作成承認印	配布許可印

Nikon Digital Camera E950

COOLPIX950

MODEL [J : VAA10601]
MODEL [US/EN :VAA10602]
MODEL [EU:VAA10611]

SERVICE MANUAL

Nikon

NIKON CORPORATION Tokyo Japan

Table of Contents

Specification

1. Chief Specifications

1) CCD 211M pixels 1/2-in. high-desity
Full size : 1600 x 1200, XGA : 1024 x 768, VGA : 640 x 480

2) Lens 3x Zoom-Nikkor f=7.0mm～21.0mm
[35mm (135) format equivalent to 38 ～115mm) F2.6～F4 with macro

3) Degital Zoom 1.25x / 1.6x / 2x / 2.5x

4) Focus mode Continuous AF(4746 steps) / Single AF / Manual focus

5) Shooting distance 30cm (11.8in) ～∞ / 2cm (0.8in) ～∞ in macro mode

6) Optical viewfinder Real-image optical viewfinder, magnification : 0.44 ～1.2x
frame coverage : approx. 85% ; diopter adjustment : -2 ～+1 dpt;
LED indication

7) LCD monitor 2-in, 130,000-dot, low temp polysilicon TFT LCD;
Backlight / brightness adjustment available (3 steps)
frame coverage : approx. 97%

8) Storage CompactFlush Card

9) Type of image file JPEG / uncompressed TIFF

10) Compression Hi (uncompressed TIFF), Fine=1/4, Normal=1/8, Basic=1/16

11) Capacity Hi=1, Fine=8, Normal=16, Basic=32 (with 8Mbyte CF Card)

12) Shooting mode Fully Automatic (A-REC) mode / Custom M-REC can be memorized

13) Capture Mode Single / Continuous (approx, 1.5fps for full-size images)
Multiple continuous (16 frames in 1/16 size)

14) Expouser metering 256-segment Mtrix / Center-Weighted / Spot

15) Shutter — Mechanical and charged-coupled electric shutter, 8 - 1/750 sec

16) Aperture — Electrio-magnetically controlled

17) Expouser control — Programmed Auto / Shutter-Priority Auto / Aperture-Priority Auto / Expouser compensation (±2EV in 1/3 EV steps)

18) Expouser range — EV -2 ~+15.5(W), EV -0.8 ~+16.7(T) (ISO 100 equivalent)

19) Sensitivity — ISO 80 equivalent; dEf, +1, +2, 100

20) White balance — Automatic TTL control;can be set manually; presetting possible

21) Self-timer — 10 sec, 3 sec. duration

22) Speedlight
- Guide number : 9 (at ISO 100, m/ft)
- Flash contorl sensor flash system
- Flash modes Auto flash / Flash cancel / Anytime flash / Slow sync
- Red-eye reduction (illuminates for 0.8 sec.before main flash)
- External speedlight Multi-flush sync terminal connects to extrenal Nikon Speedlight SB-28, SB-26, SB-25, SB-24, SB-22s through the Multi-Flash Bracket Unit SK-E900;built-in Speedlight can be cancelled when external Speedlight(s) is used

23) Playback menu — Frame/Thumbnail (9 segments) / Slide show / 2x or 3x zoom playback (selectable from 9 segments)

24) Delete function — Dletes all frames or selected frames

25) Interface — Serial interface (Windows:115kbps, Macintosh:230kbps) / Video output (NTSC/PAL)

26) I/O terminal — Power input / Video output / High-speed serial terminal / Sync termial for external speedlight

27) Power requirements — 4 batteries:1.5V LR6[alkaline AA-size(L40)] / 1.5 FR6 Lithium/1.2V Ni-MH / 1.2V NiCd AA-size AC adapter(option)

28) Battery life	Approx:60 min. when using LCD monitor and four 1.5V LR6 batteries at normal temperature (20℃/68°F)
29) Dimensions (W x H x D)	143 x 7605 x 36.5mm(5.6x3.0x1.4 in)
30) Weight (without battery)	Approx. 350g (12.3oz)
31) Accesories included	Soft case / Lens cap / Neck strap / Video cable / 8MB CompactFlush card(EC-8CF) / Serial cables(Windows & Macintosh) / four 1.5V LR6[alkaline AA-size(L40)] batteries / Nikon View Ver2 CD-ROM / Open Me First Envelope / Instruction manual

Disassembly Procedure

⚠ WARNING

- There are high voltage parts inside. Be careful of this electric shock, when you remove the cover.
- You must discharge the main condenser according to the instruction of this repair manual after you remove the front cover.

Notes: (1) Remove the battery prior to disassembly.

(2) During disassembly, make a note of the routing of the cords, which screws are mounted in which parts, etc.

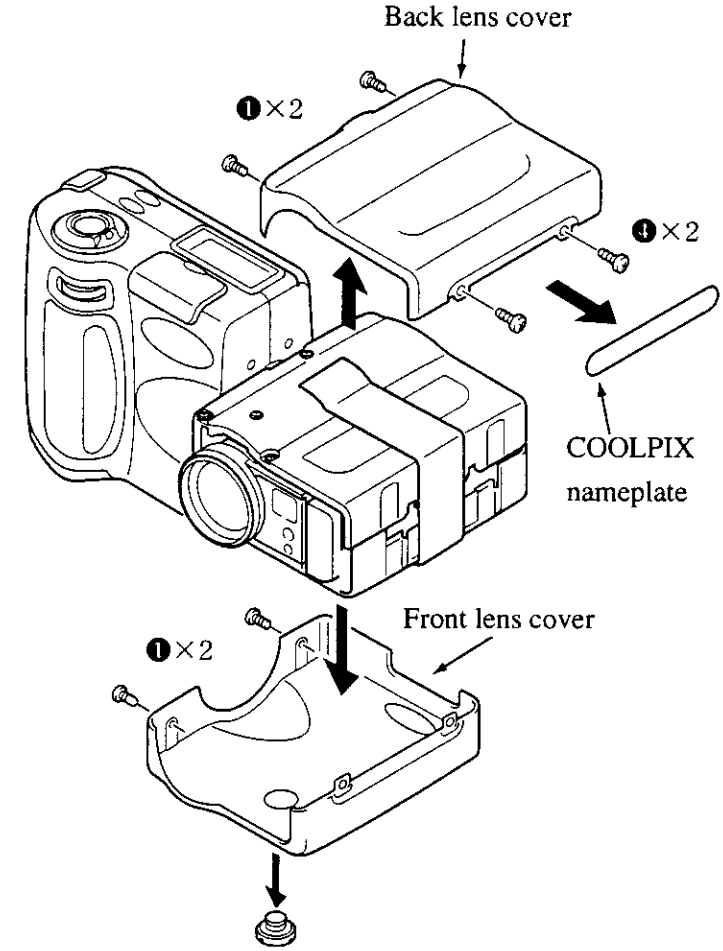
(3) Electrical parts must be grounded since they are easily damaged by static.

Types of screws used

The screws are indicated in the illustrations and text of the disassembly and reassembly sections of the Repair Guidelines by the numbers given in the table below.

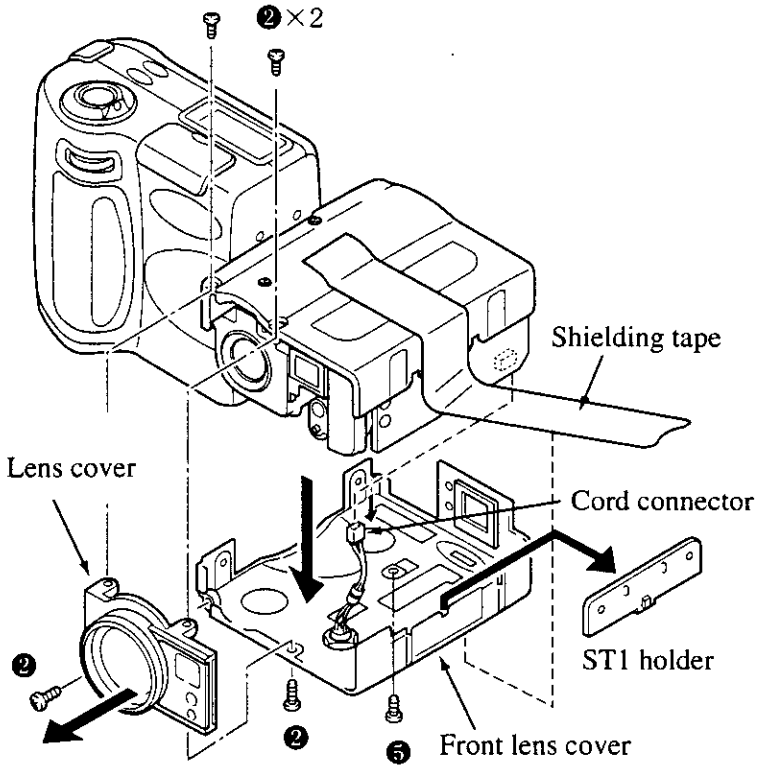
Designation	Size (mm)	Type	Head size	Color	Parts number
❶	1.7×3.5	Fine thread	Large	Black	412-058-8400
❷	1.7×4.0	Tap	Small	Black	411-175-6504
❸	1.7×4.0	Tap	Large	Black	411-177-4102
❹	1.7×5.0	Tap	Large	Black	411-176-7005
❺	1.7×3.5	Tap	Large	White	411-177-7103
❻	1.7×2.0	Fine thread	Large	White	411-175-3602
❼	1.7×3.5	Fine thread	Small	White	411-175-8904
❽	1.7×6.0	Tap	Large	White	411-169-9603
❾	1.7×4.0	Fine thread	Large	White	411-020-0701

1. Back lens cover, front lens cover



- Peel off the COOLPIX nameplate (which is adhered by the double-sided tape).
- Remove the two ❹ screws and two ❶ screws.
- The back lens cover can now be removed.
- Remove the synchro terminal cap.
- Remove the two ❶ screws.
- The front lens cover can now be removed.

2. Lens cover, front lens cover

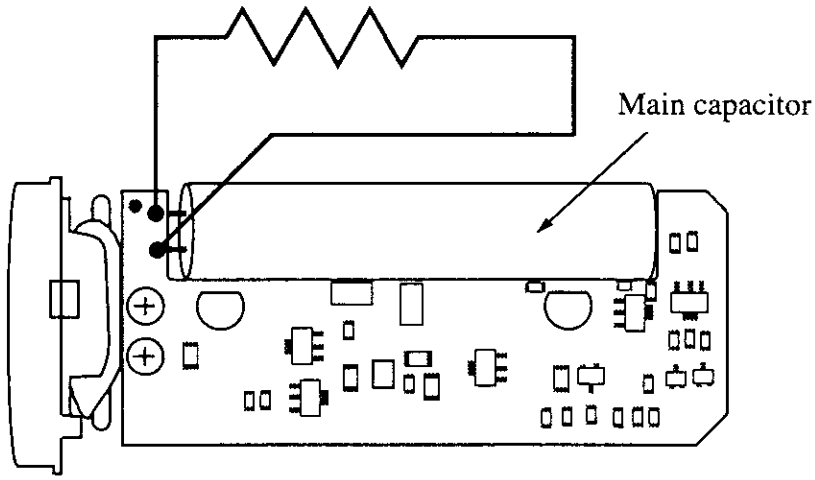


- Remove the four ❷ screws.
- The lens cover can now be removed.
- Peel off the shielding tape.
- Remove the ❺ screw.
- Disconnect the cord connector.
- The front lens cover can now be removed.
- Remove the ST1 holder while taking care to protect the SB board.

3. Discharging the main capacitor

⚠ WARNING

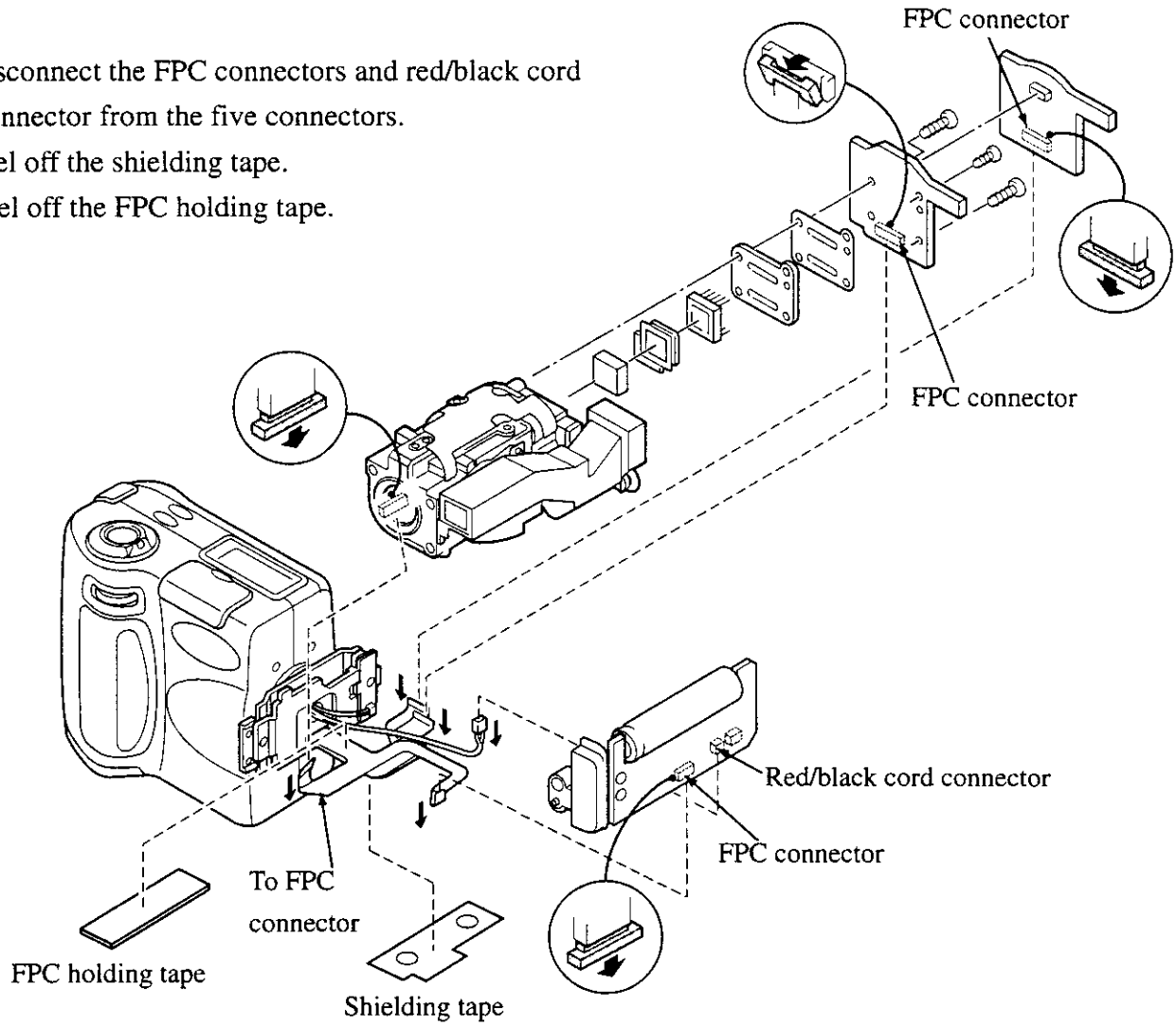
- There are high voltage parts inside. Be careful of this electric shock, when you remove the cover.
- You must discharge the main condenser according to the instruction of this repair manual after you remove the front cover.

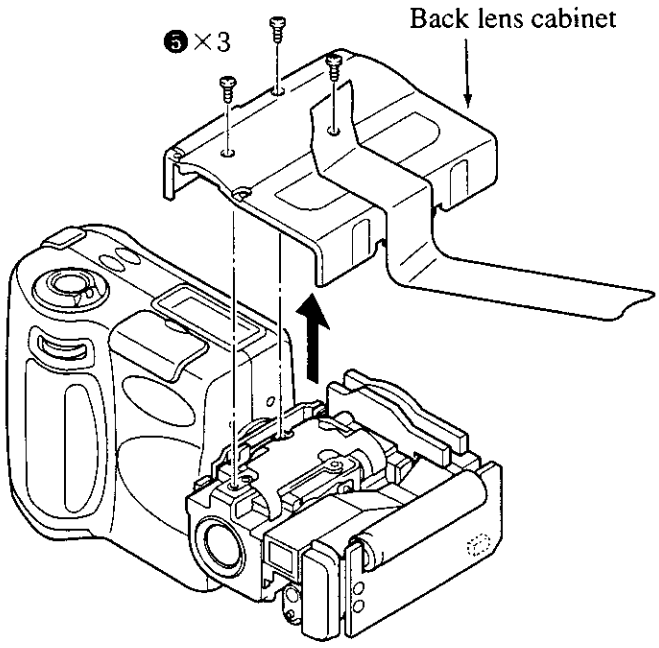


- The main capacitor must be discharged at the position shown in Fig .

4. Back lens cabinet

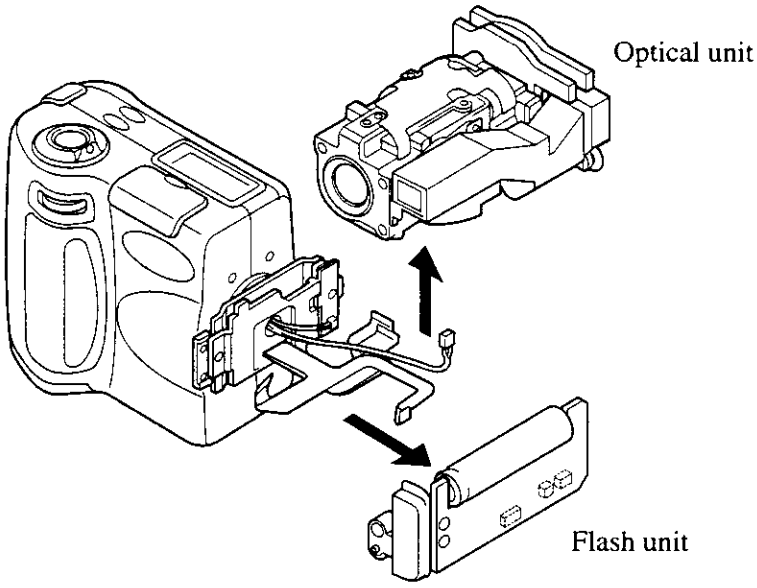
- Disconnect the FPC connectors and red/black cord connector from the five connectors.
- Peel off the shielding tape.
- Peel off the FPC holding tape.



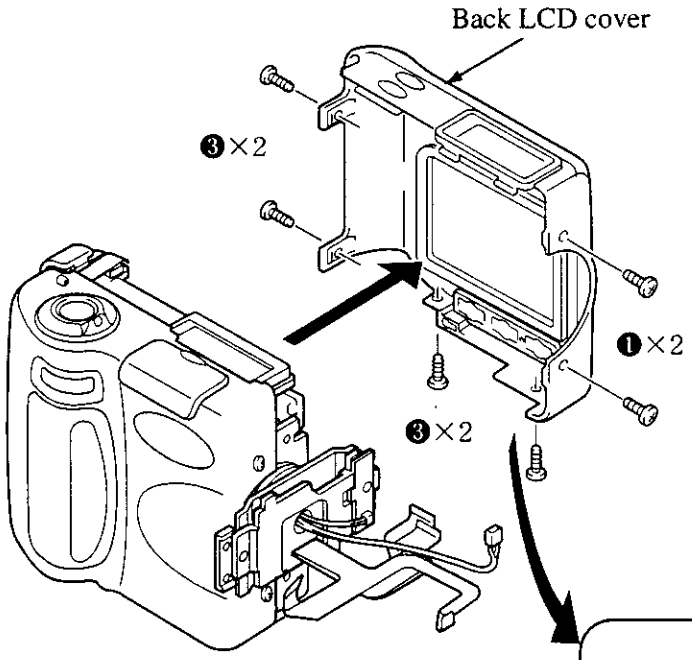


- Peel off the shielding tape.
- Remove the three ❺ screws.
- The back LCD cover can now be removed.

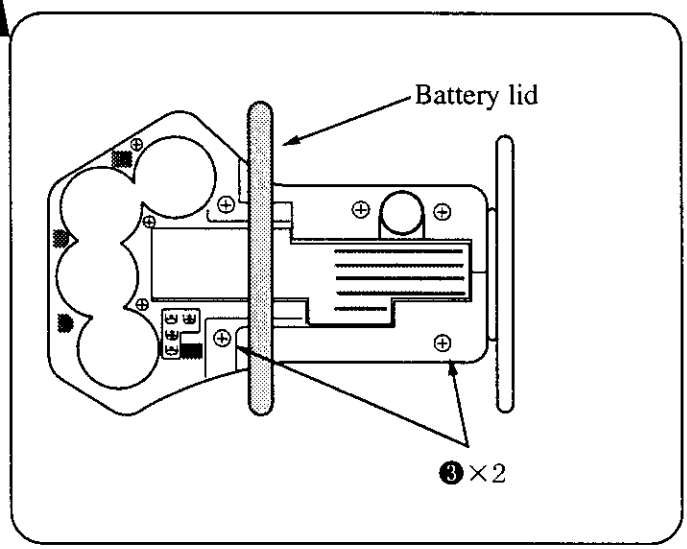
5. Flash unit, optical unit



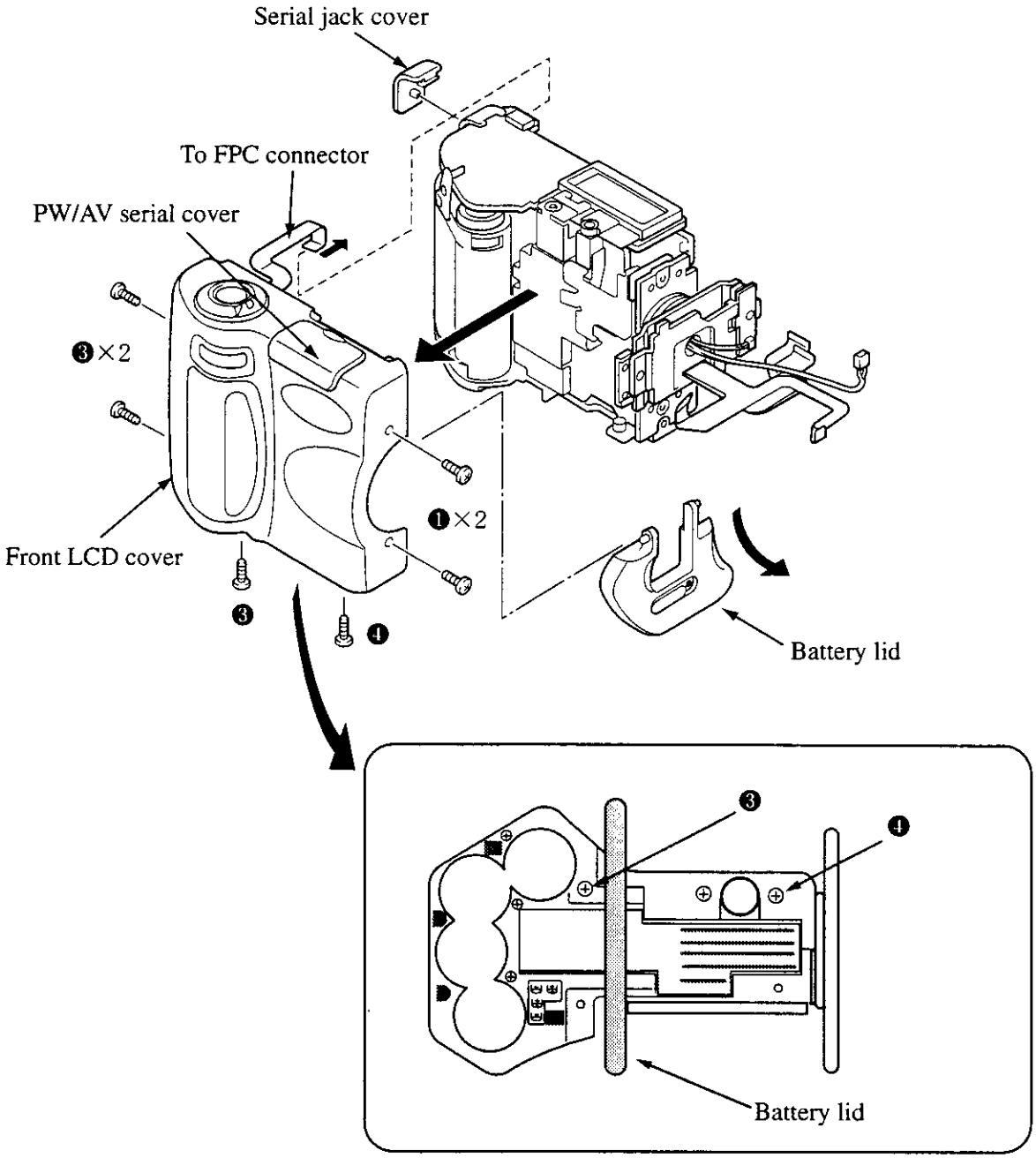
6. Back LCD cover



- Remove the two ❶ screws and four ❸ screws.
- The back LCD cover can now be removed.

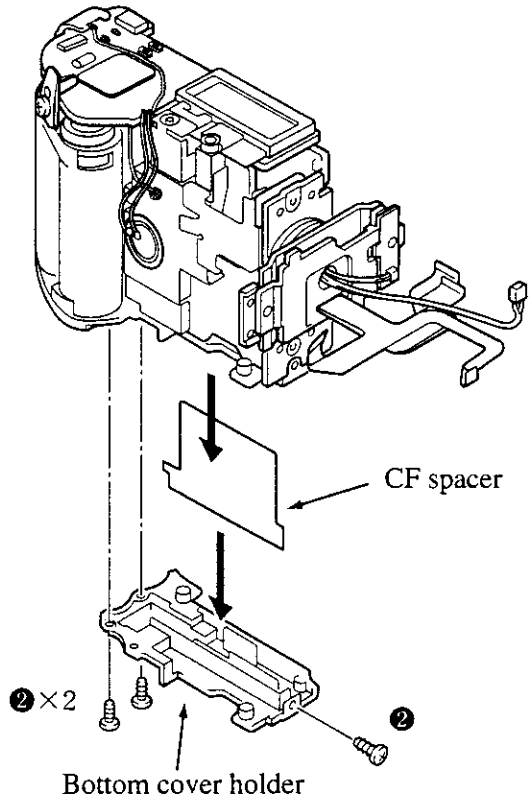


7. Front LCD cover



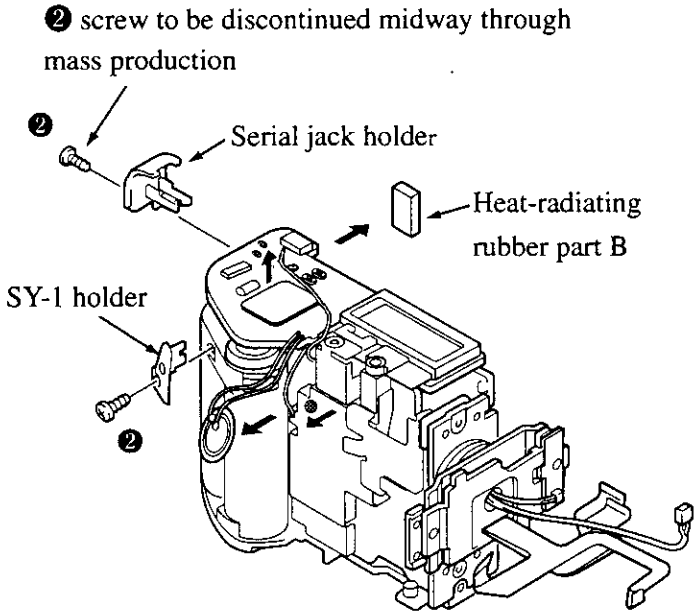
- Open the PW/AV serial cover.
- Disconnect the FPC connector.
- Remove the two ❶ screws, three ❸ screws and the ❹ screw.
- The front LCD cover can now be removed.
- The serial jack cover can now be removed.
- The battery lid can now be removed.

8. Bottom cover holder

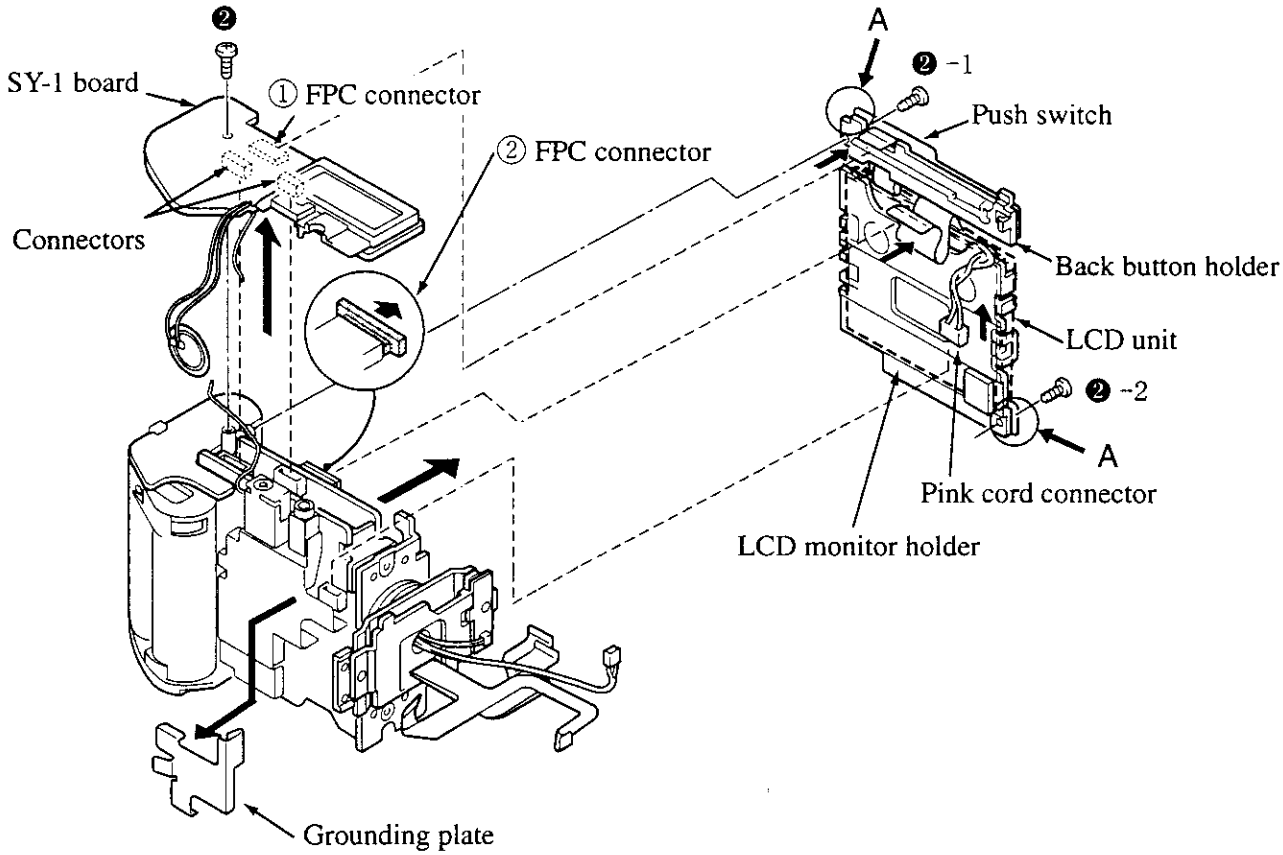


- Remove the three ❷ screws.
- The bottom cover holder can now b removed.
- The CF spacers can now be removed.

9. SY-1 board, LCD unit, LCD monitor holder, back button holder

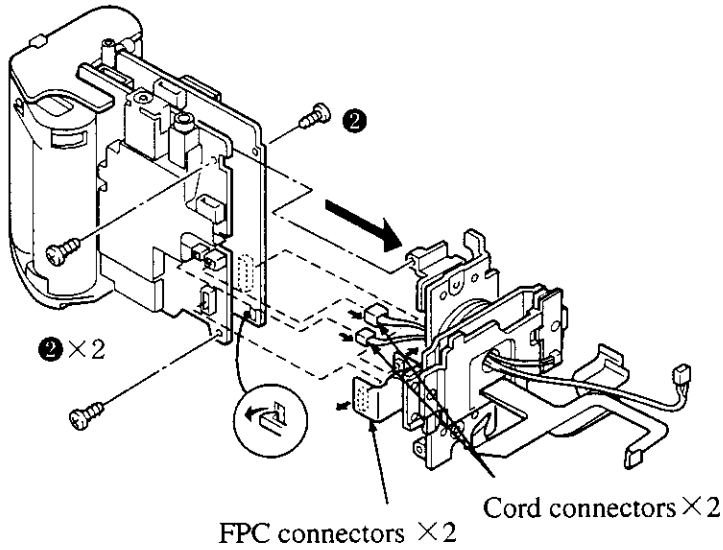


- Remove the ❷ screw for securing the serial jack holder.
- Remove the serial jack holder.
  (It is held in position by a hook.)
- Remove the ❷ screw, and remove the SY-1 holder.
- Remove the shielded cord soldering in two places.
- Peel off the buzzer from the camera body.
- Remove the heat-radiating rubber part B.



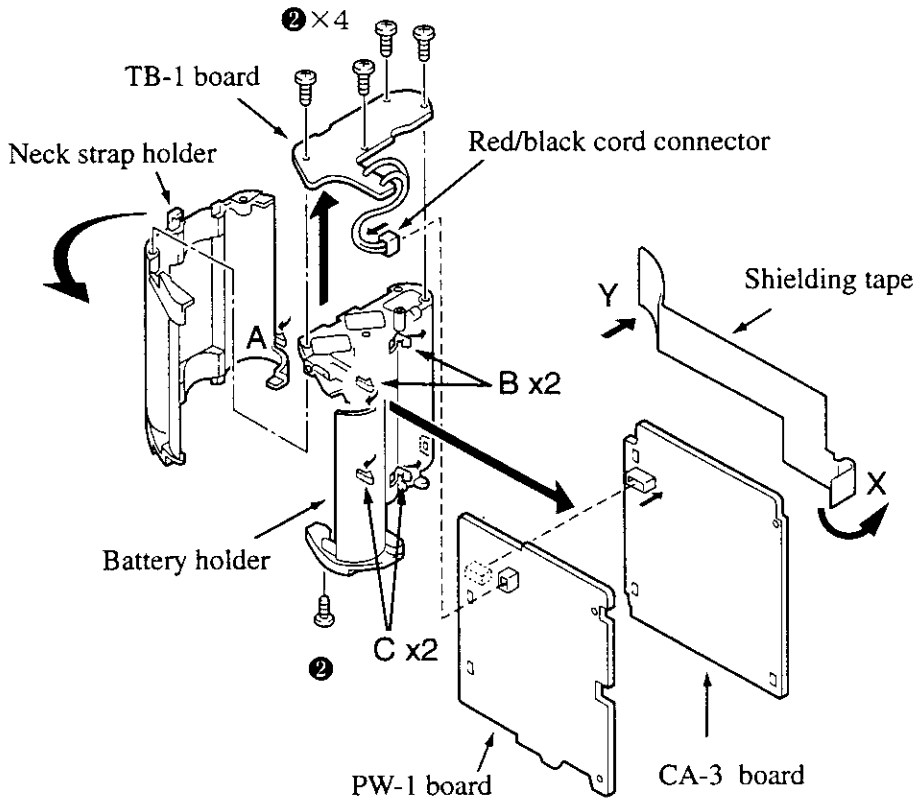
- Remove the grounding plate.
- Peel off the push switch in two places in area A until the screw underneath is visible.
  (Separate the button between the FPC base plate and back button holder.)
  At the same time, the ① FPC connector can now be removed.
- Remove the ❷-1 screw.
- Allow the back button holder to lift off from the camera body.
- Remove the ❷ screw.
- The SY-1 board can now be removed.
- Remove the ② FPC connector.
- Remove the pink cord connector.
- Remove the ❷-2 screw.
- The LCD unit, LCD monitor holder, back button holder and push switch can now be removed as an assembly.

10. Joint unit



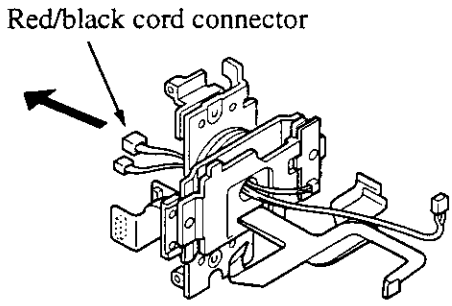
- Disconnect the two cord connectors.
- Disconnect the two FPC connectors.
- Remove the three ❷ screws.
- The joint unit can now be removed.
- Peel off the X part of the shielding tape. (See figure below)

11. Board units, other

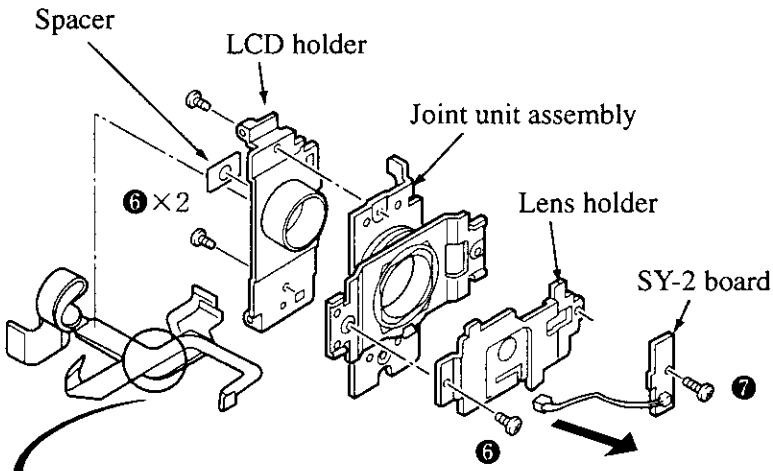


- Peel off the Y part of the shielding tape.
- Remove the five ❷ screws.
- Disengage the hook in area A, and rotate the neck strap holder in the direction of the arrow to remove it.
- Disconnect the red/black cord connector, and remove the TB-1 board.
- Hold the bottom side of the CA-3 and PW-1 boards between your fingers, disengage the hook C part, and then disengage the hook B part.
- The CA-3 and PW-1 boards can now be removed.

12. Joint unit



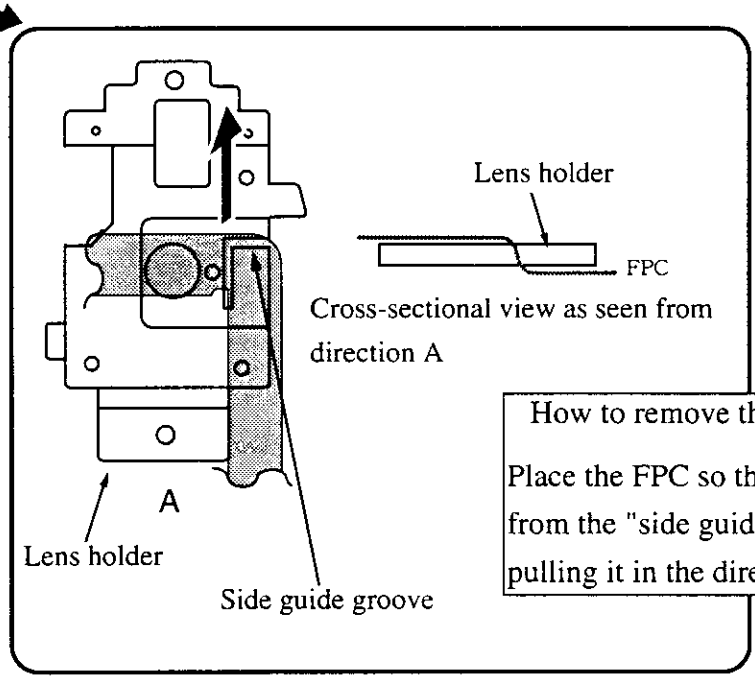
- Disconnect the red/black cord connector by pulling it in the direction of the arrow.



- Remove the ❼ screw, and remove the SY-2 board.
- Remove the ❻ screw, and remove the lens holder.

Note: Make a note of how the FPC is routed.

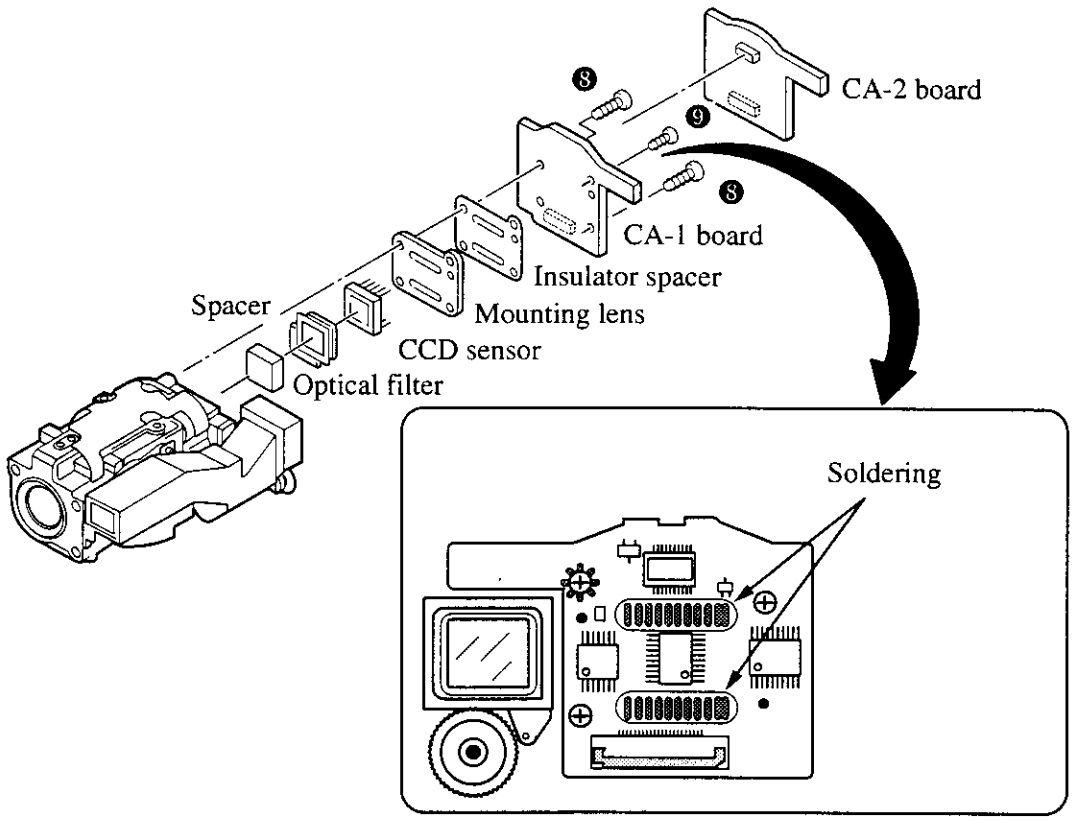
- Remove the lens holder from the FPC.
- Remove the spacer.
- Disconnect all the FPCs using the vertical groove in the LCD holder.
- Remove the two ❻ screws, and remove the LCD holder.



How to remove the FPC from the lens holder

Place the FPC so that it is flat, and disconnect it from the "side guide groove" of the lens holder by pulling it in the direction of the arrow.

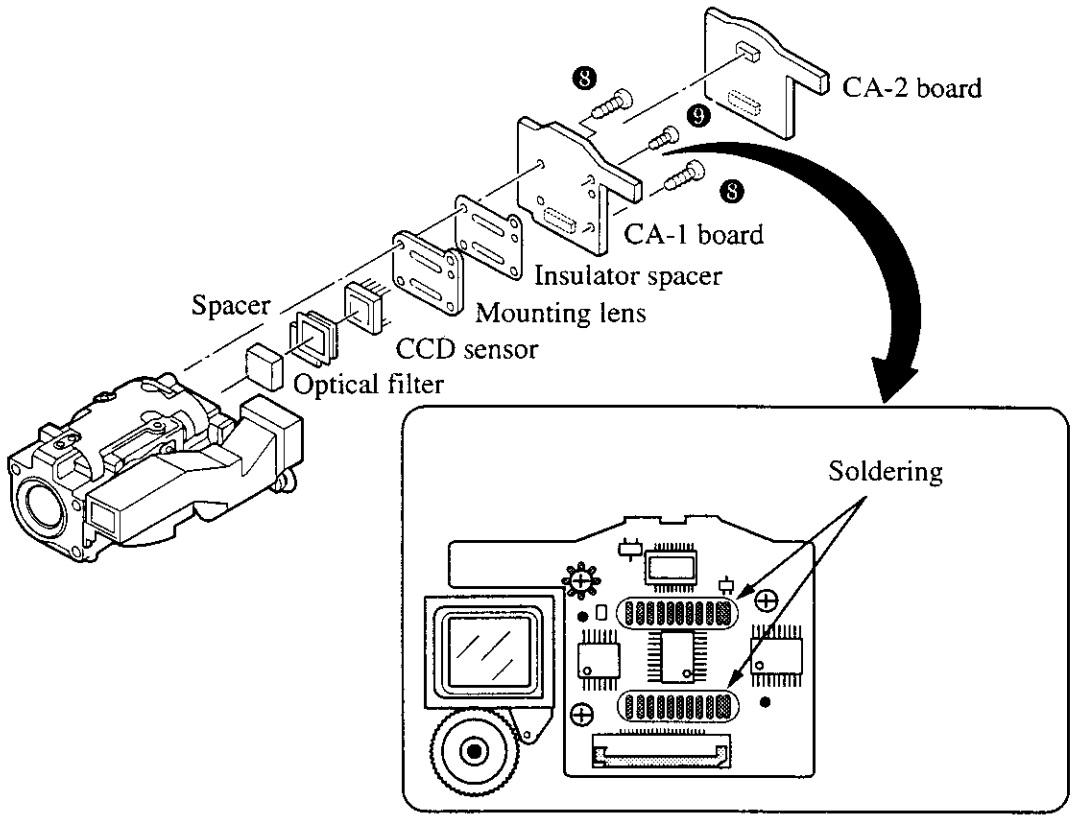
13. Optical unit



- Remove the CA-2 board.
- Remove the soldering on the CA-1 board.
- Remove the two ❽ screws and the ❾ screw.
- The CA-1 board, insulator spacer, mounting lens, CCD sensor, spacer and optical filter can now be removed in this order.

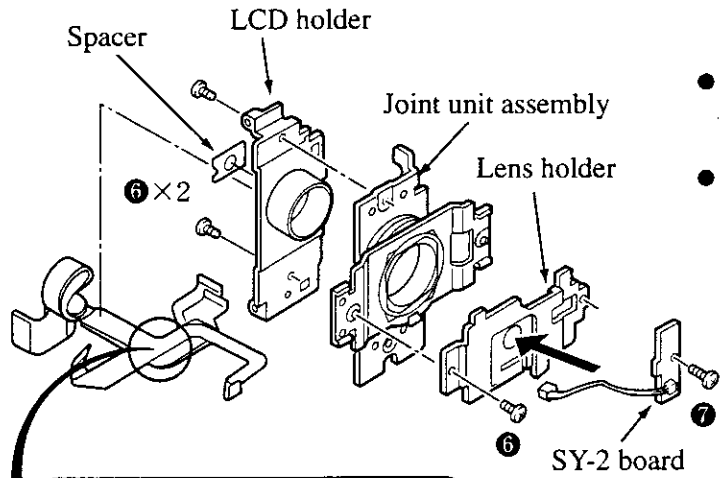
Re-assembly Procedure

1. Optical unit

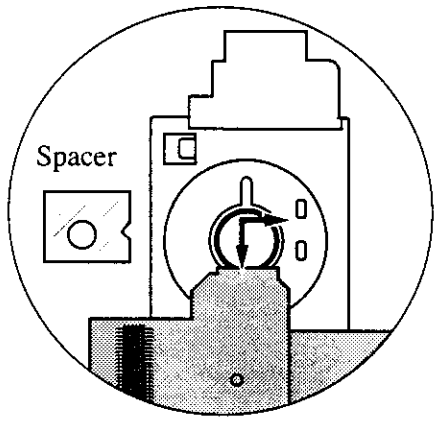


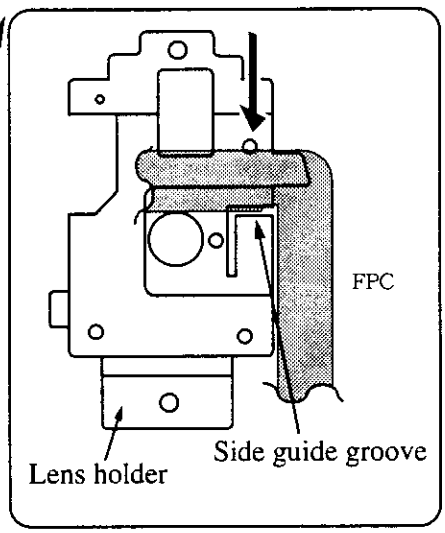
- Assemble the optical filter, spacer, CCD sensor, mounting lens, insulator spacer and CA-1 board into the optical unit body in this order.
- Mount the two ❽ screws and the ❾ screw.
- Solder the CA-1 board.
- Mount the CA-2 board.

2. Joint unit



- Mount the LCD holder onto the joint unit assembly using the two ❻ screws.
- Use the vertical groove in the LCD holder to install the FPC.
- Move the spacer in the direction of the arrow and mount.





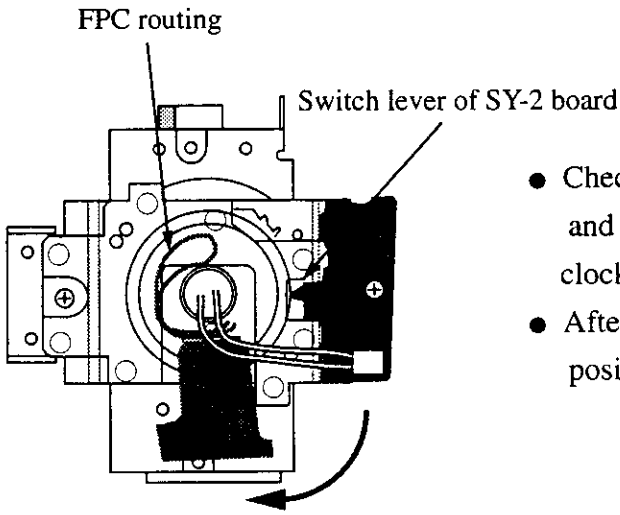
- Install the FPC in the lens holder.

Note: Refer to the figure below for the FPC routing.

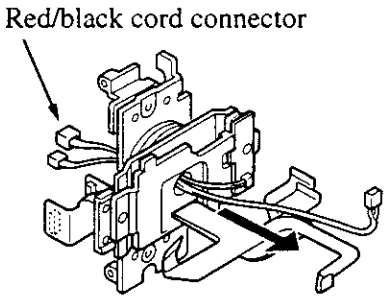
- Mount the lens holder on the joint unit assembly using the ❻ screw.
- Mount the SY-2 board using the ❼ screw.
- Pass the yellow/black cord connector in the direction of the arrow through the hole in the joint unit assembly.

How to assemble the FPC into the lens holder

Place the FPC so that it is flat, and mount it onto the holder lens from the "side guide groove" of the lens holder.

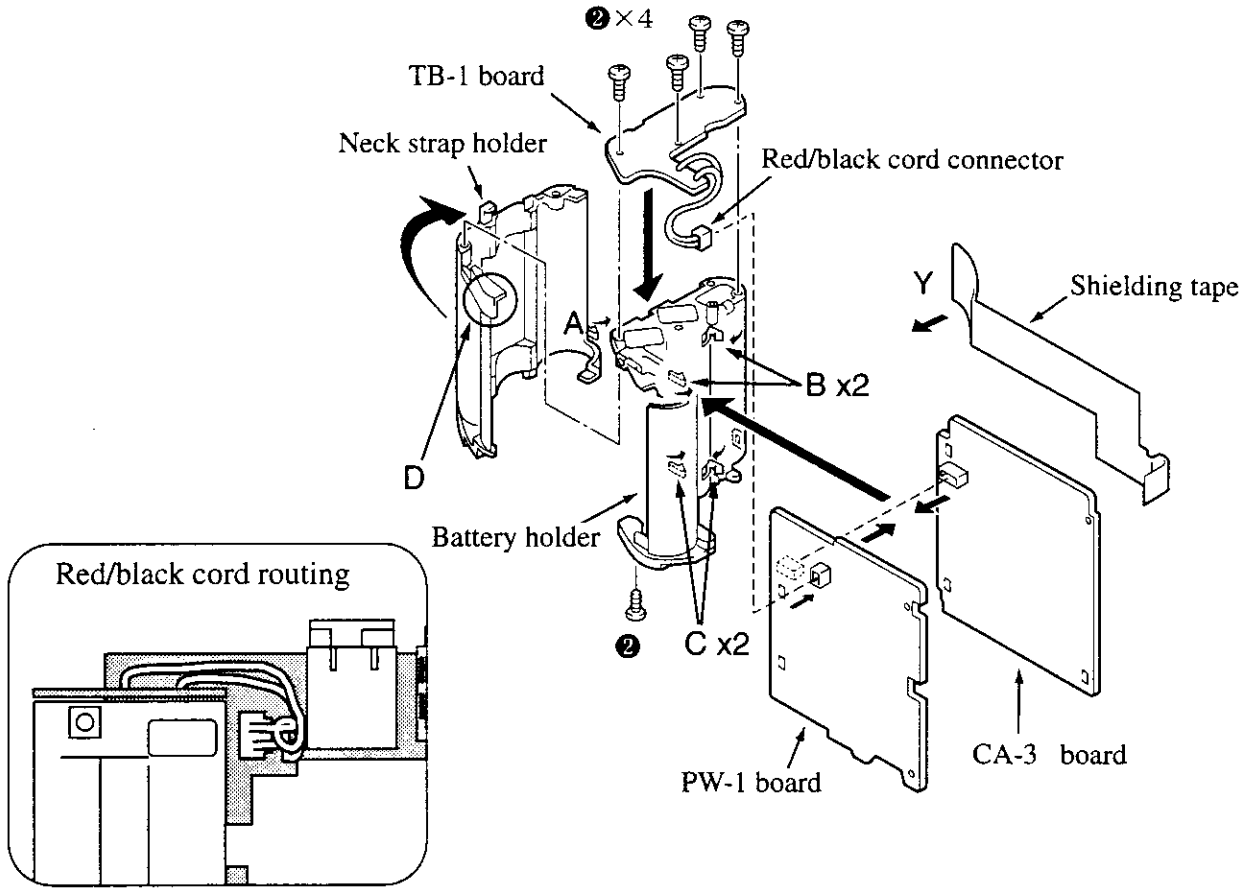


- Check that the switch lever of the SY-2 board is switched and concealed when the lens holder unit is rotated clockwise by 180 degrees.
- After checking, return the lens holder unit to its original position.



- Pass the red/black cord connector in the direction of the arrow through the hole in the joint unit assembly.

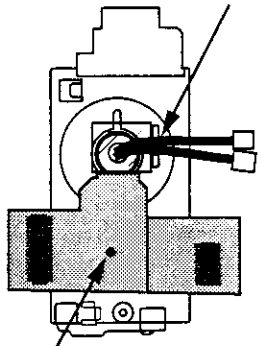
3. Board units, other



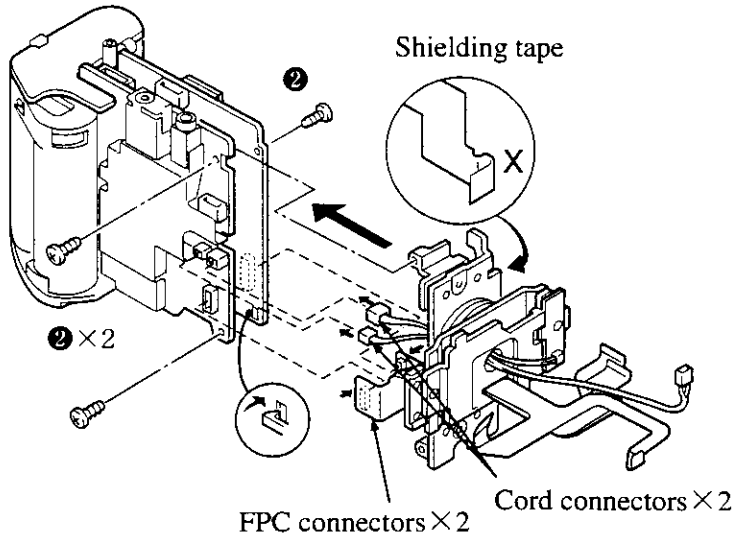
- Combine the CA-3 board and PW-1 board, and assemble them into the battery holder.
  (Join them together using the hook C and hook B areas.)
- Mount the TB-1 board, and connect the red/black cord connector.
- Install the D area of the neck strap holder into the batter holder, rotate the holder in the direction of the arrow, and connect using the area A hook.
- Mount the five ❷ screws.
- Adhere the Y part of the shielding tape.

4. Joint unit

Pass the cord connector through the fork.

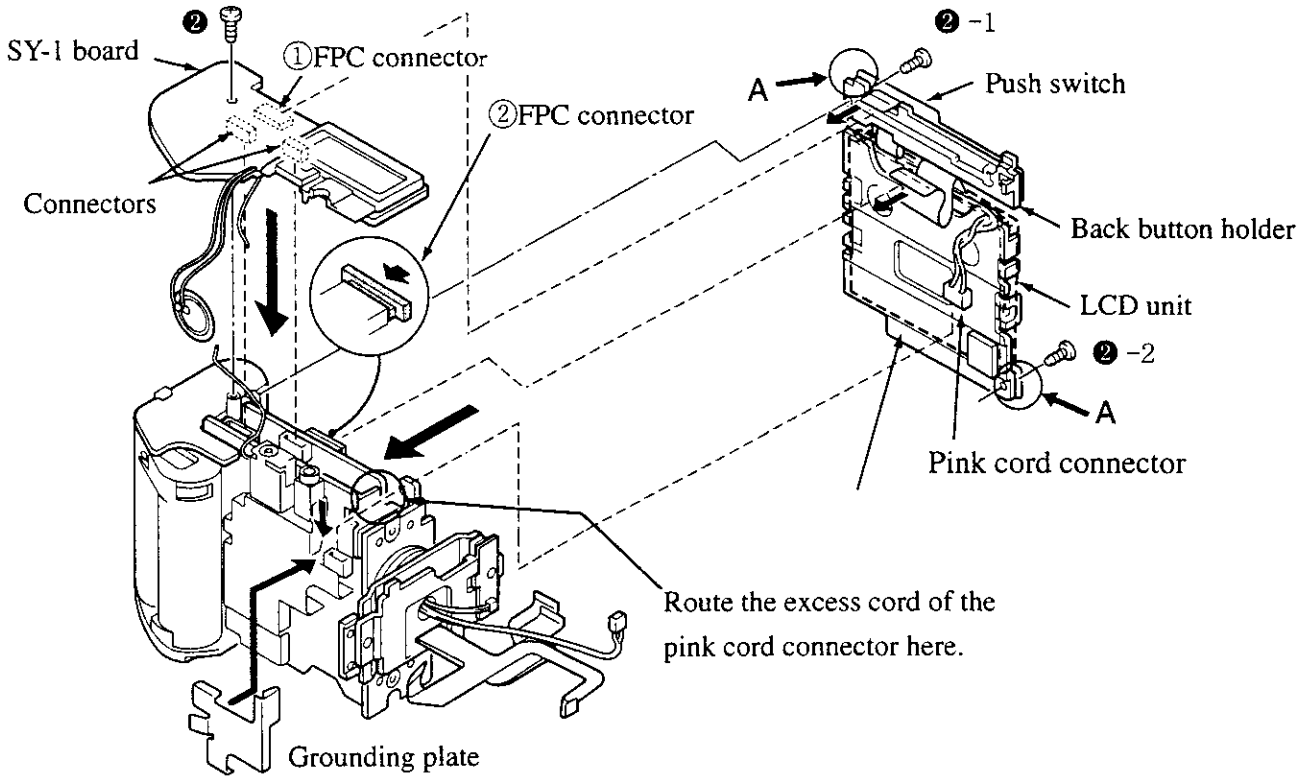


Pass the FPC through the LCD holder boss.



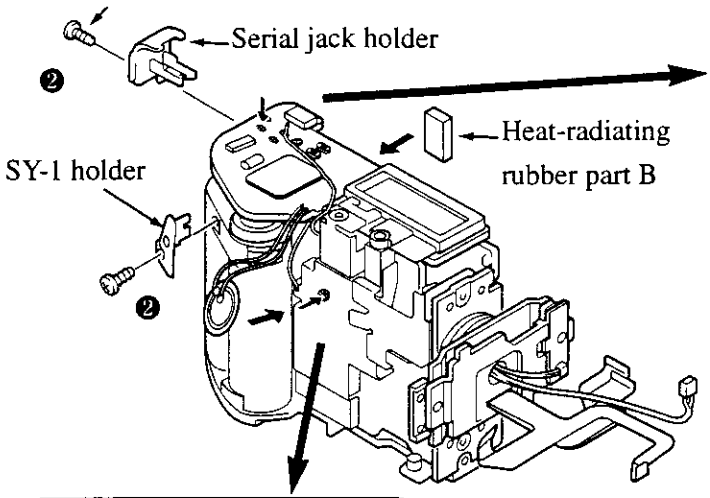
- Assemble the joint unit into the camera body, and attach using the hook and three ❷ screws.
- Connect the two FPC connectors and two cord connectors.
- Adhere the X part of the shielding tape to the joint.

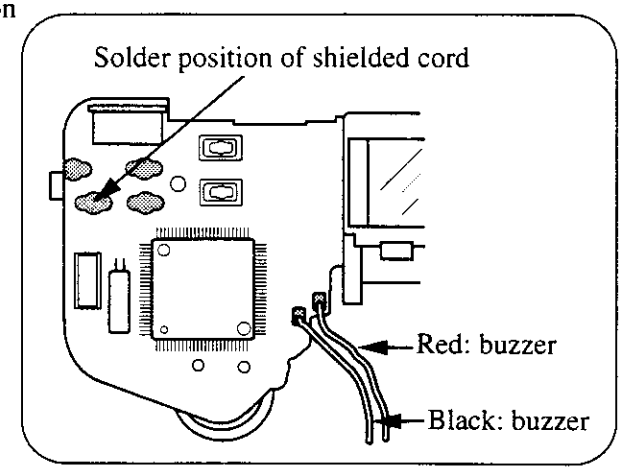
5. SY-1 board, LCD unit, LCD monitor holder, back button holder



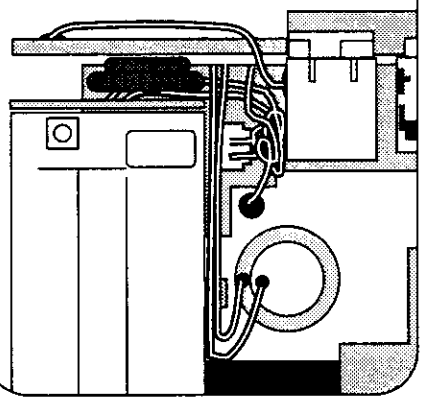
- Mount the LCD unit, LCD monitor holder, back button holder and push switch assembly into the camera body using the ❷-2 screw.
- Connect the pink cord connector and ② FPC connector.
- Mount the SY-1 board onto the camera body using the ❷ screw.
- Mount the back button holder onto the camera body using the ❷-1 screw.
- Connect the ① FPC connector, and adhere the push switch at the two area A locations.
- Mount the grounding plate.

❷screw to be discontinued midway through mass production



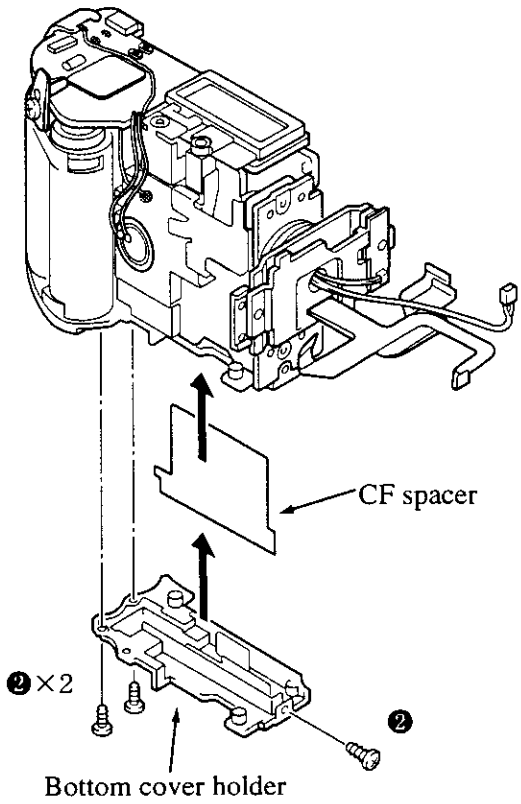


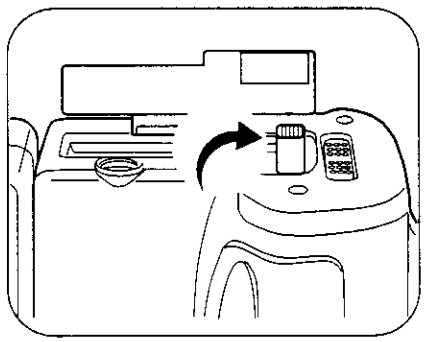
How to adhere the buzzer and solder position of shielded cord



- Adhere the buzzer to the camera body.
- Solder the shielded cord at the two locations.
- Attach the SY-1 holder to the camera body using the ❷ screw.
- Attach the serial jack holder.
- Attach the ❷ screw.

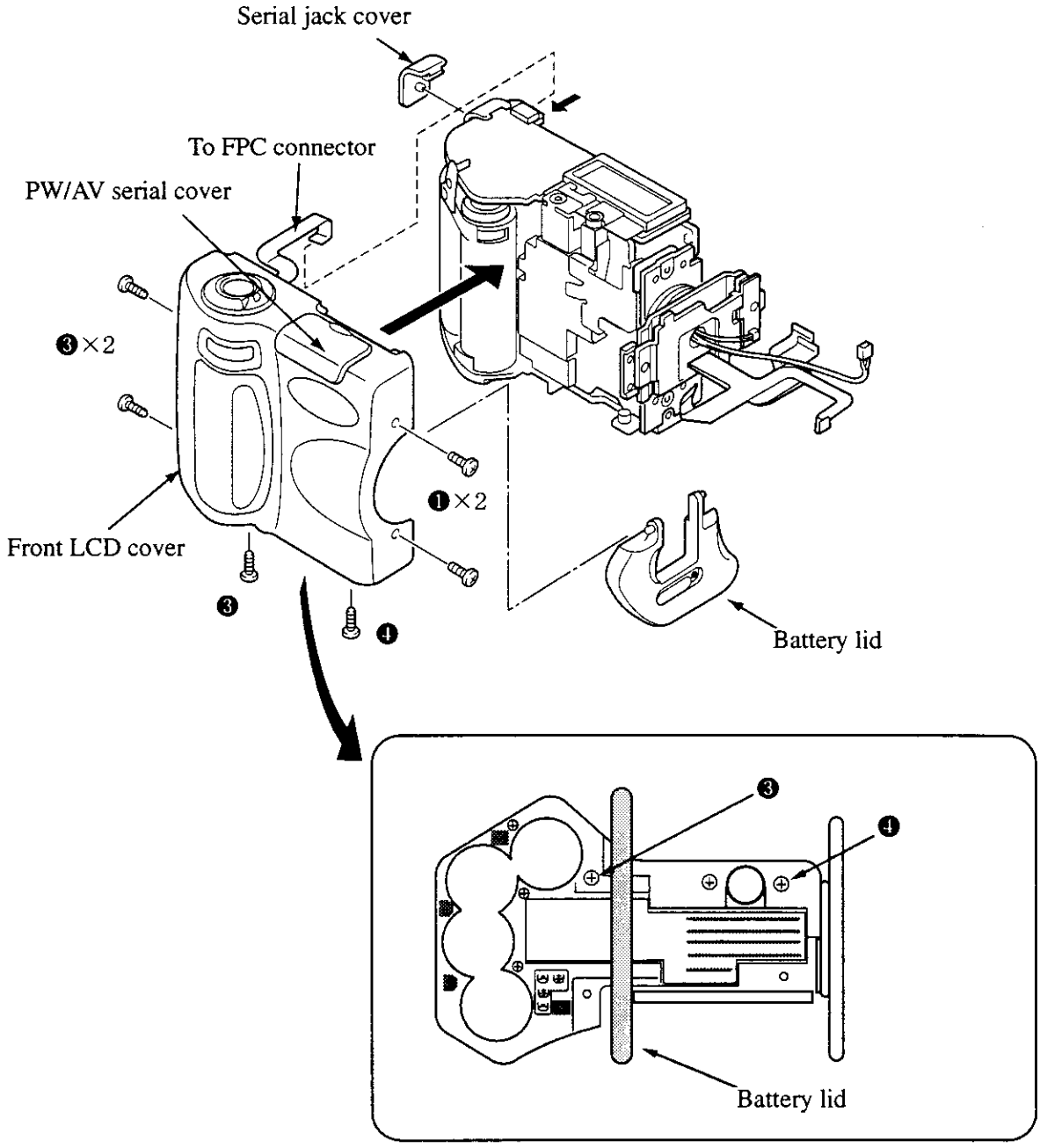
6. Bottom cover holder





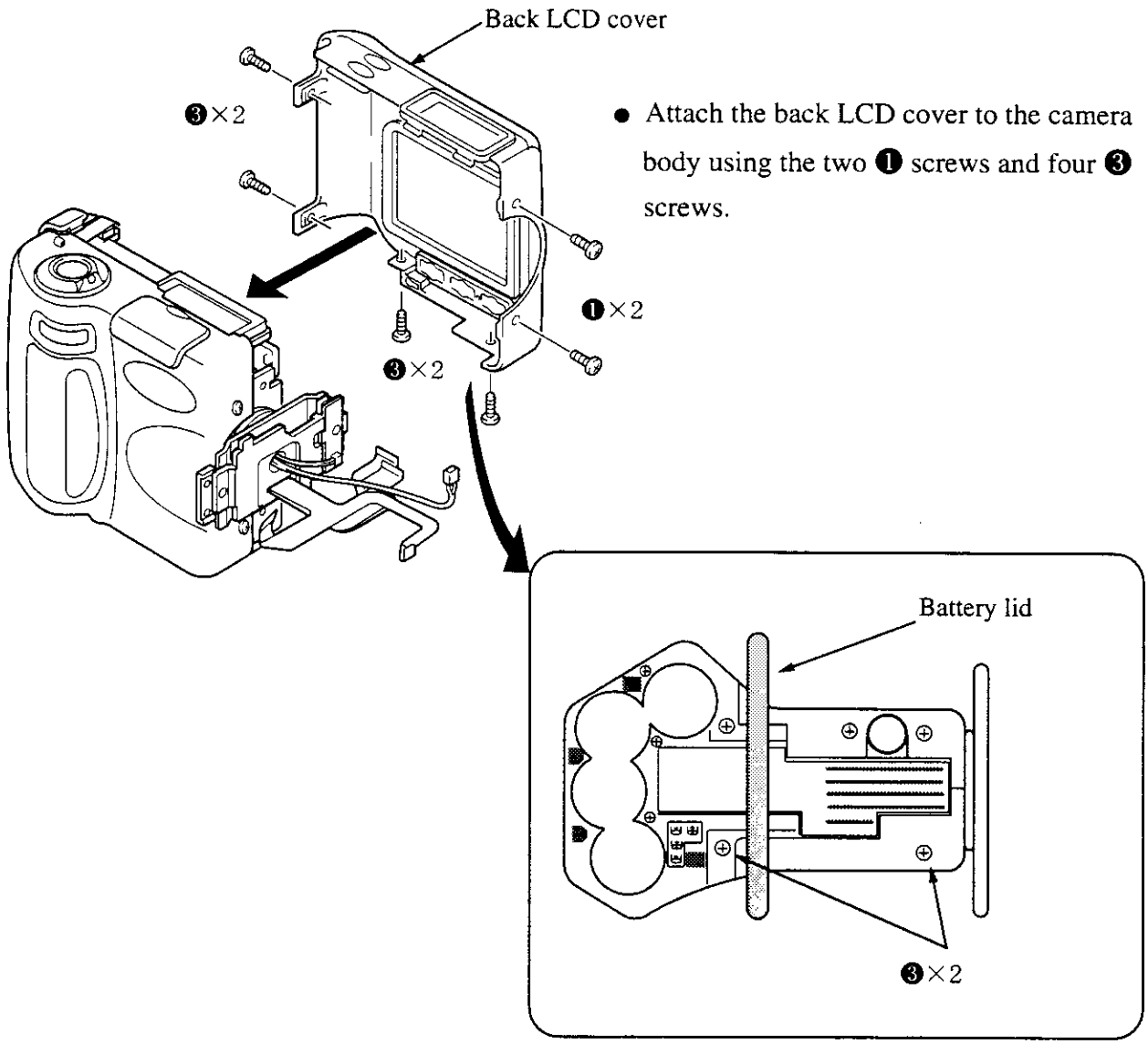
- Assemble the CF spacer into the camera body.
- Raise the compact flash card eject lever.
- Mount the bottom cover holder to the camera body using the three ❷ screws.

7. Front LCD cover



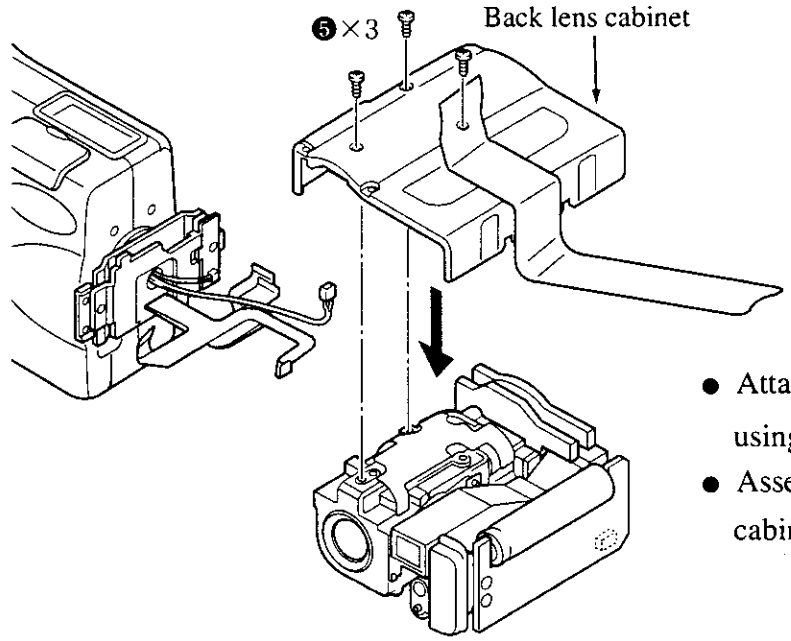
- Attach the serial jack cover to the camera body.
- While assembling the battery lid into the front LCD cover, attach the front LCD cover to the camera body using the two ❶ screws, three ❸ screws and ❹ screw.
- Connect the FPC connector.
- Check that the PW/AV serial cover opens and closes properly.

8. Back LCD cover

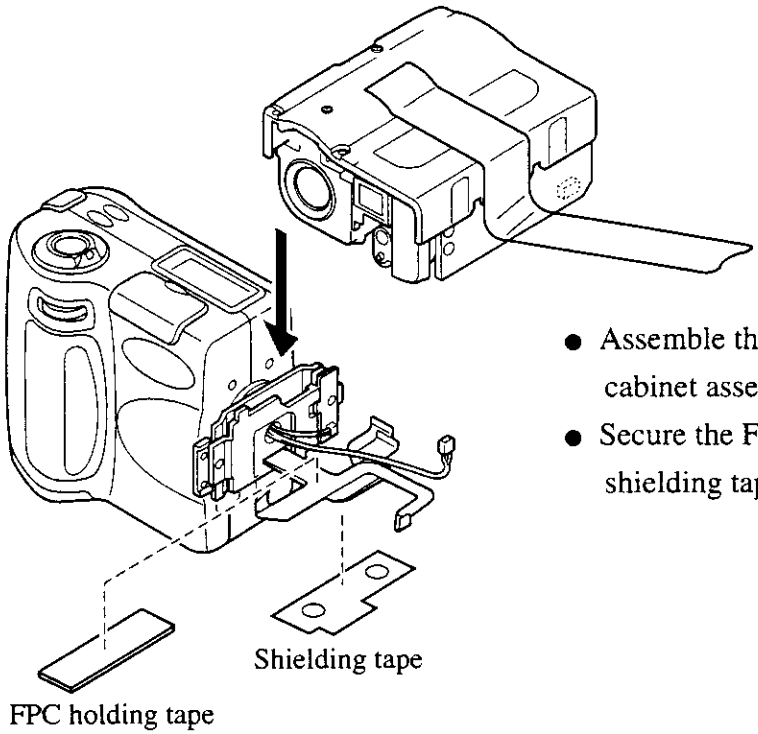


- Attach the back LCD cover to the camera body using the two ❶ screws and four ❸ screws.

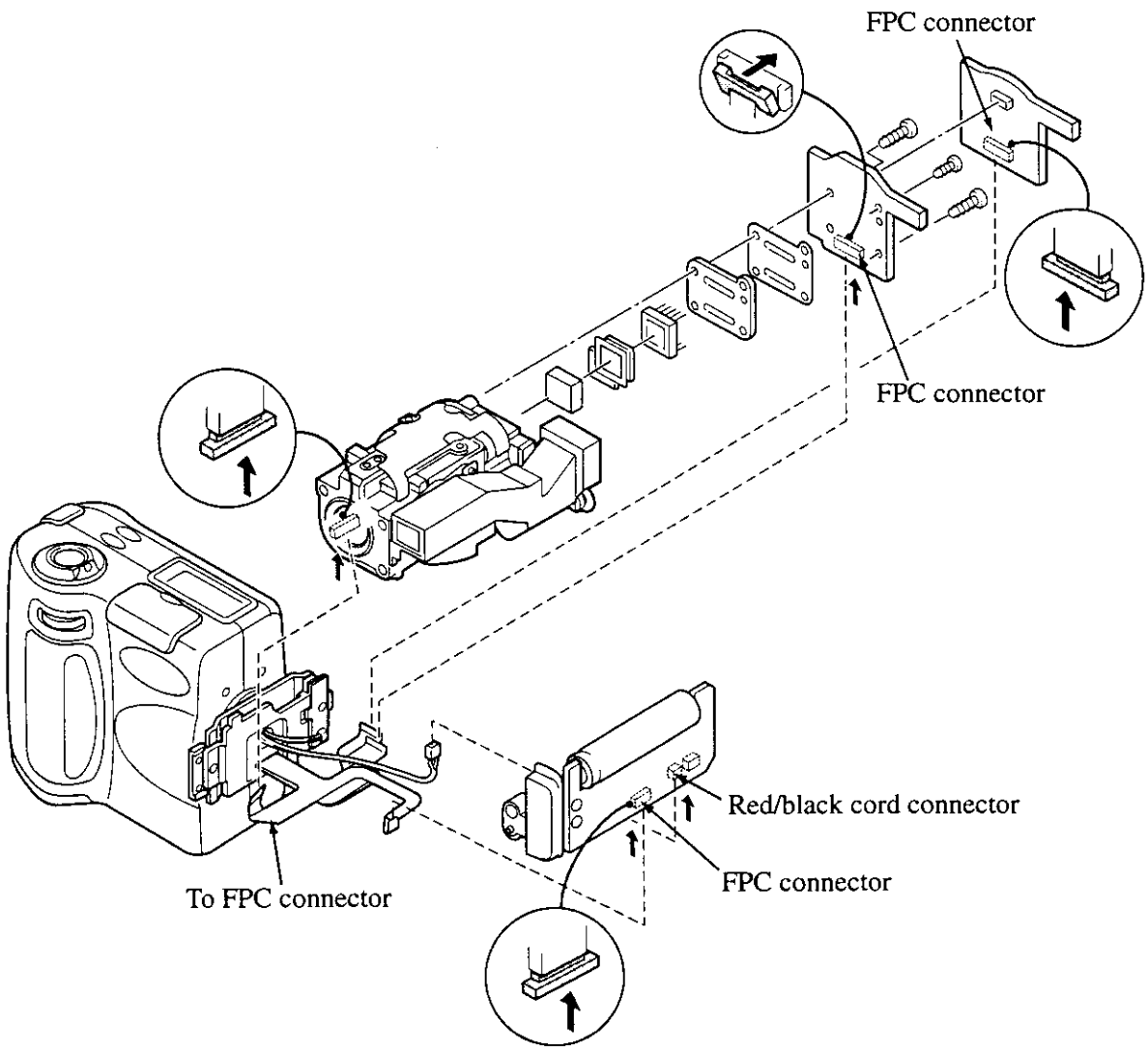
9. Flash unit, optical unit, back lens cabinet



- Attach the optical unit to the back lens cabinet using the three ❺ screws.
- Assemble the flash unit into the back lens cabinet.

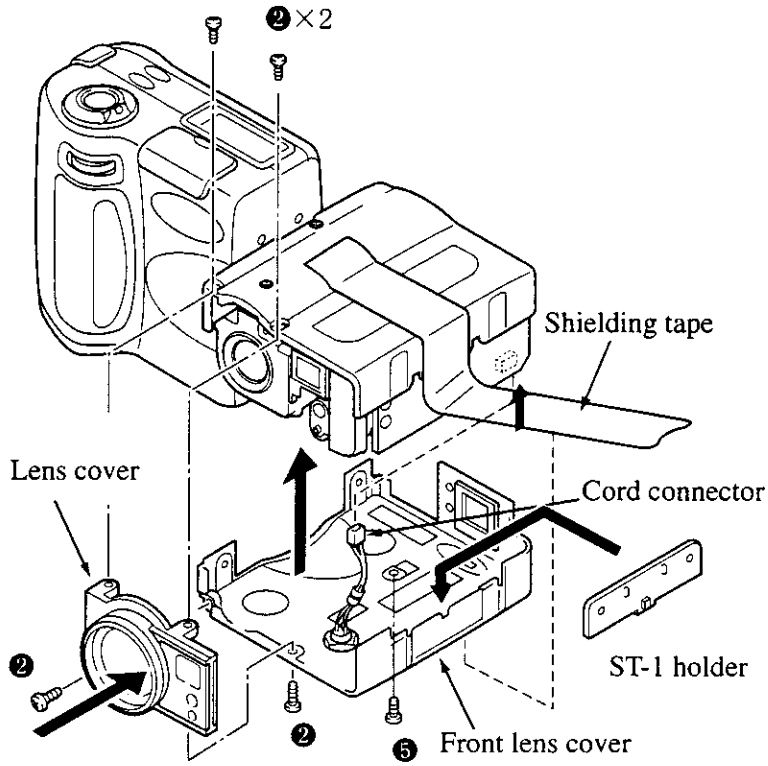


- Assemble the flash unit, optical unit and back lens cabinet assembly into the camera body.
- Secure the FPC using the FPC holding tape and shielding tape.



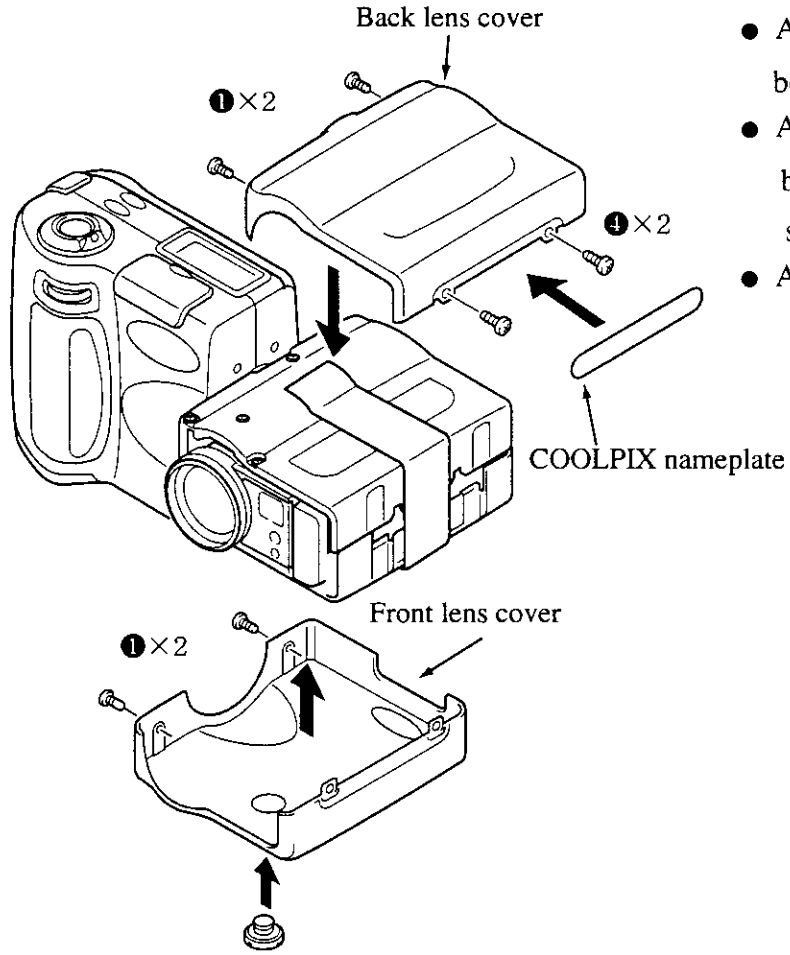
- Connect the FPCs and red/black cord connector to their respective connectors (x5).

10. Lens cover, front lens cover



- Assemble the ST1 holder into the camera body.
- Connect the cord connector.
- Attach the front lens cover to the camera body using the ❺ screw.
- Adhere the shielding tape.
- Attach the lens cover to the camera body using the four ❷ screws.

11. Back lens cover, front lens cover



- Attach the front lens cover to the camera body using the two ❶ screws.
- Attach the back lens cover to the camera body using the two ❹ screws and two ❶ screws.
- Adhere the COOLPIX nameplate.

ELECTRICAL ADJUSTMENT

1. Equipment

- OscilloscopeIBM R compatible PC
- AC adaptor (EH-30)
- IBM®R compatible PC

2. Servicing Tools

- Color viewer 5,100 K

  Note : Due to 100 to 110 V specified for the color viewer, in case of using it in somewhere overseas, be sure to convert its voltage through the transformer in accordance with that country's voltage.

- Siemens star chart
- Calibration software
- Chart for color adjustment

3. Setup

3-1.System requirements

- Windows 95 or 98
- IBM R -compatible PC with 486 or higher processor
- CD-ROM drive
- 3.5-inch high-density diskette drive
- Serial port with standard RS-232C interface
- 8 MB RAM
- Hard disk drive with at least 15 MB available
- VGA or SVGA monitor with at least 256-color display

3-2. Installing calibration software

- Insert the calibration software installation diskette into your diskette drive.
- Open the explorer.
- Copy the DSC Cal folder on the floppy disk in the FD drive to a folder on the hard disk.
- Color Viewer

Turn on the switch and wait for 30 minutes for aging to take place before using Color Pure.

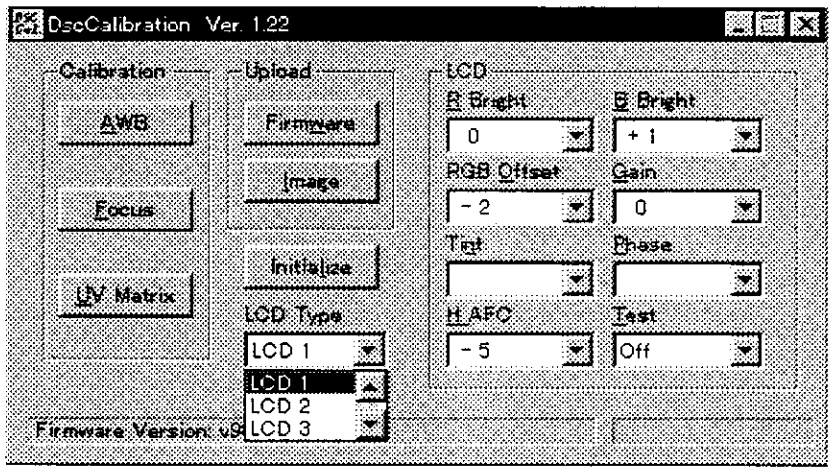
4. Calibration software

After starting the applicable calibration software, the following is displayed on the PC monitor.

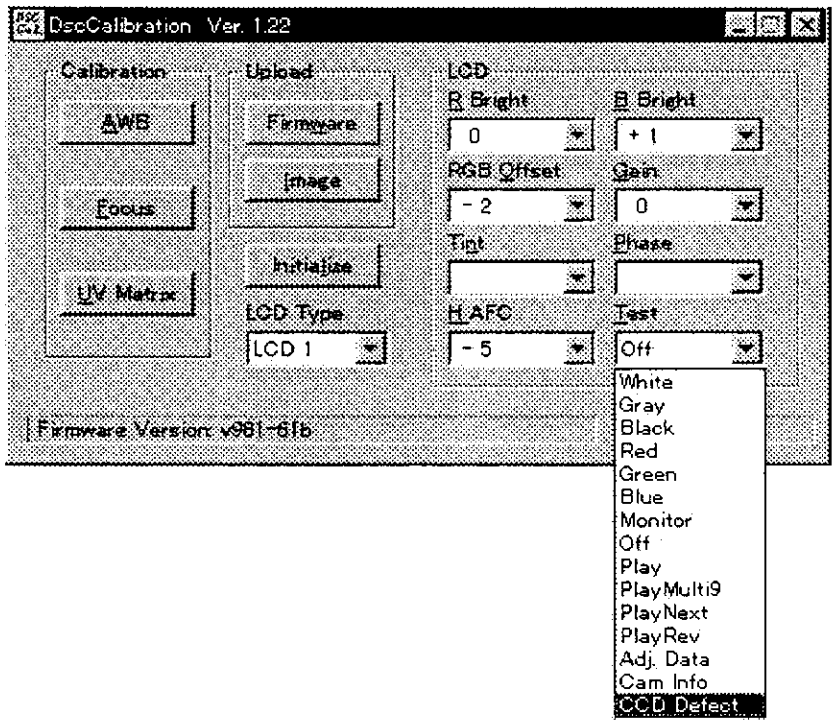
- For adjusting [10. LCD Panel Adjustment], select the camera's LCD type.

*LCD1 for E950

*LCD2 for E700



< F I G – 1 >



< F I G – 2 >

5. Adjustment Items and Order

① Flange-back (Lens) Adjustment

② CCD Defect Detect Adjustment

③ AWB Adjustment

④ Color matrix Adjustment

⑤ LCD Panel Adjustment

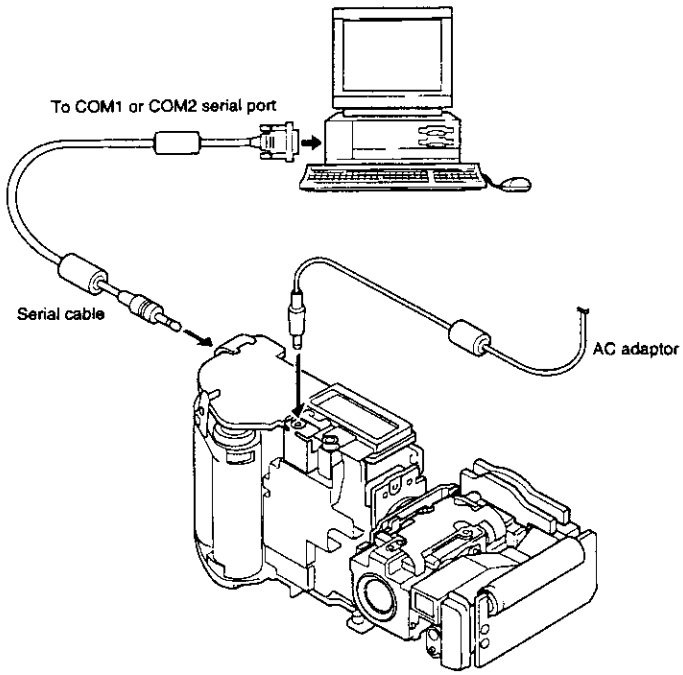
⑥Adjustment items required at replacement of parts

	Flange-back (Lens) Adjustment ①	CCD Defect Detect Adjustment ②	AWB Adjustment ③	Color matrix Adjustment ④	LCD Panel Adjustment ⑤
CA1	○	○	○	○	×
CA2	○	○	○	○	×
CA3	○	○	○	○	○
SY-1	○	×	×	×	×
SY-2	×	×	×	×	×
PW1	×	×	×	×	×
Lens Unit	○	○	○	○	×
CCD	○	○	○	○	×
Optical filter	○	○	○	○	×

○ : Adjustment required × : Adjustment not required

6. Connecting the camera to the computer

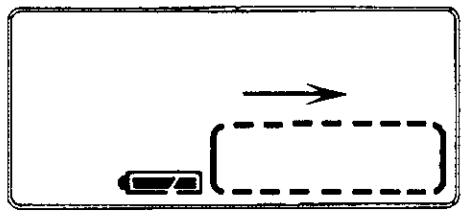
- Turn off both camera and computer.
- Locate the port cover on the side of the camera. Press on the arrows and slide the cover down to open it.
- Line up the arrow on the cable connector with the notch on the camera's serial port. Insert the connector.
- Locate a serial port on the back of your computer. You may have two serial ports labeled COM1 and COM2, or the ports may be labeled with icons. If you have two serial ports available, use port 1 to connect your camera.
- Line up the serial connector on the cable with one of the serial ports on your computer, and insert the connector.
- Turn on the camera and your computer system.



7. Communications between PC and the camera

After starting communications between PC and the camera, what is displayed on the top LCD on the camera is switched to the following figure.

The dotted line starts to go round clockwise, and after a fixed period of time, the move of line stops and the camera automatically goes to be switched to the communications mode. In addition, this move of line automatically appears every time each adjustment item in the applicable calibration software is operated on your demand.



Top LCD Panel

8. Flange-back (Lens) Adjustment

[Preparation]

- Siemens star chart
- POWER switch: ON (set to A-REC, M-REC or PLAY MODE)

[Adjustment condition]

- Make a copy of A4 size siemens chart in enlarged A3 size or larger.
- Illumination above the subject should be 400 lux ± 10 %.
- Set the siemens star chart 150 cm ± 3 cm (between Siemens star chart and the surface of camera's protection lens)

[Adjustment method]

- Double-click on the DscCalV122.
- Select the monitor from TEST menu of Calibration Soft (refer to the FIG-2) so that LCD monitor will be turned on.
- Set the camera's LCD center to meet the Siemens star chart's center.
- Click the Focus, and click the Yes.
- Flange-back adjustment value will appear on the screen.
- Click 'OK'.

Note : In any adjustment error cases, the adjustment operation can not completely finish through the software. Or, slightly out-of-focus mode appears on the LCD on camera.