WARNING
To prevent fire or shock hazard, do not expose the unit to rain or moisture.
To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

Caution
The use of optical instruments with this product will increase eye hazard.

For the customers in Canada
CAUTION:
TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

Information
IN NO EVENT SHALL SELLER BE LIABLE FOR ANY DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE, OR LOSSES OR EXPENSES RESULTING FROM ANY DEFECTIVE PRODUCT OR THE USE OF ANY PRODUCT.

"MD WALKMAN" is a trademark of Sony Corporation.
Welcome!

Welcome to the world of the MiniDisc!
Here are some of the capabilities and features you'll discover with the new MiniDisc Recorder.

- High-fidelity recording - High-fidelity sound with little noise and distortion is recorded through the optical digital input jack on the recorder.
- Vertical jog dial - You can select your desired tracks directly by simply rotating a dial.
- Synchro-recording - You can easily dub a digital source such as a CD on an MD.
- Sampling rate converter - This unit enables you to record programs from digital equipment using other sampling rates, such as BS tuner or DAT deck.
- Long-time recording with monaural sound - You can record up to 148 minutes on a disc using monaural recording.
- "Kana" characters available - This unit can display Japanese "Katakana" characters for a title of the disc or the track.
- Position pointer - The display shows you the current location on the disc.
- Date and time stamp function - The built-in clock allows you to record the date and time whenever you make a recording.
- Title function - You can see disc and track titles in the display while you are playing/recording an MD.

Table of contents

Recording an MD right away!

Playing an MD right away!

Various ways of recording

Two ways of connection to a sound source
Recording with digital input
. . . . To start/stop recording with the player (Synchro-recording)
Recording from a microphone
Recording in monaural for double the normal recording time of an MD
Adjusting the recording level (Manual recording)
Checking the remaining time or the recording position
Setting the clock to stamp the recorded time

Various ways of playback

Selecting the track number or track name directly
Playing tracks repeatedly
Emphasizing bass (DIGITAL MEGA BASS)
Protecting your hearing (AVLS)
Checking the remaining time or the playing position
Locking the controls
Connecting to a stereo system

Editing recorded tracks
Recording an MD right away!

The source sound of CDs or tapes will be sent as an analog signal and recorded digitally. The recorded sound will be stereo. When you record from a digital source, see Recording with digital input.

1. Make Connections

![Diagram of connections for recording an MD]
* Use the connecting cord without an attenuator. To connect to a portable CD player having a stereo mini-jack, use the RK-G136 connecting cord (not supplied).

2. Insert a recordable MD

1. Slide OPEN and open the lid.
2. Insert a recordable MD with the label side facing up, and press the lid down to close.

3. Record an MD

1. Slide REC to the right while pressing its button 
   "REC" lights up and recording starts.
2. Play the CD or tape you want to record

<table>
<thead>
<tr>
<th>To</th>
<th>Press</th>
</tr>
</thead>
</table>
| Pause                                         | 1)  
   Press II again to resume recording         |
| Add recording to the end of the previous      | END SEARCH and slide REC                        |
| recording.                                    |                                                 |
| Record over part way through the previous     |  
   recording.                                   |
| Remove the MD                                  | ■ and open the lid. 2)                         |
1) A new track is added at the point where you pressed pause, and the recording will be marked with the new track number when you resume recording.
2) Once you open the lid, the point to start recording will change to the beginning of the first track. When recording on a recorded MD, check the point to start recording on the display.

If the recording does not start

- Make sure the recorder is not locked (Locking the controls)
- Make sure the MD is not record-protected (Additional information)
- Premastered MDs cannot be recorded over.

You can monitor the sound being recorded. Connect the supplied headphones with remote controller and adjust the volume by pressing VOLUME +/- (VOL +/- on the remote controller). Sound levels are copied onto the MD automatically and independently of the volume for monitoring.

For models supplied with the AC plug adaptor

If the AC power adaptor does not fit the wall outlet, use the AC plug adaptor

The level of the recorded sound is adjusted automatically

Playing an MD right away!

You can also use the rechargeable battery or dry batteries (Using on a lithium ion rechargeable battery, Using on dry batteries).

1. Make connections.

2. Insert MD.
3. Play an MD.

1. Press \(\uparrow\).
   A short beep sound in the headphones
2. Press VOLUME +/- adjust the volume.
   You can check the volume in the display

To stop play, press \(\Box\)
A long beep sounds in the headphones

<table>
<thead>
<tr>
<th>To</th>
<th>Press (Beeps in the headphones)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pause</td>
<td>(\Box) (Continuous short beeps)\n   Press (\Box) again to resume play</td>
</tr>
<tr>
<td>Find the beginning of the current track</td>
<td>(\llcorner) once (Three short beeps)</td>
</tr>
<tr>
<td>Find the beginning of the next track</td>
<td>(\lrcorner) once (Two short beeps)</td>
</tr>
<tr>
<td>Go backwards while playing 1)</td>
<td>keep pressing (\llcorner)</td>
</tr>
<tr>
<td>Go forward while playing 1)</td>
<td>keep pressing (\lrcorner)</td>
</tr>
<tr>
<td>Remove the MD</td>
<td>(\Box) and open the lid 2)</td>
</tr>
</tbody>
</table>
1) To go backward or forward quickly without listening, press \(\text{III}\) and keep pressing \(\text{\ll}\) or \(\text{\gg}\).

2) Once you open the lid, the point to start play will change to the beginning of the first track.

**If the play does not start**

Make sure the recorder is not locked (Linking the controls)

The recorder automatically switches to play the stereo or monaural sound according to the recorded sound.

### Various ways of recording

#### Two ways of connection to a sound source

The input jack of this recorder works as both digital and analog input jack. Connect the recorder to a CD player or a cassette recorder using either digital input or analog input. To record, see [Recording with digital input](#) to record using digital input, and [Recording an MD right away!](#) to record using analog input.

<table>
<thead>
<tr>
<th>Input</th>
<th>Digital Input</th>
<th>Line (analog) Input</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Difference (connection)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connectable source</td>
<td>Equipment with an optical digital output jack</td>
<td>Equipment with an analog (line) output jack</td>
</tr>
<tr>
<td>Usable cord</td>
<td>Digital cable (with an optical or an optical or an optical-mini plug)</td>
<td>Line cable (with 2 phono plugs or a stereo-mini plug)</td>
</tr>
<tr>
<td>Signal from the source</td>
<td>Digital</td>
<td>Analog</td>
</tr>
<tr>
<td>Recorded track numbers</td>
<td>Marked (copied) automatically</td>
<td>Marked</td>
</tr>
<tr>
<td></td>
<td>- at the same position as the source.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- when the recorder is paused while recording.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- after more than 2 seconds of silence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- when the recorder is paused while recording.</td>
<td></td>
</tr>
</tbody>
</table>

You can erase unnecessary marks after recording ([Erasing a track mark](#)).
### Recorded sound level

| Recorded sound level | Same as the source | Adjusted automatically. Can also be adjusted manually | (Adjusting the recording level) |

### Note

Track marks may be copied incorrectly:

- when you record from some CD players or multi disc players using digital input.
- when the source is in shuffle or program play mode while recording using digital input. In this case, play the source in normal play mode.

### Recording with digital input

This unit has a built-in sampling rate converter so that you can record programs from digital equipment using other sampling rates, such as a BS tuner or a DAT deck.

![Diagram of recording process]

Insert a recordable MD and start recording.
To record, see [Recording an MD right away!](#). To record from a portable CD player, set the CD player to pause and then start recording.

**LINE IN (OPTICAL) jack is for both digital and analog input.**
The recorder automatically recognizes the line cable and switches to digital or analog input.

### Notes

- You can make a digital recording only from an optical type output.
- Some portable CD players with the ESP* system cannot send out digital signals when it is activated. In this case, release the ESP system.
  *Electronic Shock Protection

### To start/stop recording with the player (Synchro-recording)

You can easily make digital recordings of a digital source on an MD. Before synchro-recording, make connections to the digital source with a digital cable and the power source, and insert a recordable MD.
1. Slide SYNCHRO REC to ON. "SYNC" appears in the display.
2. Slide REC to the right while pressing its button. The recorder stands by for recording. Play the source sound. The recorder starts recording when it receives the playing sound.

To stop recording, press ■.

When there is no sound from the layer more than 3 seconds during synchro-recording, the recorder stands by for recording automatically. When the sound comes from the player again, the recorder starts synchro-recording again.

Notes
- Do not switch SYNCHRO REC after step 2. Recording may not be made properly.
- If you record in monaural, do steps 1 and 2 in Recording in monaural for double the normal recording time of an MD before doing the synchro-recording steps.

Recording from a microphone

Connect a stereo microphone ECM-909A, ECM-MS907, ECM-717, etc., (not supplied) to the MIC(PLUG IN POWER) jack.

1. Select the input level with MIC SENS (on the bottom of the recorder). Usually, set it to HIGH. When you record loud sound such as a live concert, set it to LOW.
2. Insert a recordable MD and start recording. Slide REC to the right while pressing its button. "REC" lights up and recording starts. For details, see Recording an MD right away!

Note
To record from a microphone, you must first disconnect any digital source. If connected, the recorder will not switch to microphone input.
Recording in monaural for double the normal recording time of an MD

For longer recordings, choose to record in monaural sound. The recording time becomes double the normal.

1. While pressing II, slide REC to the right. The recorder stands by for recording.
2. Press MODE. "Mono REC" appears in the display, and the recorder switches to monaural recording. Press MODE again to record in stereo sound.
3. Press II again to start recording.
4. Play the sound source.

To stop recording, press ■. The recorder switches back to stereo recording when you record the next time.

Notes

- If you record in monaural sound from a stereo source, the sounds from left and right will be mixed.
- You cannot record in monaural, if SYNCHRO REC is slid to ON.
- The MDs recorded in monaural sound can be played back only with an MD player/recorder that has the monaural playing function.

Adjusting the recording level (Manual recording)

When you record with an analog input, the sound level is adjusted automatically. If necessary, you can set the level manually.

2. While holding down II, hold REC to the right for more than 2 seconds. "ManualREC" appears and the recorder stands by for recording. To return to the automatic control, while the recorder is in record pause mode, hold REC to the right for more than 2 seconds.

3. Play the source.
4. 

http://www.birst.co.uk/engineering/mzr30/mz-r30e.htm (10 of 32) [16/12/2002 22:59:45]
While observing the level meter in the display, adjust the recording level by pressing \( \text{REC} (+) \) or \( \text{REC} (-) \). Set the level so that it hits the second indicator from the top when the recorder receives the maximum sound.

**Note**
The recording level should be adjusted while the recorder is in standby mode. You cannot adjust it while recording.

5. Press \( \text{REC} \) again to start recording.

To stop recording, press \( \text{REC} \).
The recording level control is switched back to automatic control.

When you record with microphone input, select the input level with \( \text{MIC SENS} \).

### Checking the remaining time or the recording position

1. Press DISPLAY while recording or in stop mode. Each time you press the button, the display changes as follows.

#### While recording

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elapsed time</td>
<td>Track number</td>
</tr>
<tr>
<td>Remaining time</td>
<td>Track number</td>
</tr>
<tr>
<td>for recording</td>
<td>Current time (1)</td>
</tr>
</tbody>
</table>

1) Appears only when the clock is set.

#### In stop mode

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elapsed time</td>
<td>Track number</td>
</tr>
<tr>
<td>Remaining time</td>
<td>Track name (1)</td>
</tr>
<tr>
<td>for recording</td>
<td>Remaining time after the current location</td>
</tr>
<tr>
<td>Current time (3)</td>
<td>Disc name (1)</td>
</tr>
<tr>
<td></td>
<td>Current date (3)</td>
</tr>
</tbody>
</table>

1) The number of the track appears when the track has no name.
2) Remaining number of tracks appears when the MD has no disc name.
3) Appears only when the clock is set.
To know the recording conditions
The record indicator lights up or flashes according to the recording condition.

<table>
<thead>
<tr>
<th>Recording condition</th>
<th>Record indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>While recording</td>
<td>lights up</td>
</tr>
<tr>
<td></td>
<td>flashes according to the loudness of the source while recording with a microphone (voice mirror)</td>
</tr>
<tr>
<td>Recording standby</td>
<td>flashes</td>
</tr>
<tr>
<td>Less than 3 minutes recording time available</td>
<td>slowly flashes</td>
</tr>
</tbody>
</table>

If you want to check the playing position or track name while playing, see Checking the remaining time or the playing position.

Setting the clock to stamp the recorded time

To stamp the date and time on the MD when you record, you first need to set the clock. When you use the recorder for the first time or after a long period of disuse, charge the built-in battery for the clock after setting the clock.

1. Connect the power source. Use the supplied AC power adaptor.

   Press CLOCK SET at the bottom of the recorder.
   Use a pointed object.
   The digits of the year flash.

2. Enter the current year by pressing \[ or \]. To change the digits rapidly, keep pressing \[ or \].

3. Press \[. The digit of the month flashes.

4. Repeat steps 3 and 4 to enter the current month, date, hour and minute. When you press \[ to set the minute, the clock starts operating.

If you make a mistake while setting the clock
Press \[, and set the clock again from step 2. You can skip a set by pressing \[.

To display the current time
When the recorder is not operation or while recording, press DISPLAY repeatedly until the current time appears in the display.
To display the time in the 24-hour system
While setting the clock, press DISPLAY. To display the time in the 12-hour system, press DISPLAY again.

Charging the built-in battery for the clock
After setting the clock, leave the recorder connected to the AC power for about 2 hours to charge the built-in battery for the clock. Once charged, the built-in battery should last about a month without connecting to any of the power sources. The recorder will automatically charge the built-in battery while connected to AC power, dry batteries or a rechargeable battery.

Various ways of playback

Selecting the track number or track name directly
You can select the desired track directly by using the vertical jog dial.

1. Rotate the jog dial to select a track, and press it to play the selected track.

When you rotate the jog dial, the track name* appears in the display. To play the selected track, press the jog dial.

* If the track has no name, only the track number appears in the display.

If you select a track in shuffle play mode, shuffle play starts from the selected track.

Playing tracks repeatedly
You can play tracks repeatedly in three ways - all repeat, single repeat and shuffle repeat.
1. Press MODE while the recorder is playing an MD. Each time you press MODE, the play mode indication changes as follows.

<table>
<thead>
<tr>
<th>Indication</th>
<th>Play mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>none (normal play)</td>
<td>All the tracks are played once.</td>
</tr>
<tr>
<td>&quot; &quot; (all repeat)</td>
<td>All the tracks are played repeatedly.</td>
</tr>
<tr>
<td>&quot; 1&quot; (single repeat)</td>
<td>A single track is played repeatedly.</td>
</tr>
<tr>
<td>&quot; &quot; SHUF&quot; (shuffle repeat)</td>
<td>All the tracks are played repeatedly in random order</td>
</tr>
</tbody>
</table>

Emphasizing bass (DIGITAL MEGA BASS)

Mega Bass function intensifies low frequency sound for richer quality audio reproduction. It affects only with the headphones.

1. Press DIGITAL MEGA BASS. Each time you press DIGITAL MEGA BASS, the Mega Bass indication changes as follows.

<table>
<thead>
<tr>
<th>Indication</th>
<th>Play mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>Normal play</td>
</tr>
<tr>
<td>&quot;BASS &quot;</td>
<td>Mega Bass (slight effect)</td>
</tr>
<tr>
<td>&quot;BASS &quot;</td>
<td>Mega Bass (strong effect)</td>
</tr>
</tbody>
</table>

Notes

- If the sound is distorted when emphasizing bass, turn down the volume.
- Mega Bass function does not affect the sound being recorded.
- Mega Bass does not function when LINE OUT jack on the recorder is connected with a line cable.

Protecting your hearing (AVLS)

The AVLS (Automatic Volume Limiter System) function keeps down the maximum volume to protect your ears.
1. Set AVLS at the bottom of the recorder to LIMIT. When you try to turn the volume, "AVLS" appears in the display. The volume is kept at a moderate level.

### Checking the remaining time or the playing position

1. Press DISPLAY while playing.
   Each time you press DISPLAY, the display changes as follows.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elapsed time</td>
<td>Track number</td>
</tr>
<tr>
<td>Remaining time for recording</td>
<td>Track name 1)</td>
</tr>
<tr>
<td>Remaining time after the current location</td>
<td>Disc name 1)</td>
</tr>
<tr>
<td>Current time3)</td>
<td>Current date 3)</td>
</tr>
</tbody>
</table>

1) The number of the track appears when the track has no name.
2) Remaining number of tracks appears when the MD has no disc name.
3) Appears only when the clock is set.

If you want to check the remaining time or the recording position while recording or in stop mode, see [Checking the remaining time or the recording position](http://www.birst.co.uk/engineering/mzr30/mz-r30e.htm).

### Locking the controls

To prevent the buttons from being accidentally operated when you carry the recorder, use this function.
1. Slide HOLD in the direction of the ON the recorder, slide HOLD to lock the controls of the recorder. On the remote controller, slide HOLD to lock the controls of the remote controller.

Slide HOLD in the opposite direction of the arrow to unlock the controls.

**Connecting to a stereo system**

Connect the LINE OUT jack of the recorder to the LINE IN jacks of an amplifier or a tape player with a line cable (RK-G129 or RK-G136, not supplied). The output is analog. The recorder plays the MD digitally and sends analog signals to the connected equipment.

**Note**
The Mega Bass does not function or will be cancelled when the LINE OUT jack is connected with a line cable.

**Editing recorded tracks**

You can edit your recordings by adding/erasing track marks or labeling tracks and MDs. Premastered MDs cannot be edited.

**Notes on editing**

- Do not move or jog the recorder while "Toc Edit" is flashing in the display.
- You cannot edit tracks on an MD that is record-protected. Before editing tracks, close the tab on the side of
Erasing tracks

To erase a track

Note that once a recording has been erased, you cannot retrieve it. Check the track number before erasing.

1. Press ERASE while playing the track you want to erase. "Erase OK?" and "Push Erase" appear in the display alternately, and the recorder plays the selected track repeatedly. To cancel erasing, press ■.
2. Check the track number in the display and press ERASE again. The track is erased from the MD and the remaining tracks are renumbered.

To erase a part of a track

Add track marks at the beginning and the end of the part you want to erase, then erase the part.

To erase the whole disc

You can quickly erase all the tracks and data of the MD at the same time. Note that once a recording has been erased, you cannot retrieve it. Be sure to check the contents of the disc you want to erase.

1. In stop mode, keep pressing ERASE and slide REC to the right. "All Erase?" and "Push Erase" appear in the display alternately. To cancel erasing, press ■.

Adding a track mark

You can add track marks so that the separated part after the track mark is as a new track.
MZ-R30 Operating Instructions

The track numbers will increase as follows.

1. While playing or pausing an MD, press TRACK MARK on the recorder at the point you want to mark. "MARK ON" appears in the display, and a track mark is added. The track number will increase by one.

To add track marks while recording
Press TRACK MARK on the recorder or the remote commander.

Note
TRACK MARK on the remote controller does not function during playback.

Erasing a track mark

When you record with analog (line) input, unnecessary track marks may be recorded. You can erase a track mark to combine the tracks before and after the track mark. The track numbers will change as follows.

- While playing the track with the track mark you want to erase, press II to pause.
- Find the track mark by pressing fast forward slightly. For example, to erase the third track mark, find the beginning of the third track. "00:00" appears in the display.
- Press TRACK MARK to erase the mark. "MARK OFF" appears in the display. The track mark is erased and the two tracks are combined.

The combined track whose mark has been erased is recorded with the date and time of the beginning of the first of the two combined tracks.

Moving recorded tracks

You can change the order of the recorded tracks.
1. While playing, keep pressing ▶ and press TITLE/ENTER. The recorder plays the selected track repeatedly. For example above, "MV003->003" appears in the display.

2. Rotate the vertical jog dial to select the new track position. For example above, rotate the jog dial until "MV003->002" appears in the display.

   To cancel moving, press ■.

3. Press TITLE/ENTER again. Moving is completed and the recorder plays the moved track.

You can also move the track by pressing the jog dial in step 3.

### Labeling recordings

You can label the MDs and tracks you recorded with letters, numbers, and marks. Each label can be made up of up to 200 characters, and each MD can hold up to 1700 characters.

1. To label a track, play the track you want to label. To label an MD, insert the recordable MD you want to label.

   If an MD is already inserted, press ■ to stop.

2. Press TITLE/ENTER. If you have selected a track in step 1 above, the recorder will play that track repeatedly. A cursor flashes in the display.

3. Use the vertical jog dial to select and enter a character.
Rotate the jog dial to select a character, and press the jog dial to enter the selected character. The cursor shifts rightward and stands by for the input of the next character.

<table>
<thead>
<tr>
<th>Press</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>▶</td>
<td>Select the first of capital letters, small letters, and numbers quickly.</td>
</tr>
<tr>
<td>□ □ □ □</td>
<td>Move the cursor to the left or right.</td>
</tr>
<tr>
<td>END SEARCH</td>
<td>Insert a space.</td>
</tr>
<tr>
<td>ERASE</td>
<td>Delete a character.</td>
</tr>
<tr>
<td>■</td>
<td>Cancel labeling.</td>
</tr>
</tbody>
</table>

4. Repeat step 3 until you have entered all the characters for the label.
5. Press TITLE/ENTER. Labeling is completed.

To cancel labeling, press ■.

Available characters

- Capital and small letters of the English alphabet
- Numbers 0 to 9
- ! " # $ % & ( ) * + - . ; < = > ? @ _ ` ', / : _ (space)

To relabel recordings
Do steps 1 and 2 to display the label of the track or MD. Enter a new character over the one you want to change, then press TITLE/ENTER.

Notes

- You cannot relabel premastered MDs or label MDs that have not been recorded.
- The recorder is able to display Japanese "Katakana" characters. But you cannot label with them on this recorder.

Power sources

You can use the recorder on house current or as follows.
In the recorder ...
- a lithium ion rechargeable battery (supplied)
With supplied battery case ...
- dry batteries (not supplied)

It is preferable to use the recorder on house current when recording for a long time.

Using on a lithium ion rechargeable battery
Before using the supplied LIP-12(H) for the first time, charge it in the recorder.

1. Connect the supplied AC power adaptor.

![AC power adaptor](image1.png)  to wall outlet

![Recorder with LIP-12(H)](image2.png)

2. Insert the LIP-12(H) into the recorder and close the lid.

Battery indication appears in the display and charging starts. When charging is completed, battery indicator disappears.

**Charging time**

To charge a completely discharged battery, it takes the following time:

<table>
<thead>
<tr>
<th></th>
<th>Approx. 2.5 hours</th>
<th>Approx. 5 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>80%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

You can use the recorder while charging.

**Notes**

- Be sure to use the supplied AC adaptor.
- Charging time may vary depending on the battery condition.

**Using on dry batteries**
1. Attach the supplied battery case.

2. Insert two LR6 (size AA) dry batteries (not supplied).

Battery life

<table>
<thead>
<tr>
<th>Batteries</th>
<th>Recording 2)</th>
<th>Playback</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIP-12(H) lithium ion rechargeable</td>
<td>Approx. 5 hours</td>
<td>Approx. 8 hours</td>
</tr>
<tr>
<td>battery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two LR6 (size AA) Sony alkaline dry</td>
<td>------ 3)</td>
<td>Approx. 6.5 hours</td>
</tr>
<tr>
<td>batteries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIP-12(H) + Two LR6 (size AA)</td>
<td>------ 3)</td>
<td>Approx. 15 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) The battery life may be shorter due to operating conditions and the temperature of the location.
2) When you record, use a fully charged rechargeable battery.
3) Recording time may differ according to the alkaline batteries.

When to replace the batteries
When the dry batteries or rechargeable battery are weak, flashing battery symbol or "LOW BATT" appear in the display. Replace the dry batteries or charge the rechargeable battery.

Additional information

Precautions

On safety
Do not put any foreign objects in the DC IN 6V jack.

On power sources

- Use house current, lithium ion rechargeable battery, two LR6 (size AA) batteries, or car battery.

For use in your house: Use the AC power adaptor supplied with this
Do not use any other AC power Adaptor since it may cause the recorder to malfunction.

- The recorder is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the recorder itself has been turned off.
- If your are not going to use this recorder for a long time, be sure to disconnect the power supply (AC power adaptor, dry batteries, rechargeable battery, or car battery cord). To remove the AC power adaptor from the wall outlet, grasp the adaptor plug itself; never pull the cord.
- For use in the car: Use the CPA-9 car connecting pack and the DCC-E260 car battery cord (not supplied).

On heat build-up
Heat may build up in the recorder if it is used for an extended period of time. In this case, leave the recorder turned off until it cools down.

On installation

- Never use the recorder where it will be subjected to extremes of light, temperature, moisture or vibration.
- Never wrap the recorder in anything when it is being used with the AC power adaptor. Heat built-up in the recorder may cause malfunction or damage.

On the headphones

Road safety
Do not use headphones while driving, cycling, or operating any motorized vehicle. It may create a traffic hazard and is illegal in many areas. It can also be potentially dangerous to play your recorder at high volume while walking, especially at pedestrian crossings. You should exercise extreme caution or discontinue use in potentially hazardous situations.

Preventing hearing damage
Avoid using headphones at high volume. Hearing experts advise against continuous, loud and extended play. If you experience a ringing in your ears, reduce the volume or discontinue use.

Caring for others
Keep the volume at at moderate level. This will allow you to hear outside sounds and to be considerate of the people around you.

On the MiniDisc cartridge

- Do not break open the shutter
- Do not place the cartridge where it will be subject to light, extreme temperatures, moisture or dust.

On cleaning

- Clean the recorder casing with a soft cloth slightly moistened with water or a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzene as it may mar the finish of the casing.
- Wipe the disc cartridge with a dry cloth to remove dirt.
- Dust on the lens may prevent the unit from operating properly. Be sure to close the disc compartment lid after inserting and ejecting an MD.

Notes on batteries
Incorrect battery usage may lead to leakage of battery fluid or bursting batteries. To prevent such accidents, observe the following precautions:

- Install the + and - poles of the batteries correctly
- Do not install new and used batteries or different kinds of batteries together.
- Do not try to recharge dry batteries.
- When the recorder is not to be used for a long time, be sure to remove the batteries.
- If a battery leak should develop, carefully and thoroughly wipe away battery fluid from the battery compartment before inserting new ones.

For the customers in Canada
DISPOSAL OF LITHIUM ION BATTERY

LITHIUM ION BATTERY.
DISPOSE OF PROPERLY.
You can return unwanted lithium ion batteries to your nearest Sony Factory Service Center.
Note: In some areas the disposal of the lithium ion batteries in household or business trash may be prohibited.

For the Sony Factory Service Center nearest you call 416-499-SONY (Canada only)

Caution: Do not handle damaged or leaking lithium ion battery.

Note on mechanical noise
The recorder produces out mechanical noise while operating, which is caused by the power-saving system of the recorder and it is not a problem.

To protect a recorded MD
To record-protect an MD, slide open the tab at the side of the MD. In this position, the MD cannot be recorded. To record again, slide the tab back so the tab is visible.

Note on digital recording
This recorder uses the Serial Copy Management System which allows only first-generation digital copies to be made of premastered software. You can only make copies from a home-recorded MD by using the analog (line out) connections.

If you have any questions or problems concerning your recorder, please consult your nearest Sony dealer.

Troubleshooting
Should any problem persists after you have made these checks, consult you nearest Sony dealer.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Cause/Solution</th>
</tr>
</thead>
</table>

http://www.birst.co.uk/engineering/mzr30/mz-r30e.htm (24 of 32) [16/12/2002 22:59:45]
| The recorder does not work or works poorly. | Audio sources may not be securely connected.  
   - Disconnect the audio sources once and connect them again (Recording an MD right away!, Recording with digital input).  
   - Moisture has condensed in the recorder.  
   - Take the MD out and leave the recorder in a warm place for several hours until the moisture evaporates.  
   - The rechargeable battery or dry batteries are weak. (Battery symbol or "LOW BATT" flashes).  
   - Charge the rechargeable battery or replace the dry batteries (Using on a lithium ion rechargeable battery, Using on dry batteries).  
   - The rechargeable battery or dry batteries have been installed incorrectly.  
   - Install the batteries correctly (Using on dry batteries).  
   - You pressed a button while the disc indication was rotating quickly.  
   - Wait until the indication rotates slowly.  
   - The recording volume is too low.  
   - The recording was made using a connecting cord with an attenuator.  
   - Use a connecting cord without an attenuator (Recording an MD right away!).  
   - The AC adaptor was unplugged during recording or a power outage occurred.  
   - While operating, the recorder received a mechanical shock, too much static, abnormal power voltage caused by lightning, etc.  
   - Restart the operation as follows.  
     1. Disconnect all the power sources.  
     2. Leave the recorder for about 30 seconds.  
     3. Connect the power source. |
|---|---|
| No sound comes through the headphones. | The headphones plug is not firmly connected.  
   - Connect the headphones with a remote controller plug firmly to headphone/REMOTE.  
   - Volume is too low.  
   - Adjust the volume by pressing VOLUME +/- (VOL +/- on the remote controller).  
   - AVLS is on .  
   - Slide AVLS to NORMAL (Protecting your hearing(AVLS)). |
| An MD is not played from the first track. | Disc playing stopped before it came to the last track.  
   - Press repeatedly or open and close the lid once to go back to the beginning of the disc, and restart playing after checking the track number in the display. |
| Playback sound skips. | The recorder is placed where it receives continuous vibrations.  
   - Put the recorder on a stable place.  
   - A very short track may cause sound to skip. |
| Sound has a lot of static. | Strong magnetism from a television or such device is interfering with operation.  
   - Move away from the source of strong magnetism. |
### System limitations

The recording system in your MiniDisc recorder is radically different from those used in cassette and DAT decks and is characterized by the limitations described below. Note, however, that these limitations are due to the inherent nature of the MD recording system itself and not to mechanical causes.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;TR FULL&quot; appears even before the disc has reached the maximum recording time (60 or 74 minutes).</td>
<td>When 254 tracks have been recorded on the disc, &quot;TR FULL&quot; appears regardless of the total recorded time. More than 254 tracks cannot be recorded on the disc. To continue recording, erase unnecessary tracks.</td>
</tr>
<tr>
<td>&quot;TR FULL&quot; appears even before the disc has reached the maximum track number or recording time.</td>
<td>Repeating recording and erasing may cause fragmentation and scattering of data. Although those scattered data can be read, each fragment is counted as a track. In this case, the number of tracks may reach 254 and further recording is not possible. To continue recording, erase unnecessary tracks.</td>
</tr>
<tr>
<td>Track marks cannot be erased.</td>
<td>When the data of a track is fragmented, the track mark of a fragment under 12 seconds long cannot be erased.</td>
</tr>
<tr>
<td>The remaining recording time does not increase even after erasing numerous short tracks.</td>
<td>Tracks of under 12 seconds in length are not counted and so erasing them may not lead to an increase in the recording time.</td>
</tr>
<tr>
<td>The total recorded time and the remaining time on the disc may not total the maximum recording time (60 or 74 minutes).</td>
<td>Recording is done in minimum units of 2 seconds each, no matter how short the material. Even if the last unit of recording is less than 2 seconds, it is counted as a unit of 2 seconds. Then 2 seconds’ space is put before recording starts again to prevent the last unit of the previous track from being erased. The contents recorded may thus be shorter than the maximum recording capacity.</td>
</tr>
<tr>
<td>The edited tracks may exhibit sound drop out during search operations.</td>
<td>The fragmentation of data may cause sound dropout while searching because the tracks are played in higher speed than normal playback.</td>
</tr>
</tbody>
</table>

### Error messages

If the following error messages flash in the display window, check the chart below.

<table>
<thead>
<tr>
<th>Error message</th>
<th>Meaning/Remedy</th>
</tr>
</thead>
</table>

http://www.birst.co.uk/engineering/mzr30/mz-r30e.htm (26 of 32) [16/12/2002 22:59:45]
<table>
<thead>
<tr>
<th>Error Code</th>
<th>Description</th>
</tr>
</thead>
</table>
| BLANKDISC  | An MD with no recording on it is inserted.  
|            | - Insert a recorded MD. |
| DISC ERR   | The recorder cannot read the disc (it’s scratchy or dirty).  
|            | - Reinsert or replace the disc. |
| DISC FULL  | There is no more space to record on the disc (less than 12 seconds available).  
|            | - Replace the disc. |
| BUSY       | You tried to operate the recorder while it was accessing the recorded data.  
|            | - Wait until the message goes out (in rare cases, it may take 2.3 minutes). |
| NAME FULL  | You tried to enter more than 200 characters for a track or disc name or the total characters entered in an MD is more than 1700.  
|            | - Enter the characters within the limit. |
| HI DC in   | Power supply is too high (The supplied AC power adaptor or the recommended car battery cord is not used).  
|            | - Use the supplied AC power adaptor or the recommended car battery cord. |
| HOLD       | The recorder is locked.  
|            | - Slide HOLD against the allow to unlock the recorder (Locking the controls). |
| LOW BATT   | Batteries are weak  
|            | - Charge the rechargeable battery or replace the dry batteries (Using on a lithium ion rechargeable battery, Using on dry batteries). |
| MEM OVER   | You tried to record when there is no indication in the display, and the recorder is placed where it receives continuous vibration.  
|            | - Put the recorder on the stable place, and start recording again. |
| NO COPY    | You tried to make a copy from a disc that is protected by the Serial Copy Management System. You cannot make copies from a digitally connected source which was itself recorded using the digital connection.  
|            | - Use the analog connection instead (Recording an MD right away!). |
| NO DISC    | You tried to play or record with no disc in the recorder.  
|            | - Insert an MD. |
| NO SIGNAL  | The recorder could not detect digital input signals.  
|            | - Make sure that the source is connected firmly (Recording with digital input) |
|            | - If the error message appears while recording, press the button to stop recording. |
| PB ONLY    | You tried to record or edit on a premastered MD (PB means playback.)  
|            | - Insert a recordable MD. |
| PROTECTED                  | You tried to record or edit on a MD with the tab in the record-protect position  
|                           | ➔ Slide the tab back (To protect a recorded MD) |
| SORRY                     | You tried to erase a track mark while playing the MD or at the beginning of the first track.  
|                           | You tried to erase a track mark to combine tracks the recorder cannot combine. (caused by system limitation) |
| TEMP OVER                 | Heat has built up in the recorder.  
|                           | ➔ Let the recorder cool down. |
| TR FULL                   | There is no more space for new data when you are editing the MD  
|                           | ➔ Erase unnecessary tracks (Editing recorded tracks) |
| TrPROTECT                 | You tried to record or edit on a track that is protected from erasing.  
|                           | ➔ Record or edit on other tracks. |

**Specifications**

### System

**Audio playing system**  
MiniDisc digital audio system

**Laser diode properties**  
Material: GaAlAs  
Wavelength: \( \lambda = 780 \text{ nm} \)  
Emission duration: continuous  
Laser Output: less than 44.6 uW (this output is the value measured at a distance of 200 mm from the lens surface on the optical pick-up block.)

**Recording and playback time**  
Maximum 74 minutes (MDW-74, stereo recording)  
Maximum 148 minutes (MDW-74, monaural recording)

**Revolutions**  
400rpm to 900rpm (CLV)

**Error correction**  
Advanced Cross Interleave Reed Solomon Code (ACIRC)

**Sampling frequency**  
44.1kHz

**Sampling rate converter**  
Input: 33kHz/44.1kHz/48kHz

**Coding**  
Adaptive TRansform Acoustic Coding (ATRAC)

**Modulation system**  
EFM (Eight to Fourteen Modulation)

**Number of channels**  
2 stereo channels  
1 monaural channel

**Frequency response**  
20 to 20000 Hz +- 3dB

**Wow and Flutter**  
Below measurable limit

### General

**Power requirements**  
Sony AC Power Adaptor (supplied) connected at the DC IN 6V jack:  
220-230V AC, 50/60 Hz (European model)  
120V AC, 60 Hz (Canadian model)  
100-240V AC, 50/60 Hz (Other models)  
Lithium ion rechargeable battery LIP-12(H) (supplied)  
Two LR6 (size AA) alkaline batteries (not supplied)

**Battery operation time**  
See "Battery life" (Power sources)

**Dimensions**  
Approx. 116.5x26x78 mm (w/h/d)  
(4 5/8 x 1 1/16 x 3 1/8 in.)

**Mass**  
Approx. 220g (7.1 oz) the recorder only  
Approx 317g (10.2 oz) incl. a recordable MD, headphones with a remote controller, and LIP-12 lithium ion rechargeable battery

### Optional accessories

Lithium ion rechargeable battery LIP-12  
Micro plug adaptor (Stereo mini plug - > Micro plug) PC-MP1HG  
Optical Cable:  
POC-151HG, POC-152HG, POC-MZ1, POC-MZ2, POC-15B, POC-15AB, POC-DA12S  
Line Cable RK-G129, RK-G136  
Car Connecting Pack CPA-9  
Car Battery Cord DCC-E260  
Stereo Microphones ECM-MS907, ECM-909A, ECM-717  
Stereo Headphones MDR-D77, MDR-D55  
Active Speakers SRS-A41, SRS-A91  
Recordable MDs MDW-74/74A, MDW-74L/74R/74Y, MDW-60/60A  
MiniDisc Carrying Case CK-MD4  
MiniDisc Filing Box CK-MD10

Your dealer may not handle some of the above listed accessories.  
Please ask the dealer for detailed information about the accessories in your country.

US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

Design and specifications are subject to change without notice.
### What is MD?

<table>
<thead>
<tr>
<th><strong>How MiniDisc works</strong></th>
<th><strong>Recordable MDs</strong></th>
<th><strong>How the MiniDisc got so small</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>MiniDisc (MD) comes in two types: premastered (prerecorded) and recordable (blank). Premastered MDs, recorded at music studios, can be played back almost endlessly. However, they can’t be recorded on or over like cassette tapes. To record, you must use a &quot;recordable MD&quot;.</td>
<td>Recordable MDs, which use magneto-optical (MO) technology, can be recorded again and again. The laser inside the recorder applies heat to the MD, demagnetizing the magnetic layer of the MD. The recorder then applies a magnetic field to the layer. This magnetic field corresponds exactly to the audio signals generated by the connected source. (The north and south polarities equate to digital &quot;1&quot; and &quot;0&quot;.) The demagnetized MD adopts the polarity of the magnetic field, resulting in a recorded MD.</td>
<td>The 2.5 inch MiniDisc, encased in a plastic cartridge that looks like a 3.5 inch diskette, uses a new digital audio compression technology called ATRAC (Adaptive TRansformation Acoustic Coding). To store more sound in less space, ATRAC extracts and encodes only those frequency components actually audible to the human ear.</td>
</tr>
<tr>
<td><strong>Premastered MDs</strong></td>
<td><strong>Quick Random Access</strong></td>
<td><strong>Shock-Resistant Memory</strong></td>
</tr>
<tr>
<td>Premastered MDs are recorded and played like regular CDs. A laser beam focuses on the pits in the surface of the MD and reflects the information back to the lens in the recorder. The recorder then decodes the signals and plays them back as music.</td>
<td>Like CDs, MDs offer instantaneous random access to the beginning of any music track. Premastered MDs are recorded with location addresses corresponding to each music selection. Recordable MDs are manufactured with a &quot;User TOC Area&quot; to contain the order of the music. The TOC system is similar to the &quot;directory management system&quot; of floppy disks. In other words, starting and ending addresses for all music tracks recorded on the disc are stored in this area. This lets you randomly access the beginning of any track as soon as you enter the track number (AMS), as well as label the location with a track name as you would a file on a diskette.</td>
<td>One major drawback of optical read systems is that they can skip or mute when subjected to vibration. The MD system resolves this problem by using a buffer memory that stores audio data.</td>
</tr>
</tbody>
</table>

### Looking at the controls

**The recorder**

- Microphone: stereo mini-jack, 0.22 - 0.78 mV
- Line in: stereo mini-jack, 69 - 194 mV
- Optical(Digital) in: optical (digital) mini-jack
- **Outputs:**
  - Headphones: stereo mini-jack, maximum output level 5mW + 5mW, load impedance 16 Ohm
  - Line out: stereo mini-jack, 194mV, load impedance 10 kOhm
- Carrying case (1)
- Dry battery case (1)
1. TITLE/ENTER button (Labeling records)
2. Battery compartment (on the bottom) (Using on a lithium ion rechargeable battery)
3. MODE button (Playing tracks repeatedly)
4. DISPLAY button (Checking the remaining time or the recording position, Checking the remaining time or the playing position)
5. MIC SENS switch (on the bottom) (Recording from a microphone)
6. AVLS switch (on the bottom) (Protecting your hearing (AVLS))
7. DC IN 6V jack (at the rear) (Recording an MD right away!)
8. Display window (Checking the remaining time or the recording position, Checking the remaining time or the playing position)
9. SYNCHRO REC (synchro-recording) switch (To start/stop recording with the player)
10. MIC (PLUG IN POWER) jack (Recording from a microphone)
11. LINE IN (OPTICAL) jack (Recording an MD right away!, Recording with digital input)
12. LINE OUT jack (Connecting to a stereo system)
13. DIGITAL MEGA BASS button (Emphasizing bass (DIGITAL MEGA BASS))
14. headphone/REMOTE jack (Playing an MD right away!)
15. Vertical jog dial (Selecting the track number or track name directly, Moving recorded tracks)
16. TRACK MARK button (Adding a track mark)
17. END SEARCH button (Recording an MD right away!)
18. ERASE button (Editing recorded tracks)
19. (search/AMS) button (Recording an MD right away!, Playing an MD right away!)
20. (play) button (Recording an MD right away!, Playing an MD right away!)
21. (stop) button (Recording an MD right away!, Playing an MD right away!)
22. VOLUME +/- button (Playing an MD right away!)
23. HOLD switch (Locking the controls)
24. REC (record) switch (Recording an MD right away!)
25. (stop) button Recording an MD right away!, Playing an MD right away!
26. OPEN button (Recording an MD right away!)
27. CLOCK SET button (on the bottom) (Setting the clock to stamp the recorded time)

The display window
1. Position indicator (Checking the remaining time or the recording position, Checking the remaining time or the playing position)
   Shows the current location on the MD. The point under recording or playing flashes. The recorded portion light up.

2. MONO (monaural) indication

3. Play mode indication
   Shows the play mode of the MD

4. Disc indication
   Shows that the disc is rotating for recording, playing or editing an MD.

5. SYNC (synchro-recording) indication

6. REC indication (Recording an MD right away!)
   Lights up while recording. When flashing, the recorder is in record standby mode.

7. Level meter
   Shows the volume of the MD being played or recorded.

8. AM/PM indication (Setting the clock to stamp the recorded time)
   Lights up along with the time indication in the 12-hour system

9. Mega bass indication (Emphasizing bass (DIGITAL MEGA BASS))

10. Battery indication (Power sources)
    Shows battery condition.

11. REMAIN (remaining time/tracks) indication (Checking the remaining time or the recording position, Checking the remaining time or the playing position)
    Lights up along with the remaining time of the track, the remaining time of the MD, or the remaining number of tracks.

12. REC DATE (recorded/current date) indication
    Lights up along with the date and time the MD was recorded. When only "DATE" lights up, the current date and time are displayed.

13. Time display (Checking the remaining time or the recording position, Checking the remaining time or the playing position, Setting the clock to stamp the recorded time)
    Shows the recorded time, current time, elapsed time of the track or MD being recorded or played.

14. Character information display (Checking the remaining time or the recording position, Checking the remaining time or the playing position)
    Displays the disc and track names, date, error messages, track numbers, etc.

The headphones with a remote control
<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Headphones</td>
<td>2. VOL(volume) +/- buttons (Playing an MD right away!)</td>
<td>3. ▶ (play)/⏪/⏩ (search/AMS) buttons</td>
<td>4. TRACK MARK button (Adding a track mark)</td>
<td>5. ● (stop) button (Recording an MD right away!, Playing an MD right away!)</td>
<td>6. HOLD switch (Locking the controls)</td>
<td>7. ■ (stop) button Recording an MD right away!, Playing an MD right away!</td>
</tr>
<tr>
<td>Can be replaced with optional headphones</td>
<td></td>
<td>Press ▶ to play. While playing, press the⏪ side to find beginning of the current or preceding tracks or to search backward, or press⏩ side to find the beginning of the succeeding tracks or to search forward.</td>
<td></td>
<td>Slide to lock the controls of the remote controller.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>