	SHORT	0		
R032	1-208-909-11	METAL CHIP	8.2K	0.5%	1/16W
R033	1-208-713-11	METAL CHIP	18K	0.5%	1/16W
R034	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R035	1-218-990-11	SHORT	0		
R036	1-218-971-11	RES-CHIP	33K	5%	1/16W
R037	1-218-971-11	RES-CHIP	33K	5%	1/16W
R038	1-218-965-11	RES-CHIP	10K	5%	1/16W
R039	1-218-973-11	RES-CHIP	47K	5%	1/16W
R040	1-218-971-11	RES-CHIP	33K	5%	1/16W
R041	1-218-969-11	RES-CHIP	22K	5%	1/16W
R042	1-218-990-11	SHORT	0		
R043	1-218-990-11	SHORT	0		
R044	1-218-990-11	SHORT	0		
R045	1-218-990-11	SHORT	0		
R046	1-218-990-11	SHORT	0		
R047	1-218-969-11	RES-CHIP	22K	5%	1/16W
R048	1-218-971-11	RES-CHIP	33K	5%	1/16W
R050	1-218-977-11	RES-CHIP	100K	5%	1/16W
R051	1-208-933-11	METAL CHIP	82K	0.5%	1/16W
R052	1-218-965-11	RES-CHIP	10K	5%	1/16W
R053	1-208-931-11	METAL CHIP	68K	0.5%	1/16W
R054	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R055	1-208-713-11	METAL CHIP	18K	0.5%	1/16W
R056	1-218-970-11	METAL CHIP	27K	0.5%	1/16W
R057	1-218-978-11	METAL CHIP	120K	0.5%	1/16W
R058	1-218-978-11	METAL CHIP	120K	0.5%	1/16W
R059	1-218-977-11	RES-CHIP	100K	5%	1/16W
R060	1-218-977-11	RES-CHIP	100K	5%	1/16W
R061	1-218-977-11	RES-CHIP	100K	5%	1/16W
R062	1-208-933-11	METAL CHIP	82K	0.5%	1/16W
R063	1-218-965-11	RES-CHIP	10K	5%	1/16W
R064	1-208-941-11	METAL CHIP	180K	0.5%	1/16W
R065	1-208-697-11	METAL CHIP	3.9K	0.5%	1/16W
R066	1-208-713-11	METAL CHIP	18K	0.5%	1/16W
R067	1-218-975-11	RES-CHIP	68K	5%	1/16W
R068	1-218-969-11	RES-CHIP	22K	5%	1/16W
R069	1-218-971-11	RES-CHIP	33K	5%	1/16W
R070	1-218-969-11	RES-CHIP	22K	5%	1/16W
R072	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R073	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R074	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R075	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R076	1-208-713-11	METAL CHIP	18K	0.5%	1/16W
R077	1-208-695-11	METAL CHIP	3.3K	0.5%	1/16W
R078	1-218-969-11	RES-CHIP	22K	5%	1/16W
R101	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R103	1-218-949-11	RES-CHIP	470	5%	1/16W
R104	1-218-953-11	RES-CHIP	1K	5%	1/16W
R105	1-218-953-11	RES-CHIP	1K	5%	1/16W
R106	1-218-953-11	RES-CHIP	1K	5%	1/16W
R107	1-218-953-11	RES-CHIP	1K	5%	1/16W
R108	1-218-953-11	RES-CHIP	1K	5%	1/16W
R109	1-218-977-11	RES-CHIP	100K	5%	1/16W
R110	1-218-989-11	RES-CHIP	1M	5%	1/16W
R111	1-218-977-11	RES-CHIP	100K	5%	1/16W
R112	1-218-977-11	RES-CHIP	100K	5%	1/16W
R113	1-218-989-11	RES-CHIP	1M	5%	1/16W
R115	1-218-965-11	RES-CHIP	10K	5%	1/16W
R116	1-218-965-11	RES-CHIP	10K	5%	1/16W
R117	1-218-953-11	RES-CHIP	1K	5%	1/16W
R118	1-218-953-11	RES-CHIP	1K	5%	1/16W
R121	1-218-985-11	RES-CHIP	470K	5%	1/16W
R122	1-218-985-11	RES-CHIP	470K	5%	1/16W
R123	1-218-985-11	RES-CHIP	470K	5%	1/16W
R124	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R125	1-218-985-11	RES-CHIP	470K	5%	1/16W
R126	1-218-985-11	RES-CHIP	470K	5%	1/16W
R127	1-218-985-11	RES-CHIP	470K	5%	1/16W
R128	1-218-985-11	RES-CHIP	470K	5%	1/16W
R129	1-218-985-11	RES-CHIP	470K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R130	1-218-985-11	RES-CHIP	470K	5%	1/16W
R131	1-218-985-11	RES-CHIP	470K	5%	1/16W
R132	1-218-973-11	RES-CHIP	47K	5%	1/16W
R133	1-218-989-11	RES-CHIP	1M	5%	1/16W
R134	1-218-977-11	RES-CHIP	100K	5%	1/16W
R135	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R136	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R137	1-218-949-11	RES-CHIP	470	5%	1/16W
R138	1-218-965-11	RES-CHIP	10K	5%	1/16W
R139	1-218-983-11	RES-CHIP	330K	5%	1/16W
R140	1-218-977-11	RES-CHIP	100K	5%	1/16W
R141	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R142	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R143	1-218-985-11	METAL CHIP	470K	0.5%	1/16W
R144	1-218-985-11	METAL CHIP	470K	0.5%	1/16W
R145	1-218-953-11	RES-CHIP	1K	5%	1/16W
R146	1-218-977-11	RES-CHIP	100K	5%	1/16W
R147	1-218-953-11	RES-CHIP	1K	5%	1/16W
R148	1-218-953-11	RES-CHIP	1K	5%	1/16W
R149	1-218-953-11	RES-CHIP	1K	5%	1/16W
R150	1-218-953-11	RES-CHIP	1K	5%	1/16W
R152	1-218-953-11	RES-CHIP	1K	5%	1/16W
R153	1-218-953-11	RES-CHIP	1K	5%	1/16W
R154	1-218-965-11	RES-CHIP	10K	5%	1/16W
R155	1-218-953-11	RES-CHIP	1K	5%	1/16W
R156	1-218-965-11	RES-CHIP	10K	5%	1/16W
R157	1-218-953-11	RES-CHIP	1K	5%	1/16W
R158	1-218-977-11	RES-CHIP	100K	5%	1/16W
R159	1-218-977-11	RES-CHIP	100K	5%	1/16W
R160	1-218-977-11	RES-CHIP	100K	5%	1/16W
R161	1-218-977-11	RES-CHIP	100K	5%	1/16W
R162	1-218-977-11	RES-CHIP	100K	5%	1/16W
R163	1-218-943-11	RES-CHIP	150	5%	1/16W
R164	1-218-985-11	RES-CHIP	470K	5%	1/16W
R165	1-218-953-11	RES-CHIP	1K	5%	1/16W
R166	1-218-982-11	RES-CHIP	270K	5%	1/16W
R169	1-218-953-11	RES-CHIP	1K	5%	1/16W
R170	1-218-953-11	RES-CHIP	1K	5%	1/16W
R171	1-218-977-11	RES-CHIP	100K	5%	1/16W
R172	1-218-965-11	RES-CHIP	10K	5%	1/16W
R173	1-218-965-11	RES-CHIP	10K	5%	1/16W
R174	1-218-990-11	SHORT	0		
R175	1-218-953-11	RES-CHIP	1K	5%	1/16W
R176	1-218-935-11	RES-CHIP	33	5%	1/16W
R177	1-218-990-11	SHORT	0		
R178	1-218-953-11	RES-CHIP	1K	5%	1/16W
R179	1-218-953-11	RES-CHIP	1K	5%	1/16W
R180	1-218-953-11	RES-CHIP	1K	5%	1/16W
R181	1-218-990-11	SHORT	0		
R182	1-218-990-11	SHORT	0		
R183	1-218-953-11	RES-CHIP	1K	5%	1/16W
R201	1-218-953-11	RES-CHIP	1K	5%	1/16W
R202	1-218-939-11	RES-CHIP	68	5%	1/16W
R203	1-218-984-11	RES-CHIP	390K	5%	1/16W
R204	1-218-990-11	SHORT	0		
R205	1-218-990-11	SHORT	0		
R251	1-218-990-11	SHORT	0		
R252	1-218-962-11	RES-CHIP	5.6K	5%	1/16W
R253	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R254	1-218-990-11	SHORT	0		
R255	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R256	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R257	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R258	1-218-970-11	RES-CHIP	27K	5%	1/16W
R259	1-218-949-11	RES-CHIP	470	5%	1/16W
R260	1-218-973-11	RES-CHIP	47K	5%	1/16W
R261	1-218-974-11	RES-CHIP	56K	5%	1/16W
R262	1-218-966-11	RES-CHIP	12K	5%	1/16W
R263	1-218-941-11	RES-CHIP	100	5%	1/16W
R264	1-218-953-11	RES-CHIP	1K	5%	1/16W
R265	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R267	1-218-973-11	RES-CHIP	47K	5%	1/16W
R268	1-218-975-11	RES-CHIP	68K	5%	1/16W
R269	1-208-635-11	RES-CHIP	10	5%	1/16W
R270	1-218-971-11	RES-CHIP	33K	5%	1/16W
R271	1-218-977-11	RES-CHIP	100K	5%	1/16W
R272	1-218-973-11	RES-CHIP	47K	5%	1/16W
R273	1-218-941-11	RES-CHIP	100	5%	1/16W
R274	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R275	1-218-977-11	RES-CHIP	100K	5%	1/16W
R277	1-218-973-11	RES-CHIP	47K	5%	1/16W
R280	1-218-990-11	SHORT	0		
R301	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R302	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R303	1-218-977-11	RES-CHIP	100K	5%	1/16W
R305	1-218-951-11	RES-CHIP	680	5%	1/16W
R306	1-218-965-11	RES-CHIP	10K	5%	1/16W
R307	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R308	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R309	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R310	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R311	1-218-969-11	RES-CHIP	22K	5%	1/16W
R312	1-218-942-11	RES-CHIP	120	5%	1/16W
R313	1-218-951-11	RES-CHIP	680	5%	1/16W
R314	1-218-990-11	SHORT	0		
R315	1-218-990-11	SHORT	0		
R316	1-218-990-11	SHORT	0		
R317	1-218-990-11	SHORT	0		
R318	1-218-990-11	SHORT	0		
R319	1-218-990-11	SHORT	0		
R320	1-218-990-11	SHORT	0		
R321	1-218-941-11	RES-CHIP	100	5%	1/16W
		< SWITCH >			
S101	1-786-227-21	SWITCH, TACTILE (RESET)			
		< TRANSFORMER >			
⚠T001	1-437-531-11	TRANSFORMER, DC-DC CONVERTER			
		< VIBRATOR >			
X101	1-795-244-11	VIBRATOR, CERAMIC (10MHz)			
X102	1-767-994-42	VIBRATOR, CRYSTAL (32.768kHz)			

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.

Ref. No.	Part No.	Description			Remark
	A-7078-004-A	LB-075 BOARD, COMPLETE			
		**********			
		(Ref.No.: 1,000 Series)			
		< CONNECTOR >			
CN701	1-815-315-11	CONNECTOR, FFC/FPC 16P			
		< DIODE >			
D701	8-719-082-33	DIODE NSCW100-T38			
		(EVF LCD BACK LIGHT)			
		< THERMISTOR >			
TH701	1-810-811-11	THERMISTOR, NTC (1608)			
		(EVF TEMP. SENSOR)			
	A-7074-992-A	PD-155 BOARD, COMPLETE			
		**********			
		(Ref.No.: 4,000 Series)			
		< CAPACITOR >			
C703	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C801	1-117-920-11	TANTAL. CHIP	10uF	20%	6.3V
C802	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C803	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C804	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C805	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C806	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C807	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C808	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C809	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C810	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C811	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C812	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C813	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C814	1-164-870-11	CERAMIC CHIP	68PF	5%	16V
C815	1-117-920-11	TANTAL. CHIP	10uF	20%	6.3V
C816	1-164-357-11	CERAMIC CHIP	0.001uF	5%	50V
C817	1-113-994-11	TANTAL. CHIP	6.8uF	20%	16V
C818	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C819	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C820	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C822	1-127-573-11	CERAMIC CHIP	1uF	10%	16V
C823	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C824	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C825	1-127-573-11	CERAMIC CHIP	1uF	10%	16V
C826	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C829	1-127-573-11	CERAMIC CHIP	1uF	10%	16V
C830	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C851	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C901	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C902	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C904	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C905	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C906	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C907	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C908	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C909	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C911	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C912	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C913	1-107-687-11	TANTAL. CHIP	3.3uF	20%	20V
C914	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C915	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C917	1-164-870-11	CERAMIC CHIP	68PF	5%	16V
C918	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C919	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C920	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C922	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C923	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C952	1-107-820-11	CERAMIC CHIP	0.1uF		16V
		< CONNECTOR >			
CN701	1-778-592-21	CONNECTOR, BOARD TO BOARD 50P			
CN702	1-794-766-21	CONNECTOR, FFC/FPC (LIF) 6P			
CN704	1-794-770-21	CONNECTOR, FFC/FPC (LIF) 24P			
CN705	1-794-411-21	CONNECTOR, FFC/FPC (LIF) 8P			
CN801	1-794-770-21	CONNECTOR, FFC/FPC (LIF) 24P			
CN851	1-794-766-21	CONNECTOR, FFC/FPC (LIF) 6P			
		< DIODE >			
D701	8-719-075-15	DIODE MAZT082H08S0			
D702	8-719-075-15	DIODE MAZT082H08S0			
D703	8-719-075-15	DIODE MAZT082H08S0			
D704	8-719-073-03	DIODE MA8082- (K8).S0			
D801	8-719-084-47	DIODE 1SV290 (TPL3)			
D901	8-719-084-47	DIODE 1SV290 (TPL3)			
		< IC >			
IC801	8-759-660-92	IC RB5P003AM1			
IC802	8-759-833-18	IC CM7021L3-E2			
IC851	8-759-387-31	IC TC75S55F (TE85R)			
IC901	8-759-660-93	IC RB5P004AM1			
IC902	8-752-405-57	IC CXD3501AR-T4			
IC951	8-759-387-31	IC TC75S55F (TE85R)			
		< COIL >			
L801	1-469-757-21	INDUCTOR	10uH		
L802	1-469-757-21	INDUCTOR	10uH		
L803	1-469-757-21	INDUCTOR	10uH		
L804	1-469-757-21	INDUCTOR	10uH		
L805	1-412-949-21	INDUCTOR	6.8uH		
L901	1-414-771-91	INDUCTOR	10uH		
L902	1-469-757-21	INDUCTOR	10uH		
L903	1-412-945-11	INDUCTOR	3.3uH		
L904	1-469-757-21	INDUCTOR	10uH		
		< TRANSISTOR >			
Q801	8-729-037-74	TRANSISTOR	UN9213J- (TX).SO		
Q802	8-729-041-23	TRANSISTOR	NDS356AP		
Q803	8-729-053-52	TRANSISTOR	HN1C01FE-Y/GR (TPLR3)		
Q804	8-729-037-74	TRANSISTOR	UN9213J- (TX).SO		
Q805	8-729-420-24	TRANSISTOR	2SB1218A-QRS		
Q806	8-729-041-23	TRANSISTOR	ND356AP		
Q851	8-729-037-52	TRANSISTOR	2SD2216J-QR (TX).SO		
Q852	8-729-037-74	TRANSISTOR	UN9213J- (TX).SO		
Q853	8-729-420-24	TRANSISTOR	2SB1218A-QRS		
Q854	8-729-420-24	TRANSISTOR	2SB1218A-QRS		
Q951	8-729-054-48	TRANSISTOR	uP04601008S0		
Q952	8-729-054-48	TRANSISTOR	uP04601008S0		

PD-155 **SW-362**

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R701	1-216-864-11	METAL CHIP	0	5%	1/16W
R801	1-218-990-11	SHORT	0		
R803	1-218-985-11	RES-CHIP	470K	5%	1/16W
R804	1-216-864-11	METAL CHIP	0	5%	1/16W
R805	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R806	1-218-967-11	RES-CHIP	15K	5%	1/16W
R807	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R809	1-218-975-11	RES-CHIP	68K	5%	1/16W
R810	1-218-973-11	RES-CHIP	47K	5%	1/16W
R811	1-218-969-11	RES-CHIP	22K	5%	1/16W
R812	1-218-975-11	RES-CHIP	68K	5%	1/16W
R813	1-218-989-11	RES-CHIP	1M	5%	1/16W
R814	1-218-977-11	RES-CHIP	100K	5%	1/16W
R815	1-218-989-11	RES-CHIP	1M	5%	1/16W
R816	1-218-965-11	RES-CHIP	10K	5%	1/16W
R817	1-218-941-11	RES-CHIP	100	5%	1/16W
R818	1-218-941-11	RES-CHIP	100	5%	1/16W
R819	1-218-941-11	RES-CHIP	100	5%	1/16W
R821	1-218-978-11	RES-CHIP	120K	5%	1/16W
R822	1-218-990-11	SHORT	0		
R823	1-218-990-11	SHORT	0		
R824	1-218-977-11	RES-CHIP	100K	5%	1/16W
R825	1-218-977-11	RES-CHIP	100K	5%	1/16W
R827	1-218-965-11	RES-CHIP	10K	5%	1/16W
R828	1-218-985-11	RES-CHIP	470K	5%	1/16W
R829	1-218-977-11	RES-CHIP	100K	5%	1/16W
R830	1-218-977-11	RES-CHIP	100K	5%	1/16W
R831	1-218-977-11	RES-CHIP	100K	5%	1/16W
R832	1-218-989-11	RES-CHIP	1M	5%	1/16W
R851	1-218-965-11	RES-CHIP	10K	5%	1/16W
R852	1-218-985-11	RES-CHIP	470K	5%	1/16W
R853	1-218-973-11	RES-CHIP	47K	5%	1/16W
R855	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R856	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R857	1-218-953-11	RES-CHIP	1K	5%	1/16W
R858	1-208-647-11	METAL CHIP	33	0.5%	1/16W
R859	1-208-647-11	METAL CHIP	33	0.5%	1/16W
R860	1-218-941-11	RES-CHIP	100	5%	1/16W
R861	1-218-941-11	RES-CHIP	100	5%	1/16W
R901	1-218-985-11	RES-CHIP	470K	5%	1/16W
R903	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R904	1-218-990-11	SHORT	0		
R905	1-218-990-11	SHORT	0		
R908	1-218-967-11	RES-CHIP	15K	5%	1/16W
R909	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R910	1-218-973-11	RES-CHIP	47K	5%	1/16W
R911	1-218-975-11	RES-CHIP	68K	5%	1/16W
R912	1-218-969-11	RES-CHIP	22K	5%	1/16W
R913	1-218-975-11	RES-CHIP	68K	5%	1/16W
R914	1-218-989-11	RES-CHIP	1M	5%	1/16W
R915	1-218-977-11	RES-CHIP	100K	5%	1/16W
R916	1-218-990-11	SHORT	0		
R918	1-218-941-11	RES-CHIP	100	5%	1/16W
R919	1-218-941-11	RES-CHIP	100	5%	1/16W
R920	1-218-941-11	RES-CHIP	100	5%	1/16W
R923	1-218-990-11	SHORT	0		
R924	1-218-990-11	SHORT	0		
R925	1-218-977-11	RES-CHIP	100K	5%	1/16W
R926	1-218-977-11	RES-CHIP	100K	5%	1/16W
R927	1-218-977-11	RES-CHIP	100K	5%	1/16W
R928	1-218-977-11	RES-CHIP	100K	5%	1/16W
R951	1-208-941-11	METAL CHIP	180K	0.5%	1/16W
R952	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R953	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R955	1-208-643-11	METAL CHIP	22	0.5%	1/16W
	A-7074-999-A	SW-362 BOARD, COMPLETE			
		**********			
		(Ref.No.: 2,000 Series)			
		< DIODE >			
D351	8-719-064-41	DIODE CL-191Y-CD-T (CHG (AMBER))			
D352	8-719-056-23	DIODE MA2S111- (K8).SO			
		< RESISTOR >			
R351	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R352	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R353	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R354	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R355	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R356	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R357	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R358	1-216-837-11	METAL CHIP	22K	5%	1/16W
R359	1-216-815-11	METAL CHIP	330	5%	1/16W
		< SWITCH >			
S351	1-771-138-82	SWITCH, KEY BOARD (INDEX)			
S352	1-771-138-82	SWITCH, KEY BOARD (MENU)			
S353	1-786-039-21	SWITCH, TACTILE (CONTROL)			
S354	1-762-650-21	SWITCH, SLIDE (FINDER/LCD)			
S355	1-771-138-82	SWITCH, KEY BOARD (DISPLAY)			

Electrical parts list of the SY-072 board is not shown.
Pages 6-15 to 6-18 are not shown.

Ref. No.	Part No.	Description			Remark
	A-7074-998-A	UJ-001 BOARD, COMPLETE			
		**********			
					(Ref.No.: 3,000 Series)
		< CONNECTOR >			
CN102	1-816-112-11	CONNECTOR, SQUARE TYPE (USB) 5P (USB)			
		< LINE FILTER >			
LF101	1-419-100-21	INDUCTOR	0uH		
LF102	1-419-100-21	INDUCTOR	0uH		
		< RESISTOR >			
R103	1-216-864-11	METAL CHIP	0	5%	1/16W
R104	1-216-864-11	METAL CHIP	0	5%	1/16W

ACCESSORIES

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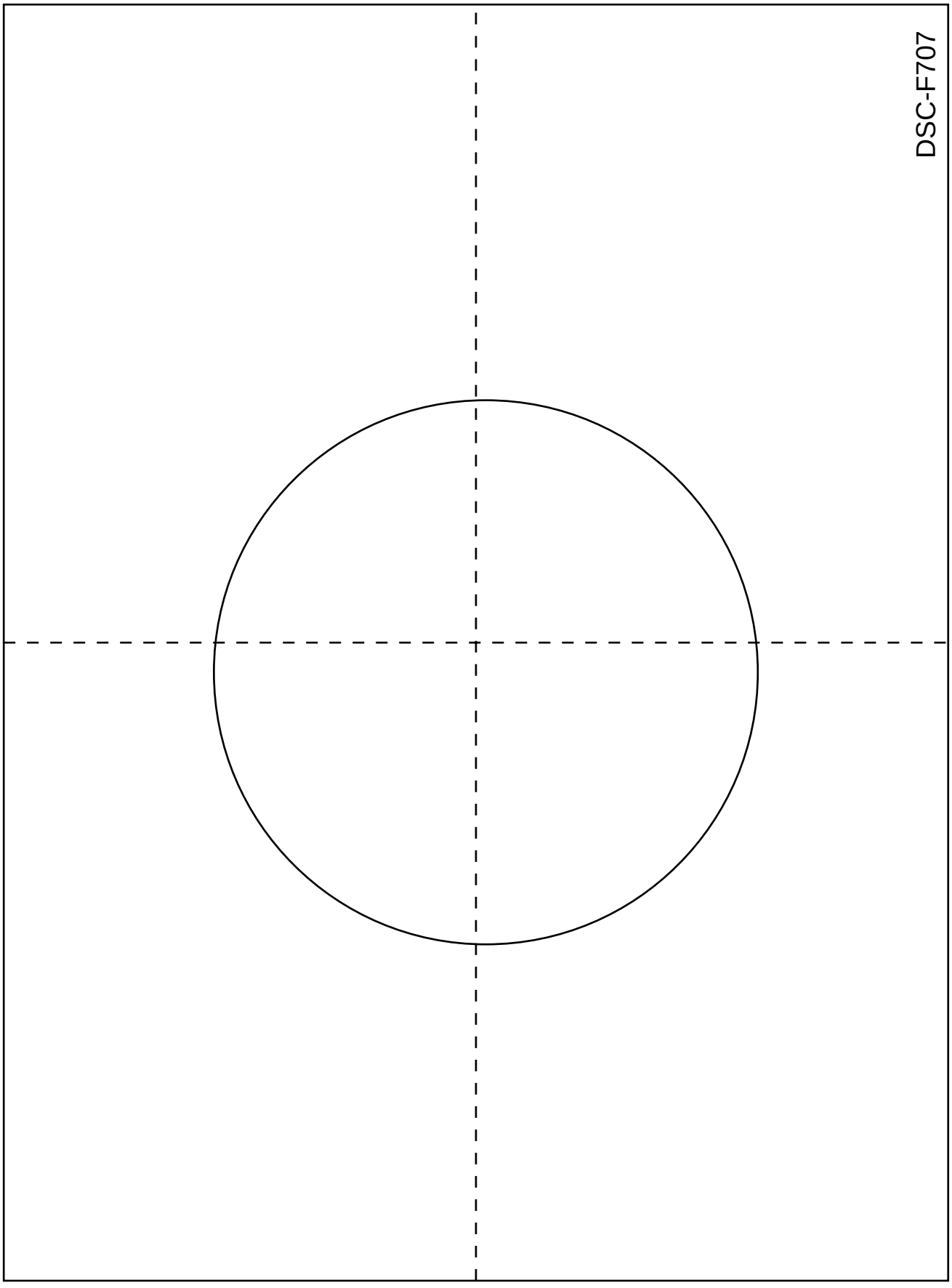
⚠	1-475-599-11	ADAPTOR, AC (EXCEPT KR, CN)
⚠	1-475-599-71	ADAPTOR, AC (KR)
⚠	1-475-599-81	ADAPTOR, AC (CN)
⚠	1-569-007-11	ADAPTOR, CONVERSION (E, JE)
⚠	1-569-008-21	ADAPTOR, CONVERSION 2P (E, HK)
⚠	1-696-819-11	CORD, POWER (AUS)
	1-757-293-11	CORD, CONNECTION (USB 5P)
⚠	1-769-608-11	CORD, POWER (AEP, E)
⚠	1-776-985-11	CORD, POWER (KR)
⚠	1-782-476-11	CORD, POWER (CN)
⚠	1-783-374-11	CORD, POWER (UK, HK)
	1-783-738-31	CORD, CONNECTION (AV CONNECTING)
⚠	1-790-107-22	CORD, POWER (US, CND)
⚠	1-790-732-11	CORD, POWER (JE, J)
	3-065-665-01	MANUAL, INSTRUCTION (for SAFETY) (JAPANESE) (J)
	3-066-676-01	SPVD-004 (P) (CD-ROM) (EXCEPT US, CND, J)
	3-066-677-01	SPVD-004 (I) (CD-ROM) (US, CND, J)
	3-068-191-01	PC INSTRUCTION MANUAL (JAPANESE) (J)
	3-070-845-01	REGISTRATION (CD-ROM) (J)
	3-071-064-01	MANUAL, INSTRUCTION (JAPANESE) (J)
	3-071-064-11	MANUAL, INSTRUCTION (ENGLISH) (EXCEPT KR, J)
	3-071-064-21	MANUAL, INSTRUCTION (FRENCH, GERMAN) (CND, AEP, JE)
	3-071-064-31	MANUAL, INSTRUCTION (SPANISH, PORTUGUESE) (AEP, E, JE)
	3-071-064-41	MANUAL, INSTRUCTION (ITALIAN, DUTCH) (AEP)
	3-071-064-51	MANUAL, INSTRUCTION (TRADITIONAL CHINESE, SIMPLIFIED CHINESE) (E, HK, CN, JE)
	3-071-064-61	MANUAL, INSTRUCTION (RUSSIAN, SWEDISH) (AEP)
	3-071-064-71	MANUAL, INSTRUCTION (ARABIC) (E)
	3-071-064-81	MANUAL, INSTRUCTION (KOREAN) (KR, JE)
	3-071-638-01	BELT, SHOULDER
	A-7096-900-A	CLUB 2 (JA) ASSY, PP (CD-ROM) (J)
	X-3952-015-1	STRING ASSY, CAP
	X-3952-016-1	CAP ASSY, LENS

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 HOLOGRAM AF CHECK

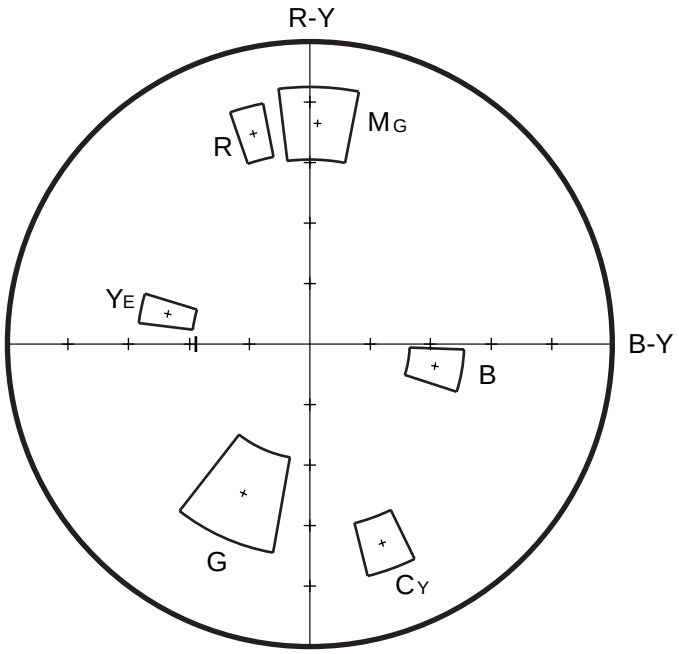
Take a reduced or enlarged copy on the clear sheet so that a rectangular frame of the SHEET FOR AUXILIARY LIGHT is suitable for the effective image size of the monitor.



FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

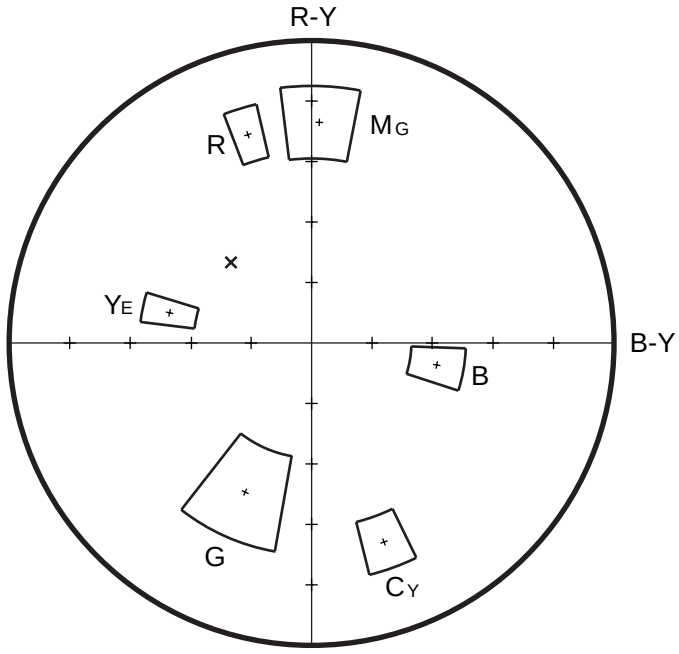
Take a copy of CAMERA COLOR REPRODUCTION FRAME with a clear sheet for use.

For NTSC mode



DSC-F707

For PAL mode



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2001I0500-1
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Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2001.09	Official Release	—	—