SHARP

GRABADOR/REPRODUCTOR MINIDISC PORTÁTIL
BÄRBAR MINISKIVINSPELARE
GRAVADOR PORTÁTIL DE MINIDISCO
PORTABLE MINIDISC RECORDER

MODELO
MODELL
MODELO
MODEL

MD-MT180H

MANUAL DE MANEJO
BRUKSANVISNING
MANUAL DE OPERAÇÃO
OPERATION MANUAL

MiniDisc   MDLP

ESPAÑOL	······ Consulte las páginas i al vi y S-1 al S-42.
SVENSKA	······ Hänvisa till sidorna i till vi och V-1 till V-42.
PORTUGUÊS	······ Favor consultar as páginas i a vi e E-1 a E-42.
ENGLISH	······ Please refer to pages i to vi and E-1 to E-42.

MD-MT180H

ENGLISH

Introduction

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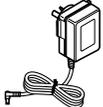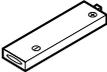
Contents

Important Introduction
-Introduction/Contents-

Special Notes

- US and foreign patents licensed from Dolby Laboratories.
- The AC adaptor supplied with the MD-MT180H must not be used with other equipment.
- 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.
- The letters in brackets contained in the model number indicate the colour of the product only. Operation and specifications are unaffected.

Accessories

Earphones x 1	**AC Adaptor (RADPA7057AWZZ) x 1**	**Connection Cable (for analogue recording) x 1**	**Rechargeable Nickel-Metal Hydride battery (AD-N55BT) x 1**	**Battery Carrying Case x 1**

Notes:
- 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

- Battery case (AD-M18BC)
- Car adaptor (AD-CA20X)
- Cassette adaptor (AD-CT14)

- Connection cable (for digital recording) (AD-M1DC)
- Connection cable (for digital recording) (AD-M2DC)

Important Introduction
-Special Notes/Accessories/Optional Accessories-

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Names of Controls and Indicators

■ **Main unit**

Reference page
1. **Record/Track Mark Button** **11, 22**
2. **Menu/Charge Button** **6, 12, 20, 26**
3. **Bass/Delete Button** **15, 28**
4. **Enter/Fast Play/Synchro Button** **12, 17, 20**
5. **Volume/Cursor/Fast Forward/Fast Reverse/Recording Level/Name Select Button** **11, 14, 16, 27**
6. **Open Lever** **9**
7. **Stop/Power Off/Hold Button** **12, 14, 15**
8. **Rechargeable Battery Cover** **6**
9. **Play/Pause Button** **12, 14**

10. **Battery Case Connection Terminals** **8**
11. **5 V DC Input Socket** **7**
12. **Optical/Line Input Socket** **10**
13. **Earphones/Line Output Socket** **14, 34**
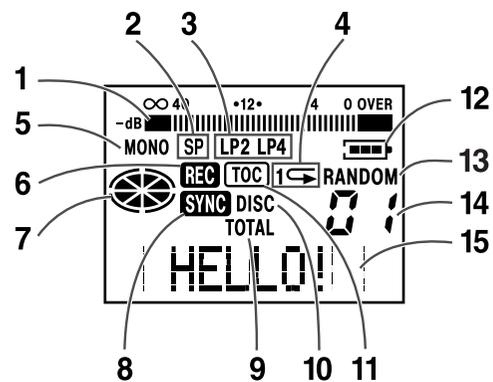
■ **Display panel**

Reference page

1. **Level Meter** 11
2. **Stereo Recording Indicator** 18
3. **Long-play/Recording Mode Indicator** 18
4. **Repeat Indicator** 17
5. **Monaural Mode Indicator** 18
6. **Record Indicator** 11
7. **Disc Mode Indicator**
8. **Synchro Recording Indicator** 20
9. **Total Track Number Indicator** 24
10. **Disc Name Indicator** 24
11. **TOC Indicator** 12
12. **Battery Indicator** 25
13. **Random Indicator** 17
14. **Track Number Indicator** 24
15. **Character/Time Information Indicator**

Important Introduction
-Names of Controls and Indicators-

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01/10/5 180H_E_1.fm

Precautions

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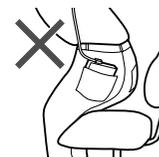● This portable MD should only be used within the range of 0℃ - 40℃ (32°F - 104°F).

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 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 recommendable to put the MiniDisc into a rear pocket, as this may damage the product when sitting.

Using with the Rechargeable Battery

MD-MT180H

Do not force the
battery cover
open too far.

Insert from
the ⊖side.

AC 230V,
50/60Hz

To the DC IN
5V socket
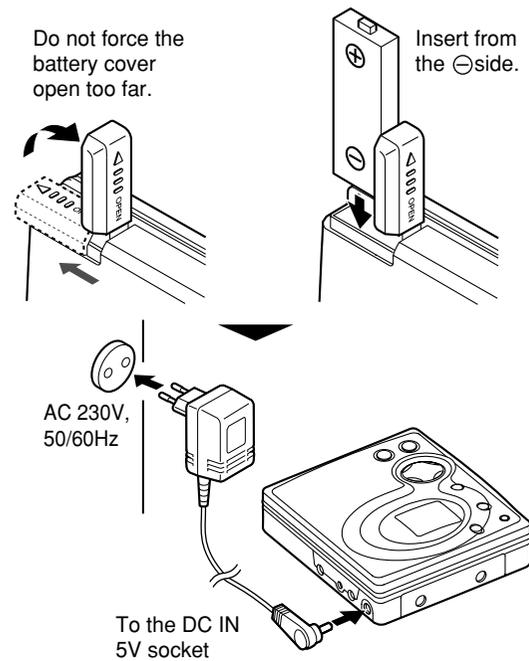
■ **Charging the rechargeable battery**

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 MENU/CHRG button.

The battery indicator will scroll, and battery will be-
gin charging.

Scrolling
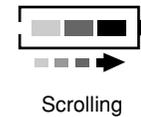
- After the rechargeable battery is charged or used, it
will get slightly warm. This is normal.
- When the portable MD is turned on or operating, the
battery will not be charged.
- For information about the battery life, see the battery
item in the "Specifications" on page 42.

ENGLISH

Power Source
-Using with the Rechargeable Battery-

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Power Source
-Using with the AC Adaptor-

■ 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 MENU/CHRG button. Even if the MENU/CHRG button is pressed, "▭▷" will not appear.

Notes:
● Charge the battery within the range of 5℃ - 35℃ (41℉ - 95℉).
● The unit can be left in the charging state after it is completed.
● Carry the battery in the supplied case. (Insert the ⊕ side first.)
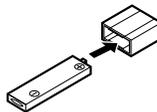
Caution:
● Use the specified battery AD-N55BT only. Do not charge a battery (nickel-cadmium, alkaline, etc.) other than that specified.
● Do not remove the outer cover of the rechargeable battery. It may cause heat generation, fire, or explosion.
● Do not dip the battery in water, do not dispose of it in a fire, and do not take it apart.
● If the rechargeable battery terminal is dirty, charging may not start. In such a case, wipe off the dirt with a dry cloth.
● Do not disassemble the battery.
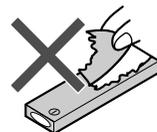
Using with the AC Adaptor

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

AC 230V, 50/60Hz
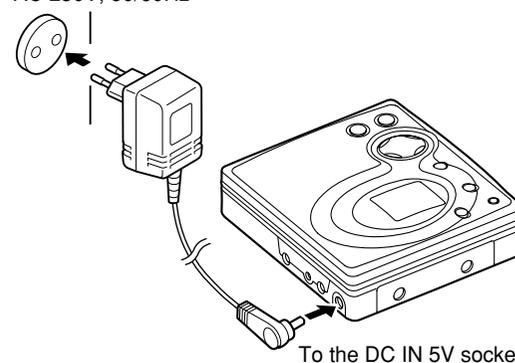
To the DC IN 5V socket

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.

Using with the Alkaline Battery

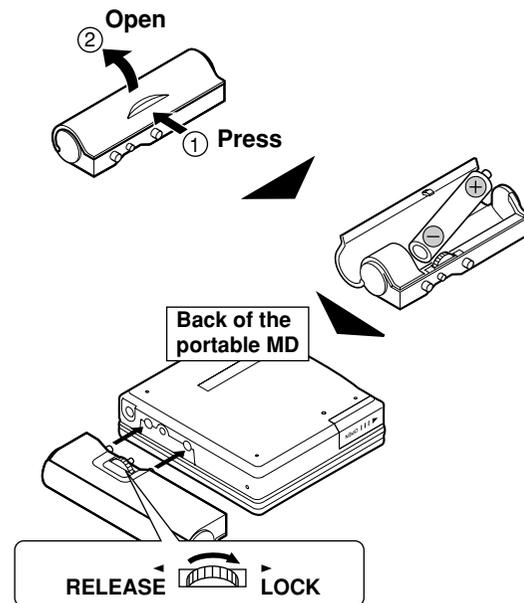If you use the separately available battery case (AD-M18BC) and the supplied rechargeable battery at the same time, the MD can play much longer than with only one source of battery power.

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

Open

② Open

① **Press**

Back of the portable MD

RELEASE ◄ **LOCK**

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 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.)

Power Source
-Using with the Alkaline Battery-

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Inserting a MiniDisc

Preparation
-Inserting a MiniDisc-

1 Slide the OPEN lever to release the compartment door.

2 Lift it up.

3 Insert a MiniDisc as shown.

4 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 13.

Recordable   Recording prevented

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

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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)**

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

Supplied connection cable

RIGHT LEFT
AUX/ LINE IN
AUX/ LINE OUT

Red : To Right
White : To Left

To the wall socket

AC 230V, 50/60Hz

To the LINE IN/ OPTICAL socket

To the DC IN 5V socket
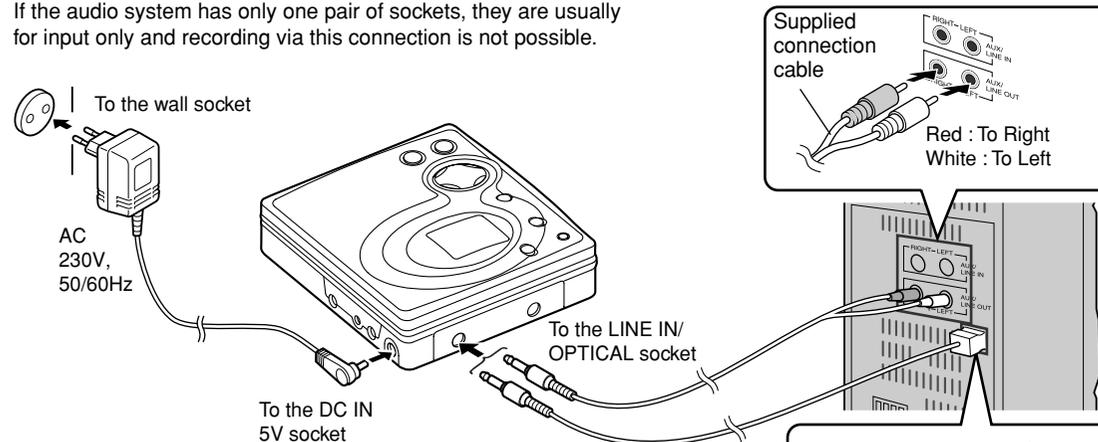
■ **To connect to a stereo system with a "DIGITAL OUT" or "OPTICAL OUT" socket (Digital connection)**
Compared to analogue connection recording, it allows high-quality recording.
Some audio systems do not have a DIGITAL OUT socket.
Check before connecting.

Separately available connection cable (AD-M1DC)

DIGITAL OUT

Preparation
-Connections-

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Recording

*Basic Operation
-Recording-*
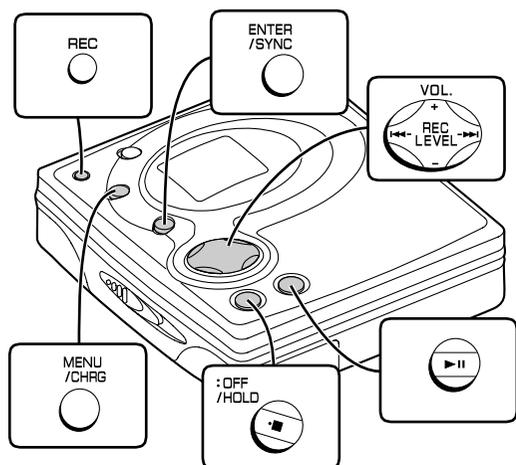
Before recording
Cancel the hold mode.
The portable MD does not work whilst in the hold mode.
As for the details, see page 15.

1 **Press the REC button.**

2 **Begin playback on the stereo system connected to this portable MD.**

3 **Press the REC LEVEL I◀◀ or ▶▶I button to adjust the recording level.**

<**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.

Level meter indicator

0 dB
4 dB
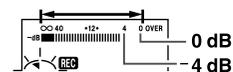
<**Digital recording**>

You can adjust the level in 1 dB increments between +12 dB and -12 dB.

+12 dB to -12 dB

Once you adjust the digital recording level, the setting is retained even after the recording stops. (For cancellation instructions, see page 26.)

4 **Press the PAUSE button on the stereo system to enter the playback pause mode.**

Here you can search for the track to be recorded.

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5 **Press the MENU/CHRG button repeatedly to select "REC MODE".**

6 **Press the ENTER/SYNC button.**

7 **Press the MENU/CHRG button repeatedly to select the recording mode (page 18).**

SP	(Stereo recording)
LP2	(2 times long recording)
LP4	(4 times long recording)
MONO	(Monaural recording)

8 **Press the ENTER/SYNC button.**

The mode will be set automatically after 7 seconds even if the ENTER/SYNC button is not pressed.

9 **Press the ▶Ⅱ button to start the MiniDisc unit recording.**

10 **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 level whilst recording.
● Complete the operation within 7 seconds whilst selecting the menus.

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 ■:OFF/HOLD button.

Notes:
● 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
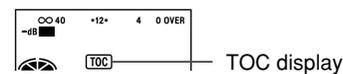
To update the recorded contents of the Mini-Disc
Press the ■:OFF/HOLD button whilst in the stop mode. The power turns off after recorded contents have been updated on the MiniDisc.

TOC EDIT! ⇨ GOOD BYE!

Basic Operation -Recording-

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Recording (continued)

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 battery.
- Do not subject the unit to shock.

Otherwise, tracks may not be recorded properly.

■ **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
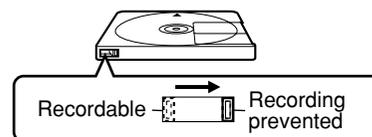
To add a recording to such a MiniDisc, slide the accidental erase prevention tab back to its original position.

■ **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.

Playback

Right channel

Left channel

To the PHONES socket

R

L
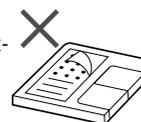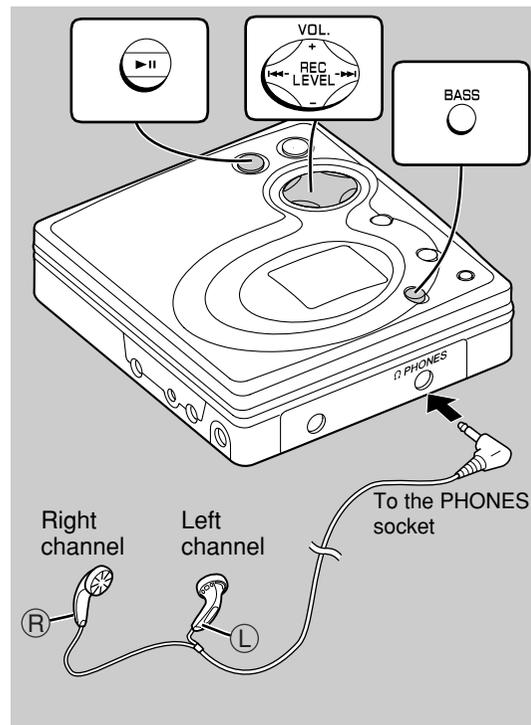
1 Insert the earphones plug into the PHONES socket.

2 Insert a MiniDisc (page 9).

3 Press 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.
To resume playback, press the ▶II button again.

To stop playback
Press the ■:OFF/HOLD 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 ■:OFF/HOLD button whilst in the stop mode.

■ **Volume control**
Press the VOL+ button to increase the volume and the VOL- button to decrease the volume.

Volume (0 - 30) ─ | VOL 15 ▊ |

Basic Operation
-Playback-

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Playback (continued)

■ Bass control

Each time the BASS button is pressed, the tone will be switched as follows.

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

Notes:
● You cannot change the bass setting whilst selecting menus.
● 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.

Hold Function

The present operation condition can be kept even if other buttons are accidentally pressed in a place such as a crowded train.
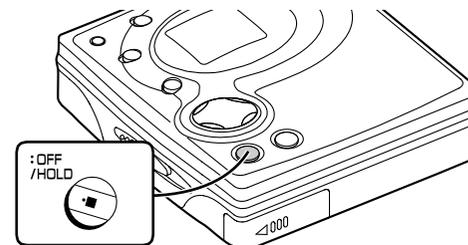
Press the HOLD button for 2 seconds or more.

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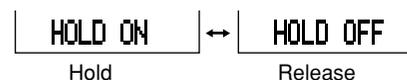
If the battery is inserted or the AC adaptor is connected, you can set this function even when the power is turned off.

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

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.

Advanced Playback
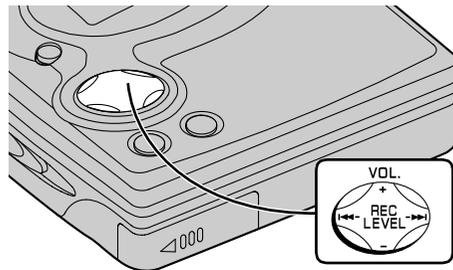
■ To locate the desired portion

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 track.

Useful Features
-Advanced Playback-

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Advanced Playback (continued)
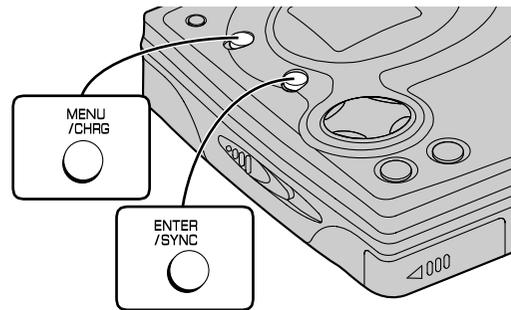
■ **To play at double speed**

Press the ENTER/SYNC button whilst a MiniDisc recorded in the monaural mode is being played.

| FAST PLAY |

● If a track recorded in the stereo mode is reached during fast playback, the fast playback mode will be cancelled.
● Depending on the contents recorded on a MiniDisc, it may be difficult to hear them.

To interrupt fast playback

Press the ▶Ⅱ button during playback.
When the ▶Ⅱ button is pressed again, the unit will resume fast playback.

To return to normal playback

Press the ENTER/SYNC button.

■ **Random play or repeat play**

1 **During playback, press the MENU/CHRG button repeatedly to select "PLAY MODE".**

2 **Press the ENTER/SYNC button.**

3 **Press the MENU/CHRG button repeatedly to select the desired playback mode.**

RANDOM : Random play
RANDOM REP : Repeat play of tracks in random order
ALL REPEAT : Repeat play of all of the tracks
1Tr REPEAT : Repeat play of a single track
NORMAL : Normal playback

4 **Press the ENTER/SYNC button.**

The mode will be set automatically after 7 seconds even if the ENTER/SYNC button is not pressed.

Notes:
● If the playback mode is selected whilst stopped, press the ▶Ⅱ button to start playback.
● When "TOC" is displayed, random play or repeat play is impossible.
● 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.
● During random play, the unit cannot find the beginning of any track which has been played.
● Repeat play lasts until you stop the unit.
● Complete the operation within 7 seconds whilst selecting the menus.

Advanced Recording

■ 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 the stereo recording.
A track recorded in monaural can be played back in double speed, see page 17.
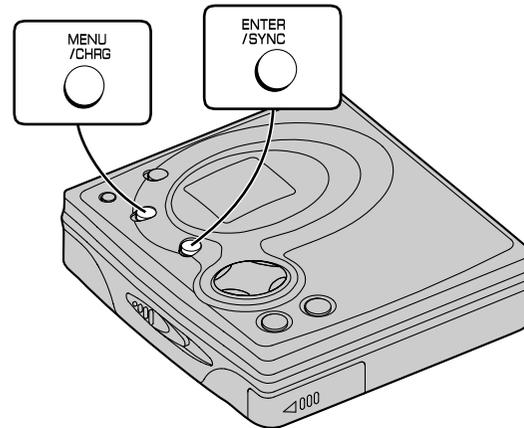
1 **When a recording is paused, press the MENU/ CHRG button repeatedly to select "REC MODE".**

2 **Press the ENTER/SYNC button.**

3 **Press the MENU/CHRG button repeatedly to select the desired recording mode.**
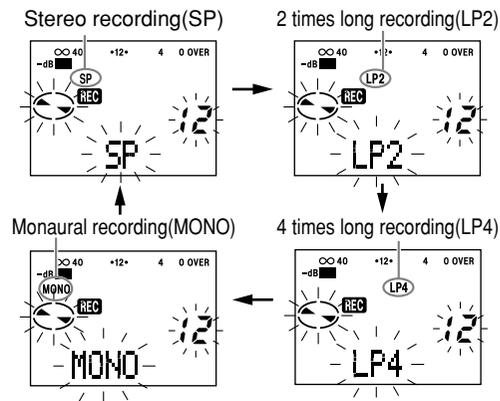
Stereo recording(SP)   2 times long recording(LP2)

Monaural recording(MONO)   4 times long recording(LP4)

4 **Press the ENTER/SYNC button.**
The mode will be set automatically after 7 seconds even if the ENTER/SYNC button is not pressed.

5 **Start recording.**

Notes:
● The recording mode remains unchanged until a new mode is selected.
● Complete the operation within 7 seconds whilst selecting the menus.

Useful Features
-Advanced Recording-

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Advanced Recording (continued)

Notes:

- Tracks can be recorded in stereo recording mode, 2 times long recording mode, and 4 times long recording mode on one MiniDisc.
- 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 earphones, 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, "LP" is displayed at the beginning of the track and no sound is heard. (The operation and the display may vary depending on the unit.)
- Tracks recorded in monaural cannot be played if equipment does not support the monaural playback.

■ 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 the recording mode

You can select the recording mode from stereo recording, 2 times long recording, 4 times long recording, and monaural recording. Recordable time varies depending on the recording mode. If the tracks are recorded on an 80-minute MiniDisc, its recording time changes as follows:

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

■ Caution for 4 times long recording (LP4)

Special compressing method allows the 4 times long recording to realise long-time stereo recording. Therefore, some noise is recorded occasionally. If sound quality should be emphasised, stereo recording or 2 times long recording is recommended.

■ Playback sound-actuated recording

Recording automatically starts or pauses by detecting sound from the stereo system (Synchronised recording).
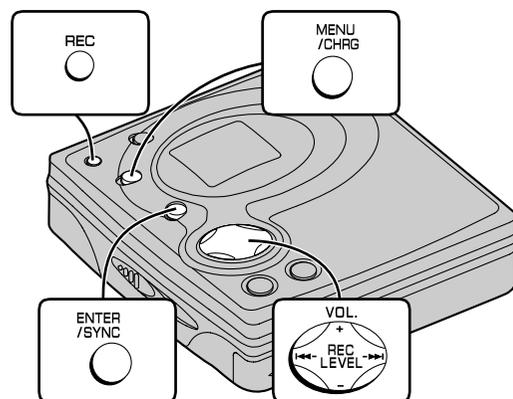
1 **Press the REC button.**

2 **Begin playback on the stereo system connected to this portable MD.**

3 **Press the REC LEVEL I◀◀ or ▶▶I button to adjust the recording level (see page 11).**

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/CHRG button repeatedly to se-lect "REC MODE".**

6 **Press the ENTER/SYNC button.**

7 **Select the recording mode (step 3, page 18) and press the ENTER/SYNC button.**
The mode will be set automatically after 7 seconds even if the ENTER/SYNC button is not pressed.

8 **Press the ENTER/SYNC button again.**
- "SYNC" will flash.
- To cancel the operation, press the ■:OFF/HOLD button.

9 **Begin playback on the stereo system.**
Recording will begin automatically.

To interrupt recording
- 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, the recording will be paused (pause function does not work for approximately 10 seconds after a recording starts). When the unit receives sound again, recording auto-matically starts.
- A new track number is created when the recording resumes.

Useful Features
-Advanced Recording-

E-20

Advanced Recording (continued)

■ **To start recording from the middle of a track**

You can erase a portion of a track and make a new recording.

All of the tracks that follow the newly recorded track will be erased.
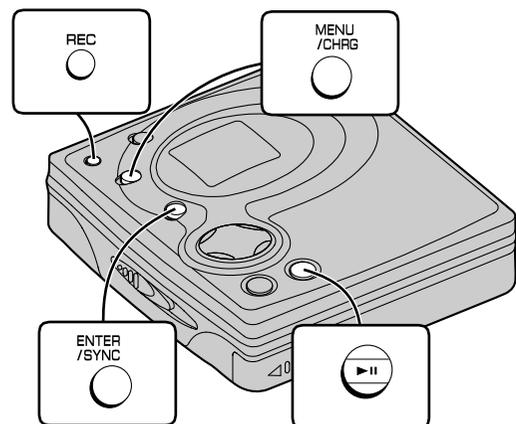
1 During playback, press the ►II button at the point where you want to begin recording.

2 Press the REC button.

```
ERASE OK?
```

To cancel the operation, press the ■:OFF/HOLD button.

3 Press the ENTER/SYNC button.

All of the tracks and track names will be erased, following the point where the playback is paused.

4 Press the MENU/CHRG button repeatedly to select "REC MODE".

5 Press the ENTER/SYNC button.

6 Press the MENU/CHRG button repeatedly to select the recording mode (step 3, page 18).

7 Press the ►II button.

Recording will start.

Note:

To keep a track after the point you want to make a new recording, move the track and then make recording after that point. (See "Editing a Recorded MiniDisc", page 33.)

■ **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.
One track number will be added every time the REC button is pressed.

Numbering restriction
If you try to number more than 10 tracks in certain amount of 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

■ **Recording tracks as a single track**

You can record several pieces of music as a single track by disabling the auto marker function.

When a recording is paused or whilst recording...

1 **Press the MENU/CHRG button repeatedly to select "MARK".**

2 **Press the ENTER/SYNC button.**

3 **Press the MENU/CHRG button to select "MARK OFF".**

$$\boxed{\text{AUTO MARK}} \Leftrightarrow \boxed{\text{MARK OFF}}$$

Notes:
● When making digital recordings using a CD player or an MiniDisc player, track numbers will be created automatically regardless of the setting of the auto marker function.
● Complete the operation within 7 seconds whilst selecting the menus.

Useful Features
-Advanced Recording-

E-22

Advanced Recording (continued)

Useful Features
-Advanced Recording-

■ About track numbers

1. Track numbers are created automatically during re-cording via the analogue connection when a silence of 1 second or more is detected (Auto marker func-tion). A series of tracks can be recorded as one by disabling the auto marker function (see page 22).

About
1 second

First track   Silence   Second track

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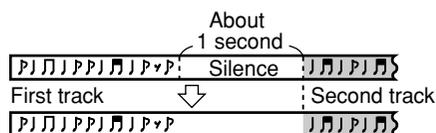
2. When recording from a CD or a MiniDisc using the digital connection, track numbers will be created at the same points as on the CD or MiniDisc (Synchro marker function).

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
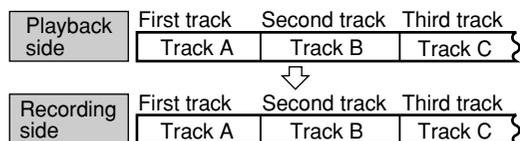
● Track numbers may not be created in proper places, depending on the source to be recorded from, such as signals with noise.
● The track numbers on the playback side may not match the track numbers recorded on the MiniDisc.

● When recording, if a programmed playback is per-formed 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, depend-ing on the connected stereo system.

■ About sampling rate converter

This portable MD incorporates a sampling rate converter meaning 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   Digital
             connection   connection

E-23
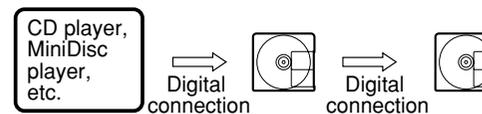
Checking Displays

■ **To check the elapsed time and remaining time of the track**

1 During playback, press the MENU/CHRG button repeatedly to select "DISPLAY".

2 Press the ENTER/SYNC button.

3 Press the MENU/CHRG button.
Each time the button is pressed, the display will change as follows.

Ⓐ Track number　　Ⓒ Elapsed playback time
Ⓑ Track name　　　Ⓓ Remaining playback time
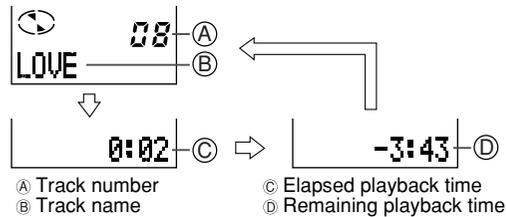
Notes:
● If the disc name or the track name was not originally recorded on the MiniDisc, "NO NAME" will be displayed.
● Elapsed playback time and remaining playback time may be different from the actual time.
● The selected display will not change even after the disc is replaced.
● Complete the operation within 7 seconds whilst selecting the menus.

■ **To check the remaining recording time and the total playing time**

1 Whilst in the stop mode, press the MENU/CHRG button repeatedly to select "DISPLAY".

2 Press the ENTER/SYNC button.

3 Press the MENU/CHRG button.
Each time the button is pressed, the display will change as follows.
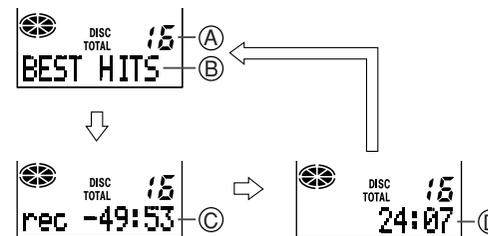
Ⓐ Total number of tracks　　Ⓒ Remaining recording time
Ⓑ Disc name　　　　　　　　Ⓓ Total playing time
● Remaining recording time varies depending on the set recording mode.
● Remaining recording time will not be displayed with a playback only MiniDisc.

Useful Features
-Checking Displays-

E-24

Checking Displays (continued)

■ **To display the playing time of an individual track**

1 **Whilst in the stop mode, press the |◀◀ or ▶▶| button to display the track number and track name.**

❀   *03*──Track number
LOVE──Track name
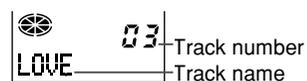
2 **Press the MENU/CHRG button repeatedly to select "DISPLAY".**

3 **Press the ENTER/SYNC button.**

4 **Press the MENU/CHRG button to select the playing time.**

❀   *03*
3:53──Playing time

Each time the |◀◀ or ▶▶| button is pressed, the playing time of the previous or next track will be displayed.

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

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

4 0 OVER	**How to read the battery indicator**	
▭▭▷		

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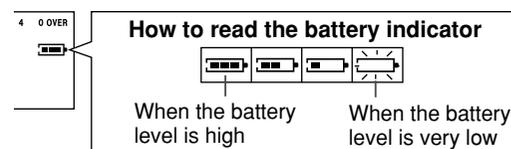
● When the battery is completely discharged, the battery indicator will flash. Recharge the battery.
● When the battery has run out completely, "BATT EMPTY" will appear. Then, the power will be disconnected automatically.

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 10 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.

Changing Default Settings

Whilst in the stop mode ...

1 **With a MiniDisc inserted, press the MENU/CHRG button for 2 seconds or more. "SET UP" will appear.**
When you release the button, "BEEP" will appear.

2 **Press the MENU/CHRG button to display the menu.**

3 **Press the ENTER/SYNC button.**

4 **Press the MENU/CHRG button to switch items.**

5 **Press the ENTER/SYNC button.**

MENU	SETTING ITEM	
BEEP (Confirmation sound)	BEEP ON*	Beep
	BEEP OFF	Silent
AUTO PLAY (Auto play)	A-PLAY ON*	Set.
	A-PLAY OFF	Cancelled.
POWER SAVE (Auto power save)	AUTO Psave*	Set.
	Psave OFF	Cancelled.
D-LEVEL (Digital recording level)	D.L MODE 1*	Setting retained.
	D.L MODE 2	Cancelled.

(*) indicates default setting.

■ **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**

"D.L MODE 1"
The digital recording level you set will be kept even after cancelling recording.
"D.L MODE 2"
Every time you cancel recording, the level will return to [D.L 0dB].

Useful Features
-Changing Default Settings-

E-26

Titling a MiniDisc

■ **Creating disc and track names**

Load a MiniDisc to be named. A playback only or record-ing prevented MiniDisc cannot be edited.

1
<Disc name>	**<Track name>**
Whilst in the stop mode, press the MENU/CHRG button to select "EDIT".	**Whilst in the pause mode, press the MENU/CHRG button to select "EDIT".**

2 **Press the ENTER/SYNC button.**

3
<Disc name>	**<Track name>**
Press the MENU/CHRG button to select "DISC NAME".	**Press the MENU/CHRG button to select "TRACK NAME".**

DISC NAME	TRACK NAME

4 **Press the ENTER/SYNC button.**

Cursor

● The unit will enter the character input mode.
● To cancel the operation, press the ■:OFF/HOLD button.

5 **Press the ►II button repeatedly to select the type of characters.**

select ABC

ABC	abc	123
(Capital letters)	(Lower-case letters)	(Numbers and symbols)

The first 3 characters in the group of the selected characters will be displayed for about 1 second.

6 **Press the I◄◄ or ►►I button repeatedly to select the letter.**

AB → ABC

7 **Press the ENTER/SYNC button to enter it.**

B ABC

Position where the next letter will be entered

Note:

● Complete the operation within 7 seconds whilst se-lecting the menus.

8 **To enter more letters, repeat steps 5 - 7.**

9 **When the name has been completely entered, press the MENU/CHRG button.**
- "TOC" will be displayed. To write the updated contents to the MiniDisc, press the ■:OFF/HOLD button.
- You cannot remove the MiniDisc whilst "TOC" is displayed. "TOC" will not disappear until the recorded contents have been updated.

■ **To erase a character**

Press the VOL+ or VOL- button to move the cursor to the character you want to erase, and then press the BASS button.

■ **To enter a space**

Press the VOL+ button to move the cursor to the right.

Space
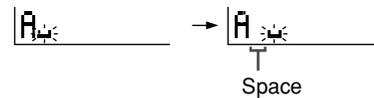
Note:
One disc name and up to 255 track names can be created per disc (a maximum of 100 characters for the disc and each track name and a total of 1,700 characters can be entered. However, if any tracks are recorded in the 2 times or 4 times long recording mode, the number of characters to be entered is decreased, since the information of the recording mode is stored by the track).

■ **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.

Advanced Features
-Titling a MiniDisc-

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Titling a MiniDisc (continued)

■ **To add characters**

1 **Put the unit in the character input mode.**
(Perform steps 1 - 4 on page 27.)

2 **Press the VOL+ or VOL- button to move the cursor to the character before which you want to add a new character.**

BST ◀-AB

3 **Select the character to add.**
(Perform steps 5 - 7 on page 27.)

4 **Press the MENU/CHRG button.**
- "TOC" will be displayed. To write the updated contents to the MiniDisc, press the ■:OFF/HOLD button.
- You cannot remove the MiniDisc whilst "TOC" is displayed. "TOC" will not disappear until the recorded contents have been updated.

■ **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 and track names) of the Master MiniDisc to another MiniDisc (for stamping).

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.)

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/CHRG button repeatedly to select "EDIT".**

3 **Press the ENTER/SYNC button.**

4 **Press the MENU/CHRG button repeatedly to select "NAME STAMP".**

| NAME STAMP |

5 **Press the ENTER/SYNC button.**

| READ OK? |

To cancel the operation, press the ■:OFF/HOLD button.

6 **Press the ENTER/SYNC button.**

| Reading! | ▶ | CHANGE MD |

7 **When the unit displays "CHANGE MD", remove the master MiniDisc.**
Remove it without turning off the power. Or, the operation will be cancelled.

| INSERT MD |

Operation of the MiniDisc for stamping

8 **Load a MiniDisc for stamping.**

| TOC READ | ▶ | WRITE OK? |

9 **Press the ENTER/SYNC button.**

| Writing! | ▶ | COMPLETE |

The unit will finish recording the character information and enter the stop mode.

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'tSTAMP" and turn off the power.

| Can'tSTAMP |

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

Advanced Features
-Titling a MiniDisc-

E-30

Editing a Recorded MiniDisc

Advanced Features
-Editing a Recorded MiniDisc-

■ **To erase one track at a time**

1 Start playing the track to be erased, and press the ▶ll button.

2 Press the MENU/CHRG button repeatedly to select "EDIT".

3 Press the ENTER/SYNC button.

4 Press the MENU/CHRG button repeatedly to select "ERASE".

|ERASE   03|

5 Press the ENTER/SYNC button.

|ERASE   03?|

To cancel the operation, press the ■:OFF/HOLD button.

6 Press the ENTER/SYNC button again.
The track will be erased.

7 To erase other tracks, repeat steps 1 - 6.

Note:
● Complete the operation within 7 seconds whilst selecting the menus.

■ **To erase all of the tracks at once**

1 Whilst in the stop mode, press the MENU/CHRG button repeatedly to select "EDIT".

2 Press the ENTER/SYNC button.

3 Press the MENU/CHRG button repeatedly to select "ALL ERASE".

|ALL ERASE|

4 Press the ENTER/SYNC button.

|ERASE OK?|

To cancel the operation, press the ■:OFF/HOLD button.

5 Press the ENTER/SYNC button again.

|BLANK MD|

All of the tracks will be erased.

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

■ **To divide a track**

1 Start playing the track to be divided into two. Press the ►II button at the point where you want to divide the track.

2 Press the MENU/CHRG button repeatedly to select "EDIT".

3 Press the ENTER/SYNC button.

4 Press the MENU/CHRG button repeatedly to select "DIVIDE".

$$\boxed{\text{DIVIDE}}$$

5 Press the ENTER/SYNC button.

$$\boxed{\text{DIVIDE OK?}}$$

To cancel the operation, press the ■:OFF/HOLD button.

6 Press the ENTER/SYNC button again.
The track will be divided into two tracks, and the unit will be paused at the beginning of the second of the two new tracks.

■ **To combine tracks**

1 Start playing the last of the two tracks to be combined, and press the ►II button.

2 Press the MENU/CHRG button repeatedly to select "EDIT".

3 Press the ENTER/SYNC button.

4 Press the MENU/CHRG button repeatedly to select "COMBINE".

$$\boxed{\text{COMBINE}}$$

5 Press the ENTER/SYNC button.

$$\boxed{\text{05+ 06 ?}}$$

To cancel the operation, press the ■:OFF/HOLD button.

6 Press the ENTER/SYNC button again.
The two tracks will be combined, and the unit will be paused at the beginning of the combined track.

Advanced Features
-Editing a Recorded MiniDisc-

E-32

Editing a Recorded MiniDisc (continued)

■ **To move a track**

1 **Play the track to be moved, and press the ►II button.**

2 **Press the MENU/CHRG button repeatedly to select "EDIT".**

3 **Press the ENTER/SYNC button.**

4 **Press the MENU/CHRG button repeatedly to select "MOVE".**

```
    MOVE
```

5 **Press the ENTER/SYNC button.**

```
   05→ 01 ?
```

To cancel the operation, press the ■:OFF/HOLD button.

6 **Press the I◄◄ or ►►I button to select the direction.**

```
   05→ 03 ?
```

7 **Press the ENTER/SYNC button again.**
The track will be moved, and the unit will be paused at the beginning of the track.

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.

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.

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.
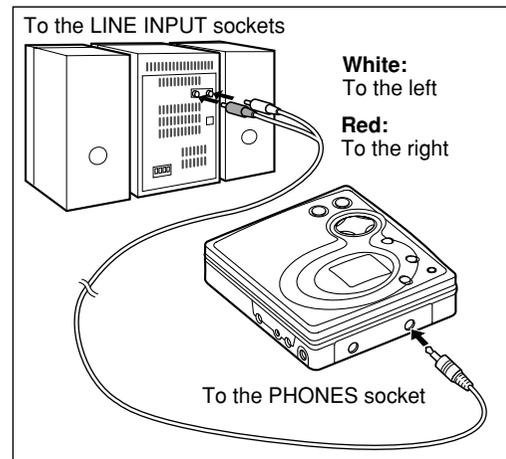● Tracks recorded by different input modes/sources cannot be combined.
Example:
   Digital recorded track and analogue recorded track.
   Different recording modes (stereo recording, 2 times long recording, 4 times long recording, monaural recording).
● Tracks whose recording time is less than 12 seconds.

E-33

Listening through Another System

■ **Listening through a stereo system**

To the LINE INPUT sockets

White:
To the left

Red:
To the right

To the PHONES socket

Notes:
- It is recommended that the volume level of the Mini-Disc unit be set to maximum when listening through a stereo system.
- When recording with stereo system, eliminate the confirmation sound (page 26). Otherwise, it will also be recorded.
- The recording will be made in the analogue mode.
- Character information will not be recorded.

■ **Listening through a car stereo**

Separately available car adaptor (AD-CA20X)

Separately available cassette adaptor (AD-CT14)

To the DC IN 5V socket

To the PHONES socket
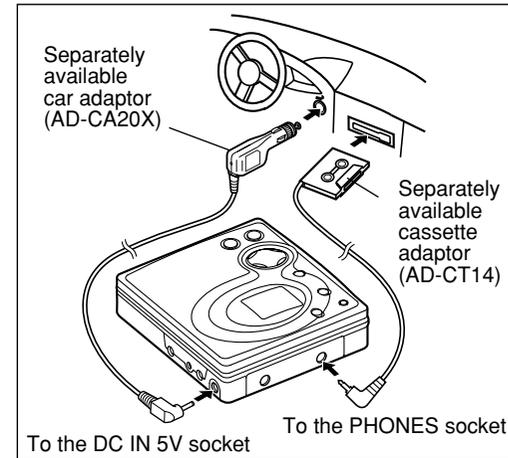
Notes:
- Adjust the volume of both this portable MD and a car stereo.
- Do not operate this portable MD whilst you drive a car. It may distract your attention and cause a traffic accident.
- Do not use any car adaptor except for the separately available AD-CA20X.
- Remove the battery when you power the unit from the car battery.

Advanced Features
-Listening through Another System-

E-34

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.

```
                              ⬇Stopping
 ┌───────────┬──┬──────────────┐
 │First track│  │ Stopped track│
 └───────────┴──┴──────────────┘
               Playing ⟹
```
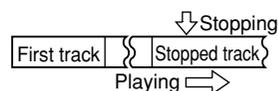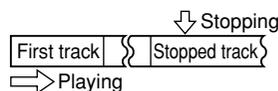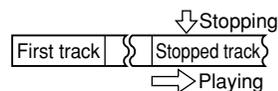
Once you remove the MiniDisc, playback starts from the first track.

```
                              ⬇Stopping
 ┌───────────┬──┬──────────────┐
 │First track│  │ Stopped track│
 └───────────┴──┴──────────────┘
 ⟹ Playing
```

The unit provides the following functions when you use it with the separately available car adaptor (AD-CA20X) (when the 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.

```
                              ⬇Stopping
 ┌───────────┬──┬──────────────┐
 │First track│  │ Stopped track│
 └───────────┴──┴──────────────┘
               ⟹ Playing
```

■ 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 has been 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.

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 255 tracks (maximum) cannot be recorded regardless of the recording time. If the MiniDisc is recorded or edited repeatedly or if it has scratches (recording skips scratched parts), you may not be able to record the maximum tracks above.
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.

References
-MiniDisc System Limitations-

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Error Messages

ERROR MES-SAGES	MEANING
BATT EMPTY	● The battery has run down.
BLANK MD	● Nothing is recorded. (Replace the disc with a recorded disc.)
Can't COPY	● You tried to record from a copy prohibited MiniDisc. (Record using the analogue cable.) ● You tried to record signals other than music (such as data).
Can't EDIT	● A track cannot be edited. (Change the stop position of the track and then edit it.)
Can't PLAY	● You tried to play back a track that cannot be played with this equipment.
Can't READ (*)	● The disc data cannot be read because the disc is damaged. (Reload the Minidisc or replace it with another one.)
Can't REC	● Recording cannot be performed correctly due to vibration or shock.

ERROR MES-SAGES	MEANING
Can'tSTAMP	● Stamp function does not work. (Check the number of tracks.)
Can'tWRITE	● Cannot save the TOC information correctly to a MiniDisc.
DEFECT!	● The disc is scratched. (If the recorded sound is not right, retry recording or replace the disc with a recordable one.)
DISC FULL	● The disc is out of recording space.
Er-MD (**)	● The microprocessor has reported a system fault and the unit is out of order. (To have it repaired, go to the distributor where you purchased the unit.)
HOLD	● The unit is in the hold mode.
LOCKED	● You removed a MiniDisc whilst recording or editing. (Turn off the power before removing the MiniDisc.)
NO DISC	● A disc has not been loaded.

Number or symbol appears in (*) position.

ERROR MES-SAGES	MEANING
NO SIGNAL	● 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.
PLAY MD	● You tried to record on a playback-only disc.
PROTECTED	● The write protection tab of a MiniDisc is set to the protected position.
	● You tried to record on a playback-only disc.
SORRY	● Since a track number is currently being located or updated, the unit cannot accept your command.
	(Wait for a while and try the operation again.)

ERROR MES-SAGES	MEANING
TEMP OVER	● The temperature is too high.
	(Turn off the power, and wait for a while.)
TOC FORM (**)	● There is an error in the recording signal.
	(Erase all of the tracks, and then record again.)
TOC FULL	● There is no space left for recording character information (track names, disc names, etc.).
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.)
	● There is an error in the signal recorded on the disc.

Number or symbol appears in (*) position.

References
-Error Messages-

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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.

References
-Troubleshooting-

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 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 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.

- Has the track number or character information been written on the disc yet?

- Is the unit in the recording or editing mode?

Recording and editing are impossible.

- Is the MiniDisc protected against accidental erasure?

- 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.

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Maintenance

■ 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.

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. Plug the AC adaptor back into the wall socket and re-operate the unit.

■ 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.

■ 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.

References
-Troubleshooting/Maintenance-

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Specifications

References
-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 1.2 V:	Rechargeable Nickel-Metal Hydride battery (AD-N55BT) x 1
	DC 5 V:	AC adaptor (AC 230 V, 50/60 Hz)
	DC 1.5 V:	Separately available battery case, AD-M18BC (Commercially available, "AA" size (LR6), alkaline battery 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: 20 mW (10 mW + 10 mW) (0.2 % T.H.D.)	
Charging time:	Approx. 3.5 hours (90 %) Approx. 5.5 hours (fully charged)(When using the AC adaptor included with the unit)	
Dimensions:	Width: 76 mm (3") Height: 22.9 mm (29/32") Depth: 83 mm (3-9/32")	
Weight:	148 g (0.33 lbs.) with rechargeable battery	
Input socket:	Line/optical digital	
Output socket:	Earphones (impedance: 32 ohms)	
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 - 1,350 rpm	
Error correction:	ACIRC (Advanced Cross Interleave Reed-Solomon Code)	
Coding:	ATRAC/ATRAC3 (Adaptive TRansform Acoustic Coding), 24-bit computed type	
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)	

Battery life:

	Stereo		2 times long		4 times long	
When using the rechargeable battery (fully charged) included with the unit	Continuous recording: Approx. 7 hours	Continuous play: Approx. 11 hours	Continuous recording: Approx. 9.5 hours	Continuous play: Approx. 13 hours	Continuous recording: Approx. 12.5 hours	Continuous play: Approx. 15 hours
When using one, commercially available, high capacity, "AA" size (LR6), alkaline battery (The rechargeable battery is in the unit, discharged.)	Continuous recording: Approx. 6 hours	Continuous play: Approx. 15.5 hours	Continuous recording: Approx. 9.5 hours	Continuous play: Approx. 19 hours	Continuous recording: Approx. 13 hours	Continuous play: Approx. 22 hours
When using one, commercially available, high capacity, "AA" size (LR6), alkaline battery with the rechargeable battery (fully charged)	Continuous recording: Approx. 15.5 hours	Continuous play: Approx. 27 hours	Continuous recording: Approx. 23 hours	Continuous play: Approx. 32 hours	Continuous recording: Approx. 30 hours	Continuous play: Approx. 38 hours

Input sensitivity:

	Reference input level	Input impedance
LINE	100 mV	20 kohms

Output level:

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

- When using the commercially available alkaline battery, an optional battery case is required.
- 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℃ (77℉).
- 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.

References -Specifications-

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MD-MT180H **PORTABLE MINIDISC RECORDER** **SHARP**