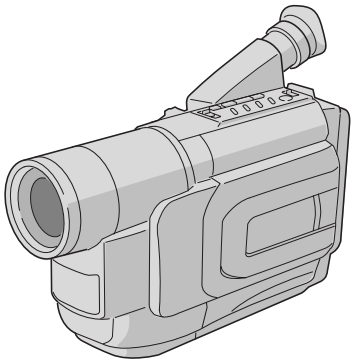
JVC

SERVICE MANUAL

COMPACT VHS CAMCORDER

GR-AX760U,AX761U,SX860U



S-VHS C
Super VHS
Super VHS ET

SPECIFICATIONS *(The specifications shown pertain specifically to the model GR-AX760U,SX860U)*

Camcorder

General

Format : S-VHS (GR-SXM330/SX860 only)/VHS NTSC standard

Power source : DC 11 V ⎓ (Using AC Adapter)
DC 6 V ⎓ (Using battery pack)

Power consumption
Viewfinder on : 4.0 W (GR-SXM330/AXM230 only)
3.7 W (GR-SX860/AX760 only)
LCD monitor* on : 4.5 W (GR-SXM330/AXM230 only)
Video light** : 3.0 W

* Models equipped with LCD monitor only.
** GR-SXM330/AXM230 only.

Signal system : NTSC-type

Video recording system
Luminance : FM recording
Color : Converted sub-carrier direct recording
Conforms to VHS standard

Cassette : S-VHS C / VHS C cassette

Tape speed
SP : 33.35 mm/sec. (1-5/16 ips)
EP : 11.12 mm/sec. (7/16 ips)

Recording time (max.)
SP : 40 minutes
EP : 120 minutes (with TC-40)

Operating temperature : 0°C to 40°C (32°F to 104°F)

Operating humidity : 35% to 80%

Storage temperature : –20°C to 50°C (–4°F to 122°F)

Weight : Approx. 900 g (2.0 lbs) (GR-SXM330/AXM230 only)
Approx. 720 g (1.6 lbs) (GR-SX860/AX760 only)

Dimensions (W x H x D) : 206 mm x 112 mm x 118 mm (8-1/8" x 4-7/16" x 4-11/16") (GR-SXM330/AXM230 only)
206 mm x 112 mm x 115 mm (8-1/8" x 4-7/16" x 4-9/16") (GR-SX860/AX760 only)

* Models equipped with LCD monitor only.

Pickup : 1/4" format CCD

Lens : F1.6, f = 3.9 mm to 62.4 mm, 16:1 power zoom lens with auto iris and macro control, filter diameter 40.5 mm

Viewfinder : Electronic viewfinder with 0.55" color LCD (GR-SX860 only)
Electronic viewfinder with 0.5" black/white CRT (GR-SXM330/AXM230/AX760 only)

White balance adjustment : Auto/Manual adjustment

LCD monitor (models equipped with LCD monitor only) : 2.5" diagonally measured, LCD panel/TFT active matrix system

Speaker (models equipped with LCD monitor only) : Monaural

Connectors

Video : 1 V (p-p), 75 Ω unbalanced, analog output (via Video output connector)

Audio : 300 mV (rms), 1 kΩ analog output (via Audio output connector)

S-Video (GR-SXM330/SX860 only) : **Y** : 1 V (p-p), 75 Ω, analog output
C : 0.29 V (p-p), 75 Ω, analog output

AC Adapter AP-V10U

Power requirement
U.S.A. and Canada : AC 120 V∿, 60 Hz
Other countries : AC 110 V to 240 V∿, 50 Hz/60 Hz

Output : DC 11 V ⎓, 1 A

Dimensions (W x H x D) : 59 mm x 31 mm x 69 mm (2-3/8" x 1-1/4" x 2-3/4")

Weight : Approx. 130 g (0.29 lbs)

Optional Accessories

- **Battery Packs BN-V12U, BN-V20U, BN-V400U**
- **A/V (Audio/Video) Cable**
- **S-Video Cable QAM0004-004**
- **Compact S-VHS (S-VHS C) Cassettes ST-C-40/30/20**
- **Compact VHS (VHS C) Cassettes TC-40/30/20**
- **Active Carrying Bag CB-V7U**

Some accessories are not available in some areas. Please consult your nearest JVC dealer for details on accessories and their availability.

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

No.86596
January 2001

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The following table lists the differing points between Models GR-AX760U/UC and GR-AX761U,GR-SX860U in this series.

	GR-AX760U	GR-AX760UC	GR-AX761U	GR-SX860U
VIDEO LIGHT	NOT USED		USED	NOT USED
IR RECEIVER	NOT USED		USED	NOT USED
TAPE FORMAT	VHS-C		←	S-VHS-C
S-VHS ON/OFF	NOT USED		←	USED
S-VHS ET	NOT USED		←	USED
S-VHS ET ON/OFF	NOT USED		←	USED
S OUT PUT	NOT USED		←	USED
LIGHT SW	NOT USED		USED	NOT USED
VIEW FINDER	B/W		COLOR	←
REMOTE CONTROL UNIT	NOT USED		USED	NOT USED

Note: Mark ← is same as left.

Important 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.

●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:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape 3) Spacers 5) Barrier
   2) PVC tubing 4) Insulation sheets for transistors

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

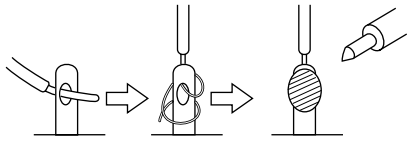


Fig.1

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.

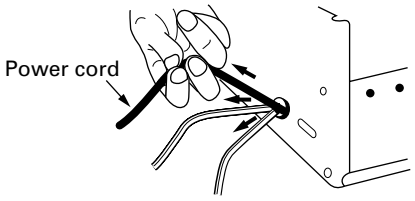


Fig.2

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 wire 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.

    1) **Connector part number :** E03830-001
    2) **Required tool :** Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

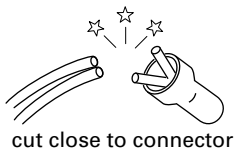


Fig.3

(2) 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.

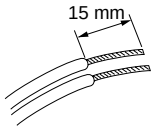


Fig.4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

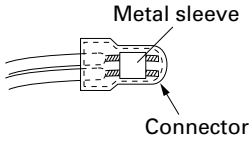


Fig.5

(4) As shown in Fig.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.

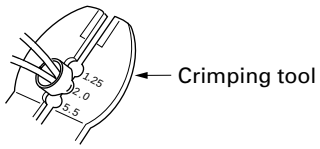


Fig.6

(5) Check the four points noted in Fig.7.

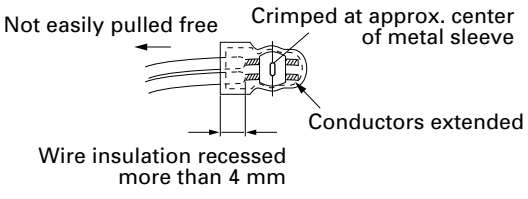


Fig.7

● 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 table 1 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 table 1 below.

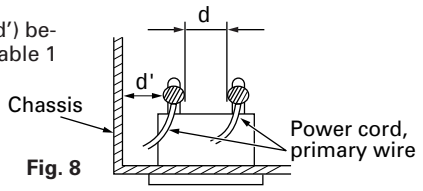


Fig. 8

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 figure 9 and following table 2.

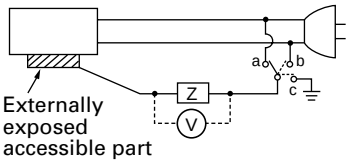


Fig. 9

5. Grounding (Class Ⅰ 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 figure 10 and grounding specifications.

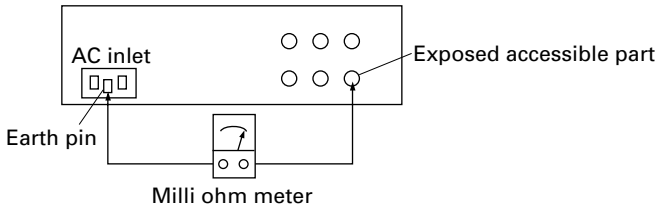


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 miute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	1 MΩ ≦ R ≦ 12 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ/500 V DC	AC 3 kV 1 minute (Class Ⅱ) AC 1.5 kV 1 minute (Class Ⅰ)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 μF, 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

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

SECTION 1
DISASSEMBLY

1.1 SERVICE CAUTIONS

1.1.1 Precautions

1. Before disassembling/re-assembling the set as well as soldering parts, make sure to disconnect the power cable.
2. When disconnecting/connecting connectors, pay enough attention to wiring not to damage it.
3. In general, chip parts such as resistor, shorting jumpers (0-ohm resistor), ceramic capacitors, diodes, etc. can not be reused after they were once removed.
4. When installing parts, be careful not to do with other parts as well as not to damage others.
5. When removing ICs, be careful not to damage circuit patterns.
6. Tighten screws properly during the procedures. Unless specified otherwise, tighten screws at torque of 0.196 N·m (2.0 kgf·cm).

1.1.2 How to read the disassembly and assembly

(For Cabinet Parts)

STEP /LOC NO.	PART	Fig. No.	REMOVAL *UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER
①	CASSETTE COVER ASSEMBLY	C1	(S1),3(L1a),(L1b),(L1c) Push button, spring
②	UPPER CASE	C2	2(S2), (L2)
③	LOWER CASE ASSEMBLY(INCL. E. VF. ASSEMBLY)	C3	9(S3), (L3a), (L3b) *CN③a③b CAP (RCA jack)

(1) (2) (3) (4)

(1) Order of steps in Procedure
When reassembling, preform 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.

C = Cabinet
CA = Camera
D = Deck

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

P = Spring
W = Washer
S = Screw
* = Unhook, unlock, release, unplug or unsolder.
2(S3) = 2 Screws (S3)
CN = Connector

(5) Adjustment information for installation.

1.1.3 Connection of the wires

1. Pull the connector structure upward to release the clamp when removing or inserting the flat wire cable.

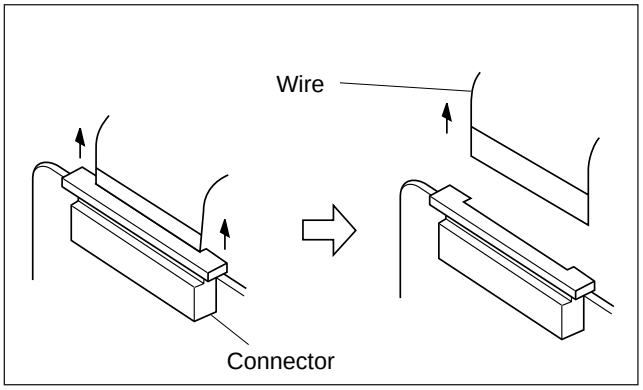
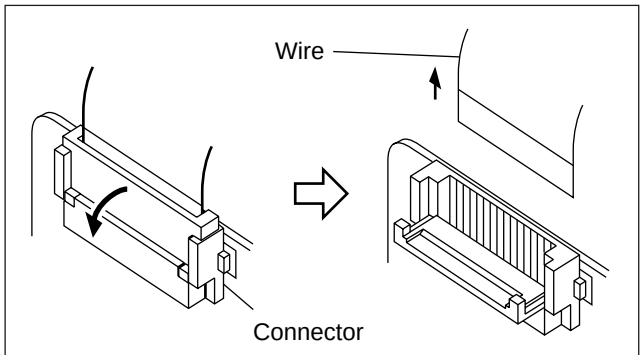


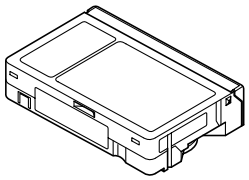
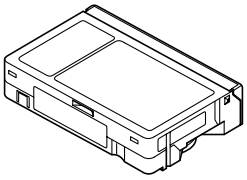
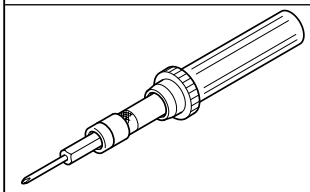
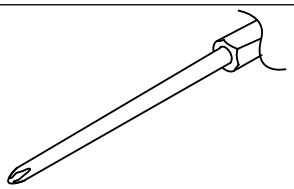
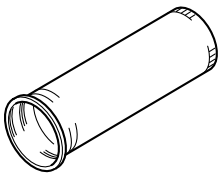
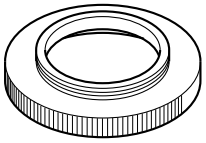
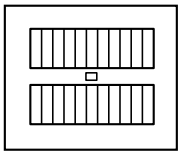
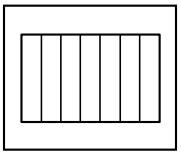
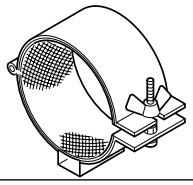
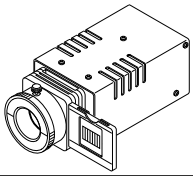
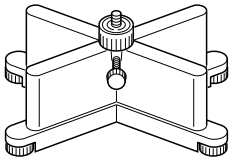
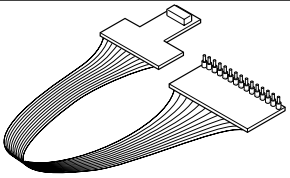
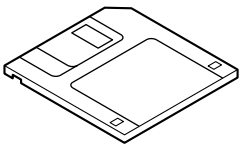
Fig. 1-1-1



NOTE: *After removing the wire, return the stopper to its original position, because it is apt to come off if it is left open.*

Fig. 1-1-2

1.2 TOOLS REQUIRED FOR ADJUSTMENTS

1 Alignment tape (for SP interchangeability) MHP-C	2 Alignment tape (for N. SP PB Y/C level) MHV-2C
	
3 Torque driver YTU94088	4 Bit YTU94088-003
	
5 INF adjustment lens YTU92001B	6 Conn. ring YTU92001-111
	
7 Gray Scale Chart YTU94133A	8 Color Bar Chart YTU94133C
	
9 INF lens holder YTU94087	10 Light box Assembly YTU93096A
	
11 Camera stand YTU93079	12 Extension connector YTU94145B-30
	
13 Jig connector cable YTU93106A	14 Service support system software YTU94057-51
	

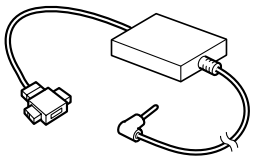
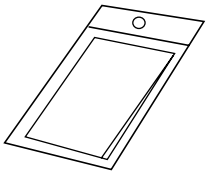
15 PC cable QAM0099-002	16 Cleaning cloth KSMM-01
	

Table 1-2-1

1,2. Alignment tape
To be used for check and adjustment of interchangeability of the mechanism.
(Video: Color bar signal, Audio: Non-signal)

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

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

5. INF adjustment lens
To be used for adjustment of the camera system.

6. Conn. ring
The connector ring to attach the INF. lens to the head of the OP lens.

7. Color bar chart
To be used for adjustment of the camera system.

8. Gray scale chart
To be used for adjustment of the camera system.

9. INF lens holder
To be used together with the camera stand (11) for operating the VideoMovie 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.

10. Light box
To be used for adjustment of the camera system.

11. Camera stand
To be used together with the INF adjustment lens holder.

12. Extention connector
To be used to JIG connector cable

13. JIG connector cable
Connected to CN25 of the main board and used for measuring error rates, etc.

14. Service support software
To be used for adjustment with a personal computer.

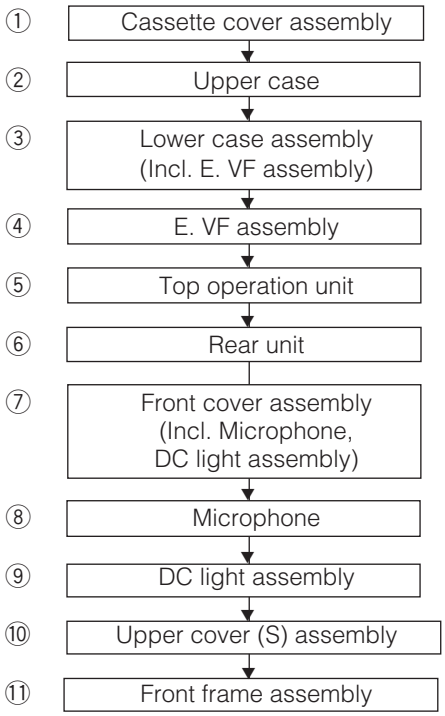
15. PC cable
To be used to connect the VideoMovie and a personal computer with each other when a personal computer is used for adjustment.

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

1.3 DISASSEMBLY/ASSEMBLY OF CABINET PARTS

1.3.1 Disassembly flow chart

This flowchart indicates the disassembly step for the cabinet parts and board assembly in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally.



Note: *For screw management, refer to the table appearing in the section "1.9 SERVICE NOTE" (page 1-14).*

1.3.2 Disassembly method

STEP /LOC NO.	PART	Fig. No.	REMOVAL *UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER
①	CASSETTE COVER ASSEMBLY	C1	(S1),3(L1a),(L1b),(L1c) Push button, spring
②	UPPER CASE	C2	2(S2), 2(L2)
③	LOWER CASE ASSEMBLY (INCL. E. VF ASSEMBLY)	C3	9(S3), (L3a), (L3b) *CN ③a CAP (RCA jack)
④	E. VF ASSEMBLY	C4	3(S4)
⑤	TOP OPERATION UNIT	C5	2(S5), (L5a), (L5b), 2(L5c) *CN ⑤a
⑥	REAR UNIT	C6	3(S6), (L6a), (L6b) *CN ⑥a
⑦	FRONT COVER ASSEMBLY (INCL. MIC DC LIGHT ASSEMBLY)	C7	3(S7a), (S7b), (L7a), (L7b) *CN ⑦a
⑧	MICROPHONE		(S7a)
⑨	DC LIGHT ASSEMBLY		2(L7c)
	COVER (LIGHT)		2(L7c)
⑩	UPPER COVER (S) ASSEMBLY	C8	2(S8a), (S8b)
⑪	FRONT FRAME ASSEMBLY	C9	2(S9)

List of Abbreviations:
1(S1)=1 screws (S1)
3(L1a)=3 Locking Tabs
CN=Connector

Reference Notes:
<NOTE 1>
Destination of connectors

Note: *Two kinds of double-arrows in connection tables respectively show kinds of connector/wires.*
⟺ : Flat wire
↔ : Wire

Con-nector	No. of Pins	Connector		
③a	5	E. VF (B/W)	↔	MAIN CN12
	20	C-VF BL CN7551	⟺	MAIN CN11
⑤a	12	TOP OPERATION UNIT	⟺	MAIN CN18
⑥a	13	REAR UNIT	⟺	MAIN CN28
⑦a	2	MIC	↔	MAIN CN8

<NOTE 2, 3>
(1) The FPC assembly should be winded around the hinge assembly by two and half turns so that the wire to be connected to the monitor board assembly is positioned inside.
(2) The upper and lower hinge covers should be mounted so carefully the any wire is not caught into either of the covers.

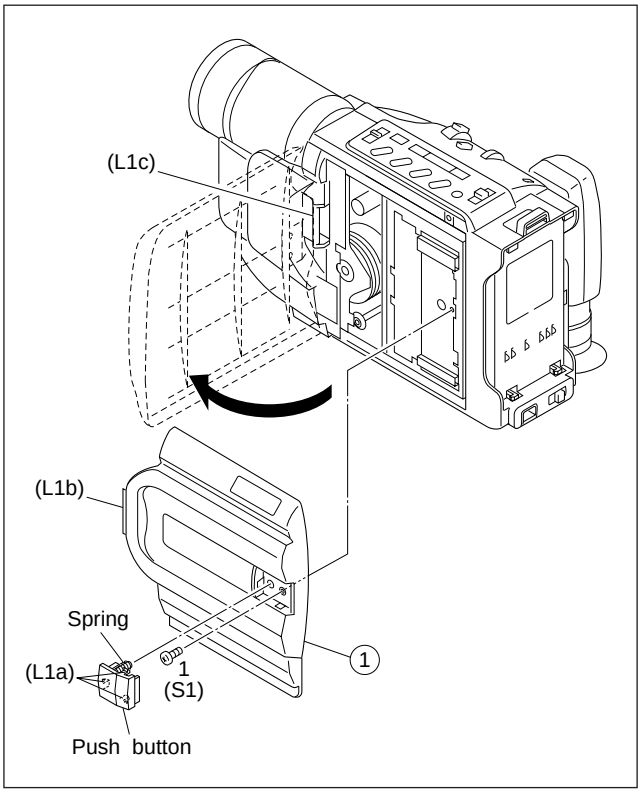


Fig. C1

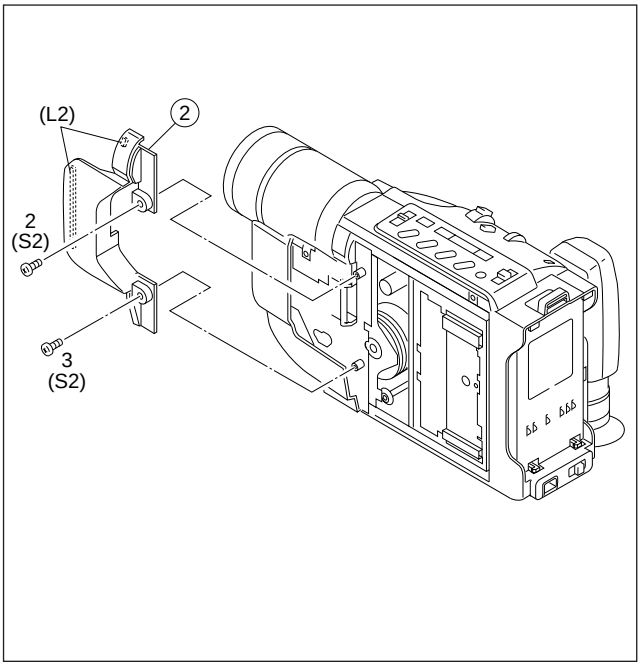


Fig. C2

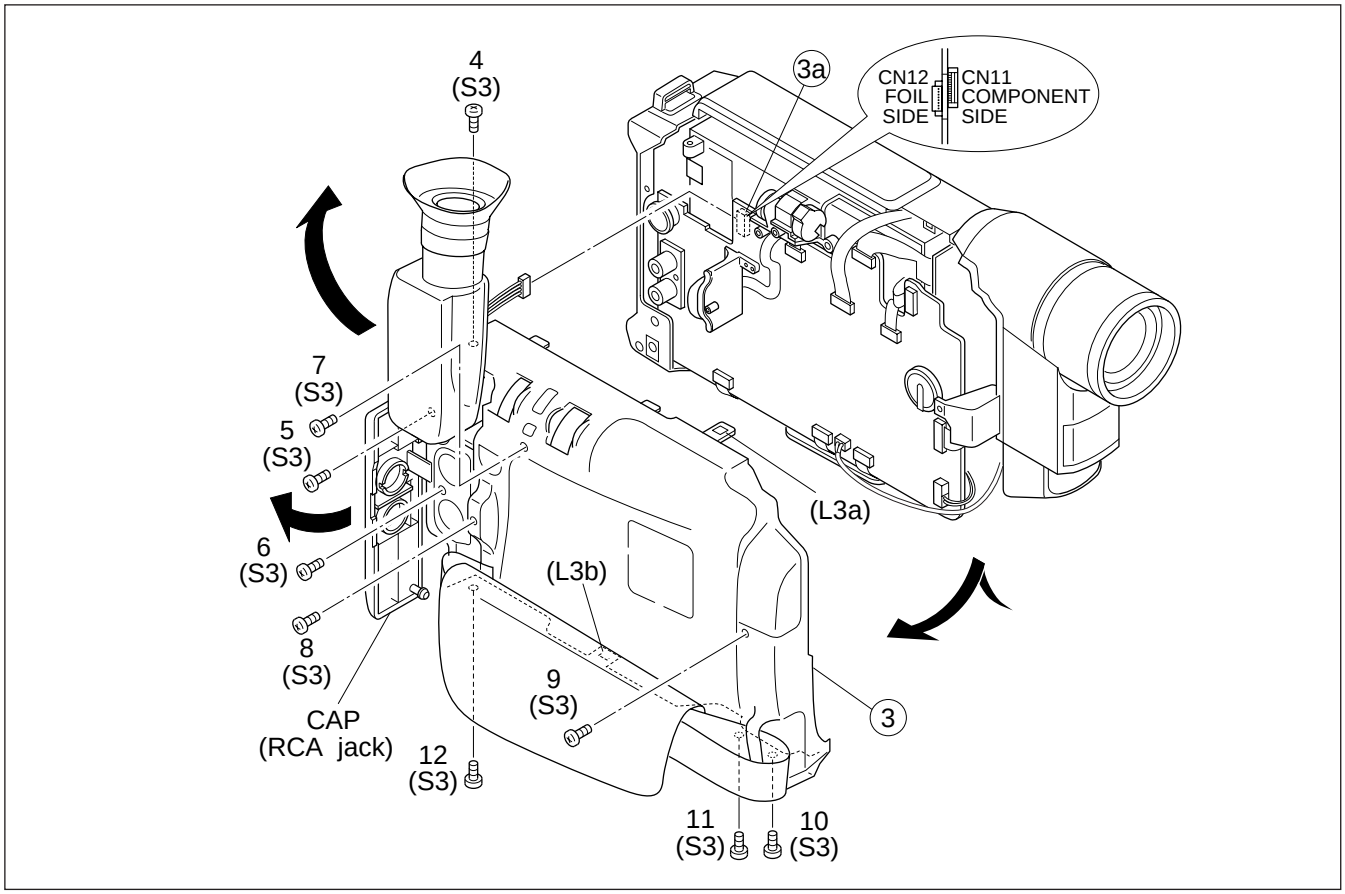


Fig. C3

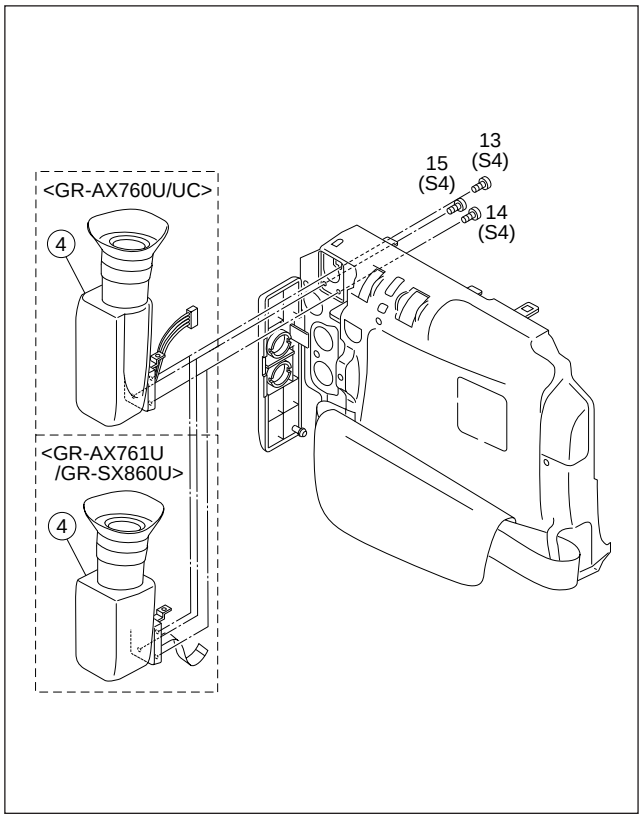


Fig. C4

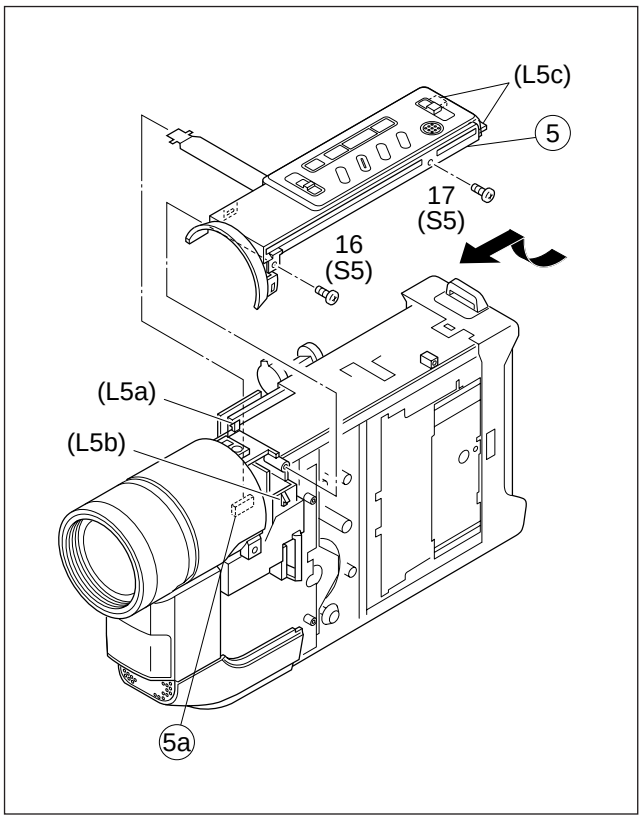


Fig. C5

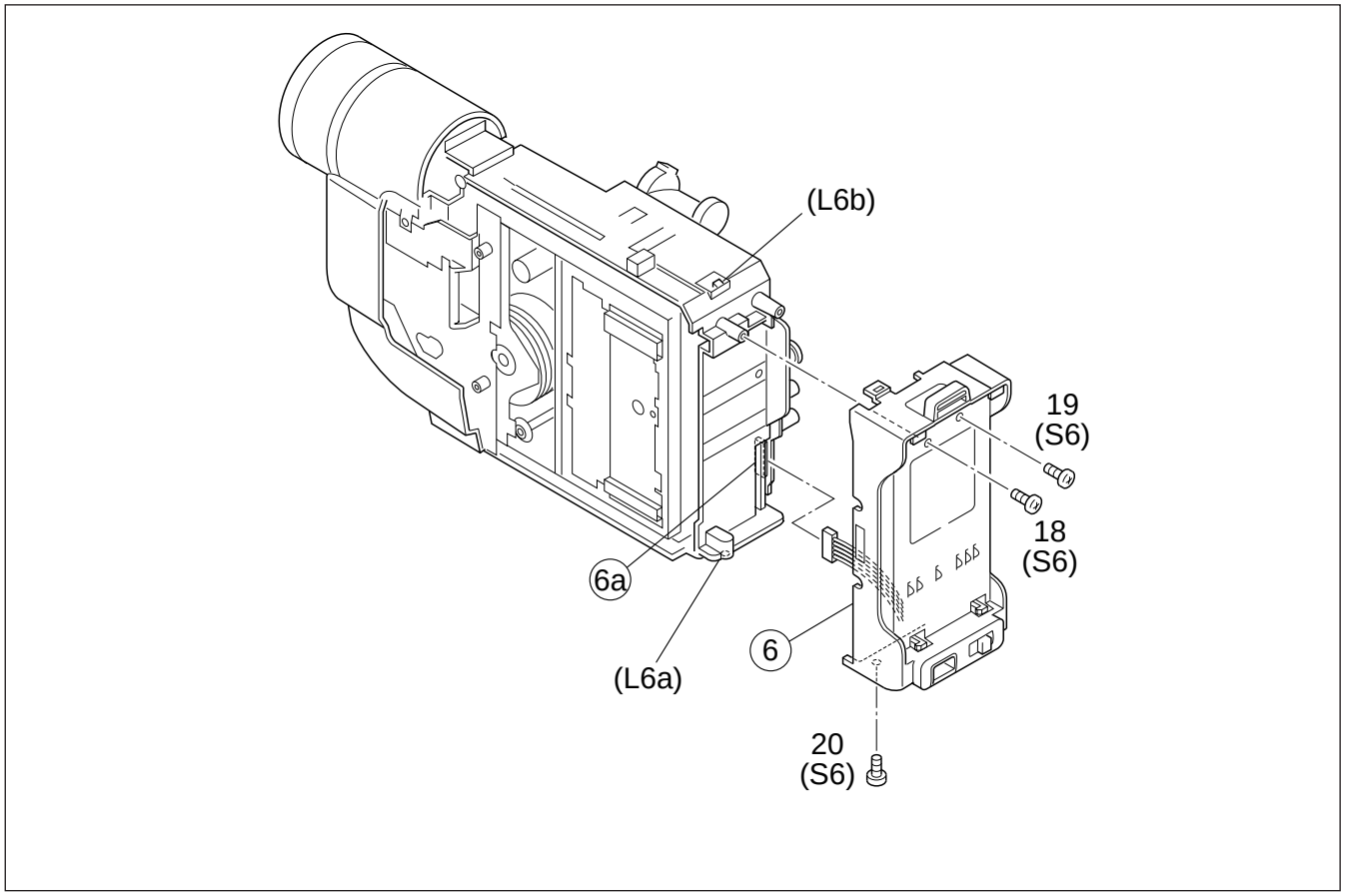

(L6b)
19
(S6)
18
(S6)
6a
6
(L6a)
20
(S6)

Fig. C6

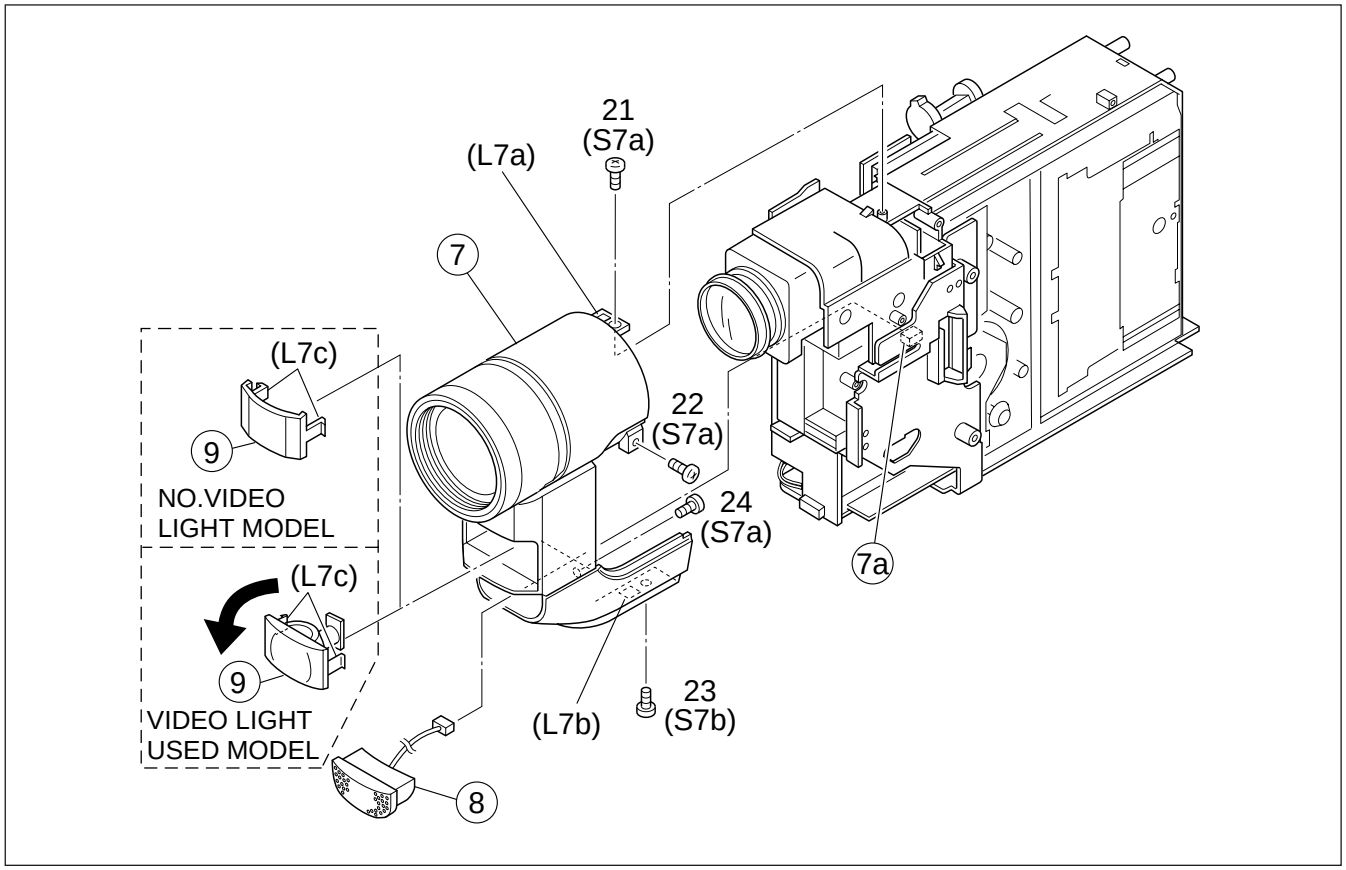

21
(S7a)
(L7a)
7
(L7c)
9
NO.VIDEO
LIGHT MODEL
22
(S7a)
24
(S7a)
7a
(L7c)
9
VIDEO LIGHT
USED MODEL
(L7b)
23
(S7b)
8

Fig. C7

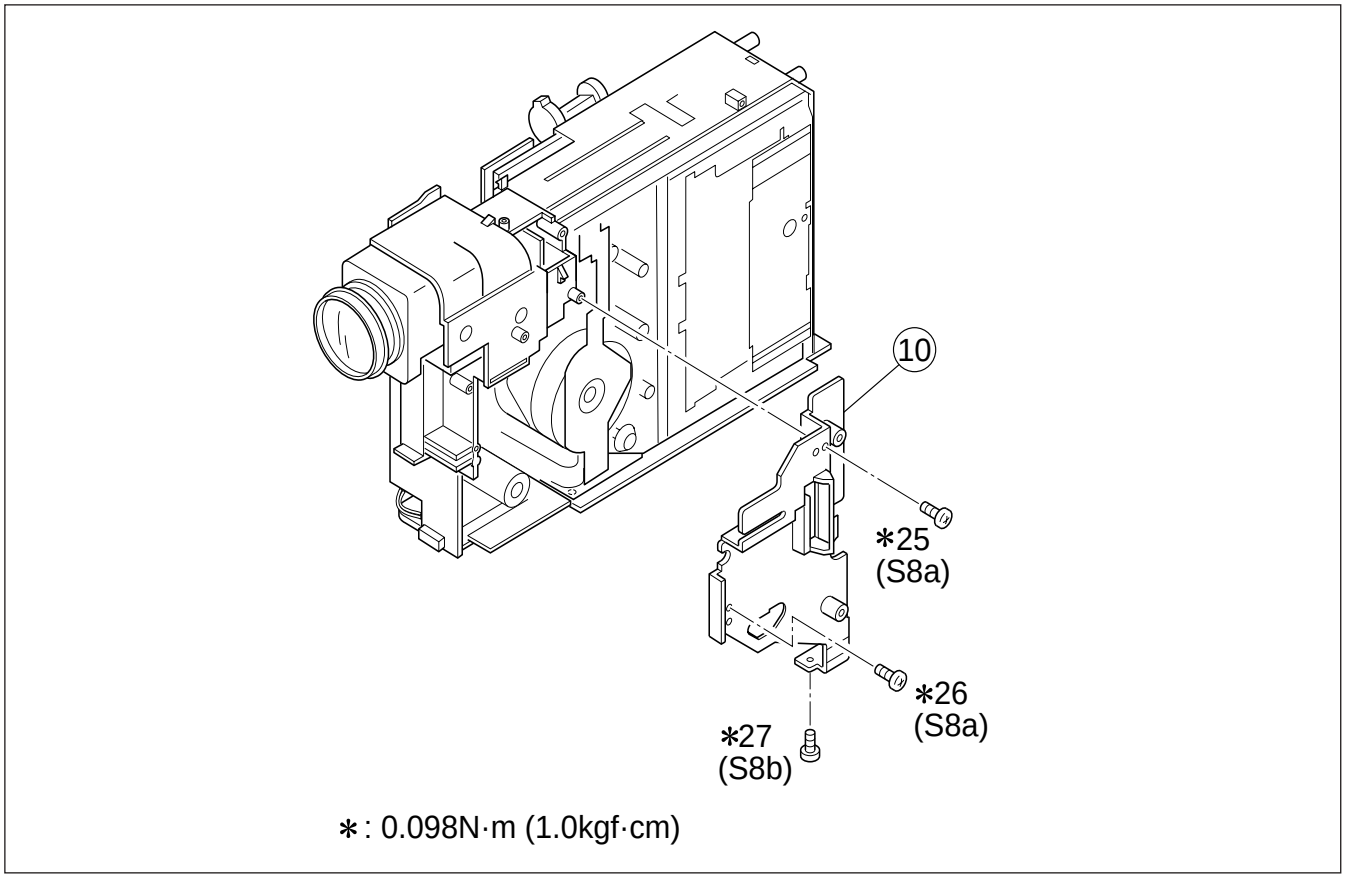

10
*25
(S8a)
*26
(S8a)
*27
(S8b)
*: 0.098N·m (1.0kgf·cm)

Fig. C8

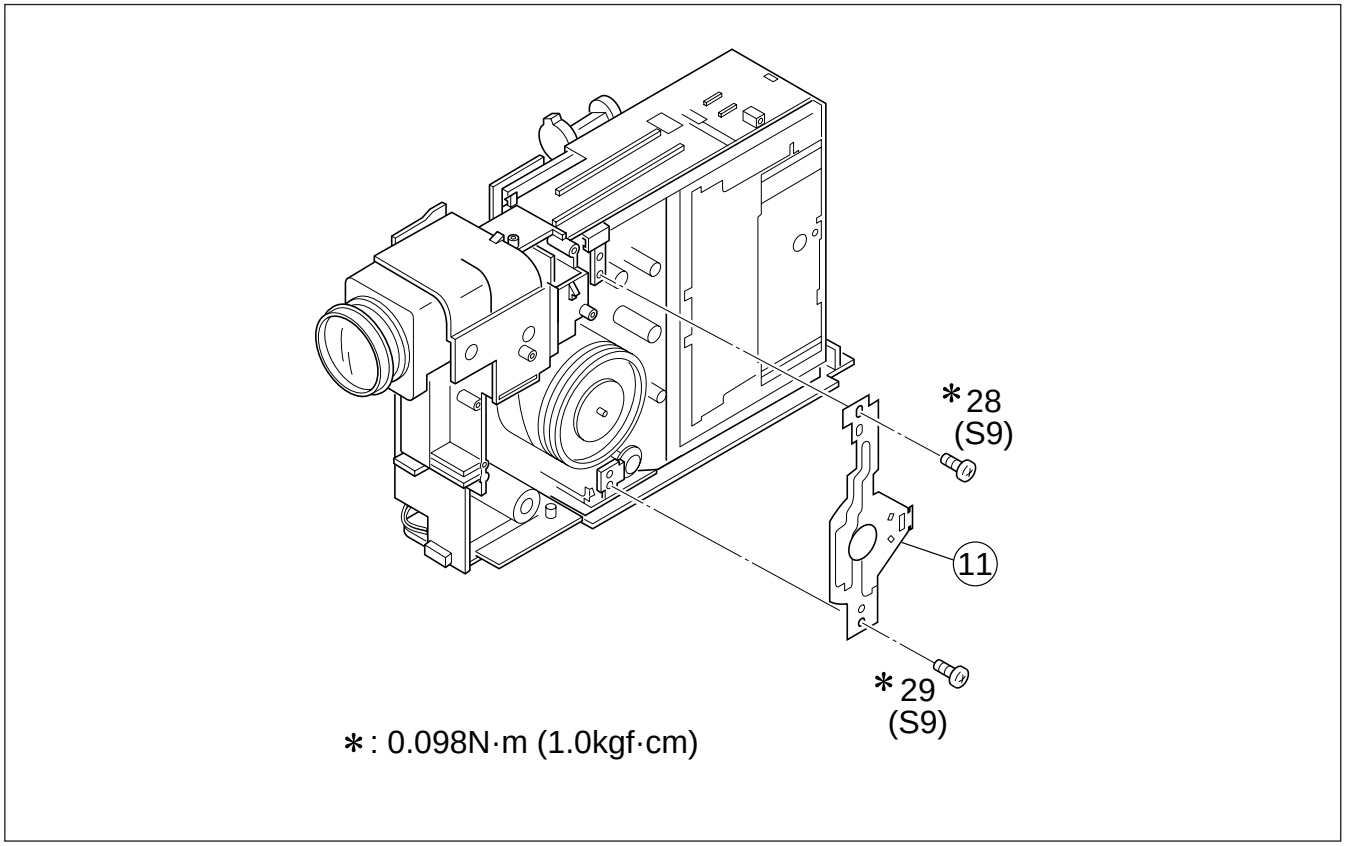

*28
(S9)
11
*29
(S9)
*: 0.098N·m (1.0kgf·cm)

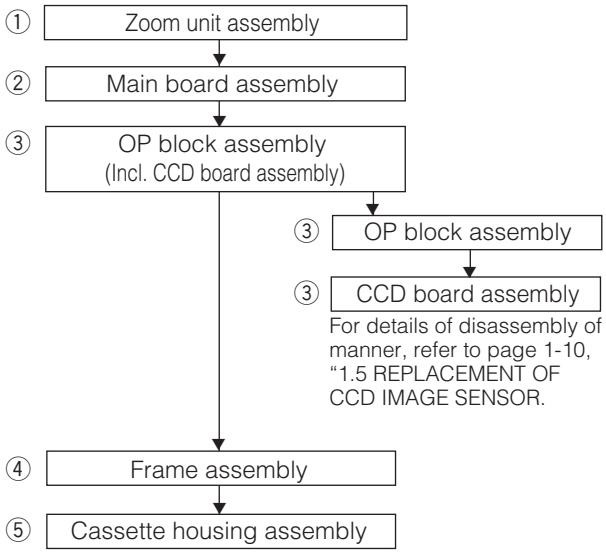
Fig. C9

1.4 DISASSEMBLY/ASSEMBLY OF CAMERA SECTION AND DECK SECTION

1.4.1 Flowchart of disassembly

The following flowchart shows the disassembly of the camera section and deck section. When assembly of the camera section and deck section, follow this flowchart in the reverse order.

<Camera section/Deck section>



Reference Notes:
<NOTE 1>
Open two pins of the cennter and connect CN4 as shown in Fig.

<NOTE 2>
Destination of connectors

Note: *Two kinds of double-arrows in connection tables respectively show kinds of connector/wires.*
⟺ : Flat wire
↔ : Wire

Con-nector	No. of Pins	Connector		
⑴a	14	MAIN CN13	⟺	ZOOM UNIT
⑵a	14	MAIN CN2	↔	SENSOR
⑵b	11	MAIN CN5	⟺	VIDEO/FLY. E HEAD
⑵c	10	MAIN CN1	⟺	DRUM MOTOR
⑵d	6	MAIN CN4 (PIN 1,2) MAIN CN4 (PIN 5,6)	↔ ↔	LOADING MOTOR DC LIGHT (OPEN TWO PINS OF THE CENTER AND CONNECT)
⑵e	22	MAIN CN15	⟺	OP BLOCK
⑵f	18	MAIN CN3	⟺	CAPSTAN MOTOR
⑵g	11	MAIN CN7	⟺	A/C HEAD
⑵h	14	MAIN CN22	⟺	CCD

1.4.2 Disassembly method

STEP /LOC NO.	PART	Fig. No.	REMOVAL
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER
①	ZOOM UNIT ASSEMBLY	D1	4(S1) *CN ⑴a
②	MAIN BOARD	D2	(S2), (L2a), (L2b) *CN ⑵a , ⑵b , ⑵c , ⑵d , ⑵e ⑵f , ⑵g , ⑵h
③	OP BLOCK ASSEMBLY	D3	2(S3) CUSHION (OP)
④	FRAME ASSEMBLY	D4	(S4a), 2(S4b), (S4c)
⑤	CASSETTE HOUSING ASSEMBLY	D5	4(S5)

List of Abbreviations:
2(S1) = 2 Screws (S1)
4(L1a)=4 Locking Tabs (L1a)
CN=Connector

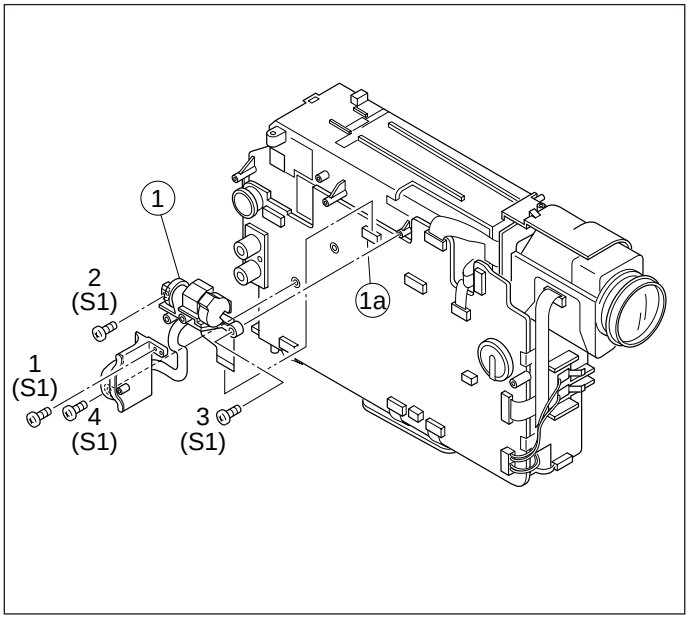


Fig. D1

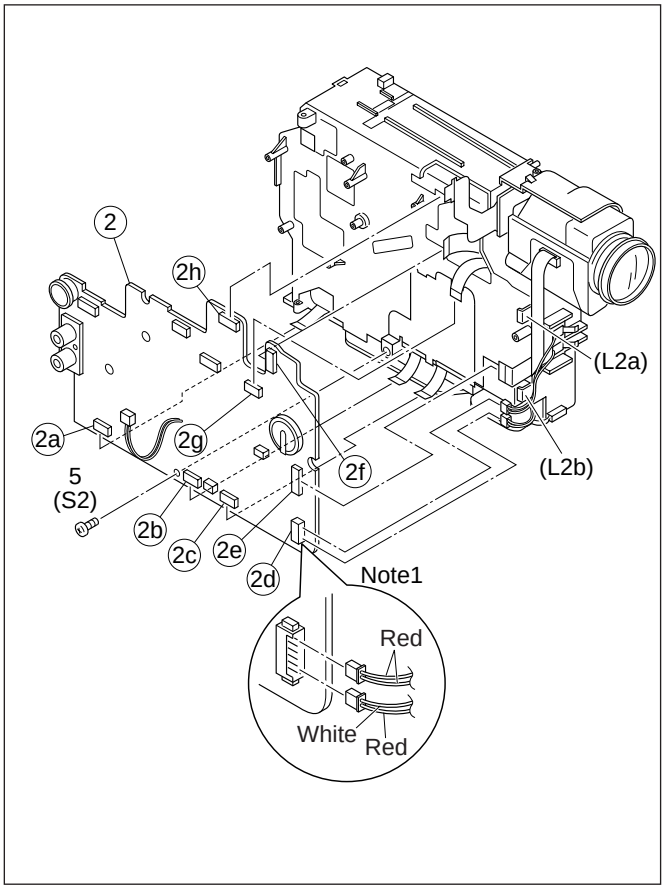


Fig. D2

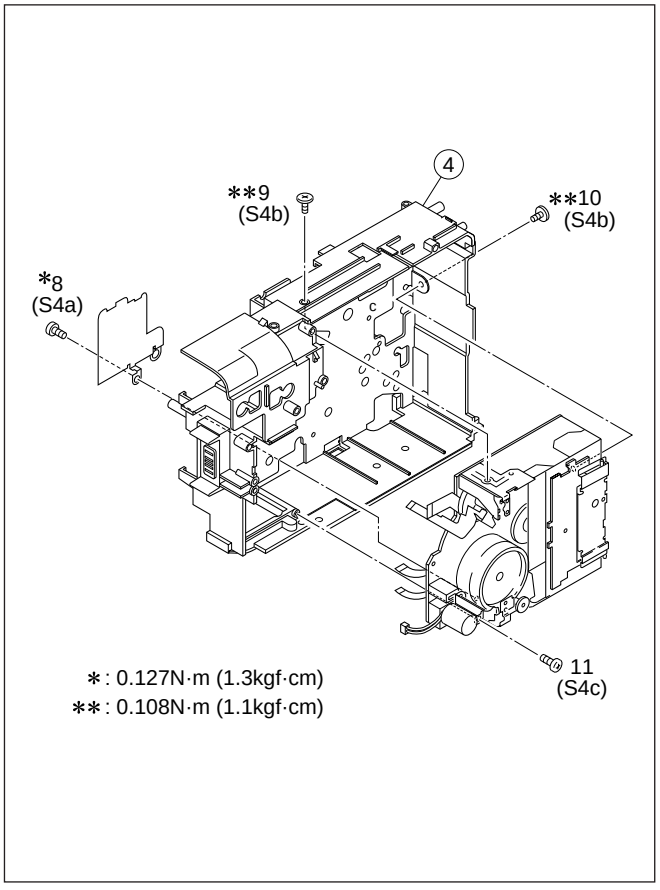


Fig. D4

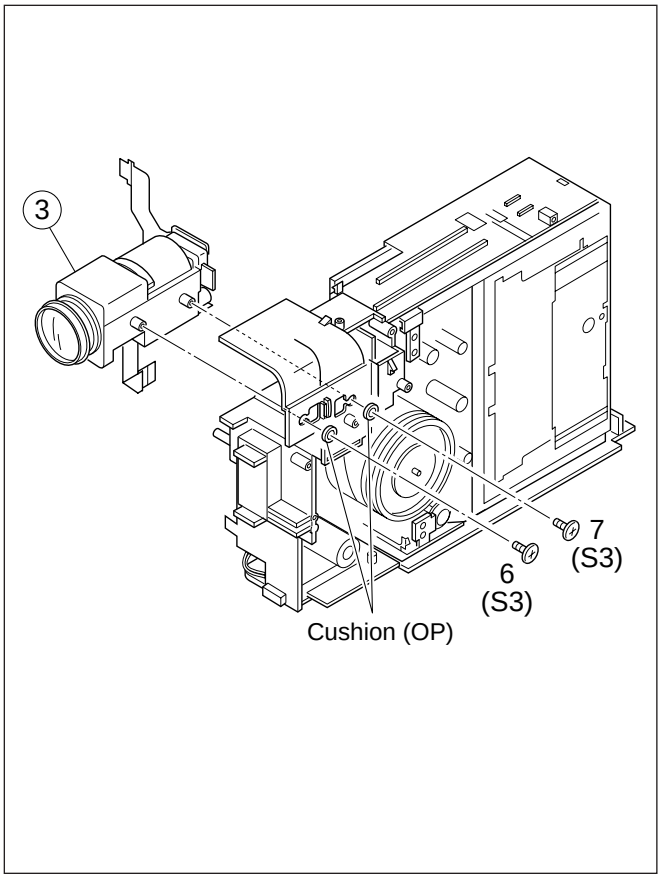


Fig. D3

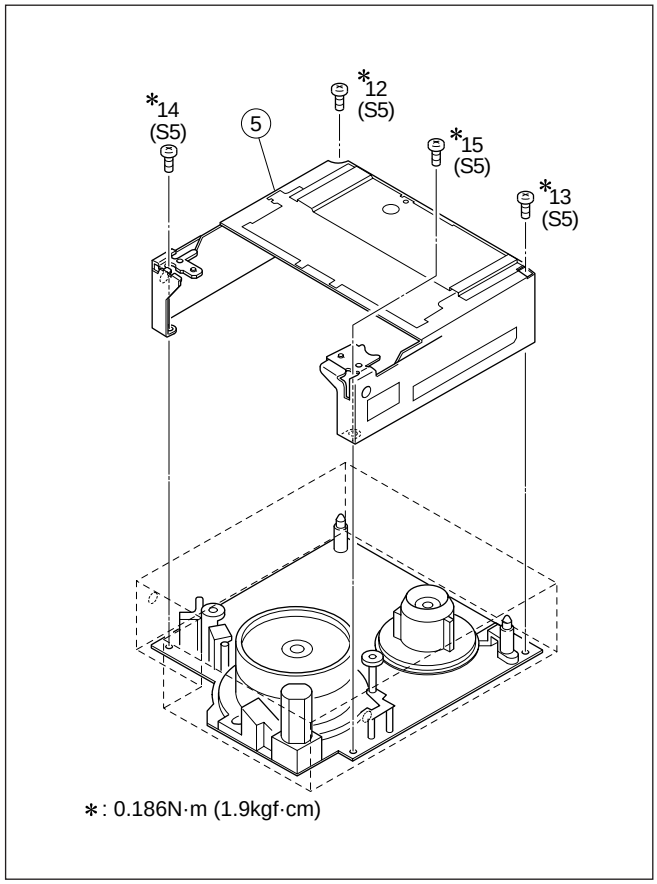


Fig. D5

1.5 REPLACEMENT OF CCD IMAGE SENSOR

Notes:

- *Pay the most careful attention to the transparent glass and optical LPF of the CCD image sensor so a not the soil and damage them. If something is soiled with finger-prints, etc., gently clean it with silicon-processed paper/cloth or chamois.*
- *When the CCD image sensor is shipped from the factory, there are protection seals applied onto the transparent glass. Leave the protector as it is, and take it off just before assembling the CCD image sensor to the OP block.*

1.5.1 Removal of CCD image sensor

1. Remove two screws (1, 2) securing the CCD base assy, and disassemble the CCD spacer, the optical LPF, spacer rubber.

1.5.2 Installation of new CCD image sensor

1. Remove the protection seal from a new CCD image sensor. Next, put the optical LPF, spacer rubber, CCD spacer on the CCD image sensor as they are piled up in this order. At that time, make sure of orientation of each item refering to the following table (see Fig. 1-5-1).

Part Name	Orientation
CCD image sensor	Mark is on the right viewed as indicated by the arrow ⓐ .
Spacer rubber	IC side is horizontal.
Optical LPF	Marks are on the left and bottom viewed as indicated by the arrow ⓐ .

2. Fix the CCD base assy to OP block with the two screws (1, 2) . At that time, be careful of the orientation.
3. After completion of all P.C. boards to the camera section, observe the monitor to confirm no vignetting caused by the bodytube, rings, lens hood, etc. If no vignetting is observed, it can be said that image's parallel, horizontality and centering are correct.

1.5.3 Replacement of CCD board assy

1. Remove one screw (3).
2. Unsolder at the fourteen points on the CCD board assy.

Note: *1. Remove the screw (3) only when the CCD board assy needs replacement.*
2. When installing a new CCD board assy, carry out the above-mentioned procedure in the reverse order.

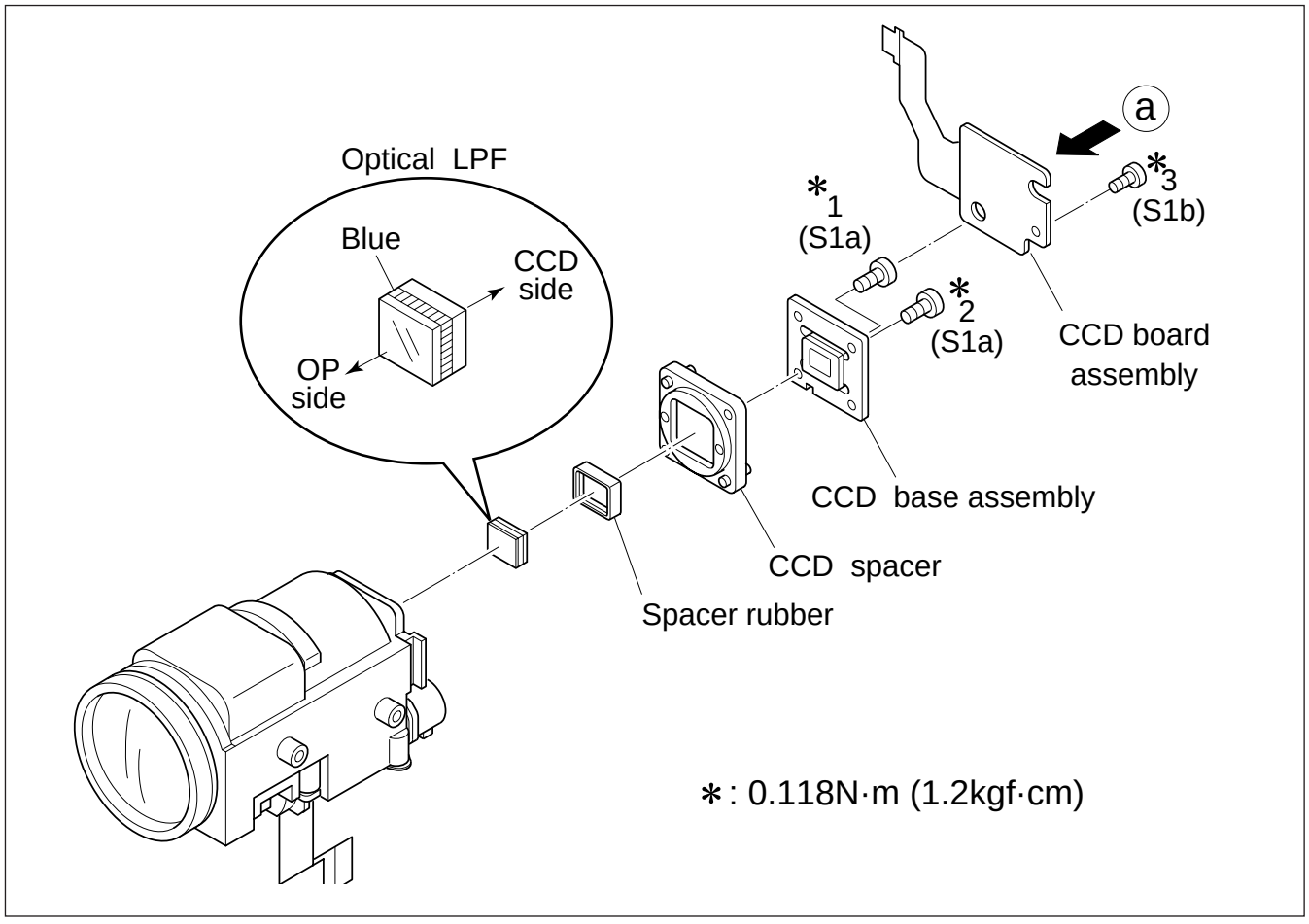


Fig. 1-5-1

1.6 TAKE OUT CASSETTE TAPE

In the event that the set enters the emergency mode as it is loaded with a cassette tape and the cassette tape cannot be ejected with the EJECT button, manually, take it out of the set according to the following procedure.

Note: *If the mechanism comes into the unloading mode as the cassette tape is not held by hand, it results in tape damage.*

1. Disconnect the set from the power source.
2. Remove the cassette cover assembly, Cover (VF), top cover, (See Fig. C1, C2 and C3, Page 1-1, 2, 3 and 4)
3. Connect a jumper wire to each pole of the loading motor as shown by the magnified view ⓑ (Fig. 1-6-1)
4. While holding down the cassette housing by hand, connect the jumper wires to a battery to run the mechanism to the EJECT position four unloading. If this unloading operation is performed as the cassette housing is not held down by hand, the front lid of the cassette may damage the tape when it is ejected.
5. For taking in the slack of the tape, run the mechanism to the EJECT position as the front lid of the cassette is left open, and turn the take-up gear in the forward direction to wind up the tape. After confirming that the tape has completely been wound up and the supply reel is idling, take the cassette tape out of the cassette housing.

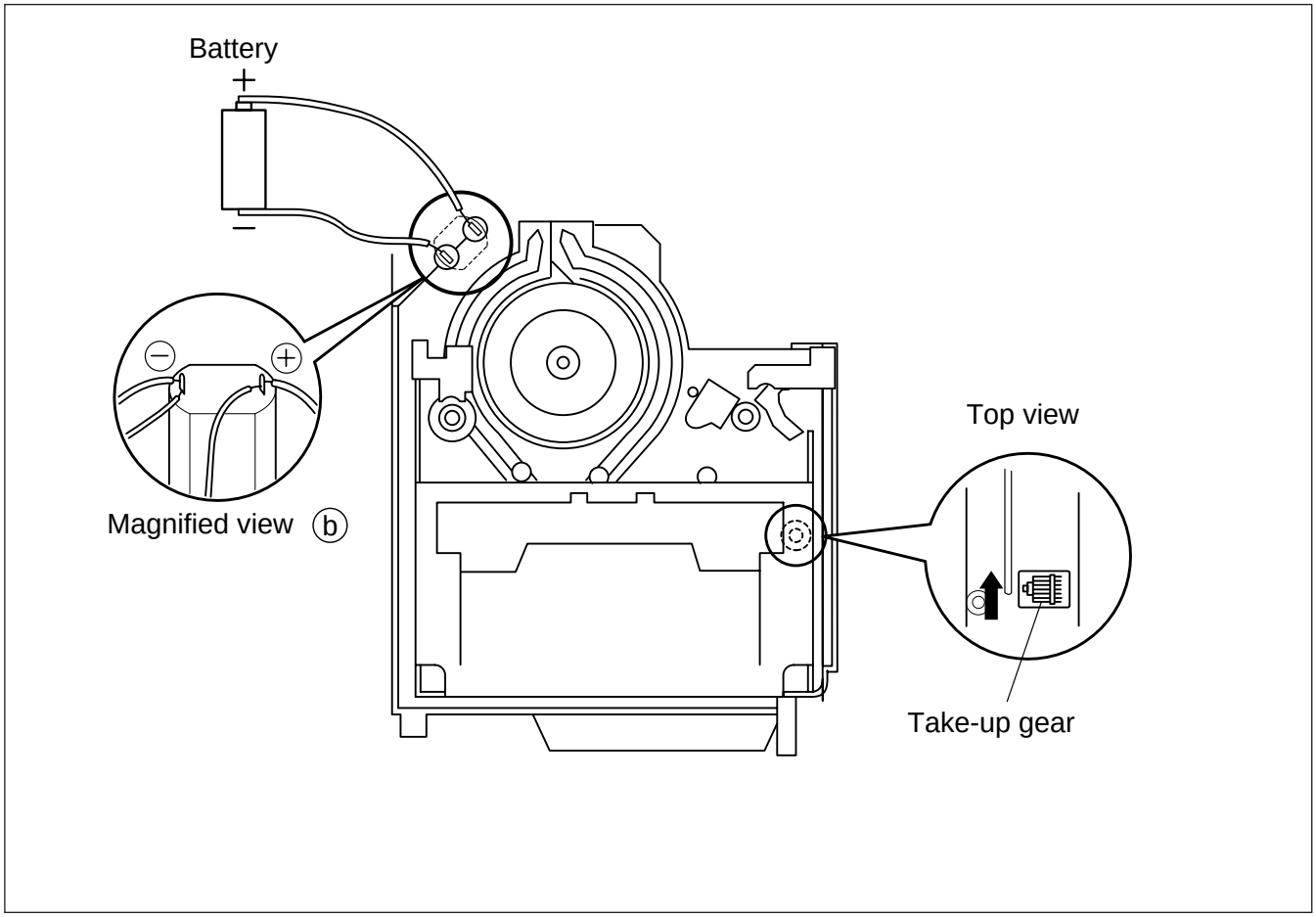


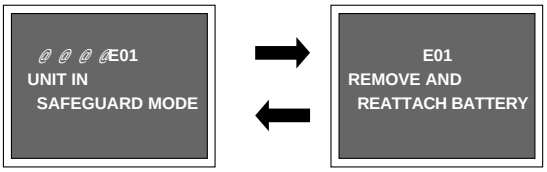
Fig. 1-6-1

1.7 EMERGENCY DISPLAY

Whenever some abnormal signal is input to the mechacon CPU, an error number (E01, as an example) is displayed in the electronic view finder.
In every error status, such the message as shown below alternately appear over and over.

- In an emergency mode, all operations except turning on/off the POWER switch are ineffectual.

Example (in case of the error number E01):



E. VF	Symptom	Mode when observed
E07	Short circuit of capstan MDA	Power ON
E06	CAPSTAN FG input absent	EDIT
E04	DRUM FF input absent	DRUM rotation
E03	SUPPLY REEL FG input absent	REC, PLAY, SEARCH, FF
E02	Mode control motor rotates for more than 10 sec without shift to next mode.	UNLOADING
E01	Mode control motor rotates for more than 10 sec without shift to next mode.	LOADING
E00	Overtime the programming transaction	REC, PLAY

1.8 DEMONSTRATION MODE

This model has the DEMONSTRATION mode.

1) How to set the DEMONSTRATION mode.
The camera can be entered into the DEMONSTRATION mode by setting on the DISPLAY screen appearing in the viewfinder.

When entering the camera into the DEMONSTRATION mode, pay heed to the following matters.

No cassette is set in the camcorder or a cassette is set in the camcorder but it is protected from recording.

Note 1) *The indications of the DISPLAY page very depending on the setting.*

2) How to cancel the DEMONSTRATION mode.
To cancel the DEMONSTRATION mode, turn the POWER switch off (“POWER OFF”).

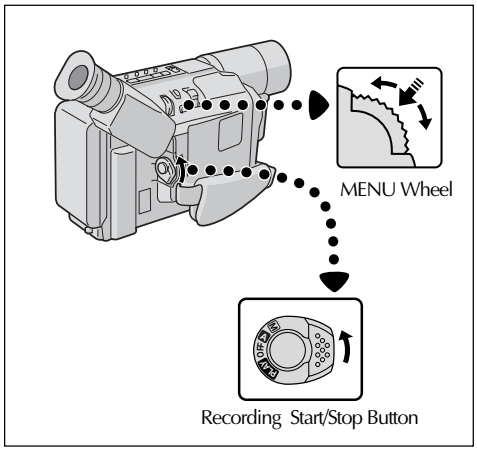
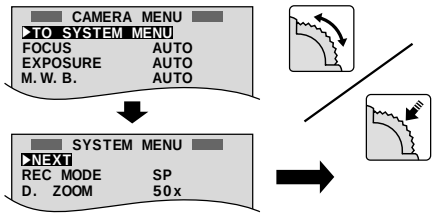


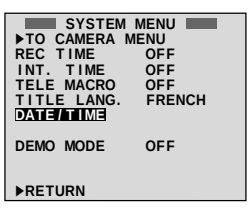
Fig. 1-8-1

1. Set the POWER switch to turn on the "M".
   Press the MENU WHEEL once. The first page of the DISPLAY appears in the viewfinder.



Display 1

2. Turn the MENU WHEEL in the direction of the arrow to set the cursor at “NEXT”.
   Press the MENU WHEEL once. The second page of the DISPLAY appears in the viewfinder.



See to next page

Display 2

Note 2) *As the "DEMO MODE" is executed, the camcoder enters the DEMONSTRATION mode after the title screen of "TITLE CALL" and "FUTURE" appear in this order.*

<Flow chart>

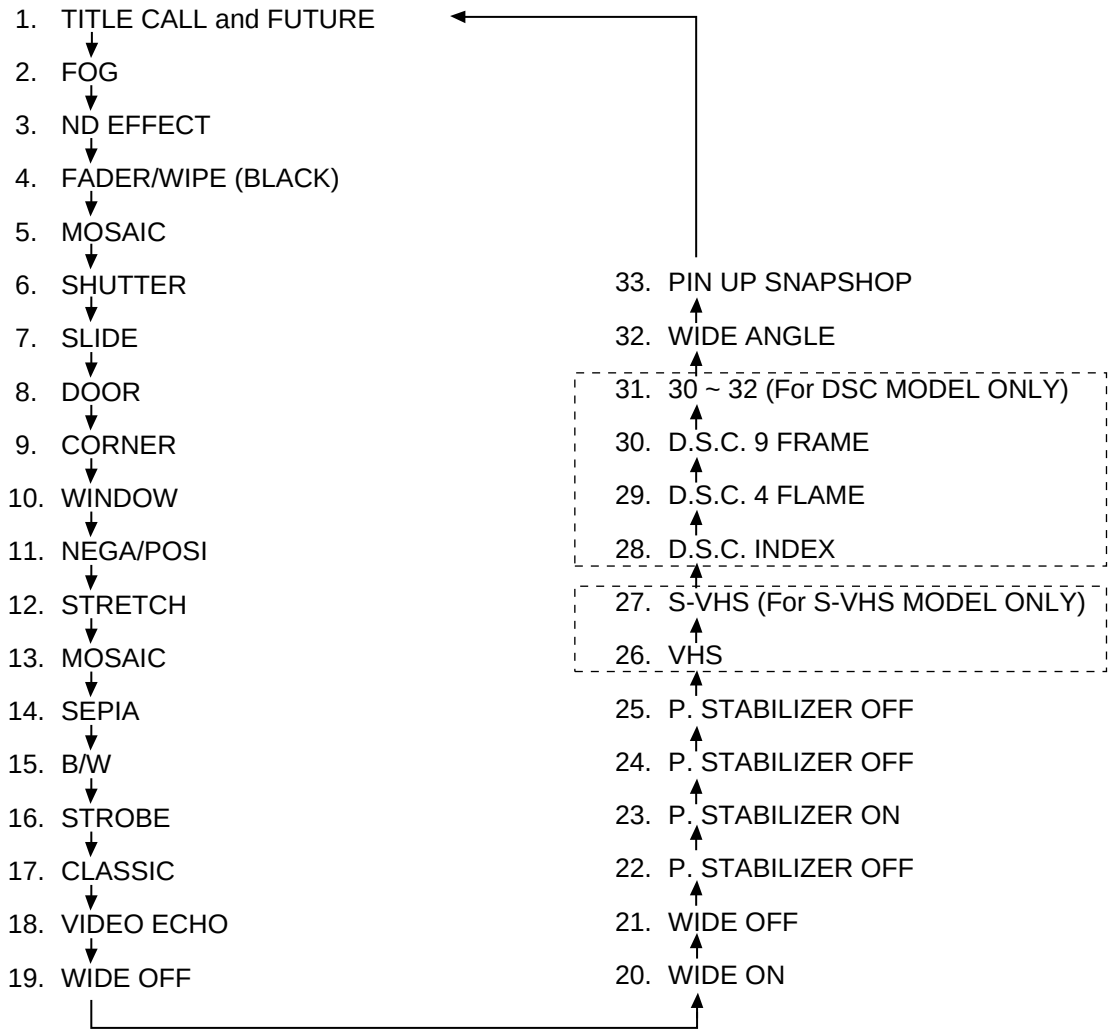
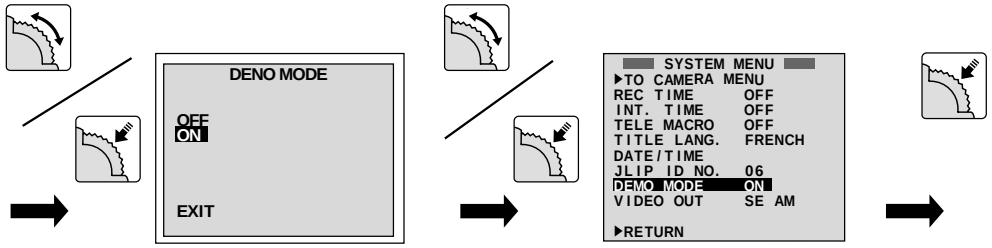


Fig. 1-8-2

3. Turn the MENU WHEEL in the direction of the arrow to set the cursor at "DEMO MODE". Then, press the MENU WHEEL once. The third page of the DEMO MODE appears in the viewfinder.

4. Turn the MENU WHEEL in the direction of the arrow to set the cursor at "ON". Then, press the MENU WHEEL once.
The fourth page of the DISPLAY appears in the viewfinder.
("DEMO MODE" is switched "ON" from "OFF" status.)

5. Press the MENU WHEEL once. The camcorder automatically enters the DEMONSTRATION mode and it repeats demonstration operation.
While the camcorder is performing demonstration, all operations except turning on/off the POWER switch are ineffectual.



Display 3 Display 4

MAIN ASS'Y

Symbol No. →	①	②	③	④	⑤	⑥	⑦ (⑧,⑨)
Removing order of screw →	1	2 3	4 5 6 7 8 9 10 11 12	13 14 15	16 17	18 19 20	21 22 23 24
Place to stick screw →							
Reference drawing →	Fig. C1	Fig. C2	Fig. C3	Fig C4	Fig. C5	Fig C6	Fig. C7
screw tightening torque →	I						

Symbol No. →	⑩	⑪
Removing order of screw →	25 26 27	28 29
Place to stick screw →		
Reference drawing →	Fig. C8	Fig. C9
screw tightening torque →	Ⅱ	

CAMERA & DECK ASS'Y

Symbol No. →	①	②	③	④			⑤
Removing order of screw →	1 2 3 4	5	6 7	8 9 10 11			12 13 14 15
Place to stick screw →							
Reference drawing →	Fig. D1	Fig. D2	Fig. D3	Fig. D4			Fig. D5
screw tightening torque →	I			Ⅲ	Ⅳ	I	Ⅴ

OP BLOCK ASS'Y

Removing order of screw →	1 2 3
Place to stick screw →	
Reference drawing →	Fig. 1-5-1
screw tightening torque →	Ⅵ

<NOTE>

- Pay careful attention to tightening torque for each screw.

Ⅰ: 0.196±0.019N·m Ⅱ: 0.098±0.009N·m Ⅲ: 0.127±0.012N·m
Ⅳ: 0.108±0.010N·m Ⅴ: 0.186±0.019N·m Ⅵ: 0.118±0.019N·m
(0.098N•m = 1.0kgf•cm)

SECTION 2
MECHANISM ADJUSTMENT

YMA0030A-E AND YMA0031A-E is used in this model.
For the MECHANISM ADJUSTMENT , pleasa refer to the MECHANISM ASSEMBLY of the Service Manual GR-AXM230U (No.86595).

2.1 Required adjustment tools

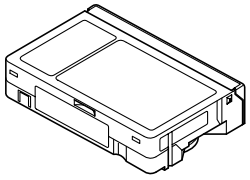
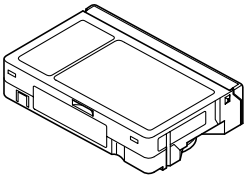
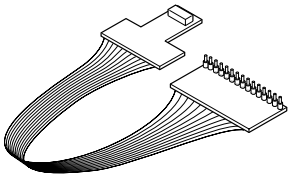
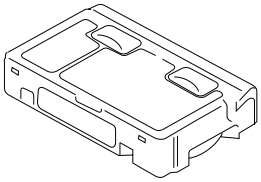
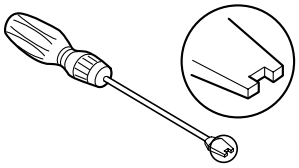
Alignment tape MHP-C	Alignment tape MHP-LC
	
Jig connector cable YTU93106A	Extension connector YTU94145B-30
	
Cassette torque meter PUJ50431-2	Roller Driver PTU94002-2
	

Table 2-1-1

SECTION 3
ELECTRICAL ADJUSTMENT

3.1 ELECTRICAL ADJUSTMENT

3.1.1 PREPARATION

1. Precaution

This model does not contain adjustment controls (VR). General deck system and camera system adjustment are not required. However, if MAIN board replacement, please use original EEPROM on to new board. Then adjustment are not required. And if parts such as the following need replacement, special computerized adjustment are required (Refer to sec. 3.1.1-4). Please contact to JVC Service for detaile information.

- OP block
- EEPROM (IC104 of MAIN board)

In the event of malfunction with electrical circuits, troubleshooting with the aid of proper test instruments most be done first, and then commence necessary repair, replacement and adjustment, etc.

1. In case of wiring to chip test points for measurement, use IC clips, etc. to avoid any stress.
2. Since connectors are fragile, carefully handle them in disconnecting and connecting.
3. Shortcircuit between operation un it and DECK chassis.

2. Required test equipment

1. Color TV monitor.
2. AC power adapter
3. Oscilloscope (dual-trace type, observable 100 MHz or higher frequency)
   * It is recommended to use one observable 300 MHz or higher frequency.
4. Digital voltmeter
5. Frequency counter (with threshold level adjuster)
6. Personal computer

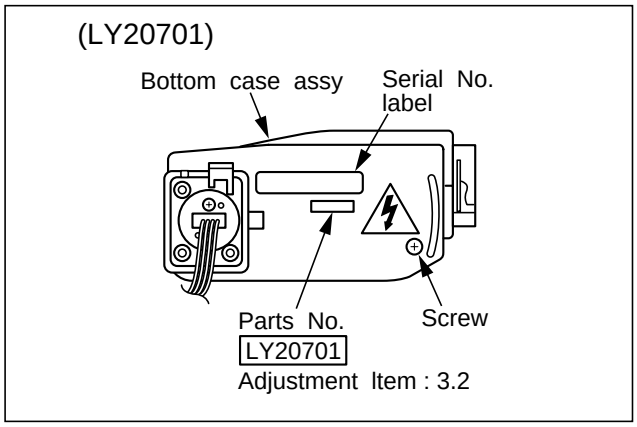
3. Required adjustment tools

For detsails of special jigs necessary for adjustment, refer to page 1-2 and 1-3 of the Section 1.

4. Setup for E. VF section adjustment

1. B/W VF (For AX760U/UC)

Referring to “SEC. 1 DISASSEMBLY” and connect the E. VF WIRE to CN12 of the MAIN board.



2. COLOR VF (For AX761U,SX860U)

Referring to "SEC. 1 DISASSEMBLY" and connect the E. VF FPC to CN11 of the MAIN board.

Note:

- *This adjustmentalls into a special adjustment that requires a personal computer.*
  For details, refer to “3.1.1 Preparation”.

5. Connection for Service support system

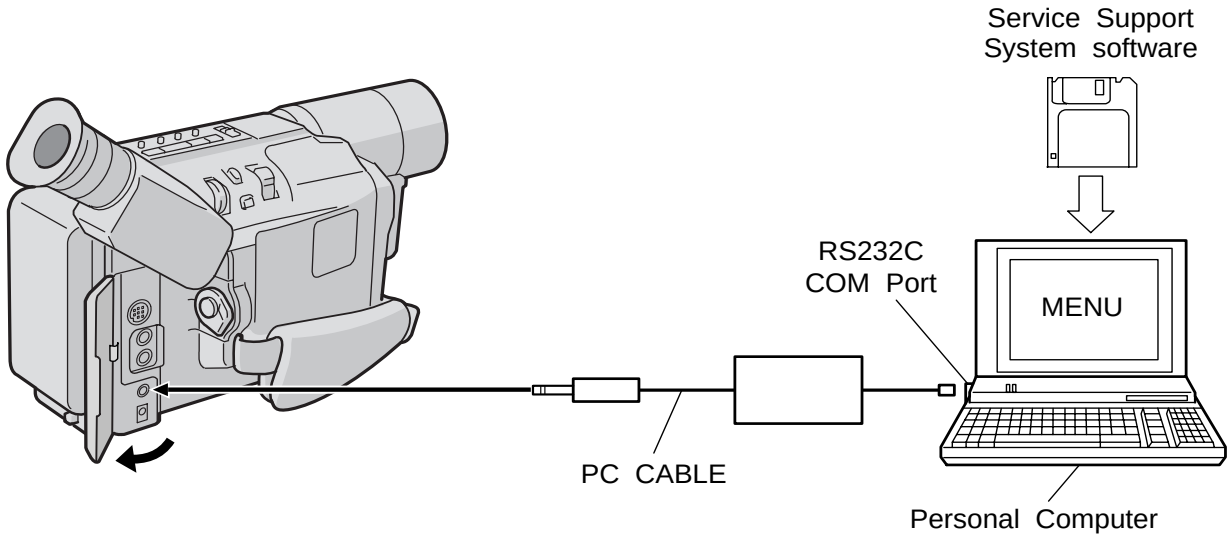


Fig. 3-1-1 Connection for Service support system

■ FUSE LOCATION FOR MAIN BOARD ASSEMBLY

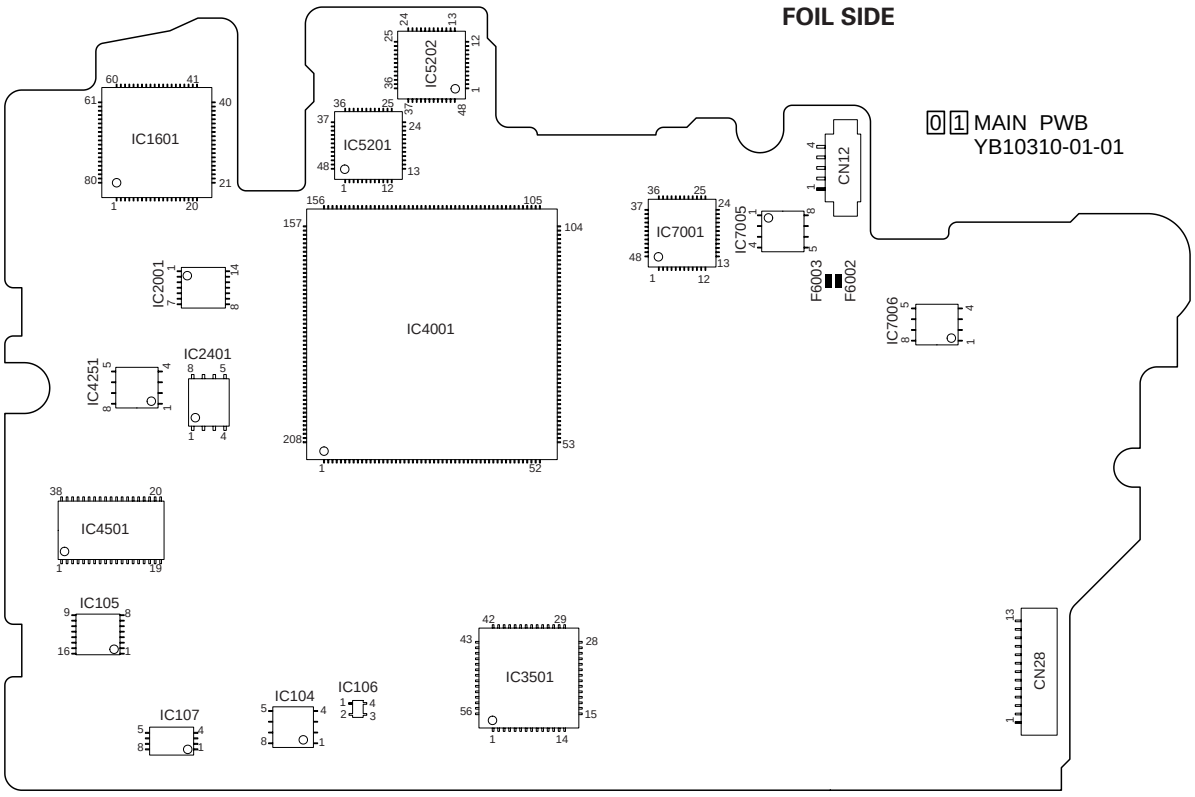


Fig. 3-1-2 FUSE location for MAIN board assembly (FOIL SIDE)

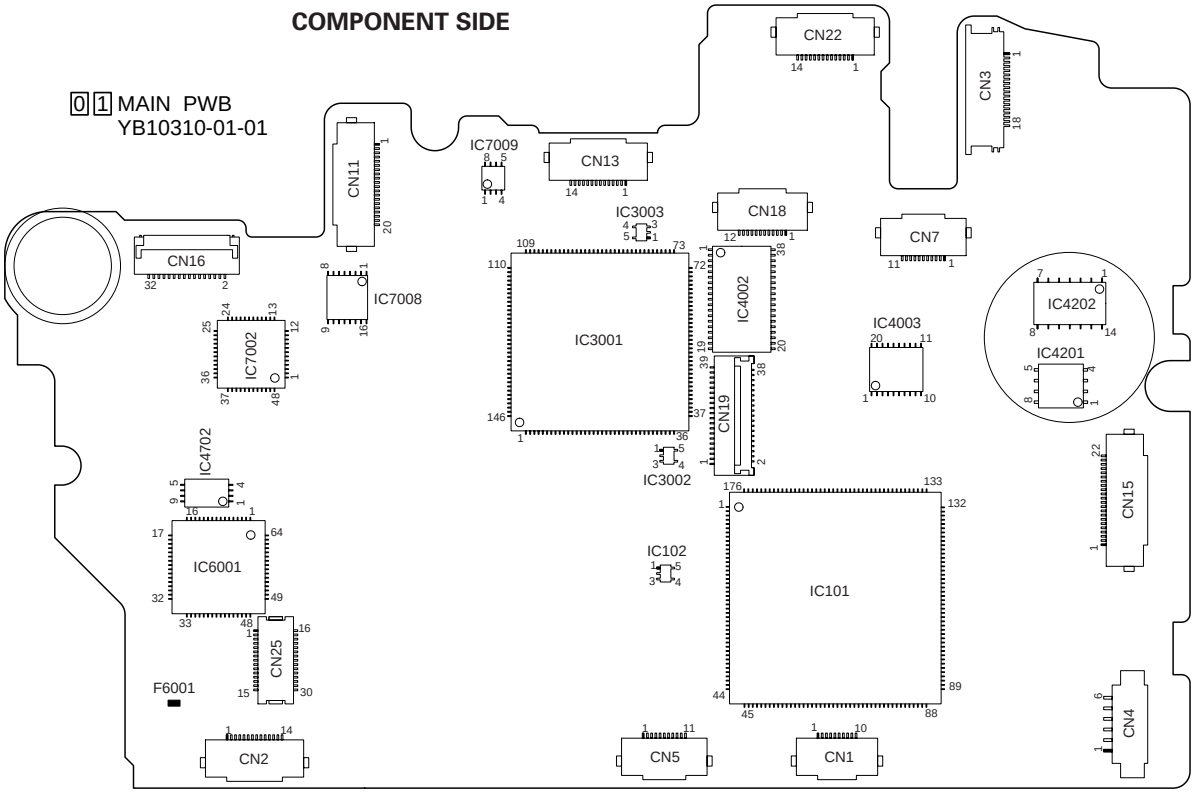


Fig. 3-1-3 FUSE location for MAIN board assembly (COMPONENT SIDE)

3.2 ELECTRONIC VIEWFINDER (E. VF) ADJUSTMENT

Notes:

- *Unless otherwise specified, all measurement points and adjustment parts are located on E. VF board.*
- *After adjustment or replacement of the deflection yoke or the centering magnet, fix it by the band as shown the figure below.*

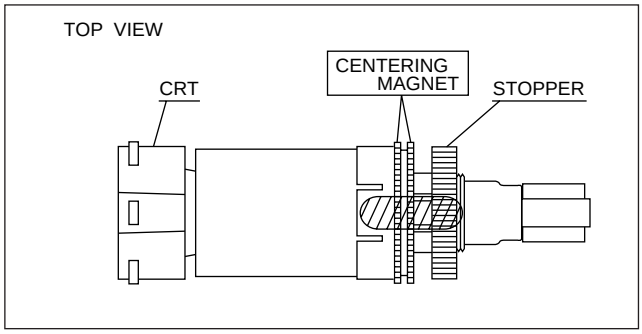


Fig. 3-2-1 E. VF

- *After adjustment is completed, compare the picture on the E. VF screen with the monitor TV.*

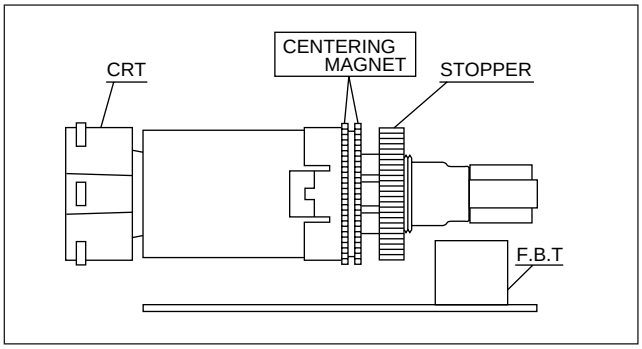


Fig. 3-2-2 E. VF

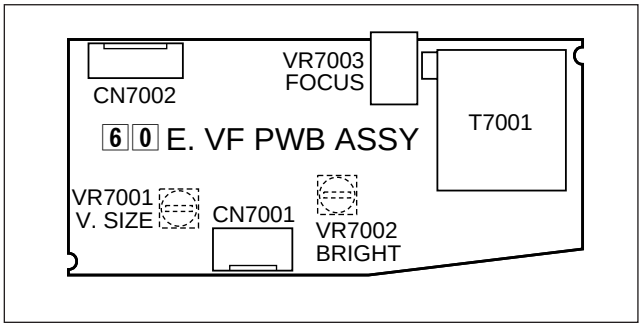


Fig. 3-2-3 E. VF board

3.2.1 Tilt

Subject	• Alignment tape • Stairstep
Mode	• PB
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• Deflection yoke
Specification	• The picture is visible as same as monitor TV.

1) Put the deflection yoke to the most inner side of CRT neck first. Then fix the stopper temporary.
2) Adjust the tilt of picture on the E. VF screen by tilting the deflection yoke.
3) Fix the stopper completely.

3.2.2 Centering

Subject	• Alignment tape • Stairstep
Mode	• PB
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• Centering magnet (CRT assy)
Specification	• The center of the E. VF screen

1) While observing the viewfinder screen, adjust the centering magnet to locate the stairstep in the center of the viewfinder screen.

3.2.3 Vertical scanning

Subject	• Camera picture
Mode	• EE
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR7001 (V. SIZE)
Specification	• Normal picture amplitude

1) Observing the viewfinder screen, adjust VR7001 for normal picture amplitude.

3.2.4 Brightness

Subject	• –
Mode	• EE • Lens closed
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR7002 (BRIGHT)
Specification	• The CRT raster is just barely visible

1) Close the lens with the cap and adjust VR7002 so that the raster of the CRT is just visible in the E. VF.

3.2.5 Focus

Subject	• Camera picture
Mode	• EE
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR7003 (FOCUS)
Specification	• The center area is clear and defined

1) While observing the viewfinder screen, adjust VR7003 so that the picture at the central area of the screen is clear and defined.

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