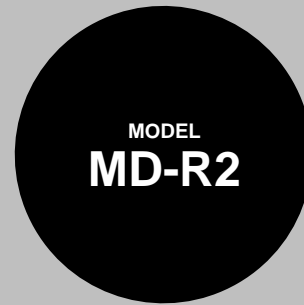


SHARP

MINIDISC DECK OPERATION MANUAL



Thank you for purchasing this SHARP product.
For the best performance, read this manual carefully.
It will guide you in operating your SHARP product.

FOR YOUR RECORDS

For your assistance in reporting this unit in case of loss or theft, please record below the model number and serial number which are located on the rear of the unit.

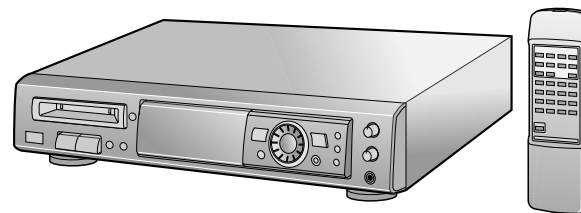
Please retain this information.

Model number _____

Serial number _____

Date of purchase _____

Place of purchase _____



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

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.



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

Caution - use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

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

Note:

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

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

WARNING

FCC Regulations state that any unauthorized changes or modifications to this equipment not expressly approved by the manufacturer could void the user's authority to operate this equipment.

- It is the intent of Sharp that this product be used in full compliance with the copyright laws of the United States and that prior permission be obtained from copyright owners whenever necessary.
- US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

IMPORTANT SAFEGUARDS

CAUTION

All the safety and operating instructions should be read before the appliance is operated, and should be retained for future reference.

Electrical energy can perform many useful functions. This unit has been engineered and manufactured to assure your personal safety. Improper use can result in potential electrical shock or fire hazards. In order not to defeat the safeguards, observe the following basic rules for its installation, use and servicing.

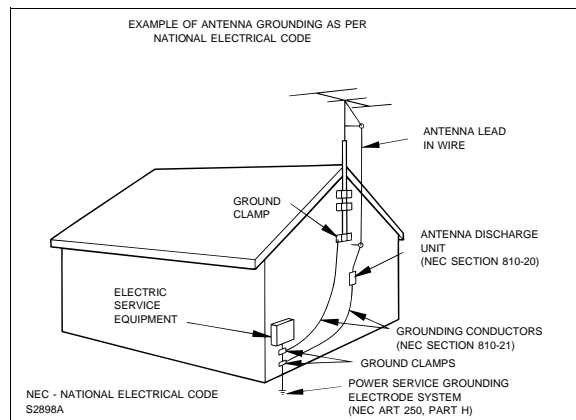
- 1 Heed Warnings - All warnings on the appliance and in the operating instructions should be adhered to.
- 2 Follow Instructions - All operating and use instructions should be followed.
- 3 Water and Moisture - The appliance should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.
- 4 Carts and Stands - The appliance should be used only with a cart or stand that is recommended by the manufacturer.

- An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.



- 5 Wall or Ceiling Mounting - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
- 6 Ventilation - The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
- 7 Heat - The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
- 8 Power Sources - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
- 9 Power-Cord Protection - Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
- 10 Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- 11 Power Lines - An outdoor antenna should be located away from power lines.

- 12 Outdoor Antenna Grounding - If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

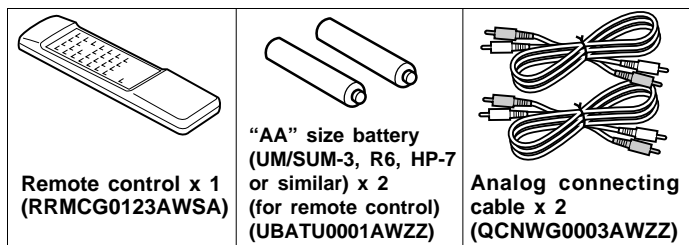


- 13 Nonuse Periods - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
- 14 Object and Liquid Entry - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
- 15 Damage Requiring Service - The appliance should be serviced by qualified service personnel when:
 - A The power-supply cord or the plug has been damaged; or
 - B Objects have fallen, or liquid has been spilled into the appliance; or
 - C The appliance has been exposed to rain; or
 - D The appliance does not appear to operate normally or exhibits a marked change in performance; or
 - E The appliance has been dropped, or the enclosure damaged.
- 16 Servicing - The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.
- 17 Grounding or Polarization - Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

CONTENTS

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ACCESSORIES



Note:

Parts and accessories mentioned in this operation manual other than those shown to the left are not included.

FEATURES

Recordings start automatically when the external sound source starts to produce sound.

Comes with a sound synchro recording function, which allows the unit to automatically begin recording when the external equipment starts playing back. Lets you make MiniDisc recordings easily.

DAT tapes can be digitally recorded directly onto a MiniDisc.

The MiniDisc unit has a built-in sampling rate convertor which allows the unit to be connected to various types of digital equipment. You can record from a large variety of digital formats.

The recording time is doubled if you record in the monaural mode.

Comes with a monaural long-recording mode which doubles the recording time. Best suited for recording monaural broadcasts or talk programmes.

Supports various types of digital/analog equipment

Two digital input jacks and two analog input jacks are built in. They allow the unit to be connected to stereos or head-phone stereos.

Track selection with a jog dial

A jog dial makes it much easier to control the MD unit. It is easy to select track numbers or enter characters.

Timer function/date stamp function

If the unit is used with other equipment that also has a timer function, timer recording and timer playback are possible. Also, the year, month, day, and time are automatically recorded on the MiniDisc.

PRECAUTIONS

■ General

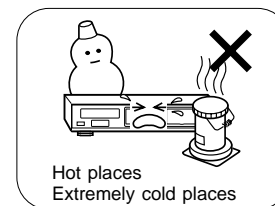
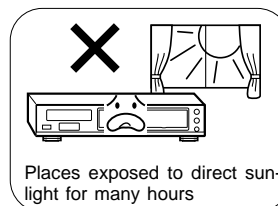
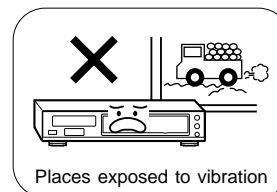
- Do not use oil, solvents, petrol, paint thinners or insecticides on the unit.
- Do not expose the unit to moisture, to temperatures higher than 60°C (140°F) or to extreme low temperatures.
- Keep the unit away from direct sunlight, strong magnetic fields, excessive dust, humidity and electronic/electrical equipment (home computers, facsimiles, etc.) which generates electrical noise.
- Hold the AC power plug by the head when removing it from the AC outlet, since pulling the jack can damage internal wires.
- Never open the cabinet. If a foreign object drops into the set, contact your dealer.
- Use the unit on a firm, level surface free from vibration, and do not place anything on the top of the unit.
- If the unit does not work properly while in use, press the POWER button to turn the power off, then disconnect the AC power cord from the AC outlet. Plug the AC power cord back in, and then press the POWER button to turn the power on.
- If a lightning storm is taking place near you, it is suggested that you disconnect the AC power cord from the AC outlet for safety.

Warning:

The voltage used must be the same as that specified on this unit. Using this product with a higher voltage than that which is specified is dangerous and may result in a fire or other type of accident causing damage. SHARP will not be held responsible for any damage resulting from use of this unit with a voltage other than that which is specified.

■ Installation location

Do not install the unit in the following places. Otherwise, it may cause trouble or accidents.



- Places exposed to high humidity.
- Places exposed to excessive dust.
- Poorly ventilated places.
- Places exposed to water, for example, a bathroom.
- Places near objects which generate magnetism or electric noise.

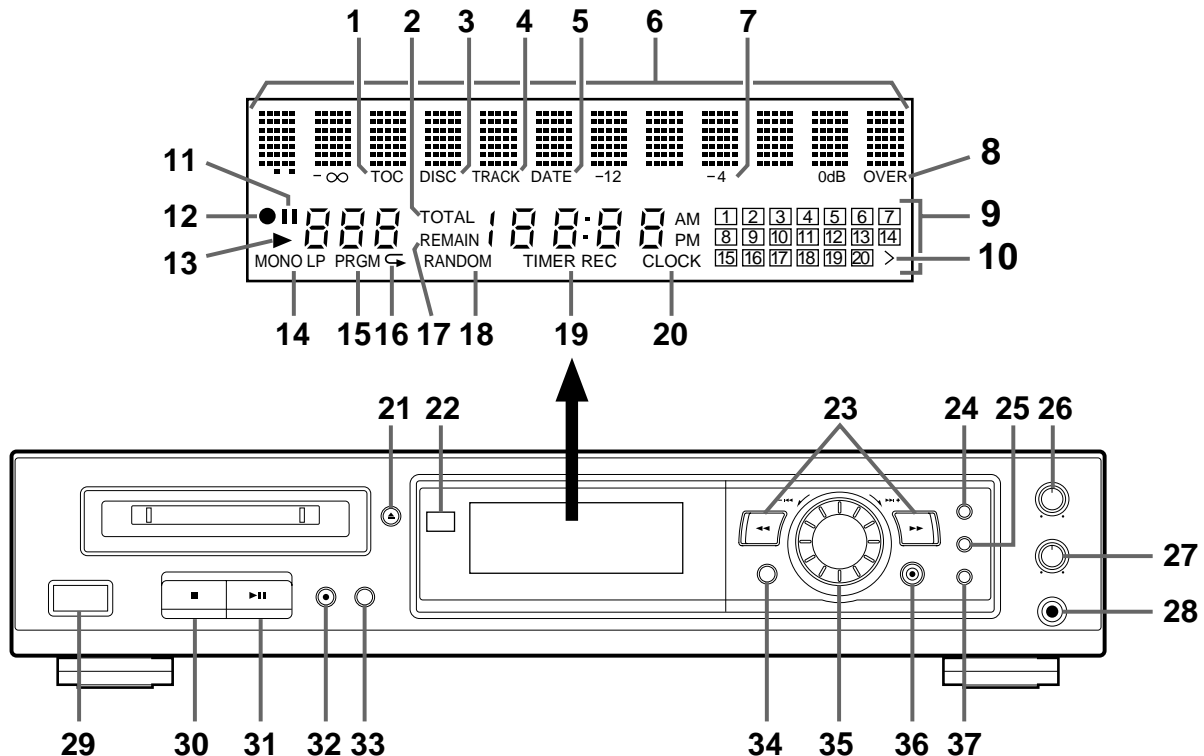
■ Condensation

In the following cases, condensation (water droplets) may form inside of the unit (optical section).

- Just after lighting a gas stove.
- When the unit is put in a room where steam or moisture is present.
- When the unit is carried from a cool place (room) to a warm room.

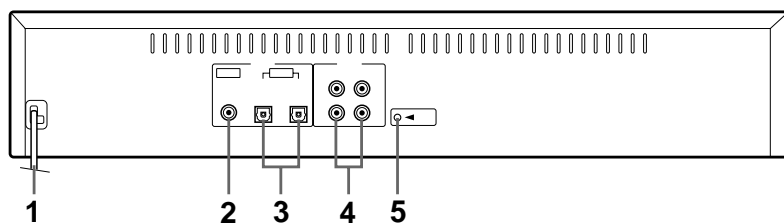
NAMES OF CONTROLS AND INDICATORS

■ Front panel



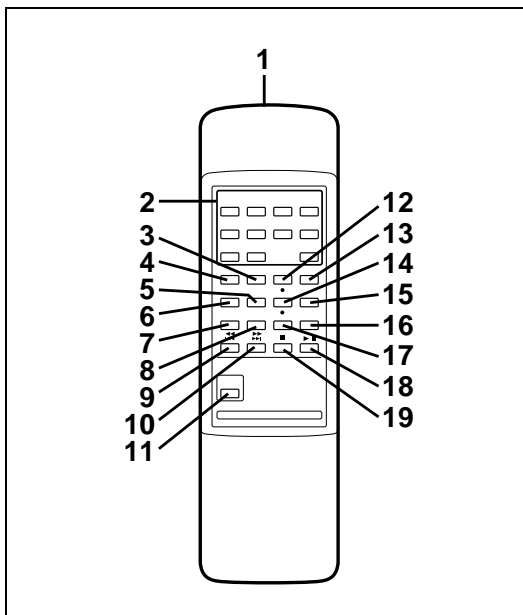
- | | | |
|--|--|-------------------------------|
| 1. TOC Indicator: TOC | 16. Repeat Indicator: | 33. Input Select Button |
| 2. Total Time Indicator | 17. Remaining Time Indicator | 34. Program Button |
| 3. Disc Name Indicator | 18. Random Play Indicator | 35. Jog Dial (Next/Previous) |
| 4. Track Name Indicator | 19. Timer Playback/Timer Recording Indicator | 36. Enter Button |
| 5. Date Indicator | 20. Clock Indicator | 37. Delete/Clear/Timer Button |
| 6. Level Meter/Character Information Display | 21. Eject Button: | |
| 7. Recording Level Indicator | 22. Remote Sensor | |
| 8. Recording Level Too High Indicator | 23. Cue/Review Button: | |
| 9. Music Calendar | 24. Display/Character Button | |
| 10. More Tracks Indicator | 25. Name/TOC Edit Button | |
| 11. Pause Indicator: | 26. Record Level Control | |
| 12. Record Indicator: | 27. Headphone Level Control | |
| 13. Play Indicator: | 28. Headphone Jack | |
| 14. Monaural Long-Play Mode Indicator | 29. Power Button | |
| 15. Program Indicator | 30. Stop Button: | |
| | 31. Play/Pause Button: | |
| | 32. Record Button: | |

■ Rear panel



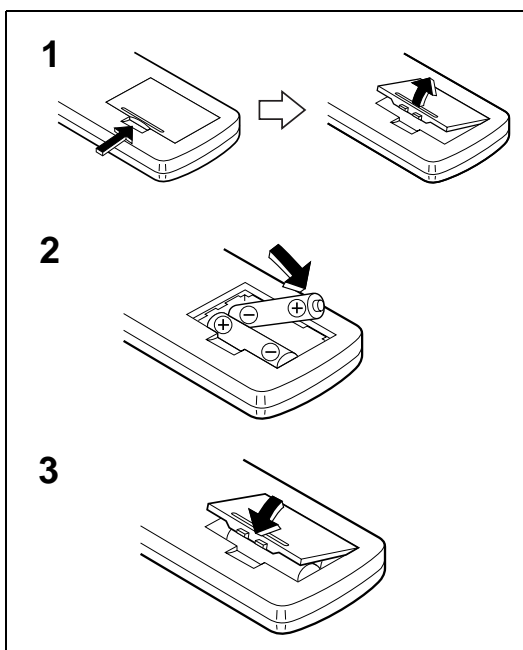
1. AC Power Cord
2. Coaxial Input Jack (Digital)
3. Optical Input/Output Jacks (Digital)
4. Line Input/Output Jacks (Analog)
5. Reset Button

REMOTE CONTROL



Names of controls

1. Remote Control Transmitter Window
2. Direct Key Buttons
3. Play Mode Button
4. Music Scan Button
5. Input Select Button
6. Display Button
7. Time Button
8. Auto Mark Button
9. Track Down/Review Button: ◀◀/◀
10. Track Up/Cue Button: ▶/▶▶
11. Power Button
12. Program Button
13. Clear Button
14. Synchro Record Button: ●
15. Record Cancel Button
16. Record Mode Button
17. Record Button: ●
18. Play/Pause Button: ▶||
19. Stop Button: ■



Loading the batteries for the remote control

- 1 Remove the battery compartment cover.
- 2 Insert 2 "AA" size batteries (UM/SUM-3, R6, HP-7 or similar) into the battery compartment.
 - When inserting the batteries, push them toward the ⊖ battery terminals.
 - Placing the batteries the wrong way round may cause the unit to malfunction.
- 3 Replace the battery compartment cover.

Battery removal:

- Push the batteries toward the ⊖ battery terminals and remove them.

Precautions for battery use:

- Insert the batteries according to the direction indicated in the battery compartment.
- Replace all batteries with new ones at the same time.
- Remove the batteries if weak or if the unit is not in use for long periods to prevent potential damage due to battery leakage.
- Do not mix old and new batteries.

Caution:

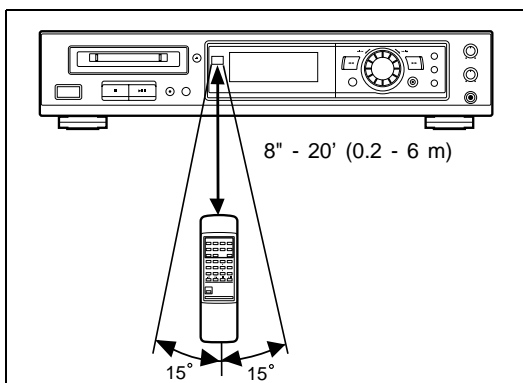
Do not use rechargeable batteries (nickel-cadmium battery, etc.).

Proper use of the remote control

Aim the remote control at the remote control sensor within 30° with no obstacles, and operate as shown.

Notes concerning use:

- Replace the batteries if the control distance decreases or operation becomes erratic.
- Periodically clean the transmitter window on the remote control and the sensor on the main unit with a soft cloth.
- Exposing the sensor on the main unit to strong light may interfere with operation. Change the lighting or the direction of the unit.
- Keep the remote control away from moisture, excessive heat, shock, and vibrations.
- The remote control's usable range is between 8" (0.2 m) and 20' (6 m) away from the sensor.

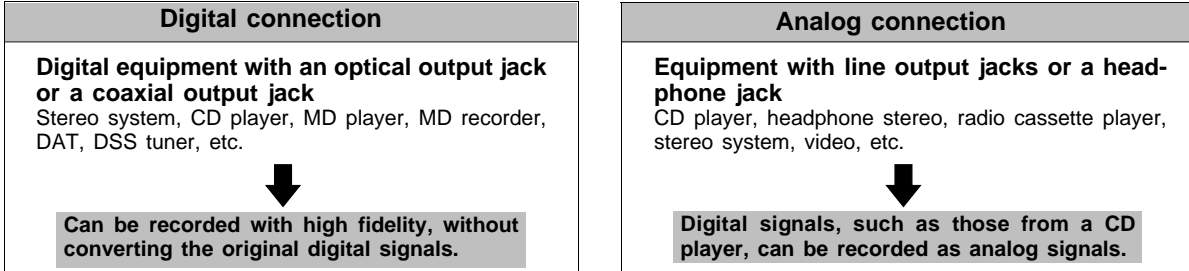


CONNECTIONS

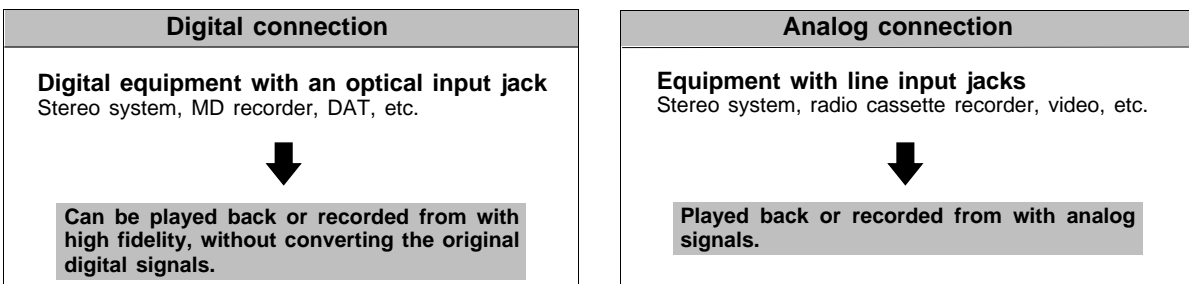
Digital and analog connections

This unit can be connected to your equipment by making a digital or analog connection.

- When recording the playback signals from other equipment using this unit



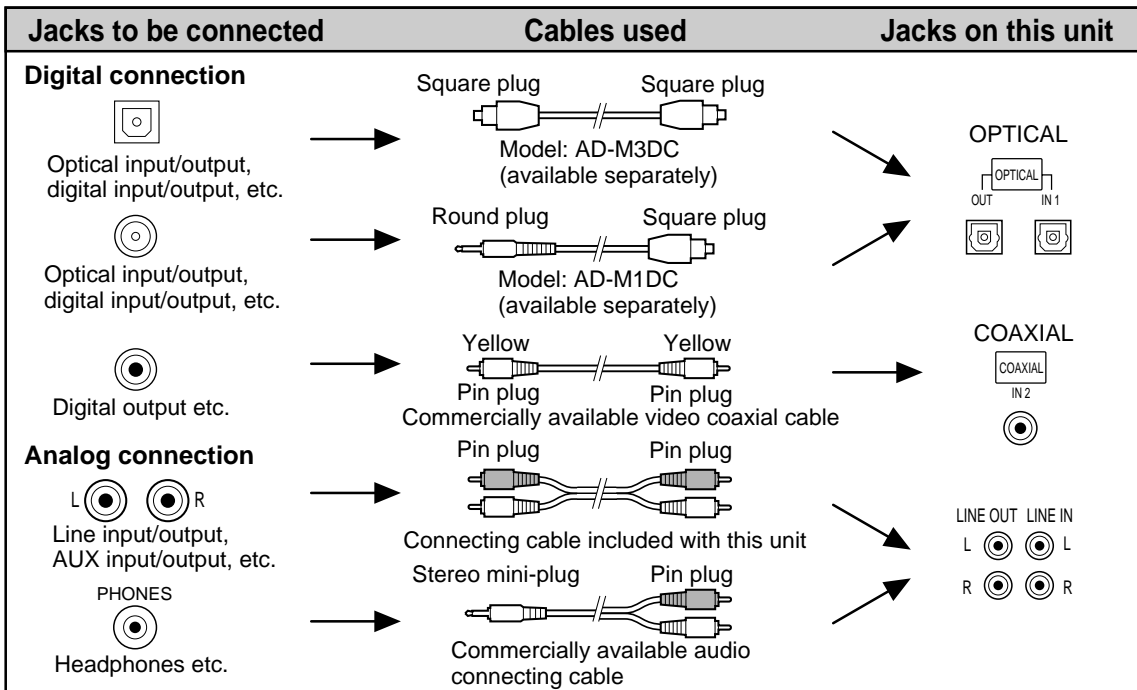
- When listening to a recording on this unit or recording its output on other equipment



- Depending on the digital equipment, the sampling frequency may be different (DAT etc.) from this unit's sampling frequency. This unit supports these digital devices using an automatic switching function (**Sampling rate converter: 32 kHz, 48 kHz → 44.1 kHz automatically switched**).

About the connecting cables

The type of cables required to make connections depends on the type of signal (digital/analog) and input/output jacks on the equipment being connected to the MD recorder. Check the shape of the jacks carefully before making connections.

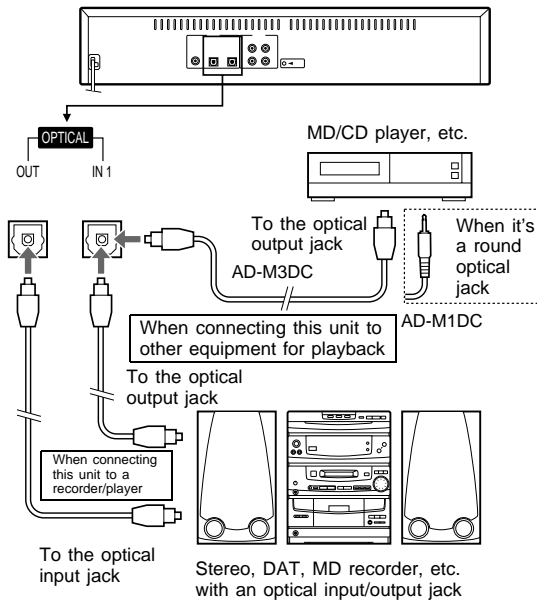


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■ When making a digital connection

When connecting the unit to equipment that has square/round optical jacks:

Connect the other equipment to the "OPTICAL jacks" on the back of this main unit.

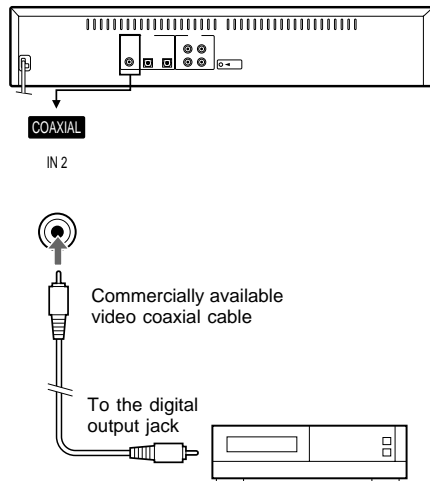


- If this unit is connected to a stereo, the digital audio section of a CD (or other digital source) can be recorded. When recording from a cassette tape, radio broadcast, etc. an analog connection is required.

When connecting this unit to equipment that has a coaxial jack:

Connect the other equipment to the "COAXIAL jack" on the back of this main unit.

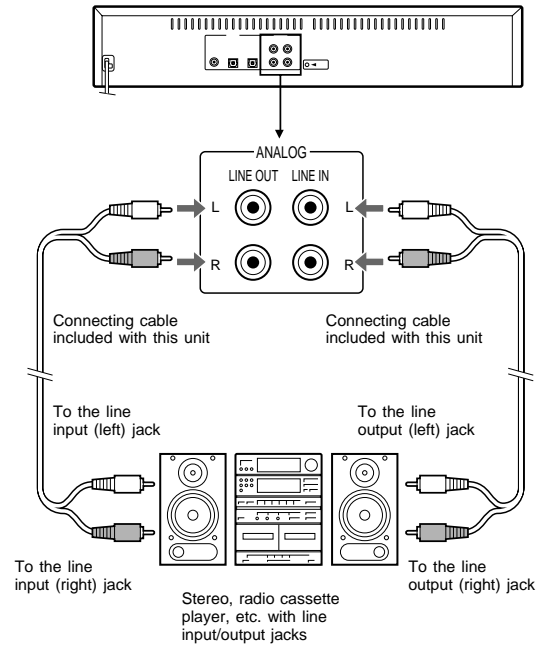
- The coaxial connection is only an input to this unit.



■ When making an analog connection

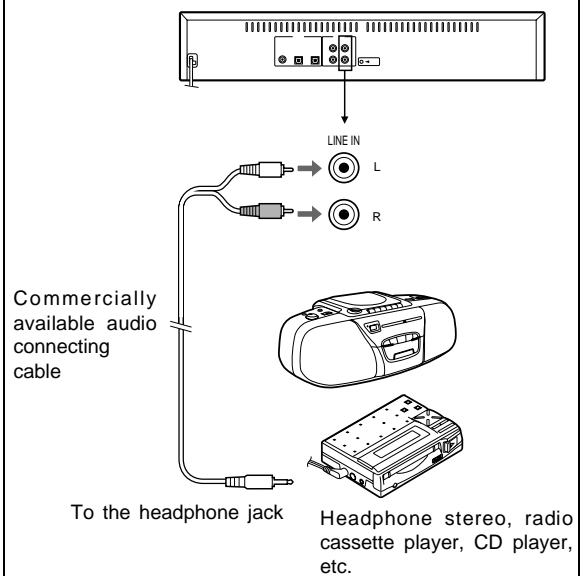
When connecting the unit to equipment that has line jacks:

Connect the other equipment to the "ANALOG jacks" on the back of this main unit.



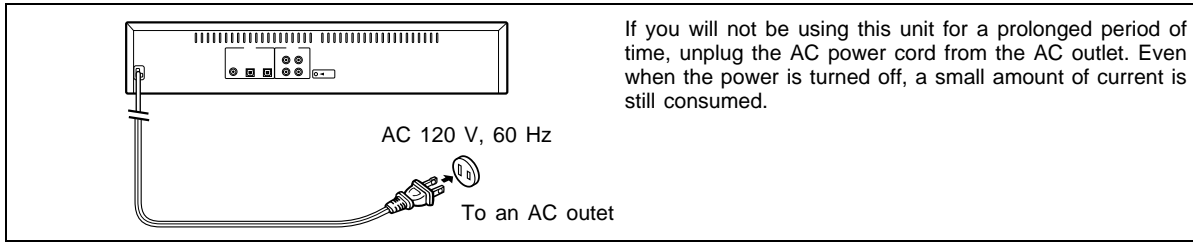
When connecting this unit to equipment that only has a headphone jack:

Connect the other equipment to the "LINE IN jacks" on the back of this main unit.



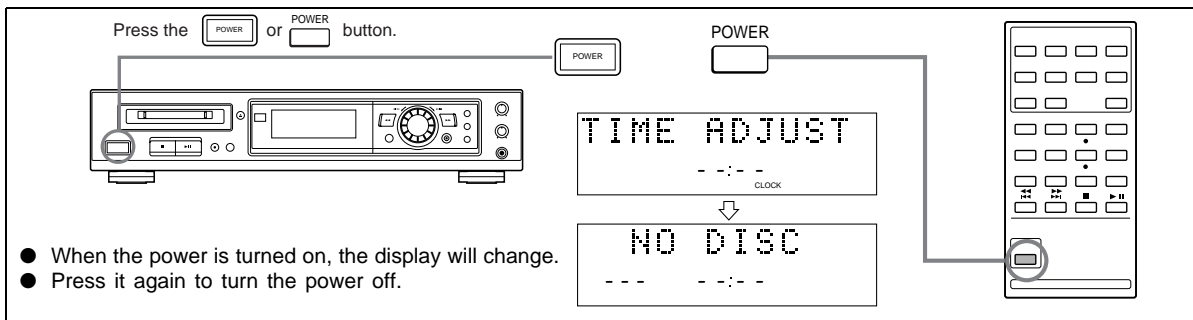
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■ Connecting the AC power cord



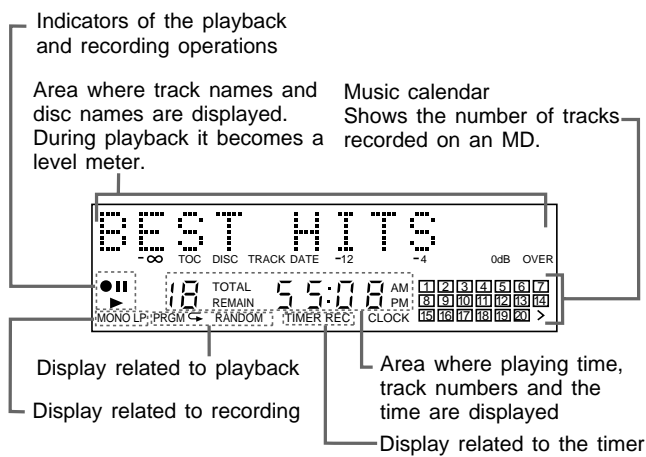
If you will not be using this unit for a prolonged period of time, unplug the AC power cord from the AC outlet. Even when the power is turned off, a small amount of current is still consumed.

■ How to turn the power on or off



■ How to read the display

Various messages, describing the operations and contents of MiniDiscs are displayed in the display section.



To change the brightness of the display

Turn the power on and hold down the **DISPLAY/CHARACTER (DISPLAY)** button for more than two seconds.

DISPLAY/CHARACTER / DISPLAY **DIMMER ON**

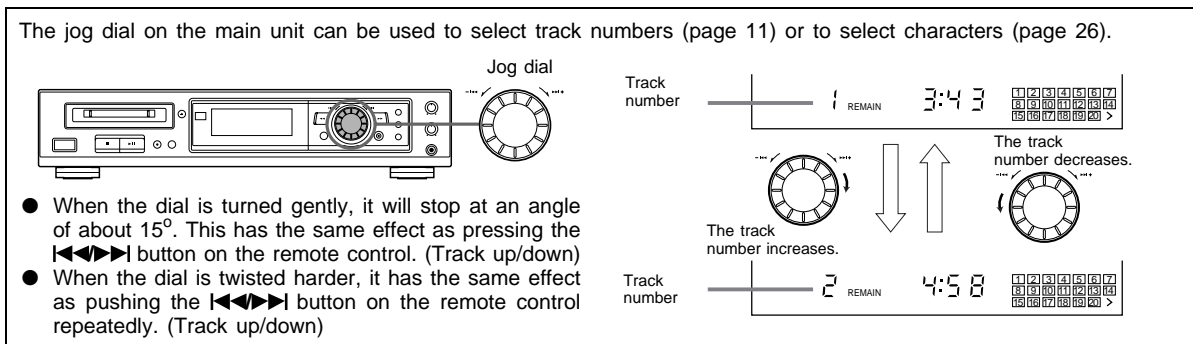
- The "DIMMER ON" display will appear, and the display will be dimmer.

To return to the original brightness, hold down the **DISPLAY/CHARACTER (DISPLAY)** button for more than two seconds.

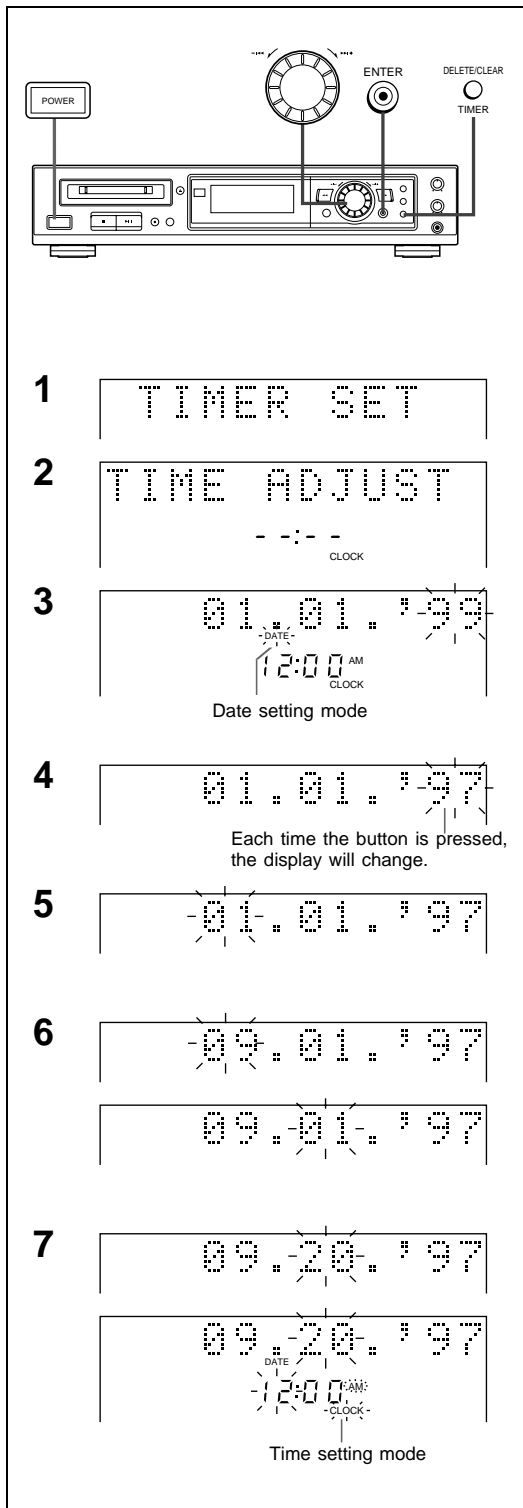
DISPLAY/CHARACTER / DISPLAY **DIMMER OFF**

- The "DIMMER OFF" display will appear, and the original brightness is retrieved.

■ Jog Dial



SETTING THE CLOCK

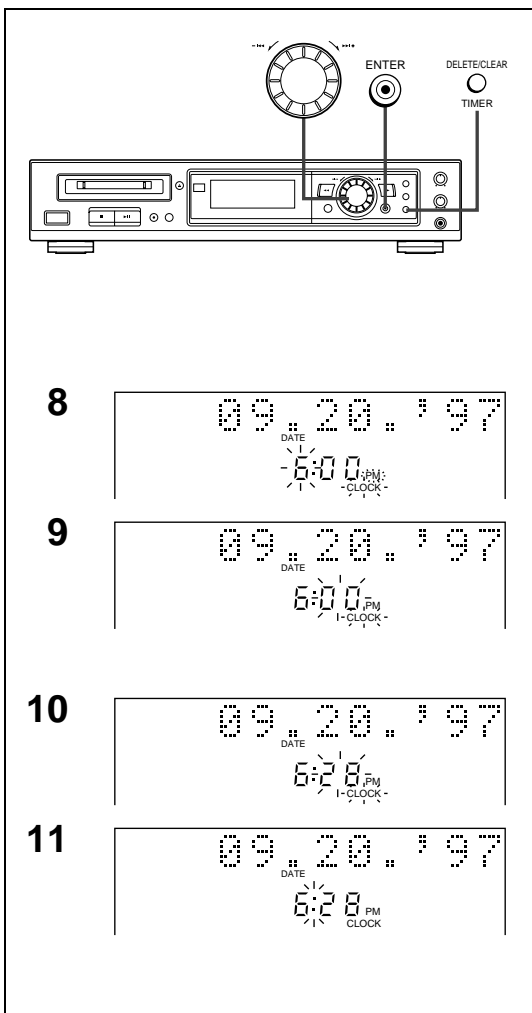


When recording, the date and time are recorded on the Minidisc (page 15).

■ Setting the date

- 1** Press the POWER button to turn the power on and press the TIMER button.
- 2** Within 10 seconds, turn the jog dial until "TIME ADJUST" appears.
- 3** Within 10 seconds, press the ENTER button.
 - The unit will enter the date setting mode.
- 4** Set the "year" using the jog dial.
 - When you turn the jog dial and let go, the year will change up or down by one.
 - The year 2000 or later is set as follows:
[00] indicates the year 2000
[01] indicates the year 2001
 - The range of dates that can be entered is from January 1, 1997 to December 31, 2099.
- 5** Press the ENTER button to set the "year".
- 6** Set the "month" repeating steps 4 and 5.
- 7** Set the "day" repeating steps 4 and 5.
 - The unit will enter the time setting mode.

(Continued)



■ Setting the time

After step 7, described in the "Setting the date" section

- 8** Set the "hour" using the jog dial.
 - When you turn the jog dial and let go, the hour will change up or down by one. When you turn and hold it, the hour will change continuously.
 - The clock uses the 12-hour system. Pay attention to the AM or PM indicator in the display.
AM 0:00 → midnight, PM 0:00 → noon
- 9** Press the ENTER button to set the "hour".
- 10** Adjust the "minute" using the jog dial.
- 11** Press the ENTER button to set the "minute".
 - When the ENTER button is pressed, the clock will show the correct time.

Checking the date and time

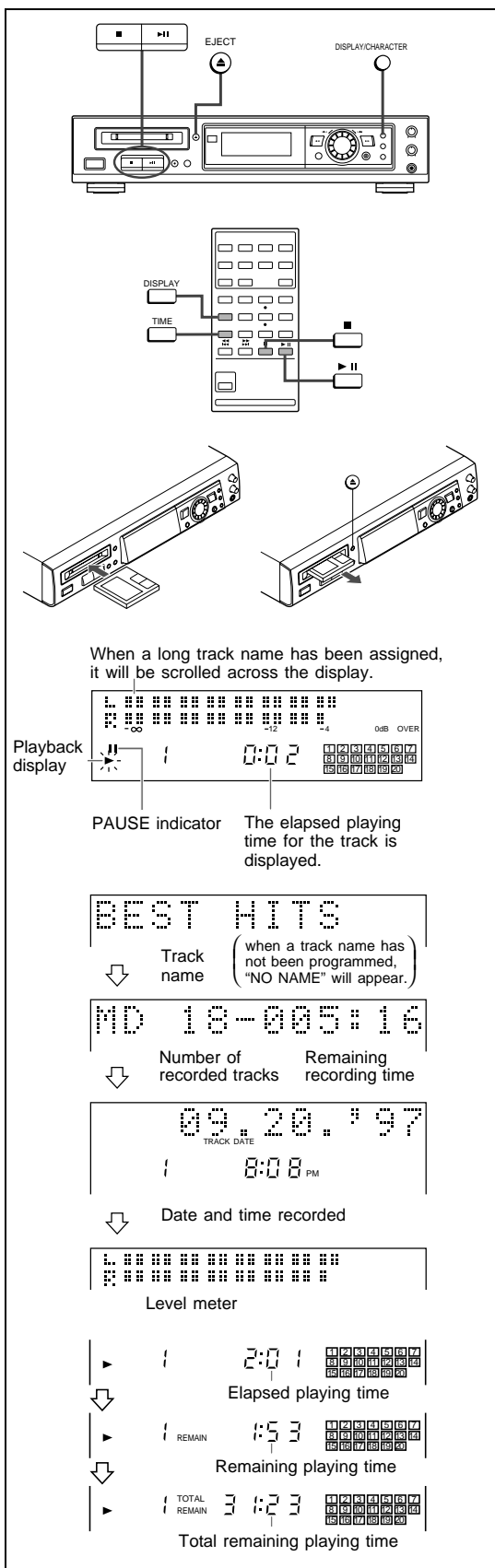
After pressing the TIMER button, turn the jog dial until the date and time are displayed.

Resetting the date and time

See "Setting the clock".

- Once you have set the date and time, "TIME ADJUST" will not be displayed in step 2. Turn the jog dial to make the date and time appear.
- If you do not need to change the settings, just press the ENTER button without turning the jog dial again.

PLAYING A MINIDISC



■ Playback

- 1 Switch the external unit to the MD unit input.
- 2 Load a MiniDisc in the direction indicated by the arrow on the MiniDisc, with the label side facing up.
(Insert the MiniDisc firmly, until a click is heard.)
- 3 Press the ►|| button to start playback.
 - The "►" indicator will light up.
 - When the last track has been played back, this unit will stop automatically.
 - To stop playback before the last track has finished playing, press the ■ button.

To remove a MiniDisc:

- Press the ▲ button.
- The MiniDisc will be ejected.
 - If a MiniDisc has been left in the unit for several hours, when it is removed it will be warm to the touch. This is normal.

To interrupt playback:

- Press the ►|| button during playback.
- To resume playback, press the ►|| button again.

To check a track name or the date of a recording during playback:

- Press the DISPLAY/CHARACTER (DISPLAY) button during playback or while the unit is in the pause mode.
- Each time this button is pressed, the display will switch.
 - In the following cases, disc names, track names and recording dates will not be displayed.
 - A MiniDisc that has not been given a disc name or track name
 - A MiniDisc that does not have a recording date on it

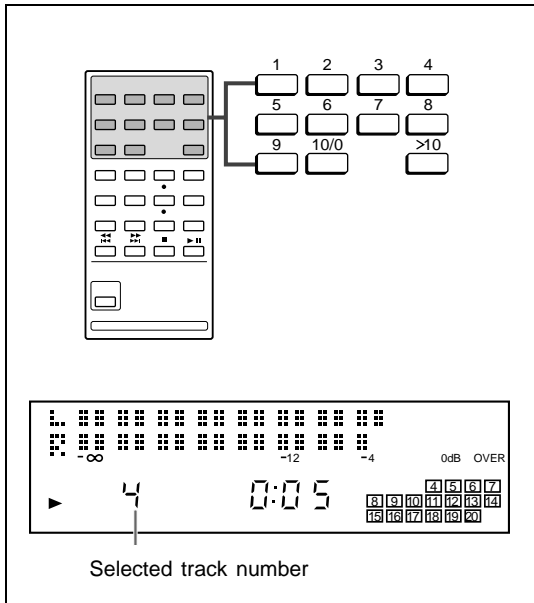
To check the playing time during playback:

- (Remote control operation)
- Press the TIME button on the remote control during playback or while the unit is in the pause mode.
- Each time this button is pressed, the display will switch.

Note:

- Although MiniDiscs will not normally skip due to vibration, you may hear a skip in the sound if there is a continuous vibration. When you listen to MiniDiscs near a radio or a TV set, the radio or the TV set may pick up noise. Keep the unit as far away as possible from tuners.

(Continued)



■ Track number selection (Remote control operation)

Specify a track number, and playback will start from that track.

To select a track number directly:

Press the desired DIRECT KEY button.

- Playback will start from the specified track.
- To select any track number from the 11th to the 99th track

■ 11th track to 99th track

After pressing [**>10**], enter the track number by pressing the numbers on the keypad.

Example: 28th track

[**>10**] → [**2**] [**8**]

■ To select any track number from the 100th track on

After pressing [**>10**] twice, enter the track number by pressing the numbers on the keypad.

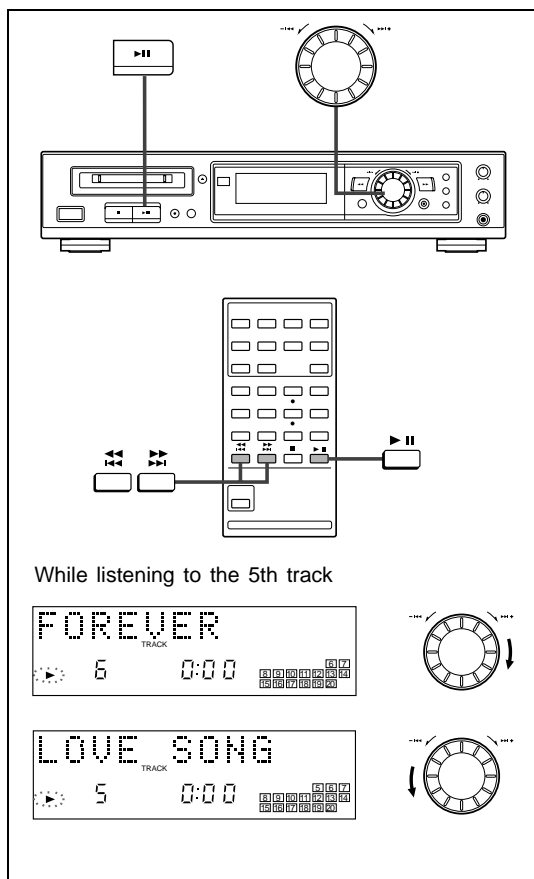
Example: 105th track

[**>10**] [**>10**] → [**1**] [**0/0**] [**5**]

- You cannot select any track number larger than the number of tracks on a particular MiniDisc.
- Press the next button within 5 seconds.

Note:

- During APMS play or random play, track number selection play is not possible.



■ APSS (Auto Program Search System)

APSS automatically locates the beginning of each track.

To move to the beginning of the next track:

During playback ... Turn the jog dial clockwise.
Or press the ▶▶ button on the remote control.

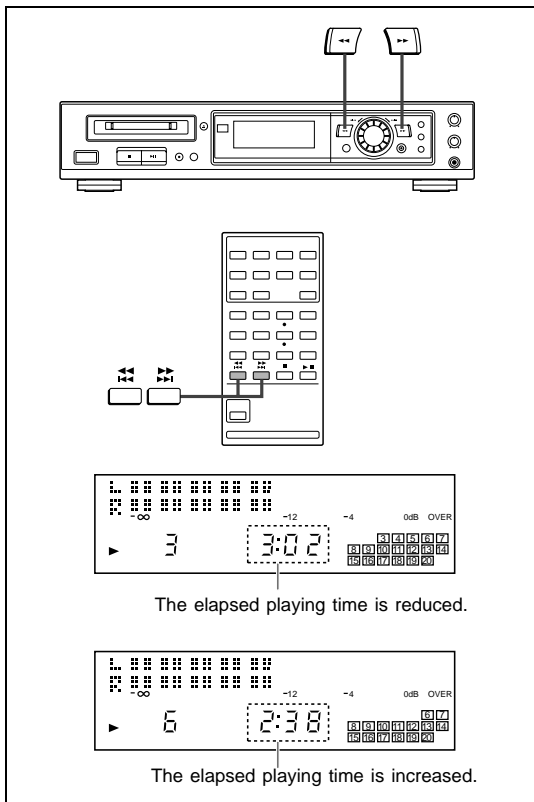
To restart the track being played:

During playback ... Turn the jog dial counterclockwise.
Or press the ◀◀ button on the remote control.

When using the jog dial while in the stop mode:

Every time the jog dial is turned (or each time the ◀◀ or ▶▶ button on the remote control is pressed), the track number will go up or down by one. If you press the ▶|| button, playback will begin from the track being displayed.

(Continued)



■ Cue and review

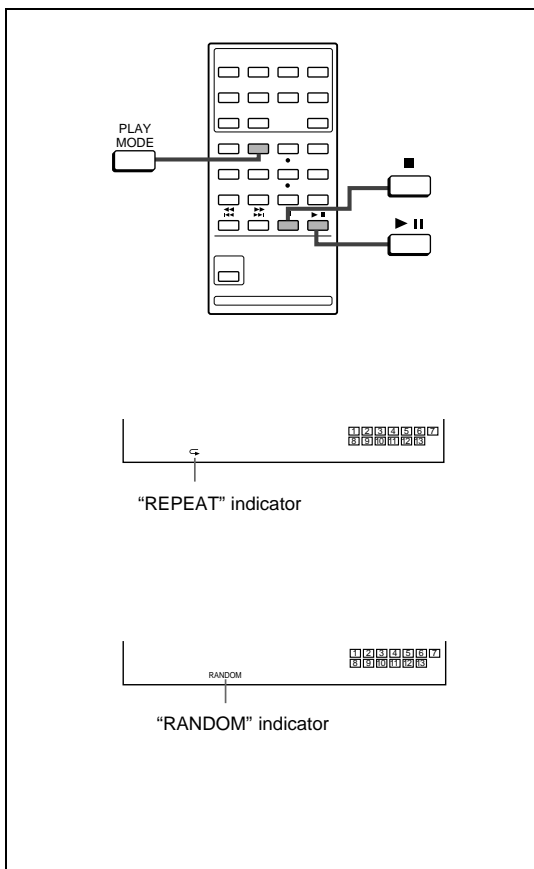
Hold down the ►► button during playback for audible fast forward, or hold down the ◀◀ button during playback for audible fast reverse.

- Normal playback will resume when the ◀◀ or ►► button is released.
- When the beginning of the first track is reached, normal playback will start.
- When the end of the last track is reached, "DISC END" will light, and the unit will pause.
If you want to listen to a portion of a track again, press and hold the ◀◀ button to return to the point in the track you want to listen to. Normal playback will start from that point.

To search very quickly:

When fast forward or fast reverse is used while in the pause mode, the playback point will move more quickly than when using audible fast forward or audible fast reverse playback.

- In this mode, no sound is heard. Therefore, you must refer to the time display.
- When you lift your finger, the unit will re-enter the pause mode.



■ Repeat play/random play

(Remote control operation)

1 Press the PLAY MODE button.

- Each time this button is pressed, the mode will change in the following order:

Repeat play → Random play → Normal play

2 Press the ►|| button to start playback.

- When all of the tracks have been played in random order, the unit will stop automatically.

To stop playback:

Press the ■ button.

To cancel repeat play or random play:

Press the PLAY MODE button until "◀" or "RANDOM" disappears.

- When a MiniDisc is removed, the repeat play or random play mode will be canceled.

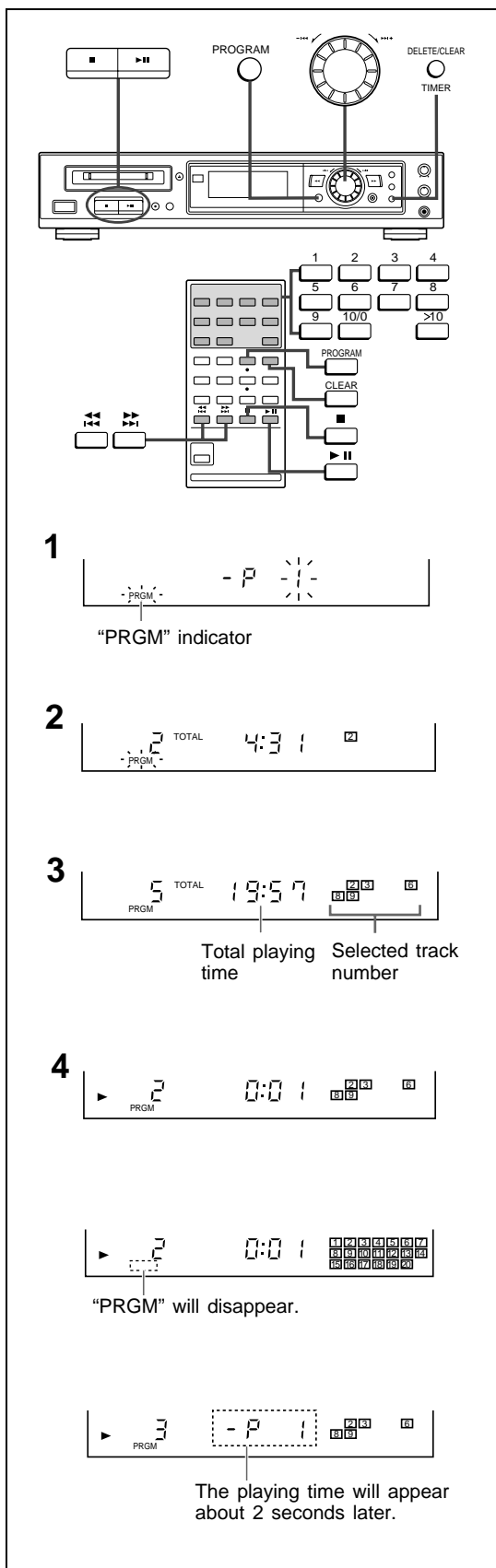
To repeat playback of selected tracks:

Enter the program for the tracks you want and start repeat play. You can program a single track and play it repeatedly.

Note:

- During APMS play, random play is not possible.

(Continued)



■ APMS

(Automatic Programmable Music Selector)

- 1 Press the PROGRAM button while in the stop mode.
 - Programs cannot be set or canceled while in the playback or pause mode.
- 2 Select a desired track number by pressing the DIRECT KEY button on the remote control.
 - Repeat steps 1 and 2 for any track. Up to 20 tracks can be programmed.
 - If the total program playing time exceeds 199 minutes and 59 seconds, "— : —" will appear. However, the programmed selections will still be memorized.
- 3 Press the ■ button.
- 4 Press the ►|| button to start playback of the programmed selections.
 - After all of the programmed tracks have finished playing, the unit will automatically stop.

To clear the programmed selections:

Press the DELETE/CLEAR (CLEAR) button while the "PRGM" indicator is flashing.

- Each time the button is pressed, one track will be cleared, beginning with the last track programmed.

To cancel the APMS:

While the unit is stopped in the APMS mode, press the CLEAR button on the remote control to turn off "PRGM".

When you use the DELETE/CLEAR button on the main unit, all of the programmed contents will be erased by holding it down for at least 2 seconds. (If you simply press this button briefly, the unit will enter the timer mode.)

- The program contents will be erased.
- If a MiniDisc is removed or when the unit enters the recording standby mode, the APMS mode will be canceled.

To check which tracks are programmed:

While the unit is stopped in the APMS mode, turn the jog dial. Or press the ◀◀ or ▶▶ button on the remote control.

- When the jog dial is turned clockwise, the next track number will appear. When it is turned counterclockwise, the previous track number will appear.

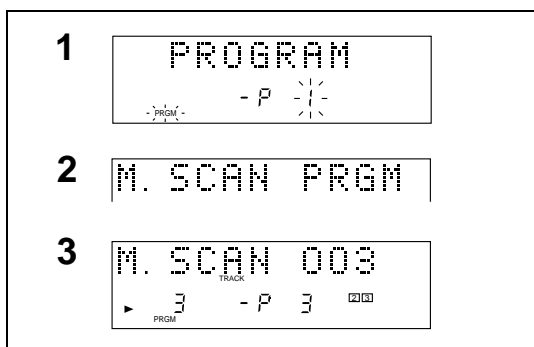
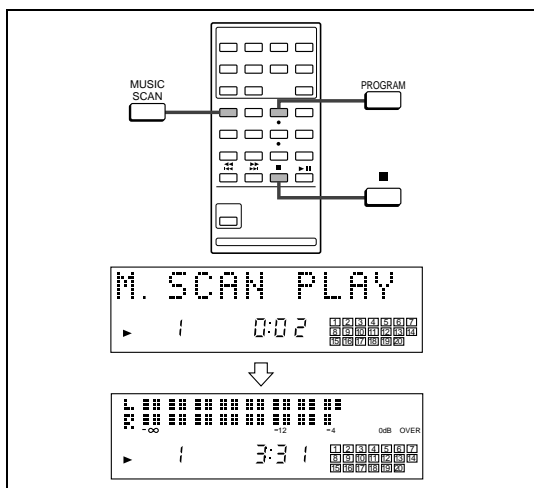
To add tracks to the APMS:

When a program has been entered ("PRGM" will be lit), perform steps 1 - 4. Additional tracks can be selected and they will be stored after the last track you entered.

Note:

- It is not possible to insert an additional track between programmed tracks that have already been entered.

(Continued)



■ Music scan play

When the MUSIC SCAN button on the remote control is pressed while in the stop mode, music scan play will start, previewing the tracks from the first to last in order.

- "M.SCAN PLAY" will appear.

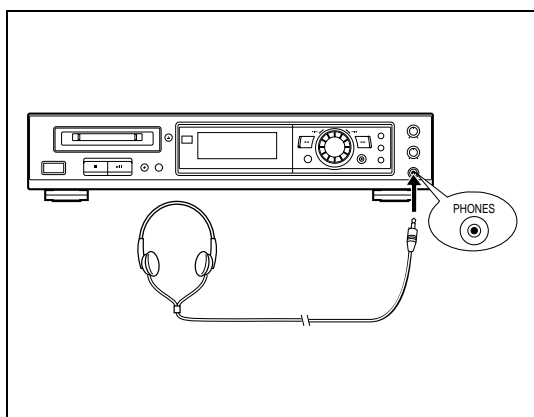
To stop music scan play:

Press the ■ button.

To program selected tracks during music scan play: (Music scan program selection)

During music scan play, the current track being previewed can be stored in memory.

- 1 Press the PROGRAM button.
 - "PRGM" will flash.
- 2 Press the MUSIC SCAN button.
 - "M.SCAN PRGM" will appear.
- 3 Press the PROGRAM button while playing the beginning of a track to be stored in memory.



■ Connecting headphones

This unit can be used with commercially available headphones. Plug them into the PHONES jack on the front of the unit.

About headphones

Use headphones that have an impedance between 8 ohms and 50 ohms (recommended: 32 ohms).

■ Listening to music through headphones

When headphones are connected to the unit and a MiniDisc is played, you can hear the recording.

- It is not necessary to supply power to any other equipment, such as a stereo, which is connected to the unit.

To adjust the headphone volume:

Rotate the PHONE LEVEL control toward MAX to increase the volume, and toward MIN to decrease the volume.

RECORDING

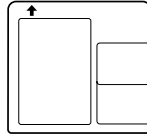
■ Differences from tape recordings

You cannot record music on the reverse side of a MiniDisc.

MiniDiscs cannot be incorrectly inserted, i.e. upside down. (Page 35)

You don't need to search for the starting point at which to record.

The unit automatically finds the point at which recording can start. Recording will start from that point.



You can check the total or remaining recordable time (possible recording) before recording.

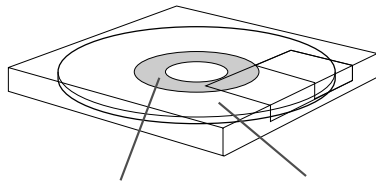
This lets you plan a recording session so that the last song will not come to an abrupt end before it has finished. (Page 17)

The date and time of a recording are automatically saved with the recording.

If you have set the date and time, they will be automatically recorded when a recording is made. (Page 10)

■ Disc writing (TOC)

MiniDiscs have one area in which the sound is recorded and another area where track number, track name, and disc name information is recorded.



Area for recording track numbers, track names, etc.

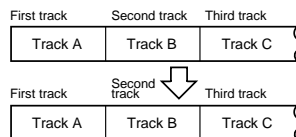
Area for recording the sound

First the sound is recorded on a MiniDisc, and then the information (TOC: Table of Contents) for finding the tracks is recorded. This TOC is vitally necessary for playback. Tracks can be edited by rewriting the TOC. When the POWER button is pressed to turn the power off or when the ▲ button is pressed to remove the MiniDisc, the current version of the TOC will be written on the disc. Therefore, after pressing the POWER button, do not jar the main unit. It may not be possible to perform playback properly if the TOC is not written correctly on the disc.

■ Track numbers are created automatically

When recording from another CD or MD using the digital connectors

When you make a digital recording from a CD player or another MD player, new track numbers will be created automatically for each track, regardless of the amount of silence between tracks. (Synchro marker function)



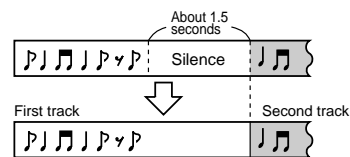
- When you record from a CD to a MiniDisc, the track numbers recorded on the MiniDisc may not match the track numbers on the CD.
- When recording from digital equipment such as DAT tape recorders, the synchro marker function will not work. The auto marker function will work the same way it does when recording from an analog input.
- When a DAT is recorded using the digital inputs and the DAT mode (sampling frequency) changes during the recording session, the track numbers will change. Very occasionally, some noise may be recorded. If this happens, you can edit out the noise after recording. (Page 22)

When recording from analog inputs

When making an analog recording, if there is 1.5 seconds or more of silence, the blank space is assumed to be the space between tracks, and a new track number will be created automatically.

This is called the auto marker function.

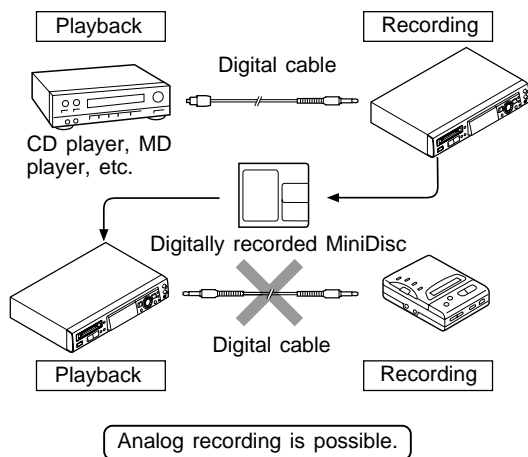
By creating track numbers, you can locate the beginning of the tracks.



- If you do not use the auto marker function, you can record musical selections as a single track.

(Continued)

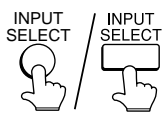
■ Note about making digital copies



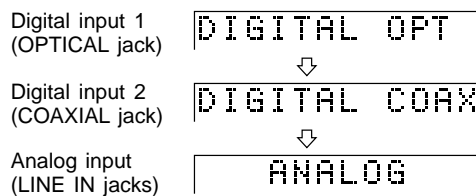
MiniDiscs are designed so that further copies cannot be made from digitally recorded MiniDisc tracks. This is a specification of the SCMS (Serial Copy Management System).

■ How to select the inputs

Press the INPUT SELECT button to select the input from which you want to record.



Each time the INPUT SELECT button is pressed, the input mode will appear for 1.5 seconds in the Character Information Display. Then, the display will return to the normal mode.



- Each time the button is pressed, the active input will be changed.

Recordings cannot be made in the following situations.

- If you try recording on a playback-only MiniDisc (commercially available music)
- If a MiniDisc is protected against accidental erasure (Page 34)
- If there is no more recording time left on the disc (Page 17)
- When the "TOC FULL" message appears (Page 37)
- If a disc's TOC has been damaged
- If you are trying to copy a digital signal that has been encoded with the SCMS signal (Serial Copy Management System)

About the recording level

■ When making a digital recording:

The recording level is automatically set the same as the level of the original.
It is not necessary to adjust the recording level.

■ When recording from analog inputs:

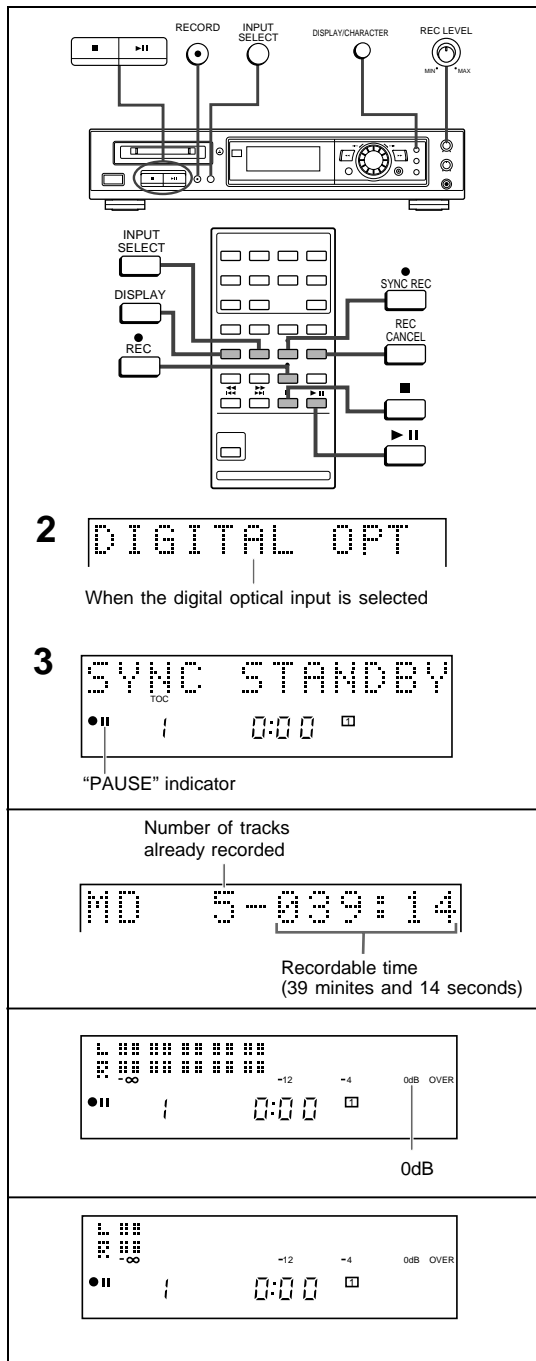
Before recording, adjust this unit's recording level. (Page 17)

- When this unit is connected to the headphone jack of some other equipment, the playback level of the other equipment should also be adjusted.
- When this unit is connected to line jacks on the other equipment, it is not necessary to adjust the playback level of the other equipment. (The playback volume of the other equipment will not have any effect on the recording.)

Note:

- When recording important selections, be sure to make a preliminary test to ensure that the desired material is being properly recorded.

(Continued)



■ Rec cancel

When the REC CANCEL button on the remote control is pressed during sound synchro recording or while the auto marker function is turned on and normal recording has been started, the recorded contents of the track will be erased and the unit will revert to the recording pause mode. (The unit will enter the normal recording standby mode.)

To start a sound synchro recording again, press the SYNC REC button on the remote control.

■ Sound synchro recording

When music is played on another piece of equipment, such as a stereo, that is connected to this unit, this unit will automatically start recording on the MD.

- 1 Insert a recordable MiniDisc.
- 2 Press the INPUT SELECT button to select the input. (Page 16)
 - If you will be recording from the analog input, adjust the recording level after selecting the input.
- 3 Press the SYNC REC button on the remote control.
 - The unit will enter the recording standby mode. "SYNC STANDBY" will appear.
- 4 Start playing the music you want to record using the other equipment.
 - This unit will automatically start recording. When the other equipment has finished playback, this unit will enter the recording standby mode. Press the ■ button to cancel it.
 - To stop recording at any time, press the ■ button.

To check the remaining recordable time:

Press the DISPLAY/CHARACTER (DISPLAY) button after inserting a recordable MiniDisc.

To adjust the recording level: (Analog input only)

After you select analog input in step 2, press the RECORD (REC) button, and then play the music on the other equipment.



Adjust the recording level using the REC LEVEL control.

- Adjust the recording level so that the maximum level does not exceed "0 dB".
- After the level is adjusted, stop the other equipment, and go to step 3.

Manual recording:

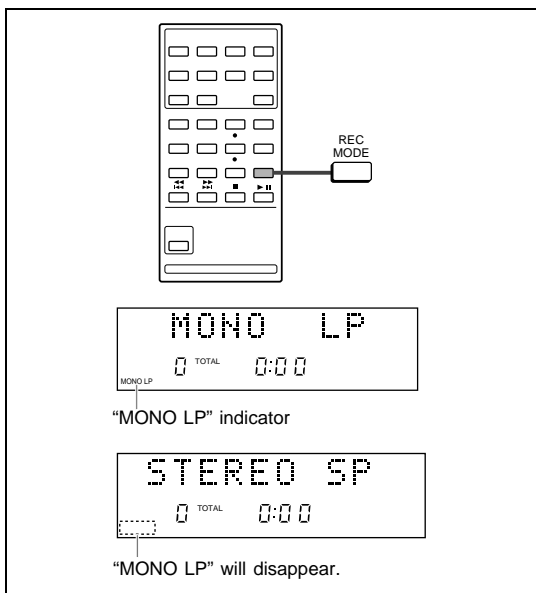
Select the input, and then press the RECORD (REC) button.

- The unit will enter the recording standby mode. Press the ►|| button.
- This unit will start recording.
- The space cut function will not work.

Space cut function:

- During sound synchro recording, if there are more than 3 seconds of silence in the playback sound, this unit will automatically enter the recording standby mode. ("SYNC STANDBY" will appear.) Then, when further playback is started on the other equipment, this unit will resume recording. (A silence of up to 3 seconds can be created between tracks.)
- If there is noise between the tracks on the original recording, the sound synchro recording or space cut function may not work properly. If this happens, use manual recording.
- When recording tracks or sounds in which there are 3 seconds or more of very small continuous sounds that you want to record, use manual recording.

(Continued)

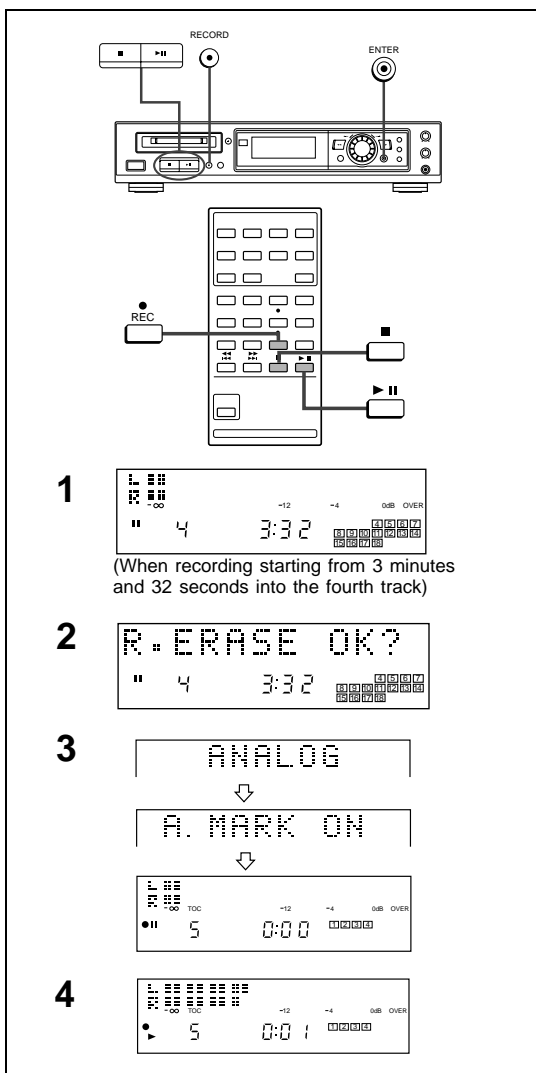


■ To record for a long time in the monaural mode (monaural long-play mode)

When a recording is made in the monaural long-play mode, it can be twice as long as the recording time available for a stereo recording. The monaural long-play mode is very useful for recording songs that were originally recorded in monaural, or for recording talk programs.

Press the REC MODE button on the remote control.

- Each time the button is pressed, the display will switch between the stereo mode and the monaural long-play mode.
- This mode cannot be changed while recording.
- The recording mode will not change back until you change it manually. After you have made a recording in the monaural long-play mode, it is recommended that you return the unit to the stereo mode so that you won't forget to do so later.



■ To re-record

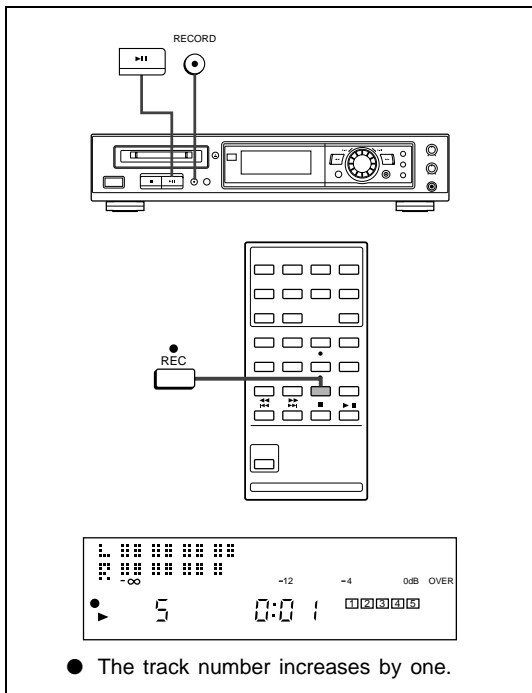
When you want to re-record, you can erase a track that is already recorded, starting from any point in the old track, to begin a new recording.

Be aware that when you do this, all of the tracks and track names that follow the newly recorded track will be erased.

If there are tracks that you do not want to erase, in the middle or end of a disc, erase a track that you don't want before that track, using the erase function, and then begin a new recording. If you want to erase all of the tracks and re-record the disc, you can erase all of the tracks using the all erase function. Then you simply perform the normal recording operations. (Page 25)

- 1 During playback, press the ►|| button at the point where you want to begin re-recording.
 - The unit will pause.
- 2 Press the RECORD (REC) button.
 - To cancel the operation, press the ■ button.
- 3 Press the ENTER button.
 - The unit will be in the recording pause mode.
- 4 Press the ►|| button.
 - The unit will start recording.

(Continued)



■ To create your own track numbers while recording

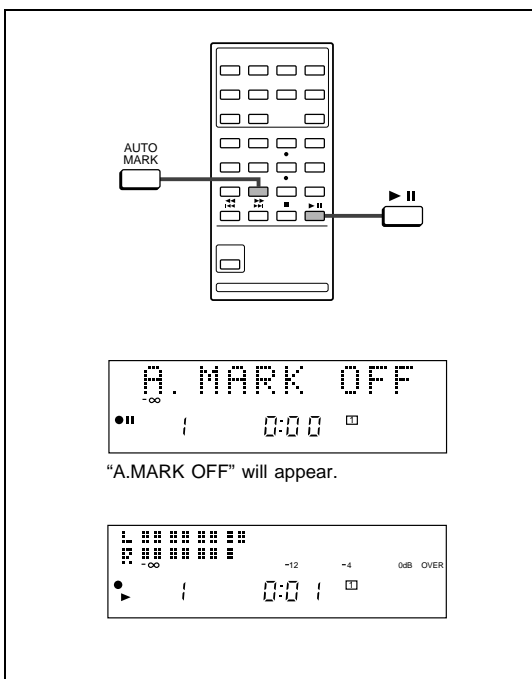
By creating your own track numbers while recording, you can mark and later search for any passage you wish. (You can also create your own track numbers during digital recording.)

Press the RECORD (REC) button during recording at the point where you want to create a track number.

- After the track number has been written on the disc, the recording will continue.

Note:

- If you use the MD editing function, the recorded track numbers can be changed, and the space between tracks can be changed. (Page 20)



■ Recording tracks as a single track (Remote control operation)

When making an analog recording, you can record several pieces of music as a single track, without using the auto marker function.

- 1 Press the AUTO MARK button on the remote control while the recording is paused.

- "A.MARK OFF" will appear.

- 2 Press the ►|| button.

- This unit will start recording.

Note:

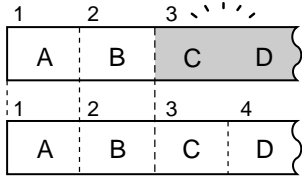
- When making digital recordings using a CD player or an MD player, track numbers will be created automatically regardless of the setting of the auto marker function.

EDITING

We will explain the 5 editing features you can use to create your own original MiniDiscs.
Playback-only MiniDiscs cannot be edited.

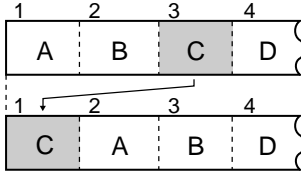
DIVIDE

A track can be divided into two tracks. If two selections were recorded as a single track because there was not enough silent space between the pieces, you can use the DIVIDE function to separate the selections. This feature is also convenient for identifying specific points with one selection so that you can locate those points easily whenever you like. (Page 22)



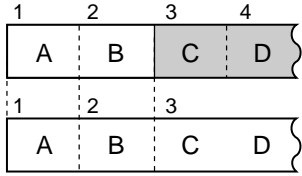
MOVE

The order of the recorded tracks can be changed. This feature is different from program play. A new track order can be recorded directly on the disc. When the power is turned off, the revised order will not be changed. (Page 24)



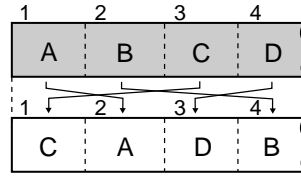
COMBINE

Two adjacent tracks (for example, the third and fourth tracks) can be combined. If there is a prolonged silent section in the middle of a selection that is recorded, a single piece of music may be recorded as two tracks. If this happens, these two tracks can be combined into a single track. (Page 23)



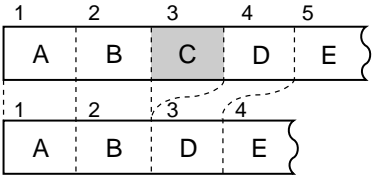
Program move function

This function allows the track numbers to be automatically rearranged in the order specified for programmed playback. The track numbers will be adjusted as needed, automatically. (The tracks that are not included in the programmed selections will be put at the end of the new track numbers.) (Page 24)



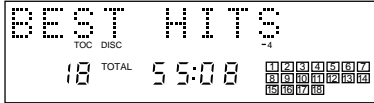
ERASE

Tracks you want to erase can be erased one at a time or all at once. Once a track has been erased, it cannot be recovered. Double-check the track number before erasing it. (Page 25)



TRACK/DISC NAME

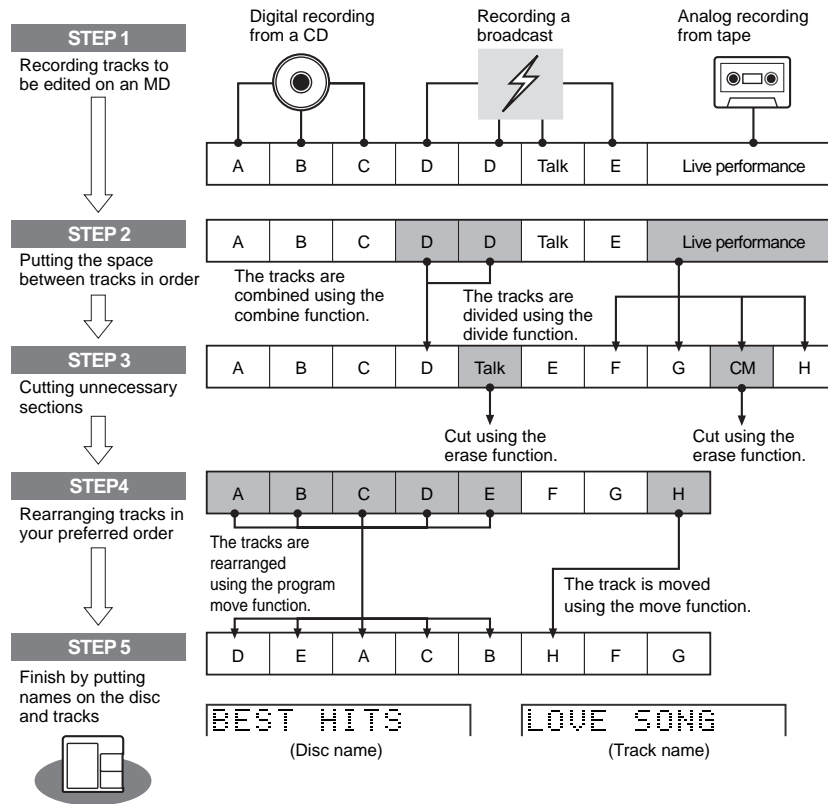
You can assign titles to recorded tracks and to discs. The characters must be capital and lowercase letters, or symbols. Track and disc names can use up to 100 characters per name. (Page 26)



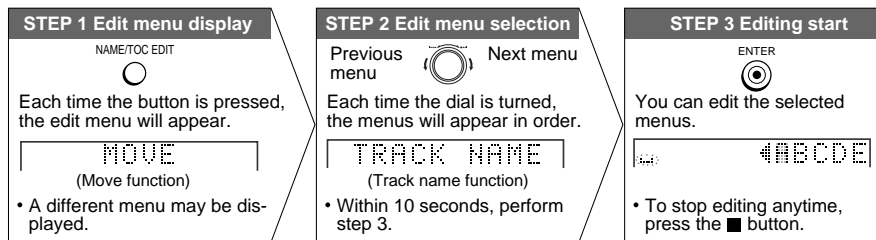
(Continued)

■ Using the editing function

We will show you some examples of how to use the editing functions. You can create a disc of your favorite selections by recording tracks from a variety of input sources such as CDs, tapes, and radio broadcasts.

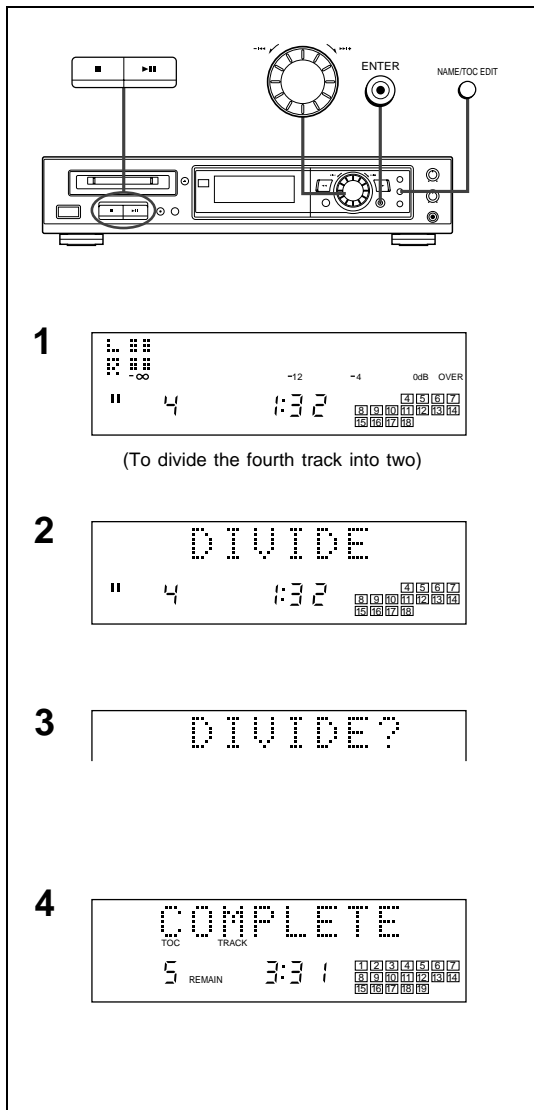


The editing functions are selected from the edit menu. The functions which can be selected from the edit menu will vary, depending on the state in which an editing operation is started.



This function	Can be selected in the following conditions.					
	When stopped (The total number of tracks appears)	When stopped (Selection of track numbers)	During playback	Playback in the pause mode	During recording/ in the recording standby mode	When entering a program
Disc name	○	×	×	×	×	×
Track name	×	○	○	○	○	×
Divide	×	×	×	○	×	×
Combine	×	○	×	○	×	×
Move	×	○	×	○	×	×
Program move	×	×	×	×	×	○
Erase	×	○	×	○	×	×
All erase	○	×	×	×	×	×

(Continued)



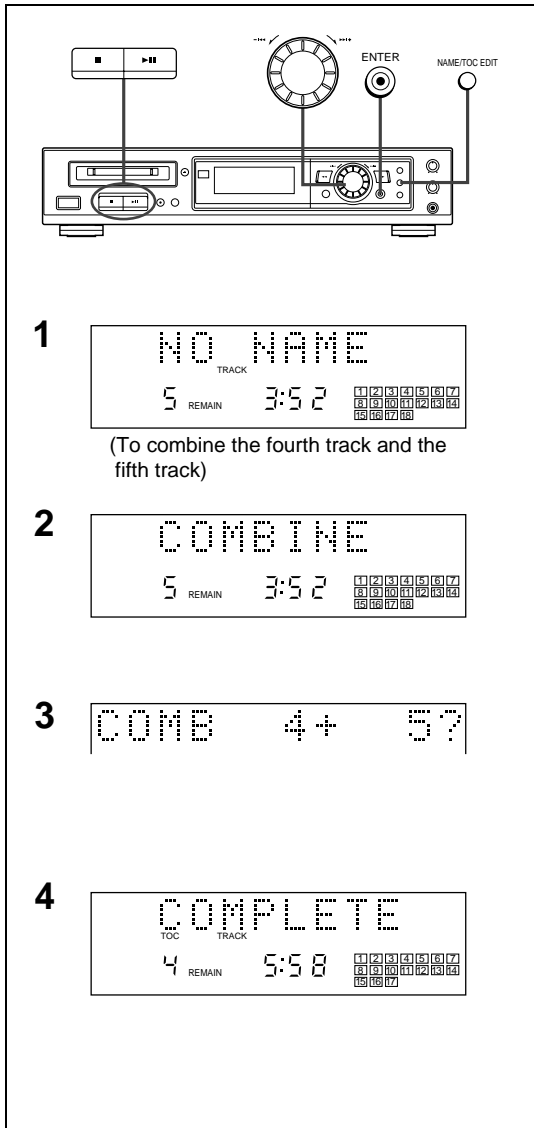
■ DIVIDE

- 1** Play the track which you want to divide into two, and press the **▶||** button at the point where you want to divide the track.
 - The unit will enter the pause mode.
- 2** Press the NAME/TOC EDIT button, and then select "DIVIDE" using the jog dial.
- 3** Within 10 seconds, press the ENTER button.
 - To cancel the operation, press the **■** button.
- 4** Press the ENTER button again.
 - The track is divided, and the unit is paused at the beginning of the second of the two tracks.
 - The numbers of the tracks which come after the divided track are automatically increased by one.
 - When a track which has been given a name is divided, the two new tracks will have the same name and date. If the "TOC FULL" message is seen, the second track may not be given a name. (Page 37)

Notes:

- This unit can hold up to 255 tracks. However, even if the number of tracks assigned has not reached 255, it might not be possible to make any further divisions of tracks. (Page 33)
- This function cannot be used while in the program ("PRGM" is lit: Page 13) or random play modes ("RANDOM" is lit: Page 12). First, cancel the program or random play mode before trying to use this function.

(Continued)



COMBINE

- 1** While in the stop mode, select the second of the two tracks you want to combine using the jog dial.
Or start playing the second of the two tracks you want to combine, and then press the ►|| button.
 - The unit will enter the pause mode.
- 2** Press the NAME/TOC EDIT button, and then select "COMBINE" using the jog dial.
- 3** Within 10 seconds, press the ENTER button.
 - To cancel the operation, press the ■ button.
- 4** Press the ENTER button again.
 - The two tracks are combined, and the unit is paused at the beginning of the combined track.
 - The numbers assigned to the tracks following the combined track are automatically decreased by one.

When both tracks have a name:

- When only the first track has a name → That name will be used.
- When only the second of the two tracks has a name → That name will be used.
- When both tracks have a name → The name of the first track will be used.

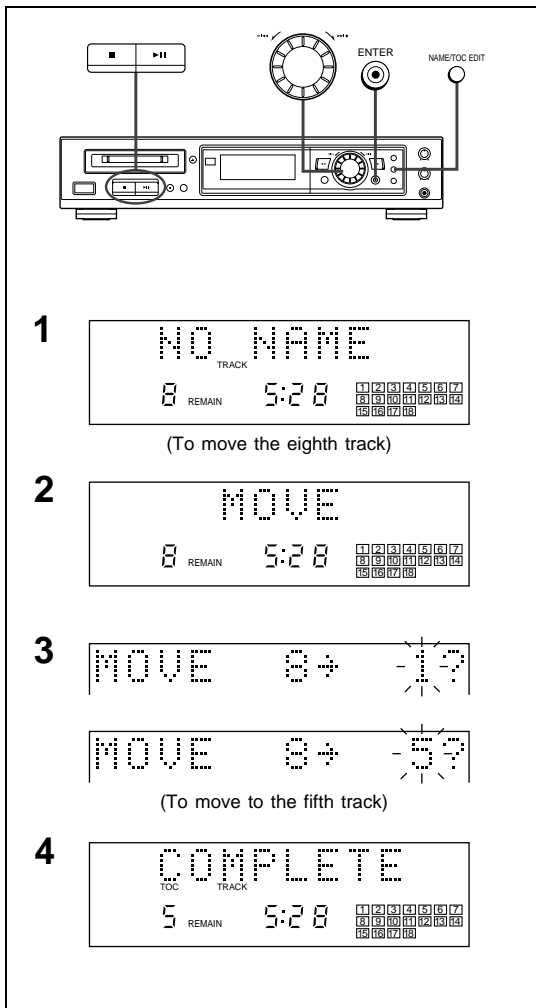
To combine two non-continuous tracks:

(Example: the first and third tracks)
Move the third track to the second track using the MOVE function. (Page 24)
Then, combine the first and second tracks using the COMBINE function.

Notes:

- Tracks recorded from analog inputs cannot be combined with tracks recorded from CDs or MDs using the digital inputs.
- Tracks recorded in the stereo mode cannot be combined with tracks recorded in the monaural long-play mode.
- Tracks where either track's recording time is less than 15 seconds may not be combined.

(Continued)



MOVE

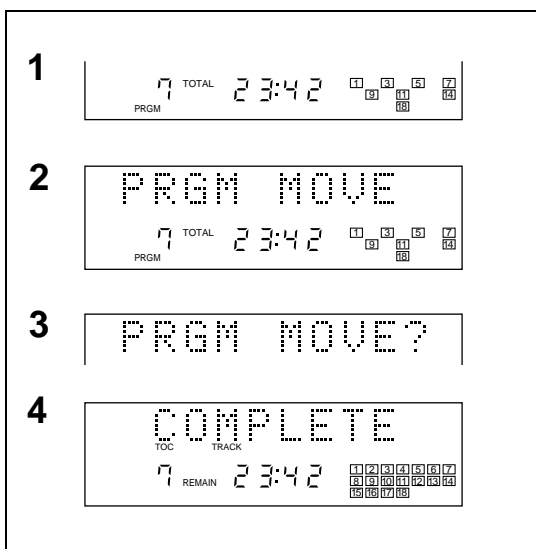
- While in the stop mode, select the track you want to move using the jog dial.
Or start playing the track to be moved, and then press the **▶||** button.
 - The unit will enter the pause mode.
- Press the NAME/TOC EDIT button, and then select "MOVE" using the jog dial.
- Within 10 seconds, press the ENTER button.
 - To cancel the operation, press the **■** button.
- Select the direction to move the track using the jog dial or the **◀▶** button on the remote control.
 - To increase the track number **▶▶**
 - To decrease the track number **◀◀**
- Press the ENTER button again.
 - The track is moved, and the unit is stopped at the beginning of the track.

Notes:

- When a track has been moved, the other tracks which are affected will be assigned new track numbers automatically.

Example: When moving the fifth track to the third track, the old third track will become the new fourth track, and the old fourth track will become the new fifth track.

- This function cannot be used while in the program ("PRGM" is lit: Page 13) or random play modes ("RANDOM" is lit: Page 12). First, cancel the program or random play mode before trying to use this function.



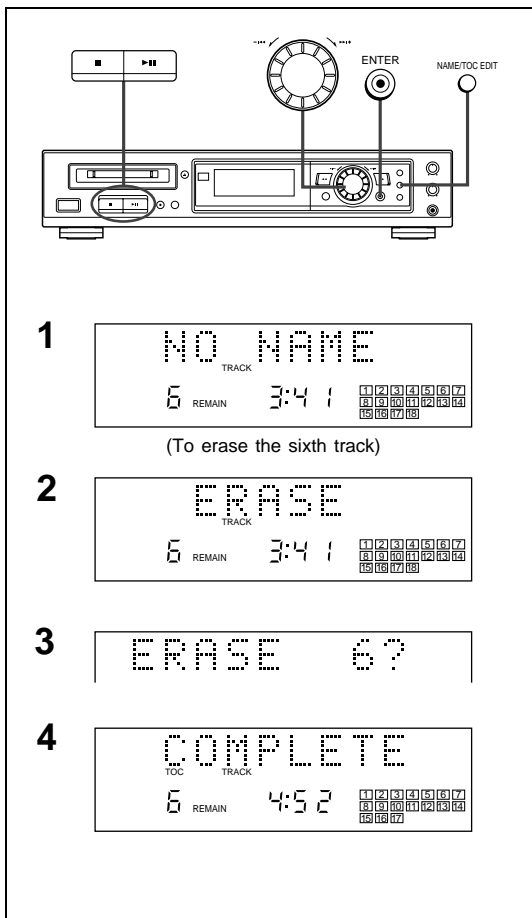
Programmed move

- Select the tracks you want to move and enter them into a program. (Page 13)
- Make sure that the "PRGM" indicator is lit, and then press the NAME/TOC EDIT button.
 - "PRGM MOVE" will appear.
- Within 10 seconds, press the ENTER button.
 - To cancel the operation, press the **■** button.
- Press the ENTER button again.
 - The tracks will be moved, and the programmed move mode will end.

Notes:

- The tracks that are not included in the programmed selections will be put at the end of the new track numbers.
- When the same track has been entered into the program twice or more, the last programmed position will have priority.

(Continued)



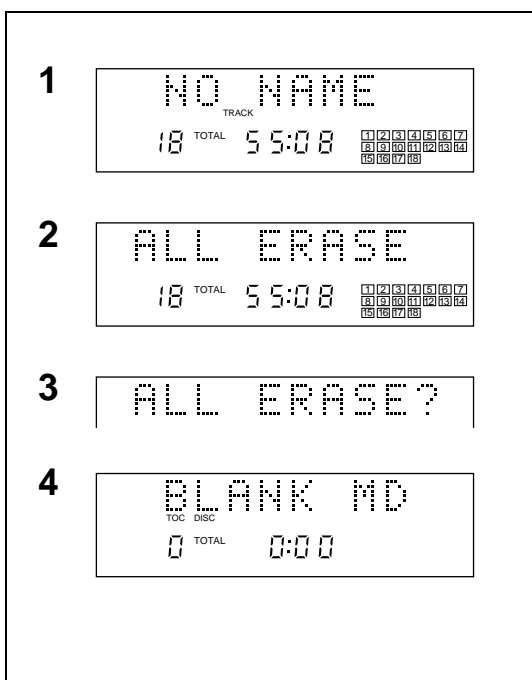
■ ERASE

To erase tracks one at a time:

- 1 While in the stop mode, select the track to be erased using the jog dial.
Or start playing the track which you want to erase, and press the ►|| button.
 - The unit will enter the pause mode.
- 2 Press the NAME/TOC EDIT button, and then select "ERASE" using the jog dial.
- 3 Within 10 seconds, press the ENTER button.
 - To cancel the operation, press the ■ button.
- 4 Press the ENTER button again.
 - The track is erased, and the unit is paused at the beginning of the previous track.

Notes:

- Once a track has been erased, it cannot be recovered. Double-check the track number before erasing it.
- When a track is erased, the numbers assigned to the tracks following the erased track will be automatically decreased by one.
- When a track is erased, the track name will be erased at the same time.



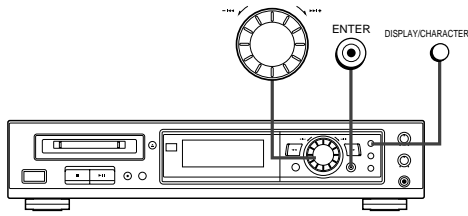
To erase all of the tracks at once:

- 1 Press the ■ button.
 - The total number of tracks and the total playing time for the MD will be displayed.
- 2 Press the NAME/TOC EDIT button, and then select "ALL ERASE" using the jog dial.
- 3 Within 10 seconds, press the ENTER button.
 - To cancel the operation, press the ■ button.
- 4 Press the ENTER button again.
 - All of the track numbers and track names will be erased.

Note:

- This function cannot be used while in the program ("PRGM" is lit: Page 13) or random play modes ("RANDOM" is lit: Page 12). First, cancel the program or random play mode before trying to use this function.

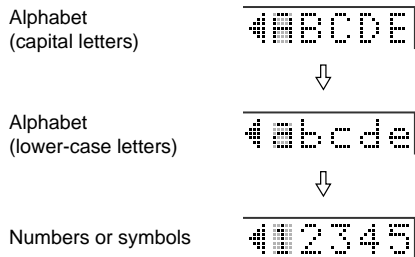
(Continued)



STEP 1 DISPLAY/CHARACTER



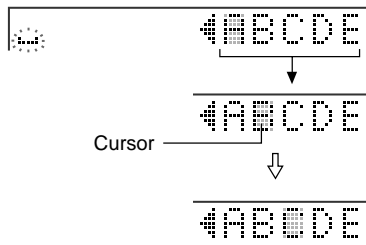
Each time the button is pressed, the available characters will switch as follows:



STEP 2

Previous character (←) Next character (→)

Each time the dial is turned, the cursor (■) over the character will move.



When the DISPLAY/CHARACTER button is pressed with the cursor at the edge of the display, another 5 characters will be displayed.

Move the cursor to the character you want.

STEP 3



The selected character will be entered in the character input column.



Track/disc name

- Up to 255 tracks can be named on each disc, and each disc can be given a disc name.

When naming discs and tracks, the characters should be entered as follows:

To select the type of characters: (STEP 1)

Press the DISPLAY/CHARACTER button.

To select characters: (STEP 2)

Select characters using the jog dial.

To enter characters: (STEP 3)

Press the ENTER button.

Repeat STEP 1 to STEP 3 as necessary to enter the characters in the name.



Type of characters used:

Type of characters	Characters <symbols>
Capital letters	A B C D E F G H I J K L M N O P Q R S T U V W X Y Z . / ' ! * # \$
Lower-case letters	a b c d e f g h i j k l m n o p q r s t u v w x y z . / ' ! * # \$
Symbols	1 2 3 4 5 6 7 8 9 0 ! " # \$ % & ' () * + , - . / : ; < = > ? @ _ `

- □ means a space.

Notes:

Number of characters you can enter

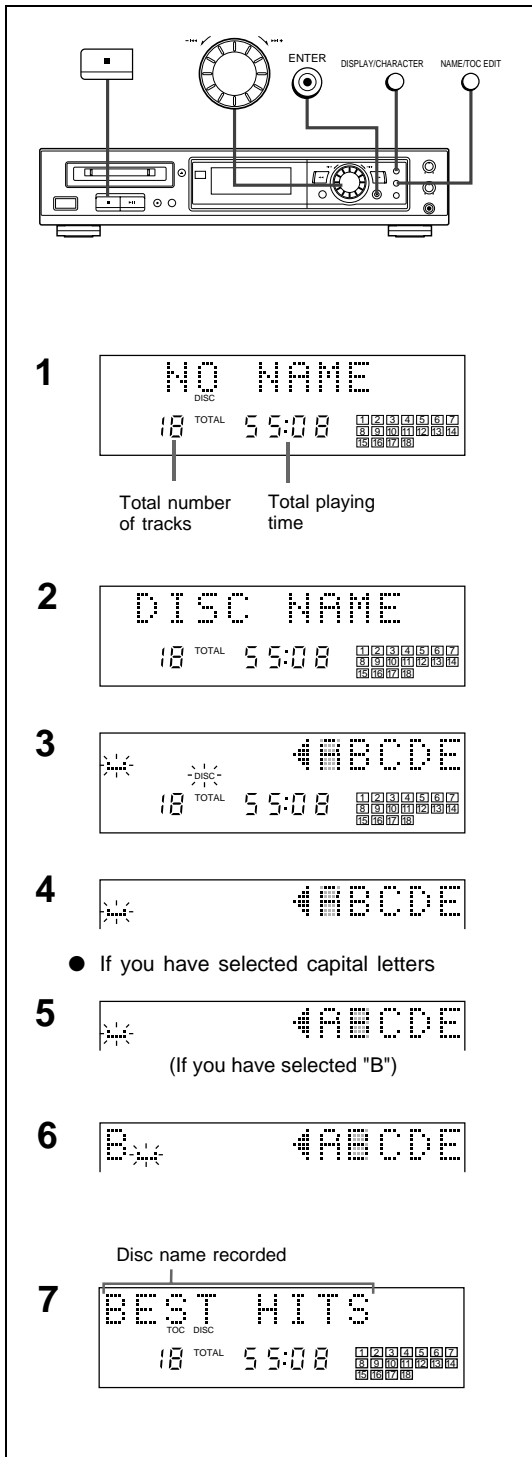
■ **Disc names and track names**

Up to 100 characters (including spaces) can be entered for each name. If more than 100 characters are entered, "NAME FULL" will appear.

■ **Total number of characters per MiniDisc**

A total of approximately 1700 characters can be used for all of the disc and track names. If more than 1700 characters are entered, "TOC FULL 1" will appear.

(Continued)



■ To create a disc name

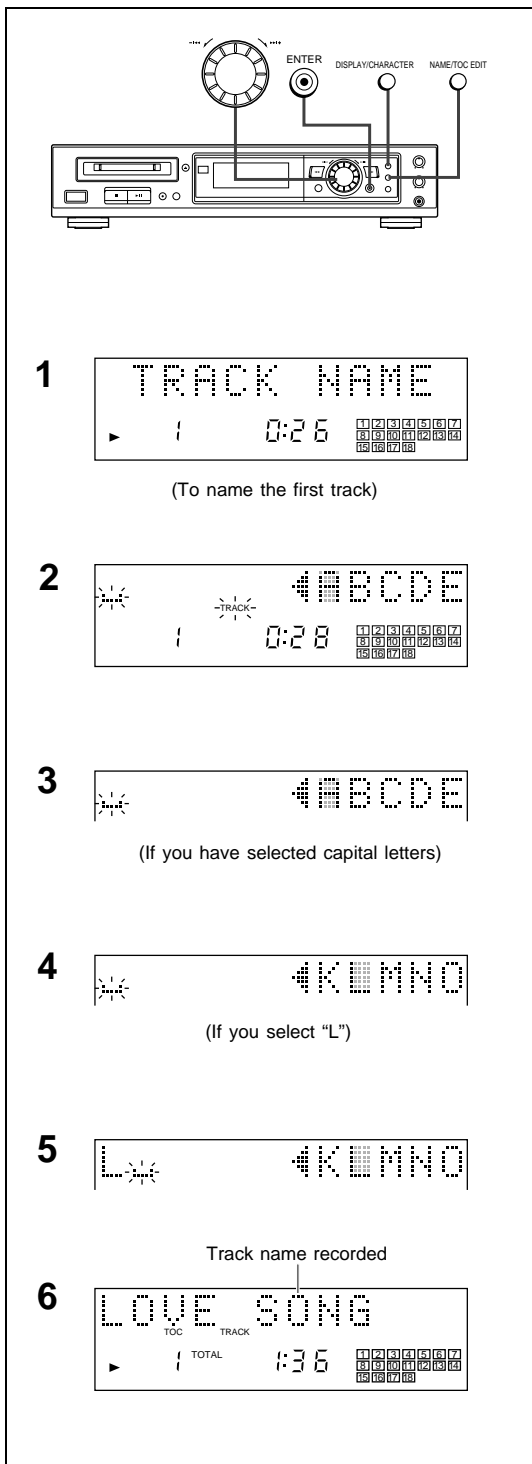
A title for the entire disc. Disc names are displayed when an MD is inserted.

- 1** Press the ■ button.
 - The total number of tracks and the total playing time for an MD will appear.
- 2** Press the NAME/TOC EDIT button, and then select "DISC NAME" using the jog dial.
- 3** Within 10 seconds, press the ENTER button.
 - The unit will enter the character input mode.
- 4** Press the DISPLAY/CHARACTER button to select the type of characters you want to use. (Page 26)
- 5** Select the character you want using the jog dial.
- 6** Press the ENTER button to enter the character.
 - Repeat steps 4 to 6 above to enter the characters in the name. When the next character's type is the same as the previous character, step 4 can be skipped.
- 7** After entering all of the characters in the name, press the NAME/TOC EDIT button.
 - The disc name will be recorded.

Note:

- This function cannot be used while in the program ("PRGM" is lit: Page 13) or random play modes ("RANDOM" is lit: Page 12). First, cancel the program or random play mode before trying to use this function.

(Continued)



To create a track name

Name each track.

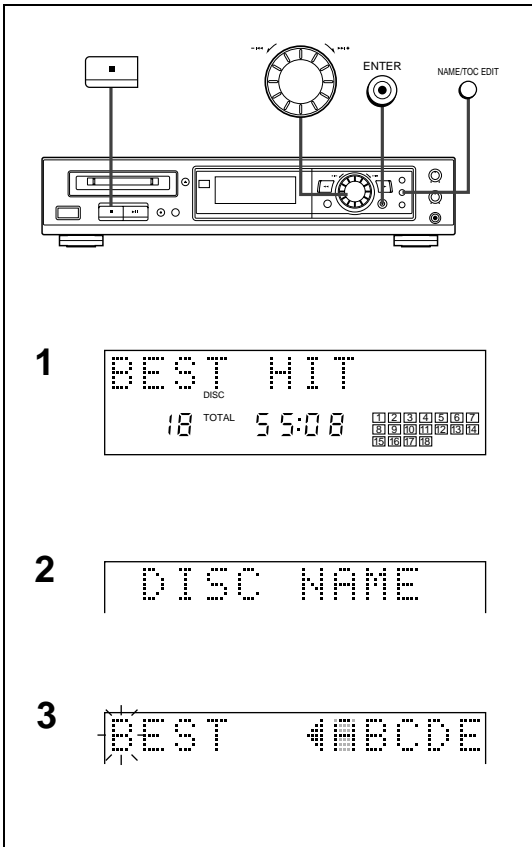
A track's name will be displayed whenever you select it and during playback.

- 1 During playback, press the NAME/TOC EDIT button.
 - "TRACK NAME" will appear.
- 2 Within 10 seconds, press the ENTER button.
 - The unit will enter the character input mode.
 - The track you are listening to will be played repeatedly.
- 3 Press the DISPLAY/CHARACTER button to select the type of characters. (Page 26)
- 4 Select the character you want using the jog dial.
- 5 Press the ENTER button to enter the character.
 - Repeat steps 3 to 5 above to enter characters in the name. When the next character's type is the same as the previous character, step 3 can be skipped.
- 6 After entering all of the characters in the name, press the NAME/TOC EDIT button.
 - The track name will be recorded.
 - The unit will return to normal playback.

Notes:

- This function cannot be used while in the program ("PRGM" is lit: Page 13) or random play modes ("RANDOM" is lit: Page 12). First, cancel the program or random play mode before trying to use this function.
- The track name function can be used while in the stop mode (when selecting a track), in the pause mode, or in the recording mode. (Select "TRACK NAME" from the edit menu.)
- If you create a track name while recording the track, make sure you finish entering the name before you finish recording the track. If the end of the recording is reached before you have entered the complete name, only the characters entered before the recording ended will be recorded.

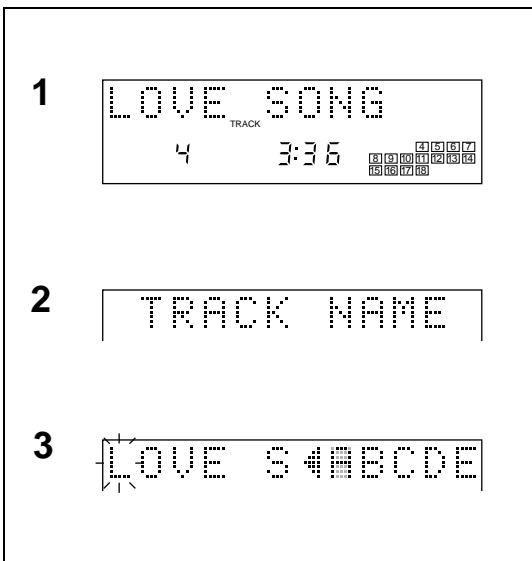
(Continued)



■ To change disc names and track names

To change disc names:

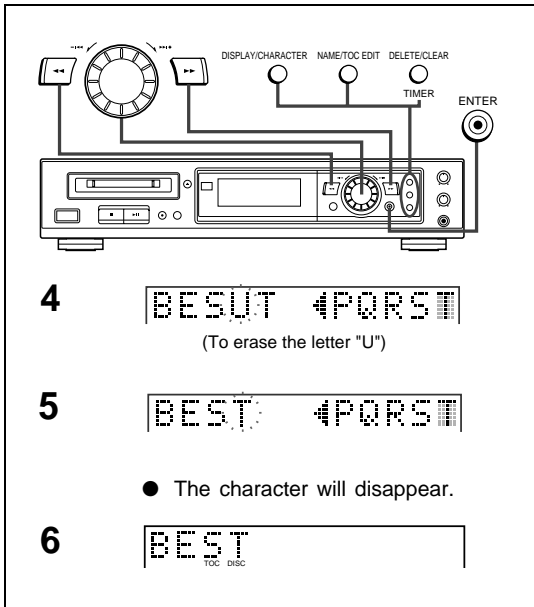
- 1 During playback, press the ■ button.
- 2 Press the NAME/TOC EDIT button.
- 3 Within 5 seconds, press the ENTER button.
 - The unit will enter the character input mode.
 - To cancel this operation, press the ■ button.
- 4 Now you can erase or add characters. (Page 30)



To change track names:

- 1 While in the stop mode, select the track name you want to change, using the jog dial.
- 2 Press the NAME/TOC EDIT button.
- 3 Within 5 seconds, press the ENTER button.
 - The unit will enter the character input mode.
 - To cancel this operation, press the ■ button.
- 4 Now you can erase or add characters. (Page 30)

(Continued)

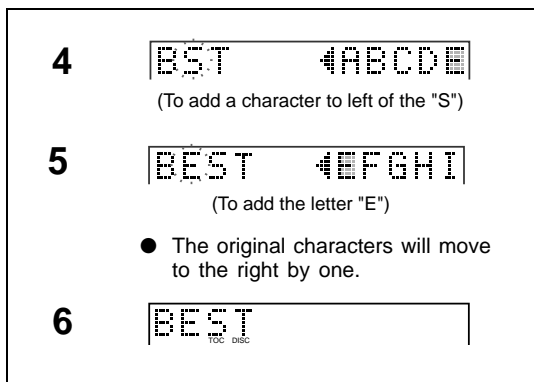


■ To erase a character

After performing steps 1 to 3 on page 29, do the following:

Example: To change "BESUT" to "BEST"

- 4** Press the button to make the character you want to erase begin flashing.
- 5** Press the DELETE/CLEAR button.
- 6** Press the NAME/TOC EDIT button.



■ To add a character

After performing steps 1 to 3 on page 29, do the following:

Example: To change "BST" to "BEST"

- 4** Press the button to make the character at the place you want to add a letter begin flashing.
- 5** Select the character you want to add, using the jog dial. Then, press the ENTER button.
- 6** Press the NAME/TOC EDIT button.

■ To correct a spelling

After putting the unit in the character input mode, erase the wrong character. Then, enter the correct character.

■ To erase disc names or track names

After performing steps 1 to 3 on page 29, do the following:

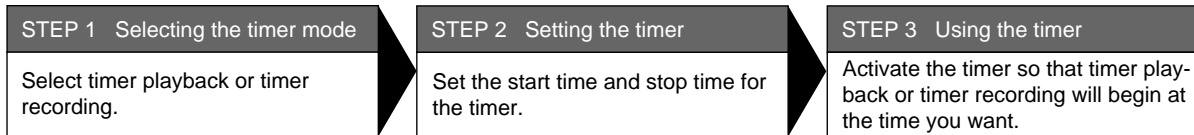
Press the DELETE/CLEAR button for at least 2 seconds, and then press the ENTER button.

- The disc or track name will be erased.

HOW TO USE THE BUILT-IN TIMER

- Before setting the timer, make sure that the clock setting is correct.
- The start time and stop time, which are set with this operation, will be kept in memory until the AC power cord is unplugged or the setting is changed.

The timer is set as follows.



In our example, we set the timer mode, the start time, and the stop time, as described in STEP 1 and STEP 2.

- 1** **TIMER SET**
(Timer setting mode)
- 2** **TIMER PLAY**
(Timer playback mode)
- 3** **TIMER REC**
(Timer recording mode)
- 4** **TIMER ON**
1:00^{AM}
- 5** **TIMER OFF**
6:00^{AM}
- 6** **TIMER OFF**
6:30^{AM}
- 7** **TIMER OFF**
6:40^{AM}

- The stop time setting display will appear.
- The "hours" display will be automatically increased one hour.

To select the timer mode (playback/recording) (STEP 1)

- 1** While in the stop mode, press the **TIMER** button, and then select "TIMER SET" using the jog dial.
- 2** Press the **ENTER** button, and then select "TIMER PLAY" or "TIMER REC" using the jog dial.
- 3** Press the **ENTER** button.
 - The start time setting display will appear.



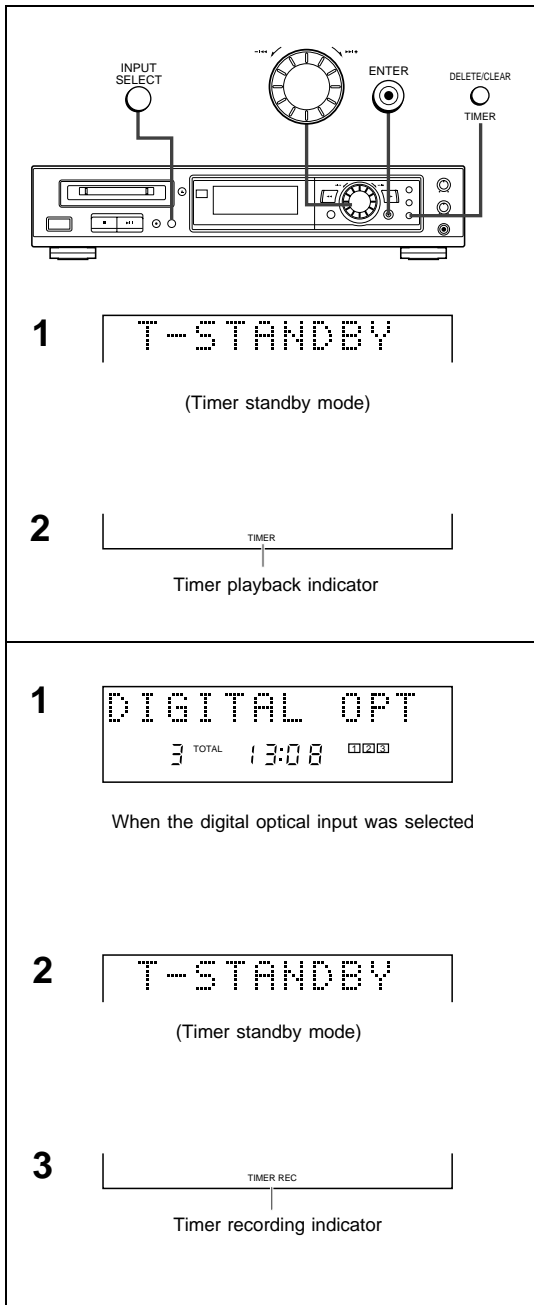
Go on to the next step.

To set the start time and the stop time (STEP 2)

- 4** Enter the "hour", using the jog dial. Then, press the **ENTER** button.
- 5** Enter the "minute", using the jog dial. Then, press the **ENTER** button.
 - The stop time setting display will appear.
- 6** Enter the "hour", using the jog dial. Then, press the **ENTER** button.
- 7** Enter the "minute", using the jog dial. Then, press the **ENTER** button.
 - The start and stop times are now set.

(Continued)

Set the timer so that timer playback or timer recording will begin at the time you want. See the previous page. To use timer playback, perform STEP3-A. To use timer recording, perform STEP3-B.



To use timer playback (STEP3-A)

- 1 Insert the MD you want to play, and press the TIMER button. Then select "T-STANDBY" using the jog dial.
- 2 Press the ENTER button.
 - The settings will appear in order, and the unit will enter the timer playback standby mode. (The power will be turned off.)

Preparations for any equipment connected to this unit

Any equipment, such as a stereo, that is connected to this unit should be set up in advance as follows:

- Adjust the sound level of the equipment.
- If it has a timer function, set it so that the power will be turned on at the same time as the timer's start time.
- Adjust the playback volume.

To use timer recording (STEP3-B)

- 1 Insert a recordable MiniDisc, and press the INPUT SELECT button to select the input from which you want to record.
 - If you select the analog input, adjust the recording level. (Page 17)
- 2 Press the TIMER button, and then select "T-STANDBY" using the jog dial.
- 3 Press the ENTER button.
 - The settings will appear in order, and the unit will enter the timer recording standby mode. (The power will be turned off.)

Preparations for any equipment connected to this unit

Any equipment, such as a stereo, that is connected to this unit should be set up in advance as follows:

- Set it up so that music to be recorded will be played at the same time as the timer's start time.

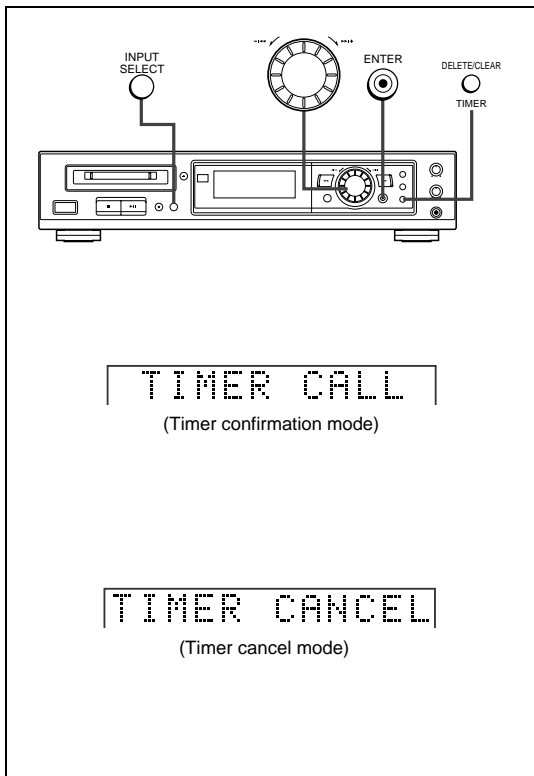
Notes:

- This timer in this unit cannot be used to control equipment connected to this unit. You must use the timer in the other equipment, if it has one.
- The timer playback and timer recording functions cannot be used at the same time.

In the following cases, the timer recording function will not work.

- When a MiniDisc has not been inserted
- When a playback-only MiniDisc is inserted
- When the MiniDisc you inserted is protected against accidental erasure
- When there is no recording space left on the MiniDisc you inserted (when the "TOC FULL" or "DISC FULL" messages appear)

(Continued)



■ To check the timer setting

- 1** While in the timer standby mode, press the TIMER button.
 - If the display shows the wrong mode, correct it using the jog dial.
- 2** Turn the jog dial until "TIMER CALL" appears.
- 3** Press the ENTER button within 10 seconds.
 - The timer settings will appear in order, and then the original display will reappear.

■ To cancel the timer operation

When the power is turned on, the timer will be canceled. The timer operation can also be canceled as follows.

- 1** While in the timer standby mode, press the TIMER button.
 - If the display shows the wrong mode, correct it using the jog dial.
- 2** Turn the jog dial until "TIMER CANCEL" appears.
- 3** Press the ENTER button.
 - The timer operation will be canceled. ("TIMER" or "TIMER REC" will go out.) The start and stop times will still be stored.

MINIDISC SYSTEM LIMITATIONS

Even if the maximum recording time of a MiniDisc has not been reached, "DISC FULL" or "TOC FULL" may be displayed.	When the number of tracks used reaches the limit, regardless of the remaining recording time, further recording will be impossible. (Maximum number of tracks: 255)
Even if the number of tracks and the recording time have not reached the limit, "DISC FULL" may be displayed.	When emphasis information (equalizer treatment in the treble section) in a track switches on/off several times, each change is assumed to be the beginning of a new track, which will quickly use up all available track numbers and further recording will be impossible, regardless of the remaining recording time or the number of tracks on the original.
Even if several short tracks are erased, the remaining recording time may not show an increase.	When the remaining recording time of a disc is displayed, short tracks less than 8 seconds long may not be included in the total.
Two tracks may not be combined in editing.	For MiniDiscs on which repeated recording and editing operations were performed, the COMBINE function may not work.
The total of the recorded time and time remaining on a disc may not add up to the maximum possible recording time.	A cluster (about 2 seconds) is normally the minimum unit of recording. So, even if a track is less than 2 seconds long, it will use about 2 seconds of space on the disc. Therefore, the time actually available for recording may be less than the remaining time displayed. If there are scratches on discs, those sections will be automatically avoided (no recording will be placed in those sections). Therefore, the recording time will be reduced.

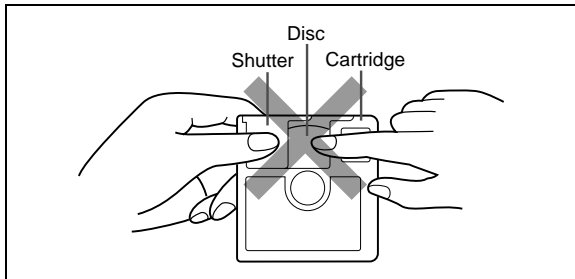
WHAT IS A MINIDISC?

The disc is stored in a cartridge. You can handle it easily without worrying about dust, fingerprints, etc. However, dust entering the opening of the cartridge, dirt on the cartridge, warping, etc. may cause malfunctions. Please note the following.

■ Handling the MiniDisc

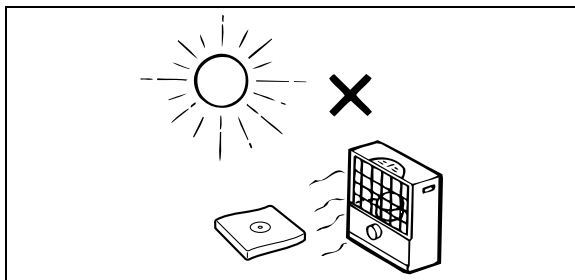
Do not touch the disc directly!

Do not open the shutter or touch the disc directly. If the shutter is opened forcibly, it may break.



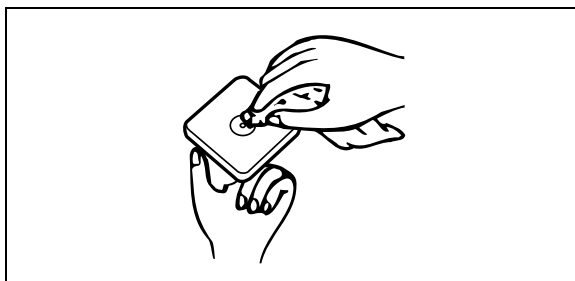
Where not to store discs:

Do not store discs in places with high temperatures or humidity. Specifically, do not leave discs in places exposed to direct sunlight or in cars with doors and windows closed. Do not leave discs in places where sand can get into the cartridge easily (e.g., beaches).



Regular cleaning:

If the surface of the cartridge becomes dusty or dirty, clean it with a dry cloth.

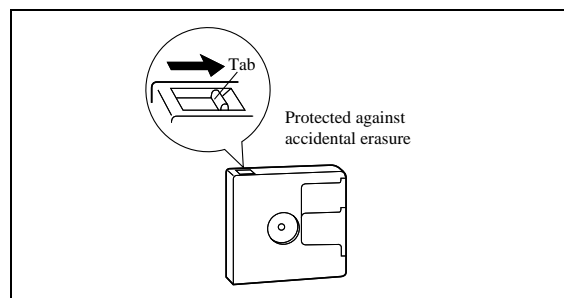


■ To prevent recorded discs from being erased accidentally

(accidental erasure prevention)

Slide the accidental erase prevention tab, located on the side of the disc, in the direction indicated by the arrow.

- The disc will then be protected against accidental erasure.
- To add a recording to such a disc, slide the accidental erase prevention tab back to its original position.



■ What is a MiniDisc?

- A MiniDisc is a 2-1/2" (64 mm) diameter disc which is stored in a cartridge. MiniDiscs are easy to handle, compared to compact discs, because they are protected against dust and scratches.
- Recording and playback use a digital system with a sound quality that is similar to that found on compact discs. MiniDiscs cannot twist or stretch like tapes. The quality of sound will not deteriorate. MiniDiscs are extremely durable.
- Never disassemble MiniDiscs.

■ Adaptive Transform Acoustic Coding [ATRAC]

The ATRAC (Adaptive TRansform Acoustic Coding) is a new technology that is designed to eliminate the information in sounds which you can not hear and to compress the remaining sound data so that the recording uses about 1/5 of the original sound information.

Sound data is analyzed and filtered to take advantage of psycho acoustic masking. The acoustic quality of the sound is not impaired.

(Continued)

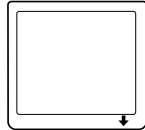
■ Types of discs

There are two types of discs: playback-only and recordable type.

● Playback-only MiniDisc:

This type of MiniDisc is used for commercially available pre-recorded music. This is the same kind of optical disc as CDs. Playback is performed using an optical pickup. (Recording and editing are not possible.)

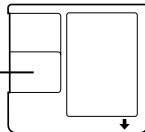
A shutter will be used on only one side (back).



● Recordable MiniDisc:

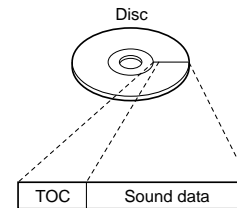
This is a "raw disc" on which recording can be performed. A magneto optical disc is used. Recordings are made using a laser and magnetic field. Repeated recording is possible.

Shutters will be used on both sides.



■ High-speed access

A unique feature of the MiniDisc is the ability to locate the beginning of a desired track at high speed. This is because the track number and track name data is stored in a TOC (Table of Contents).



■ Shock Resistant Memory

During playback, approximately 10 seconds of information is stored in the semiconductor memory. Therefore, even when the pickup cannot read information for a second or two due to an external shock, the sound continues without interruption because the information stored in memory is output.

TROUBLESHOOTING

■ Moisture condensation

In the following cases, condensation may form inside the unit.

- Shortly after turning on a heater.
- When the unit is placed in a room where there is excessive steam or moisture.
- When the unit is moved from a cool place to a warm place.

When the unit has condensation inside, the disc signals cannot be read, and the product may not function properly.

- If this happens, remove the disc, and open the disc holder. The condensation should evaporate in approximately 1 hour. The unit will then function properly.

■ If a power failure occurs during recording

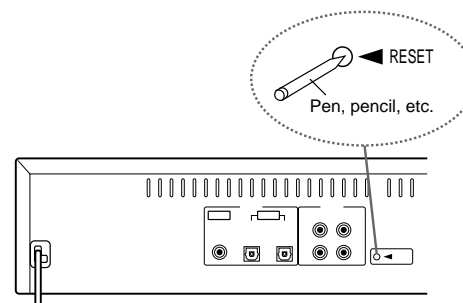
If the AC power plug is disconnected from the AC outlet or a power failure occurs during recording (before the TOC information has been recorded on the disc), the audio portion being recorded at that time will be erased. When a recording is being added to a MiniDisc which already has a recording on it, if the TOC is not updated before the power failure, the added recording will be erased.

- If a power failure occurs or the AC power cord is disconnected for about 10 minutes, when power is restored, TOC will be written on the disc.

■ If a problem occurs

If this product is subjected to strong external interference (mechanical shock, excessive static electricity, abnormal supply voltage due to lightning, etc.) or if it is operated incorrectly, it may malfunction or the display may not function correctly. If such a problem occurs, do the following:

- ① Unplug the AC power cord from the AC outlet.
- ② Wait about 20 - 30 seconds and then plug the AC power lead back into the AC outlet.
- ③ Press the reset button on the back of the unit.



- When the reset button is pressed, all of the settings in memory will be erased.
- If strange sounds, smells or smoke come out of the unit or if a foreign object falls into the unit, turn off the power, unplug the AC power cord from the AC outlet, immediately. Contact your nearest authorized Sharp servicer.

(Continued)**■ If a problem occurs**

If this unit functions abnormally during operation, first check the following items. If the unit continues to function abnormally, or if an abnormality appears other than listed below, turn off the player's power and disconnect the AC power plug, then consult your SHARP dealer or service personnel.

General

SYMPTOM	POSSIBLE CAUSE	REMEDY
The clock is wrong.	Did a power failure occur?	Try setting it again.
When a button is pressed, the unit does not respond.	—	Turn the power off and on again, and then retry the operation.
Radios make unusual noise or the picture on the TV screen is distorted.	When a radio or TV which uses an indoor antenna is placed near the unit, the picture on the TV screen may be distorted or the radio may not function properly.	It is recommended that you use an outdoor antenna.

Audio

SYMPTOM	POSSIBLE CAUSE	REMEDY
A recording cannot be made.	Is the MiniDisc protected against accidental erasure?	Slide the accidental erase prevention tab back to its original position.
	Did you try to make recording on a playback-only MiniDisc?	Replace it with a recordable disc.
	Can you see the "TOC FULL" message in the display?	Put in another recordable disc with recording space on it.
Even though a disc has been loaded, "no disc" or "Error" is displayed.	Is the disc scratched? Is the unit located near excessive vibrations?	Replace the disc. Place the unit on a firm, level surface free from vibration.
Playback stops in the middle of a track, or playback is not performed properly.	Is the unit located near excessive vibrations?	Place the unit on a firm, level surface free from vibration.
Playback sounds are skipped.	Has condensation formed inside the unit?	Remove the disc and leave the power turned on. The unit should function properly in about 1 hour.

Remote control

SYMPTOM	POSSIBLE CAUSE	REMEDY
The remote control does not function or does not operate properly.	The batteries (polarity) are not inserted properly.	Insert properly.
	The batteries inside the remote control are dead.	Replace the batteries.
	The remote control is operated from an incorrect distance or angle.	Operate it within a range of 8" (0.2 m) to 20' (6 m) and within an angle of 15° to either side of center.
	No disc has been loaded.	Load a disc.
The power cannot be turned on from the remote control.	Is the AC power cord plugged in?	Connect the AC power cord.

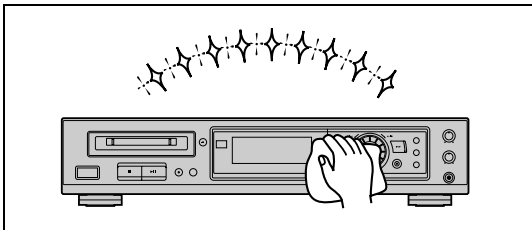
(Continued)

When an error message is displayed, proceed as follows:

Error messages	Meaning	Remedy
BLANK MD	● Nothing is recorded. (Neither music nor a disc name have been recorded on this MD.)	● Replace the disc with a recorded disc.
Can't COPY	● You tried to record from a disc which you are not allowed to copy.	● Replace it with another disc which you can copy from (regular CD).
Can't EDIT	● A track cannot be edited.	● Change the stop position of the track and then try editing it.
Can't REC	● Recording cannot be performed correctly due to vibration.	● Move the unit away from the source of vibration.
DEFECT	● Since this disc has scratches on it, the recording operation was skipped.	● Replace the disc with another recordable disc.
Din UNLOCK	● Incorrect digital signals are input.	● Connect correct digital signals. ● Use the analog input jack.
DISC ERR	● The disc is damaged or there is no TOC on the disc.	● Reload the disc or replace it.
DISC FULL	● The disc is out of recording space.	● Replace the disc with another recordable disc.
FOCUS ERROR	● The proper focus cannot be obtained.	● Reload the MiniDisc.
MD ERROR	● The unit has determined that it is out of order by performing a self-diagnosis.	● Ask the store where you purchased this unit, about repairs.
MECHA ERR*	● There is a mechanical problem and the disc is not working properly.	● Turn off the power, and press the ▲ button.
NAME FULL	● The number of characters for the disc name or track name exceeds 100.	● Shorten the disc or track name.
NO DISC	● A MiniDisc has not been loaded. ● The MiniDisc data cannot be read.	● Load a MiniDisc. ● Reload the MiniDisc.
NOT AUDIO	● The data recorded on this disc is not audio data.	● Select another track. ● Replace the MiniDisc.
PLAYBACK MD	● You tried to record on a playback-only disc. ● The data of disc names and track names are not able to move from playback-only discs.	● Replace it with a recordable MiniDisc. ● Edit only the sound.
PROTECTED	● The MiniDisc is write protected.	● Move the write protection tab back to its original position.
TEMP OVER	● The temperature is too high.	● Turn off the power, and wait for a while.
TOC ERR*	● The disc has a large amount of damage. ● TOC information cannot be read. ● The MD does not meet the specifications for MDs.	● Replace the disc with another disc.
TOC FULL*	● There is no space left for recording character information (track names, disc names, etc.)	● Replace it with another recordable disc.
TOC W ERROR	● The unit has determined that it is abnormal by performing a self-diagnosis.	● Ask the store where you purchased this unit, about repairs.
U TOC ERR*	● The TOC information on this disc does not meet the MD specifications or it cannot be read.	● Replace it with another disc. ● Erase all the data, and try recording.
U TOC W ERR	● The TOC information could not be created properly due to a mechanical shock or to scratches on the disc.	● Turn off the power, and try to write the TOC again. (Remove any source of shock or vibration while writing.)
? DISC	● The data contains an error.	● Replace the disc with another disc.
0 0:00	● Music is not being recorded.	● Replace the disc with a recorded disc.

*: Number or symbol

MAINTENANCE



External care

- Periodically wipe the cabinet with a soft cloth and dilute soap solution, then wipe with a dry cloth.
- Do not use chemically treated cleaning cloths or other chemicals.

SPECIFICATIONS

As a part of our policy of continuous improvement, SHARP reserves the right to make design and specification changes for product improvement without prior notice. The performance specification figures indicated are nominal values of production units. There may be some deviations from these values in individual units.

General

Type: MiniDisc deck
Signal readout: Non-contact, 3-beam semi-conductor laser pick-up
Audio channels: Stereo 2 channels/monaural (long-play mode) 1 channel
Frequency response: 4 – 20,000 Hz (+0/-1 dB)
Rotation speed: Approximately 400 to 900 rpm
Error correction: ACIRC (Advanced Cross Interleave Reed-Solomon Code)
Coding: ATRAC (Adaptive TRansform Acoustic Coding)
Recording method: Magnetic modulation overwrite method

A/D, D/A converter: 1-bit
Sampling frequency: 44.1 kHz
Wow and flutter: Unmeasurable (less than $\pm 0.001\%$ W. peak)
Signal/noise ratio: 100 dB or better during playback (line output)
Power source: AC 120 V, 60 Hz
Power consumption: 17 W
Dimensions: Width: 16-15/16" (430 mm)
 Height: 3-11/16" (93 mm)
 Depth: 11-15/16" (302 mm)
Weight: 8.0 lbs (3.6 kg)

Input jacks

Jack name	Jack shape	Input impedance	Reference input level	Minimum input level
LINE IN	Pin jack	Over 22 kohms	680 mVrms	170 mVrms
OPTICAL IN (Optical)	Square optical connector	—	—	—
COAXIAL (Coaxial)	Pin jack	75 ohms	500 mVp-p	—

Output jacks

Jack name	Jack shape	Output level	Load impedance
PHONES (Headphones)	1/4" (6.3 mm) stereo jack	15 mW	32 ohms
LINE OUT	Pin jack	2 Vrms	50 kohms
OPTICAL OUT (Optical)	Square optical connector	—	—

Timer/clock

Type: Digital clock with date function
Timer: ON/OFF, once a day

Remote control

Power: DC 3V ("AA" (UM/SUM-3, R6, HP-7 or similar) battery included x 2)

LIMITED WARRANTY

SHARP ELECTRONICS CORPORATION warrants to the first consumer purchaser that this Sharp brand product (the "Product"), when shipped in its original container, will be free from defective workmanship and materials, and agrees that it will at its option, either repair the defect or replace the defective Product or part thereof with a new or remanufactured equivalent at no charge to the purchaser for parts or labor for the period(s) set forth below.

This warranty does not apply to any appearance items of the Product nor to the additional excluded item(s) set forth below nor to any Product the exterior of which has been damaged or defaced, which has been subjected to misuse, abnormal service or handling, or which has been altered or modified in design or construction.

In order to enforce the rights under this limited warranty, the purchaser should follow the steps set forth below and provide proof of purchase to the servicer.

The limited warranty described above is in addition to whatever implied warranties may be granted to purchasers by law. ALL IMPLIED WARRANTIES INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE ARE LIMITED TO THE PERIOD(S) FROM THE DATE OF PURCHASE SET FORTH BELOW. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Neither the sales personnel of the seller nor any other person is authorized to make any warranties other than those described above, or extend the duration of any warranties beyond the time period described below on behalf of Sharp.

The warranties described above shall be the sole and exclusive warranties granted by Sharp and shall be the sole and exclusive remedy available to the purchaser. Correction of defects, in the manner and for the period of time described herein, shall constitute complete fulfillment of all liabilities and responsibilities of Sharp to the purchaser with respect to the Product, and shall constitute full satisfaction of all claims, whether based on contract, negligence, strict liability or otherwise. In no event shall Sharp be liable, or in any way responsible, for any damages or defects in the Product which were caused by repairs or attempted repairs performed by anyone other than an authorized servicer. Nor shall Sharp be liable or in any way responsible for any incidental or consequential economic or property damage. Some states do not allow the exclusion of incidental or consequential damages, so the above exclusion may not apply to you.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

Product Model Number: MD-R2 MiniDisc Deck (Be sure to have this information available when requesting service for your Product.)

Warranty Period for this Product: 1 Year parts and labor from the date of purchase.

Exclusions from Warranty Coverage: accessories.

Where to Obtain Service: At a Sharp Authorized Servicer located in the United States. To find a location of the nearest Sharp Authorized Servicer, call Sharp toll free at 1-800-BE SHARP.

What to do to Obtain Service: Ship prepaid or carry in your Product to a Sharp Authorized Servicer. Be sure to have Proof of Purchase available. If you ship the Product, be sure it is insured and packaged securely.

SHARP ELECTRONICS CORPORATION
Sharp Plaza, Mahwah, New Jersey 07430-2135

TO OBTAIN SUPPLY, ACCESSORY OR PRODUCT INFORMATION, CALL 1-800-BE-SHARP.

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