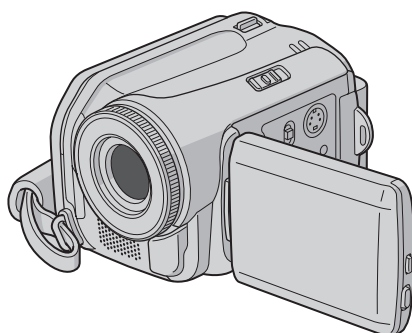


# JVC

## SERVICE MANUAL

HARD DISK CAMCORDER

### GZ-MG40EX, GZ-MG40EY, GZ-MG40EZ, GZ-MG50EK, GZ-MG50EX, GZ-MG50EY, GZ-MG50EZ



GZ-MG40EX, GZ-MG40EY, GZ-MG40EZ[M5E327]  
GZ-MG50EK, GZ-MG50EX,  
GZ-MG50EY, GZ-MG50EZ[M5E329]

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

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## SPECIFICATION

### ■ Camcorder

For General	Power supply		DC 11.0 V(Using AC Adapter) DC 7.2 V (Using battery pack)
	Power consumption		Approx. 4.5 (4.8)* W * When using the LED light
	Dimensions (W × H × D)		67 mm × 70 mm × 109 mm
	Weight		Approx. 320 g (without battery, lens cap and strap) Approx. 380 g (incl. battery, lens cap and strap)
	Operating temperature		0°C to 40°C
	Operating humidity		35% to 80%
	Storage temperature		-20°C to 50°C
	Pickup		1/4.5" (1,330,000 pixels) CCD
	Lens		F 1.2 to 2.8, f = 3.0 mm to 45 mm, 15:1 power zoom lens
	Filter diameter		Ø30.5 mm
	LCD monitor		2.5" diagonally measured, LCD panel/TFT active matrix system
	Speaker		Monaural
	Flash		Within 1.5 m (recommended shooting distance)
For Video/Audio	Format		SD-VIDEO
	Recording/Playback format	Video	MPEG-2
		Audio	Dolby Digital (2 ch)
	Signal format		PAL standard
	Recording mode (video)		ULTRA FINE: 720 × 576 pixels, 8.5 Mbps (CBR) FINE: 720 × 576 pixels, 5.5 Mbps (CBR) NORMAL: 720 × 576 pixels, 4.2 Mbps (VBR) ECONOMY: 352 × 288 pixels, 1.5 Mbps (VBR)
Recording mode (audio)		ULTRA FINE: 48 kHz, 384 kbps FINE: 48 kHz, 384 kbps NORMAL: 48 kHz, 256 kbps ECONOMY: 48 kHz, 128 kbps	
For Still image	Format		JPEG
	Image size		3 modes (1152 × 864 / 1024 × 768 / 640 × 480)
	Picture quality		2 modes (FINE/STANDARD)
For Connectors	AV	S-Video output	Y:1.0 V (p-p), 75Ω, analogue, C:0.29V (p-p), 75Ω, analogue
		Video output	1.0 V (p-p), 75 kΩ , analogue
		Audio output	300 mV (rms), 1 kΩ, analogue, stereo
	USB		Mini USB-B type, USB 1.1/2.0 compliant

### ■ AC Adapter

Power requirement	AC 110 V to 240 V, 50 Hz/60 Hz
Output	DC 11 V, 1 A


Specifications shown are for SP mode unless otherwise indicated. E & O.E. Design and specifications subject to change without notice.

# SECTION 1 PRECAUTIONS

## 1.1 SAFTY 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  $\Delta$  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.

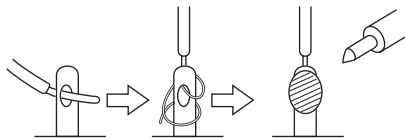


Fig.1-1-1

- (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.

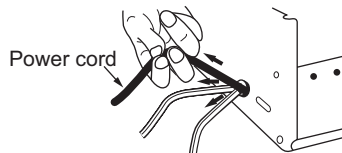


Fig.1-1-2

- (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).

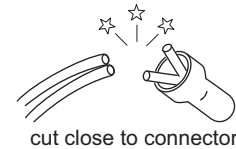


Fig.1-1-3

- 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.

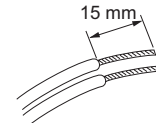


Fig.1-1-4

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

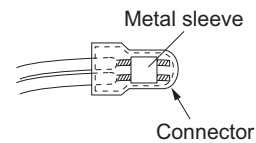


Fig.1-1-5

- 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.

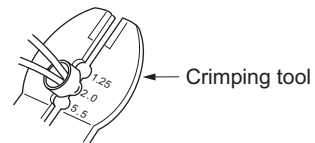


Fig.1-1-6

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

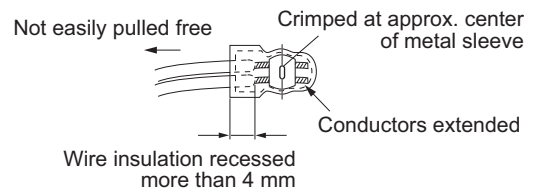


Fig.1-1-7

### 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.

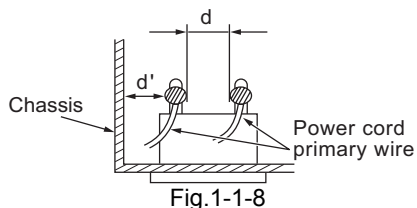


Fig.1-1-8

#### (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.

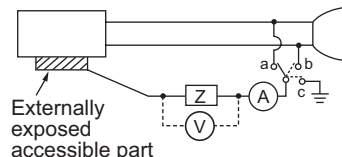
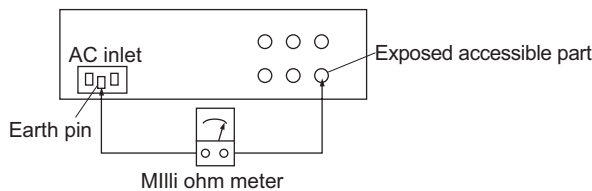


Fig.1-1-9

#### (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	$Z \leq 0.5 \text{ ohm}$

Fig.1-1-10

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	$1 \text{ k}\Omega$	$i \leq 1 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	USA & Canada	$0.15 \mu\text{F}$ and $1.5 \text{ k}\Omega$	$i \leq 0.5 \text{ mA rms}$	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	$2 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Antenna earth terminals
		$50 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	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

The following table indicate main different points between models GZ-MG40EX, GZ-MG40EY, GZ-MG40EZ, GZ-MG50EK, GZ-MG50EX, GZ-MG50EY and GZ-MG50EZ.

MODEL NAME	GZ-MG40EX	GZ-MG40EY	GZ-MG40EZ
BODY COLOR	GRAY(UV)	GRAY(UV)	GRAY(UV)
RECORDING MEDIA	BUILT IN HDD(20GB)/SD	BUILT IN HDD(20GB)/SD	BUILT IN HDD(20GB)/SD
AC ADAPTER	AP-V17E	AP-V17E	AP-V17E
AC CORD	NO	NO	NO

MODEL NAME	GZ-MG50EK	GZ-MG50EX	GZ-MG50EY	GZ-MG50EZ
BODY COLOR	DARK GRAY(UV)	DARK GRAY(UV)	DARK GRAY(UV)	DARK GRAY(UV)
RECORDING MEDIA	BUILT IN HDD(30GB)/SD	BUILT IN HDD(30GB)/SD	BUILT IN HDD(30GB)/SD	BUILT IN HDD(30GB)/SD
AC ADAPTER	AP-V14E	AP-V17E	AP-V17E	AP-V17E
AC CORD	YES(BS Plug)	NO	NO	NO

# 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 0.098N·m (1.0kgf·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)

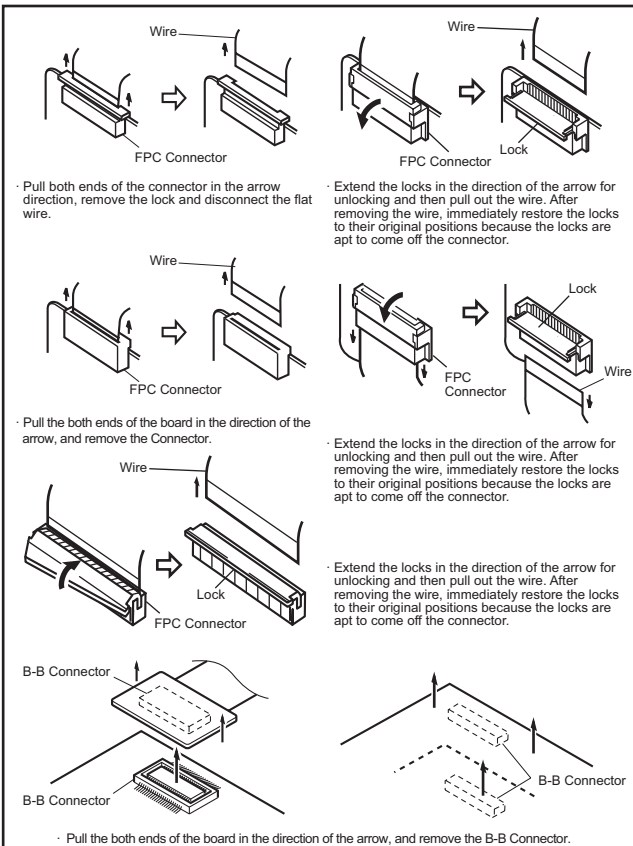


Fig.3-1-1

### 3.1.4 Tools required for disassembly and assembly

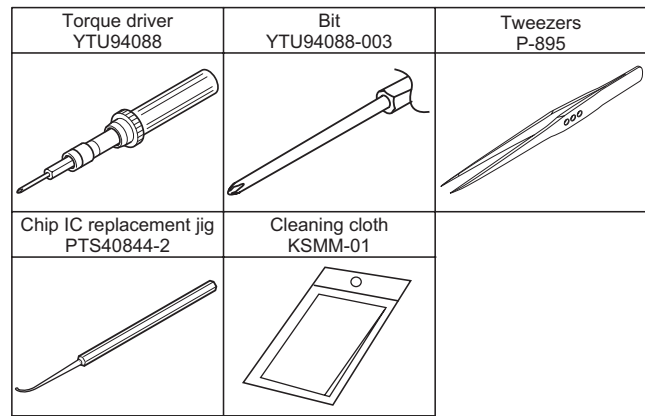


Fig.3-1-2

- **Torque driver**  
Be sure to use 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 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/DISASSEMBLY OF CABINET PARTS AND ELECTRICAL PARTS

#### ●Disassembly procedure

STEP No.	PART NAME	Fig. No.	POINT	NOTE
[1]	B. COVER ASSY	FA1	5(S1),2(L1)	-
[2]	GRIP LOWER ASSY	FA2	GRIP BELT,2(S2),2(L2a),L2b,2(L2c)	NOTE2a,b
[3]	BKT(HDD)ASSY	FA3	CN3	NOTE3a,b
[4]	COVER(BELT) ASSY	FA4	2(S4a),3(S4b)	-
[5]	TOP COVER ASSY	FA5	RING,WINDOW(W.B.S),2(S5),CN5,L5	NOTE5
[6]	ZOOM UNIT		2(S6),2(L6)	-
[7]	REAR COVER ASSY	FA6	4(S7),CN7	NOTE7
[8]	UPPER ASSY	FA7-1	3(S8),L8a,CN8a,b,L8b	NOTE8
[9]	OPERATION BOARD ASSY	FA7-2	4(S9),CN9,2(L9)	NOTE9a,b,c
[10]	U. CASE(U) ASSY	FA7-3	2(S10),L10a,b	-
[11]	POWER SW ASSY		2(S11),L11	-
[12]	COVER(HINGE)ASSY	FA7-4	2(S12),2(L12)	-
[13]	MONITOR ASSY		2(S13),2(L13)	-
[14]	SPEAKER	FA7-5	4(S14),L14,BKT(UPPER)	-
[15]	F. COVER ASSY	FA8	S15,L15a,2(L15b),CN15	-
[16]	MIC		2(S16),2(L16),BKT(MIC)	-
[17]	HOOD	FA9	2(S17),L17a,b	-
[18]	MAIN BOARD ASSY		S18,L18a,b,CN18a,b	NOTE18
[19]	OP FRAME ASSY	FA10	3(S19),FRAME ASSY	-

#### NOTE2a:

During the procedure, leave the GRIP BELT removed from the hook.

#### NOTE2b:

During the procedure, be careful not to break the tabs(L2a-c).

#### NOTE3a:

Be careful in handling this part.

Pay special attention not to give shocks.

#### NOTE3b:

When attaching, be careful with the GEL lift.

#### NOTE5:

During the procedure, leave the JACK COVER open.

#### NOTE7:

During the procedure, leave the MONITOR COVER open.

#### NOTE8:

During the procedure, be careful not cut the SPEAKER WIRE.  
Place the WIRE through the space.

#### NOTE9a:

During the procedure, be careful not to lose KNOB(V/O).

#### NOTE9b:

During the procedure, be careful not to break or deform the parts.

#### NOTE9c:

When attaching, be careful with the positions of the two switches (S401, S403). Attach the POWER SW (S401) by pulling it to the position indicated with the arrow, and attach the SWITCH LEVER to the "OFF" position.

Attach both the MODE SWITCH (S403) and the SWITCHING LEVER by pulling to the positions indicated with the arrows.  
After attachment, check whether the operation is normal by operating the SWITCHING LEVER.

#### NOTE18:

During the procedure, drop the MAIN BOARD ASSY into this slit.

#### ●Destination of connectors

CN.NO.	CONNECTOR			PIN NO.
CN3	HDD	-	↔ MAIN	CN102 40
CN5	MAIN	CN104	↔ ZOOM UNIT	- 6
CN7	MAIN	CN103	↔ REAR	CN6001 45
CN8a	MAIN	CN109	↔ SPEAKER	- 2
CN8b	MAIN	CN101	↔ OPERATION	CN401 45
CN9	OPERATION	CN402	↔ MONI-BL	CN7601,7602 24
CN15	MAIN	CN107	↔ MIC	- 4
CN18a	MAIN	CN106	↔ OP BLOCK	- 22
CN18b	MAIN	CN105	↔ CCD	CN5001 24

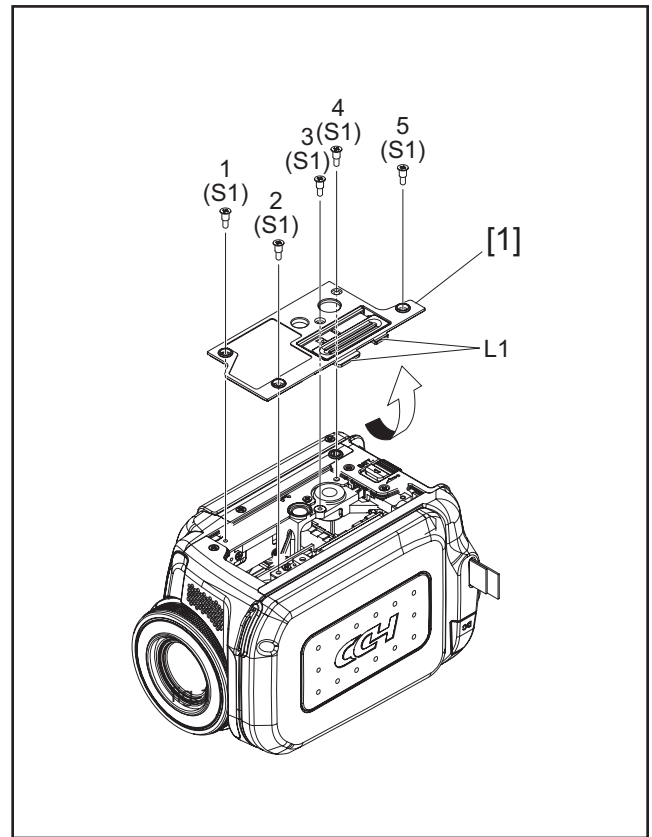


Fig.FA1

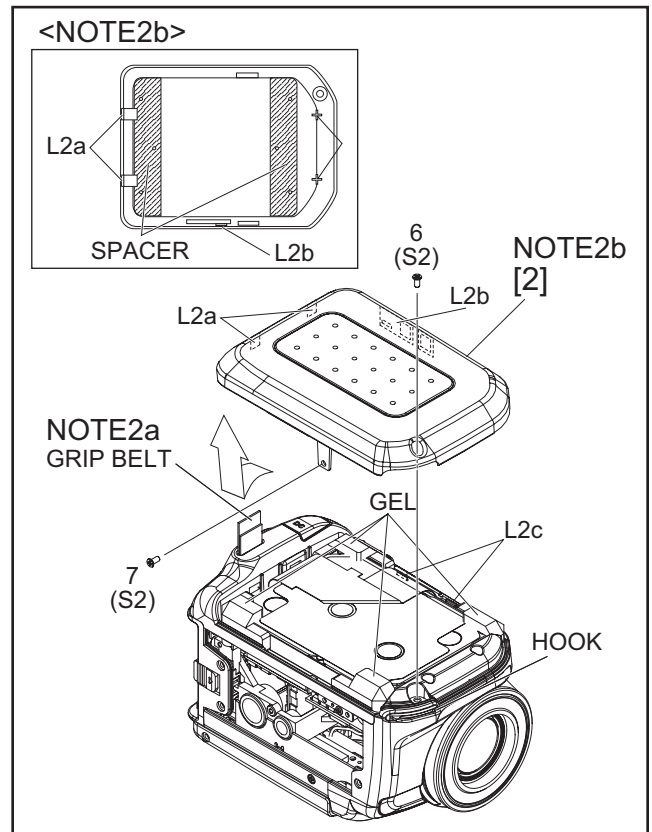


Fig.FA2

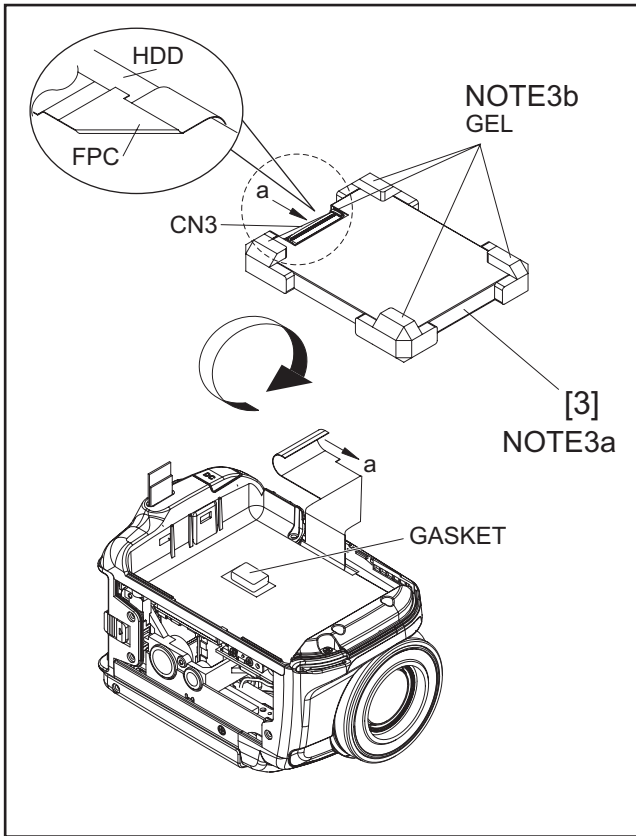


Fig.FA3

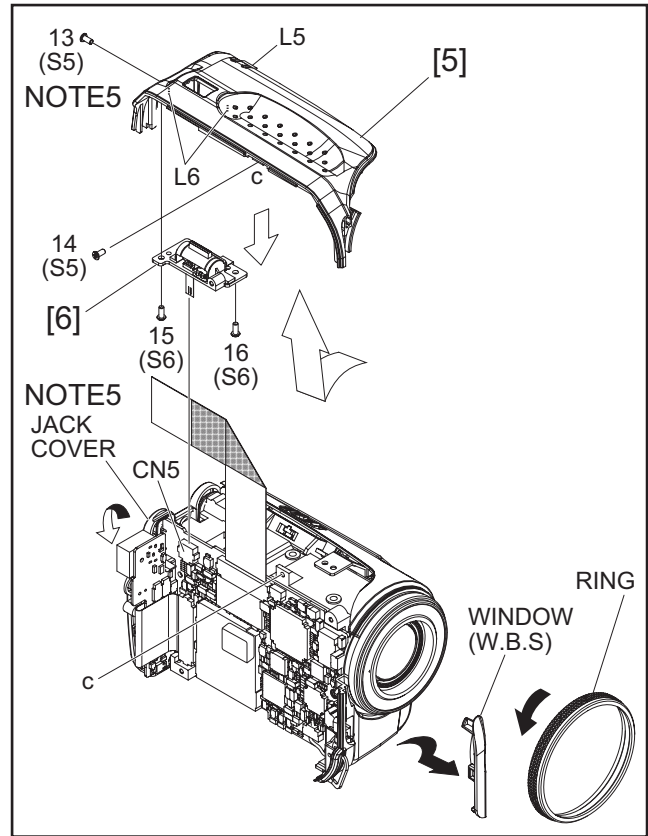


Fig.FA5

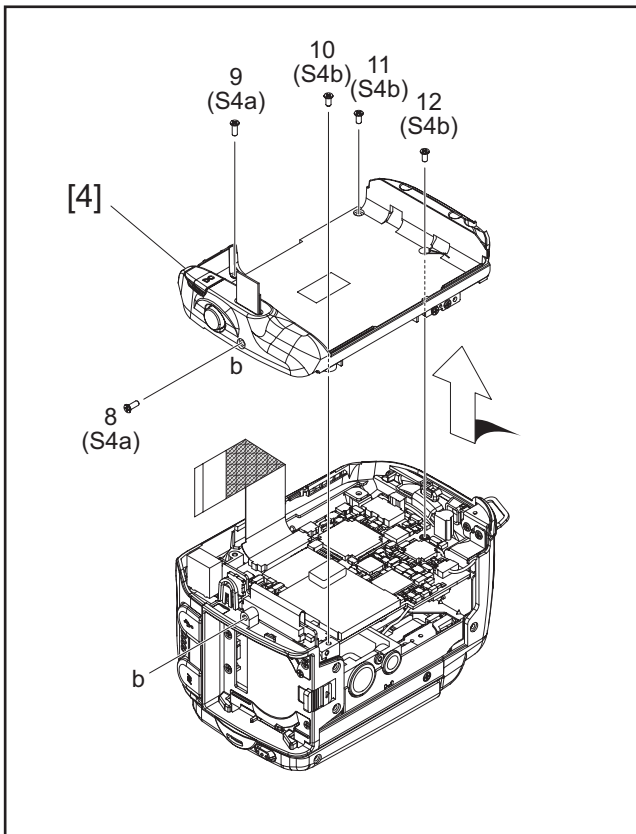


Fig.FA4

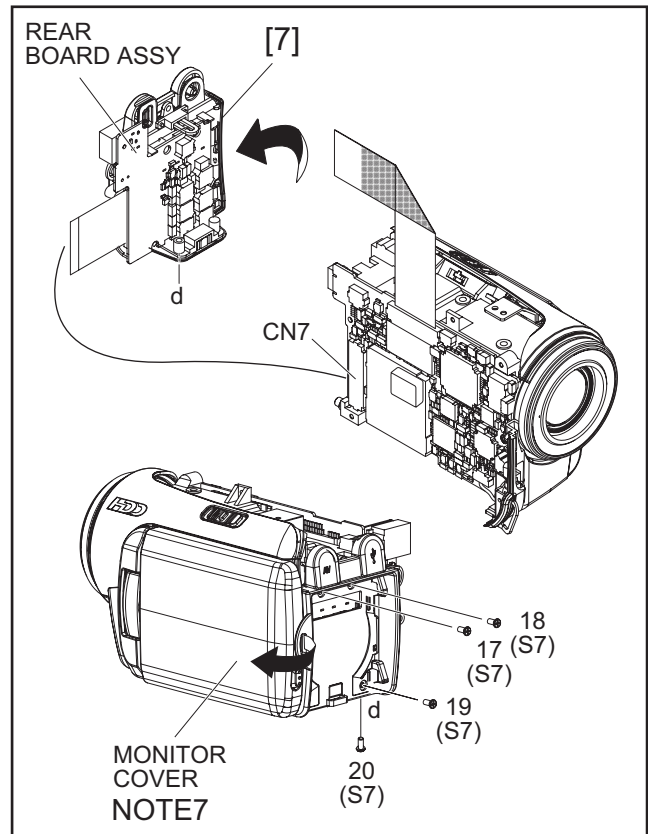


Fig.FA6



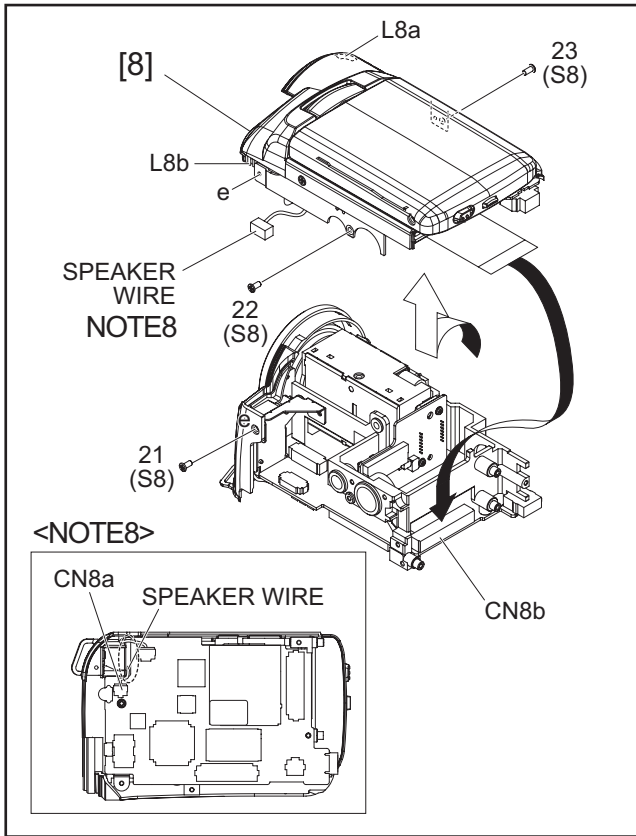


Fig.FA7-1

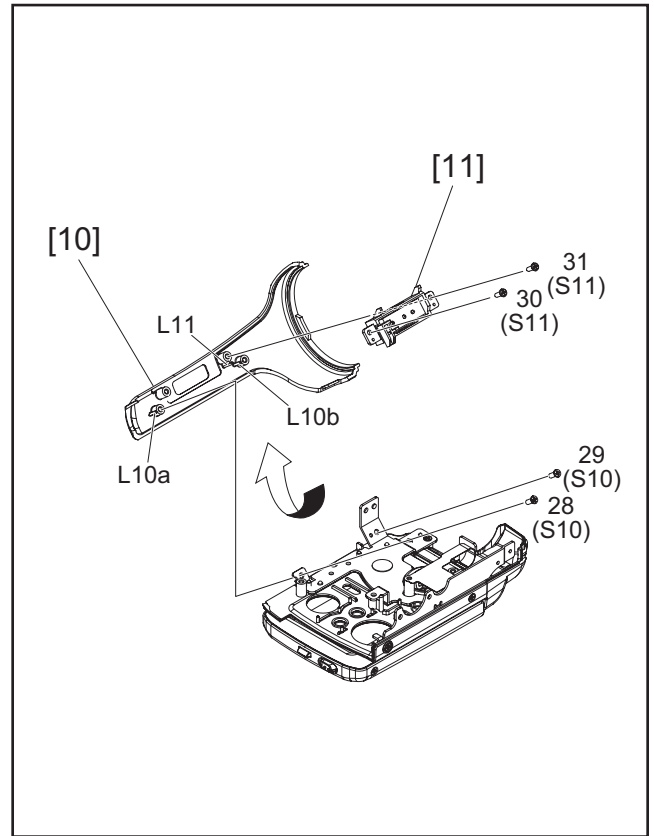


Fig.FA7-3

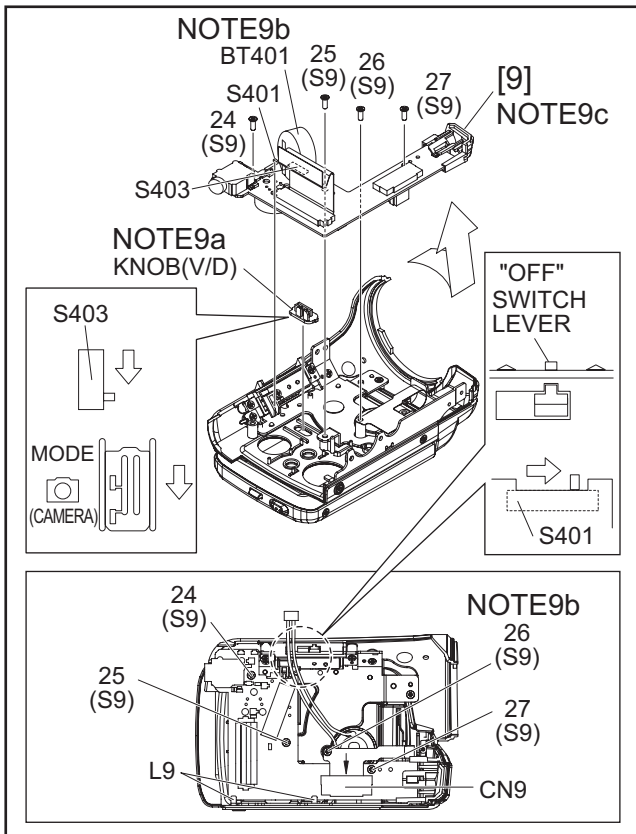


Fig.FA7-2

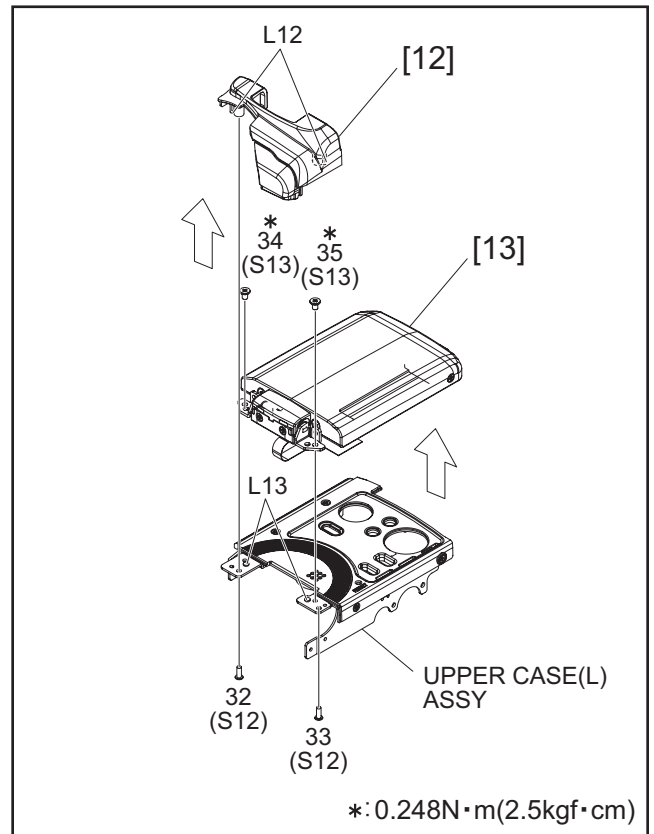


Fig.FA7-4

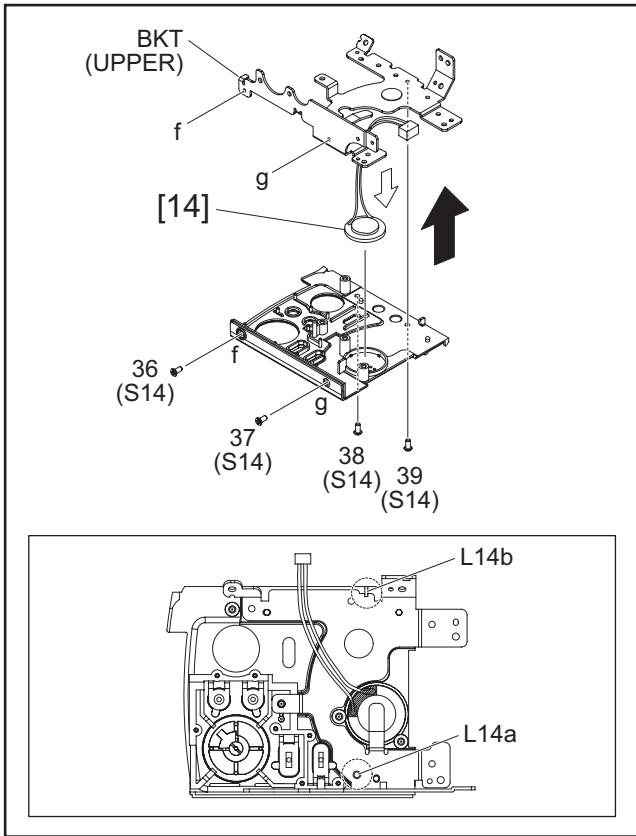


Fig.FA7-5

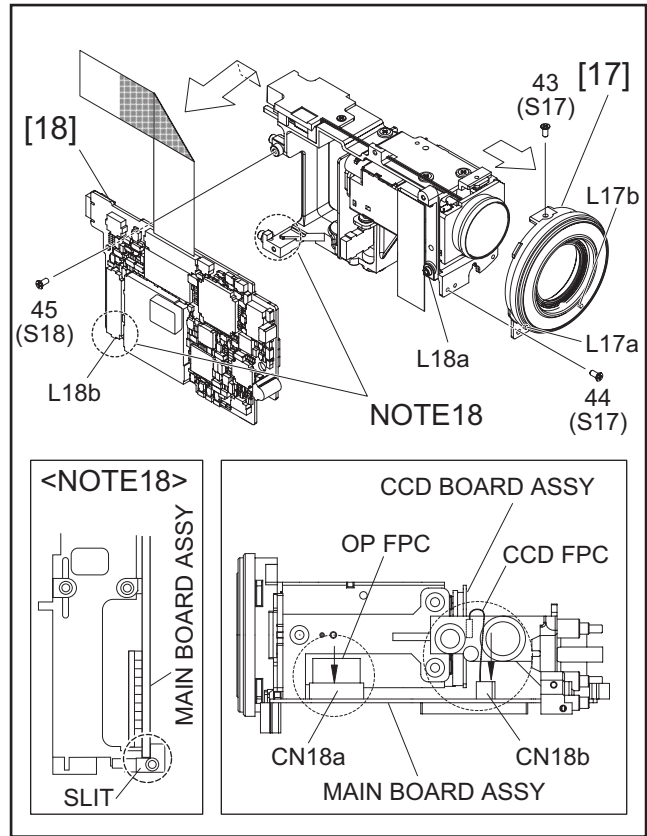


Fig.FA9

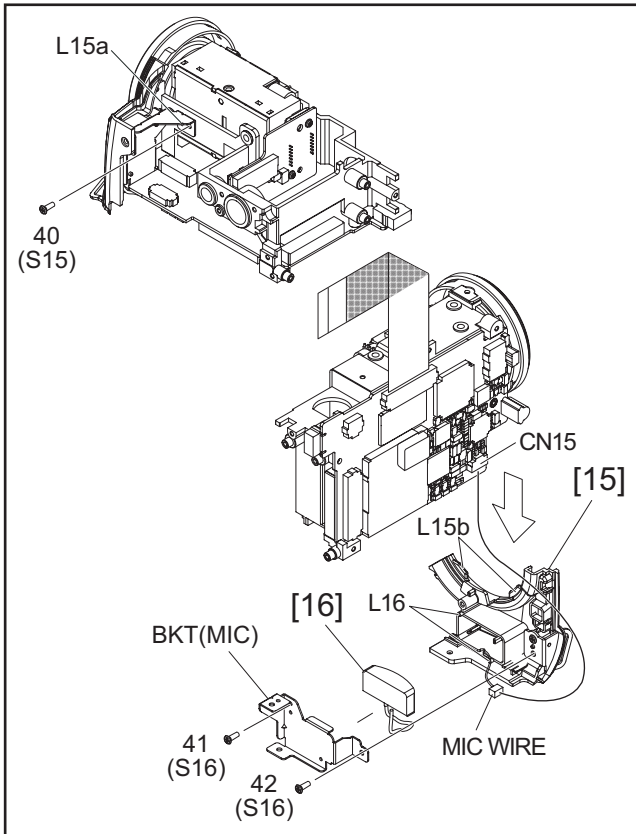


Fig.FA8

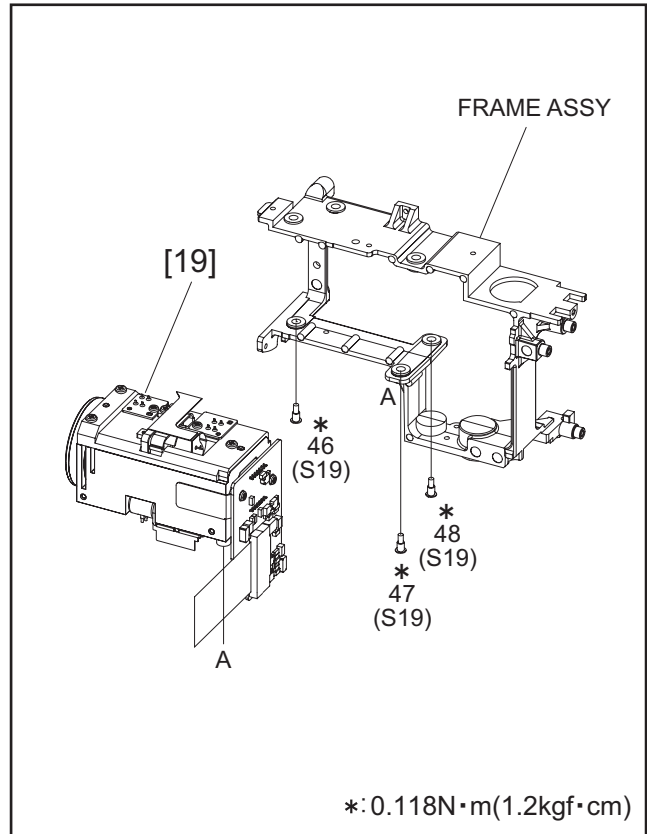


Fig.FA10

\*: 0.118N·m(1.2kgf·cm)

### 3.2.3 ASSEMBLY/DISASSEMBLY OF [13] MONITOR ASSEMBLY

#### ●CAUTIONS

- (1) Remove the MONITOR ASSEMBLY from the UPPER ASSEMBLY first, as they are removed together in main parts disassembly, and then proceed to the disassembly procedure.
- (2) During the procedure, be careful in handling the LCD MODULE and other parts. Pay special attention not to damage or soil the monitor screen. If fingerprints are left on the screen, wipe them with clean chamois leather or a cleaning cloth.

#### ●Removing MONITOR ASSEMBLY

- (1) Turn the HINGE UNIT ASSEMBLY 90°, and remove the three screws (1-3). Remove the MONITOR COVER ASSEMBLY by removing the three hooks (L13a-c).
- (2) Pull out the U/D SWITCH BOARD from the MONITOR CASE ASSEMBLY.

##### NOTE13a:

During the procedure, be careful in handling the FPC.

- (3) Release the lock of the connector (CN13a,b), and remove the HINGE UNIT by lifting it up.

- (4) Release the lock of the connector (CN13c,d), and pull out the FPC.
- (5) Remove the two screws (4,5), and Remove the MONITOR BOARD ASSEMBLY by removing the hook (L13d).
- (6) Remove the two hooks(L13e) and Remove the BACK LIGHT.
- (7) Remove the LCD MODULE.
- (8) Remove the SHIELD CASE.

#### ●Removing HINGE UNIT ASSEMBLY

- (1) Remove the two screws (6,7), and Remove the HINGE COVER(U,L).

##### NOTE13b:

During the procedure, be careful in handling the MAGNET.

##### NOTE13c:

During the procedure, be careful in handling the FPC.

##### NOTE13d:

The FPC is rolled around the axis of rotation of the HINGE ASSEMBLY 2.5 rounds (2.5times).

The connecting side to the MONITOR BOARD ASSEMBLY is placed inside.

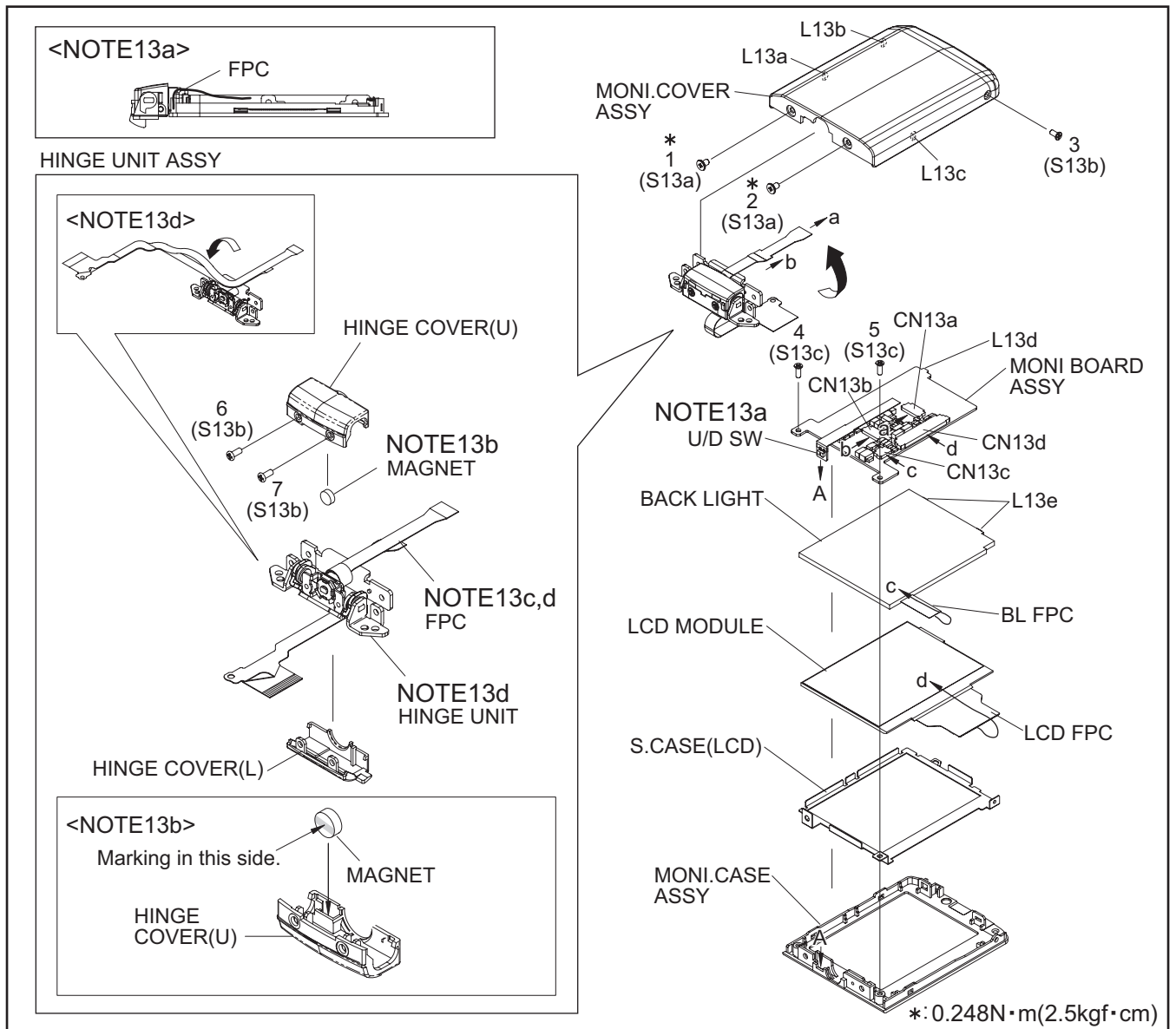


Fig.3-2-3

### 3.2.4 ASSEMBLY/DISASSEMBLY OF [19] OP BLOCK ASSEMBLY/CCD BOARD ASSEMBLY

#### ●Precautions

- (1) Take care in handling the CCD IMAGE SENSOR, OPTICAL LPF and lens components when performing maintenance etc., especially with regard to surface contamination, attached dust or scratching. If fingerprints are present on the surface they should be wiped away using either a silicon paper, clean chamois or the cleaning cloth.
- (2) The CCD IMAGE SENSOR may have been shipped with a protective sheet attached to the transmitting glass. When replacing the CCD IMAGE SENSOR, do not peel off this sheet from the new part until immediately before it is mounted in the OP BLOCK ASSEMBLY.
- (3) The orientation of the OPTICAL LPF is an important factor for installation. If there is some marking on the OPTICAL LPF, be sure to note it down before removing and to reassemble it very carefully as it was referring to the marking.

#### ●Disassembly of OP BLOCK ASSEMBLY / CCD BOARD ASSEMBLY

- (1) Remove the two screws (1,2) and remove the CCD BASE ASSEMBLY and CCD BOARD ASSY.

##### NOTE19a:

When removing the CCD BASE ASSEMBLY, be careful in handling as the CCD IMAGE SENSOR may be removed together with the SHEET and the OPTICAL LPF attached.

- (2) Unsolder the 14 soldered points (SD19a) on the CCD BOARD ASSEMBLY, and then remove the CCD BASE ASSEMBLY and the BRACKET.

##### NOTE19b:

Replace the CCD IMAGE SENSOR as a CCD BASE ASSEMBLY, not as a single part replacement.

#### ●Assembly OF OP BLOCK ASSEMBLY / CCD BOARD ASSEMBLY

- (1) Set the OPTICAL LPF first, and then the SHEET to the OP BLOCK ASSEMBLY.

##### NOTE19c:

Be careful with the attachment direction of the OPTICAL LPF.

- (2) Set the CCD ASSEMBLY, BRACKET, and then CCD BOARD ASSEMBLY in order so that the SHEET is not displaced, and fasten with two screws (1, 2).
- (3) Set the CCD BOARD ASSEMBLY to the CCD BASE ASSEMBLY, and then solder the 14 points (SD19a).

#### ●Replacement of service repair parts

The service repair parts for the OP BLOCK ASSEMBLY are as listed below.

Take special care not to disconnect any of the FPC wires or cause any damage due to soldering (excessive heating).

- (1) FOCUS MOTOR UNIT
- (2) ZOOM MOTOR UNIT
- (3) AUTO IRIS UNIT

##### NOTE19d:

When replacing the FOCUS MOTOR UNIT or the ZOOM MOTOR UNIT, solder the FPC at a space of about 0.5 mm above the terminal pin.

##### NOTE 19e:

The AUTO IRIS UNIT includes the FPC ASSEMBLY and two sensors.

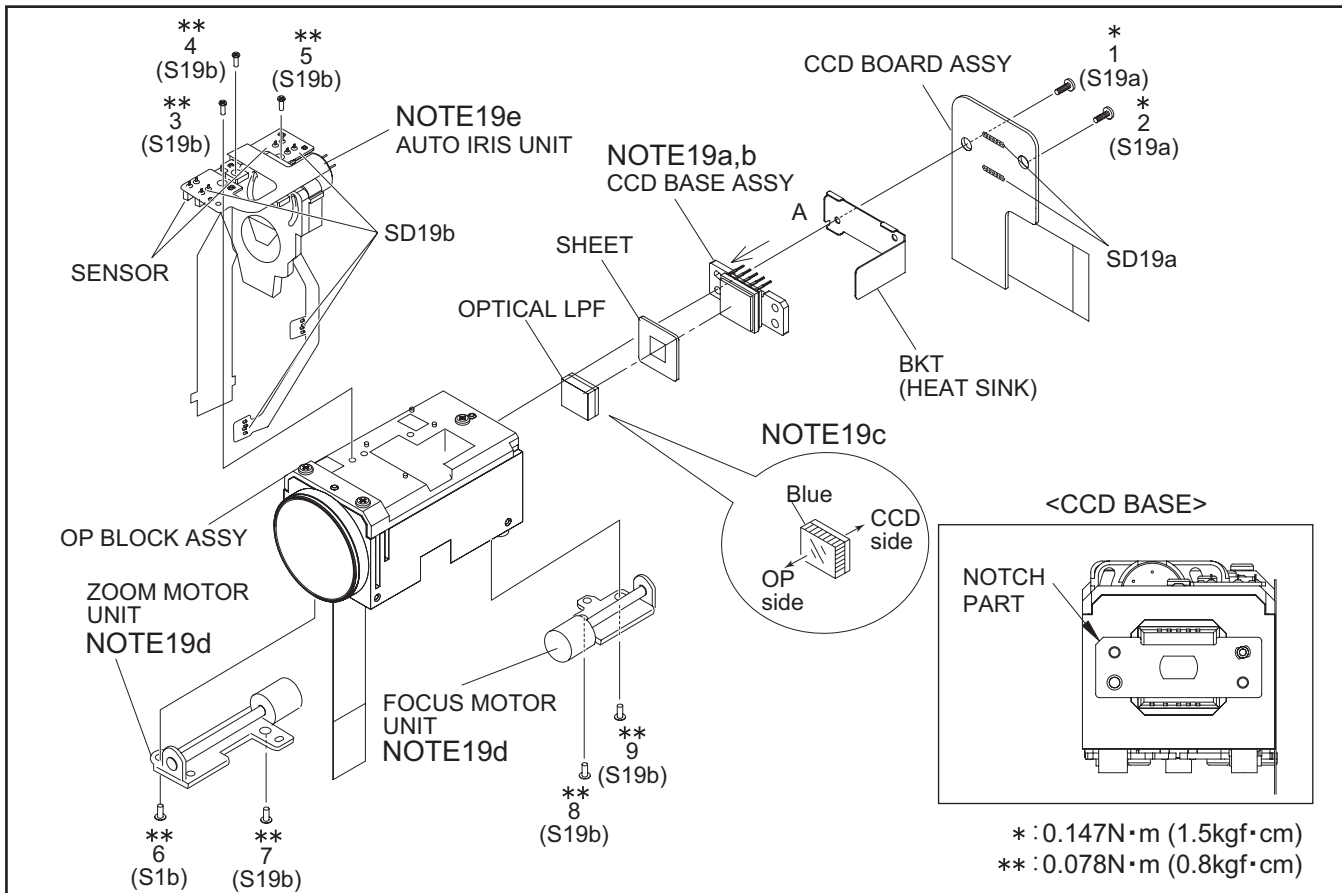


Fig.3-2-4

## 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 (IC4502 of MAIN board)

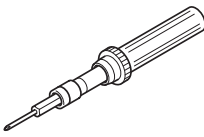
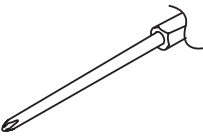
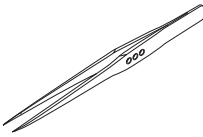
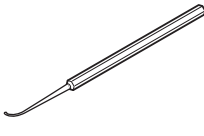
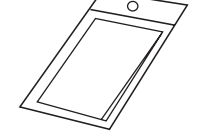
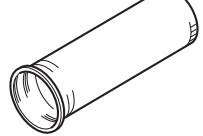

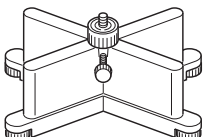
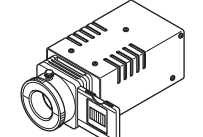
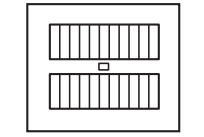
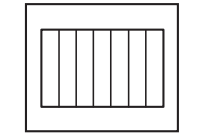
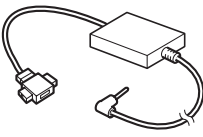
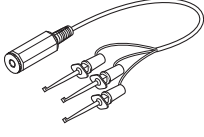
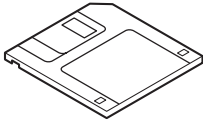
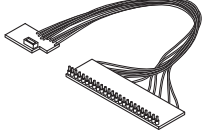
In the event of malfunction with electrical circuits, first find a defective portion with the aid of proper test instruments as shown in the following electrical adjustment procedure, and then commence necessary repair/ replacement/adjustment.

- 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 YTU92001B 
INF Adjustment Lens Holder YTU94087 	Camera Stand YTU93079 	Light box Assembly YTU93096A 
Gray Scale Chart YTU94133A 	Color Bar Chart YTU94133C 	PC Cable QAM0099-005 
Communication Cable YTU93107A 	Service Support System YTU94057-89 	Jig Connector Cable YTU93106A 

- **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.

- **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.

- **Camera stand**

To be used together with the INF adjustment lens holder. For the usage of the Camera 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.

- **Gray scale 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.

- **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.

- **PC cable**

To be used to connect the Videocamera and a personal computer with each other when a personal computer issued for adjustment.

- **Communication cable**

Connect the Communication cable between the PC cable and Jig connector cable when performing a PC adjustment.

- **Service support system**

To be used for adjustment with a personal computer. Software can be downloaded also from JS-net.

- **Jig connector cable**

Connected to JIG CONNECTOR of the main board and used for electrical adjustment, etc.

## 4.2 JIG CONNECTOR CABLE CONNECTION

### ■ Connection procedure

#### CAUTIONS

It is needed to change the connecting points of the JIG connector for the communication cables according to the intended use.

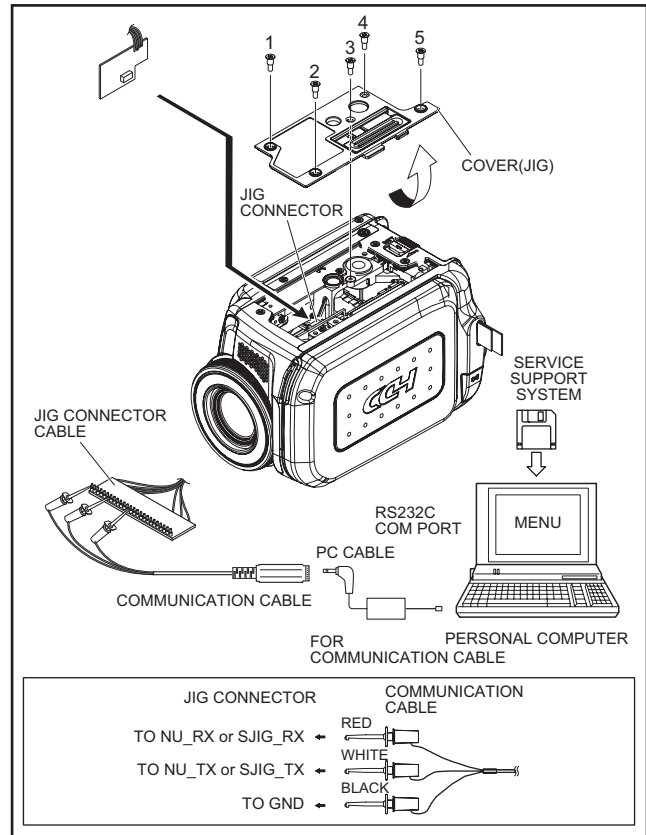
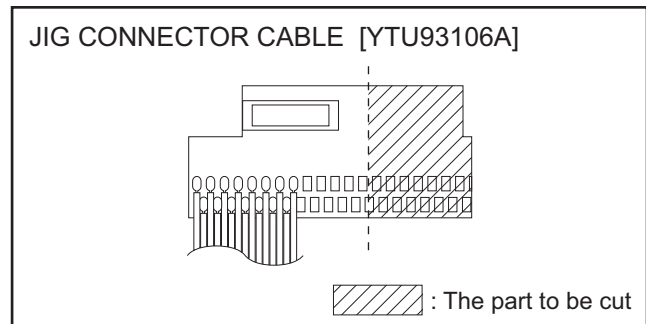


Fig.4-2-1

#### CAUTION

The JIG CONNECTOR CABLE cannot be connected with the COVER (JIG) removed because of its structure. It is necessary to cut a part of the connector board as shown below. Pay special attention during the procedure.



■ Jig connector diagrams

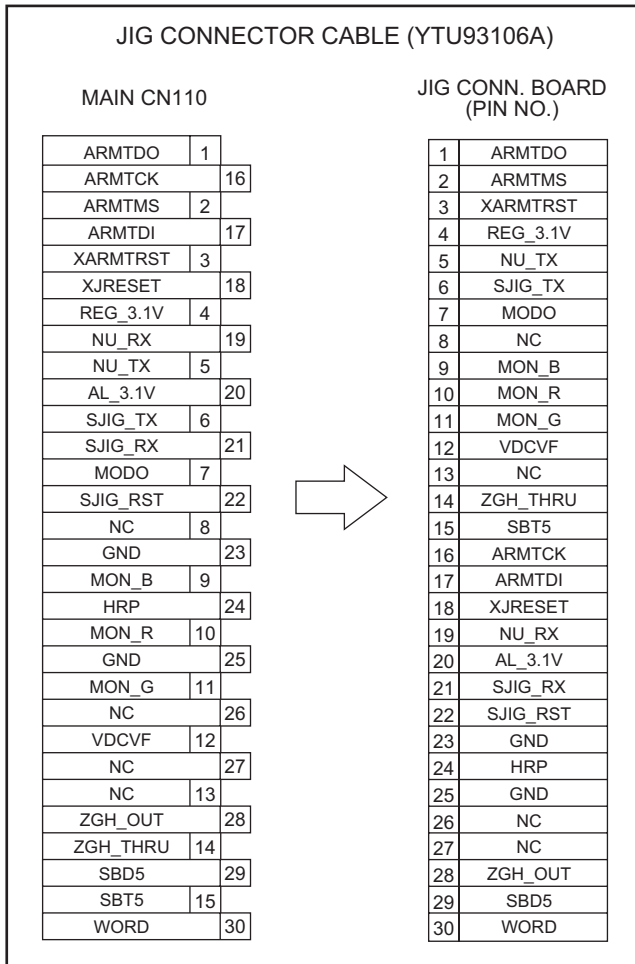


Fig.4-2-2

# SECTION 5 TROUBLE SHOOTING

## 5.1 SERVICE NOTE

### CABINET PARTS AND ELECTRICAL PARTS(1)

Symbol No.	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Removing order of screw	1	2	3	4	5	6	7	8
Place to stick screw	*	*	*	*	*	*	*	*
Reference drawing (Fig.No.)	FA1	FA2	FA3	FA4	FA5	FA6	FA7-1	
Screw tightening torque	a							

### CABINET PARTS AND ELECTRICAL PARTS(2)

Symbol No.	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]
Removing order of screw	24	25	26	27	28	29	30	31	32	33	34
Place to stick screw	*	*	*	*	*	*	*	*	*	*	*
Reference drawing (Fig.No.)	FA7-2	FA7-3	FA7-4	FA7-5	FA8	FA9	FA10				
Screw tightening torque	a						b			c	

### [13]MONITOR ASSY

Removing order of screw	1	2	3	4	5	6	7
Place to stick screw	*	*	*	*	*	*	*
Reference drawing (Fig.No.)	3-2-3						
Screw tightening torque	a						

### [19]OP BLOCK ASSY/CCD BOARD ASSY

Removing order of screw	1	2	3	4	5	6	7	8	9
Place to stick screw	*	*	*	*	*	*	*	*	*
Reference drawing (Fig.No.)	3-2-4								
Screw tightening torque	d								
	e								

#### 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.

a : 0.098N·m (1.0kgf·cm)    b : 0.248N·m (2.5kgf·cm)    c : 0.118N·m (1.2kgf·cm)    d : 0.148N·m (1.5kgf·cm)    e : 0.078N·m (0.8kgf·cm)





**JVC**

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