SHARP

1BIT
TECHNOLOGY

1-BIT PORTABLE MINIDISC RECORDER

MODEL

MD-DR470H

OPERATION MANUAL

If you require any advice or assistance regarding your Sharp product, please visit our web-site www.sharp.co.uk/customersupport.
Customers without Internet access may telephone 08705 274277 during office hours (or (01) 676 0648 if telephoning from Ireland).

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

MiniDisc   MD**LP**

Special Notes

NOTES FOR USERS IN THE U.K. AND IRELAND

SERVICE INFORMATION

In the unlikely event of your equipment requiring repair, please use the supplied postage paid label to send your unit to the Sharp repair centre or contact the dealer or supplier from whom it was purchased. Where this is not possible, please visit our web-site www.sharp.co.uk/customersupport.

Customers without internet access may telephone 08705 274277 during office hours (or (01) 676 0648 if telephoning from Ireland).

Please note; all calls will be charged at local rate.

Certain replacement parts and accessories may be obtained from our main parts distributor.

WILLOW VALE ELECTRONICS LTD.
0121 766 5414

In the unlikely event of this equipment requiring repair during the guarantee period, you will need to provide proof of the date of purchase to the repairing company. Please keep your invoice or receipt, which is supplied at the time of purchase.

■ Warnings
- The supplied AC adaptor contains no user serviceable parts. Never remove covers unless qualified to do so. It contains dangerous voltages, always remove the mains plug from the main outlet socket before any service operation or when not in use for a long period.
- The AC adaptor supplied with the MD-DR470H must not be used with other equipment.
- To prevent fire or shock hazard, do not expose this appliance to dripping or splashing liquids. No objects filled with liquids, such as vases, shall be placed on the apparatus.
- Never use an AC adaptor other than the one specified. Otherwise, problems or serious hazards may be created.

■ Caution
- When recording important selections, make a preliminary test to ensure that the desired material is properly recorded.
- SHARP is not liable for damage or loss of your recording arising from malfunction of this unit.
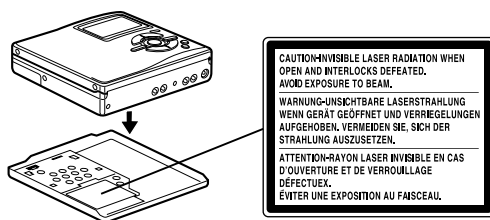
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- At full volume, prolonged listening to a personal stereo may damage the user's hearing. This model complies with the law if used with the correct earphones (model number RPHOH0021AWZZ). If the earphones are damaged in any way, please order using the model number given above.
- This product is classified as a CLASS 1 LASER PRODUCT.
- Use the Portable MiniDisc Recorder only in accordance with the instructions given in this manual and do not attempt to interfere with the interlock switch or make any other adjustment as this may result in exposure to hazardous radiation.

Laser Diode Properties
- Material: GaAIAs
- Wavelength: 785 nm
- Pulse time:
Read mode: 0.8 mW Continuous
Write mode: max 10 mW 0.5S
min cycle 1.5S
Repetition

CAUTION-INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.

WARNUNG-UNSICHTBARE LASERSTRAHLUNG WENN GERÄT GEÖFFNET UND VERRIEGELUNGEN AUFGEHOBEN. VERMEIDEN SIE, SICH DER STRAHLUNG AUSZUSETZEN.

ATTENTION-RAYON LASER INVISIBLE EN CAS D'OUVERTURE ET DE VERROUILLAGE DÉFECTUEX. ÉVITER UNE EXPOSITION AU FAISCEAU.

■ Notes
- Recording and playback of any material may require consent, which SHARP is unable to give. Please refer particularly to the provisions of the Copyright Act 1956, the Dramatic and Musical Performers Protection Act 1958, the Performers Protection Acts 1963 and 1972 and to any subsequent statutory enactments and orders.
- This equipment complies with the requirements of Directives 89/336/EEC and 73/23/EEC as amended by 93/68/EEC.
- US and foreign patents licensed from Dolby Laboratories.
- The letters in brackets contained in the model number indicate the colour of the product only. Operation and specifications are unaffected.

Important Introduction
-Special Notes-

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Contents

Important Introduction
-Contents-

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Features

MD-DR470H

■ A Portable MD player with "Mobile 1-bit digital amplifier"

● The 1-bit digital signal is sent to a constant voltage circuit directly from a high-order ΔΣ (Delta Sigma) modulation circuit. The amplifier transmits and amplifies the signal, and allows extremely natural and clear sound with little deterioration.

● High-quality sound is achieved by vast improvements in the sound resolution. The speed and the smoothness of rise of the sound are consequently ensured.
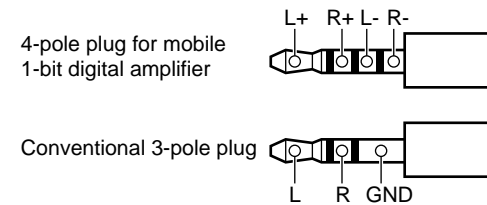
■ 122-hour* playback and 57-hour* recording

The low power consumption LSI, consisting of the ATRAC LSI and the high-order ΔΣ (Delta Sigma) modulation circuit, enables extended hours of playback.

(* Refer to "Specifications" on page 69.)

■ "4-pole plug headphone" optimizes "Mobile 1-bit digital amplifier"

SHARP has adopted "4-pole plug" headphones and a remote control that completely separate right and left sound. Enjoy the high quality sound of the "Mobile 1-bit digital amplifier".
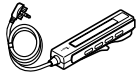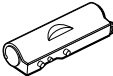
L+ R+ L- R-

4-pole plug for mobile
1-bit digital amplifier

Conventional 3-pole plug

L   R GND
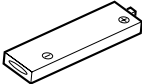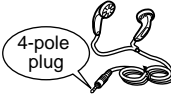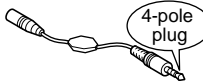
Important Introduction
-Features-

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Accessories

Remote control x 1	**Battery carrying case x 1**	**Battery case x 1**	**Carrying bag x 1**
AC Adaptor (RADPA8058AWZZ) x 1	**Rechargeable nickel-met-al hydride battery (AD-N55BT) x 1**	4-pole plug **Earphones (inner ear type) x 1**	**Connection cable (for digital recording) x 1**
Connection cable (for analogue recording) x 1	**Connection cable (for PC analogue recording) x 1**	**Output conversion cable (4-pole to 3-pole plug conversion) x 1** 4-pole plug	

Notes:
● You can hear the sound only from one earphone if you use the supplied earphones with other equipment.
● Parts and equipment mentioned in this operation manual other than those detailed above are not included.
● The AC adaptor may be different from the one in the drawing.

Optional Accessories

● Optical digital cable: AD-M2DC (3.5 mm optical plug to plug)
● Cassette adaptor (AD-CT14)
● Car adaptor (AD-CA20X)

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Precautions

■ Important

● Do not wear your earphones when you are crossing streets or near traffic.

● Do not use your earphones whilst driving a motor vehicle, it may create a traffic hazard and may be illegal.
Remember to obey all of the safety rules in your area.

● Do not play the unit at a high volume. Hearing experts advise against extended listening at high volume levels.

● If you experience ringing in your ears, reduce the volume or discontinue use.

● No naked flame sources, such as lighted candles, should be placed on the apparatus.

● Attention should be drawn to the environmental aspects of battery disposal.

● The apparatus is designed for use in moderate climate.

● This portable MD should only be used within the range of 0°C - 40°C (32°F - 104°F).

To avoid accidental electric shock or other possible problems, observe the precautions listed below.

● Do not disassemble or modify the unit.

● Do not drop or subject the unit to shock.

● Do not use the unit near open flames.

● Do not spill liquid on the unit.

● Do not use an external power supply, other than the 5V DC supplied with this unit, as it may damage it.

● SHARP is not responsible for damage due to improper use. Refer all servicing to a SHARP authorised service centre.

■ Storing the unit

Avoid using or leaving the unit in the following places.

● Places exposed to direct sunlight for many hours (especially in cars with the doors and windows closed) or near heaters. (The cabinet may deform, change colour or the unit may malfunction.)

● Places exposed to excessive dust.

● Places exposed to water.

● Places where temperatures are excessively high or low.

● Places (bathrooms) where the humidity is extremely high.

● Places with strong magnetic fields such as near TVs or loudspeakers.

● Places exposed to vibration.

● Places where sand can easily enter the inside of the unit (beaches etc.).

● If the unit is used near radio tuners or TVs, noise and/or picture interference may result. If you experience these problems, move the unit away from such devices.

It is not recommended to put the portable MD into a rear pocket, as this may damage the product when sitting.
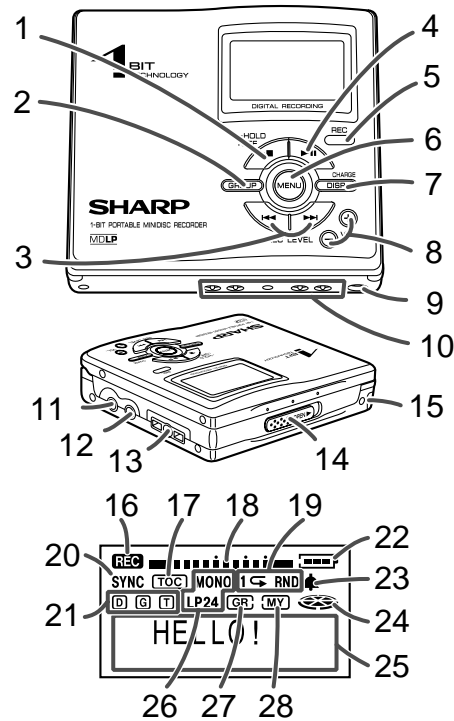
Using this unit near mobile phones may cause noise pickup. If it occurs, move it away from them.

Important Introduction
-Precautions-

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Names of Controls and Indicators

■ **Main unit**

Reference page

1. **Stop/Power Off/Hold Button** **19, 25, 60**
2. **Group Button** **17, 27**
3. **Fast Forward/Fast Reverse/Recording Level/
   Name Select Buttons** **20, 26, 46**
4. **Play/Pause Button** **19, 25**
5. **Record Button** **18**
6. **Menu Button** **16**
7. **Display Button** **43**
8. **Volume Buttons** **23**
9. **5 V DC Input Socket** **10**
10. **Battery Connection Terminals** **12**
11. **Optical/Line Input Socket** **14**
12. **Microphone Input Socket** **39**
13. **Remote Control/Earphones/
    Line Output Socket** **24, 61**
14. **Open Lever** **13**
15. **Rechargeable Battery Cover** **10**
16. **Record Indicator**
17. **TOC Indicator**
18. **Level Meter**
19. **Repeat/Random Indicators**
20. **Synchro Recording Indicator**
21. **Disc/Group/Track Information Indicators**
22. **Battery Indicator**
23. **Alarm Indicator**
24. **Disc Mode Indicator**
25. **Character/Time Information Indicator**
26. **Recording Mode Indicators**
27. **Group Indicator**
28. **My Entry Indicator**

8
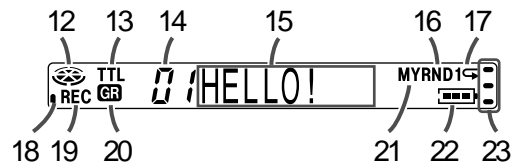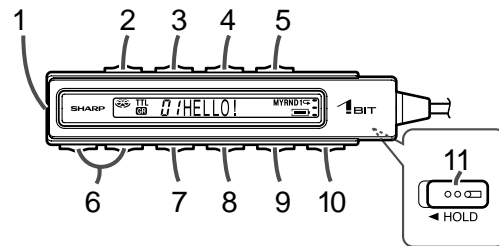
■ Remote control unit

Reference page

1. Earphones Socket 24
2. Bass Button 23
3. Display Button 43
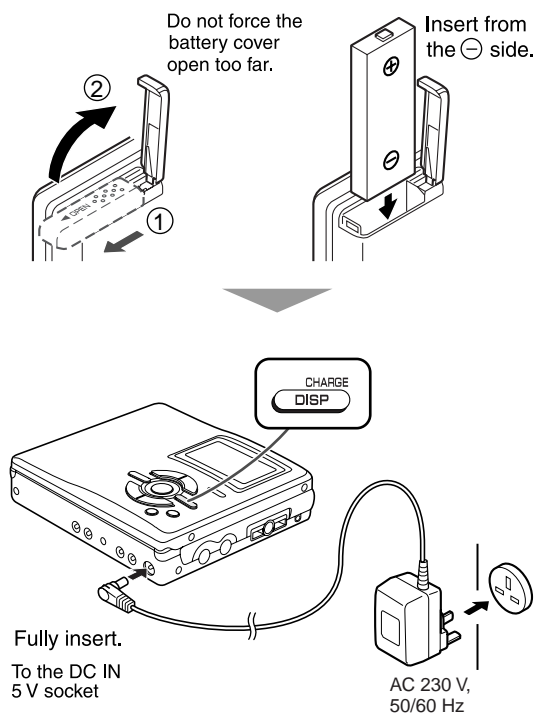4. Mode Button 30
5. Group Button 27
6. Volume Buttons 23
7. Stop/Power Off Button 19, 25
8. Fast Reverse Button 26
9. Play/Pause Button 25
10. Fast Forward Button 26
11. Hold Switch 60
12. Disc Mode Indicator
13. Total Track Number Indicator
14. Track Number Indicator
15. Character/Time Information Indicator
16. Random Indicator
17. Repeat Indicator
18. Synchro Recording Indicator
19. Record Indicator
20. Group Indicator
21. My Entry Indicator
22. Battery Indicator
23. Recording Mode Indicators

Important Introduction
-Names of Controls and Indicators-

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Using with the Rechargeable Battery

Do not force the
battery cover
open too far.

Insert from
the ⊖ side.

② ①

CHARGE
DISP

Fully insert.

To the DC IN
5 V socket

AC 230 V,
50/60 Hz

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■ **Charging the rechargeable battery**

When the rechargeable battery is used for the first time or when you want to use it after a long period of disuse, be sure to charge it fully.

1 **Insert the rechargeable battery.**
A rechargeable battery other than the AD-N55BT cannot be charged.

2 **Plug the AC adaptor into the wall socket, and then insert the plug on the other end into the DC IN 5V socket.**

3 **Press the CHARGE button.**
The battery indicator will scroll, and battery will begin charging.

Scrolling

Notes:
● After the rechargeable battery is charged or used, it will get slightly warm. This is normal.
● When the portable MD is turned on or operating, the battery will not be charged.
● For information about the battery life, see the battery item in the "Specifications" on page 69.
● The battery will not be charged whilst the alarm is set.

■ About charging time

After about 3.5 hours have passed, "▭" will go out. The battery is charged up to 90% if it is completely discharged.

To charge the battery fully, continue charging for about 2 more hours. In this case, you do not need to press the CHARGE button. Even if the CHARGE button is pressed, "▭" will not appear.

Notes:
● Charge the battery within the range of 5°C - 35°C (41°F - 95°F).
● The unit can be left in the charging state after it is completed.
● Carry the battery in the supplied case. Apply the case on the ⊕ end.

Caution:
● Use the specified battery AD-N55BT only. Do not charge a battery (nickel-cadmium, alkaline, etc.) other than that specified.
● Do not remove the outer cover of the rechargeable battery. It may cause heat generation, fire, or explosion.
● Do not dip the battery in water or dispose of it in a fire.
● Do not disassemble the battery.

Using with the AC Adaptor

Plug the AC adaptor into the wall socket, and then insert the plug on the other end into the DC IN 5V socket.

To the DC IN 5 V socket

AC 230 V, 50/60 Hz
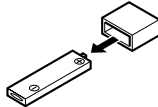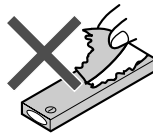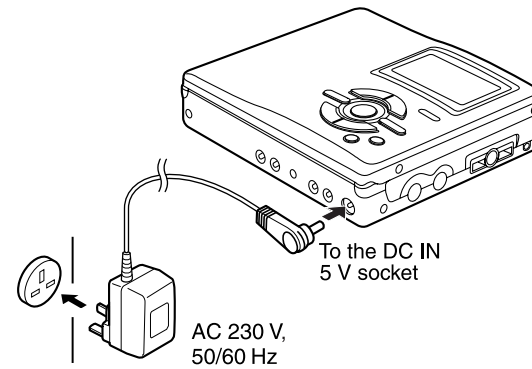
Caution:
● Insert the plugs firmly.
● When the unit is not in use for extended periods, remove the AC adaptor from the wall socket.

Note:
If power failure occurs whilst playing a disc using the AC adaptor, disconnect it from the wall socket. Otherwise, playback may start automatically when electricity resumes.

Preparation
-Using with the AC Adaptor-

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Using with the Alkaline Battery

Use one commercially available alkaline battery (LR6, "AA" size).

② **Open**

① **Press**

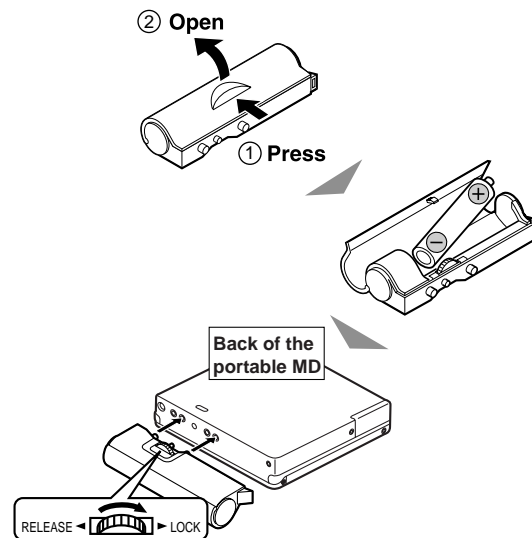**Back of the portable MD**

RELEASE ◄ ► LOCK

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When using the alkaline battery, be sure to insert the rechargeable battery also.

1 **Open the case cover.**

2 **Insert an alkaline battery into the battery case.**

3 **Attach the battery case to the portable MD.**

Caution:
● Whilst you are using the rechargeable battery and the alkaline battery at the same time, do not remove either of them. If you do, when the unit is in the play mode, playback will stop. When in the recording mode, the recorded contents will be erased, and the power may be disconnected.
● Do not replace the battery or the rechargeable battery during operation.
● **Do not use a rechargeable battery (nickel-cadmium battery etc.) in the battery case.**
● If the unit is not used for a long period of time, remove the battery. (Even if the power is turned off, the battery will be drained slowly but continuously.)

Inserting a MiniDisc

MD-DR470H
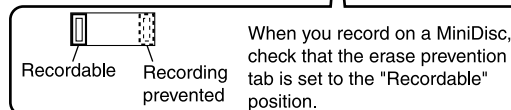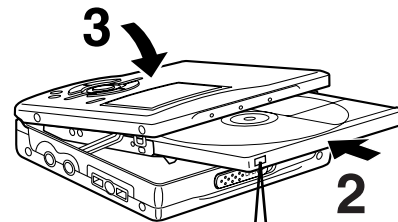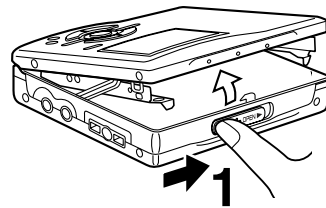
1 **Slide the OPEN lever to release the compartment door.**

2 **Insert a MiniDisc as shown.**

3 **Close the compartment door.**

Notes:
● Do not place the MiniDisc under the holder.
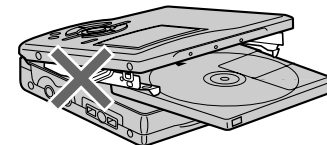
● If any resistance is felt, do not force the MiniDisc into the unit, as it may cause damage to the unit. If resistance is felt, remove the MiniDisc and reload it.
● The lid cannot be opened if "TOC" is displayed; refer to the instruction on page 21.

Recordable Recording prevented

When you record on a MiniDisc, check that the erase prevention tab is set to the "Recordable" position.

Preparation -Inserting a MiniDisc-

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Connections

You can record your favourite CDs or tapes to MD.
When recording, it is recommended to use the AC adaptor and also install the battery. Should the power failure occur, the power source would be automatically switched to the battery.

■ **To connect to a stereo system with "LINE OUT" or "AUDIO OUT" sockets (analogue connection)**

LINE OUT

RIGHT LEFT

If the audio system has only one pair of sockets, they are usually for input only and recording via this connection is not possible.

Red : to right
White : to left

To the DC IN
5 V socket

To the OPTICAL/
LINE IN socket

To the wall
socket

Supplied connection cable
(for analogue recording)

Supplied connection cable
(for PC analogue recording)

AUDIO OUT

AC 230 V,
50/60 Hz

■ **To connect to a PC with "AUDIO OUT" socket (analogue connection)**

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■ **To connect to a stereo system with a "DIGITAL OUT" or "OPTICAL OUT" socket
(digital connection)**

Compared to analogue connection recording, it allows high-quality recording.

Some audio systems do not have a DIGITAL OUT
socket. Check before connecting.

To the DC IN
5 V socket

To the OPTICAL/
LINE IN socket

To the wall
socket

AC 230 V,
50/60 Hz

Supplied
connection cable
(for digital recording)

DIGITAL OUT

DIGITAL OUT

Optionally available
connection cable (AD-M2DC)

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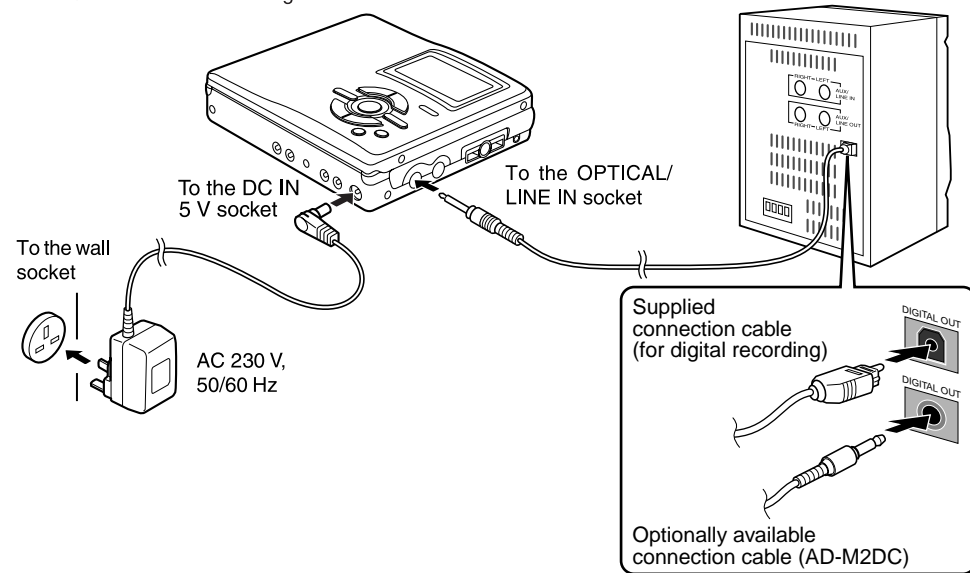
Selecting Menu

You can set or check each function by selecting from the menu.

◀ mark   Item

PLAY MODE
NORMAL

Setting

How to select Menu
[On the main unit]

1 Press the MENU button.
Press the MENU button to enter the menu select mode. Item name is displayed in the first line and menu settings in the second line.

2 Select the item by pressing the I◀◀ or ▶▶I button and press the MENU button.
An item is selected.

3 Select a setting option by pressing I◀◀ or ▶▶I button and press the MENU button.
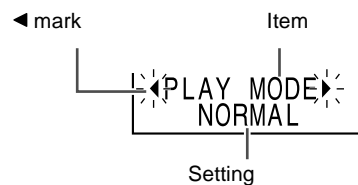An option is set and "[ ]" mark will be indicated at both ends.

"◀" mark indicates the item selected and available directions.

◀	▶	Items on the left and right.
▶	◀	No item on the left and right.
◀		Items on the left.
	▶	Items on the right.

Notes for selecting menus:
● Complete the operation within 30 seconds whilst selecting the menus.
● If you press the GROUP button during the operation, the previous display appears.

When "MENU CANCEL?" appears, select "YES" (cancel) or "NO" (continue) and press the MENU button.
● To cancel the operation, press the ■ button.
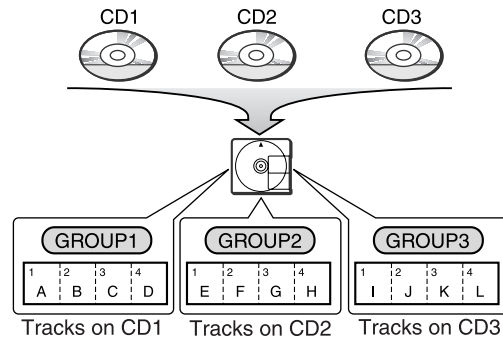
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Long Time Recording and Group Recording

MD-DR470H

■ **Long time recording**

Since this MD portable recorder adopts the 4 times long recording mode, you can record many tracks on one MD (supporting MDLP).

Up to 320 minutes of recording is possible on one MD (of 80 minutes).

■ **Group recording**

You can record tracks by the group of artists or albums, etc. That MD can be played by selecting the group.

CD1   CD2   CD3

GROUP1					GROUP2					GROUP3			
1	2	3	4		1	2	3	4		1	2	3	4
A	B	C	D		E	F	G	H		I	J	K	L

Tracks on CD1   Tracks on CD2   Tracks on CD3

When the group mode is selected for recording, tracks are played by the group, starting with the first track of the group.
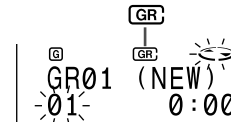
Group1				Group2				Group3			
1	2	3	4	1	2	3	4	1	2	3	4
A	B	C	D	E	F	G	H	I	J	K	L

When the group mode is cancelled, tracks will be numbered sequentially from the beginning.

Disc name

1	2	3	4	5	6	7	8	9	10	11	12
A	B	C	D	E	F	G	H	I	J	K	L

Setting the group mode
1. **Press the REC button.**
   Recording is paused.
2. **Hold down the GROUP button for 2 seconds or more so that "GR" is lit.**

GR

G   GR
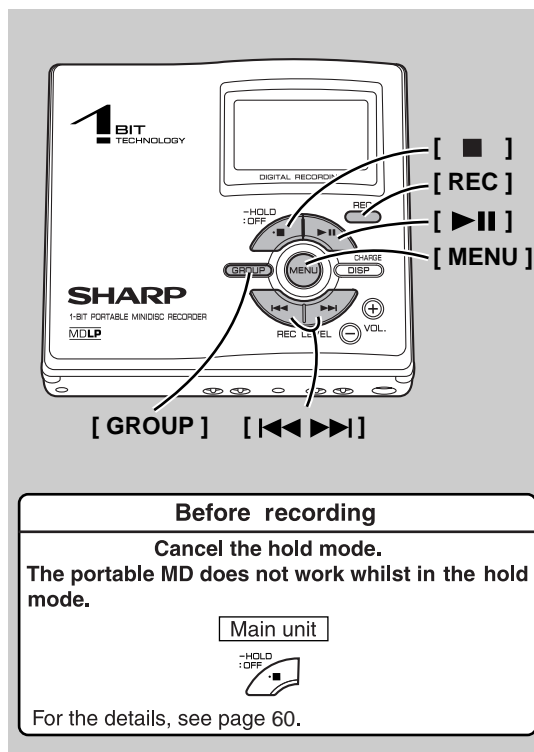GR01 (NEW)
-01-   0:00

To cancel the group mode
Hold down the GROUP button for 2 seconds or more so that "GR" goes out.

Caution:
The group-recorded MD may not be properly recorded or edited with other equipment.

Basic Operation
-Long Time Recording and Group Recording-

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Recording

[■]
[REC]
[►Ⅱ]
[MENU]

[GROUP]   [I◀◀ ▶▶I]

Before recording

Cancel the hold mode.
The portable MD does not work whilst in the hold mode.

Main unit

For the details, see page 60.

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1 Press the REC button.
Recording is paused.

```
 LINE in
SP      0:00
```

- Even when the power is off, you can start recording by pressing the REC button.
- "DISCONNECT" will appear for 1 second if nothing is connected.

2 To perform group recording, hold down the GROUP button for 2 seconds or more so that "GR" is lit.

```
G        GR
GR01  (NEW)
01       0:00
```

- The unit is ready to record a new group. (To select a group, refer to page 21.)
- When group recording is not performed, hold down the GROUP button for 2 seconds or more so that "GR" goes out.
- Setting for group recording will not be changed until a new setting is entered.

3 Start playback on the external equipment and adjust the recording level by pressing the I◀◀ or ▶▶I button (page 20).
Adjust the recording level so that the maximum sound volume from the source makes the reading swing somewhere between -4 dB and 0 dB.

4 Press the PAUSE button on the stereo system to enter the playback pause mode.
Here you can search for the track to record.

5 Press the MENU button.
The unit enters the menu select mode.

6 Select "REC MODE" by pressing the ⏮ or ⏭ button and press the MENU button again.

7 Select the recording mode (step 3, page 35) and press the MENU button.

SP/STEREO	Stereo recording.
LP2	2 times long recording.
LP4	4 times long recording.
SP/MONO	Monaural recording.

8 Press the ▶II button.

9 Begin playback on the stereo system, the output will be recorded.

Notes:
- Changing the volume level whilst recording does not affect the recording.
- You cannot adjust the bass or treble level whilst recording.
- When recording, it is recommended to use the AC adaptor and also install the battery. Should the power failure occur, the power source will be automatically switched to the battery.

To interrupt recording
Press the ▶II button.
- To resume recording, press the ▶II button again.
- The track number will be increased by one each time the recording is interrupted.

To stop recording
Press the ■ button.
- When recording stops, "TOC" appears. Whilst "TOC" appears, the MiniDisc recorded contents have not yet been updated.
- To prevent the new recording from being lost, it is not possible to remove the MiniDisc whilst "TOC" is displayed.
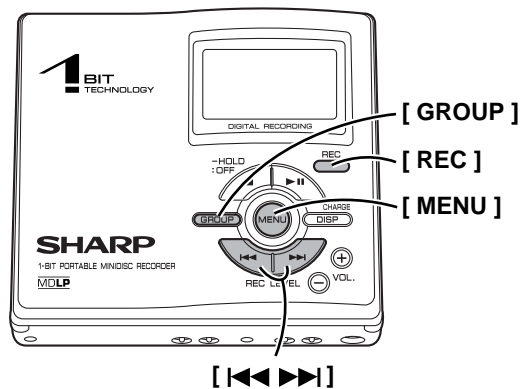
TOC display ⎯⎯ TOC
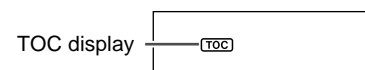
To update the recorded contents of the MiniDisc
Press the ■ button whilst in the stop mode.
The power turns off after recorded contents have been updated on the MiniDisc.

TOC EDIT ⇨ GOOD BYE

Basic Operation -Recording-

4

19

Recording (continued)

[GROUP]

[REC]

[MENU]

[|◀◀ ▶▶|]
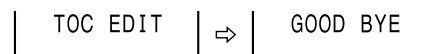
■ Recording level

1 Whilst recording or recording is paused, start playback on the external equipment.

**2** Adjust the recording level by pressing the |◀◀ or ▶▶| button.

<**Analogue recording**>
Adjust the recording level so that the maximum sound volume from the source makes the reading swing somewhere between -4 dB and 0 dB.

–12 dB   –4 dB   0 dB

REC ▬▬▬▪▪▪▪▪▪▪▪▪▪▪

LINE   20 —— 0-30

The sound is interrupted momentarily when switching between "MIC L 20" and "MIC H 21". This is not a malfunction.

<**Digital recording**>
You can adjust the level in 1 dB increments between -10 dB and +10 dB.

D. L. + 1dB —— –10 dB to +10 dB
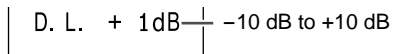
Once you adjust the digital recording level, the setting is retained even after the recording stops. (For cancellation instructions, see page 58.)

The sound from the earphones does not change even if the digital recording level is adjusted.

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MD-DR470H

■ **Adding tracks to an existing group**

1 Press the REC button.
Recording is paused.

2 Hold down the GROUP button for 2 seconds or more so that "GR" is lit.

3 Press the MENU button.
The unit enters the menu select mode.

4 Select "GrSELECT" by pressing the ⏮ **or** ⏭ **button and press the MENU button.**

```
GrSELECT
NEW GROUP
```

5 Press the ⏮ **or** ⏭ **button repeatedly to select the group you want to add tracks to.**

NEW GROUP
To create a new group.
GR01, GR02, GR03...
To add tracks to an existing group. (If the group name has been recorded, the name will be displayed instead of "GR01".)
Non GROUP
To record tracks as non-group.

6 Press the MENU button.

7 Start recording.

About the TOC
After any recording or editing function, "TOC" (Table Of Contents) is displayed. To finalise the recording or editing function, turn the power off. During this process, "TOC" will flash and "TOC EDIT" will be displayed. During any recording or editing function, the MiniDisc unit lid is locked, and the MiniDisc cannot be removed until the process is finalised.

Warning:
If the power is removed (Battery/AC adaptor) whilst "TOC" is displayed, the MiniDisc unit lid will remain locked until the battery/main power is restored and the unit is turned on. Your new recordings or edited changes will be lost and your MiniDisc may become unusable.

Caution:
Whilst "TOC" or "TOC EDIT" is displayed, follow the instructions below.

- Do not jerk or bump the unit.
- Do not unplug the AC adaptor.
- Do not remove the rechargeable battery or an alkaline battery.
- Do not subject the unit to shock.

Otherwise, tracks may not be recorded properly.

Basic Operation
-Recording-

4

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Recording (continued)

■ To prevent recorded MiniDiscs from being erased accidentally

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

The MiniDisc will then be protected against accidental erasure.

Recordable — Recording prevented
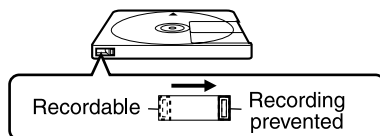
To add a recording to such a MiniDisc, slide the accidental erase prevention tab back to its original position.

■ Helpful tip when attaching a label

When attaching a label to an MiniDisc cartridge, be sure to note the following. If the label is not attached properly, the MiniDisc may jam inside the unit and you may not be able to remove it.

● If the label peels off or partially lifts away, replace it with a new one.
● Do not put a new label on top of an existing one.
● Attach the label only in the specified location.
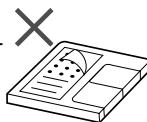
■ About sampling rate converter

This portable MD incorporates a sampling rate converter so that it can record from digital radios or DAT tape recorders.

■ Note for digital recording

You cannot copy a MiniDisc that you recorded from digital inputs to another MiniDisc or DAT. It is prevented by the SCMS (Serial Copy Management System). Recording from analogue inputs is not affected.

Digital signals   Digitally recorded   Cannot record
                    MiniDisc

CD player, MiniDisc player, etc.
   Digital connection   Digital connection

22
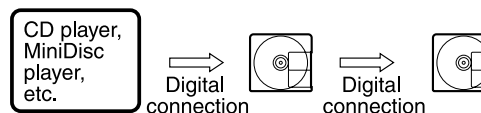
Sound Control

■ Volume control

Press the VOL+ button to increase the volume and the VOL- button to decrease the volume.

■ To adjust the bass

[On the remote control]

Select the bass strength by pressing the BASS button.

BASS 1:	Emphasised slightly.
BASS 2:	Emphasised more.
BASS 3:	Emphasised fully.
BASS OFF:	Cancelled.

[On the main unit]

1 Press the MENU button.

The unit enters the menu select mode.

2 Select "BASS" by pressing the ⏮ or ⏭ button and press the MENU button.

```
┊┆  BASS    ┊┆
     OFF
```

3 Select the bass strength by pressing the ⏮ or ⏭ button and press the MENU button again.

```
┊┆  BASS    ┊┆
   LEVEL 1
```

LEVEL 1:	Emphasised slightly.
LEVEL 2:	Emphasised more.
LEVEL 3:	Emphasised fully.
OFF:	Cancelled.

■ To adjust the treble

You cannot adjust when the bass setting is "BASS OFF". The treble cannot be adjusted by the remote control.

1 Press the MENU button.

The unit enters the menu select mode.

2 Select "TREBLE" by pressing the ⏮ or ⏭ button and press the MENU button.

```
┊┆ TREBLE   ┊┆
   NORMAL
```

3 Select the treble strength by pressing the ⏮ or ⏭ button and press the MENU button again.

```
┊┆ TREBLE   ┊┆
  LEVEL +1
```

LEVEL -2	Weakened more.
LEVEL -1	Weakened slightly.
NORMAL	Normal.
LEVEL +1	Emphasised slightly.
LEVEL +2	Emphasised more.

Notes:

- Reduce the volume before starting to play. MiniDiscs, compared to ordinary cassette tapes, have very little noise. If the volume is adjusted according to your usual expectations of noise, high volume may damage your hearing.
- The sound escaping from your earphones may annoy people around you. In particularly crowded places (such as on trains or buses), reduce the volume.
- If you set the volume to 23 or more, the bass boost will be adjusted automatically.

Basic Operation
-Sound Control-

4

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Playback

Before playing back

Cancel the hold mode.
The portable MD does not work whilst in the hold mode.

Main unit	Remote control unit
−HOLD :OFF	◀ HOLD ➡ **Release**

For the details, see page 60.

Left
channel   L

Right
channel   R

4-pole
plug

GROUP

GROUP

GROUP

Plug in the remote control unit
completely.

To the Ω/REMOTE socket

24
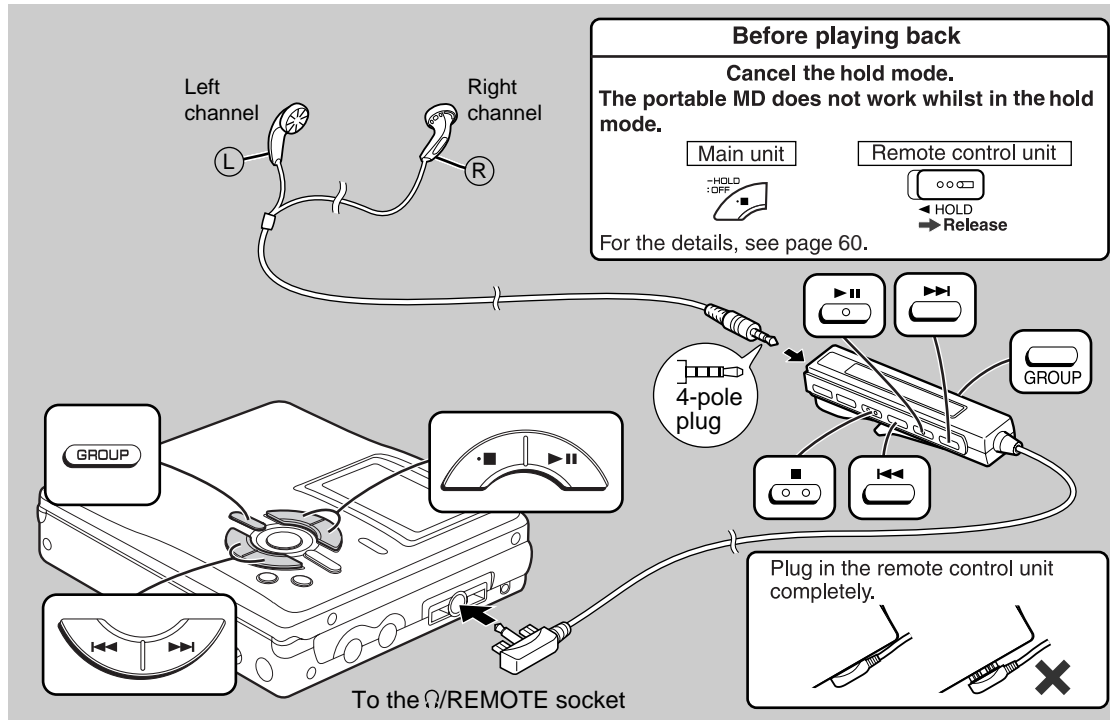
1 Plug the remote control and earphones into the unit.

2 Insert a MiniDisc (page 13).
Inserting a group-recorded MD automatically sets the unit to the group mode.

3 Start playback by pressing the ▶II button.
Playback starts automatically with a playback only MiniDisc or a MiniDisc which is protected against accidental erasure (Auto-play function).

To interrupt playback
Press the ▶II button.
● Press the ▶II button again to resume playback.
● About 5 minutes after playback is paused, the unit will enter the stop mode and, 30 seconds later, turn off.

To stop playback
Press the ■ button.
If the unit is not operated for at least 2 minutes whilst in the stop mode, the power will shut off automatically.

To turn off the power
Press the ■ button whilst in the stop mode.

Tracks will be automatically played back in the mode they were recorded.
The recording modes are displayed as follows.

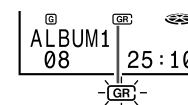| Remote control unit	Main unit	Recording mode
	No display	Stereo playback
	MONO	Monaural playback
	LP2	2 times long playback (MDLP stereo)
	LP4	4 times long playback (MDLP stereo)

■ **To search a desired group**

1 Press the GROUP button so that the "GR" flashes.
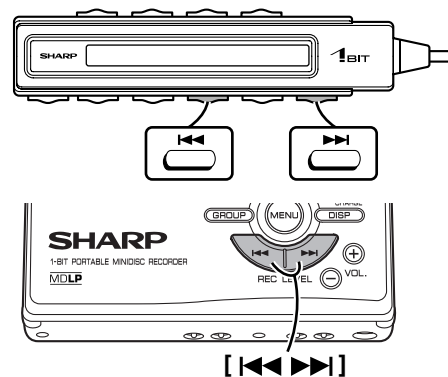
Remote control unit
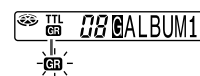
Main unit

2 Within 5 seconds, select the group by pressing the I◀◀ or ▶▶I button.
For group playback, see page 27.

Basic Operation -Playback-

4

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Playback (continued)

[I◀◀ ▶▶I]

■ To locate the desired portion

For audible fast forward:
Press and hold down the ▶▶I button during playback.

For audible fast reverse:
Press and hold down the I◀◀ button during playback.

● Normal playback will resume when the I◀◀ or ▶▶I button is released.
● When the end of the last track is reached during fast forward, the unit will enter the pause mode. When the beginning of the first track is reached during fast reverse, the unit will enter the playback mode.

■ To locate the beginning of a track

To move to the beginning of the next track:
Press the ▶▶I button during playback.

To restart the track being played:
Press the I◀◀ button during playback.

To locate the next track:
Press the ▶▶I button whilst the unit is stopped.

To locate the previous track:
Press the I◀◀ button whilst the unit is stopped.

● To skip a number of tracks at one time, press the I◀◀ or ▶▶I button repeatedly until the desired track number is shown.
● When you press the ▶II button, playback starts from the beginning of the indicated track.

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Group Playback

Using a group-recorded MD, you can play back tracks by the desired group (albums, artists, etc.).

■ Playback of group-recorded MD
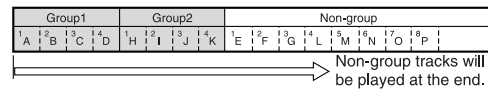
Example of group recording:

| Group-recorded MD | Tracks that are not group-recorded are classified as "Non-group". |

Group1				Non-group			Group2			Non-group				
1 A	2 B	3 C	4 D	1 E	2 F	3 G	1 H	2 I	3 J	4 K	1 L	2 M	3 N	4 O	5 P

Depending on the selection of the group mode, playback of a group-recorded MD changes as follows.

When the group mode is selected
("GR" lights up)
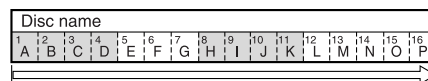Tracks are played by the group, starting with the first track of the group.
You can select a group to play back.

Group1				Group2				Non-group						
1 A	2 B	3 C	4 D	1 H	2 I	3 J	4 K	1 E	2 F	3 G	4 L	5 M	6 N	7 O	8 P

Non-group tracks will be played at the end.

When the group mode is cancelled
("GR" goes out)
Tracks are numbered in the order they are recorded.

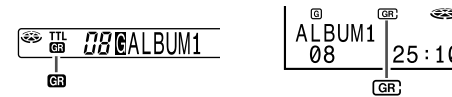| Disc name															
1 A	2 B	3 C	4 D	5 E	6 F	7 G	8 H	9 I	10 J	11 K	12 L	13 M	14 N	15 O	16 P

Setting the group mode
Inserting a group-recorded MD automatically sets the unit to the group mode.
(The first group is displayed.)

Remote control unit   Main unit

If you eject the MD, the group mode is cancelled.

To cancel the group mode
Whilst in the stop mode, hold down the GROUP button for 2 seconds or more so that "GR" goes out.

Notes:
- If a group-recorded MD is played back with the equipment that does not support the group function, the disc name will not be displayed correctly and the group name will not be displayed at all. (Example: 0;BEST//1- 10;· · ·)
- **Whilst in the favourite track playback mode or favourite track repeat playback mode, group playback cannot be performed. Favourite track playback or favourite track repeat playback is prioritised.**
- **The GROUP button does not work in the favourite track playback mode (MY) or favourite track repeat playback mode (MY⤸). Switch to other mode (page 30) to cancel or set the group mode.**

Useful Features
-Group Playback-
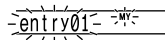
3

27

My Entry Playback (favourite track playback)

You can register up to 10 tracks per MiniDisc as favourite tracks which remain in memory even after removing the MiniDisc (up to 9 discs).
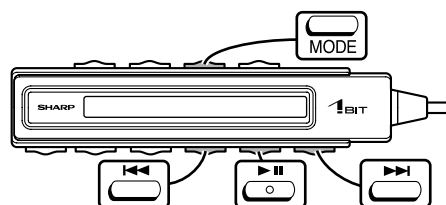
■ **To register favourite tracks**
[On the remote control]

Whilst playing a track to be registered, hold down the ▶‖ button for 2 seconds or more.
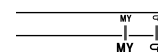Repeat this to register more tracks.

Notes:
● A playback-only MD can also be registered.
● More than 10 tracks cannot be registered. "MY full" appears then.
● If more than 9 MDs are registered, the least frequently used MD will be cancelled. (If the frequency of use is the same, the oldest will be cancelled.)
● Favourite registration on the MD will be cancelled if recording or editing is performed on it.

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■ **To play the registered favourite track**
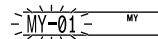**[On the remote control]**

1 Whilst playing, press the MODE button until "MY" or "MY⤸" is displayed.
MY : Favourite track playback
MY⤸ : Favourite track repeat playback

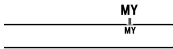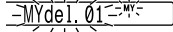**2 Press the ⏮ or ⏭ button to choose the registered track.**

Notes:
● If a registered track is selected without entering the favourite track playback mode, "MY" will flash 3 times.
● When an MD is inserted, "MY-entry" will appear on the remote control and "MY-entryDISC" on the main unit. If the MD is playback-only or erase-protected, the unit will enter the favourite track playback mode automatically.

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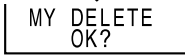■ **To cancel each of the registered favour- ite tracks**

[On the remote control]

1 **Press the MODE button until "MY" is displayed.**

2 **Select the track you wish to cancel by pressing the ◄◄ or ►► button.**

3 **Whilst the selected track is playing, hold down the ►II button on the remote control for 2 seconds or more.**
The selected track will be cancelled.

■ **To cancel all favourite tracks**

[On the main unit]

1 **Insert a MiniDisc with "favourite tracks".**

2 **Whilst in the stop mode, press the MENU button on the main unit.**
The unit enters the menu select mode.

3 **Select "SETUP" by press- ing the ◄◄ or ►► button and press the MENU but- ton.**

4 **Select "MY DELETE" by pressing the ◄◄ or ►► but- ton and press the MENU button.**

5 **Press the MENU button.**
Favourite track registration will be cancelled.

Notes:
● If the favourite track playback mode is selected whilst playing a normal track, the unit will enter the mode after the playback.
● Whilst in the favourite track playback mode, moving to the beginning of track, fast forward and fast rewind can be performed only on favourite tracks.
● Whilst playing favourite tracks or during intro play, favourite track registration cannot be cancelled.

Useful Features
-My Entry Playback (favourite track playback)-

3
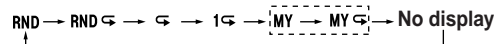
29

Advanced Playback

■ Random play or repeat play

You can enjoy a variety of playback styles by switching the playback mode.

[On the remote control]

During playback, press the MODE button repeatedly to select the playback mode.

Displays the playback mode

```
                          RND
```

RND → RND ⇆ → ⇆ → 1⇆ → MY → MY⇆ → No display

[On the main unit]

1 Press the MENU button during playback.
The unit enters the menu select mode.

2 Select "PLAY MODE" by pressing the I◄◄ or ►►I button and press the MENU button.

```
PLAY MODE
NORMAL
```

3 Select the playback mode by pressing the I◄◄ or ►►I button and press the MENU button.

RANDOM → RND REPEAT → ALL REPEAT → 1 REPEAT
NORMAL ← MY-REPEAT ← MY-NORMAL ←

Notes:

● If the playback mode is selected whilst stopped, press the ►II button to start playback.
● When "TOC" is displayed, settings cannot be changed.
● During random play, the unit cannot find the beginning of any track which has already been played.
● Repeat play lasts until you stop the unit.
● In random play the unit will select and play tracks automatically. (You cannot select the order of the tracks.) After all of the tracks have been played once in random order, the unit will stop automatically.
● During random, random repeat, or single track repeat play, you can forward or reverse the MiniDisc only within the track being played.
● Whilst in the favourite track playback mode or favourite track repeat playback mode, the group mode cannot be set or cancelled.
● MY, MY⇆, MY-NORMAL, MY-REPEAT are displayed only when the favourite tracks are registered on MiniDisc.

30

■ About playback mode

Display	When the group mode is selected ("GR" lights up).	When the group mode is cancelled ("GR" goes out).
RND (Random playback)	Tracks are played back at random within a group and playback stops automatically when all tracks have been played.	After all tracks are played back at random, playback stops automatically.
RND ⊂ (Random repeat playback)	Tracks are played back at random within a group, and groups are played repeatedly in order.	All tracks are played back at random repeatedly.
⊂ (All tracks repeat playback)	All tracks are played back repeatedly in order.	All tracks are played back repeatedly in order.
1⊂ (1 group repeat playback/1 track repeat playback)	The selected group is played back repeatedly.	The selected track is played back repeatedly.
MY* (Favourite track playback)	All tracks registered as "favourite tracks" are played back.	All tracks registered as "favourite tracks" are played back.
MY⊂* (Favourite track repeat playback)	All favourite tracks are played back repeatedly.	All favourite tracks are played back repeatedly.
No display	Normal group playback	Normal playback

(*) Displayed only when a registered MiniDisc is inserted.

Useful Features
-Advanced Playback-

3

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Advanced Playback (continued)
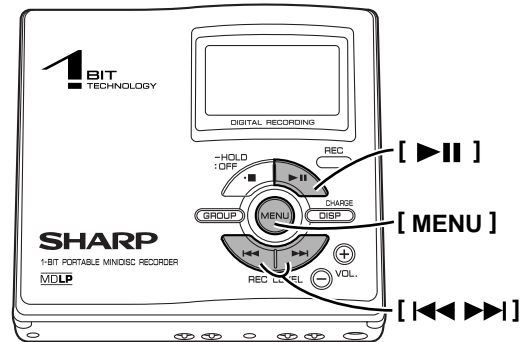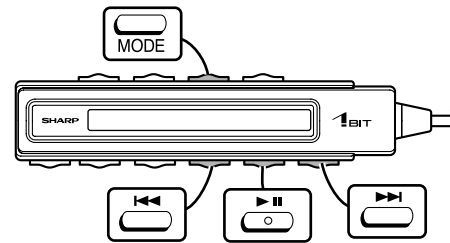
■ Intro play

You can listen to the beginning of each track for 9 seconds in the recorded order.

1 Whilst playback is stopped, hold down the ►II button for 2 seconds or more.

```
01  intro9
```

The unit plays back the first 9 seconds of the track and advances to the next.

2 Press the ►II button when you reach the track you wish to listen.
Normal playback will resume.

Notes:
- Intro play is available only when normal playback or all track repeat playback is selected.
- After intro playback of all tracks, normal playback starts.

[►II]

[MENU]

[I◄◄ ►►I]
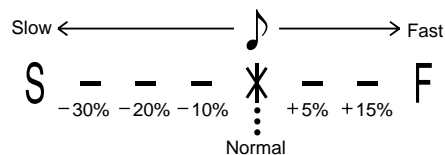
32

■ To adjust playback speed

You can increase or decrease the playback speed.
[On the remote control]

1 **During playback, hold down the MODE button for 2 seconds or more.**

2 **Within 10 seconds, select the speed by pressing the ⏮ or ⏭ button.**
Move "♪" to adjust the speed.

Slow ⟵ ♪ ⟶ Fast

$$S \text{ — — — } \maltese \text{ — — } F$$

−30% −20% −10%   +5% +15%

Normal

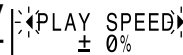**3** **Press the MODE button to complete the setting.**
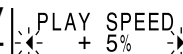To return to normal speed, move "♪" to the normal position.

[On the main unit]

1 **During playback, press the MENU button.**
The unit enters the menu select mode.

2 **Select "PLAY SPEED" by pressing the ⏮ or ⏭ button and press the MENU button.**

◄PLAY SPEED►
± 0%

3 **Select the speed by pressing the ⏮ or ⏭ button and press the MENU button.**
To return to normal speed, select "± 0%".

PLAY SPEED
◄- + 5% -►

-30%	Slowest
-20%	Slower
-10%	Slow
± **0%**	Normal
+ 5%	Faster
+15%	Fastest

Notes:
● When you operate whilst in the stop mode, start playback after setting is completed.
● "s" will blink if you switch display to clock whilst playback speed is not set to normal.
● The playback speed is set to normal when you record or change discs.

Useful Features
-Advanced Playback-

3

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Advanced Recording

■ Playback sound-actuated recording

Recording automatically starts or pauses by detecting sound from the stereo system (synchronised recording). Cancel the setting for trace-back recording.

1 Press the REC button.
Recording is paused.

2 To perform group recording, hold down the GROUP button for 2 seconds or more so that "GR" is lit.
When group recording is not performed, hold down the GROUP button for 2 seconds or more so that "GR" goes out.

3 Start playback on the external equipment and adjust the recording level by pressing the ◄◄ or ►► button (page 20).

4 Press the PAUSE button on the stereo system to enter the playback pause mode.
Select the starting point for your recording and press the PAUSE button.

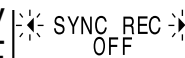**5 Press the MENU button.**
The unit enters the menu select mode.

6 Select "REC MODE" by pressing the ◄◄ or ►► button and press the MENU button.

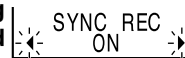**7 Select the recording mode (step 3, page 35) and press the MENU button.**

8 Press the MENU button.
The unit enters the menu select mode.

9 Select "SYNC REC" by pressing the ◄◄ or ►► button and press the MENU button.

SYNC REC
OFF

10 Select "ON" by pressing the ◄◄ or ►► button and press the MENU button.

SYNC REC
ON

● "SYNC" will flash.
● To cancel the operation, press the ■ button.

11 Begin playback on the stereo system.
Recording will begin automatically.

Notes:
● When the stereo system is stopped, the unit will enter the synchro recording pause mode. When playback is resumed, the recording will be resumed.
● If a silence lasts for 3 seconds or more, recording will be paused (pause function does not work for approximately 10 seconds after the recording starts). When the unit receives sound again, recording automatically starts.
● A new track number is created when the recording resumes.
● **Synchronised recording cannot be set with trace-back recording. Cancel trace-back recording (page 38).**

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■ Long-play recording

2 times and 4 times long recording
Double or quadruple time of stereo recording is possible.

Monaural recording
In monaural, you can record twice as long as stereo re-cording.

1 When recording is paused, press the MENU button.
The unit enters the menu select mode.

2 Select "REC MODE" by pressing the ⏮ or ⏭ button and press the MENU button.

REC MODE
SP/STEREO

3 Select the desired recording mode by pressing the ⏮ or ⏭ button and press the MENU button.

For an 80 minute MiniDisc.

Indication	Recording mode	Recording time
SP/STEREO	Stereo	MAX. 80 min.
LP2	2 times long (MDLP stereo)	MAX. 160 min.
LP4	4 times long (MDLP stereo)	MAX. 320 min.
SP/MONO	Monaural	MAX. 160 min.

4 Start recording.

Notes:
● The recording mode remains unchanged until a new mode is selected.
● In monaural recording, the sound on the right and left channels is mixed even if the input source is in stereo. Although you can hear the stereo sound from the ear-phones, the recorded sound is monaural.
● **Tracks recorded in 2 times long recording and 4 times long recording modes cannot be played with the unit that does not support these modes. On such a unit, no sound is heard. (The operation may vary depending on the unit.)**
● Tracks recorded in monaural cannot be played if equipment do not support monaural playback.
● Tracks can be recorded in stereo recording mode, 2 times long recording mode, and 4 times long recording mode on one MiniDisc.

Caution for 4 times long recording (LP4)

Special compression methods are used to achieve 4 times long recording. This may cause some noise to be recorded occasionally. When the highest quality is required, stereo or LP2 recording is recommended.

Useful Features
-Advanced Recording-

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Advanced Recording (continued)
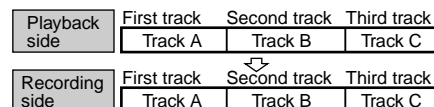
■ **About ATRAC**

The ATRAC (Adaptive TRansform Acoustic Coding) system compresses the sound data into 1/5 by cutting out the inaudible sound. Since the sound is selected based on psychoacoustics masking, the sound quality is not impaired. This unit is equipped with the ATRAC3 compressing system that can reduce the sound data to 1/10 or 1/20 of its original size. By employing this system, 2 times and 4 times long recordings are enabled in stereo mode.

■ **About track numbers**

1. Track numbers are created automatically during recording via the analogue connection when a silence of 1 second or more is detected (auto marker function). A series of tracks can be recorded as one by disabling the auto marker function.

About 1 second

♪♪♪♪♪♪♪♪	Silence	♪♪♪♪♪
First track	⇩	Second track

| ♪♪♪♪♪♪♪♪ | | ♪♪♪♪ |
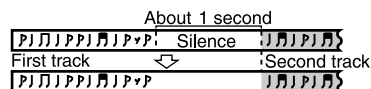
2. When recording from a CD or a MiniDisc using the digital connection, track numbers will be created at the same points as on the CD or MiniDisc (synchro marker function).

Playback side	First track	Second track	Third track
	Track A	Track B	Track C

⇩

Recording side	First track	Second track	Third track
	Track A	Track B	Track C

● Track numbers may not be created in proper places, depending on the source to be recorded from, such as signals with noise.
● The track numbers on the playback side may not match the track numbers recorded on the MiniDisc.
● When recording, if a programmed playback is performed by the source or playback is performed by selecting tracks manually, the MiniDisc track numbers may not be the same as on the source.
● Track numbers may not be created properly, depending on the connected stereo system.

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■ Creating track numbers automatically

When recording from a stereo system, track numbers will be created automatically at regular intervals.

1 **Whilst the recording or recording is paused, press the MENU button.**
The unit enters the menu select mode.

2 **Select "MARK" by pressing the ⏮ or ⏭ button and press the MENU button.**

```
⟡     MARK     ⟡
LEVEL-AUTO
```

3 **Select the desired interval by pressing the ⏮ or ⏭ button and press the MENU button.**

```
MARK
⟡ LEVEL-AUTO ⟡
```

LEVEL-AUTO Track numbers will be created automatically by detecting 1 second or more of silence.

TIME 10min A new track number is created every 10 minutes.

TIME 5min A new track number is created every 5 minutes.

TIME 3min A new track number is created every 3 minutes.

OFF No track numbers are created automatically.

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

■ To create your own track numbers

You can create your own track numbers at any point.

Whilst recording, press the REC button at the point where you want to create track numbers.

● The track number will be increased by one.
● You can perform the same operation by pressing the BASS button on the remote control unit.

Numbering restriction
If you number tracks continuously in fixed time, "SORRY" will be displayed and the operation will be disabled.
In that case, wait until the next operation can be resumed.

In stereo recording	Within 40 seconds
In 2 times long recording	Within 80 seconds
In 4 times long recording	Within 160 seconds
In monaural recording	Within 80 seconds

Useful Features
-Advanced Recording-

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Advanced Recording (continued)

■ Trace-back recording

When making a microphone or radio broadcasting, etc. (analogue) recording, you can trace back 5 - 30 seconds prior and start recording.
When connected digitally, trace-back recording cannot be operated.

1 Press the REC button.

Recording is paused.

2 Press the MENU button.

The unit enters the menu select mode.

3 Select "TRACE BACK" by pressing the ◄◄ or ►►I button and press the MENU button.

```
◄TRACE BACK►
    OFF
```

4 Press the ◄◄ or ►►I button to select the trace back time.

```
 TRACE BACK
◄TIME  5sec►
```

TIME 5sec	Traces back 5 seconds to record.
TIME 10sec	Traces back 10 seconds to record.
TIME 30sec	Traces back 30 seconds to record.
OFF	Cancelled.

5 Press the MENU button.

```
TraceBack05s        NO NAME
-01-    0:00   ⟺   -01-     0:00
```

The above is displayed alternatively and trace-back recording is set to standby.

6 Press the ►II button at the desired point.

The unit traces back the time set in step 4 and starts recording.

To interrupt recording

Press the ►II button.
When it is pressed again, the unit traces back the set time and resumes recording.

To cancel the trace-back recording

The setting for trace-back recording remains even if you remove the MiniDisc.
To cancel trace-back recording, select "OFF" in step 4.
When the unit is digitally connected, trace-back recording cannot be set or the setting cannot be cancelled. Remove the digital cable and retry.

About trace-back recording

Trace-back recording is a function to temporarily store music of a selected period of time into the memory to perform recording. The stored memory is transferred to a MiniDisc when the ►II button is pressed for recording.
Music starts to be stored when a period of time is selected (in step 5).

Notes:

● When a recording level is set within the selected trace-back time, recording will be performed at the level you set.
● Synchronised recording cannot be performed if trace-back recording is set.

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Recording from a Microphone

■ To record from a microphone

To the MIC IN socket

Stereo microphone (commercially available)
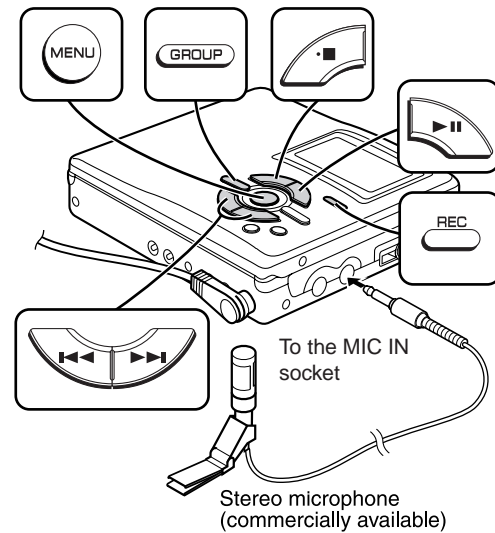
1 **Connect a stereo microphone to the MIC IN socket.**

2 **Insert a recordable MiniDisc (page 13).**

3 **Press the REC button.**

```
     MIC in
SP        0:00
```

- Recording is paused.
- "DISCONNECT" will appear for 1 second if nothing is connected.

4 **To perform group recording, hold down the GROUP button for 2 seconds or more so that "GR" is lit.**
When group recording is not performed, hold down the GROUP button for 2 seconds or more so that "GR" goes out.

5 **Press the |◀◀ or ▶▶| button to adjust the recording level (page 20).**

6 **Press the MENU button.**
The unit enters the menu select mode.

7 **Select "REC MODE" by pressing the |◀◀ or ▶▶| button and press the MENU button.**

8 **Select the recording mode (step 3, page 35) and press the MENU button.**

9 **Press the ▶II button at the desired point.**
Recording will start.

Useful Features
-Recording from a Microphone-

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Recording from a Microphone (continued)

To interrupt recording

Press the ►II button.
- To resume recording, press the ►II button again.
- The track number will be increased by one each time the recording is interrupted.

To stop recording

Press the ■ button.

To write recorded contents on the MiniDisc

Press the ■ button whilst in the stop mode.

Notes:
- Whilst making a mic recording, do not connect anything to the OPTICAL/LINE IN socket on the portable MD.
- **To use a microphone, be sure it is a plug-in-power type microphone.**
- When a plug-in-power type microphone is plugged in, the portable MD will provide power for the microphone's operation.
- If a different type of microphone is plugged in, it may not operate properly or it may cause the unit to malfunction.

- Insert the plug firmly. If you don't, the recording will not be made properly.
- Use a microphone with a 3.5 mm (1/8") diameter stereo mini plug.

■ **Group-up recording**

You can shift to group recording whilst recording normally from a microphone.

1 Start recording.

2 Press the GROUP button.

```
GR
GR
GR01 (NEW)
01      0:00
```

Group recording will be activated.

Press the GROUP button.

```
        GROUP1
 1  2  1  2  3
 A  B  C  D  E
```
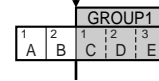
The track numbers will also be changed.

For group recording, see page 17.

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■ Sound-actuated recording (Mic Synchronised recording)

The unit automatically pauses when the microphone does not pick up any sound for 3 seconds or more. (Pause function does not work for approximately 10 seconds after a recording starts.) When the microphone picks up sound again, recording starts automatically. Cancel the setting for trace-back recording.

1 Press the REC button.
Recording is paused.

2 To perform group recording, hold down the GROUP button for 2 seconds or more so that "GR" is lit.
When group recording is not performed, hold down the GROUP button for 2 seconds or more so that "GR" goes out.

3 Press the ◄◄ or ►► button to adjust the recording level (page 20).

4 Press the MENU button.
The unit enters the menu select mode.

5 Select "REC MODE" by pressing the ◄◄ or ►► button and press the MENU button.

6 Select the recording mode (step 3, page 35) and press the MENU button.

7 Press the MENU button.
The unit enters the menu select mode.

8 Select "SYNC REC" by pressing the ◄◄ or ►► button and press the MENU button.

```
SYNC REC
OFF
```

9 Select the recording start level by pressing the ◄◄ or ►► button and press the MENU button.

```
SYNC REC
MIC SYNC H
```

MIC SYNC H (High):
Recording starts when the unit detects -24 dB or more (the unit can start recording from quiet sounds).

MIC SYNC L (Low):
Recording starts when the unit detects -12 dB or more.
● SYNC will flash.
● To cancel the operation, press the ■ button.

10 When a sound, such as person speaking, is picked up by the microphone, recording will begin automatically.

Notes:
● **Synchronised recording cannot be set with trace-back recording. Cancel trace-back recording (page 38).**
● If the unit starts recording from low unwanted noises too often, set the microphone input to "MIC SYNC L (Low)".

Useful Features
-Recording from a Microphone-

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Recording from a Microphone (continued)

■ **Track intervals**

When recording from a microphone, track numbers will be created automatically at regular intervals.

1 **Whilst the recording or recording is paused, press the MENU button.**
The unit enters the menu select mode.

2 **Select "MARK" by pressing the ⏮ or ⏭ button and press the MENU button.**

MARK
OFF

3 **Select the desired interval by pressing the ⏮ or ⏭ button and press the MENU button.**

MARK
〈TIME 10min〉

OFF	No track numbers are created automatically.
TIME 10min	A new track number is created every 10 minutes.
TIME 5min	A new track number is created every 5 minutes.
TIME 3min	A new track number is created every 3 minutes.

Example: Set to "5 minutes".
During mic manual recording
Timed auto marks will be created every 5 minutes.

Track   Track   Track   Track
number 1   number 2   number 3   number 4

5 minutes   5 minutes   5 minutes
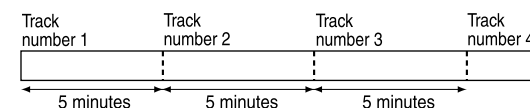
During mic synchro recording
If a silence lasts for 3 seconds or more, a timed auto mark will be created 5 minutes after the previous mark is created.

- - - : Track number which is created by the timed auto mark function.
── : Track number which is created when a silence lasts for 3 seconds or more during synchro recording.

Track Track   Track   Track   Track
number 1 number 2   number 3 number 4   number 5

2 minutes   5 minutes   1 minute   5 minutes
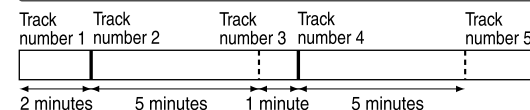
Creating track numbers manually
Press the REC button whilst recording.
You can perform the same operation by pressing the BASS button on the remote control unit.
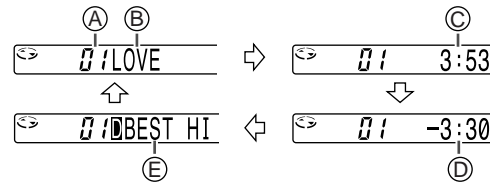For limitations on numbering tracks, see page 37 as well.

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Checking Displays

■ Switching displays during playback or whilst in the pause mode
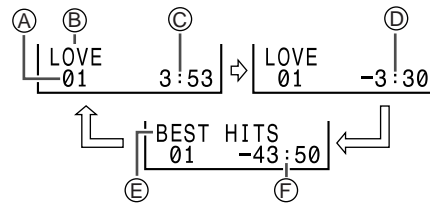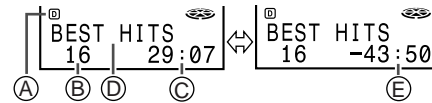
Switching the display for the remote control and the unit can be done separately.

Each time the button is pressed, the display will change as follows.

[On the remote control]
Press the DISPLAY button.

Ⓐ Ⓑ   Ⓒ

| ⬡ | 01 LOVE | ⇨ | ⬡ | 01   3:53 |

⇧   ⇩

| ⬡ | 01 BEST HI | ⇦ | ⬡ | 01   -3:30 |

Ⓔ   Ⓓ

[On the main unit]
Press the DISP button.

Ⓐ Ⓑ   Ⓒ   Ⓓ

| LOVE | | ⇨ | LOVE | |
| 01 | 3:53 | | 01 | -3:30 |

⇧

| BEST HITS | |
| 01 | -43:50 |

Ⓔ   Ⓕ

Ⓐ	Track number
Ⓑ	Track name
Ⓒ	Playing time
Ⓓ	Remaining time of the current track
Ⓔ	Disc name
Ⓕ	Total remaining playback time

Notes:
- If the disc name or the track name was not originally recorded on the MiniDisc, "NO NAME" will be displayed.
- Remaining recording time varies depending on the set recording mode.
- Elapsed playback time and remaining playback time may be different from the actual time.

Useful Features
-Checking Displays-

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Checking Displays (continued)

■ **Switching displays whilst in the stop mode**

Switching the display for the remote control and the unit can be done separately.

Each time the button is pressed, the display will change as follows.

Checking all tracks
[On the remote control]
Press the DISPLAY button.

Ⓐ Ⓑ Ⓒ   Ⓓ

⟨TTL *15*D 29:07⟩ ⟺ ⟨TTL *15*DBEST HI⟩

[On the main unit]
Press the DISP button.

```
ᴰ BEST HITS  ⟺  ᴰ BEST HITS
  16    29:07      16   -43:50
Ⓐ  Ⓑ Ⓓ  Ⓒ                    Ⓔ
```
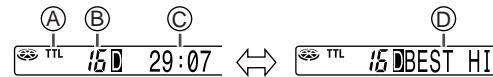
The display varies according to the play mode (group, favourite track).

	Normal play-back mode	Group play-back mode	Favourite track playback mode
Ⓐ	Lights up	"G" Lights up (main unit) *	"D" Lights up (main unit)
Ⓑ	Total number of tracks	Total number of tracks in the group	Total number of favourite tracks registered *
Ⓒ	Total playing time	Total playing time of the group	Total playing time of favourite tracks *
Ⓓ	Disc name	Group name *	Disc name
Ⓔ	Remaining re-cording time	Remaining re-cording time	Remaining re-cording time

When group playback and favourite track playback are set simultaneously, (*) will appear.

Notes:
● Remaining recording time varies depending on the set recording mode.
● Remaining recording time will not be displayed with a playback only MiniDisc.

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Checking track by track
[On the remote control]
1 **Select a track by pressing the ⏮ or ⏭ button.**
2 **Press the DISPLAY button.**
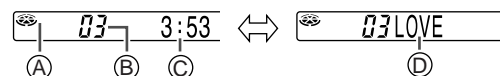
[On the main unit]
**Select a track by pressing the ⏮ or ⏭ button.**
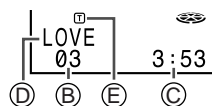
Ⓐ	Disappears
Ⓑ	Track number
Ⓒ	Playing time
Ⓓ	Track name
Ⓔ	Lights up

To check all tracks, press the ■ button.

■ **Checking the remaining amount of battery level**

The remaining amount of battery level is shown by the battery indicator (▱) during operation.

How to read the battery indicator

When the battery level is high   When the battery level is very low
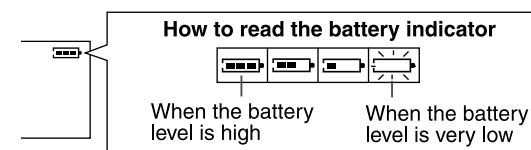
● When the battery is completely discharged, the battery indicator will flash. Recharge the battery or replace the alkaline battery with a new one.
● When the battery has run out completely, "BATT EMPTY" will appear. Then, the power will be disconnected automatically.

Notes:
● If you use the battery which you stopped charging halfway, "▱" may appear. It does not mean that the battery is completely charged.
● The battery indicator will not correctly display the remaining capacity for approximately 20 seconds after the power has been turned on.
● When the AC adaptor or a separately available car adaptor is used, the battery indicator will not be shown.
● The number of bars shown in the battery indicator may increase or decrease, depending on the operation being performed. This is normal.

Useful Features
-Checking Displays-

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Titling a MiniDisc

● Load a MiniDisc to be named. A playback only or recording prevented MiniDisc cannot be edited.
● The group-recorded MD may not be edited properly with other equipment.

Editing can be done only on the main unit.

■ Creating a disc name

1 **Insert a recorded MiniDisc and cancel the group mode.**

2 **Press the ■ button to light the "D".**
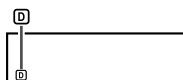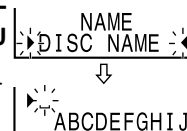
3 **Press the MENU button.**
The unit enters the menu select mode.

4 **Select "NAME" by pressing the ◄◄ or ►► button and press the MENU button.**

NAME

5 **When "DISC NAME" appears, press the MENU button.**
The unit will enter the character input mode.

NAME
DISC NAME

⇩

ABCDEFGHIJ

6 **Press the DISP button to select the type of characters.**

(Capital letters) (Lower-case letters) (Numbers and symbols)

ABC ⟶ abc ⟶ 123

7 **Select a character by pressing the ◄◄ or ►► button and press the MENU button.**
Repeat the operation to enter other characters.

B
ABCDEFGHIJ

8 **After entering all characters, hold down the MENU button for 2 seconds or more.**
The disc name will be created.

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■ **Creating a group name**

1 **Insert a group-recorded MiniDisc.**

2 **Whilst in the stop mode, choose the group to be named (page 25).**
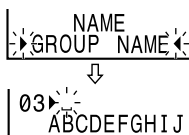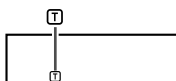
3 **Press the MENU button.**
The unit enters the menu select mode.

4 **Select "NAME" by pressing the I◄◄ or ►►I button and press the MENU button.**

```
┌─────────────────┐
│ ⤙  NAME    ⤚    │
└─────────────────┘
```

5 **When "GROUP NAME" appears, press the MENU button.**
The unit will enter the character input mode.

```
┌─────────────────┐
│      NAME        │
│ ►GROUP NAME◄     │
└─────────────────┘
          ⇩
┌─────────────────┐
│ 03►             │
│   ABCDEFGHIJ    │
└─────────────────┘
```

6 **Enter the group name (page 46, steps 6 - 7).**

7 **After entering all characters, hold down the MENU button for 2 seconds or more.**
The group name will be created.

■ **Creating a track name**

1 **Whilst in the stop mode or pause mode, select the track by pressing the I◄◄ or ►►I button.**
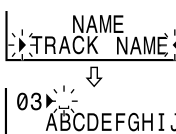
2 **Press the MENU button.**
The unit enters the menu select mode.

3 **Select "NAME" by pressing the I◄◄ or ►►I button and press the MENU button.**

```
┌─────────────────┐
│ ⤙  NAME    ⤚    │
└─────────────────┘
```

4 **When "TRACK NAME" appears, press the MENU button.**
The unit will enter the character input mode.

```
┌─────────────────┐
│      NAME        │
│ ►TRACK NAME◄     │
└─────────────────┘
          ⇩
┌─────────────────┐
│ 03►             │
│   ABCDEFGHIJ    │
└─────────────────┘
```

5 **Enter the track name (page 46, steps 6 - 7).**

6 **After entering all characters, hold down the MENU button for 2 seconds or more.**
The track name will be created.

Advanced Features
-Titling a MiniDisc-

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Titling a MiniDisc (continued)

■ **To erase a character**

1 Set the unit to character input mode.
Disc name : page 46, steps 1 - 5
Group name : page 47, steps 1 - 5
Track name : page 47, steps 1 - 4

2 Press the VOL. - or VOL. + button to select the character you want to erase.

3 Press the GROUP button.

4 Hold down the MENU button for 2 seconds or more.

■ **To add characters**

1 Set the unit to character input mode.
Disc name : page 46, steps 1 - 5
Group name : page 47, steps 1 - 5
Track name : page 47, steps 1 - 4

2 Press the VOL. - or VOL. + button to select the character before which you wish to add another character.

3 Select the character you wish to add (page 46, steps 6 - 7).

4 Hold down the MENU button for 2 seconds or more.

To change a character:
Erase the character you want to change, and then add a new one.

■ **To enter a space**
Press the VOL. + button to move the cursor to the right.

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■ 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 . , . / ⬚

Numbers and symbols

1 2 3 4 5 6 7 8 9 0 ! " # $ % & ' (
) * + , – . / : ; < = > ? @ _ ` ⬚

⬚ : indicates a space.

Notes:
- One disc name and up to 99 group names and 255 track names can be created per disc. (A maximum of 40 characters for each disc, group and track name, and a total of about 1,700 characters can be entered per disc.)
- You cannot use "/" in a name successively.
- The MD that has been group recorded with this unit should not be named using other equipment. The disc may not be played properly.
- If the number of characters entered as a disc, group or track name exceeds 40, "NAME FULL" will be displayed.
- When a disc, group, or track name that contains 40 characters is changed, "NAME CUT" will be displayed. In this case, delete all the characters and reenter the names.
- If you enter "LP:" at the beginning of a name, "LP:" may not be displayed.

■ Stamping titles from another MiniDisc

Before stamping

When there are 2 MiniDiscs on which the same tracks are recorded, you can transfer the character information (disc, group, and track names) of the master MiniDisc to another MiniDisc (for stamping) simultaneously.

1   What is a master MiniDisc?

A recordable MiniDisc that contains tracks and character information. (You cannot transfer the information from a playback-only MiniDisc.)
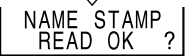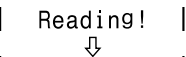
2   What is a MiniDisc for stamping?

A MiniDisc that contains the same tracks in the same order as the master MiniDisc. (Make sure that the total number of tracks of the master MiniDisc and the one for stamping are the same.)
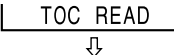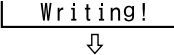
Notes:
- When information of the non-grouped MD is stamped on the group-recorded MD, the disc and track names will be stamped properly. However, the group information will be erased.
- When information of the group-recorded MD is stamped on the non-grouped MD, tracks will be grouped automatically.

Advanced Features
-Titling a MiniDisc-

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Titling a MiniDisc (continued)
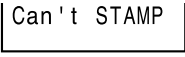
Master MiniDisc operation

1 **Insert a master MiniDisc.**
Do not mistake the master MiniDisc for the target one.

2 **Whilst in the stop mode, press the MENU button.**
The unit enters the menu select mode.

3 **Select "EDIT" by pressing the ◄◄ or ►► button and press the MENU button.**

    EDIT

4 **Select "NAME STAMP" by pressing the ◄◄ or ►► button and press the MENU button.**

    EDIT
    ◄NAME STAMP►
        ⇩
    NAME STAMP
     READ OK   ?

5 **Press the MENU button.**

    Reading!
       ⇩
    NAME STAMP
    CHANGE MD

6 **When the unit displays "CHANGE MD", remove the master MiniDisc.**

    NAME STAMP
     INSERT MD

Remove it without turning off the power. Or, the operation will be cancelled.

Operation of the MiniDisc for stamping

7 **Load a MiniDisc for stamping.**

    TOC READ
       ⇩
    NAME STAMP
    WRITE OK   ?

8 **Press the MENU button.**
The unit will finish recording the character information and enter the stop mode.

    Writing!
       ⇩
    COMPLETE

Note:

If the total number of tracks on the master MiniDisc does not match that on the MiniDisc for stamping, the unit will display "Can't STAMP" and turn off the power.

    Can't STAMP

If this happens, adjust the total number of tracks on the newly recorded MiniDisc using the edit operation.

Editing a Recorded MiniDisc

■ **To erase one track at a time**

You can erase one track at a time.

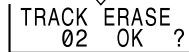**1** **Whilst in the stop mode, select the track to erase by pressing the ⏮ or ⏭ button.**

2 **Press the MENU button.**

The unit enters the menu select mode.

3 **Select "EDIT" by pressing the ⏮ or ⏭ button and press the MENU button.**

```
┊◁   EDIT   ▷┊
```

4 **Select "Tr.ERASE" by pressing the ⏮ or ⏭ button and press the MENU button.**

```
      EDIT
┊◁ Tr. ERASE ▷┊
        ⇩
 TRACK ERASE
   02  OK  ?
```

5 **Press the MENU button.**

The track will be erased.

```
 COMPLETE
```

Caution:
Once a track has been erased, it cannot be recovered. Check the track number before erasing it.

Notes:
● To edit a group-recorded MD, select the group mode.
● When all the tracks in a group have been erased, the group and the group name will also be erased.
● A track in the pause mode can also be erased.
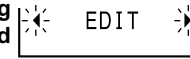● To cancel the operation, press the ■ button.

■ **To erase all of the tracks at once**
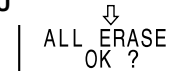
You can erase all tracks at once.

1 **Whilst in the stop mode, press the MENU button.**

The unit enters the menu select mode.

2 **Select "EDIT" by pressing the ⏮ or ⏭ button and press the MENU button.**

```
┊◁   EDIT   ▷┊
```

3 **Select "ALL ERASE" by pressing the ⏮ or ⏭ button and press the MENU button.**

```
      EDIT
┊◁ ALL ERASE ▷┊
        ⇩
  ALL ERASE
    OK ?
```

4 **Press the MENU button.**

All of the tracks will be erased.

```
 COMPLETE
```

Caution:
Once a track has been erased, it cannot be recovered. Check the track number before erasing it.

Advanced Features
-Editing a Recorded MiniDisc-

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Editing a Recorded MiniDisc (continued)

■ To divide a track
You can divide a track into 2 tracks.

1 During playback, press the ►II button at the point where you wish to divide the track. Playback will be paused.

2 Press the MENU button.
The unit enters the menu select mode.

3 Select "EDIT" by pressing the I◄◄ or ►►I button and press the MENU button.

```
EDIT
```

4 Select "DIVIDE" by pressing the I◄◄ or ►►I button and press the MENU button.

```
EDIT
DIVIDE
⇩
DIVIDE
OK ?
```

5 Press the MENU button.
The track will be divided into two tracks, and the unit will pause at the beginning of the second of the two new tracks.

```
COMPLETE
```

When a track has a name before dividing:
The two new tracks will have the same name. However, in the "TOC FULL" condition, the second track may not be named.

Total number of tracks that can be divided:
Each disc can hold up to 255 tracks. However, even if the number of assigned tracks has not reached 255, it might not be possible to make any further divisions of tracks.

Note:
To edit a group-recorded MD, select the group mode.

■ To move a track
You can move a track to the desired position.

1 Whilst in the stop mode or pause mode, select the track to move by pressing the I◄◄ or ►►I button.

2 Press the MENU button.
The unit enters the menu select mode.

3 Select "EDIT" by pressing the I◄◄ or ►►I button and press the MENU button.

```
EDIT
```

4 Select "MOVE" by pressing the I◄◄ or ►►I button and press the MENU button.

```
EDIT
MOVE
⇩
MOVE
04 → 01 ?
```

5 Select the new position for the track by pressing the I◄◄ or ►►I button.

```
MOVE
04 → 02 ?
```

6 Press the MENU button.
The track will be moved, and the unit will be stopped or paused at the beginning of the track.

Moving a track to another group
Group-recorded tracks can be moved within the group. To move them to a different group, use the GROUP CHANGE function.

Note:
To edit a group-recorded MD, select the group mode.

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■ To combine tracks

Two adjacent tracks can be combined.

1 Whilst in the stop mode, select the latter of the two tracks to be combined by pressing the ⏮ or ⏭ button.

2 Press the MENU button.
The unit enters the menu select mode.

3 Select "EDIT" by pressing the ⏮ or ⏭ button and press the MENU button.

```
┊◄┊    EDIT    ┊►┊
```

4 Select "COMBINE" by pressing the ⏮ or ⏭ button and press the MENU button.

```
┊◄┊    EDIT    ┊►┊
┊◄┊  COMBINE   ┊►┊
```
⇩
```
    COMBINE
   03 +  04 ?
```

5 Press the MENU button.
The two tracks will be combined, and the unit will stop at the beginning of the combined track.

```
    COMPLETE
```

Notes:
● A track in the pause mode can also be combined.
● To edit a group-recorded MD, select the group mode.

To combine two non-adjacent tracks:
● First, put the two tracks next to each other in the order you want using the MOVE function. Then combine them using the COMBINE function.
● For group-recorded tracks, only those in the same group can be combined. To combine tracks in different groups, move one track using the GROUP CHANGE function before combining them.

When one or both tracks to be combined have a name:
The first track name will be used. However, when the first track does not have a name, the second track name will be used.
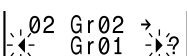
In the following cases, tracks may not be combined.
● Tracks recorded by different inputs cannot be combined.
Examples:
● Digital recorded track and analogue recorded track.
● Different recording modes (stereo recording, 2 times long recording, 4 times long recording, monaural recording).
● Tracks whose recording time is less than 12 seconds.

Advanced Features
-Editing a Recorded MiniDisc-

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Editing a Recorded MiniDisc (continued)

■ Moving a track to another group

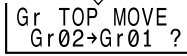On a group-recorded MD, you can move a track to a different group. (Group change)

1 Insert a group-recorded MiniDisc.

2 Whilst in the stop mode or pause mode, select the track to move by pressing the ◄◄ or ►► button.

3 Press the MENU button.
The unit enters the menu select mode.

4 Select "GROUP" by pressing the ◄◄ or ►► button and press the MENU button.

```
GROUP
```

5 Select "CHANGE" by pressing the ◄◄ or ►► button and press the MENU button.

```
GROUP
CHANGE
```

6 Select the destination group by pressing the ◄◄ or ►► button.

```
02 Gr02 →
   Gr01  ?
```

7 Press the MENU button.
The track will be moved, and the unit will be stopped or paused at the beginning of the track.

```
COMPLETE
```

Notes:
● When all the tracks in a group are moved to different groups, the group and the group name will be erased.
● Non-group tracks can also be moved to a group using the GROUP CHANGE function.

■ Moving a group to the top

On a group-recorded MD, group-recorded tracks can be moved to the beginning of the MiniDisc. (Group top move)

1 Insert a group-recorded MiniDisc.

2 Whilst in the stop mode, select the group to be moved (page 25).

3 Press the MENU button.
The unit enters the menu select mode.

4 Select "GROUP" by pressing the ◄◄ or ►► button and press the MENU button.

```
GROUP
```

5 Select "TOP MOVE" by pressing the ◄◄ or ►► button and press the MENU button.

```
GROUP
TOP MOVE
```
⇩
```
Gr TOP MOVE
 Gr02→Gr01 ?
```

6 Press the MENU button.
The group will be moved to the top of the MD.

```
COMPLETE
```

Notes:
● If the group name has been recorded, the group name will not be changed even if the GROUP TOP MOVE function is performed.
● The GROUP TOP MOVE function cannot be performed with non-group tracks or groups without tracks.

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■ Creating a group before recording

You can create a group in advance and record tracks in it. (Group reserve)

1 **Insert a MiniDisc.**
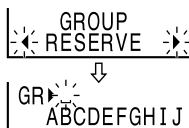
2 **Whilst in the stop mode, press the MENU button.**
The unit enters the menu select mode.

3 **Select "GROUP" by pressing the ⏮ or ⏭ button and press the MENU button.**

`⊣⊱ GROUP ⊰⊢`

4 **Select "RESERVE" by pressing the ⏮ or ⏭ button and press the MENU button.**
The unit will enter the character input mode.

`GROUP`
`⊣⊱ RESERVE ⊰⊢`
⇩
`GR▸`
`ABCDEFGHIJ`

5 **Enter the group name (page 46, steps 6 - 7).**
Otherwise, you will not be able to create a group.

6 **Hold down the MENU button for 2 seconds or more.**
The created group name will be displayed.

`COMPLETE`

Note:
Even if you create a group using the GROUP RESERVE function, it will not be played if no track is recorded in it. (Group name will not be displayed either.) To check the contents of the group, refer to "To search a desired group" (page 25).

To record in the created group:
Refer to "Adding tracks to an existing group" (page 21).

■ Moving non-group tracks to after group-recorded tracks

If non-group tracks are found in the middle of a group-recorded MD, they can be moved to after group-recorded tracks. (Group arrange)

1 **Insert a group-recorded MiniDisc.**

2 **Whilst in the stop mode, press the MENU button.**
The unit enters the menu select mode.

3 **Select "GROUP" by pressing the ⏮ or ⏭ button and press the MENU button.**

`⊣⊱ GROUP ⊰⊢`

4 **Select "ARRANGE" by pressing the ⏮ or ⏭ button and press the MENU button.**

`GROUP`
`⊣⊱ ARRANGE ⊰⊢`
⇩
`GrARRANGE`
`OK ?`

5 **Press the MENU button.**
Non-group tracks are moved to after group-recorded tracks.

`COMPLETE`

Caution:
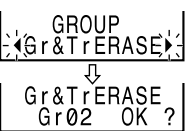**All non-group tracks are moved to after group-recorded tracks by "GROUP ARRANGE".**
The track order of moved tracks will not be maintained.
Perform this after consideration.

Advanced Features
-Editing a Recorded MiniDisc-

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Editing a Recorded MiniDisc (continued)

■ Erasing a group

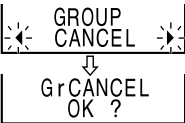On a group-recorded MD, you can erase all tracks in a group at once. (Group erase)

1 Insert a group-recorded MiniDisc.

2 Whilst in the stop mode, select the group to be erased (page 25).

3 Press the MENU button.
The unit enters the menu select mode.

4 Select "GROUP" by pressing the ◄◄ or ►► button and press the MENU button.

```
GROUP
```

5 Select "Gr&TrERASE" by pressing the ◄◄ or ►► button and press the MENU button.

```
GROUP
Gr&TrERASE
⇩
Gr&TrERASE
Gr02  OK ?
```

6 Press the MENU button.
The selected group will be erased.

```
COMPLETE
```

Caution:
Once a group has been erased, it cannot be recovered. Check carefully before you erase it.

Note:
The GROUP ERASE function erases the group and group name.

■ Erasing group information

You can erase the entire group information of a group-recorded MD. By erasing the group information of a MD, it will be a non-group MD. (Group cancel)

1 Insert a group-recorded MiniDisc.

2 Whilst in the stop mode, press the MENU button.
The unit enters the menu select mode.

3 Select "GROUP" by pressing the ◄◄ or ►► button and press the MENU button.

```
GROUP
```

4 Select "CANCEL" by pressing the ◄◄ or ►► button and press the MENU button.

```
GROUP
CANCEL
⇩
GrCANCEL
OK ?
```

5 Press the MENU button.
The group information will be erased.

```
COMPLETE
```

Caution:
The GROUP CANCEL function erases all the group information. Check carefully before you erase it.

Setting the Alarm

When the timer is set, the alarm will sound at the desired time.

[On the remote control]

1 **During playback or whilst in the stop mode, press the DISPLAY button for 2 seconds or more.**

2 **Within 10 seconds, select "ALARMon" by pressing the ⏮ or ⏭ button and press the DISPLAY button again.**

> ALARMon

3 **Within 10 seconds, select the time by pressing the ⏮ or ⏭ button and press the DISPLAY button.**

> 10 min

You can set the time from 1 to 99 minutes.

[On the main unit]

1 **During playback or whilst in the stop mode, press the MENU button.**
The unit enters the menu select mode.

2 **Select "ALARM" by pressing the ⏮ or ⏭ button and press the MENU button.**

> ALARM
> OFF

3 **Select "ON" by pressing the ⏮ or ⏭ button and press the MENU button.**

> ALARM
> ON

4 **Select the time by pressing ⏮ or ⏭ button and press the MENU button.**

> 10min

You can set the time from 1 to 99 minutes.

When the set time comes
The alarm beeps repeatedly for one minute from the earphones.

To stop the beep sound
Press any button on the remote control or the main unit.

To change the alarm time
Repeat the operation from step 1.

To cancel the alarm setting
[On the remote control]
Select "ALARMoff" in step 2.
[On the main unit]
Select "OFF" in step 3.

Notes:
● Press the ■ button after setting the alarm. The remaining time will be displayed for about 1 second.
● Turn the power off after setting the alarm. The remaining time will appear and the alarm beeps at the time you set.
● When the battery runs out, the alarm beeps and the setting is cancelled.
● If recording is performed, the alarm setting will be cancelled.
● When the alarm setting is set, the unit cannot be charged. Cancel the setting for charging.

Advanced Features
-Setting the Alarm-

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Changing Default Settings

[On the main unit]

1 Insert a MiniDisc.

2 Whilst in the stop mode, press the MENU button.
The unit enters the menu select mode.

3 Select "SETUP" by press-ing the I◄◄ or ►►I button and press the MENU but-ton.

SETUP

4 Select the menu by press-ing the I◄◄ or ►►I button and press the MENU but-ton.

SETUP
BEEP

5 Select the item by press-ing the I◄◄ or ►►I button and press the MENU but-ton.

BEEP
OFF

Menu	Item	
BEEP	ON*	Beep on
Beep sound	OFF	Beep off
AUTO PLAY	ON*	Set
Auto play	OFF	Cancelled
POWER SAVE	AUTO*	Set
Auto power save	OFF	Cancelled
DIGI LEVEL	AUTO SAVE	Setting retained
Digital record-ing level	NOT SAVE	Cancelled
REMOTE LCD	NORMAL*	See the next page.
Backlight on the remote control	ALL TIME	
	AUTO OFF	

(*) indicates default setting.

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■ Beep sound

You can eliminate the confirmation sound that beeps when you press a button.

■ Auto play

You can make the unit not play automatically when you insert a playback-only MiniDisc or an accidental erasure protected MiniDisc.

■ Auto power save

When the unit is used in a place exposed to much vibration, sound skipping can be decreased by cancelling the auto power save function. (Battery will drain faster.)

What is auto power save function?

During playback, maximum 40 seconds (in stereo) of musical information is stored. Auto power save function automatically adjusts the storage time between 5 and 40 seconds to reduce the power consumption. If this function is cancelled, the storage time cannot be adjusted.

● If this unit is used with the AC adaptor, the storage time will be 40 seconds regardless of the settings.
● The storage time varies depending on the recording mode.

■ Digital recording level

"AUTO SAVE"

The digital recording level you set will be kept even after cancelling recording.

"NOT SAVE"

Every time you cancel recording, the level will return to [D.L 0dB].

■ Backlight on the remote control

"NORMAL"

| **Display** | Always displayed |
| **Backlight** | Lit for approx. 10 seconds during operation |

"ALL TIME"

Display	Always displayed
Backlight	Lit for approx. 10 seconds during operation
	(Always lit if used with AC adaptor)

"AUTO OFF"

| **Display** | Displayed for approx. 10 seconds during operation |
| **Backlight** | Lit for approx. 10 seconds during operation |

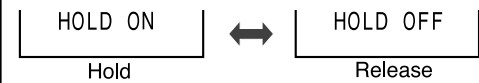*Advanced Features*
-Changing Default Settings-

2

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Hold Function

The present operation condition can be kept even if other buttons are accidentally pressed in a place such as a crowded train.

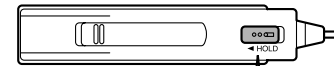## Main unit
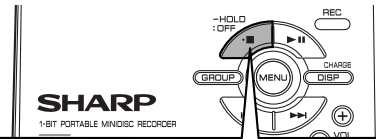
Hold down the ■(HOLD) button for 2 seconds or more.

HOLD ON ⟷ HOLD OFF

Hold   Release

If the battery is inserted or the AC adaptor is connected, you can set this function even when the power is turned off.

To cancel the hold mode
Press and hold down the ■ button for 2 seconds or more whilst the unit is in the hold mode.
"HOLD OFF" will be shown.

Remote control unit

Move the HOLD switch to the safety position (direction indicated by the arrow).

Orange mark

Hold   Release
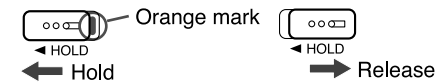
To cancel the hold mode
Move the HOLD switch away from the safety position (the opposite direction of the arrow).

If the hold function is active whilst the power is turned off, the power cannot be turned on by mistake and the battery will not be drained.

Listening through Another System

When connecting with other equipment, turn off the power or turn down the volume to "0".

■ Listening through a stereo system

To the LINE INPUT sockets

White: to the left

Red: to the right
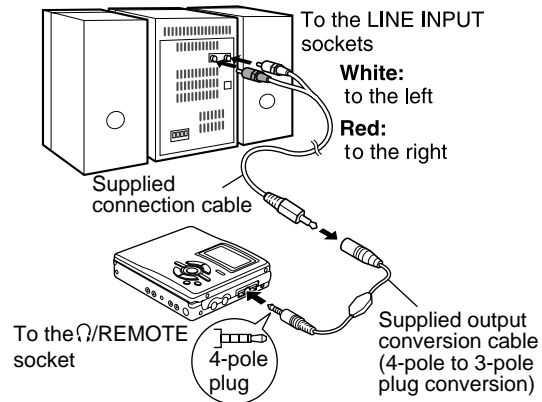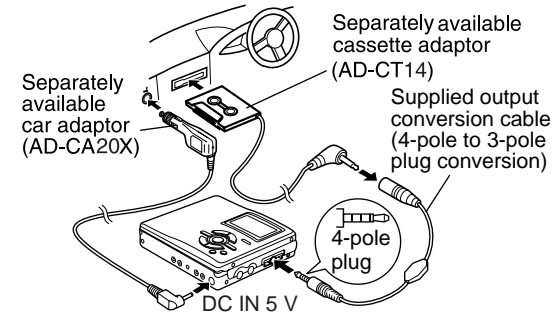
Supplied connection cable

Supplied output conversion cable (4-pole to 3-pole plug conversion)

To the Ω/REMOTE socket

4-pole plug

Notes:
● It is recommended that the volume level of the MiniDisc unit be set to maximum when listening through a stereo system.
● When recording with a stereo system, eliminate the confirmation sound (page 58). Otherwise, it will also be recorded.
● Recording will be made in the analogue mode.
● Character information will not be recorded.

■ Listening through a car stereo

Separately available cassette adaptor (AD-CT14)

Separately available car adaptor (AD-CA20X)

Supplied output conversion cable (4-pole to 3-pole plug conversion)

4-pole plug

DC IN 5 V

Notes:
● Output voltage of the optional car adaptor (AD-CA20X) is 4.5 volt direct current. It can be connected to the DC IN 5 V socket of the unit.
● Adjust the volume of both this portable MD and a car stereo.
● Do not operate this portable MD whilst you drive a car. It may distract your attention and cause a traffic accident.
● Place the unit in a stable area not to hinder driving. It may cause an accident from falling or moving if placed in unstable area.
● Do not use any car adaptor except for the separately available AD-CA20X.
● Remove the battery when you power the unit from the car battery.
● Do not leave the unit in the place of high temperature such as in a car in direct sunlight.

Advanced Features
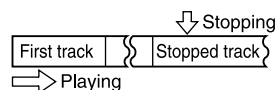*-Listening through Another System-*

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Other Features and Caution

■ Resuming auto play

**When you stop playback and replay the MiniDisc without removing it, playback starts from the point you stopped it.**
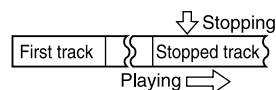
Once you remove the MiniDisc, playback starts from the first track.

The unit provides the following functions when you use it with the separately available car adaptor (AD-CA20X) (when the rechargeable or alkaline battery is removed):

1. When you turn off the engine, the power of this portable MD also turns off. (It may not work with some types of cars.)
2. When you restart the engine, playback starts from the beginning of the stopped track.
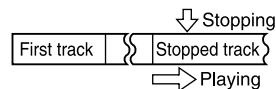
■ Rechargeable battery

● A rechargeable nickel-metal hydride battery is the only kind that can be used. Even if the battery is not used, you should charge it at least once every three months because of the special quality of this battery.
● The rechargeable battery can be charged approximately 300 times.
● When the operating time is reduced to about half the normal amount of time, even after a full charge is performed, replace the battery with a new one (AD-N55BT).
● When the battery is charged for the first time or is charged after not being used for a long period, the operating time may be shorter than normal. The battery life will recover with normal use i.e. charging and discharging.
● To avoid shortening the service life of the battery only recharge the battery after it is completely discharged.
● If the rechargeable battery is used in a cold environment, the operating time will be reduced.
● Do not carry the battery in your pocket or a bag together with metal objects (keys, coins, jewelry, etc.). The battery may short out and generate significant amounts of heat.
● Do not short-circuit the terminals as they will become very hot and will damage the battery.
● Do not drop or subject the battery to shock.
● Do not insert objects (metal etc.) into the battery compartment of this product or into the rechargeable battery.

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Troubleshooting

Many potential "problems" can be resolved by the owner without calling a service technician. If something seems to be wrong with this product, check the following before calling your authorised SHARP dealer or service centre.

The unit does not turn on.
- Is the AC adaptor disconnected?
- Is the battery exhausted?
- Is the unit in the hold mode?
- Has condensation formed inside the unit?
- Is the unit being influenced by mechanical shock or by static electricity?

No sound is heard from the earphones.
- Is the volume set too low?
- Is the remote control unit or the earphones plugged in?
- Are you trying to play a MiniDisc with data on it instead of a MiniDisc containing music?

When the operation buttons are pressed, the unit does not respond.
- Is the unit in the hold mode?
- Is the battery exhausted?
- Is the remote control unit plug or the earphones plug inserted firmly?

Some sounds are skipped.
- Is the battery exhausted?
- Is the unit being subjected to excessive vibration?

The MiniDisc cannot be ejected. (The compartment does not open.)
- Has the track number or character information been written on the disc yet?
- Is the unit in the recording or editing mode?
- Is the AC adaptor unplugged or did a power failure occur whilst recording or editing? (Refer to page 64.)

Recording and editing are impossible.
- Is the MiniDisc protected against accidental erasure?
- Has the recording level been properly adjusted?
- Is the unit connected properly to the other equipment?
- Is the AC adaptor unplugged or did a power failure occur whilst recording or editing?
- Is the unit in the hold mode?
- Is an optical signal being output from the stereo system? Read the operation manual for the stereo system.
- Is the AC adaptor unplugged or did a power failure occur whilst recording or editing?

The battery cannot be charged.
- Is the rechargeable battery in the unit?

Group functions cannot be used with the group-recorded MD.
- TOC information may have been changed with other equipment.

References
-Troubleshooting-

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Troubleshooting (continued)

■ If trouble occurs

When 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.
Also, the compartment may not open even if you slide the open lever.

If such a problem occurs, do the following:
1. Unplug the AC adaptor from the wall socket.
2. Remove the battery.
3. Leave the unit completely unpowered for approximately 30 seconds.
4. Connect the AC adaptor to the wall socket and leave for approximately 30 seconds.
5. Start operation.

■ Moisture condensation

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

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.

To remove condensation:
Remove the MiniDisc and leave the unit for approximately 1 hour. The condensation should evaporate and the unit will work properly.

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Maintenance

■ Cleaning

When the unit becomes dirty
Clean it with a soft cloth. When the unit is excessively dirty, use a soft cloth dampened in water (external surfaces only).
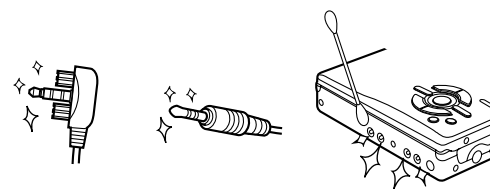
Clean the plugs and the connecting sockets.
If the plugs or sockets are dirty, noise may be heard. Cleaning will prevent noise.

Caution:
● Do not use chemicals for cleaning (petrol, paint thinner, etc.). It may damage the cabinet finish.
● Do not apply oil to the inside of the unit. It may cause malfunctions.

MiniDisc System Limitations

The unit may have the following symptoms whilst recording or editing. The unit is not out of order.

SYMPTOM	LIMITATIONS
"DISC FULL" or "TOC FULL" appears even though the MiniDisc still has recording time left.	More than the limited number of tracks (255) cannot be recorded regardless of the recording time. If the MiniDisc is recorded or edited repeatedly or it has scratches (recording skips scratched parts), you may not be able to record the maximum number of tracks described above. If the total number of character information (disc, group, and track names) exceeds 1,700, the MD cannot be edited.
The remaining recording time does not increase even though you erased tracks.	The unit does not count non-recorded portions that last 12 or fewer seconds to display the remaining recording time. The time may not increase even if you erase short tracks.
The total of the recorded time and the remaining time does not match the maximum recordable time.	One cluster (approximately 2 seconds) is the minimum unit for recording. For example, a 3-second track uses 2 clusters (approximately 4 seconds). Therefore, the actual recordable time may be shorter than the displayed time. (The number of seconds indicates that in the stereo recording mode (SP). It varies depending on the recording mode.)
Combine function does not work.	A MiniDisc on which recording and editing are repeated may not allow the combine function.
Sound skips in fast reverse/forward.	If one track is divided and recorded in separate places on a repeatedly recorded or edited MiniDisc, sound may skip.
A track number is created in the middle of a track.	A track number may be created if there are scratches or dust on the MiniDisc.
Even if "LP :" is entered at the top of the name, "LP :" is not displayed.	If "LP :" is entered at the top of the 2 times/4 times long recorded track (LP2/LP4), "LP :" will not be displayed. Enter symbols other than ":" after "LP".

References
-MiniDisc System Limitations-

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Error Messages

ERROR MES-SAGES	MEANING
BLANK MD	● Nothing is recorded. (Replace the disc with a recorded disc.)
BUSY	● A track is being moved.
Can't COPY	● You tried to record from a copy pro-hibited MiniDisc. ● You tried to record signals other than music (such as data). (Record using the analogue cable.)
Can't EDIT	● A track cannot be edited. (Change the stop position of the track and then edit it.)
Can't LOCK	● You tried to record or edit the MD whilst operating the OPEN lever.
Can't PLAY	● Cannot play the MD.
Can't REC	● Recording cannot be performed correctly due to vibration or shock.
Can't READ (*)	● The disc data cannot be read be-cause the disc is damaged. (Reload the Minidisc or replace it with another one.)
Can't STAMP	● Stamp function does not work. (Check the number of tracks.)

A number or symbol appears in (*) position.

ERROR MES-SAGES	MEANING
Can't WRITE	● Cannot save the TOC information correctly to a MiniDisc.
DISC-FULL (D-FULL)	● The disc is out of recording space.
DEFECT!	● The disc is scratched. (If the recorded sound is not right, retry recording or replace the disc with a re-cordable one.)
Er-MD (**)	● The microprocessor has reported a system fault and the unit is out of or-der. (To have it repaired, go to the distribu-tor where you purchased the unit.)
GROUP FULL	● The total number of groups exceeds 99. (Erase unnecessary groups.)
HOLD	● The unit is in the hold mode.
BATT EMPTY (LoBATT)	● The rechargeable or alkaline battery has run down.
LOCKED (LOCKED)	● You removed a MiniDisc whilst re-cording or editing. (Turn off the power before removing the MiniDisc.)

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ERROR MES-SAGES	MEANING
NAME FULL	● The number of a disc, group, or track name exceeds 40. (Shorten the name.)
NO DISC (NoDISC)	● A disc has not been loaded.
NO SIGNAL (noSIG.)	● Poor connection of the digital cable. ● No output signal comes out from the connected unit to playback. (Use the AC power for the connected unit.) ● The input signal has improper sampling frequency.
NO TRACK (NoTRACK)	● There is no track to be played.
PLAY MD (PLAYmd)	● You tried to record on a playback-only disc.
POWER?	● AC adaptor other than specified. ● Abnormal voltage detected.
PROTECTED	● The write protection tab of a MiniDisc is set to the protected position.
SORRY (Sorry)	● Cannot operate this unit whilst searching/updating groups and track numbers. (Wait for a while and try the operation again.)

ERROR MES-SAGES	MEANING
TOC FORM (**)	● There is an error in the recording signal. (Erase all of the tracks, and then record again.)
TOC FULL (T-FULL)	● There is no space left for recording character information (track names, disc names, etc.).
TEMP OVER	● The temperature is too high. (Turn off the power, and wait for a while.)
Tr. Protect	● The track has been protected from being erased. (Edit the track with the device on which it was recorded.)
?DISC	● A disc which contains data other than music was played. (A disc which contains nonmusic data cannot be played.)
? Gr Form	● The group recording or the GROUP RESERVE function cannot be performed. (Erase the disc name and retry the same operation.)

● A number or symbol appears in (*) position.
● Messages shown in the brackets are shown on the remote control.

References
-Error Messages-

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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.

Power source:	DC 5 V:	AC adaptor (AC 230 V, 50/60 Hz)
	DC 1.5 V:	Commercially available, "AA" size (LR6), alkaline battery x 1
	DC 1.2 V:	Rechargeable Nickel-Metal Hydride battery AD-N55BT x 1
	DC 4.5 V:	Optional car adaptor, AD-CA20X (for cars with a 12 - 24 V DC negative earth electrical system)
Power consumption:	7 W (AC adaptor)	
Output power:	RMS: 16 mW (8 mW + 8 mW) (0.2 % T.H.D.)	
Charging time:	Approx. 3.5 hours (90 %) Approx. 5.5 hours (fully charged)	
Dimensions:	Width: 78.9 mm (3-1/8") Height: 17.8 mm (23/32") Depth: 71.9 mm (2-27/32")	
Weight:	140 g (0.31 lbs.) with rechargeable battery	
Input socket:	Line/optical digital, microphone (powered by the main unit)	
Output socket:	Earphones (impedance: 32 ohms)/remote control unit	
Type:	Portable MiniDisc recorder	
Signal readout:	Non-contact, 3-beam semiconductor laser pickup	
Audio channels:	Stereo 2 channels/monaural 1 channel	
Frequency response:	20 - 20,000 Hz ($\pm$3 dB)	
Rotation speed:	Approx. 400 - 1,800 rpm	
Error correction:	ACIRC (Advanced Cross Interleave Reed-Solomon Code)	
Coding:	ATRAC/ATRAC3 (Adaptive TRansform Acoustic Coding)	
Recording method:	Magnetic modulation overwrite method	
Sampling frequency:	44.1 kHz (32 kHz and 48 kHz signals are converted to 44.1 kHz, and then recorded.)	
Wow and flutter:	Unmeasurable (less than $\pm$ 0.001 % W. peak)	

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Battery life:

	Stereo		2 times long		4 times long	
When using the rechargeable battery (fully charged) included with the unit	Continuous recording: Approx. 10.5 hours	Continuous play: Approx. 27 hours	Continuous recording: Approx. 15 hours	Continuous play: Approx. 35 hours	Continuous recording: Approx. 22 hours	Continuous play: Approx. 42 hours
When using one, commercially available, high capacity, "AA" size (LR6), alkaline battery (The rechargeable battery is in the unit, discharged.)	Continuous recording: Approx. 13 hours	Continuous play: Approx. 41 hours	Continuous recording: Approx. 22 hours	Continuous play: Approx. 59 hours	Continuous recording: Approx. 30 hours	Continuous play: Approx. 71 hours
When using one, commercially available, high capacity, "AA" size (LR6), alkaline battery with the rechargeable battery (fully charged)	Continuous recording: Approx. 28 hours	Continuous play: Approx. 72 hours	Continuous recording: Approx. 42 hours	Continuous play: Approx. 100 hours	Continuous recording: Approx. 57 hours	Continuous play: Approx. 122 hours

Input sensitivity:

	Reference input level	Input impedance
MIC H	0.25 mV	10 k ohms
MIC L	2.5 mV	10 k ohms
LINE	100 mV	20 k ohms

Output level:

	Specified output	Maximum output level	Load impedance
Earphones	-	8 mW + 8 mW	32 ohms
LINE	250 mV (-12 dB)	-	10 k ohms

- The continuous recording time is for analogue inputs when the volume level is set to "VOL 0".
- The continuous play time shows the value when the volume level is set to "VOL 15".
- The above values are the standard values when the unit is charged and used at an ambient temperature of 25°C (77°F).
- The operating time when using an alkaline battery may be different, depending on the type and manufacturer of the battery, and on the operating temperature.
- The setting for the REMOTE LCD is set to "AUTO OFF" (page 58).

References
-Specifications-

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MEMO

MEMO

TERMS OF GUARANTEE

Subject to the terms listed below, Sharp Electronics (U.K.) Ltd. (hereinafter called "the Company") guarantee to provide for the repair of, or at its option replace this Sharp Equipment, or any component thereof, (other than batteries), which is faulty or below standard, as a result of inferior workmanship or materials.

The conditions of this guarantee are:

1. The guarantee shall only apply to defects which occur within one year from the date of purchase, provided that this equipment is sent to the repair address within this period.

2. This guarantee covers equipment intended for private domestic use only. This guarantee does not apply to equipment used in the course of a business, trade or profession.

3. The guarantee does not cover MiniDiscs or batteries.

4. This guarantee does not cover any faults or defects caused by accident, misuse, fair wear and tear, neglect, tampering with the equipment, or any attempt at adjustment or repair other than by a Service Facility appointed by Sharp.

5. In the unlikely event of a defect occuring, the product must be returned to the Company's repair centre with proof of purchase. A postage paid label and a fault report form are supplied with the product for this purpose. It is your responsibility to ensure that the packaging is adequate, and to obtain proof of posting.
   Further details of the repair service, which is available after the guarantee period on a chargeable basis, and additional report forms and labels can be obtained by telephoning 0870 738 0000.

6. No person has any authority to vary the terms or conditions of this guarantee.

7. This guarantee is offered as an additional benefit to the consumer's statutory rights and does not affect these rights in any way.

SHARP

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SHARP CORPORATION

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