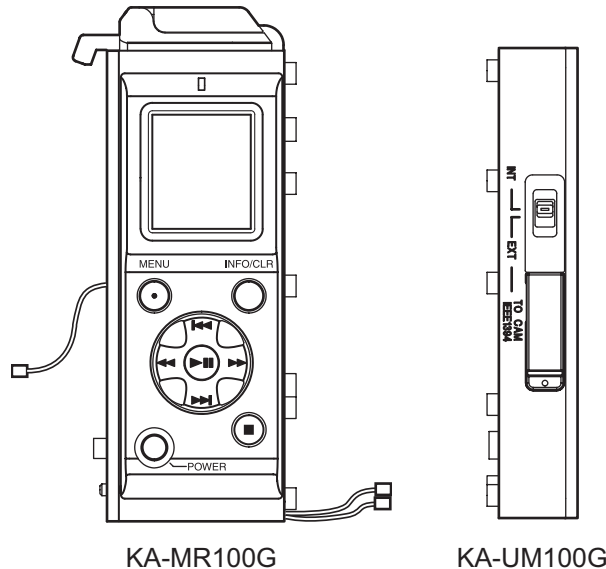


JVC

SERVICE MANUAL

MEMORY RECORDER, ADAPTER

KA-MR100G, KA-MR100G(A), KA-UM100G



* When the GY-HM700 series is connected, KA-UM100G is unnecessary because it connects it directly with KA-MR100G(A).

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SPECIFICATION

		KA-MR100G	KA-MR100G(A)
Media slot			
Supported media	SxS memory card		
Number of slot	1 slot		
Interface	ExpressCard/34-compliant (supports only PCI Express, USB is not supported)		
Video format			
Recording format	MP4		
Recording time	HD1 mode: Approx. 180 mins HD2 mode: Approx. 140 mins (recording time when using a 32 GB card)	HQ mode: Approx. 100 mins HD1 mode: Approx. 180 mins HD2 mode: Approx. 140 mins (recording time when using a 32 GB card)	
File system	FAT32 (SxS format)		
Maximum file size	4 GB		
OS compatibility	Windows XP/Vista/Mac OS/X		
Input signal format			
Video	<HD1 mode> MPEG-2 (MP@H-14) 720/50p/25p/60p/30p/24p (8 bit 18.3 Mbps CBR) <HD2 mode> MPEG-2 (MP@H-14) 1080/50i/60i (8 bit 25 Mbps CBR)	<HQ mode> MPEG-2 (MP@HL) 1080/60i/30p/50i/25p/24p 720/60p/30p/50p/25p/24p(8 bit 35 Mbps VBR) <HD1 mode> MPEG-2 (MP@HL / MP@H-14) 720/60p/30p/50p/25p/24p(8 bit 18.3 Mbps CBR) <HD2 mode> MPEG-2 (MP@H-14) 1080/60i/50i(8 bit 25 Mbps CBR)	
Audio	16 bit/48 kHz 2ch, 384 kbps (MP2)		
Time code signal	Compliant with SMPTE/EBU standard		
Overall			
Power supply	DC 12 V (DC 10.5 V to 17 V)		
Power consumption	6 W		
External dimensions	90 mm × 57 mm × 131 mm (W × D × H)		
Weight	0.42 kg		
Operating temperature	0°C to 40°C		
Operating humidity	30 % to 80 % RH		
Storage temperature	-20°C to 60°C		
Storage humidity	85 % RH and below		
Others			
Accessories	Instruction manual × 1, Rubber sheet × 1, Warranty (USA and CANADA only) × 1, CD-ROM × 1		
Connectable HD camcorders	GY-HD200, GY-HD250 series.	GY-HD200, GY-HD250, GY-HM700 series.	
Optional products	KA-UM100G adapter (Mount kit for connecting a GY-HD200/GY-HD250 series HD camcorder to a memory recorder.)		
Recommended products	<SxS memory card> SBP-8 (8 GB), SBP-16 (16 GB) and SBP-32 (32 GB) <IEEE1394 cable> CFS-6R016R09-07 etc. Please consult your authorized dealers.		
SOFTWARE NO.		SPL1044-V1-00	SPL1044-V2-00
	SYS	0100	0200
	MBE	0100	0200
	MBEB	0100	0100

KA-UM100G

Weight	0.145 kg
External dimensions	79.5 mm × 23 mm × 119.5 mm (W × D × H)

- Specifications and appearance of this unit are subject to change for improvement without prior notice.

SECTION 1 PRECAUTION

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 Δ 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.

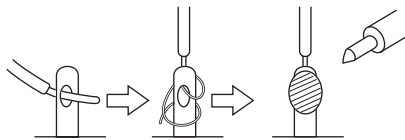


Fig.1-1-1

(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.

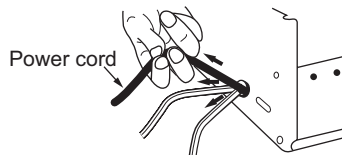


Fig.1-1-2

(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.

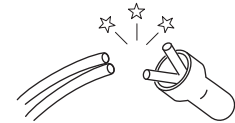
(12) Crimp type wire connector In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards,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

• **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.

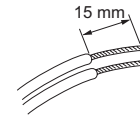


Fig.1-1-4

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

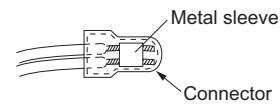


Fig.1-1-5

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.

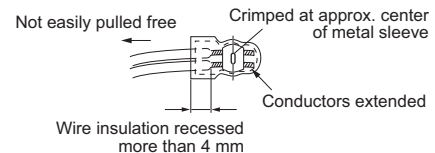


Fig.1-1-7

(13) **Battery replacement caution notice.**

**CAUTION RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECTIVE TYPE.
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.**

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.

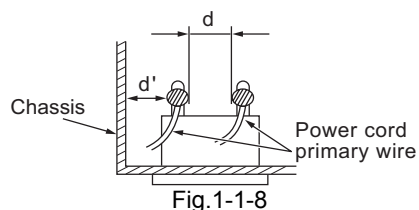


Fig.1-1-8

(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.

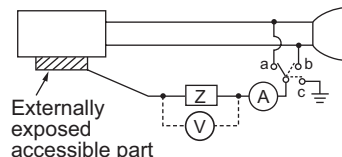
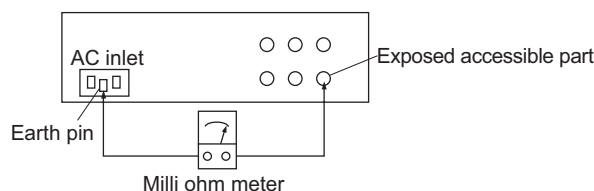


Fig.1-1-9

(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

This service manual does not describe SPECIFIC SERVICE INSTRUCTIONS.

SECTION 3 DISASSEMBLY

3.1 KA-MR100G

3.1.1 Removing the PS board (See figure 1, figure 2)

- (1) Remove the four screws **A** attaching the plate R.

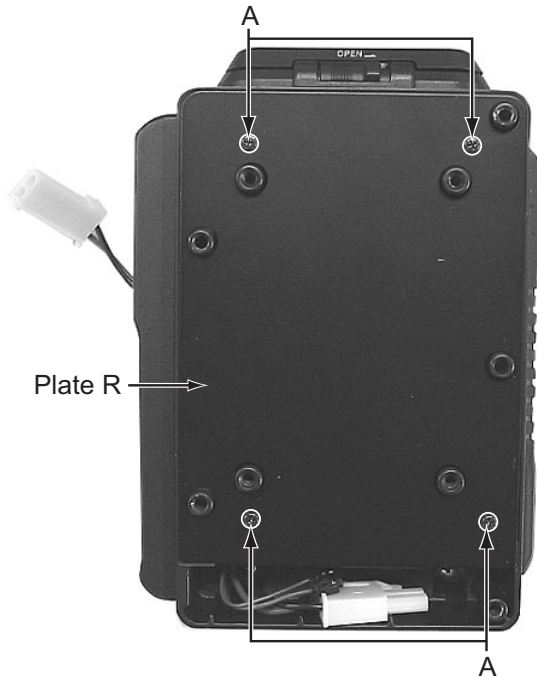


Fig.1

- (2) Remove the four screws **B** attaching the PS board.
- (3) Disconnect the wires from each connector **CN12**, **CN13** on the PS board.

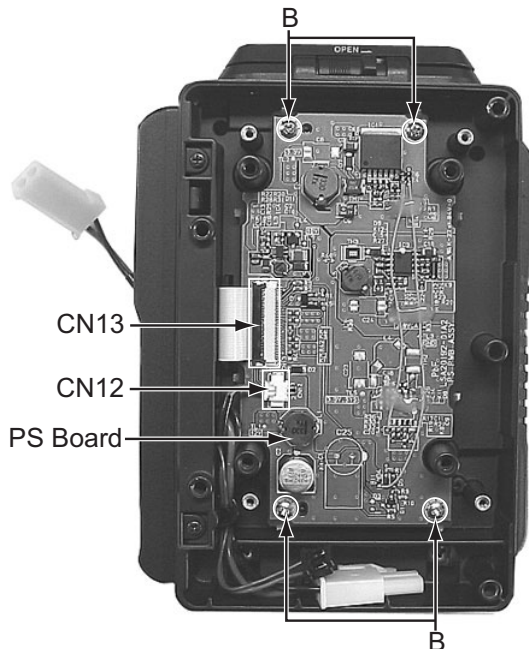


Fig.2

3.1.2 Removing the 68PIN board, CODEC board, SxS board (See figure 3, figure 4, figure 5, figure 6)

- (1) Remove the four screws **C** attaching the plate F.



Fig.3

- (2) Disconnect the wire from connector **CN6** on the 68PIN board.
- (3) Remove the two screws **D** attaching the 68PIN board, and then remove it.

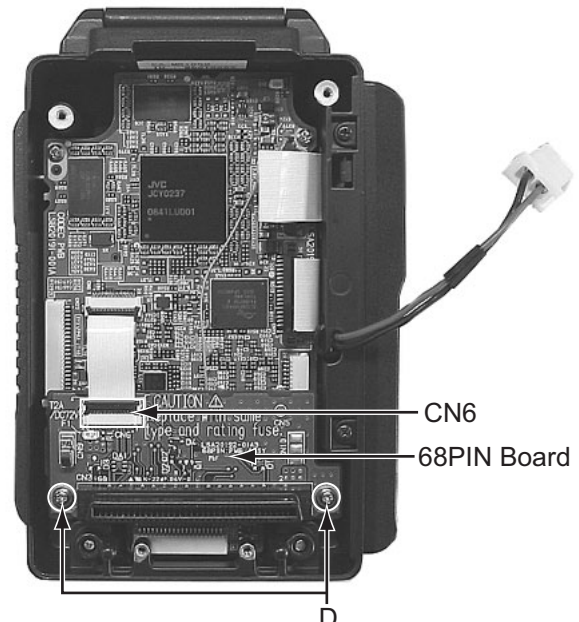
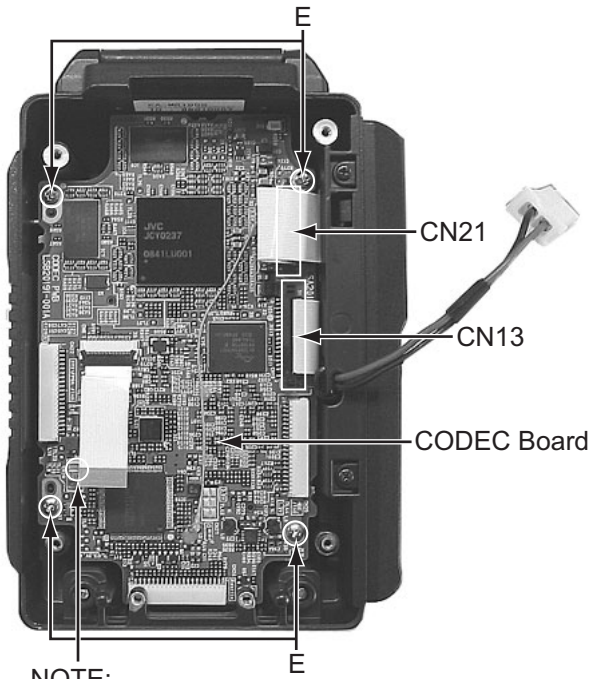


Fig.4

- (4) Disconnect the wires from each connector [CN13](#), [CN21](#) on the CODEC board.
- (5) Remove the four screws **E** attaching the CODEC board, and then remove it.



NOTE:
Be careful not to damage the CN28 when removing or attaching the CODEC board.

Fig.5

- (6) Remove the four screws **F** attaching the SxS board, and then remove it.

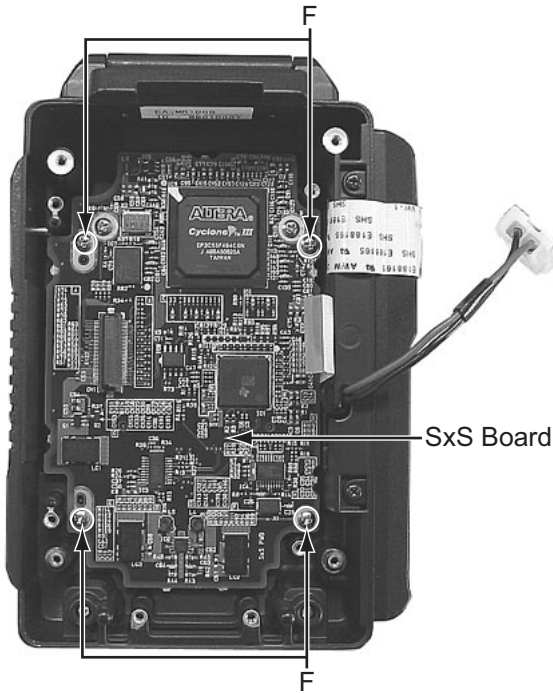


Fig.6

3.1.3 Removing the guide unit (See figure 7, figure 8, figure 9)

- Remove the SxS board.
 - (1) Remove the two screws **G** attaching the guide unit with SxS board.

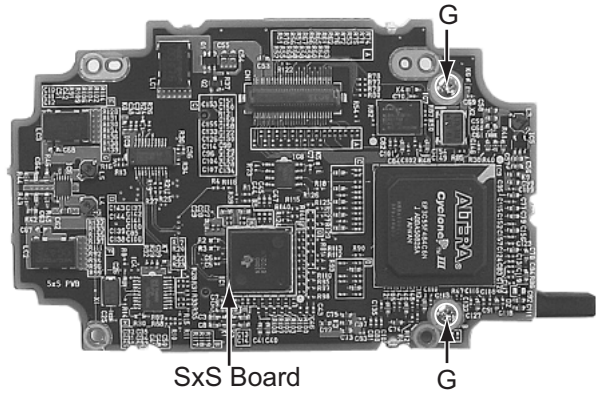


Fig.7

- (2) Remove the guide unit from the SxS board by sliding the guide unit to the direction of the arrow.

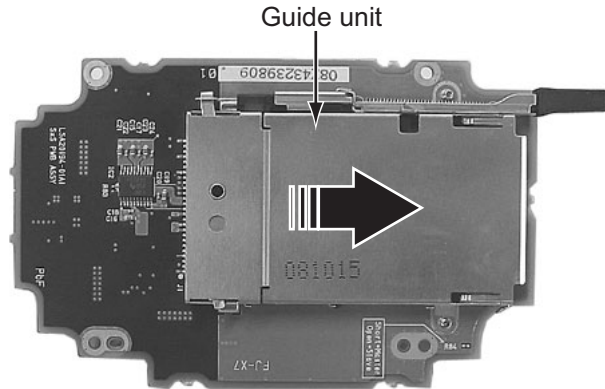


Fig.8

NOTE:
Attention at installation.

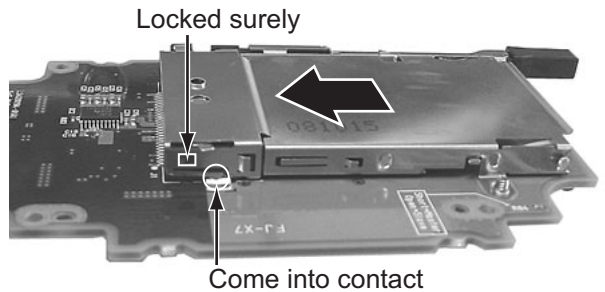


Fig.9

3.1.4 Removing the OPE board (See figure 10, figure 11, figure 12, figure 13)

- Remove the plate R and plate F.
 - (1) Remove the four screws H attaching the OPE cover assembly.
 - (2) Remove the two tabs and then remove the OPE cover assembly.
 - (3) Disconnect the wire from connector CN21 on the CODEC board.

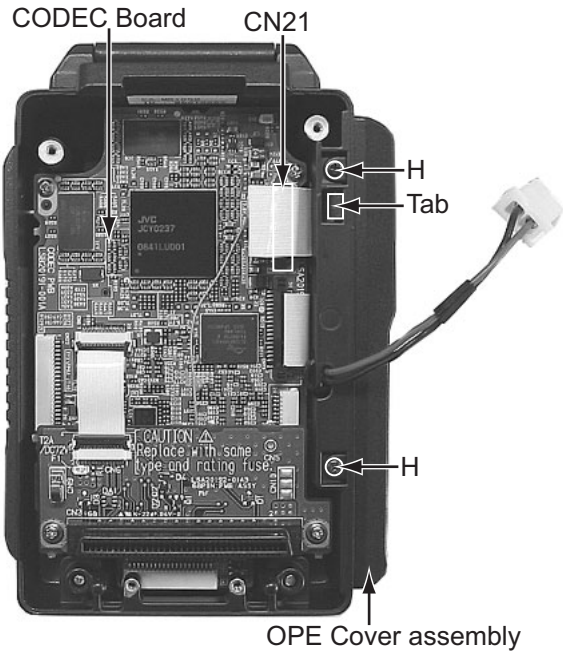


Fig.10

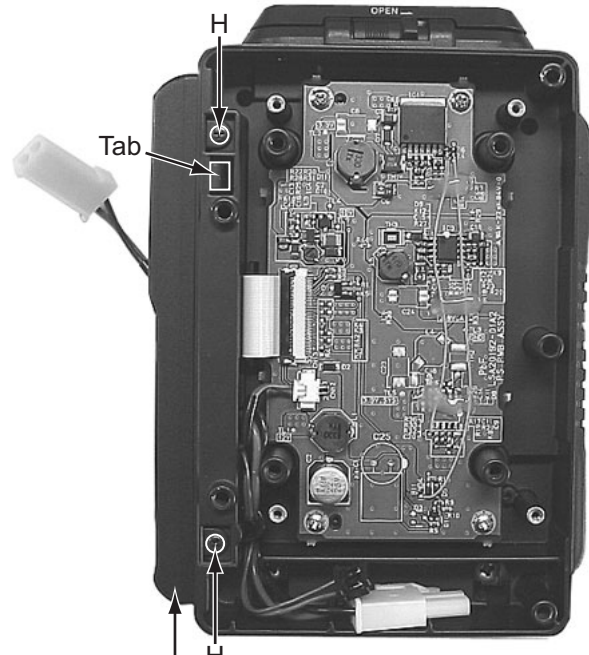


Fig.11

- (4) Remove the two screws J attaching the OPE board, and then remove it.

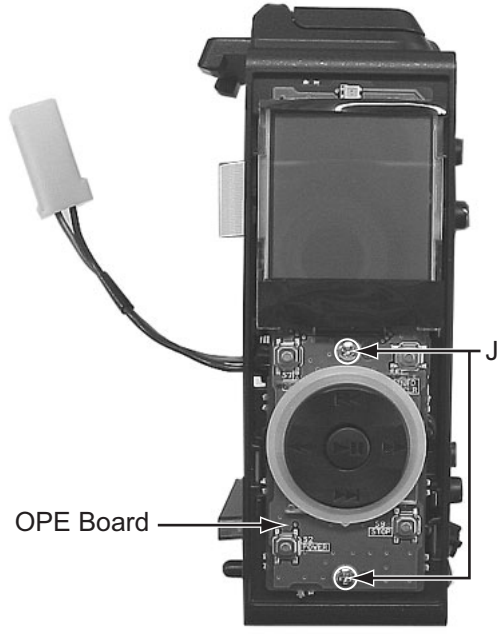


Fig.12

NOTE:
When replacing the LCD, do not straighten the FPC that was once bent. Repeating the bend and straighten operation may cause backlight failures.

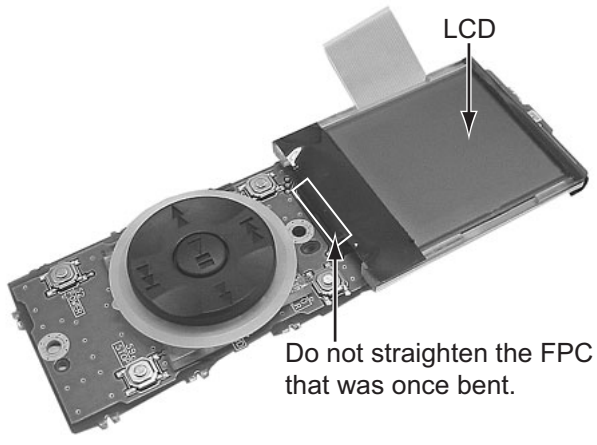


Fig.13

3.2 KA-UM100G

3.2.1 Removing the UMA board (See figure 14, figure 15, figure 16)

(1) Remove the four screws K attaching the plate R.

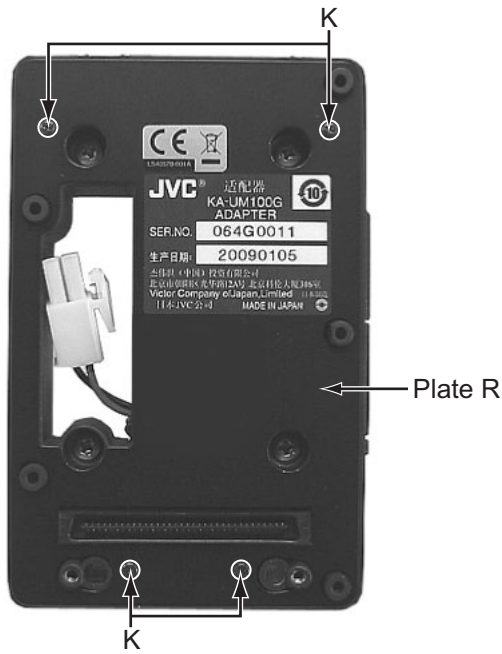


Fig.14

(2) Remove the three screws L attaching the UMA board.

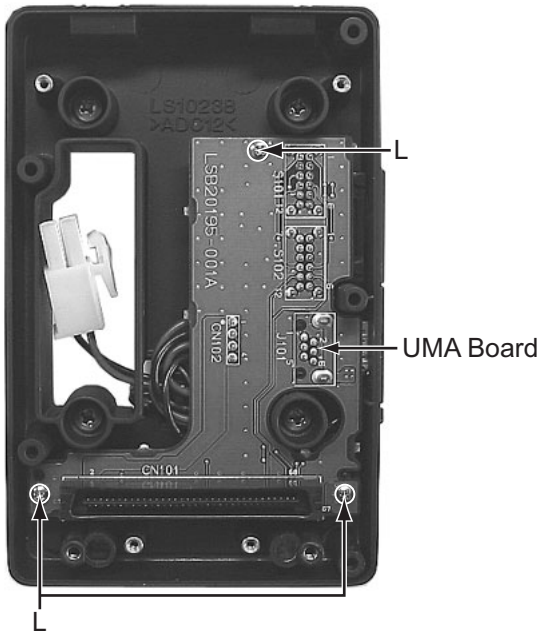


Fig.15

(3) Disconnect the wires from each connector [CN102](#), [CN104](#) on the UMA board, and then remove it.

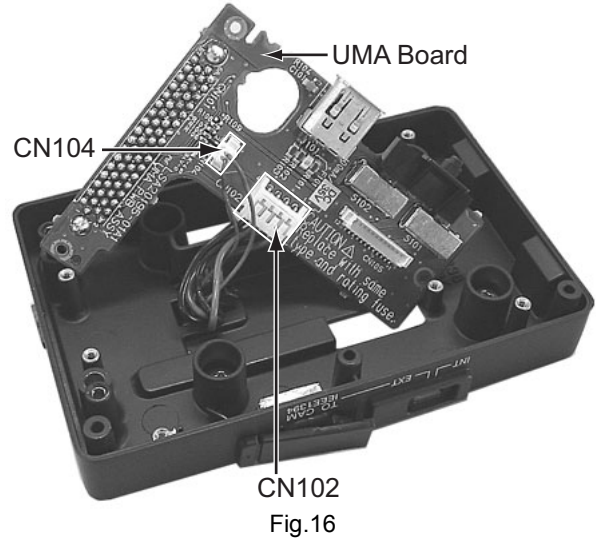


Fig.16

SECTION 4 ADJUSTMENT

4.1 EQUIPMENT NECESSARY FOR ADJUSTMENT

Instrument	Condition and part number
Frequency counter	Readable in 8 or more digits, and must be calibrated. Constancy of $0.1\text{ppm}/1 \times 10^{-7}$ or more at 0°C to 40°C .
JIG board	Part number: KSJ1705
Connecting cable	Part number: KS44291
Battery (Recommended)	U Model: Anton Bauer Dionic90 E Model: IDX Endura-7
SD card	Minimum 16 MB or more

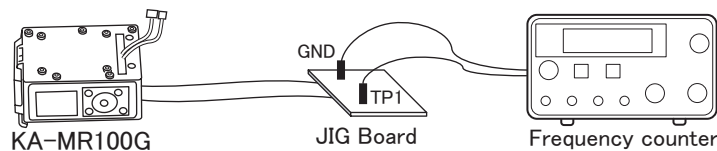
4.2 27MHz ADJUSTMENT

When the CODEC Board is replaced, this adjustment is required.

4.2.1 Connection

Connect the JIG board, connecting cable,*1 and the frequency counter as shown in the figure below.

- The GY-HD200/250 series supplies power only by the battery. And, after it charges it full, the battery is adjusted.
- As for the GY-HM700 series, the supply from the DC power supply is possible.



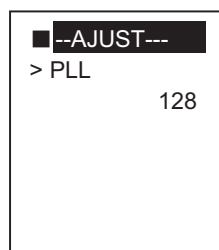
*1 NOTE:

Please connect it so as not to damage 1 pin and 20 pins of CN24 on the CODEC board when the cable is connected while keeping the connector parallel.

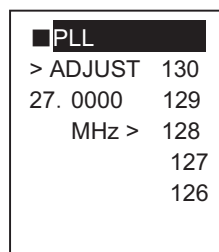
4.2.2 Adjustment procedure

Measuring point	TP1 on the JIG Board
Adjustment level	27MHz \pm 15Hz (26.999985MHz to 27.000015MHz)

- (1) While pressing the [■] button and the [INFO/CLR] button, press the [MENU] button to display the adjustment menu screen.
- (2) Select [AJUST] using the [⏪] button.



- (3) Press the [▶||] button.
- (4) Change the value using the [⏪] or [▶] button to adjust the frequency of TP1 on the JIG board to the adjustment level.



- (5) Press the [▶||] button to set the adjustment result.
- (6) Press and hold the [POWER] button for more than one second to turn the power OFF.

4.3 FIRMWARE WRITING

NOTE:

The power supply to KA-MR100G is from the battery only. Before starting the firmware writing, make sure the battery is fully charged to avoid power shortage during the writing. Power shortage during the firmware writing may damage the internal ICs.

NOTE:

Make sure to take SxS card out beforehand.
 Before starting firmware writing, make sure the IEEE1394 connection is disconnected.
 Internally connected: Switch the KA-UM100G connection from [INT] to [EXT].(GY-HD200/250)
 Externally connected: Unplug the cable, or switch the KA-UM100G connection from [EXT] to [INT].(GY-HD200/250)

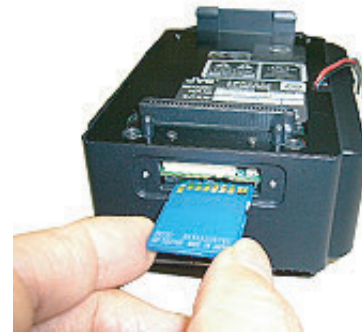
- (1) Download the firmware file from JS-NET.
- (2) Save the downloaded firmware file to an SD card.
- (3) The GY-HD200/250 series supplies power by the battery with which it charges full. As for GY-HM700, the supply from the DC power supply of 12V is possible.
- (4) Remove the two screws from the bottom of KA-MR100G, then remove the cover.
- (5) Turn ON the power of KA-MR100G, then insert the SD card into the SD card slot.
- (6) Firmware writing starts automatically, and finishes in about two minutes.
- (7) The writing operation can be checked by the LED (D11) on the CODEC Board.



Bottom view

Flashes	Writing
Lights up	Writing finished
Turns off	Writing error

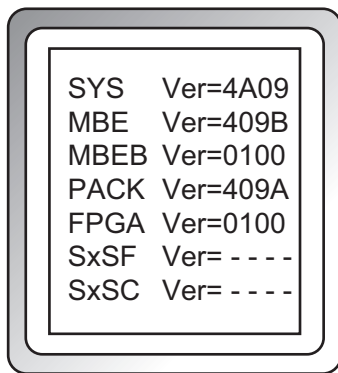
- If a writing error occurs, perform the above procedure again.



NOTE:
 It inserts it carefully in the direction of the SD card.

4.3.1 How to check the firmware version

Push both MENU button and INFO/CLR button simultaneously more than 3 seconds.



Version display

SECTION 5 TROUBLESHOOTING

5.1 KA-MR100G/KA-UM100G Internal Cable Connection

Note:

- After this modification, the IEEE1394 connector of KA-UM100G becomes no communication available.
- "Internal connected cable" is unnecessary in the GY-HM700 series.

5.1.1 Remove Left side cover

- Refer to see service manual (No.HC014) 1-1 and 1-2.



Fig.1

5.1.2 Open the CON cover

- (1) Remove the 5 screws and take out sw cover.

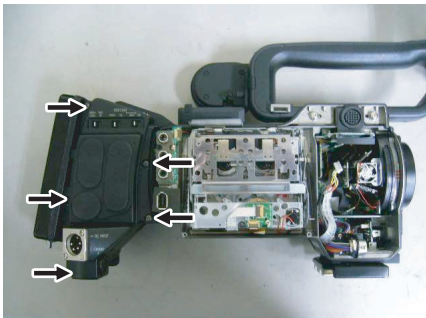


Fig.2

- (2) Remove the cable between SW pwb CN54 and DV OUT pwb CN54.



*The removed cable is not used.

Fig.3

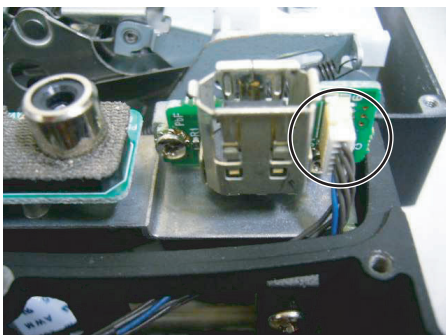


Fig.4

5.1.3 Remove the battery mount plate

(The figure is Anton type for U-model. IDX type is mounted for E-model.)

- (1) Remove four screws.



Fig.5

- (2) Remove four screws, and then the PS pwb cover.



Fig.6

<Internal Cable>

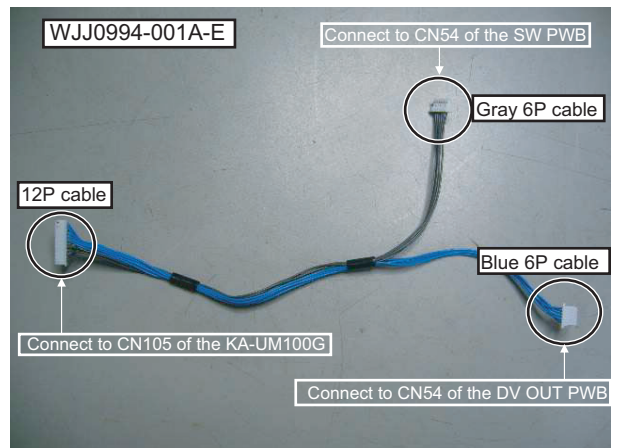


Fig.7

5.1.4 Install the Internal cable

(1) Remove the four screws.

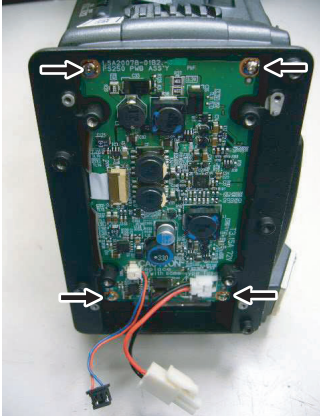


Fig.8

(2) Pass 12P cable through under the PS PWB.

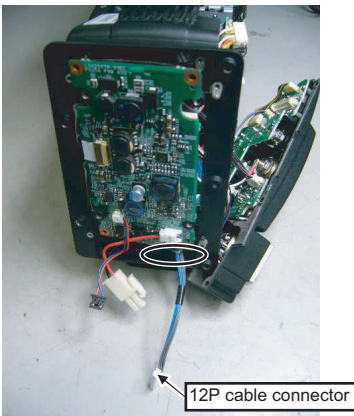
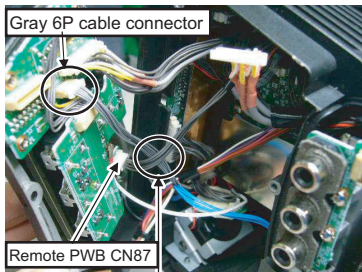


Fig.9

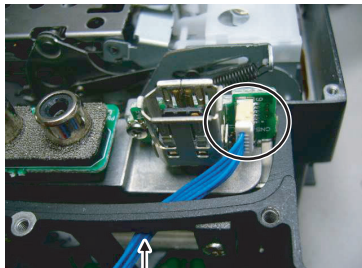
(3) Connect Gray 6P cable connector to SW PWB CN54.



Note.
Gray 6P cable should be wired at back of the cable of Remote PWB CN87 in order to prevent from touching fan motor.

Fig.10

(4) Connect Blue 6P cable connector to DV OUT CN54.



Note.
The cable should be passed through this position of figure.

Fig.11

5.1.5 Install the KA-UM100G

(1) Reinstall the PS PWB cover and tighten four screws.

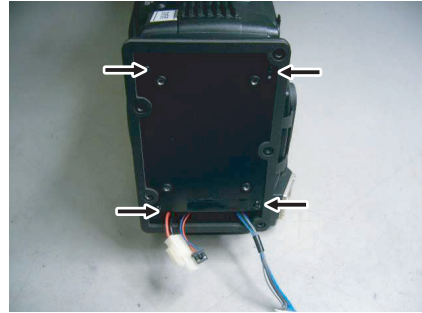
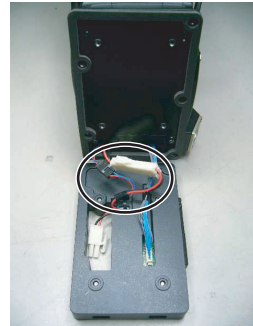


Fig.12

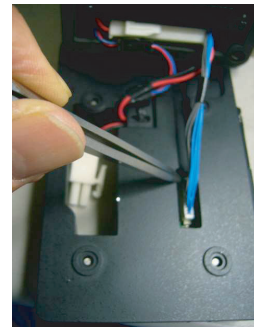
(2) Connect Battery cable and Battery INFO cable.



Note.
The connector should be placed to the bottom space.

Fig.13

(3) Connect 12P cable connector to KA-UM100G.



Note.
Connect 12P cable connector firmly by using tweezers etc.

Fig.14



Note.
The cable should be placed in the groove space of KA-UM100G.

Fig.15

5.1.6 Mount KA-MR100G

(1) Connect Battery cable.



Fig.16

(2) Attach KA-MR100G to KA-UM100G.



Push the bottom side of KA-MR100G to be locked.

Fig.17

(3) Tighten two screws.

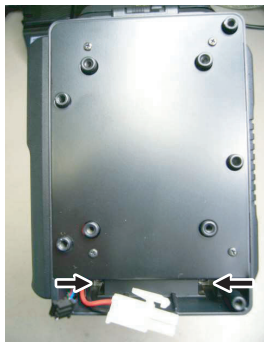


Fig.18

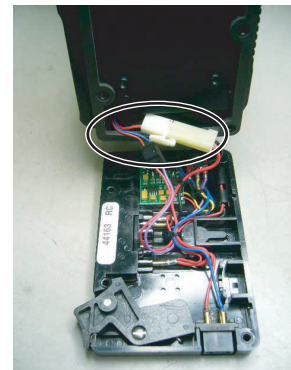
(4) Install the rubber sheet.



Fig.19

5.1.7 Install the Battery mount plate

(1) Connect Battery cable and Battery INFO cable.



Note.

The connector should be placed to the bottom space.

Fig.20

(2) Tighten four screws.

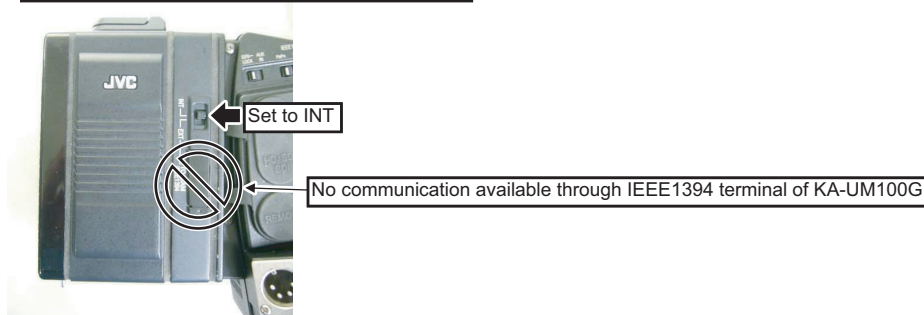


Fig.21

5.1.8 Set the [INT/EXT] switch to "INT"

Note.

After this modification, the IEEE1394 connector of KA-UM100G becomes no communication available.





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