

# MVC-FD95

## SERVICE MANUAL

Level 1

Self Diagnosis  
Supported model

Ver 1.0 2000. 04



AEP Model  
UK Model

Digital  
Mavica

InfoLITHIUM™  
 L SERIES

### SPECIFICATIONS

<b>System</b>	<b>Flash</b>	<b>General</b>	<b>AC-L10A/L10B/L10C</b>
<b>Image device</b>	Recommended recording distance: 0.6 m to 2.5 m (23 5/8 in to 8 1/3 feet)	<b>Application</b>	<b>AC power adaptor</b>
<b>Lens</b>	<b>Power requirements</b>	Sony battery pack NP-F330 (supplied)/F550	<b>Used battery</b>
10x zoom lens f = 6.0 – 60.0 mm (1/4 – 2 3/8 inches) (39 – 390 mm (1 9/16 – 15 3/8 in) when converted into a 35 mm still camera) F = 2.8	<b>Power requirements</b>	100 V to 240 V AC, 50/60 Hz	<b>Lithium ion battery</b>
<b>Exposure control</b>	<b>Power consumption (During shooting)</b>	<b>Maximum voltage</b>	DC 8.4 V
Automatic exposure	3.9 W (When using the LCD screen) 3.5 W (When using the finder)	<b>Nominal voltage</b>	DC 7.2 V
<b>White balance</b>	<b>Operation temperature</b>	<b>Capacity</b>	5.0 Wh (700 mAh)
Automatic, Indoor, Outdoor, One-push	0°C to 40°C (32°F to 104°F)	<b>Accessories</b>	AC-L10A/L10B/L10C AC power adaptor (1) Power cord (mains lead) (1) NP-F330 battery pack (1) A/V connecting cable (1) Shoulder strap (1) Lens cap (1) Lens cap strap (1) CD-ROM (1) Operating instructions (1)
<b>Data compression system</b>	<b>Storage temperature</b>	<b>Design and specifications</b>	Design and specifications are subject to change without notice.
Movie: MPEG1 Still: Floppy disk: JPEG (JFIF) "Memory Stick": JPEG (Exif2.1) GIF (in TEXT mode) Audio (with still image): MPEG AUDIO (Monaural)	<b>Operation temperature</b>		
<b>Recording medium</b>	0°C to 40°C (32°F to 104°F)		
Floppy disk: 3.5 inch 2HD MS-DOS format (1.44MB) MSAC-FD2M Floppy Disk Adaptor for Memory Stick: DCF98 format	<b>Storage temperature</b>		
<b>Total number of dots</b>	-20°C to +60°C (-4°F to +140°F)		
123,200 (560×220) dots	<b>Maximum dimensions</b>		
<b>Finder</b>	125×39×62 mm (5×1 9/16×2 1/2 inches) (w/h/d)		
<b>Used LCD panel</b>	<b>Mass</b>		
TFT (Thin Film Transistor active matrix) drive	Approx. 970 g (2 lb 2 oz) (including battery, floppy disk and lens cap, etc.)		
<b>Total number of dots</b>	<b>Built-in microphone</b>		
180,000 (800×225) dots	Electret condenser microphone		
<b>Built-in speaker</b>	Dynamic speaker		

DIGITAL STILL CAMERA

**SONY®**

## TABLE OF CONTENTS

<b>SERVICE NOTE</b>	3
<b>1. MAIN PARTS</b>	
1. ORNAMENTAL PARTS	5
2. DISASSEMBLY	6
2-1. CABINET (TOP) ASSEMBLY, MA-379 BOARD	6
2-2. VF-143 BOARD, VF LENS ASSEMBLY	7
2-3. LCD, PK-49 BOARD	8
2-4. FC-72, FU-139 BOARDS, FLOPPY DISK DRIVE	9
2-5. LENS COMPLETE ASSEMBLY	10
2-6. VP-50 BOARD, LENS BLOCK ASSEMBLY	11
2-7. EJECT BUTTON SECTION	12
2-8. AE-022 BOARD	13
2-9. FLASH UNIT, MICROPHONE UNIT	13
<b>2. REPAIR PARTS LIST</b>	
2-1. EXPLODED VIEWS	14
2-1-1. OVERALL ASSEMBLY SECTION	14
2-1-2. TOP CABINET ASSEMBLY SECTION	15
2-1-3. EVF BLOCK ASSEMBLY SECTION	16
2-1-4. CABINET (FRONT) BLOCK ASSEMBLY SECTION	17
2-1-5. LENS COMPLETE ASSEMBLY SECTION	18
2-1-6. CABINET (REAR) BLOCK ASSEMBLY SECTION	19
<b>3. GENERAL</b>	
Getting started	
Identifying the parts	20
Preparing the power supply	20
Setting the date and time	21
Inserting a floppy disk	22
Basic operations	
▶ Recording	
Recording still images	22
Recording moving images	23
▶ Playback	
Playing back still images	24
Playing back moving images	24
Viewing images using a personal computer	24
Image file storage destinations and image file names	25
Advanced operations	
Before performing advanced operations	
How to use the PLAY/STILL/MOVIE selector	25
How to use the control button	25
How to change the menu settings	26
▶ Various recording	
Setting the image size (IMAGE SIZE)	27
Recording still images for e-mail (E-MAIL)	27
Adding audio files to still images (VOICE)	27
Recording text documents (TEXT)	28
Recording images in macro	28
Focusing manually	28
Using the PROGRAM AE function	28
Using the Spot light – metering function	28
Adjusting the exposure (EXPOSURE)	28
Adjusting the white balance (WHITE BALANCE)	29
Recording the date and time on the still image (DATE/TIME)	29
Enjoying picture effects (PICTURE EFFECT)	29
▶ Various playback	
Playing back six images at once (INDEX)	29
Enlarging a part of the still image (Zoom and trimming)	29
Playing back the still images in order (SLIDE SHOW)	30
Viewing images on a TV screen	30
▶ Editing	
Preventing accidental erasure (PROTECT)	30
Deleting images (DELETE)	30
Changing the recorded still image size (RESIZE)	31
Copying images (COPY)	31
Copying all the information on your floppy disk (DISK COPY)	31
Selecting still images to print (PRINT MARK)	31
Format	32
Additional information	
Precautions	32
Using your camera abroad	32
Troubleshooting	33
Warning and notice messages	33
Self-diagnosis display	34
LCD screen/finder indicators	34

### SAFETY-RELATED COMPONENT WARNING!!

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

### SAFETY CHECK-OUT

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

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

Message	Meaning
INVALID OPERATION	The battery level of the Floppy Disk Adaptor for Memory Stick is too low to do some operations.
DISK ERROR	<ul style="list-style-type: none"> <li>The battery level of the Floppy Disk Adaptor for Memory Stick is too low to operate.</li> <li>Trouble has occurred on the Floppy Disk Adaptor for Memory Stick.</li> </ul>

**Self-diagnosis display**

Your camera has a self-diagnosis display. This function displays the camera condition on the LCD screen or on the finder with a combination of a letter and four digits of numbers. If this appears, 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 repair the camera  
 yourself.  
 • E: □□: □□  
 Contact your Sony dealer or local  
 authorized Sony service facility.

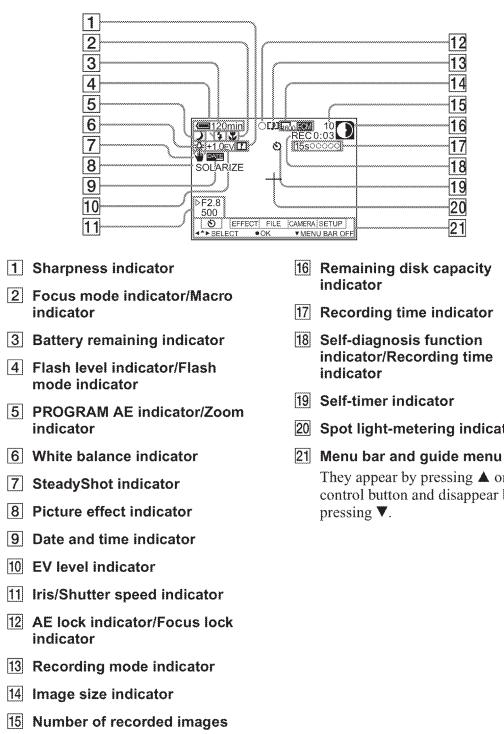
Code	Cause and/or Corrective Action
C:32:□□	<ul style="list-style-type: none"> <li>There is trouble with the disk drive. → Turn the power off and on again.</li> </ul>
C:13:□□	<ul style="list-style-type: none"> <li>An unformatted floppy disk is inserted. → Format the floppy disk. (page 54)</li> <li>An disk not compatible with this camera is inserted. → Change the disk. (page 14)</li> <li>The battery level of the Floppy Disk Adaptor for Memory Stick is too low. → Replace the battery with a new one.</li> </ul>
E:61:□□ E:91:□□	<ul style="list-style-type: none"> <li>A camera malfunction that you cannot repair 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)</li> </ul>

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

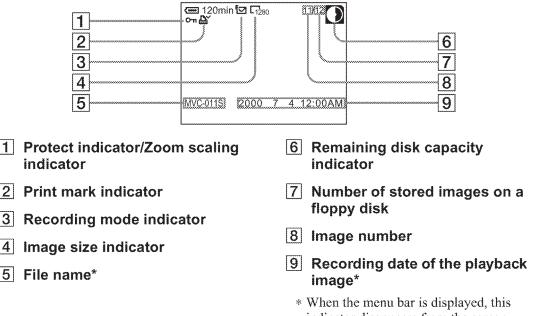
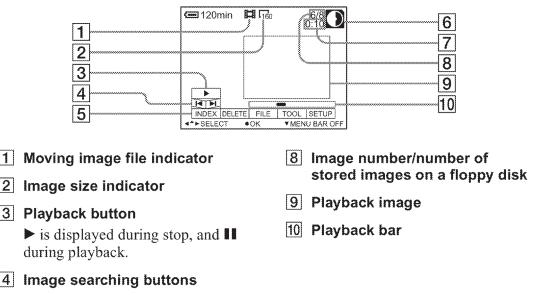
Additional information

62

63

**LCD screen/finder indicators****The indicators during recording**

Additional information

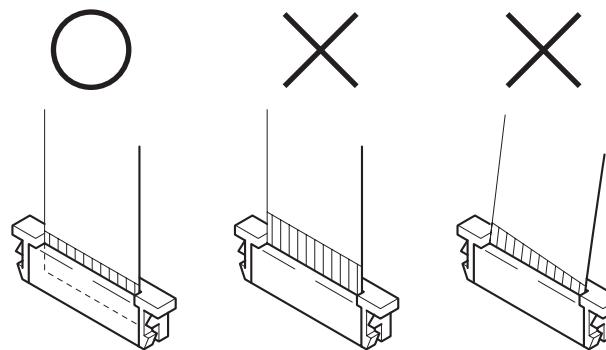
**The indicators during still image playback****The indicators during moving image playback**

65

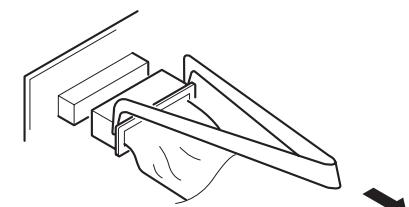
66

**• NOT FOR REPAIR**

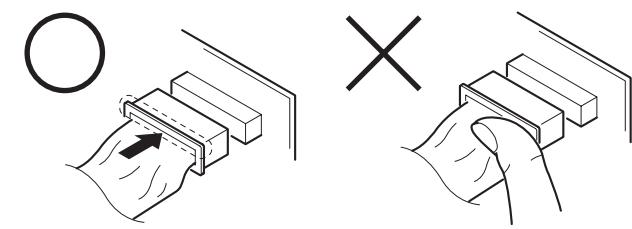
Make sure that the flat cable and flexible board are not cracked or bent at the terminal.  
 Do not insert the cable insufficiently nor crookedly.



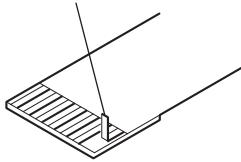
When remove a connector, don't pull at wire of connector.  
 Be in danger of the snapping of a wire.



When installing a connector, don't press down at wire of connector.  
 Be in danger of the snapping of a wire.



Cut and remove the part of gilt which comes off at the point.  
 (Take care that there are some pieces of gilt left inside)

**[Discharging of the FLASH unit's charging capacitor]**

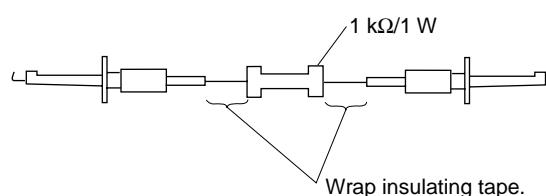
The charging capacitor of the FLASH unit is charged up to the maximum 300 V potential.

There is a danger of electric shock by this high voltage when the capacitor is handled by hand. The electric shock is caused by the charged voltage which is kept without discharging when the main power of the MVC-FD95 is simply turned off. Therefore, the remaining voltage must be discharged as described below.

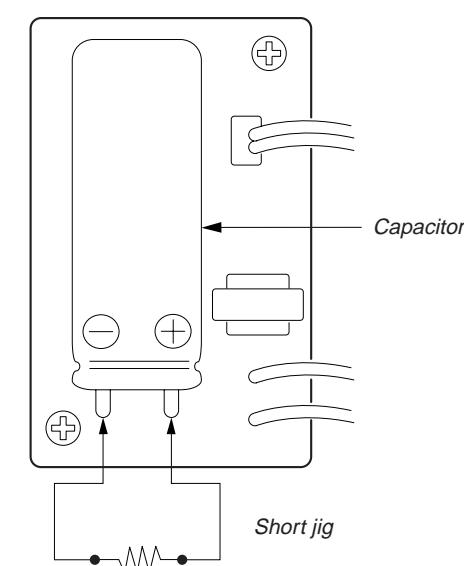
**Preparing the Short Jig**

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**

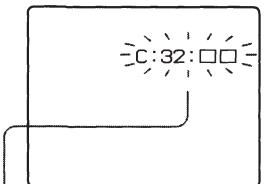
Short circuits between the positive and the negative terminals of charged capacitor with the short jig about 10 seconds.



## [Description on Self-diagnosis Display]

### Self-diagnosis display

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



#### Self-diagnosis display

- C:  $\square\square:\square\square$   
The contents which can be handled by customer, are displayed.
- E:  $\square\square:\square\square$   
The contents which can be handled by engineer, are displayed.

Display Code	Countermeasure	Cause	Caution Display During Error
C:32:01	Change the disk and turn off the main power then back on.	Defective floppy disk.	DRIVE ERROR
C:13:01	Replace the floppy disk. Format the floppy disk with the MVC-FD95.	<ul style="list-style-type: none"> <li>• The type of floppy disk that cannot be used by this machine, is inserted. (Such as 2DD)</li> <li>• Data is damaged.</li> <li>• Unformatted disk is inserted.</li> </ul>	DISK ERROR
E:91:01	Checking of flash unit or replacement of flash unit	Abnormality when flash is being charged.	Flash LED Flash display Flashing at 3.2 Hz
E:61:00	Checking of lens drive circuit	When failed in the focus initialization.	—
E:61:10			

### Troubleshooting

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

Symptom	Cause and/or Solution
Your camera does not work.	<ul style="list-style-type: none"> <li>• You are not using an "InfoLITHIUM" battery pack. → Use an "InfoLITHIUM" battery pack (page 8).</li> <li>• The floppy disk is not inserted properly. → Eject the disk, and insert it again (page 14).</li> <li>• The battery level is too low. (The <math>\square</math> indicator appears.) → Charge the battery pack (page 9).</li> <li>• The AC power adaptor is not connected securely. → Connect it securely to the DC IN jack and a wall outlet (mains) (page 9, 11).</li> <li>• The malfunction occurs inside the camera. → Turn off the power, and turn on after one minute, then check that the camera works properly.</li> </ul>
Your camera cannot record images.	<ul style="list-style-type: none"> <li>• The PLAY/STILL/MOVIE selector is set to PLAY. → Set it to MOVIE or STILL (page 15, 21).</li> <li>• No floppy disk has been inserted into your camera. → Insert a floppy disk (page 14).</li> <li>• The tab on the disk is set to the non-recording position. → Set it to the recording position (page 14).</li> </ul>
The picture is noisy.	<ul style="list-style-type: none"> <li>• Your camera is placed near a TV or other equipment that uses strong magnets. → Move your camera away from the TV, etc.</li> </ul>
The picture is too dark.	<ul style="list-style-type: none"> <li>• You are shooting a subject with a light source behind the subject. → Adjust the exposure (page 41).</li> <li>• The brightness of the LCD screen is too low. → Adjust the brightness of the LCD screen (page 16).</li> </ul>
The indication of the battery remaining time is not proper.	<ul style="list-style-type: none"> <li>• You are using the camera for many hours under extremely hot or cold temperatures.</li> <li>• The battery pack is dead. → Replace the battery pack with a new one (page 8).</li> <li>• The battery level is too low. → Install the charged battery pack (page 8, 9).</li> </ul>
The power is immediately turned off even if the battery remaining indicator indicates that the battery level is sufficient.	→ Charge the battery pack about one hour after the normal charge is complete (page 9).
The zoom does not work.	<ul style="list-style-type: none"> <li>• PROGRAM AE is set to the Panfocus mode. → Cancel the Panfocus mode (page 40).</li> </ul>

58

Symptom	Cause and/or Solution
Digital zoom does not function.	<ul style="list-style-type: none"> <li>• You cannot use digital zoom to record moving pictures.</li> </ul>
The image is in monochrome.	<ul style="list-style-type: none"> <li>• You shot the image in TEXT mode. → Cancel the TEXT mode (page 38).</li> </ul>
The image and sound break off when you play back an image on a personal computer.	<ul style="list-style-type: none"> <li>• You are playing back the file from the floppy disk. → Copy the file to the hard disk of the personal computer and then play back the file from the hard disk (page 26).</li> </ul>
The image cannot be played back on a personal computer.	→ Consult the personal computer or software manufacturer.
Your camera cannot delete an image.	<ul style="list-style-type: none"> <li>• The image is protected. → Cancel the protection (page 48).</li> </ul>
The power turns off suddenly.	<ul style="list-style-type: none"> <li>• With the PLAY/STILL/MOVIE selector set to STILL or MOVIE, if you do not operate the camera for about three minutes while the power is on, the camera turns off automatically to prevent wearing down the battery pack. → Turn on the camera.</li> <li>• The battery pack is discharged. → Replace it with a charged battery pack.</li> </ul>
The image does not appear on the TV screen.	<ul style="list-style-type: none"> <li>• The VIDEO OUT setting of your camera is incorrect. → Change the setting (page 34).</li> </ul>
The slide show function stops automatically.	<ul style="list-style-type: none"> <li>• The slide show function stops after about 20 minutes. → To continue the slide show, select [START] again (page 46).</li> </ul>
You cannot use the PROGRAM AE function.	<ul style="list-style-type: none"> <li>• The camera is set to TEXT mode. → Cancel the TEXT mode (page 38).</li> </ul>
The $\square$ button does not work.	<ul style="list-style-type: none"> <li>• The camera is in manual focus mode. → Set it to auto focus mode (page 39).</li> <li>• PROGRAM AE is set to the Panfocus mode. → Cancel the Panfocus mode (page 40).</li> </ul>
You cannot resize the image.	<ul style="list-style-type: none"> <li>• This function does not work on a moving image nor on a TEXT image.</li> </ul>
You cannot mark an image with the print mark.	<ul style="list-style-type: none"> <li>• The print mark cannot be marked on a moving image nor on a TEXT image.</li> </ul>

60

Symptom	Cause and/or Solution
The flash does not work.	<ul style="list-style-type: none"> <li>• The flash is set to <math>\square</math>. → Set the flash to (no indication), <math>\square</math>, or <math>\square</math> (page 19).</li> <li>• The camera is in one of the following PROGRAM AE modes: Twilight, Twilight plus, or Landscape. → Cancel the PROGRAM AE function or set the flash to <math>\square</math> (page 19, 40).</li> <li>• The PLAY/STILL/MOVIE selector is set to MOVIE. → Set it to STILL.</li> <li>• The flash is not popped up. → Pop up the flash (page 19).</li> </ul>
The read/write time is slow when using a "Memory Stick."	<ul style="list-style-type: none"> <li>• When using the Floppy Disk Adaptor for Memory Stick, writing and reading images take about twice times than using a floppy disk. → This is not a malfunction.</li> </ul>
The date and time are recorded incorrectly.	<ul style="list-style-type: none"> <li>• The date and time are not set correctly. → Set the correct date and time (page 12).</li> </ul>
Vertical streaks appear when you are shooting a very bright subject.	<ul style="list-style-type: none"> <li>• This is called the smear phenomenon. → This is not a malfunction.</li> </ul>
The battery life is short.	<ul style="list-style-type: none"> <li>• You are recording/playing back images under extremely cold temperatures. • The battery pack is not charged enough. → Charge the battery pack fully.</li> <li>• The battery pack is dead. → Replace the battery pack with a new one.</li> </ul>
The indication of the battery remaining time is not proper.	<ul style="list-style-type: none"> <li>• You are using the camera for many hours under extremely hot or cold temperatures.</li> <li>• The battery pack is dead. → Replace the battery pack with a new one (page 8).</li> <li>• The battery level is too low. → Install the charged battery pack (page 8, 9).</li> </ul>
The power is immediately turned off even if the battery remaining indicator indicates that the battery level is sufficient.	→ Charge the battery pack about one hour after the normal charge is complete (page 9).
The zoom does not work.	<ul style="list-style-type: none"> <li>• PROGRAM AE is set to the Panfocus mode. → Cancel the Panfocus mode (page 40).</li> </ul>

59

### Warning and notice messages

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

Message	Meaning
DRIVE ERROR	There is trouble with the disk drive.
NO DISK	No disk has been inserted.
FORMAT ERROR	<ul style="list-style-type: none"> <li>• The floppy disk loaded is not MS-DOS formatted (512 bytes×18 sectors).</li> <li>• The battery level of the Floppy Disk Adaptor for Memory Stick is low.</li> </ul>
DISK PROTECT	The tab on the disk is set to the non-recording position.
DISK FULL	The disk is full.
NO FILE	No image has been recorded on the disk.
FILE ERROR	Trouble has occurred during playback.
FILE PROTECT	The image is protected.
DISK ERROR	A 2DD floppy disk is inserted, or there is trouble with the disk.
NOT ENOUGH MEMORY	The remaining capacity of the floppy disk is not enough to copy the image.
IMAGE SIZE OVER	You tried to play back images with an image size larger than the maximum playback size of this camera.
INVALID OPERATION	<ul style="list-style-type: none"> <li>• You cannot do DISK COPY between a "Memory Stick" and a floppy disk.</li> <li>• You select [ALL] from [COPY] when copying images in the "Memory Stick."</li> </ul>
for "InfoLITHIUM" battery only	The battery is not the "InfoLITHIUM" type.
$\square$	The image is protected.
$\square$	The battery level is too low.
NOT ENOUGH FD ADAPTOR'S BATTERY	The battery level of the Floppy Disk Adaptor for Memory Stick is low.
$\square$ COULDN'T RECORD	The battery level of the Floppy Disk Adaptor for Memory Stick is too low to shoot.

Additional information

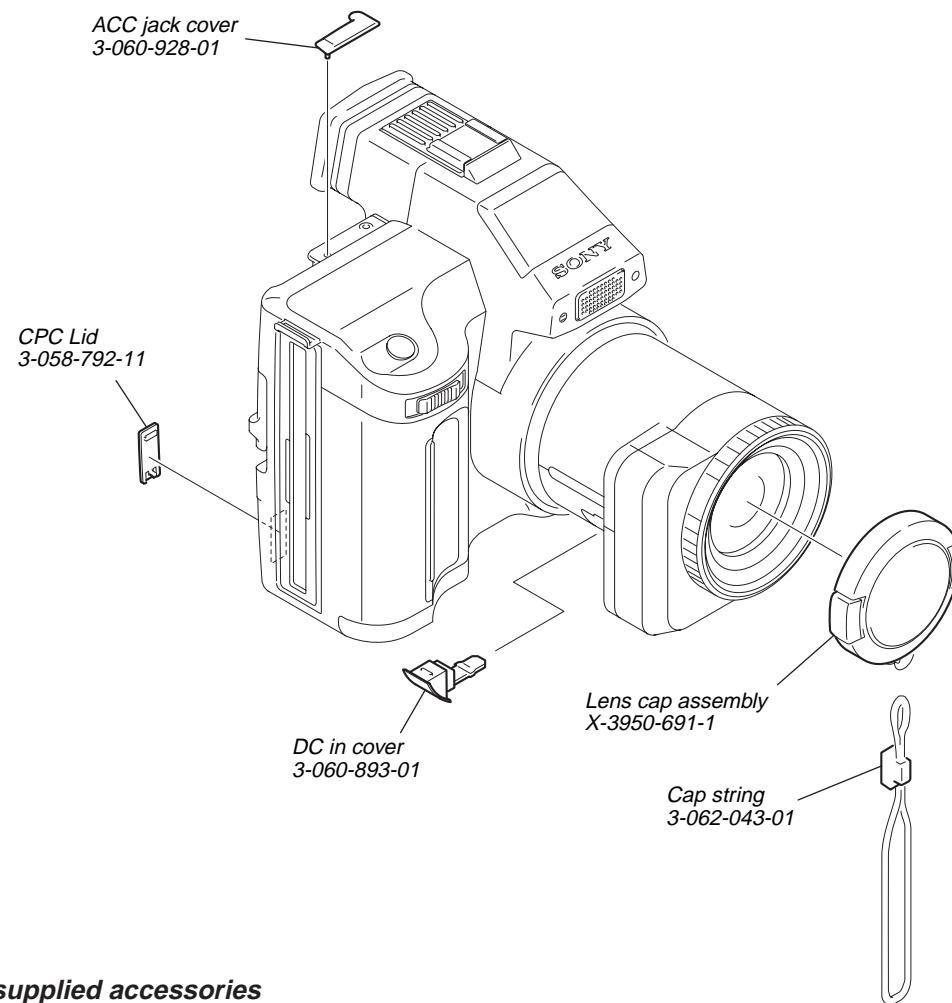
## 1. MAIN PARTS

### Note:

- Follow the disassembly procedure in the numerical order given.
- Items marked “\*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The parts numbers of such as a cabinet are also appeared in this section. Refer to the parts number mentioned below the name of parts to order.

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

## 1. ORNAMENTAL PARTS



### Checking supplied accessories

AC-VF10 power adaptor (1) △ 1-475-599-11 Power cord set (1) (AEP model) △ 1-769-608-11 Power cord (with filter) (1) (UK model) △ 1-783-374-11	NP-F330 battery pack (1) A-7094-141-A	Shoulder belt (S) (1) 3-987-015-01	(Fig. A) Lens cap assy (1) X-3950-691-1
Bundle soft (2000) (1) 3-060-716-01	Cord connector (A/V) (1) 1-783-738-11	(Fig. B) Cap string (1) 3-062-043-01	(Fig. B)
<b>Note :</b> The components identified by mark $\triangle$ or dotted line with mark $\triangle$ are critical for safety. Replace only with part number specified.			

### Format

When you format a floppy disk, all data stored on the floppy disk will be deleted. Check the contents of the floppy disk before formatting.

### Note

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



**1** Insert the floppy disk you want to format.

**2** Select [FILE], [DISK TOOL], [FORMAT], and then [OK] from the menu.

### To cancel formatting

Select [CANCEL] in step 2.

### Notes

- When you format the disk, be sure to use a fully charged battery pack or the AC power adaptor as the power source.
- If you use the Floppy Disk Adaptor for Memory Stick, you can format “Memory Stick”s.

54

**If moisture condensation occurs**  
Immediately eject the floppy disk, then turn off the camera and wait about an hour for the moisture to evaporate. Note that if you attempt to record with moisture remaining inside the lens, you will be unable to record clear images.

### On AC power adaptor

- Unplug the unit from the wall outlet (mains) when you are not using the unit for a long time. To disconnect the power cord (mains lead), pull it out by the plug. Never pull the power cord (mains lead) itself.
- Do not operate the unit with a damaged cord (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 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 receivers and video equipment disturb AM reception and video operation.
- The unit becomes warm during use. This is not a malfunction.
- Do not place the unit in locations that are:
  - Extremely hot or cold
  - Dusty or dirty
  - Very humid
  - Vibrating

### Additional information

#### Precautions

##### On cleaning

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

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

**After using your camera at the seashore or other dusty locations**  
Clean your camera carefully. Otherwise, the salty air may corrode the metal fittings or dust may enter the inside of your camera, causing a malfunction.

##### On floppy disks

To protect data recorded on floppy disks, note the following:

- Avoid storing floppy disks near magnets or magnetic fields such as those of speakers and televisions, permanent erasure of disk data may result.
- Avoid storing floppy disks in areas subject to direct sunlight or sources of high temperature, such as a heating device. Floppy disk warping or damage may result, rendering the disk useless.
- Avoid contact with the disk's surface by opening the disk shutter plate. If the disk's surface becomes blemished, data may be rendered unreadable.

##### 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).

### Additional information

55

### 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 nor modify the battery pack.
- Attach the battery pack to the camera securely.

**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 (mains) [b].

**On vanadium-lithium battery**  
Your camera is supplied with a vanadium-lithium battery installed so as to retain the date and time, etc., regardless of the setting of the POWER switch. The vanadium-lithium battery is always charged as long as you are using your camera. The battery, however, will get discharged gradually if you do not use your camera. It will be completely discharged in about six months if you do not use your camera at all. Even if the vanadium-lithium battery is not charged, it will not affect the camera operation. To retain the date and time, etc., charge the battery if the battery is discharged.

**Watching the playback picture on TV**  
If you want to view the playback picture on a TV, you need a TV having a video input jack and a video connecting cable. The color system of the TV must be the same as that of your digital still camera. TV color systems differ from country to country. Check the following list:

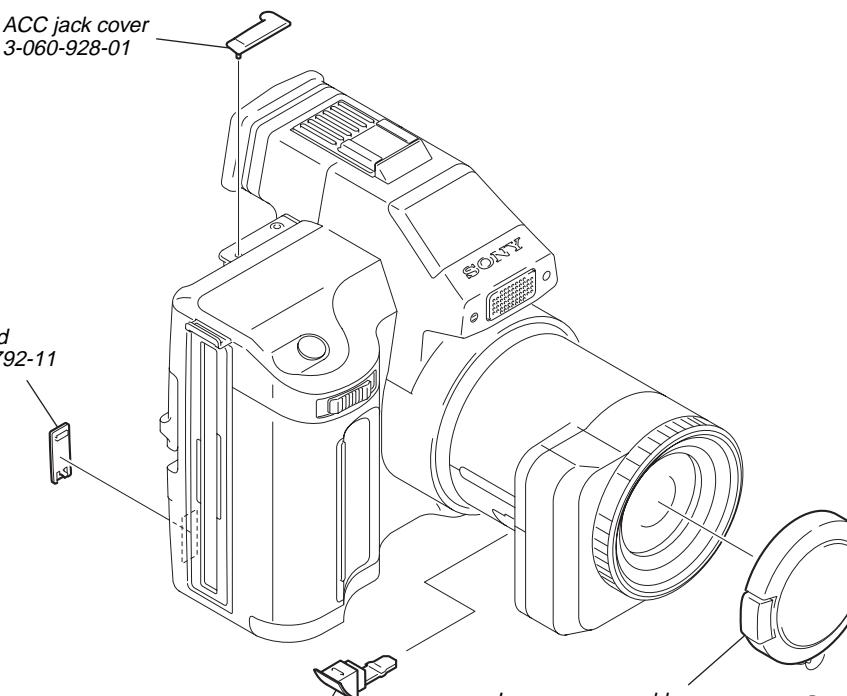
AC-L10AL10BL10C [a] [b]

### Additional information

### Note:

- Avoid getting liquids on the floppy disk.
- Be sure to use a floppy disk case to ensure protection of important data.
- Even when you use a 3.5 inch 2HD floppy disk, image data may not be recorded and/or displayed depending on the using environment. In this case, use an other brand of disks.

## 1. ORNAMENTAL PARTS



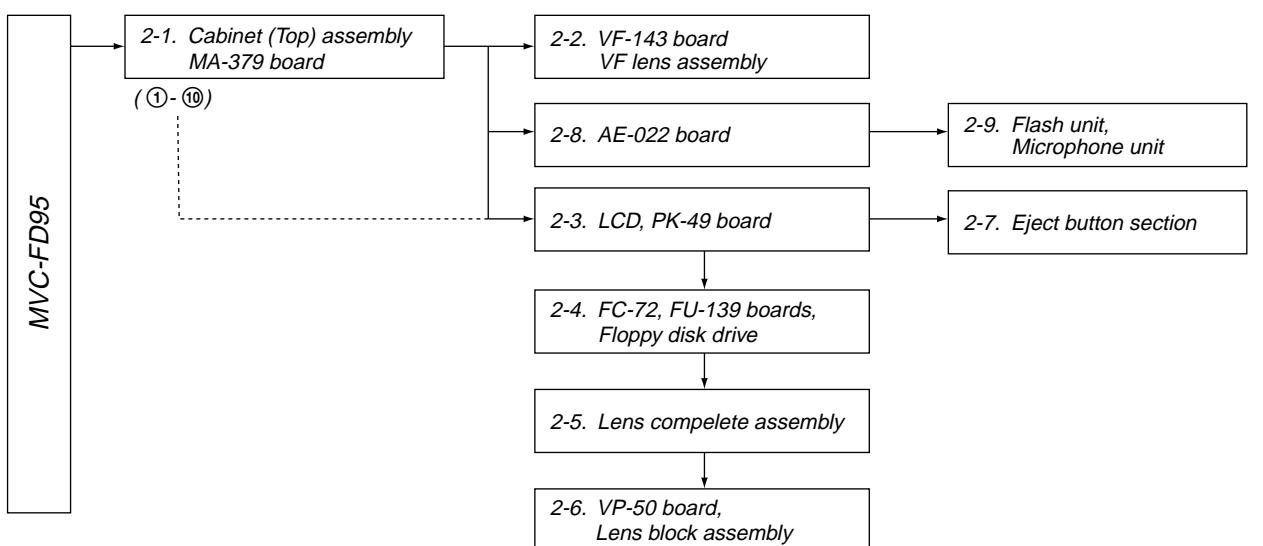
### Checking supplied accessories

AC-VF10 power adaptor (1) △ 1-475-599-11 Power cord set (1) (AEP model) △ 1-769-608-11 Power cord (with filter) (1) (UK model) △ 1-783-374-11	NP-F330 battery pack (1) A-7094-141-A	Shoulder belt (S) (1) 3-987-015-01	(Fig. A) Lens cap assy (1) X-3950-691-1
Bundle soft (2000) (1) 3-060-716-01	Cord connector (A/V) (1) 1-783-738-11	(Fig. B) Cap string (1) 3-062-043-01	(Fig. B)
<b>Note :</b> The components identified by mark $\triangle$ or dotted line with mark $\triangle$ are critical for safety. Replace only with part number specified.			

56

## 2. DISASSEMBLY

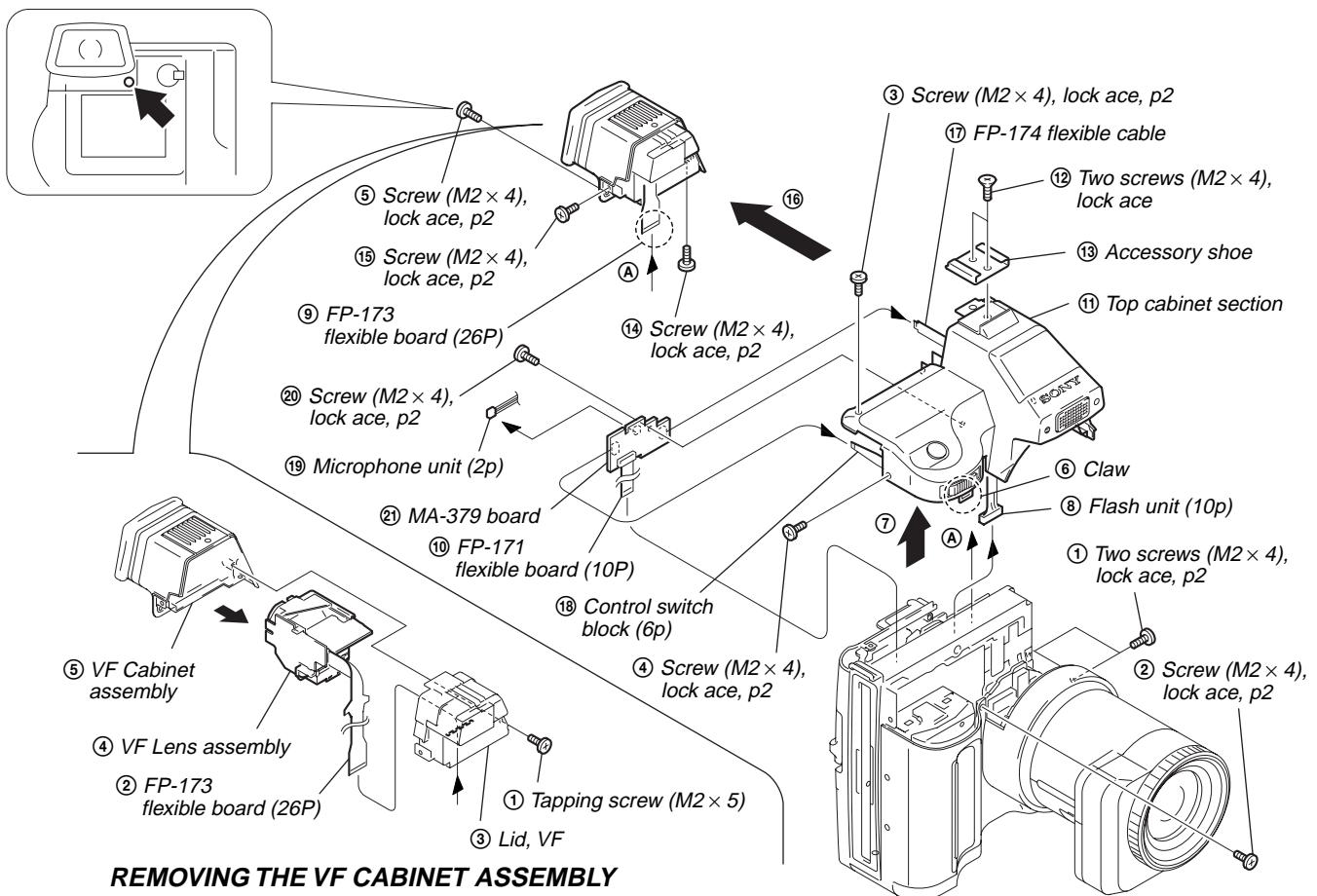
The following flow chart shows the disassembly procedure.



MVC-FD95

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

### 2-1. CABINET (TOP) ASSEMBLY, MA-379 BOARD



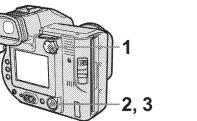
#### REMOVING THE VF CABINET ASSEMBLY

### Changing the recorded still image size (RESIZE)

#### Copying images (COPY)

Copies images to another floppy disk.

##### In single mode



- 1 Set the PLAY/STILL/MOVIE selector to PLAY, then display the image of which you want to change the size.

- 2 Select [TOOL] and then [RESIZE] from the menu.

- 3 Select the desired size.

1600×1200, 1024×768, 640×480. The resized image is recorded and the image on the LCD screen or on the finder returns to the previous size after recording.

##### To cancel changing the size

Select [CANCEL] in step 3.

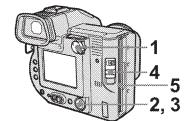
##### Notes

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

##### To continue copying the image to other floppy disks

After "COMPLETE" appears in step 4, select [CONTINUE] and repeat steps 3 and 4 above.

#### In INDEX mode



- 1 Set the PLAY/STILL/MOVIE selector to PLAY, then display the INDEX screen.

- 2 Select [TOOL], [COPY], and then [ALL] or [SELECT] from the menu.

- 3 When you select [ALL] Select [OK]. All the images are copied.

- 4 When you select [SELECT] Select the images to be copied with the control button. The checkmark appears.

- 5 When you select [ALL] Select [OK]. All the images are copied.

**To continue copying the image to other floppy disks**  
After "COMPLETE" appears in step 5, select [CONTINUE] and repeat steps 4 and 5 above.

**To cancel copying part-way**  
Change the PLAY/STILL/MOVIE selector position or turn off the power.

**Note**  
If you eject and insert the floppy disk without selecting [EXIT] after "COMPLETE" appears, the image will be copied to the floppy disk.

##### Notes on the Floppy Disk Adaptor for Memory Stick

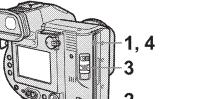
- You cannot select [ALL] when copying images in the "Memory Stick."
- You cannot copy images from a floppy disk to a "Memory Stick."
- When copying from a "Memory Stick" to a floppy disk, the file information (Exit tag) is not copied.

### Copying all the information on your floppy disk (DISK COPY)

You can copy to another disk not only the images you have recorded with your camera but also various files you have created in other software with your personal computer.

##### Notes

- With copying disk, all information saved on the recipient floppy disk is erased to be replaced by newly written data including the protected image data. Check the contents of the recipient disk before copying disk.
- Be sure to use a formatted floppy disk to carry out DISK COPY.



- 1 Insert the floppy disk to be copied.

- 2 Select [FILE], [DISK TOOL], [DISK COPY], and then [OK] from the menu. "DISK ACCESS" appears.

- 3 When "CHANGE FLOPPY DISK" is displayed, eject the floppy disk. "INSERT FLOPPY DISK" appears.

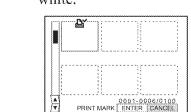
- 4 Insert another floppy disk. "RECORDING" appears. When copying is completed, "COMPLETE" appears.

To end copying, select [EXIT].

### Selecting still images to print (PRINT MARK)

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

- 4 Select [ENTER]. The checkmarks on the selected images change from green to white.



#### To remove selected print marks

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

#### To remove all the print marks

Select [FILE], [PRINT MARK], [ALL], and then [OFF] from the menu. The checkmarks on all images are removed.

#### To print out using the FVP-1 Mavica Printer

Set PRESET SELECT SW to PC on the printer.

**Note**  
You cannot mark a print mark on moving images or TEXT mode images.



- 1 Set the PLAY/STILL/MOVIE selector to PLAY and display the image you want to print.

- 2 Select [FILE], [PRINT MARK], and then [ON] from the menu. The checkmark (print mark) is marked on the displayed image.

- 3 When "PRINT MARK" is displayed, select [OFF] in step 2.

#### In INDEX mode

- 1 Set the PLAY/STILL/MOVIE selector to PLAY, then display the INDEX screen.

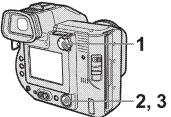
- 2 Select [FILE], [PRINT MARK], and then [SELECT] from the menu.

- 3 Select the images to be marked with the control button.

## 2-2. VF-143 BOARD, VF LENS ASSEMBLY

### Playing back the still images in order (SLIDE SHOW)

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



**1** Set the PLAY/STILL/MOVIE selector to PLAY.

**2** Select [FILE] and then [SLIDE SHOW] from the menu.  
Set the following items.

**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 (approximately 20 minutes) until [RETURN] is selected.  
OFF: After all images have been played back, the slide show ends.

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

### To cancel the slide show

Select [CANCEL] in step 2 or 3.

46

### To skip to the next/previous image during the slide show (SLIDE SHOW)

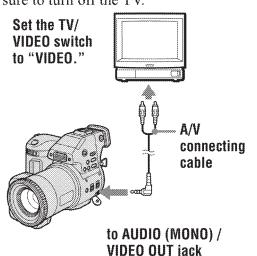
Select **[◀▶]** at the lower-left on the screen.

#### Notes

- The interval setting time may vary depending on the image size.
- When [REPEAT] is set to [ON], the slide show does not end until all the images played back, even if it takes more than 20 minutes.

### Viewing images on a TV screen

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



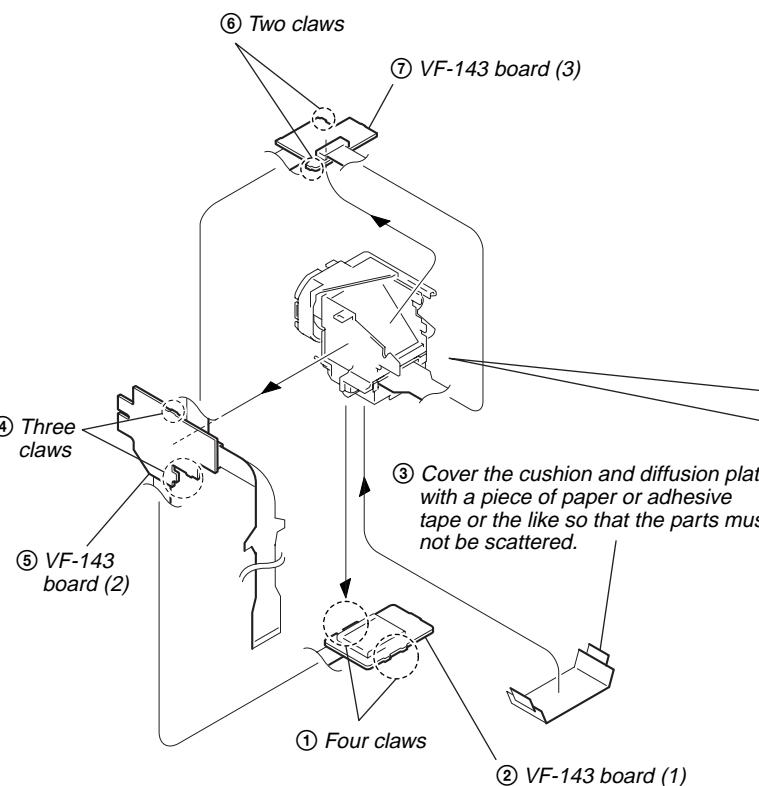
**1** Connect the A/V connecting cable to the AUDIO (MONO) / VIDEO OUT jack of your camera and to the audio/video input jacks of the TV.

If your TV has stereo type input jacks, connect the audio plug of the A/V connecting cable to the Lch jack.

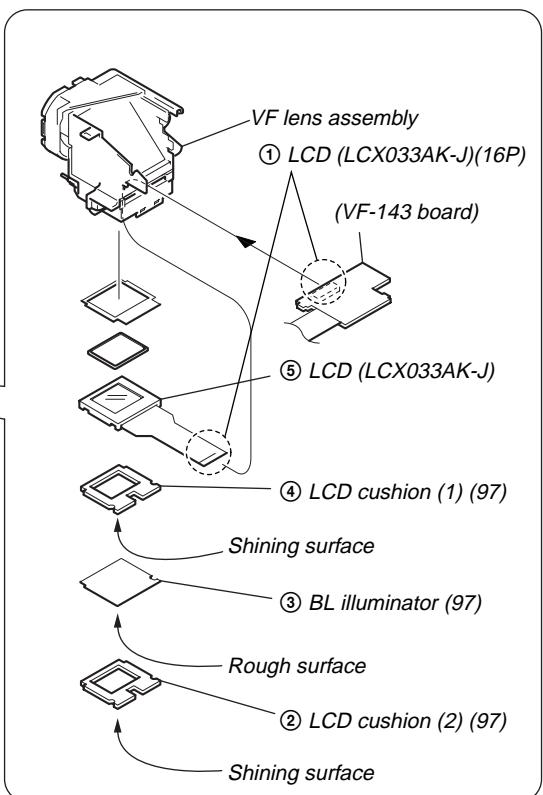
**2** Turn on the TV and start playback on your camera.  
The playback image appears on the TV screen.

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

▼ Various playback



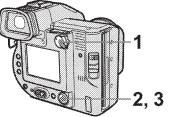
## REMOVING THE VF LENS ASSEMBLY



## ► Editing

### Preventing accidental erasure (PROTECT)

The **PROT** (protect) indicator appears on protected images.



**1** Set the PLAY/STILL/MOVIE selector to PLAY, then display the image to be protected.

**2** Select [FILE], [PROTECT], and then [ON] from the menu.  
The displayed image is protected and the **PROT** indicator appears.

### To release protection

Select [OFF] in step 2.

### In INDEX mode

**1** Set the PLAY/STILL/MOVIE selector to PLAY, then display the INDEX screen.

**2** Select [FILE], [PROTECT], and then [ALL] or [SELECT] from the menu.

### Deleting images (DELETE)

Protected images cannot be deleted.



**1** Set the PLAY/STILL/MOVIE selector to PLAY, then display the image to be deleted.

**2** Select [DELETE] and then [OK] from the menu.  
The image is deleted.

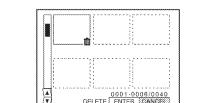
### In single mode

**1** Set the PLAY/STILL/MOVIE selector to PLAY, then display the image to be deleted.

**2** Select [DELETE] and then [OK] from the menu.  
The image is deleted.

**3** When you select [ALL]  
Select [ENTER].  
All the unprotected images are deleted.

**When you select [SELECT]**  
Select all the images to be protected with the control button, then select [ENTER]. The **DELET** (delete) indicator appears on the selected images and these images are deleted.



**1** Set the PLAY/STILL/MOVIE selector to PLAY, then display the INDEX screen.

**2** Select [DELETE] and then [ALL] or [SELECT] from the menu.

### In INDEX mode

**1** Set the PLAY/STILL/MOVIE selector to PLAY, then display the INDEX screen.

**2** Select [DELETE] and then [ALL] or [SELECT] from the menu.

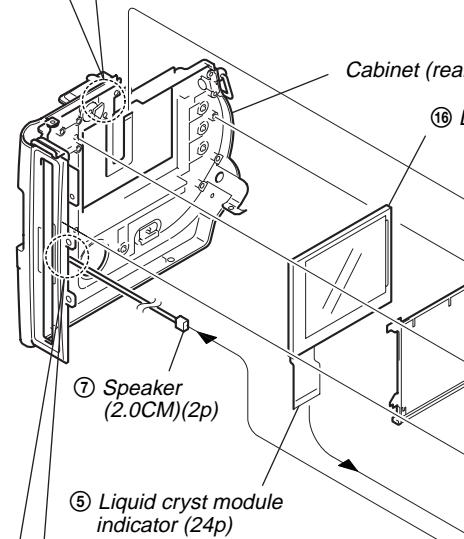
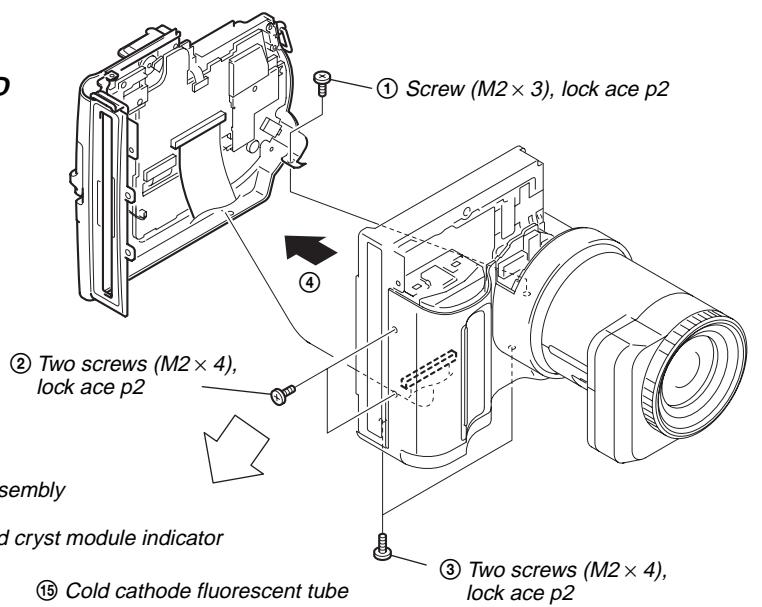
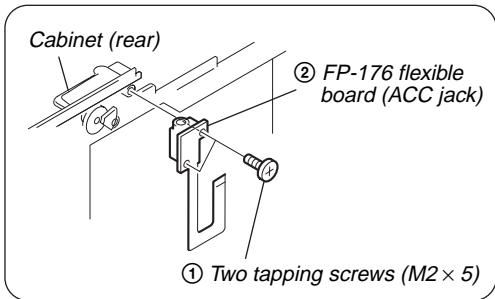
▼ Editing

48

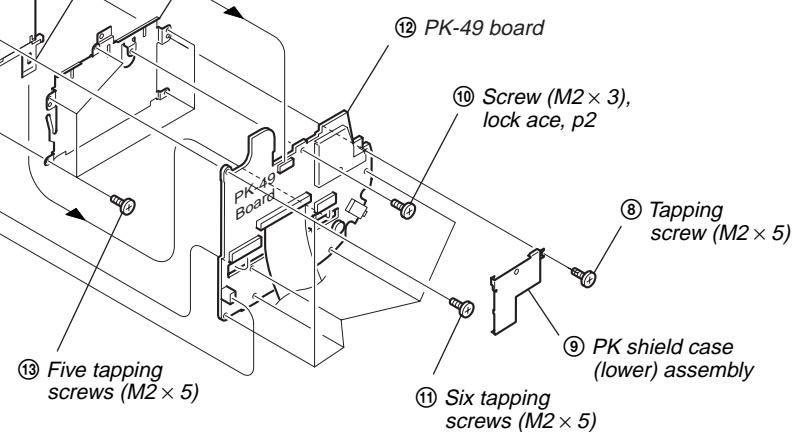
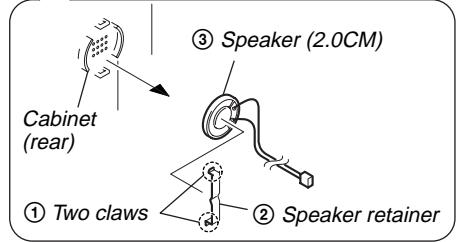
49

## 2-3. LCD, PK-49 BOARD

### REMOVING THE FP-176 FLEXIBLE BOARD

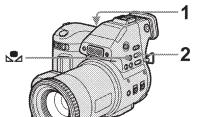


### REMOVING THE SPEAKER



### Adjusting the white balance (WHITE BALANCE)

Normally the white balance is automatically adjusted.



#### 1 Set the PLAY/STILL/MOVIE selector to MOVIE or STILL.

#### 2 Press WHITE BALANCE repeatedly to select the desired white balance setting.

##### IN DOOR (●)

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

##### OUT DOOR (●)

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

##### One-push white balance (●)

Adjusting the white balance depending on the light source

##### AUTO (No indicator)

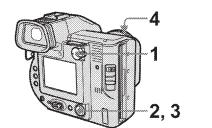
Adjusts the white balance automatically

#### To shoot in one-push white balance mode

- Press WHITE BALANCE repeatedly until the WB indicator appears.

42

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



#### 1 Set the PLAY/STILL/MOVIE selector to MOVIE or STILL.

#### 2 Select [EFFECT] and then [DATE/TIME] from the menu.

#### 3 Select the date and time.

##### DAY & TIME

Imposes the date, hour, and minute.

##### SOLARIZE

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

##### B&W

The picture is monochrome (black and white).

##### SEPIA

The picture is sepia-toned like an old photograph.

##### NEG.ART

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

##### OFF

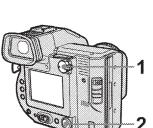
Does not impose the date and time.

#### 4 Record the image.

The date and time do not appear on the LCD screen or on the finder during shooting, these appear during playback only.



### Enjoying picture effects (PICTURE EFFECT)



#### 1 Set the PLAY/STILL/MOVIE selector to MOVIE or STILL.

#### 2 Select [EFFECT] and then [P. EFFECT] from the menu.

#### 3 Select the desired mode.

##### DAY & TIME

Imposes the date, hour, and minute.

##### SOLARIZE

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

##### B&W

The picture is monochrome (black and white).

##### SEPIA

The picture is 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.

#### To cancel picture effect

Select [OFF] in step 2.

▼ Various recording

43

### Various playback

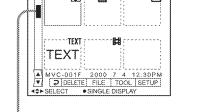
#### Playing back six images at once (INDEX)



#### 1 Set the PLAY/STILL/MOVIE selector to PLAY.

#### 2 Select [INDEX] on the LCD screen.

Six images are displayed at once (index screen).



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

The following marks are displayed on each image according to the image type and settings.

MOV: Moving image file

Voice memo file

E-mail file

Print mark

Protect mark

TEXT: TEXT file

(No mark): Normal recording (no settings)

MV: Moving image file  
V: Voice memo file  
EM: E-mail file  
P: Print mark  
PR: Protect mark  
T: TEXT file  
(No mark): Normal recording (no settings)

MOV: Moving image file

Voice memo file

E-mail file

Print mark

Protect mark

TEXT: TEXT file

(No mark): Normal recording (no settings)

MV: Moving image file  
V: Voice memo file  
EM: E-mail file  
P: Print mark  
PR: Protect mark  
T: TEXT file  
(No mark): Normal recording (no settings)

MOV: Moving image file

Voice memo file

E-mail file

Print mark

Protect mark

TEXT: TEXT file

(No mark): Normal recording (no settings)

MV: Moving image file  
V: Voice memo file  
EM: E-mail file  
P: Print mark  
PR: Protect mark  
T: TEXT file  
(No mark): Normal recording (no settings)

MOV: Moving image file

Voice memo file

E-mail file

Print mark

Protect mark

TEXT: TEXT file

(No mark): Normal recording (no settings)

MV: Moving image file  
V: Voice memo file  
EM: E-mail file  
P: Print mark  
PR: Protect mark  
T: TEXT file  
(No mark): Normal recording (no settings)

MOV: Moving image file

Voice memo file

E-mail file

Print mark

Protect mark

TEXT: TEXT file

(No mark): Normal recording (no settings)

MV: Moving image file  
V: Voice memo file  
EM: E-mail file  
P: Print mark  
PR: Protect mark  
T: TEXT file  
(No mark): Normal recording (no settings)

MOV: Moving image file

Voice memo file

E-mail file

Print mark

Protect mark

TEXT: TEXT file

(No mark): Normal recording (no settings)

MV: Moving image file  
V: Voice memo file  
EM: E-mail file  
P: Print mark  
PR: Protect mark  
T: TEXT file  
(No mark): Normal recording (no settings)

MOV: Moving image file

Voice memo file

E-mail file

Print mark

Protect mark

TEXT: TEXT file

(No mark): Normal recording (no settings)

MV: Moving image file  
V: Voice memo file  
EM: E-mail file  
P: Print mark  
PR: Protect mark  
T: TEXT file  
(No mark): Normal recording (no settings)

MOV: Moving image file

Voice memo file

E-mail file

Print mark

Protect mark

TEXT: TEXT file

(No mark): Normal recording (no settings)

MV: Moving image file  
V: Voice memo file  
EM: E-mail file  
P: Print mark  
PR: Protect mark  
T: TEXT file  
(No mark): Normal recording (no settings)

MOV: Moving image file

Voice memo file

E-mail file

Print mark

Protect mark

TEXT: TEXT file

(No mark): Normal recording (no settings)

MV: Moving image file  
V: Voice memo file  
EM: E-mail file  
P: Print mark  
PR: Protect mark  
T: TEXT file  
(No mark): Normal recording (no settings)

MOV: Moving image file

Voice memo file

E-mail file

Print mark

Protect mark

TEXT: TEXT file

(No mark): Normal recording (no settings)

MV: Moving image file  
V: Voice memo file  
EM: E-mail file  
P: Print mark  
PR: Protect mark  
T: TEXT file  
(No mark): Normal recording (no settings)

MOV: Moving image file

Voice memo file

E-mail file

Print mark

Protect mark

TEXT: TEXT file

(No mark): Normal recording (no settings)

MV: Moving image file  
V: Voice memo file  
EM: E-mail file  
P: Print mark  
PR: Protect mark  
T: TEXT file  
(No mark): Normal recording (no settings)

MOV: Moving image file

Voice memo file

E-mail file

Print mark

Protect mark

TEXT: TEXT file

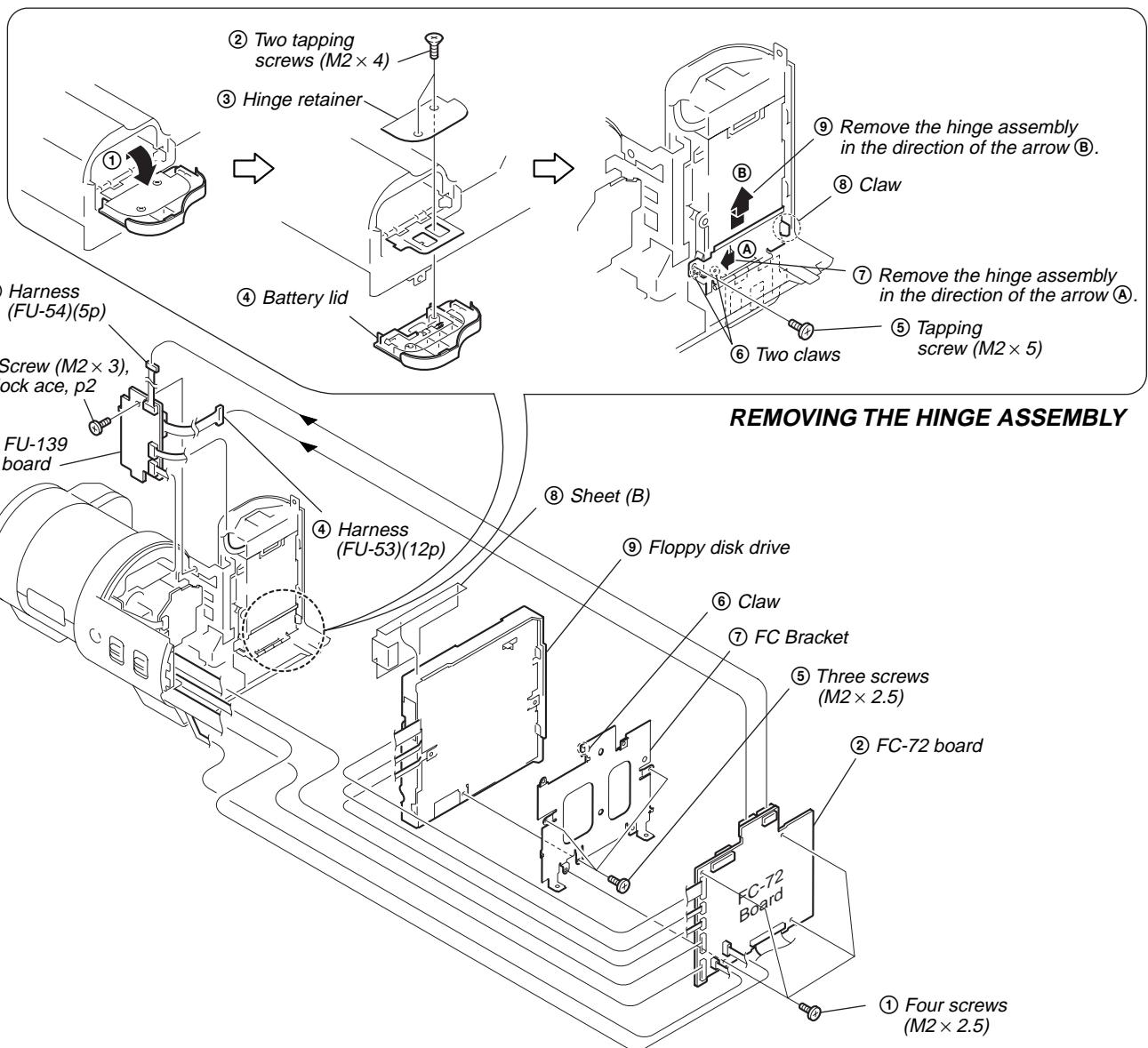
(No mark): Normal recording (no settings)

MV: Moving image file  
V: Voice memo file  
EM: E-mail file  
P: Print mark  
PR: Protect mark  
T: TEXT file  
(No mark): Normal recording (no settings)

MOV: Moving image file

Voice memo file

## 2-4. FC-72, FU-139 BOARDS, FLOPPY DISK DRIVE

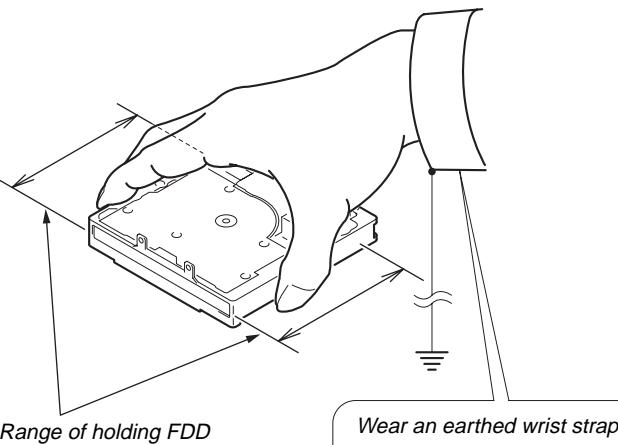


### REMOVING THE HINGE ASSEMBLY

▼ Various recording

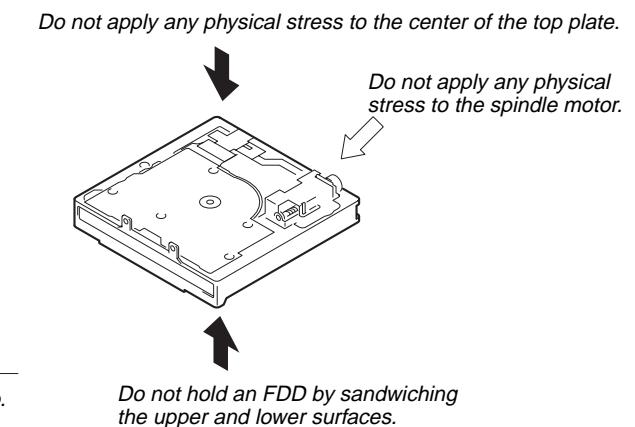
## Cautions When Handling FDD

### 1. Correct Way of Holding an FDD



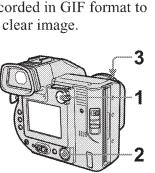
If the FDD is not held correctly,  
the components of the FDD may be bent.

### 2. Prohibited Items



### Recording text documents (TEXT)

Text is recorded in GIF format to provide a clear image.



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

The number of images that you can record on a floppy disk in TEXT mode

Image size	Number of images
1600×1200	Minimum 4 (25)
1600 (3:2)	Minimum 5 (28)
1600 (ECM)	Minimum 4 (25)
1024×768	Minimum 11 (61)
640×480	Minimum 28 (160)

Numbers in parentheses indicate the number when you use the "Memory Stick" (8 MB) (not supplied).

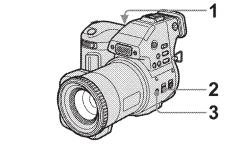
### To return to normal recording mode

Select [NORMAL] in step 2.

#### Notes

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

### Recording images in macro



- 1 Set the PLAY/STILL/MOVIE selector to MOVIE or STILL.
- 2 Set the FOCUS AUTO/MANUAL switch to AUTO.
- 3 Press (macro).

The (macro) indicator appears on the LCD screen or on the finder. With the zoom lever set to the W side, you can shoot a subject that is about 2 cm (13/16 inch) away from the lens surface in macro mode.

### To return to normal recording mode

Press again. The indicator disappears.

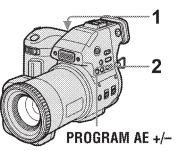
#### Notes

- You cannot record images in macro with the following PROGRAM AE modes:
  - Landscape mode
  - Panfocus mode
- You cannot record images in macro if the indicator appears.

### To reactivate auto focusing

Select the FOCUS AUTO/MANUAL switch to AUTO.

### Using the PROGRAM AE function



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

#### AE Aperture priority mode

For making the subject stand out against an unclear background or making both the subject and the background stand out clearly. Press PROGRAM AE +/- repeatedly to select an aperture value in 9 steps from F2.8 to F11.

#### AS Shutter speed priority mode

For recording a sharp picture of a fast-moving subject or recording the flow of motion of a moving subject.

Press PROGRAM AE +/- repeatedly to select a shutter speed in 17 steps from 8" to 1/500 when recording a still image, or in 11 steps from 1/8 to 1/500 when recording a moving image.

#### Twilight mode

Suppresses the blurring of colors of a bright subject in dark place so that you can record the subject without losing the dark atmosphere of the surroundings.

Twilight plus mode Increases the effectiveness of the twilight mode function.

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

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

#### To cancel PROGRAM AE

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

#### Notes

- You can focus only on distant subjects in Landscape mode.
- In Panfocus mode, the zoom position is set to the W side and focus is fixed.
- When you record in Twilight plus mode, we recommend that you use a tripod to prevent shaking.

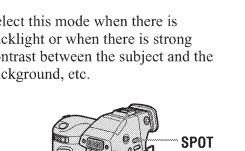
• Set the forced flash when you use the flash in the following modes:

- Twilight mode
- Twilight plus mode
- Landscape mode

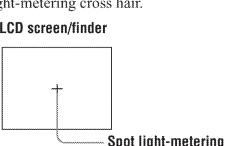
• You cannot use the PROGRAM AE function when [REC MODE] is set to [TEXT].

• If the setting is not appropriate in aperture priority mode and shutter priority mode, the setting value indicator on the LCD screen or on the finder flashes. In this case, reset the value.

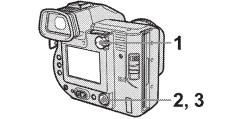
### Using the Spot light-metering function



Press SPOT METER to activate the spot light-metering function. Position the point you want to record at the spot light-metering cross hair.



### Adjusting the exposure (EXPOSURE)



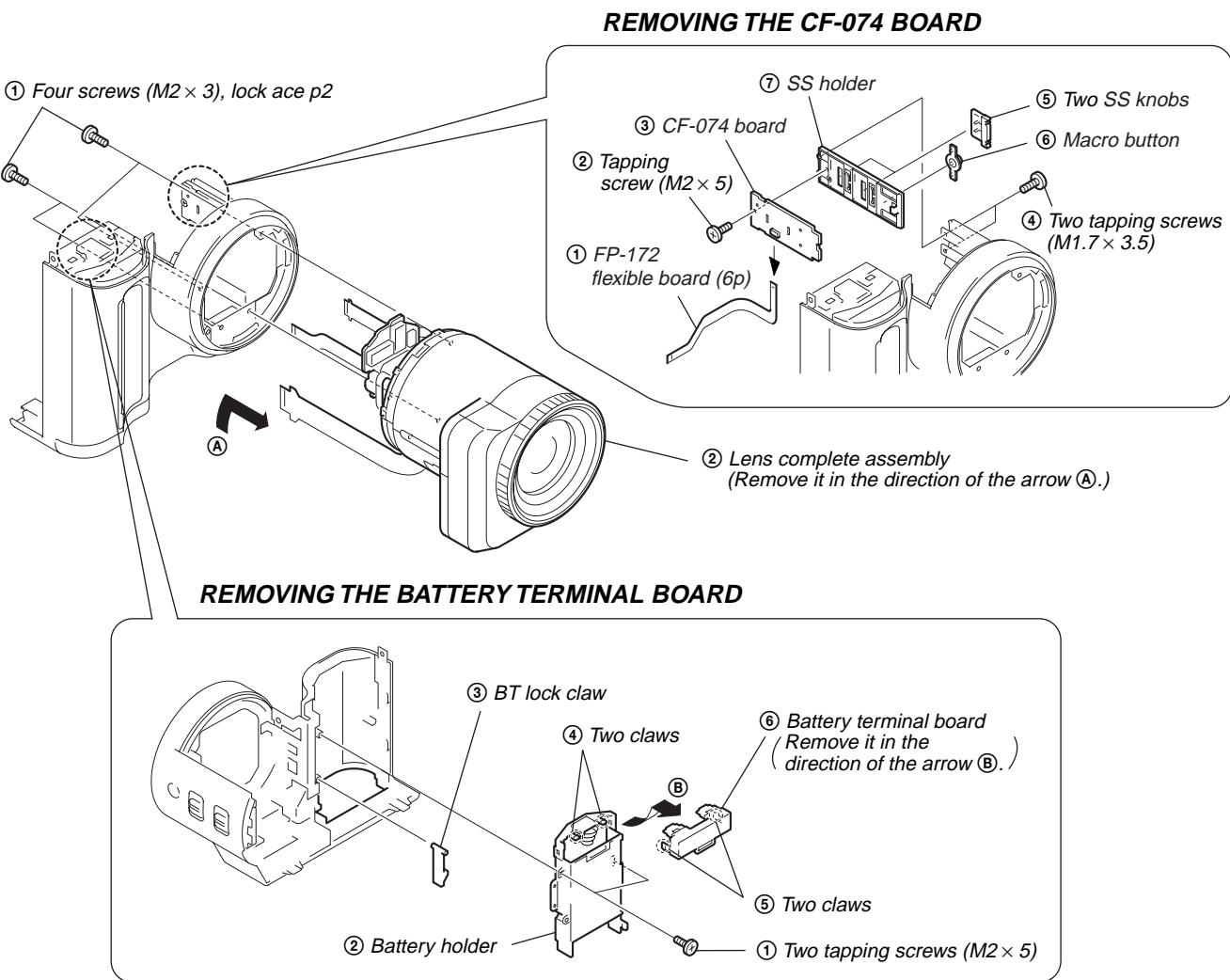
- 1 Set the PLAY/STILL/MOVIE selector to MOVIE or STILL.
- 2 Select [CAMERA] and then [EXPOSURE] from the menu.
- 3 Select the desired exposure value.

Adjust the exposure value while checking the brightness of the background. You can select values ranging from +2.0 EV to -2.0 EV in steps of 1/3 EV.

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

▼ Various recording

## 2-5. LENS COMPLETE ASSEMBLY



### CAMERA

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

### TOOL

Item	Setting	Description	PLAY/STILL/ MOVIE selector
COPY	OK ■ CANCEL	Copies the images (page 50). Cancels copying of the image.	PLAY
RESIZE (Only in PLAY (single) mode)	1600×1200 1024×768 640×480 ■ CANCEL	Changes the recorded image size (page 50).	PLAY

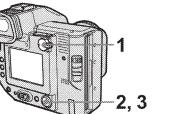
### SETUP

Item	Setting	Description	PLAY/STILL/ MOVIE selector
DEMO	■ STBY/ON OFF	Displayed only when you use the AC power adaptor in MOVIE or STILL mode. When [ON] is selected, a demonstration will start if you do not operate your camera for about 10 minutes. To stop the demonstration, turn off your camera.	MOVIE STILL
VIDEO OUT	■ NTSC PAL	Sets the video output signal to NTSC mode (e.g., Japan, the USA). Sets the video output signal to PAL mode (e.g., Europe).	MOVIE STILL PLAY

34

### ▶ Various recording

#### Setting the image size (IMAGE SIZE)



- 1 Set the PLAY/STILL/MOVIE selector to MOVIE or STILL.  
2 Select [FILE] and then [IMAGE SIZE] from the menu.

- 3 Select the desired image size.

**Still image sizes:**  
1600×1200, 1600 (3:2)\*,  
1600 (ECM), 1024×768, 640×480  
\* The image is recorded in the ratio of three to two to fit the printing paper size.

**Moving image sizes:**  
320×240, 160×112

Numbers in parentheses indicate the number or time when you use the "Memory Stick" (8 MB) (not supplied).  
\* When [REC MODE] is set to [NORMAL].

**When you select [1600 (ECM)]**  
The image quality deteriorates, however, the number of images you can record increases. If you give priority to the image quality, select [1600×1200].

**Notes**

- If you try to record 55 images or more on a floppy disk, even if the remaining disk capacity is sufficient, "DISK FULL" appears on the LCD screen and you cannot record any more images.
- In TEXT mode, even if you select [1600 (ECM)], the number of images you can record is equal with the number in [1600×1200].

**1 Record the image.**

**2 Select [FILE], [REC MODE], and then [E-MAIL] from the menu.**

**3 Record the image.**

Item	Setting	Description	PLAY/STILL/ MOVIE selector
言語 / LANGUAGE	■ 日本語 / JPN ■ ENGLISH	Displays the menu items in Japanese. Displays the menu items in English.	MOVIE STILL PLAY
CLOCK SET	—	Sets the date and time. (page 12)	MOVIE STILL PLAY
BEEP	SHUTTER ■ ON OFF	Turns off the beep only. (The shutter sound is heard when you press the shutter button.) Turns on the beep/shutter sound (when you press the control button/shutter button). Turns off the beep/shutter sound.	MOVIE STILL PLAY
LCD BRIGHT	■■■■■	Adjusts the LCD screen brightness using +/- on the LCD screen.	MOVIE STILL PLAY

#### INDEX (Only in PLAY (single) mode)

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

#### DELETE (Only in PLAY (single) mode)

Setting	Description	PLAY/STILL/MOVIE selector
OK	Deletes the displayed image.	PLAY
CANCEL	Cancels deleting of the image.	

#### ▷ (Return) (Only in PLAY (INDEX) mode)

Returns to PLAY (single) mode.

Before performing advanced operations

35

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



- 1 Set the PLAY/STILL/MOVIE selector to STILL.  
2 Select [FILE], [REC MODE], and then [E-MAIL] from the menu.

3 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 floppy disk in E-MAIL mode

Image size	Number of images
1600×1200	Approx. 3 (19)
1600 (3:2)	Approx. 3 (19)
1600 (ECM)	Approx. 7 (35)
1024×768	Approx. 8 (47)
640×480	Approx. 22 (120)

Numbers in parentheses indicate the number when you use the "Memory Stick" (8 MB) (not supplied).

#### To return to normal recording mode

Select [NORMAL] in step 2.

The number of images that you can record on a floppy disk in VOICE mode

Image size	Number of images
1600×1200	Approx. 3 (17)
1600 (3:2)	Approx. 3 (17)
1600 (ECM)	Approx. 5 (30)
1024×768	Approx. 6 (37)
640×480	Approx. 12 (74)

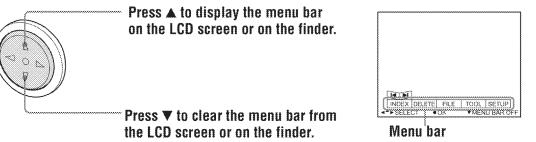
Numbers in parentheses indicate the number when you use the "Memory Stick" (8 MB) (not supplied).

#### To return to normal recording mode

Select [NORMAL] in step 2.

▼ Various recording

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



Note

You cannot clear the menu bar on the INDEX screen (page 44).

Selecting items or images on the LCD screen or on the finder

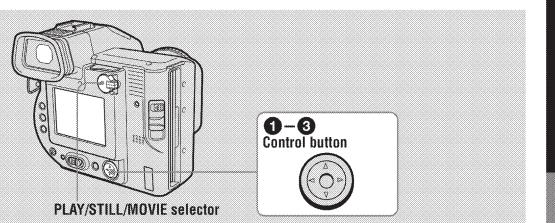
- ① Press **▲/▼/◀/▶** on the control button to select the item you want to set or the image you want to display.  
The color of the selected item or the frame of the selected image changes from blue to yellow.
- ② Press the center **●** to enter the item.  
Repeat steps ① and ② to execute each function.

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

Before performing advanced operations

How to change the menu settings

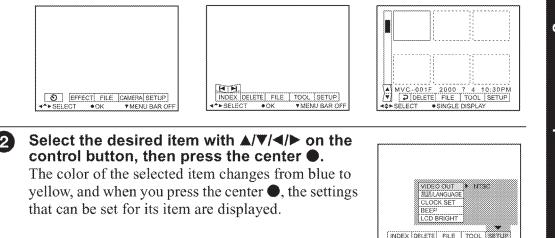
Some of the advanced operations for your camera are executed by selecting menu items displayed on the LCD screen or on the finder with the control button.



- ① Press **▲** on the control button to display the menu bar.

The menu bar appears as follows according to the position of the PLAY/STILL/MOVIE selector.

MOVIE/STILL PLAY (single mode) PLAY (INDEX mode)



- ② Select the desired item with **▲/▼/◀/▶** on the control button, then press the center **●**.

The color of the selected item changes from blue to yellow, and when you press the center **●**, the settings that can be set for its item are displayed.

- ③ Select the desired setting with **▲/▼/◀/▶** on the control button, then press the center **●**.

To cancel the setup

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

Menu settings

Menu items that can be modified differ depending on the position of the PLAY/STILL/MOVIE selector. The LCD screen or finder shows only the items you can operate at the moment. Initial settings are indicated with ■.

(self-timer)

Records with the self-timer (page 19).

EFFECT

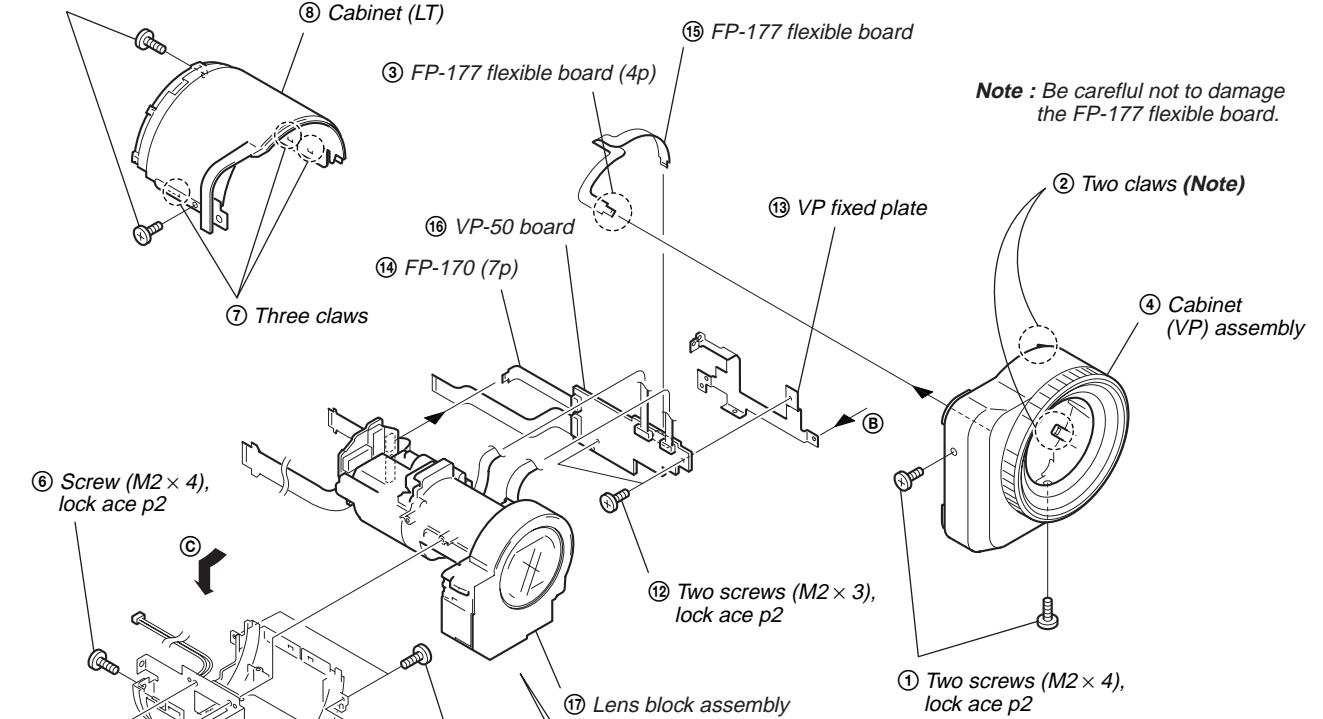
Item	Setting	Description	PLAY/STILL/MOVIE selector
P. EFFECT	SOLARIZE B&W SEPIA NEG.ART ■OFF	Sets the image special effects (page 43). MOVIE STILL	
DATE/TIME	DAY & TIME DATE ■OFF	Sets whether to insert the date and time into the image (page 43). STILL	

FILE

Item-1	Item-2	Setting	Description	PLAY/STILL/MOVIE selector
DISK TOOL	FORMAT	OK CANCEL	Formats a floppy disk (page 54). Cancels formatting of a floppy disk.	MOVIE STILL PLAY
	DISK COPY	OK CANCEL	Copies all data stored in a floppy disk to another disk (page 52). Cancels the disk copy.	
	CANCEL		Goes back to the [DISK TOOL] item.	
FILE NUMBER	SERIES ■NORMAL		Assigns numbers to files in sequence even if the floppy disk is changed. Resets the file number that starts from 001 each time the floppy disk is changed.	MOVIE STILL

## 2-6. VP-50 BOARD, LENS BLOCK ASSEMBLY

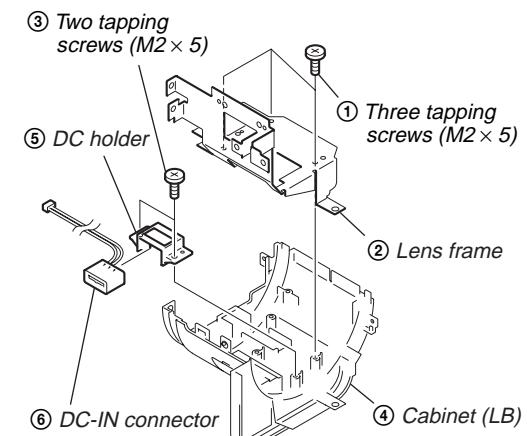
- ⑤ Two screws (M2 × 4), lock ace p2



Note : Be careful not to damage the FP-177 flexible board.

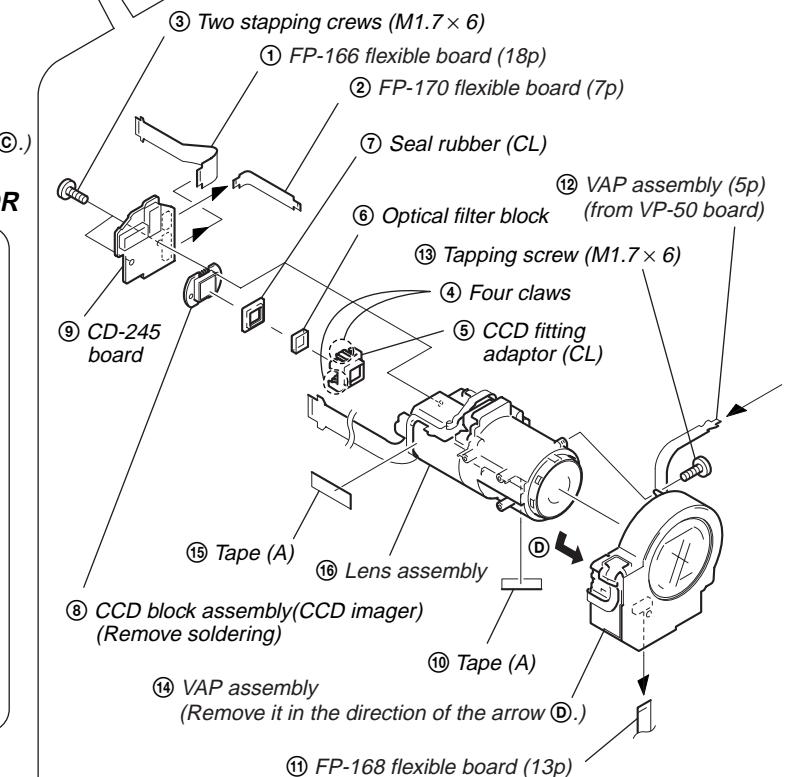
- ⑨ Two tapping screws (M2 × 5)
- ⑩ Two screws (M2 × 3), lock ace p2
- ⑪ Cabinet (LB) assembly (Remove it in the direction of the arrow C.)

REMOVING THE DC-IN CONNECTOR



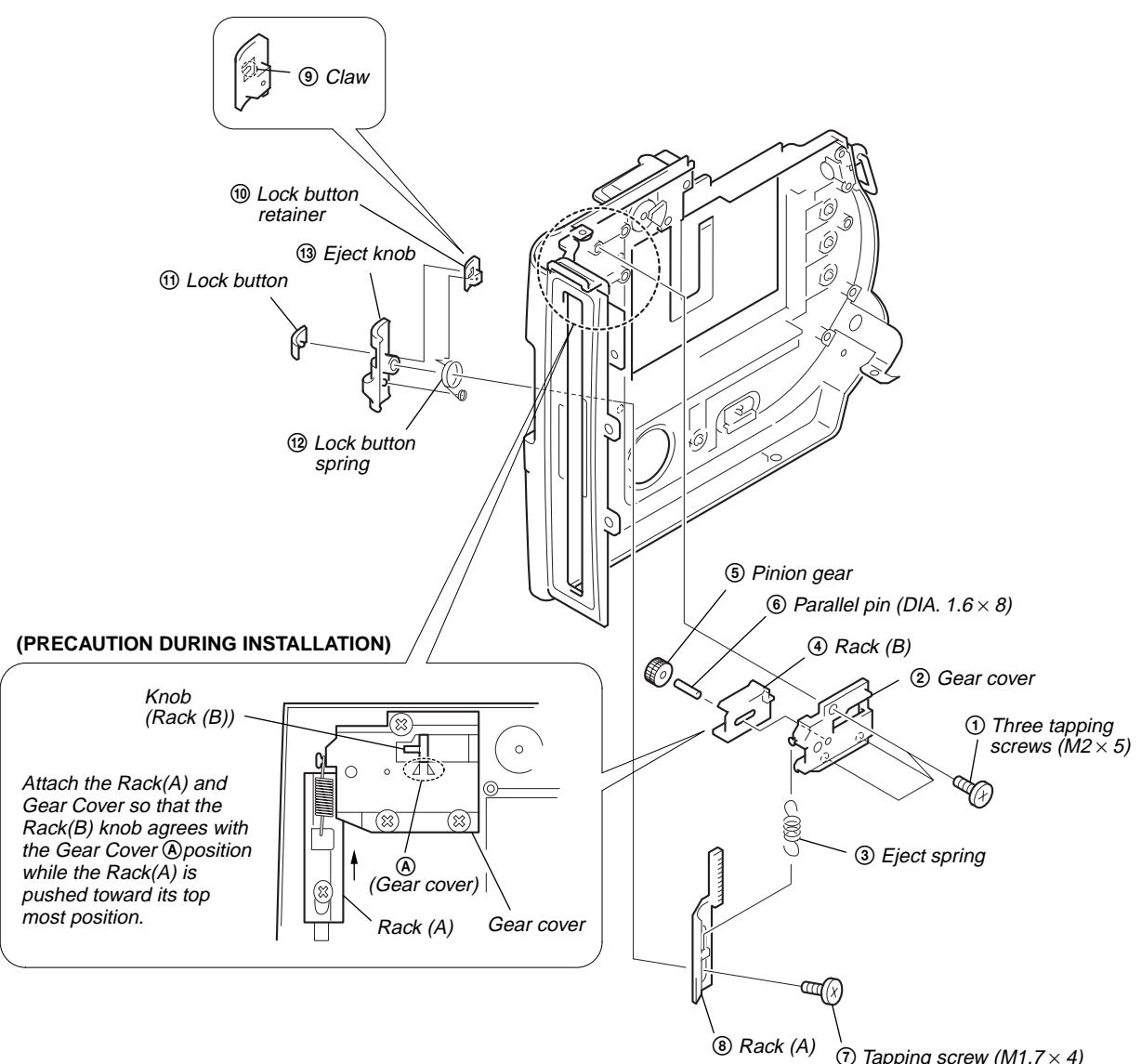
Before performing advanced operations

REMOVING THE CD-245 BOARD, LENS ASSEMBLY, VAP ASSEMBLY



Before performing advanced operations

## 2-7. EJECT BUTTON SECTION



### Viewing images

#### For Windows 98 users

1 Start up your personal computer and insert the floppy disk into the disk drive of your personal computer.

2 Open [ My computer] and double click [ 3 1/2 Floppy (A:)].

3 Double-click the desired data file.

Copying moving image files and audio files to the hard disk of your personal computer before viewing is recommended. If you play back the file directly from the floppy disk, the image and sound may break off.

• Windows and Windows NT, ActiveMovie, DirectShow are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

• Macintosh and Mac OS, QuickTime are trademarks of Apple Computer, Inc.

• All other product names mentioned herein may be the trademarks or registered trademarks of their respective companies. Furthermore, "TM" and "®" are not mentioned in each case in this manual.

## Image file storage destinations and image file names

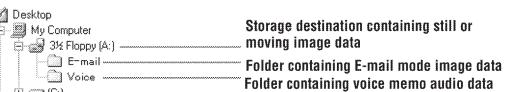
Image files recorded with your camera are grouped in folders by recording mode. Images in a floppy disk and ones in a "Memory Stick" have different file names. The meanings of the file names are as follows.

### When using floppy disks

□□□ stands for any number within the range from 001 to 999. △ stands for one of the following characters below.

S: Still image file recorded at 640×480 size  
F: Still image file of more than 640×480 size  
V: Moving image file recorded at 160×112 size  
W: Moving image file recorded at 320×240 size

#### For Windows 98 users (The drive recognizing the floppy disk is [A].)



Location	File	Meaning
3 1/2 Floppy (A:)	MVC-□□□△.JPG	<ul style="list-style-type: none"> <li>Still image file recorded normally</li> <li>Still image file recorded in E-MAIL mode (page 37)</li> <li>Still image file recorded in VOICE mode (page 37)</li> </ul>
	MVC-□□□△.411	INDEX display file This file can only be played back on your camera.
	MVC-□□□△.MPG	Moving image file
	MVC-□□□△.GIF	Still image file recorded in TEXT mode (page 38)
E-mail folder	MVC-□□□E.JPG	Small-size image file recorded in E-MAIL mode (page 37)
Voice folder	MVC-□□□A.MPG	Audio file recorded in VOICE mode (page 37)

27

26

### The numerical portion of the following files are the same.

— An image file recorded in VOICE mode and its corresponding audio file

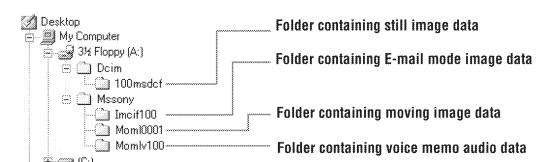
— An image file recorded in E-MAIL mode and its corresponding small-size image file

— INDEX display files cannot be played back on other equipment.

### When using "Memory Stick"

□□□ stands for any number within the range from 0001 to 9999.

#### For Windows 98 users (The drive recognizing the Floppy Disk Adaptor for Memory Stick is [A].)



Folder	File	Meaning
100msDCF	DSC0□□□.JPG	<ul style="list-style-type: none"> <li>Still image file recorded normally</li> <li>Still image file recorded in E-MAIL mode (page 37)</li> <li>Still image file recorded in VOICE mode (page 37)</li> </ul>
	TXT0□□□.GIF	Still image file recorded in TEXT mode (page 38)
Imcif100	DSC0□□□.JPG	Small-size image file recorded in E-MAIL mode (page 37)
Moml0001	MOV0□□□.MPG	Moving image file
Momlv100	DSC0□□□.MPG	Audio file recorded in VOICE mode (page 37)

The numerical portion of the following files are the same.

— An image file recorded in VOICE mode and its corresponding audio file

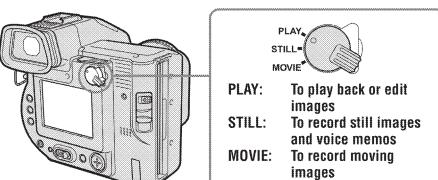
— An image file recorded in E-MAIL mode and its corresponding small-size image file

### Advanced operations

## Before performing advanced operations

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

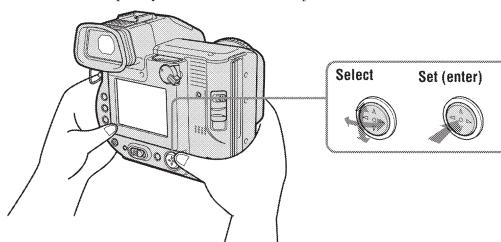
### How to use the PLAY/STILL/MOVIE selector



Before performing advanced operations

### How to use the control button

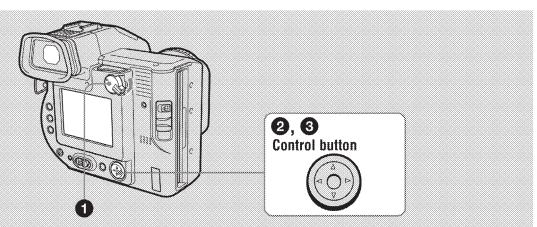
The control button is used to select the buttons, images and menus displayed on the LCD screen or on the finder of your camera and modify the settings. The operation methods that are frequently used for "Advanced Operations" are described below.



29

## ▶ Playback

### Playing back still images



- ① Set the PLAY/STILL/MOVIE selector to PLAY.  
The last recorded image (still or moving) appears on the LCD screen or on the finder.
- ② Press ▲ on the control button to display the menu bar on the LCD screen or on the finder.
- ③ Select the desired still image with the control button.  
Press ▲/▼/◀/▶ on the control button to select ▲/▶ on the LCD screen or on the finder, then press ▶. ▲: To display the preceding image. ▶: To display the next image.

#### When the menu bar is not displayed

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

- Notes**
- You might not be able to correctly play back images recorded with this camera on other equipment.
  - You may not be able to play back images whose image sizes are larger than the maximum image size that can be used with this camera for recording.

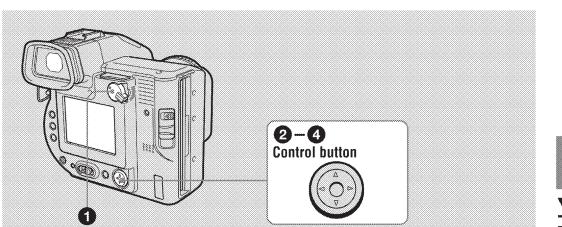
#### LCD screen or finder indicators during still image playback

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

22

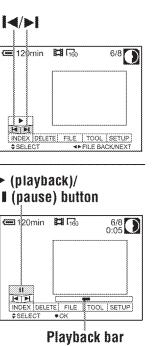
## ▶ Playback

### Playing back moving images



- ① Set the PLAY/STILL/MOVIE selector to PLAY.  
The last recorded image (still or moving) appears on the LCD screen or on the finder.
- ② Press ▲ on the control button to display the menu bar on the LCD screen or on the finder.

- ③ Select the desired moving image with the control button.  
Press ▲/▼/◀/▶ on the control button to select ▲/▶ on the LCD screen or on the finder, then press ▶. ▲: To display the preceding image. ▶: To display the next image.
- ④ Select the ▶ (playback) button on the LCD screen or on the finder with ▲ on the control button, then press the center ●.  
The moving image and sound are played back. During playback, ▶ (playback) changes to ▪ (pause). ▪: To pause playback.



23

## ▶ Playback

### To pause playback

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

#### When the menu bar is not displayed

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

#### Adjusting the volume

Press VOL +/- to adjust the volume.



#### LCD screen or finder indicators during moving image playback

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

## ▶ Playback

### Viewing images using a personal computer

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

**Note**  
Data recorded with your camera is stored in the following formats. Make sure that applications that support these file formats are installed on your personal computer.  
• Still image (except TEXT mode): JPEG format  
• Moving image/Voice memo: MPEG format  
• Still image in TEXT mode: GIF format.

#### Recommended OS/applications

**OS**  
Windows 3.1, Windows 95, Windows 98, Windows 98SE, Windows NT 3.51, Windows NT 4.0

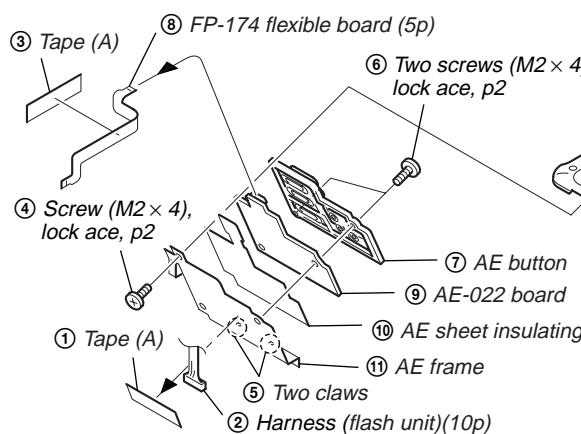
**Applications**  
Microsoft Internet Explorer 4.0 or higher, Netscape Navigator, etc.

To display the image list, double-click [Mavica.htm] in the floppy disk used with this camera as a medium for recording if you have installed a browser such as Microsoft Internet Explorer on your personal computer.

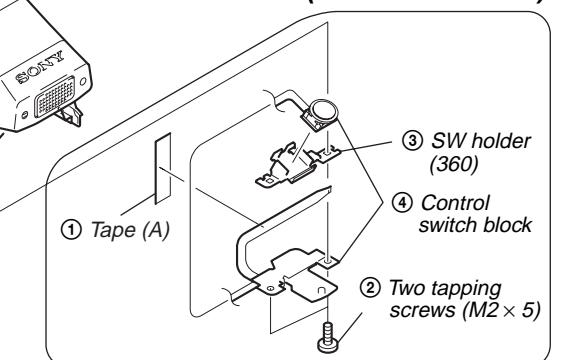
**Notes**  
• To play back an MPEG file, install ActiveMovie (DirectShow).  
• You cannot play back an MPEG file with Windows 3.1.  
• For Macintosh, you can use the floppy disk recorded with this camera using PC Exchange with Mac OS system 7.5 or higher. A viewing application for Macintosh is also necessary for viewing images. To play back an MPEG file, install QuickTime 3.0 or higher.  
• When using the MSAC-FD2M Floppy Disk Adapter for Memory Stick, the recommended OS is Windows 98, Windows 95, Windows NT 4.0 or Mac OS 7.6 - 8.6.

24

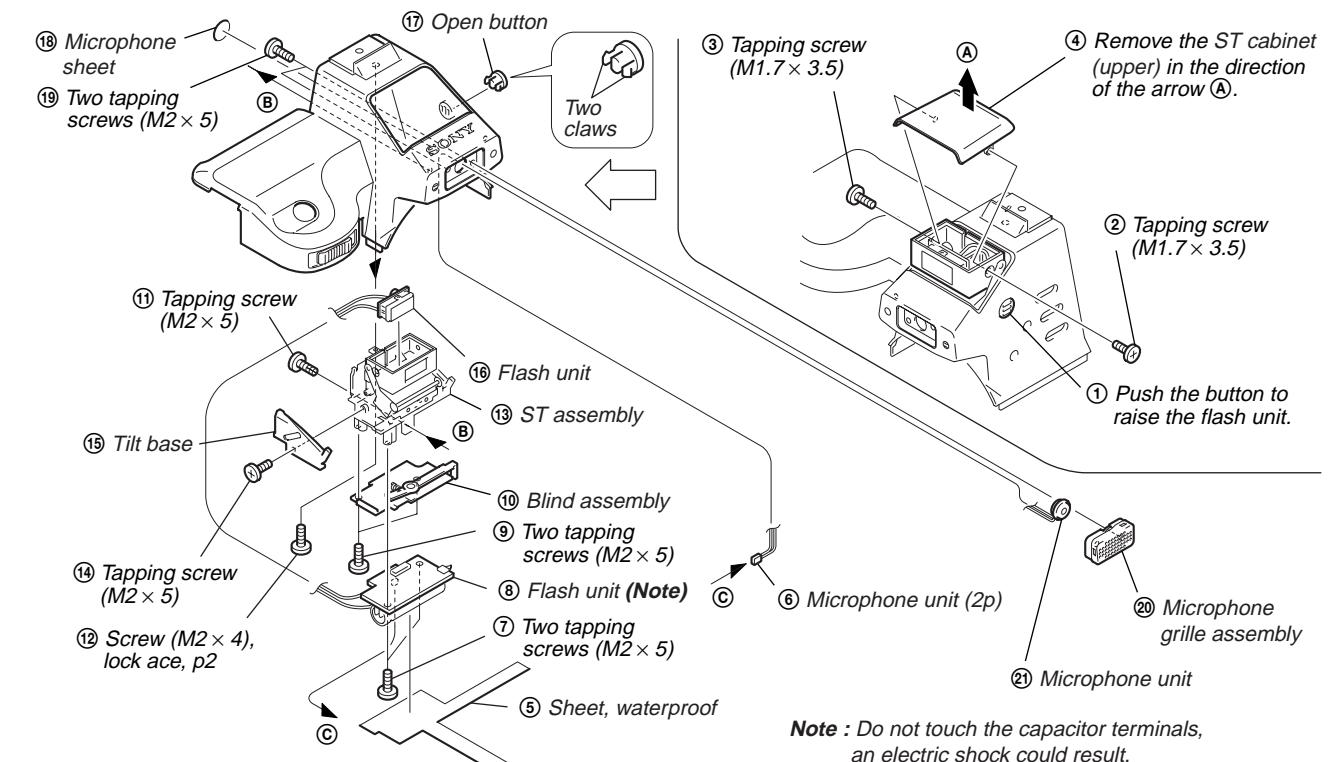
## 2-8. AE-022 BOARD



### REMOVING THE CONTROL SWITCH BLOCK (zoom and shutter)

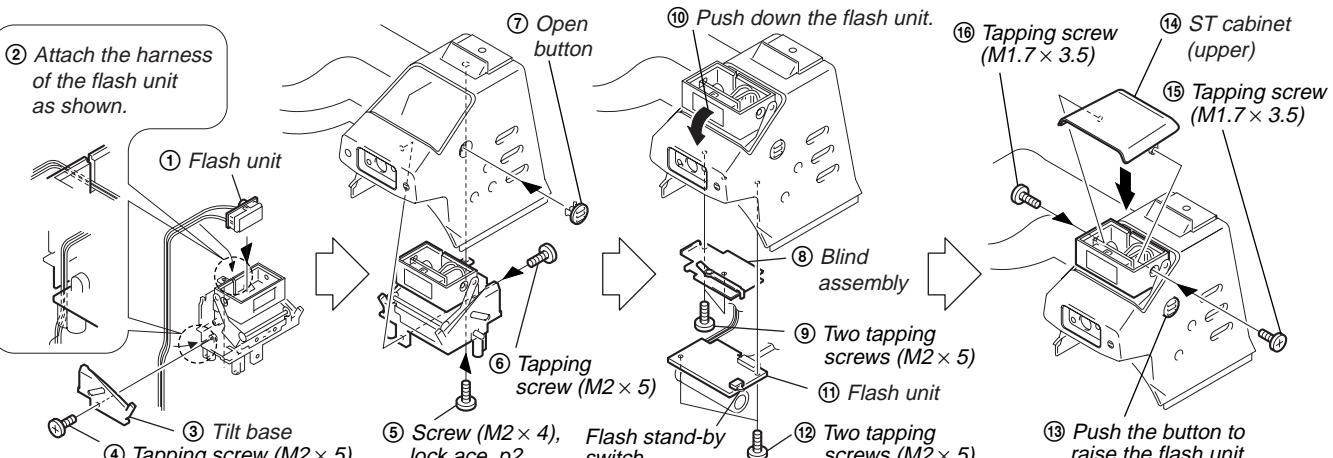


## 2-9. FLASH UNIT, MICROPHONE UNIT



**Note :** Do not touch the capacitor terminals, an electric shock could result.

## INSTALLING THE FLASH UNIT



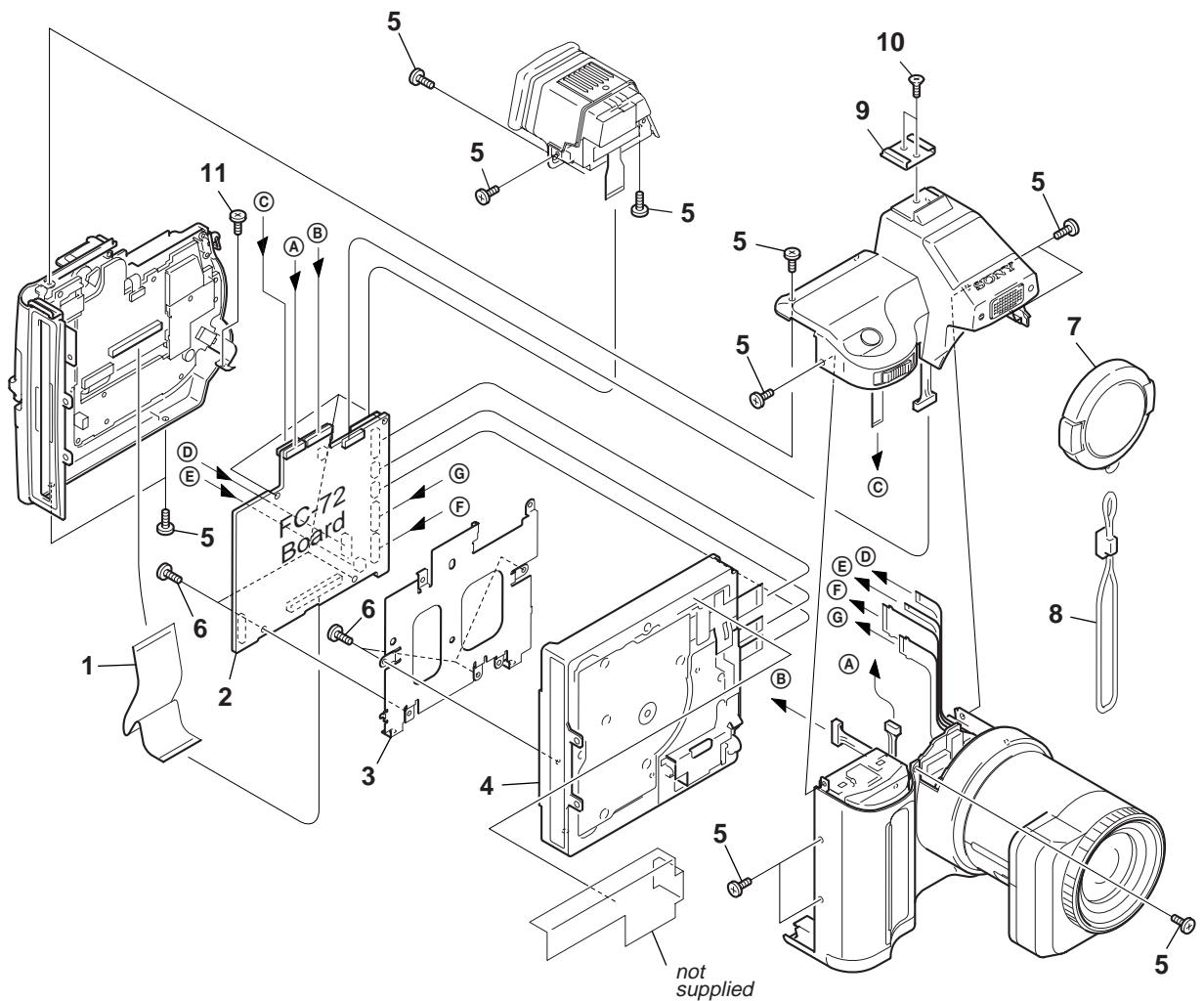
## 2. REPAIR PARTS LIST

## 2-1. EXPLODED VIEWS

## NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked “\*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

## 2-1-1. OVERALL ASSEMBLY SECTION



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

## Activating the SteadyShot function

When the SteadyShot function is working, the camera compensates for camera-shake.



Set the STEADY SHOT ON/OFF switch to ON. The (SteadyShot) indicator appears on the LCD screen or on the finder.

## Notes

- The SteadyShot function will not correct excessive camera-shake.
- If you use a wide conversion lens (not supplied), this lens may influence the SteadyShot function.

## LCD screen or finder indicators during recording

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



## Notes

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

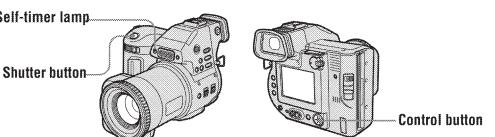
18

## Notes

- The recommended shooting distance is 0.6 to 2.5 m (23 5/8 inches to 8 1/3 feet).
- Attaching a conversion lens (not supplied) may block the light from the flash and the recorded image may be eclipsed.
- You cannot use the built-in flash and an external strobe at the same time.
- The (flash) indicator appears when the flash is not popped up under situations that you should use the flash.
- Auto red-eye reduction may not produce the desired red-eye reduction effects depending on individual differences, the distance to the subject, if the subject does not see the pre-strobe, or other conditions. In addition, red-eye reduction effects are also difficult to obtain if you select a slow shutter speed in shutter priority mode of the PROGRAM AE function.
- The flash effect is not obtained easily when you use forced flash in a bright location.

## Using the self-timer

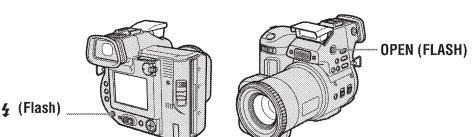
When you use the self-timer function, the subject is recorded 10 seconds after you press the shutter button.



Select (Self-timer) on the LCD screen with ▲/▼/◀/▶ on the control button, then press the center ( ). The (self-timer) indicator appears on the LCD screen or on the finder, and the subject is recorded 10 seconds after you press the shutter button. The self-timer lamp flashes after you press the shutter button until the image is recorded.

## Recording images with the flash

Press OPEN (FLASH) to pop up the flash. The initial setting is AUTO (no indication). In this mode, the flash automatically strobos when the surroundings become dark. When you change the flash mode, press (Flash) repeatedly so that the flash mode indicator appears on the LCD screen or on the finder. This setting can be set only when the flash is popped up.

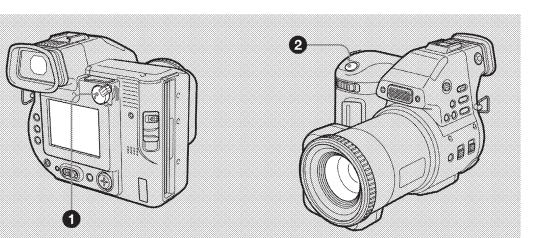


Each time you press the button, the indicator changes as follows.  
(No indication) → (Auto red-eye reduction) → (Forced flash) → (No flash) → (No indication)  
Auto red-eye reduction : The flash preparatively strobos before recording to reduce the red-eye phenomenon.  
Forced flash : The flash strobos regardless of the surrounding brightness.  
No flash : The flash does not strobe.  
You can change the amount of the flash light with [FLASH LEVEL] in the menu settings (page 34).

19

## Recording moving images

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



**① Set the PLAY/STILL/MOVIE selector to MOVIE.**

**② Press the shutter button fully down.**  
“REC” appears on the LCD screen or on the finder, and the image and sound are recorded on the floppy disk.

**If you press the shutter button momentarily**  
The image and sound are recorded for 5 seconds. The recording time can be set to 10 or 15 seconds with [REC TIME SET] in the menu settings (page 33).  
**If you hold the shutter button down**  
The image and sound are recorded while the shutter button is held down for up to 60 seconds. However, when [IMAGE SIZE] in the menu settings is set to [320×240], the maximum recording time is 15 seconds (page 36).

**Adjusting the brightness of the LCD screen, zooming or using the self-timer**  
See page 16 to 19.

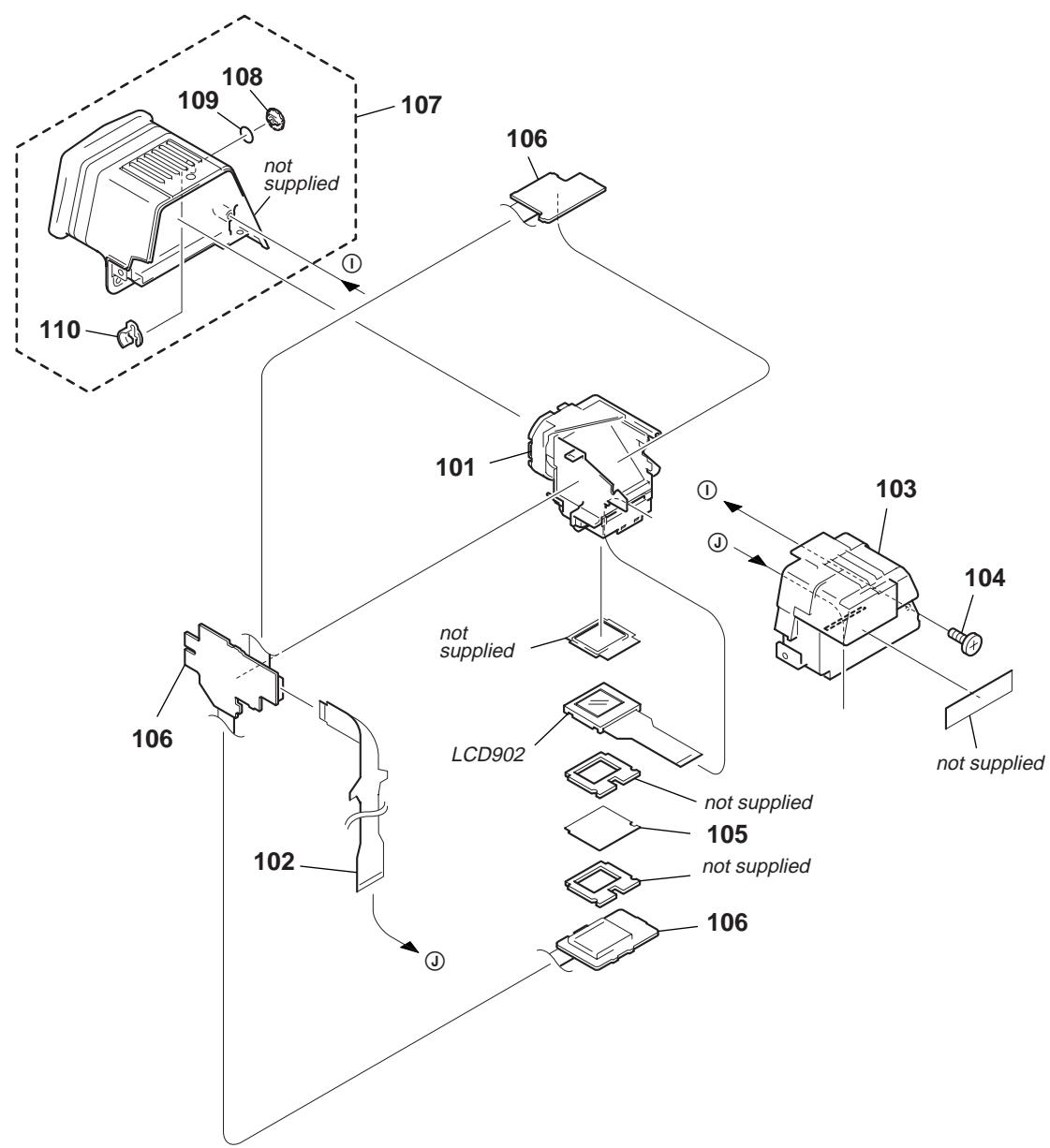
## LCD screen or finder indicators during recording

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

20



## 2-1-3. EVF BLOCK ASSEMBLY SECTION



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
101	X-3950-617-1	LENS ASSY, VF		107	X-3950-616-1	CABINET ASSY, VF	
102	1-678-327-12	FP-173 FLEXIBLE BOARD		108	3-060-836-01	KNOB, VISIBILITY ADJUSTMENT	
103	3-060-922-01	LID, VF		109	3-950-044-01	RING, O	
104	3-948-339-61	TAPPING		110	3-060-921-01	ARM, VISIBILITY ADJUSTMENT	
105	3-058-233-01	ILLUMINATOR (97), BL		LCD902	not supplied	LCX033AK-J	
106	not supplied	VF-143 BOARD, COMPLETE					

### Charging time

Battery pack	Full charge (min.)	Normal charge (min.)
NP-F330 (supplied)	Approx. 150	Approx. 90
NP-F550	Approx. 210	Approx. 150

Approximate time to charge a completely discharged battery pack using the AC-L10A/L10B/L10C AC power adaptor. (Lower temperatures require a longer charging time.)

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

#### STILL mode recording/playback

	NP-F330 (supplied)		NP-F550	
	Battery life (min.)	Number of images	Battery life (min.)	Number of images
Continuous recording*	Approx. 65 (60)	Approx. 650 (550)	Approx. 150 (130)	Approx. 1600 (1300)
Continuous playback**	Approx. 80 (75)	Approx. 2200 (2000)	Approx. 170 (150)	Approx. 4800 (4200)

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 and in NORMAL recording mode. Numbers in parentheses indicate the time when you use a normally charged battery pack.

\* Recording at about 5-second intervals

\*\* Playing back single images continuously at about 2-second intervals

#### MOVIE mode recording

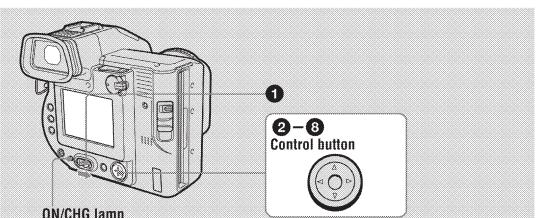
	NP-F330 (supplied)		NP-F550	
	Battery life (min.)	Number of images	Battery life (min.)	Number of images
Continuous recording	Approx. 70 (60)	Approx. 50 (40)	Approx. 160 (140)	Approx. 120 (100)

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

10

### Setting the date and time

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



① Slide the POWER switch to the right to turn on the power.  
The ON/CHG (green) lamp lights up.

② Press ▲ on the control button.  
The menu bar appears on the LCD screen or on the finder.

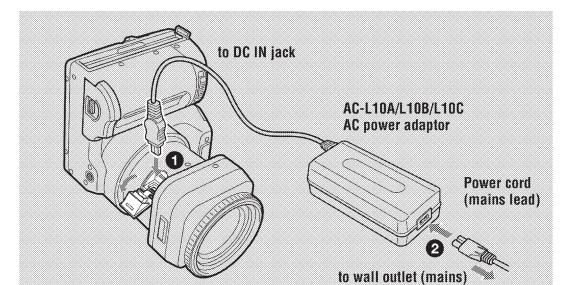
③ Select [SETUP] with ▶ on the control button, then press the center ● to enter it.

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

### Notes

- The battery life and number of images will be decreased when using at low temperature, using the flash, turning the power on/off frequently, or using the zoom.
- The capacity of the floppy disk is limited. The above figures are a guide when you continuously record/play back by replacing the floppy disk.
- 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.
- Do not expose the battery pack to water.

### Using the AC power adaptor



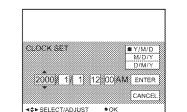
- Open the DC IN cover and connect the DC connecting plug to the DC IN jack of your camera with the ▲ mark facing up.
- Connect the power cord (mains lead) to the AC power adaptor and then to a wall outlet (mains).

### Using a car battery

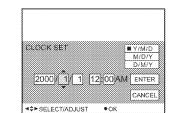
Use Sony DC adaptor/charger.

11

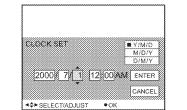
### Getting started



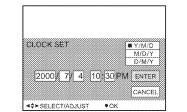
- ⑤ Select the desired date display format with ▲/▼ on the control button, then press the center ● to enter it.  
Select from [Y/M/D] (year/month/day), [M/D/Y] (month/day/year), or [D/M/Y] (day/month/year).



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



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



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

To cancel the date and time setting  
Select [CANCEL] with ▲/▼/◀▶ on the control button, then press the center ●.

12

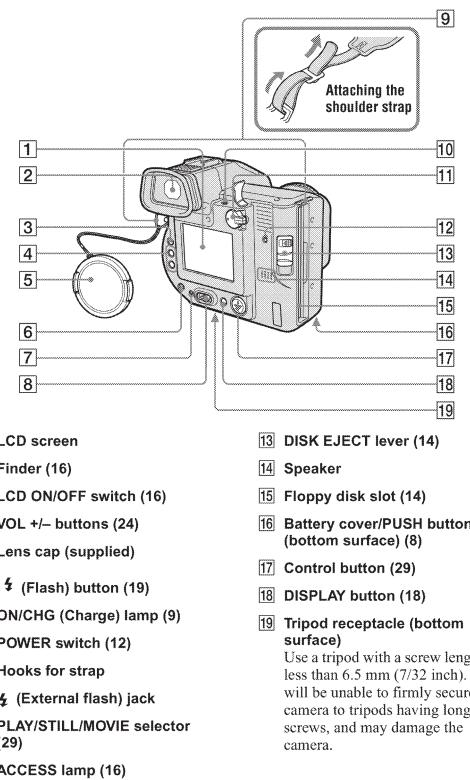
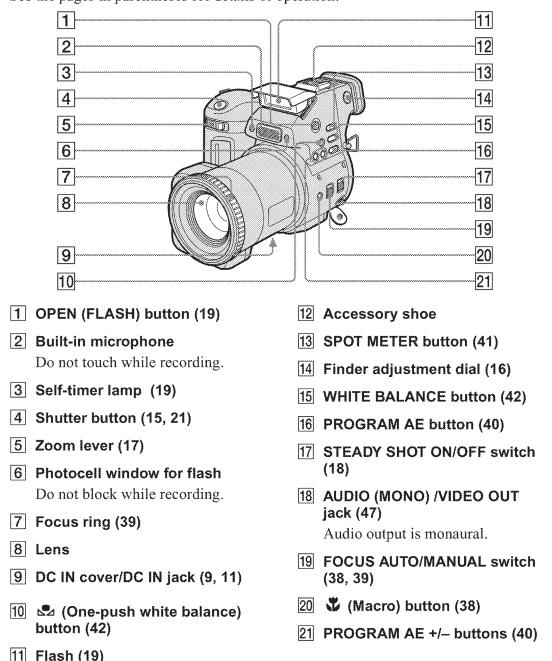
### 3. GENERAL

This section is extracted from instruction manual.

#### Getting started

##### Identifying the parts

See the pages in parentheses for details of operation.



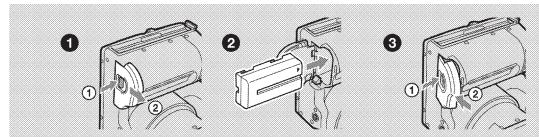
6

Getting started

#### Preparing the power supply

##### Installing the battery pack

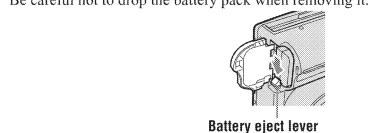
Your camera operates only with the NP-F330 (supplied)/F550 (not supplied)  
"InfoLITHIUM" battery pack\* (L series).



- ① Open the battery cover.  
Slide the battery cover in the direction of the arrow while pressing the PUSH button.
- ② Install the battery pack.  
Insert the battery pack with the ▲ mark facing toward the battery compartment as illustrated.
- ③ Close the battery cover.

##### To remove the battery pack

Open the battery cover. Slide the battery eject lever rightward, and remove the battery pack.



##### \* What is "InfoLITHIUM"?

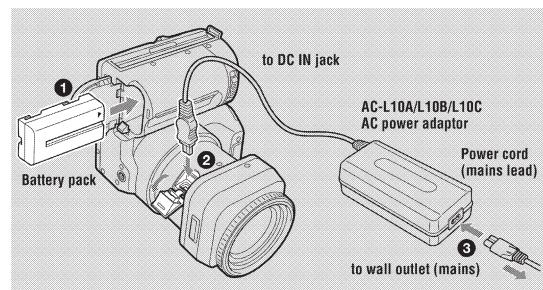
"InfoLITHIUM" is a lithium ion battery pack which can exchange information such as battery consumption with compatible video equipment. "InfoLITHIUM" L series battery packs have the mark. "InfoLITHIUM" is a trademark of Sony Corporation.

7

Getting started

##### Charging the battery pack

When the camera is turned on, you cannot charge the battery pack. Be sure to turn off the power of the camera.



- ① Insert the battery pack into your camera.
- ② Open the DC IN cover and connect the DC connecting plug 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 (mains).  
The ON/CHG lamp (orange) below the LCD screen lights up when charging begins. When the ON/CHG lamp goes off, **normal charge** is completed. For **full charge**, which allows you to use the battery longer than usual, leave the battery pack inserted for about one hour after normal charge is completed.

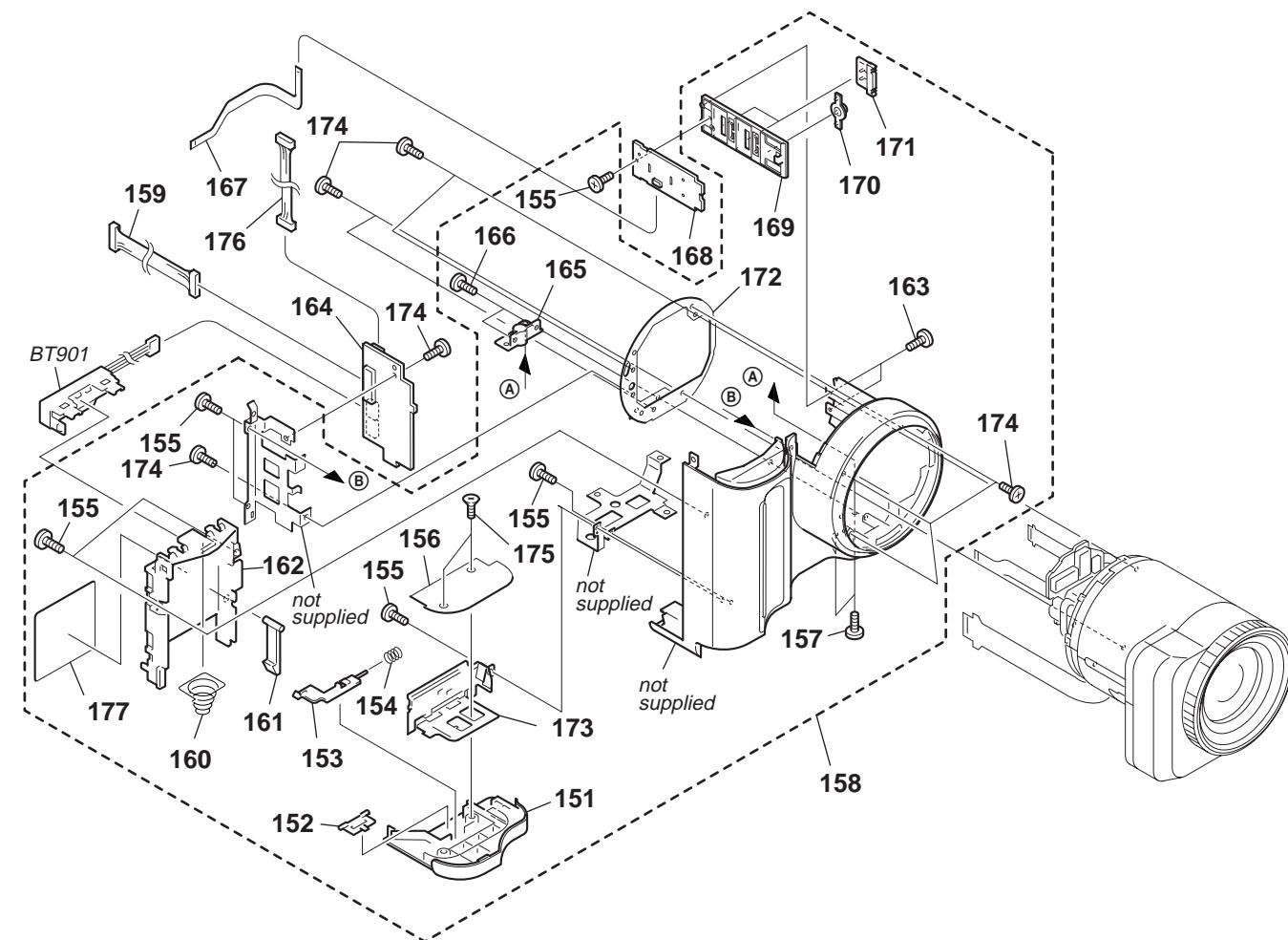
##### Battery remaining indicator

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

##### Auto power-off function

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

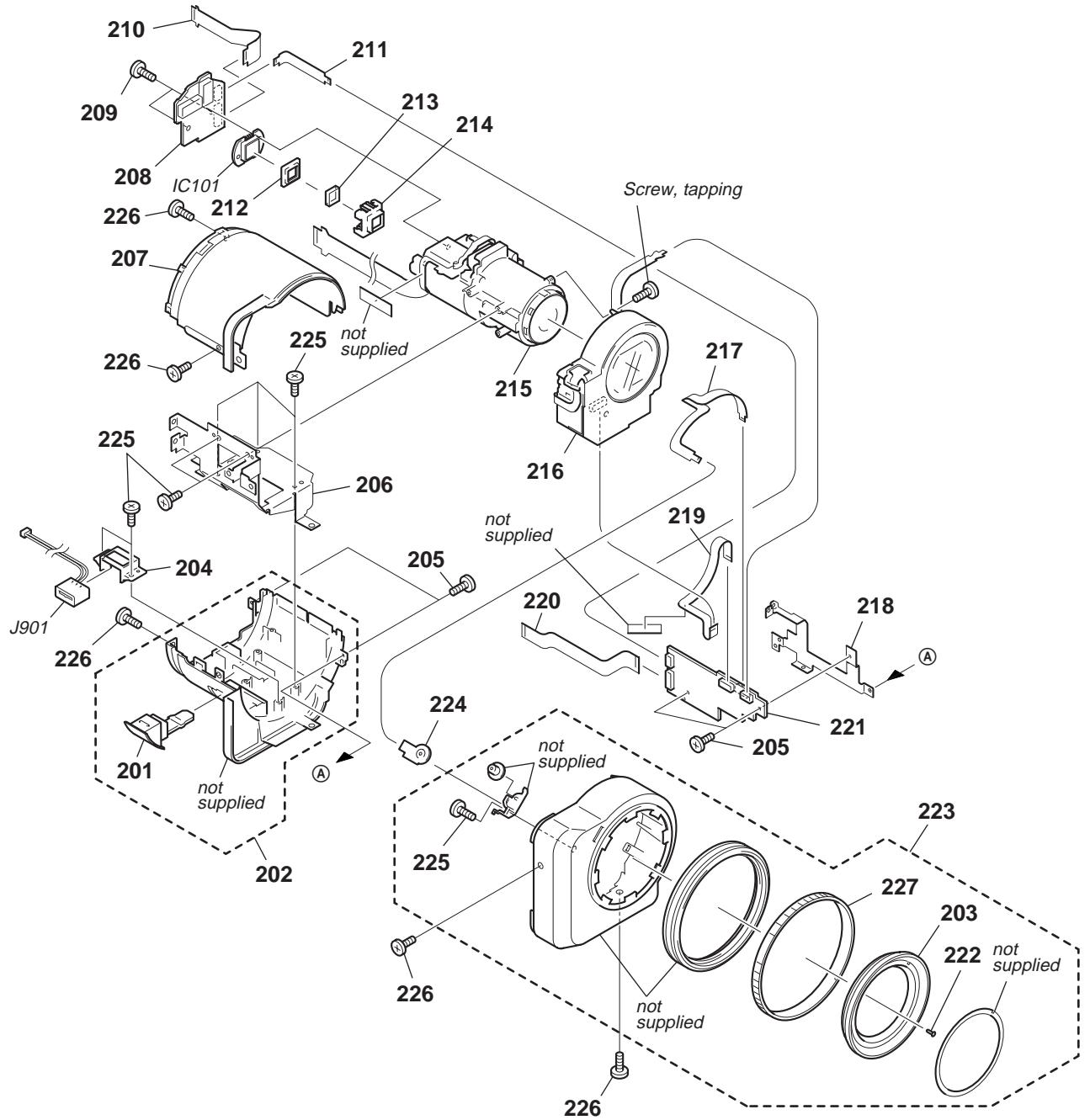
#### 2-1-4. CABINET (FRONT) BLOCK ASSEMBLY SECTION



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
151	3-060-842-01	LID, BATTERY		165	3-050-468-01	SCREW, TRIPOD	
152	3-058-748-01	KNOB, B LOCK		166	3-713-790-31	SCREW (M2X8), TAPPING, P3	
153	3-058-749-01	LEVER, B LOCK		167	1-678-326-11	FP-172 FLEXIBLE BOARD	
154	3-058-802-01	SPRING, B LOCK		168	not supplied	CF-074 BOARD, COMPLETE	
155	3-948-339-61	TAPPING		169	3-060-895-01	HOLDER, SS	
* 156	3-058-753-01	RETAINER, HINGE		170	3-060-897-01	BUTTON, MACRO	
157	3-719-381-01	SCREW (M2X4)		171	3-060-896-01	KNOB, SS	
158	X-3950-609-1	CABINET (FRONT) ASSY		172	3-060-843-01	PLATE, L FIXED	
159	1-960-552-11	HARNESS (FU-53)		173	X-3950-24601	HOLDER ASSY, HINGE	
160	3-969-380-01	SPRING, BATTERY		174	3-968-729-51	SCREW (M2), LOCK ACE, P2	
161	3-052-574-01	CLAW, BT LOCK		175	3-736-363-41	TAPPING	
162	3-058-746-01	HOLDER, BATTERY		176	1-960-553-11	HARNESS (FU-54)	
163	3-966-178-01	SCREW (1.7)		* 177	3-058-801-01	SHEET, ST INSULATING	
164	not supplied	FU-139 BOARD, COMPLETE		BT901	1-694-297-21	TERMINAL BOARD, BATTERY	

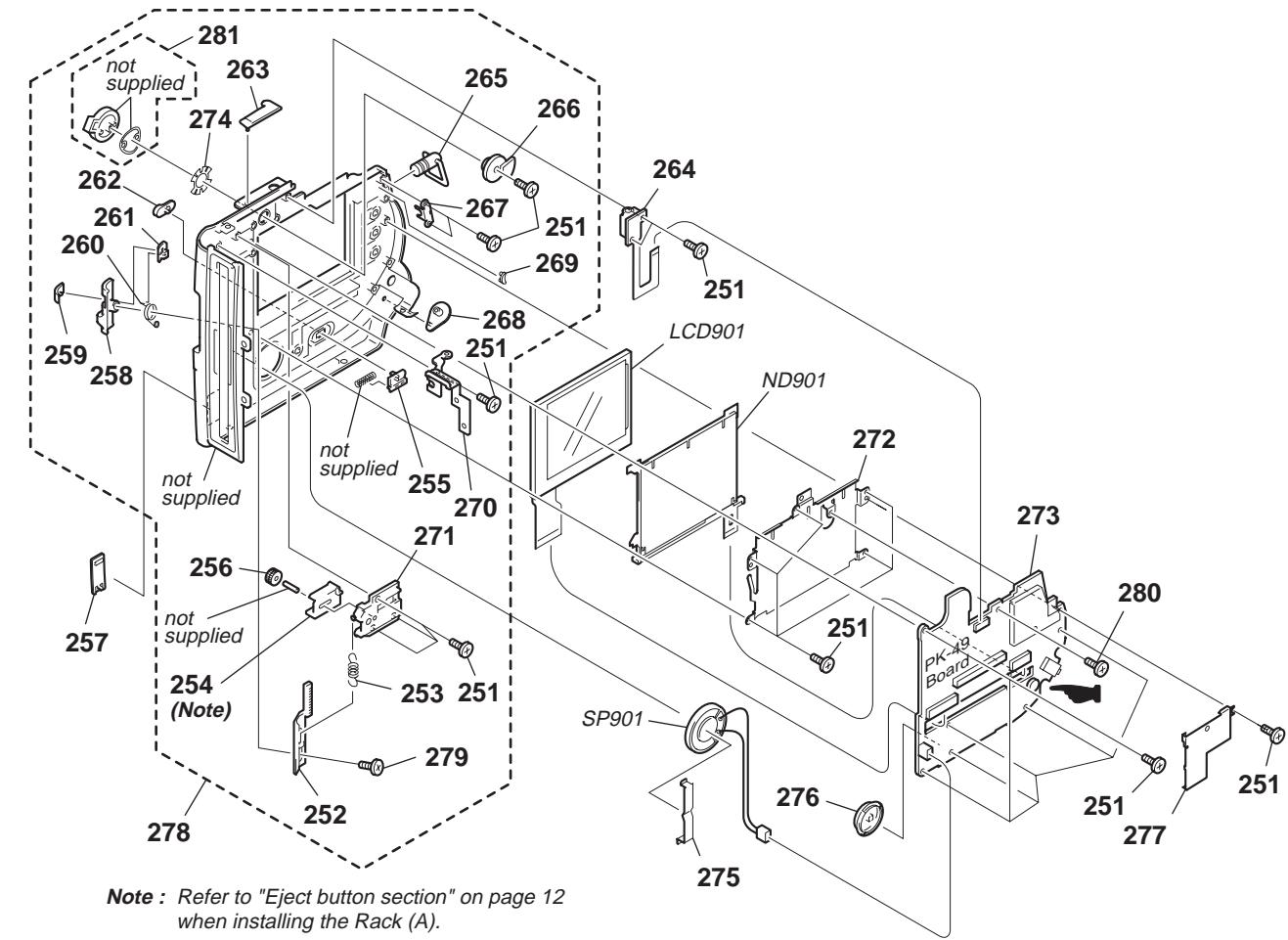
9

## **2-1-5. LENS COMPLETE ASSEMBLY SECTION**



<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>
201	3-060-893-01	COVER, DC IN		216	not supplied	VAP ASSY	
202	X-3950-618-1	CABINET (LB) ASSY		217	1-678-330-11	FP-177 FLEXIBLE BOARD	
203	3-965-098-01	SCREW		218	3-060-892-01	PLATE, VP FIXED	
204	3-060-914-01	HOLDER, DC		219	1-678-322-11	FP-168 FLEXIBLE BOARD	
205	3-968-729-51	SCREW (M2), LOCK ACE, P2		220	1-678-323-11	FP-169 FLEXIBLE BOARD	
206	3-060-894-01	FRAME, LENS		221	not supplied	VP-50 BOARD, COMPLETE	
207	3-060-890-01	CABINET (LT)		222	3-965-060-01	PIN, MF FIXED	
208	not supplied	CD-245 BOARD, COMPLETE		223	X-3950-611-1	CABINET (VP) ASSY	
209	3-947-268-11	TITE (2), +B TAPPING (P)		224	1-418-068-11	MF BLOCK	
210	1-678-321-11	FP-166 FLEXIBLE BOARD		225	3-948-339-61	TAPPING	
211	1-678-324-11	FP-170 FLEXIBLE BOARD		226	3-968-729-91	SCREW (M2), LOCK ACE, P2	
212	not supplied	RUBBER (CL), SEAL		227	3-060-854-01	BAND, RING	
213	not supplied	FILTER BLOCK, OPTICAL		IC101	not supplied	CCD BLOCK ASSY (CCD IMAGER)	
214	not supplied	ADAPTOR (CL), CCD FITTING		J901	1-794-045-31	CONNECTOR, DC-IN	
215	not supplied	LENS ASSY					

## **2-1-6. CABINET (REAR) BLOCK ASSEMBLY SECTION**



<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>
251	3-948-339-61	TAPPING		269	3-060-932-01	DAMPER, FRICTION	
252	3-058-787-01	RACK (A)		270	3-060-886-01	SHEET METAL (L), STRAP	
253	3-058-790-01	SPRING, EJECT		271	3-058-789-01	COVER, GEAR	
254	3-058-788-01	RACK (B)		272	3-060-889-01	PLATE, BL FIXED	
255	3-060-839-01	RETAINER, P KNOB		273	not supplied	PK-49 (CASI) BOARD, COMPLETE	
256	3-058-786-01	GEAR, PINION		273	not supplied	PK-49 (SHAP) BOARD, COMPLETE	
257	3-058-792-11	LID, CPC		274	3-060-901-01	SHEET METAL, SELECTION CLICK	
258	3-058-782-01	KNOB, EJECT		* 275	3-058-791-01	RETAINER, SPEAKER	
259	3-058-783-01	BUTTON, LOCK		276	3-061-157-11	BUTTON, FUNCTION	
260	3-058-785-01	SPRING, LOCK BUTTON		277	X-3950-622-1	CASE (LOWER) ASSY, Z SHIELD	
261	3-058-784-01	RETAINER, LOCK BUTTON		278	X-3950-610-1	CABINET (REAR) ASSY	
262	3-060-838-01	KNOB, POWER		279	3-914-366-01	SCREW (DIA. 1.7X4), PRECISION	
263	3-060-928-01	COVER, ACC JACK		280	3-968-729-51	SCREW (M2), LOCK ACE, P2	
264	1-678-329-21	FP-176 FLEXIBLE BOARD (INCLUDING JACK)		281	X-3950-848-1	KNOB ASSY, MODE SELECTION (SERVICE)	
265	3-060-931-01	SHAFT, STRAP		LCD901	not supplied	INDICATOR MODULE LIQUID CRYST (SH)	
266	3-060-850-01	RETAINER, MODE SELECTION		LCD901	not supplied	INDICATOR MODULE LIQUID CRYST (CA)	
267	3-060-848-01	SHEET METAL (R), STRAP		△ ND901	not supplied	TUBE, FLUORESCENT,COLD CATHODE	
268	3-060-927-01	COVER, AV JACK		SP901	1-505-862-41	SPEAKER (2.0 CM)	

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