

# JVC

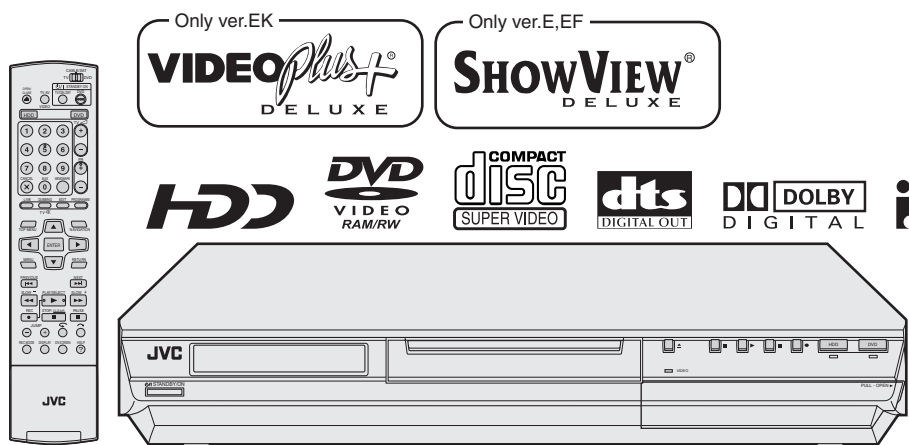
## SERVICE MANUAL

DVD&HDD VIDEO RECORDER

### DR-MH50SE, DR-MH50SEF DR-MH50SEK

**Area Suffix**

E ----- Continental Europe  
EF ----- France  
EK ----- U.K.



DR-MH50SE, DR-MH50SEF, DR-MH50SEK [D4HR30]

Since the whole mechanism assembly unit is replaced, the DVD recorder mechanism of this unit need not be adjusted.

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# SPECIFICATION

		DR-MH50SE	DR-MH50SEF	DR-MH50SEK	
<b>GENERAL</b>					
Power requirement	AC 220 V - 240 V~, 50 Hz/60 Hz				
Power consumption	Power on : 37 W Power off : 15.6 W				
Temperature	Operating : 5°C to 35°C Storage : -20°C to 60°C				
Operating position	Horizontal only				
Dimensions (W × H × D)	435 mm × 70 mm × 345.5 mm				
Weight	6.1 kg				
<b>Input/Output</b>					
Video input	Y:0.5-2.0 Vp-p, 75 ohms(pin jack)				
Audio input	-8 dB, 50 kilohms (pin jack) Corresponding to mono (left)				
Audio output	-8 dB, 1 kilohms (pin jack)				
21-pin SCART connectors	IN/OUT x 1, IN/DECODER x 1				
S-video input	Y: 0.8 - 1.2 Vp-p, 75 ohms C: 0.2 - 0.4 Vp-p, 75 ohms				
S-video output	Y: 1.0 Vp-p, 75 ohms C: 0.3 Vp-p, 75 ohms				
i.Link	4-pin for DV input				
Component video output	Y: 1.0 Vp-p, 75 ohms CB/CR, PB/PR: 0.7 Vp-p, 75 ohms Corresponding to copy protection				
SAT Control	3.5 mm				
Digital audio output	Optical: -18 dBm, 660 nm Coaxial: 0.7 Vp-p, 75 ohms Corresponding to Dolby Digital and DTS Digital Surround Bit stream Selectable in digital audio output setting menu				
<b>VIDEO/AUDIO (DVD Deck)</b>					
Recording time	Maximum 8 hours (with 4.7 GB disc) (XP) : Approx. 1 hour, (SP) : Approx. 2 hours, (LP) : Approx. 4 hours, (EP) : Approx. 6 hours, (FR) : Approx. 1 hour - 8 hours				
Audio recording system	Dolby Digital (2 ch) Linear PCM (XP mode only)				
Video recording compression system	MPEG2 (CBR/VBR)				
<b>VIDEO/AUDIO (HDD Deck)</b>					
Video recording compression system	MPEG2 (VBR)				
Audio recording system	Dolby Digital (2 ch) Linear PCM (XP mode only)				
Recording time	Maximum 473 hours(with 250 GB HDD) (XP) : Approx.53 hours, (SP) : Approx.109 hours,(LP) : Approx.218 hours, (EP) : Approx.328 hours, (FR) : Approx. 473 hours				
<b>TUNER/TIMER</b>					
Signal system	PAL-type colour signal and CCIR monochrome signal, 625 lines/50 fields				
TV channel storage capacity	99 positions (+AUX position)				
Tuning system Frequency synthesized tuner					
Channel coverage (SECAM L)	Frequence	VHF	-	LOW: 49 MHz -65 MHz/ HIGH: 104 MHz -300 MHz	-
		Hyper		300MHz-470MHz	
		UHF		470 MHz -862 MHz	
	Canaux	VHF	-	LOW: 2-4 HIGH: 5-10 CATV	-
		Hyper		CATV	
		UHF		21-69	
Channel coverage (PAL B/G)	Frequence	VHF	47 MHz -89 MHz/ 104 MHz -300 MHz/ 302 MHz -470 MHz	LOW: 47 MHz -89 MHz/ HIGH: 104 MHz -300 MHz	44.5MHz-143MHz/ 143MHz-470MHz
		Hyper	-	302 MHz -470 MHz	-
		UHF	470 MHz -862 MHz		
	Canaux	VHF	-	LOW: E2-E4, X, Y, Z HIGH: E5-E12,S1-S20,M1-M10,U1-U10	-
		Hyper		S21-S41	
		UHF		E21-E69	
Memory backup time	Approx. 60 seconds				
<b>ACCESSORIES</b>					
Provided accessories	RF cable,21-pin SCART cable,Satellite Controller,Infrared remote control unit,"AA" battery x 2				

E. & O.E. Design and specifications subject to change without notice.

### ATTENTION:

This unit contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the unit off and unplug the mains power cord. Then plug it in again and turn the unit on. Take out the disc. After checking the disc, operate the unit as usual.

- Manufactured under licence from Dolby Laboratories. "Dolby" and double-D symbol are trademarks of Dolby Laboratories.
- "DTS" and "DTS DIGITAL OUT" are trademarks of Digital Theater Systems, Inc.
- VIDEO Plus+ and PlusCode are registered trademarks of Gemstar Development Corporation. The VIDEO Plus+ system is manufactured under license from Gemstar Development Corporation.
- This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing users only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

# SECTION 1 PRECAUTION

## 1.1 Safety Precautions

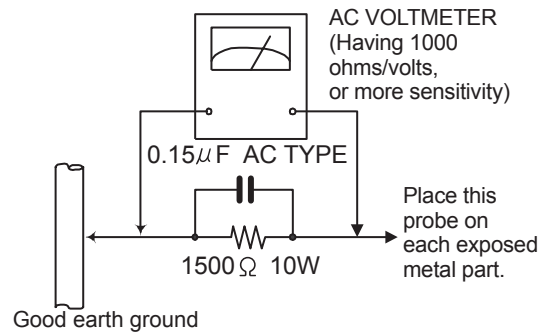
- (1) This design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
- (2) Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
- (3) Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by ( $\Delta$ ) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
- (4) The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after reassembling.
- (5) Leakage shock hazard testing

After reassembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock. Do not use a line isolation transformer during this check.

- Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.).
- Alternate check method  
Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 $\Omega$  per volt or more sensitivity in the following manner. Connect a 1,500 $\Omega$  10W resistor paralleled by a 0.15 $\mu$ F AC-type capacitor between an exposed metal part and a known good earth ground. Measure the AC voltage across the resistor with the AC

voltmeter.

Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Voltage measured any must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



## 1.2 Warning

- (1) This equipment has been designed and manufactured to meet international safety standards.
- (2) It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
- (3) Repairs must be made in accordance with the relevant safety standards.
- (4) It is essential that safety critical components are replaced by approved parts.
- (5) If mains voltage selector is provided, check setting for local voltage.

## 1.3 Caution

**Burrs formed during molding may be left over on some parts of the chassis.**

**Therefore, pay attention to such burrs in the case of pre-forming repair of this system.**

## 1.4 Critical parts for safety

In regard with component parts appearing on the silk-screen printed side (parts side) of the PWB diagrams, the parts that are printed over with black such as the resistor (■), diode (■) and ICP (●) or identified by the " $\Delta$ " mark nearby are critical for safety. When replacing them, be sure to use the parts of the same type and rating as specified by the manufacturer. (This regulation does not Except the J and C version)

## 1.5 Important for laser products

### 1.CLASS 1 LASER PRODUCT


**2.DANGER** : Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.

**3.CAUTION** : There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.

**4.CAUTION** : The CD,MD and DVD player uses invisible laser radiation and is equipped with safety switches which prevent emission of radiation when the drawer is open and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.

**5.CAUTION** : If safety switches malfunction, the laser is able to function.

**6.CAUTION** : Use of controls, adjustments or performance of procedures other than those specified here in may result in hazardous radiation exposure.

 **CAUTION** Please use enough caution not to see the beam directly or touch it in case of an adjustment or operation check.

**CAUTION** : Visible and invisible laser radiation when open and interlock failed or defeated.

AVOID DIRECT EXPOSURE TO BEAM.

**ADVARSEL** : Synlig og usynlig laserstråling når maskinen er åben eller interlocken fejler. Undgå direkte eksponering til stråling.

**VARNING** : Synlig och osynlig laserstråling när den öppnas och spärren är urkopplad. Betrakta ej strålen.

**VARO** : Avattaessa ja suojalukitus ohitettuna tai viallisena olet alttiina näkyvälle ja näkymättömälle lasersäteilylle. Vältä säteen kohdistumista suoraan itseesi.

## REPRODUCTION AND POSITION OF LABEL

On mechaism assembly



**CAUTION** VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM. DO NOT STARE INTO BEAM OR VIEW DIRECTLY WITH OPTICAL INSTRUMENTS.  
**ADVARSEL** SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGA UDSAETTELSE FOR STRÅLING SE IKKE IND I STRÅLEN - HELLER IKKE MED OPTISKE INSTRUMENTER.  
**ADVARSEL** SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. UNDGA EKSPONERING FOR STRÅLEN STIRR IKKE INN I STRÅLEN ELLER SE DIREKTE MED OPTISKE INSTRUMENTER.  
**VARO!** AVATTAESSA OLET ALTTIINA NÄKYVÄÄ JA NÄKYMÄTÖN LASERSÄTEILYLLE. ÄLÄ TUJOTA SÄTEESEEN ÄLÄKÄ KATSO SITÄ OPTISEN LAITTEEN LÄPI.  
**VARNING** SYNLIG OCH OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÄR ÖPPNAD. STRÅLEN ÄR FARLIG STIRRA EJ IN I STRÅLEN OCH BETRAKTA EJ STRÅLEN MED OPTISKA INSTRUMENT.

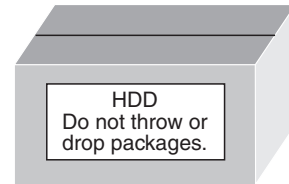
## 1.6 Hard Disk Drive (HDD) Handling Precautions

The HDD is a precision device for use in reading and writing a large amount of data on or from a disk rotating at a high speed. If it is not handled carefully, either abnormal operation may result or it may not be possible to read data. The HDD is sensitive to the following items and special care is required in safeguarding against them when handling an HDD. Also take care in handling a set incorporating an HDD.

- (1) Vibrations and impacts
- (2) Static electricity
- (3) Rough handling

### 1.6.1 Handling in transport, etc.

- Be sure to place the HDD in the manufacturer's specified package carton before transport.
- When receiving a package containing an HDD, check that the package carton is not damaged (such as having holes in the carton, crushed corners, etc.).
- Do not impact the packaging carton when loading or unloading it.
- It is not permitted to use the inner package carton only for transporting an HDD.
- Do not stack package cartons one upon another.

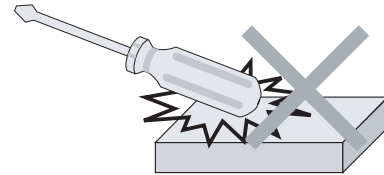


Be sure to package and transport the HDDs correctly.

### 1.6.2 Handling an HDD in the stand-alone status

- When handling an HDD on a hard workbench, place an anti-static mat (rubber sheet) or similar object on the hard surface (to prevent any impacts occurring between the HDD and bench).
- Do not stack the HDDs one upon another.
- Do not knock an HDD with a hard object (such as a screwdriver).

- Do not place an HDD on its side panel without using a support (do not place an HDD in an unstable position).



### 1.6.3 Handling the installation of an HDD

- Place antistatic mats or similar sheets on all of the surfaces on which work is conducted or when the HDD is transported.
- Do not permit the HDD to knock against the set's brackets.
- When screwing the brackets, be careful not to knock the HDD. When using a power screwdriver, use a low-shock model and arrange the tightening torque properly.
- When mounting an HDD in a main body, take care not to apply excessive force to the brackets.

**SECTION 2**  
**SPECIFIC SERVICE INSTRUCTIONS**

This service manual does not describe SPECIFIC SERVICE INSTRUCTIONS.

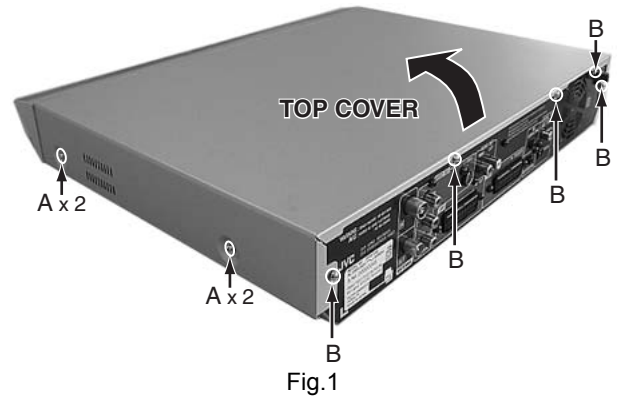
## SECTION 3 DISASSEMBLY

The photograph used by this explanation might be different from the actual one according to the destination etc.

### 3.1 Main body section

#### 3.1.1 Remove the top cover (See figure 1)

- (1) Remove the four screws **A** attaching the top cover on both sides of the main body.
- (2) Remove the five screws **B** attaching the top cover on the back of the main body.
- (3) Raise the both sides and lower part of the rear of the top cover, with opening them slightly in an outward direction. And the top cover will be removed.



### 3.1.2 Remove the front panel assembly and HDD (See figure 2, figure 3, figure 4, and figure 5)

- Prior to performing the following procedure, remove the top cover.
- There is no need to remove the drive unit.
  - (1) Remove the four screws **C** attaching the HDD.
  - (2) Disconnect the socket wire from connector **CN5307** on the switching regulator board.
  - (3) Disconnect the card wire from connector on the HDD.
  - (4) Disconnect the card wires from connector **CN3001**, **CN3002**, **CN4001** on the main board.
  - (5) Hooks **a** and **b** are removed respectively, and the front panel assembly is removed.

**NOTE:**

In case of attach a front panel assembly, please let a card wire pass in the hole in the front part of a chassis, respectively, and connect.

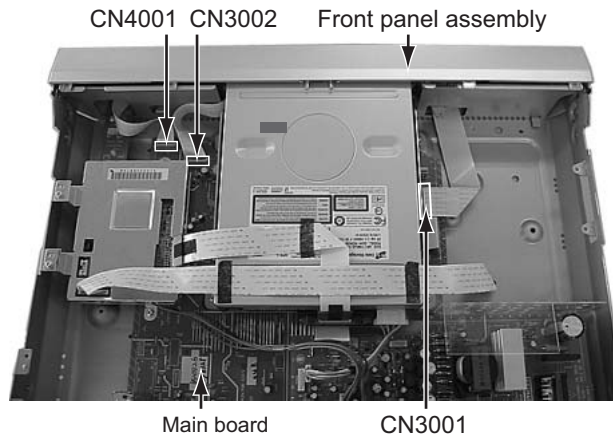


Fig.3

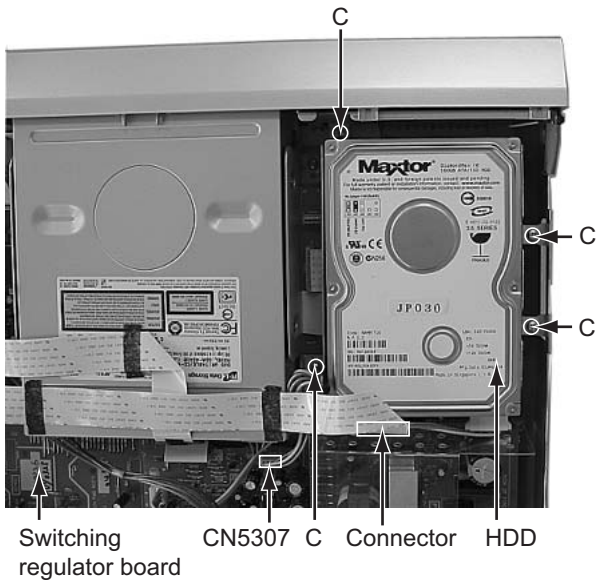


Fig.2

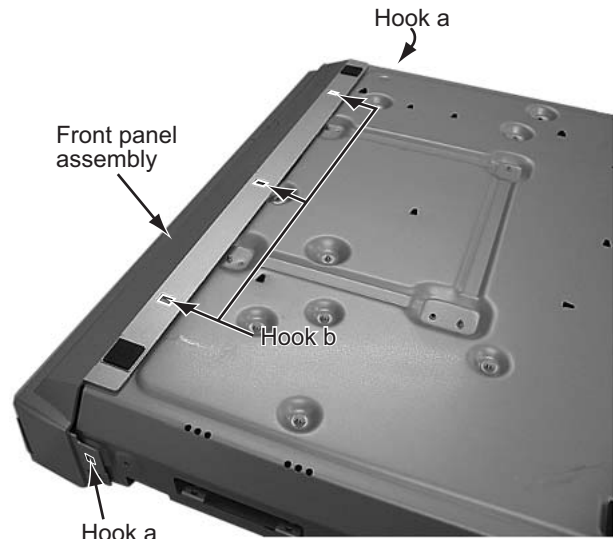


Fig.4

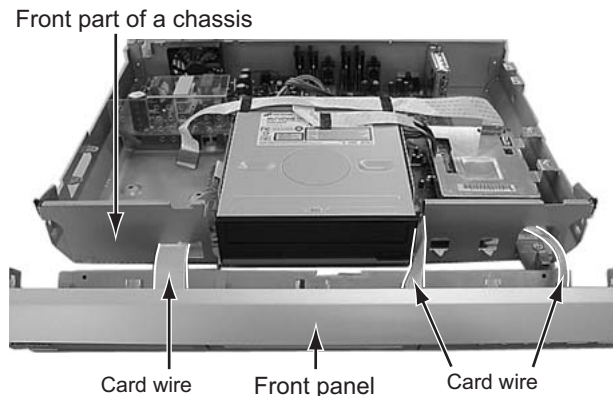


Fig.5



### 3.1.3 Remove the drive unit (See figure 6)

- Prior to performing the following procedure, remove the top cover.
- There is no need to remove the front panel assembly.
  - (1) Disconnect the socket wire from connector [CN5303](#) on the switching regulator board.
  - (2) Disconnect the card wire from connector [CN2201](#) on the digital board.
  - (3) The tape which is fixing the card wire is removed two places.
  - (4) Remove the four screws **D** attaching the drive unit.
  - (5) Remove the one screw **E** attaching the lug wire.

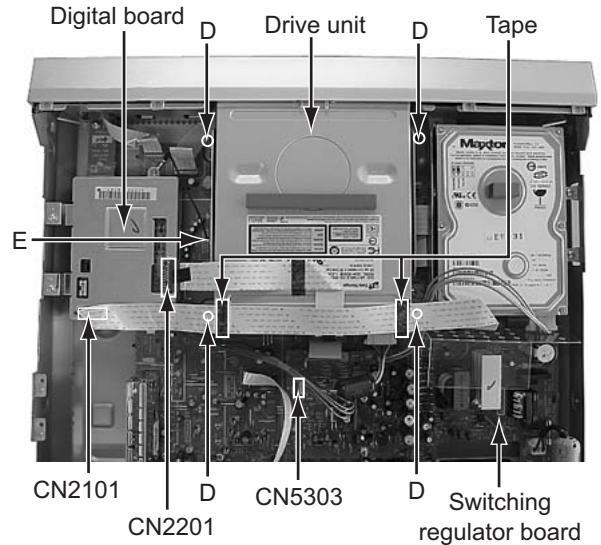


Fig.6

### 3.1.4 Remove the digital board (See figure 7, figure 8)

- Prior to performing the following procedure, remove the top cover.
  - (1) Disconnect the card wire from connector [CN2201](#), [CN2101](#) on the digital board.
  - (2) Disconnect the socket wire from connector [CN1003](#) on the digital board.
  - (3) Remove the four screws **F** attaching the digital board.
  - (4) Lift the digital board up, and remove it. Then, the digital board is removed from the connectors [CN4101](#), [CN4102](#) on the main board and [CN4104](#) on the jack board. In attaching the digital board, insert the connector on the digital board in these connectors securely.

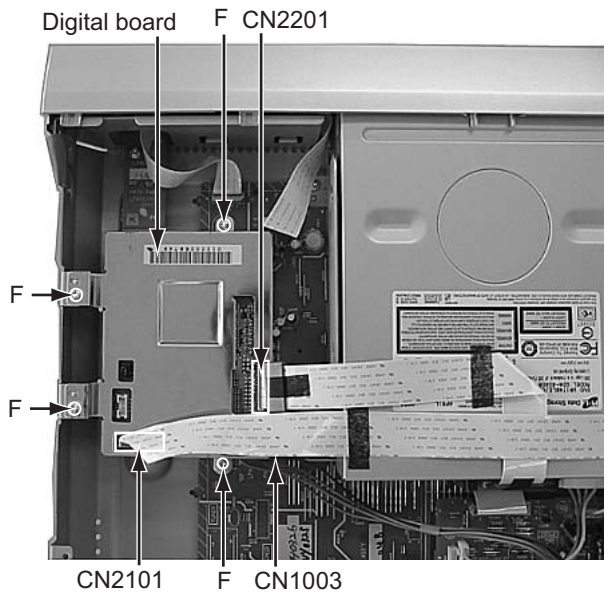


Fig.7

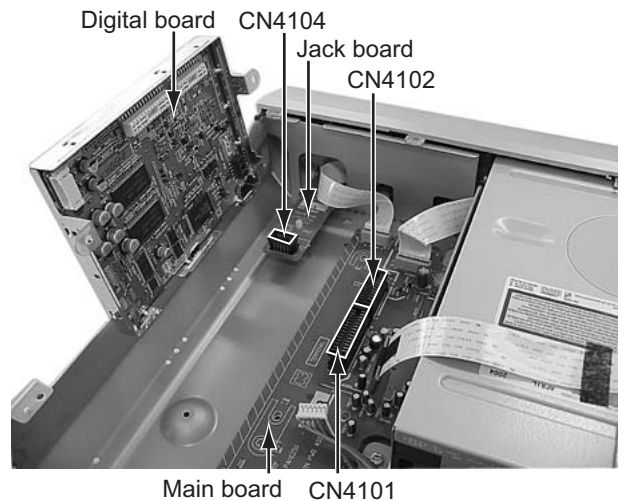
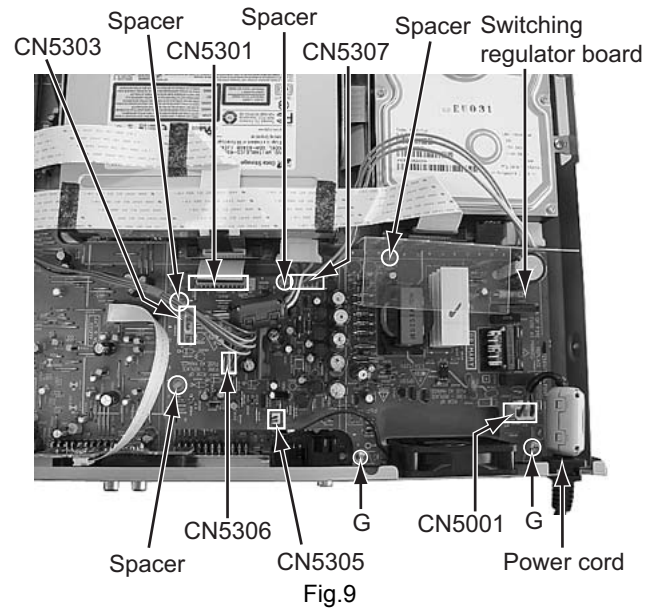


Fig.8

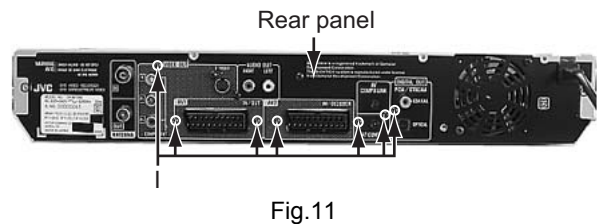
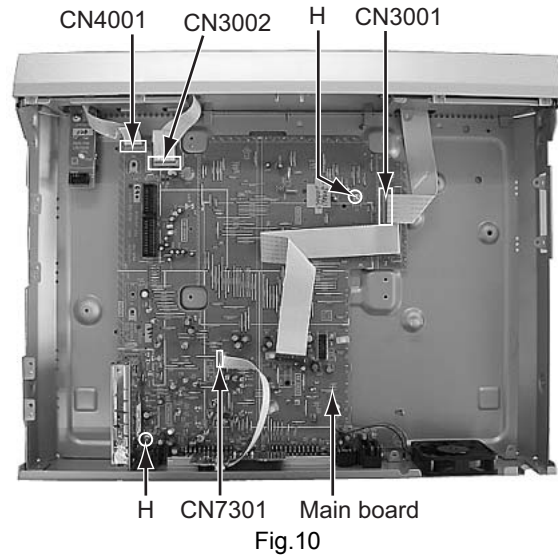
### 3.1.5 Remove the switching regulator board (See figure 9)

- Prior to performing the following procedure, remove the top cover.
- (1) Disconnect the card wire from connector [CN5301](#) on the switching regulator board.
- (2) Disconnect the socket wire from connector [CN5303](#), [CN5305](#), [CN5306](#), [CN5307](#) on the switching regulator board.
- (3) Disconnect the power cord from connector [CN5001](#) on the switching regulator board.
- (4) Remove the two screws **G** attaching the switching regulator board.
- (5) Four spacers are removed.



### 3.1.6 Remove the main board (See figure 10, figure 11)

- Prior to performing the following procedure, remove the top cover, drive unit, digital board, switching regulator board, HDD.
- (1) Disconnect the card wire from connector [CN3001](#), [CN3002](#), [CN4001](#), [CN7301](#) on the main board.
- (2) Remove the two screws **H** attaching the main board.
- (3) Remove the seven screws **I** attaching the rear panel with main board.



## SECTION 4 ADJUSTMENT

### 4.1 Timer clock adjustment (for only ver.E)

If an error comes to arise for a clock, the following procedure will adjust.

Signal	(A1)	No signal
Mode	(B)	EE
Equipment	(C)	Frequency counter
Measuring point	(D1) (D2) (D3)	IC3001 pin 61 IC3001 pin 17 C3026 + and -
Adjustment part	(F)	C3025 (TIMER CLOCK)
Specified value	(G1)	1024.008 $\pm$ 0.001 Hz (976.5549 $\pm$ 0.0010 usec)

- (1) Connect the frequency counter to the measuring point (D1).
- (2) Connect the short wire between the short point (D2) and Vcc (5V).
- (3) Short the leads of capacitor (D3) once in order to reset the microprocessor of the system controller.
- (4) Disconnect the short wire between the short point (D2) and Vcc then connect it again.
- (5) Adjust the Adjustment part (F) so that the output frequency becomes the specified value (G).


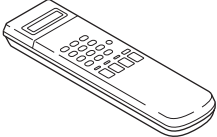
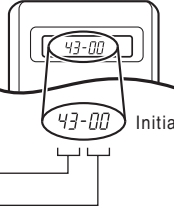
## SECTION 5 TROUBLESHOOTING

### 5.1 JIG Mode

The following remote control units are required to set and cancel JIG mode.

For setting : a remote control unit attached to product.

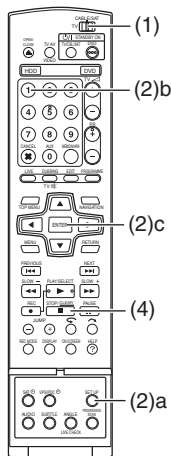
For cancellation : JIG remote control unit (part number : PTU94023B)

Remote control unit attached to product	JIG remote control unit
	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">  <p>JIG remote control unit [Data transmission] Set the data code, and then press the " " " [3] button.</p> </div> <div style="width: 50%;"> <p>Custom code</p> <p>43:A Code</p> <p>53:B Code</p> <p>6F:C Code</p> <p>7F:D Code</p> <hr/> <p>Data code</p> </div> </div> <div style="text-align: right; margin-top: 20px;">  <p>Initial mode</p> </div>

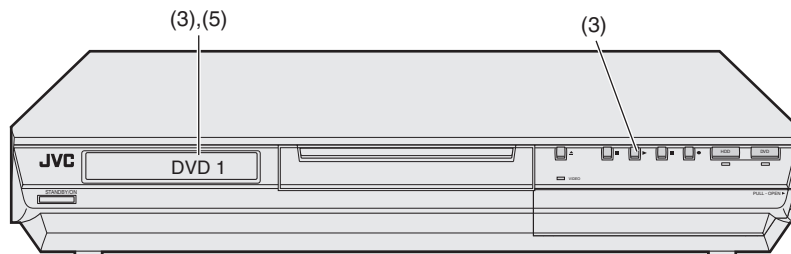
When the main body is set to JIG mode and when the main body is under JIG mode, the remote control unit attached to product operates only in "Remote Control Code 1". Since main body is in "Remote Control Code 3" when it is shipped and just after its batteries are changed, "Remote Control Code 3" needs to be changed to "Remote Control Code 1."

#### < Changing Remote Control Code >

- (1) Switch TV/CABLE/SAT/DVD Switch to "DVD"
- (2) Press the numeric button "1" of the remote control unit while pressing the "SET UP" button of the remote control unit. Then, press the "ENTER" button, and then release the "SET UP" button.
- (3) Press the "PLAY" button of the main body for five seconds or longer while the main body is in stand-by mode, and a current remote control code of the main body is displayed in FL indicator of the main body.
- (4) While keeping the state of (3), press the "STOP" button of the remote control unit toward the main body.
- (5) The code that was set by the remote control unit blinks for 5 seconds, before the code is set to the main body. When the FL indicator changes to "DVD 1", it shows that the Remote Control Code has been changed to "1".



"(2) a-c" shows the order of pressing the buttons.



### 5.1.1 Setting JIG mode

To display SYSTEM INFO or to update firmware, the main body needs to be set to JIG mode.

- (1) Turn the main body ON.
- (2) Press the buttons of the remote control unit attached to product in the following order : "SET UP" → "2" → "8" → "ENTER"
- (3) When a colon ":" between "hour" and "minute" of a clock in FL indicator blink, it means that the main body has been set to JIG mode properly.

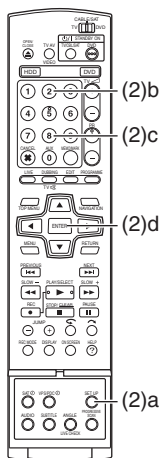
[ Example ]



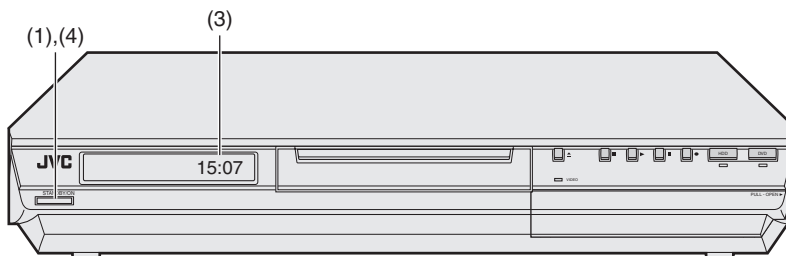
A colon blinks.

- (4) Turn the main body OFF, and then turn it ON again.

\*Once the main body is set to JIG mode, the JIG mode cannot be cancelled even if the power cord is pulled out from the wall socket.



"(2) a-d" shows the order of pressing the buttons.



### 5.1.2 Canceling JIG mode

- (1) Transmit "43-9D" to the main body by using JIG remote control unit.(Please end a setting menu pushing "SET UP" button of the remote control unit appended to the commodity beforehand when a setting menu is displayed.)
- (2) A colon ":" between "hour" and "minute" of a clock in FL indicator light.
- (3) Turn the main body OFF, and then turn it ON again.

#### NOTE:

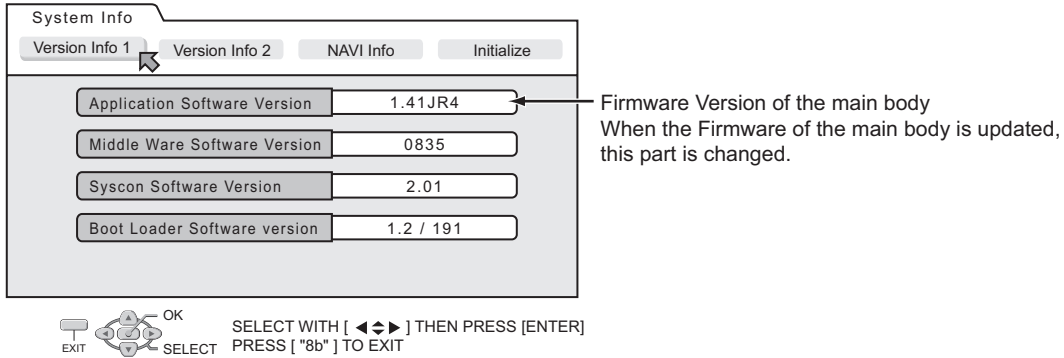
After repair work, be sure to cancel JIG mode. Before returning product to a user, confirm that a colon ":" between "hour" and "minute" of a clock in FL indicator light.

## 5.2 Displaying SYSTEM INFO

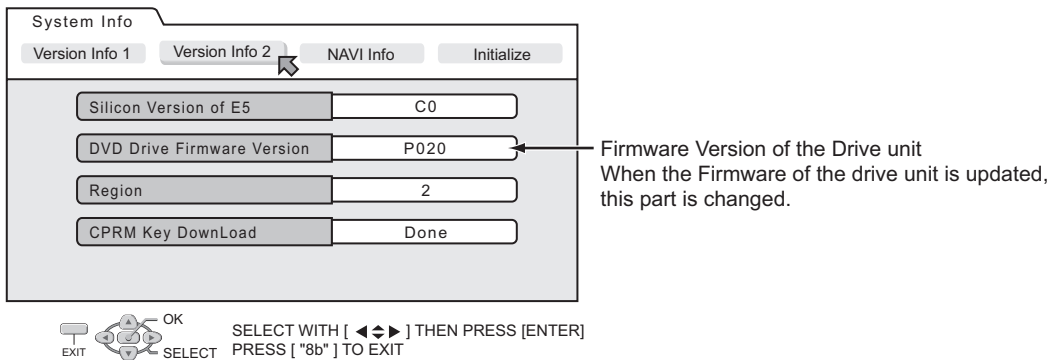
In the SYSTEM INFO there is information including Firmware Versions of the main body and the drive unit.

- (1) Set the main body to JIG mode.
- (2) Transmit "43-8B" to the main body by using JIG remote control unit. (Please end a setting menu pushing "SET UP" button of the remote control unit appended to the commodity beforehand when a setting menu is displayed.)
- (3) SYSTEM INFO menu is displayed in the television screen.
- (4) To move cursor in SYSTEM INFO, use the "▲", "▼", "◀", and "▶" buttons of a remote control unit attached to product.

### The example of a display < Version Info 1 >



### The example of a display < Version Info 2 >



#### NOTE :

Items other than the ones described above are not used in service work.

- (5) To quit the SYSTEM INFO menu, transmit "43-8B" to the main body by using JIG remote control unit.
- (6) Cancel JIG mode.

### 5.3 Updating the firmware of the main body

- Firmware update disc supports CD-R media.
- When firmware update is necessary, information is available from the homepage of DIGITAL VIDEO STORAGE CATEGORY, CS group.

#### 5.3.1 Creating an update disc

Please check the details of the update disc creation method by JS-NET.

- (1) Download the update file from JS-NET.
  - (2) Write the update file into CD-R. Pay attention in the following points when writing the update disc.
- Make sure to write in "Disc at Once".
  - Set the file compatibility to "ISO9660 format". (ROMEO, JOLIET are disapproved.) If the writing method is not correct, the update results in an error.

#### 5.3.2 Update procedure

- There are two methods of updating firmware, using JIG mode <method 1> or not using JIG mode (User update mode) <method 2>. Updating can be operated in either method.

##### <Method 1>

- (1) Set to the JIG mode.
- (2) Load the update disc on the tray, and then close the tray.
- (3) When the disc reading operation is completed, transmit "43-70" with the JIG remote control unit.  
If the update disc is not correct, FL indicator displays an "ERROR" after transmitting "43-70". Transmit "43-70" once and make the FL indicator to normal display, and then reload the disc then transmit "43-70" again.
- (4) "UPDATE" is displayed in the FL indicator, and the FL indicator changes to "FL UPDATE" afterwards. It takes approx. 2 minutes for the change.
- (5) Remove the disc as the tray is ejected, and then transmit "43-70" with the JIG remote control unit. Then the FL indicator changes from "UPDATE" to the normal display.
- (6) Close the tray and turn the main body OFF. Pull out the power code from the wall socket, then plug the power cord into the wall socket again.
- (7) When "LOADING" in the FL indicator disappears, turn the main body ON.
- (8) Display the SYSTEM INFO menu, and check the version of the firmware.
- (9) Cancel the JIG mode.

##### <Method 2>

- (1) Turn the power ON. Load the update disc on the tray and close the tray.
- (2) When the disc reading operation is completed, turn the power OFF.
- (3) Keep pressing the "PAUSE" button and the "POWER" button at the same time. (Until FL indicator changes to "UPDATE").
- (4) In approx. 2 minutes the tray is ejected. Remove the disc and close the tray.
- (5) Reset operation is carried out automatically, and it becomes standby condition.
- (6) Then, display the SYSTEM INFO menu in the JIG mode and check the version.

#### 5.4 Updating the firmware of the drive unit

- Firmware update disc supports only DVD-RAM media.
- When firmware update is necessary, written discs are distributed by DIGITAL VIDEO STORAGE CATEGORY, CS group.
  - (1) Turn the main body ON.
  - (2) Load the update DVD-RAM disc on the tray and close the tray.
  - (3) "READING" is displayed in the FL indicator and the update is started.
  - (4) In a short while "READING" in the FL indicator disappears, open the tray to remove the disc and close the tray.
  - (5) Turn the power OFF and pull out the power code from the wall socket, then plug the power cord into the wall socket again.
  - (6) Set to the JIG mode and check the firmware version of the drive.

#### 5.5 Taking out a disc

##### <Method 1 >

There is a forced tray eject mode with electrical operation.

- (1) Right after plugging in the power code (while "LOADING" is displayed), keep pressing the OPEN/CLOSE button of the main body.
- (2) Remove the disc as the tray is ejected in a short while.
- (3) Make sure to close the tray afterwards.

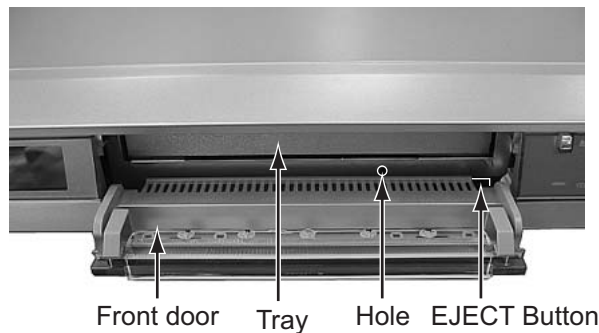
##### <Method 2 >

When the disc cannot be removed by operating above <Method 1 >, open the front door of the main body manually and directly press the EJECT button located in the lower right of the drive unit.

##### <Method 3 >

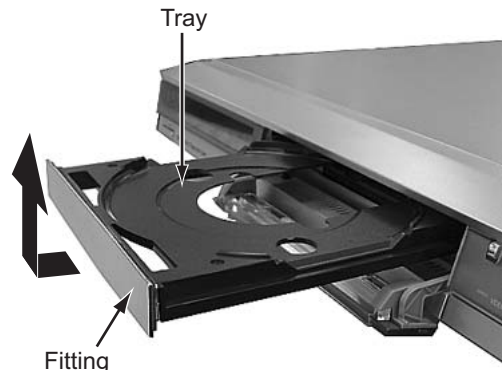
When neither <Method 1> nor <Method 2> can remove the disc, the tray can be ejected mechanically without turning the power on.

- (1) Open the front door of the main body manually.
- (2) Insert a fine wire (e.g. a straightened paper clip) into the hole in the lower part of the tray of the drive unit.
- (3) As the tray ejects a little, pull out the tray manually.



#### 5.6 Exchanging the fitting

As the fitting that comes with the service drive unit cannot be used, make sure to attach a service fitting when the drive unit is exchanged. The fitting that is removed from the old drive unit can be attached to the new drive unit. The fitting can be removed by pulling upwards while opening out the lower part of the fitting outwards.





## 5.7 Initialization to the factory shipment state

When the initialization is operated, internal information changes as follows. It is essential to obtain the client's permission before the operation.

- All DVD library is all deleted.
- All the DVD initial settings go back to the initial status.
  - (1) Set to the JIG mode.
  - (2) Transmit "43-6F" with the JIG remote control unit.
  - (3) FL indicator displays "FACTORY", and changes to "CHECK OK" after blinking for a short while.
  - (4) Pull out the power code from the wall socket.
  - (5) The JIG mode is forced to cancel at the same time with the initialization, check whether the JIG mode is canceled by plugging the power code into the wall socket again. (The colon ":" in time display should be continuously ON, not blinking.) If the JIG mode is not canceled, transmit "43-9D" with JIG remote control unit to cancel the JIG mode.

## 5.8 Setting after the drive unit replacement

When the drive unit is replaced, it is necessary to set a region code. Service drive units for replacement are not set for any region code, and they are in an indefinite condition.

Make sure to set region code after attaching the drive unit to the main body.

**Without the setting of the region code, discs that have regions cannot be played back.**

### 5.8.1 Creating a region setting disc.

Please check the details of the region setting disc creation method by JS-NET.

- (1) Download the region setting file from JS-NET.
- (2) Write the region setting file into CD-R. Pay attention in the following points when writing the file into CD-R.
  - Make sure to write in "Disc at Once".
  - Set the file compatibility to "ISO9660 format". (ROMEO, JOLIET are disapproved).  
If the writing method is not correct, the normal setting cannot be performed.

### 5.8.2 Setting the region

- (1) Set for the JIG mode.
- (2) Load the region setting disc on the tray, and then close the tray.
- (3) When the disc reading operation is completed, transmit "43-70" with the JIG remote control unit.
- (4) FL indicator changes to "UPDATE". Remove the disc as the tray will open for a few seconds.
- (5) Then, check whether the FL indicator is "REGION 2".
- (6) Transmit "43-70" with the JIG remote control unit. When FL indicator changes to "OPEN", close the tray.
- (7) Turn the power OFF, and pull out the power code, and then plug the power code in again.
- (8) Cancel the JIG mode.



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