

JVC

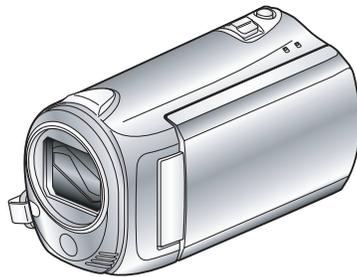
SERVICE MANUAL

CAMCORDER

**GZ-HM330BEK, GZ-HM330BEU, GZ-HM330RAA,
GZ-HM330RAC, GZ-HM330RAG, GZ-HM330RAH,
GZ-HM330RAS, GZ-HM330SAA, GZ-HM330SAC,
GZ-HM330SAG, GZ-HM330SAH, GZ-HM330SAS,
GZ-HM330SEK, GZ-HM330SEU, GZ-HM334BEU,
GZ-HM335BEU, GZ-HM350BAA**

SERIES

C0S4



Everio



GZ-HM330BEKM, GZ-HM330BEUM, GZ-HM330SEKM, GZ-HM330SEUM, GZ-HM334BEUM, GZ-HM335BEUM [C0S414]
GZ-HM330RAAM, GZ-HM330RACM, GZ-HM330RAGM, GZ-HM330RAHM, GZ-HM330RASM, GZ-HM330SAAM,
GZ-HM330SACM, GZ-HM330SAGM, GZ-HM330SAHM, GZ-HM330SASM [C0S415]
GZ-HM350BAAM [C0S419]

Lead free solder used in the board (material : Sn-Ag-Cu, melting point : 219 Centigrade)

This service manual (No.YF347<Rev.001>) describes only the items which differ from those of already issued service manual ([No.YF336<Rev.001>](#))

For details other than those described in this manual, please refer to the service manuals which were already issued.

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SPECIFICATION

Camera

Power supply	Using AC adapter: DC 5.2 V, Using battery pack: DC 3.6 V	
Power consumption	2.7 W (when "LIGHT" is set to "OFF" and "LCD BACKLIGHT" is set to "STANDARD")	
Dimensions (W × H × D)	52 mm × 62 mm × 110 mm (excluding grip belt)	
Mass	Approx. 220 g (camera only), Approx. 260 g (including supplied battery pack)	
Operating environment	Allowable operating temperature: 0°C to 40°C	
	Allowable storage temperature: -20°C to 50°C	
	Allowable operating humidity: 35% to 80%	
Image pickup device	1/4" 3,320,000 pixels (progressive CMOS)	
Recording area (Video)	(16:9) 1,160,000 to 1,380,000 pixels (optical zoom)	
Recording area (Still image)	(4:3) 870,000 to 1,040,000 pixels (16:9) 1,160,000 to 1,380,000 pixels	
Lens	F 1.8 - 4.7, f = 3.0 mm to 90.0 mm (35 mm conversion: 43.7 mm to 1311 mm)	
Zoom (Video)	Optical zoom: Up to 30×	
	Digital zoom: Up to 200×	
Zoom (Still image)	Optical zoom: Up to 30×	
Video recording format	AVCHD standard, Video: AVC/H.264, Audio: Dolby Digital (2ch)	
Still image recording format	JPEG standard	
Recording media	Built-in Memory (8 GB/16GB), SD/SDHC card (commercially available)	
Clock battery	Rechargeable battery	
Connectors	HDMI	HDMI™ Mini Connector (V.1.3 with x.v.Color™)
	Component output	Y, Pb, Pr component output Y: 1.0 V (p-p), 75 Ω Pb/Pr: 0.7 V (p-p), 75 Ω
	AV output	Video output: 1.0 V (p-p), 75 Ω Audio output: 300 mV (rms), 1 kΩ
	USB	Mini USB type AB, USB 2.0 compliant

For more information, refer to the Detailed User Guide
<http://manual.jvc.co.jp/index.html/>

AC Adapter (AP-V30M)*

Power supply	AC 110 V to 240, 50 Hz/60 Hz
Output	DC 5.2 V, 1.8 A
Allowable operating temperature	0°C to 40°C (10°C to 35°C during charging)
Dimensions (W × H × D)	50 mm × 29 mm × 100 mm (excluding cord and AC plug)
Mass	Approx. 112 g

- *When using the AC adapter overseas, please prepare a commercially available converter plug for the country or region of visit.
- The specifications and appearance of this product are subject to changes for further improvement without prior notice.

SECTION 1 PRECAUTIONS

1.1 SAFETY PRECAUTIONS

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

1.1.1 Precautions during Servicing

- (1) Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.
- (2) Parts identified by the  symbol and shaded () parts are critical for safety. Replace only with specified part numbers.

NOTE :

Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

- (3) Fuse replacement caution notice.
Caution for continued protection against fire hazard. Replace only with same type and rated fuse(s) as specified.
- (4) Use specified internal wiring. Note especially:
 - Wires covered with PVC tubing
 - Double insulated wires
 - High voltage leads
- (5) Use specified insulating materials for hazardous live parts. Note especially:
 - Insulation Tape
 - PVC tubing
 - Spacers
 - Insulation sheets for transistors
 - Barrier
- (6) When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

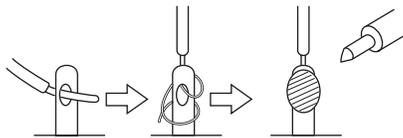


Fig.1-1-1

- (7) Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)
- (8) Check that replaced wires do not contact sharp edged or pointed parts.
- (9) When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

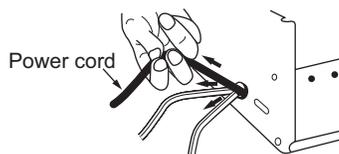


Fig.1-1-2

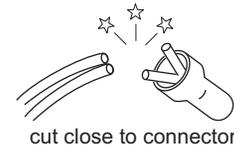
- (10) Also check areas surrounding repaired locations.
- (11) Products using cathode ray tubes (CRTs) In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray

emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

- (12) Crimp type connector In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

- **Connector part number** :E03830-001
- **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
- **Replacement procedure**

- a) Remove the old connector by cutting the wires at a point close to the connector. Important : Do not reuse a connector (discard it).



cut close to connector

Fig.1-1-3

- b) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

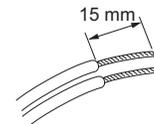


Fig.1-1-4

- c) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

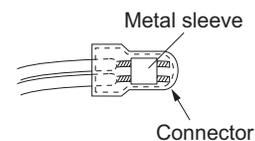


Fig.1-1-5

- d) As shown in Fig.1-1-6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

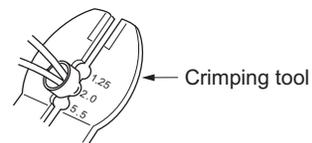


Fig.1-1-6

- e) Check the four points noted in Fig.1-1-7.

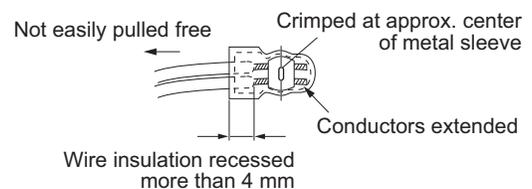


Fig.1-1-7

1.1.2 Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

(1) Insulation resistance test

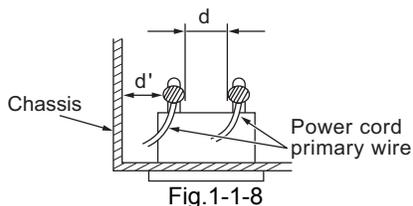
Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

(2) Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See Fig.1-1-11 below.

(3) Clearance distance

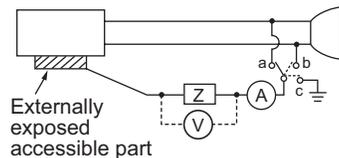
When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See Fig.1-1-11 below.



(4) Leakage current test

Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

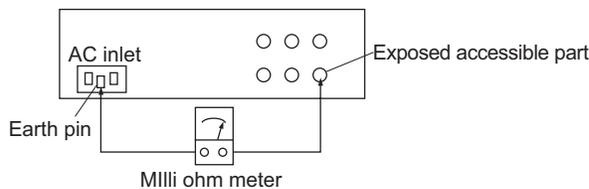
Measuring Method : (Power ON) Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See Fig.1-1-9 and following Fig.1-1-12.



(5) Grounding (Class 1 model only)

Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.). Measuring Method:

Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See Fig.1-1-10 and grounding specifications.



Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	$Z \leq 0.1 \text{ ohm}$
Europe & Australia	$Z \leq 0.5 \text{ ohm}$

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	$R \geq 1 \text{ M}\Omega/500 \text{ V DC}$	AC 1 kV 1 minute	$d, d' \geq 3 \text{ mm}$
100 to 240 V			AC 1.5 kV 1 minute	$d, d' \geq 4 \text{ mm}$
110 to 130 V	USA & Canada	$1 \text{ M}\Omega \leq R \leq 12 \text{ M}\Omega/500 \text{ V DC}$	AC 1 kV 1 minute	$d, d' \geq 3.2 \text{ mm}$
110 to 130 V 200 to 240 V	Europe & Australia	$R \geq 10 \text{ M}\Omega/500 \text{ V DC}$	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	$d \geq 4 \text{ mm}$ $d' \geq 8 \text{ mm}$ (Power cord) $d' \geq 6 \text{ mm}$ (Primary wire)

Fig.1-1-11

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan		$i \leq 1 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	USA & Canada		$i \leq 0.5 \text{ mA rms}$	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia		$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Antenna earth terminals
			$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Other terminals

Fig.1-1-12

NOTE :

These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

SECTION 2 SPECIFIC SERVICE INSTRUCTIONS

2.1 DIFFERENCE LIST

MODEL	GZ-HM340BUS	GZ-HM330BEK	GZ-HM330BEU	GZ-HM330RAA	GZ-HM330RAC	GZ-HM330RAG
SIGNAL FORMAT	NTSC	PAL	PAL	PAL	PAL	PAL
BODY COLOR	BLACK	BLACK	BLACK	RED	RED	RED
NAND MEMORY	16GB	8GB	8GB	8GB	8GB	8GB
LED LIGHT	NO	YES	YES	YES	YES	YES
LENS COVER	NO(LENS CAP)	YES(AUTO)	YES(AUTO)	YES(AUTO)	YES(AUTO)	YES(AUTO)
IMAGE SENSOR	1/5.8" 1.37M CMOS	1/4" 3.32M CMOS				
RCU	NO	NO	NO	YES(RM-V760US)	YES(RM-V760US)	YES(RM-V760US)
USB TERMINAL	IN/OUT	OUT ONLY	OUT ONLY	IN/OUT	IN/OUT	IN/OUT
AC ADAPTER	AP-V30U	AP-V30M	AP-V30E	AP-V30M	AP-V30M	AP-V30M
AC CORD	NO	YES(BS)	NO	YES(AS/NZS)	YES(CCC)	YES(CEE)
BATTERY	BN-VG114US	BN-VG114EU	BN-VG114EU	BN-VG114EU	BN-VG114AC	BN-VG114EU
CONV. PLUG	NO	NO	NO	NO	NO	NO

MODEL	GZ-HM330RAH	GZ-HM330RAS	GZ-HM330SAA	GZ-HM330SAC	GZ-HM330SAG	GZ-HM330SAH
SIGNAL FORMAT	PAL	PAL	PAL	PAL	PAL	PAL
BODY COLOR	RED	RED	SILVER	SILVER	SILVER	SILVER
NAND MEMORY	8GB	8GB	8GB	8GB	8GB	8GB
LED LIGHT	YES	YES	YES	YES	YES	YES
LENS COVER	YES(AUTO)	YES(AUTO)	YES(AUTO)	YES(AUTO)	YES(AUTO)	YES(AUTO)
IMAGE SENSOR	1/4" 3.32M CMOS					
RCU	YES(RM-V760US)	YES(RM-V760US)	YES(RM-V760US)	YES(RM-V760US)	YES(RM-V760US)	YES(RM-V760US)
USB TERMINAL	IN/OUT	IN/OUT	IN/OUT	IN/OUT	IN/OUT	IN/OUT
AC ADAPTER	AP-V30M	AP-V30M	AP-V30M	AP-V30M	AP-V30M	AP-V30M
AC CORD	YES(BS)	YES(SA)	YES(AS/NZS)	YES(CCC)	YES(CEE)	YES(BS)
BATTERY	BN-VG114EU	BN-VG114EU	BN-VG114EU	BN-VG114AC	BN-VG114EU	BN-VG114EU
CONV. PLUG	NO	YES	NO	NO	NO	NO

MODEL	GZ-HM330SAS	GZ-HM330SEK	GZ-HM330SEU	GZ-HM334BEU	GZ-HM335BEU	GZ-HM350BAA
SIGNAL FORMAT	PAL	PAL	PAL	PAL	PAL	PAL
BODY COLOR	SILVER	SILVER	SILVER	BLACK	BLACK	BLACK
NAND MEMORY	8GB	8GB	8GB	8GB	8GB	32GB
LED LIGHT	YES	YES	YES	YES	YES	YES
LENS COVER	YES(AUTO)	YES(AUTO)	YES(AUTO)	YES(AUTO)	YES(AUTO)	YES(AUTO)
IMAGE SENSOR	1/4" 3.32M CMOS					
RCU	YES(RM-V760US)	NO	NO	YES(RM-V760US)	YES(RM-V760US)	YES(RM-V760US)
USB TERMINAL	IN/OUT	OUT ONLY	OUT ONLY	OUT ONLY	OUT ONLY	IN/OUT
AC ADAPTER	AP-V30M	AP-V30M	AP-V30E	AP-V30E	AP-V30E	AP-V30M
AC CORD	YES(SA)	YES(BS)	NO	NO	NO	YES(AS/NZS)
BATTERY	BN-VG114EU	BN-VG114EU	BN-VG114EU	BN-VG114EU	BN-VG114EU	BN-VG114EU
CONV. PLUG	YES	NO	NO	NO	NO	NO

2.2 CHECKING THE CPU VERSION

Procedure

- (1) Open the MONITOR ASSY to turn the power ON.
- (2) While halfway pressing and holding the [SNAPSHOT] button, repeat touching the buttons [A] and [B] 3 times in order: [A]→[B]→[A]→[B]→[A]→[B].
- (3) Release the halfway pressed [SNAPSHOT] button.

NOTE)

[VERSION INFO] is displayed on the monitor for about 5 seconds.

- (4) Release the pressed [MENU] button, and the mode is made clear.

NOTE)

When the mode is not canceled and the button is not operable, disconnect the battery or the DC cable to reset the power.

Even when the mode is canceled, resetting the power is recommended.

Example:For GZ-HM330

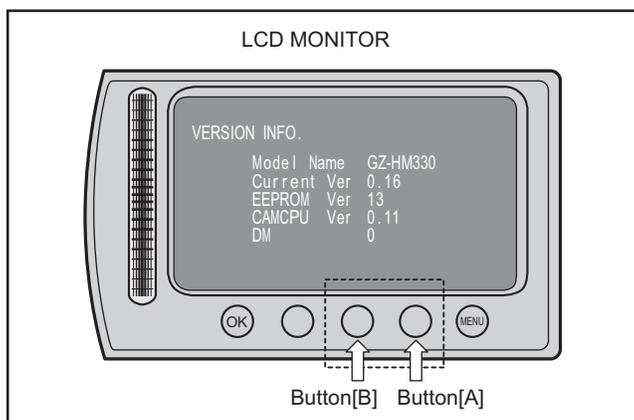


Fig.2-2-1

2.3 FIRMWARE UPDATE

Connecting Everio to a PC via USB cable enables firmware update.

Connect a battery, capable of operating for 30 minutes or longer, and an AC adapter to Everio for update.

* The following procedure shows the monitor displays of the firmware update from ver. 0.82 to ver. 1.55.

* Use Windows XP or Windows Vista.

1.Preparation

(1)Preparation

Download the firmware update application software from JS-NET.

(2)Connection

Connect a battery that is capable of operating for 30 minutes or longer and an AC adapter to Everio.

* To ensure secure power supply during the update, update is disabled if either of them is not available.

2.Firmware transfer

(1) Select "UPDATE" in the main menu of Everio.

MENU > BASIC SETTINGS > UPDATE

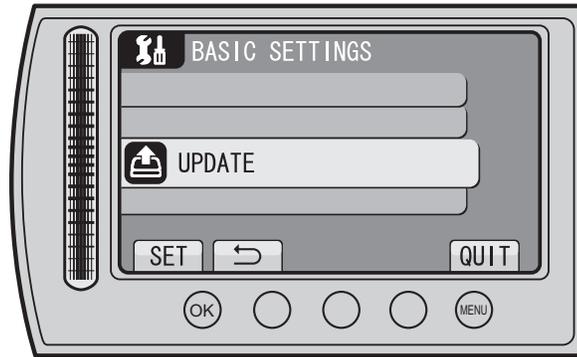


Fig.2-3-1

(2)When the displayed current version is an old one, select "YES", and then press (OK).

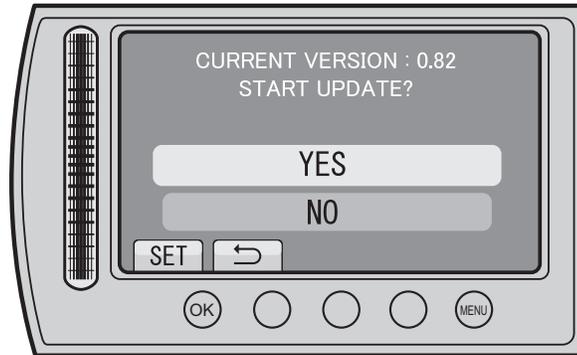


Fig.2-3-2

(3)Follow the directions on the monitor to connect Everio to the PC via USB cable.

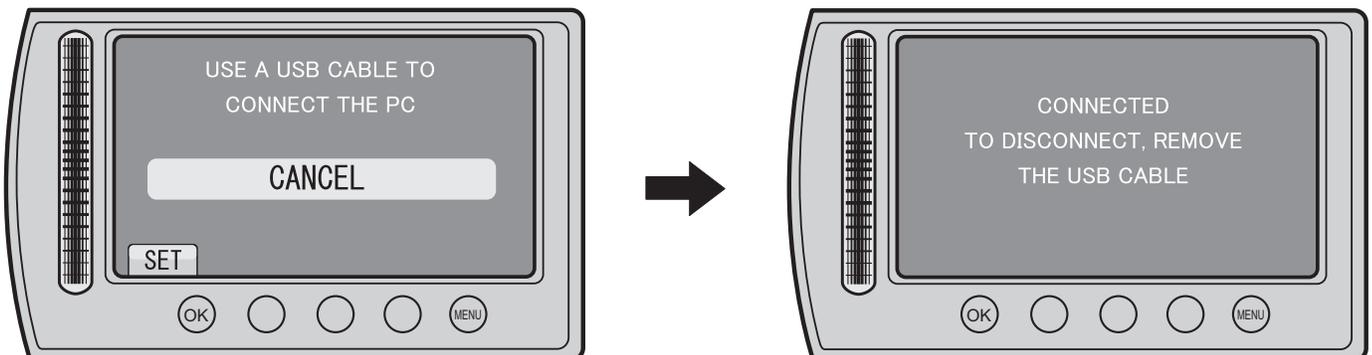
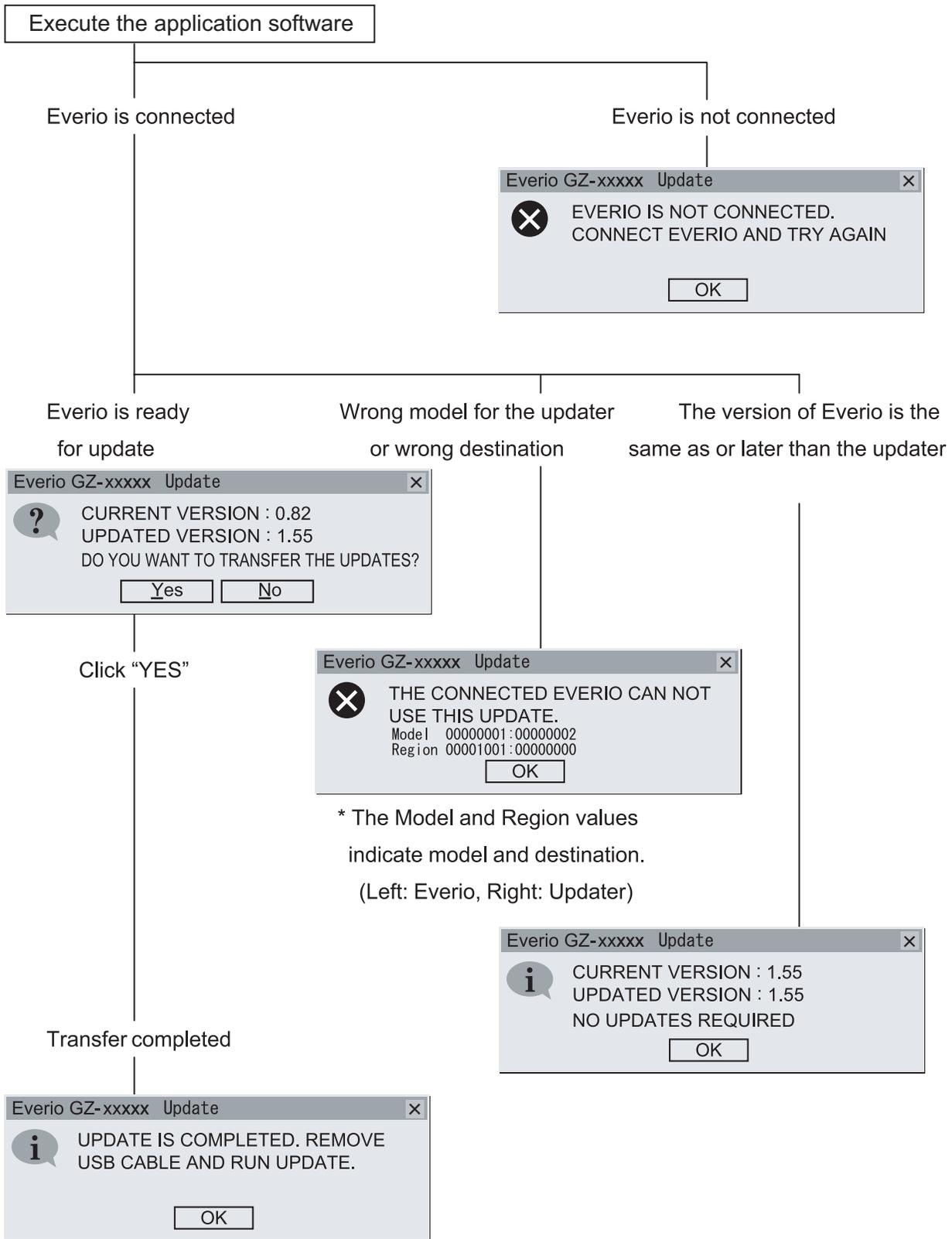


Fig.2-3-3

(4) Double click the downloaded file to execute it. (The following shows the screen display of the PC.)



Click "OK" to finish the application software.

Fig.2-3-4

3. Execute update

- (1) Disconnect the USB cable, and remove Everio from the PC.
* In about 30 seconds after the removal, the update start screen appears.
- (2) When the displayed current version is an old one, select "YES", and then press (OK).

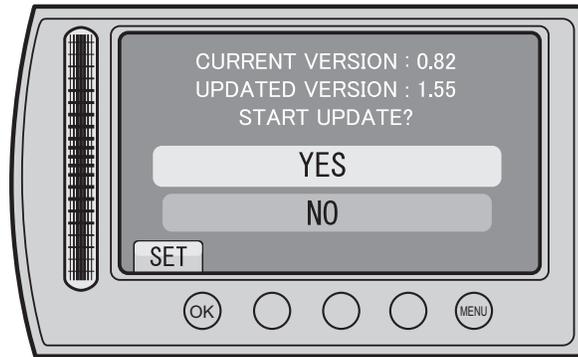


Fig.2-3-5

- (3) When the displayed current version is an old one, select "YES", and then press (OK).
* It takes about 4 minutes and 30 seconds to complete the update.

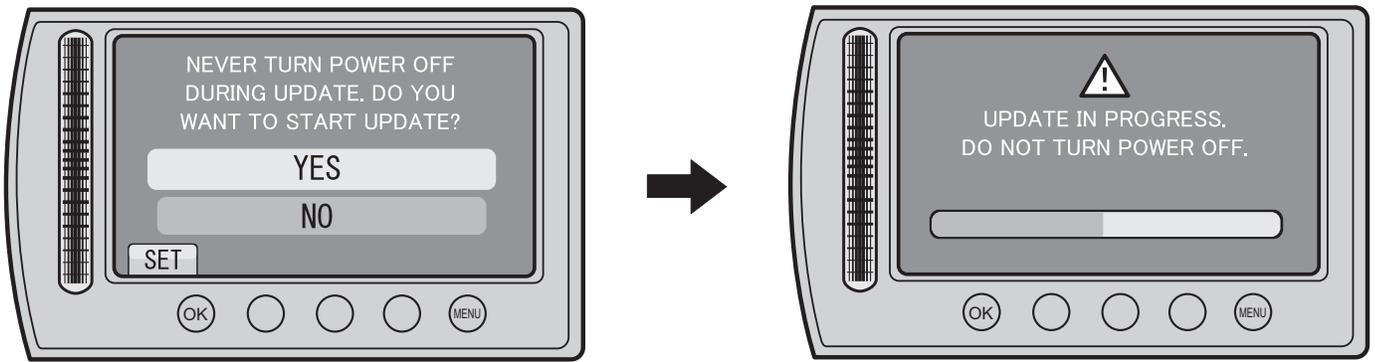


Fig.2-3-6

- (4) Select "OK", and then re-start Everio.

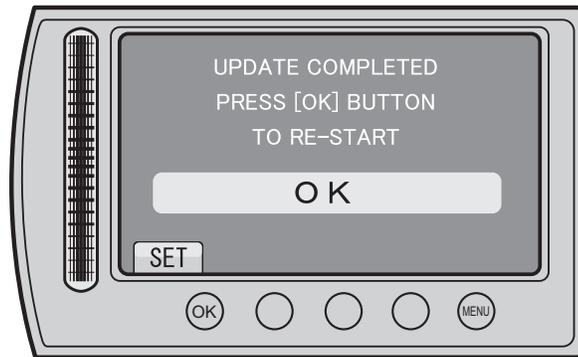


Fig.2-3-7

- (5) After the re-start, check that the current firmware is updated in UPDATE.
MENU > BASIC SETTINGS > UPDATE

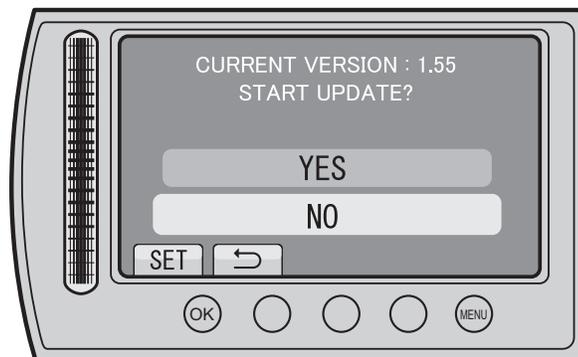


Fig.2-3-8

When the updated firmware version is confirmed, select "NO", and then press (OK).
The firmware update is completed.

2.4 Self Diagnostic Display Function

2.4.1 Overview and Precautions

This model has a function to display self diagnostic data.

Data is displayed on the LCD screen by operating buttons on the main unit.

There are following seven types of screen display:

[VERSION] / [HDD/NAND] / [SD] / [COPY] / [EMG] / [KIZU] / [BT]

Only the two screen displays are used for servicing: [VERSION] and [EMG].

When displaying the screen, be careful with the following points:

- (1) Do not operate on diagnostic screens other than [VERSION] or [EMG].
- (2) Do not open or close the LCD monitor during any diagnostic display.
- (3) Do not connect a USB cable to the USB terminal during diagnostic display.

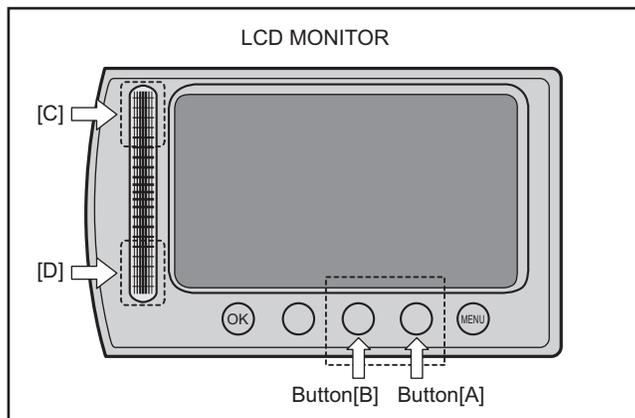
As the operations 2) and 3) result in unstable operating environment, disconnecting and connecting back the AC adapter or the battery is required to forcibly reset the model.

2.4.2 How to Display Data

(1) Open the LCD monitor to turn ON the power.

(2) Press and hold the [SNAPSHOT] button half way, touch the buttons in the following order: [A] → [B] → [B] → [A] → [A] → [B].

<Monitor screen>



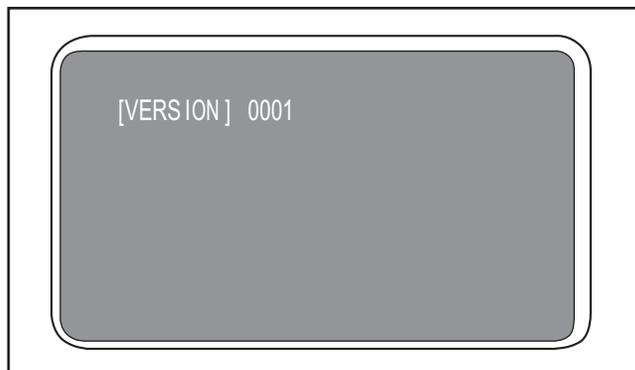
(3) Release the [SNAPSHOT] button.

* Top menu is displayed on the monitor screen.

Note) "0001" is displayed next to [VERSION] only the first time.

Display details vary depending on the model destination.

<Top menu>

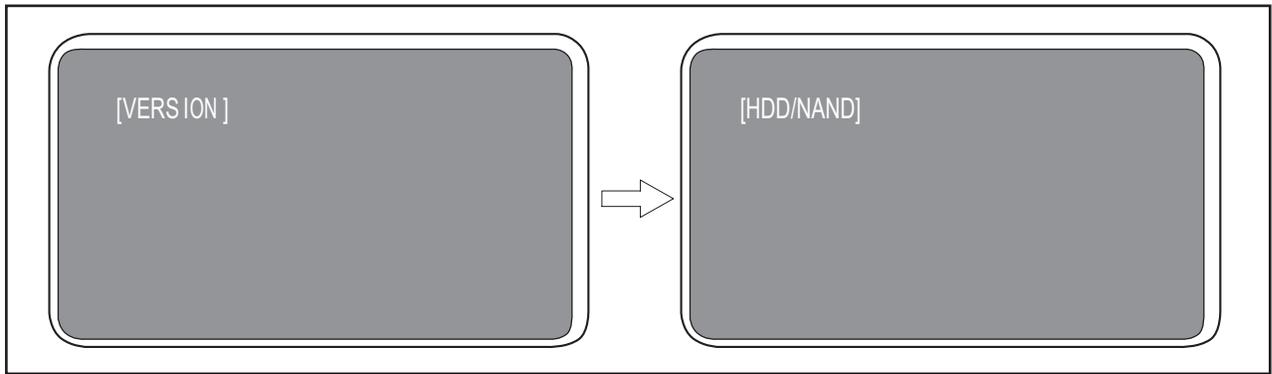


(4) Touch [C] on the touch sensor slider to switch the screen to a sub menu.

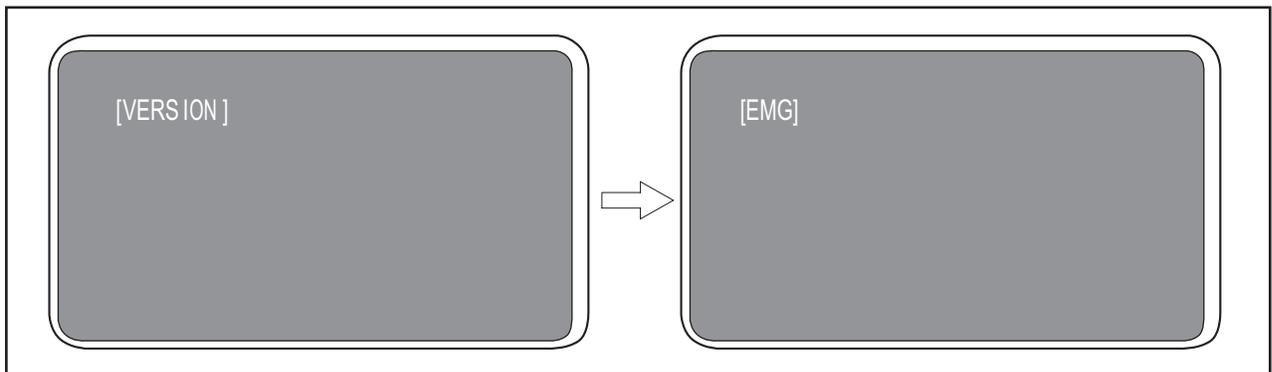
* The screen changes from the top menu to the sub menu ([VERSION] → [HDD/NAND]). It changes in the following order with every touch: [HDD/NAND] → [SD] → [COPY] → [EMG] → [KIZU] → [BT], and then returns to [VERSION].

<Sub menu>

From [VERSION] to [HDD/NAND]



* Only the below two function screens are used for services.



To return to the previous screen, touch the [MENU] button only once.

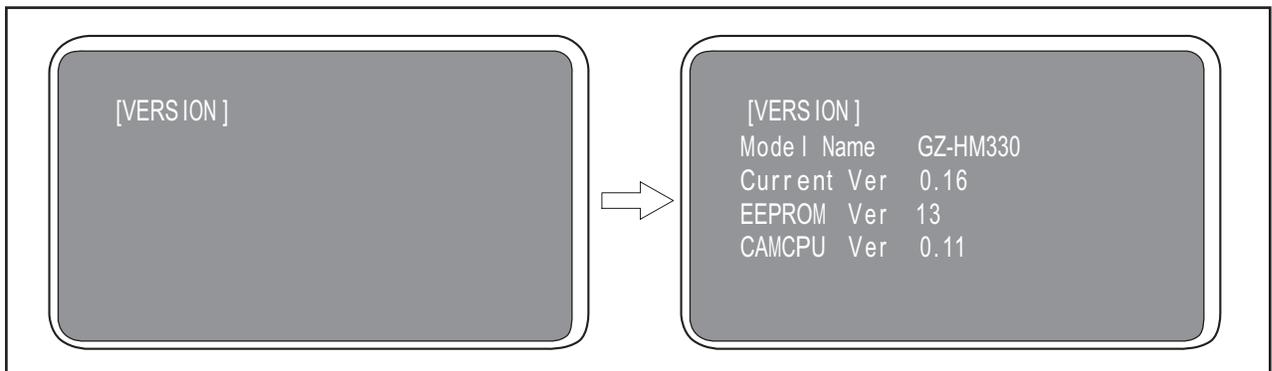
Note) Touching the [MENU] button twice cancels the self diagnostic mode.

2.4.3 Screen Display Details ([VERSION]/[EMG])

2.4.3.1 [VERSION]

Select [VERSION] and touch the [OK] button.

The model name and the version information are displayed.



To return to the previous screen, touch the [MENU] button only once.

Note) Touching the [MENU] button twice cancels the self diagnostic mode.

2.4.3.2 [EMG]

(1) Switching between the initial screen and the emergency data Select [EMG] and touch the [OK] button.

Note) In [EMG], four types of emergency data (BOF/DROP/NAVI/DM) exist. The initial screen displays the BOF data. With the cursor ">" stays on the left of TYPE BOF 00, every touch of the [OK] button changes the data for TYPE and CLEAR as follows: BOF DROP NAVI DM, and then returns to BOF.

Emergency data

TYPE BOF **: Buffer overflow

Note) No SD card information is displayed if BOF occurs in HDD.

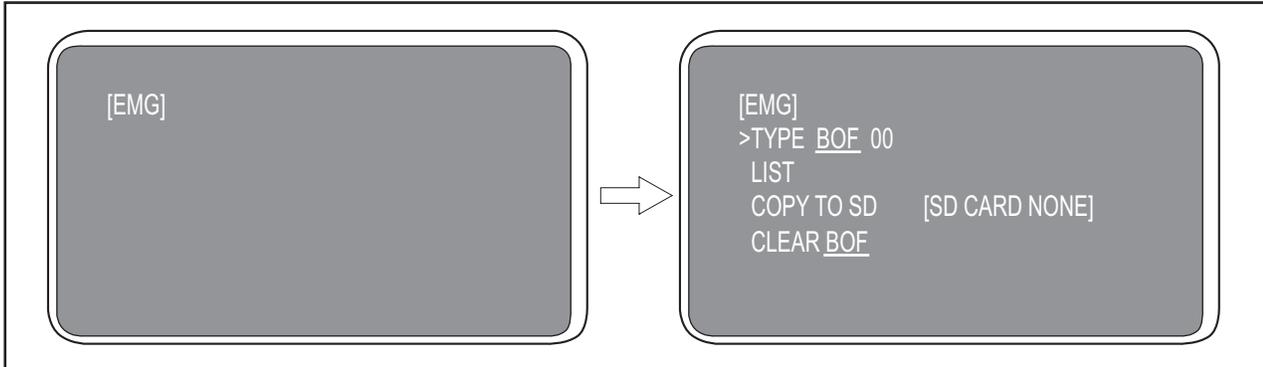
TYPE DROP **: Drop detection (HDD model only)

TYPE NAVI **: - (Not to be used for services as it is for design/analysis)

TYPE DM **: - (Not to be used for services as it is for design/analysis)

** indicates the number of detection time from 00 to 32.

The maximum number of detection is 32, and older data is deleted in every data update.



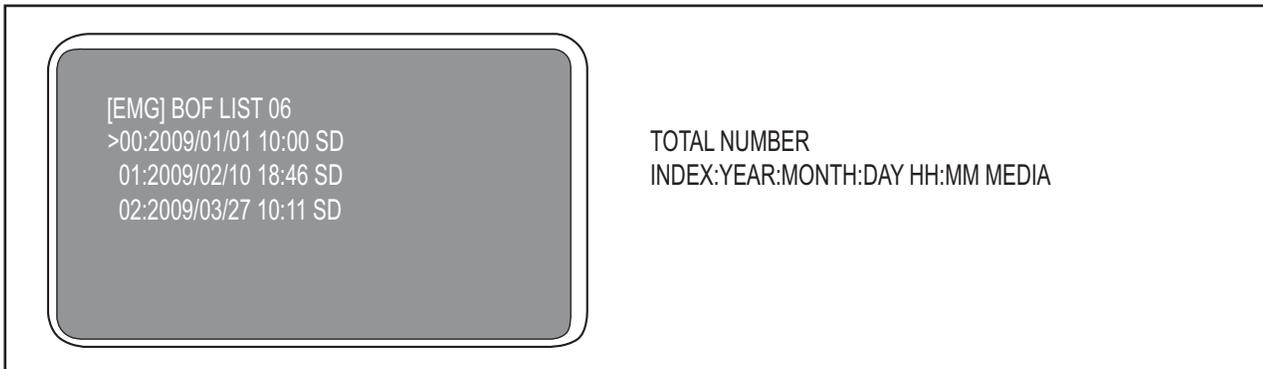
To return to the previous screen, touch the [MENU] button only once.

Note) Touching the [MENU] button twice cancels the self diagnostic mode.

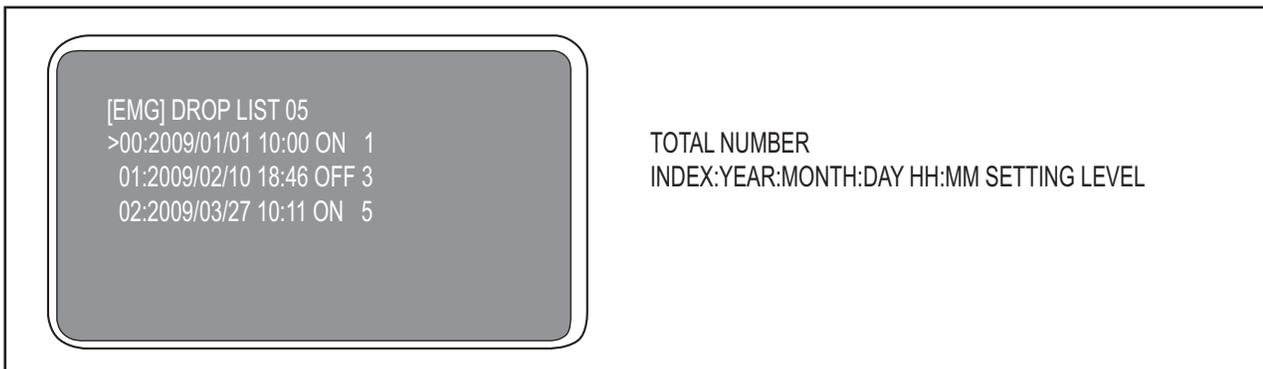
(2) LIST display

To display the list data (BOF, DROP) specified in TYPE, touch the [OK] button with the cursor ">" stays on the left of the list item. Touch [C] on the touch sensor slider to move the cursor up, and touch [D] on the touch sensor slider to move the cursor down.

BOF



DROP



To return to the previous screen, touch the [MENU] button only once.

Note) Every touch on the [MENU] button returns the screen to the previous one. Touching the [MENU] button on the [EMG] screen cancels the self diagnostic mode.

(3) Errors in LIST

To display the error details of the list data (BOF, DROP) specified in TYPE, touch the [OK] button with the cursor ">" stays on the left of the list item.

BOF

<pre>[BOF:03:06] 2009/01/01 10:00 SD 1BSD :10 082 2GB 0 01 00 1B 53 44 20 20 20 01 10 08 22 00 20 20 20</pre>	<pre>[BOF:INDEX:TOTAL NUMBER] INDEX:YEAR:MONTH:DAY HH:MM MEDIA [MAKER ID]:[PRODUCT NAME]:[REVISION]:[PRODUCT DATE] DUMP DATA DUMP DATA</pre>
--	---

DROP

<pre>[DROP:02:05] 2009/01/01 10:00 ON 21-40 [m] 90 00 00 01</pre>	<pre>[BOF:INDEX:TOTAL NUMBER] INDEX:YEAR:MONTH:DAY HH:MM SETTING,LEVEL IN METER DUMP DATA</pre>
---	---

To return to the previous screen, touch the [MENU] button only once.

Note) Every touch on the [MENU] button returns the screen to the previous one. Touching the [MENU] button on the [EMG] screen cancels the self diagnostic mode.

COPY TO SD

COPY TO SD is a function to save the emergency data on an SD card.

Note that it is not for the use of services as it is only valid in the special mode for design/analysis.

CLEAR

CLEAR is a function to reset the count of specified emergency in TYPE.

Note that it is not for the use of services as it is only valid in the special mode for design/analysis.

2.5 Video Playback Error Display Function

2.5.1 Overview

This model has a function to save error information in the internal IC when an error occurs during video playback.

From the saved information, the section where an error occurred can be detected.

To obtain the saved error information, use terminal software and send a serial command for reading data displayed on a PC monitor. There are types of terminal software including Windows HyperTerminal and freeware Tera Term.

Note) * Set the screen to VIDEO PLAYBACK as the error is displayed on the VIDEO PLAYBACK index screen.

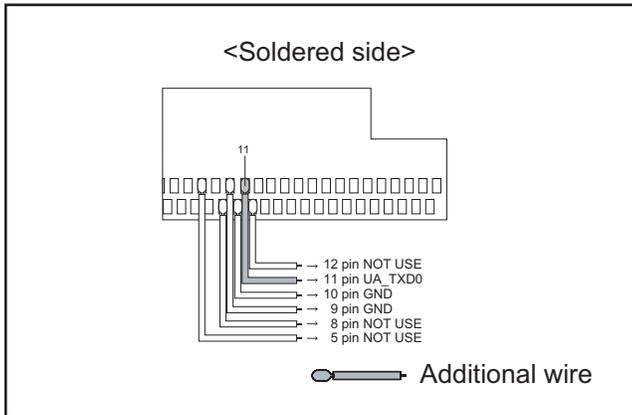
* An approximate error position is displayed as the detected position varies depending on the operation environment.

2.5.2 Jig connector cable

Along with a serial update jig, a jig connector cable connects the model to the serial port on the PC.

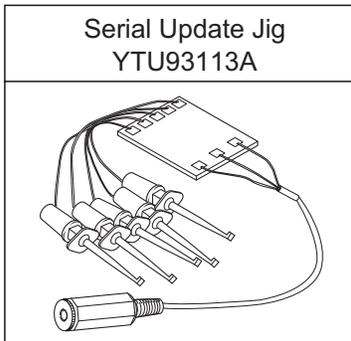
Note) Adding a wire to the jig connector cable (Part No.: YTU93106B) is required.

■How to work on the jig connector cable (YTU93106B)



■Serial Update Jig

* Serial update jig is used to connect a PC cable and a jig connector cable for firmware repair and various analyses.



■ Cable wiring

Remove the 2 screws (1-2), and then remove the TOP COVER ASSY.

NOTE1a:

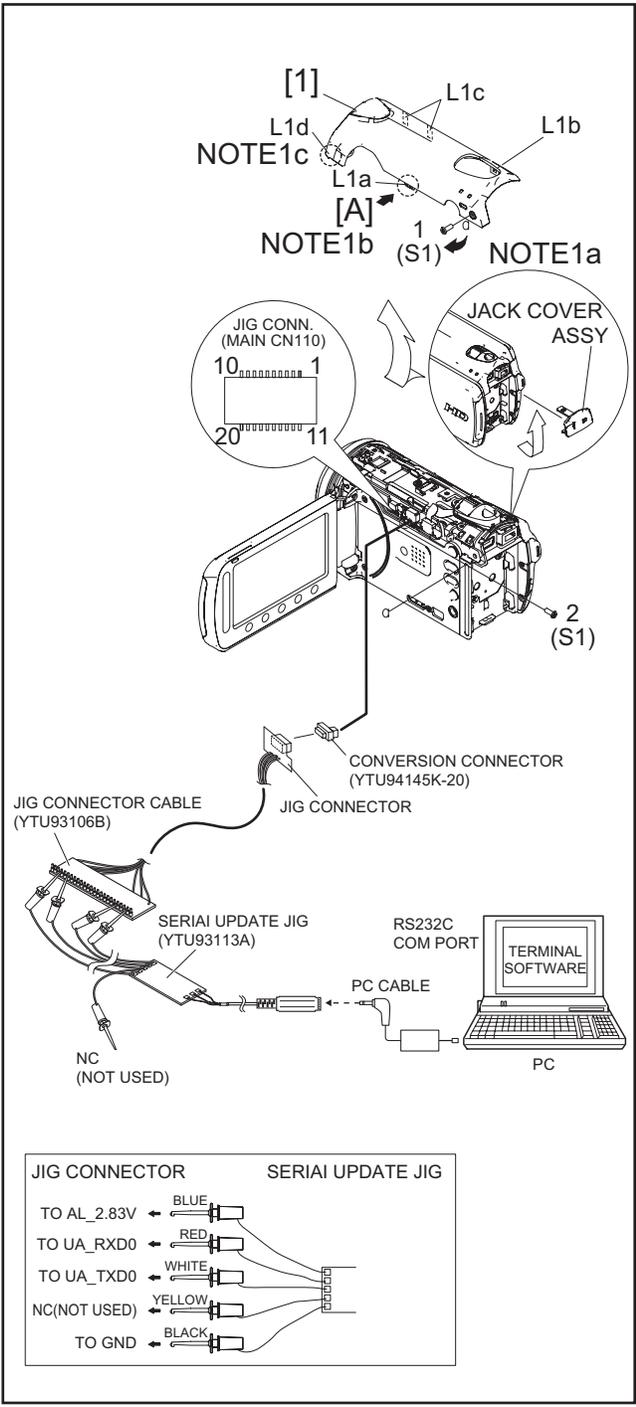
Release or remove the JACK COVER ASSY as it interferes with the disassembly of TOP COVER ASSY.

NOTE1b:

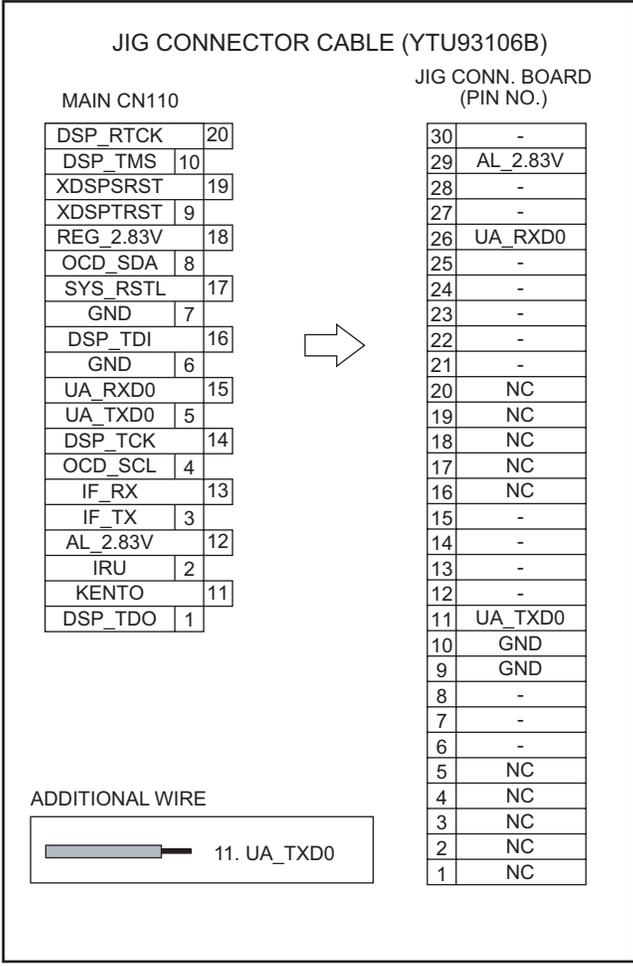
To remove the TOP COVER ASSY, press [A] indicated with an arrow, and release the HOOK (L1a) first.

NOTE1c:

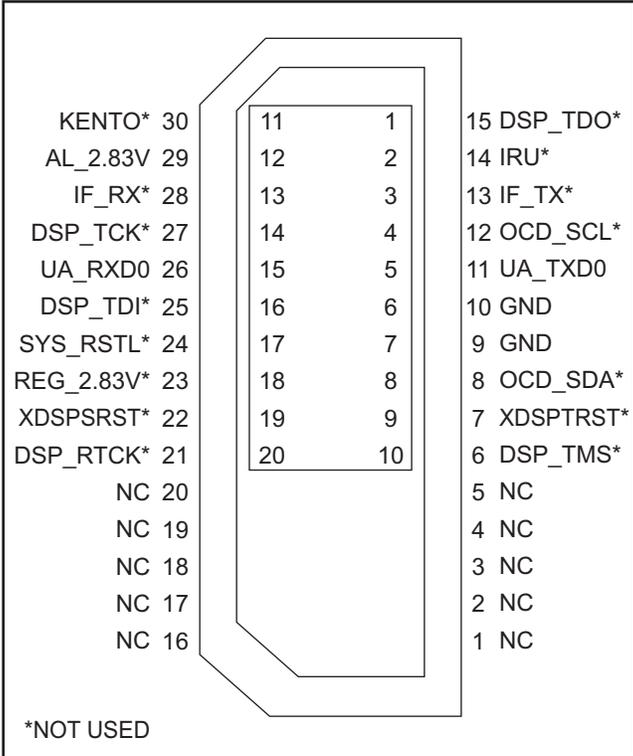
When removing the last HOOK (L1d), be careful not to deform or apply excess force to the parts to avoid possible damage.



■ Jig connector wiring



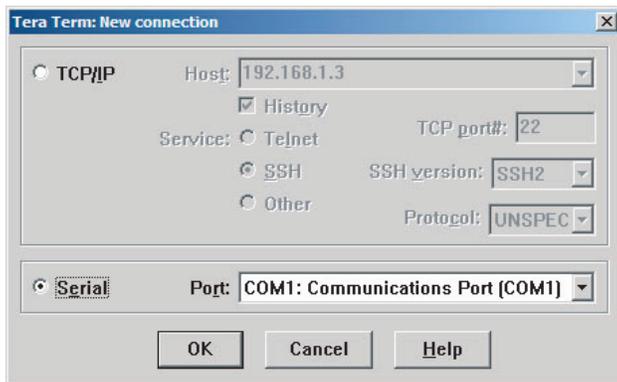
■ Conversion Connector



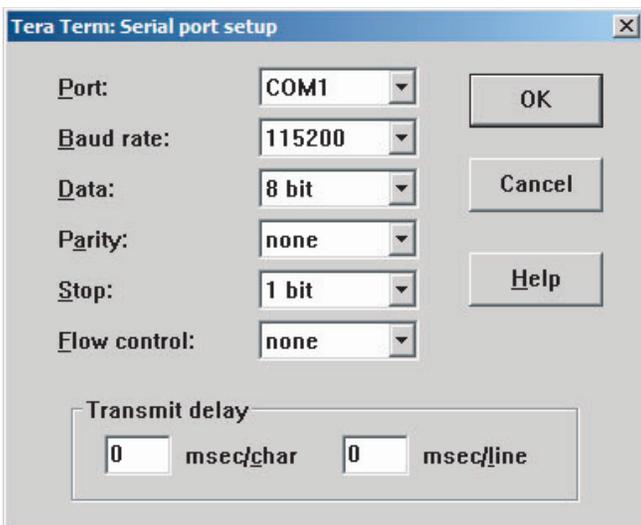
2.5.3 Starting the terminal software

Before starting the terminal software, install the terminal software.

(1) Start Tera Term, select "Serial" and click [OK].



(2) Select Setup > Serial port. Set each item and click [OK].



Maximizing terminal window enables better viewing of output data.

2.5.4 Obtaining error information

- (1) Turn ON the model to start data reading. The data is displayed in the terminal window. Wait until the data reading finishes.
- (2) When the data reading finishes, press Enter.
On the screen, "e" is displayed.
- (3) Input the terminal command: "e:pb_print_flash_err_info" and press Enter.

Error information is displayed in the terminal window.

Note) * In the first line, the index number on the index screen and the time duration from the beginning of the file to the error section (in seconds) are output.

For PLAYBACK OTHER FILE, only an index number is displayed as no error section can be displayed.

* Only the index number on the index screen of the media (SD card, HDD, or NAND) that has an error is displayed.

Only the AVCHD index screen is displayed for an AVCHD file (xxxx.mts), and only the PLAYBACK OTHER FILE index screen is displayed for PLAYBACK OTHER FILE (MOV_XXXX.mts).

* If a file with an error was already deleted, no index number is displayed.

* From the second line onwards, the saved error information is displayed.

Actual display includes the error occurrence date, error type, medium with an error, file name, and PTS value around the error section. Note that the error type and the PTS value around the error section are used for design/analyses and not to be used for services.

- (4) When the procedure is completed, turn OFF the model to close the terminal window.

<Display example>

1. AVCHD index screen

```
-----  
EMERGENCY_DATA[00] : index number = 1 offset = 9 [sec]  
EMERGENCY_DATA    : 0/00/00 00:00  
                   : ERR_NAVI_VIDEO_ILLEGAL_STREAM  
                   : SD card  
                   : 00002.mts  
                   : PTS = 487942  
-----  
EMERGENCY_DATA[01] : index number = 1 offset = 9 [sec]  
EMERGENCY_DATA    : 2009/08/18 16:31  
                   : ERR_NAVI_VIDEO_ILLEGAL_STREAM  
                   : SD card  
                   : 00002.mts  
                   : PTS = 487942  
-----  
EMERGENCY_DATA[02] : index number = 2 offset = 11 [sec]  
EMERGENCY_DATA    : 2009/08/18 16:31  
                   : ERR_NAVI_VIDEO_ILLEGAL_STREAM  
                   : SD card  
                   : 00003.mts  
                   : PTS = 582537  
-----  
EMERGENCY_DATA[03] : index number = 2 offset = 25 [sec]  
EMERGENCY_DATA    : 2009/08/18 16:31  
                   : ERR_NAVI_VIDEO_ILLEGAL_STREAM  
                   : SD card  
                   : 00003.mts  
                   : PTS = 1172626  
-----  
EMERGENCY_DATA[07] : ierror_scene not exist.  
EMERGENCY_DATA    : 2009/08/18 16:46  
                   : ERR_NAVI_VIDEO_ILLEGAL_STREAM  
                   : SD card  
                   : MOV_0002.mts  
                   : PTS = 1172626  
-----  
EMERGENCY_DATA[08] : ierror_scene not exist.  
EMERGENCY_DATA    : 0/00/00 00:00  
                   : ERR_NAVI_VIDEO_ILLEGAL_STREAM  
                   : HDD or NAND  
                   : 00002.mts  
                   : PTS = 487942  
-----
```

2. PLAYBACK OTHER FILE index screen

```
-----  
EMERGENCY_DATA[05]: error_scene not exist.  
EMERGENCY_DATA   : 2009/08/18 16:46  
                  : ERR_NAVI_VIDEO_ILLEGAL_STREAM  
                  : SD card  
                  : 00003.mts  
                  : PTS = 1172626  
-----  
EMERGENCY_DATA[06]: index number = 1  
EMERGENCY_DATA   : 2009/08/18 16:46  
                  : ERR_NAVI_VIDEO_ILLEGAL_STREAM  
                  : SD card  
                  : MOV_0002.mts  
                  : PTS = 582537  
-----  
EMERGENCY_DATA[07]: index number = 1  
EMERGENCY_DATA   : 2009/08/18 16:46  
                  : ERR_NAVI_VIDEO_ILLEGAL_STREAM  
                  : SD card  
                  : MOV_0002.mts  
                  : PTS = 1172626  
-----
```

3. Deleted file with an error

```
-----  
EMERGENCY_DATA[00]: error_scene not exist.  
EMERGENCY_DATA   : 2010/01/13 10:53  
                  : ERR_NAVI_VIDEO_ILLEGAL_STREAM  
                  : SD card  
                  : 00001.mts  
                  : PTS = 186141  
-----
```

SECTION 3 DISASSEMBLY

3.1 BEFORE ASSEMBLY AND DISASSEMBLY

3.1.1 Precautions

- Be sure to disconnect the power supply unit prior to mounting and soldering of parts.
- Prior to removing a component part that needs to disconnect its connector(s) and its screw(s), first disconnect the wire(s) from the connector(s), and then remove the screw(s).
- When connecting/disconnecting wires, pay enough attention not to damage the connectors.
- When inserting the flat wire to the connector, pay attention to the direction of the flat wire.
- Be careful in removing the parts to which some spacer or shield is attached for reinforcement or insulation.
- When replacing chip parts (especially IC parts), first remove the solder completely to prevent peeling of the pattern.
- Tighten screws properly during the procedures. Unless otherwise specified, tighten screws at a torque of 0.088N·m (0.9kgf·cm). However, as this is a required value at the time of production, use the value as a measuring stick when proceeding repair services. (See "SERVICE NOTE" as for tightening torque.)

3.1.2 Destination of connectors

Two kinds of double-arrows in connection tables respectively show kinds of connector/wires.

↔ : Flat wire ↔ : Wire ↔ : Board to board (B-B)
 : The connector of the side to remove

CONN. No.	CONNECTOR			PIN No.
CN2a	MAIN	CN101	↔	MONI BW CN761 40
CN2b	MAIN	CN103	↔	MINI BW CN762 10

3.1.3 Disconnection of connectors (Wires)

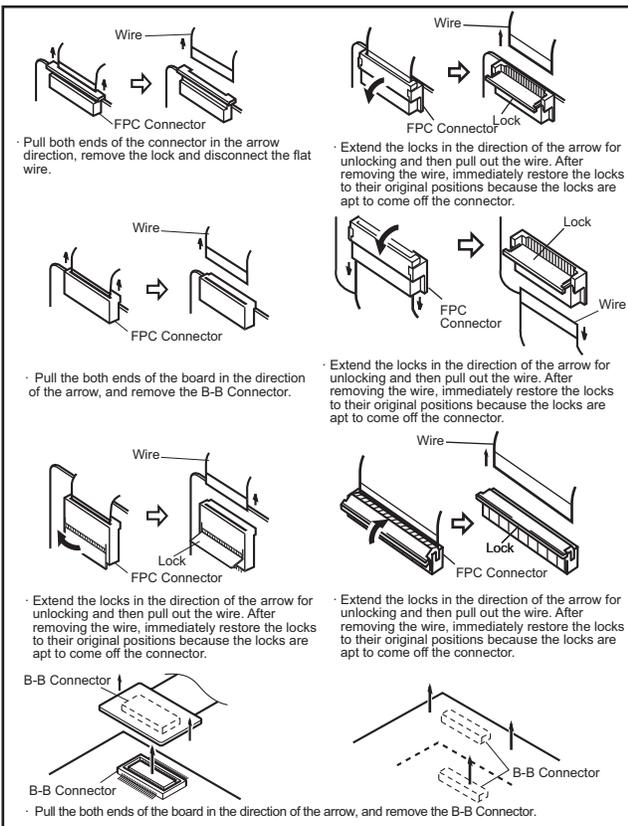


Fig.3-1-1

3.1.4 Tools required for disassembly and assembly

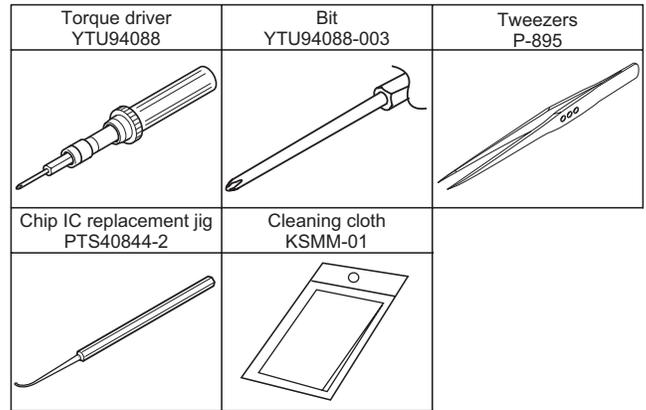


Fig.3-1-2

• Torque driver

Be sure to use for fastening the mechanism and exterior parts because those parts must strictly be controlled for tightening torque.

• Bit

This bit is slightly longer than those set in conventional torque drivers.

• Tweezers

To be used for removing and installing parts and wires.

• Chip IC replacement jig

To be used for replacement of IC.

• Cleaning cloth

Recommended cleaning cloth to wipe down the video heads, mechanism (tape transport system), optical lens surface.

3.2 ASSEMBLY AND DISASSEMBLY OF MAIN PARTS

3.2.1 Assembly and disassembly

When reassembling, perform the step(s) in reverse order.

STEP No.	PART	Fig. No.	POINT	NOTE
[1]	TOP COVER ASSY	C1	4(S1a), 3(L1a), CN1a	-
[2]	UPPER ASSY (Inc. VF ASSY, SPEAKER/MONITOR)	C2-1	(S2a), 2(S2b), 3(S2c), 2(SD1a), L2, CN2a, b	-
[8]	E.VF UNIT(B/W)	C2-2	2(S8), L8, CN8a	NOTE 8

(*1) (*2) (*3) (*4) (*5)

(*1) Order of steps in Procedure

When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) No. of parts Figures.

(*2) Part to be removed or installed.

(*3) Fig. No. showing Procedure or Part Location.

(*4) Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.

S = Screw L = Lock, Release, Hook
SD = Solder CN = Connector

[Example]

- 4 (S1a) = Remove 4 S1a screws.
- 3 (L1a) = Disengage 3 L1a hooks.
- 2 (SD1a) = Unsolder 2 SD1a points.
- CN1a = Remove a CN1a connector.

(*5) Adjustment information for installation.

3.2.2 Assembly/Dissassembly of cabinet parts and electrical parts

● Disassembly procedure

STEP No.	PART NAME	Fig. No.	POINT	NOTE
[1]	TOP COVER ASSY	3-2-1	2(S1),L1a,b,2(L1c),L1d	NOTE1a,b,c
[2]	COVER(HINGE)	3-2-2	S2a,b,L2	NOTE2a,b
[3]	LOWER CASE ASSY	3-2-3	6(S3),L3a,2(L3b)	NOTE3
[4]	FRONT ASSY (Incl. MIC, BARRIER ASSY, FRONT FPC UNIT)	3-2-4	CN4a,b,c,S4a,b,L4a,b,c	NOTE4a,b,c
[5]	BARRIER ASSY	3-2-5	2(S5),2(L5)	NOTE5
[6]	PLATE(MIC)		L6a,S6,L6b,c,d	NOTE6
[7]	FRONT FPC UNIT	3-2-6	S7,2(L7)	-
[8]	MIC		-	NOTE8a,b,c
[9]	HOLDER(IND) ASSY		S9,L9	-
[10]	WB UNIT	3-2-7	CN10,L10a,b	NOTE10
[11]	NAND BOARD ASSY	3-2-8	2(S11a),2(S11b),2(L11),CN11	NOTE11
[12]	OPE UNIT	3-2-9	CN12,2(L12a),L12b,S12,L12c,d	NOTE12
[13]	SHIELD	3-2-10	3(S13),2(L13)	NOTE13
[14]	OP BLOCK ASSY (Incl. CMOS FRM ASSY, HOLDER)	3-2-11	SHEET(COPPER LINK), 2(S14),L14a,b,c,CN14a,b	NOTE14a,b,c,d
[15]	REAR ASSY	3-2-12	S15a,b,CN15,L15a,b	-
[16]	REAR BOARD ASSY	3-2-13	L16a,2(L16b)	-
[17]	MAIN BOARD ASSY	3-2-14	CN17a,b,2(S17),L17a,b,CN17c	NOTE17a,b
[18]	HDMI ASSY	3-2-15	S18,2(L18),S18	NOTE18
[19]	OP BLOCK ASSY (Incl. CMOS FRM ASSY)	3-2-16	3(S19)	NOTE19
[20]	CMOS FRM ASSY	3-2-17	S20,SHIELD CMOS ASSY, HEAT SHEET,2(S20),2(L20) SHEET,IR CUT FILTER	NOTE20a,b,c,d,e
[21]	MONITOR ASSY	3-2-18	S21a,2(L21a),2(S21b),2(L21b), UPPER CASE ASSY	NOTE21a,b,c
[22]	SPEAKER	3-2-19	L22a,S22,L22b,BKT(SPK), 2(L22c)	NOTE22a,b,c

NOTE1a:

Release or remove the JACK COVER ASSY as it interferes with the disassembly of TOP COVER ASSY.

NOTE1b:

To remove the TOP COVER ASSY, press [A] indicated with an arrow, and release the HOOK (L1a) first.

NOTE1c:

When removing the last HOOK (L1d), be careful not to deform or apply excess force to the parts to avoid possible damage.

NOTE2a:

When removing the COVER (HINGE), be careful not to damage the parts.

Be very careful as the FRAME, where the HOOKS (L2) are fastened to, is easily broken.

NOTE2b:

When attaching the COVER (HINGE), be careful with the wiring of the FPC.

Make sure that the FPC stays within the FRONT ASSY and is not covering the screw hole.

NOTE3:

When removing the LOWER CASE ASSY, be careful in handling as the SW(TRIG) may come off together.

As the SW(TRIG) is connected via FPC, disassemble the LOWER CASE ASSY with the SW(TRIG) staying in the main unit.

NOTE4a:

During the procedure, be careful in handling the parts.

Be very careful not to break the FPC.

When attaching the FRONT ASSY, be careful with the wiring of the FPCs (MIC, BARRIER ASSY, and FRONT FPC UNIT).

NOTE4b:

When the FRONT ASSY is removed, be careful not to bend or damage the exposed FPC (HINGE).

NOTE4c:

Be careful with the wiring of the FPC.

NOTE5:

During the procedure, be careful not to touch the shutter opening. Leaving the shutter open during the procedure is recommended.

NOTE6:

To attach the PLATE (MIC) SD, secure the FPC (FRONT FPC UNIT) with the HOOK (L6a) first, and then tighten with the screw (No.15).

NOTE8a:

During the procedure, be careful in handling the parts.

NOTE8b:

When attaching the MIC, properly store the MIC (L/R) within the tube.

NOTE8c:

To attach the MIC, press the center or both sides of the MIC as shown in the figure, and properly position the MIC within the FRONT ASSY.

NOTE10:

During the procedure, be careful in handling the parts.

Be very careful not to damage the parts or break the FPC as the WB BOARD ASSY easily comes off from the HOLDER (WB).

NOTE11:

During the procedure, be careful in handling the SD SLOT(s).

Loading too much weight on the SD SLOT(s) or the SD BOARD ASSY/NAND BOARD ASSY may cause soldering points peel off.

NOTE12:

To remove the OPE UNIT, pull out the FPC from the connector, release the SW (TRIG), and then slide the SW (ZOOM) toward the OP BLOCK.

NOTE13:

During the procedure, be careful in handling the parts.

NOTE14a:

During the procedure, be careful in handling the parts.
Refer to the procedure below for the disassembly of OP BLOCK ASSY.

Disassembly procedure

- (1) Peel off the SHEET (COPPER LINK) from the OP HOLDER ASSY.
- (2) Remove the 2 screws (26,27).
- (3) Release the HOOK (L14a) on the bottom where the rating label is affixed, turn open the OP BLOCK ASSY about 45°, and then pull out the FPC.
- (4) When the OP BLOCK ASSY is turned 90°, lift and release the OP BLOCK ASSY from the HOOK (L14b), and then slide and pull out the STUD (L14c).
- (5) Pull out the WIRE and the FPC from the connectors (CN14a, b) in turn.

NOTE14b:

During the procedure, be very careful in handling the parts and connecting/disconnecting the WIRE. As shown in the figure, keep the angle of the WIRE 10° or less horizontally, 5° or less vertically.

During the procedure, be very careful not to touch or hold the WIRE.

NOTE14c:

Be careful with the wiring after assembly.

NOTE14d:

Refer to Fig. 3-2-16 and the procedures that follow for the disassembly of OP BLOCK ASSY.

NOTE17a:

During the procedure, be careful in handling the FPC.

NOTE17b:

During the procedure, be careful not to damage the parts.
Be very careful in handling the SW (MONI SW) lever as it can easily be damaged.

When attaching the MAIN BOARD ASSY, leave the MONITOR ASSY open to avoid damaging the lever.

NOTE18:

Do not disassemble the HDMI ASSY unless it is necessary for part replacement.

NOTE19:

During the procedure, be very careful in handling the WIRE.

NOTE20a:

During the procedure, be very careful in handling the WIRE.

NOTE20b:

When removing the CMOS FRM ASSY, be careful in handling as the HEAT SHEET comes off together with either the SHIELD CMOS ASSY or the CMOS FRM ASSY.

NOTE20c:

When removing the CMOS FRM ASSY, be careful in handling as the SHEET and the IR CUT FILTER may come off together.

NOTE20d:

Do not touch the IR CUT FILTER with bare hands. Use tweezers when touching the IR CUT FILTER.
When attaching the IR CUT FILTER, be careful with the attaching position.

NOTE20e:

To attach the CMOS FRM ASSY, tighten the 3 screws in the following order: 39, 38, and then 37.

NOTE21a:

During the procedure, be careful in handling the FPC. Be very careful not to bend or damage the FPC.

NOTE21b:

When attaching the MONITOR ASSY, tighten with the 2 screws (41,42) in the following order: 42, and then 41.

NOTE21c:

Refer to 3.2.3 Disassembly of [21] MONITOR ASSY of MONITOR ASSY.

NOTE22a:

During the procedure, be careful in handling the parts.

NOTE22b:

During the procedure, always hold the outer rim of the SPEAKER.

NOTE22c:

When attaching the SPEAKER, be careful in handling the WIRE (SPK).

● Destination of connectors

CN. No.	CONNECTOR				PIN No.
CN4a	MAIN	CN115	↔	FRONT FPC UNIT	- 8
CN4b	MAIN	CN211	↔	MIC	- 6
CN4c	MAIN	CN111	↔	BARRIER ASSY	- 7
CN10	MAIN	CN117	↔	WB	- 6
CN11	NAND	CN851	↔	MAIN	CN102 40
CN12	MAIN	CN104	↔	OPE UNIT	- 6
CN14a	MAIN	CN106	↔	OP BLOCK ASSY	- 25
CN14b	MAIN	CN4202	↔	CMOS	CN105 25
CN15	REAR	CN601	↔	MAIN	CN103 50
CN17a	MAIN	CN281	↔	SPEAKER	- 2
CN17b	MAIN	CN101	↔	MONITOR	CN703 29/28
CN17c	MAIN	CN114	↔	HDMI	- 40

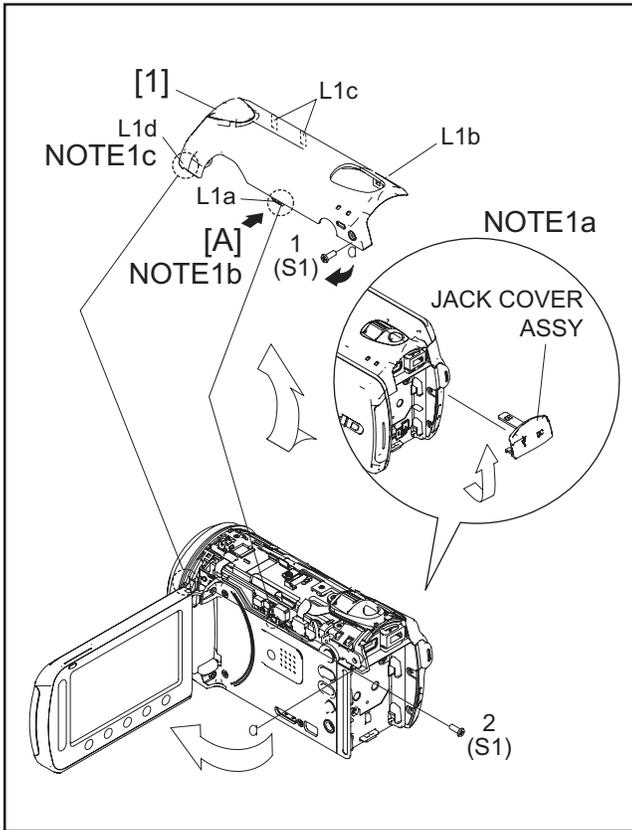


Fig.3-2-1

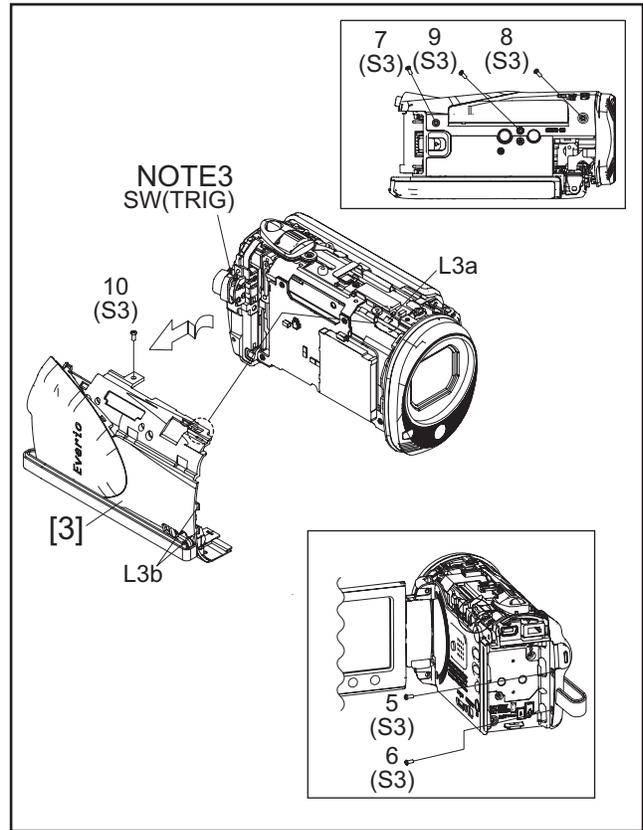


Fig.3-2-3

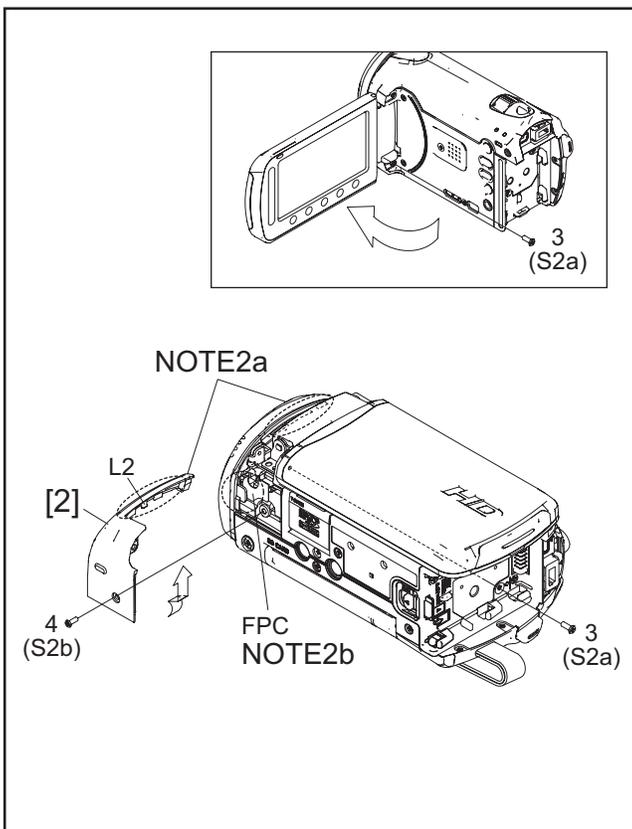


Fig.3-2-2

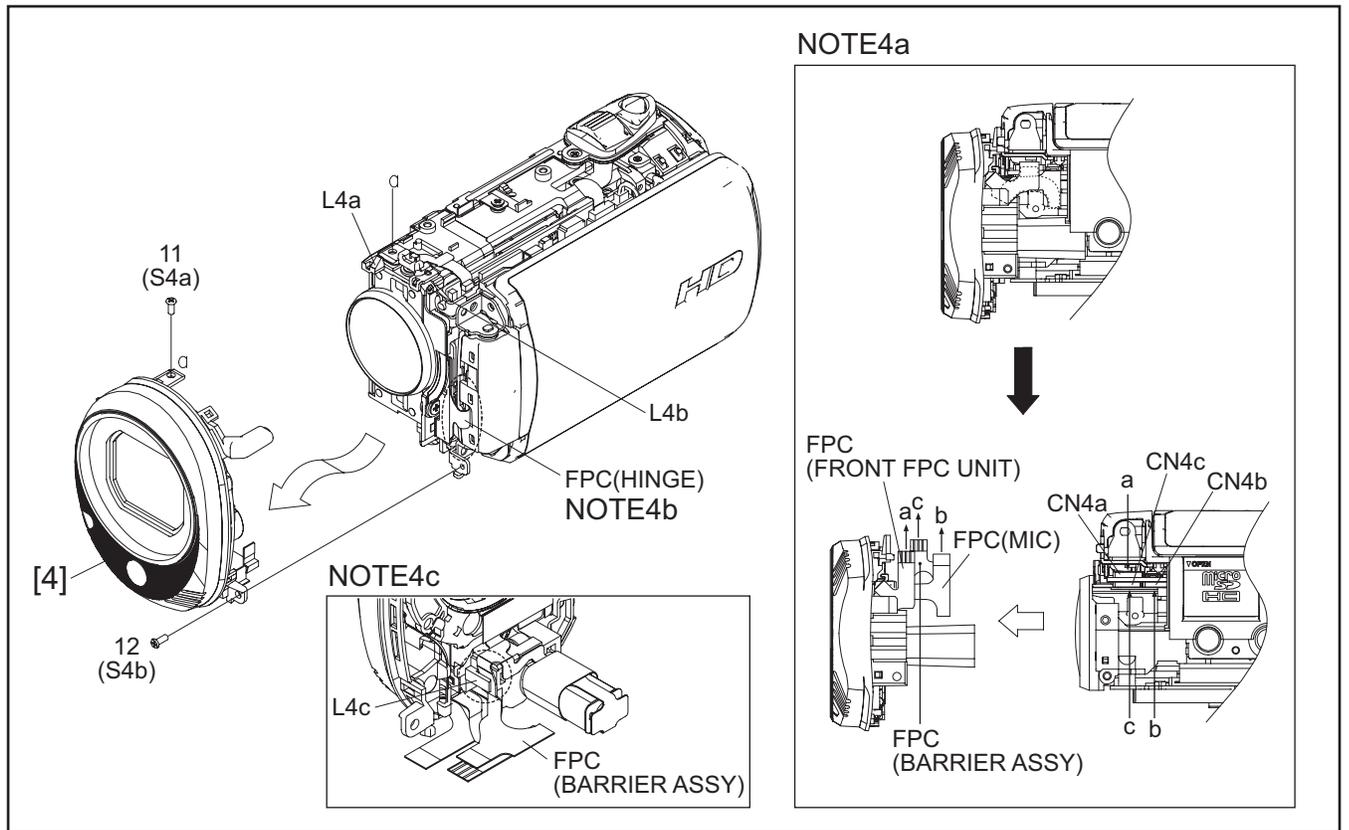


Fig.3-2-4

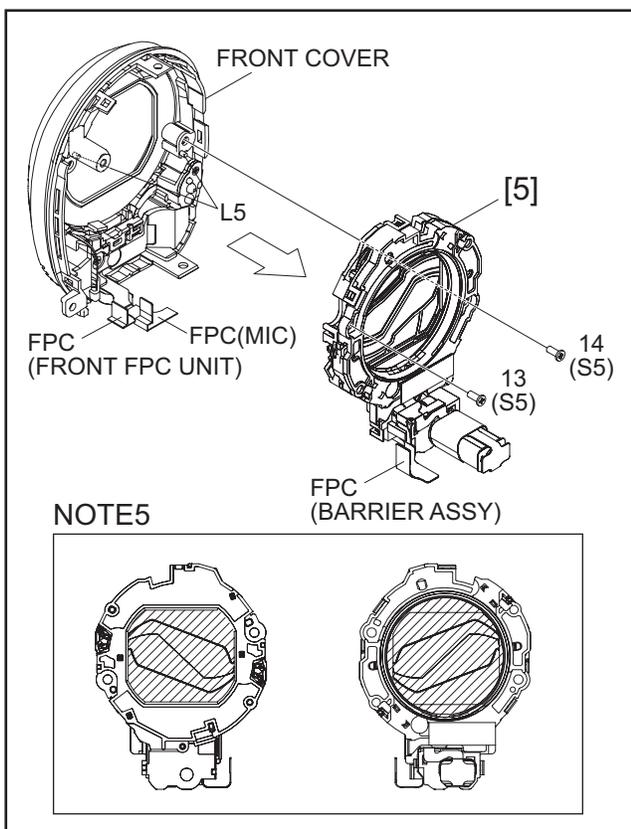


Fig.3-2-5

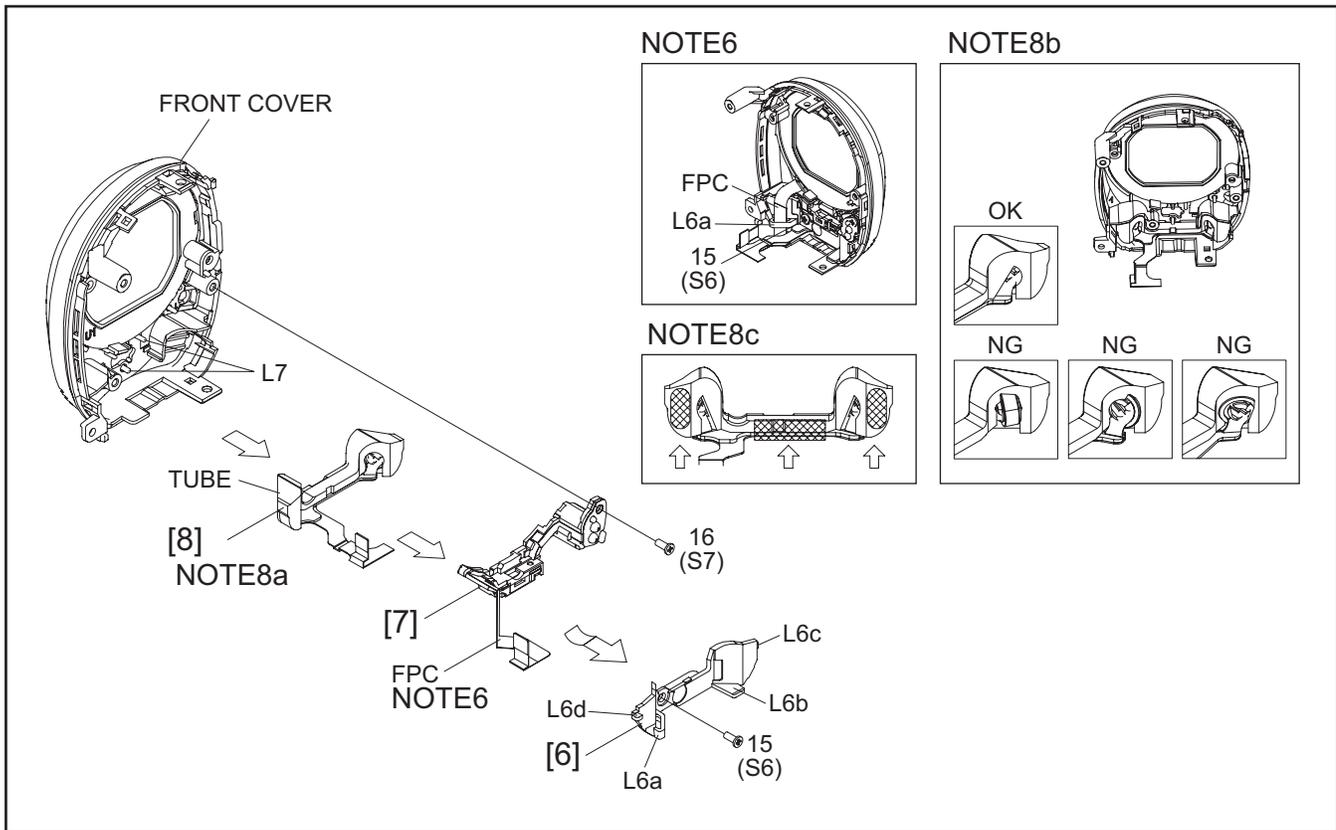


Fig.3-2-6

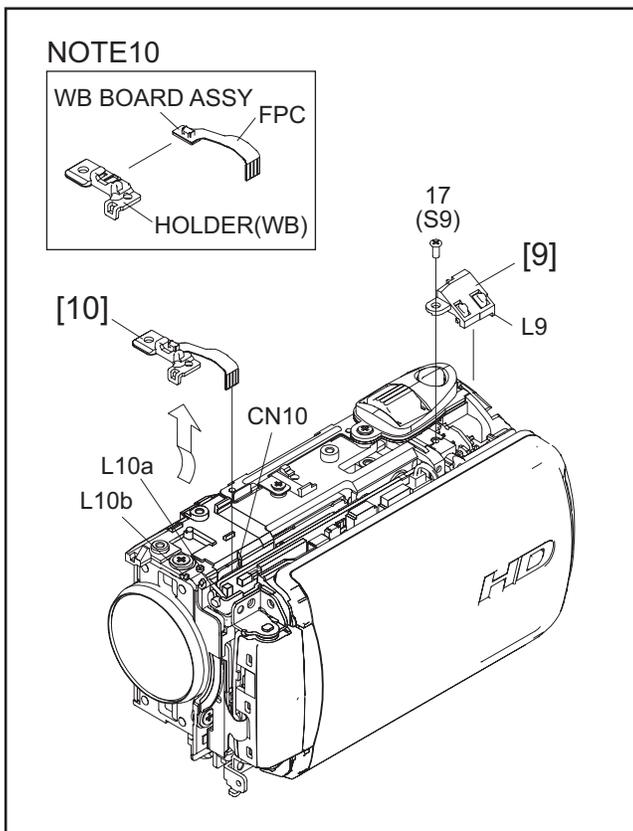


Fig.3-2-7

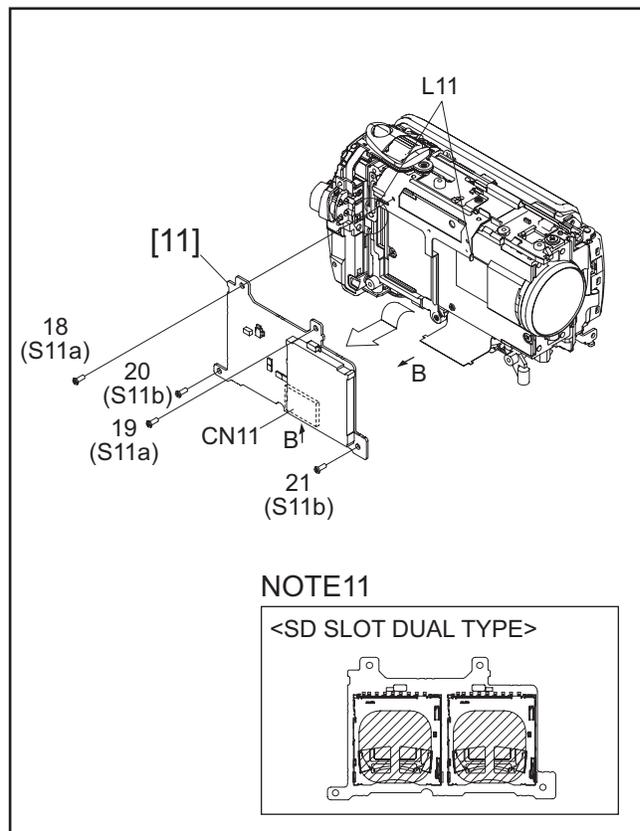


Fig.3-2-8

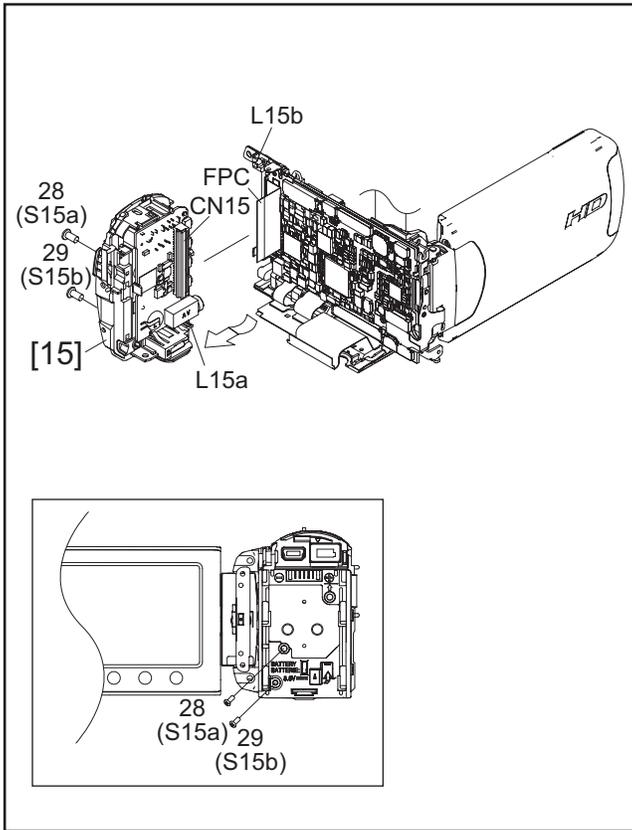


Fig.3-2-12

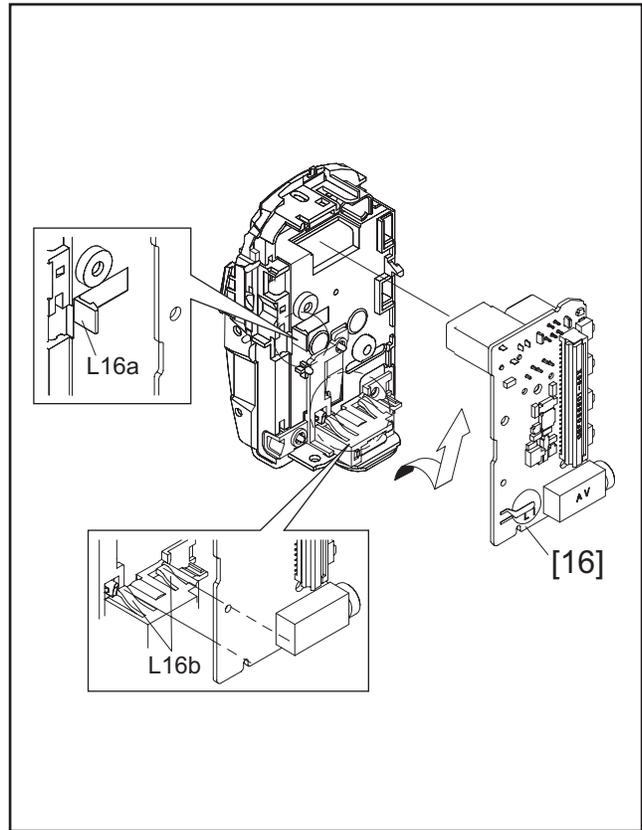


Fig.3-2-13

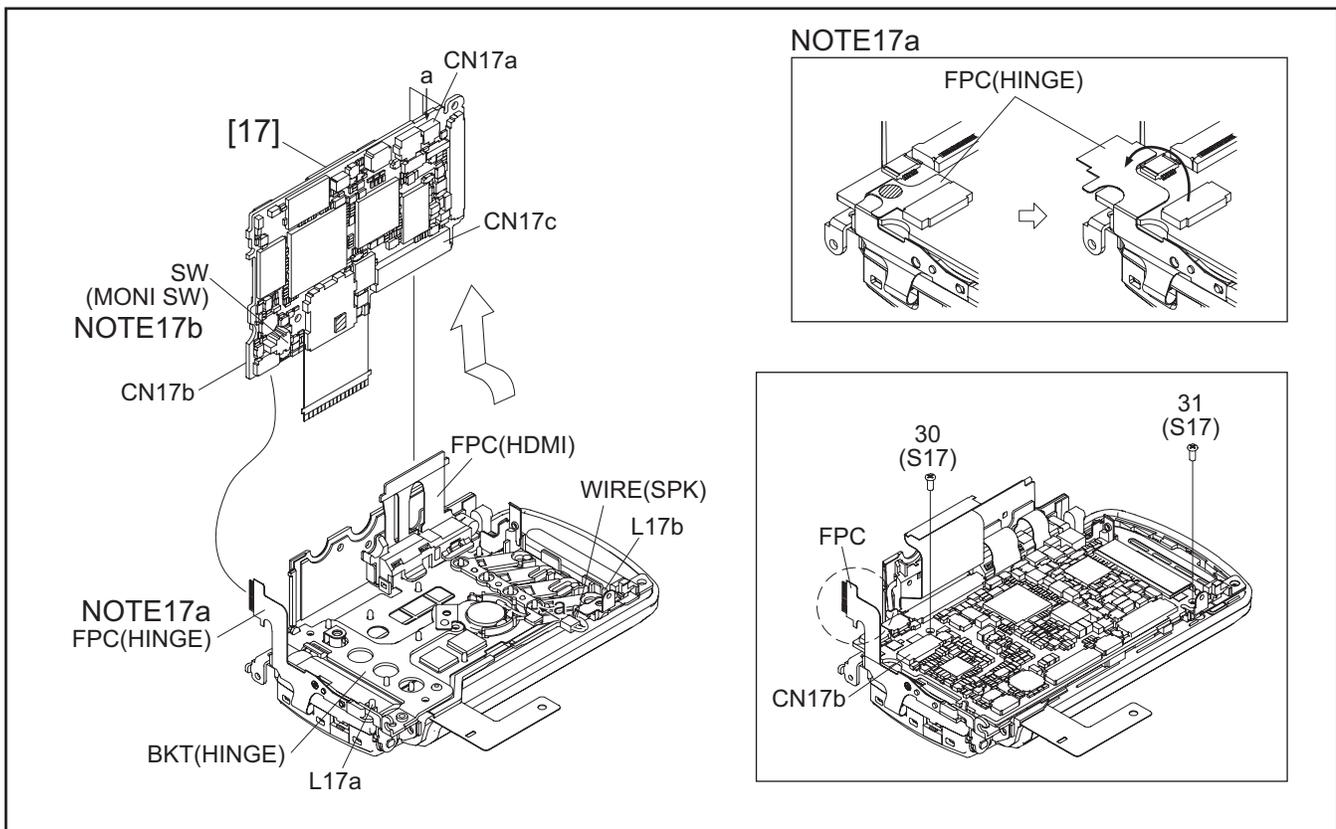


Fig.3-2-14

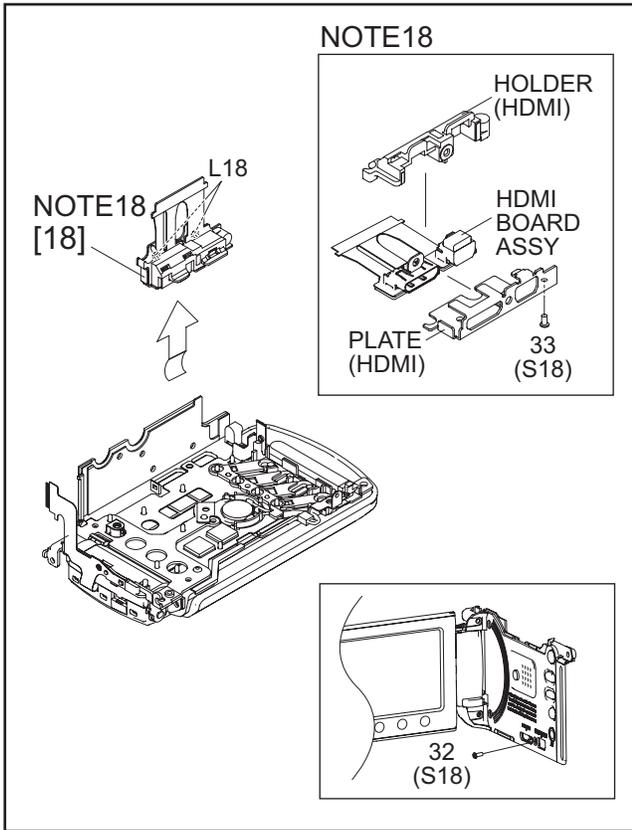


Fig.3-2-15

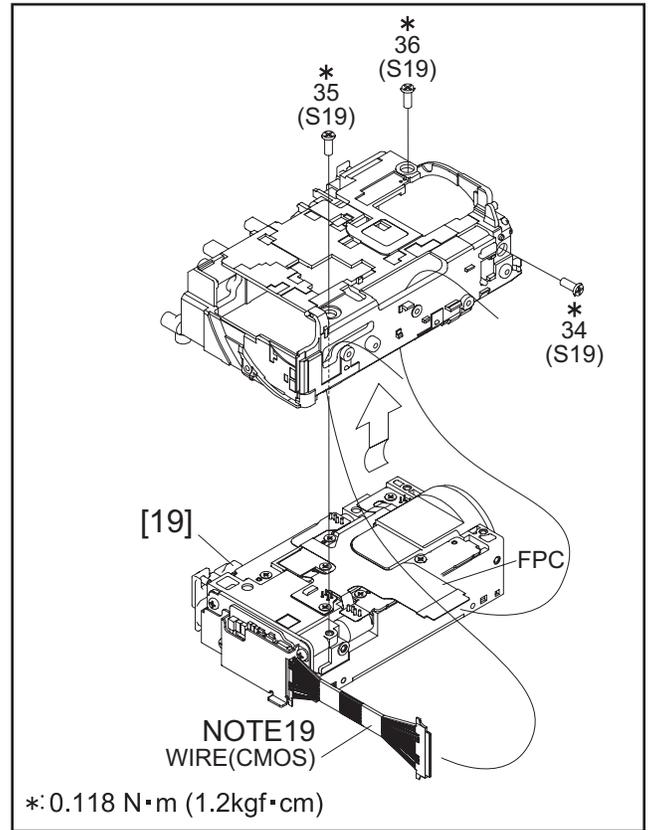


Fig.3-2-16

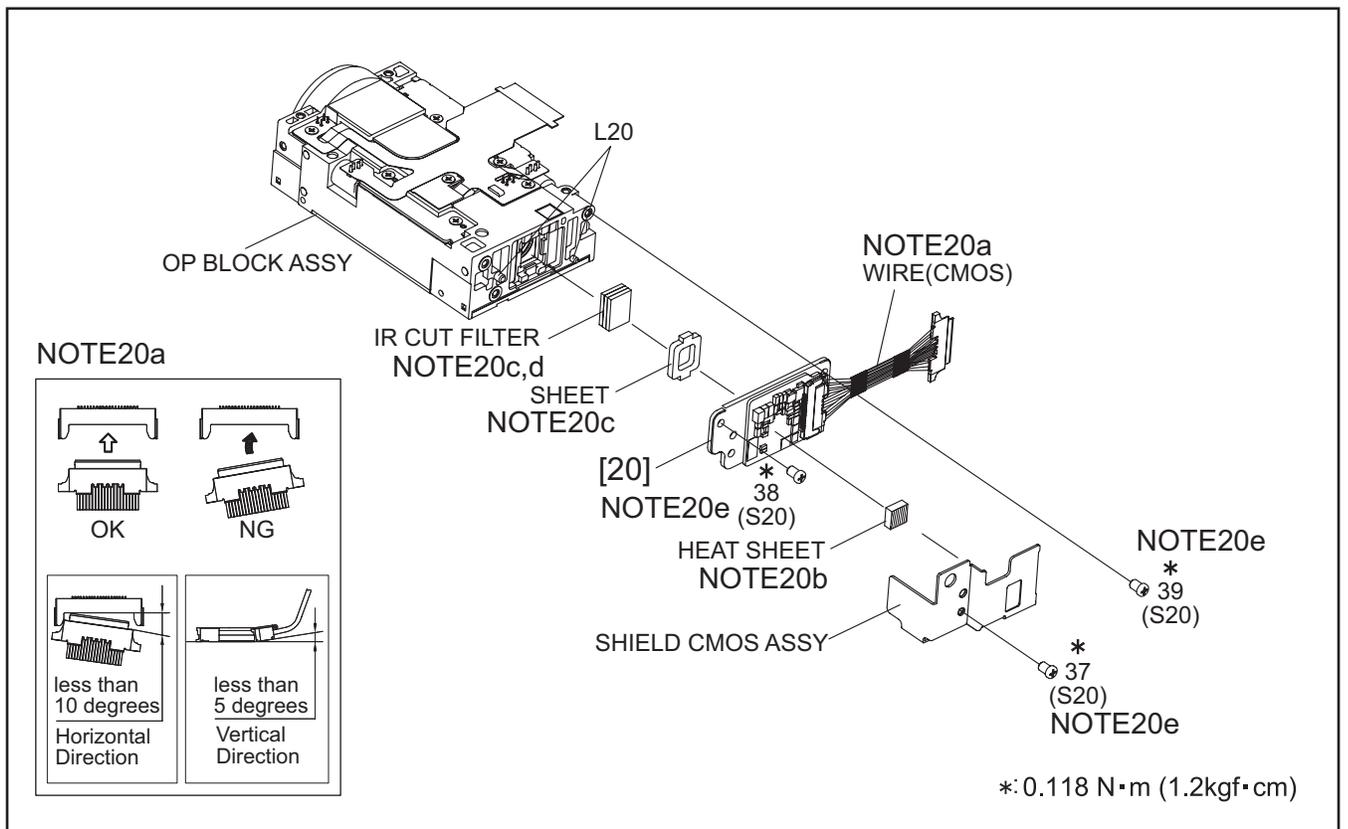


Fig.3-2-17

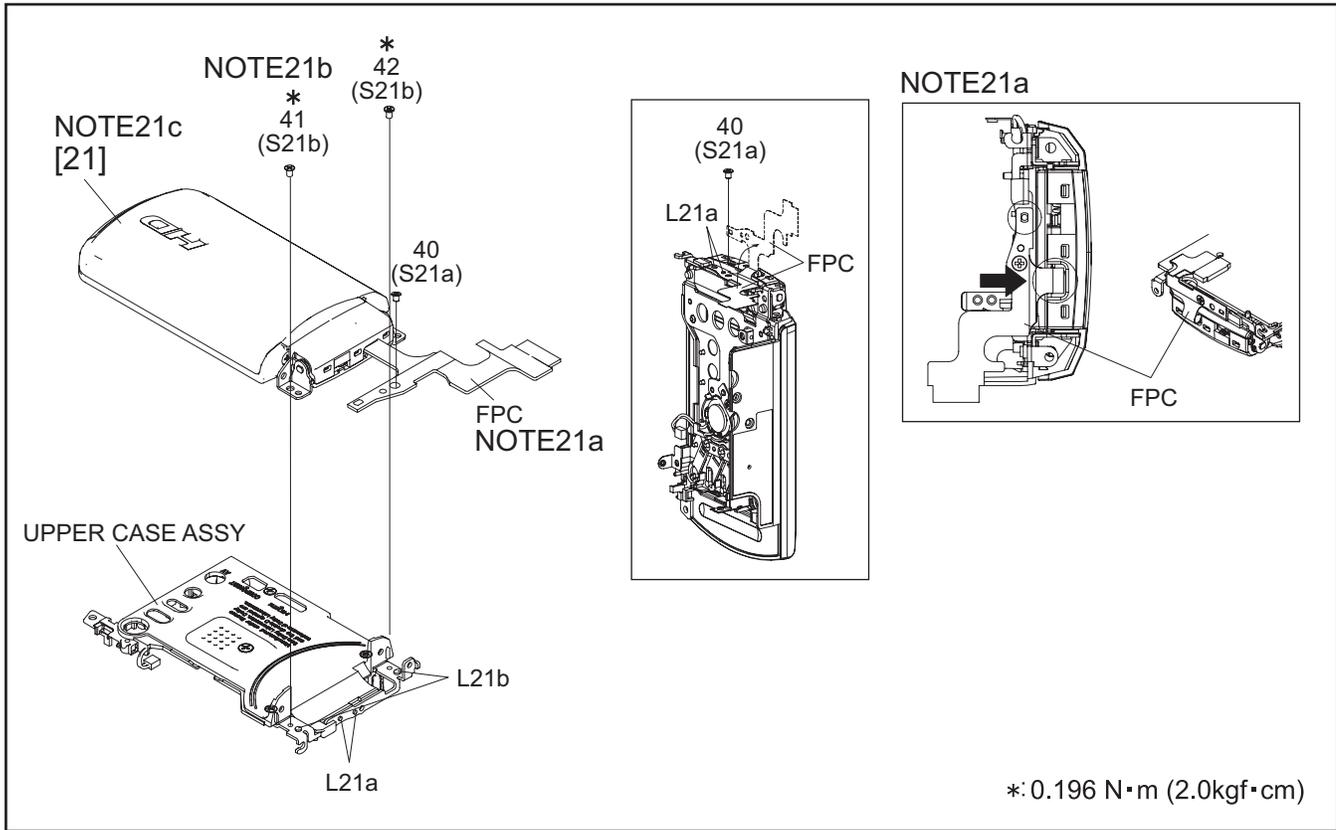


Fig.3-2-18

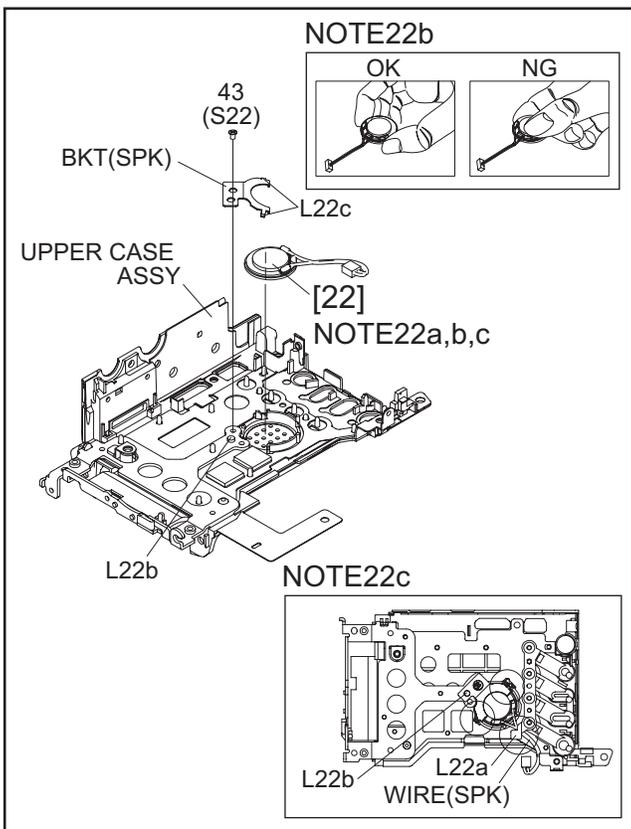


Fig.3-2-19

3.2.3 Disassembly of [21] MONITOR ASSY

●CAUTIONS

- (1) During the procedure, be careful in handling the parts. Be very careful not to damage or stain the LCD screen. If fingerprints are left on the screen, wipe them off with clean chamois leather or a cleaning cloth.

● Removing MONITOR ASSY

- (1) Remove the COVER SCREW (M), and remove the 2 screws (1, 2).

NOTE21a:

During the procedure, be careful not to damage the parts.

- (2) Turn the HINGE UNIT ASSY 90°, and remove the 2 screws (3, 4).

NOTE21b:

Tighten the 2 screws (3, 4) in numerical order.

- (3) Remove the MONI. COVER ASSY by releasing the 8 hooks (L21c-k).
- (4) Release the lock of the connector (CN21a), and remove the HINGE UNIT ASSY by lifting it up.

NOTE21c:

There are two disassembly methods after this. One is to remove parts one by one in order from the top. The other is to remove the whole parts as a block, and then disassemble individual part as required. Removing by block enables to remove the parts on the SENSOR BOARD ASSY together: the MONITOR BOARD ASSY with the MONI SA attached.

NOTE21d:

MONI SA is a block of parts that includes the LCD CASE, and the parts on its both sides: BKT (LCD) and the SHEET (M-REF).

Removing by block is useful for checking or replacing the SENSOR BOARD ASSY.

For efficient disassembly, removing by block is recommended. Refer to the following procedure for disassembly.

- (5) Release the lock of the connector (CN21b), and pull out the FPC.
- (6) Remove the MONITOR BOARD ASSY with the MONI SA attached.

NOTE21e:

During the procedure, be careful not to damage the parts.

- (7) Release the lock of the connector (CN21c), and pull out the FPC.
- (8) Remove the 2 screws (5, 6), and remove the MONITOR BOARD ASSY.
- (9) Remove the HOLDER (LED).
- (10) Refer to the drawing for disassembly of MONI SA.

NOTE21f:

MONI SA includes the LCD CASE, and the parts on its both sides.

On one side of the LCD CASE, the SHEET (BEF), SHEET (M/DIFF), LIGHT GUIDE, and the SHEET (M. REF) are assembled toward the MONITOR BOARD ASSY. On the other side, the SHEET LCD, LCD MODULE, and the SPACER LCD are assembled in order between the LCD CASE and the BKT (LCD).

NOTE21g:

During the procedure, be careful in handling the parts. Be very careful not to damage the FPC.

NOTE21h:

To attach the SHEET (M/DIFF), insert the SHEET (M/DIFF) under the ribs on the LCD CASE.

●Removing HINGE UNIT ASSY

- (1) Remove the HINGE COVER(U).

NOTE21j:

During the procedure, be careful in handling the FPC.

- (2) Remove the HINGE COVER(L).
- (3) Remove the MAGNET.

NOTE21k:

During the procedure, be careful in handling the MAGNET. When attaching the MAGNET, set the N pole outside as shown in the figure. Be careful when removing as there is no marking.

- (4) Remove the FPC.

NOTE21m:

The FPC, with its connection to the MONITOR BOARD ASSY facing inward, is rolled around the axis (shaft) of the HINGE UNIT ASSY rotation 2.5 rounds (2.5times).

●Assembly/Disassembly of MONITOR CASE ASSY/SENSOR BOARD ASSY

Operation procedure

- Removing the part which is to be reused

- (1) Remove the SENSOR BOARD ASSY from the MONI. CASE ASSY by gradually peeling off from the HINGE UNIT ASSY.

NOTE21n:

During the procedure, be careful not to break the parts. Prepare new SENSOR BOARD ASSY and D. FACE TAPE to use them in place of the removed parts.

- Completely peel off the remaining tape pieces of the D. FACE TAPE left on the part to be reused (MONI. CASE ASSY).

NOTE21p:

Make sure that there are no D. FACE TAPE pieces or foreign substances left on the surfaces. If necessary, clean the surfaces using alcohol.

- Affixing the D. FACE TAPE to the SENSOR BOARD

- (1) Affix the D. FACE TAPE to the SENSOR BOARD ASSY.

NOTE21q:

Peel off the D. FACE TAPE, with the RELEASE SHEET attached, from the RELEASE PAPER.

Securely fix the D. FACE TAPE, and then affix the SENSOR BOARD ASSY to the D. FACE TAPE by adjusting the four frames of the SENSOR BOARD ASSY to the frame of the D. FACE TAPE. Evenly press over the paper backing of each long/short side of the L shape.

- (2) Peel off the RELEASE SHEET.

NOTE21r:

When removing the RELEASE SHEET, check that there are no foreign substances or air bubbles on the tape.

If there are foreign substances, air bubbles, or remaining tape pieces, completely remove them.

- Affixing the SENSOR BOARD ASSY to the MONI. CASE

 - (1) Affix the SENSOR BOARD ASSY to the MONI. CASE

NOTE21s:

When affixing, adjust the position of the long side of the L shape to avoid misalignment, and then press evenly. Be sure to press hard for 10 seconds or more on each long/short side of the L shape for even adhesion.

During the procedure, be careful to prevent foreign substances or air bubbles from entering.

- (2) After the replacement, make sure that there are no broken or deformed parts or any abnormalities.

Use the service software for the operation check of the electrical performance.

<NOTE21f>

MONI SA

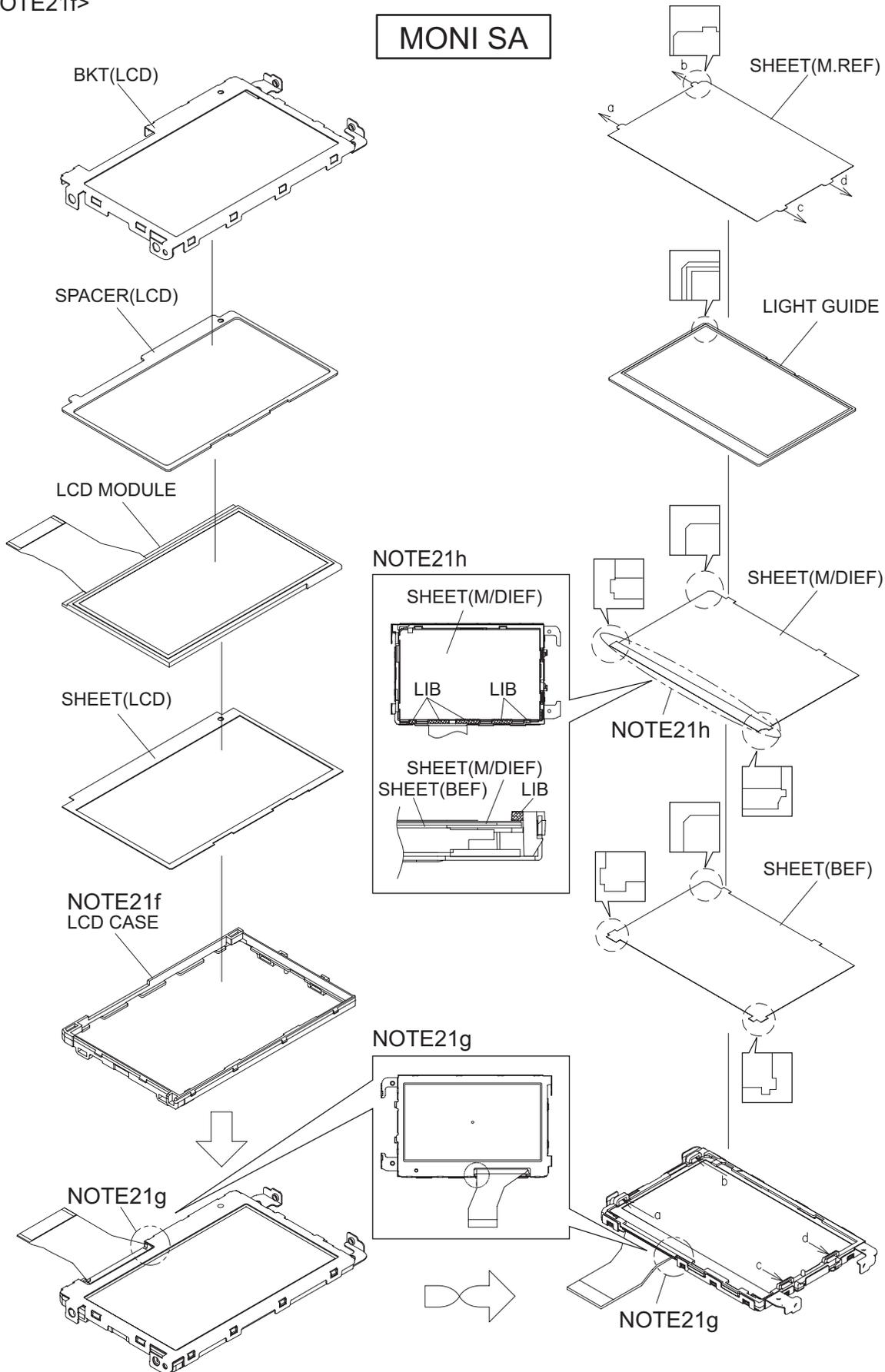


Fig.3-2-21

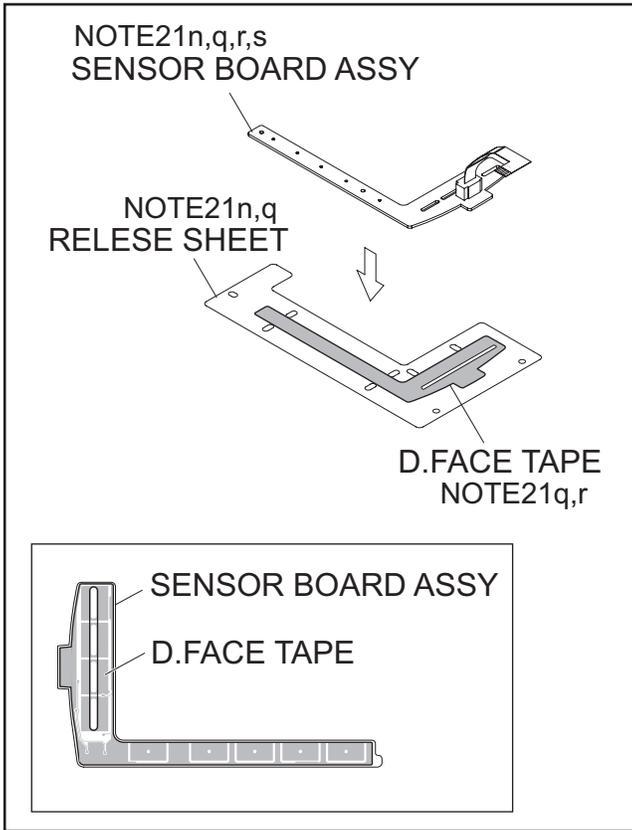


Fig.3-2-22

SECTION 4 ADJUSTMENT

4.1 PREPARATION

4.1.1 Precaution

Camera system and deck system of this model are specially adjusted by using PC.

However, if parts such as the following are replaced, an adjustment is required. The adjustment must be performed in a Service Center equipped with the concerned facilities.

- OP BLOCK ASSEMBLY
- MONITOR ASSEMBLY
- EEP ROM (IC1005 of MAIN board)

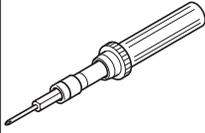
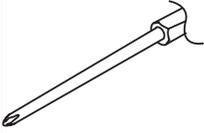
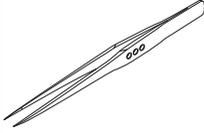
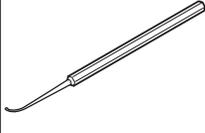
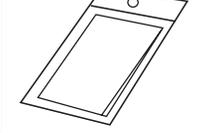
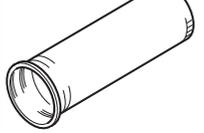
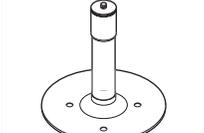
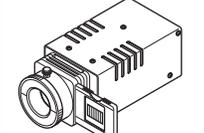
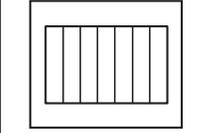
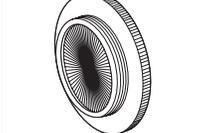
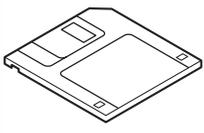
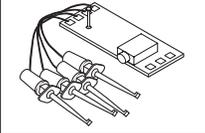
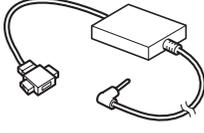
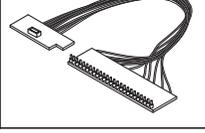
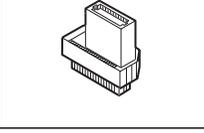
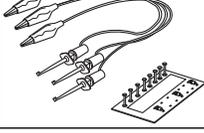
In the event of malfunction with electrical circuits, first find a defective portion with the aid of proper test instruments as shown in the following electrical adjustment procedure, and then commence necessary repair/ replacement/adjustment.

- In observing chip TP, use IC clips, etc. to avoid any stress. Prior to replacement of chip parts (especially IC), remove the solder completely to prevent peeling of the pattern.
- Use a patch cord if necessary. As for a patch cord, see the BOARD INTERCONNECTIONS.
- Since connectors are fragile, carefully handle them in disconnecting and connecting the FPC.

4.1.2 Required test equipment

- Personal computer (for Windows)
- Color TV monitor
- Oscilloscope (dual-trace type, observable 100MHz or higher frequency). The one observable 300 MHz or higher frequency is recommended.
- Digital voltmeter
- DC power supply or AC adapter
- Frequency counter (with threshold level adjuster)

4.1.3 Tools required for adjustment

Torque Driver YTU94088	Bit YTU94088-003	Tweezers P-895
		
Chip IC Replacement Jig PTS40844-2	Cleaning Cloth KSMM-01	INF Adjustment Lens YTU92001D
		
INF Adjustment Lens Holder YTU94087	Mini Stand YTU93108	Light Box Assembly YTU93096B
		
Color Bar Chart YTU94133C	Focus Chart YTU92001-018	Service Support System YTU94057-123
		
Communication Cable YTU93111-1		PC Cable QAM0099-005
		
Jig Connector Cable YTU93106B	Conversion Connector YTU94145K-20	Charing Battery Adjatment Jig YTU93112A
		

- **Torque Driver**
Be sure to use to fastening the mechanism and exterior parts because those parts must strictly be controlled for tightening torque.
- **Bit**
This bit is slightly longer than those set in conventional torque drivers.
- **Tweezers**
To be used for removing and installing parts and wires.
- **Chip IC Replacement Jig**
To be used for adjustment of the camera system.
- **Cleaning Cloth**
Recommended the Cleaning cloth to wipe down the video heads, mechanism (tape transport system), optical lens surface.
- **INF Adjustment Lens**
To be used for adjustment of the camera system. For the usage of the INF adjustment lens, refer to the Service Bulletin No. YA-SB-10035 and No. YA-SB-10223.
- **INF Adjustment Lens Holder**
To be used together with the Camera stand for operating the Videocamera in the stripped-down condition such as the status without the exterior parts or for using commodities that are not yet conformable to the interchangeable ring. For the usage of the INF lens holder, refer to the Service Bulletin No. YA-SB-10035.
- **Mini Stand**
To be used together with the INF adjustment lens holder. For the usage of the Mini stand, refer to the Service Bulletin No. YA-SB-10035.
- **Light Box Assembly**
To be used for adjustment of the camera system. For the usage of the Light box assembly, refer to the Service Bulletin No. YA-SB-10035 and No. YA-SB-10218.
- **Color Bar Chart**
To be used for adjustment of the camera system. For the usage of the INF adjustment lens, refer to the Service Bulletin No. YA-SB-10035.
- **Focus Chart**
To be used for adjustment of the camera system. For the usage of the INF adjustment lens, refer to the Service Bulletin No. YA-SB-10035.
- **Service Support System**
To be used for adjustment with a personal computer. Software can be downloaded also from JS-net.
- **Communication Cable**
Connect the Communication cable between the PC cable and Jig connector cable when performing a PC adjustment.
- **PC Cable**
To be used to connect the Videocamera and a personal computer with each other when a personal computer issued for adjustment.
- **Jig Connector Cable**
Connected to JIG CONNECTOR of the main board and used for electrical adjustment, etc.
- **Conversion Connector**
Conversion connector is used to convert the connector part of the JIG connector cable.
- **Charging Battery Adjustment Jig**
This Jig is used for the adjustment of the camcorders that have Main Body battery charging function.

4.2 JIG CONNECTOR CABLE CONNECTION

4.2.1 Cautions

- (1) Only 9 of 30 pins of JIG CONNECTOR CABLE(PN:YTU93106B) are extended with wires. Additional 2 pins (13 and 28) need to be soldered and extended with the wires for adjustment and checking.

See Fig. 4-2-1 for details.

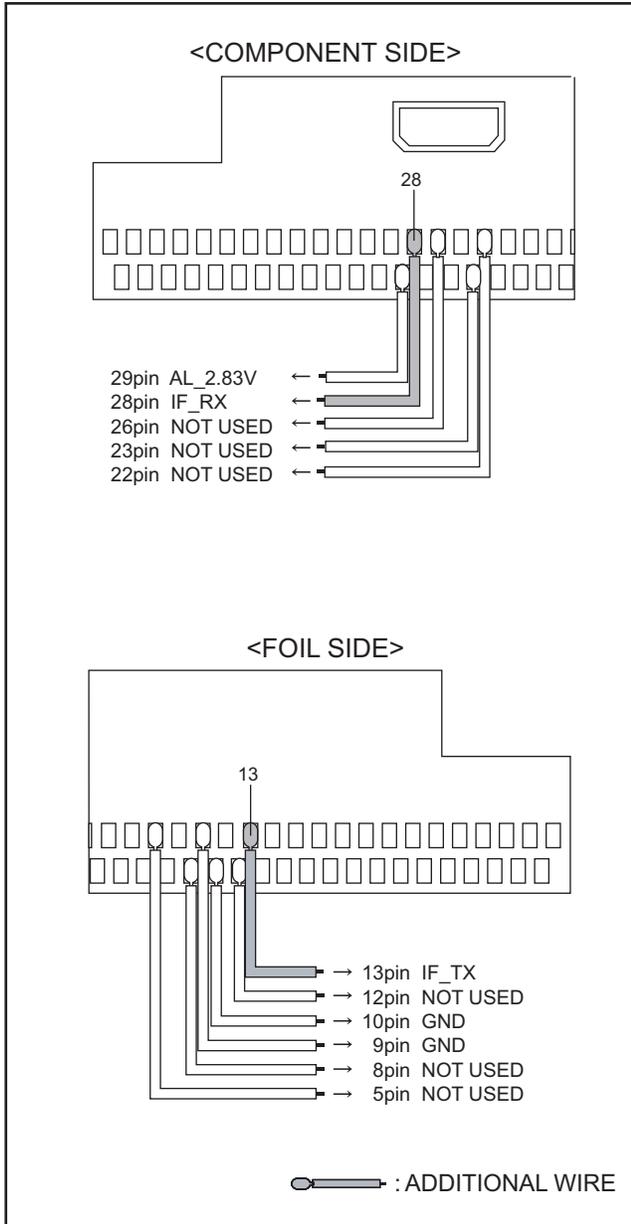


Fig.4-2-1

■ Connection procedure

- Remove the 2 screws (1-2), and then remove the TOP COVER ASSY.

NOTE1a:

Release or remove the JACK COVER ASSY as it interferes with the disassembly of TOP COVER ASSY.

NOTE1b:

To remove the TOP COVER ASSY, press [A] indicated with an arrow, and release the HOOK (L1a) first.

NOTE1c:

When removing the last HOOK (L1d), be careful not to deform or apply excess force to the parts to avoid possible damage.

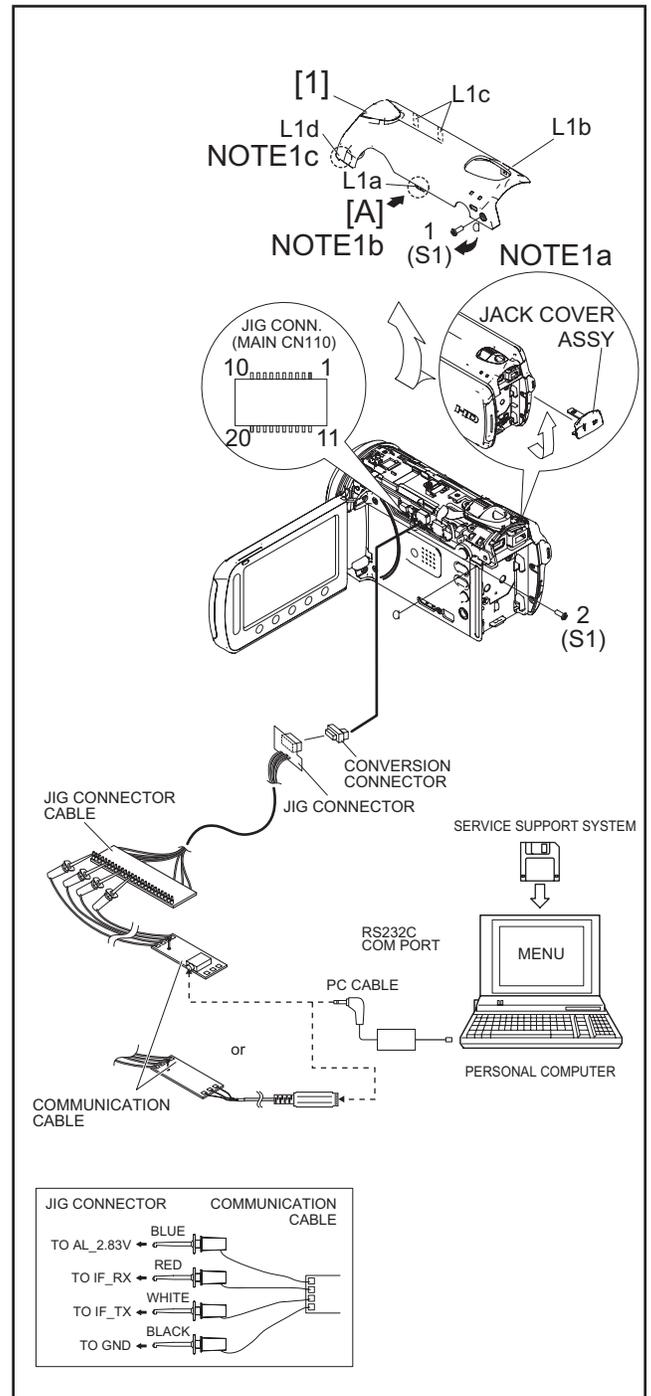


Fig.4-2-2

■ Jig connector diagrams

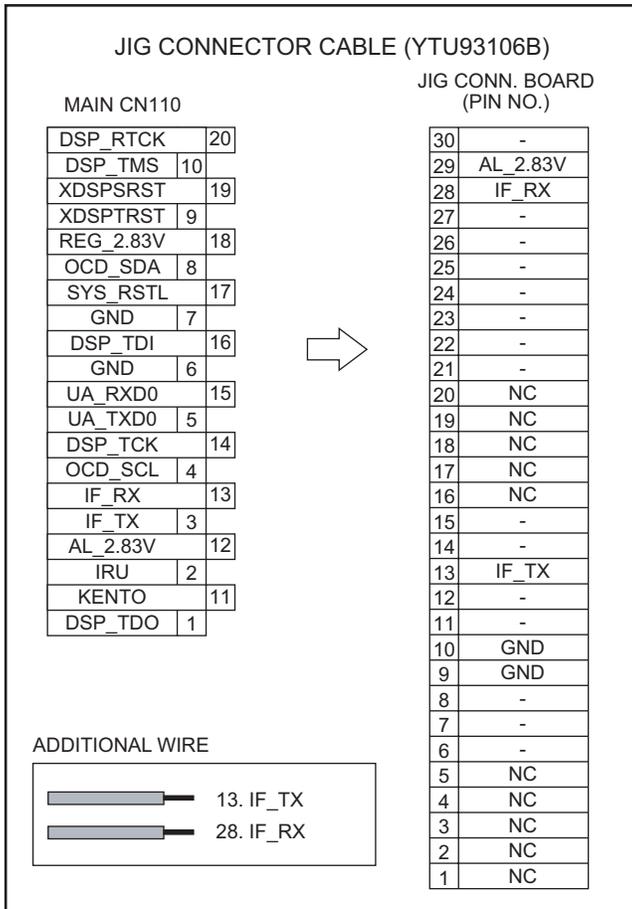


Fig.4-2-3

■ Conversion Connector

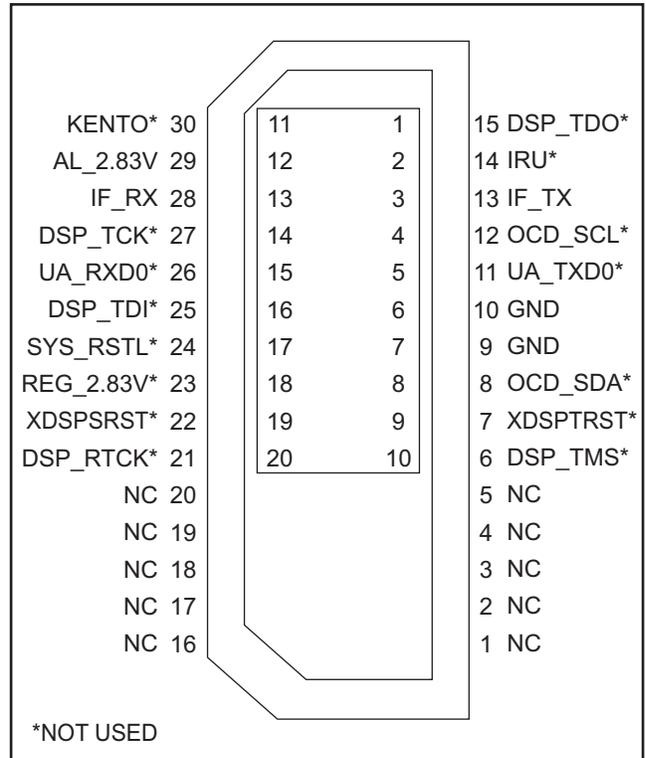


Fig.4-2-4

4.3 ELECTRICAL ADJUSTMENT

Electrical adjustment is performed by using a personal computer and software for SERVICE SUPPORT SYSTEM. Read README.TXT file to use the software properly.

As for the connection of cables, see "4.2 JIG CONNECTOR CABLE CONNECTION".

SECTION 5 TROUBLE SHOOTING

5.1 SERVICE NOTE

CABINET PARTS AND ELECTRICAL PARTS(1)

Symbol No.	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
Removing order of screw	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Place to stick screw											*			
Reference drawing (Fig.No.)	3-2-1	3-2-2	3-2-3			3-2-4	3-2-5	3-2-6	3-2-7	3-2-8	3-2-9	3-2-10	3-2-11	
Screw tightening torque	a													a

CABINET PARTS AND ELECTRICAL PARTS(2)

Symbol No.	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]									
Removing order of screw	28	29	-	30	31	32	33	34	35	36	37	38	39	40	41	42	43
Place to stick screw	*												**	**	*	*	**
Reference drawing (Fig.No.)	3-2-12	3-2-13	3-2-14	3-2-15	3-2-16	3-2-17	3-2-18	3-2-19									
Screw tightening torque	a	-	a	b			a	c	a								

[21]MONITOR ASSY

Symbol No.	[21]					
Removing order of screw	1	2	3	4	5	6
Place to stick screw	**	**	**	**	**	**
Reference drawing (Fig.No.)	3-2-20					
Screw tightening torque	a	c	a			

NOTE:

- 1) * and ** (This mark shows where to attach the screws) : Do not reuse the screws because the screw lock bond was applied to prevent the screws from loosening. Prepare the specified screws and use them in place of the removed screws.
- 2) Tightening torque for the screws
 - There are setting limits of the torque value for the torque driver. If the value exceeds the setting value, take it as a rough measurement (reference value), and tighten the screw manually.
 - The specified torque value is a recommended value of the initial assembly. Therefore, set the value below the specified torque value in the assembling procedure. Be careful not to break either the screws or the screw holes.
- 3) The number of screws used in this product is subject to change.

a : 0.088N·m (0.9kgf·cm) b : 0.118N·m (1.2kgf·cm) c : 0.196N·m (2.0kgf·cm)



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