# SONY.

*Pam's Copy.*

# *MiniDisc*
# *Recorder*

Operating Instructions

MDS-101

## To prevent fire or shock hazard, do not expose the unit to rain or moisture.



### CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,

DO NOT REMOVE COVER (OR BACK).

NO USER-SERVICEABLE PARTS INSIDE.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
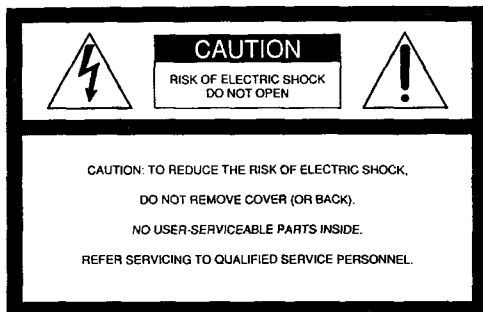
This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

### Owner's Record
The model and serial numbers are located on the rear of the unit. Record the serial number in the space provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

Model No. MDS-101     Serial No._____

IN NO EVENT SHALL SELLER BE LIABLE FOR ANY DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE, OR LOSSES OR EXPENSES RESULTING FROM ANY DEFECTIVE PRODUCT OR THE USE OF ANY PRODUCT.

### INFORMATION
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. His equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

### CAUTION
You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

### For the customers in Canada

### CAUTION
TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

This apparatus complies with the Class B limits for radio noise emissions set out in Radio Interference Regulations.

# Table of Contents

**Note on procedures**
Most of the procedures in this manual are performed
through the front panel controls. Procedures that require
use of the remote commander are marked "Remote
commander operation only." When both sets of controls
are applicable but are represented by different marks, the
front panel control is shown first, followed by the
respective remote commander control in parentheses.

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Welcome to the world of the MiniDisc! The Sony MiniDisc Recorder is the result of Sony's on-going commitment to leadership in audio-video technology. Here are some of the capabilities and features you'll discover with the new MiniDisc Recorder.

## CD-like performance

- **Direct access to up to 25 tracks** through your remote commander, just like a CD player.
- **A music calendar** that shows at a glance which track is being played back, recorded or edited. A grid display function provides easy distinction between premastered and recordable discs.
- **Convenient playback functions** such as shuffle play, program play, music scan, and repeat (all tracks, a single track or a specific portion).
- **A digital peak meter** for accurate signal level monitoring during input and output.

## An array of special features

- **A title function** for creating title of up to 100 characters for recorded discs and tracks.
- **Instant delete function** for an entire disc or a single track.
- **Multiple TOC-based editing functions** that allow you to divide, combine and move tracks with ease. Sound monitoring during track division is also supported.
- **Track marking function** for automatic or manual addition of track numbers while recording.

## State-of-the-art technology

- **ATRAC (Adaptive TRansform Acoustic Coding) data compression technology** with a compression ratio of about 1:5, providing almost the same disc playing time as a CD.
- **Professional level memory start function** for fast playback resumption during play pause. Sound is output from an internal memory rather than the disc to eliminate delays due to disc rotation lag (of about 0.1 to 0.3 seconds).
- **Automatic date and time stamp function** for recordings.

## Multi-purpose input and output jacks

- **Digital I/O, analog I/O, and microphone input jacks** to accomodate a variety of sound sources. Connect digital sound sources for direct, adjustment-free playback or dubbing of digital sound.
- **Audio (AU) bus interface** for connection with future Sony Mini Hi-Fi Component Systems supporting CD synchro-recording and other automatic functions.

# What Is the MiniDisc?

## How MiniDiscs work

MiniDiscs (MD) come in two types: premastered (prerecorded) and recordable (blank). Premastered MDs, recorded at music studios, can be played back almost endlessly. However, they can't be recorded on or over like cassette tapes. To record, you use a "recordable MD".

### Premastered MDs

Premastered MDs are recorded and played like regular CDs. A laser beam focuses on the pits in the surface of the MD and reflects the data back to the lens in the recorder. The recorder then decodes the signals and plays them back as music.

### Recordable MDs

Recordable MDs, which use magneto-optical (MO) technology, can be recorded again and again. The laser inside the recorder applies heat to the MD, demagnetizing the magnetic layer of the MD. (See illustration below.) The recorder then applies a magnetic field to the layer. This magnetic field corresponds exactly to the audio signals generated by the connected source. (The north and south polarities equate to digital "1" and "0".) The demagnetized MD adopts the polarity of the magnetic field, resulting in a recorded MD.

■ Recording Mechanism
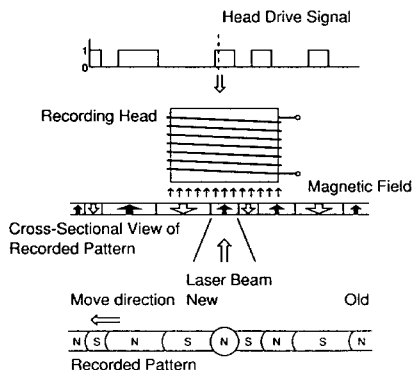


## How the MiniDisc got so small

The 2.5-inch MiniDisc, encased in a plastic cartridge that looks like a 3.5-inch diskette (see illustration below), uses a new digital audio compression technology called ATRAC (Adaptive TRansform Acoustic Coding). To store more sound in less space, ATRAC extracts and encodes only those frequency components actually audible to the human ear.

■ Parts Making Up a MiniDisc
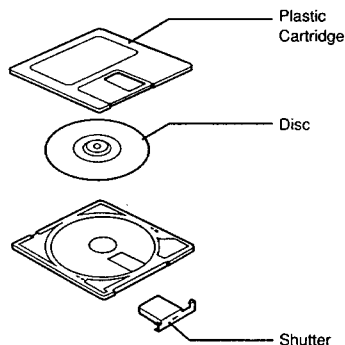


## How Quick Random Access and the TOC systems work

Like CDs, MDs offer instantaneous random access to the beginning of any music track. Premastered MDs are recorded with location addresses corresponding to each music selection. Recordable MDs are manufactured with a "User TOC* Area" to contain the order of the music. The TOC system is similar to the "directory management system" of floppy disks. In other words, starting and ending addresses for all music tracks recorded on the disc are stored in this area. This lets you randomly access the beginning of any track as soon as you enter the track number (AMS), as well as label the location with a track name as you would a file on a diskette.

* TOC is the acronym for Table of Contents.

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# What Is the MiniDisc?

# Precautions

## How the Shock-Resistant Memory works

One major drawback of optical read systems is that they can skip or mute when subjected to vibration. The MD system resolves this problem by using a buffer memory that stores up to 10 seconds of audio data. This is possible because of a 1 second lag between the time audio data is picked up and when it is decoded (see illustration below). Should the optical pickup be jarred out of position, the correct audio data plays from the buffer memory. Using a concept called "sector repositioning," the optical pickup has the ability to within 13 milliseconds identify the disruption and resume reading from the correct point. As long as the optical pickup returns to the correct position within about 10 seconds, you never experience mistracking or muting.

■ Shock-Resistant Memory System
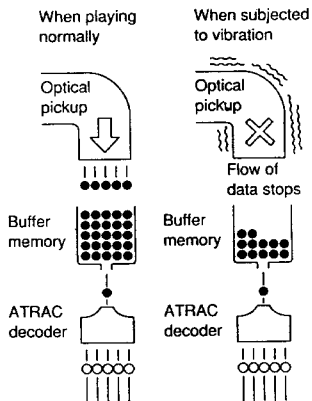


## On safety
- As the laser beam used in this unit is harmful to the eyes, do not attempt to disassemble the cabinet. Refer servicing to qualified personnel only.
- Should any solid object or liquid fall into the unit, unplug the unit and have it checked by qualified personnel before operating it any further.

## On power sources
- Unplug the unit from the wall outlet when it is not to be used for an extended period of time.

## On operation
- If the unit is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lenses inside the MiniDisc recorder, causing the MiniDisc recorder to operate improperly. Should this occur, remove the disc and wait about an hour for the moisture to evaporate.

## On the MiniDisc cartridge
- Do not open the shutter to expose the disc.
- Do not place the cartridge where it will be subject to extremes of sunlight, temperature, moisture or dust.

## On cleaning
- Clean the casing with a soft cloth slightly moistened with water or a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzene as it may mar the finish of the casing.

If you have any questions or problems concerning your unit, please consult your nearest Sony dealer.

# Unpacking

## Checking the supplied accessories

Take the recorder out of the box and make sure that the following accessories have been included:
- Remote commander (1)
- Sony SUM-3 (NS) batteries (2)
- Audio connecting cords (2)
- Audio (AU) bus cable (1)
- Recordable MD (60-minute) (1)

## Notes on installation

- Place the unit with the front panel facing you in a location with adequate air circulation to prevent the unit from overheating.
- Do not place the unit:
  — near heat sources such as radiators or air ducts.
  — in places subject to direct sunlight, excessive dust, mechanical vibration or shock.
  — in an inclined position.
  — on a rug or other soft surface that would block the ventilation holes on the bottom of the unit.

**Do not throw away the carton and the packing material**
They will come in handy when transporting the unit or shipping it for servicing.

## Checking the operating voltage

- Operate the unit only on 120 V AC, 60 Hz.
- Before operating the unit, be sure that the operating voltage of your unit is identical with that of your local power supply.

## Installing batteries into the remote commander
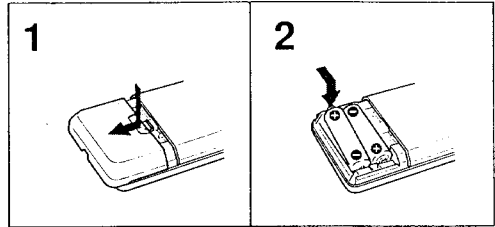


1 Open the remote commander cover.

2 Insert two Sony SUM-3 (NS) batteries with correct polarity.

**On battery life**
- About half a year of normal operation can be expected when using the Sony SUM-3 (NS) batteries.
- When the batteries are run down, the remote commander will not operate the unit. In this case, replace both batteries with new ones.

**On handling**
- Keep the commander away from extremely hot or humid places.
- Avoid dropping any foreign objects into the commander casing, particularly when replacing the batteries.
- Avoid exposing the remote sensor to direct sunlight or lighting apparatus. Such exposure can cause a malfunction.
- To avoid damage caused by battery leakage and corrosion, remove the batteries when the commander will not be used for a long time.

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## Front panel
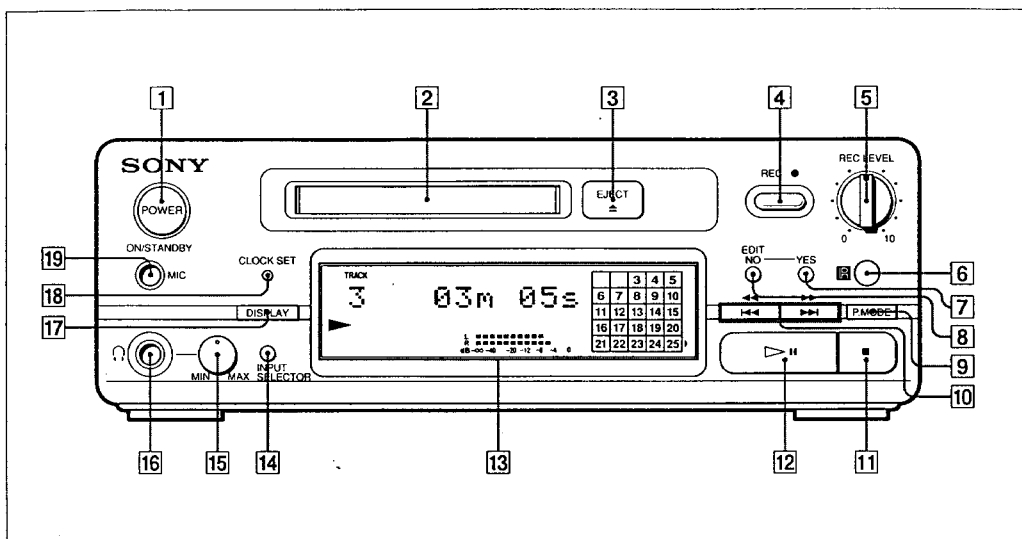


[1] **POWER switch**
Press to turn on the unit; press again to change to stand-by.

[2] **Disc compartment**
Automatically loads an inserted disc.

[3] **EJECT ⏏ button**
Press to eject the disc from the disc compartment.

[4] **REC (record) ● button**
Press once to activate recording pause. Press ▶II to start recording. Used also for track marking.

[5] **REC (recording) LEVEL control**
Turn to adjust the recording level when recording from analog sources.

[6] **Remote sensor**
Accepts commands from the remote commander.

[7] **YES button**
Press to perform editing functions (i.e., erasing, dividing, combining, and moving).

[8] **EDIT NO button**
Press to specify or cancel the various editing functions.

[9] **P.MODE button**
Press to select playback modes (i.e., CONTINUE, SHUFFLE, and PROGRAM).

[10] **◄◄ ►► (AMS*/search) button**
Press to find the desired point within a track or the beginning of a track.

[11] **■ (Stop) button**
Press to stop playback or recording, or to cancel program play.

[12] **▶II (Play/Pause) button**
Press to start playback or recording. Press during playback or recording to temporarily stop the MD; press again to cancel pause.

[13] **Display window**
Indicates the current operating status.

[14] **INPUT SELECTOR button**
Press to select the input signal to be recorded. Press while the unit is stopped to select "Analog in" to record through the LINE IN (analog) jack. Press to select "Digital in" to record through the DIGITAL IN jack.

[15] **Headphones level control**
Turn to adjust the volume of the headphones.

[16] **Headphones jack**
Connect headphones with a stereo mini-plug here.

[17] **DISPLAY button**
Press to display the name of the current track and the remaining playing time on the MD.

[18] **CLOCK SET button**
Press to set the clock.

[19] **MIC (microphone) jack**
Connect a microphone with a stereo mini-plug here.

* AMS: Automatic Music Sensor

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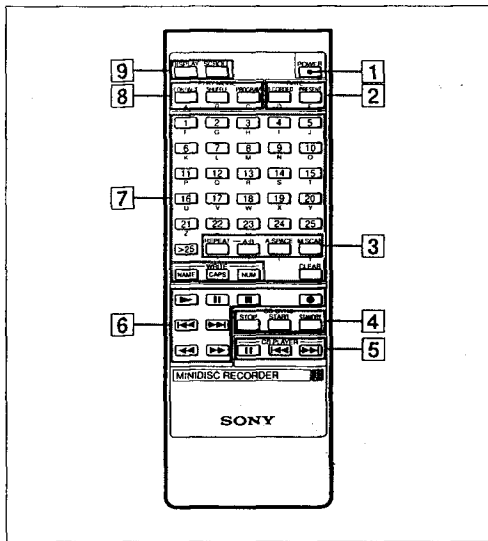
[1] POWER switch

Press to turn on the unit; press again to turn off (change to stand-by).

[2] DATE buttons

DATE RECORDED button

Press to display the recording date of a track during playback.

DATE PRESENT button

Press to display the current time and date.

[3] Repeat/Auto space buttons

REPEAT button

Press for repeated playback.

A-B button

Press for repeated playback of specific portions of a track.

A.SPACE button

Press for automatic insertion of 3-second blank spaces between tracks during playback.

M.SCAN button

Press to scan the beginning of each track in succession.

[4] CD SYNCHRO operation buttons

(for synchronized recording with a Sony CD player)

STANDBY button

Press to activate recording pause mode prior to CD synchro recording.

START button

Press to start CD synchro recording.

STOP button

Press to stop CD synchro recording.

[5] CD player operation buttons

(Use to control Sony CD players)

II (Pause) button

Press to temporarily stop playback; press again to resume playback.

I◀◀ ▶▶I (AMS) buttons

Press to find the beginning of a desired track.

[6] Operation buttons

▶ (Play) button

Press for playback.

II (Pause) button

Press to temporarily stop playback or recording; press again to resume playback or recording.

■ (Stop) button

Press to stop playback or recording. Press to cancel program play.

● (Record) button

Press once to activate recording pause. Press ▶ or II to start recording. Use also for track marking.

I◀◀ ▶▶I (AMS) buttons

Press to find the beginning of a desired track.

◀◀ ▶▶ (Search) buttons

Press to find a desired point within a track.

[7] Character/Numeric buttons

Alphabet/Numeric buttons

Use to specify tracks for immediate playback or to create programs during program play. Use also for entering disc and track titles.

WRITE/CAPS, WRITE/NUM buttons

Press to select the character mode.

WRITE/NAME button

Press to apply a title.

CLEAR button

Press to erase a track name, disc name or programmed track.

[8] Play mode buttons

CONTINUE button

Press during shuffle or program play to resume normal playback.

SHUFFLE button

Press to activate shuffle play.

PROGRAM button

Press to activate program play.

[9] Display buttons

DISPLAY button

Press to display the track name or the remaining playing time during MD playback.

SCROLL button

Press to scroll titles longer than 12 characters.

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## Before you begin

- Turn off the power to all the equipment to be connected before making any connections.
- Note that the red plug of the supplied audio connecting cord is for right-channel (R) connection and the white plug for left-channel (L) connection. If another connecting cord is necessary, use the optional RK-C515HG cord.
- The connecting cords should be fully inserted into the jacks. A loose connection may cause hum pickup.
- Pull out the cords by grasping the plug, not the wire.

### Connecting the audio connecting cords
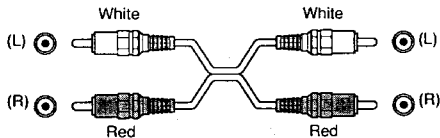


### Connecting the audio bus cable
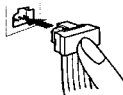


Insert the cable firmly.

The time display appears on the Mini Hi-Fi Component Systems (available at a later date) instead of the MD unit when both are connected by audio bus cable.

## Notes on the optical digital input/output jacks

Use the optional POC-15SP optical cable to connect digital devices with a sampling frequency of 44.1 kHz (i.e., DAT decks, amplifiers with digital inputs, DA converter units, etc.) to the optical digital input and output jacks. Recording level adjustment is not necessary when recording through the POC-15SP optical cable from a digital source since the output level is fixed.
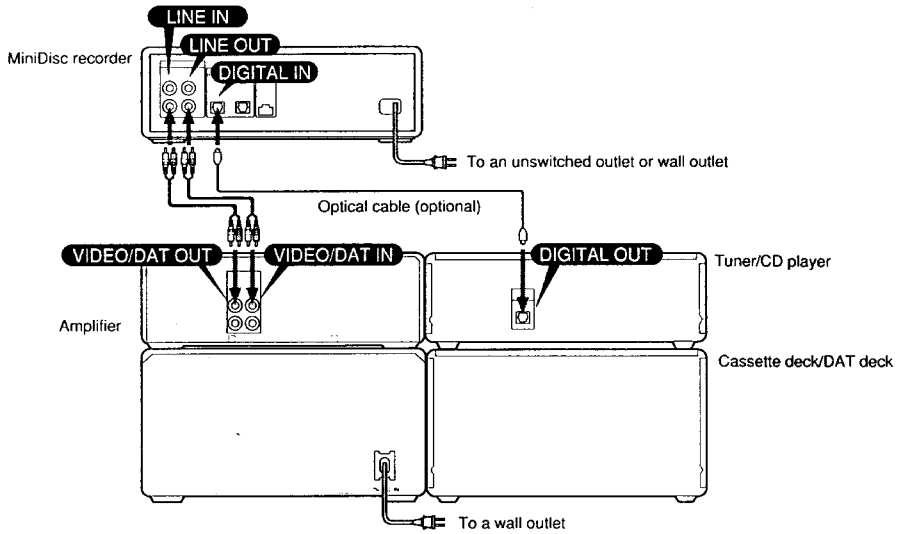
### Connecting the optical cable
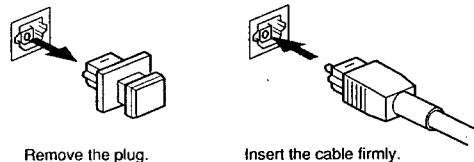


Remove the plug.          Insert the cable firmly.

**Digital sources with a different sampling frequencies cannot be recorded through the digital input jack**
Only CD, MD (premastered) and DAT sources with a sampling frequency of 44.1 kHz can be recorded through the digital input jack. "Din Unlock" appears in the display window when an attempt is made to record digital sources with a sampling frequency different from that of the MD (such as 32- or 48- kHz DAT or BS).

## Hooking up a Sony Mini Hi-Fi Component System

**Hooking up a Sony Mini Hi-Fi Component System through the digital output jack (for digital recording)**
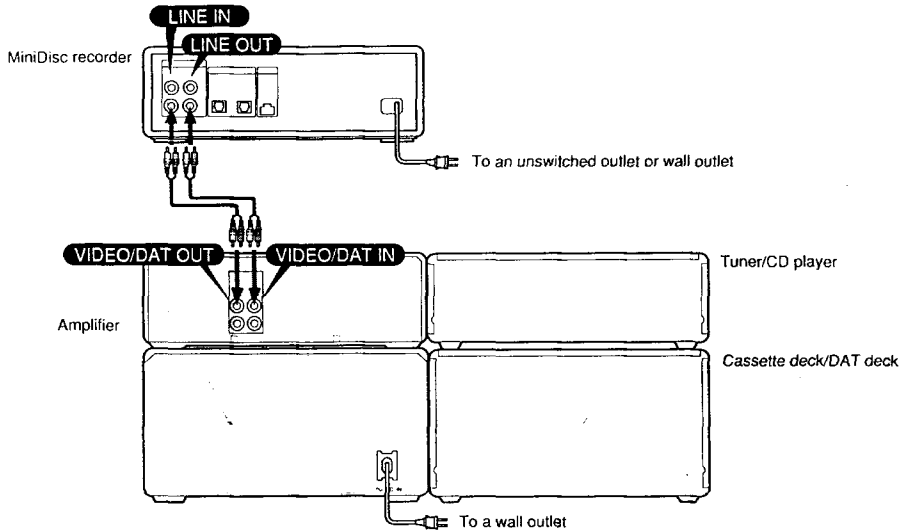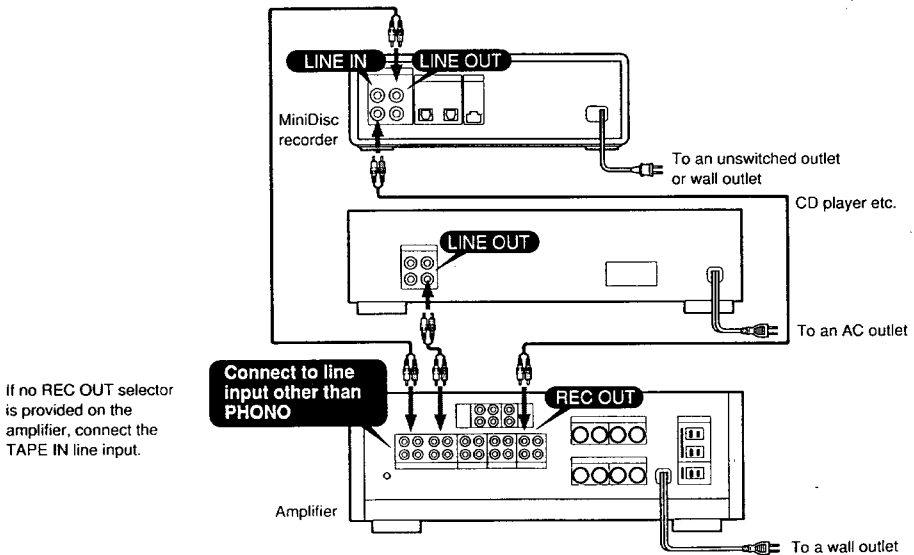


MiniDisc recorder

**LINE IN**
**LINE OUT**
**DIGITAL IN**

To an unswitched outlet or wall outlet

Optical cable (optional)

**VIDEO/DAT OUT**  **VIDEO/DAT IN**

**DIGITAL OUT**  Tuner/CD player

Amplifier

Cassette deck/DAT deck

To a wall outlet

Connection to future Sony Mini Hi-Fi Component Systems with AU-bus connection capability enables the use of the automatic-on/off and CD synchro recording functions.

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## Hooking up a Sony Mini Hi-Fi Component System

Hooking up a Sony Mini Hi-Fi Component System without a digital output jack (for analog recording)

LINE IN

LINE OUT

MiniDisc recorder

To an unswitched outlet or wall outlet

VIDEO/DAT OUT          VIDEO/DAT IN          Tuner/CD player

Amplifier

Cassette deck/DAT deck

To a wall outlet

Connection to future Sony Mini Hi-Fi Component Systems with AU-bus connection capability enables the use of the automatic on/off and CD synchro recording functions.

## Hooking up other audio equipment

### Hooking up other audio equipment with digital output (for digital recording)



- LINE OUT · DIGITAL IN
- MiniDisc recorder
- To an unswitched outlet or wall outlet
- Optical cable (optional)
- DIGITAL OUT
- CD player etc.
- To an AC outlet
- **Connect to line input other than PHONO**
- Amplifier
- To a wall outlet
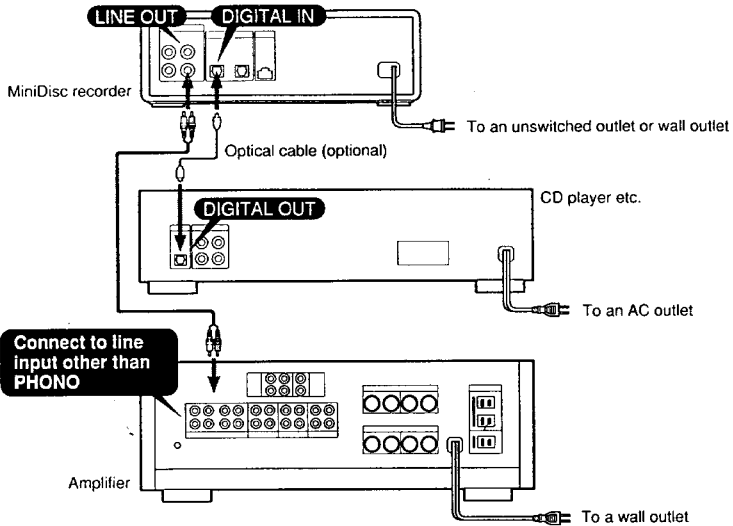
### Hooking up other audio equipment without digital output (for analog recording)



- LINE IN · LINE OUT
- MiniDisc recorder
- To an unswitched outlet or wall outlet
- CD player etc.
- LINE OUT
- To an AC outlet
- If no REC OUT selector is provided on the amplifier, connect the TAPE IN line input.
- **Connect to line input other than PHONO**
- REC OUT
- Amplifier
- To a wall outlet

**Hooking up an amplifier with digital input, DAT deck or another MiniDisc recorder**
Connect the respective equipment to the digital output of your unit.

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# Hooking Up the System

## Hooking up a microphone



Microphone
(stereo mini-plug)
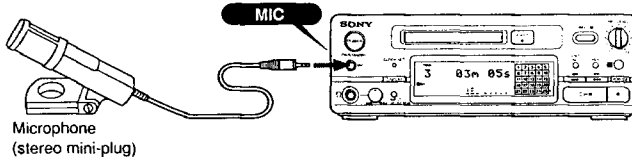
[Note]

**Connecting a microphone to the MIC jack disables all other source inputs**
Make sure that the microphone is disconnected from the MIC jack when not in use.

# Setting the Clock

To stamp the time and date on recordings, set the built-in clock. When playing back the recorded disc, the date and time of the recording will appear in the display window.

Example: Setting the clock to 1993, April 23, 9:10 PM.

```
    1-5              2-6
```
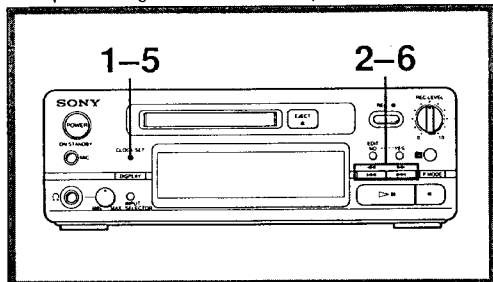
**1** Keep pressing CLOCK SET for about 2 seconds until the year starts to flash.

CLOCK SET
O

```
01m 01d·93y
```

**2** Enter the current year by pressing ▶▶ or ◀◀ .
Pressing ▶▶ increases the year and pressing ◀◀ decreases the year. Holding down the respective button increases or decreases the year faster. After entering the year, press CLOCK SET. The month flashes.

```
01m 01d 93y
```

**3** Enter the month by pressing ▶▶ or ◀◀ .
After entering the month, press CLOCK SET. The day flashes.

```
04m 01d 93y
```

**4** Enter the day by pressing ▶▶ or ◀◀ .
After entering the day, press CLOCK SET.

```
04m 23d 93y
```

⇩

```
FRI -AM 12:00
```

The day of the week automatically appears and the hour flashes.

**5** Enter the hour by pressing ▶▶ or ◀◀ .
After entering the hour, press CLOCK SET. The minutes flash.

```
FRI PM 09:00
```

**6** Enter the minutes by pressing ▶▶ or ◀◀ .

**7** Press CLOCK SET in synchronization with the time signal.

```
04m 23d 93y
```

⇩

```
FRI PM 09:10
```

The clock setting is displayed in order of date, then time.

**Notes**

**To display the current date and time**
Press the CLOCK SET button on the front panel once to display the date, then again to display the time. When using the remote commander, press the DATE PRESENT button. The date, then the time are displayed in sequence.

**To change the display while the unit is off**
Your unit can display either "STANDBY" or the current time when it is off (in standby mode). Choose one or the other by pressing the DISPLAY button.

**For more precise time stamping of recordings**
It is recommended that you set the clock once a week.

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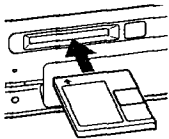# Playing an MD (Normal Play)

## Playing an MD from the first track

Follow the procedure below to listen to an MD.



**1** Press POWER.



ON/STANDBY
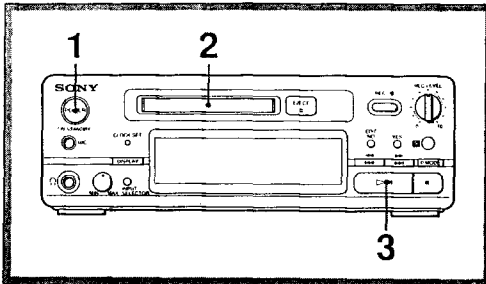
**2** With the label side up and the arrow pointing toward the opening, slide the MD into the disc compartment until the recorder grips it.



The disc name appears, followed by the total number of tracks (Tr) and total disc playing time. A music calendar showing all the track numbers appears within a grid if a premastered disc is inserted, or without a grid if a recordable disc is inserted. If the total track number exceeds 25, ▸ appears to the right on number 25 in the music calendar.
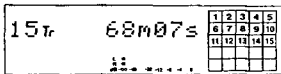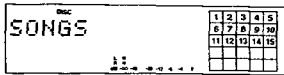


**3** Press ►II ( ► ).
The MD starts playing.
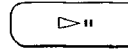


The current track number (minus the Tr indication), track title (if labeled), and elapsed playing time of the current track light up in the display window.
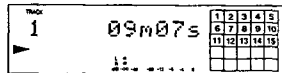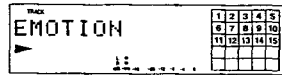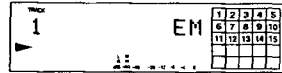


**To stop play momentarily**
Press ►II ( II ) once while the disc is playing.
To cancel pause mode, press ►II ( ► or II ) again.

**To stop play**
Press ■ .

**To eject the disc**
Press EJECT ▲ .

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## Locating a desired track

Use the remote commander to enter the number of the desired track for immediate playback.

Example: To playback the third track

[ 3 ]
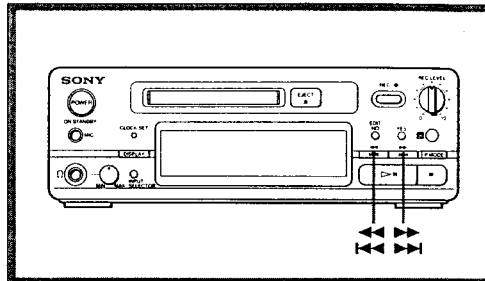H

Example: To playback the 26th track

[>25] ⇨ [ 2 ] ⇨ [ 6 ]
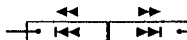/          G          K

Example: To playback the 100th track

[>25] ⇨ [>25]
/          /

⇨ [ 1 ] ⇨ [ 10 ] ⇨ [ 10 ]
F          O          O

## Locating the beginning of a track (AMS)

Use the ◄◄ or ►► buttons to quickly find the beginning of a desired track.



Press to go to previous tracks. ◄◄ I◄◄    ►►I ►► Press to go to succeeding tracks.

Press ◄◄ ( I◄◄ ) once to go to the beginning of the current track.
Press the respective buttons repeatedly to go to the beginning of successive tracks.
If the unit is in pause mode, it will remain in pause mode as it locates the beginning of the desired track.
When the beginning of a labeled track is located, the title appears in the display window.

**To go quickly to the beginning of the last track on the MD**
Press ◄◄ ( I◄◄ ) immediately after inserting the disc, or while the disc is in stop mode.

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# Playing an MD (Normal Play)

## Locating a desired position (Search)

You can quickly scan an MD either forward or backward during playback to locate a desired position.
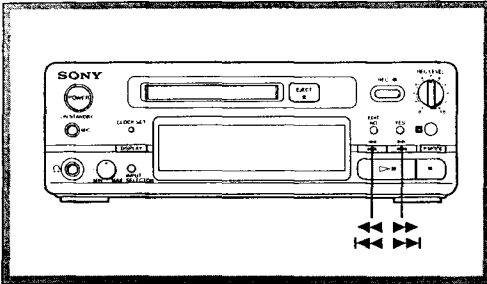


**To forward scan the disc**
Hold down ►►▌ ( ►► ) during playback.

**To backward scan the disc**
Hold down ▌◄◄ ( ◄◄ ) during playback.

Releasing the button causes the unit to play back normally from the desired location.

**To go forward or backward quickly**
Hold down ►►▌ or ▌◄◄ ( ►► or ◄◄ ) in pause mode. No sound is output at this time.

## Displaying the title and remaining playing time of a track

Press the DISPLAY button while playing an MD to display the title and remaining playing time of the current track. ("No Name" is displayed for tracks with no title.) To label a recordable disc and its tracks, see "Labeling Recordings" on page 44.
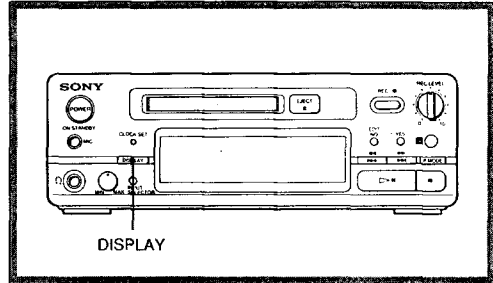


DISPLAY

**Press DISPLAY while the current track is playing.**

[ DISPLAY ]

Each press of DISPLAY cycles the display in the following order: remaining track playing time → track name → elapsed playing time

[Normal display]
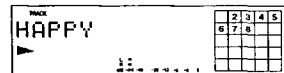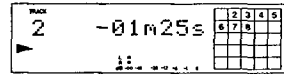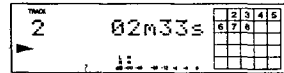


The display window shows up to 12 characters at a time. To see a title of 13 characters or more, press SCROLL on the remote commander.
If no title is recorded, "No Name" is displayed, followed by the elapsed playing time.
Each press of DISPLAY while the unit is stopped cycles the displaying in the following order:
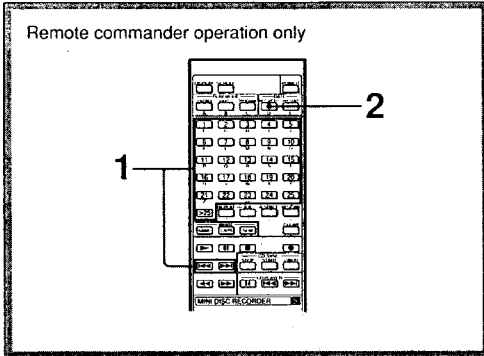For premastered discs:
Total disc playing time → disc name
For recorded discs:
Total recorded time → remaining disc playing time → disc name

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## Displaying the recording date

If you have set the built-in clock, the date and time of all recordings are recorded and automatically displayed when the disc is played back.
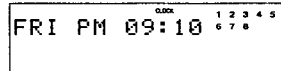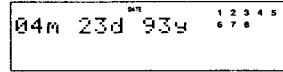
Remote commander operation only



**1** Locate the desired track.
Press I◀◀ or ▶▶I while the unit is stopped to locate the desired track.

▐◀◀▌ ▐▶▶▌

If the unit is playing or in pause, press to enter the track number through the numeric buttons, or I◀◀ or ▶▶I to display the desired track.

**2** Press DATE RECORDED.

——DATE——
RECORDED
▭

04m  23d  93y   1 2 3 4 5
                6 7 8

⇩

FRI  PM  09:10   1 2 3 4 5
                 6 7 8

"No Date" is displayed if the built-in clock has not been set or the track was recorded on another unit without a date and time stamp function.
The previous display reappears when you press the DATE RECORDED button again or after a few seconds have passed.
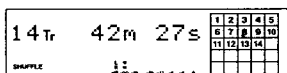
19

Use shuffle play to play back all tracks on an MD in random order.

Program play allows you to specify the playback order of up to 25 tracks.
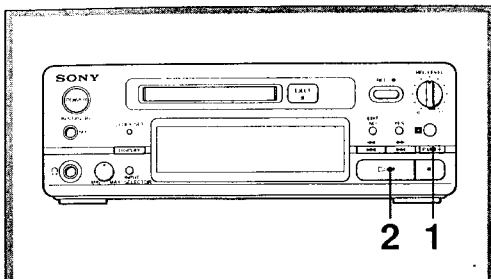


**1** Press P.MODE (SHUFFLE) repeatedly while the unit is stopped until "SHUFFLE" lights up.

P.MODE

```
14Tr    42m  27s
SHUFFLE
```

**2** Press ►II ( ► ).
Shuffle play starts.

►II

Rotates

```
SHUFFLE
```
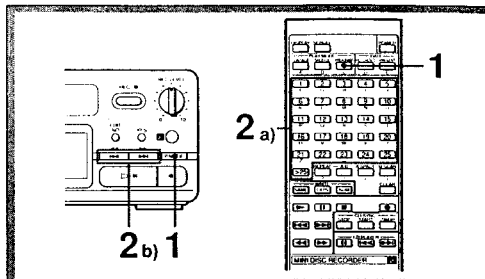
**1** Press P.MODE (PROGRAM) repeatedly while the unit is stopped until "PROGRAM" lights up.

P.MODE

```
0
PROGRAM
```

**2** a) When using the remote commander:

Enter the desired track number using the numeric buttons.
The entered track number is stored.
To program the third track, for example, press 3.
The display shows the track number, the order of the specified track, then the total program play time.

3

```
TRACK      STEP
3    01
PROGRAM
```

⇩

```
TRACK
3    03m  08s
PROGRAM
```

**To go to the beginning of the track during shuffle play**
Press ►►I ( ►►I ) during shuffle play. The current track stops playing and the next randomly selected track begins.
Press I◄◄ ( I◄◄ ) to begin playing from the beginning of the current track. Previously played backs cannot be selected again by pressing I◄◄ ( I◄◄ ).

**To stop shuffle play**
Press ■.

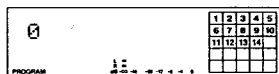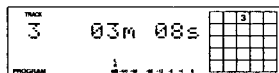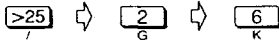**To cancel shuffle play**
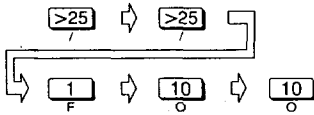Press P.MODE (CONTINUE) until "SHUFFLE" goes off.

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When programming tracks 26 to 99, press >25 once before pressing the numeric buttons.
When programming tracks 100 and above, press >25 twice.
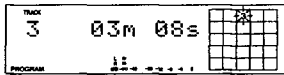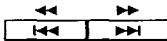
Example: To program the 26th track

[>25]  ⇨  [2]  ⇨  [6]
   /        G        K

Example: To program the 100th track

[>25]  ⇨  [>25]
   /         /

[1]  ⇨  [10]  ⇨  [10]
  F        O         O

(Press "10" to enter a zero)

b) When using the front panel:

1  Press ◄◄ or ►► until the desired track number lights up.

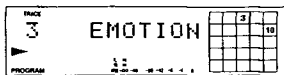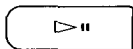◄◄      ►►
[I◄◄]  [►►I]

```
TRACK
3    03m 08s
PROGRAM   ¦¦¦ ◄◄◄◄◄
```

2  Press P. MODE.
   The selected track number is stored.

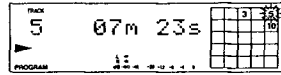[P.MODE]

```
TRACK
3    03m 08s
PROGRAM   ¦¦¦ ◄◄◄◄◄
```
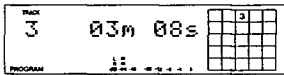
**3** Repeat step 2 to enter other tracks.
Each time you enter a track, the total program time is displayed. Up to 25 tracks can be programmed.

**4** Press ►II ( ► ).
Program play starts from the first track of the program.

[ ▷ II ]

```
TRACK
3    EMOTION
PROGRAM   ¦¦¦ ◄◄◄◄◄
```

**To monitor total program time while programming tracks**
Perform the following in the place of step 2 above.

1  Press ◄◄ ( I◄◄ ) or ►► ( ►►I ) to select the track.
   The total program time appears.

```
TRACK
5    07m 23s
PROGRAM   ¦¦¦ ◄◄◄◄◄
```

2  Press P.MODE (PROGRAM).
   The selected track is programmed.

**Checking the order of entered tracks**
Press ◄◄ ( I◄◄ ) or ►► ( ►►I ) while the unit is in playback or pause mode.

**To erase programmed tracks**
By pressing CLEAR, you can erase one track at a time starting from the end of the program.

**To stop program play**
Press ■ .

**To cancel program play**
Press P.MODE (CONTINUE) until "PROGRAM" disappears.

**To erase a programmed track just entered**
Press CLEAR, then repeat the programming procedure from step 2 on the previous page.
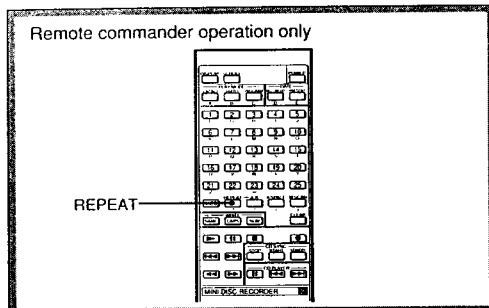
**To erase all the programmed tracks**
Press ■ while the unit is stopped, then repeat the programming procedure from step 2 on the previous page.
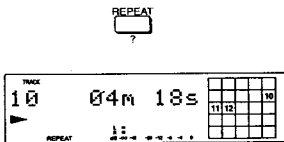
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# Playing Tracks Repeatedly

## Playing tracks repeatedly

The repeat function can be used for repeated playback in normal, shuffle or program play mode.
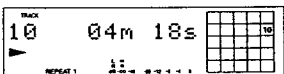
Remote commander operation only

REPEAT

**Press REPEAT repeatedly until "REPEAT" lights up.**
All tracks play again.

REPEAT

```
TRACK
10    04m 18s  [11][12]      [10]
►
   REPEAT   ::
```

To play back the current track repeatedly, press REPEAT twice.
"REPEAT 1" lights up.

```
TRACK
10    04m 18s           [10]
►
   REPEAT 1   ::
```

**To play tracks repeatedly during shuffle or program play**
Press REPEAT while in the respective playing mode.

**To stop repeated playback**
Press ■ .

**To cancel the repeat function**
Press REPEAT until "REPEAT" disappears.
The unit returns to the previous playing mode.

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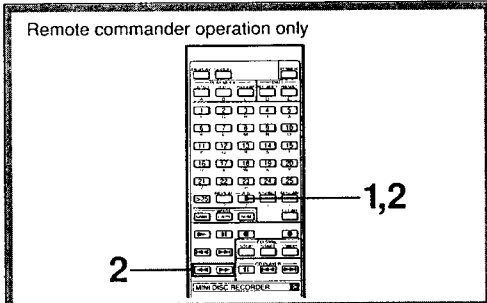## Playing a specified portion repeatedly (A-B Repeat)

By specifying starting and ending points within a track, you can play back a specified portion repeatedly.

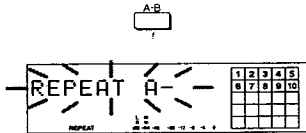### Changing the specified portion
Press A-B. Ending point B (point B) changes to starting point A (point A). Repeat step 2 to specify the new ending point (point B).

### To cancel A-B repeat playback
Press REPEAT to turn off the "REPEAT" indicator.

Remote commander operation only



**1** While the MD is playing, press A-B at the start (point A) of the portion to be repeated.
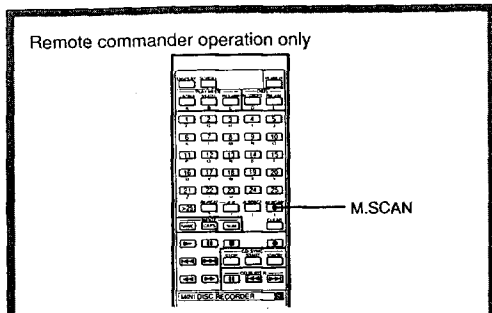Point A is stored.



**2** Continue playing the track or press ▶▶ to the end of the desired portion (point B), then press A-B.
Point B is stored, and the specified portion between A and B is played back repeatedly.
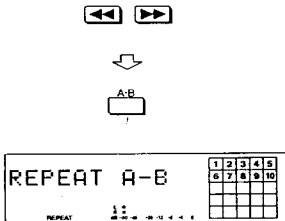
# Scanning Tracks (Music Scan)
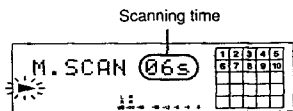
# Inserting Spaces During Playback (Auto Space)

The music scan function automatically plays back the beginning of each track in succession for 6, 10 or 20 seconds, allowing you to quickly check the contents of the MD.

By using the auto space function, a three-second blank space can be inserted after each track to allow the AMS function to work on tapes dubbed from the MD.

---

Remote commander operation only

— M.SCAN

---

**While the unit is stopped, press M.SCAN.**

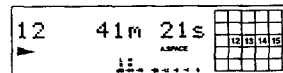When the scanning time appears, each press of M.SCAN changes the scanning time to 6, 10, or 20 seconds.

Scanning time

M.SCAN (06s)

---

Remote commander operation only

— A.SPACE

---
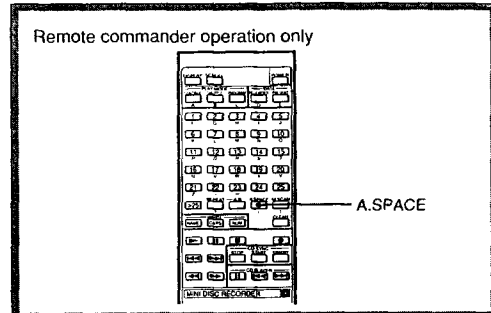
**Press A.SPACE once.**
"A.SPACE" lights up.

12   41m 21s

---

**To cancel the auto space function**
Press A.SPACE again to turn off the "A.SPACE" indicator.

Notes

**Sound cut-off may occur at the start of new tracks**
If the auto space function is activated during material without space between tracks, such as symphonies, the insertion of a three-second blank may partially erase material at the start of a new track.

# Recording a Digital Source

## Digital recording

Digital sources connected to the unit through the digital input jack can be recorded onto a recordable MD. When recording from a CD, track numbers on the original are automatically recorded in the original sequence. When recording from other digital sources than a CD, you can add track marks automatically or manually (see page 31).
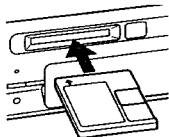If the inserted disc already contains recorded material, the unit will automatically record the new material at the end of the existing material.
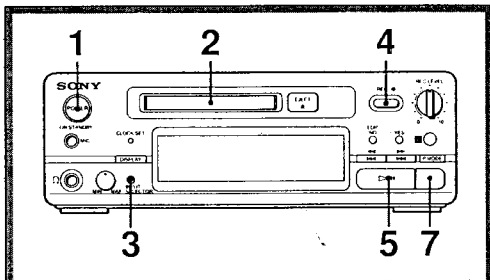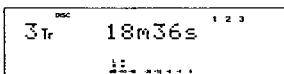


### 1 Press POWER.

ON/STANDBY

### 2 With the label side up and the arrow pointing toward the opening, slide the recordable MD into the disc compartment until the unit grips it.
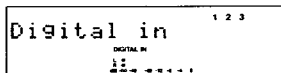


The total number of recorded tracks (Tr) and total time appear. A music calendar showing all recorded track numbers appears without a grid.
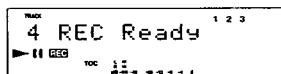
```
  DISC
3 Tr   18m36s   1 2 3
       11 1 1 1
```

### 3 Press INPUT SELECTOR until "Digital in" lights up.

The previous display appears again after a few seconds.

INPUT SELECTOR

```
Digital in   1 2 3
      DIGITAL IN
      11 1 1 1
```

### 4 Press REC ●(●).

The unit enters recording pause.

REC ●

```
 TRACK
4 REC Ready   1 2 3
▶ II REC   TOC 11 1 1 1
```

If nothing is connected to the digital input jack, the "Din Unlock" indication appears.

### 5 Press ▶II ( ▶ or II ).

Recording pause is canceled and recording starts.

▷II
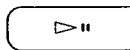
### 6 Play the sound source (CD player, etc.) to be recorded.

The track number being recorded and elapsed recording time appear.

```
 TRACK
4    00m01s   1 2 3
▶ ○ REC   TOC 11 1 1 1
```

" II " goes off.

### 7 Press ■ to stop recording.

Recording stops.

25

## To check the remaining time on the disc

Press DISPLAY.

If pressed while the unit is stopped, each press changes the display as follows: total recorded time, remaining time on the disc, disc name.
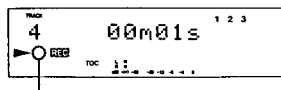
If pressed while the unit is in recording pause mode ("REC Ready" lights up): the remaining time on the disc appears for a few seconds, followed by the "REC Ready" indication.

If pressed while the unit is in recording mode: the remaining time on the disc appears.

Press again to display the elapsed recording time.

## To stop recording temporarily

Press ►II ( II ).

Press ►II ( ► or II ) again to restart recording.

Whenever recording is restarted, the track number increases by one. For example, if you stopped recording temporarily while recording the 4th track, recording continues on the 5th track when restarted.

## To eject the disc

Press EJECT ▲.

| Notes |

**If "Protected" appears in the display window**
The disc is write-protected. Close the slot to record on the disc (see page 28).

**MD recording and the Serial Copy Management System**
Since your unit uses the SCMS (Serial Copy Management System), MDs recorded through the digital input jack cannot be used to make subsequent copies onto other MDs (see page 50).

**When "TOC" flashes in the display window**
Do not jog the unit or pull out the power cord.

**When recording starts**
PROGRAM or SHUFFLE play is canceled.

**When recording from a Sony portable MD player or other digital source**
Press ■ on your MD unit to stop recording before stopping playback on the other unit.
If you stop playback on the other unit – or disconnect the optical cable – without stopping the recording first, the contents recorded to that point will not be affected; however, playback on your MD unit will be disabled after the recording is stopped.
If this should occur, reinsert the recorded MD into your MD unit to reactivate the playback function.
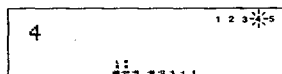
## Playing back tracks just recorded

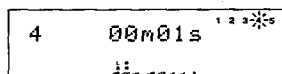Tracks that have just been recorded can be played back immediately.
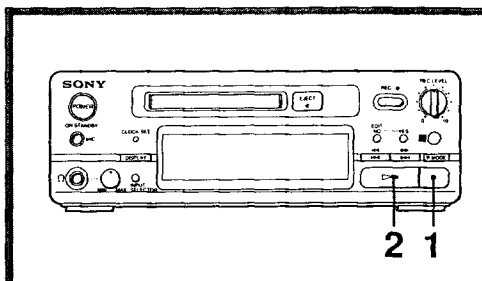


**1** Press ■ to stop recording.
The track number just recorded lights up.



**2** Press ►II ( ► ).
Playback starts from the first of the tracks just recorded.



### Playing back from the first track of the disc after you have finished recording

1 Press ■ to stop recording.
2 Press ■ again.
3 Press ►II ( ► or II ).
Playback starts from the first track of the disc.

| Notes |

**When recording from digital sound sources**
Track numbers are automatically recorded in the same sequence as the sound source (i.e., based on changes in the emphasis data).

**When dubbing another MiniDisc**
Track numbers are automatically recorded in the same sequence as the source disc. However, if the same track is recorded repeatedly (i.e., when played back repeatedly during program play or single-track repeat play), the same track number is recorded each time.

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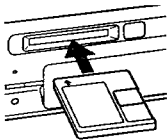# Recording From the Line (Analog) Input Jack

## Analog recording

If you use a recordable MD that already contains recorded material, the unit will automatically record new material at the end of the existing material, eliminating the need for time-consuming searches.
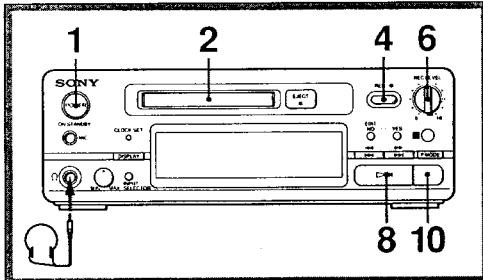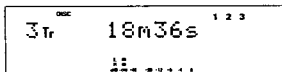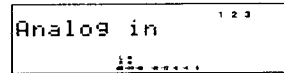


**1** Press POWER.



ON/STANDBY

**2** With the label side up and the arrow pointing toward the opening, slide the recordable MD into the disc compartment until the unit grips it.



The total number of recorded tracks (Tr) and total time appear. A music calendar showing all recorded track numbers appears without a grid.



3 Tr    18m36s   1 2 3

**3** Press INPUT SELECTOR until "Analog in" light up.
The previous display appears again after a few seconds.



INPUT SELECTOR

Analog in   1 2 3

**4** Press REC ●( ● ).
The unit enters recording pause.

REC ●



4 REC Ready   1 2 3
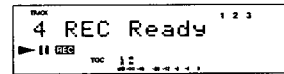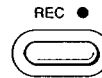
**5** Play the sound source (CD player, cassette deck, etc.) to be recorded.

**6** While monitoring through the headphones, adjust the recording level using the REC LEVEL control (see page 28).
Set to the position show below when recording from a Sony DAT deck, CD player or cassette deck.

REC LEVEL



0    10

**7** Stop the sound source to be recorded.

**8** Press ▶◼◼( ▶ or ◼◼ ).
Recording pause is canceled and recording starts.
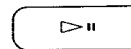
27

# Recording From the Line (Analog) Input Jack

**9** Restart the sound source to be recorded.

The track number being recorded and elapsed recording time (in minutes and seconds) appear.

```
┌─────────────────────┐
│ TRACK          1 2 3 4 │
│  4    00m01s        │
│ ►○ REC    TOC  ...   │
└─────────────────────┘
```
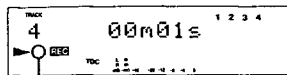
" **II** " goes off.

**10** Press ■ to stop recording.

Recording stops.

```
┌───┐
│ ■ │
└───┘
```

**To check the remaining time on the disc**
See page 26.

**To stop recording temporarily**
Press ►II ( II ).
Press ►II ( ► or II ) again to restart recording.

**To eject a disc**
Press EJECT ▲ .

---

Notes

**If "Protected" appears in the display window**
The disc is write-protected. Close the slot to record on the disc (see "To protect a MiniDisc against accidental erasure" on this page).

**When "TOC" flashes in the display window**
Do not jog the unit or pull out the power cord.

**When recording starts**
PROGRAM or SHUFFLE play is canceled.

---

## Adjusting the recording level

When recording sound sources through the line (analog) input jack or microphone, the recording level must be adjusted to achieve the optimum recording level.

**1** Press REC ● ( ● ) to put the unit into recording pause.

**2** Play the sound source to be recorded.

**3** While monitoring the sound through the headphones, adjust the recording level using the REC LEVEL control.

Adjust the recording level so the peak level meter reaches its highest point with the least intrusion into the red (OVER) zone.

```
┌─────────────────────┐
│ TRACK          1 2 3 4 │
│  4 REC Ready        │
│ ►II REC  TOC ......  │
└─────────────────────┘
```

**4** Press ►II ( ► or II ) to start recording.

---

## To protect a MiniDisc against accidental erasure



Record-protect tab

Rear of the disc

To prevent recording over, slide the tab in the direction of arrow.
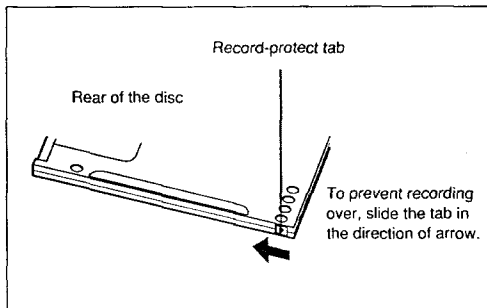
Open the slot to prevent recording.
Close the slot to allow recording.

# Recording From a Microphone

Follow the procedure below to record from a microphone with a stereo mini-plug.
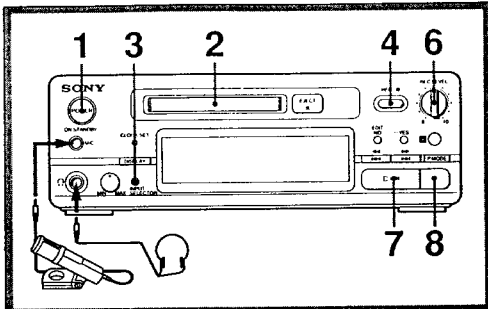
**1  3  2        4  6**

**7  8**

## 1 Press POWER.

(POWER)
ON/STANDBY

## 2 With the label side up and the arrow pointing toward the opening, slide the recordable MD into the disc compartment until the unit grips it.
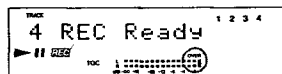
The total number of recorded tracks (Tr) and total time appear. A music calendar showing all recorded track numbers appears without a grid.

3 Tr    18m36s   1 2 3

## 3 Press INPUT SELECTOR until "Analog in" lights up.

O
INPUT
SELECTOR

Analog in    1 2 3

## 4 Press REC ● ( ● ).
The unit enters recording pause.

REC ●

4 REC Ready   1 2 3
►II REC
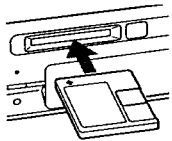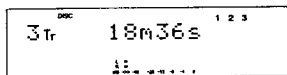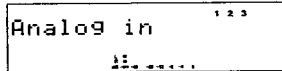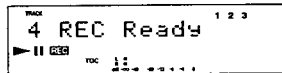
## 5 Use the microphone to pick up the desired sound.

## 6 Monitoring through the headphones, adjust the recording level with the REC LEVEL control (see page 28).

REC LEVEL

0      10

29

(Continued from previous page.)

**7** Press ▶II ( ▶ or II ) to cancel recording
pause mode.
Recording starts.
The track number being recorded and elapsed
recording time (in minutes and seconds) appear.

```
        ▷II
```

```
 TRACK              1 2 3
  4     00m01s
 ▶○ REC   TOC  ▐▐▐▄ ▄▄▄▄
```

" II " goes off.

**8** Press ■ to stop recording.
Recording stops.

```
        ■
```

**To check the remaining time on the disc**
See page 26.

**To stop recording temporarily**
Press ▶II ( II ).
Press ▶II ( ▶ or II ) again to restart recording.

**To eject a disc**
Press EJECT ▲ .

---

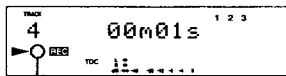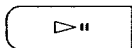**Notes**

**When you finish recording**
Disconnect the microphone. The line input jacks on the rear of the unit will not work
as long as the microphone is connected to the MIC jack.

**When you are recording from a microphone**
Press INPUT SELECTOR until "Level Sync OFF" lights up. If "Level Sync ON"
remains on while you are recording from a microphone, the track numbers will be
excessively incremented due to the frequent breaks in sound input.

**If "Protected" appears in the display window**
The disc is write-protected. Close the slot to record on ther disc (see page 28).

**When "TOC" flashes in the display window**
Do not jog the unit or pull out the power cord.

**When recording starts**
PROGRAM or SHUFFLE play is canceled.

# Track Marking During Recording

Track marking is essentially adding tracks while recording. By adding a track mark (new track number) at desired points, you can quickly locate those points afterwards using the AMS function. Track marks can be added automatically or manually: (1) automatically by the system at points of low signal level, and (2) manually at the points you want.

## Automatic track marking

Press INPUT SELECTOR while the unit is in recording or recording pause mode to display "Level Sync ON".

```
LevelSync ON  ¹ ² ³
►II REC    TOC ██ ▄▄◄◄◄
```
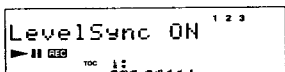
## Manual track marking

**1** Press INPUT SELECTOR while the unit is in recording or recording pause mode to display "Level Sync OFF".

```
LevelSyncOFF  ¹ ² ³
►II REC    TOC ██ ▄▄◄◄◄
```
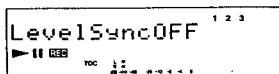
**2** While recording, press REC ● ( ● ) at the point you want to add a track mark.
The track number increases by one, and recording on the new track begins (the elapsed recording time indication restarts from zero).

```
4      05m20s  ¹ ² ³ ⁴
►II REC    TOC ██ ▄▄◄◄◄
```

⇩

```
5      00m01s  ¹ ² ³ ⁴ ⁵
►II REC    TOC ██ ▄▄◄◄◄
```
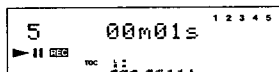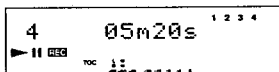
After a track has been recorded, you can divide it further into more tracks to enable material to be quickly located using the AMS function (see "Dividing Recorded Tracks" on page 39).

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# CD Synchro-Recording

By connecting your MiniDisc recorder to a Sony CD player or Mini Hi-Fi Component System, you can easily dub CDs onto MDs using the CD synchro buttons on the remote commander. If your unit is connected to a Sony CD player by the optional optical cable through the digital input terminal, tracks are automatically recorded in the same sequence onto the MD regardless of whether "Level Sync ON" or "Level Sync OFF" is on.
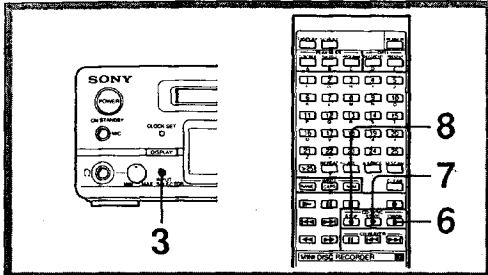


**1** Set the amplifier function selector to CD.

**2** With the label side up and the arrow pointing toward the opening, slide the recordable MD into the disc compartment until the unit grips it.



The total number of recorded trackes (Tr) and total time appear. A music calendar showing all recorded track numbers appears without a grid.
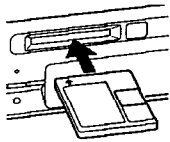
```
TRACK
3 Tr    18m36s   1 2 3

::: ......
```
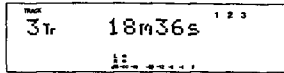
**3** For digital recording, press INPUT SELECTOR until "Digital In" lights up.



INPUT
SELECTOR

```
Digital in   1 2 3
          DIGITAL IN

          ::: ......
```
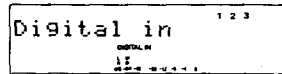
For analog recording, press INPUT SELECTOR until "Analog In" lights up, then adjust the REC LEVEL control to the position shown below.

```
Analog in    1 2 3

          ::: ......
```

REC LEVEL
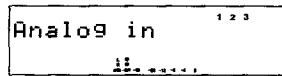


**4** Insert a CD into the CD player.

**5** Select the playback mode (shuffle play, program play, etc.) on the CD player.

## 6 Press CD-SYNC/STANDBY.

The CD player enters pause, and MD recorder enters recording pause.

```
——— CD-SYNC ———
          STANDBY
          ┌───┐
          └───┘
```

```
┌─────────────────────────────────┐
│ TRACK                    1 2 3   │
│  4  REC  Ready                   │
│ ►·II REC-SYNC                    │
│          TOC  ││·········        │
└─────────────────────────────────┘
```

## 7 Press CD-SYNC/START.

The MD recorder starts recording and the CD player starts playback.
The track number being recorded and elapsed recording time appear.

```
——— CD-SYNC ———
          START
          ┌───┐
          └───┘
```

```
┌─────────────────────────────────┐
│ TRACK                    1 2 3   │
│  4     00m01s                    │
│ ►·○ REC-SYNC                     │
│          TOC  ││·········        │
└─────────────────────────────────┘
```
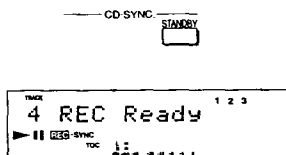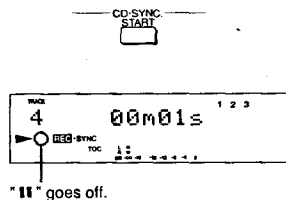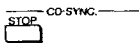
" **II** " goes off.

## 8 Press CD-SYNC/STOP to stop recording.

Recording stops.

```
——— CD-SYNC ———
       STOP
      ┌───┐
      └───┘
```

**To temporarily stop recording**
Press CD-SYNC/STANDBY or CD PLAYER/ **II** .
Press CD-SYNC/START or CD PLAYER/ **II** to restart recording.

**To check the remaining time on the disc.**
See page 26.

**Successive CD synchro-recording of another CD**
Follow the procedure below in place of step 8.
1 Press ■ on the remote commander of the CD player.
2 Change the CD.
3 Press ►► on the remote commander of the CD.
Synchro-recording restarts.

---

Notes

**Place the CD player close to this unit**
As both the CD player and the unit are controlled by the same remote commander, you may have trouble operating the unit if the units are far from each other.

**When "TOC" flashes in the display window**
Do not jog the unit or pull out the power cord.

**When recording starts**
PROGRAM or SHUFFLE play is canceled.

**If the CD player does not start playing in step 7**
Some CD player models will not start playing when CD-SYNC/START is pressed. Press CD PLAYER/ **II** instead.

# Editing Functions for a Recorded MiniDisc

The editing functions available with your unit allow you to erase, divide, combine and move tracks that have been recorded on an MD.
A brief introduction to each function is given on pages 34 and 35.

## Erasing recordings (ERASE Function) (see page 36)

The erase function allows you to erase tracks from a recorded MD easily and instantly. Since erasing merely updates the table of contents (TOC), there is no need to record over existing material as in the case of cassette tapes. Note, however, that once erased, a track cannot be recovered.
After a specific track is erased, the total number of tracks decreases by one, and the remaining tracks are renumbered.

Example: Erasing B



└── B is erased.
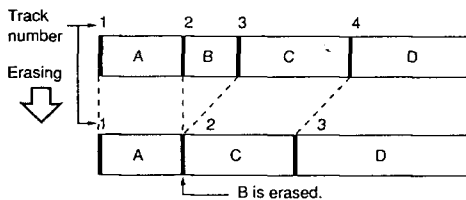
Since tracks following an erasure are renumbered, multiple track erasures should be performed in order of larger to smaller track numbers to prevent the renumbering of tracks not yet erased.
For example, when erasing track 2 and 4, erase track 4 before track 2.

## Dividing recorded tracks (DIVIDE Function) (see page 39)

The MD unit records sound sources through the line (analog) input or microphone as a single track on the disc. To randomly access individual tracks or portions within this track, the divide function allows you to create separate tracks for each song or portion. When a track is divided, the total number of tracks increments by one, and the remaining tracks are renumbered.
Additional tracks can also be added while recording through the digital input jack (see "Track Marking During Recording" on page 31).

Example: Dividing track 2 to create a new track for C



└── Track 2 is divided and a new track is created for C.
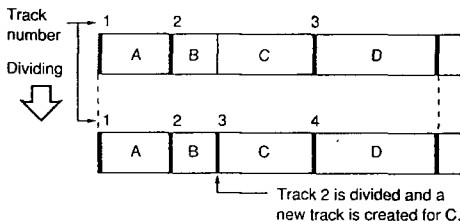
## Combining recorded tracks (COMBINE Function) (see page 41)

The combine function allows you to combine consecutive tracks on a recorded MD. It is useful for combining several songs into a single medley, or several independently recorded portions into a single track. When two tracks are combined, the total number of tracks decreases by one, and the remaining tracks are renumbered.

Example: Combining B and C
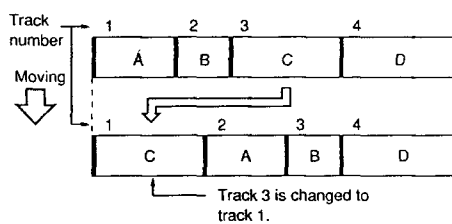


B and C are combined on 1 track.
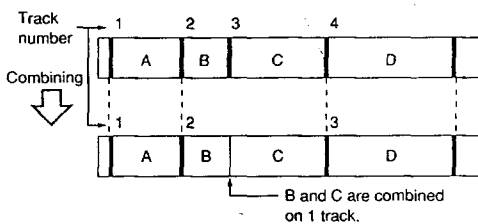
## Moving recorded tracks (MOVE Function) (see page 42)

With the move function, you can change the order of any track.
After a track is moved, the track numbers following the new position are incremented by one.

Example: Moving tracks



Track 3 is changed to track 1.

## Labeling recordings (TITLE Function) (see page 44)

Use the title function to create titles for your recorded discs and tracks. Titles — which may consist of uppercase and lowercase letters, numbers, symbols and spaces — appear in the display window during operation.

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# Erasing Recordings (ERASE Function)

If your recorded MD has been divided into tracks, you can use the procedure below to erase specific tracks easily and instantly. Note, however, that once erased, a track cannot be recovered.
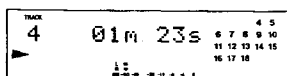
## Erasing a single track

You can erase a track while the unit is in stop, playback or pause mode simply by specifying its respective track number.
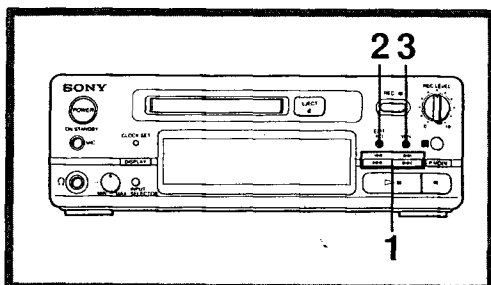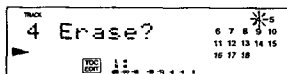


**1** Press ◄◄ or ►► ( I◄◄, ►►I or numeric buttons) until the track number to be erased lights up.
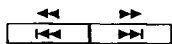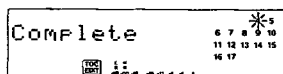


Example: Erasing track 4



**2** Press EDIT/NO until "Erase?" lights up.

EDIT
NO —
◯



**3** Press YES.
"Complete" lights up for a few seconds then disappears, and the specified track is erased. The music calendar decreases by one.

—YES
◯



When erasing a track during playback, the following track begins playing after the erasure is made.

### To cancel the ERASE Function
Press EDIT/NO , ■ , ◄◄ , or ►► to restore the normal display.

[Notes]

If the following indication goes on
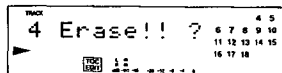


The track has been recorded or edited on another unit and is write-protected. If this indication appears, press YES to erase the track.

**If the "Protected" indication lights up**
The record-protect slot on the disc is open and the specified track cannot be erased. Erase the track after closing the slot.

**When "TOC" flashes in the display window**
Do not jog the unit or pull out the power cord. After the contents of the recording have been updated, "TOC" lights up. If any changes have been made to an MD, the "TOC" indicator lights up. When EJECT or POWER is pressed at this time, the "TOC" indicator flashes and the actual contents of the MD are updated.

## Erasing tracks successively

Use the procedure below while the unit is in stop, playback or pause mode to erase consecutive tracks one by one.

**2,4 3,5**

**1**
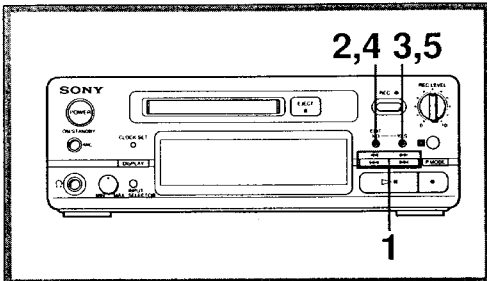
**1** Press ◄◄ or ►► ( I◄◄ , ►►I or numeric buttons) until the first track to be erased lights up.

| ◄◄ | ►► |
|---|---|
| I◄◄ | ►►I |

Example: Erasing track 4

```
TRACK
4    01m 23s  6 7 8 9 10
                  11 12 13 14 15
              TOC  16 17 18
              EDIT  ...........
```

**2** Press EDIT/NO until "Erase?" lights up.

EDIT
NO —
○

```
TRACK
4  Erase ?  6 7 8 9 10
                11 12 13 14 15
            TOC  16 17 18
            EDIT  ...........
```

**3** Press YES.
"Complete" lights up for a few seconds then disappears, and the specified track is erased. The music calendar decreases by one.

—YES
○

```
Complete   6 7 8 9 10
                11 12 13 14 15
            TOC  16 17
            EDIT  ...........
```

The track following the one just erased starts playing if the unit is in playback mode.

**4** To erase the next track, press EDIT/NO until "Erase?" lights up.

EDIT
NO —
○

```
TRACK
4  Erase ?  6 7 8 9 10
                11 12 13 14 15
            TOC  16 17
            EDIT  ...........
```

**5** Press YES.
"Complete" lights up for a few seconds then disappears, and the specified track is erased. The music calendar decreases by one.

—YES
○

```
Complete   6 7 8 9 10
                11 12 13 14 15
            TOC  16
            EDIT  ...........
```

**6** Repeat steps 4 and 5 to erase other successive tracks.

### To cancel the ERASE Function
Press EDIT/NO or ■ to restore the normal display.

**Notes**

**If the "Protected" indication lights up**
The record-protect slot on the disc is open and the specified track cannot be erased. Erase the track after closing the slot.

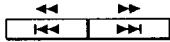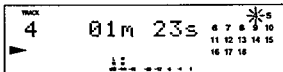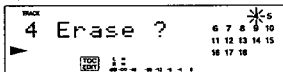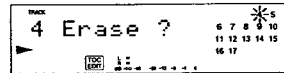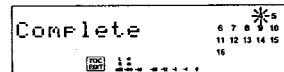**When "TOC" flashes in the display window**
Do not jog the unit or pull out the power cord. After the contents of the recording have been updated, "TOC" lights up. If any changes have been made to an MD, the "TOC" indicator lights up. When EJECT or POWER is pressed at this time, the "TOC" indicator flashes and the actual contents of the MD are updated.

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## Erasing a disc

Erasing a recordable MD deletes all recorded tracks. Note, however, that once erased, a track cannot be recovered.
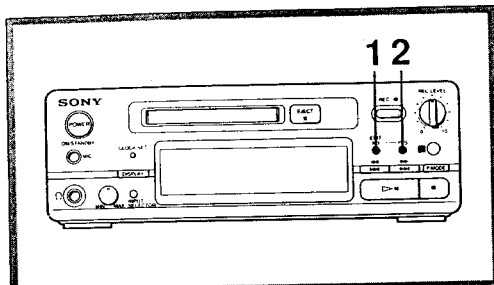


**1** While the unit is in pause mode, hold down $\frac{EDIT}{NO}$ for about a second until "All erase?" lights up.

EDIT
NO —
◯



All Erase ?
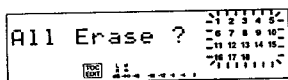
**2** Press YES.
"Complete" lights up for a few seconds then disappears, and all recorded tracks are erased. The music calendar disappears.

—YES
◯

Complete

**To cancel the ERASE Function**
Press $\frac{EDIT}{NO}$ or ■ to restore the normal display.

## Erasing a part of a track

By using the dividing, erasing and combining functions, you can erase specific portions of a track.

Example: Erasing a part of selection A
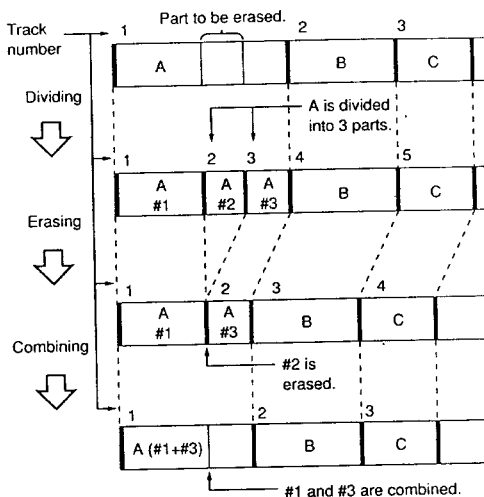


**Notes**

**If the "Protected" indication lights up**
The record-protect slot on the disc is open and the specified track cannot be edited. Edit the track after closing the slot.
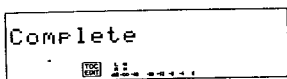
**When "TOC" flashes in the display window**
Do not jog the unit or pull out the power cord. After the contents of the recording have been updated, "TOC" lights up. If any changes have been made to an MD, the "TOC" indicator lights up. When EJECT or POWER is pressed at this time, the "TOC" indicator flashes and the actual contents of the MD are updated.

To be able to randomly access certain portions of a track, you must use the divide function during playback to create separate tracks for each portion.

**2,4 3,7**

**5 1**
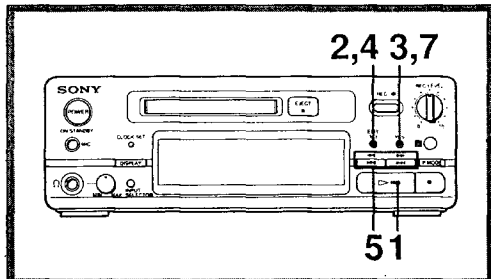
**1** While playing the MD, press ►▌▌ to temporarily stop playback at the point where a new track is to be created.

▷▮▮

**2** Press EDIT/NO until "Divide?" lights up.

EDIT
NO —
○

Example: Dividing track 4

```
       TRACK        4 5
4 Divide?    6 7 8 9 10
             11 12 13 14 15
►            16 17 18
```

**3** Press YES when you want to divide the track.
The starting portion of the new track plays back repeatedly.

—YES
○

```
              ☀5
Rehearsal   6 7 8 9 10
            11 12 13 14 15
►           16 17 18
```
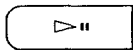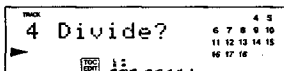
Alternating displays.  ⇕

```
                 ☀5
Position ok?  6 7 8 9 10
              11 12 13 14 15
►             16 17 18
```
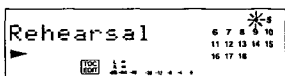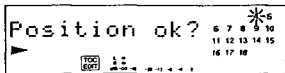
**4** If the starting portion is incorrect, press EDIT/NO. (If it is okay, go to step 7.)

EDIT
NO —
○

```
              ☀5
Push ◄◄/►►   6 7 8 9 10
             11 12 13 14 15
►            16 17 18
```
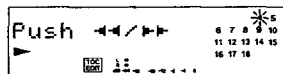
**5** While monitoring the sound, press ◄◄ or ►► to find the starting point of the new track.
The starting portion of the new track is played back repeatedly.

◄◄    ►►
I◄◄   ►►I

```
              ☀5
± 02        6 7 8 9 10
            11 12 13 14 15
            16 17 18
```

⇩

```
              ☀5
Rehearsal   6 7 8 9 10
            11 12 13 14 15
►           16 17 18
```

Alternating displays.  ⇕

```
                 ☀5
Position ok?  6 7 8 9 10
              11 12 13 14 15
►             16 17 18
```
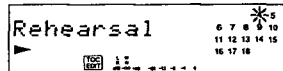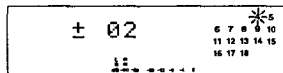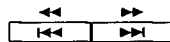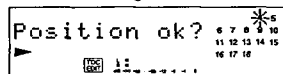
**6** If the starting portion is still incorrect, repeat steps 5 until the correct portion is found.

The starting position can be moved within a range of -128 to +127 steps of about 0.06 second each.

(Continued from previous page.)

---

**7** **Press YES when the correct position is found.**
"Complete" lights up for a few seconds then
disappears, and the track is divided.
After track division, the newly created track
begins playing. The new track will have no track
title even if the original track was labeled.

—YES

O

```
Complete        1 2 ▶4 5
                6 7 8 9 10
                11 12 13 14 15
▶   🔲 1:       16 17 18
```

---
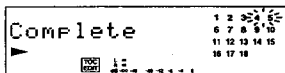
### To cancel the DIVIDE Function
Press ⏹ᴱᴰᴵᵀ or ■ to restore the normal display.

### To undo a track division
Combine the tracks again (see "Combining Recorded
Tracks" on page 41) then redivide the tracks if necessary.

### Changing the step interval in step 5
When "Rehearsal" lights up in step 5, press P.MODE to
select ±1 for a step interval of ±0.06 second, or ±2 for a step
interval of ±0.12 second.

---

| Notes |

**If the "Protected" indication lights up**
The record-protect slot on the disc is open and the specified track cannot be
devided. Divide the track after closing the slot.

**When "TOC" flashes in the display window**
Do not jog the unit or pull out the power cord. After the contents of the recording
have been updated, "TOC" lights up. If any changes have been made to an MD, the
"TOC" indicator lights up. When EJECT or POWER is pressed at this time, the
"TOC" indicator flashes and the actual contents of the MD are updated.

# Combining Recorded Tracks (COMBINE Function)

The combine function allows you to combine consecutive tracks on a recorded disc during stop, playback or pause mode.

**2 3,4**

**1**
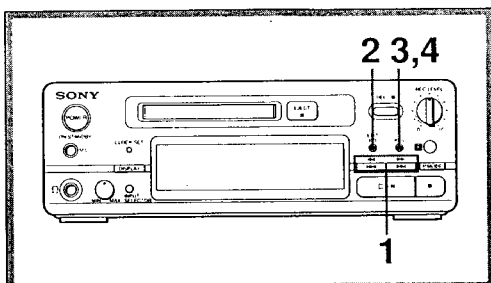
**1** Press ⏪ or ⏩ until the second track of the two to be combined lights up.

| ◀◀ | ▶▶ |
|---|---|
| I◀◀ | ▶▶I |

Example: Combining tracks 3 and 4

```
TRACK              4  5
 4    01m 23s   6 7 8 9 10
                11 12 13 14 15
 ▶              16 17 18
        ‖‖‖ ▬▬▬▬
```

**2** Press EDIT/NO until "Combine?" lights up.

```
EDIT
NO —
 ◯
```

```
TRACK              4  5
 4  Combine?   6 7 8 9 10
                11 12 13 14 15
 ▶              16 17 18
        ‖‖‖ ▬▬▬▬
```

**3** Press YES.

The portion where the two tracks will join (i.e., the end of the first track and the beginning of the second track) repeatedly plays back.
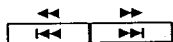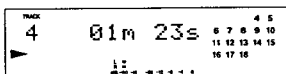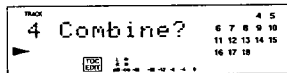
```
—YES
 ◯
```

```
                ⌐3⌐4⌐5
Rehearsal    6 7 8 9 10
                11 12 13 14 15
 ▶              16 17 18
        ‖‖ ▬▬▬▬
```

Alternating displays. ⇕

```
                ⌐3⌐4⌐5
Track ok?    6 7 8 9 10
                11 12 13 14 15
 ▶              16 17 18
        ‖‖ ▬▬▬▬
```
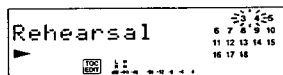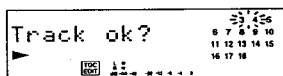
**4** Verify the tracks, then press YES.

"Complete" lights up for a few seconds then disappears, and the tracks are combined.
The music calendar decreases by one.
If both of the combined tracks have track titles, the title of the second track is erased (as well as other information such as the recording date).

```
—YES
 ◯
```

```
              1 2 ☀ 4  5
Complete    6 7 8 9 10
              11 12 13 14 15
 ▶            16 17
        ‖‖ ▬▬▬▬
```
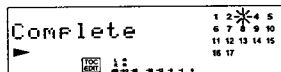
## To cancel the COMBINE Function
Press EDIT/NO , ■ , ⏪ , or ⏩ to restore the normal display.

## To undo a track combination
Divide the tracks again (see "Dividing Recorded Tracks" on page 39), then repeat the combine function with the correct tracks if necessary.

41

## Combining Recorded Tracks (COMBINE Function)

**Notes**

**If the following indication lights up**

```
                              4  5
Sorry               6  7  8  9  10
                   11 12 13 14 15
►                  16 17 18
       [TOC]  ♦♦♦
```

The specified tracks cannot be combined. Extensive editing of the same track may render it impossible to combine with another track. This is due to the technical limitation of the MD system and is not a mechanical error.
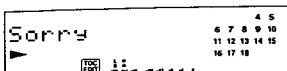
**If the "Protected" indication lights up**
The record-protect slot on the disc is open and the specified track cannot be combined. Combine the track after closing the slot.

**When "TOC" flashes in the display window**
Do not jog the unit or pull out the power cord. After the contents of the recording have been updated, "TOC" lights up. If any changes have been made to an MD, the "TOC" indicator lights up. When EJECT or POWER is pressed at this time, the "TOC" indicator flashes and the actual contents of the MD are updated.

## Moving Recorded Tracks (MOVE Function)

Use this function to change the order of specific tracks during stop, playback or pause mode.
After moving a track, track numbers following the new track position increment by one.

Example: Moving track 3 to track position 5
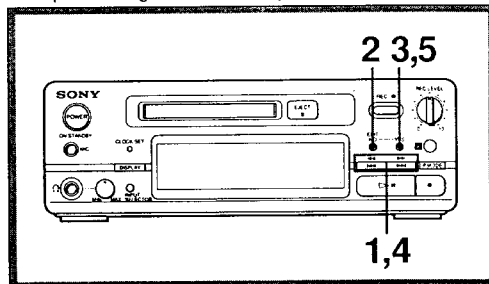


**1** Press ◄◄ or ►► (I◄◄, ►►I or numeric buttons) until the track to be moved lights up.
Number of track to be moved lights up.
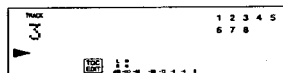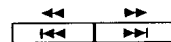


**2** Press EDIT/NO until "Move?" lights up.
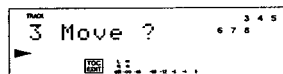
## 3 Press YES.

The number of the track to be moved and the new track position lights up.

—YES

○

```
 ᵀᴿᴬᶜᴷ                         3
 3 ↔ 1
►
        [TOC]  1 :
        [EDIT]  2 ::  ◄ ◄ ◄ ◄ ◄
```

## 4 Press ◄◄ or ►► (I◄◄, ►►I or numeric buttons) to specify the new track position.

```
   ◄◄        ►►
 [ I◄◄ ] [ ►►I ]
```

```
 ᵀᴿᴬᶜᴷ                         3
 3 ↔ 5
►
        [TOC]  1 :
        [EDIT]  2 ::  ◄ ◄ ◄ ◄ ◄
```
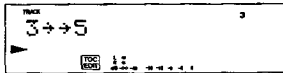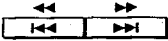
## 5 Press YES.

"Complete" lights up for a few seconds then disappears, and the moving procedure is completed.
The moved track begins playing back if the unit is in playback mode.

—YES

○

```
                              S
 Complete      6 7 ●
►
        [TOC]  1 :
        [EDIT]  2 ::  ◄ ◄ ◄ ◄ ◄
```
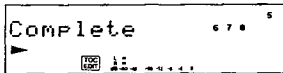
**To cancel the MOVE Function**
press ■ button to restore the normal display.

Notes

**If the "Protected" indication lights up**
The record-protect slot on the disc is open and the specified track cannot be moved. Move the track after closing the slot.
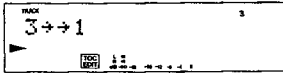
**When "TOC" flashes in the display window**
Do not jog the unit or pull out the power cord. After the contents of the recording have been updated, "TOC" lights up. If any changes have been made to an MD, the "TOC" indicator lights up. When EJECT or POWER is pressed at this time, the "TOC" indicator flashes and the actual contents of the MD are updated.

Use the title function to create titles for your recorded discs and tracks. Titles — which may consist of up to 100 uppercase and lowercase letters, numbers and symbols for a maximum of about 1,700 characters per disc — appear in the display window during MD operation.

## Labeling a track

Use this function during playback, pause or recording mode to label a track.

Remote commander operation only



**1** Press NAME while playing back, pausing or recording the track to be labeled.
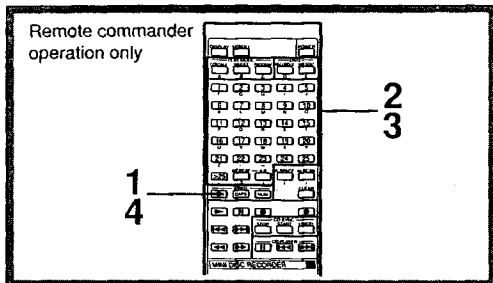A flashing cursor appears.
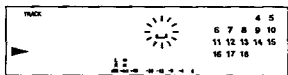


**2** Enter one character at a time using the character buttons.
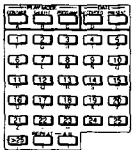


Entering the letter "D"
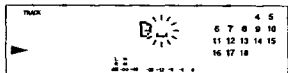


**3** Repeat step 2 until you have entered the entire title.
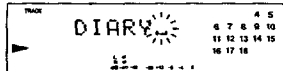


**4** Press NAME again.
The entered title appears on the left side of the display window and the labeling procedure is completed.
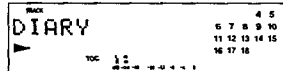


**Entering lowercase letters**
1  Press CAPS until "Selected abc" lights up.
2  Enter the desired characters.

**Entering uppercase letters**
1  Press CAPS until "Selected ABC" lights up.
2  Enter the desired characters.

**Entering numbers**
1  Press NUM until "Selected 123" lights up.
2  Enter the desired numbers.

**Entering uppercase or lowercase letters again**
1  Press CAPS or NUM until "Selected ABC" or "Selected abc" lights up.
2  Enter the desired characters.

**Entering symbols ( * , ? , ¥ , etc.)**
1  Press ◄◄ or ►► on the remote commander to select the desired character.
2  Press ►◄ ( ►►► ).

## If you enter the wrong character

1 Press ⏮ or ⏭ to move the flashing cursor under the character to be corrected.
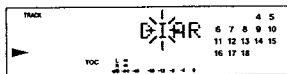
⏮ ⏭

2 Press CLEAR to erase the incorrect character, then enter the correct letter.

### To cancel the title function

Press ■ .

### Making a correction after entering a title

1 Press NAME while playing back or pausing the respective track. The current track title lights up.
2 To enter an entirely new title, hold down CLEAR until the current track title is erased, then enter the new track title. To correct a part of the track title, use the same procedure described in "If you make a mistake" above.
3 Press NAME.

### Erasing all track titles on a disc

1 Hold down EDIT/NO on the unit for about one second while the unit is stopped until "All Erase?" lights up.
2 Press EDIT/NO again until "Name Erase?" lights up.
3 Press YES.

| Notes |

**If the "Protected" indication lights up**
The record-protect slot on the disc is open and the specified track cannot be labeled. Label the track after closing the slot.

**When "TOC" flashes in the display window**
Do not jog the unit or pull out the power cord. After the contents of the recording have been updated, "TOC" lights up. If any changes have been made to an MD, the "TOC" indicator lights up. When EJECT or POWER is pressed at this time, the "TOC" indicator flashes and the actual contents of the MD are updated.

## Labeling a disc

Remote commander operation only
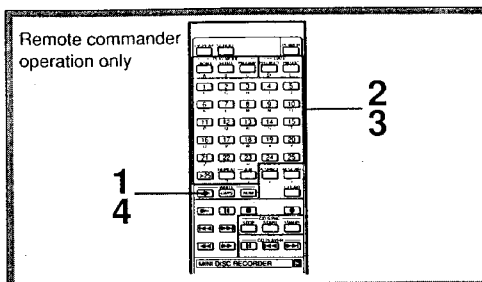
**1** Insert the disc to be labeled.

**2** Press NAME while the unit is stopped.
A flashing cursor appears.

[NAME]
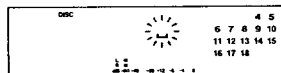
**3** Enter one character at a time.
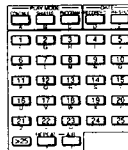
Entering the letter "D"
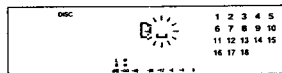
(Continued from previous page.)

**4** Repeat step 3 until you have entered the
entire title.

```
IVE SONGS       1 2 3 4 5
                6 7 8 9 10
                11 12 13 14 15
                16 17 18
```

**5** Press NAME again.
The entered title appears from the leftside of the
display window and the disc labeling procedure is
completed.

```
[NAME]
```

```
DRIVE SONGS     1 2 3 4 5
                6 7 8 9 10
                11 12 13 14 15
                16 17 18
          TOC
```

### Entering lowercase letters
1 Press CAPS until "Selected abc" lights up.
2 Enter the desired characters.

### Entering uppercase letters
1 Press CAPS until "Selected ABC" lights up.
2 Enter the desired characters.

### Entering numbers
1 Press NUM until "Selected 123" lights up.
2 Enter the desired numbers.

### Entering uppercase or lowercase letters again
1 Press CAPS or NUM until "Selected ABC" or
"Selected abc" lights up.
2 Enter the desired characters.

### Entering symbols ( * , ? , ¥ , etc.)
1 Press ◄◄ or ►► on the remote commander to select the
desired character.
2 Press ►►i ( ►►l ).
The following symbols can be used on your unit: ! " # $ % & '
( ) * + , - . / : ; < = > ? @ [ ¥ ] ^ _ ` { ¦ } ~
However, the display of the [ ¥ ] { ¦ } ~ symbols may not be
supported on certain models of MD player units.

### If you enter the wrong character
1 Press I◄◄ or ►►I to move the flashing cursor under the
character to be corrected.

```
[I◄◄] [►►I]
```

```
DRIVE ON        1 2 3 4 5
                6 7 8 9 10
                11 12 13 14 15
                16 17 18
```

2 Press CLEAR to erase the incorrect character, then enter
the correct letter.

### To cancel the title function
Press ■ .

### Making a correction after entering a title
1 Press NAME while the unit is stopped. The current disc
title lights up.
2 To enter an entirely new disc title, hold down CLEAR until
the current track title is erased, then enter the correct disc
title.
To correct a part of the disc title, use the same procedure
described in "If you make a mistake" above.
3 Press NAME.

---
**Notes**

**If the "Protected" indication lights up**
The record-protect slot on the disc is open and the disc cannot be labeled. Label
the disc after closing the slot.

**When "TOC" flashes in the display window**
Do not jog the unit or pull out the power cord. After the contents of the recording
have been updated, "TOC" lights up. If any changes have been made to an MD, the
"TOC" indicator lights up. When EJECT or POWER is pressed at this time, the
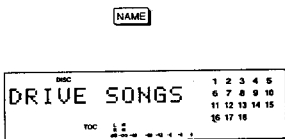"TOC" indicator flashes and the actual contents of the MD are updated.

## MD recorder section

| | |
|---|---|
| System | MiniDisc digital audio system |
| Disc | MiniDisc |
| Laser: | Semiconductor laser |
| Wavelength: | 780—790nm |
| Laser diode properties | Material: GaAlAs |
| | Emission duration: continuous |
| | Laser output: less than 44.6 μW |
| | (This output is the value measured |
| | at a distance of 200 mm from the |
| | lens surface on the optical pick-up |
| | block.) |
| Revolutions | 400 rpm to 900 rpm (CLV) |
| Error correction | Advanced Cross Interleave Reed |
| | Solomon Code (ACIRC) |
| Sampling frequency | 44.1 kHz |
| Modulation system | EFM (Eight-to-Fourteen Modulation) |
| Number of channels | 2 stereo channels |
| Frequency response | 5 to 20,000 Hz ± 0.5 dB |
| Wow and flutter | Below measurable limit |

### Inputs

| | Jack type | Input impedance | Rated input | Minimum input |
|---|---|---|---|---|
| MIC | Stereo mini-jack | 600 ohms | 0.8 mVrms | 0.3 mVrms |
| LINE IN | Phono jack | More than 47 kilohms | 500 mVrms | 158 mVrms |
| DIGITAL IN | Square optical connector jack | Optical wave lenghth 660 nm | — | — |

### Outputs

| | Jack type | Rated output | Load impedance |
|---|---|---|---|
| HEAD-PHONES | Stereo mini-jack | 28 mW | 32 ohms |
| LINE OUT | Phono jack | 2 Vrms at a load impedance of 50 kilohms | More than 10 kilohms |
| DIGITAL OUT | Square optical connector jack | −18 dBm | Optical wave lenghth 660 nm |

## General

| | |
|---|---|
| Power requirements | 120 V AC, 60 Hz |
| Power consumption | 22 W |
| Dimensions | Approx. 225 × 75 × 285 mm (w/h/d) |
| | (8⅞ × 3 × 11¼ inches) |
| | incl. projecting parts |
| Mass | Approx. 2.9 kg |
| | (6 lb 6 oz) |

### Supplied accessories
• Remote commander RM-D1M (1)
• Sony SUM-3 (NS) batteries (2)
• Audio connecting cords (pin-jack × 2 ↔ pin-jack × 2) (2)
• Audio (AU) bus cable (1)
• Recordable MD: MDW-60 (1)

### Optional accessories
• Optical cable: POC-15SP
• Recordable MDs: MDW-60 (60 min.), MDW-74 (74 min.) (available spring 1993)

Design and specifications are subject to change without notice.

# Display Messages

The following table explains the various messages that appear in the display window.

| Message | Meaning |
|---------|---------|
| Blank Disc | A new (blank) or erased disc has been inserted. |
| Cannot Copy | An attempt was made to make a second copy from a digitally dubbed MD (see page 50). |
| Cannot EDIT | An attempt was made to edit the disc during PROGRAM or SHUFFLE play or the inserted disc contains Japanese ideograms. |
| Disc Error | The disc is abnormal (scratched or missing a TOC). |
| Disc Full | The disc is full (see "System Limitations"). |
| Impossible | An attempt was made to combine tracks while playing back the first track. |
| Name Full | The titling capacity of the disc has reached its limit (about 1,792 characters). |
| No Disc | There is no disc in the unit. |
| No Track | The inserted disc has a disc title but no tracks. |
| Protected | The inserted disc is record-protected. |
| Retry | The first recording attempt failed due to a disturbance or scratch on the MD, and a second recording is being made. |
| Sorry | An attempt was made to combine tracks that cannot be combined. |
| TOC Reform? | The TOC has become almost full due to repeated editing operations. Press YES to reform the TOC for a possible increase in recording time. Press EDIT NO bypass the reform process and turn off the message. |

# System Limitations

The recording system in your MiniDisc recorder is radically different from those used in cassette and DAT decks and is characterized by the limitations described below. Note, however, that these limitations are due to the inherent nature of the MD recording system itself and not to mechanical causes.

**"Disc Full" lights up even before the disc has reached the maximum recording time (60 or 74 minutes*)**
When 255 tracks have been recorded on the disc, "Disc Full" lights up regardless of the total recorded time. More than 255 tracks cannot be recorded on the disc.

**"Disc Full" lights up before the maximum number of tracks is reached**
Fluctuations in emphasis within tracks are sometimes interpreted as track intervals, incrementing the track count and causing the "Disc Full" indication to light up.

**The remaining recording time does not increase even after erasing numerous short tracks**
Tracks of under 8 seconds in length are not counted and so erasing them may not lead to an increase in the recording time.

**Some tracks cannot be combined with others**
Track combination may become impossible when tracks are edited.

**The total recorded time and the remaining time on the disc may not total the maximum recording time (60 or 74 minutes*)**
Recording is done in minimum units of 2 seconds each, no matter how short the material. The contents recorded may thus be shorter than the maximum recording capacity. Disc space may also be further reduced by scratches.

**Tracks created through editing may exhibit sound dropout during search operations.**

**Track numbers are not recorded correctly**
Incorrect assignment or recording of track numbers may result (1) when CD tracks are divided into several smaller tracks during digital recording, or (2) when certain CDs are recorded with both the "LevelSync ON" indication and automatic track marking function on.

**"TOC Reading" indication appears for a long time**
If the inserted recordable disc is brand new, the "TOC Reading" indication appears on the display longer than those that have been used.

**Your MiniDisc recorder is designed as a Hi-Fi stereo system and cannot be used to play back monaural format MDs.**

* Seventy-four-minute recordable discs will be available in the spring of 1993.

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# Troubleshooting Guide

If you experience any of the following difficulties while using your unit, use this troubleshooting guide as an aid to remedy the problem.
If the problem persists, consult your nearest Sony service facility.

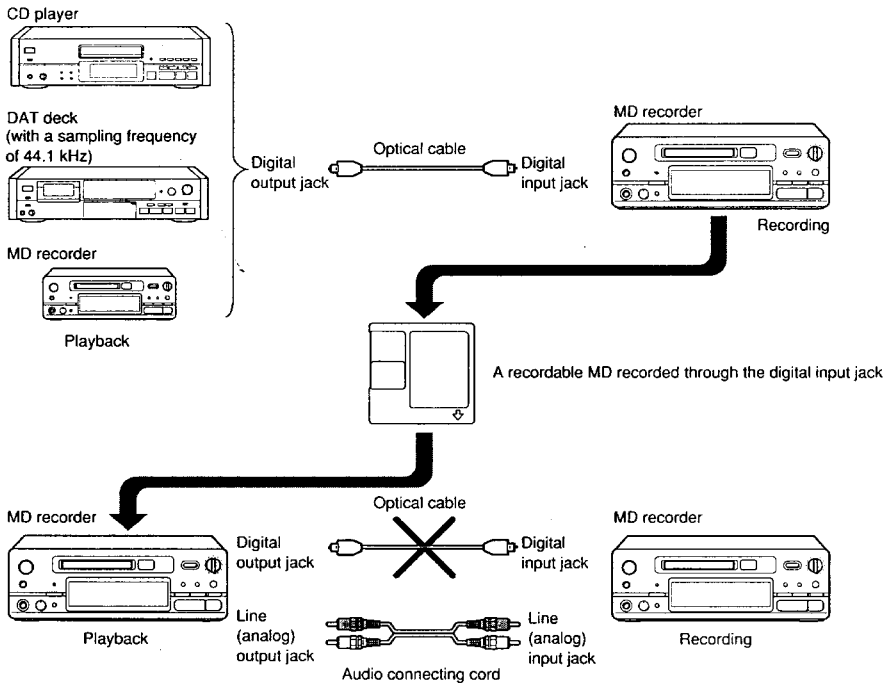| Symptom | Cause | Remedy |
|---|---|---|
| The unit does not operate or operates poorly. | The disc may be damaged ("Disc Error" appears). | Take the disc out and insert it again. If "Disc Error" remains, replace the disc. |
| The unit does not play back. | Moisture has formed inside the unit. | Take the MD out and leave the unit in a warm place for several hours until the moisture evaporates. |
| | The unit is not on. | Press POWER to turn the unit on. |
| | The disc is inserted in the wrong direction. | Slide the MD into the disc compartment with the label side up and the arrow pointing toward the opening until the unit grips it. |
| | The disc may not be recorded (the music calendar does not appear). | Replace the disc with one that has been recorded. |
| The unit does not record. | The disc is record-protected ("Protected" appears). | Close the record-protect slot. |
| | The unit is not connected properly to the sound source. | Make connections properly to the sound source. |
| | The recording level is not adjusted properly (in case of line input or microphone input). | Turn the REC LEVEL control to adjust the recording level properly. |
| | A premastered disc is inserted. | Replace it with a recordable disc. |
| | There is not enough time left on the disc. | Replace it with another recordable disc with fewer recorded tracks. |
| | There has been a power failure or the power cord has been disconnected. | Data recorded to that point may be lost. Repeat the recording procedure. |
| | Recording pause mode is automatically canceled after a few minutes. | Press REC ● again. |
| The sound has a lot of static. | Strong magnetism from a television or a similar device is interfering with operations. | Move the unit away from the source of strong magnetism. |
| The clock loses time. | There may have been a power failure or the power cord may have been disconnected. | Set the clock again. |

| Note |

If the unit does not operate properly even after attempting the prescribed remedies, turn off the power, then reinsert the plug into the power outlet.

Since your MD unit uses the Serial Copy Management System (SCMS), MDs recorded through the digital input jack cannot be used to make subsequent copies to other MDs through the digital output jack. The following diagram shows a system for making copies through the digital or analog terminals.
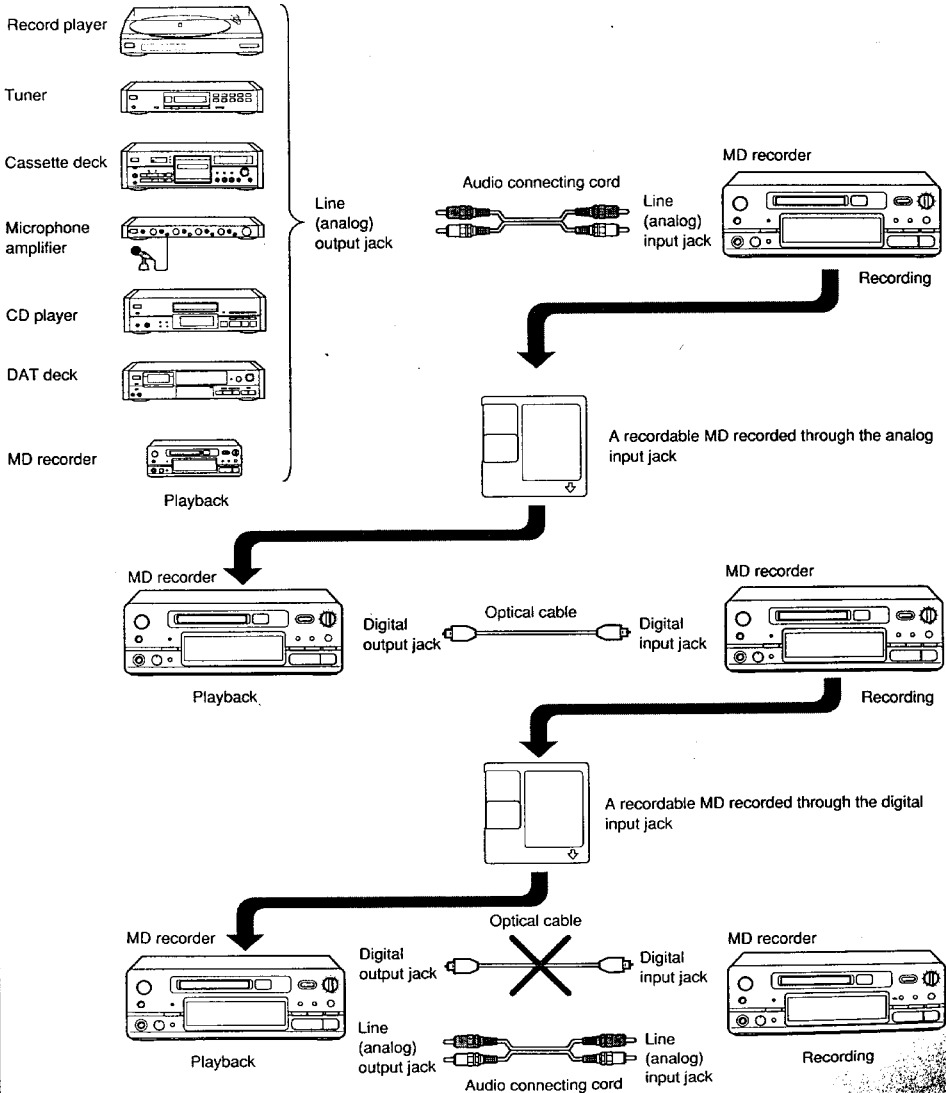
1   You can record digital sources (CD, prerecorded MD, and DAT equipment with a sampling frequency of 44.1 kHz) to a recordable MD through the digital input jack.

However, you cannot make subsequent copies from the recordable MD to other recordable MDs through the digital output jack. Subsequent copies can only be made through analog output jack.

CD player

DAT deck
(with a sampling frequency of 44.1 kHz)

Digital output jack          Optical cable          Digital input jack

MD recorder

Recording

MD recorder

Playback

A recordable MD recorded through the digital input jack

MD recorder

Digital output jack          Optical cable          Digital input jack

Line (analog) output jack          Audio connecting cord          Line (analog) input jack

Playback

MD recorder

Recording

2  A recordable MD with material recorded from analog sources (analog records or FM programs, etc.) through the line input jack can be copied to another recordable MD through the digital output jack.

However, you cannot make subsequent copies from the recordable MD to other recordable MDs through the digital output jack. Subsequent copies can only be made through analog output jack.

Record player

Tuner

Cassette deck

Microphone amplifier

CD player

DAT deck

MD recorder

Playback

Line (analog) output jack

Audio connecting cord

MD recorder

Line (analog) input jack

Recording

A recordable MD recorded through the analog input jack

MD recorder

Digital output jack

Optical cable

Digital input jack

MD recorder

Playback

Recording

A recordable MD recorded through the digital input jack

MD recorder

Digital output jack

Optical cable

Digital input jack

MD recorder

Line (analog) output jack

Audio connecting cord

Line (analog) input jack

Playback

Recording

# Index