

SHARP

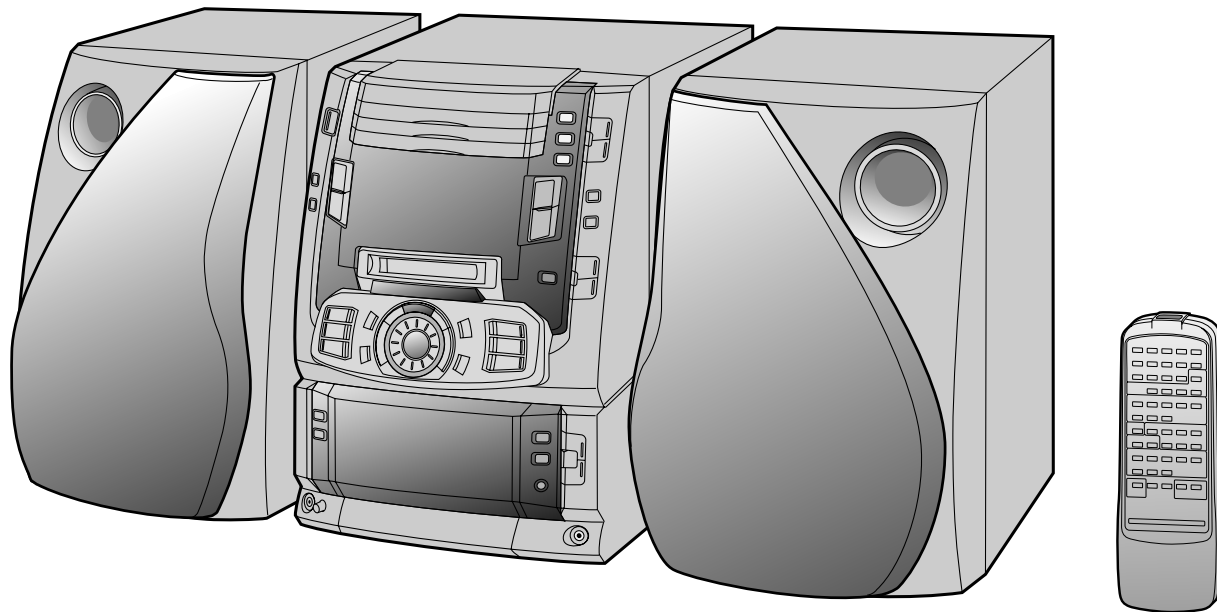
MD/CD COMPONENT SYSTEM

OPERATION MANUAL



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

MD-X60H MD/CD component system consisting of MD-X60H MD/CD component system and CP-X60H speaker system.



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

ACCESSORIES

 FM aerial × 1	 AM loop aerial × 1	 Remote control × 1	 "AA" size battery (UM/SUM-3, R6, HP-7 or similar) × 2
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Note:
Parts and accessories mentioned in this operation manual other than those in the drawing are not included.

SPECIAL NOTES

NOTE FOR USERS IN THE U.K.

The mains lead of this product is fitted with a non-rewireable (moulded) plug incorporating a 3A fuse. Should the fuse need to be replaced, a BSI or ASTA approved BS 1362 fuse marked  or  and of the same rating as above, which is also indicated on the pin face of the plug must be used.

Always refit the fuse cover after replacing the fuse. Never use the plug without the fuse cover fitted.

In the unlikely event of the socket outlet in your home not being compatible with the plug supplied, cut-off the mains plug and fit an appropriate type.

DANGER:

The fuse from the cut-off plug should be removed and the cut-off plug destroyed immediately and disposed of in a safe manner.

Under no circumstances should the cut-off plug be inserted elsewhere into a 13A socket outlet as a serious electric shock may occur.

To fit an appropriate plug to the mains lead, follow the instructions below:

IMPORTANT:

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

Blue : Neutral
Brown : Live

As the colours of the wires in the mains lead of this product may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

- The wire which is coloured blue must be connected to the plug terminal which is marked N or coloured black.
- The wire which is coloured brown must be connected to the plug terminal which is marked L or coloured red.

Ensure that neither the brown nor the blue wire is connected to the earth terminal in your three pin plug.

Before replacing the plug cover, make sure that:

- If the new fitted plug contains a fuse, its value is the same as that removed from the cut-off plug.
- The cord grip is clamped over the sheath of the mains lead and not simply over the lead wires.

IF YOU HAVE ANY DOUBT, CONSULT A QUALIFIED ELECTRICIAN.

SERVICE INFORMATION

In the unlikely event of your equipment requiring repair, please contact the dealer or supplier from whom it was purchased. Where this is not possible, please contact the telephone number listed below. You will then be given details of how to obtain service.

- 0345-125387 -

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.

MANCHESTER 0161-682-1415
READING 01189-876444

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.

- 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.

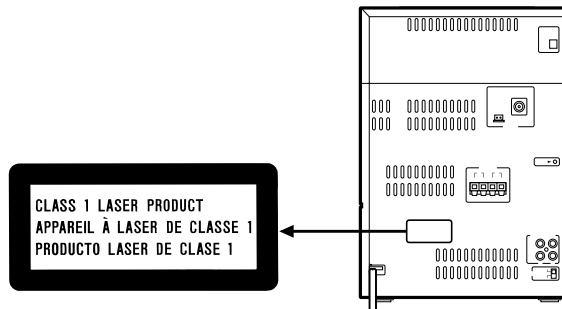
- This equipment complies with the requirements of Directives 89/336/EEC and 73/23/EEC as amended by 93/68/EEC.

- When the ON/STAND-BY button is set at STAND-BY position, mains voltage is still present inside the unit.
When the ON/STAND-BY button is set at STAND-BY position and the clock is displayed, the unit may be brought into operation by the timer mode or remote control.

Warning:

This unit contains no user serviceable parts. Never remove covers unless qualified to do so. This unit contains dangerous voltages, always remove mains plug from the socket before any service operation and when not in use for a long period.


US and foreign patents licensed from Dolby Laboratories Licensing Corporation.



CAUTION

Use the MD/CD component system 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.



- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
- "DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

PRECAUTIONS

General

- Please ensure that the equipment is positioned in a well ventilated area and ensure that there is at least 5 cm (2") of free space along the sides, top and back of the equipment.
- Do not use oil, solvents, petrol, paint thinners or insecticides on the unit.
- Do not expose the unit to moisture, to temperatures higher than 60°C (140°F) or to extreme low temperatures.
- Keep the unit away from direct sunlight, strong magnetic fields, excessive dust, humidity and electronic/electrical equipment (home computers, facsimiles, etc.) which generates electrical noise.
- Hold the AC power plug by the head when removing it from the AC socket, since pulling the lead can damage internal wires.
- When cleaning the heads, pinch rollers, etc, remove the AC power plug from the wall socket as the unit contains high voltages. Do not remove the outer cover, as this may result in electric shock. Refer internal service to your local SHARP service facility.
- Use the unit on a firm, level surface free from vibration, and do not place anything on the top of the unit.
- If the unit malfunctions whilst in use, press the ON/STAND-BY button to enter the stand-by mode, then disconnect the AC power lead from the AC socket. Plug the AC power lead back in, and then press the ON/STAND-BY button to turn the power on.
- If an electrical storm is taking place near you, it is suggested that you disconnect the AC power lead from the AC socket for safety.

Warning:

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

Volume control

The sound level at a given volume setting depends on a combination of speaker efficiency, location and various other factors. It is advisable to avoid exposure to high volume levels, which occur whilst turning the unit on with the volume control setting up high, or whilst continually listening at high volumes.

Condensation

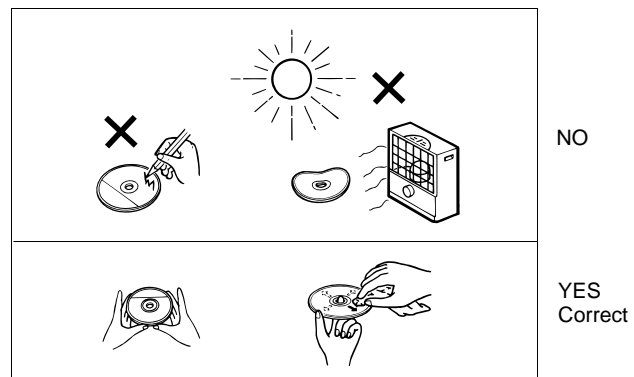
Sudden temperature changes, storage or operation in an extremely humid environment may cause condensation inside the cabinet (CD pickup, MD pickup, tape heads, etc.) or on the transmitter LED on the remote control. Condensation can cause the unit to malfunction.

If this happens, leave the power on with no disc (or cassette) in the unit until normal playback is possible (about 1 hour). Wipe off any condensation on the transmitter LED with a soft cloth before operating the unit.

Care of compact discs

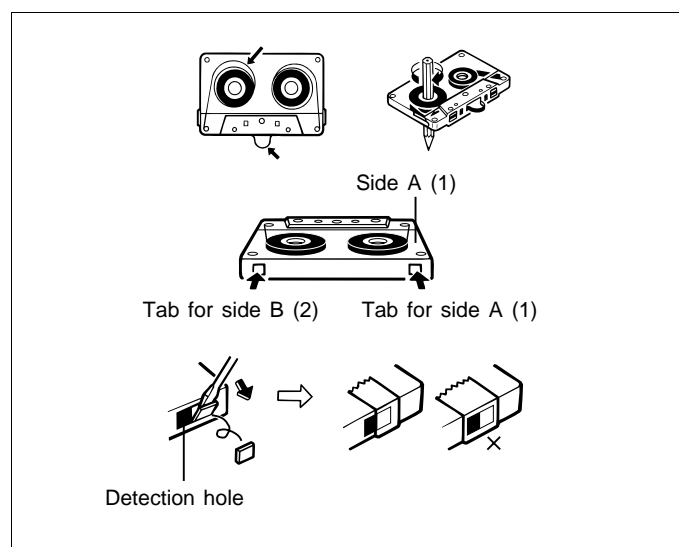
Compact discs are fairly resistant to damage, however mistracking can occur due to an accumulation of dirt on the disc surface. Follow the guidelines below for maximum enjoyment from your CD collection and player.

- Do not write on either side of the disc, particularly the non-label side. Signals are read from the non-label side. Do not mark this surface.
- Keep your discs away from direct sunlight, heat, and excessive moisture.
- Always hold the CDs by the edges. Fingerprints, dirt, or water on the CDs can cause noise or mistracking. If a CD is dirty or does not play properly, clean it with a soft, dry cloth, wiping straight out from the centre, along the radius.

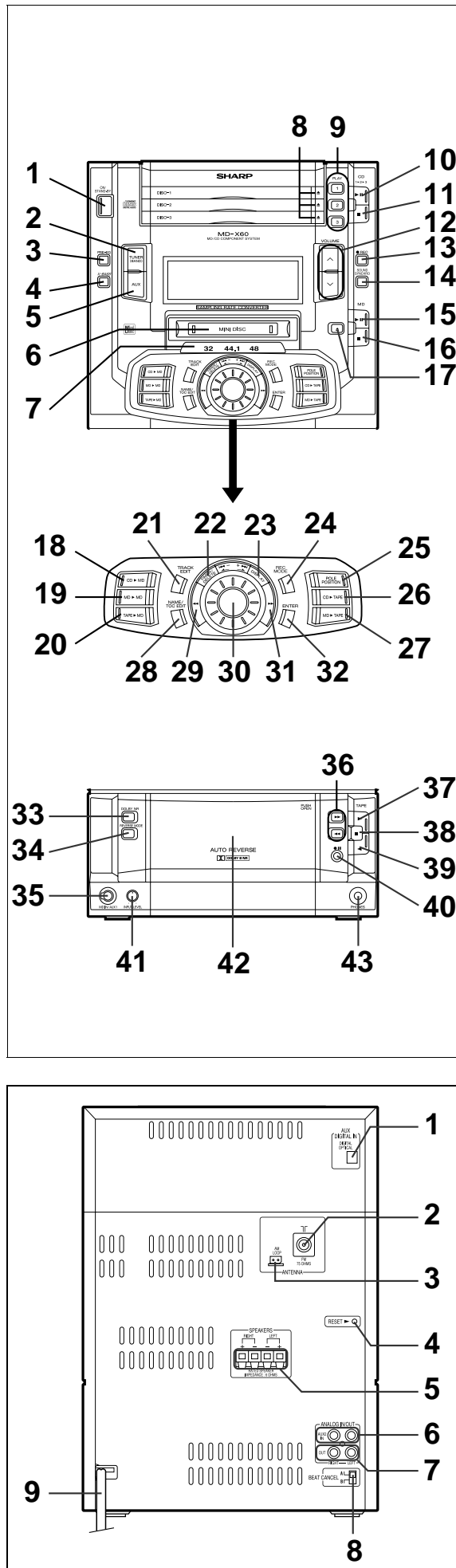


Cassette tape

- This deck features an auto tape selector. Just load a tape, and the tape formula being used will be sensed automatically.
- For playback, use normal (low-noise), CrO₂ or metal tape for the best sound. For recording, use normal (low-noise) or CrO₂ tape. Metal tape cannot be used for recording.
- Do not use C-120 tapes, tapes with large diameter reels, or poor-quality tapes, as they may cause malfunctions.
- Before loading a tape into the cassette compartment, tighten the slack with a pen or pencil.
- Cassettes have removable tabs which prevent accidental recording or erasing from taking place. Removing the tab will protect the corresponding side from being erased. Cover the tab holes with adhesive tape to erase or record again.
- When covering erasure prevention tab holes, do not cover the CrO₂ and metal detection holes located between them. Otherwise, the deck will sense the tape as normal tape.



NAMES OF CONTROLS AND INDICATORS



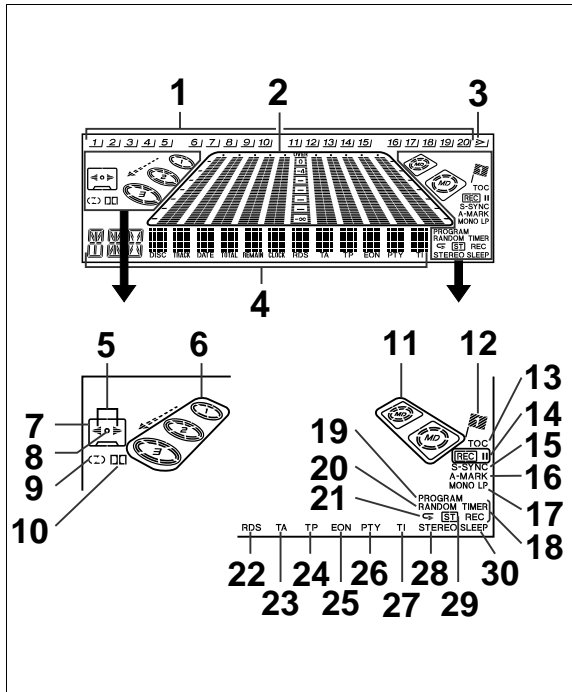
■ Front panel

1. On/Stand-by Button: ON/STAND-BY
2. Tuner Call (Band Select) Button: TUNER (BAND)
3. Preset Equalizer Button: PRE-EQ
4. Extra Bass Button: X-BASS
5. Auxiliary Input (Digital/Analogue) Select Button: AUX
6. MD Compartment
7. Sampling Frequency Indicators
8. (CD) Open/Close Buttons: ▲
9. (CD) Play Buttons: 1 ►, 2 ►, 3 ►
10. (CD) Play/Pause Button and Indicator: ► ||
11. (CD) Stop Button: ■
12. Volume Up/Down Buttons: VOLUME ▲/▼
13. (MD) Record Button: ● REC
14. Sound Synchro Record Button
15. (MD) Play/Pause Button: ► ||
16. (MD) Stop Button: ■
17. (MD) Eject Button: ▲
18. CD ► MD Edit Button: CD ► MD
19. MD ► MD Edit Button: MD ► MD
20. TAPE ► MD Edit Button: TAPE ► MD
21. (CD/MD) Track Edit Button: TRACK EDIT
22. Timer/Delete Button: TIMER/DELETE
23. Display Button: DISPLAY
24. (MD) Record Mode Button: REC MODE
25. (MD) Pole Position Button: POLE POSITION
26. CD ► TAPE Edit Button: CD ► TAPE
27. MD ► TAPE Edit Button: MD ► TAPE
28. (MD) Name/TOC-Edit Button: NAME/TOC EDIT
29. (TUNER) Tuning Down Button: ◀◀
(CD) Track Down/Review Button: ◀◀
(MD) Track Down/Review/Cursor Button: ◀◀
30. Jog Dial
31. (TUNER) Tuning Up Button: ▶▶
(CD) Track Up/Cue Button: ▶▶
(MD) Track Up/Cue/Cursor Button: ▶▶
32. Enter Button: ENTER
33. (TAPE) Dolby NR Button: DOLBY NR
34. (TAPE) Reverse Mode Button: REVERSE MODE
35. MD Edit/Auxiliary 1 (Analogue) Input Socket: MD IN/AUX 1
36. (TAPE) Fast Wind Buttons: ◀◀/▶▶
37. (TAPE) Forward Play Button: ▶
38. (TAPE) Stop Button: ■
39. (TAPE) Reverse Play Button: ◀
40. (TAPE) Record Pause Button: ● ||
41. Auxiliary Input Level (Analogue) Control: INPUT LEVEL
42. Cassette Compartment
43. Headphone Socket: PHONES

■ Rear panel

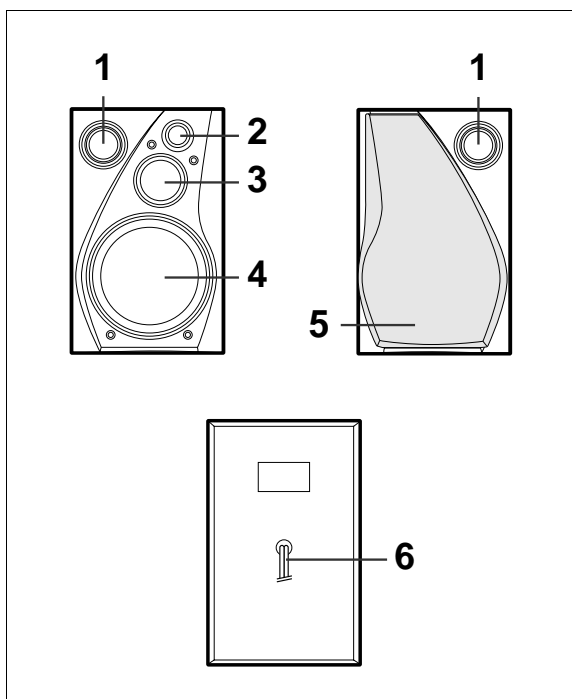
1. Auxiliary Digital Input Socket (Optical)
2. FM 75 Ohms Aerial Socket
3. AM Loop Aerial Socket
4. Reset Button
5. Speaker Terminals
6. AUX 2 (Analogue) Input Sockets
7. Analogue Output Sockets
8. Beat Cancel Switch
9. AC Power Lead

(Continued)



■ Display window

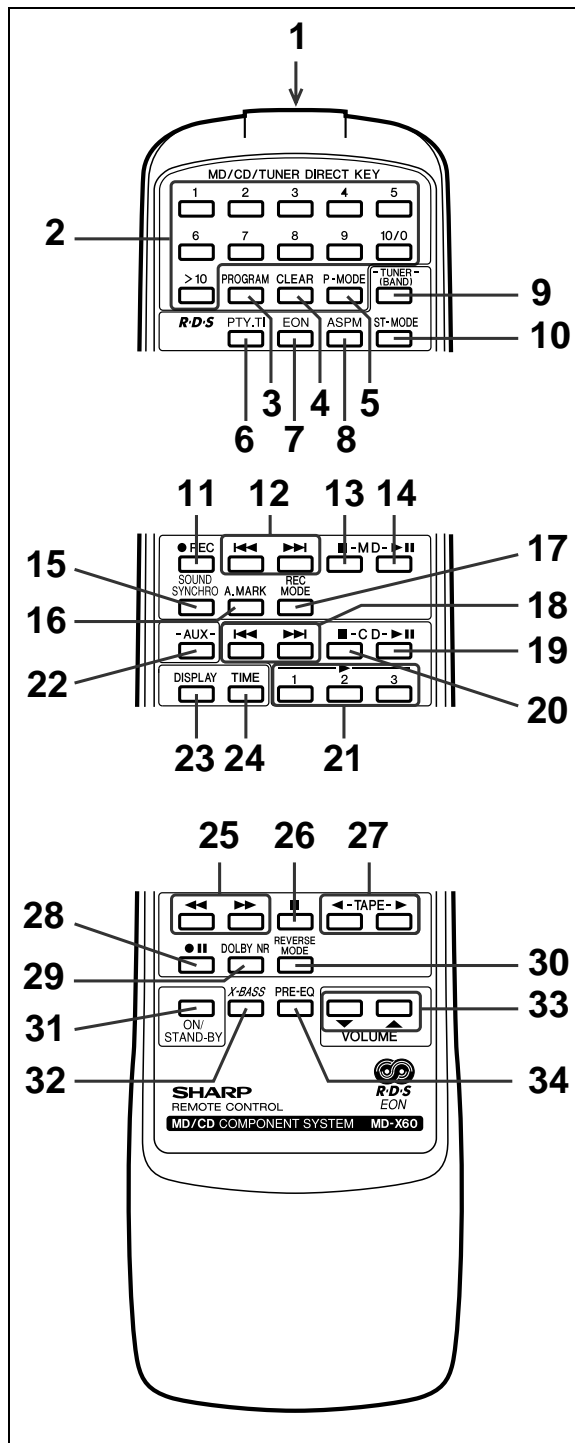
1. (CD/MD) Music Schedule Indicators
2. Level Meters
3. (CD/MD) More Tracks Indicator: ►
4. Character Information Display
5. (TAPE) Direction Indicators: ◀/▶
6. CD Indicator
7. (TAPE) Loading Indicator
8. (TAPE) Recording Indicator
9. (TAPE) Reverse Mode Indicator
10. (TAPE) Dolby NR Indicator: □□
11. MD Indicator
12. Pole Position Record Indicator
13. (MD) TOC Indicator: TOC
14. (MD) Record Indicator: REC
15. (MD) Sound Synchro Indicator: S.SYNC
16. (MD) Auto Mark Indicator: AUTO MARK
17. (MD) Recording Mode Indicator: MONO LP
18. Timer Play/Timer Record Indicator
19. (CD/MD) Programme Indicator: PROGRAM
20. (CD/MD) Random Play Indicator: RANDOM
21. (CD/MD) Repeat Indicator: ◻
22. RDS Indicator: RDS
23. Traffic Announcement Indicator: TA
24. Traffic Programme Indicator: TP
25. EON Indicator: EON
26. Programme Type Indicator: PTY
27. Traffic Information Indicator: TI
28. FM Stereo Mode Indicator: STEREO
29. FM Stereo Indicator: ST
30. Sleep Indicator: SLEEP



■ Speaker section

1. Bass Reflex Duct
2. Super Tweeter
3. Tweeter
4. Woofer
5. Speaker Grille
6. Speaker Wire

(Continued)



■ Remote control

- 1. Remote Control Transmitter LED
- 2. (MD/CD/TUNER) Direct Key
- 3. (CD/MD) Programme Button: PROGRAM
- 4. (CD/MD) Programme Clear Button: CLEAR
- 5. (CD/MD) Play Mode Button: P-MODE

● RDS control section

- 6. Programme Type/Traffic Information Search Button: PTY. TI
- 7. EON Button
- 8. ASPM Button

● Tuner control section

- 9. Tuner Call (Band Select) Button: TUNER/BAND
- 10. FM Stereo Mode Button: ST-MODE

● MD control section

- 11. Record Button: ● REC
- 12. Track Up,Cue/Down,Review Buttons: |◀◀/▶▶|
- 13. Stop Button: ■
- 14. Play/Pause Button: ▶ ||
- 15. Sound Synchro Record Button: SOUND SYNCHRO
- 16. Auto Mark Button: A.MARK
- 17. Record Mode Button: REC MODE

● CD control section

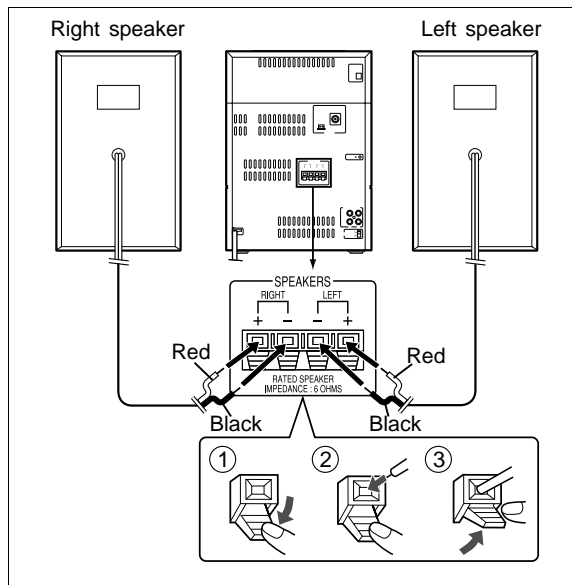
- 18. Track Up,Cue/Down,Review Buttons: |◀◀/▶▶|
- 19. Play/Pause Button: ▶ ||
- 20. Stop Button: ■
- 21. Play Buttons: 1 ▶, 2 ▶, 3 ▶
- 22. Auxiliary Input (Digital/Analogue) Select Button: AUX
- 23. Display Button: DISPLAY
- 24. Time Display Select Button: TIME

● Tape control section

- 25. Fast Wind Buttons: ◀◀/▶▶
- 26. Stop Button: ■
- 27. Play Buttons: ◀/▶
- 28. Record Pause Button: ● ||
- 29. Dolby NR Button: DOLBY NR
- 30. Reverse Mode Button: REVERSE MODE

- 31. On/Stand-by Button: ON/STAND-BY
- 32. Extra Bass Button: X-BASS
- 33. Volume Up/Down Buttons: ▲/▼
- 34. Pre-programmed Equalizer Button: PRE-EQ

PREPARATION FOR USE



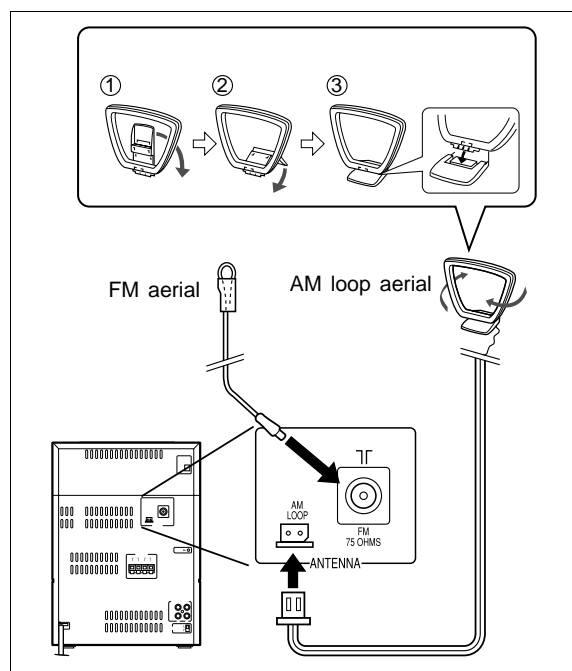
- Unplug the AC power lead from the AC socket before connecting or disconnecting any component.

■ Speaker connection

Connect each speaker wire to the SPEAKER terminals as shown. Use speakers with an impedance of 6 ohms or more, as lower impedance speakers can damage the unit.

Caution:

- Connect the black wire to the minus (-) terminal, and the red wire to the plus (+) terminal.
- Do not mix the right channel and left channel wiring when connecting the speakers to the unit.
- Do not let bare speaker wires touch each other as this may damage the amplifier and/or speakers.



■ Aerial connection

Supplied FM aerial

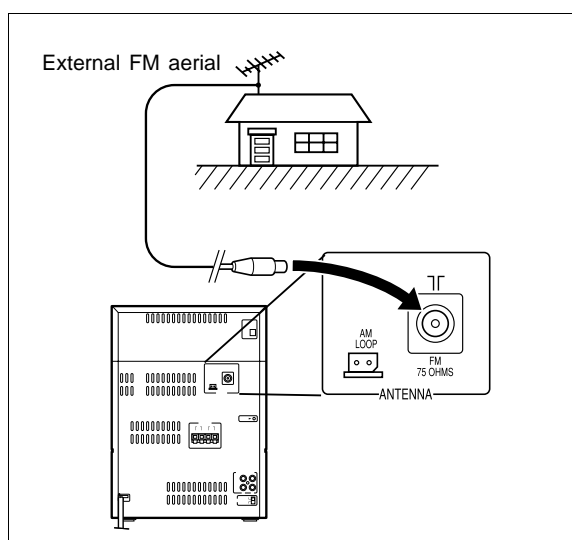
Connect the FM aerial wire to the FM 75 OHMS terminal and position the FM aerial wire in the direction where the strongest signal can be received.

Supplied AM loop aerial

Connect the AM loop aerial wire to the AM LOOP socket. Position the AM loop aerial for optimum reception. Place the AM loop aerial on a shelf, etc., or attach it to a stand or a wall with screws (not supplied).

Notes:

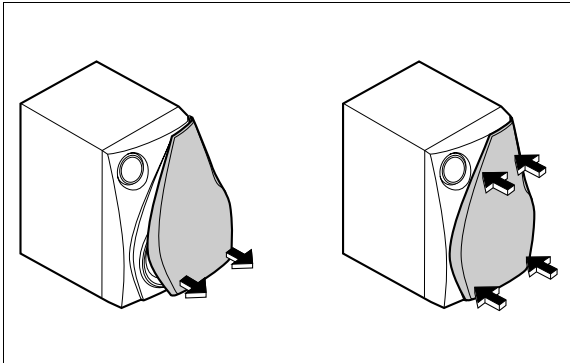
- Do not place the aerial on the main unit as it may result in noise pickup from the internal digital electronics. Place the aerial away from the unit for better reception.
- If the AM loop aerial and the FM aerial wire are placed near the AC power lead, interference may result.



External FM aerial

Use an external FM aerial if you require better reception. Consult your dealer.

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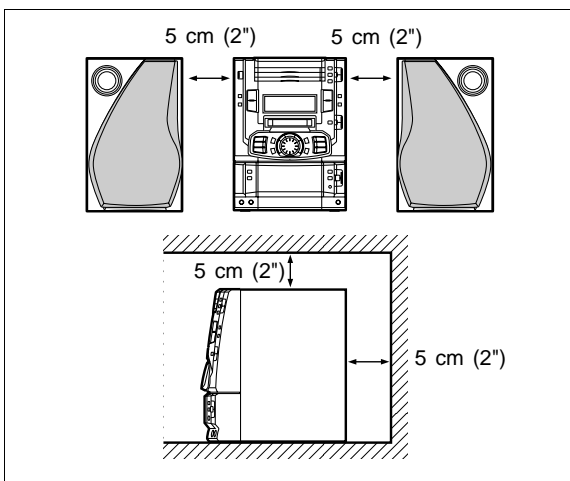
■ Removing the speaker grilles

- 1 Remove the lower part of the speaker grille first.
- 2 Remove the upper part of the speaker grille.

Caution:
When the speaker grilles are removed, the speaker diaphragms are exposed. Make sure nothing comes into contact with the speaker diaphragms.

■ Mounting the speaker grilles

Fit the four posts on the speaker grille into the mounting holes and push them lightly with the palm of your hand to secure.



■ Placing the system

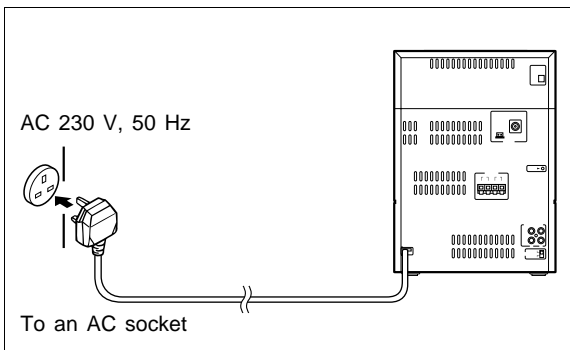
- The left and right speakers have individual shapes. For best performance, place the speakers according to the diagram to the left.
- Be sure to keep space between the units for ventilation.
- Keep the top, back and sides of this unit at least 5 cm (2") away from the wall.
- Do not place the system or speakers near the television set as the magnetic fields produced may cause irregular colours to be displayed.

TV set location

- Depending on the particular location of a TV set, colour variations may be seen on the TV screen. If this happens, move the system and its speakers away from the TV and turn off the TV set. After 15 - 30 minutes, turn on the TV again. The TV's own demagnetising function should eliminate the variations. However, if the colour still does not look right, move the system further away from the TV set.

Note:

- A cooling fan is built into this product to avoid heat buildup. When the power is turned on, the cooling fan will run. When the volume is increased, the cooling fan will run at high speed.

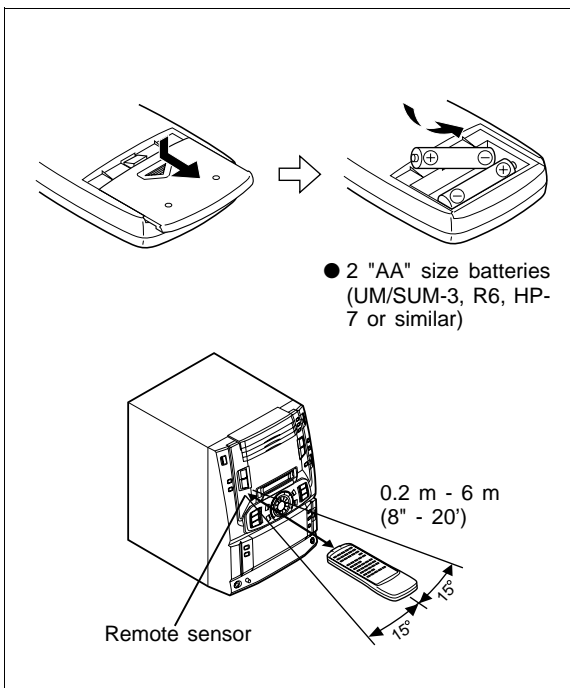


■ Connecting the AC power lead

After connecting the speakers, plug the AC power lead into a convenient AC socket.

Note:

- Unplug the AC power lead from the AC socket if the unit will not be in use for a prolonged period of time.



■ Remote control

- When inserting or removing the batteries, push them towards the ⊖ battery terminals.
- Installing the batteries incorrectly may cause the unit to malfunction.

Precautions for battery use:

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

Caution:

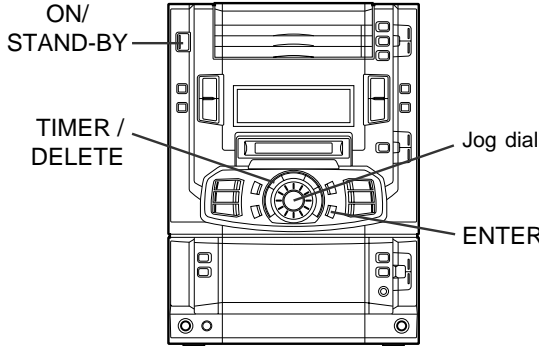
Do not use rechargeable batteries (nickel-cadmium battery, etc.).

Notes concerning use:

- Replace the batteries if the operating distance is reduced or if the operation becomes erratic.
- Periodically clean the transmitter LED on the remote control and the sensor on the main unit with a soft cloth.
- Exposing the sensor on the main unit to strong light may interfere with operation. Change the lighting or the direction of the unit.
- Keep the remote control away from moisture, excessive heat, shock, and vibrations.

SETTING THE CLOCK

(Main unit operation)



ON/STAND-BY

TIMER / DELETE

Jog dial

ENTER

2 | TIMER SET

3 | TIME ADJUST

4 | Date setting mode
01.01.'99

5 | 02.01.'99

6 | 02.01.'99

7 | 02.08.'99

8 | 02.08.'99

9 | 02.08.'99

10 | Time setting mode
9:00

11 | 9:00

12 | 9:00

13 | 9:30

14 | 9:30

- 1 Press the ON/STAND-BY button to turn the power on.
- 2 Press the TIMER/DELETE button.
- 3 Within 10 seconds, turn the jog dial until "TIME ADJUST" appears.
- 4 Within 10 seconds, press the ENTER button.
 - The unit will enter the date setting mode.
- 5 Adjust the "day" using the jog dial.
 - When you turn the jog dial by one click position the day will change up or down by one. When you turn the jog dial continuously, the day will change repeatedly until the jog dial is released.
- 6 Press the ENTER button to set the "day".
- 7 Adjust the "month" using the jog dial.
- 8 Press the ENTER button to set the "month".
- 9 Adjust the "year" using the jog dial.
 - The year 2000 or later is set as follows:
[00] indicates the year 2000.
[01] indicates the year 2001.
 - The range of dates that can be entered is from January 1, 1997 to December 31, 2099.
- 10 Press the ENTER button to set the "year".
 - The unit will enter the time setting mode.
- 11 Adjust the "hour" using the jog dial.
 - When you turn the jog dial and let go, the hour will change up or down by one. When you turn and hold it, the hour will change continuously.
- 12 Press the ENTER button to set the "hour".
- 13 Adjust the "minute" using the jog dial.
- 14 Press the ENTER button to set the "minute".
 - The clock starts operating from "0" seconds. (Seconds are not displayed.)

Notes:

- In the event of a power failure or when the AC power lead is disconnected, the clock setting will be lost. Reset the time.
- Whilst recording an MD, you cannot set the date and clock. Be sure to set the date and clock before recording.

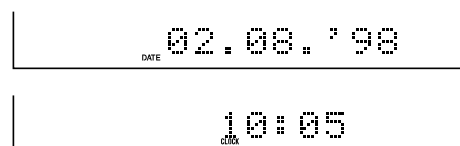
Resetting the date and time:

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

Checking the date and time:

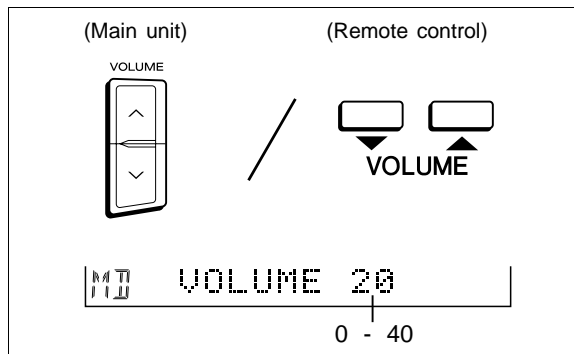
Press the TIMER/DELETE button. Then turn the jog dial until the date and time are displayed.

- Press the DISPLAY button to switch between the date and the time.



- After about 10 seconds, the original display will appear.
- Once the date and the time have been set, this unit will normally display the time when the unit is in the stand-by mode. To check the date, press the DISPLAY button. The display will switch between the date and the time each time you press the button.

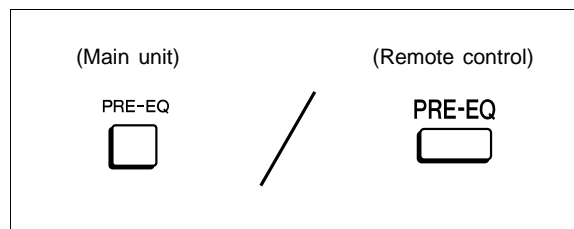
SOUND CONTROL



■ Volume

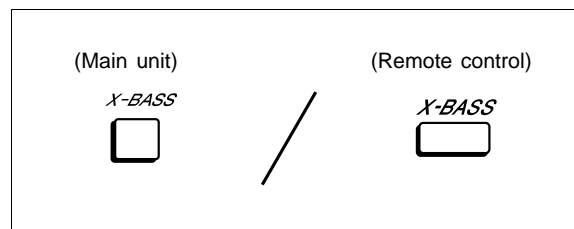
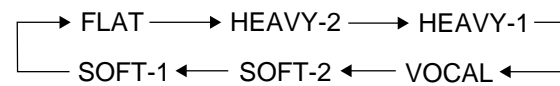
Press the VOLUME ▲ button to increase the volume and the VOLUME ▼ button to decrease the volume.

- The volume display can be changed within the range of "0" to "40".



■ Pre-programmed equalizer

When the PRE-EQ button is pressed, the current mode setting will be displayed. To change to a different mode, press the PRE-EQ button repeatedly.

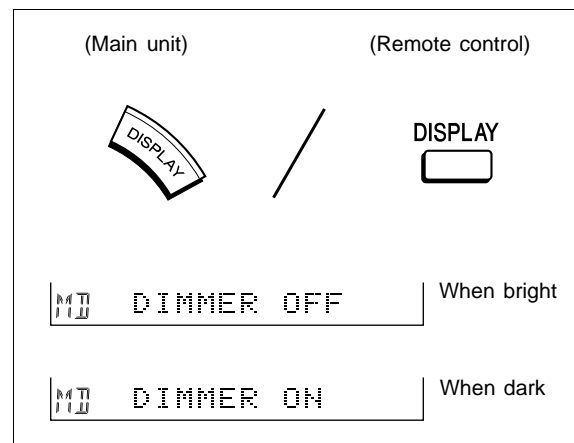


■ Extra bass (X-BASS)

Press the X-BASS button to emphasise the bass region of the frequency spectrum. "X-BASS ON" will appear.

Press the X-BASS button again to cancel the extra bass mode. "X-BASS OFF" will appear.

DISPLAY SECTION



You can change the brightness of the display.

When the power is on, press the DISPLAY button for at least two seconds.

- The display section will become brighter.

To return to the original brightness, press the DISPLAY button again for at least two seconds.

Note:

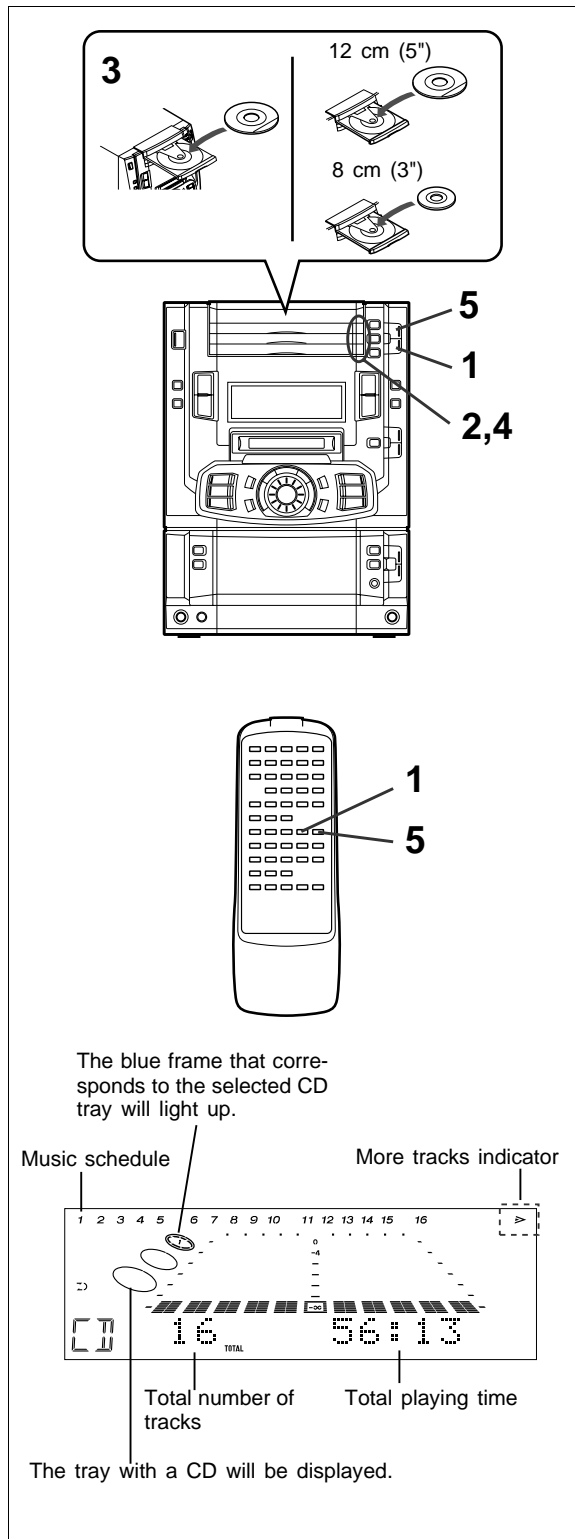
- The brightness setting of the display is maintained even after the unit has entered stand-by mode.

COMPACT DISC OPERATION

Caution:

- Do not carry the unit whilst CDs are in the trays or a MiniDisc is loaded. The discs may come loose inside the unit and they may be damaged or cause damage to the unit. This may also cause malfunctions.
- Do not place two CDs in one disc position.
- Do not push the disc tray whilst it is moving.
- Do not attempt to push the disc tray by hand. This may cause malfunctions.
- If the power fails whilst the tray is open, wait until the power is restored.
- If the disc tray is stopped forcibly, "DISC ERR" will appear in the display and the unit will not function. If this occurs, press the ON/STAND-BY button to enter the stand-by mode and turn it on again.
- If TV or radio interference occurs during CD operation, move the unit away from the TV or radio.
- If a disc is damaged, dirty, or loaded upside down, the disc will be skipped and the next disc will automatically play.
- If the CDs are dirty or have label adhesive on their surface, make sure to clean them before loading.
- If the CD ► || button, any of the CD 1 ► - 3 ► buttons or the ▲ button is pressed when a disc tray is open, the disc tray will close automatically. Be careful not to catch your fingers.
- If the unit is shaken by impact or vibration, playback may be disrupted. If the playback volume of a CD is raised excessively, playback may be disrupted. If this occurs, lower the playback volume.

(Continued)



■ Loading and playing CDs

- 1** Press the CD ■ button.
 - The power will be turned on automatically, and the unit will enter the CD mode.
 - 2** Press the CD ▲ button to open a disc tray.
 - Press one of the CD 1 ► - CD 3 ► buttons depending on which disc tray you want to load.
 - You cannot open more than one disc tray at the same time.
 - 3** Place the CD(s) on the disc tray, label side up.
 - Be sure to place 8 cm (3") disc in the middle of the disc holder.
- Caution:**
Do not place more than one CD in any tray position. This can damage the player and the CDs.
- 4** Press the CD ▲ button of the disc tray that is open.
 - Repeat steps 2 - 3 to load one disc each into the second and third disc trays.
 - The total number of tracks and the total playing time on the selected disc will be displayed. At this time, the blue frame that corresponds to the selected disc tray will light up.
 - The music schedule will be displayed only for the number of tracks on the disc.
 - If the CD contains more than 21 tracks, "►" will appear.
 - 5** Press the CD ► || button.
 - Playback will begin from track 1 on the disc you have selected to play.
 - After the disc finishes playing, the next disc will automatically play.
 - When there is no CD in one of the disc 1 - 3 trays, that tray will be skipped and the next CD will be played.
 - When the CD ► || button is pressed after a track is selected (whilst the blue frame mark of Disc 1 is lit), the track will be played.
 - If you press the CD ► || button and then the CD 2 ► button, discs 2 and 3 will be played.
 - If the CD 3 ► button is pressed, only disc 3 will be played.
 - When the last track on the third disc has finished playing, the unit will stop automatically.

To interrupt playback:

- Press the CD ► || button.
- Press the CD ► || button to resume playback from the same point.

To stop playback:

- Press the CD ■ button.

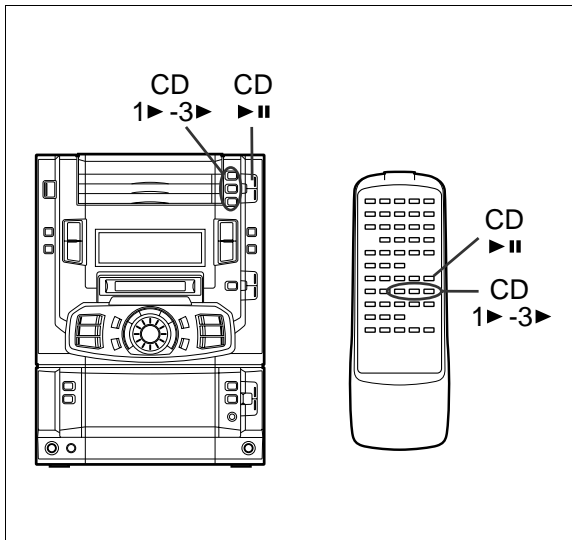
To remove the CDs:

- Whilst in the stop mode, press the ▲ button.
- When playing back a CD, it is possible to remove or change the other two discs.

After use:

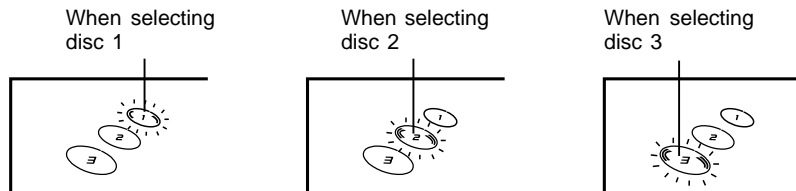
- Press the ON/STAND-BY button to enter the stand-by mode.

(Continued)



When choosing a CD for playback

Press one of the CD 1 ▶ - 3 ▶ buttons to select the CD you want to listen to.
● Only the selected CD will be played back.



Notes:

- If any disc tray is open, it will be automatically closed.
- If the CD ▶ || button is pressed, continuous playback will begin from the first track of disc 1, even after disc 2 or disc 3 has been selected.

Direct playback:

If a CD is loaded in the unit, pressing the CD ▶ || button turns the power on and begins playback.

MINIDISC OPERATION

Music schedule

More tracks indicator

1 2 3 4 5 6 7 8 9 10 11 12

MT BEST HIT

Disc name

(Displayed only when a disc name has been programmed)

After scrolling the disc name

MT DISC 12 TOTAL 48:11

Total number of tracks

Total playing time

Loading and playing MiniDiscs

- 1 Press the MD ■ button.
 - The power will be turned on automatically, and the unit will enter the MD mode.
- 2 Load a MiniDisc in the direction indicated by the arrow on the MiniDisc, with the labeled side facing up.
 - Even if the unit is in the stand-by mode, the power will be turned on automatically when an MD is loaded into the unit.
 - The total number of tracks and the total playing time on the MiniDisc will be displayed.
 - The music schedule will be displayed only for the number of tracks on the MiniDisc.
 - If the MD contains more than 21 tracks, "▶" will appear.
- 3 Press the MD ▶ || button.
 - If the MD has a name, the name will appear and scroll across the display. Then, the elapsed playing time will appear.
 - If the MD has no disc or track names, the elapsed playing time will appear.
 - When the last track has been played back, this unit will stop automatically.

To interrupt playback:

- Press the MD ▶ || button.
- Press the MD ▶ || button to resume playback from the same point.

To stop playback:

Press the MD ■ button.

To remove a MiniDisc:

- Press the ▲ button.
- The MiniDisc will be ejected.

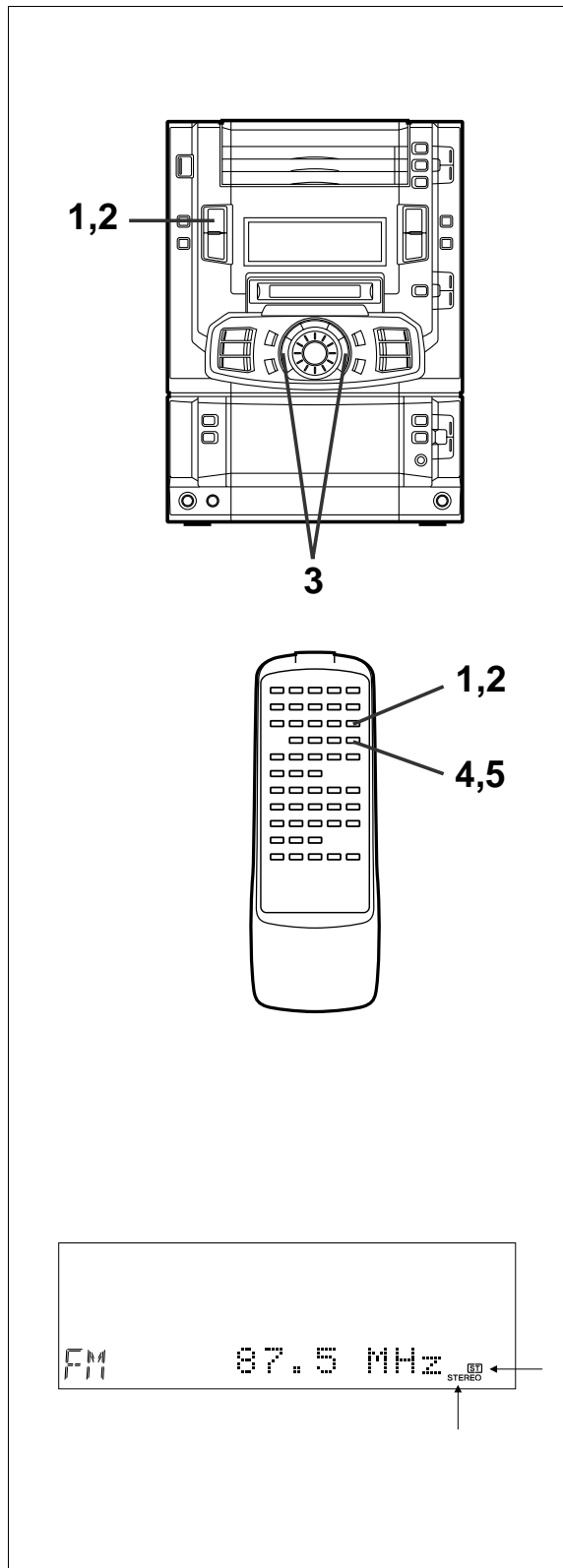
Direct playback:

If a MiniDisc is loaded in the unit, pressing the MD ▶ || button turns the power on, and begins playback.

Notes:

- The unit cannot enter the stand-by mode when reading the information on a MiniDisc.
- If TV or radio interference occurs when using the MD, move the unit away from the TV or radio.
- Although MiniDiscs will not normally skip due to vibration, you may hear a skip in the sound if there is continuous vibration. If the volume is turned up too high, a skip may occur depending on the contents of the MD. If this happens, turn the volume down and the skipping should stop.
- If "DISC ERR" is displayed during MD operation, see "TROUBLESHOOTING" on page 50, and try again.

RADIO OPERATION



■ Tuning

- 1 Press the TUNER (BAND) button.
 - The power will be turned on automatically, and the unit will enter the tuner mode.
- 2 Press the TUNER (BAND) button to select the desired frequency band. (FM ST, FM or AM)
- 3 Press the TUNING (◀▶) button to tune into the desired station.

Manual tuning:

Press the TUNING (◀▶) button as many times as required to adjust the tuner to the desired station.

Auto tuning:

When the TUNING (◀▶) button is pressed for more than 0.5 seconds, scanning will start automatically and the tuner will stop at the first receivable broadcast station.

Notes:

- When radio interference occurs during auto scan tuning, auto scan tuning may stop automatically at that point.
- If a weak station signal is found during auto scan tuning, the station will be skipped.
- To stop the auto tuning, press the TUNING (◀▶) button again.

- 4 To receive an FM stereo transmission, press the ST-MODE button on the remote control so that the "STEREO" indicator on the display lights up.

- "ST" will appear when an FM broadcast is in stereo.

- 5 If the FM reception is weak, press the ST-MODE button on the remote control so that the "STEREO" indicator goes out.

- Although the reception changes to monaural, the sound becomes clearer.

After use:

Press the ON/STAND-BY button to enter the stand-by mode.

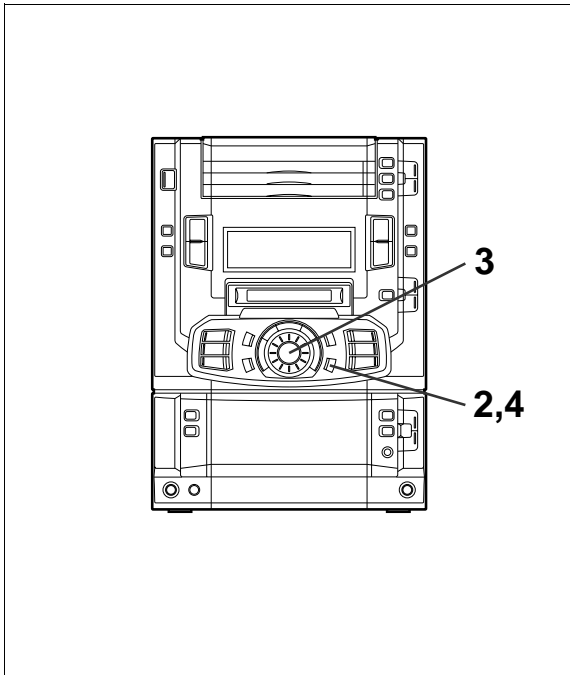
Notes:

- The tuner memory will store the last station you were listening to in each band, even when the unit is in the stand-by mode.
- If the unit's AM/FM tuner interferes with the reception of a nearby TV or radio, move the unit as far away from these items as possible.

Direct playback:

Just pressing the TUNER (BAND) button will turn on the power automatically. The radio station you were listening to last will be tuned in.

(Continued)

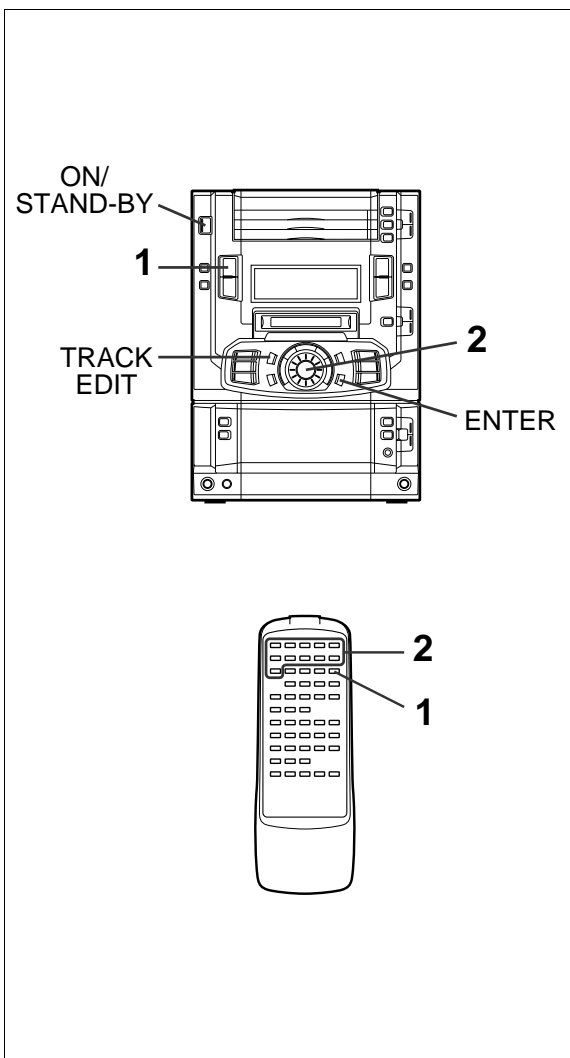


■ Preset tuning

You can store up to 40 stations in memory (40 stations consisting of any combination of FM and AM stations you like) and recall them at the push of a button.

To enter stations into memory:

- 1 Perform steps 1 - 5 in the "Tuning" section.
- 2 Press the ENTER button.
- 3 Within 10 seconds, turn the jog dial to make the preset channel number flash in the display.
- Store the stations in memory, in order, starting with preset channel 1.
- 4 Within 10 seconds, press the ENTER button to store that station in the selected station preset number memory.
- If the preset number indicators go out before the station is memorised, repeat the operation from step 2.
- 5 Repeat steps 1 - 4 to set other preset stations, or to change a preset station.
- When a new station is stored in the selected station preset number memory, the contents previously memorised will be erased.



To recall a memorised station:

- 1 Press the TUNER (BAND) button.
- 2 Press the DIRECT KEY on the remote control or turn the jog dial on the main unit to recall the preset channel number.
- The frequency will appear in the display.

For example, to select 5:

Press the "5" button.

For example, to select 23:

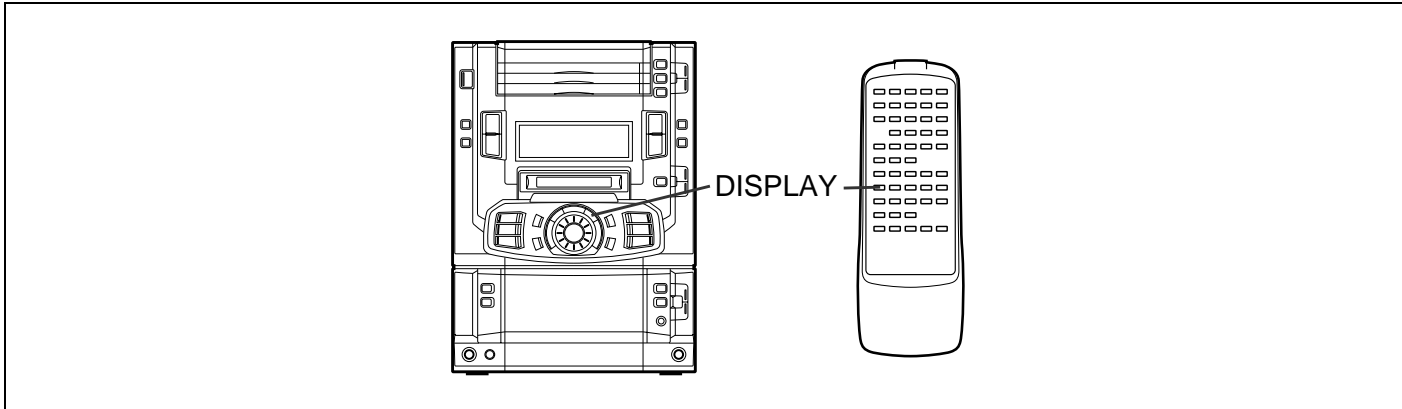
- ① Press the > 10 button.
- ② Within 5 seconds, press the "2" button.
- ③ Within 5 seconds, press the "3" button.

To erase all memorised stations:

When the unit is in the stand-by mode, hold and press the TRACK EDIT and ENTER buttons, and then press the ON/STAND-BY button.

- All of the memorised stations will be erased.

RDS (Radio Data System) OPERATION



Receiving FM Stations with RDS (Radio Data System)

RDS is a broadcasting service which a growing number of FM stations are now providing. It allows these FM stations to send additional signals along with their regular programme signals. For example, the stations send their station names, and information about what type of programme they broadcast, such as sports or music, etc.

When tuned to an FM station which provide the RDS service, the RDS will appear, the station frequency (and then the station name if sent) is displayed.

The TP (Traffic Programme) will appear on the display when the received broadcast carries traffic announcements, and the TA (Traffic Announcement) will appear whilst a traffic announcement is being received.

EON will appear whilst the EON (Enhanced Other Networks information) data is being broadcast.

Note:

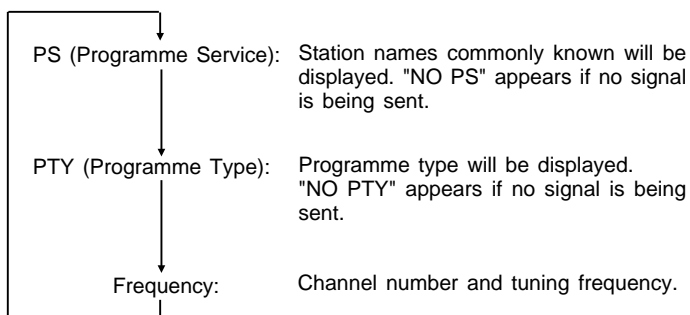
When the TP and TA appear at the same time, an announcement is being made.

When only the TA appears, an announcement is not being made. (See page 18.)

Information Provided by RDS

With the MD-X60H, you can display two types of RDS service. To show them in the display, press the DISPLAY button.

Each time you press the DISPLAY button, the display will change to show the following information.



Descriptions of the PTY (Programme Type) codes, TP (Traffic Programme) and TA (Traffic Announcement)

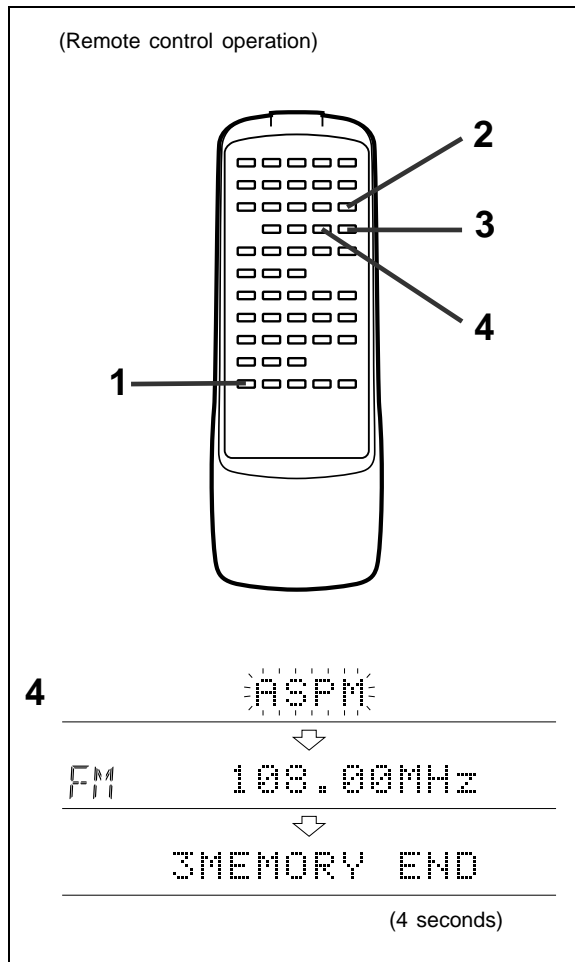
With the MD-X60H, you can search for and receive the following PTY, TP and TA signals.

- NEWS:** News
- AFFAIRS:** Topical programme expanding on the current news or affairs
- INFO:** Programmes on medical service, weather forecast, etc.
- SPORT:** Sports events
- EDUCATE:** Educational programmes
- DRAMA:** Radio plays
- CULTURE:** Programmes on national or regional culture.
- SCIENCE:** Programmes on national sciences and technology
- VARIED:** Other programmes like comedies or ceremonies
- POP M:** Pop music
- ROCK M:** Rock music
- M.O.R. M:** Middle-of-the-road music (usually called "easy listening")
- LIGHT M:** Light music
- CLASSICS:** Classics
- OTHER M:** Other music
- ALARM:** Emergency broadcasts
- NONE:** No programme type (receive only)
- TP:** Broadcasts which carry traffic announcements
- TA:** Traffic announcements are being broadcast at present.

Note:

● When the unit is in the EON stand-by mode and a programme is selected, the unit will display "TI" instead of "TP" or "TA".

(Continued)



■ ASPM (Auto Station Program Memory)

It is recommended that you store stations in memory using ASPM. (This memory can be used for PTY searches and EON switching.) When the ASPM button is pressed, whilst tuned to the FM band, the RDS (Radio Data System) function will automatically search for new RDS stations. Up to 40 stations can be stored in memory. (If you have already stored some stations in memory, the number of new stations you can store will be less.)

- 1 Press the ON/STAND-BY button to turn the power on.
 - 2 Press the TUNER (BAND) button.
 - 3 Press the ST-MODE button to select the FM ST or FM band.
 - 4 Press and hold down the ASPM button for at least 3 seconds.
- ① After "ASPM" has flashed for about 4 seconds, scanning will start. (87.50 - 108.00 MHz)
 - ② When an RDS station is found, the RDS will appear for a short time and the station will be stored in memory.
 - ③ After scanning, the number of stations that have been automatically stored in memory will be displayed for 4 seconds, and then "END" will appear for 4 seconds.

Notes:

- Only RDS stations will be stored in memory.
- If the same station is broadcasting on different frequencies, the transmission with the strongest broadcast frequency will be stored in memory.
- Any station which has the same frequency as one which has been already stored in memory will not be stored again.
- If a 40th station is stored in memory during a scan, the scanning will stop at that station. The number of stations and "3MEMORY END" will each be displayed for 4 seconds.
- If no stations have been stored in memory, "0MEMORY END" will flash for about 4 seconds.
- If 40 stations have already been stored in memory and the ASPM button is pressed, "0MEMORY END" will appear immediately and the scan will be aborted. If you want to redo the ASPM operation from the beginning, erase the preset memory, and then perform steps 1 - 4.

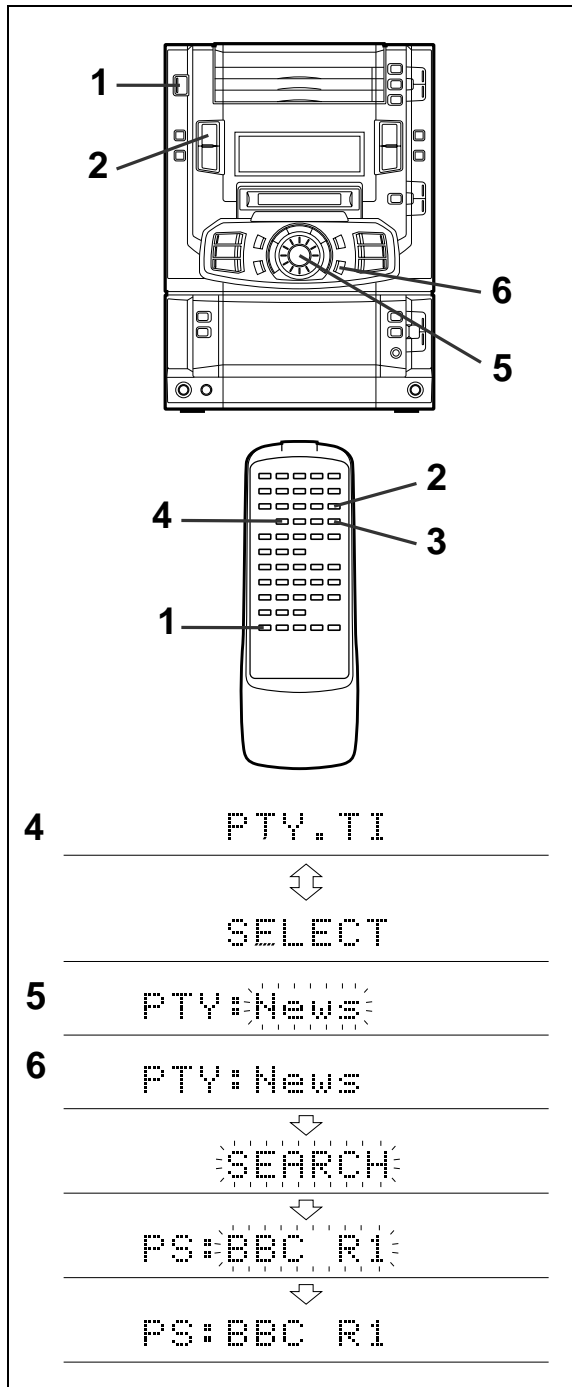
To stop the ASPM operation before it is complete:

- Press the ASPM button whilst it is scanning for stations.
- The stations that have already been stored in memory will be kept there.

To erase all of the contents of preset memory:

- The unit is in the stand-by mode.
Hold down the TRACK EDIT button and the ENTER button, and then press the ON/STAND-BY button.
- After performing this operation, all of the preset memory information will be erased.

(Continued)



■ To recall stations that have been stored in memory (PTY search)

You can select a group of stations by specifying the programme type (news, sports, traffic programme, etc. ... see page 14) from among the stations that have been stored in memory. (ASPM is convenient for storing stations in memory.)

- 1 Press the ON/STAND-BY button to turn the power on.
- 2 Press the TUNER (BAND) button.
- 3 Press the ST-MODE button to select the FM ST or FM band.
- 4 Press the PTY.TI button.
 - "PTY.TI" and "SELECT" will appear alternately for about 4 seconds.
- 5 Within 4 seconds, turn the jog dial on the main unit to select the programme type you want.

Programme type:				
News	Affairs	Info	Sport	Educate
Drama	Culture	Science	Varied	Pop M
Rock M	M.o.R. M	Light M	Classics	Other M
Alarm	TP*	TA		

- 6 Whilst the selected programme type is flashing (within 4 seconds), press the ENTER button.
 - After the name of the selected programme type has been lit for 2 seconds, "SEARCH" will appear, and the search operation will start.

Note:
If the programme type has changed from flashing to steadily lit and the jog dial is turned, nothing will happen. In this case, start again from step 4. Each time a station of the selected type is encountered the search will stop and you can listen to the broadcast. The station name will flash for 7 seconds, and then remain lit.

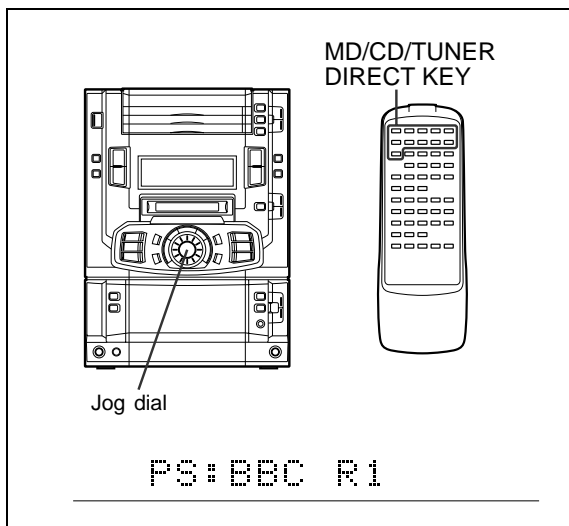
- If you want to listen to another station of that programme type, press the ENTER button whilst the channel number or station name is flashing. The unit will look for the next station of that type.

Note:
● If no station of the programme type you want can be found, "NOT FOUND" will appear for 4 seconds.

*** If you have selected the traffic programme:**

If you select traffic programme (TP) as the programme type in step 5, to receive only radio stations which broadcast traffic programmes, the TP will appear. (However, this does not necessarily mean that you will hear any traffic announcements at that time.)
When a traffic announcement is actually being made, the TA will appear. (When both the TP and TA will appear, an announcement is being made.)

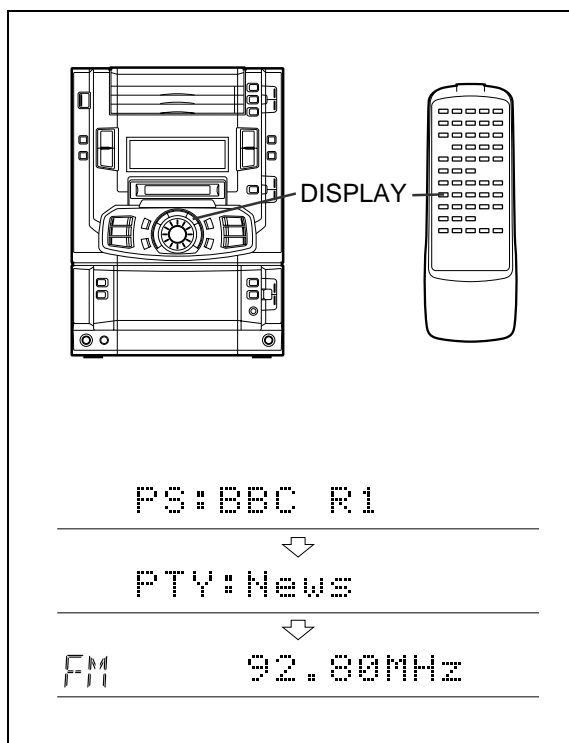
(Continued)



■ To manually recall the stations stored in memory

Each time you turn the jog dial one step, the channel number will change, or press the MD/CD/TUNER DIRECT KEY.

- The preset channel number and frequency will appear.



■ To switch the display

Each time the DISPLAY button is pressed whilst a preset FM (RDS) station is tuned in, the display will switch as follows:

Station name (PS) → Programme type (PTY) → Frequency

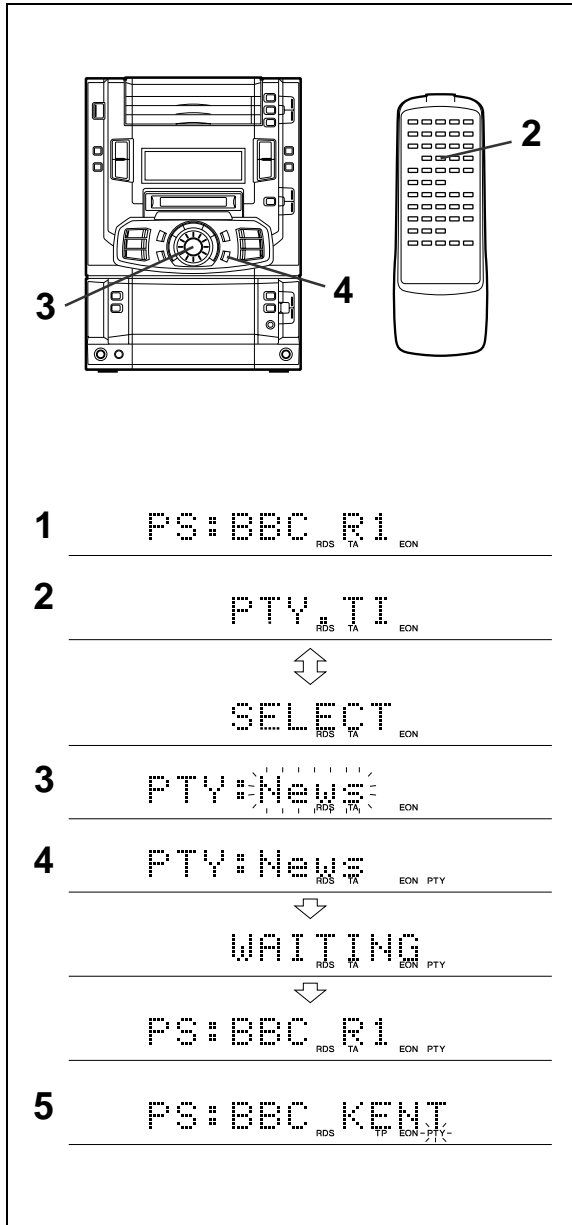


■ Notes for RDS operation

If any of the following events occur, it does not mean that the unit is faulty.

- When the station name flashes, the unit does not operate properly.
- If a particular station is not broadcasting properly or a station is conducting tests, the RDS reception function may not work properly.

(Continued)



■ EON-PTY

- 1 Tune in the desired RDS station (when a PS name is being displayed).
- 2 Press the EON button when "EON" appears.
 - "PTY.TI" and "SELECT" will appear alternately for about 4 seconds.
- 3 Whilst they are being displayed, select the desired programme type turning the jog dial.
 - The selected programme type will flash.
- 4 Within 4 seconds, press the ENTER button.
 - The programme type and "WAITING" will be displayed for 2 seconds each.
 - "PTY" will appear, and the unit will enter the EON-PTY stand-by mode.
- 5 When a programme of the type specified starts on an ON (other network) station, the unit will automatically switch to the station broadcasting the selected programme type, and "PTY" will flash.
- 6 When the programme specified for the ON station is over, the unit will automatically return to the original station you were tuned to.

Note:

- If the EON button is pressed when "EON" is not displayed, "NO EON" will appear for 4 seconds to indicate that the unit cannot enter the EON stand-by mode.

Checking the stand-by mode setting:

When in the EON stand-by mode, press the EON button. ("Programme type" → "WAITING")

To cancel the EON stand-by mode:

When in the EON stand-by mode, press the EON button. Within 4 seconds, press it again. The EON stand-by mode will be cancelled.

- "PTY" will go out.

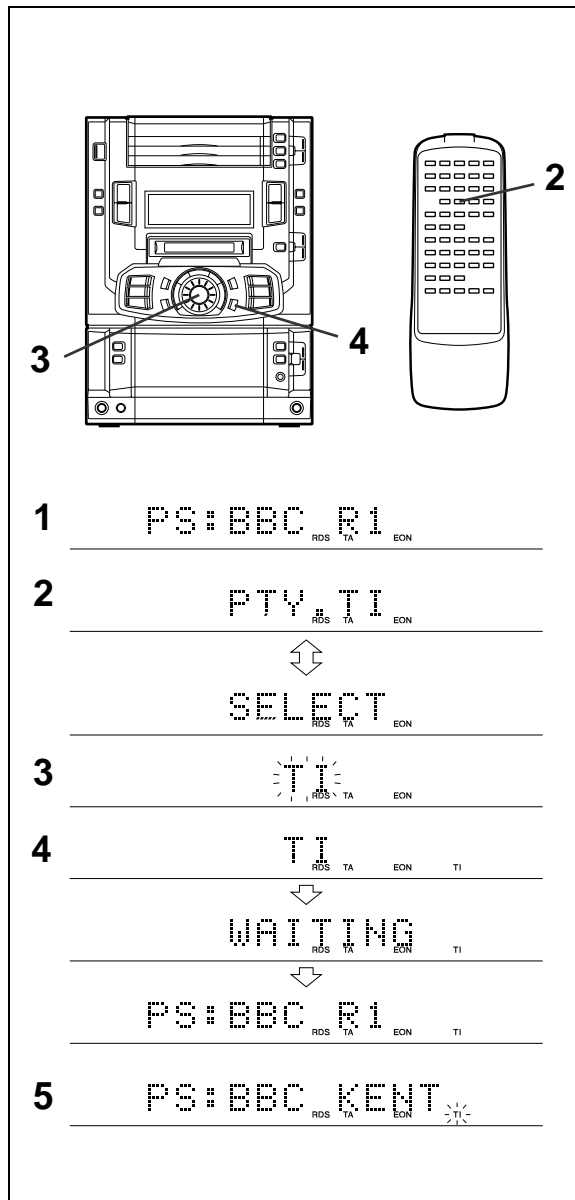
Notes:

- In the following cases, the EON stand-by mode will be cancelled.
- When the unit is in the stand-by mode.
 - When the unit is switched to another band in the EON stand-by mode
 - When you change the FM station whilst in the EON stand-by mode
 - When an FM station is stored in preset memory.

About the TP and TA indicators

TP indicator	TA indicator	Meaning
Not lit	Not lit	This programme does not carry traffic announcements nor does it refer, via EON, to a programme that does.
Not lit	Lit	This programme carries EON information about another programme which gives traffic information.
Lit	Not lit	This programme carries traffic announcements but none are being broadcast at present and may also carry EON information about other traffic announcements.
Lit	Lit	A traffic announcement is being broadcast on this programme at present.

(Continued)



■ EON-TI

- 1 Tune in the desired RDS station (when a PS name is being displayed).
- 2 Press the EON button when "EON" appears.
 - "PTY.TI" and "SELECT" will appear alternately for about 4 seconds.
- 3 Whilst they are being displayed, select the TI (Traffic Information) using the jog dial.
 - The selected "TI" will flash.
- 4 Within 4 seconds, press the ENTER button.
 - "TI" and "WAITING" will appear for 2 seconds each.
 - "TI" will appear, and the unit will enter the EON-TI stand-by mode.
- 5 When a TA specified starts on another network station, the unit will automatically switch to that station, and "TI" will flash.
- 6 When the traffic announcement is over, the unit will automatically return to the original station you were tuned to.

Note:

- If the EON button is pressed when "EON" is not displayed, "NO EON" will appear for 4 seconds to indicate that the unit cannot enter the EON stand-by mode.

Checking the stand-by mode setting:

When in the EON stand-by mode, press the EON button. ("TI" → "WAITING")

To cancel the EON stand-by mode:

When in the EON stand-by mode, press the EON button. Within 4 seconds, press it again. The EON stand-by mode will be cancelled.

- "TI" will go out.

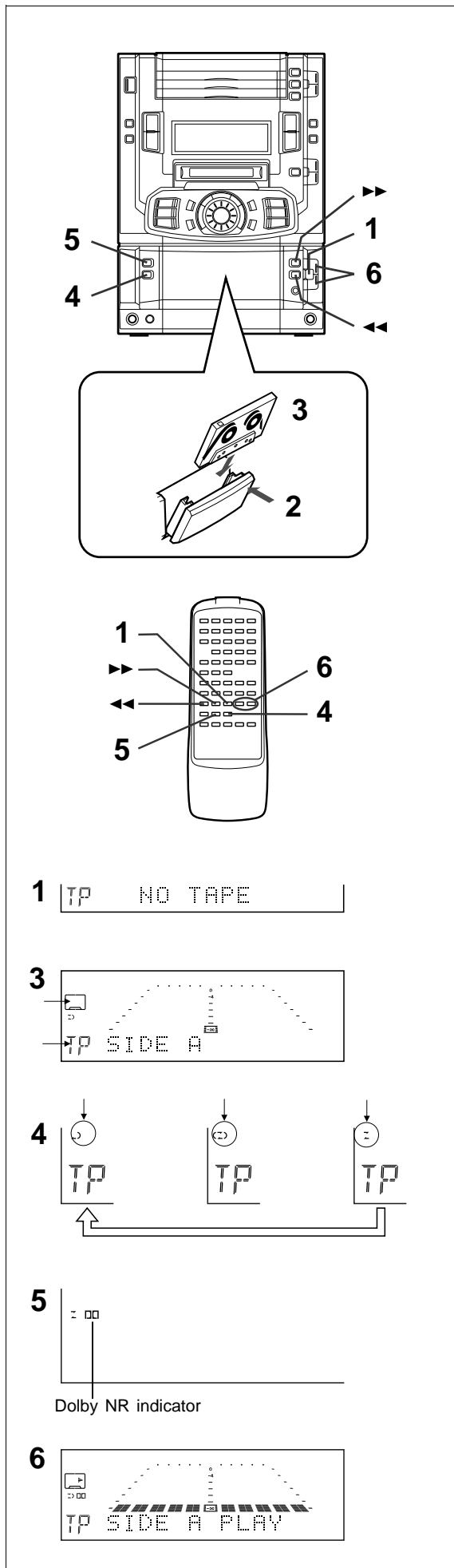
Note:

- If neither "TP" nor "TA" appear, then even if "EON" appears the unit cannot enter the EON-TI stand-by mode. In this condition, even if the EON button is pressed, "NO TI" will flash for 4 seconds.

Notes:

- During the same programme as the specified PTY (or TA) is being broadcast on the station you are receiving, the unit will not switch to other network station.
- If there are more than two other network stations you want to listen to, compare the strength of each station's signal and tune in the station with the strongest signal. (EON-AF)
However, if the frequency of other network station has been stored in the preset channel memory, the unit will switch to that preset channel.
- If you want to cancel the reception of an ON (other network) station which was tuned in by the EON system and return to the original station you were receiving, press the EON button.
 - After the unit returns to the original station, the stand-by mode will still be active. (The "TI" or "PTY" will remain lit.)
 - The unit will not switch from the ON station to another network station. The unit returns to the original station.
 - When the unit switches automatically to other network station, if other network station has any problem, or when the unit can no longer receive that station with something wrong, "NO READY" will appear, and then the unit will return to the original station.

CASSETTE OPERATION



■ Normal playback

- 1 Press the TAPE ■ button.
 - The power will be turned on automatically, and the unit will enter the TAPE mode.
- 2 Open the cassette door by pushing the area marked "PUSH OPEN".
- 3 Load the cassette into the cassette compartment.
- 4 Press the REVERSE MODE button.
 - ⏮ ... To listen to one side of the tape.
 - ⏪ ... To listen to both sides of the tape.
 - ⏩ ... For endless repeat play of both sides of the tape.
- 5 Select the Dolby Noise Reduction (NR) mode by pressing the DOLBY NR button.
 - When a tape recorded with the Dolby NR system is used, turn on the Dolby NR indicator.
 - When a tape not recorded with the Dolby NR system is used, turn off the Dolby NR indicator.
- 6 Press the ► button to listen to side A (1), or the ◀ button for side B (2).
 - To play both sides of the tape (⏪), start from side A (1). When the tape starts playback from side B (2), side A (1) will not be played after side B (2) finishes.

To stop playback:

Press the TAPE ■ button.

To fast-wind the tape onto the left reel:

Press the ◀◀ button when the tape is stopped.

To fast-wind the tape onto the right reel:

Press the ►► button when the tape is stopped.

Listening to the reverse side during playback:

Press the ◀ or ► button during playback.

Direct play:

- If a tape is already loaded, when you press the ◀ or ► button, the power will be turned on automatically, and playback of the tape will start.

To restart the track being played from the beginning:

Press the ◀◀ or ►► button during playback.

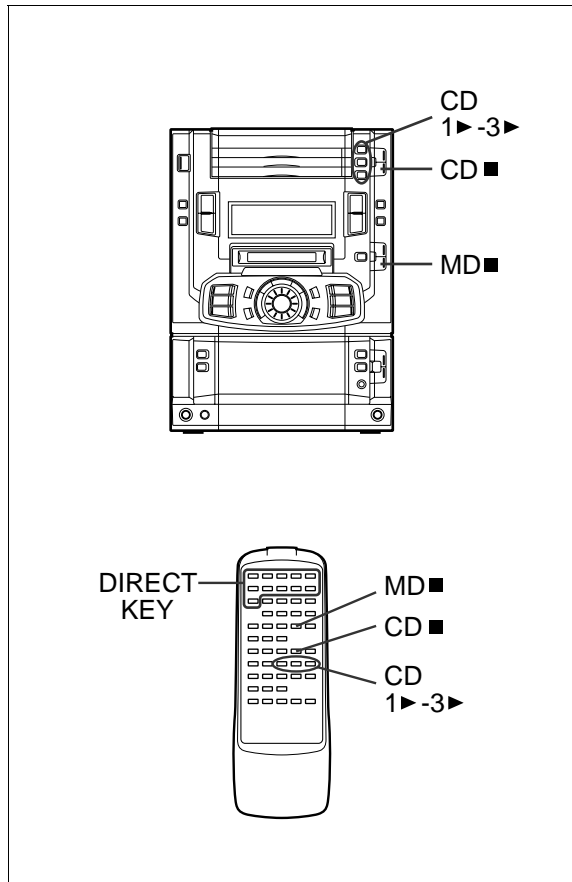
To listen to the next track:

Press the ◀◀ or ►► button during playback.

Precautions:

- When removing the cassette tape, press the TAPE ■ button, and then open the cassette compartment.
- Before changing from one tape operation to another, press the TAPE ■ button.
- If a power failure occurs during tape operation, the tape head will remain engaged with the tape and the cassette door will not open. If this occurs, wait until power is restored.

CONVENIENT CD AND MD OPERATIONS



■ Direct-selection play

By using the DIRECT KEY on the remote control, you can play any track directly.

When CD is selected:

- 1 Press one of the CD 1 ▶ - 3 ▶ buttons to select the CD you want to listen to.
- 2 Press the CD ■ button.
- 3 Use the DIRECT KEY to select the desired track number.

When MD is selected:

- 1 Press the MD ■ button.
- 2 Use the DIRECT KEY to select the desired track number.

A. To select track numbers 11 to 99

Press the > 10 button first, then press the track number.

For example, to select 36:

- ① Press the > 10 button.
- ② Within 5 seconds, press the "3" button.
- ③ Within 5 seconds, press the "6" button.

B. To select a track number 100 or higher (only for MDs)

Press the > 10 button twice, then press the track number.

For example, to select 128:

- ① Press the > 10 button.
- ② Within 5 seconds, press the > 10 button.
- ③ Within 5 seconds, press the "1" button.
- ④ Within 5 seconds, press the "2" button.
- ⑤ Within 5 seconds, press the "8" button.

The beginning of the selected track will be found, and play will begin automatically.

Notes:

- A track number higher than the number of tracks on the disc cannot be selected.
- During APMS play or random play, track number selection play is not possible.

■ APSS (Auto Program Search System)

APSS automatically locates the beginning of any track.

To move to the beginning of the next track:

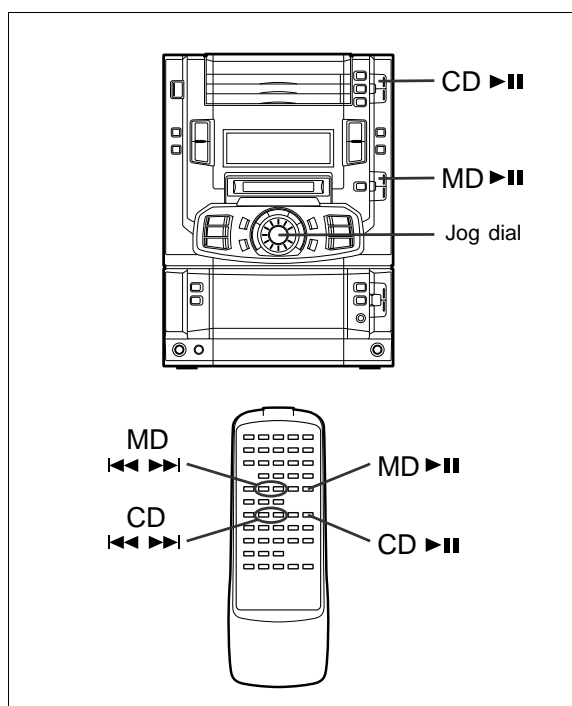
During playback ... Turn the jog dial clockwise.
Or press the ►► button on the remote control.

To restart the track being played:

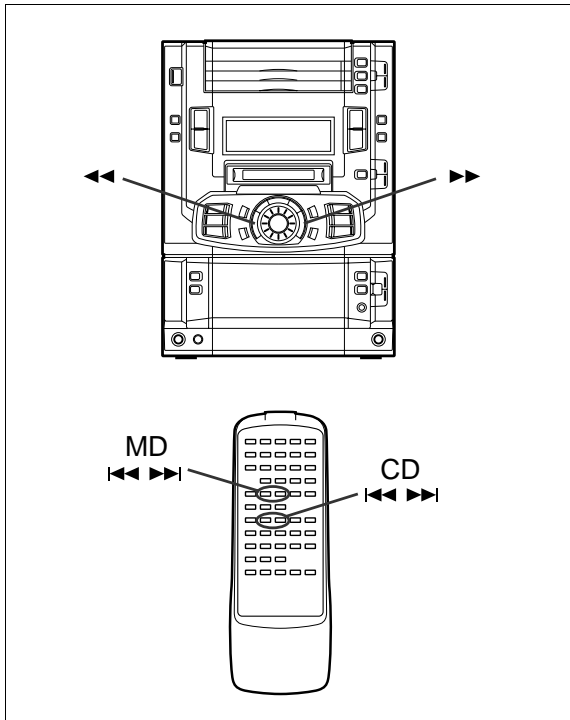
During playback ... Turn the jog dial anti-clockwise.
Or press the ◀◀ button on the remote control.

When using the jog dial whilst in the stop mode:

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



(Continued)



■ Cue and review

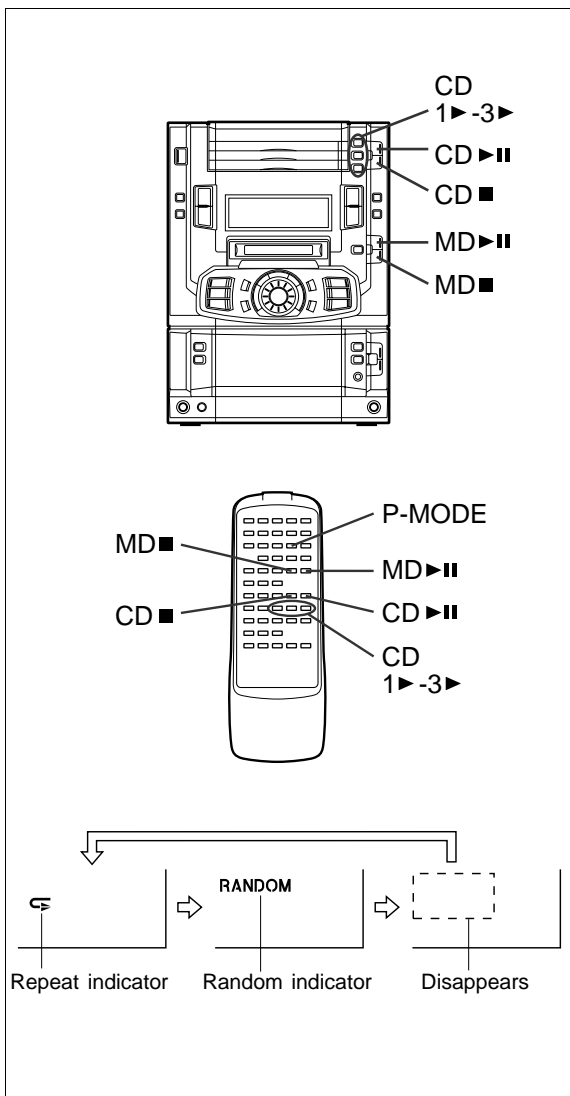
During playback hold the ►► button (►►► button on the remote control) down for audible fast forward, and hold the ◀◀ button (◀◀◀ button on the remote control) down for audible fast reverse. Normal playback will resume when the ►► or ◀◀ (►►► or ◀◀◀) button is released.

Notes:

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

To search very quickly:

- When fast forward or fast reverse is used whilst in the pause mode, the playback point will move more quickly than when using audible fast forward or audible fast reverse playback.
- In this mode, no sound is heard. Therefore, you should refer to the time display.
 - When you lift your finger, the unit will re-enter the pause mode.



■ Repeat and random play

- 1 Select the desired programme source, CD or MD, by pressing the CD ■ or MD ■ button.
- 2 Press the P-MODE button on the remote control.
 - Each time this button is pressed, the mode will change in the following order: Repeat play → Random play → Normal play → Repeat play
- 3 Press the CD ►► or MD ►► button to start playback.
 - To specify a disc from disc trays 1 - 3, press one of the CD 1 ► - 3 ► buttons (only for CDs).

Repeat play

After the last track has been played, playback will return to the first track and begin again.

Random play

When the CD ►► or CD 1 ► - 3 ► buttons are pressed, all of the tracks will be played at random, and then playback will stop. (The same track will not be played back twice.)

To cancel repeat or random play:

Press the P-MODE button until the "□" or "RANDOM" display disappears.

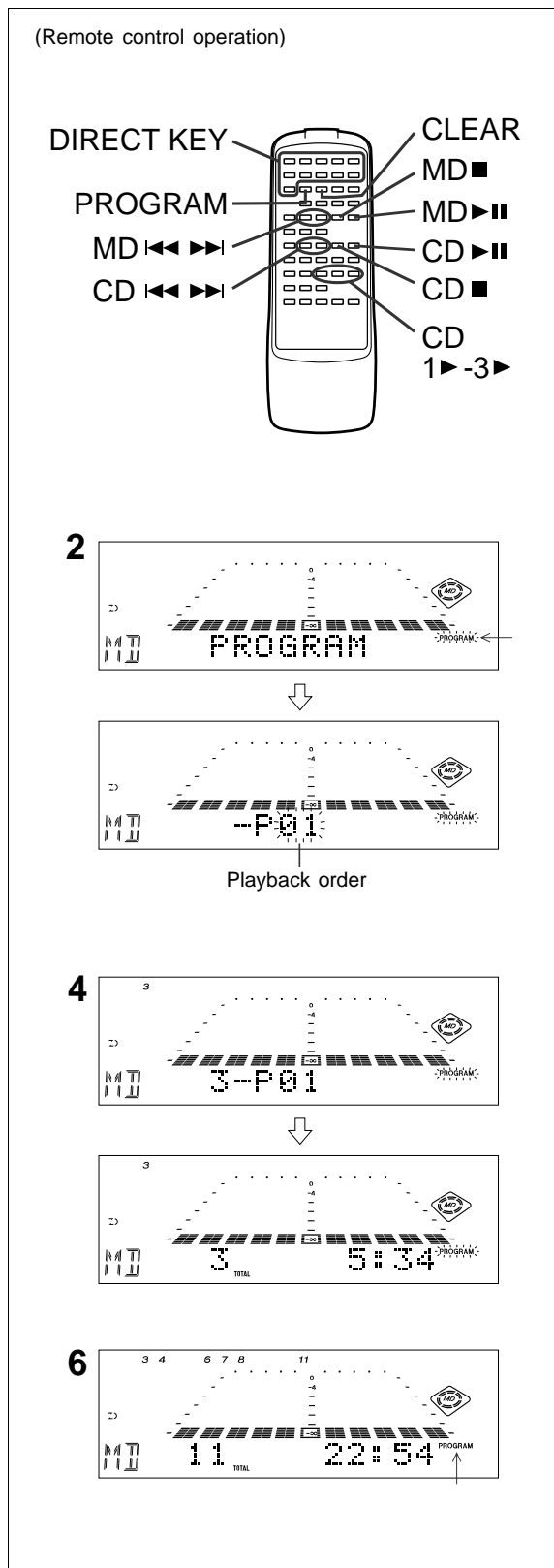
To repeat playback of selected tracks:

Enter the programme for the tracks you want and start repeat play. You can programme a single track and play it repeatedly (Refer to page 23).

Notes:

- During APMS play, random play is not possible.
- When random or repeat play is selected during CD or MD playback, random or repeat play will start at that point.

(Continued)



■ APMS (Automatic Programmable Music Selector)

- 1** Select the desired programme source, CD or MD, by pressing the CD ■ or MD ■ button.
- 2** Press the PROGRAM button.
 - "PROGRAM" will flash.
- 3** If you have selected CD, press one of the buttons (1 ► - 3 ►) to select the disc to be played.
- 4** Use the DIRECT KEY to select the desired track number.
- 5** Repeat steps 3 and 4 for any other tracks. (Repeat step 4 only for MDs). Up to 20 MD tracks or 32 CD tracks can be programmed.
 - To select another track on an MD or on the same CD, skip step 3.
 - The programmed playback order and the total playing time of the programmed tracks will be automatically displayed, and only those track numbers will appear in the music schedule.
 - If the total playing time of the programmed tracks exceeds 999 minutes 59 seconds, "--:--" will be displayed. In this case, the programmed tracks are stored. (only for CDs).
 - If the total playing time of the programmed tracks exceeds 255 minutes 59 seconds, "255:59" will be displayed. In this case, the programmed tracks are stored. (only for MDs).
- 6** Press the CD ■ or MD ■ button.
 - "PROGRAM" will appear.
- 7** Press the CD ► || or MD ► || button to start playback of the programmed selections.
 - After all of the programmed tracks have finished playback, the unit will automatically stop.

To clear the programmed selections:

- Press the CLEAR button whilst the "PROGRAM" indicator is flashing.
- Each time the button is pressed, one track will be cleared, beginning with the last track programmed.

To cancel the APMS:

- Whilst the unit is stopped in the APMS mode, press the CLEAR button to turn off the "PROGRAM" display.
- The programme contents will be erased.
 - When you open the disc tray or a MiniDisc is removed, the APMS mode will be cancelled.

To check which tracks are programmed:

- Whilst the unit is stopped in the APMS mode, turn the jog dial. Or press the ◀◀ or ▶▶ button on the remote control.
- When the jog dial is turned clockwise, the next track number will appear. When it is turned anti-clockwise, the previous track number will appear.

Adding tracks to the programme

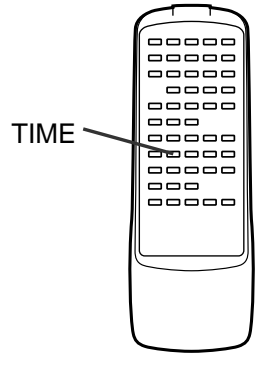
If a programme has been previously stored, the "PROGRAM" indicator will be displayed. Then follow steps 2 - 6 to add additional tracks, the newly selected tracks will be stored after the last track of the original programme.

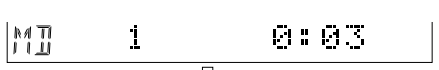
Notes:


- It is not possible to insert an additional track between programmed tracks that have already been entered.
- Programming and cancelling are not possible during playback or in the pause mode.

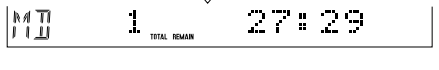
(Continued)

(Remote control operation)



1 

2 

3 

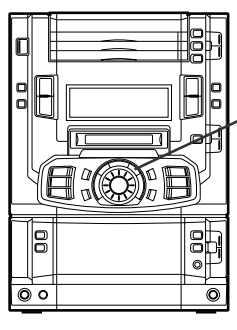
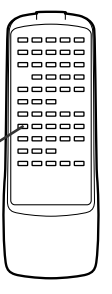
Switching the time display

Each time the TIME button is pressed during playback or when in the pause mode, the display will change.

- 1 The elapsed playing time for each track will be displayed.
- 2 The remaining playing time for the current track will be displayed.
- 3 The total remaining playing time for the disc from the point being played at that time will be displayed.

Notes:

- During random play, only the elapsed playing time for each track will be displayed. The display cannot be switched.
- Depending on a CD or MD to be played, the playing time display may not match the total playing time which is indicated on the CD or MD jacket, as the time between the tracks is not included.

Changing the display during MD playback

Each time the DISPLAY button is pressed during playback or when in the pause mode, the display will change as described below.



When the MD has a track name:

- 1 The track name will be displayed.
- 2 The total number of tracks and the remaining recording time will be displayed.
- 3 The date and time recorded will be displayed.

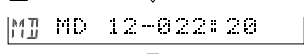
When the MD does not have a track name:


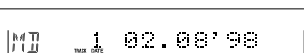
- 1 The total number of tracks and the remaining recording time will be displayed.
- 2 The date and time recorded will be displayed.

When the MD has a track name

1  → 

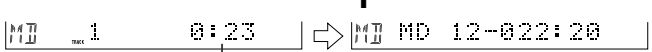
Elapsed playing time

2 


3  ← 

After about 2 seconds

When the MD does not have a track name

1 

Elapsed playing time

2 

After about 2 seconds

RECORDING

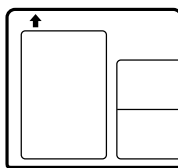
■ Differences from tape recordings

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

MiniDiscs are single sided and should only be inserted with the correct side up.

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

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

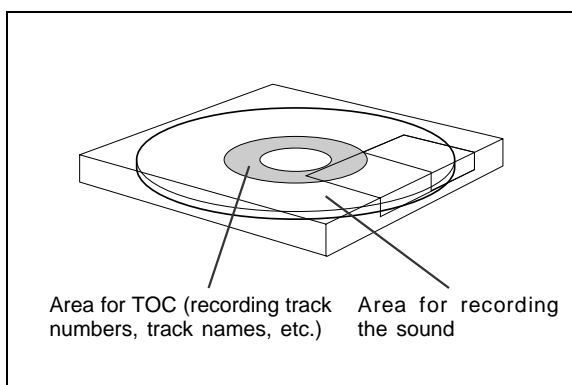


You can check the total or remaining recordable time (possible recording) before recording.

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

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

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



■ Disc writing (TOC)

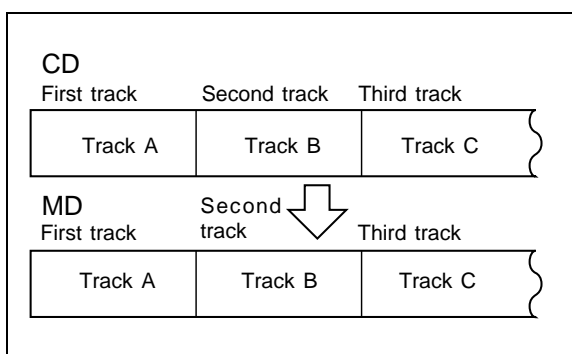
The TOC (Table of Contents) is information on track numbers and recording areas to allow the unit to recognize musical selections or sounds. The entire MD is controlled depending on this TOC, which enables the unit to find the beginning of a track quickly or to automatically record in a vacant area.

When you start recording or editing, "TOC" will appear in the display window. This indicates that information in the TOC is now being changed according to recording or editing being performed. (The changed TOC is not yet recorded on the MiniDisc at this time.)

The TOC is recorded when

- you stop recording.
- you switch to another input source.
- you eject the MiniDisc.
- you turn the power off.

Do NOT unplug the power lead whilst the TOC is being recorded ("TOC" is flashing) and do NOT impart shock to the unit. Otherwise, TOC will not be correctly recorded, and consequently proper playback may not be possible.



■ About track numbers

When recording from a CD

New track numbers will be created automatically according to the original tracks (Synchro mark function).

- When you record from a CD to a MiniDisc, the track numbers recorded on the MiniDisc may not match the track numbers on the CD. If this happens, correct the track numbers using the DIVIDE (page 38) and COMBINE (page 38) functions after recording.

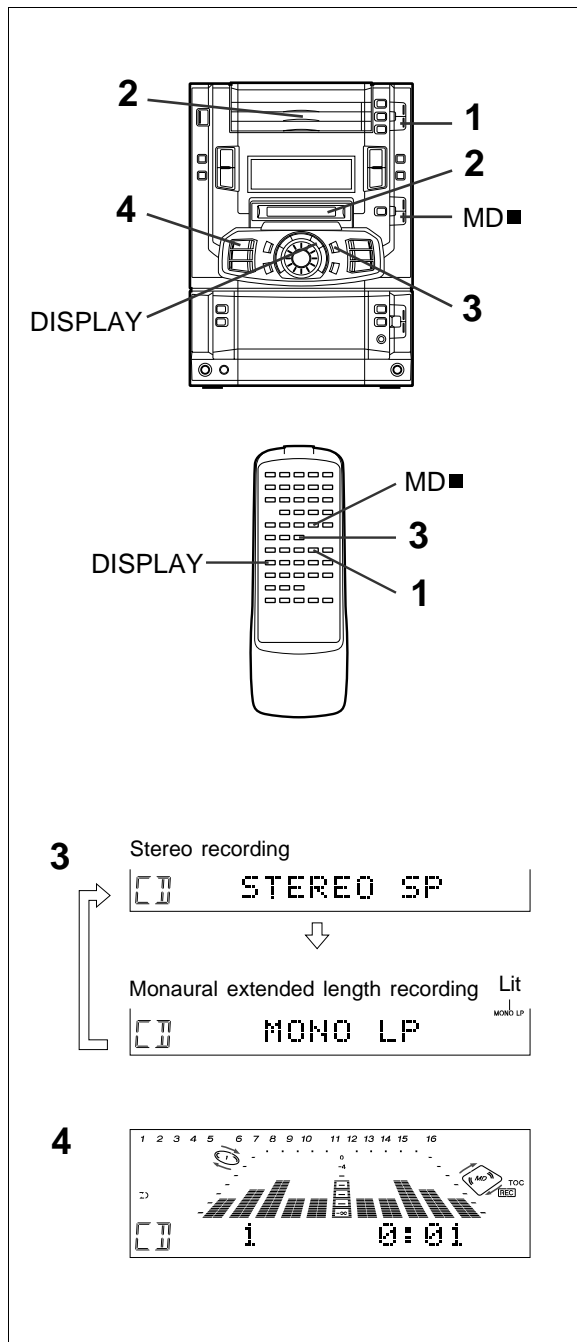
Recordings cannot be made in the following situations.

- If you try recording on a playback-only MiniDisc (commercially available music)
- If a MiniDisc is protected against accidental erasure (Page 49)
- If there is no more recording time left on the disc (Page 50)
- When the "TOC FULL" message appears (Page 50)
- If a disc's TOC has been damaged
- If you are trying to copy a digital signal that has been encoded with the SCMS signal (Serial Copy Management System)

Notes:

- When recording important selections, be sure to make a preliminary test to ensure that the desired material is being properly recorded.
- The VOLUME and X-BASS controls may be adjusted with no effect to the recorded signal. (Variable Sound Monitor)

(Continued)



Recording from a CD onto a MiniDisc (One-Touch Editing)

A CD can be recorded to a MiniDisc, starting from the first track, with a one-touch operation. More than one CD can be recorded consecutively.

- 1** Press the CD ■ button.
- 2** Load a compact disc and a recordable MiniDisc.
 - The total number of tracks and the total playing time on the CD will be displayed.
 - When a new recordable MiniDisc is loaded, it will take about 15 seconds to enter the recording stand-by mode.
- 3** Check the recording mode by pressing the REC MODE button.
 - Each time the button is pressed, the display will switch between the stereo mode and the monaural long-play mode.
 - This mode cannot be changed whilst recording.
 - When a track which was recorded in monaural sound is played back, "M" will be displayed after the track number.
- 4** Press the CD ► MD button.
 - The compact discs loaded in DISC-1 - DISC-3 will be recorded in order, starting from the first track on DISC-1. When a MiniDisc runs out of recording space or when a compact disc has been completely recorded, the CD and the MD will stop automatically.

If recording does not begin

When a disc is loaded in each of DISC-1 - DISC-3, if all of the tracks on the discs cannot be recorded, the number of tracks that cannot be recorded will be displayed. Next the number of tracks that can be recorded will appear. The unit will then enter the recording stand-by mode.

- Press the CD ► MD button.
- Recording will begin, starting from the first track on DISC-1.
 - After recording all of the tracks that can be recorded, the unit will stop automatically.

To cancel the operation:

Before pressing the CD ► MD button, press the CD ■ or MD ■ button.

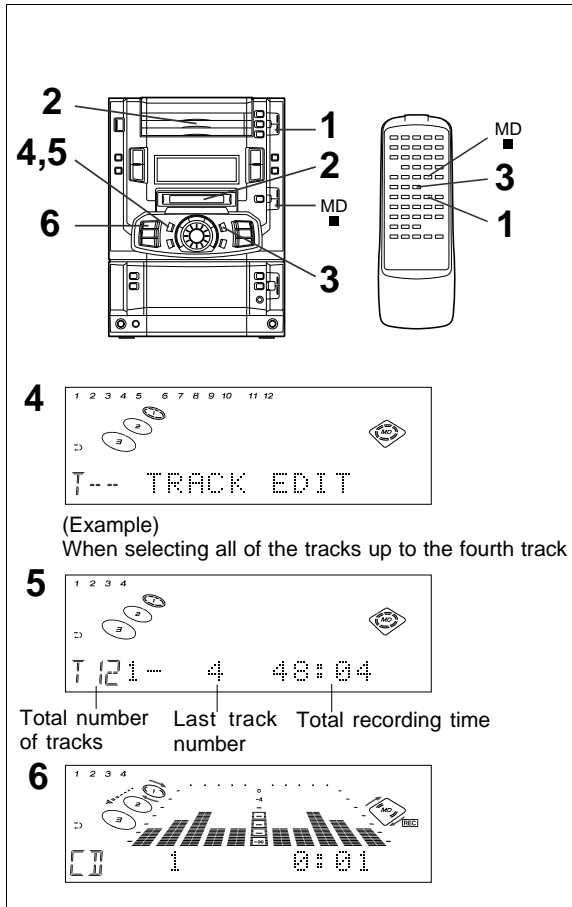
To stop recording:

- Press the CD ■ or MD ■ button.
- Playback and recording will stop after the track numbers have been written to the MiniDisc.
 - It is not possible to pause in the recording mode.

To check the remaining time available for recording:

- ① Press the MD ■ button.
 - ② Load a MiniDisc.
 - ③ Press the DISPLAY button.
- After the number of tracks are recorded, the available time remaining will be displayed, Five seconds later, the unit will return to the original display.

(Continued)



Recording desired tracks from a CD onto a MiniDisc (Track Editing)

Several consecutive tracks, starting from the first track on a CD (for example: from the first track to the fourth track), can be recorded onto an MD.

- 1 Press the CD ■ button.
- 2 Load a compact disc and a recordable MiniDisc.
- 3 Check the recording mode by pressing the REC MODE button.
- 4 Press the TRACK EDIT button.
 - To record a single track, skip to step 6.
- 5 Select the last track to record by pressing the TRACK EDIT button.
 - Each time you press the TRACK EDIT button, the track number will increase.
 - If you select more than 100 tracks or more tracks than there are on the CD or if the total recording time exceeds 150 minutes, "EDIT OVER" will be displayed. Then, pressing the TRACK EDIT button will not select the next track number.
- 6 Press the CD ► MD button.
 - If recording does not begin, press the CD ► MD button again. (See page 26.)
 - Recording will start from the tracks selected in disc 1, disc 2 and disc 3, in that order. After recording, the CD and the MD will stop automatically.

To cancel the track edit operation:

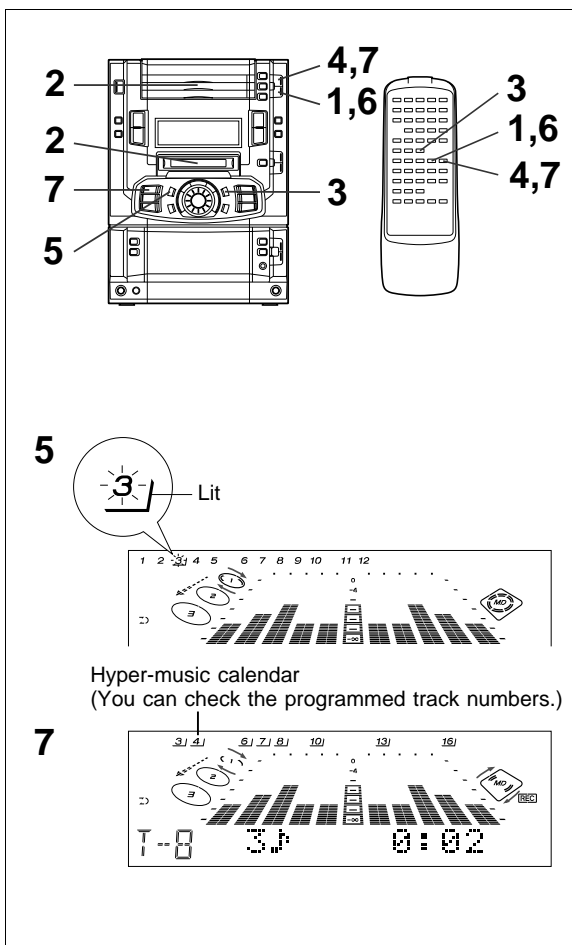
Press the CD ■ button before pressing the CD ► MD button.

To stop recording:

Press the CD ■ or MD ■ button.

- After the track numbers have been written to the MiniDisc, playback and recording will stop.
- It is not possible to pause in the recording mode.

Recording only your favorite tracks onto a MiniDisc whilst listening to a CD (Hypertrack Editing)



- 1 Press the CD ■ button.
 - 2 Load a compact disc and a recordable MiniDisc.
 - 3 Check the recording mode by pressing the REC MODE button.
 - 4 Press the CD ► || button.
 - 5 Press the TRACK EDIT button whilst playing a track you want to record.
 - Repeat this operation whilst continuing to listen to the CD.
- If the number of programmed tracks exceeds 32 or if the total recording time exceeds 150 minutes:**
- Pressing the TRACK EDIT button will not add any track to the programme after the track which encountered the limit.

- 6 Press the CD ■ button.
 - Playback will stop.
 - If the CD is played to the end, the unit will stop automatically.
- 7 Press the CD ► MD button.
 - If recording does not begin, press the CD ► MD button again. (See page 26.)
 - Recording will start.
 - After recording is finished, the CD and the MD will stop automatically.

To cancel a programmed track

Press the CD ■ button to stop playing the CD. Then, press the CD ■ button again.

To change a programmed track

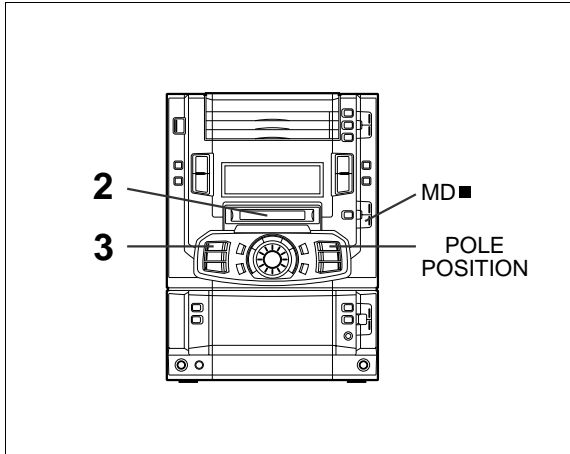
Cancel the programmed track. Then perform the operation from step 4 again.

You can also perform the following operation.

When you know the track number you want to record, you can record it using the Hypertrack Edit function whilst the CD is in the stop mode.

- ① Select the track number you want to record using the jog dial.
- ② Press the TRACK EDIT button.
 - Repeat steps 1 and 2 to add other track numbers you want to record to the programme.
- ③ Press the CD ► MD button.

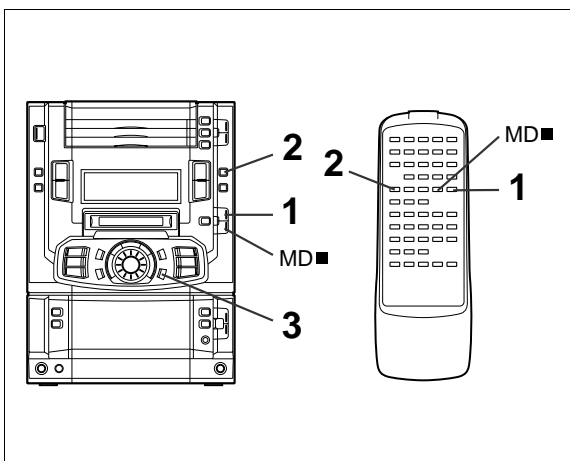
(Continued)



■ APMS recording

- 1 Select tracks for APMS playback. (Page 23)
- 2 Load a recordable MiniDisc.
- 3 Press the CD ► MD button.
 - APMS playback will start, and recording will start automatically.
 - Programmed tracks will be recorded in order. After the unit has finished recording the last track, recording will stop automatically.
 - If you press the POLE POSITION button before pressing the CD ► MD button, a recording can be made from the beginning of the MiniDisc. (Page 30)
 - If recording does not begin, press the CD ► MD button again. (See page 26.)

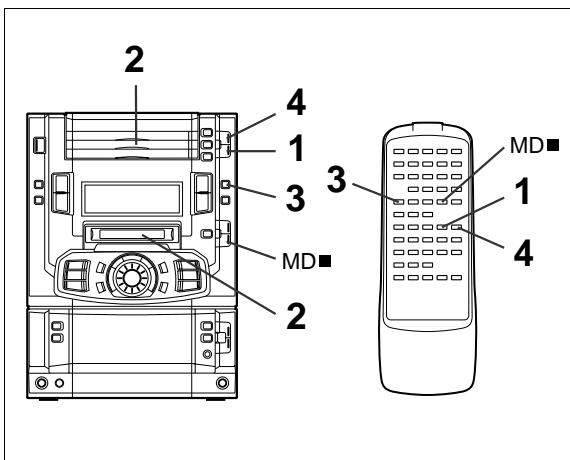
To stop recording:
Press the MD ■ button.



■ To re-record

When you want to re-record, you can erase a track that is already recorded, starting from any point in the old track, to begin a new recording. Be aware that when you do this, all of the tracks and track names that follow the newly recorded track will be erased.

- 1 During playback, press the MD ► || button at the point where you want to begin re-recording.
 - The unit will pause.
- 2 Press the MD ● REC button.
 - "R. ERASE OK?" will be displayed.
- 3 Press the ENTER button.
 - This unit will be in the recording pause mode.
 - To cancel the operation, press the MD ■ button.
- 4 Select the recording source and start recording.



■ To record without using One-Touch Editing

Without using one-touch recording, the following operation allows you to record from the first track.

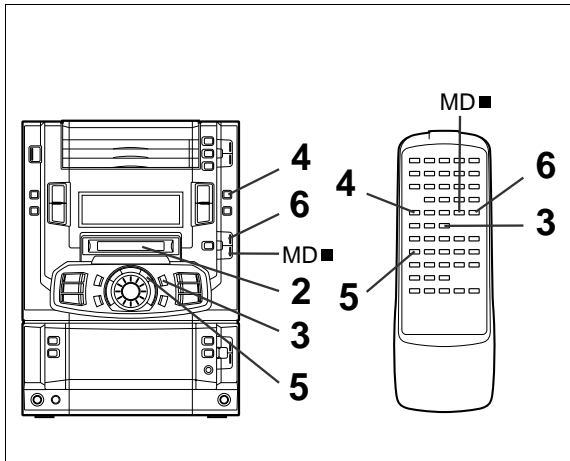
- 1 Press the CD ■ button.
- 2 Load a compact disc and a recordable MiniDisc.
- 3 Press the MD ● REC button.
 - The unit will enter the recording stand-by mode.
- 4 Press the CD ► || button.

To stop recording:

Press the MD ■ button.

- After the track number has been written on the MiniDisc, the recording will stop. However, CD playback will continue.

(Continued)



To record the track number whilst recording:

The recording is performed as a single track. To identify different sections of a recording you can increase the track number at any point during the recording process. To create a new track number, whilst in the recording mode, press the MD ● REC button.

- The track number will increase by one, and then the recording will continue.

Recording from the built-in radio onto a MiniDisc

- 1 Tune in to the desired station. (pages 12 - 13.)
- 2 Load a recordable MiniDisc.
- 3 Check the recording mode by pressing the REC MODE button.
- 4 Press the MD ● REC button.
 - The unit will enter the recording stand-by mode. At this time, auto tuning is impossible.
- 5 Check the recordable time by pressing the DISPLAY button.
- 6 Press the MD ► || button.
 - During recording, you cannot change the station.

Note:

- Before recording an AM broadcast, enter the recording stand-by mode, and then separate the AM loop aerial from the main unit. Adjust it so that the AM broadcast can be tuned in most clearly.

To stop recording:

Press the MD ■ button. After the track number has been written on the MiniDisc, the recording will stop.

To interrupt recording:

Press the MD ► || button whilst recording. Press the MD ► || button again to resume recording. The track number will increase.

Recording from a cassette onto a MiniDisc (One-Touch Editing)

The contents of a tape recording can be recorded onto an MD with a one-touch operation.

- 1 Load a cassette for playback.
- 2 Load a recordable MiniDisc.
- 3 Check the playback direction by pressing the REVERSE MODE button.
- 4 Select the DOLBY NR mode.
 - When recording with the Dolby NR system, turn on the □□ indicator.
- 5 Check the recording mode by pressing the REC MODE button.
- 6 Check the recordable time by pressing the DISPLAY button.
- 7 Press the TAPE ► MD button.
 - Recording will begin.

To stop recording:

Press the MD ■ or TAPE ■ button.

What is the space-cut function?

If there is a silence in the playback signal that lasts 3 seconds during a synchro recording, the recording will stop automatically and unit will enter the recording stand-by mode. Then, when sound from the playback unit resumes, recording will automatically restart. (A space of 3 seconds is placed between tracks.)

- If there is noise between tracks of the sound source, the synchro recording or the space-cut function may not work properly. If this happens, make the recording manually.
- When you need to record tracks or audio that include very quiet passages lasting 3 seconds or more, manual recording is recommended.

Auto Mark function

If there is 1 second or more of silence, a new track number is created automatically.

Recording from a cassette onto a MiniDisc (MD Synchronised Recording System)

When a tape is played, the MD recording will start simultaneously.

- 1 Load a cassette for playback.
- 2 Load a recordable MiniDisc.
- 3 Check the playback direction by pressing the REVERSE MODE button.
- 4 Select the DOLBY NR mode.
 - When recording with the Dolby NR system, turn on the □□ indicator.
- 5 Check the recording mode by pressing the REC MODE button.
- 6 Check the recordable time by pressing the DISPLAY button.
- 7 Press the MD ● REC button.
 - The unit will enter the recording stand-by mode.
- 8 Press the TAPE ► button.
 - Recording will begin.

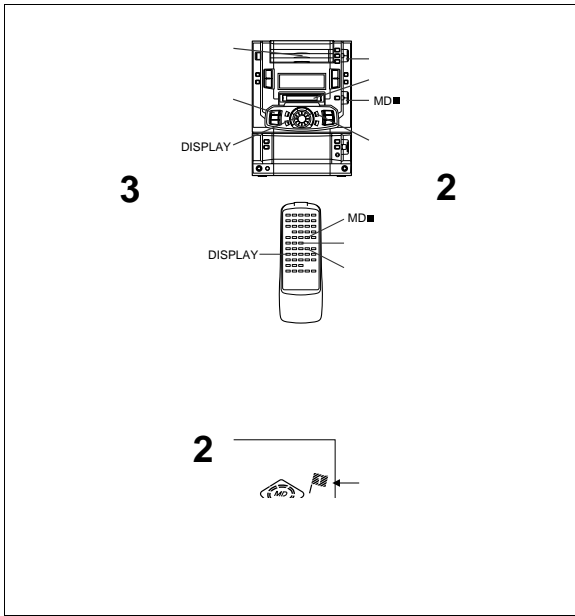
To stop recording:

Press the TAPE ■ button after pressing the MD ■ button.

To interrupt recording:

Press the MD ► || button whilst recording. Press the MD ► || button again to resume recording. The track number will increase.

(Continued)



Recording a track you want to add at the beginning of a MiniDisc (Pole Position Editing)

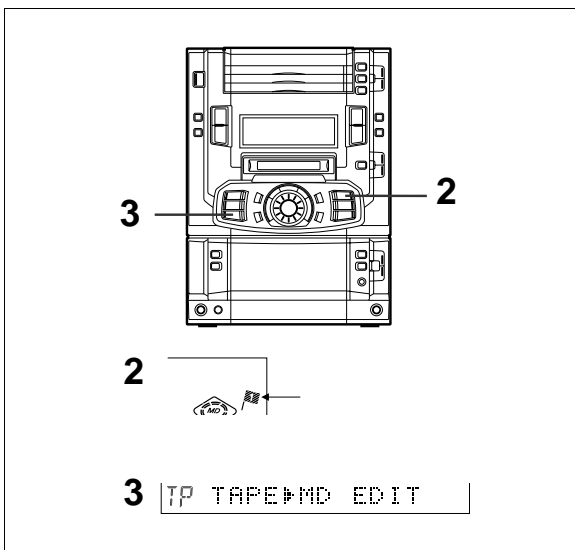
When a track is added to an MD which already has recordings on it, and the POLE POSITION button is pressed, the track can be recorded at the beginning of the MD.

To record from a CD onto a MiniDisc:

- 1** Prepare for recording.
One-Touch Editing: (Page 26. Steps 1 to 3)
Track Editing: (Page 27. Steps 1 to 5)
Hypertrack Editing: (Page 27. Steps 1 to 6)
- 2** Press the POLE POSITION button.
● " " will be displayed.
- 3** Press the CD ► MD button.
● Recording will begin.

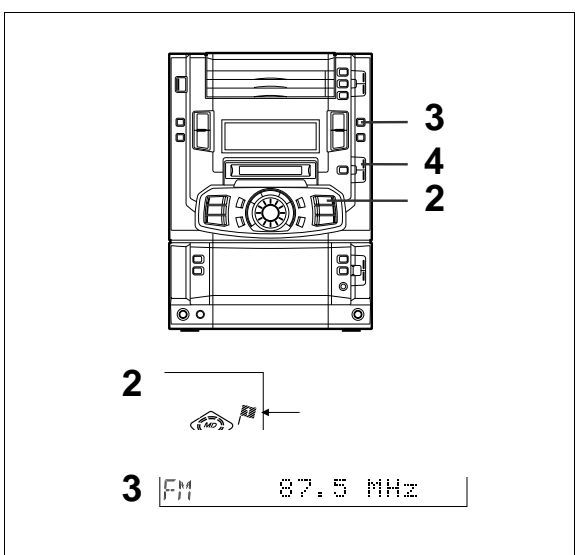
If recording does not start when the CD ► MD button is pressed:

If you cannot record all of the tracks you have selected from a CD, the number of tracks and the amount of time that can be included on the recording, and the number of tracks and the amount of time that cannot be included will both be displayed. The unit will then enter the recording stand-by mode.



To record from a cassette tape:

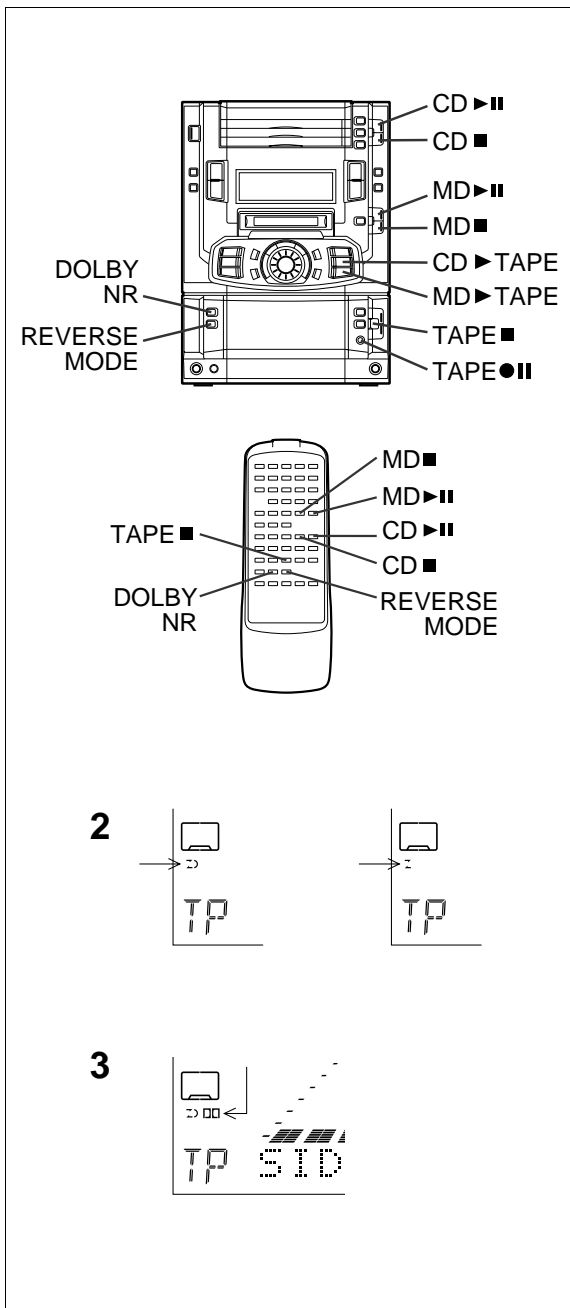
- 1** Perform steps 1 to 6 on page 29 "One-Touch Editing".
- 2** Press the POLE POSITION button.
● " " will be displayed.
- 3** Press the TAPE ► MD button.
● Recording will begin.



To record from the built-in radio onto a MiniDisc:

- 1** Perform steps 1 to 5 on page 29 "Recording from the built-in radio onto a MiniDisc".
- 2** Press the POLE POSITION button.
● " " will be displayed.
- 3** Press the MD ●REC button.
● The unit will enter the recording stand-by mode.
- 4** Press the MD ► || button.
● Recording will begin.

(Continued)



■ Recording from a CD or an MD to a cassette tape (One-Touch Editing)

A CD or an MD can be recorded, starting from the first track, with a one-touch operation.

- 1** Load a blank cassette into the cassette compartment.
 - Wind past the tape leader which cannot be recorded on.
- 2** Press the REVERSE MODE button.
 - ≡ ... To record on only one side.
 - ↔ ... To record on both sides.
- 3** Select the Dolby NR mode by pressing the DOLBY NR button.
 - When recording with the Dolby NR system, turn on the indicator.
 - When not recording with the Dolby NR system, turn off the indicator.

4 Recording from a CD:
Press the CD ► TAPE button.

Recording from a MiniDisc:
Press the MD ► TAPE button.

To stop recording:
Press the CD ■ (MD ■) or TAPE ■ button.

■ Recording from a CD or an MD to a cassette tape (Synchronised Recording System)

When a CD or an MD is played, recording will start automatically.

- 1** Load a blank cassette into the cassette compartment.
 - Wind past the tape leader which cannot be recorded on.
- 2** Press the REVERSE MODE button.
 - ≡ ... To record on only one side.
 - ↔ ... To record on both sides.
- 3** Select the Dolby NR mode by pressing the DOLBY NR button.
 - When recording with the Dolby NR system, turn on the indicator.
 - When not recording with the Dolby NR system, turn off the indicator.
- 4** Press the TAPE ●► button.
 - The unit will enter the recording stand-by mode.

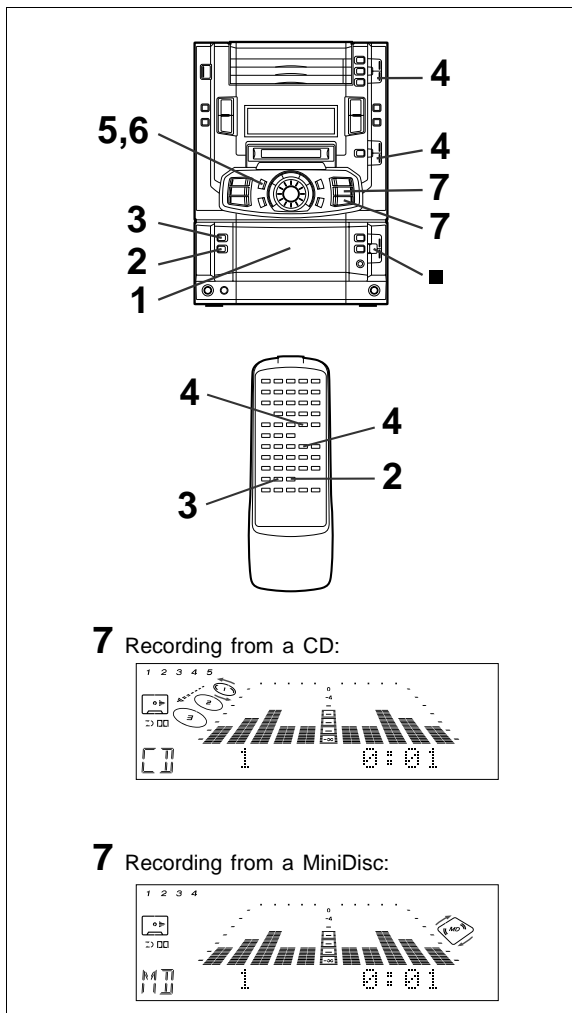
5 Recording from a CD:
Press the CD ►► button.

Recording from a MiniDisc:
Press the MD ►► button.

To interrupt recording:
Press the CD ►► (MD ►►) button.
Press the CD ►► (MD ►►) button again to resume recording.

- To stop recording:**
- 1** Press the CD ■ (MD ■) button, whilst recording.
 - The CD or MD will stop, and the unit will enter the stand-by mode.
 - 2** Press the TAPE ■ button.
 - The tape will stop.

(Continued)

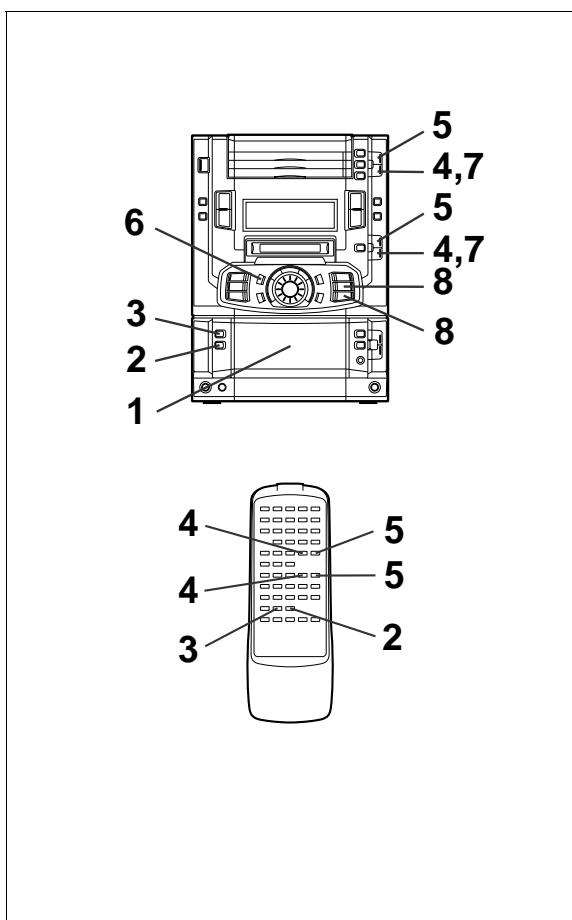


Recording desired tracks from a CD or an MD to a cassette tape (Track Editing)

Several consecutive tracks, starting from the first track on a CD or an MD (for example: from the first track to the fourth track), can be recorded onto a tape.

- 1 Load a blank cassette into the cassette compartment.
- 2 Press the REVERSE MODE button.
 ⇌ ... To record on only one side.
 ⇔ ... To record on both sides.
- 3 Select the Dolby NR mode by pressing the DOLBY NR button.
 ● When recording with the Dolby NR system, turn on the indicator.
 ● When not recording with the Dolby NR system, turn off the indicator.
- 4 Select the desired source CD or MiniDisc by pressing the CD or MD button.
- 5 Press the TRACK EDIT button.
- 6 Select the last track to record by pressing the TRACK EDIT button.
- 7 **Recording from a CD:**
 Press the CD TAPE button.
Recording from a MiniDisc:
 Press the MD TAPE button.

To stop recording:
Press the CD or TAPE button.

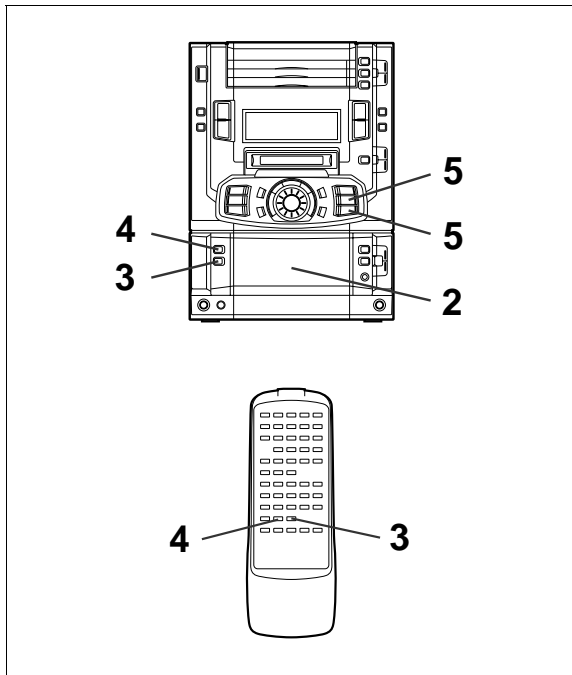


Recording only your favorite tracks on a tape whilst listening to a CD or an MD (Hypertrack Editing)

If you programme your favorite tracks whilst listening to a CD or an MD, you can record the programmed tracks all together onto a tape after listening to the disc.

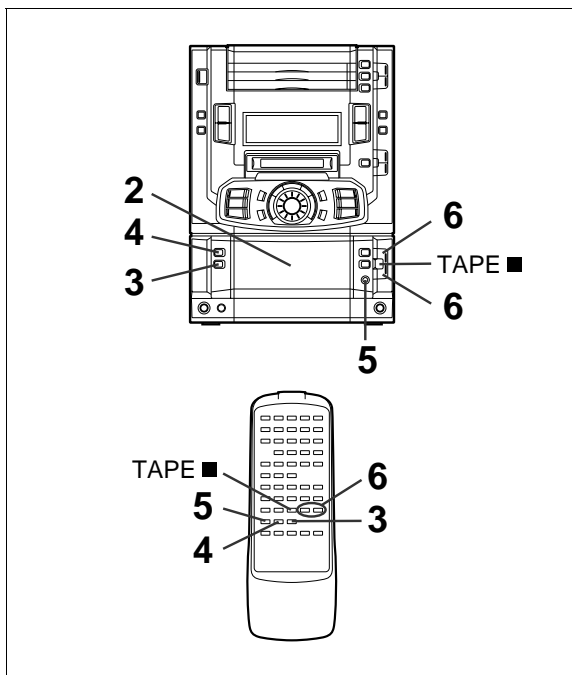
- 1 Load a blank cassette into the cassette compartment.
- 2 Press the REVERSE MODE button.
 ⇌ ... To record on only one side.
 ⇔ ... To record on both sides.
- 3 Select the Dolby NR mode by pressing the DOLBY NR button.
 ● When recording with the Dolby NR system, turn on the indicator.
 ● When not recording with the Dolby NR system, turn off the indicator.
- 4 Select the desired source CD or MiniDisc by pressing the CD or MD button.
- 5 Press the CD or MD button.
- 6 Press the TRACK EDIT button whilst playing the track you want to record later.
- 7 Stop the CD or MiniDisc by pressing the CD or MD button.
- 8 **Recording from a CD:**
 Press the CD TAPE button.
Recording from a MiniDisc:
 Press the MD TAPE button.

(Continued)



■ APMS recording

- 1 Select tracks for APMS playback. (Page 23. Steps 1 - 6.)
- 2 Load a blank cassette into the cassette compartment.
- 3 Press the REVERSE MODE button.
 - ≡ ... To record on only one side.
 - ↔ ... To record on both sides.
- 4 Select the Dolby NR mode by pressing the DOLBY NR button.
 - When recording with the Dolby NR system, turn on the indicator.
 - When not recording with the Dolby NR system, turn off the indicator.
- 5 **Recording from a CD:**
Press the CD ► TAPE button.
Recording from a MiniDisc:
Press the MD ► TAPE button.
 - Programmed tracks will be recorded in order. After the unit has finished recording the last track, recording will stop automatically.



■ Recording from the built-in radio to a cassette tape

- 1 Tune in to the desired station. (Pages 12 - 13.)
- 2 Load a blank cassette into the cassette compartment.
 - Wind past the tape leader which cannot be recorded on.
- 3 Press the REVERSE MODE button.
 - ≡ ... To record on only one side.
 - ↔ ... To record on both sides.
- 4 Select the Dolby NR mode by pressing the DOLBY NR button.
 - When recording with the Dolby NR system, turn on the indicator.
 - When not recording with the Dolby NR system, turn off the indicator.
- 5 Press the TAPE ● || button.
 - "◀▶" will flash.
- 6 Press the ► button to record side A (1), or the ◀ button to record side B (2).
 - To record on both sides, begin on side A (1).
When recording is finished on side A (1), the tape will switch over to side B (2) automatically.

Beat cancel switch (on the rear panel)

If a whistling noise occurs when recording from an AM station, set the BEAT CANCEL switch to A or B, whichever gives the best reception.

To stop recording:

Press the TAPE ■ button.

To interrupt recording:

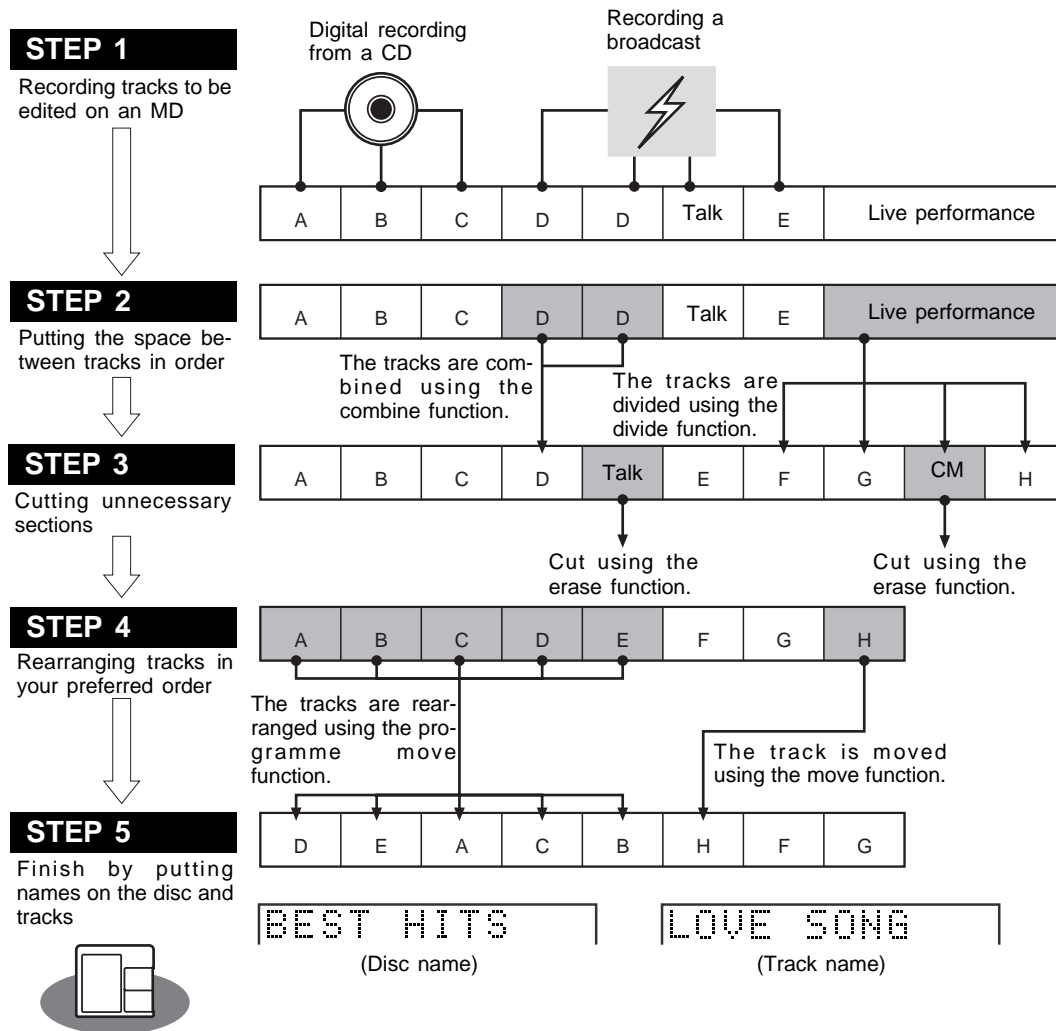
Press the TAPE ● || button.

Press the TAPE ► button or TAPE ◀ button again to resume recording.

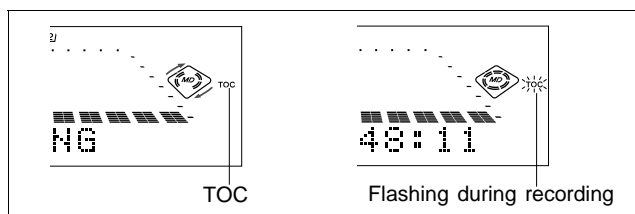
EDITING

Using the editing function

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



Recording the editing results



Whilst editing, the "TOC" indicator is displayed. This means the edit results have not been recorded on the MiniDisc. To record the results, select another input or set the unit to the stand-by mode. During writing, the "TOC" display will flash. Once the "TOC" goes out, all editing changes have been recorded to the disc.

Note:

- Storing the edited contents on the disc can be done after several pieces of editing have been finished.

(Continued)

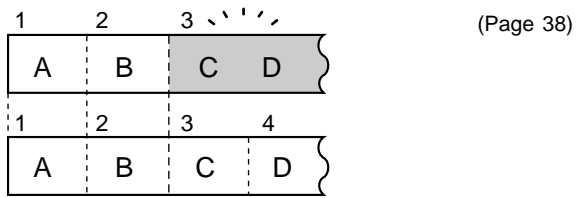
We will explain the 6 editing functions with which you can create your own original discs from recorded MiniDiscs. Playback-only MiniDiscs cannot be edited.

DIVIDE

A track can be divided into two tracks. If two selections were recorded as a single track because there was not enough silent space between the pieces, you can use the DIVIDE function to separate the selections.

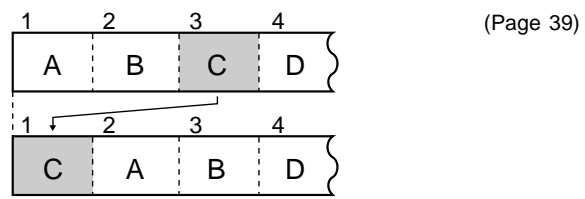
This feature is also convenient for identifying specific points with one selection so that you can locate those points easily whenever you like.

This unit can hold up to 255 tracks. However, even if the number of tracks assigned has not reached 255, it might not be possible to make any further divisions of tracks.



MOVE

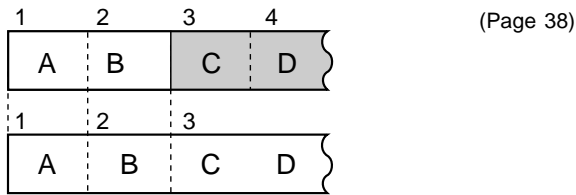
The order of the recorded tracks can be changed. This feature is different from programme play. A new track order can be recorded directly on the disc. When the unit is in the stand-by mode, the revised order will not be changed.



COMBINE

Two adjacent tracks (for example, the third and fourth tracks) can be combined.

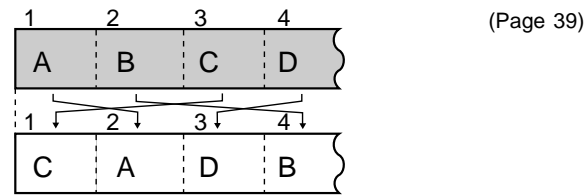
If there is a prolonged silent section in the middle of a selection that is recorded, a single piece of music may be recorded as two tracks. If this happens, these two tracks can be combined into a single track.



Programmed move

This function allows the track numbers to be automatically rearranged in the order specified for programmed playback. The track numbers will be adjusted as needed, automatically.

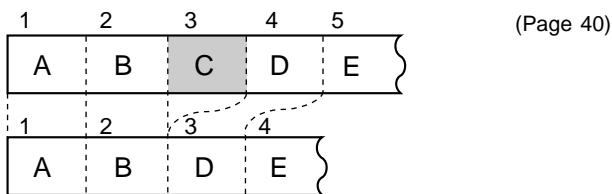
(The tracks that are not included in the programmed selections will be put at the end of the new track numbers.)



ERASE/ALL ERASE

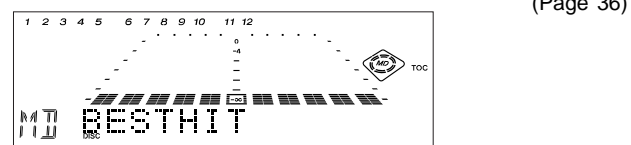
Tracks you want to erase can be erased one at a time or all at once.

Once a track has been erased, it cannot be recovered. Double-check the track number before erasing it.



TRACK/DISC NAME

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



■ Type of characters used

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

Number of characters you can enter

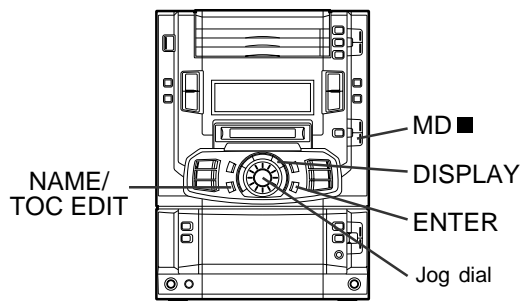
● **Disc names and track names**

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

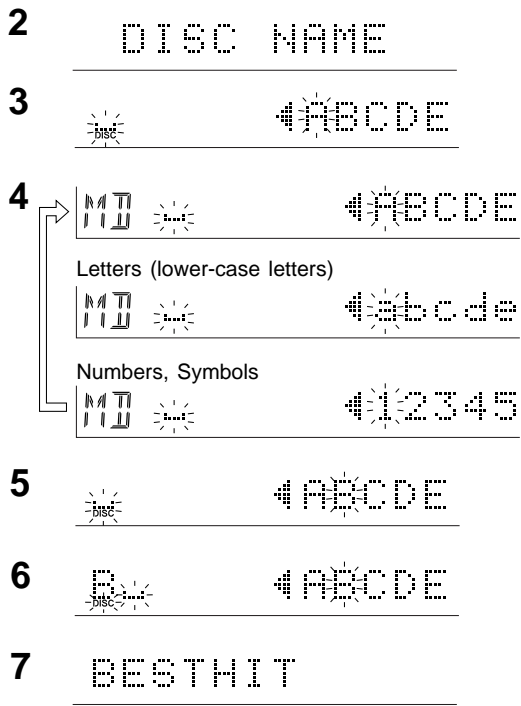
● **Total number of characters per MiniDisc**

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

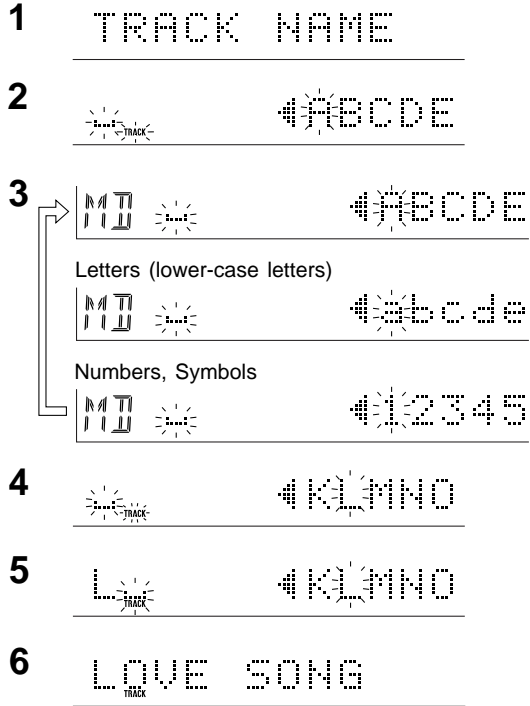
(Continued)



To create a disc name



To create a track name



■ To create a disc name

A name for the whole disc. Disc names are displayed when an MD is inserted.

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

To erase a disc name:

After performing steps 1 to 3.

- ① Press the TIMER/DELETE button for 2 seconds or more.
 - "NAME CLEAR?" will appear.
- ② Press the ENTER button.

■ To create a track name

Name each track.

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

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

To erase a track name:

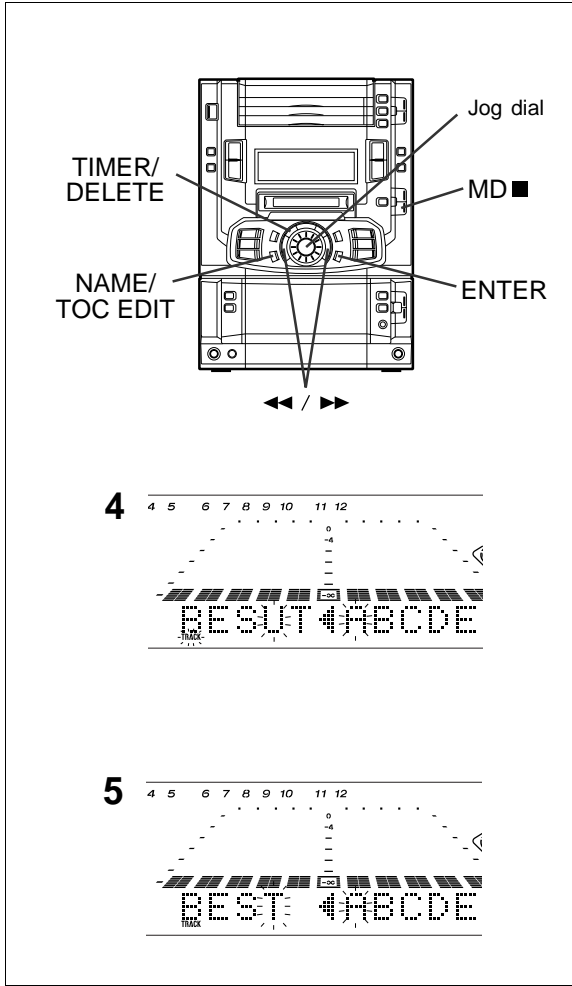
After performing steps 1 to 2.

- ① Press the TIMER/DELETE button for 2 seconds or more.
 - "NAME CLEAR?" will appear.
- ② Press the ENTER button.

Notes:

- This function cannot be used whilst a programme is being entered ("PROGRAM" is lit: Page 23) or whilst in the random play mode ("RANDOM" is lit: Page 22). First, cancel the programme or random play mode before trying to use this function.
- The track name function can be used whilst in the stop mode (when selecting a track), in the pause mode, or in the recording mode. (Select "TRACK NAME" from the edit menu.)
- If you create a track name whilst recording the track, make sure you finish entering the name before you finish recording the track. If the end of the recording is reached before you have entered the complete name, only the characters entered before the recording ended will be recorded.

(Continued)



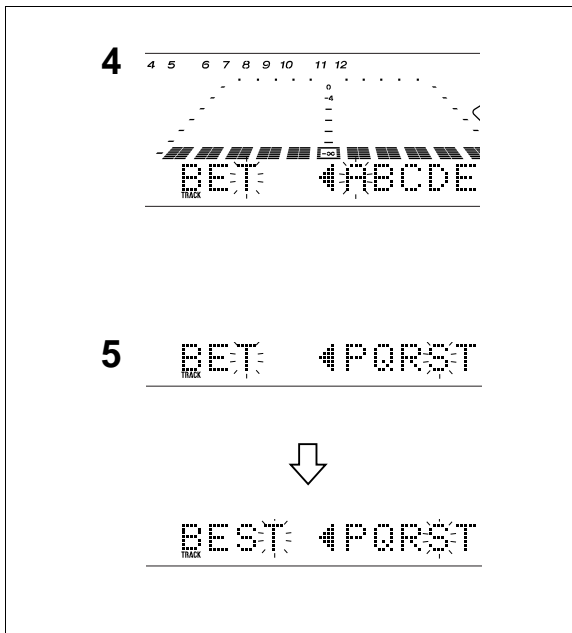
■ To change disc names and track names

To change disc names:

- 1** During playback, press the MD ■ button.
- 2** Press the NAME/TOC EDIT button, and then select "DISC NAME" using the jog dial.

To change track names:

- 1** Whilst in the stop mode, select the track name you want to change, using the jog dial.
- 2** Press the NAME/TOC EDIT button.
- 3** Within 10 seconds, press the ENTER button.
 - The unit will enter the character input mode.
 - To cancel the operation, press the MD ■ button.
- 4** Press the ◀ / ▶ button to make the character you want to erase begin flashing.
- 5** Press the TIMER/DELETE button.
- 6** Press the NAME/TOC EDIT button.

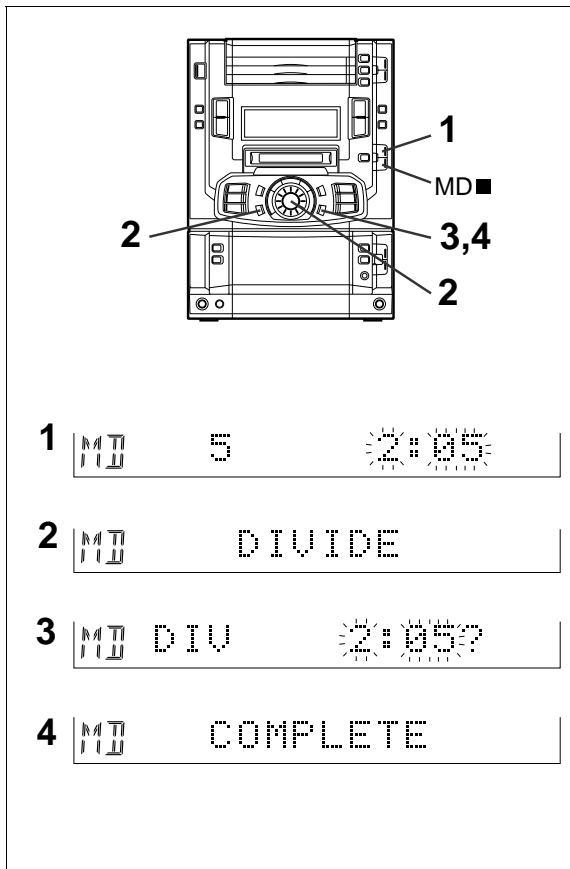


To add a character:

After performing steps 1 to 3 above, do the following:
Example: To change "BET" to "BEST"

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

(Continued)

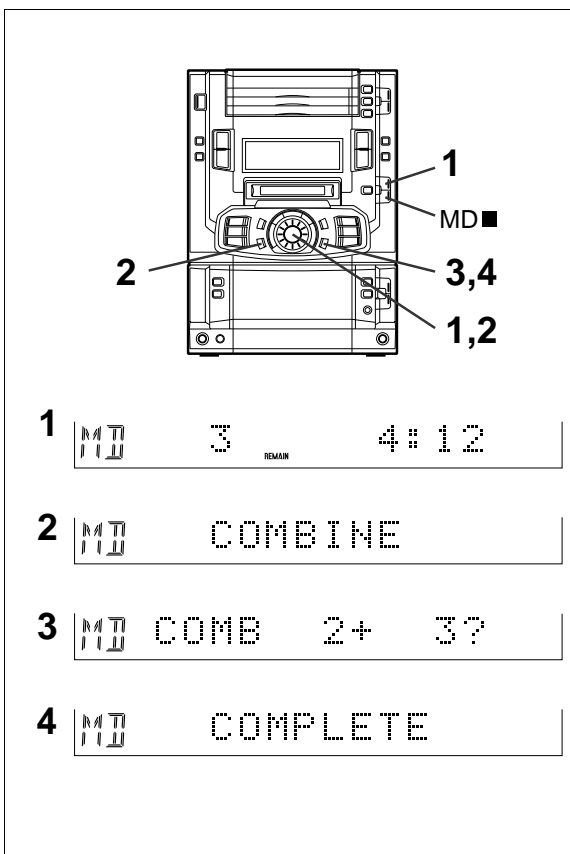


■ Divide

- 1 Play the track which you want to divide into two, and press the MD ►|| button at the point where you want to divide the track.
 - The unit will enter the pause mode.
- 2 Press the NAME/TOC EDIT button, and within 10 seconds, select "DIVIDE" using the jog dial.
- 3 Within 10 seconds, press the ENTER button.
 - To cancel the operation, press the MD ■ button.
- 4 Press the ENTER button again.
 - The track is divided, and the unit is stopped at the beginning of the second of the two tracks.
 - The numbers of the tracks which come after the divided track are automatically increased by one.
 - When a track which has been given a name is divided, the two new tracks will have the same name and date. If the "TOC FULL" message is seen, the second track may not be given a name. (Page 50)

Notes:

- This unit can hold up to 255 tracks. However, even if the number of tracks assigned has not reached 255, it might not be possible to make any further divisions of tracks. (Page 50)
- This function cannot be used whilst a programme is being entered ("PROGRAM" is lit: Page 23) or whilst in the random play mode ("RANDOM" is lit: Page 22). First, cancel the programme or random play mode before trying to use this function.



■ Combine

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

When both tracks have a name:

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

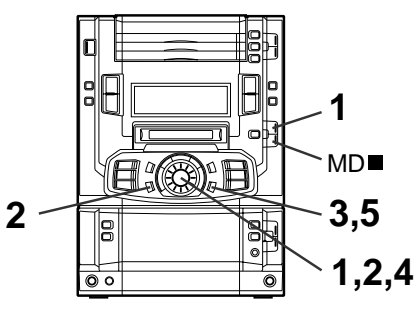
To combine two non-contiguous tracks:

(Example: the first and third tracks)
 Move the third track to the second track using the MOVE function. (Page 39)
 Then, combine the first and second tracks using the COMBINE function.

Notes:

- Tracks recorded from analogue inputs cannot be combined with tracks recorded from CDs or MDs using the digital inputs.
- Tracks recorded in the stereo mode cannot be combined with tracks recorded in the monaural long-play mode.
- Tracks where either track's recording time is less than 15 seconds may not be combined.
- This function cannot be used whilst a programme is being entered ("PROGRAM" is lit: Page 23) or whilst in the random play mode ("RANDOM" is lit: Page 22). First, cancel the programme or random play mode before trying to use this function.

(Continued)



1 MD ■

2

3,5

1,2,4

1 MD 4 4:27

2 MD MOVE

3 MD MOVE 4 → 1?

4 MD MOVE 4 → 1 1?

5 MD COMPLETE

■ Move

- 1 Whilst in the stop mode, select the track you want to move using the jog dial. Or start playing the track to be moved, and then press the MD ► || button.
 - The unit will enter the pause mode.
- 2 Press the NAME/TOC EDIT button, and within 10 seconds, select "MOVE" using the jog dial.
- 3 Within 10 seconds, press the ENTER button.
- 4 Select the new track position using the jog dial.
 - To cancel the operation, press the MD ■ button.
- 5 Press the ENTER button again.
 - The track is moved, and the unit is stopped at the beginning of the track.

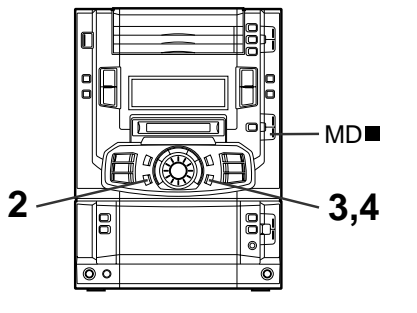
Note:

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

Example:

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

- This function cannot be used whilst a programme is being entered ("PROGRAM" is lit: Page 23) or whilst in the random play mode ("RANDOM" is lit: Page 22). First, cancel the programme or random play mode before trying to use this function.



2

3,4

MD ■

2 MD PRGM MOVE PROGRAM

3 MD PRGM MOVE? PROGRAM

4 MD COMPLETE

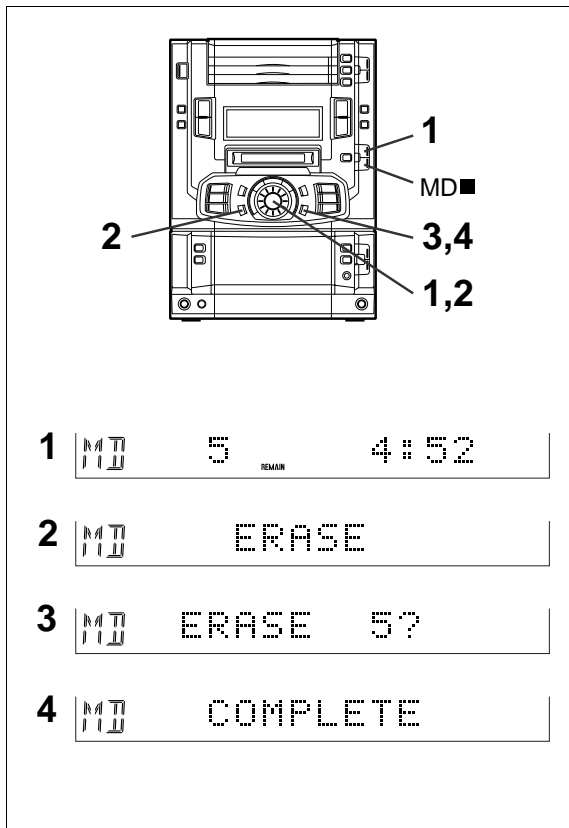
■ Programmed move

- 1 Select the tracks you want to move and enter them into a programme. (Page 23)
- 2 Make sure that the "PROGRAM" indicator is lit, and then press the NAME/TOC EDIT button.
 - "PRGM MOVE" will appear.
- 3 Within 10 seconds, press the ENTER button.
 - To cancel the operation, press the MD ■ button.
- 4 Press the ENTER button again.
 - The tracks will be moved, and the programmed move mode will end.

Notes:

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

(Continued)



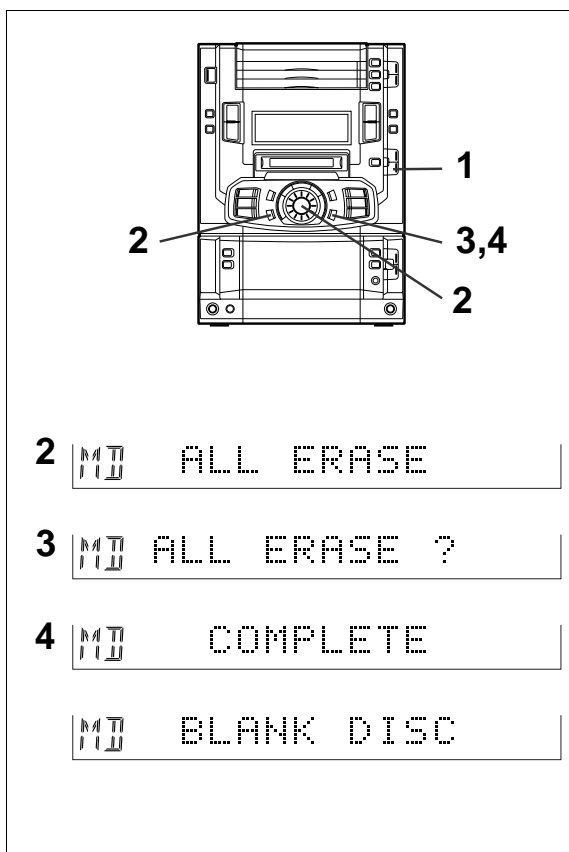
■ Erase

To erase tracks one at a time:

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

Notes:

- Once a track has been erased, it cannot be recovered. Double-check the track number before erasing it.
- When a track is erased, the numbers assigned to the tracks following the erased track will be automatically decreased by one.
- When a track is erased, the track name will be erased at the same time.
- This function cannot be used whilst a programme is being entered ("PROGRAM" is lit: Page 23) or whilst in the random play mode ("RANDOM" is lit: Page 22). First, cancel the programme or random play mode before trying to use this function.



To erase all of the tracks at once:

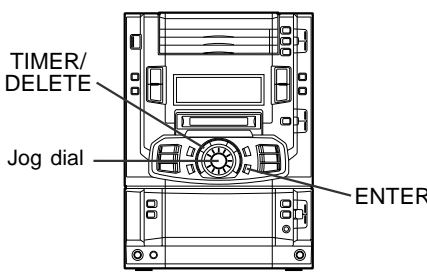
- 1 Press the MD ► button.
 - The total number of tracks and the total playing time on an MD will appear.
- 2 Press the NAME/TOC EDIT button, and within 10 seconds, select "ALL ERASE" using the jog dial.
- 3 Within 10 seconds, press the ENTER button.
 - To cancel the operation, press the MD ► button.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

Note:

- This function cannot be used whilst a programme is being entered ("PROGRAM" is lit: Page 23) or whilst in the random play mode ("RANDOM" is lit: Page 22). First, cancel the programme or random play mode before trying to use this function.

HOW TO USE THE BUILT-IN TIMER

- Before setting the timer, make sure that the clock setting is correct. (Page 8)
- The start time and stop time, which are set with this operation, will be kept in memory until the AC power lead is unplugged or the setting is changed.



2 | TIMER SET |

3,4 | TIMER PLAY |

5 | ON 1:00 |

6 | ON 7:00 |

ON 7:00 |

7 | ON 7:30 |

OFF 8:30 |

8 | OFF 7:30 |

OFF 7:30 |

9 | OFF 7:45 |

10 | MD |

FM 01 87.5 MHz STEREO |

11,12 | VOLUME 15 |

1 | T-STANDBY |

2 |

TIMER ←

■ To select the timer playback mode

Before timer playback, the following preparations are required.

- Load a CD, MD or Tape.
- Select a CD to be played.
- Preset the radio station.

- 1 Press the TIMER/DELETE button.
- 2 Within 10 seconds, turn the jog dial so that the "TIMER SET" display appears.
- 3 Within 10 seconds, press the ENTER button.
- 4 Select "TIMER PLAY" by using the jog dial.
- 5 Press the ENTER button.
 - The start time setting display will appear.
- 6 Turn the jog dial to set the hour at which to start, and then press the ENTER button.
- 7 Turn the jog dial to set the minute at which to start, and then press the ENTER button.
 - If not set manually, the ending time will be automatically set for one hour after the starting time.
- 8 Turn the jog dial to set the hour at which to stop, and then press the ENTER button.
- 9 Turn the jog dial to set the minute at which to stop, and then press the ENTER button.
- 10 Turn the jog dial to select the function.

→ MD → CD → TAPE → TUNER → AUX 1 → AUX 2 → AUX OPT. →

- If TUNER is selected, press the ENTER button, then select the preset number using the jog dial.
- When no stations have been programmed, "NO PRESET" will be displayed, and the programme operation will end. In this case, programme some stations and then reprogramme from the beginning.

11 Press the ENTER button.

12 Adjust the sound level using the jog dial.

13 Press the ENTER button.

- Be careful not to turn the volume up too high. (When the start time is reached in timer playback, the volume will increase gradually to the level previously set.)

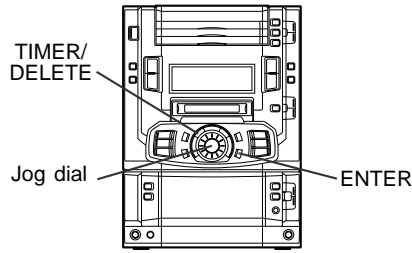
To change the timer setting:

Start again from steps 1 - 13.

■ Setting timer playback

- 1 Press the TIMER/DELETE button.
 - Turn the jog dial so that the "T-STANDBY" display appears.
 - If the start and stop times have not been set, the "T-STANDBY" display does not appear. Set the time.
- 2 Press the ENTER button.
 - The settings will appear in order, and the unit will enter the timer playback stand-by mode. (The unit will enter the stand-by mode.)

(Continued)



2 [TIMER SET]

3,4 [TIMER REC]

5 [ON 1:00]

6 [ON 3:00]

7 [ON 3:55]

8 [OFF 5:55]

9 [OFF 5:05]

10 [TUNER]

[FM 01 87.5 MHz]

11 [MD REC]

[TAPE REC]

12 [VOLUME]

1 [T-STANDBY]

2 [TIMER REC]

■ To select the timer recording mode

Before timer recording, the following preparations are required.

- Load a recordable MD or Tape.
- Preset the radio station.
- Before making an MD recording, make sure that the unit is in the recording mode.
- Before making a tape recording, select the recording system and set the Dolby B NR on or off.

- 1 Press the TIMER/DELETE button.
- 2 Within 10 seconds, turn the jog dial so that the "TIMER SET" display appears.
- 3 Within 10 seconds, press the ENTER button.
- 4 Select "TIMER REC" by using the jog dial.
- 5 Press the ENTER button.
- 6 Turn the jog dial to set the hour at which to start, and then press the ENTER button.
- 7 Turn the jog dial to set the minute at which to start, and then press the ENTER button.
- 8 Turn the jog dial to set the hour at to stop, then press the ENTER button.
- 9 Turn the jog dial to set the minute at to stop, then press the ENTER button.
- 10 Turn the jog dial to select the function, and then press ENTER button.

MD → CD → TAPE → TUNER → AUX 1 → AUX 2 → AUX OPT.

- If TUNER is selected, press the ENTER button, then select the preset number using the jog dial.
- When no stations have been programmed, "NO PRESET" will be displayed, and the programme operation will end. In this case, programme some stations and then reprogramme from the beginning.

- 11 Select "MD REC" or "TAPE REC" by using the jog dial and then press the ENTER button.

- 12 Adjust the sound level using the jog dial and then press the ENTER button.
- Be careful not to turn the volume up too high.

To change the timer setting:

Start again from steps 1 - 12.

■ Setting timer recording

- 1 Press the TIMER/DELETE button.
 - 2 Press the ENTER button.
- Turn the jog dial so that the "T-STANDBY" display appears.
 - If the start and stop times have not been set, the "T-STANDBY" display does not appear. Set the time.
- The settings will appear in order, and the unit will enter the timer recording stand-by mode. (The unit will enter the stand-by mode.)

Caution:

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

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

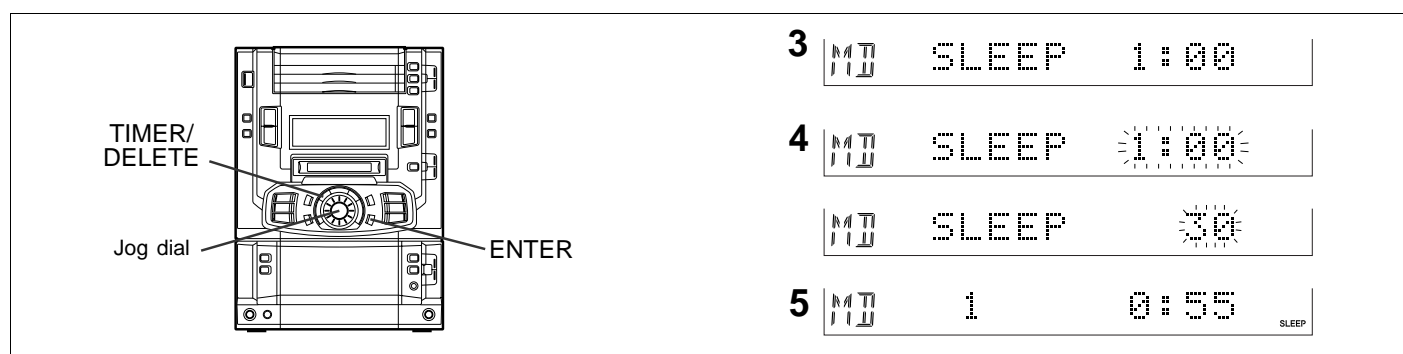
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To check the timer setting:

- ① Whilst in the timer stand-by mode, press the TIMER/DELETE button.
 - ② Within 10 seconds, turn the jog dial so that the "TIMER CALL" display appears.
 - ③ Within 10 seconds, press the ENTER button.
- The timer settings will appear in order, and then the original display will reappear.

To cancel the timer operation:

- If the power is turned on, the timer will be cancelled. The timer operation can also be cancelled as follows.
- ① Whilst in the timer stand-by mode, press the TIMER/DELETE button.
 - ② Turn the jog dial so that the "TIMER CANCEL" display appears.
 - ③ Within 10 seconds, press the ENTER button.
- The timer operation will be cancelled ("TIMER" or "TIMER REC" will go off.) The start and stop times will be stored.



■ Sleep operation

The radio, compact disc and MiniDisc can all be turned off automatically.

- 1 Play the desired sound source.
 - 2 Press the TIMER/DELETE button.
 - 3 Within 10 seconds, turn the jog dial so that the "SLEEP" display appears.
 - 4 Within 10 seconds, press the ENTER button.
- If you do not need to change the time, go to step 5.

To change the sleep time:

Whilst the sleep time is displayed, turn the jog dial to adjust the time. (Maximum: 2 hours - Minimum: 1 minute)
The amount of sleep time can also be changed during the sleep operation.

- 2 hours - 5 minutes → 5-minute intervals
 - 5 minutes - 1 minute → 1-minute intervals
- 5 Press the ENTER button.
 - 6 The unit will enter the stand-by mode automatically after the preset sleep time has elapsed.
- The volume will decrease gradually 1 minute before the preset sleep time has elapsed. At this time, you cannot change the volume.

To confirm the sleep timer setting:

- ① Press the TIMER/DELETE button.
- ② Turn the jog dial so that the "SLEEP" display appears.

To cancel the sleep operation:

If the unit enters the stand-by mode, the sleep operation will be cancelled. The sleep operation can also be cancelled as follows if you cannot set the unit to the stand-by mode during recording.

- ① Press the TIMER/DELETE button.
 - ② Turn the jog dial so that the "SLEEP OFF" display appears.
 - ③ Within 10 seconds, press the ENTER button.
- The sleep operation will be cancelled. ("SLEEP" will go off.)

Notes:

- Once the sleep time is set, it will remain the same duration until the setting is changed.
- The sleep functions of this unit cannot be used to control equipment connected to this unit. You must use the sleep functions of the other equipment, if it has them.

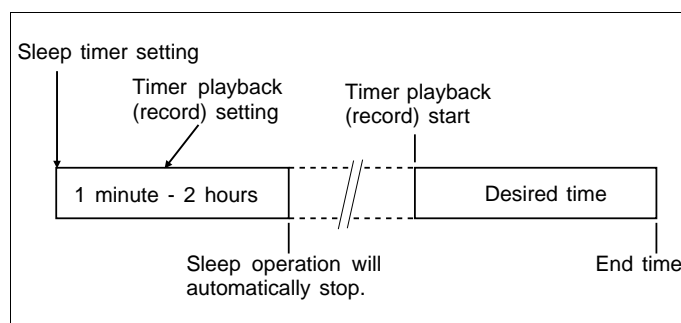
■ Simultaneous sleep and timer operation

To use sleep and timer playback in combination:

- ① Perform steps 1 - 13 on page 41 "To select the timer playback mode".
- ② Perform steps 1 - 5 on page 43 "Sleep operation".
- ③ Perform steps 1 - 2 on page 41 "Setting timer playback".

To use sleep and timer recording in combination:

- ① Perform steps 1 - 12 on page 42 "To select the timer recording mode".
- ② Perform steps 1 - 5 on page 43 "Sleep operation".
- ③ Perform steps 1 - 2 on page 42 "Setting timer recording".



Notes:

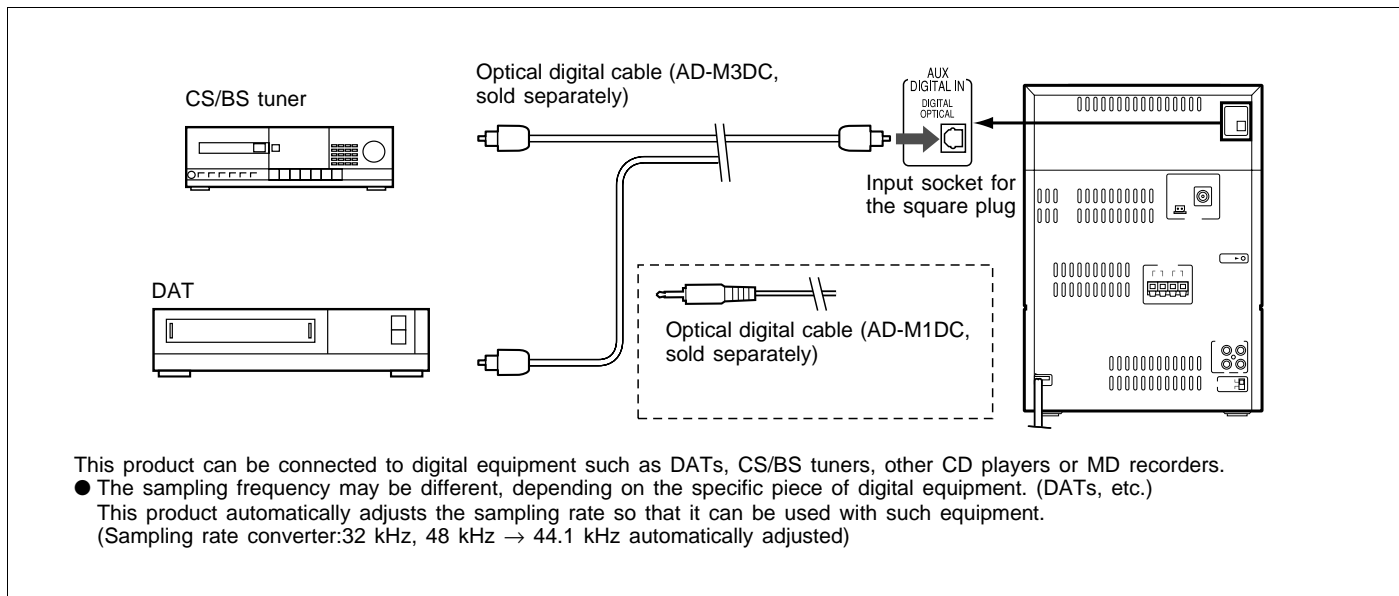
- When the CD or MD is played to the end, playback will stop before the stop time. If you wish to play to the stop time, set repeat play for the CD or MD.
- Timer recording starts about 15 seconds before the start time.

USING EXTERNAL UNITS

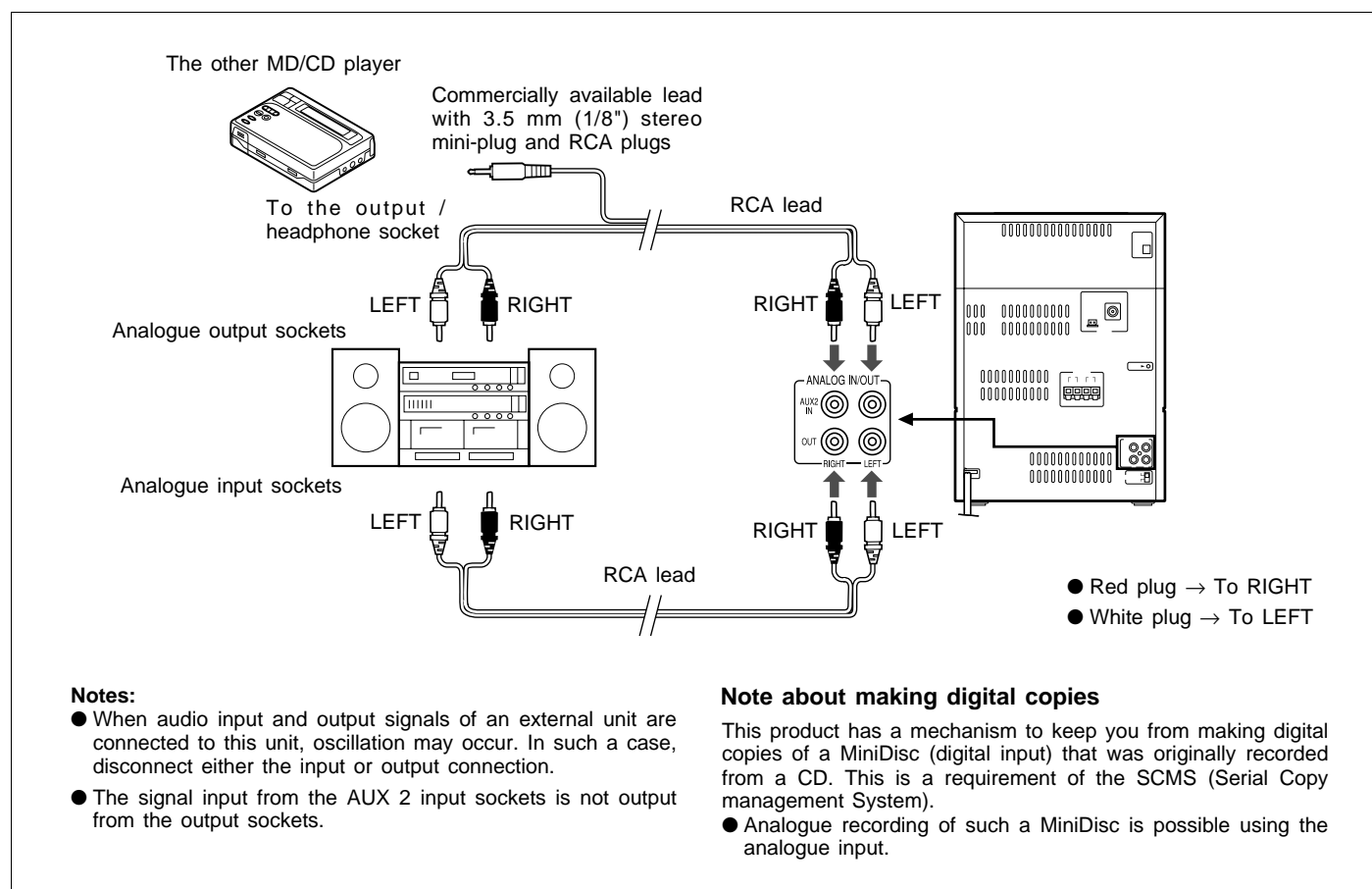
■ Connecting external units

Before connecting external units, set this unit to the stand-by mode and turn off the power to the external units.

Connecting this unit to a CS/BS tuner or a DAT (equipment which can output digital signals)

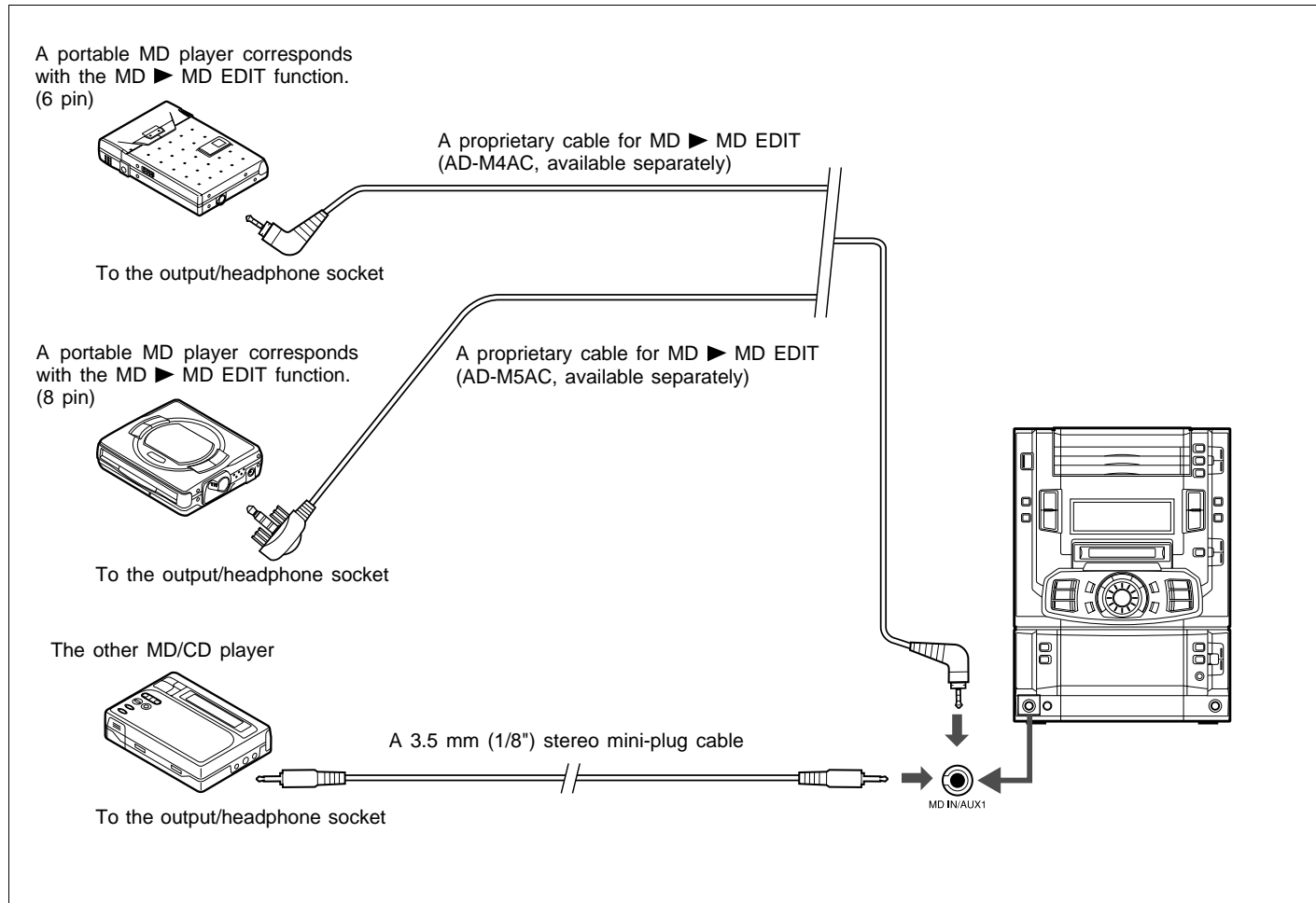


Connecting to stereos or MD/CD players (equipment which can output analogue signals)

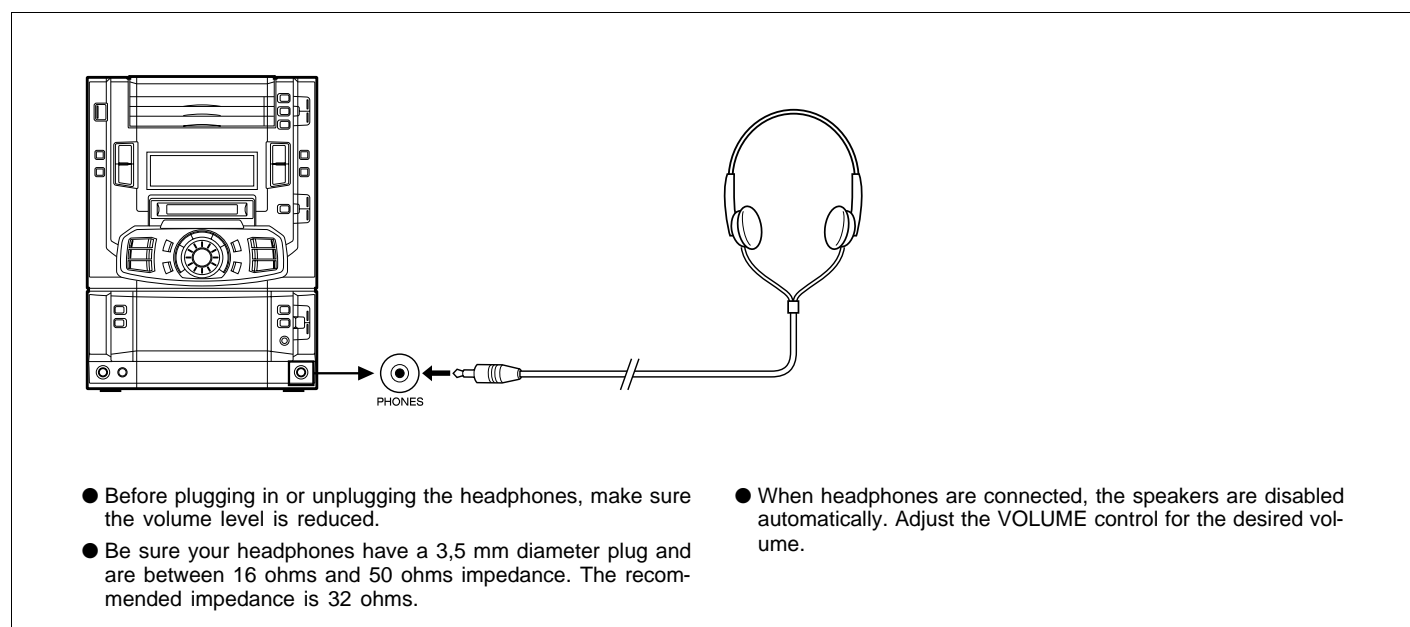


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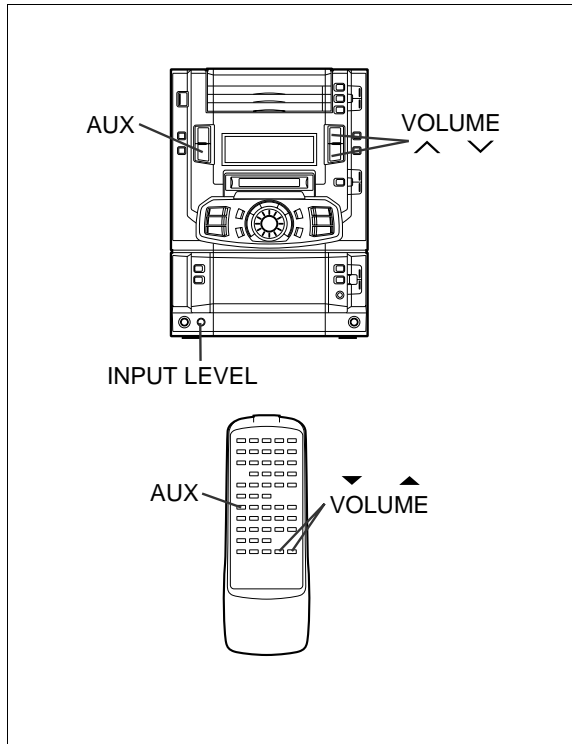
■ Connecting a portable MD player



■ Headphones



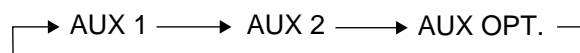
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■ Listening to sound from an external unit

To listen to sound from an external unit connected to the digital input terminal:

1 Press the AUX button.



● Select "AUX OPT.".

2 Start playback on the external unit.

3 Adjust the sound level using the VOLUME buttons on this unit.

To listen to sound from an external unit connected to the analogue input terminals:

1 Press the AUX button.



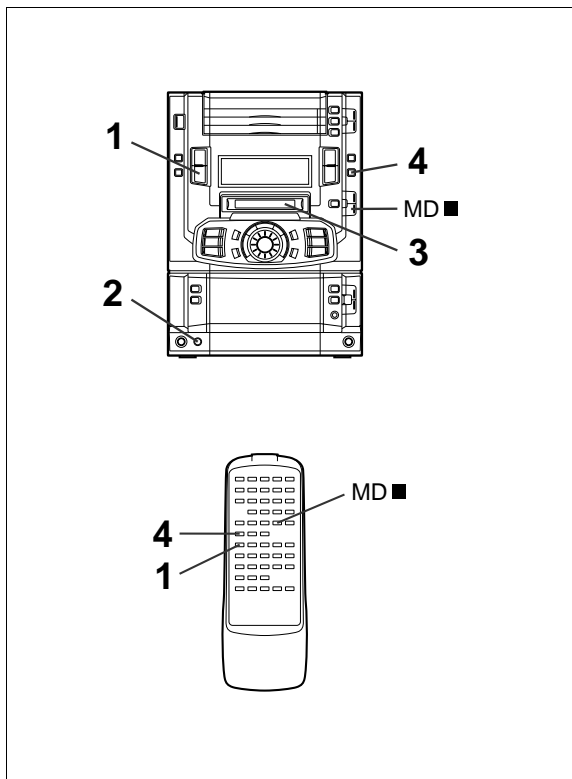
● Select "AUX 1" or "AUX 2".

2 Start playback on the external unit, and adjust the input sound level using the INPUT LEVEL control.

● When the INPUT LEVEL control is set to Min, no sound is obtained.

● The maximum level should not exceed "0 dB".

3 Adjust the sound level using the VOLUME buttons on this unit.



■ Recording sound from an external unit

To start recording the moment the external unit starts playback (synchro recording):

MD recording will start automatically, as soon as playback starts on the external unit. This applies to both digital inputs and analogue inputs.

● The space-cut function and auto-mark function will work automatically during synchro recording.

1 Press the AUX button.

● Select "AUX 1", "AUX 2" or "AUX OPT.".

● Select the input that corresponds to the terminals where the external unit you will record from is connected.

2 Start the recording on the external unit, and adjust the recording level using the INPUT LEVEL control. (This is only necessary when recording from analogue inputs.)

● In the case of digital inputs, it is not necessary to adjust the recording level.

● The maximum level should not exceed "0 dB".

● Adjust the recording level, and then stop the external unit.

3 Load a recordable MiniDisc.

4 Press the SOUND SYNCHRO button.

5 Start playing the music you want to record on the external unit.

● Recording will start automatically.

6 When playback has finished on the external unit, this unit will automatically enter the recording stand-by mode.

● Cancel the mode by pressing the MD button.

When the MD button is pressed, the TOC will be recorded.

If you want to perform other operations at this point, wait until this display disappears.

To stop recording:

Press the MD button.

Note:

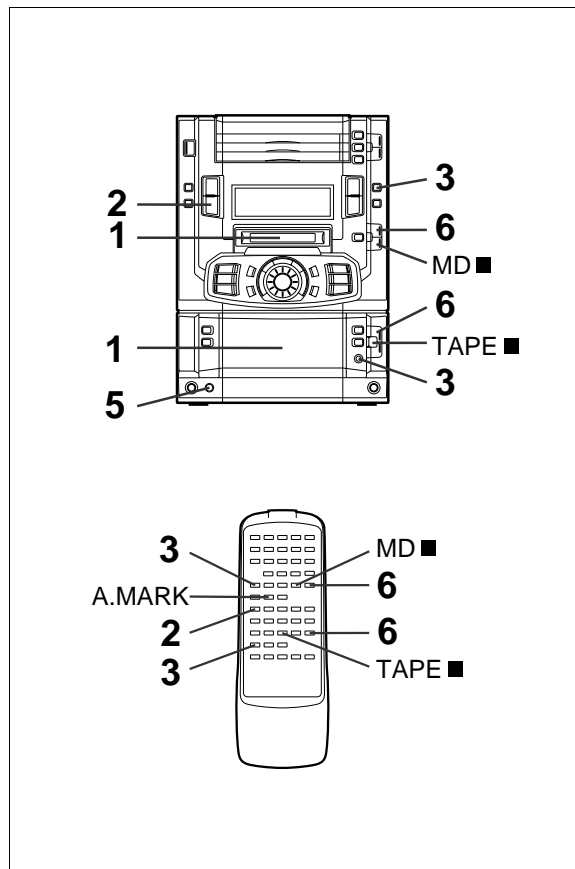
● On some CD players, the track numbers cannot be recorded automatically.

(Continued)

What is the space-cut function?

If there is a silence in the playback signal that lasts 3 seconds during a synchro recording, the recording will stop automatically and unit will enter the recording stand-by mode. Then, when sound from the playback unit resumes, recording will restart automatically.
(A space of 3 seconds is placed between tracks.)

- If there is noise between tracks of the sound source, the synchro recording or the space-cut function may not work properly. If this happens, make the recording manually.
- When you need to record tracks or audio that include very quiet passages lasting 3 seconds or more, manual recording is recommended.



Manual recording

You can start recording by yourself whilst listening to the playback from other equipment (tuner or CD).

- 1 Load a recordable MD or Tape.
- 2 Press the AUX button to select the auxiliary input.
 - Select the input that corresponds to the terminals where the external unit you will record from is connected.
 - Each time the button is pressed, the display will change as follows:
→ AUX 1 → AUX 2 → AUX OPT.
- 3 Press the MD ● REC or TAPE ● || button.
- 4 Start playback on the external unit.
 - To record analogue signals, perform steps 5 - 6.
 - To record digital signals, perform step 6.
- 5 Adjust the recording level using the INPUT LEVEL control.
 - The maximum level should not exceed "0 dB".
- 6 Press the MD ► || or TAPE ► button.

To stop recording:
Press the MD ■ or TAPE ■ button.

To turn off the auto mark function:

- Press the A.MARK button on the remote control.

Track numbers

Recording CDs from a digital source:

Track numbers are automatically created to mark the beginning of each track in the signal being recorded.

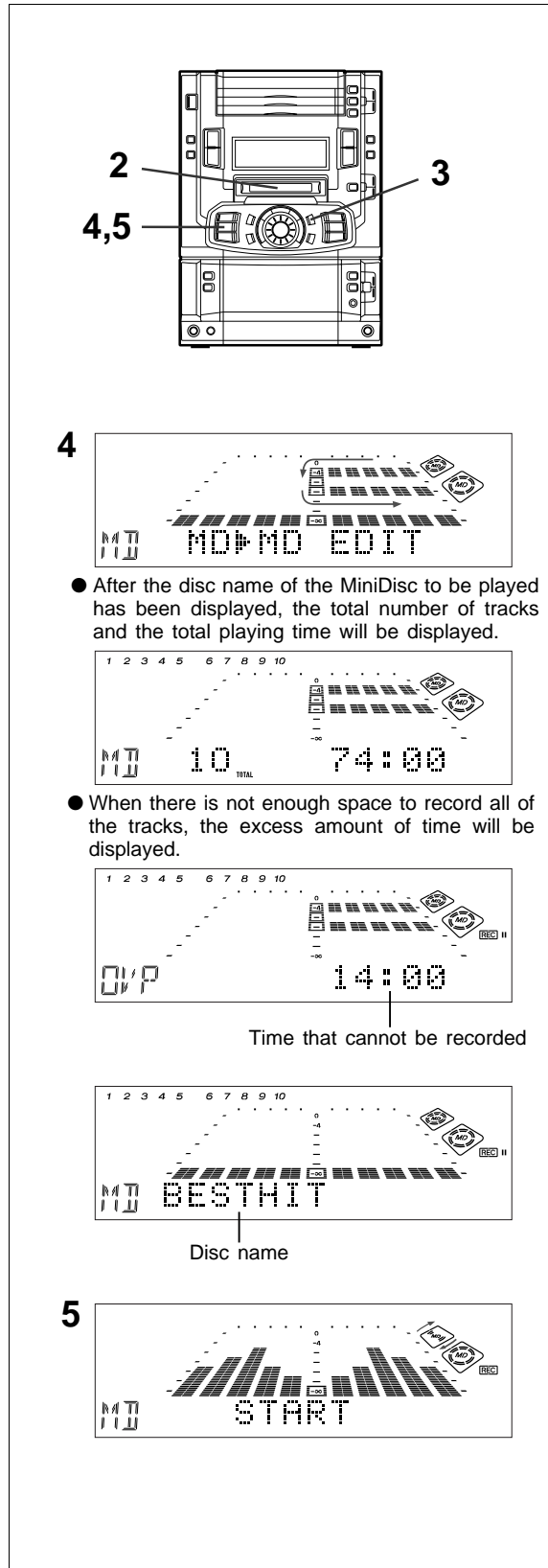
- When making digital recordings using a CD player as the source, track numbers may not be created automatically, depending on the CD player used.

Other considerations:

When there is a period of silence of 1 second or longer in the playback signal, a track number will be automatically created.
If there is no silence, tracks will be recorded as one track.

- If there is a lot of noise in the playback signal, track numbers may not be created.
- Recordings can be made without using the auto mark function.

(Continued)



■ Recording from a portable MD player (MD ► MD Edit)

By connecting a portable MD player which has an MD ► MD Edit function, you can easily record the sound and the character information all at the same time.

- 1 Connect the unit to a portable MD player. (Page 45)
- 2 Load a recordable MD into this unit, and load the MD to be played into the portable MD player.
- 3 Check the recording mode by pressing the REC MODE button.
- 4 Check the recordable time by pressing the MD ► MD button.
- 5 Press the MD ► MD button again.
 - Recording will begin.
 - If the MiniDisc to be played has track names, "NAME READING" will flash and then the track names will be displayed and recorded.
 - If the playback MiniDisc has a disc name, after all of the tracks have been recorded, the disc name will be recorded. Then, the unit will stop automatically.

To record from a track which is in the middle of a MiniDisc:

- 1 After performing step 4, select the track number you want to record using the jog dial.
- 2 Press the MD ► MD button.

To record only a single track:

- 1 After performing step 4, select the track number you want to record using the jog dial.
- 2 Press the TRACK EDIT button.
- 3 Press the MD ► MD button.
 - When only a single track is recorded, the disc name will not be recorded.

Before performing the MD ► MD Edit operation

The MD ► MD Edit function makes analogue recordings.

- If the MiniDisc you are recording on already has a disc name, the disc name cannot be recorded over. If you want to record a new disc name, you must erase the existing disc name before entering a new disc name.
- In the case of a commercially manufactured MD music disc, "PLAY BACK MD" will be displayed. The sound will be recorded, however, the disc name and track names will not be recorded.
- If the length of a track is very short, it may be impossible to record the complete track name.
- A maximum of 100 characters can be recorded in the MD ► MD Edit function, including both the disc name and all of the track names.
- The volume, sound quality and recording level will be adjusted automatically. The level meter may swing to "OVER", depending on the sound to be played whilst recording. However, this will not affect the recording.
- It is better to use the AC adaptor for the portable MD player. Otherwise, the recording may be stopped if the batteries run down whilst recording.
- A MiniDisc containing 255 tracks cannot use the MD ► MD Edit function. To use it, first delete some tracks using the edit function.
- If you want to record a specific track, or if you start recording from a track in the middle of the disc, the recordable time will not be displayed. If there is not enough recordable time on the target MiniDisc, the recording will stop in the middle of a track.
- The shorter the track names are, the shorter the period of time that "NAME READING" will be displayed.
- If the MiniDisc has a scratch or is dirty, the disc name and the track names may not be recorded. In such a case, restart the recording again or add the disc name and track names using the DISC NAME function and the TRACK NAME function, after you are through recording.

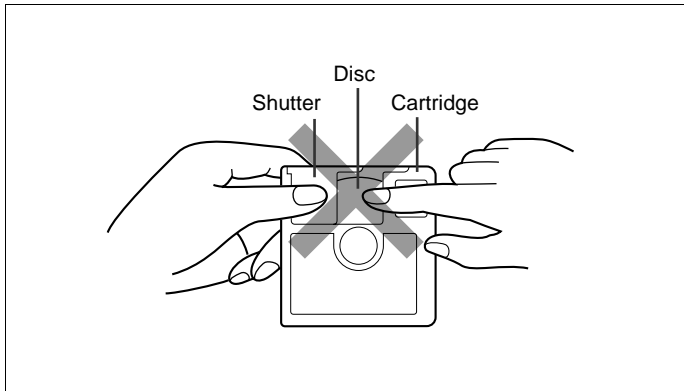
WHAT IS A MINIDISC?

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

■ Handling the MiniDisc

Do not touch the disc directly!

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



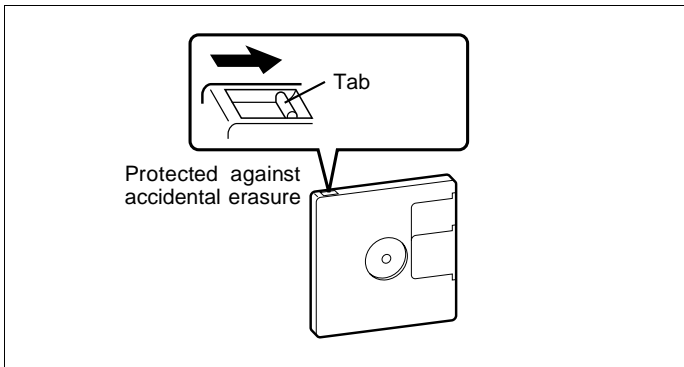
Where not to store discs:

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

■ To prevent recorded discs from being erased accidentally (accidental erasure prevention)

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

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



■ What is a MiniDisc?

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

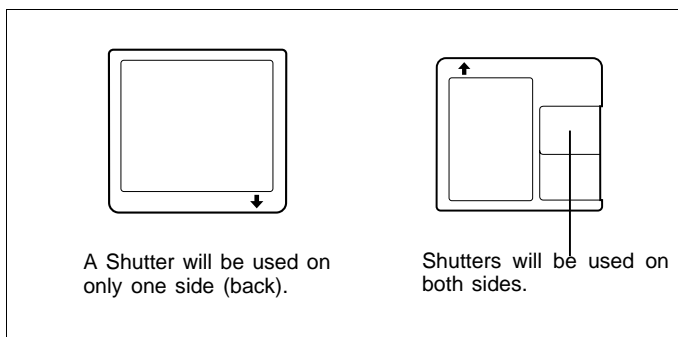
■ Adaptive TRansform Acoustic Coding [ATRAC]

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

■ Types of discs

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

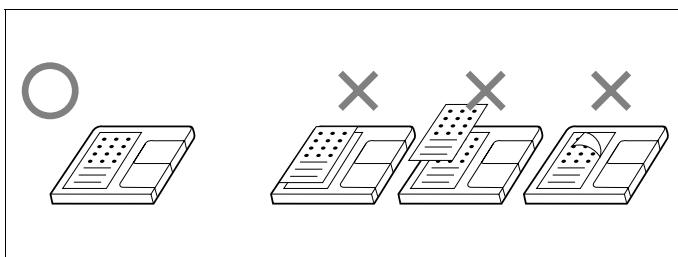
- Playback-only MiniDisc: This type of MiniDisc is used for commercially available pre-recorded music. This is the same kind of optical disc as CDs. Playback is performed using an optical pickup. (Recording and editing are not possible.)
- Recordable MiniDisc: This is a "raw disc" on which recording can be performed. A magneto optical disc is used. Recordings are made using a laser and magnetic field. Repeated recording is possible.



■ How to apply labels

When sticking a label on an MD cartridge, be sure to observe the following. If a label is not affixed properly, an MD may become jammed in the unit such that it can not be removed.

- Stick a label correctly to the specified area. (Do not stick labels to areas other than the specified one.)
- Do not stick one label upon another.
- If a label is peeling off or starts to come loose, replace it with a new one.



■ Shock Resistant Memory

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

MINIDISC SYSTEM LIMITATIONS

Even if the maximum recording time of a MiniDisc has not been reached, "TOC FULL" may be displayed.	In the MD system, the delimiter of the recording area on an MD is programmed in a TOC. If partial erasing, recording and editing are repeated several times, TOC information will fill up, even though the number of tracks has not reached the limit (255 tracks), and further recording will be impossible. (If you use the all erase function, this MD can be used from the beginning.)
Even if the maximum recording time of a MiniDisc has not been reached, "DISC FULL" may be displayed.	If there is any flaw on the MiniDisc, that part is automatically excluded from the space available for recording. Therefore, the recording time becomes shorter.
Even if several short tracks are erased, the remaining recording time may not show an increase.	When the remaining recording time of a disc is displayed, short tracks less than 12 seconds long may not be included in the total.
Two tracks may not be combined in editing.	For MiniDiscs on which repeated recording and editing operations were performed, the COMBINE function may not work. A track recorded from a CD (digital recording) and a track recorded from a radio or other equipment (analogue recording) cannot be combined.
The total of the recorded time and time remaining on a disc may not add up to the maximum possible recording time.	A cluster (about 2 seconds) is normally the minimum unit of recording. So, even if a track is less than 2 seconds long, it will use about 2 seconds of space on the disc. Therefore, the time actually available for recording may be less than the remaining time displayed. If there are scratches on discs, those sections will be automatically avoided (no recording will be placed in those sections). Therefore, the recording time will be reduced.
If recorded tracks are fast reversed or fast forwarded, the sound may skip.	An MD which has been recorded or edited repeatedly may skip during fast reverse or fast forward.

TROUBLESHOOTING

■ If a problem occurs

If this unit functions abnormally during operation, first check the following items. If the unit continues to function abnormally, or if an abnormality appears other than listed below, set this unit to the stand-by mode and disconnect the AC power plug, then consult your SHARP dealer or service personnel.

General

SYMPTOM	POSSIBLE CAUSE	REMEDY
● The clock is wrong.	● Did a power failure occur?	● Try setting it again.
● When a button is pressed, the unit does not respond.		● Set this unit to the stand-by mode and then turn it back on. Then, retry the operation.
● No sound is heard.	● Is the volume level is set to "0"? ● Are the headphones connected? ● Are the speaker wires disconnected?	● Increase the volume level. ● Disconnect the headphones. ● Connect the wires securely.
● Radios make unusual noise or the picture on the TV screen is distorted.	● When a radio or TV which uses an indoor aerial is placed near the unit, the picture on the TV screen may be distorted or the radio may not function properly.	● It is recommended that you use an external aerial.

CD playback

SYMPTOM	POSSIBLE CAUSE	REMEDY
● Even though a disc has been loaded, "NO DISC" or "ERR" is displayed.	● The disc is loaded up-side down. ● The disc is very dirty.	● Load the disc with the correct side up. ● Clean the disc.
● Playback stops in the middle of a track, or playback is not performed properly.	● The disc which does not satisfy the standards.	● Load the correct disc.
● Playback sounds are skipped.	● Is the unit located near excessive vibrations? ● Has condensation formed inside the unit?	● Place the unit on a firm, level surface free from vibration. ● Remove the disc and leave the power turned on. The unit should function properly in about 1 hour.

(Continued)

MD recording and playback

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

Tape recording and playback

SYMPTOM	POSSIBLE CAUSE	REMEDY
● A recording cannot be made.	● Is the tape protected against accidental erasure?	● Cover the accidental erase prevention hole.
● Sound is skipped. ● Sound in high-frequency range cannot be reproduced. ● Sound quivers.	● The tape is damaged. ● The capstan and pinch roller are very dirty.	● Replace the tape. ● Clean the capstan and pinch roller.
● The cassette cannot be ejected.	● Did a power failure occur?	● Wait until the power is supplied.

Radio reception

SYMPTOM	POSSIBLE CAUSE	REMEDY
● Radios make unusual noise consecutively.	● The unit is placed near the TV or computer. ● The aerial direction is not placed properly.	● When the unit receives a radio broadcast near a TV set, a computer or a wordprocessor, it may pick up noise. If this happens, try to move the unit from the place where the noise is picked up. ● Correct the aerial direction.
● The preset channel cannot be recalled.	● Did you erase the programmed station?	● Preset the channel again. ● Redo programming.

Remote control

SYMPTOM	POSSIBLE CAUSE	REMEDY
● The remote control does not function or does not operate properly.	● The batteries (polarity) are not inserted properly. ● The batteries inside the remote control are dead. ● The remote control is operated from an incorrect distance or angle.	● Insert properly. ● Replace the batteries. ● Operate it within a range of 0.2 m (8") to 6 m (20') and within an angle of 15 ° to either side of centre.
● The power cannot be turned on from the remote control.	● Is the AC power lead plugged in?	● Connect the AC power lead.

(Continued)

■ Moisture condensation

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

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

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

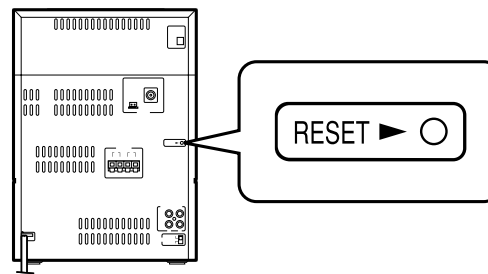
- If this happens, remove the disc. The condensation should evaporate in approximately 1 hour. The unit will then function properly.

■ If a problem occurs

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

Connect the AC power lead to the AC socket, and press the RESET button once on the rear of the main unit.

- When the RESET button is pressed, all of the contents in memory (clock and timer settings, and CD presets) other than the tuner stations will be erased.
- If strange sounds, smells or smoke come out of the unit or if a foreign object falls into the unit, turn off the power, unplug the AC power lead from the AC socket, immediately. Contact the shop where you purchased the unit.

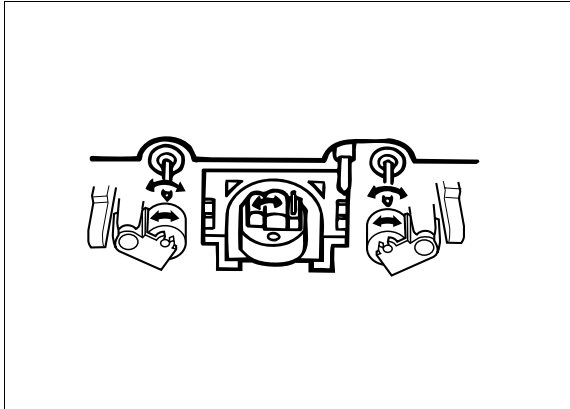


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When an error message is displayed, proceed as follows:

Error messages	Meaning	Remedy
BLANK MD	● Nothing is recorded.	● Replace it with another disc.
Can't COPY	● You tried to record from a copy-protected disc.	● Replace it with a regular disc that can be copied.
Can't EDIT	● A track cannot be edited.	● Change the stop position of the track and then try editing it.
Can't REC	● Recording cannot be performed correctly due to vibration or shock in the unit.	● Re-record.
Can't T REC	● Timer recording is impossible or there is no available space on the MD.	● Replace it with another disc.
CH ERROR	● There is something wrong with the CD changer.	● Set this unit to the stand-by mode and then back to on, and press the ► button.
CONNECT ERR	● Whilst an MD player is being edited on this unit, incorrect digital signals are input from the portable MD player.	● Make sure the cable is connected correctly and that power is being supplied to the portable MD player.
DEFECT	● Since this disc has scratches on it, the recording operation was skipped.	● Replace it with another disc.
Din UNLOCK	● Incorrect digital signals are input.	● Connect correct digital signals. ● Use the analogue input sockets.
DISC ERR	● The disc is damaged. ● A TOC is not written on the MD or there is something wrong with data.	● Reload the disc or replace it.
DISC FULL	● The disc is out of recording space.	● Replace the disc with another recordable disc.
EDIT OVER	● There is no space to make CD editing on the disc.	● Replace it with a disc that has enough time to record.
FOCUS ERROR	● A disc has not been loaded. ● The disc data cannot be read.	● Reload the MiniDisc.
MD ERROR	● No operation.	● Contact the shop where you purchased the unit.
MECHA ERR* (*:Number or symbol)	● There is a mechanical problem and the disc is not working properly.	● Set this unit to the stand-by mode and press the ▲ button.
NAME FULL	● The number of characters for the disc name or track name exceeds 100.	● Shorten the disc or track name.
NO DISC	● A disc has not been loaded. ● The disc data cannot be read.	● Load a disc. ● Reload the disc.
NOT AUDIO	● The data recorded on this disc is not audio data.	● Select another track. ● Replace the disc.
PLAYBACK MD	● You tried to record on a playback-only disc.	● Replace it with another recordable disc.
PROTECT	● Trouble is found.	● Restart the unit. If the unit doesn't work, contact a SHARP Authorised Servicing Dealer or SHARP Authorised Service station.
PROTECTED	● The disc is write protected. ● The tape is protected against accidental erasure.	● Move the write protection tab back to its original position. ● Cover the accidental erase prevention hole.
TAPE ERROR	● The tape mechanism is defective.	● Try pressing the RESET button.
TEMP OVER	● The temperature is too high.	● Set this unit to the stand-by mode and wait for a while.
TOC ERR* (*:Number or symbol)	● The disc is damaged. ● TOC information cannot be read. ● MD not specified.	● Replace it with another disc.
TOC FULL* (*:Number or symbol)	● There is no space left for recording character information (track names, disc names, etc.).	● Replace it with another recordable disc.
TOC W ERROR	● Recording is impossible.	● Contact the shop where you purchased the unit.
TRAY ERROR	● The CD tray operates incorrectly.	● Unplug the AC power lead, plug it back, and then turn the power on.
U TOC ERR* (*:Symbol)	● TOC information recorded on the MD does not match the MD specifications or it cannot be read.	● Replace it with another disc. ● Erase all of the track, and try recording.
U TOC W ERR	● The TOC information could not be created properly due to a mechanical shock or to scratches on the disc.	● Set this unit to the stand-by mode and try to write the TOC again. (Remove any source of shock or vibration whilst writing.)
? DISC	● The data contains an error.	● Replace it with another disc.
00:00	● Music is not being recorded.	● Replace the disc with another recordable disc.

MAINTENANCE



Internal care

- Dirty heads, capstans or pinch rollers can cause poor sound and tape jams. Clean these parts with a cotton swab moistened with commercial head/pinch roller cleaner or isopropyl alcohol.
- After long use, the deck's heads and capstans may become magnetised, causing poor sound. Demagnetise these parts once every 30 hours of playing/recording time by using a commercial tape head demagnetiser. Read the demagnetiser's instructions carefully before use.

External care

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

SPECIFICATIONS

As 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.

● MiniDisc recorder section

Type:	MiniDisc recorder
Signal readout:	Non-contact, 3-beam semiconductor laser pickup
Audio channel:	Stereo; 2 channels Monaural; 1 channel (long-time recording mode)
Frequency response:	20 - 20,000 Hz
Rotation speed:	400 - 900 rpm CLV, Approx
Quantization:	16-bit linear
Filter:	8-times oversampling digital filter
Error correction:	ACIRC (Advanced Cross Interleave Reed-Solomon Code)
Coding:	ATRAC (Adaptive TRansformed Acoustic Coding)
Recording method:	Magnetic modulation overwrite method
D/A converter:	1-bit D/A converter
Sampling frequency:	44.1 kHz
Wow and flutter:	Unmeasurable (less than 0.001% W. peak)
Signal/noise ratio:	95 dB (1 kHz)
Dynamic range:	90 dB (1 kHz)

● Compact disc player section

Type:	3-disc multi-play compact disc player
Signal readout:	Non-contact, 3-beam semiconductor laser pickup
Rotation speed:	200 - 500 rpm CLV, Approx.
Error correction:	CIRC (Cross Interleave Reed-Solomon Code)
Quantization:	16-bit linear
D/A converter:	1-bit D/A converter
Filter:	8-times oversampling digital filter
Frequency response:	20 - 20,000 Hz
Signal/noise ratio:	95 dB (1 kHz)
Dynamic range:	90 dB (1 kHz)
Wow and flutter:	Unmeasurable (less than 0.001% W. peak)

● Tuner section

Frequency range:	FM; 87.5 - 108 MHz AM; 522 - 1,620 kHz
Sensitivity:	FM; 2.5 μ V (75 ohms unbalanced) AM; 650 μ V/m

● Cassette deck section

Type:	Compact cassette tape
Frequency response:	50 - 14,000 Hz (Normal tape) 50 - 15,000 Hz (CrO ₂ tape)
Motor:	DC motor with electronic governor \times 1
Signal/noise ratio:	50 dB (Recording/Playback, Dolby NR off) Dolby NR effect; 10 dB (at over 5 kHz)
Bias and erasure system:	AC
Tape speed:	4.76 cm/sec. (1-7/8 ips.)
Wow and flutter:	0.15 % (WRMS)
Heads:	Record/playback \times 1 Erase \times 1

● General

Power source:	AC 230 V, 50 Hz
Power consumption:	97 W
Output power:	RMS; 100 W (50 W + 50 W) (10 % T.H.D.)
Input terminals:	MD IN/AUX (Analogue-1); 500 mV/47 kohms Auxiliary (Analogue-2); 500 mV/47 kohms Auxiliary (Digital); optical Auxiliary; 2.0 V/1 kohm
Output terminals:	Headphones; 16 - 50 ohms (recommended; 32 ohms) Speakers; 6 ohms
Dimensions:	Width; 240 mm (9-1/2") Height; 332 mm (13-1/8") Depth; 325 mm (12-13/16")
Weight:	8.6 kg (19.0 lbs.)

● Speaker section

Type:	3-way type [150 mm (6") woofer, 65 mm (2-1/2") tweeter and super tweeter]
Maximum input power:	100 W
Rated input power:	50 W
Impedance:	6 ohms
Dimensions:	Width; 205 mm (8-1/8") Height; 332 mm (13-1/8") Depth; 323 mm (12-3/4")
Weight:	4.2 kg (9.3 lbs.)/each

TERMS OF GUARANTEE

Sharp Electronics (UK) Ltd. ("Sharp") guarantees to provide for the repair, or at its option the replacement, of this product subject to the conditions listed below:-

1. This guarantee shall only apply to faults which are due to inferior workmanship or materials. It does not cover faults or damage caused by accident, misuse, fair wear and tear, neglect, tampering with the product, or repair other than by a Service Facility appointed by Sharp.
2. As this product is intended for private domestic use only, the guarantee will not apply if the product is used in the course of a business, trade or profession.
3. To benefit from this guarantee, any fault which occurs must be notified to Sharp, or its appointed Service Facility within one year from the date this product was purchased. Proof of purchase must be provided.
4. The guarantee does not cover carriage costs, jewelled styli, audio tapes, compact discs or batteries.
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6. No person has any authority to vary the terms or conditions of this guarantee.
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SHARP

SHARP ELECTRONICS (U.K.) LTD.

Sharp House, Thorp Road, Newton Heath, Manchester, M40 5BE

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