DENON

MINIDISC RECORDER

DN-M2300R

**OPERATING INSTRUCTIONS
BEDIENUNGSANLEITUNG
MODE D'EMPLOI
INSTRUCCIONES DE OPERACION
BRUKSANVISNING**

IMPORTANT TO SAFETY

> **WARNING:**
>
> **TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

CAUTION:

1. **Handle the power supply cord carefully**
   Do not damage or deform the power supply cord. If it is damaged or deformed, it may cause electric shock or malfunction when used. When removing from wall outlet, be sure to remove by holding the plug attachment and not by pulling the cord.
2. **Do not open the top cover**
   In order to prevent electric shock, do not open the top cover.
   If problems occur, contact your DENON dealer.
3. **Do not place anything inside**
   Do not place metal objects or spill liquid inside the MD recorder.
   Electric shock or malfunction may result.

Please, record and retain the Model name and serial number of your set shown on the rating label.
Model No. DN-M2300R   Serial No._____

CAUTION

**RISK OF ELECTRIC SHOCK
DO NOT OPEN**

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

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

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

NOTE:
This MD recorder uses the semiconductor laser. To allow you to enjoy music at a stable operation, it is recommended to use this in a room of 5 °C (41 °F) –35 °C (95 °F).

• **FOR U.S.A. & CANADA MODEL ONLY**

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

LABELS (for U.S.A. model only)

CERTIFICATION
THIS PRODUCT COMPLIES WITH DHHS RULES 21 CFR SUBCHAPTER JAPPLICABLE AT DATE OF MANUFACTURE.

CAUTION:
USE OF CONTROLS OR ADJUSTMENTS OR REFORMANCE OF PROCE-DURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZ-ARDOUS RADIATION EXPOSURE.

THE COMPACT DISC PLAYER SHOULD NOT BE ADJUSTED OR REPAIRED BY ANYONE EXCEPT PROPERLY QUALIFIED SERVICE PERSONNEL.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

**CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT**

"CLASS 1
LASER PRODUCT"

ADVARSEL: **USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.**

VAROITUS! **LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄMTTÖMÄLLE LASERSÄTEILYLLE.**

VARNING– **OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.**

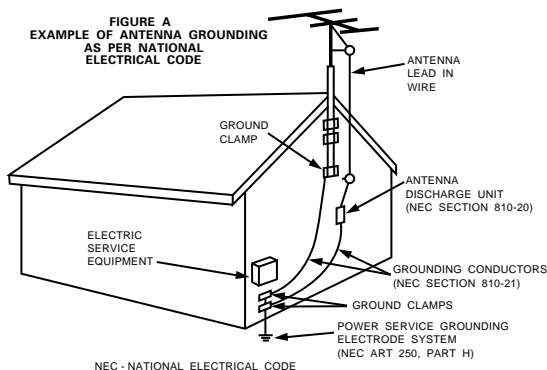• **POUR LES MODELES AMERICAINS ET CANADIENS UNIQUEMENT**

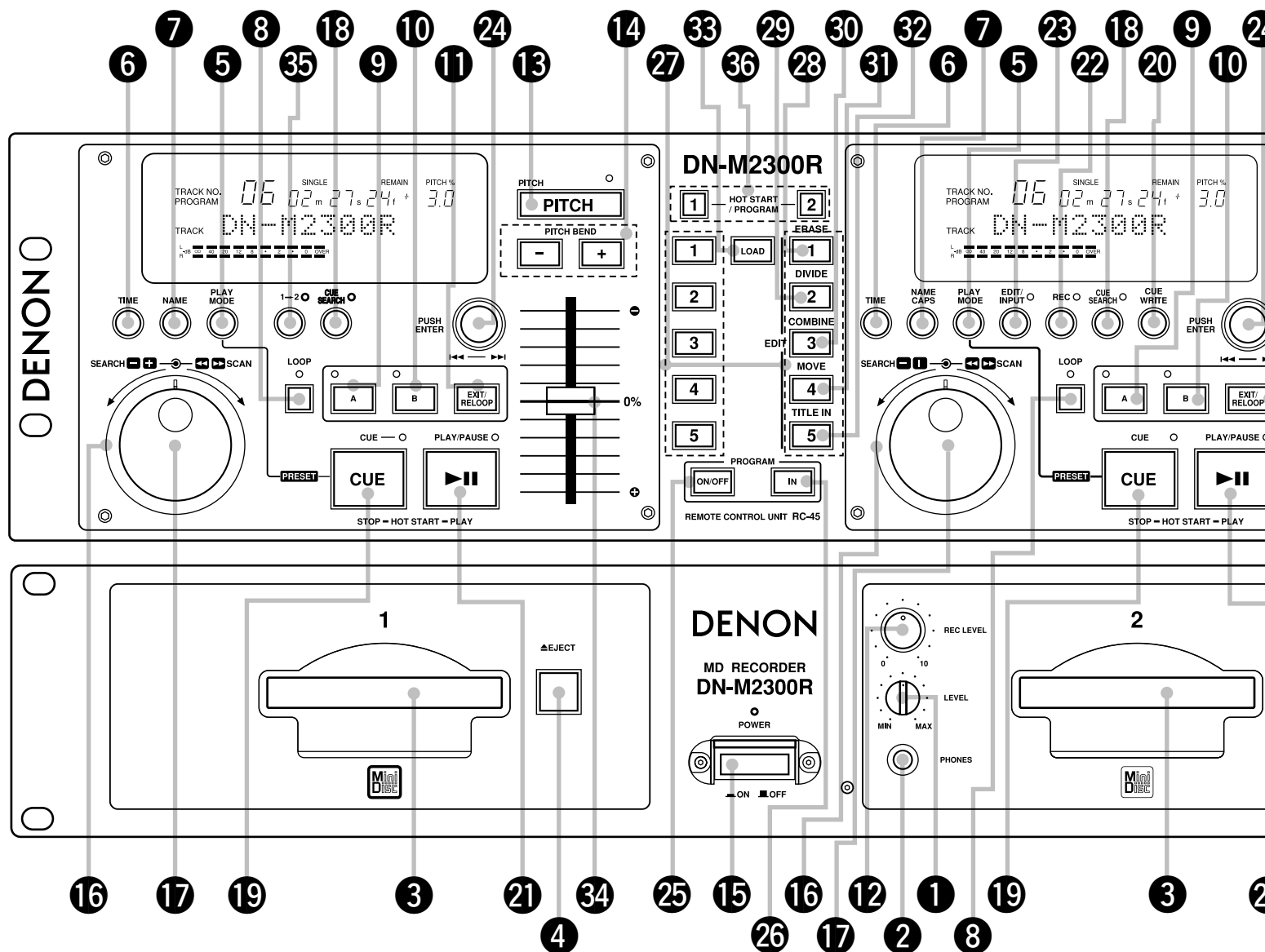| ATTENTION |
| --- |
| POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT. |

SAFETY INSTRUCTIONS

1. Read Instructions – All the safety and operating instructions should be read before the applicance is operated.

2. Retain Instructions – The safety and operating instructions should be retained for future reference.

3. Heed Warning – All warnings on the applicance and in the operating instructions should be adhered to.

4. Following Instructions – All opeerating and use instructions should be followed.

5. Water and Moisture – The appliance should not be used near water – for example, near a bathtub, washbbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.

6. Carts and Stands – The appliance should be used only with a cart or stand that is recommended by the manufacturer.

6A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the applicance and cart combination to overturn.

7. Wall or Ceiling Mounting – The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.

8. Ventilation – The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

9. Heat – The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

10. Power Sources – The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

11. Grounding or Polarization – Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

12. Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

14. Cleaning – The appliance should be cleaned only as recommended by the manufacturer.

15. Power Lines – An outdoor antenna should be located away from power lines.

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

17. Nonuse Periods – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

18. Object and Liquid Entry – Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

19. Damage Requiring Service – The appliance should be serviced by qualified service personnel when:

   A. The power-supply cord or the plug has been damaged; or

   B. Objects have fallen, or liquid has been spilled into the appliance; or

   C. The appliance has been exposed to rain; or

   D. The appliance does not appear to operate normally or exhibits a marked change in performance; or

   E. The appliance has been dropped, or the enclosure damaged.

20. Servicing – The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.


FIGURE A
EXAMPLE OF ANTENNA GROUNDING
AS PER NATIONAL
ELECTRICAL CODE

ANTENNA LEAD IN WIRE

GROUND CLAMP

ANTENNA DISCHARGE UNIT (NEC SECTION 810-20)

ELECTRIC SERVICE EQUIPMENT

GROUNDING CONDUCTORS (NEC SECTION 810-21)

GROUND CLAMPS

POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250, PART H)

NEC - NATIONAL ELECTRICAL CODE

FRONT PANEL / FRONTPLATTE / PANNEAU AVANT / PANEL FRONTAL / FRAMSIDA
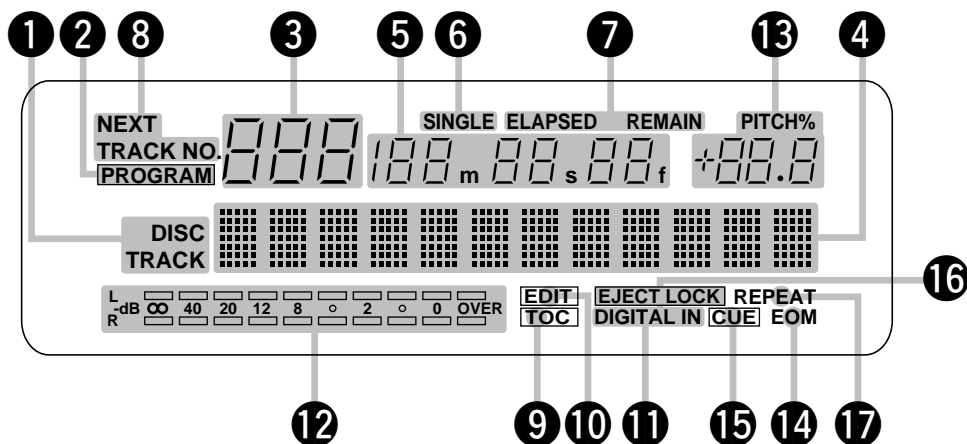

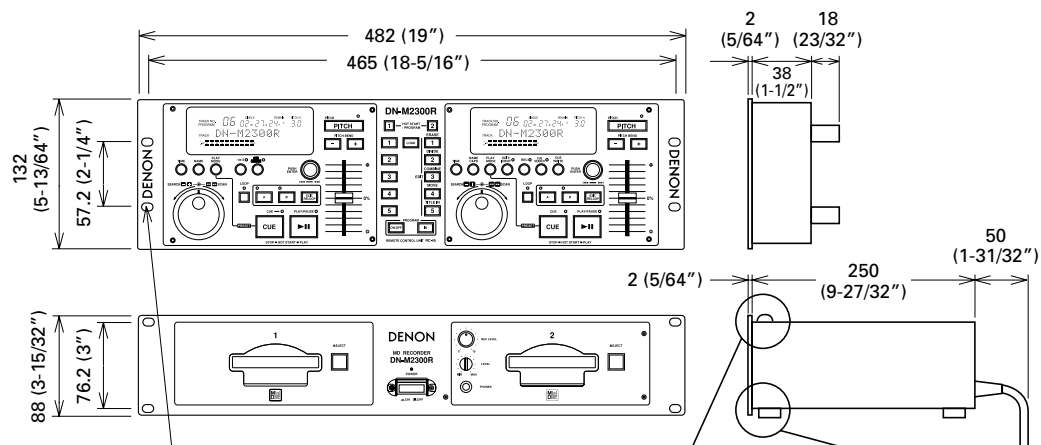## REAR PANEL / RÜCKWAND / PANNEAU ARRIERE / PANEL TRASERO / BAKSIDA

4
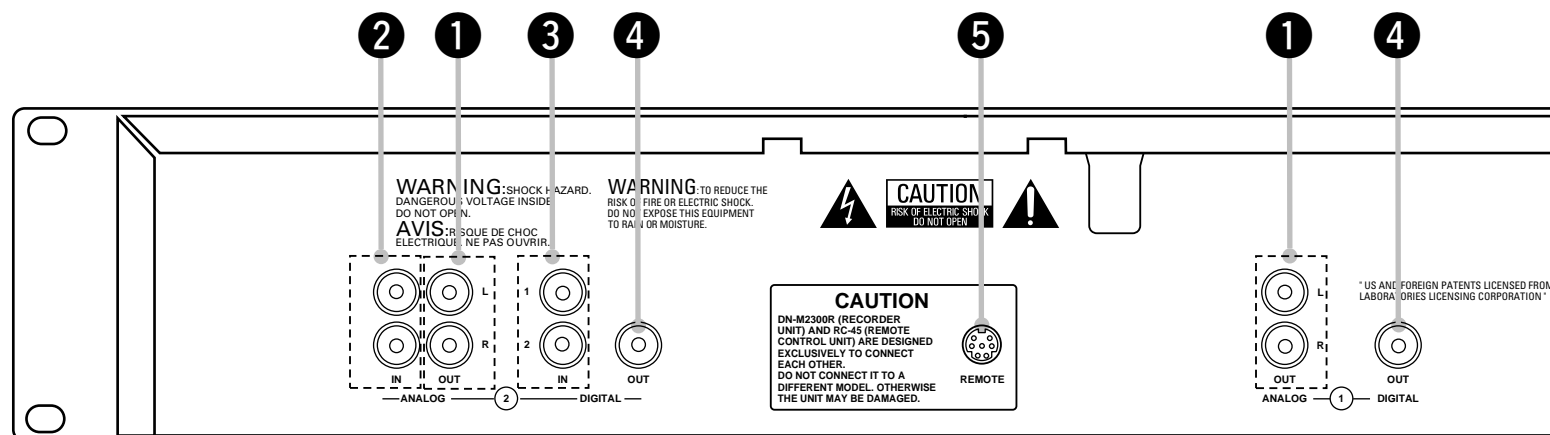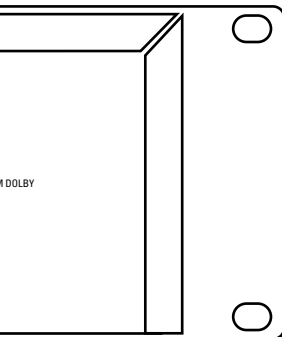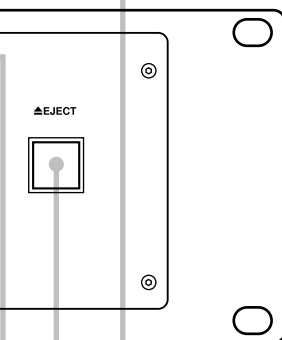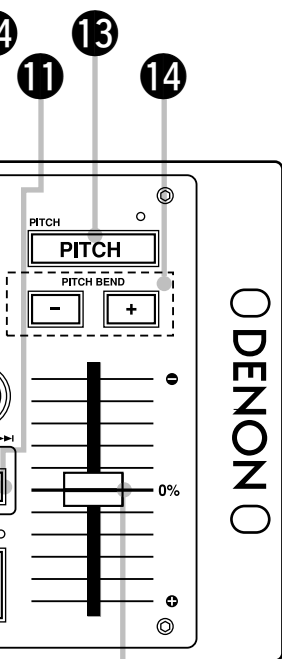
## DISPLAY WINDOW / DISPLAY-FENSTER / FENETRE D'AFFICHAGE / PANTALLA DE VISUALIZACION / DISPLAYFÖNSTER

❶ ❷ ❽ ❸ ❺ ❻ ❼ ⓭ ❹

NEXT
TRACK NO.
PROGRAM

SINGLE ELAPSED REMAIN PITCH%

m s f

DISC
TRACK

L -dB ∞ 40 20 12 8 ○ 2 ○ 0 OVER
R

EDIT
TOC

EJECT LOCK REPEAT
DIGITAL IN CUE EOM

⓬ ❾ ❿ ⓫ ⓯ ⓮ ⓱

⓰

DIMENSIONS / ABMESSUNGEN / DIMENSIONS / DIMENSIÓNES / MÅTT

482 (19″)
465 (18-5/16″)

2 (5/64″) 18 (23/32″)
38 (1-1/2″)

132 (5-13/64″)
57.2 (2-1/4″)

DN-M2300R
DENON
DN-M2300R
DENON

88 (3-15/32″)
76.2 (3″)

DENON
MD RECORDER
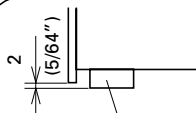DN-M2300R

2 (5/64″)

250 (9-27/32″)

50 (1-31/32″)

7 x 11 hole
7 x 11 Öffnung
trou de 7 x 11
Orificio de 7 x 11
Hål 7 x 11

SCREW
SCHRAUBE
VIS
TORNILLO
SKRUV

2 (5/64″)

2 (5/64″)
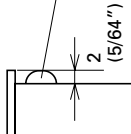
FOOT SPACER /
FUSSABSTANDSHALTER /
ESPACEUR DE PIED /
ESPACIADOR DE PIE /
AVSTÅNDSBRICKA FÖR
FOTEN

PITCH

PITCH

PITCH BEND

− +

DENON

0%

⊖ EJECT

⓫ ❹ ❸❹

M DOLBY

NOTE ON USE / HINWEISE ZUM GEBRAUCH/OBSERVATIONS RELATIVES A L'UTILISATION
NOTE SULL'USO / NOTAS SOBRE EL USO / ALVORENS TE GEBRUIKEN / OBSERVERA
## OBSERVAÇÕES QUANTO AO USO
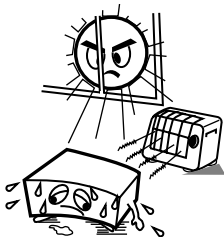
- Avoid high temperatures.
  Allow for sufficient heat dispersion when installed on a rack.
- Vermeiden Sie hohe Temperaturen.
  Beachten Sie, daß eine ausreichend Luftzirkulation gewährleistet wird, wenn das Gerät auf ein Regal gestellt wird.
- Eviter des températures élevées
  Tenir compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère.
- Evitate di esporre l'unità a temperature alte.
  Assicuratevi che ci sia un'adeguata dispersione del calore quando installate l'unità in un mobile per componenti audio.
- Evite altas temperaturas.
  Permite la suficiente dispersión del calor cuando está instalado en la consola.
- Vermijd hoge temperaturen.
  Zorg voor een degelijk hitteafvoer indien het apparaat op een rek wordt geplaatst.
- Undvik höga temperaturer.
  Se till att det finns möjlighet till god värmeavledning vid montering i ett rack.
- Evite temperaturas altas.
 Conceda suficiente dispersão de calor quando o equipamento for instalado numa prateleira.
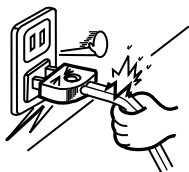
- Handle the power cord carefully.
  Hold the plug when unplugging the cord.
- Gehen Sie vorsichtig mit dem Netzkabel um.
  Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen.
- Manipuler le cordon d'alimentation avec précaution.
  Tenir la prise lors du débranchement du cordon.
- Maneggiate il filo di alimentazione con cura.
  Agite per la spina quando scollegate il cavo dalla presa.
- Maneje el cordón de energía con cuidado.
  Sostenga el enchufe cuando desconecte el cordón de energía.
- Hanteer het netsnoer voorzichtig.
  Houd het snoer bij de stekker vast wanneer deze moet worden aan- of losgekoppeld.
- Hantera nätkabeln varsamt.
  Håll i kabeln när den kopplas från el-uttaget.
- Manuseie com cuidado o fio condutor de energia.
  Segure a tomada ao desconectar o fio.
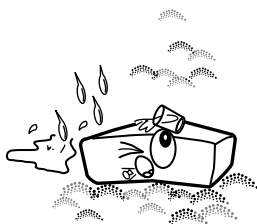
- Keep the set free from moisture, water, and dust.
- Halten Sie das Gerät von Feuchtigkeit, Wasser und Staub fern.
- Protéger l'appareil contre l'humidité, l'eau et lapoussière.
- Tenete l'unità lontana dall'umidità, dall'acqua e dalla polvere.
- Mantenga el equipo libre de humedad, agua y polvo.
- Laat geen vochtigheid, water of stof in het apparaat binnendringen.
- Utsätt inte apparaten för fukt, vatten och damm.
- Mantenha o aparelho livre de qualquer umidade, água ou poeira.
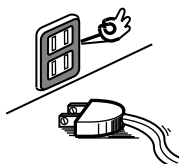
- Unplug the power cord when not using the set for long periods of time.
- Wenn das Gerät eine längere Zeit nicht verwendet werden soll, trennen Sie das Netzkabel vom Netzstecker.
- Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes.
- Disinnestate il filo di alimentazione quando avete l'intenzione di non usare il filo di alimentazione per un lungo periodo di tempo.
- Desconecte el cordón de energía cuando no utilice el equipo por mucho tiempo.
- Neem altijd het netsnoer uit het stopkontakt wanneer het apparaat gedurende een lange periode niet wordt gebruikt.
- Koppla ur nätkabeln om apparaten inte kommer att användas i lång tid.
- Desligue o fio condutor de força quando o aparelho não tiver que ser usado por um longo período.
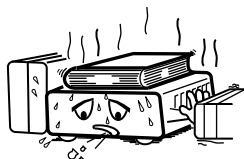
* (For sets with ventilation holes)

- Do not obstruct the ventilation holes.
- Die Belüftungsöffnungen dürfen nicht verdeckt werden.
- Ne pas obstruer les trous d'aération.
- Non coprite i fori di ventilazione.
- No obstruya los orificios de ventilación.
- De ventilatieopeningen mogen niet worden beblokkeerd.
- Täpp inte till ventilationsöppningarna.
- Não obstrua os orifícios de ventilação.
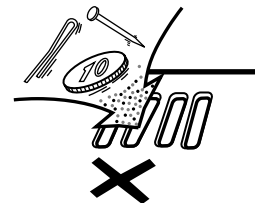
- Do not let foreign objects in the set.
- Keine fremden Gegenstände in das Gerät kommen lassen.
- Ne pas laisser des objets étrangers dans l'appareil.
- E' importante che nessun oggetto è inserito all'interno dell'unità.
- No deje objetos extraños dentro del equipo.
- Laat geen vreemde voorwerpen in dit apparaat vallen.
- Se till att främmande föremål inte tränger in i apparaten.
- Não deixe objetos estranhos no aparelho.
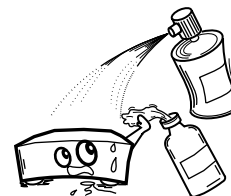
- Do not let insecticides, benzene, and thinner come in contact with the set.
- Lassen Sie das Gerät nicht mit Insektiziden, Benzin oder Verdünnungsmitteln in Berührung kommen.
- Ne pas mettre en contact des insecticides, du benzène et un diluant avec l'appareil.
- Assicuratevvi che l'unità non venga in contatto con insetticidi, benzolo o solventi.
- No permita el contacto de insecticidas, gasolina y diluyentes con el equipo.
- Laat geen insektenverdelgende middelen, benzine of verfverdunner met dit apparaat in kontakt komen.
- Se till att inte insektsmedel på spraybruk, bensen och thinner kommer i kontakt med apparatens hölje.
- Não permita que inseticidas, benzina e dissolvente entrem em contacto com o aparelho.

- Never disassemble or modify the set in any way.
- Versuchen Sie niemals das Gerät auseinander zu nehmen oder auf jegliche Art zu verändern.
- Ne jamais démonter ou modifier l'appareil d'une manière ou d'une autre.
- Non smontate mai, nè modificate l'unità in nessun modo.
- Nunca desarme o modifique el equipo de ninguna manera.
- Nooit dit apparaat demonteren of op andere wijze modifiëren.
- Ta inte isär apparaten och försök inte bygga om den.
- Nunca desmonte ou modifique o aparelho de alguma forma.

MAIN FEATURES

The DN-M2300R is a rack-mount type double MD recorder equipped with a variety of easy-to-use functions.
MD 1 is for playback only.
MD 2 is for both playback and recording.

[PLAY FUNCTION]

• **Instant Start (Playback starts less than 0.03 seconds after the PLAY button is pressed.)**

• **Hot Start function**
Up to five tracks can be preset and played immediately.

• **Auto Cue**
After a track is selected it is automatically cued to the point where audio starts.
Cueing tracks place at the point where audio starts rather than where the track starts. The level at which sound is first detected can be set between –36 to –60 dB (5 steps).

• **Pitch Control (+8 to –8 %, 0.1 step)**
Pitch control with an analog feeling using a pitch slider.

• **Pitch Bend (The already adjusted pitch can be changed temporarily.)**

• **Seamless Loop**
Any section can be played repeatedly with no interruption in the sound.

• **1/ALL track Repeat mode**

• **Play mode and Finish mode**
1) Play mode
① Continuous: Play a whole disc
② Single: Play a track
2) Finish mode (Stop, Next, Recue)
① Stop: Stop after finishing to play a track
② Next: Cue at the beginning of next track after finishing to play a track
③ Recue: After finishing to play a track, cue at the beginning of the track

• **End Of Message (EOM)**
At the end of a track, the EOM and TRACK NO. flashes, providing a visual warning to the operator that the track will end shortly. The point at which the flashing begins can be set within a range of 5 to 90 seconds (7 steps) prior to the end of the track.

• **Program Play (Max. 25 tracks)**
1) When the PLAY mode is set to Single, the player stands by at the beginning of next track.
2) When the PLAY mode is set to Continuous, the playback is continued according to your programmed sequence.

[RECORD FUNCTION]

• **Auto Level Rec start**
This function automatically starts the recording operation when an audio signal level from an external unit connected to the DN-M2300R exceeds the preset level (–36 to –66 dB, 6 steps and off).

• **Auto Track Increment**
DN-M2300R detects the silent portion of the program material and automatically increases the track number. The level of the silent portion can be set within a range of –36 to –60 dB (5 steps).

• **Stereo/Mono recording (74/148 min.)**

• **Using CUE Signals to make searches (Up to 5 points per track)**

• **Editing**
1) Basic Editing
• DIVIDE: Smallest edited unit is 11.6 msec (1 sound group)
• ERASE TRACK/DISC/CUE
• COMBINE
• MOVE
• TRACK NAME
• DISC NAME
Up to 100 characters can be used for each name, however, the combined total number of characters cannot exceed 1700.
2) Cue signals also can be edited. (Can be erased, rewritten, or added to later.)

• **Undo function**
Undo function during editing. (Up to 2 editing operations prior to the most recent one can be undone.)

• **SCMS**
Recording is possible without reception of the copy defeat restriction. Writing of the copy defeat code is selectable.

• **1 → 2 SYNCHRO REC**
This is a function for easily recording tracks from MD 1 onto MD 2.

• **19 inch Rack Mountable (Height: Player: 2 U   Remote: 3 U)**

• **Large FL Display**

• **Track Search Select knob (Easy track selection)**

• **Search/Scan dial**
Perform searches to 1 sound group precision using the dial and easy scans using the scan dial.

7

CONTENTS

Checking the Contents
Check that the carton contains the following items in addition to the main unit.
① Operating instructions 1
② Connection cords for signal output (RCA) 3
③ Remote control unit (RC-45) 1
④ Remote control connection cable 1

Installing the Units
Mount the units onto your console or rack with 19″ EIA rack rails.

Caution on handling
Do not move or transport the recorder with a disc loaded. Doing so may scratch the disc or damage the recorder.

CAUTION:
- **If the power is turned off during the recording pause, recording, playing, UTOC write or editing mode, the cartridge cannot be ejected when the power is off.**
- **If the cartridge cannot be ejected when the power is off, turn on the power to eject it.**
- **Be sure turn on POWER switch after a Remote cable of RC-45 is connected to the Player unit, otherwise, the apparatus may not work correctly.**
- **DN-M2300R (RECORDER UNIT) and RC-45 (REMOTE CONTROL UNIT) are designed exclusively to connect each other. Do not connect it to a different model. Otherwise the unit may be damaged.**
- **Be sure to use the remote control connection cable which has been supplied. Use of another cable type might cause damage.**

- **DECLARATION OF CONFORMITY**
  We declare under our sole responsibility that this product, to which this declaration relates,
  is in conformity with the following standards:
  EN60065, EN55013, EN55020, EN60555-2 and EN60555-3.
  Following the provisions of 73/23/EEC, 89/336/EEC and 93/68/EEC Directive.

1 PART NAMES AND FUNCTIONS

(1) Front Panel

❶ LEVEL control
• Use this to adjust the volume of the headphones.

❷ PHONES jack
• Connect headphones with an impedance of 30 to 40 Ω/ohms.

❸ Cartridge insertion slot
• Insert the cartridge as indicated by the arrow on the top.
• Press the cartridge to the back of the slot until it is set.

> **Caution on ejecting cartridge**
> • Do not try to pull out a partially inserted cartridge. Doing so may damage it.

❹ EJECT button
• Press this button to eject the cartridge.
• The cartridge cannot be ejected during recording, playing, editing or while the UTOC is being written.

❺ PLAY MODE button
• When this button is pressed, the play mode switches.

❻ TIME button
• Press this button to switch the time display between the remaining time (REMAIN) and the elapsed time (ELAPSED).

❼ NAME/CAPS button
• When this button is pressed, the character display switches between the disc name and track name, in that order.
• When the button is pressed while editing names, the selected characters switch between capital letters, small letters, numbers and symbols, in that order.

❽ LOOP button
• Press this to start the loop mode (A-B loop, 1/All repeat, or hot start repeat play).
• The LED lights during loop playback.

❾ A button
• Press this to set the starting point for loop playback.

❿ B button
• Press this to set the ending point for loop playback.

⓫ EXIT/RELOOP button
• When this button is pressed during loop playback, loop playback stops and the normal play mode is set (EXIT). When pressed again, loop playback resumes.

⓬ REC LEVEL control
• Use this to adjust the level of the analog input signal.

⓭ PITCH button
• When this button is pressed, the playing speed can be changed using the pitch slider.
• The LED lights when the pitch play mode is set.
• Press the button again to cancel the pitch play mode and return to the normal speed.

⓮ PITCH BEND – and + button
• The pitch increases or decreases while one of these button is pressed.
• The pitch returns to the previous value when the button is released.

⓯ POWER button
• This turns the set on and off.

⓰ SCAN dial (outer side)
• Turn this dial to set the manual search (fast forward or fast reverse) mode.
• Turn the dial clockwise to move the playback position forward, counterclockwise to move the playback position backward.
• The speed changes according to the angle at which the dial is turned.

⓱ SEARCH dial (inner side)
• Turn this dial to set the manual search mode.
• Turn the dial clockwise to move the playback position forward, counterclockwise to move the playback position backward.
• One click corresponds to one frame of movement. The playback position can be moved anywhere between the beginning of the first track and the end of the last track.

⓲ CUE SEARCH button
• When this button is pressed during the cue, pause, search or play mode, the cue signal point direct search mode is set. When pressed again, the direct search mode is canceled.
• The LED lights when the direct search mode is set.

⓳ CUE button
• When this button is pressed during the play or pause mode, the pickup returns to the position at which playback started and the cue mode is set. **(Back Cue)**
• The LED lights when the cue mode is set.
• When the button is pressed during the recording or recording pause mode, recording stops, the pickup returns to the recording start position and the cue mode is set.
• When this button is pressed in the cue direct search mode, the cue point is searched for.
• When this button is pressed during hot start playback, playback stops.
• When press during hot start loading, hot start is canceled. (The data loaded before the button is pressed is valid.)
• When the button is pressed while pressing the PLAY MODE button, the preset mode is set.

⓴ CUE WRITE button
• Press this button during the cue, pause, play, or manual search. When the edit mode and recording mode to record a cue signal.

㉑ PLAY/PAUSE button
• Press this button in the cue, pause or manual search mode to begin playback.
• Press the button in the stop mode to search for the first track and begin playback.
• When the button is pressed in the recording pause mode, recording starts.
• The LED lights when the play or recording mode is set.
• When the button is pressed during playback, the pause mode is set. The LED flashes while the pause mode is set.
• When the button is pressed during recording, the recording pause mode is set. The LED flashes when the recording pause mode is set.

㉒ REC button
- When this button is pressed during the stop, cue or pause mode, the recording pause mode is set.
- When the button is pressed during recording, the track number is incremented.
- The LED lights when the recording or recording pause mode is set.
- The external source can be monitored by pressing in the button for at least 3 seconds.

㉓ EDIT/INPUT button
- Press this button to set the edit mode.
- The " EDIT " lights when the edit mode is set.
- When the button is pressed during the edit mode, the edit mode is canceled.
- Press this button in the recording pause mode to switch between analog and digital, according to the input signal.

㉔ Select knob
- When this knob is turned during playback, the selected track is searched for.
- Turn the knob clockwise by one click to move one track forward, counterclockwise by one click to move one track backward.
- When the knob turned while pressing it in, one click corresponds to 10 tracks.
- In the preset mode, use this knob to set and enter preset setting.
- When setting programs, use this knob to select, enter and check the program.
- In the cue point direct search mode, use this knob to select the cue point.

㉕ PROGRAM ON/OFF button
- Operates when button "1" or "2" is pressed while pressing this button.
- When this button is pressed while the PROGRAM indicator is lit, the program play mode is set.
- The button will not function during the LOOP mode.

㉖ PROGRAM IN button
- Operates when button "1" or "2" is pressed while pressing this button.
- Press this button to set the program input mode.
- The button will not function during the play mode.
- The PROGRAM indicator flashes when in the program input mode.

㉗ $\boxed{1}$ ~ $\boxed{5}$ (number) buttons (Hot start buttons)
- Press the desired button to start hot start playback.

㉘ ERASE button
- Press this button in the edit mode to set the erase mode (to erase discs, tracks or cue points).
- When this button is pressed again after selecting the item to be erased, "*** OK?" appears on the display. Press the button again to erase the selected item.

㉙ DIVIDE button
- Press this button in the edit mode to set the divide mode (to divide a track in two).
- When the button is pressed again after checking the divide point, the track is divided and the divide mode is canceled.

㉚ COMBINE button
- Press this button in the edit mode to set the combine mode (to combine tracks).
- When the button is pressed again after checking the tracks, the tracks are combined.

㉛ MOVE button
- Press this button in the edit mode to set the move mode (to move tracks).
- When this button is pressed again in the move mode after selecting the number to which the track is to be moved, the track is moved.

㉜ TITLE IN button
- Press this button during the editing mode to set the name input mode.
- When this button is pressed after inputting the name, the input name is entered.

㉝ LOAD button
- Operates when button "1" or "2" is pressed while pressing this button.
- When this button is pressed in the cue and pause mode, the data for five tracks starting from the track at which the cue and pause mode is set is loaded into the hot start memory.

㉞ Pitch slider
- Use this to adjust the pitch.
- The pitch decreases when the slider is moved upwards and increases when the slider is moved downwards.

㉟ 1 → 2 button
- The mode for recording from MD 1 onto MD 2 is set.
  MD 1 is set to the standby or pause mode, MD 2 to the recording standby mode.
- When the button is pressed during copying, MD 1 is set to the pause mode, recording stops on MD 2, the UTOC is written, and the standby mode is set at the track at which recorded started.

㊱ "1" "2" HOT START/PROGRAM
- Press one of these buttons while pressing the LOAD, PROGRAM ON/OFF or PROGRAM IN button.

(2) Rear Panel

❶ ANALOG OUT jacks
- These are analog outputs using RCA type jacks.

❷ ANALOG IN jacks
- These are analog inputs using RCA type jacks.

❸ DIGITAL IN jacks
- This is a digital input using an RCA type jack.
- Signal format: SPDIF or IEC 958 Type Ⅱ.

❹ DIGITAL OUT jacks
- This jack outputs digital data.
- We recommend using a 75 Ω/ohms pin cord (available in stores) for connections.
- Signal format: (CueDet.: Preset. 2)
  CueDet. OFF: SPDIF/CueDet. –60 ~ –36 dB: IEC 958 Type Ⅱ.

❺ REMOTE (Remote Control Connector)
- This connector accepts the cable which connects to the remote control unit RC-45. Insert the plug securely as far as it will advance.

> **WARNING:**
> Turn PITCH control OFF when making digital recordings. Most digital recorders will not accept a variable pitched digital signal.

(3) Display Window

❶ DISC NAME/TRACK NAME indicators
• "DISC NAME" lights when the disc name is displayed on the character display, "TRACK NAME" lights when the track name is displayed.

❷ PROGRAM indicator
• This lights when the Program play mode is set.

❸ TRACK NO. display
• This displays the number of the track at the current position. This also lights during the track search mode and when switching to the cue mode.

❹ Character display
• This displays disc names, track names.
• Various instructions are displayed here during presetting, programming, editing, etc.

❺ Playing time display
• This indicates the time of the current position, in minutes (m), seconds (s) and frames (f).

❻ PLAY MODE indicators
• "SINGLE" lights when in the single track play mode.

❼ TIME MODE indicators
• "ELAPSED" lights when the elapsed time is displayed.
• "REMAIN" lights when the remaining time is displayed.

❽ TRACK NO. indicators
• TRACK NO.: Indicates that the track number display shows the selected track number.
• NEXT: Indicates that the displayed track number is the reserved track number when presetting 14, "Reserve" is set to "ON".

❾ TOC indicator
• This lights when it is necessary to rewrite the TOC (UTOC) due to editing, etc
• This flashes while the TOC (UTOC) is being written.

❿ EDIT indicator
• This lights when the edit mode is set.

⓫ DIGITAL IN indicator
• This lights (or flashes) when the digital input signal is selected.
• The indicator flashes when the digital signal is unlocked and remains lit when the digital signal is locked.

⓬ Level display
• This displays the playback level during playback, the input level during recording.

⓭ PITCH display
• This indicates the set play speed in %.
• The program number is displayed during program input and editing.

⓮ EOM indicator
• This lights when the EOM is preset, and starts flashing when the EOM set time is reached.

⓯ CUE indicator
• This lights for approximately 3 seconds when the position at which a cue signal is set is played.
• The indicator flashes when the cue mode is set at a position at which a cue signal is set.

⓰ EJECT LOCK indicator
• When this indicator is lit, the eject lock function is set and the cartridge is not ejected even when the eject button is pressed.

⓱ REPEAT indicator
• When this indicator is lit, playback is repeated.

2 ABOUT MINIDISCS

■ MiniDiscs allow a maximum of 74 minutes (stereo) of recording and playback in a compact size.
There are two types of MiniDiscs: those for playback only, and those for recording and playback.

Playback only MiniDiscs
• These discs are for playback only. Commercially available music MDs are of this type.
• These are laser discs, like regular compact discs.
• Tracks on such discs cannot be edited.
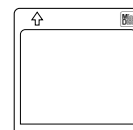
Recordable MiniDiscs
• These are magneto-optical discs on which both recording and playback are possible. Recording is performed through magnetic modulation.
• Re-recording is also possible.
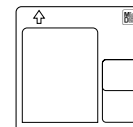
Accidental erasure prevention tabs
These tabs protect recordable MiniDiscs from accidental erasure.
To avoid accidentally erasing the recording, open the tab so that the hole is exposed. (See the diagram below.) When this is done, "Protected" is displayed if you attempt to record, erase or otherwise edit the disc, and the recording is protected. To record or erase the disc, set the tab back to its original position (with the hole covered).

Hole exposed

Slide the tab
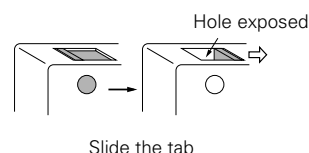
Recording on discs
MiniDiscs include a section in which the audio signals are recorded and a section in which such data as track numbers and track titles are recorded.

Section in which track numbers and track titles are recorded (TOC)

Section in which audio signals are recorded
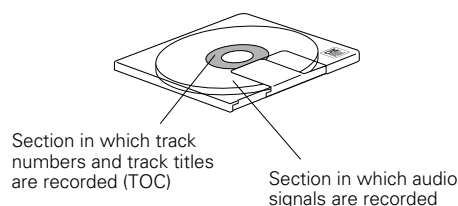
■ **The TOC**
With MiniDiscs, after the audio signals are recorded, data used for checking the tracks (TOC–Table of Contents) is also recorded on the disc. This TOC data is used when playing the disc. In addition, editing is performed by rewriting the TOC data.
When TOC writing starts, the " TOC " indicator flashes. Do not shake the main unit, press the main unit's power button or unplug the power cord while the TOC is being written. If the data is not recorded properly, it will not be possible to play the disc.

■ **Handling MiniDiscs**
MiniDiscs are housed in cartridges, so there is no need to worry about dirt and scratches. However, dirty or warped cartridges may cause malfunction. Be careful of the following to ensure long-lasting, high quality sound:
• Do not touch the disc surface directly.
• Do not open the shutter by hand.
• Do not place MiniDiscs in dusty, dirty or humid places.
• Do not place MiniDiscs in places exposed to direct sunlight or high temperatures.

Cleaning
Use a dry cloth to gently wipe dirt or dust off the cartridge. Do not apply excessive force.

3 BASIC OPERATIONS
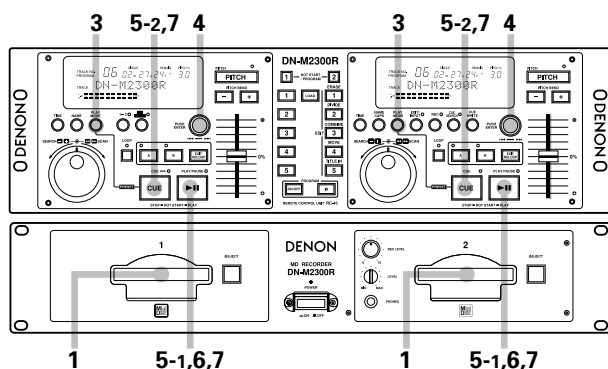
(1) Before Starting Playback (MD 1, MD 2)

1	**Load the cartridge.**
2	**Make the presettings according to the usage purpose. (See Page 34)** **NOTE:** Steps 1 and 2 can be performed in the opposite order.
3	**Select the play mode.** Press the PLAY MODE button. Single track play mode **SINGLE** — Lit Continuous play mode **SINGLE**
4	**Select the track to be played.** Turn the select knob (I◀◀ – ▶▶I). Flashing during search / Lit when in cue The selected track is cued and the cue mode is set.
5-1	**To check the play start position.** Press the PLAY/PAUSE button. Lit / Off / Lit Monitor the playback signals to check the play start position.
5-2	Press CUE button. Flashing / Lit / Off The pickup returns to the play start position and the cue mode is set. **(Back Cue)**

(2) Starting Playback (MD 1, MD 2)

6	**Start playback.** Press the PLAY/PAUSE button. Lit / Off Playback begins and the playback signals are output. TRACK NO. *03* SINGLE *03 m 28 s 47 f* REMAIN NEXT NO. *04* DISC NAME *POPS SELECION* dB -00 -40 -20 -12 -6 -2 0 OVER PITCH % EOM L ■■■■■□□□□□□ R ■■■■■□□□□□□ *0.0*

(3) Stopping Playback

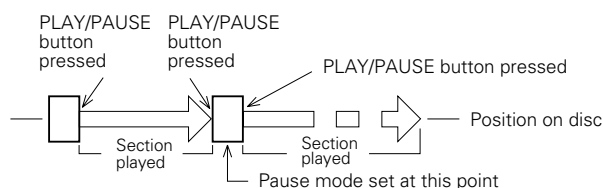|	
7	**Playback can be stopped in the following ways.** Flashing / Lit Playback is interrupted, the pickup returns to the play start position and the cue mode is set. Flashing Playback is interrupted and the pause mode is set at that point.

Sleep mode.
The sleep mode is set if no operation is performed for 30/20/10 minutes in the cue, pause mode.
(Select the time with the presettings.)
When in the sleep mode, press the PLAY/PAUSE button to search for the position before the sleep mode was set and start playback. Press the CUE button to search for the position before the sleep mode was set and cue at that point.

(4) PLAY/PAUSE and CUE Operations (MD 1, MD 2)

- The operation switches between playback and pause each time the PLAY/PAUSE button is pressed.
- When the CUE button is pressed during playback, the pickup returns to the position at which playback was started.

The diagrams below show playback patterns when the PLAY/PAUSE and CUE buttons are pressed.

PLAY and PAUSE

PLAY/PAUSE button pressed PLAY/PAUSE button pressed

PLAY/PAUSE button pressed

Position on disc

Section played   Section played

Pause mode set at this point

When the PLAY/PAUSE button is pressed, playback starts and proceeds as shown by the arrow on the diagram above.
If the PLAY/PAUSE button is pressed again during playback, the pause mode is set at that point. Press the PLAY/PAUSE button again to resume playback.

PLAY and CUE

PLAY/PAUSE button pressed

CUE button pressed
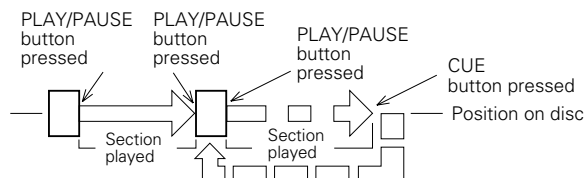
Position on disc

Section played

Back Cue
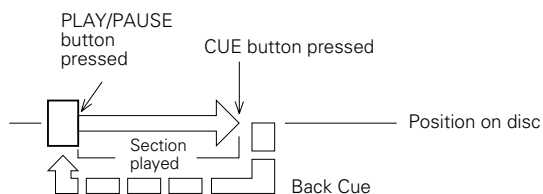
When the CUE button is pressed after starting playback by pressing the PLAY/PAUSE button, the pickup returns to the position at which playback was started and prepares for the next playback.
Press the PLAY/PAUSE and CUE buttons alternately to start playback repeatedly from the same position.
This function is called "Back Cue".

PLAY, PAUSE and CUE

PLAY/PAUSE button pressed   PLAY/PAUSE button pressed

PLAY/PAUSE button pressed

CUE button pressed

Position on disc

Section played   Section played

If the pause mode is set and playback is then resumed, the position to which the pickup returns with the Back Cue function changes.
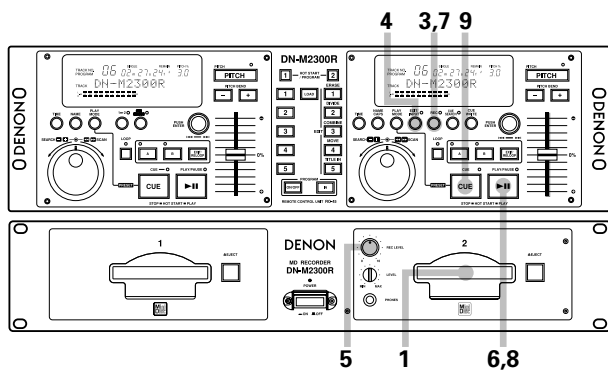
(5) Before Starting to Record (MD 2 Only)

- Turn on the power. To record from the analog input, it is recommended to turn on the power at least 5 seconds before starting to record. This eliminates fluctuations of the A/D converter DC offset, reduces the amount of DC offset at the recording start position, in the middle of the recording and at the recording end position, and keeps the DC offset constant. DC offset hinders the auto cue function for detecting the point where the sound starts at low levels and the auto track increment function which detects soundless sections.
- Load a recordable disc. There are 60-minute and 74-minute recordable discs. For a description of recordable discs, see the section "Method of Recording on Discs" below. It is not possible to record on discs which are already recorded and have little free space left or on playback only discs.

(6) Method of Recording on Discs (MD 2 Only)

	Disc for recording	Method of recording on disc
1	Discs on which nothing is recorded	Recording starts from the beginning of the disc. The beginning of the disc is found automatically, so there is no need to do this manually.
2	Recording on discs after erasing all their tracks	Same as above.
3	Recording on an already recorded disc	Recording starts from the end of the last recorded section. The end of the last recorded section is found automatically, so there is no need to do this manually. The set is designed so that it is not possible to record over a recorded section, so you cannot accidentally erase a previous recording.
4	Recording on discs after erasing part or all of the disc	If there is not enough remaining space or if you want to do the recording over, erase before recording. To erase one track at a time: Use the track erase function. To erase all the tracks at once: Use the all erase function.

- Disc types
  Blank discs: Discs on which nothing is recorded
  Discs you have just bought
  Discs that have been erased (using the all erase function)

  No-track discs: Discs on which nothing is recorded but which contain a disc name
  Blank discs which have been given a disc name
  Discs with disc names on which all the tracks have been erased individually
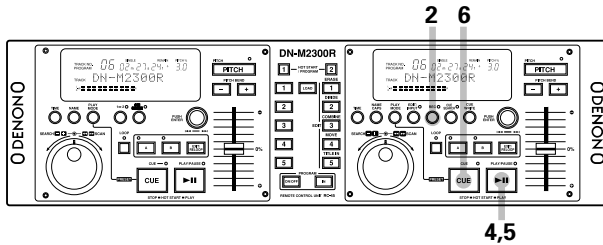
13

4   3,7 9

5   1   6,8

(7) Starting to Record (MD 2 Only)

1	**Load the cartridge.**
2	**Set the presettings according to the purpose.** **(Refer to Page 34)** 　5) Rec Lv. OFF 　　Recording starts, regardless of the input level.
3	**Set the recording pause mode.** Press the REC button. Flashing Lit Lit TRACK NO.　　SINGLE ELAPSED　　NEXT NO. For a disc on which 3 tracks are already recorded. The disc's total number of tracks and playing time are displayed.
4	**Set the input signal.** Press the EDIT/INPUT button and switch between analog and digital, according to the input signal. **(ANALOG → DIGITAL 1 → DIGITAL 2 → MD 1)** Digital input mode　　**DIGITAL IN** 　　　　　　　　　Lit or flashing Analog input mode　　DIGITAL IN **NOTE:** **If the DIGITAL IN indicator is flashing, the digital signal is unlocked. If this is the case, recording is not possible.** **If the MD1 pitch is operated when recording with MD1 selected as the input, noise will be generated and recording will stop. Turn the MD1 pitch off when recording with MD1 selected as the input.**
5	**Adjust the recording level.** When recording analog inputs, use the Rec LEVEL controls to adjust the recording level. Adjust so that the level meter's "OVER" indicator does not light even when the maximum level is input.

6	**Start recording.** Press the PLAY/PAUSE button. Lit　　Lit Lit Recording starts and the TOC indicator lights. • The disc and track name can be input during recording. Refer to "(8) Inputting Names" (P30) steps 5 to 9. 　Note that name input is automatically stopped when the track is incremented.
7	**To change the track number during recording.** Press the REC button. The track number is incremented and recording continues.
8	**To pause recording:** Press the PLAY/PAUSE button. Flashing　　Lit Lit Recording stops and the recording pause mode is set. To resume recording, press the PLAY/PAUSE button again. The track number is incremented and recording resumes.

(8) Stopping Recording

9	**Stopping recording.** EJECT LOCK Turns off after UTOC is written CUE — Lit once in cue Recording stops, the UTOC is written and the standby mode is set. The TOC indicator flashes while the UTOC is being written.

2 6

4,5

(9) Starting Recording Automatically by Detecting the Input Level (MD 2 Only)

1	**Set the presettings according to the purpose. (Refer to Page 34)** 5) RecStart (–**) dB Recording starts when a signal with a level at or above the set level is input.
2	**Set the recording pause mode.** Press the REC button. Off Lit Lit TRACK NO. 04 SINGLE ELAPSED 00 m 00 s 00 f NEXT NO. Stereo Rec For a disc on which 3 tracks are already recorded. The disc's total number of tracks and playing time are displayed.
3	**Set the input signal and input level.** Set the input signal and input level, referring to steps 4 and 5 under "Starting to Record" on Page 14.
4	**Start recording.** Press the PLAY/PAUSE button. Flashing Lit Lit Recording starts when an input signal with a level at or above the set level is detected.

4 (continued)	When the PLAY/PAUSE button is pressed in the input signal detection mode, recording starts immediately. During recording Lit Lit
5	**To pause recording:** Press the PLAY/PAUSE button. Off Lit Lit Recording stops and the recording pause mode is set. To resume recording, press the PLAY/PAUSE button again. The track number is incremented and recording resumes.

(10) Stopping Recording

6	**Stopping recording.** EJECT LOCK Turns off after UTOC is written Lit once in cue Recording stops, the UTOC is written and the standby mode is set. The TOC indicator flashes while the UTOC is being written.

NOTE:
The auto track increment function and Auto Level Rec strart function may not work when recording analog signals containing much noise. In this case lower the detection level to for example –54 dB.

15

(11) Incrementing Track Numbers (MD 2 Only)

During recording, track numbers can be incremented either manually or automatically.
• Track numbers can be incremented manually in the following four ways:
  1) Press the REC button (●) during recording. This increments the track number.
  2) Press the PLAY/PAUSE button (►II) during recording to stop recording for that track number and set the recording pause mode. When the PLAY/PAUSE button (►II) is pressed again, recording starts with a new track number.
  3) After recording, use the divide function.

• Track numbers can be incremented automatically in the following three ways, according to the type of input signal:

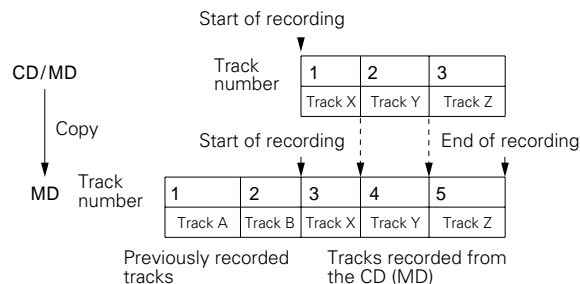| Input type		Method
Analog/digital input		Detection of soundless section 1)
Digital input	CDs and MDs	Detection of soundless section 1)
		Using the CD's or MD's subcodes 2)
	DATs	Detection of soundless section 1)
		Using the DAT's start IDs 3)

1) Detection of soundless section
  ① Make the following two presettings:
    • Set "Auto Inc OFF" (3) to "Auto Inc Det."
    • Set the soundless detection level setting to "Inc. Det.-(48) dB" (4).
  ② Start playback and recording in such a way that the beginning of the sound is not missed. When a soundless section (or a section with level lower than the preset soundless detection level setting) of at least 2 continuous seconds is detected, the disc's track number is automatically incremented.

2 seconds or more

Input signal

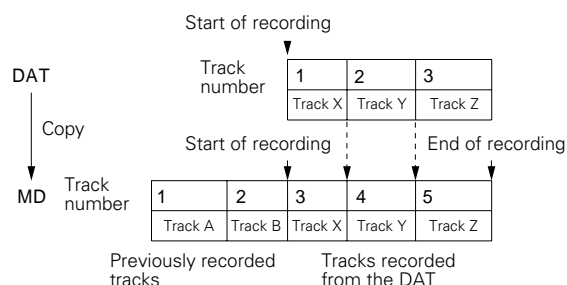Soundless section   Track number is incremented
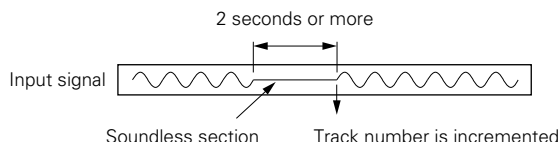
NOTE: The auto track increment function may not work when recording analog signals containing much noise. In this case lower the detection level to for example –54 dB.

  2) Using the CD's or MD's subcodes (digital input)
    ① Make the following presetting:
      • Set "Auto Inc OFF" (3) to "Auto Inc Dig."
    ② Start playback on the CD (MD) player and recording on the recorder in such a way that the beginning of the sound is not missed. The disc's track number is automatically incremented when the CD's (MD's) track number changes. Changes in the CD's (MD's) track number will not be detected for approximately 4 seconds after the track number is incremented.
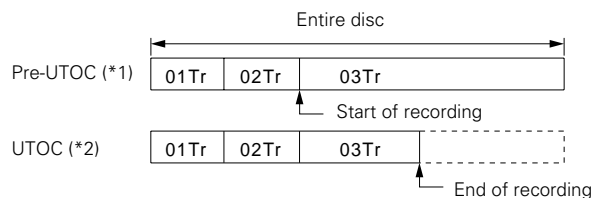

Start of recording

CD/MD   Track number | 1 | 2 | 3 |
                          | Track X | Track Y | Track Z |

Copy

Start of recording   End of recording

MD   Track number | 1 | 2 | 3 | 4 | 5 |
                       | Track A | Track B | Track X | Track Y | Track Z |

Previously recorded tracks   Tracks recorded from the CD (MD)

3) Using the DAT's start IDs (digital input)
  ① Record the start ID on the recorded DAT.
  ② Make the following presetting:
    • Set "Auto Inc OFF" (3) to "Auto Inc Dig."
  ③ Start playback on the DAT player and recording on the recorder in such a way that the beginning of the sound is not missed. The disc's track number is automatically incremented when the DAT's start ID is detected. The start ID will not be detected for 15 seconds after the track number is incremented.

Start of recording

DAT   Track number | 1 | 2 | 3 |
                        | Track X | Track Y | Track Z |

Copy

Start of recording   End of recording

MD   Track number | 1 | 2 | 3 | 4 | 5 |
                       | Track A | Track B | Track X | Track Y | Track Z |

Previously recorded tracks   Tracks recorded from the DAT

(12) Pre-UTOC Function (MD 2 Only)

• Presetting must be set.
This function protects the recording should the power supply be cut off. The UTOC is written directly after recording starts.
(The pre-UTOC is written.)
Normally the UTOC is written after recording is completed, so if the power supply should be cut off during the recording or directly after the recording is finished, the recording will not be registered on the disc. To prevent this, the pre-UTOC (*1) is registered on the disc directly after recording starts. Once recording is completed normally, the actual UTOC (*2) is written. If the power should be cut before the actual UTOC is written, the disc can be played according to the pre-UTOC. This way you never accidentally lose recordings that cannot be made over again.

Entire disc

Pre-UTOC (*1) | 01Tr | 02Tr | 03Tr |

Start of recording

UTOC (*2) | 01Tr | 02Tr | 03Tr |

End of recording

If some problem occurs and recording is interrupted, the same recording and UTOC can be written using the following editing operation:
Use the divide function at the point where recording was interrupted in track 03 on the above diagram to divide the track, then use the erase function to erase track 04.

NOTE:
The auto track increment function using the DAT's start ID or the CD's sub codes will not work if the digital input is in professional format (AES/EBU). Input digital signals of the consumer format (SPDIF).
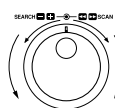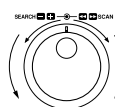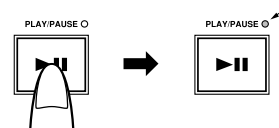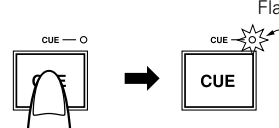
4 HANDY OPERATIONS

1-1,1-2   3   2   1-1,1-2   3   2

2   1-1   1-2   2   1-1   1-2
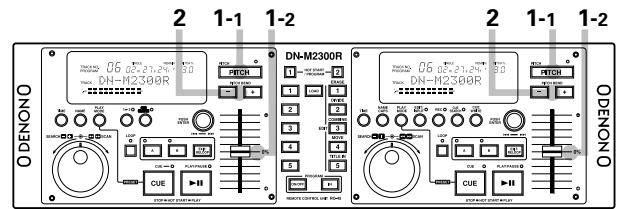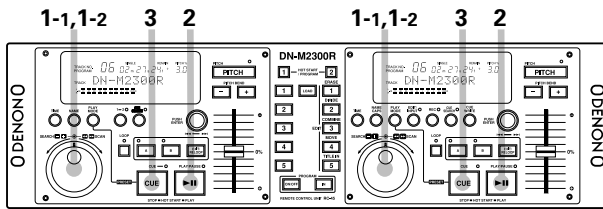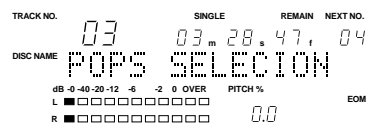
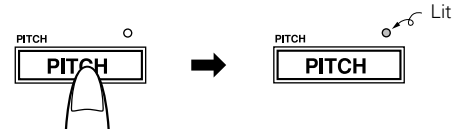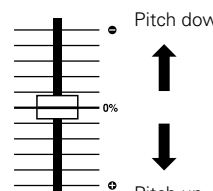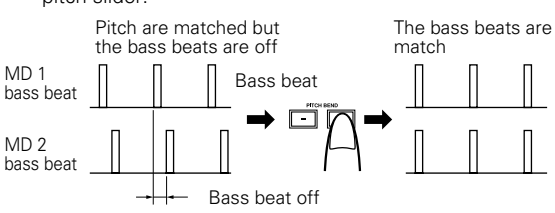## (1) Starting Playback from the Middle of a Track (Manual Search) (MD 1, MD 2)

- When a track is selected and PLAY/PAUSE button is pressed, playback starts from the beginning of that track. To start from a different position in the track, use the procedure described below to find the desired position.

1-1	**Find the play start position.** Turn the SEARCH dial. When the SEARCH dial (inner side) is turned, the frame move mode is set. The playback position moves one frame for each click. Backward Forward When the dial is turned clockwise, the playback position moves as follows: $03_m 46_s 52_f \Rightarrow 53_f \Rightarrow 54_f$ Listen to the sound and find the desired play start position.
1-2	Turn the SCAN dial to change the playback position quickly. The fast forward/reverse mode is set when the SCAN dial (outer side) is turned. The speed changes according to the angle at which the dial is turned. Backward Forward • When operated during playback, playback resumes after the operation.
2	**To check the play start position.** Press the PLAY/PAUSE button. PLAY/PAUSE ○ PLAY/PAUSE ○ Lit ►❙❙ ►❙❙ Playback starts. Monitor the play signal to check the play start position.
3	**Cue the play start position.** Press the CUE button. Flashing Lit CUE — ○ CUE ⇨ CUE — ○ CUE CUE CUE TRACK NO. SINGLE REMAIN NEXT NO. 03 $03_m 28_s 47_f$ 04 DISC NAME POPS SELECION dB -0 -40 -20 -12 -6 -2 0 OVER PITCH % L ■□□□□□□□□□□ EOM R ■□□□□□□□□□□ 0.0 The pickup returns to the play start position and the cue mode is set.

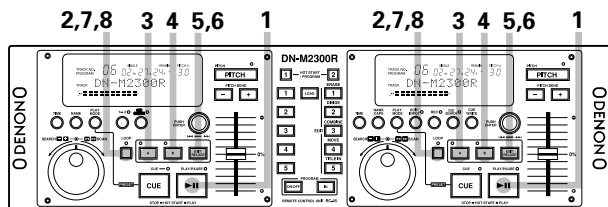## (2) Playing at a Different Speed (Pitch) (MD 1, MD 2)

There are two ways to change the playing speed.
- Adjust the Pitch using the pitch slider (±8 %).
- Press a PITCH BEND button to temporarily change the Pitch. Use this after adjusting the Pitch with the pitch slider.

1-1	**Pitch slider.** **Set the variable speed mode.** Press the PITCH button. PITCH ○ PITCH ⟋ Lit PITCH ➡ PITCH
1-2	The Pitch decreases when the pitch slider is moved upwards, increases when the pitch slider is moved downwards. ⊖ Pitch down 0% ⊕ Pitch up
2	**Pitch bending.** Press the PITCH BEND + (or PITCH BEND –) button. • The Pitch increases or decreases temporarily while the PITCH BEND + or PITCH BEND – button is pressed. • The extent to whitch the PITCH BEND button changes the Pitch is proportionate to the amount of time the button is pressed. The longer the button is held down, the greater the percentage of change. • The Pitch changes within a range of ±9.9 %. • The diagram below shows how the PITCH BEND function is used. In this example, the MD 1 and MD 2 are playing and the Pitch is already matched using the pitch slider. Pitch are matched but The bass beats are the bass beats are off match MD 1 Bass beat bass beat MD 2 bass beat Bass beat off

NOTE:
When the play speed (PITCH) is set, the display shows the set pitch, but the disc is played at the standard speed until the PITCH button is pressed (and the LED is lit).
When PITCH is lit, the sound skips if the pitch slider is operated continuously.

2,7,8 3 4 5,6   1   2,7,8 3 4 5,6   1

(3) Seamless loop (MD 1, MD 2)

Select "A-B LOOP" for the "LOOP BUTTON FUNCTION" presetting.

1	**Starting seamless loop playback.** **Start playback.** Press the PLAY/PAUSE button. PLAY/PAUSE ○ ▶❙❙ ➡ PLAY/PAUSE ○ ▶❙❙ — Lit
2	**Set the seamless loop mode.** Press the LOOP button. LOOP ○ ➡ LOOP — Flashing
3	**Set the starting point (A).** Press the A button. LOOP ○ — Lit A A — Lit
4	**Set the ending point (B).** Press the B button. B ➡ B — Lit Starting point Ending point When the ending point (B) is set, playback starts from the starting point (A) with no interuption in the sound. Starting point Ending point After this, the section between the starting point (A) and the ending point (B) is played repeatedly with no interuption in the sound. Seamless loop

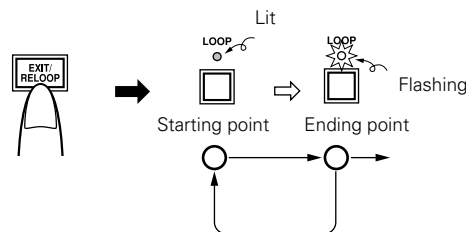**Alternative way to set the seamless loop starting point (A) and ending point (B).**
• After setting point A, set the cue mode, press button A, then use the scan or search function to fine-adjust point A. (The same can be done for point B.)

NOTE: It is not possible to use the seamless loop mode at the same time as the hot start play or programmed play mode.

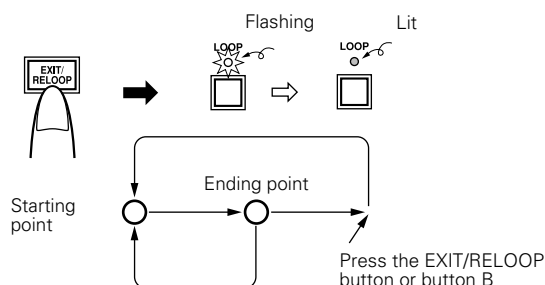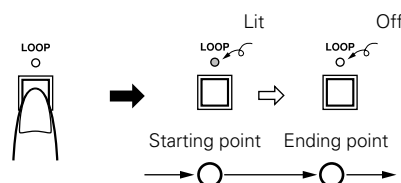|	
5	**Leaving the seamless loop mode tenporarily.** Press the EXIT/RELOOP button while playing a seamless loop. Lit EXIT/RELOOP LOOP ➡ LOOP — Flashing Starting point Ending point • When the ending point (B) is reached, playback continues without returning to the starting point (A).
6	**Replaying a seamless loop.** Press the EXIT/RELOOP button or button B during normal playback. (The position at whitch button B is pressed is set as the new loop playback ending point (B).) Flashing Lit EXIT/RELOOP ➡ LOOP ➡ LOOP Starting point Ending point Press the EXIT/RELOOP button or button B • Playback returns to the starting point (A) and seamless loop playback begins.
7	**Switching from seamless loop playback to normal disc playback (Setting the normal playback mode without canceling the starting and ending points).** Press the LOOP button within 1 second. Lit Off LOOP ○ ➡ LOOP ➡ LOOP Starting point Ending point • The normal playback mode is set. (Only the loop mode is canceled. Point A and B are not cleared) **NOTE:** **The starting point (A) and ending point (B) settings are canceled when the cartridge is removed from the recorder.**
8	**Canceling the seamless loop setting.** Press the LOOP button for over 1 second. Lit Lit Lit Off Off Off LOOP ○ ➡ LOOP A B ➡ LOOP A B • When this done, the starting point (A) and ending point (B) settings are automatically canceled. **NOTE:** **After canceling the seamless loop during loop playback, it may take about 5 seconds before the seamless loop mode is set again.**
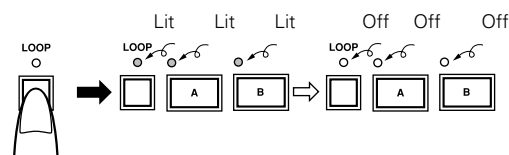
3-1   4 1,2-2 2-1   1,2-2 3-1   4

2   2-1   2-2,4   2
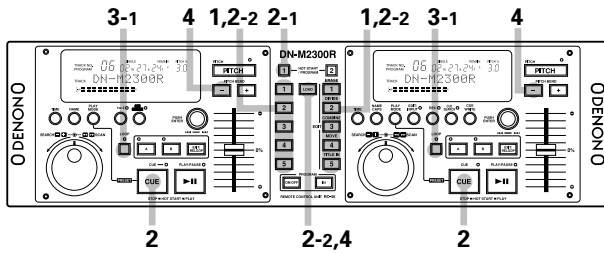
(4) Instantaneous play (Hot Start) (MD 1, MD 2)

• A maximum of 5 tracks can be preset and played instantaneously.
This function is called instantaneous play (Hot Start).

NOTES:
• The hot start data is cleared if the editing or recording operations are performed during the hot start mode.
• Seamless playback and programmed playback are not possible during the hot start mode.

NOTES:
• The instantaneous play (Hot Start) mode will end with one track.
• A press of a number button during the instantaneous play (Hot Start) mode will cause the unit to switch to the track of the pressed number and start playing.
• Cue detection is also performed at the time of instantaneous play (Hot Start) loading.
  Tracks with a setting level less than 10 seconds from the beginning of the track are loaded from the beginning of the track.
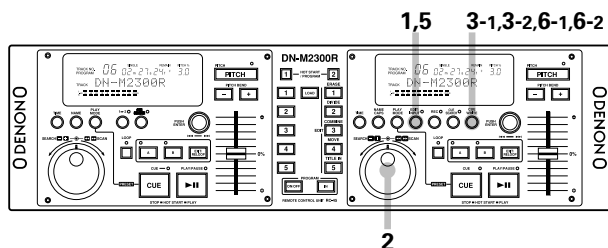 Even when the level of cue detection is changed after loading, the pause position will not change until the initial data is cleared.

Hot Start Load

1	**Data loading.** **Set the cartridge and cue or pause at the track for hot start playback.**
2-1	**5 TRACK LOAD.** Press the MD 1 or MD 2 button while pressing the LOAD button. • The data for five tracks starting from the track at which the cue or pause mode is set is loaded into the hot start RAM. **LOAD 1 ➡ [1]Loading..** (Example: Track 4 is set to pause) Disc `4Tr 5Tr 6Tr 7Tr 8Tr 9Tr` Instantaneous play (Hot Start) `No.1 No.2 No.3 No.4 No.5` • When the data loading is completed, the CUE LED will light and the unit will be set to instantaneous play (Hot Start) standby. **NOTE:** When the stop operation is set during data loading and the data loading number (from 1 to 5) is completed, data loading of subsequent tracks is stopped.
2-2	**1 TRACK LOAD.** While depressing the LOAD button, press the number button (from 1 to 5) for which data is to be entered. During data loading the CUE LED will flashes. **LOAD 3 ➡ [3]Loading..** • When data loading is completed, the CUE LED lights steadily.
2-3	**PROGRAM TRACK LOAD.** • Hot start data can also be loaded in the programmed play mode. The data is loaded in the programmed order. The programmed play mode is canceled after the data is loaded.

Hot Start

|	
1	**Starting the play operation.** During instantaneous play (Hot Start) standby, press the number button (from 1 to 5) that is to be played to start the instantaneous play (Hot Start) operation. **2 ➡ 2]POPS** The number of the button for the track at which playback started is shown on the display. • Press the PLAY/PAUSE button while the number of the number button is shown on the display. • The track number flashes when an EOM is detected during playback (when the EOM is turned on with the presetting). • When play finishes, the unit returns to instataneous play (Hot Start) standby.
2	**Stopping the play operation.** A press the CUE button during the play operation causes the play to stop and returns the unit to instantaneuos play (Hot Start) standby. **CUE — O CUE — ⊙ Off** **CUE CUE**
3-1	**Repeat play.** When the LOOP button is pressed, the repeat mode is set. Press the number button of the track to be played (from 1 to 5) to repeatedly play that track. • Press the LOOP button while a track is being played to repeatedly play that track. • Press the LOOP another time to cancel the repeat play mode.
4	**Hot start OFF.** Press — while pressing **LOAD** to cancel the hot start play mode.

1,5   3-1,3-2,6-1,6-2

2

(5) Setting Cue Points (MD 2 Only)

With this function, cue points can be set at any positions in tracks then searched for during playback. Up to five cue points can be set per track.

1	**In the cue, pause, manual search or play mode.** **Set the EDIT mode.** Press the EDIT/INPUT button. EDIT/INPUT ⭕ ➡️ EDIT ↘ Lit EJECT LOCK ↘ Lit
2	**Find the position at which you want to set the cue point.** Use the SEARCH or SCAN dials to find the position at which you want to set the cue point.
3-1	**Set the cue point.** Press the CUE WRITE button. CUE WRITE ➡️ Cue Write OK?
3-2	Press the CUE WRITE button again while **Cue Write OK?** is displayed. CUE WRITE ➡️ Complete! ⇩ TOC CUE ↘ Lit ↘ Flashing
4	**To continue setting other cue points.** Repeat steps 2, 3-1 and 3-2.
5	**Cancel the edit mode.** Press the EDIT/INPUT button. EDIT/INPUT ⭕ ➡️ EDIT ⇨ EDIT ↘ Lit ↘ Off UTOC writing begins when the edit mode is canceled.

6-1	**To set cue points during recording.** Press the CUE WRITE button. CUE WRITE ➡️ Cue Write OK? EDIT
6-2	Press the CUE WRITE button again while **Cue Write OK?** is displayed. CUE WRITE ➡️ Complete! ⇩ EDIT ↘ Off **NOTE:** The UTOC is written once recording is completed.

• When A and B points are recorded on the disc as cue points, the same loop can be played back later. (MD 1 and MD 2)
To record them, set the standby mode at the A and B points and store them as cue points in the edit mode. (Refer to "(5) Setting Cue Points") (MD 2 Only)
To call out the A-B section, search for the cue points in the cue search mode, then press the A or B button. (6) Direct Search for Cue Points. (MD 1 and MD 2)

2,4   3-2   2,4   3-2

3-1   3-1
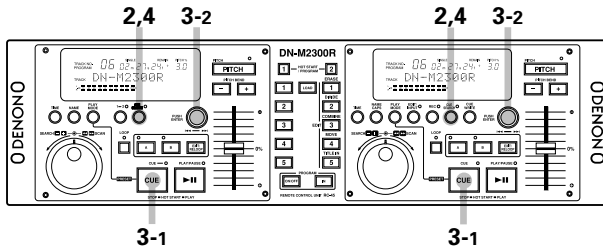
(6) Direct Search for Cue Points (MD 1, MD 2)

When cue points are stored on a track, they can be used for direct search.

1	**Load the cartridge.**
2	**Set the cue direct search mode.** Press the CUE SEARCH button. Lit **NOTE:** The cue direct search mode cannot be set if no cue points are stored on the track.
3-1	**Search for the cue point.** Press the CUE button. Flashing Lit 〈Cue1〉 **CUE** Lit Flashing The Cue1 point is searched for and the cue mode is set at that position. Press the CUE button again to search as follows: 〈Cue2〉⇨〈Cue3〉□·□⇨〈Cue5〉⇨〈Cue1〉
3-2	Cue points can also be searched for by turning the select knob (I◀◀ – ▶▶I). When turned clockwise: 〈Cue1〉⇨〈Cue2〉□·□⇨〈Cue5〉⇨〈Cue1〉 When turned counterclockwise: 〈Cue5〉⇨〈Cue4〉□·□⇨〈Cue1〉⇨〈Cue5〉
4	**Cancel the cue direct search mode.** Off The set returns to the normal operating mode.

**3,5   6**

1   1   4
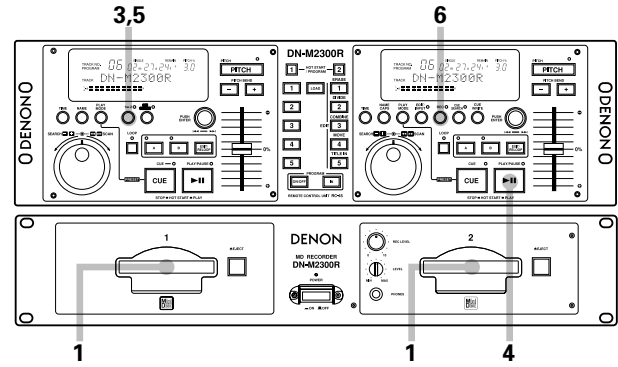
(7) 1 → 2 SYNCHRO REC Function (MD 1, MD 2)

* This is a function for easily recording tracks from MD 1 onto MD 2.
Both the disc name and track names are copied. If the disc onto which you are recording already has a disc name, however, the disc name is not copied.

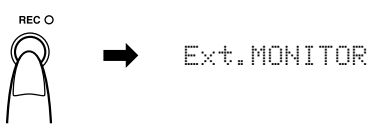| 1	**Load the cartridge.** Load the disc from which you want to copy into MD 1. Load the disc onto which you want to copy into MD 2.
2	Select the track you want to record on MD 1 and set the standby mode there. • The disc is played as set by the play mode setting. • The programmed play mode comes in handy when you only want to record certain tracks.
3	**1 → 2 PLAY & RECORD STAND BY.** Press the 1 → 2 button. **MD 1:** Unlike in normal playback, in this mode the PLAY/PAUSE, CUE, eject and other buttons are locked. **MD 2:** MD2 is set to the same conditions as during normal recording. (This also applies to the AUTO LEVEL REC START function.) Flashing MD1 -> MD2 SYNCHRO REC!
4	**1 → 2 PLAY & RECORD START.** Playback and Recording starts when the PLAY/PAUSE button on MD 2 is pressed. **MD 1:** Playback starts. **MD 2:** Recording starts.
5	**1 → 2 PLAY & RECORD STOP.** When the "1 → 2" button is pressed, MD 1 is set to the pause mode, the UTOC is written on MD 2 and the standby mode is set. **MD 1** • If playback ends, recording also stops. • If the disc onto which you are recording is full, MD 1 is set to the pause mode, the UTOC is written on MD 2 and the standby mode is set.

CAUTION:
Note that if the playing time of the disc in MD 1 is the same as the recordable time of the disc in MD 2 and there is a defect, etc., on the disc in MD 2, it will not be possible to record all the data from the disc in MD 1. Use a disc with a longer recordable time than the playing time of the disc you want to record.

21

2   1,3
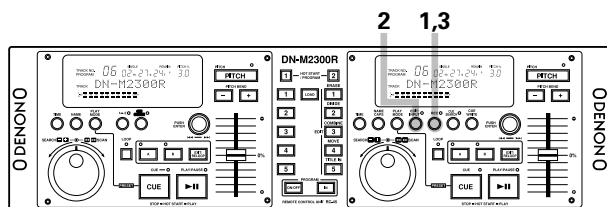
(8) External monitor function (MD 2 Only)

With this function it is possible to monitor the sound from the external input used as the recording source even when not in the recording mode.

1	**To monitor the external input.** Press the REC button and hold it in for at least 3 seconds. • The servo is stopped during monitoring. • External monitoring may not be possible while the UTOC is being read, etc. REC ○ ➡ Ext.MONITOR
2	**Select the external input signal.** **Set the input signal.** Press the EDIT/INPUT button and switch between analog and digital, according to the input signal. EDIT/INPUT ○ ➡ **(ANALOG → DIGITAL 1 → DIGITAL 2 → MD 1)** Digital input mode **DIGITAL IN** ⇩ Lit or flashing Analog input mode DIGITAL IN **NOTE:** **If the DIGITAL IN indicator is flashing, the digital signal is unlocked. If this is the case, recording is not possible.** **Noise will be generated if the MD1 pitch is operated when monitoring with MD1 selected as the input. Turn the MD1 pitch off when MD1 is selected as the input.**
3	**Canceling external input monitoring.** Press the REC button. The settings before monitoring was started are restored. • External monitoring can also be canceled by pressing the PLAY/PAUSE, CUE or other buttons. • If a disc is loaded during monitoring, the monitoring mode is canceled.

(9) OTHER FUNCTION (MD 1, MD 2)

• **1/ALL REPEAT (PRESET 15)**

The repeat play mode can be turned on and off with the LOOP button.

> **SINGLE PLAY MODE:**
>> 1 track Repeat Mode

> **CONTINOUS PLAY MODE:**
>> ALL track Repeat Mode

• **NEXT RESERVE TRACK (PRESET 14)**

"RESERVE ON"

During playback, the next track to be played can be selected using the SELECT knob.

> **SINGLE PLAY MODE:**
>> The reserved track is searched for and the standby mode is set.
>> When a track is reserved during repeat playback, the reserved track is searched for and the one-track repeat play mode is once again set.

> **CONTINOUS PLAY MODE:**
>> The reserved track is searched for and playback resumes.

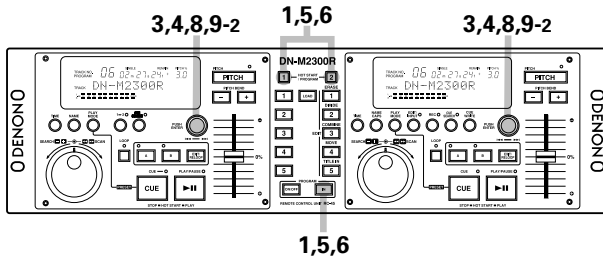The reserved track can be canceled with the PLAY MODE button.

• **POWER ON PLAY (PRESET 16)**

Repeat playback of the entire disc begins automatically when the power is turned on.

In addition, if a program is preset, all repeat playback of the program is performed.

5 PROGRAMMED PLAYBACK (MD 1, MD 2)

- The tracks can be programmed to play in a certain order.
- Up to 25 tracks can be programmed.
- Programmed playback is performed according to the play mode (single or continuous) and preset finish mode (stop, next or recue) settings.

3,4,8,9-2   **1,5,6**   **3,4,8,9-2**

1,5,6

(1) Inputting Programs

1	**Set the program input mode.** Press the MD 1 or MD 2 button while pressing the PROGRAM IN button. Flashing — SINGLE REMAIN TRACK NO. PROGRAM — — — — m — — s — — f 01 Select Tr? The step number flashes
2	**Select the track to be programmed.** Turn the select knob (I◄◄ – ►►I). PUSH ENTER When track 3 is selected: ⇩ TRACK NO. SINGLE REMAIN 03 — — m — — s — — f 01 Selected track number Flashing
3	**Enter the selected track in the program.** Press the select knob. PUSH ENTER Flashing SINGLE REMAIN TRACK NO. PROGRAM — — 03 m 42 s 57 f 02 Select Tr? Lit The number of the next step in the program is displayed.
4	**Enter the next track in the program.** Press the select knob. PUSH ENTER TRACK NO. SINGLE REMAIN — — 03 m 42 s 57 f 02 Select Tr? Flashing The time display shows the total playing time for the program. Repeat steps **2**, **3** and **4** to program the tracks in the desired order.
5	**Exit the program input mode.** Press the MD 1 or MD 2 button while pressing the PROGRAM IN button. IN 1 → TRACK NO. PROGRAM Off The set returns to the normal mode.

(2) Changing Programs

6	**Set the program edit mode.** Press the MD 1 or MD 2 button while pressing the PROGRAM IN button. IN 1 Flashing SINGLE REMAIN TRACK NO. PROGRAM 03 30 m 28 s 47 f 01 TRACK NAME Light Of Love The step number lights
7	**Select the step number to be edited.** Turn the select knob (I◄◄ – ►►I). PUSH ENTER To edit the third step in the program: ⇩ SINGLE REMAIN 05 30 m 28 s 47 f 03 TRACK NAME Mirage Lit
8	**Set the program change mode.** Press the select knob. PUSH ENTER TRACK NO. PROGRAM 05 SINGLE REMAIN 30 m 28 s 47 f 03 TRACK NAME Mirage The step number to be edited flashes
9-1	**To change the track.** Select the track to be changed. Turn the select knob (I◄◄ – ►►I). PUSH ENTER When track 7 is selected: ⇩ TRACK NO. PROGRAM 07 SINGLE REMAIN 30 m 28 s 47 f 03 Time after Ti Selected track number Flashing
9-2	**Enter the selected track.** Press the select knob. PUSH ENTER TRACK NO. PROGRAM 10 SINGLE REMAIN 30 m 28 s 47 f 04 TRACK NAME A Song On The The number of the next step in the program lights To continue editing the program, repeat steps **7**, **8**, **9-1** and **9-2**.

To exit the program editing mode, press the MD 1 or MD 2 button while pressing the PROGRAM IN button. The set returns to the normal mode.
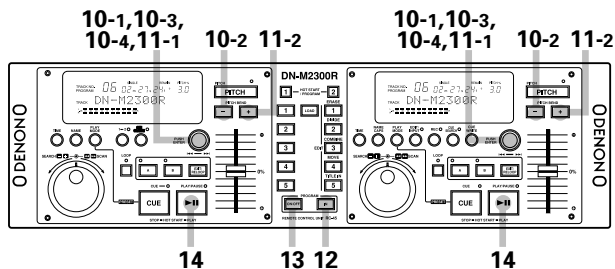
10-1	**Inserting a track in the program.** **Select the position at which to insert a track.** Turn the select knob (I◀◀ – ▶▶I). To insert a track at the third step in the program: ⇩ *05* *30m28s47f 03* *Mirage* Lit
10-2	**Set the program insert mode.** Press the "+" button. *05* *30m28s47f 03* *Select Tr?* The step number flashes
10-3	**Select the track to be inserted.** Turn the select knob (I◀◀ – ▶▶I). When track 8 is selected: ⇩ *08* *30m28s47f 03* *Touch The New* Number of selected track Flashing
10-4	**Enter the selected track.** Press the select button. TRACK NO. *05* *34m26s17f 04* TRACK NAME *Mirage* The number of the next step in the program lights To insert more tracks in the program, repeat steps **10-1**, **10-2**, **10-3** and **10-4**.
11-1	**Deleting tracks from the program.** **Select the step to be deleted.** Turn the select knob (I◀◀ – ▶▶I). To delete the track at the third step ⇩ *05* *30m28s47f 03* *Mirage* Lit

|	
11-2	**Delete that track from the program.** Press the "−" button. Number of track at the next step in the program *08* *27m36s15f 03* *Touch The New* The next step number lights To continue deleting tracks from the program, repeat steps **11-1** and **11-2**.
12	**Exit the program editing mode.** Press the (MD 1 or MD 2 button while pressing) PROGRAM IN button. IN → TRACK NO. PROGRAM Off

(3) Playing Programs

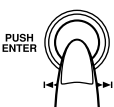|	
13	**Set the program play mode.** Press the MD 1 or MD 2 button while pressing the PROGRAM ON/OFF button. ON/OFF 1 Flashing / Lit CUE ⇨ CUE Lit TRACK NO. PROGRAM *03* *30m28s47f 02* *Light Of Love* Number of next step The first track in the program is cued and the cue mode is set.
14	**Start programmed playback.** Press the PLAY/PAUSE button. Lit / Off PLAY/PAUSE ▶II → PLAY/PAUSE ▶II / CUE Programmed playback starts.

• When the cartridge is ejected, the set program is cleared.

NOTE:
Programs cannot be input when no disc is loaded.

2-4   2-2,2-3   2-4   2-2,2-3

4   4
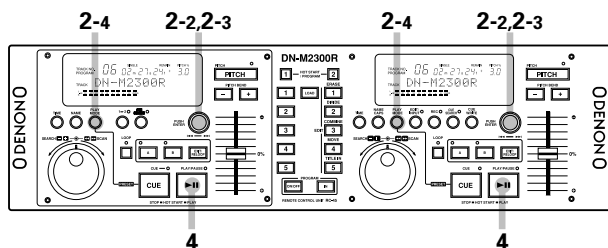
(4) Presetting Programs

- Programs can be stored in the preset memory. When a cartridge for which a program is preset is loaded, the programmed playback mode is set automatically.
- 3 cartridge can be programmed.

1	**Input the program.** Following the instructions under "(1) Inputting the Program" to input the program. (See Page 23)
2-1	**Set the preset mode.** Follow the instructions under "(2) Presetting Procedure" to set the preset mode. (See Page 33)
2-2	**Select the preset item.** Turn the select knob to select "Program 1", "Program 2", "Program 3". Character display PUSH ENTER ⏮ — ⏭ Program1 Program2 Program3
2-3	**Change the preset setting.** Press the select knob. PUSH ENTER The character display changes as follows: Before change After change Program1 OFF ⇨ Program1 ON
2-4	**Cancel the preset mode.** Press the PLAY MODE button. PLAY MODE The preset setting mode is canceled and the set returns to the normal mode.

|	
3	**To play a preset disc.** **Load a disc for which a program is preset.** CUE — ⊙ Lit CUE TRACK NO. PROGRAM Lit 03 30m 28s 47f 02 SINGLE REMAIN NEXT NO. TRACK NAME Light Of Love The pickup searches for the first programmed track and the cue mode is set.
4	**Start programmed playback.** Press the PLAY/PAUSE button. Lit Off PLAY/PAUSE ⊙ PLAY/PAUSE ⊙ CUE — ⊙ ▶❚❚ ▶❚❚ ⇨ CUE Programed playback starts.

25

6 EDITING FUNCTIONS (MD 2 Only)

(1) Editing Functions

There are six basic editing functions possible on MDs, as described below. Here we describe these functions briefly.

• **Track erase function (for erasing specific tracks)**
An entire track, from beginning to end, can be erased instantaneously simply by operating buttons. Unlike tapes, there is no need to record over, erase, or cut the tape.
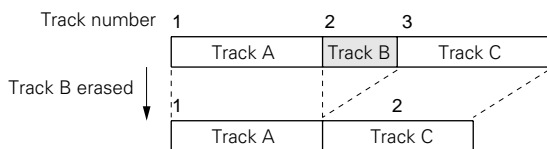
• **All erase function (for erasing all the tracks on the disc)**
All the tracks on the disc can be erased instantaneously simply by operating buttons. Unlike tapes, there is no need to use an eraser or record over.

• **Divide function (for dividing a track in two)**
One track can be divided into two tracks. This makes it possible to easily set search points simply by operating buttons after recording.
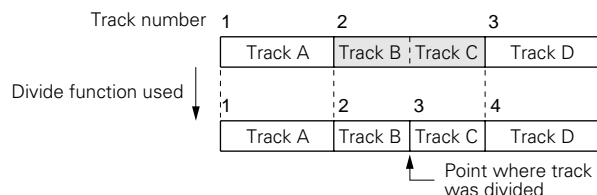
• **Combine function (for combining two tracks)**
Short recordings or cuts created by dividing tracks can be combined into a single track. Unlike tapes, there is no need to copy over or cut the tape.
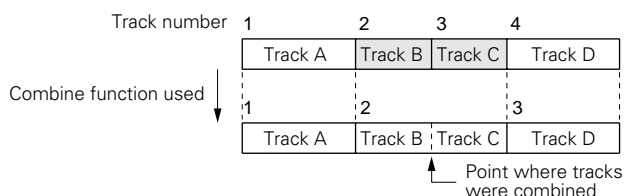
• **Move function (for moving tracks)**
The order of the tracks can be changed. Unlike tapes, there is no need to copy over or cut the tape.
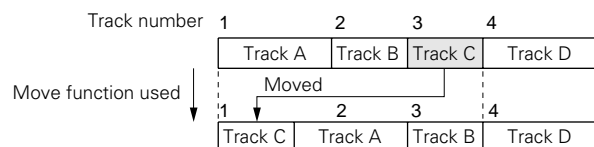
• **Title function**
Disc names or track names can be stored on recorded discs.
The disc names and track names can be called out on the display using the display function.

There are six basic editing functions possible on MDs, as described below. Here we describe these functions briefly.

• **Cue erase function (erasing cue signals)**
Cue signals recorded on the disc can be erased without affecting the tracks.

NOTE:
During the edit mode, the eject lock function is set and the cartridge cannot be ejected.

3,5-1,5-2   2   4

3,5-1,5-2   2   4

(2) Erasing Tracks
‹Track erase function›

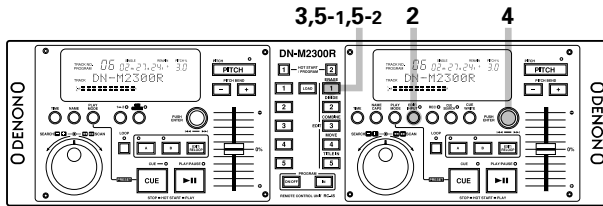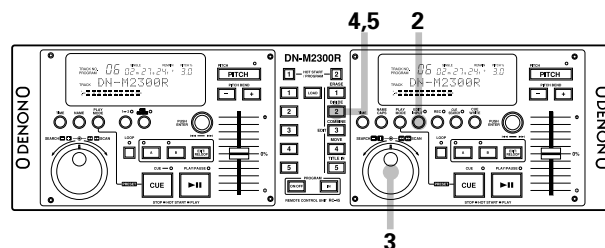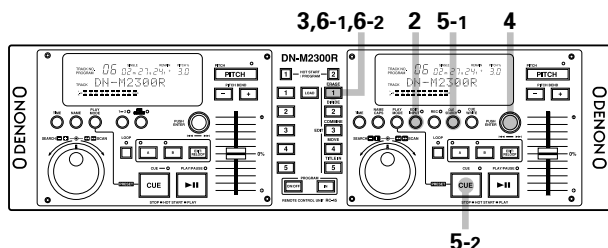| 1	First check the track you to erase by monitoring in, then set the cue mode at that track.
2	**Set the edit mode.** Press the EDIT/INPUT button. EDIT/ INPUT ○ TRACK NO. SINGLE REMAIN NEXT NO. *03* *03* m *05.06*, *04* Edit Mode EDIT EJECT LOCK Lit Lit
3	**Set the erase mode.** Press the ERASE button. ERASE 1 TRACK NO. SINGLE REMAIN NEXT NO. *03* *03* m *05* s *06*, *04* Track Erase? EDIT EJECT LOCK
4	**Select the track erase mode.** Turn the select knob and select "Track Erase?". PUSH ENTER ⏮ — ⏭ Cue Erase? ⇩ **Track Erase?** ⇩ All Erase? **NOTE:** Cue Erase? is not displayed if no cue signals is set.
5-1	**Erase the selected track.** Press the ERASE button. ERASE 1 TRACK NO. SINGLE REMAIN NEXT NO. *03* *03* m *05* s *06*, *04* Track OK? EDIT EJECT LOCK **NOTE:** The track to be erased can be selected (or changed) by turning the select knob.
5-2	Press the ERASE button again. ERASE 1 Complete! TOC EDIT ⇩ Lit Edit Mode TOC EDIT The track is erased and the mode returns to the edit mode.
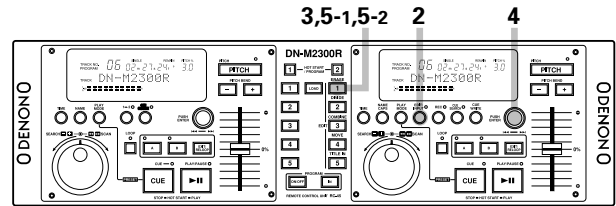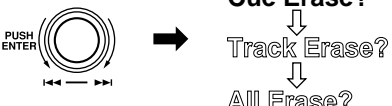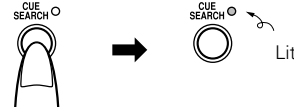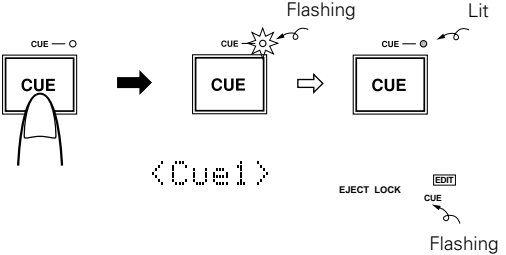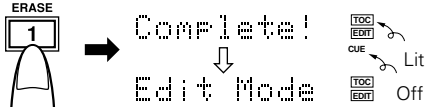
(3) Erasing All the Tracks on the Disc
‹All erase function›

1	Erasing All the Tracks on the Disc.
2	**Set the edit mode.** Press the EDIT/INPUT button. EDIT/ INPUT ○ TRACK NO. SINGLE REMAIN NEXT NO. *01* *03* m *05.06*, *02* Edit Mode EDIT EJECT LOCK Lit Lit
3	**Set the erase mode.** Press the ERASE button. ERASE 1 TRACK NO. SINGLE REMAIN NEXT NO. *01* *03* m *05.06*, *02* Track Erase? EDIT EJECT LOCK
4	**Select the all erase mode.** Turn the select knob and select "All Erase?". PUSH ENTER ⏮ — ⏭ Cue Erase? ⇩ Track Erase? ⇩ **All Erase?** **NOTE:** Cue Erase? is not displayed if no cue signals is set.
5-1	**Erase all the tracks on the disc.** Press the ERASE button. ERASE 1 TRACK NO. SINGLE REMAIN NEXT NO. *03* *03* m *05* s *06*, *04* All Erase OK? EDIT EJECT LOCK
5-2	Press the ERASE button again. ERASE 1 Complete! TOC EDIT ⇩ Lit Edit Mode TOC EDIT All the tracks are erased and the mode returns to the edit mode.

3,6-1,6-2 2 5-1 4

5-2

4,5 2

3

(4) Erasing Cue Signals ‹Cue erase function›

1	Set the cue mode at the track containing the cue signal you want to erase.
2	**Set the edit mode.** Press the EDIT/INPUT button.
3	**Set the erase mode.** Press the ERASE button.
4	**Select the cue erase mode.** Turn the select knob and select "Cue Erase?". **Cue Erase?** ⇩ Track Erase? ⇩ All Erase?
5-1	**Set the cue mode at the position of the cue signal you want to erase.** Press the CUE SERCH button. Lit The cue direct search mode is set.
5-2	Press the CUE button. Flashing Lit ‹Cue1› Flashing **NOTE:** Press the CUE button again to search for "Cue2", "Cue3", etc., and set the cue.
6-1	**Erase the cue signal.** Press the ERASE button. TRACK NO. SINGLE REMAIN NEXT NO. 03 02m35s46r 04 Cue Erase OK? EDIT EJECT LOCK CUE
6-2	Press the ERASE button again. Complete! ⇩ Edit Mode Lit Off The cue signal is erased and the mode returns to the edit mode.

(5) Dividing Tracks into Two Parts ‹Divide function›

1	Load the cartridge.
2	**Set the edit mode.** Press the EDIT/INPUT button. TRACK NO. SINGLE REMAIN NEXT NO. 01 03m05s06r 02 Edit Mode EDIT EJECT LOCK Lit Lit
3	Use manual search, etc., to find the point at which you want to divide the track.
4	**Set the divide mode.** Press the DIVIDE button. TRACK NO. SINGLE REMAIN NEXT NO. 03 03m05s06r 04 Divide OK? EDIT EJECT LOCK The section from three seconds before the divide point to the divide point is played repeatedly. **NOTE:** To move the divide point, turn the SEARCH or SCAN dial.
5	**Divide the track.** Press the DIVIDE button. Complete! ⇩ Edit Mode Lit The track is divided and the mode returns to the edit mode.

NOTE:
The divide operation cannot be performed if cue signals are set for that track.
(Clear all the cue signals first.)

4,5   2   3

4,6   2   3,5
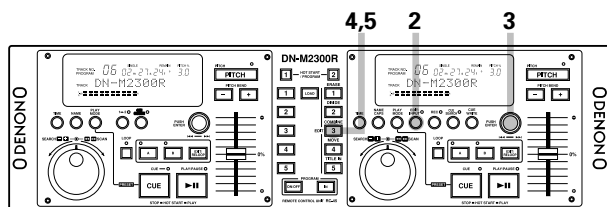
(6) Combining Two Tracks
‹Combine function›
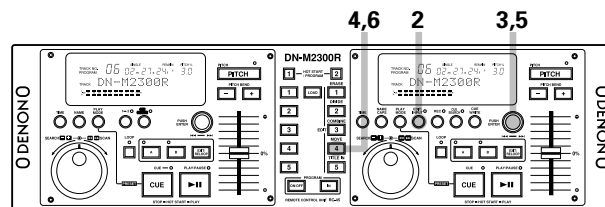
1	Load the cartridge.
2	**Set the edit mode.** Press the EDIT/INPUT button. EDIT/INPUT ○ TRACK NO. *01* SINGLE *03m 05s 06f* REMAIN NEXT NO. *02* Edit Mode [EDIT] EJECT LOCK Lit Lit
3	**Select the tracks to be combined.** Use the select knob to set the cue mode at the second of the tracks to be combined. To combine tracks 02 and 03: PUSH ENTER TRACK NO. *03* SINGLE *03m 05s 06f* REMAIN NEXT NO. *04* ⏮ ⏭ cue 02Tr | 03Tr
4	**Set the combine mode.** Press the COMBINE button. COMBINE 3 TRACK NO. *03* SINGLE *03m 05s 06f* REMAIN NEXT NO. *04* Combine OK? [EDIT] EJECT LOCK
5	**Combine the tracks.** Press the COMBINE button. COMBINE 3 Complete! [TOC EDIT] ⇩ Lit Edit Mode [TOC EDIT] The tracks are combined and the mode returns to the edit mode.

(7) Moving Tracks
‹Move function›

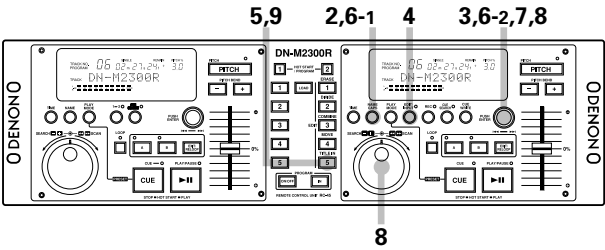| 1	Load the cartridge.
2	**Set the edit mode.** Press the EDIT/INPUT button. EDIT/INPUT ○ TRACK NO. *01* SINGLE *03m 05s 06f* REMAIN NEXT NO. *02* Edit Mode [EDIT] EJECT LOCK Lit Lit
3	Use the select knob to select the track to be moved.
4	**Set the move mode.** Press the MOVE button. MOVE 4 TRACK NO. *03* SINGLE *03m 05s 06f* REMAIN NEXT NO. *04* Move To 03Tr [EDIT] EJECT LOCK
5	**Turn the select knob to select the destination of the track.** To move track 3 to track 1: PUSH ENTER ⏮ ⏭ Move To 03Tr ⇩ Move To 01Tr
6	**Move the track.** Press the MOVE button. MOVE 4 Complete! [TOC EDIT] ⇩ Lit Edit Mode [TOC EDIT] The track is moved and the mode returns to the edit mode.

NOTES:
• If the tracks have track names, the name of the second track will be cleared.
• The following tracks cannot be combined:
  1) When cued at the first track
  2) A stereo track with a monaural track
  3) Tracks containing cue signals

5,9   2,6-1   4   3,6-2,7,8

8

(8) Inputting (Changing) Names ‹Title function›

1	Load the cartridge.
2	**Display "DISC NAME" or "TRACK NAME".** Press the NAME/CAPS button. DISC NAME ⇩ TRACK NAME Display "DISC NAME" to input a disc name, "TRACK NAME" to input a track name.
3	Use the select knob to select the track for which a name is to be input.
4	Press the EDIT/INPUT button to set the edit mode.
5	**Select the name input mode.** Press the TITLE IN button. TRACK NO. SINGLE REMAIN NEXT NO. DISC NAME Flashing Lit Lit If a name is already set, the name is displayed and the first character flashes.
6-1	**Select the type of characters to be input.** Press the NAME/CAPS button and select the type of characters. Capital letters ⇒ Small letters ⇒ Numbers ⇒ Symbols
6-2	Turn the select knob to select the character to be input. A ⇒ B ⇒ C ⇒ D ⇒ E ⇒
7	**Enter the selected character.** Press the select knob. Flashing Flashing (cursor)
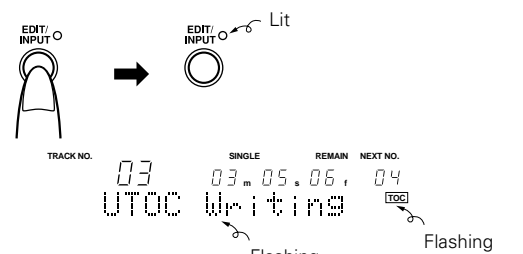
8	**Continue inputting the name.** Repeat steps **5-1**, **5-2** and **6** to input the name. Turn the SEARCH dial to move the cursor to change or correct a name. When the SEARCH dial is turned, the cursor moves one space for each click of the dial. SEARCH ◄◄ ● ►► SCAN Backwards Forwards Press the ➕ button to insert characters, the ➖ button to delete characters.
9	**Set the name.** Press the TITLE IN button. TITLE IN Complete! TOC/EDIT ⇩ Lit Edit Mode TOC/EDIT The name is set and the mode returns to the edit mode.

Input Characters
The following letters, numbers and symbols (ASCII code) can be selected using the NAME/CAPS button and the select knob:

Capital letters
SPABCDEFGHIJKLMNOPQRSTUVWXYZ

Small letters
SPabcdefghijklmnopqrstuvwxyz

Numbers
SP1234567890

Symbols
SP!"#$%&'()*+,-./:;<=>?@[\]^
_`{}

SP_space

NOTE:
Disc and track names can be up to 100 characters long, but the maximum number of characters that can be set for the disc name and all the track names is 1700.

1,2

3-1 1 2
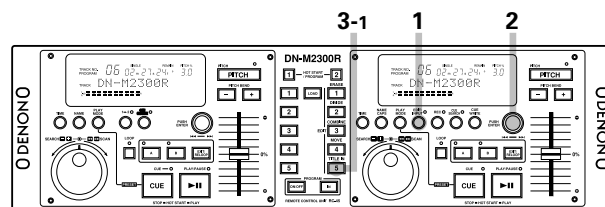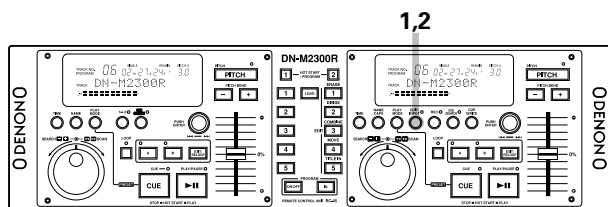
(9) Exit the Edit Mode or Undoing Editing
‹Undo functions›
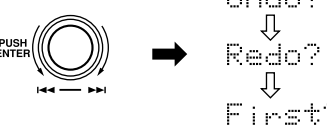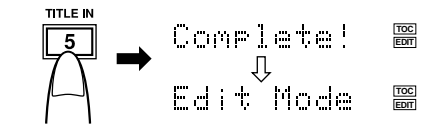
1	Press the EDIT/INPUT button. • When editing is executed, the message "UTOC Write?" asking you whether or not you want to write the UTOC is displayed. • The edit mode is canceled when editing is not being executed.
2	**Exit the Edit Mode.** **Write the UTOC EDIT.** Press the UTOC EDIT/INPUT button again while **UTOC Write?** is displayed. EDIT/INPUT ➔ EDIT/INPUT ⟋ Lit TRACK NO. SINGLE REMAIN NEXT NO. 03 03ₘ05ₛ06, 04 UTOC Writing TOC Flashing Flashing The edit mode is canceled after the UTOC is written.

2	**Select the undo mode.** Turn the select knob. PUSH ENTER ➔ Undo? ⇩ Redo? ⇩ First? UNDO: For undoing the last editing operation. REDO: For resetting the editing undone with the undo function. FIRST: For undoing all the editing operations.
3-1	**Undo the editing.** Press the TITLE IN button. TITLE IN 5 ➔ Complete! TOC EDIT ⇩ Edit Mode TOC EDIT The editing is undone and the mode returns to the edit mode.
3-2	**Cancel the undo mode.** Press the EDIT/INPUT button before press the TITLE IN button. (Return to step 1)

NOTES:
• The undo operation can be used to undo up to the two last editing operations. To undo previous editing operations, use the "First" operation to undo all the editing operations, then redo the editing.
• Once the UTOC is written or after the Names are inputed, it is not possible to change previous editings.

NOTE:
If editing is performed when a program is set, the program is discarded.

31

(10) Error Messages

Messages appear if editing could not be completely normally. The meanings of the messages are described below.

| Message	Description
Protected	Disc's tab is set to record disable position.
Disc Type Err	Pre-mastered disc (disc on which recording is not possible) is loaded.
Can't Edit 10	Point to be erased unclear (cue erase operation).
Can't Edit 11	There are already 5 cue points (cue write operation).
Can't Edit 12	There is no space for names and cue data cannot be written (cue write operation).
Can't Edit 13	There is already a cue signal at this position (cue write operation).
Can't Edit 20	Dividing is not possible because the disc already contains 255 tracks.
Can't Edit 21	Dividing is not possible because you are at the beginning of the track.
Can't Edit 22	Dividing is not possible because the track is protected.
Can't Edit 23	Dividing is not possible because cue signals are set on that track.
Can't Edit 24	After dividing, the track name could not be given to the second track. (Dividing is completed)
Can't Edit 25	Dividing is not possible due to MD limitations.
Can't Edit 30	Combining is not possible because you are at track 1.
Can't Edit 31	Combining is not possible because the track is protected.
Can't Edit 32	Combining is not possible because cue signals are set on that track.
Can't Edit 33	Combining is not possible because the first track is protected.
Can't Edit 34	Combining is not possible because the track mode is different for the first and second tracks.
Can't Edit 35	Combining is not possible because cue signals are set for the first track.
Can't Edit 36	Combining is not possible due to MD limitations.
Can't Edit 40	Moving the same track is not possible.
Can't Edit 50	No more titles can be added because the maximum number of charcters has already been reached.

7 PRESET FUNCTIONS AND OPERATIONS (MD 1, MD 2)

(1) Preset Functions

- Functions can be preset using the buttons on the front panel. These presettings are stored in a permanent memory, so they are not cleared even when the power is turned off.
- The functions shown on the preset table can be preset. Set the functions according to the usage purpose to efficiently achieve even higher quality playback.
- One of the preset functions can be used to display information on this set (microprocessor version).

(2) Presetting Procedure

- Presettings can be made when no cartridge is loaded or when in the stop, cue, pause or recording pause mode.
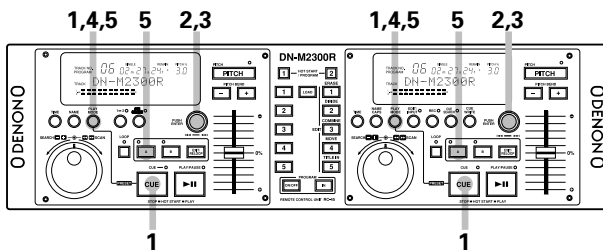
1	**Enter the preset mode.** Press the CUE button while pressing the PLAY MODE button. Character display `Preset Mode`

2	**Select the preset item.**
	Turn the select knob (I◄◄ – ►►I).
	
	Character display
	
	`Finish Next`
	`CueDet.OFF`
	`Auto Inc OFF`
	`R ****`
	
	Turn the knob clockwise to move in the direction of the arrows, counterclockwise to move in the opposite direction.
	
	NOTE:
	The first preset item displayed is the last preset item displayed the last time the presettings were made.

3	**Change the preset values.**
	Press the select knob.
	
	The character display changes as shown below.
	
	Before change → After change
	`Finish Next` ⇨ `Finish Recue`
	`CueDet.OFF` ⇨ `CueDet.-60dB`
	`Auto Inc OFF` ⇨ `Auto Inc Dig.`

4	**Exit the preset mode.** Press the PLAY MODE button. When presettings are mode, the time display set with the TIME button, the play mode set with the PLAY MODE button, the name display set with the NAME button and the input signal select with the EDIT/INPUT button at that time stored in the memory. These modes will be set when the power is next turned on. The preset mode is canceled and the set returns to the previous mode.
5	**To set the presettings back to the initial settings (the settings set upon shipment from the factory)** Turn the power on while holding in both the PLAY MODE and the A buttons. For the initial settings, refer to "(3) and below List of preset functions". The character display changes as shown below. `Initial Set` Initial Set Mode PLAY MODE: SINGLE TIME MODE: ELAPSE NAME MODE: TRACK INPUT SIGNAL: ANALOG

NOTE:
If the message shown below appears, there is a problem with the preset memory. Contact a serviceperson.

`InitialError`

(3) Detailed Description of Preset Functions

(* = Initial setting ○ = MD 2 Only)

1) "Play end mode"
   Finish Stop   : Stop mode is set after track playing is finished.
   Finish Next   : Standby mode is set at next track after track playing is finished.
   * Finish Recue   : Standby mode is set at playback start position after track playing is finished.

2) "Auto Cue"
   CueDet. OFF   : Sound is not detected when cueing.
   CueDet. (–**) dB   : Sound detection level setting for cueing. (–60/–54/*–48/–42/–36)

3)○ "Auto increment"
   * Auto Inc OFF   : No auto increment of track number.
   Auto Inc Dig.   : Track number is automatically incremented during digital recording using subcodes on CDs or MDs (Q codes) or start IDs on DATs.
   Auto Inc Det.   : Track number is automatically incremented during recording when level set in "5) "Inc Det. (–**) dB" setting is detected.

4)○ "Auto increment level"
   IncDet. (–**) dB   : Sound detection level for auto increment function. (–60/–54/*–48/–42/–36)

5)○ "Rec start level"
   * Rec Lv. OFF   : Recording starts, regardless of the input level.
   Rec Lv. (–**) dB   : If the detection level is exceeded, recording starts with no offset. (–36/–42/–48/–54/–60/–66)

6)○ "Pre UTOC" (Playback is possible up to that point even if power supply is cut off during recording or if recording stops due to some problem.)
   * Pre UTOC OFF   : Pre-UTOC function off.
   Pre UTOC ON   : Pre-UTOC function on.

7)○ "Rec Stereo/Mono"
   * Rec Stereo   : Record in stereo.
   Rec Mono   : Record left channel signal in mono.

8)○ "Copy managemaent"
   SCMS INH   : Record onto disc same code as copy prohibit code in recording source.
   * SCMS ENA   : Record copy prohibit code on disc according to SCMS.

9) "Auto stop"
   Sleep. (**) min   : Automatically turn the servo functions off if no button is operated for setted time in the pause, standby. (10/20/*30)
   Sleep OFF   : Do not automatically turn the servo functions off.

10) "Program1"
   Program1 OFF (ON)   : Store the contents of program 1 when on. (Initial setting – "OFF")

11) "Program2"
   Program2 OFF (ON)   : Store the contents of program 2 when on. (Initial setting – "OFF")

12) "Program3"
   Program3 OFF (ON)   : Store the contents of program 3 when on. (Initial setting – "OFF")

13) "E.O.M."
   E.O.M. (**) sec   : Set the EOM time. (5/*10/15/20/30/60/90)
   E.O.M. OFF   : Do not use the EOM function.

14) "Next track reserve"
   * Reserve. OFF   : If a track is selected while another track is playing, the selected track is searched for and played.
   Reserve. ON   : When a track is selected while another track is playing, that track is reserved, and when the current track ends the selected track is searched for and played.

15) "LOOP button Function"
   * A – B LOOP   : Seamless playback of A-B section.
   1/ALL REPEAT   : 1-track or all-track repeat play mode.
                           (However, when "POWER ON PLAY" is selected in the presettings, "1/ALL REPEAT" is set automatically.)

16) "Power ON STANDBY (PLAY)"
   * Power ON   : The standby mode is set at the beginning of the first track on the disc when the power is turned on.
   Power ON PLAY STBY   : Loop (repeat) playback of the entire disc begins automatically when the power is turned on.
                           When "PLAY" is selected, the 1/ALL REPEAT presetting is turned on.
                           The play mode is set to the continuous mode when the power is turned on.

17) "Preset Clr?"
   Preset Clr?   : Clear the presettings (set to the initial factory values).
   * Ini. Preset   : Presettings set to initial factory defaults.

18) "SD. xxxx yyyy"   : Display the microprocessor version. ("xxxx: system microprocessor version yyyy: servo microprocessor version")

19) "R. xxxx"   : Display the microprocessor version (RC-45).

8 HANDLING CARTRIDGES

Discs are stored inside cartridges, so they can be handled easily without worrying about dust or fingerprints. Be careful of the following in order to keep recordings in optimum condition.

(1) Cautions on Handling
- Keep cartridges away from magnets and sources of strong magnetic forces. (Only for recordable discs)
- Put cartridges in their cases when carrying them.
- Do not apply labels other than the ones included when the discs are purchased.
- Use a soft, dry cloth to wipe any dirt off the surface of the cartridge.
- Do not open the shutter.
  Forcing the shutter open could break it.
  If the shutter is opened, dirt or dust may get inside and fingerprints may get on the disc.

- Do not bend, heat or throw cartridges.
- Water droplets may form on the surface if cartridges are moved suddenly from outside or any cold place to a warm place. If this happens, wait awhile before using them.

(2) Cautions on Storing
- Always remove cartridges from the set after recording or playing them.
- Do not put cartridges in the following places:
  - Places exposed to direct sunlight.
  - Hot places.
  - Humid or dusty places.

9 MESSAGES

Messages appear on the display when operating the set.
The meanings of the messages are described below.

Message	Description
Can'tEdit **	Indicates that editing was not possible.
Can'tIncrmnt	Indicates that the track number cannot be incremented by pressing the REC button during recording.
Can't Rec!	Recording is not possible because of a problem in the TOC recording enable data.
Complete!	Indicates that editing is complete.
Cue*	Indicates that the cue search operation is being performed. (* is the cue number.)
<Cue>********	Displayed at the beginning of the track name if cue signals are set for that track.
Disc Full	There is no more remaining time on the disc, or there are already 255 tracks on the disc.
DiscType Err	Recording or editing is not possible with pre-mastered discs.
EEPROM Error	Displayed when changing the presettings if there is a problem with the memory storage operation.
Error **	Displayed when a system error occurs.
Exist A-B!	A and B points are set.
InitialError	Displayed if there is a problem with the memory storage operation when the presettings have been reset (initialized).
Initial Set	Displayed when initializing the presettings.
No Data	No hot start data.
No Name	Indicates that no track name or disc name has been set.
No Program!	Indicates that no program has been input.
No Track	Indicates discs containing disc names but no tracks.
Not Audio!	Data other than audio data is input.
Now Cue Src!	Cue direct search mode is on.
Now H Start!	Hot start data is loaded.
Now LOOP ON!	Loop is turned on.
Now Program!	This means that a program has been input.
Now Repeat!	LOOP button function is set 1/ALL REPEAT MODE.
PresetProg*!	Program is preset. (* - 1 to 3)
Program Full	Displayed if you attempt to program a 26 th step.
Protected	Displayed when you attempt to record or edit while the cartridge is in the accidental erasure prevention mode.
Sleep	Indicates the sleep mode.
Track Full	Displayed when you attempt to set the recording mode on a disc containing 255 tracks.
UTOC Writing	Displayed while the UTOC is being written.

10 SYSTEM LIMITATIONS

(1) Track Number Limits

• Up to 255 tracks can be recorded when recording the tracks successively starting from the first track on blank or no-track discs. In the following cases, however, the number of tracks that can be recorded decreases:

When editing has been performed.

When there are scratches on the disc and tracks have been re-recorded.

(2) Recording Time Limits

• Recording is performed in units of approximately 2 seconds. Sections of less than 2 seconds still take up 2 seconds worth of space on the disc, so this decreases the actual recordable time.

• Scratched sections of discs are automatically eliminated from the recording time.

• Recording is no longer possible once the maximum number of tracks is reached, even if they take up less than the maximum recordable time. To record on such discs, first erase unneeded tracks. When this is done, it is not possible to record for longer than the time of the tracks that have been erased.

• The remaining time on the disc may not increase when short tracks (less than approximately 8 seconds) are erased.

• If there are many emphasis data on/off signals or other similar signals in a track, they are treated as divisions between tracks, so recording will not be possible regardless of the recording time and number of tracks.

• Track incrementing may not be possible if it is conducted (automatically or manually) consecutively within less than 2 seconds.

• Track names may not be copied properly if consecutive tracks of less than 2 seconds are recorded from deck 1 to 2.

(3) Editing Function Limits

• It may not be possible to combine a short track with another track.

• Tracks containing cue points cannot be divided or combined.

(4) Title Function Limits

• There are limits to the number of characters that can be used in disc and track names and to the total number of characters used for both. When writing names, the cursor will only move by the maximum number of writeable spaces. (after this no more characters can be input).

Track names:	Up to 100 characters
Disc names:	Up to 100 characters
Total:	Up to 1700 characters

• The number of characters that can be used in track names decreases when the following functions are used:

CAUTION:

Because cue points are stored on the disc as name inputs, it may not be possible to input names if many cue points are set on discs with many tracks, and if many names are used it may not be possible to store cue points.

Cue point function: Using one cue point decreases the number of characters that can be used by 10.

• When a track with a track name is divided, both of the divided tracks are given the same name. However, if the number of characters writeable on the disc is near the limit, the second track may only have part of the track name.

• When two tracks with track names are combined, the name of the second track is erased.

(5) Other Limits

• In the program play mode, the record mode is not set even when the REC button is pressed.
If the REC button is pressed, "Now Program!" is displayed for approximately 1 second, then turns off.

• In the program play mode, the editing mode is not set even when the EDIT/INPUT button is pressed.
If the EDIT/INPUT button is pressed, "Now Program!" is displayed for approximately 1 second, then turns off.

• In the editing mode and during hot start loading and loop setting, the program play mode is not set even when the PROGRAM ON/OFF button is pressed.

• In the edit mode, the recording mode is not set even when the REC button is pressed.

• If the REC button is pressed while hot start data is loaded, "Now H Start!" is displayed for 5 seconds. If the REC button is pressed while "Now H Start!" is displayed, the recording pause mode is set. (The hot start data is cleared.)

• In the loop mode, the recording mode is not set even when the REC button is pressed.
"Now LOOP ON!" is displayed for 1 second.

• The PROGRAM ON/OFF does not function in the loop mode. If pressed, "Now LOOP ON!" is displayed for 1 second.

• The PROGRAM ON/OFF does not function when hot start data is loaded.

• The LOOP button does not function in the programmed play mode. If pressed, "Now Program!" is displayed for 1 second.

• The A and B button do not function in the 1/ALL REPEAT mode.
If pressed, "Now Repeat!" is displayed for 1 second.

11 SPECIFICATIONS

GENERAL

Type:	MiniDisc Recorder
Recordable/Playable Discs:	Playback: Pre-mastered MDs and recordable MDs
	Recording: Recordable MDs
Recording System:	Magneto-optical overwriting system (Magnetic field modulation)
Signal Compression System:	ATRAC (Adaptive Transform Acoustic Coding) version 4.0
Rotating Speed:	Approx. 400 to 900 rpm.
Recording/playback time:	74 min. (Stereo), 148 min. (Mono)

AUDIO SECTION

Channels:	2 channels (Stereo), 1 channel (Mono)
Sampling Frequency:	44.1 kHz
Quantization Bits:	A/D converter: 16 bit, D/A converter: 18 bit
Frequency Response:	20 to 20,000 Hz (±1.0 dB)
Total Harmonic Distortion:	0.02 % or less (Playback, A filter)
	0.03 % or less (Recording, A filter)
Signal to Noise Ratio:	92 dB or higher (Playback, A filter)
	84 dB or higher (Recording, A filter)
Channel Separation:	86 dB or higher (Playback, A filter)
	80 dB or higher (Recording, A filter)
Analog Output:	(1 kHz, 0 dB playback)
Connector:	RCA jack
Output Level:	1.7 Vrms, 10 kΩ/kohms
Headphone Output:	20 mW (30 to 40 Ω/ohms)
Analog Input:	
Connector:	RCA jack
Input Level:	1.7 Vrms, 47 kΩ/kohms
Digital Output:	
Connector:	RCA jack
Signal Format:	SPDIF
Output Level:	0.5 Vp-p, 75 Ω/ohms
Digital Input:	
Connector:	RCA jack x 2
Signal Format:	SPDIF or IEC-958 Type II
Input Level:	0.3 to 1.0 Vp-p, 75 Ω/ohms
Variable Pitch Control:	±8 %
Pitch Bend:	±9.9 %
Audio Start-up Time:	0.03 second less
Frame Search Accuracy:	1 frame (1/86 second)

DIMENSIONS

Recorder unit:	482 (W) x 88 (H) x 252 (D)
	(18-31/32″ x 3-15/32″ x 9-59/64″)
Control unit:	482 (W) x 132 (H) x 40 (D)
	(18-31/32″ x 5-13/64″ x 1-37/64″)
	(Not including feet, dials and terminals)

Installation

Recorder unit:	2 U
Control unit:	3 U

WEIGHT

Recorder unit:	6.2 kg (13.67 lbs)
Control unit:	2.3 kg (5.07 lbs)

POWER CONSUMPTION: 35 W

POWER SUPPLY: AC 120 V ±10 %, 60 Hz (U.S.A. & Canada)
                AC 230 V ±10 %, 50 Hz (Europe, Asia & Others)

ENVIRONMENTAL CONDITIONS

Operating Temperature:	+5 °C to 35 °C
Humidity:	25 % to 85 %, non condensing
Storage Temperature:	–20 °C to 60 °C

* Specifications and design are subject to change without notice for purpose improvement.

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