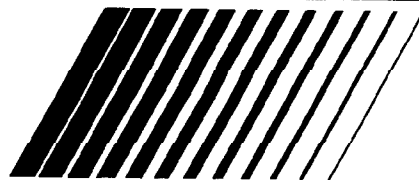
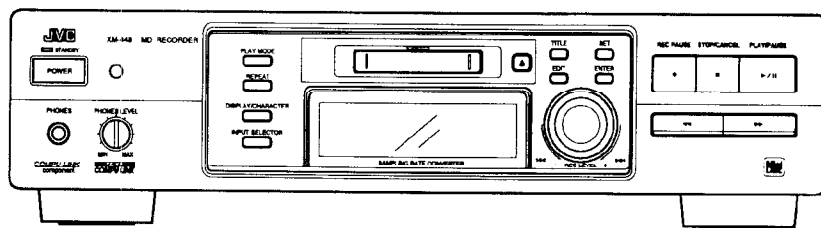
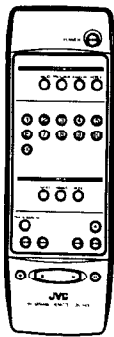


# JVC



## MINI DISC RECORDER

# XM-448BK



## INSTRUCTIONS

### For Customer Use:



Enter below the Model No. and Serial No. which are located either on the rear, bottom or side of the cabinet. Retain this information for future reference.

Model No. \_\_\_\_\_

Serial No. \_\_\_\_\_

LVT0222-001A  
[J]

## Warnings, Cautions and Others

	<b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN	
<b>CAUTION:</b> TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK) NO USER SERVICEABLE PARTS INSIDE REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		



The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

### For U.S.A.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.  
Increase the separation between the equipment and receiver.  
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.  
Consult the dealer or an experienced radio/TV technician for help.

**WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

### Caution — POWER switch!

Disconnect the mains plug to shut the power off completely. The POWER switch in any position does not disconnect the mains line. The power can be remote controlled.

### CAUTION

To reduce the risk of electrical shocks, fire, etc.:

1. Do not remove screws, covers or cabinet.
2. Do not expose this appliance to rain or moisture.

### 1. CLASS 1 LASER PRODUCT

2. **DANGER:** Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. **CAUTION:** Do not open the top cover. There are no user serviceable parts inside the Unit; leave all servicing to qualified service personnel.

## Welcome !

We would like to thank you for purchasing one of our JVC products. Before connecting this unit to the wall outlet, please read the instructions carefully to ensure that you obtain the best possible performance. If you have any questions, please consult your JVC dealer.

## Important cautions

### Installation of the Unit

- Select a place which is level, dry and neither too hot nor too cold (between 5°C and 35°C or 41°F and 95°F).
- Leave sufficient distance between the unit and a TV set.
- Be sure to place the unit in a location with good ventilation.
- Do not use the unit in a place subject to vibrations.
- Do not place the unit on a carpet.
- Do not place the unit on top of another heat-generating piece of equipment.

### Power cord

- Do not handle the power cord with wet hands!
- When unplugging the unit from the wall outlet, always pull the plug, not the power cord.

### Malfunctions, etc.

- There are no user serviceable parts inside. If anything goes wrong, turn off the power immediately. If the same problem occurs again when the power is turned on once more, turn off the power again, unplug the power cord and consult your dealer.
- Do not insert any metallic object into the unit.

## For safe use, observe the following

### Avoid moisture, water and dust

Do not set your machine in moist or dusty places.

### Avoid high temperatures

Do not expose your machine to direct sunlight or set near a heating device.

### Do not block the vents

Poor-ventilation may damage your machine. So do not block the vents or put the unit in a poorly ventilated place.

### When you're away

When away on travel or otherwise for an extended period of time, turn off the power and pull the plug from the electrical socket.

### Do not insert any foreign matter into the unit

Do not insert wires, hairpins, coins, etc. into your unit.

### Care for the cabinet

When cleaning your unit, use a soft cloth and follow the relevant instructions on the use of chemically-coated cloths. Avoid applying benzene, thinner or other organic solvents and disinfectants. This may cause deformation or discoloring.

### If water gets inside the unit

Turn off the power and pull the plug from the electrical socket, then call the store where you made your purchase. Using the unit in this state may cause a fire or electrical shock.

US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

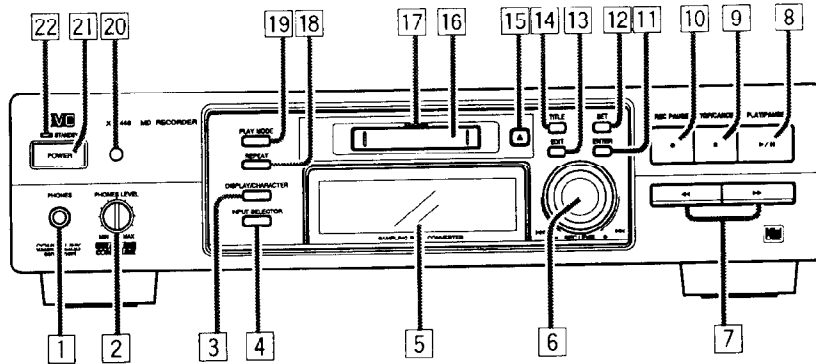
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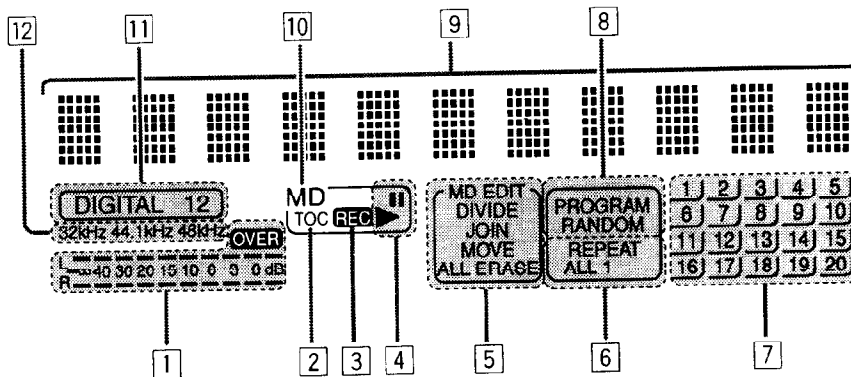
Become familiar with the buttons and controls before use. Refer to the pages in parentheses for details.

## Front panel



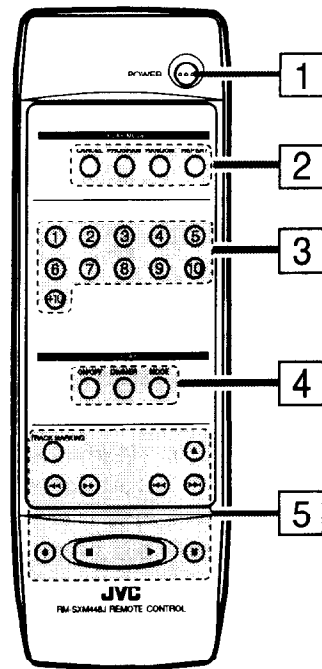
- |  |   |                                     |
|--|---|-------------------------------------|
| <b>1</b> PHONES jack (9)                     | <b>8</b> ►/   PLAY/PAUSE button (8, 9)        | <b>15</b> ▲ (Eject) button (8)      |
| <b>2</b> PHONES LEVEL control (9)            | <b>9</b> ■ STOP/CANCEL button (8, 11, 19, 27) | <b>16</b> MD insertion slot (8)     |
| <b>3</b> DISPLAY/CHARACTER button (10, 26)   | <b>10</b> ● REC PAUSE button (14)             | <b>17</b> Disc indicator (7, 14)    |
| <b>4</b> INPUT SELECTOR button (15)          | <b>11</b> ENTER button (20, 27)               | <b>18</b> REPEAT button (13)        |
| <b>5</b> Display                             | <b>12</b> SET button (11, 19, 26)             | <b>19</b> PLAY MODE button (10, 12) |
| <b>6</b> Jog dial (◀◀, ▶▶/REC LEVEL) (9, 16) | <b>13</b> EDIT button (19)                    | <b>20</b> Remote sensor (5)         |
| <b>7</b> ◀◀, ▶▶ buttons (9)                  | <b>14</b> TITLE button (26)                   | <b>21</b> POWER button (7)          |
|  |   | <b>22</b> STANDBY indicator (7)     |

## Display

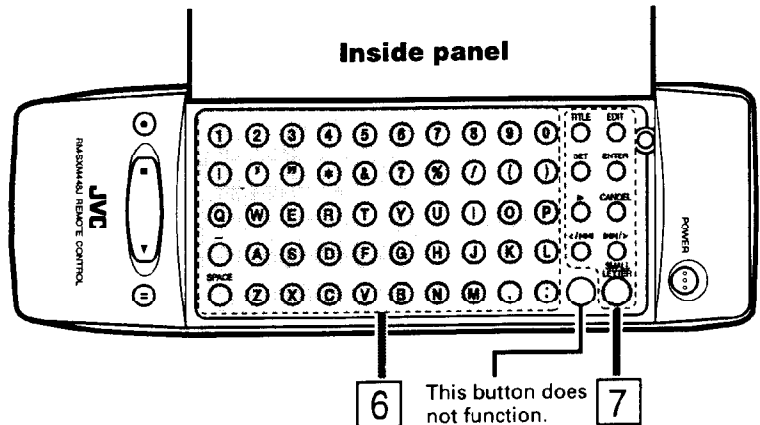
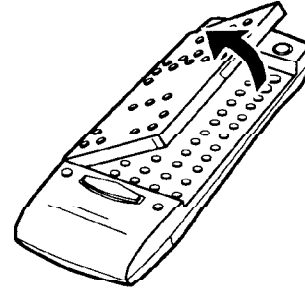


- |  |   |
|--|---|
| <b>1</b> Level indicators and OVER indicator (16)                                    | <b>7</b> Music calendar (19)  |
| <b>2</b> TOC indicator (20)  | <b>8</b> Play mode indicators (10, 12) (PROGRAM, RANDOM)                |
| <b>3</b> REC indicator (14)  | <b>9</b> Character display (11 digits) (26)                             |
| <b>4</b> Play/Pause indicators (► (Play),    (Pause)) (8, 9, 14)                     | <b>10</b> MD indicator (7)  |
| <b>5</b> MD editing mode indicators (19 – 25) (DIVIDE, JOIN, MOVE, ERASE, ALL ERASE) | <b>11</b> Input mode indicators (15) (DIGITAL 1, DIGITAL 2)             |
| <b>6</b> Repeat mode indicators (13) (REPEAT ALL, REPEAT 1)                          | <b>12</b> Sampling frequency indicators (15) (32 kHz, 44.1 kHz, 48 kHz) |

## Remote control unit



Open the cover panel as shown below to access the editing control button panel.



- 1 POWER button
- 2 PLAY MODE buttons
  - CANCEL (11, 19, 28)
  - PROGRAM (11)
  - RANDOM (12)
  - REPEAT (13)
- 3 Numeric keys
- 4 DISPLAY buttons
  - ON/OFF (10)
  - DIMMER (10)
  - MODE (10)
- 5 MD control buttons
  - TRACK MARKING (16)
  - (Recording Pause) (14)
  - II (Pause) (9)
  - (Stop) (8)
  - (Play) (8)
  - ⏮, ⏭ (9)
  - ⏪, ⏩ (9)
  - ▲ (Eject) (8)

### Buttons on the Inside Panel

- 6 Character input keyboard (28)
  - Numbers, Alphabets, and Symbols
- 7 MD editing buttons
  - TITLE (28)
  - EDIT (19)
  - SET (19, 28)
  - ENTER (20, 28)
  - (Play) (8)
  - CANCEL (19, 28)
  - </> (20, 28)
  - SMALL LETTER (28)

# Setting up the System

## Supplied accessories

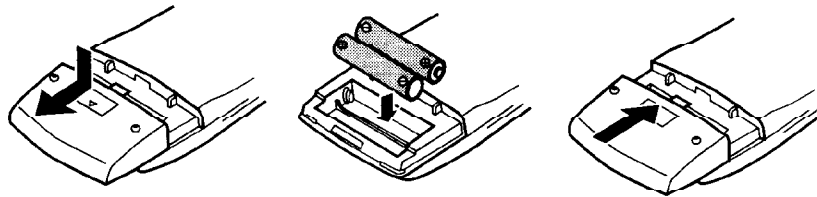
Before setting up your system make sure you received all of the following supplied accessories.

- Remote control unit (1)
- Batteries R03 (UM-4)/AAA (24F) (2)
- Audio pin cord (2)
- Optical digital cable (1)
- Compu Link cable (1)
- Text Compu Link cable (1)
- AC power cord (1)

## Remote control batteries

Match the polarity (+ and -) on the batteries with the + and - markings in the battery compartment.

R03 (UM-4)/AAA (24F)



**CAUTION:** Handle batteries properly.

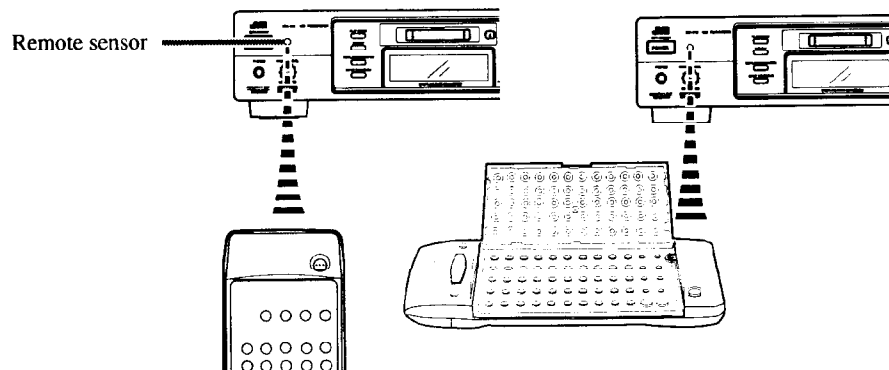
To avoid battery leakage or explosion:

- Remove batteries when the remote control unit will not be used for a long time.
- When you need to replace the batteries, replace both batteries at the same time with new ones.
- Do not use an old battery with a new one.
- Do not use different types of batteries together.

## Operating the remote control unit

The remote control unit makes it easy to use many of the functions of the system from a distance of up to 7 m (23 feet) away.

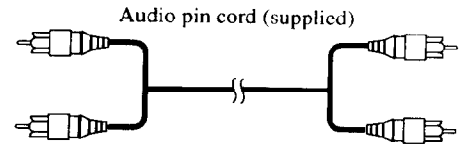
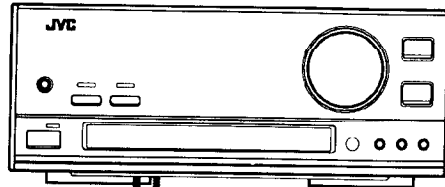
You need to point the remote control unit at the remote sensor on the front panel.



# Connection

## Signal cable connections

Example: Amplifier/Tuner



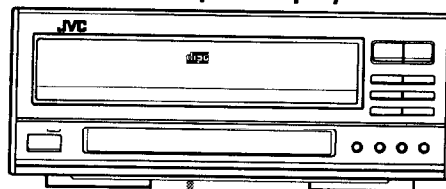
### Audio pin cords

Connect to the MD jacks, TAPE jacks, etc. of an external unit.

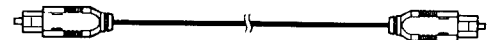
Always connect the jacks with the plugs of the same colors so as not to fail in the L (Left) and R (Right) connections.

Connect the OUT (PLAY) jacks to the IN (PLAY) jacks of the external unit, and the IN (REC) jacks to its OUT (REC) jacks.

Example: CD player

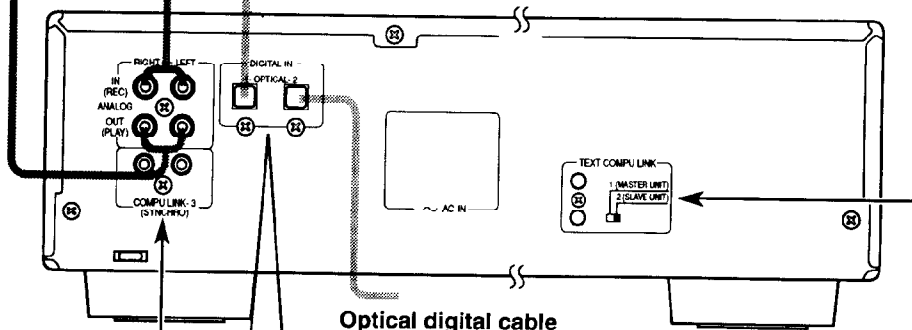


Optical digital cable (supplied)



### Optical digital cable

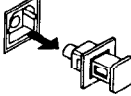
Connect to the DIGITAL OUT jack of the CD player, for example.



### Optical digital cable

Connect to the DIGITAL OUT jack of your DBS tuner, etc.

Connect to the TEXT COMPU LINK jack of another JVC component equipped with the TEXT COMPU LINK remote control system. See pages 31 and 32.



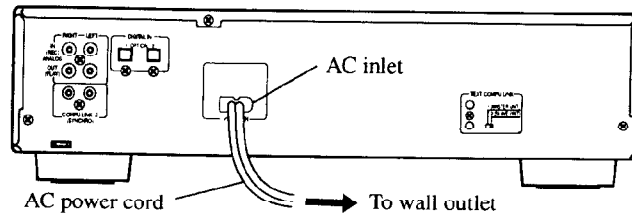
Be sure to remove the protective cap before using the DIGITAL IN terminals. Keep the cap in a safe place so you can replace it when not using the DIGITAL IN terminals.

Connect to the COMPU LINK-3 (SYNCHRO) jack of another JVC component equipped with the COMPU LINK remote control system. See page 30.



## AC power cord connection

First, firmly insert the supplied AC power cord into the AC inlet on the back of the unit. Next, plug the AC power cord plug into the wall outlet.



### Cautions

- Use only the JVC AC power cord provided with this unit to avoid malfunction or damage to the unit.
- Be sure to unplug the power cord from the outlet when going out or when the unit is not in use for an extended period of time.

# Turning the Power On and Off

## Power On

- 1 Press **POWER** on the main unit or on the remote control unit.

The **STANDBY** indicator goes out, the disc indicator lights in green, and the display comes on. The **MD** indicator lights up on the display.



### When no MD is loaded:

“NO DISC” is shown on the display.

### When an MD is already loaded:

The following messages are shown on the display in succession.

- “TOC Reading”
- The disc title, if the MD has.
- Number of tracks and the total playing time of the MD

You can play the MD by pressing **▶/II** on the main unit or **▶** on the remote control unit. For detailed description, see “Playback” on the next page.

## Power Off

- 1 Press **POWER** again.

The **STANDBY** indicator lights up, the disc indicator goes out, and the display blanks.

- Some power (7W) is always consumed even though power is turned off (called Standby mode).
- To switch off the unit completely, unplug the AC power cord from the AC outlet.



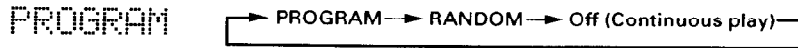
## 2 Select Program Play mode.

### Main unit:



Press PLAY MODE until "PROGRAM" is shown. Then, the PROGRAM indicator lights up.

Each time PLAY MODE is pressed, the play mode indicators switch as follows:



### Remote control unit:



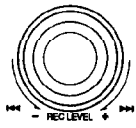
Press PROGRAM. "PROGRAM" is shown and the PROGRAM indicator lights up.

The display shows the following for programming.



## 3 Select desired track numbers to be programmed.

### Main unit:



- 1 Turn the jog dial to the right or left to select the desired track number to be programmed. (Turning it to the right increases the track number and vice versa.) The selected track number will blink.

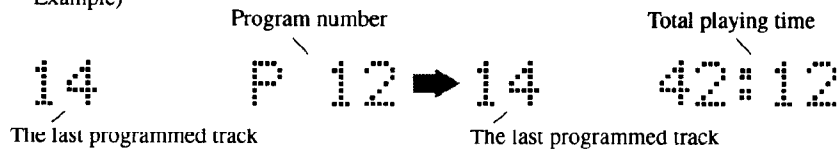
- 2 Press SET.

The track number stays lit and the program number increases by 1. Also, the programmed track is indicated on the music calendar.

Then, the total playing time is displayed instead of the program number.



Example)



- 3 Repeat steps 1 and 2 to select the other tracks for the program.

### Remote control unit:

- 1 Select the desired track number with the numeric keys. The selected track number is programmed and the program number is displayed. Then, the total playing time is displayed instead of the program number. To select a track, see "Selecting a track with the numeric keys" on page 9.
- 2 Repeat step 1 to select the other tracks for the program.

## 4 Press ►/II on the main unit or ► on the remote control unit.

Program playback starts in the programmed order.



OR



- Program playback stops after having played all programmed tracks.
- To stop playing, press ■ on the main unit or on the remote control unit.
- To skip programmed tracks, turn the jog dial on the main unit to the right or press ►► on the remote control unit.

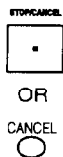
To return to the beginning of the current track or previous tracks, turn the jog dial on the main unit to the left or press ◀◀ on the remote control unit.

### To check the programmed tracks and their order (In Stop mode):



Press **⏮** or **⏭** on the remote control unit in Stop mode. The programmed tracks will be successively displayed in the programmed order. (The track title will be displayed before the track number, if it is written.)

### If you make a mistake in programming (In Stop mode):



Press **■ STOP/CANCEL** on the main unit or **CANCEL** on the cover panel of the remote control unit in Stop mode to clear the last track. Each press of the button clears the last track in the program.

Press the button repeatedly until the track you do not want is cleared and then re-program tracks from that point.

### To cancel Program Play mode (In Stop mode):

#### Main unit:



Press **PLAY MODE** in Stop mode to select any mode other than Program Play mode.

#### Remote control unit:



Press **PROGRAM** in Stop mode to turn off the **PROGRAM** indicator.

The program contents remain in memory even after the unit has exited from Program Play mode.

### To clear the program:



Press **▲** on the main unit or on the remote control unit.

The programmed tracks are cleared then the MD is ejected.

**Note:** The program contents are cleared from memory when the power cord is unplugged or in case of power failure.

### To play programmed tracks repeatedly:

Combine the program playback and repeat playback to play the programmed tracks repeatedly.

For the repeat playback, see page 13.

## Random playback

Tracks in the MD can be played at random. Random Play may bring you a surprising effect by playing tracks in a different order every time.

- You can only select Random Play in Stop mode.

#### 1 Load an MD.

See "Continuous playback" on page 8.

#### 2 Select Random Play mode.

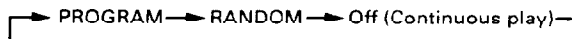
##### Main unit:



Press **PLAY MODE** until "RANDOM" is shown. Then, the **RANDOM** indicator lights up.

14 RANDOM  
Number of tracks /

Each time **PLAY MODE** is pressed, the play mode indicators switch as follows:



### Remote control unit:

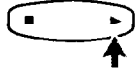


Press RANDOM. "RANDOM" is shown and the RANDOM indicator lights up.

PLAY/PAUSE



OR



### 3 Press ►/II on the main unit or ► on the remote control unit.

Random playback starts.

- Random playback stops after having played every track once.
- To stop playing, press ■ on the main unit or on the remote control unit.

### To cancel Random Play mode (In Stop mode):

#### Main unit:

Press PLAY MODE in Stop mode to select any mode other than Random Play mode.



#### Remote control unit:

Press RANDOM in Stop mode to turn off the RANDOM indicator.



### To repeat random playback:

Combine the random playback and repeat playback to play tracks repeatedly in random orders. The order tracks are played differs every time random playback is repeated. For the repeat playback, see below.

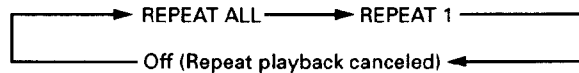
## Repeat playback

You can repeat all the tracks or a single track in each playback mode.



### 1 Press REPEAT on the main unit or on the remote control unit to select Repeat Play mode.

Each time REPEAT is pressed, the repeat mode indicators switch as follows:



- REPEAT ALL:** In Continuous Play mode, repeats all the tracks.  
 In Program Play mode, repeats all the tracks in the program.  
 In Random Play mode, repeats all the tracks at random.

**REPEAT 1:** Repeats one track.

PLAY/PAUSE



OR



### 2 Press ►/II on the main unit or ► on the remote control unit.

Repeat playback starts.

- To stop playing, press ■ on the main unit or on the remote control unit.



### To cancel repeat playback:

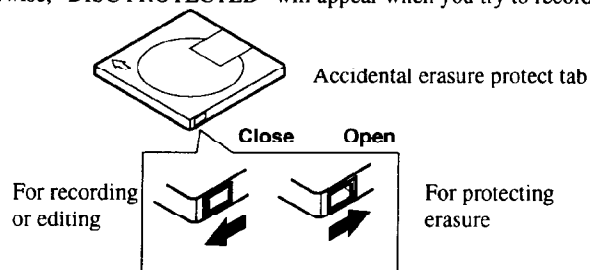
Press REPEAT on the main unit or on the remote control unit until the repeat mode indicator goes out.

# Recording

An audio signal from a variety of sources can be recorded by using either digital or analog input as required.

## Things to know before recording

- It should be noted that it may be unlawful to re-record pre-recorded tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast or cable programme and in any literary, dramatic, musical, or artistic embodied therein.
- Carefully read the "Rule on Digital Copying" on page 33.
- The MD recorder supports the following sampling frequencies for digital sources and lights the sampling frequency being received on the display.  
32 kHz, 44.1 kHz and 48 kHz
- Recording level adjustment:  
When recording through a digital input terminal, the recording level is automatically set correctly.  
When recording through an analog input terminal, it is necessary to adjust the recording level properly.
- The accidental erasure protect tab is provided on the back of an MD cartridge to prevent accidental erasure or recording. It must be set to the close position before recording. Otherwise, "DISC PROTECTED" will appear when you try to record a signal to the MD.



- When you stick an adhesive label onto the MD cartridge, adhere it securely. If it peels off, ejection trouble, etc. will occur.
- Be sure that the MD is not of Playback-only type. (See "Two disc types" on page 34.)
- Be sure that the MD has enough space for recording. If not, carry out ALL ERASE or ERASE function to erase all the tracks or unwanted tracks in the MD. You can check the recordable remaining time of the MD. (See "To display the remaining recording time" on page 16.)

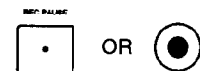
## Recording operation

### 1 Load a recordable MD.

### 2 Press ● REC PAUSE on the main unit or ● on the remote control unit.

The MD recorder enters Rec/Pause mode. The REC and II (Pause) indicators light up and the first track to be recorded is displayed. Also, the disc indicator lights in red.

Example) When 14 tracks are already recorded





**3 Select the input by pressing INPUT SELECTOR on the main unit.**

Each press of INPUT SELECTOR switches the inputs as follows.



**DIGITAL 1 IN** : Select this to record the digital input from the digital source component connected to the DIGITAL IN 1 OPTICAL terminal. The DIGITAL 1 indicator lights up.

**DIGITAL 2 IN** : Select this to record the digital input from the digital source component connected to the DIGITAL IN 2 OPTICAL terminal. The DIGITAL 2 indicator lights up.

**ANALOG IN** : Select this to record the analog input from the analog source component (cassette deck, tuner, etc.) connected to the ANALOG IN (REC) jacks.

**4 Play the source to be recorded.**

The level indicators show the input levels.

- The input level should be adjusted when the analog input is recorded (see "To adjust the analog input level" on page 16).
- The input level for the digital inputs does not need adjustment.
- When DIGITAL 1 or DIGITAL 2 is selected, one of the sampling frequency indicators lights up. For example, 44.1 kHz indicator is displayed for a CD player input.

However, if no source component is connected to the digital input or the sampling frequency input is other than 32 kHz, 44.1 kHz, or 48 kHz, "DIGITAL IN UNLOCK" scrolls on the display showing that the recording is impossible.



**5 Press ►/II on the main unit or ► on the remote control unit.**

Recording starts.

The ► indicator lights up.

- When the MD becomes full, "UTOCwriting" is displayed indicating that the recording is successfully completed. Then, the MD stops. The disc indicator lights in green.

**To stop recording:**

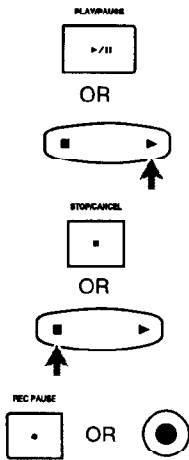
Press ■ on the main unit or on the remote control unit.

"UTOCwriting" is displayed and the MD stops. The disc indicator lights in green.

**To pause the MD:**

Press ● REC PAUSE on the main unit or ● on the remote control unit.

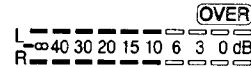
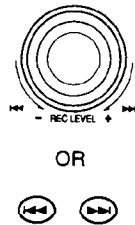
To resume recording, press ►/II on the main unit or ► on the remote control unit.



## To adjust the analog input level

The input level should be adjusted before recording the analog input.

- 1 In Rec/Pause mode, start playing the source for level adjustment. The level indicators show the input levels.
- 2 Turn the jog dial on the main unit to the right or left or press ►► or ◄◄ on the remote control unit to increase or decrease the recording level. As you adjust the recording level, "VOL. -10" will appear, for example. You can adjust the recording level between VOL.-50 and VOL.0 (-50 dB and 0 dB), or to VOL. --- (below -50 dB).

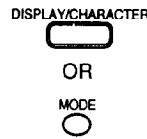


- Normally the input level should be adjusted so that the segments for 0 dB blink at the peak level.
- When the input level is too high, the OVER indicator will light up, resulting in distorted recording.

## To display the remaining recording time

In Rec/Pause or during recording, press DISPLAY/CHARACTER on the main unit or MODE on the remote control unit.

Each press of the button switches the elapsed recording time display and remaining recording time display alternately.

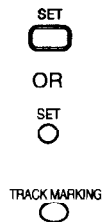


## Track marking

The track numbers on the MD are marked at the beginning of each track. The track numbers are identified by these "track markings" and each section between two track markings is considered as a track.

### For analog input:

When the point you want to record a track marking comes during recording, press SET on the main unit or on the inside panel of the remote control unit. This operation records a track marking at the point where the button is pressed.



### To use automatic track marking:

Press TRACK MARKING on the remote control unit to select "AUTO".

AUTO

- A track marking is automatically recorded every time a blank of more than 3 seconds is detected.

To cancel automatic track marking, press TRACK MARKING on the remote control unit again to select "MANUAL".

MANUAL

### For digital input:

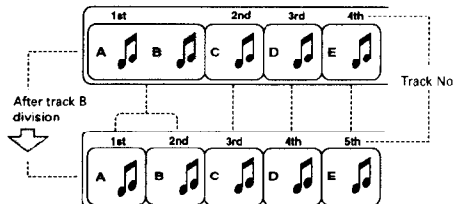
When tracks are recorded from a CD player by digital input, track markings are recorded automatically at the points where the CD tracks change.

# Editing Functions

## MD editing functions

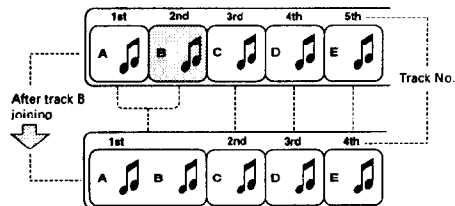
A recorded MD can be edited in many ways. The editing functions include the dividing, joining, moving, erasing a single track, erasing the entire disc and assigning titles to the disc and tracks, and more than one of them can be combined as required.

- Editing operations are possible both while the MD recorder is playing and while it is in Stop mode.



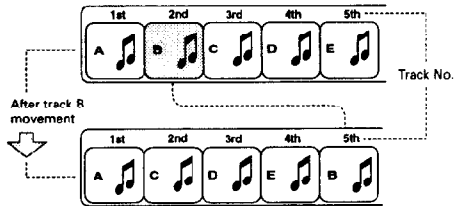
### Dividing a track (DIVIDE) Page 19

This function divides a track by adding a track marking(s) in the middle or where you want to search later.



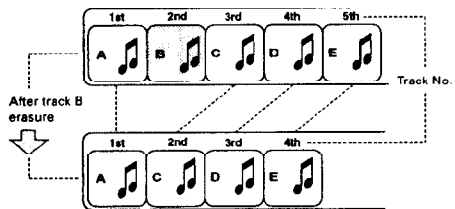
### Joining tracks (JOIN) Page 20

This function joins two adjacent tracks into a single track by deleting a track marking in between.



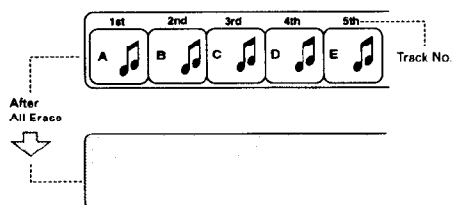
### Moving a track (MOVE) Page 22

This function moves a track by reordering the track numbers.



### Erasing a track (ERASE) Page 23

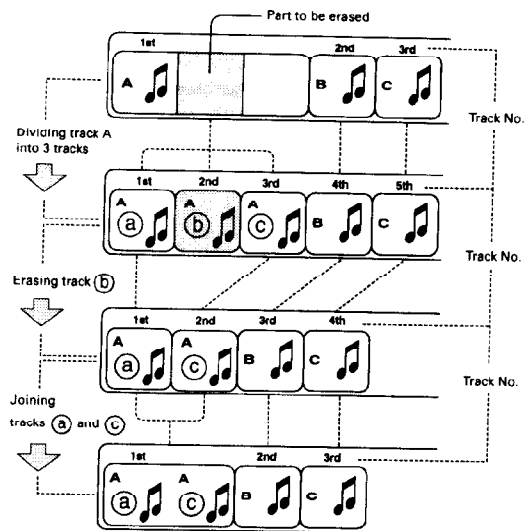
This function erases a specified track. After the erasure, the subsequent tracks are renumbered automatically.



### Erasing all tracks (ALL ERASE) Page 25

This function erases data in a disc entirely.





### Combining editing functions

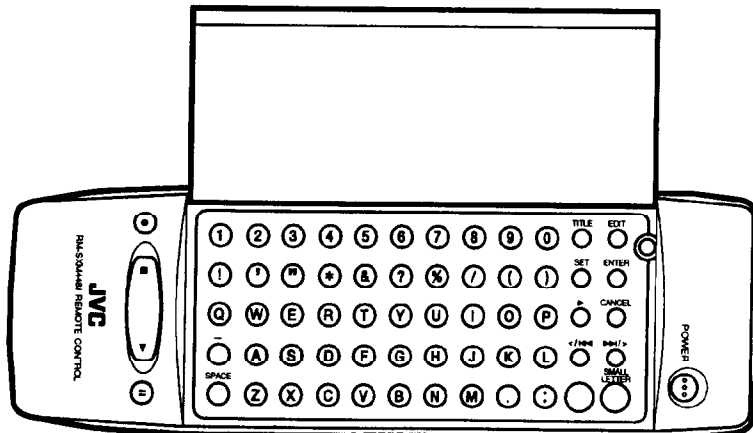
By combining "DIVIDE", "ERASE" and "JOIN", for example, it is possible to erase only a part of existing track.

### Assigning titles

A title can be assigned to a track or disc. Once a title is assigned, it is displayed in later playback for confirmation. Each title can be composed of up to 64 characters, and can be input using any of character types, alphabets (uppercase and lowercase), symbols and numerals.

### When using the remote control unit:

For editing and title assignment operations, use the buttons on the inside panel of the remote control unit.



# Dividing a track (DIVIDE)

A track can be divided into desired number of tracks by adding track markings in the middle, in the desired points or where you want to search later.

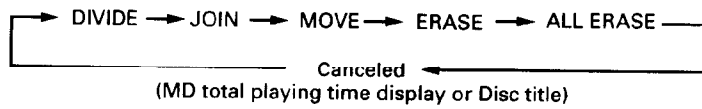
This makes it possible to assign track numbers after recording medley music or FM broadcast. The track numbers after the divided track are renumbered automatically.

## 1 Press EDIT on the main unit or on the remote control unit to select "DIVIDE".

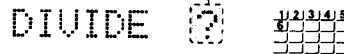


The DIVIDE indicator lights up.

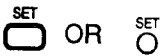
Each press of the button switches the editing functions as follows.



Blinks



## 2 Press SET on the main unit or on the remote control unit.



Blinks Blinks

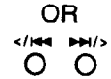
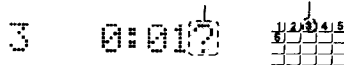


## 3 Play a track to be divided.

Select a track number by turning the jog dial on the main unit or by pressing </> or >/> on the remote control unit.

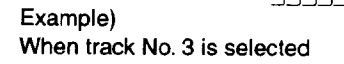
Then, press >/|| on the main unit or > on the remote control unit.

Blinks Blinks



## 4 Press SET when a point where you want to divide the track comes.

"POSITION" is displayed and the track marking fine-adjustment display appears.



Example) When track No. 3 is selected

- You can also use the numeric keys on the cover panel of the remote control unit to select the track number. To select a track, see "Selecting a track with the numeric keys" on page 9.
- You can use >>> (or <<<) to fast forward (or reverse) the track.

## 4 Press SET when a point where you want to divide the track comes.

"POSITION" is displayed and the track marking fine-adjustment display appears.

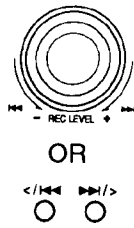
Blinks Blinks



Increments by 1

Example) Track No. 3 and 4 blink in the music calendar and the 4-second section from the divided point will be played repeatedly.

- When the track has been divided as desired, go to step 6.
- If the track has not been divided as desired, fine-adjust the track marking position. Go to step 5.
- If you notice that the selected track number is wrong, press ■STOP/CANCEL on the main unit or CANCEL on the remote control unit and repeat from step 3.
- If the display shows "TRACK PROTECTED", the selected track has been protected against accidental erasure by another component. You cannot edit such a protected track. To cancel the editing, press EDIT on the main unit or on the remote control unit.



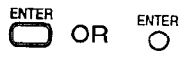
**5 Fine-adjust the track marking position.**

Turn the jog dial on the main unit or press </> or </> on the remote control unit.

The track marking position can be fine-adjusted in the range of ±128 positions (approx. ±8 sec.).

As you adjust, the track marking is displaced slightly and the 4-second section from the newly divided point will be played repeatedly.

- After completing the fine-adjustment, go to step 6.
- To cancel the current track marking position, press ■STOP/CANCEL on the main unit or CANCEL on the remote control unit and repeat from step 3.



**6 Press ENTER on the main unit or on the remote control unit.**

The change made above is entered temporarily in memory. The display shows "EDITING" and the TOC indicator lights up.



**TOC indicator:**

The TOC indicator shows that the MD has new data that should be memorized. The data writing operation is done by ejecting the MD or by turning the power off. Before the MD is ejected or the power is turned off, "UTOCwriting" is displayed until the data is completely written.



**7 Press ▲ on the main unit or on the cover panel of the remote control unit to eject the MD.**

The data in memory is written in the MD before it is ejected. The display shows "UTOCwriting" during MD writing operation.

- Be careful not to apply impact to the MD recorder during writing temporarily stored data into the MD. Otherwise the recording may not be able to play later.
- The data in memory is written in the MD also when the power is turned off while "EDITING" is being displayed.

**To cancel editing:**

Press EDIT repeatedly on the main unit or on the remote control unit before pressing ENTER in step 6.

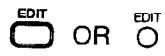
**To restore the original track from the divided tracks:**

Use the JOIN editing function mentioned below.



**Joining tracks (JOIN)**

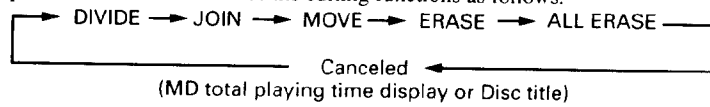
Two adjacent tracks can be joined into a single track by deleting an unnecessary track marking. This also makes it possible to join more than two tracks into a single track or a piece of music divided into multiple tracks into a single piece. The track numbers after the joined tracks are renumbered automatically.



**1 Press EDIT on the main unit or on the remote control unit to select "JOIN".**

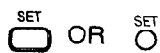
The JOIN indicator lights up.

Each press of the button switches the editing functions as follows.

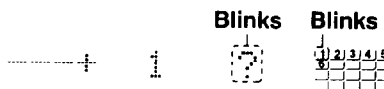


Blinks



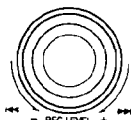


**2 Press SET on the main unit or on the remote control unit.**

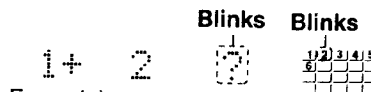


**3 Select a track to be joined with the previous track.**

Select a track number by turning the jog dial on the main unit or by pressing </> or >/> on the remote control unit.



OR



Example)

When track No. 1 and 2 are selected

- You can also use the numeric keys on the cover panel of the remote control to select a track number. To select a track, see "Selecting a track with the numeric keys" on page 9.

Example) To join track numbers 1 and 2, select track number 2.

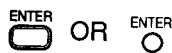


**4 Press SET on the main unit or on the remote control unit.**

The selected track numbers blink in the music calendar, indicating that these tracks will be joined into one.



- If you selected wrong track numbers, press ■STOP/CANCEL on the main unit or CANCEL on the remote control unit and repeat from step 3.
- If the display shows "TRACK PROTECTED", one of the selected tracks has been protected against accidental erasure by another component. You cannot edit such a protected track. To cancel the editing, press EDIT on the main unit or on the remote control unit.



**5 Press ENTER on the main unit or on the remote control unit.**

The change made above is entered temporarily in memory. The display shows "EDITING" and the TOC indicator lights up.



Decrements by 1



**6 Press Δ on the main unit or on the cover panel of the remote control unit to eject the MD.**

The data in memory is written in the MD before it is ejected.

The display shows "UTOCwriting" during MD writing operation.

- Be careful not to apply impact to the MD recorder during writing temporarily stored data into the MD. Otherwise the recording may not be able to play later.
- The data in memory is written in the MD also when the power is turned off while "EDITING" is being displayed.

**To cancel editing:**

Press EDIT repeatedly on the main unit or on the remote control unit before pressing ENTER in step 5.

**To restore the original tracks from the track obtained by joining:**

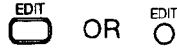
Use the DIVIDE editing function.

See "Dividing a track (DIVIDE)" on page 19.

# Moving a track (MOVE)

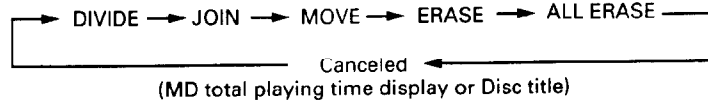
A track can be moved to the desired position by selecting its track number and the destination track number.

## 1 Press EDIT on the main unit or on the remote control unit to select "MOVE".

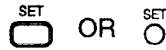


The MOVE indicator lights up.

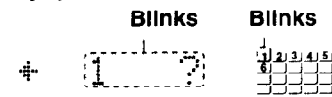
Each press of the button switches the editing functions as follows:



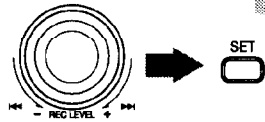
## 2 Press SET on the main unit or on the remote control unit.



The current track number will blink on the display.

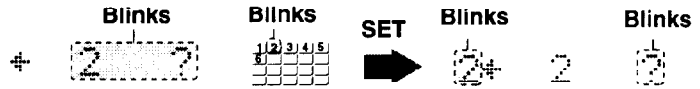
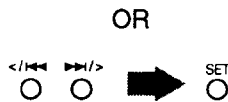


## 3 Select a track number to be moved, then press SET.



Select a track number by turning the jog dial on the main unit or by pressing </> or </> on the remote control unit.

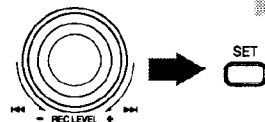
Then press SET on the main unit or on the remote control unit.



Example) When track No. 2 is to be moved

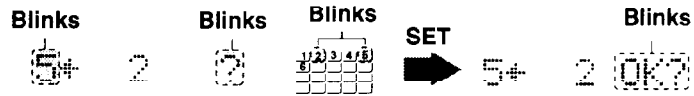
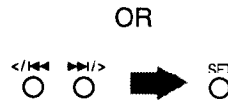
- You can also use the numeric keys on the cover panel of the remote control unit to select a track number, then press SET. To select a track, see "Selecting a track with the numeric keys" on page 9.
- If you selected a wrong track number, press ■STOP/CANCEL on the main unit or CANCEL on the remote control unit and select the correct track number.

## 4 Select the movement destination track number, then press SET.



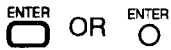
Select another track number to be given to the selected track by turning the jog dial on the main unit or by pressing </> or </> on the remote control unit.

Then press SET on the main unit or on the remote control unit.



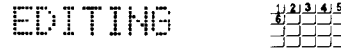
Example) When track No. 5 is selected

- You can also use the numeric keys on the cover panel of the remote control unit to select the track number, then press SET. To select a track, see "Selecting a track with the numeric keys" on page 9.
- If you selected a wrong track number, press ■STOP/CANCEL on the main unit or CANCEL on the remote control unit and repeat from step 3.



**5 Press ENTER on the main unit or on the remote control unit.**

The change made above is entered temporarily in memory. The display shows "EDITING" and the TOC indicator lights up.



**6 Press [Eject] on the main unit or on the cover panel of the remote control unit to eject the MD.**

The data in memory is written in the MD before it is ejected. The display shows "UTOCwriting" during MD writing operation.

- Be careful not to apply impact to the MD recorder during writing temporarily stored data into the MD. Otherwise the recording may not be able to play later.
- The data in memory is written in the MD also when the power is turned off while "EDITING" is being displayed.

**To cancel editing:**

Press EDIT repeatedly on the main unit or on the remote control unit before pressing ENTER in step 5.

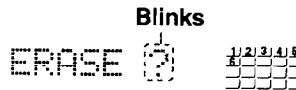
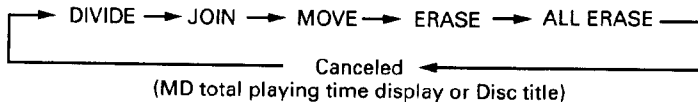
## Erasing a track (ERASE)

A track can be erased from the MD. The track numbers after the erased track are renumbered automatically.



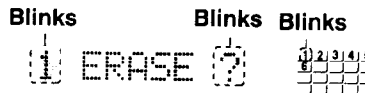
**1 Press EDIT on the main unit or on the remote control unit to select "ERASE".**

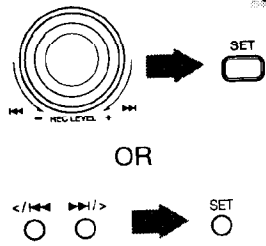
The ERASE indicator lights up. Each press of the button switches the editing functions as follows.



**2 Press SET on the main unit or on the remote control unit.**

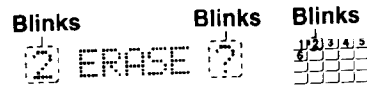
The current track number will blink on the display.



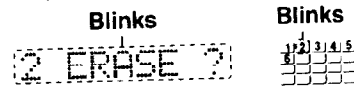


### 3 Select a track number to be erased, then press SET.

Select a track number by turning the jog dial on the main unit or by pressing </> or <</> or >>/> on the remote control unit. Then press SET on the main unit or on the remote control unit.



Example) When track No. 2 is to be erased



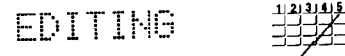
Example) When SET is pressed

- You can also use the numeric keys on the cover panel of the remote control unit to select a track number, then press SET. To select a track, see "Selecting a track with the numeric keys" on page 9.
- If you selected a wrong track number, press ■STOP/CANCEL on the main unit or CANCEL on the remote control unit and select the correct track number.
- If the display shows "TRACK PROTECTED", the selected track has been protected against accidental erasure by another component. You cannot edit such a protected track. To cancel the editing, press EDIT on the main unit or on the remote control unit.

### 4 Press ENTER on the main unit or on the remote control unit.



The change made above is entered temporarily in memory. The display shows "EDITING" and the TOC indicator lights up.



Decrements by 1

### 5 Press ▲ on the main unit or on the cover panel the remote control unit to eject the MD.



The data in memory is written in the MD before it is ejected. The display shows "UTOCwriting" during MD writing operation.

- Be careful not to apply impact to the MD recorder during writing temporarily stored data into the MD. Otherwise the recording may not be able to play later.
- The data in memory is written in the MD also when the power is turned off while "EDITING" is being displayed.

#### To cancel editing:

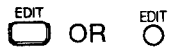
Press EDIT repeatedly on the main unit or the remote control unit before pressing ENTER in step 4.

#### Caution

- Once erased, the track can never be restored. An MD containing recording that you do not want to erase should be protected by sliding the protect tab (see page 14).

# Erasing all tracks in an MD (ALL ERASE)

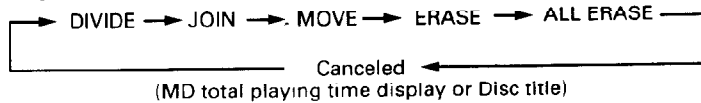
The data recorded in an MD can be erased entirely.



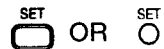
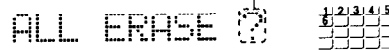
**1 Press EDIT on the main unit or on the remote control unit to select "ALL ERASE".**

The ALL ERASE indicator lights up.

Each press of the button switches the editing functions as follows.

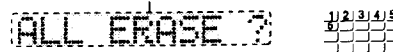


Blinks

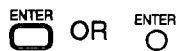


**2 Press SET on the main unit or on the remote control unit.**

Blinks



- If the display shows "TRACK PROTECTED", one or more of the tracks in the MD has been protected against accidental erasure by another component. You cannot edit such a protected track. To cancel the editing, press EDIT on the main unit or on the remote control unit.



**3 Press ENTER on the main unit or on the remote control unit.**

The change made above is entered temporarily in memory. The display shows "EDITING" and the TOC indicator lights up.



**4 Press the Eject button on the main unit or on the cover panel of the remote control unit to eject the MD.**

The data in memory is written in the MD before it is ejected.

The display shows "UTOCwriting" during MD writing operation.

- Be careful not to apply impact to the MD recorder during writing temporarily stored data into the MD. Otherwise the recording may not be able to play later.
- The data in memory is written in the MD also when the power is turned off while "EDITING" is being displayed.

**To cancel editing:**

Press EDIT repeatedly on the main unit or on the remote control unit before pressing ENTER in step 3.

**Caution**

- **Once erased, the tracks can never be restored. An MD containing recording that you do not want to erase should be protected by sliding the protect tab (see page 14).**





# Assigning the disc title and track titles

You can assign a title to each MD and to each track. Once a title is assigned, it is displayed for later playback for confirmation.

Each title can be composed of up to 64 characters, and can be input using alphabetic characters — uppercase (A to Z) and lowercase (a to z), symbols (see “Available symbols” on the next page), and numerals (0 to 9).

## To assign a title using the buttons on the main unit

In the following example, the process is explained from the very first — that is, inserting an MD. If you already start recording or playing, see “To assign a track title during playback or recording” on page 29.

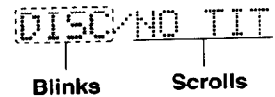
### 1 Load a recorded MD.



### 2 Press TITLE.

The display will show “DISC/NO TITLE”.

Each press of the button switches the title assignment function on and off.

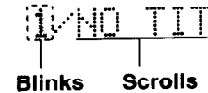


- If a disc title has already been assigned, the title is displayed.

When you assign **the disc title**: Go to step 3.

When you assign **the track titles**:

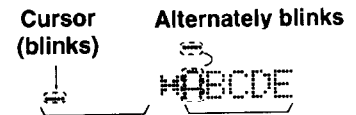
First select **the track to be titled** by turning the jog dial to the right or left. Then, go to step 3.



### 3 Press SET.

The title assignment display appears.

The display is divided into the title name area and the character set area.

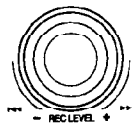
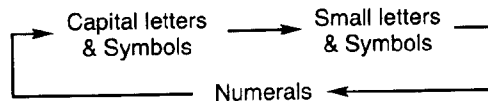


### 4 Enter a character

Example: When entering character “n”.

1 Press DISPLAY/CHARACTER repeatedly.

Each press of the button changes the character sets as follows:



2 Turn the jog dial until “n” blinks on the character set area.

- Turning the jog dial continuously can also change the character sets.

3 Press SET.

The selected character is entered, and the cursor moves to the next character entry position.

- To enter a space, press ►► to move the cursor to the right (or turn the jog dial to select a space, then press SET).
- To move the cursor while entering a title, press ◀◀ or ▶▶.
- If you have entered an incorrect character, press ■STOP/CANCEL to cancel the last entry.

**To make a correction or change the title:**

- 1 Press ◀◀ or ▶▶ to move the cursor on an incorrect character, and press ■STOP/CANCEL.
- 2 Turn the jog dial to select the correct character, then press SET.

**To erase all the input characters:**

Press ■STOP/CANCEL repeatedly until all the input characters are erased.

**5 Press ENTER.**

The display shows "EDITING" and the TOC indicator lights up. Next, the display shows the disc title name and then shows the track number and the total playing time.



EDITING



(Disc Title)

- If the disc title is longer than 11 characters, it scrolls on the display.  
**Note:** When using the TEXT COMPU LINK remote control system (see page 31), titles will not be scrolled.
- After editing the track title, the name of the track is not displayed.

**6 Press ▲ to eject the MD.**

The data in memory is written in the MD before it is ejected. The display shows "UTOCwriting" during MD writing operation.



- Be careful not to apply impact to the MD recorder during writing temporarily stored data into the MD. Otherwise the title may not be able to appear during a later playback.
- The data in memory is written in the MD also when the power is turned off while "EDITING" is being displayed.

**To cancel editing:**

Press TITLE before pressing ENTER in step 5.

**Available symbols**

(Space)	!	"	#	\$	%	&	'	( )
*	+	,	-	.	/	:	;	< =
>	?	@	_	\				

## To assign a title using the buttons on the remote control unit

In the following example, the process is explained from the very first — that is, inserting an MD. If you already start recording or playing, see “To assign a track title during playback or recording” on page 29.

### 1 Load a recorded MD.

TITLE  
○

### 2 Press TITLE.

The display shows “DISC/NO TITLE”.

DISC/NO TITLE  
Blinks      Scrolls

- If a disc title has already been assigned, the title is displayed.

If you want to assign the **disc title**, go to step 3.

If you want to assign the **track titles**, press </|◀◀ or ▶▶|/> to select the **track to be titled** then go to step 3.

### 3 Press SET.

The cursor starts blinking on the first character entry position.

SET  
○

### 4 Input the disc or track title.

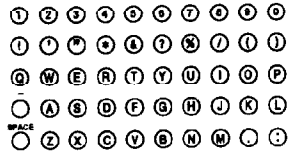
- 1 Select the character case.

Each press of SMALL LETTER switches the character case.

Lowercase letters can be input when the button is lit in green, and uppercase letters can be input when the button is not lit.

- 2 Input characters by using the character input keyboard.

The selected character is entered, and the cursor moves to the next character entry position.



- To move the cursor while entering a title, press </|◀◀ or ▶▶|/>.
- If you have entered an incorrect character, press CANCEL to cancel the last entry.

#### To make a correction or change the title:

- 1 Press </|◀◀ or ▶▶|/> to move the cursor on an incorrect character, and press CANCEL.
- 2 Input the correct character by using the character input keyboard.

#### To erase all the input characters:

Press CANCEL repeatedly until all the input characters are erased.

### 5 Press ENTER.

ENTER  
○

The display shows “EDITING” and the TOC indicator lights up.

Next, the display shows the disc title name and then shows the track number and the total playing time.

EDITING  
↓  
(Disc Title)



### 5 Press ▲ to eject the MD.

The data in memory is written in the MD before it is ejected.  
The display shows “UTOC writing” during MD writing operation.

- Be careful not to apply impact to the MD recorder during writing temporarily stored data into the MD. Otherwise the title may not be able to appear during a later playback.
- The data in memory is written in the MD also when the power is turned off while “EDITING” is being displayed.

#### To cancel editing:

Press TITLE before pressing ENTER in step 5.

## To assign a track title during playback or recording

You cannot assign a disc title during playback or recording. To assign a disc title, follow the procedure explained on pages 26 to 28.



### 1 Press TITLE on the main unit or on the remote control during playback or recording.

Each press of the button switches the title assignment function on and off.

- You can assign a title to the currently playing or recording track.

### 2 Input the track title name.

- For detailed description, refer to pages 26 to 28.  
However, note that the function of ■STOP/CANCEL on the main unit differs. If you press the button, MD recorder stops playing or recording and finishes the title assignment procedure at this point (“EDITING” appears).



### 3 Press ENTER on the main unit or on the remote control unit.

The display shows “EDITING” and the TOC indicator lights up.  
Next, the display shows the disc title name and then shows the track number and the total playing time.

- If it is during playback, the track will be played repeatedly until ENTER is pressed. Pressing ENTER stops the playback.
- If it is during recording, recording continues even after ENTER is pressed.  
If ENTER is not pressed until the end of the track, the characters input before the end of the track are recorded as a track title.



### 4 Press ▲ on the main unit or on the cover panel of the remote control unit to eject the MD.

The data in memory is written in the MD before it is ejected.  
The display shows “UTOCwriting” during MD writing operation.

- Be careful not to apply impact to the MD recorder during writing temporarily stored data into the MD. Otherwise the title may not be able to appear during a later playback.
- The data in memory is written in the MD also when the power is turned off while “EDITING” is being displayed.

#### To cancel editing:

Press TITLE on the main unit or on the remote control unit before pressing ENTER in step 3.

# COMPU LINK

## Linked Operation of the Other Optional Components (Compu Link)

The XM-448BK MD recorder can be controlled under linked operation provided by the JVC's Compu Link remote control system.

### What is Compu Link

The world of single components, in which you purchase a cassette deck, CD player, amplifier and other components separately and enjoy your own composition, is an effective means for pursuit of high-quality reproduction. However, in terms of operability, the need of controlling components independently makes their control complicated and their linked operation impossible. Then, isn't it possible to combine single component and control them as simply as an integrated audio system? The Compu Link remote control system is the response to such a requirement.

By connecting the COMPU LINK jacks to the components equipped with jacks named COMPU LINK-3 (COMPU LINK jacks), they can be controlled simply with a systematized, linked operation.

### Compu Link connections

Using Compu Link cables (one cable is supplied with this unit – the cable with the monaural min-plugs: black), connect the COMPU LINK jacks of the components. Connect so that the Compu Link cables can bridge all of the components you have. The components can be connected in any order.

### Compu Link-3 features

The Compu Link-3 system makes the following operations possible.

#### Shortcut playback:

Simply selecting an input source of the receiver starts playback of the selected source component (CD player, MD recorder or cassette deck).

Also, even if you do not touch the receiver, starting playback of a source component sets the receiver's input source automatically to the played component.

\*Refer to the instruction manual of the receiver.

#### A single remote control unit:

The remote control unit provided with the receiver can also be used to control the CD player, MD recorder, or cassette deck.

#### Synchronized recording:

Recording can be started automatically in synchronism with the start of playback of a source component.

#### Timer operation:

The timer function built into the receiver can be used to start recording or playback of other components at the reserved time of the day or switch the power to the Standby mode in the reserved time period.

\*Refer to the instruction manual of the receiver.

# TEXT COMPU LINK

JVC's TEXT COMPU LINK remote control system allows you to transfer text information recorded on the CD Text or MD among JVC audio components.

- Each component must have the same remote control system.

## Connection with receiver (or amplifier)

This system enables text information on the MD to be displayed on the receiver (or amplifier).

- If the receiver (or amplifier) has the on-screen function, you can display the text information on any TV screen, and can do the following, using the on-screen function while watching the TV screen:
  - Operate this MD recorder.
  - Assign titles to the MD and its tracks.
- If the CD player equipped with the TEXT COMPU LINK remote control system is also connected to the receiver (or amplifier), you can record the track title information of the CD Text onto an MD in its original form, when recording from the CD player.

To use this control system, connect the receiver and this MD recorder as follows.

- 1. If the receiver (or amplifier) and this unit have already been plugged into the AC outlets, disconnect their AC power cords.**
- 2. Connect the receiver and this unit as described below using the COMPU LINK-3 (SYNCHRO) and TEXT COMPU LINK jacks.**

- 1 COMPU LINK-3 (SYNCHRO) jacks: Use the supplied Compu Link cable (with the monaural mini-plugs: black).



- 2 TEXT COMPU LINK jacks: Use the supplied Text Compu Link cable (with the stereo mini-plugs: green).



**IMPORTANT:** Without setting the MASTER/SLAVE selector correctly, the TEXT COMPU LINK remote control system does not work.

Set the MASTER/SLAVE selector on the rear panel to "2 (SLAVE UNIT)."

- 3. Connect the receiver and this unit using the audio pin cord (and a digital cable if any) (see page 6).**
- 4. Connect the AC power cords of this unit to the AC outlets.**
- 5. Finally connect the AC power cord of the receiver.**

For further details on how to use the TEXT COMPU LINK remote control system, refer to the manual supplied with your receiver (or amplifier).

## Connection to CD player or CD changer

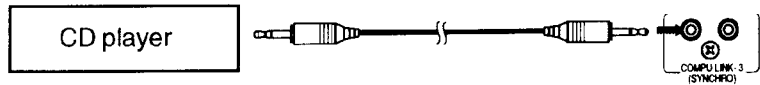
Without connecting the receiver (or amplifier) equipped with the TEXT COMPU LINK remote control system, this connection enables you to record the track title information of the CD Text onto an MD in its original form, when recording from the CD player.

To use this control system, connect the units as follows:

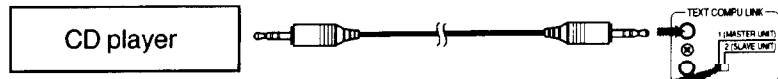
- 1. If the CD player (or CD changer) and this unit have already been plugged into the AC outlets, disconnect their AC power cords.**

- 2. Connect the CD player (or CD changer) and this unit as described below using the COMPU LINK-3 (SYNCHRO) and TEXT COMPU LINK jacks.**

- 1 COMPU LINK-3 (SYNCHRO) jacks: Use the supplied Compu Link cable (with the monaural mini-plugs: black).



- 2 TEXT COMPU LINK jacks: Use the supplied Text Compu Link cable (with the stereo mini-plugs: green).



**IMPORTANT:** Without setting the MASTER/SLAVE selector correctly, the TEXT COMPU LINK remote control system does not work.

Set the MASTER/SLAVE selector on the rear panel to "1 (MASTER UNIT)."

- 3. Connect the CD player and this unit using the audio pin cord (and a digital cable if any) (see page 6).**

- 4. Connect the AC power cord of the CD player to the AC outlets.**

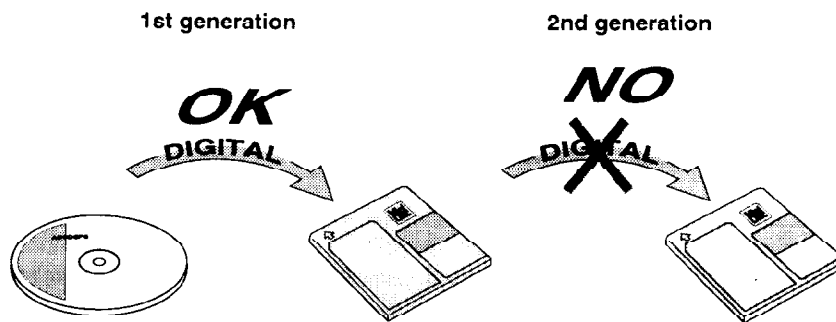
- 5. Finally connect the AC power cord of this unit.**

# Rule on Digital Copying

The digital audio equipment exchanges audio signals in the digital forms through digital input/output jacks, and include the CD (Compact Disc) player, MD (Mini Disc) recorder and DAT (Digital Audio Tape) recorder. The digital audio equipment allows digital copy of signals with little deterioration of music signals. This has made it necessary to have a copy restriction rule for protecting the copyright, and the SCMS has been established as a result.

## SCMS (Serial Copy Management System)

With a view to protecting the copyright, the SCMS restricts the number of generations permitted for copying of signals in the digital form between digital audio equipment to only one generation.



### Caution

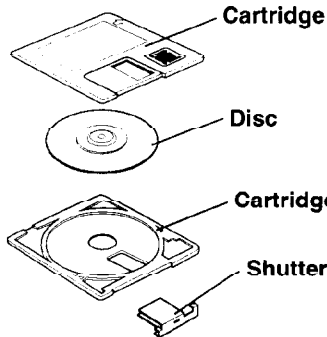
- Because of this rule, the MD obtained by recording a CD on the MD recorder cannot be copied in the digital form on other digital equipment.



# About MD (Mini Disc)

The MD (Mini Disc) is a new digital audio medium using a disc with a diameter of 64 millimeters. In spite of the small size, the MD has multiple functions, high audio quality and recording/playback capabilities for up to 74 minutes.

## Role of the cartridge



The MD cartridge has a pocket size of 68 mm × 72 mm with a thickness of 5 mm. The cartridge accommodates the 64 mm diameter disc for ease of transportation and storage.

The internal disc is usually protected by the cartridge shells and shutter so no dust, dirt, scratch or fingerprint is left on the disc and the disc handling is easy.

## Two disc types

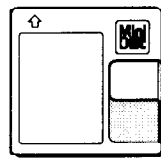


Playback-only MD

The MD (Mini Disc) includes two disc types, the recordable MD that can be recorded onto and the playback-only MD that can exclusively be played back. Although both types of discs are played in the same way, that is, by irradiating a laser beam on the disc and reading signals from the reflected light, the ways they are recorded are completely different.

### Playback-only MD

This type of disc is used in prerecorded MD software marketed in music stores. It cannot be recorded by the user and data is recorded in the same way as a CD, i.e. according to the presence or absence of small holes called pits. A disc recorded in this way is referred to as an "optical disc".

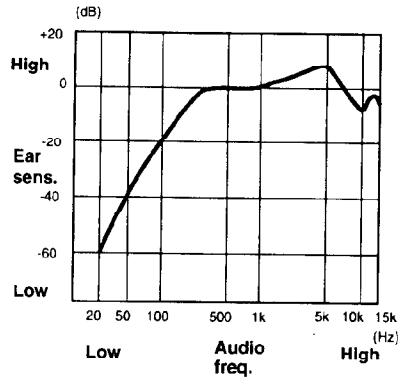


Recordable MD

### Recordable MD

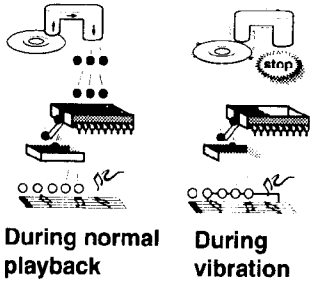
This type of disc records data using the magnetism to allow repeated data recording operations. A disc recorded in this way is referred to as an "MO (Magneto-Optical) disc".

## ATRAC (Adaptive TTransform Acoustic Coding)



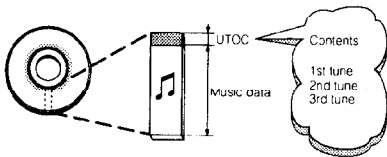
The MD (Mini Disc) has half the size of the CD but can record data for the same period of time. This has been made possible by the newly developed ATRAC (Adaptive TTransform Acoustic Coding), which compresses data by cutting the audio components that are inaudible to the human sense of audition. This technology reduces the recorded data to about 1/5 the original data quantity and enables recording/playback of data for up to 74 minutes.

## Sound skip guard memory



The sound skip guard memory stores some data of the played track so that the played audio does not skip due to vibration during MD (Mini Disc) playback. In case the optical laser cannot read disc signal due to vibration, the actually reproduced audio is not interrupted because the data stored in the guard memory is available.

## UTOC (User Table Of Contents)



The recordable MD (Mini Disc) contains the recording of UTOC (User Table Of Contents) in addition to music data itself. The UTOC includes the information on the positions the tracks are recorded, markings between tracks and order of tracks, so tracks can be searched quickly by referring to it. The editing operations consist of altering the UTOC contents and the actual music data does not need to be re-recorded.

# Handling MDs

## MD handling precautions

### To maintain high quality audio for a long period

Since the disc is accommodated inside a cartridge, it can be handled easily without caring about dust and dirt. However, to maintain the high audio quality for an extended period, use care in the following points.

### Installation location

Do not install the MD in following places.

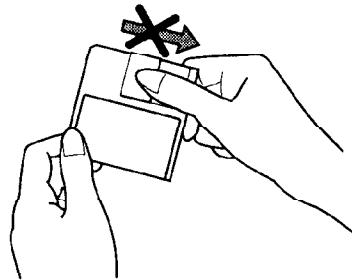
- In a place subject to direct sunlight or where the temperature rises, for example in a closed automobile. The disc may be warped and unusable in these places.
- In a bathroom or where the humidity is high. The disc may be rusted in these places.
- On a beach or sandbox. The disc surface may be scratched or damaged if grit penetrates through an opening on the cartridge.

### Periodical maintenance

When the cartridge gets dusty or dirty, wipe with a soft, dry cloth.

### Do not open the shutter.

The shutter is usually locked to prevent opening. Do not force to open it or the disc may be destroyed.



# MD Messages

The display of the MD recorder may show the messages which are explained in the following table.

Messages	Description	Treatment
BLANK DISC	The loaded disc is a non-recorded disc.	Use a recorded disc unless you want to start recording on a blank disc.
CANNOT JOIN	An attempt is made to join tracks that cannot be joined.	This is one of system restrictions on the MD. [See page 38.]
DISC ERROR	The MD is abnormal (damaged).	Use another MD.
DISC FULL	The disc has no available space or the number of tracks has reached 254.	Use another recordable MD.
EMERGENCY STOP	An abnormality occurred during recording.	Press ■STOP/CANCEL on the main unit or ■ on the remote control unit to enter Stop mode, then press ▲ to eject the MD and retry recording.
NO DISC	No MD is loaded.	Load an MD.
NON-AUDIO CANNOT COPY	An attempt is made to digitally dub a CD-ROM (Video CD, etc.).	Stop recording.
PLAYBACK DISC	An attempt is made to record on or edit a playback-only MD.	Use a recordable MD.
DISC PROTECTED	The MD is protected against accidental erasure.	Slide the protect tab of the MD. [See page 14.]
TRACK PROTECTED	A track has been protected against accidental erasure by other component than the MD recorder in use.	This protection cannot be released by this MD recorder. To stop editing the protected track, press EDIT.
SCMS CANNOT COPY	An attempt is made to copy a digitally dubbed copy.	Use the analog input for recording.
DIGITAL IN UNLOCK	A wrong digital input is selected.	Press INPUT SELECTOR to select the correct digital input.

# MD Restrictions

The MD records data in an original format that differs from that of conventional cassette tapes or DATs. Since there are some limitations with this recording format, the following types of symptoms may occur. These symptoms are not malfunctions.

Symptom	Cause
"DISC FULL" appears, even though there is still enough remaining time on MD.	There is a maximum number of tracks which can be recorded, regardless of recording time. More than 254 tracks cannot be recorded on an MD.
"DISC FULL" appears even though the number of tracks and recording time do not reach the limit.	<ul style="list-style-type: none"> <li>Repeating erasure and recording on the same MD creates many blank portions sparsely on the MD. When recording on such an MD, a track is recorded on these blank portions sparsely. If a track is divided and recorded into so many portions, "DISC FULL" appears.</li> <li>If a divided portion of less than 8 seconds is made while a track is recorded on the MD, that track cannot be joined to another track using the JOIN function. Furthermore, if that track is erased, the remaining time of the MD may not increase exactly by the erased amount.</li> <li>If a track has been divided into many portions while being recorded on the MD, sounds will drop out while fast forwarding or reversing such an MD.</li> </ul>
The JOIN function sometimes does not work.	
The remaining time on the MD does not increase even when tracks are erased.	
The sound drops out during fast forward or fast rewind.	
The amount of recorded time on the MD added to the amount of remaining time is shorter than the MD's total possible recording time.	You cannot record on a blank portion of less than 2 seconds in the MD. For this reason, the actual recording time of discs may become shorter.

# Troubleshooting

In case of difficulty, check the following before calling for service.

Symptom	Cause	Treatment
Sound is not heard.	<ul style="list-style-type: none"> <li>Cables are not connected properly.</li> </ul>	<ul style="list-style-type: none"> <li>Connect cables properly by referring to "Connection".</li> </ul>
	<ul style="list-style-type: none"> <li>The power cord is unplugged from the power outlet.</li> </ul>	<ul style="list-style-type: none"> <li>Plug the power cord securely into the power outlet.</li> </ul>
Recording is not possible.	<ul style="list-style-type: none"> <li>A playback-only MD is loaded.</li> </ul>	<ul style="list-style-type: none"> <li>Use a recordable MD.</li> </ul>
	<ul style="list-style-type: none"> <li>The MD is protected against accidental erasure ("DISC PROTECTED" is displayed in this case).</li> </ul>	<ul style="list-style-type: none"> <li>Close the accidental erasure protect tab of the MD.</li> </ul>
Remote control is not possible.	<ul style="list-style-type: none"> <li>The batteries are exhausted.</li> </ul>	<ul style="list-style-type: none"> <li>Replace batteries with new ones.</li> </ul>
	<ul style="list-style-type: none"> <li>The batteries are inserted with wrong polarity (+, -).</li> </ul>	<ul style="list-style-type: none"> <li>Insert batteries with correct polarity.</li> </ul>
	<ul style="list-style-type: none"> <li>There is an obstacle between the remote control unit and remote control sensor.</li> </ul>	<ul style="list-style-type: none"> <li>Remove the obstacle.</li> </ul>
	<ul style="list-style-type: none"> <li>The remote control sensor is under direct sunlight.</li> </ul>	<ul style="list-style-type: none"> <li>Screen the direct sunlight.</li> </ul>
Operation is abnormal.	<ul style="list-style-type: none"> <li>Condensation is produced inside the MD recorder immediately after starting the room heating or when it is transported from a cold to warm place.</li> </ul>	<ul style="list-style-type: none"> <li>Unplug the power cord, wait a few hours and plug it again.</li> </ul>
	<ul style="list-style-type: none"> <li>The microcomputer is malfunctioning due to external noise or lightning.</li> </ul>	<ul style="list-style-type: none"> <li>Unplug the power cord then plug it in again.</li> </ul>

## HOW TO LOCATE YOUR JVC SERVICE CENTER

TOLL FREE : 1-800-537-5722  
<http://www.jvcservice.com>

Dear customer:

*In order to receive the most satisfaction from your purchase, read the instruction booklet before operating the unit. In the event that repair is necessary, or for the address nearest your location, please refer to the factory service center list below or within the Continental United States. Call 1-800-537-5722 for your authorized servicer. Remember to retain your Bill of Sale for Warranty Service.*

—JVC

### JVC SERVICE & ENGINEERING COMPANY OF AMERICA

DIVISION OF JVC AMERICAS CORP.

#### FACTORY SERVICE CENTER LOCATIONS

107 Little Falls Road  
Fairfield, NJ 07004-2105  
(973) 808-9279

1500 Lakes Parkway  
Lawrenceville, GA 30243-5857  
(770) 339-2522

705 Enterprise Street  
Aurora, IL 60504-8149  
(630) 851-7855

5665 Corporate Avenue  
Cypress, CA 90630-0024  
(714) 229-8011

2060 Mapunapuna Place  
Honolulu, HI 96819-2040  
(808) 833-5828

10700 Hammerly, Suite 110  
Houston, TX 77043  
(713) 935-9331

13 Cummings Park  
Woburn, MA 01801  
(781) 376-9100

8192 State Road 84  
Davie, FL 33324  
(954) 472-1960

890 Dubuque Avenue  
South San Francisco, CA 94080-1804  
(650) 871-2666

*Sophisticated electronic products may require occasional service. Just as quality is a keyword in the engineering and production of the wide array of JVC products, service is the key to maintaining the high level of performance for which JVC is world famous. The JVC service and engineering organization stands behind our products.*

NATIONAL HEADQUARTERS  
JVC SERVICE & ENGINEERING COMPANY OF AMERICA  
DIVISION OF JVC AMERICAS CORP.  
1700 Valley Road  
Wayne, NJ 07470

#### **If you ship the product •••**

*Pack your JVC unit in the original carton or one of equivalent size and strength. Enclose, with the unit, a letter stating the problem or symptom that exists and also a copy of the receipt or bill of sale you received when you purchased your JVC unit. Print your home return address on the outside and the inside of the carton. Send to the appropriate JVC Factory Service Center as listed above.*

#### **Don't service it yourself.**

##### **CAUTION**

*To prevent electrical shock, do not open the cabinet. No user serviceable parts inside.  
Refer servicing to qualified service personnel.*

#### **ACCESSORIES**

*To purchase accessories for your JVC product, you may contact your local JVC Dealer.  
Or from the 48 Continental United States call toll free : 800-882-2345*



# LIMITED WARRANTY AUDIO-1

JVC COMPANY OF AMERICA warrants this product and all parts thereof, except as set forth below ONLY TO THE ORIGINAL PURCHASER AT RETAIL to be FREE FROM DEFECTIVE MATERIAL AND WORKMANSHIP from the date of original retail purchase for the period as shown below. ("The Warranty Period.")

PARTS	LABOR
1YR	1YR

THIS LIMITED WARRANTY IS VALID ONLY IN THE FIFTY(50) UNITED STATES, THE DISTRICT OF COLUMBIA AND IN COMMONWEALTH OF PUERTO RICO.

**WHAT WE WILL DO:**

If this product is found to be defective, JVC will repair or replace defective parts at no charge to the original owner. Such repair and replacement services shall be rendered by JVC during normal business hours at JVC authorized service centers. Parts used for replacement are warranted only for the remainder of the Warranty Period. All products and parts thereof may be brought to a JVC authorized service center on a carry-in basis except for Television sets having a screen size 25 inches and above which are covered on an in-home basis.

**WHAT YOU MUST DO FOR WARRANTY SERVICE:**

Return your product to a JVC authorized service center with a copy of your bill of sale. For your nearest JVC authorized service center, please call toll free: (800)537-5722. If service is not available locally, box the product carefully, preferably in the original carton, and ship, insured, with a copy of your bill of sale plus and letter of explanation of the problem to the nearest JVC Factory Service Center, the name and location of which will be given to you by the toll-free number. If you have any questions concerning your JVC Product, please contact our Customer Relations Department.

**WHAT IS NOT COVERED:**

- This limited warranty provided by JVC does not cover:
- Products which have been subject to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, or if repaired or serviced by anyone other than a service facility authorized by JVC to render such service, or if affixed to any attachment not provided with the products, or if the model or serial number has been altered, tampered with, defaced or removed;
  - Initial installation and installation and removal for repair;
  - Operational adjustments covered in the Owner's Manual, normal maintenance, video and audio head cleaning;
  - Damage that occurs in shipment, due to act of God, and cosmetic damage;
  - Signal reception problems and failures due to line power surge;
  - Video Pick-up Tubes/CCD Image Sensor, Cartridge, Stylus(Needle) are covered for 90 days from the date of purchase;
  - Accessories;
  - Batteries (except the Rechargeable Batteries are covered for 90 days from the date of purchase);

There are no express warranties except as listed above.

THE DURATION OF ANY IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY, IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY HEREIN.

JVC SHALL NOT BE LIABLE FOR THE LOSS OF USE OF THE PRODUCT, INCONVENIENCE, LOSS OR ANY OTHER DAMAGES, WHETHER DIRECT, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, WITHOUT LIMITATION, DAMAGE TO TAPES, RECORDS OR DISCS) RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED TO THE WARRANTY PERIOD SET FORTH ABOVE.

Some states do not allow the exclusion of incidental or consequential damages or limitations on how long an implied warranty last, so these limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

JVC COMPANY OF AMERICA DIVISION OF JVC AMERICAS CORP.	1700 Valley Road Wayne, NJ 07470
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REFURBISHED PRODUCTS CARRY A SEPARATE WARRANTY, THIS WARRANTY DOES NOT APPLY. FOR DETAILS OF REFURBISHED PRODUCT WARRANTY, PLEASE REFER TO THE REFURBISHED PRODUCT WARRANTY INFORMATION PACKAGED WITH EACH REFURBISHED PRODUCT.

For customer use:

Enter below the Model No. and Serial No. which is located either on the rear, bottom or side of the cabinet. Retain this information for future reference.

Model No.:	Serial No.:
Purchase date:	Name of dealer:



# Specifications

Format	Minidisc digital audio system
Recording format	Magnetic modulation overwrite format
Reading format	Non-contacting optical method by semiconductor laser ( $\lambda=780$ nm)
Sampling frequency	44.1 kHz
Compression/expansion method	ATRAC (Adaptive TRansform Acoustic Coding) method
Number of channels	2 channels
Frequency response	5 Hz to 20,000 Hz ( $\pm 0.5$ dB)
S/N ratio	93 dB
Dynamic range	91 dB
Wow/flutter	Less than measurable limit

Input terminals ANALOG IN (pin jack),  
OPTICAL DIGITAL IN (square optical connector jack)

(Analog)	Terminal name	Reference input level	Minimum input level
	ANALOG IN	275 mV rms.	100 mV rms.

(Digital)	Terminal name	Received optical signal wave length	Input level
	DIGITAL IN 1, 2	660 nm	-24 dBm to -15 dBm

Output terminal ANALOG OUT (pin jack)

(Analog)	Terminal name	Load impedance	Output level
	ANALOG OUT	10 kohms	1.1 V

Power requirements	AC 120 V $\sim$ , 60 Hz
Power consumption	11 watts (ON), 7 watts (STANDBY)
Dimensions	435 $\times$ 112 $\times$ 335 mm (W/H/D) (17 $\frac{1}{8}$ $\times$ 4 $\frac{1}{32}$ $\times$ 13 $\frac{1}{4}$ inches)
Mass	4.3 kg (9.5 lbs)

Accessories	Remote control unit (1) Batteries R03 (UM-4)/AAA (24F) (2) Audio pin cord (2) Optical digital cable (1) Compu Link cable (1) Text Compu Link cable (1) AC power cord (1)
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*Specifications and appearance subject to change for improvements without prior notice.*

# JVC

VICTOR COMPANY OF JAPAN, LIMITED