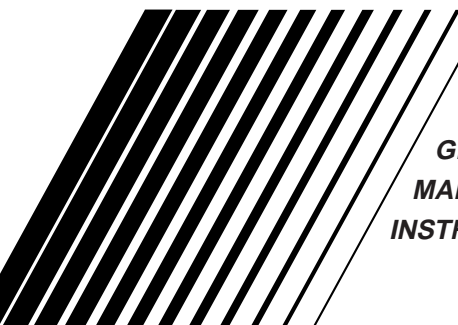
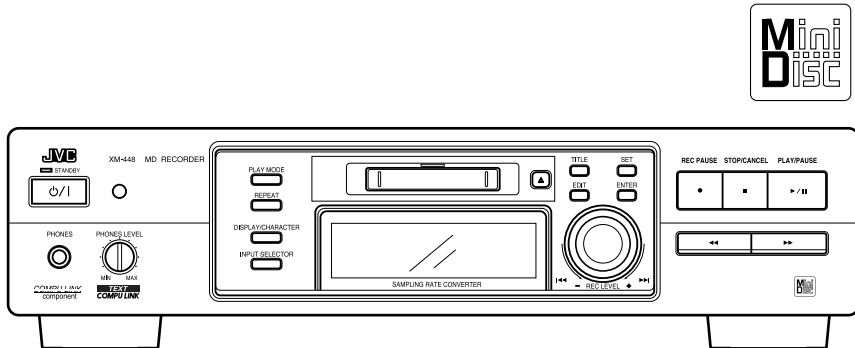
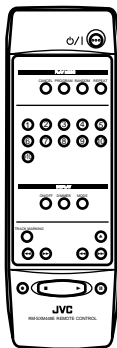


# JVC



**MINIDISC RECORDER**  
**MINIDISC-REKORDER**  
**ENREGISTREUR MINIDISC**  
**MINIDISC-RECORDER**  
**GRABADORA DE MINIDISC**  
**REGISTRATORE MINIDISC**

# XM-448BK



**INSTRUCTIONS**  
**BEDIENUNGSANLEITUNG**  
**MANUEL D'INSTRUCTIONS**  
**GEBRUIKSAANWIJZING**  
**MANUAL DE INSTRUCCIONES**  
**ISTRUZIONI**

**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. \_\_\_\_\_

LVT0222-003A

[E]

**Warnings, Cautions and Others / Warnung, Achtung und sonstige Hinweise / Mises en garde, précautions et indications diverses / Waarschuwingen, voorzorgen en andere mededelingen / Avisos, precauciones y otras notas / Avvertenze e precauzioni da osservare**

**IMPORTANT for the U.K.**

**DO NOT** cut off the mains plug from this equipment. If the plug fitted is not suitable for the power points in your home or the cable is too short to reach a power point, then obtain an appropriate safety approved extension lead or consult your dealer.

**BE SURE** to replace the fuse only with an identical approved type, as originally fitted.

If nonetheless the mains plug is cut off ensure to remove the fuse and dispose of the plug immediately, to avoid a possible shock hazard by inadvertent connection to the mains supply.

If this product is not supplied fitted with a mains plug then follow the instructions given below:

**IMPORTANT:**

**DO NOT** make any connection to the terminal which is marked with the letter E or by the safety earth symbol or coloured green or green-and-yellow.

The wires in the mains lead on this product are coloured in accordance with the following code:

Blue : Neutral  
Brown : Live

As these colours may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

**IF IN DOUBT - CONSULT A COMPETENT ELECTRICIAN.**

**Caution — ⏻/I switch!**

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

**Achtung — ⏻/I-Schalter!**

Den Netzstecker aus der Steckdose ziehen, um die Stromversorgung vollkommen zu unterbrechen. Der Schalter ⏻/I unterbricht in keiner Stellung die Stromversorgung vollkommen. Die Stromversorgung kann mit der Fernbedienung ein- und ausgeschaltet werden.

**Attention — Commutateur ⏻/I!**

Déconnecter la fiche de secteur pour couper complètement le courant. Le commutateur ⏻/I ne coupe jamais complètement la ligne de secteur, quelle que soit sa position. Le courant peut être télécommandé.

**Voorzichtig — ⏻/I schakelaar!**

Om de stroomtoevoer geheel uit te schakelen, trekt u de stekker uit het stopcontact. Anders zal er altijd een geringe hoeveelheid stroom naar het apparaat lopen, ongeacht de stand van de ⏻/I schakelaar. U kunt het apparaat ook met de afstandsbediening aan- en uitschakelen.

**Precaución — Interruptor ⏻/I!**

Desconectar el cable de alimentación para desactivar la alimentación totalmente. Cualquier que sea la posición de ajuste del interruptor ⏻/I, la alimentación no es cortada completamente. La alimentación puede ser controlada remotamente.

**Attenzione — L'interruttore ⏻/I!**

Disinserire la spina del cavo di alimentazione dalla presa della rete elettrica per staccare completamente l'alimentazione. L'interruttore ⏻/I in nessuna posizione stacca la linea di alimentazione elettrica principale. È possibile il controllo remoto dell'alimentazione.

---

**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.

**ACHTUNG**

Zur Verhinderung von elektrischen Schlägen, Brandgefahr, usw:

1. Keine Schrauben lösen oder Abdeckungen entfernen und das Gehäuse nicht öffnen.
2. Dieses Gerät weder Regen noch Feuchtigkeit aussetzen.

**ATTENTION**

Afin d'éviter tout risque d'électrocution, d'incendie, etc.:

1. Ne pas enlever les vis ni les panneaux et ne pas ouvrir le coffret de l'appareil.
2. Ne pas exposer l'appareil à la pluie ni à l'humidité.

**VOORZICHTIG**

Ter vermindering van gevaar voor brand, elektrische schokken, enz.:

1. Verwijder geen schroeven, panelen of de behuizing.
2. Stel het toestel niet bloot aan regen of vocht.

**PRECAUCIÓN**

Para reducir riesgos de choques eléctricos, incendio, etc.:

1. No extraiga los tornillos, los cubiertas ni la caja.
2. No exponga este aparato a la lluvia o a la humedad.

**ATTENZIONE**

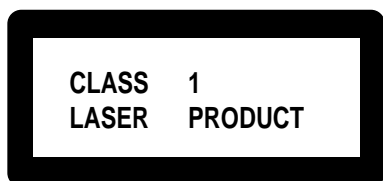
Per ridurre il rischio di shock elettrici, incendi, ecc...

1. Non togliete viti, coperchi o la scatola.
2. Non esponete l'apparecchio alla pioggia e all'umidità.

**IMPORTANT FOR LASER PRODUCTS/WICHTIGER HINWEIS FÜR LASER-PRODUKTE / IMPORTANT POUR LES PRODUITS LASER /BELANGRIJKE INFORMATIE VOOR LASERPRODUKTEN / IMPORTANTE PARA LOS PRODUCTOS LÁSER / IMPORTANTE PER I PRODOTTI LASER**

**REPRODUCTION OF LABELS/ANBRINGUNGSORTE FÜR LASER-PRODUKTE/REPRODUCTION DES ETIQUETTES/ VERKLARING VAN DE LABELS/REPRODUCCIÓN DE ETIQUETAS/RIPRODUZIONE DELLE ETICHETTE**

- ① CLASSIFICATION LABEL, PLACED ON REAR ENCLOSURE
- ② WARNING LABEL, PLACED INSIDE THE UNIT
- ① KLASSIFIKATIONSETIKETTE AN DER RÜCKSEITE
- ② WARNETIKETTE IM GERÄTEINNEREN
- ① ETIQUETTE DE CLASSIFICATION, PLACÉE A L'ARRIÈRE DU COFFRET
- ② ETIQUETTE D'AVERTISSEMENT PLACÉE À L'INTERIEUR DE L'APPAREIL
- ① KLASSIFIKATIETABEL, OP DE ACHTERZIJDE VAN HET APPARAAT
- ② WAARSCHUWINGSLABEL, IN HET APPARAAT
- ① ETIQUETA DE CLASIFICACIÓN, PEGADA EN LA PARTE POSTERIOR DE LA CAJA
- ② ETIQUETA DE ADVERTENCIA, PEGADA EN EL INTERIOR DE LA UNIDAD
- ① ETICHETTA DI CLASSIFICAZIONE, SITUATA SUL RIVESTIMENTO POSTERIORE
- ② ETICHETTA DI AVVERTENZA, SITUATA ALL'INTERNO DELL'APPARECCHIO



**DANGER:** Invisible laser radiation when open and interlock failed or defeated. AVOID DIRECT EXPOSURE TO BEAM. (e)

**WARNING:** Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen. (s)

**ADVARSEL:** Usynlig laserstrålning ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling (d)

**VARO:** Avattaessa ja suojalukitus ohitettaessa olet alittiina näkymättömälle lasersäteilylle. Älä katso säteeseen. (f)

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.

1. LASER-PRODUKT DER KLASSE 1
2. **GEFAHR:** Unsichtbare Laserstrahlung bei Öffnung und fehlerhafter oder beschädigter Sperr. Direkten Kontakt mit dem Strahl vermeiden!
3. **ACHTUNG:** Das Gehäuse nicht öffnen. Das Gerät enthält keinerlei Teile, die vom Benutzer gewartet werden können. Überlassen Sie Wartungsarbeiten bitte qualifizierten Kundendienst-Fachleuten.

1. PRODUIT LASER CLASSE 1
2. **ATTENTION:** Radiation laser invisible quand l'appareil est ouvert ou que le verrouillage est en panne ou désactivé. Eviter une exposition directe au rayon.
3. **ATTENTION:** Ne pas ouvrir le couvercle du dessus. Il n'y a aucune pièce utilisable à l'intérieur. Laisser à un personnel qualifié le soin de réparer votre appareil.

1. KLAS 1 LASERPRODUKT
2. **GEVAARLIJK:** Onzichtbare laserstraling wanneer open en de beveiliging faalt of uitgeschakeld is. Voorkom het direct blootstaan aan de straal.
3. **VOORZICHTIG:** De bovenkap niet openen. Binnenin het toestel bevinden zich geen door de gebruiker te repareren onderdelen: laat onderhoud over aan bekwame vakpersoneel.

1. PRODUCTO LASER CLASE 1
2. **PELIGRO:** En el interior hay radiación láser invisible. Evite el contacto directo con el haz.
3. **PRECAUCIÓN:** No abra la tapa superior. En el interior de la unidad no existen piezas reparables por el usuario; deje todo servicio técnico en manos de personal calificado.

1. PRODOTTO LASER CLASSE 1
2. **PERICOLO:** Radiazione laser invisibile quando l'apparecchio è aperto ed il dispositivo di sicurezza è guasto o disattivato. Evitare l'esposizione diretta ai raggi.
3. **ATTENZIONE:** Non aprire il coperchio superiore. Non vi sono parti adoperabili dall'utente all'interno di questo apparecchio; lasciare tutti i controlli a personale qualificato.

# 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.

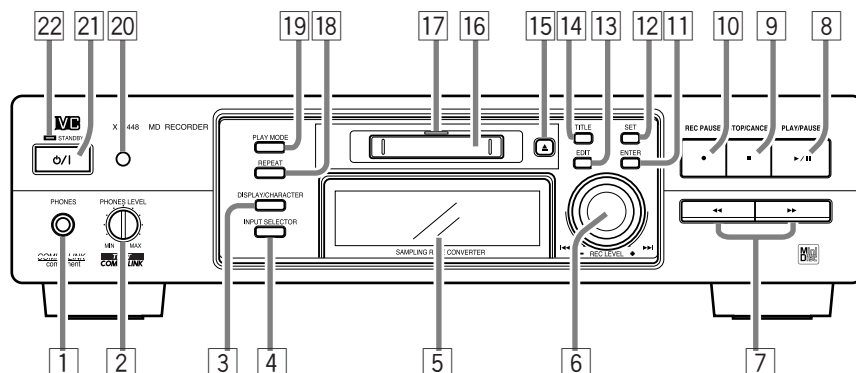
# Table of Contents

Welcome ! .....	1	<b>COMPU LINK</b> .....	<b>30</b>
Important cautions .....	1	Linked Operation of the Other Optional Components (Compu Link) .....	30
For safe use, observe the following .....	1		
<b>Parts Index</b> .....	<b>3</b>	<b>TEXT COMPU LINK</b> .....	<b>31</b>
Front panel .....	3		
Display .....	3	<b>Rule on Digital Copying</b> .....	<b>33</b>
Remote control unit .....	4	SCMS (Serial Copy Management System) ..	33
<b>Setting up the System</b> .....	<b>5</b>	<b>About MD (Mini Disc)</b> .....	<b>34</b>
Supplied accessories .....	5	Role of the cartridge .....	34
Remote control batteries .....	5	Two disc types .....	34
Operating the remote control unit .....	5	ATRAC (Adaptive TRansform Acoustic Coding) .....	35
Connection .....	6	Sound skip guard memory .....	35
<b>Turning the Power On and Off</b> .....	<b>7</b>	UTOC (User Table Of Contents) .....	35
Power On .....	7	<b>Handling MDs</b> .....	<b>36</b>
Power Off .....	7	<b>MD Messages</b> .....	<b>37</b>
<b>Playback</b> .....	<b>8</b>	<b>MD Restrictions</b> .....	<b>38</b>
Continuous playback .....	8	<b>Troubleshooting</b> .....	<b>39</b>
Using the display mode .....	10	<b>Specifications</b> .....	<b>40</b>
Program playback .....	10		
Random playback .....	12		
Repeat playback .....	13		
<b>Recording</b> .....	<b>14</b>		
Recording operation .....	14		
<b>Editing Functions</b> .....	<b>17</b>		
MD editing functions .....	17		
Dividing a track (DIVIDE) .....	19		
Joining tracks (JOIN) .....	20		
Moving a track (MOVE) .....	22		
Erasing a track (ERASE) .....	23		
Erasing all tracks in an MD (ALL ERASE) .....	25		
Assigning the disc title and track titles .....	26		

# Parts Index

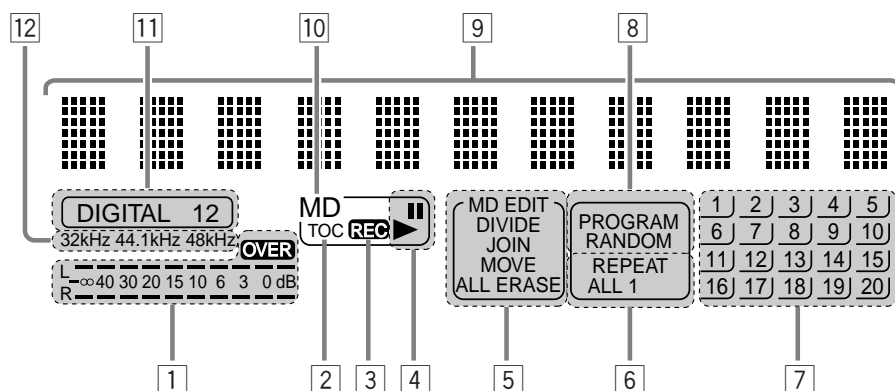
Become familiar with the buttons and controls before use. Refer to the pages in parentheses for details.

## Front panel



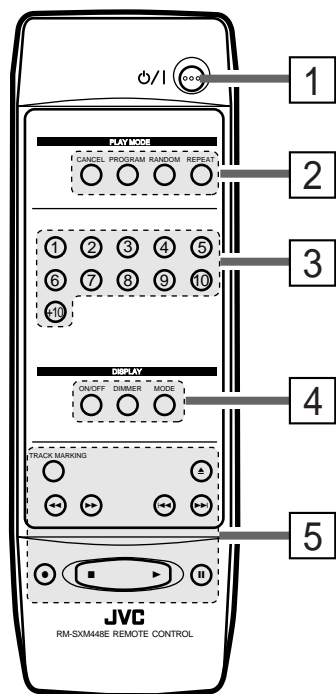
- |                                       |  |                                |
|---------------------------------------|--|--------------------------------|
| 1 PHONES jack (9)                     | 8 ►/   PLAY/PAUSE button (8, 9)        | 15 ▲ (Eject) button (8)        |
| 2 PHONES LEVEL control (9)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

## Display

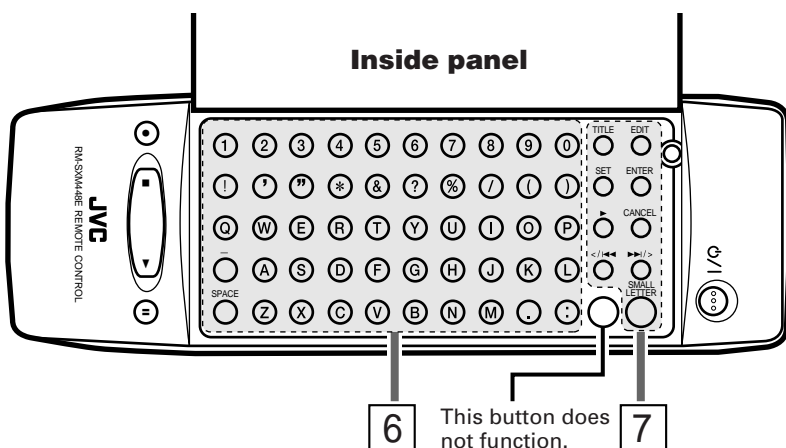
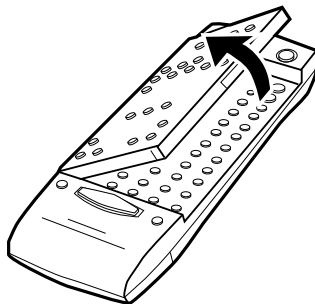


- |   |  |
|---|--|
| 1 Level indicators and OVER indicator (16)                                    | 7 Music calendar (19)  |
| 2 TOC indicator (20)  | 8 Play mode indicators (10, 12) (PROGRAM, RANDOM)                |
| 3 REC indicator (14)  | 9 Character display (11 digits) (26)                             |
| 4 Play/Pause indicators (► (Play),    (Pause)) (8, 9, 14)                     | 10 MD indicator (7)  |
| 5 MD editing mode indicators (19 – 25) (DIVIDE, JOIN, MOVE, ERASE, ALL ERASE) | 11 Input mode indicators (15) (DIGITAL 1, DIGITAL 2)             |
| 6 Repeat mode indicators (13) (REPEAT ALL, REPEAT 1)                          | 12 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 φ/I (Standby/On) 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)  
 ■ (**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)  
 </I◀◀, ▶▶I/> (20, 28)  
**SMALL LETTER** (28)



# Setting up the System

## Supplied accessories

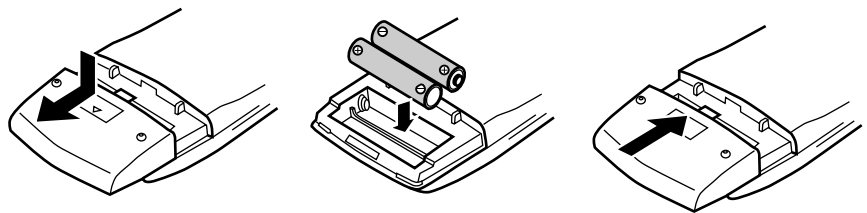
Before setting up your system make sure you received all of the following supplied accessories.

- 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.

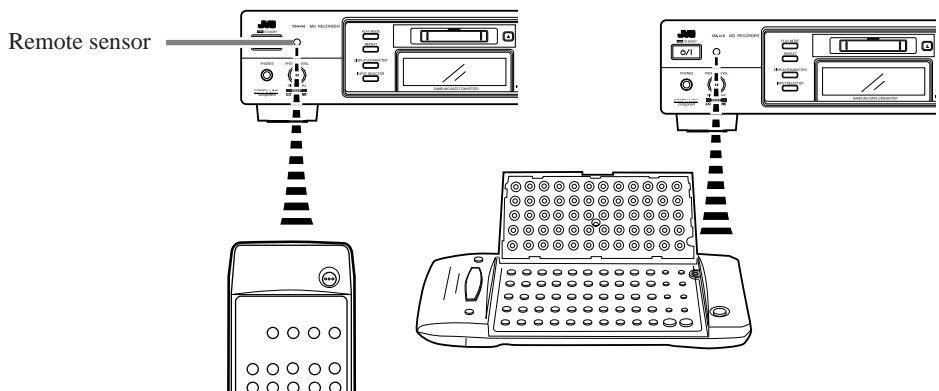
To avoid battery leakage or explosion:

- 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.

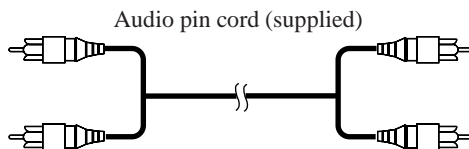
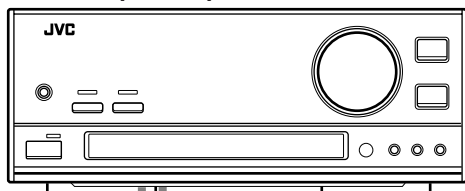
You need to point the remote control unit at the remote sensor on the front panel.



# Connection

## Signal cable connections

### Example: Amplifier/Tuner



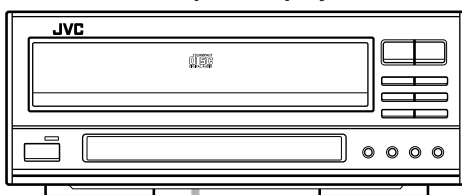
#### Audio pin cords

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

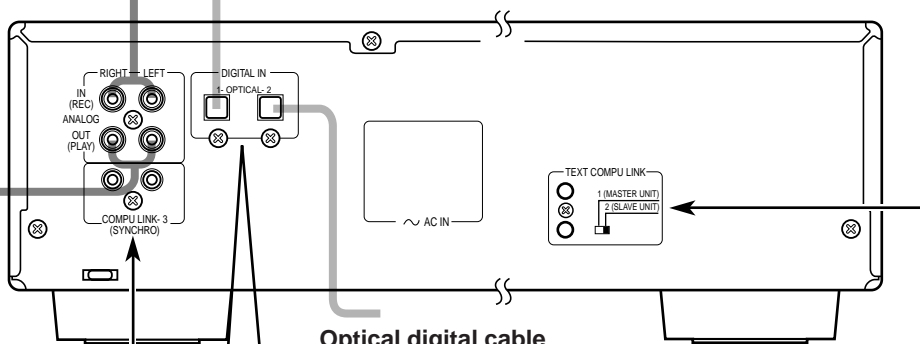


#### Optical digital cable (supplied)



#### 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.

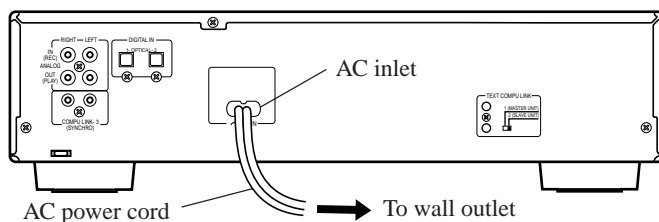
Connect to the TEXT COMPU LINK jack of another JVC component equipped with the TEXT COMPU LINK remote control system. See pages 31 and 32.

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 **⏻/| (Standby/On)** 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 **▶/||** on the main unit or **▶** on the remote control unit. For detailed description, see “Playback” on the next page.

## Power Off



- 1 Press **⏻/| (Standby/On)** 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.

# Playback

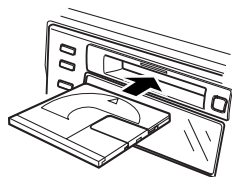
## Continuous playback

The basic operation for playing an MD is described below. When no MD is loaded yet, "NO DISC" is shown on the display.

### 1 Load an MD.

Hold an MD with the side on which an arrow is marked facing up, and insert it into the slot in the direction of the arrow.

The MD will be pulled in automatically from the middle.



- If the MD has a disc title, the display shows the disc title then the number of tracks and total playing time of the MD.
- The tracks in the MD appear on the music calendar.

```

Loading
  ↓
TOC Reading
  ↓
 6      32:00
Number of tracks  Total playing time
  
```

Number of tracks    Total playing time

**Note:** To allow easy insertion, insert the MD along the upper part of the MD insertion slot.

### Caution

- **Do not fail to observe the MD insertion direction, otherwise a malfunction will result.**

### Shortcut:

You can insert an MD in Standby mode. Then, the power is turned on and the MD is pulled in automatically.

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

Playback starts.

The ► indicator blinks for a while and then stays lit.

The playback levels for the L and R channels are shown on the level indicators.

- If the track has a title, the track title will be displayed before playing the track.
- The track number that has been played disappears from the music calendar.
- The MD automatically stops when the last track of the MD has finished playing.

### Shortcut:

When you press ►/II on the main unit or ► on the remote control unit in Standby mode, the power is turned on and the MD is automatically played. However, if no MD is loaded, "NO DISC" is shown on the display.

### To stop the MD:

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

- If the MD has a disc title, the display shows the disc title then the number of tracks and total playing time of the MD.

### To eject the MD:

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

The MD is ejected and the display changes as follows:

```
EJECT → NO DISC
```

PLAY/PAUSE



OR



You can also use the button on the inside panel of the remote control.



STOP/CANCEL



OR



OR



PLAY/PAUSE



OR



### To pause the MD:

Press ►/|| on the main unit or press || on the remote control unit.

The || indicator lights up.

To cancel pause, press ►/|| on the main unit or press ► on the remote control unit. The MD starts from the position where it has paused.

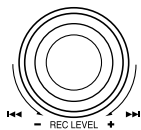
### To select a track

You can select a desired track during playback or in Stop mode.

#### Main unit:

During playback, turn the jog dial to the right or left to select the track you want. Then, the selected track starts playing.

- Turn the jog dial to the right to skip to the beginning of the next tracks.
- Turn the jog dial to the left to return to the beginning of the current track (or the previous tracks).



In Stop mode, you can select a track in the same way. To start playback, press ►/||.

#### Remote control unit:

##### Using |◀◀ or ▶▶| :

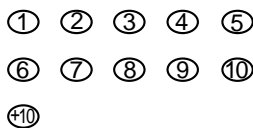
During playback, press |◀◀ or ▶▶| to select the track you want. Then, the selected track starts playing.

- Press ▶▶| to skip to the beginning of the next tracks.
- Press |◀◀ once to return to the beginning of the current track (or the previous tracks).

In Stop mode, you can select a track in the same way. To start playback, press ►.

##### Using the numeric keys:

During playback or in Stop mode, select a track with the numeric keys. Then, the selected track starts playing.



#### Selecting a track with the numeric keys:

To select track No. 5 : Press 5.

To select track No. 15: Press +10 then 5.

To select track No. 20: Press +10 then 10.

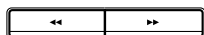
To select track No. 52: Press +10 five times then press 2.

- When you try to select a track number greater than the recorded tracks in the MD, the last track is automatically selected.

### Search play

During playback, you can fast forward/backwards the MD to quickly find a particular passage in the track.

To perform this, press and hold ◀◀ or ▶▶ on the main unit or on the remote control unit.



OR



### Using headphones

Connect a pair of headphones (not supplied) to the PHONES jack to listen to the playback sound of the MD or rec-monitor sound.

You can adjust the headphones output level by turning the PHONES LEVEL control.

- The output from the unit is not cut off even if the headphones are used.

PHONES LEVEL



#### Caution

- **Be sure to turn down the PHONES LEVEL control before connecting or putting on headphones.**

## Using the display mode

### To switch the display information

The display can show the disc title, track title and remaining time (recording time available when a recordable MD is loaded) information.

DISPLAY/CHARACTER



OR

MODE



6 32:00  
Number of tracks and total  
playing time



6 -41:54  
Number of tracks and remaining  
recording time

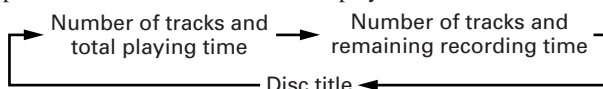


MY SONGS  
Disc title

#### When no track is selected (In Stop mode):

Press DISPLAY/CHARACTER on the main unit or MODE on the remote control unit.

Each press of the button switches the displayed information as follows.



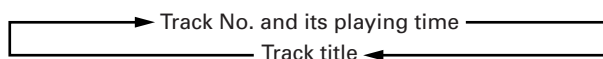
- A disc title composed of more than 11 characters is scrolled, and the first 11 characters are displayed after scrolling.
- The display shows “NO TITLE” if the disc has no title.

NO TITLE

#### When a track has already been selected (During playback or in Stop mode):

Press DISPLAY/CHARACTER on the main unit or MODE on the remote control unit.

Each press of the button switches the displayed information as follows.



- A track title composed of more than 11 characters is scrolled, and the first 11 characters are displayed after scrolling.
- Note:** When using the TEXT COMPU LINK remote control system (see page 31), titles will not be scrolled.
- The display shows “NO TITLE” if the track has no title.

### To change the brightness of the display

ON/OFF



- You can turn on or off the display by pressing ON/OFF on the remote control unit. Each press of the button turns on or off the display alternately.

When you turn off the unit, the display-off mode is canceled.

**Notes:** • When editing MDs or assigning titles (see pages 17 to 29), you cannot turn on or off the display.

- Even though the display is turned off, it turns on temporarily while you operate the unit (for example, pause or stop) during play or recording.

DIMMER



- You can dim the display by pressing DIMMER on the remote control unit. Each press of the button turns the display dim or bright alternately.

## Program playback

You can program up to 32 tracks in any desired order including the same tracks.

- You can only make a program in Stop mode.

#### 1 Load an MD.

See “Continuous playback ” on page 8.

## 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:

PROGRAM → PROGRAM → RANDOM → Off (Continuous play)



### Remote control unit:

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

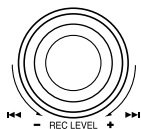
The display shows the following for programming.

The first track 1 P 0

## 3 Select desired track numbers to be programmed.

### Main unit:

- 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.
- 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)

14 Program number P 12 → 14 Total playing time 42:12

The last programmed track The last programmed track

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

### Remote control unit:

- 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.
- 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.

- 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.

PLAY/PAUSE



OR





### 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.)

STOP/CANCEL



OR

CANCEL



### 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.

PLAY MODE



#### Remote control unit:

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

PROGRAM



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.

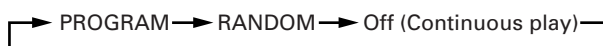
PLAY MODE



14 RANDOM

Number of tracks /

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





RANDOM  
**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.

PLAY MODE

**Remote control unit:**

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

RANDOM

**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.

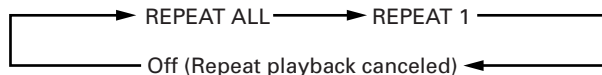
For the repeat playback, see below.

## 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.

**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.

REPEAT OR REPEAT



OR



PLAY/PAUSE



OR



REPEAT OR REPEAT



OR

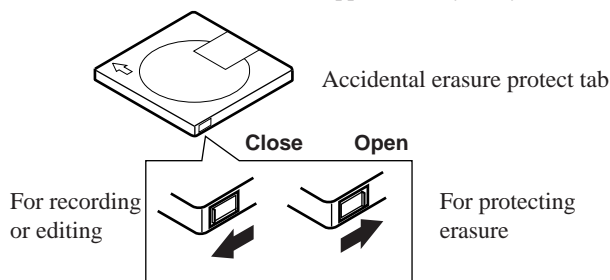


# Recording

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 may be unlawful to record or play back copyrighted material without the consent of the copyright owner.**
- 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 || (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



REC PAUSE



OR



INPUT SELECTOR



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

Each press of INPUT SELECTOR switches the inputs as follows.



**DIGITAL1 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.

**DIGITAL2 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.

DIGITAL 1  
44.1kHz

### 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:

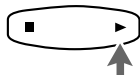
Press ● REC PAUSE on the main unit or ● on the remote control unit.

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

PLAY/PAUSE



OR



STOP/CANCEL



OR



REC PAUSE



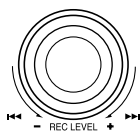
OR



## To adjust the analog input level

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

- In Rec/Pause mode, start playing the source for level adjustment.  
The level indicators show the input levels.
- 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).



OR



- 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.



remaining recording time

DISPLAY/CHARACTER



OR



## 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.



OR



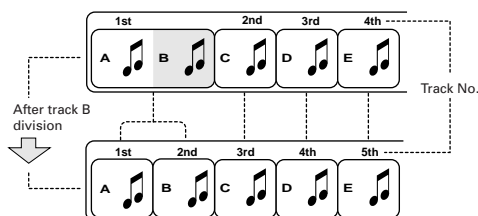
TRACK MARKING



## MD editing functions

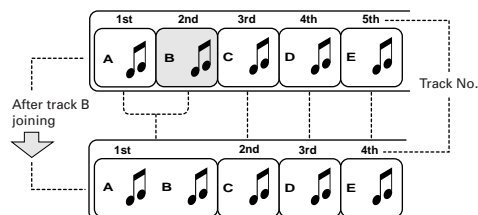
A recorded MD can be edited in many ways. The editing functions include the dividing, joining, moving, erasing a single track, erasing the entire disc and assigning titles to the disc and tracks, and more than one of them can be combined as required.

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



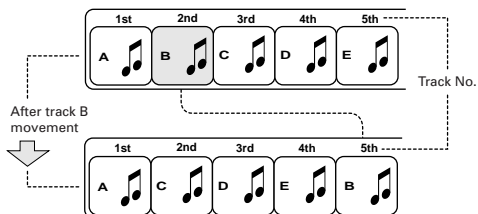
### Dividing a track (DIVIDE) Page 19

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



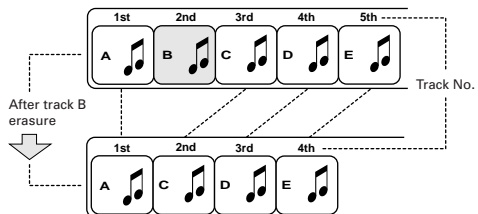
### Joining tracks (JOIN) Page 20

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



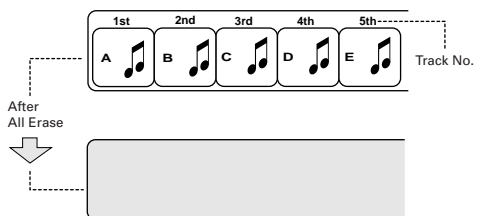
### Moving a track (MOVE) Page 22

This function moves a track by reordering the track numbers.



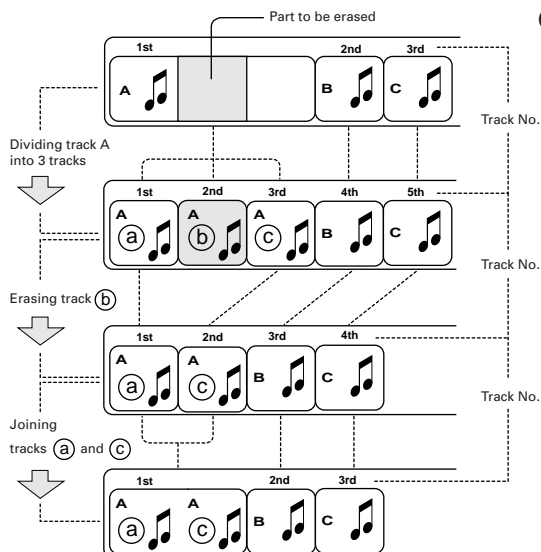
### Erasing a track (ERASE) Page 23

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

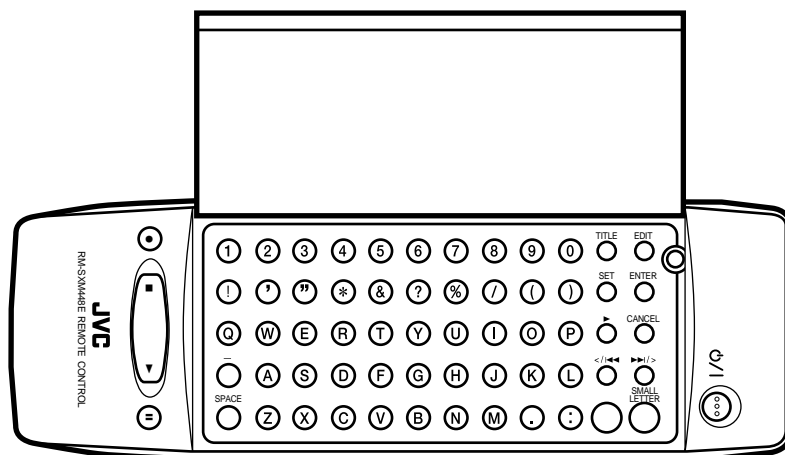
By combining “DIVIDE”, “ERASE” and “JOIN”, for example, it is possible to erase only a part of existing track.

## 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)

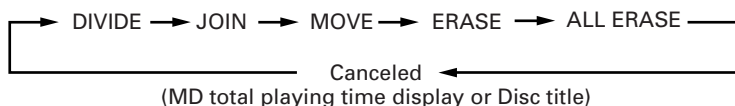
A track can be divided into desired number of tracks by adding track markings in the middle, in the desired points or where you want to search later.

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

DIVIDE

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

Blinks Blinks

1 0:00

## 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

3 0:01

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

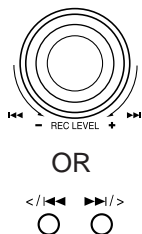
Blinks

0 OK

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.

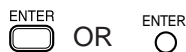
Turn the jog dial on the main unit or press </> or </> on the remote control unit.

The track marking position can be fine-adjusted in the range of  $\pm 128$  positions (approx.  $\pm 8$  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.

EDITING



### 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)

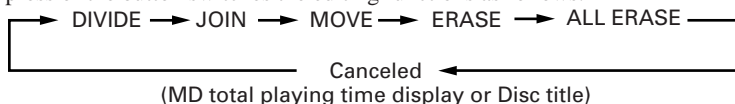
Two adjacent tracks can be joined into a single track by deleting an unnecessary track marking. This also makes it possible to join more than two tracks into a single track or a piece of music divided into multiple tracks into a single piece. The track numbers after the joined tracks are renumbered automatically.



## 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.

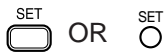


Blinks

JOIN





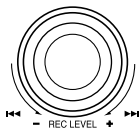


## 2 Press SET on the main unit or on the remote control unit.

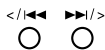


## 3 Select a track to be joined with the previous track.

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.

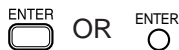


## 4 Press SET on the main unit or on the remote control unit.

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 ▲ 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.

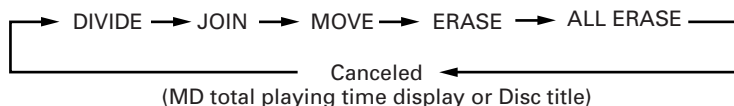
# Moving a track (MOVE)

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.



Blinks



OR



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

The current track number will blink on the display.

Blinks



Blinks



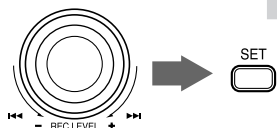
OR



## 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.



OR



Blinks



Blinks



SET

Blinks



Blinks



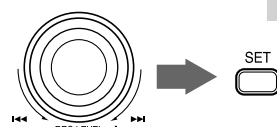
Example) When track No. 2 is to be moved

- 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.



OR



Blinks



Blinks



Blinks



SET

Blinks



Blinks

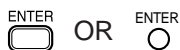


Blinks



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 ▲ 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)

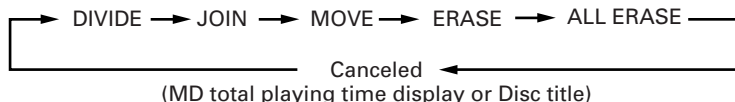
A track can be erased from the MD. The track numbers after the erased track are renumbered automatically.

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



The ERASE indicator lights up.

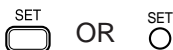
Each press of the button switches the editing functions as follows.



Blinks

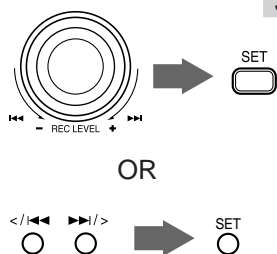


**2 Press SET on the main unit or on the remote control unit.**



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 >/> on the remote control unit.

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



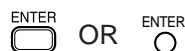
Example) When track No. 2 is to be erased



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)

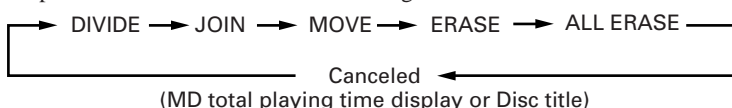
The data recorded in an MD can be erased entirely.



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

The ALL ERASE indicator lights up.

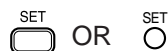
Each press of the button switches the editing functions as follows.



Blinks



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

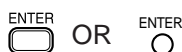


Blinks

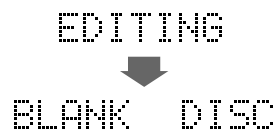


- If the display shows "TRACK PROTECTED", one or more of the tracks in the MD has been protected against accidental erasure by another component. You cannot edit such a protected track. To cancel the editing, press EDIT on the main unit or on the remote control unit.

## 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 ▲ 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**:

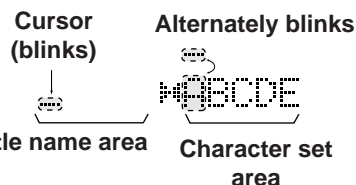
First select **the track to be titled** by turning the jog dial to the right or left. Then, go to step 3.



### 3 Press SET.

The title assignment display appears.

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

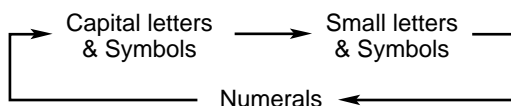


### 4 Enter a character.

Example: When entering character “n”.

- 1 Press DISPLAY/CHARACTER repeatedly.

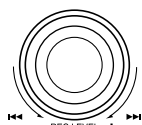
Each press of the button changes the character sets as follows:



- 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.

DISPLAY/CHARACTER



- 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 TIT  
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.

SET  
○

The cursor starts blinking on the first character entry position.

### 4 Input the disc or track title.

SMALL  
LETTER  
○

- 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.

1	2	3	4	5	6	7	8	9	0
L	I	M	*	&	?	%	/		
Q	W	E	R	T	Y	U	I	O	P
◊	A	S	D	F	G	H	J	K	L
SPACE	Z	X	C	V	B	N	M	◊	◊

#### 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)





## 6 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.

## 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.

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).

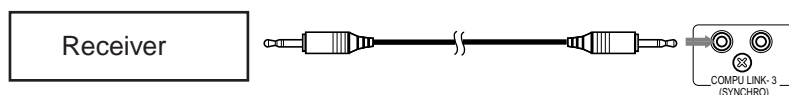
- If the receiver (or amplifier) has the on-screen function, you can display the text information on any TV screen, and can do the following, using the on-screen function while watching the TV screen:
  - Operate this MD recorder.
  - Assign titles to the MD and its tracks.
- If the CD player equipped 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:

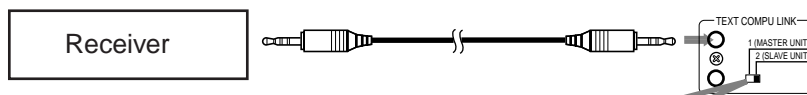
**1 If the receiver (or amplifier) and this unit have already been plugged into the AC outlets, disconnect their AC power cords.**

**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).

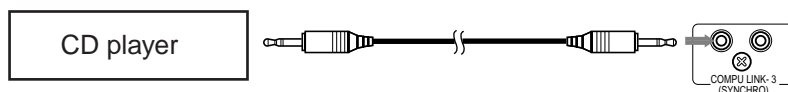
## Connection to CD player or CD changer

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:

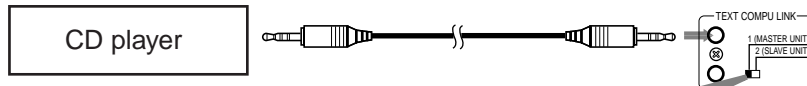
**1 If the CD player (or CD changer) and this unit have already been plugged into the AC outlets, disconnect their AC power cords.**

**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.**

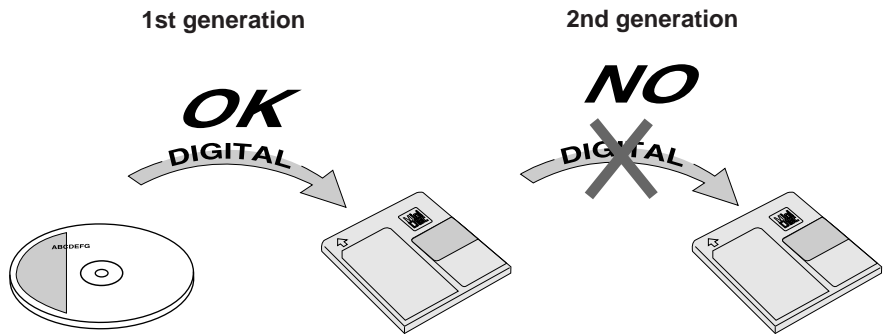
**5 Finally connect the AC power cord of this unit.**

# 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.



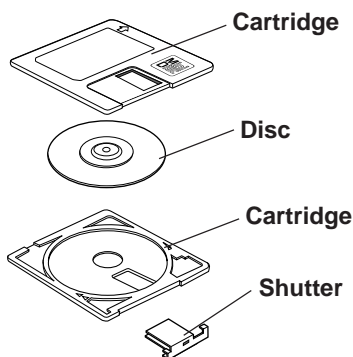
### Caution

- **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

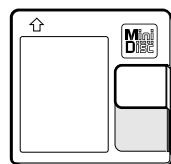


Playback-only MD

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”.

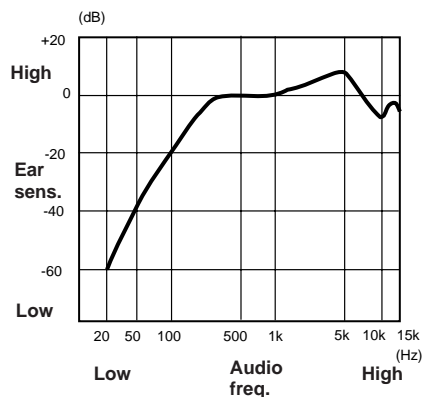


Recordable MD

### Recordable MD

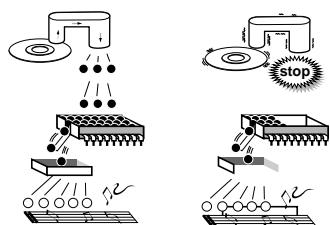
This type of disc records data using the magnetism to allow repeated data recording operations. A disc recorded in this way is referred to as an “MO (Magneto-Optical) disc”.

## ATRAC (Adaptive TRansform 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 TRansform 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



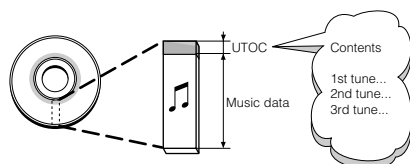
During normal playback

During vibration

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.

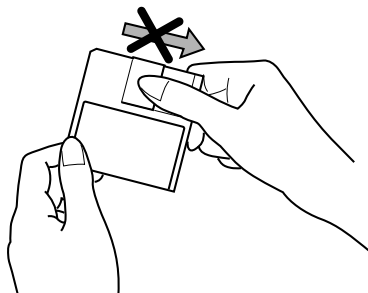
- In a place subject to direct sunlight or where the temperature rises, for example in a closed automobile. The disc may be warped and unusable in these places.
- In a bathroom or where the humidity is high. The disc may be rusted in these places.
- On a beach or sandbox. The disc surface may be scratched 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>

# 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)	<u>Terminal name</u>	<u>Reference input level</u>	<u>Minimum input level</u>
	ANALOG IN	275 mV rms.	100 mV rms.

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

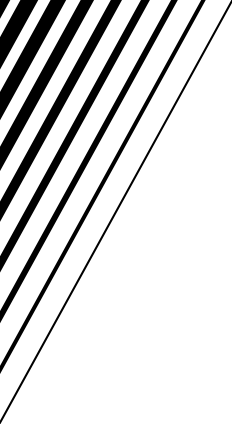
Output terminal	ANALOG OUT (pin jack)
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(Analog)	<u>Terminal name</u>	<u>Load impedance</u>	<u>Output level</u>
	ANALOG OUT	10 kohms	1.1 V

Power requirements	AC 230 V $\sim$ , 50 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 $\frac{13}{32}$ $\times$ 13 $\frac{1}{4}$ inches)
Mass	4.3 kg (9.5 lbs)

Accessories	See page 5.
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*Specifications and appearance subject to change for improvements without prior notice.*



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